

CONTRATTI DELL'ENEA CON LA COMMISSIONE EUROPEA



DATI RIASSUNTIVI 2024



AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE,
L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

DIREZIONE TRASFERIMENTO TECNOLOGICO
SERVIZIO PER LA PIANIFICAZIONE TECNICO OPERATIVA

CONTRATTI DELL'ENEA CON LA COMMISSIONE EUROPEA

Dati riassuntivi 2024

Maggio 2025

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NOTA INTRODUTTIVA

Il rapporto annuale ‘Contratti dell’ENEA con la Commissione Europea’ offre una panoramica completa delle attività progettuali dell’Agenzia, finanziate da programmi dell’Unione Europea (UE).

L’ENEA, partecipa da anni con successo a programmi e iniziative dell’UE, in particolare ai Programmi Quadro Ricerca e Innovazione e il Programma Quadro Euratom, che rappresentano una fonte rilevante di finanziamento esterno. Il presente rapporto include tutti i contratti stipulati dall’Agenzia ed attivi nel corso del 2024, relativi sia a progetti finanziati attraverso la precedente programmazione europea (2014-2020) e non ancora conclusi, sia a progetti finanziati attraverso la nuova programmazione europea (2021-2027), i cui primi bandi sono stati pubblicati nel 2021.

Nel quadro della nuova programmazione, l’ENEA ha presentato numerose proposte progettuali, confermando e migliorando gli ottimi risultati ottenuti nella precedente tornata (2014-2020).

Il rapporto contiene dati aggregati e informazioni di dettaglio sui progetti cofinanziati dall’UE e formalizzati tramite specifici contratti. I dati sono elaborati a partire dai contenuti della banca dati progetti UE dell’ENEA (<https://progettive.enea.it>), attiva online dal 2000.

La banca dati raccoglie in modo omogeneo le informazioni relative ai contratti stipulati con la Commissione Europea (CE), integrandole con ulteriori dati estratti dalla documentazione contrattuale. Gestita dalla Direzione Trasferimento Tecnologico (TTEC) dell’ENEA, la banca dati ha l’obiettivo di favorire la diffusione di informazioni all’interno e all’esterno dell’Agenzia, costituendo al contempo uno strumento a supporto della progettualità dei ricercatori.

Attualmente, sono censiti oltre 1210 contratti, ciascuno dei quali corredata da informazioni, tra cui: programma di finanziamento dell’UE, acronimo del progetto, date di inizio e fine, abstract e attività dell’ENEA, sito web del progetto, coordinatore e partenariato, responsabile dell’ENEA.

Tali dati permettono di elaborare report complessi quali l’analisi del partenariato nazionale ed internazionale dell’ENEA per tipologia, per area geografica e per progetto. Sono inoltre possibili elaborazioni ad hoc relative all’esperienza specifica dell’Agenzia in determinate aree geografiche e/o ambiti di ricerca, da utilizzare, ad esempio, come ‘referenze’ dell’ENEA, indispensabili nel caso della partecipazione a tenders della CE e a *calls for proposals* di specifici programmi nazionali, europei e internazionali.

La banca dati rappresenta quindi una buona pratica, nonché uno strumento strategico per la raccolta, l’analisi e la condivisione di informazioni progettuali, utile anche alla definizione di accordi e strategie con partner nazionali e internazionali.

Il rapporto è articolato in quattro sezioni principali: la partecipazione dell’ENEA alla programmazione 2021-2027, i contratti stipulati nel 2024, i contratti attivi nello stesso anno; e infine, una sezione è dedicata alla partecipazione dell’ENEA al Consorzio EUROfusion.

Quest'ultima, data la particolare natura del finanziamento e le modalità di gestione e funzionamento, non è assimilabile agli altri progetti ed è trattata separatamente nella sezione 2. Per tale motivo, il cofinanziamento associato a EUROfusion non è incluso nei dati di sintesi del rapporto.

Tutte le figure e le tavole del rapporto si basano sulla Banca Dati Progetti UE (<https://progettive.enea.it>).

Le analisi relative alla partecipazione dell'ENEA sono state elaborate a partire dai dati disponibili sul Funding and Tenders Portal della Commissione Europea.

Maggio 2025

1. La partecipazione dell'ENEA ai bandi della programmazione europea 2021-2027 (dati aggiornati al 31 dicembre 2024)

L'analisi è stata elaborata sulla base della lista delle proposte presentate da ENEA presentate a valere sui bandi della programmazione europea 2021-2027, pubblicata sull'EC Funding and Tenders Portal, a cui accedono i designati LEAR e Account Administrator di ENEA. I dati elaborati sulla partecipazione ENEA si riferiscono quindi ai soli programmi e proposte presenti nel suddetto portale.

I dati economici sui contratti stipulati da ENEA sono estratti dalla Banca Dati Progetti UE, in accordo con le informazioni presenti in WPlan, ed includono anche quei progetti europei non presenti sul portale EC Funding and Tenders Portal.

L'ENEA ha partecipato ai bandi della nuova programmazione, in particolare a quelli di Horizon Europe, presentando 77 proposte con scadenza nel 2024 (contro le 100 del 2023), per un totale di 370 proposte nell'intero periodo.

Al 31 dicembre 2024, risultano valutate 48 delle 77 proposte presentate (nel 2023 erano state 56), di cui 13 dichiarate finanziabili (contro le 21 del 2023).

Alla data del rilevamento, il tasso di successo sulle proposte valutate è pari al 27,1% (nel 2023 era del 37,5%). Con riferimento specifico a Horizon Europe, il tasso di successo è del 17,9% (rispetto al 35,0% del 2023), come riportato nella seguente Tabella 1.

**Risultati della partecipazione ENEA ai bandi della programmazione europea 2021-2027 con scadenza 2024
(dati dal 1° gennaio al 31 dicembre 2024) – Tabella 1**

Programma	Presentati	Valutati	Finanziati	In Reserve List	NON Finanziati	Finanziati vs Valutati
DIGITAL	1	1	1	0	0	100%
EDF	1	0	0	0	0	0%
ERASUMUS2027	2	2	1	0	1	50%
EURATOM2027	2	2	1	0	1	50%
HORIZON	58	39	7	6	26	18%
I3	2	1	1	0	0	100%
LIFE2027	9	1	0	1	0	0%
UCPM2027	1	1	1	0	0	100%
Totale	77	48	13	7	28	27.1%

Nelle 13 proposte attualmente dichiarate finanziabili, l'ENEA si è presentata come coordinatore in 2 casi (15%), mentre, sul totale delle 77 proposte presentate, si è presentata come coordinatore per un totale di 9 volte (12%), prevalentemente nell'ambito di Horizon Europe (7/9). Come nei Programmi Quadro precedenti si continua a rilevare una costante cautela nella presentazione di progetti in qualità di coordinatore.

È importante tener presente che il numero di progetti finanziati e l'entità del contributo acquisito dall'ENEA per ciascun anno sono condizionati, oltre che da scelte strategiche dell'Agenzia, anche dal susseguirsi delle scadenze dei bandi, dal budget stanziato dai singoli programmi e dal costo orario dei ricercatori/tecnologi dell'ENEA (significatamente inferiore rispetto alla media europea).

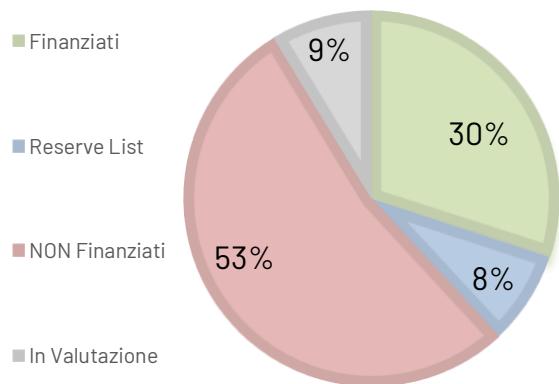
A partire dall'inizio della programmazione europea 2021-2027 e fino al 31 dicembre 2024, la partecipazione dell'ENEA ha totalizzato 370 proposte presentate, di cui complessivamente 111 giudicate finanziabili, con un tasso di successo (progetti finanziati su progetti valutati), per tutti i programmi monitorati dal portale, pari a circa il 33%, come riportato nella Tabella 2.

**Risultati della partecipazione ENEA ai bandi della programmazione europea 2021-2027
(dati complessivi fino al 31 dicembre 2024) - Tabella 2**

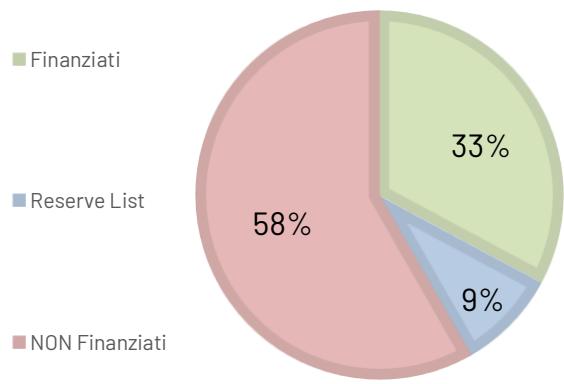
Programma	Presentati	Valutati	Finanziati	In Reserve List	NON Finanziati	Finanziati vs Valutati
DIGITAL	6	6	3	0	3	50%
EDF	7	5	2	1	2	40%
ERASMUS2027	4	4	2	0	2	50%
EURATOM2027	26	25	21	0	4	84%
HORIZON	278	258	66	25	167	26%
I3	4	3	2	1	0	67%
ISF	2	2	1	0	1	50%
LIFE2027	40	32	11	3	18	34%
SMP	2	2	2	0	0	100%
UCPM2027	1	1	1	0	0	100%
Totale	370	338	111	30	197	32.8%

L'attuale stato di valutazione e tasso di successo delle 370 proposte presentate, nell'intero periodo (dati complessivi fino al 31 dicembre 2024), sono riportati nelle Figure 1 e 2.

Stato di valutazione - Figura 1



Tasso di successo - Figura 2



Ad aprile 2025, i progetti valutati erano 61(48 a dicembre 2024) di cui 17 dichiarati finanziabili, 6 in Reserve list e 38 non finanziati, facendo aumentare il tasso di successo al 28% (era 27.1%).

2. La partecipazione dell'ENEA a Eurofusion

La collaborazione europea sulla fusione nucleare risale agli anni '70 con la costruzione del JET (Joint European Thorus). Nel 1999 è stato creato l'European Fusion Development Agreement (EFDA), sostituito nel 2014 da EUROfusion¹ sotto l'egida della Commissione Europea. EUROfusion rappresenta oggi uno dei principali protagonisti globali nella ricerca sulla fusione nucleare.

Dopo una prima fase di attività di EUROfusion nel corso del programma quadro Horizon 2020, nel 2021 è stato sottoscritto il Grant Agreement (n. 101052200) di Horizon Europe relativo alle attività con arco temporale fino al 2025, salvo atti aggiuntivi successivi.

EUROfusion è incaricato dell'attuazione della Roadmap europea sulla fusione; in particolare, l'attività di ricerca del Consorzio è orientata alla prosecuzione delle attività del progetto ITER (International Thermonuclear Experimental Reactor), alla gestione delle ultime fasi dell'operazione di JET e al supporto alla realizzazione del reattore dimostrativo DEMO (Demonstration Fusion Power Reactor), previsto intorno al 2050. Il consorzio gestisce anche altri dispositivi di fusione nucleare in Europa, tra cui tokamak (come ASDEX Upgrade in Germania) e stellarator (come Wendelstein 7-X in Germania).

Le ricerche condotte da EUROfusion hanno generato tecnologie applicabili in altri settori, come la medicina, le scienze dei materiali e l'astrofisica. Inoltre, il consorzio contribuisce all'integrazione europea attraverso una rete dinamica che coinvolge scienza, ingegneria e industria.

EUROfusion si configura come un paradigma unico di integrazione scientifica e tecnologica in Europa per realizzare il sogno della fusione nucleare come fonte energetica sostenibile.

Fanno parte del consorzio organizzazioni provenienti da 25 Stati membri, oltre a Norvegia, Regno Unito, Svizzera e Ucraina, coordinate dal Max-Planck Institute für Plasmaphysik.

Partecipano alle attività di ricerca del Consorzio EUROfusion anche 'affiliated entities' collegate a un 'Programme Manager' che coordina le attività delle organizzazioni del proprio Paese.

Per l'Italia, è stata designata l'ENEA al ruolo di 'Programme Manager', che coordina i seguenti 20 partner:

- ANN, Ansaldo Nucleare S.p.a.
- CINECA Consorzio
- CNR, Consiglio Nazionale delle Ricerche
- Consorzio Create
- Consorzio per l'attuazione del progetto "Divertor Tokamak Test" (DTT S.c.a.r.l.)
- Consorzio RFX

¹<https://www.euro-fusion.org>

- INFN, Istituto Nazionale di Fisica Nucleare
- LT Calcoli
- Politecnico di Milano
- Politecnico di Torino
- RINA Consulting - Centro Sviluppo Materiali S.p.A.
- Università degli Studi della Tuscia
- Università degli Studi di Cagliari
- Università di Catania
- Università di Milano Bicocca
- Università di Palermo
- Università di Pisa
- Università di Roma La Sapienza
- Università Roma Tre
- Università Tor Vergata

Per il 2024, il bilancio del Grant Agreement assegna complessivamente ai partecipanti italiani un contributo complessivo massimo di 36.7 milioni di euro circa, di cui 16.1 milioni di euro circa previsti per le attività dell'ENEA.

3. Contratti stipulati nel 2024

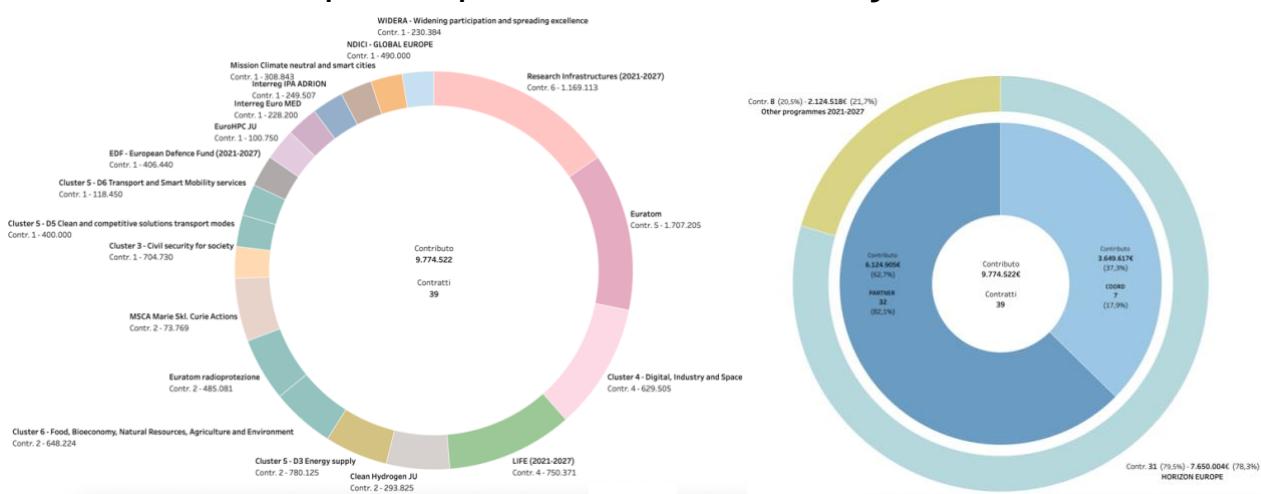
Nel 2024, complessivamente, l'ENEA ha stipulato con la Commissione Europea (CE) 39 contratti, relativi ad altrettanti progetti cofinanziati nell'ambito di programmi diversi, per un contributo totale assegnato all'ENEA di circa 9.7 milioni di euro, da ripartire nell'arco di validità pluriennale di ciascun contratto. Tale importo risulta nella media dei contributi acquisiti dall'Agenzia relativi agli ultimi tre cicli di programmazione europea (Tabella 3).

Contributo totale acquisito da ENEA nel periodo temporale di riferimento - Tabella 3

Periodo	milioni di euro/anno
2000 - 2006	5.87
2007 - 2013	9.45
2014 - 2021	10.05
2022 - 2024	10.03

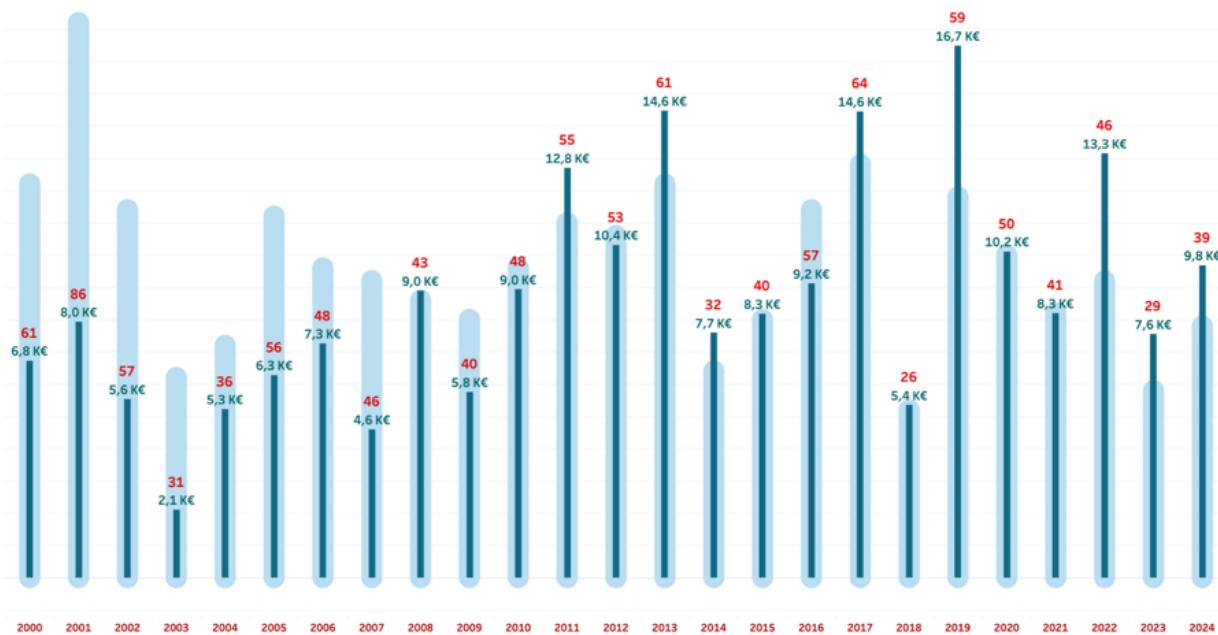
Il contributo acquisito dall'ENEA nel 2024 deriva essenzialmente dai programmi Horizon Europe (Research Infrastructures 2027, Cluster 5, Euratom, Cluster 4) per il 78% e da altri programmi diversi da Horizon Europe (LIFE 2027, EDF, Interreg Euro MED, Interreg IPA Adriion, NDICI Global Europe) per il 22% (Figura 3).

Contratti stipulati nel 2024, ripartizione percentuale per programma del contributo acquisito dall'ENEA per l'intero periodo di validità contrattuale - Figura 3



La Figura 4 mostra complessivamente il numero di progetti stipulati ed il contributo acquisito dall'ENEA dal 2007 al 2024; il numero di progetti finanziati e l'entità del contributo all'ENEA per anno sono influenzati anche dal susseguirsi delle scadenze dei bandi e dal budget stanziato dai singoli programmi.

Numero di contratti stipulati dal 2000 al 2024 e relativo contributo all'ENEA - Figura 4

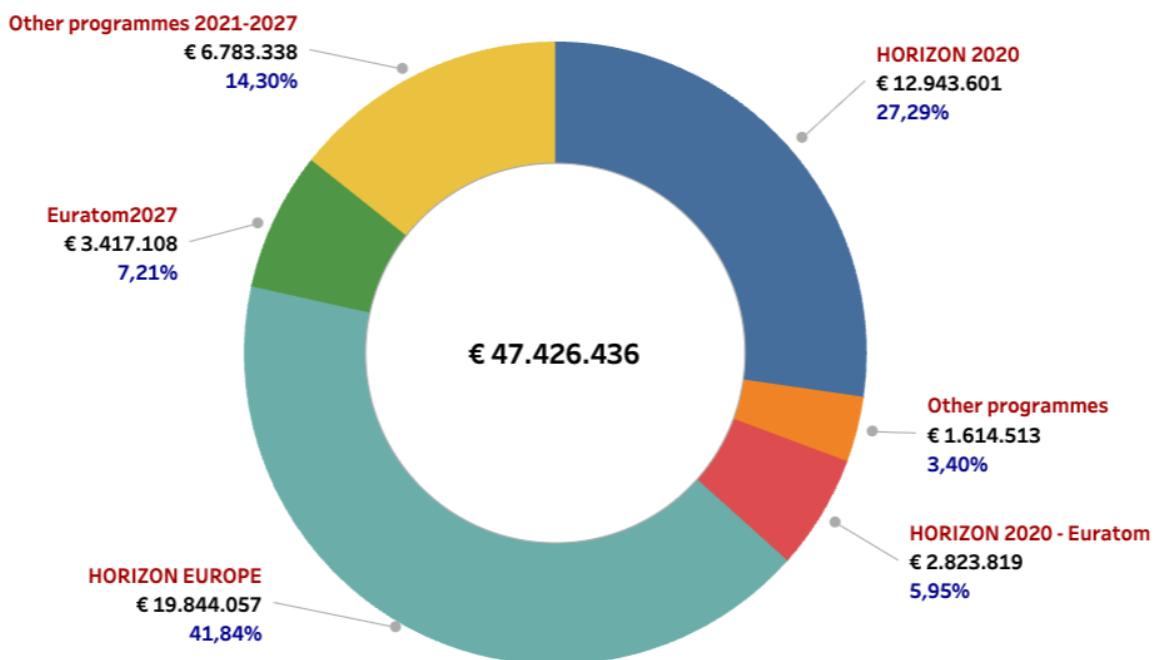


4. Contratti in corso nel 2024

Le attività dell'ENEA in corso nel 2024, cofinanziate da programmi dell'UE, sono riconducibili a 161 contratti, di cui 39 stipulati nello stesso anno. Il cofinanziamento comunitario totale assegnato all'Agenzia è di circa 47,4 milioni di euro, da ripartire nell'arco pluriennale di validità di ciascun contratto.

Nel corso del 2024 le attività ancora in corso finanziate dalla programmazione europea 2014-2020 sono state affiancate da quelle finanziate attraverso la nuova programmazione 2021-2027(Horizon Europe, Euratom e Altri Programmi) rappresentando la gran parte del contributo totale assegnato all'ENEA (Figura 5).

Contratti in corso nel 2024 - Ripartizione percentuale del contributo per programma - Figura 5

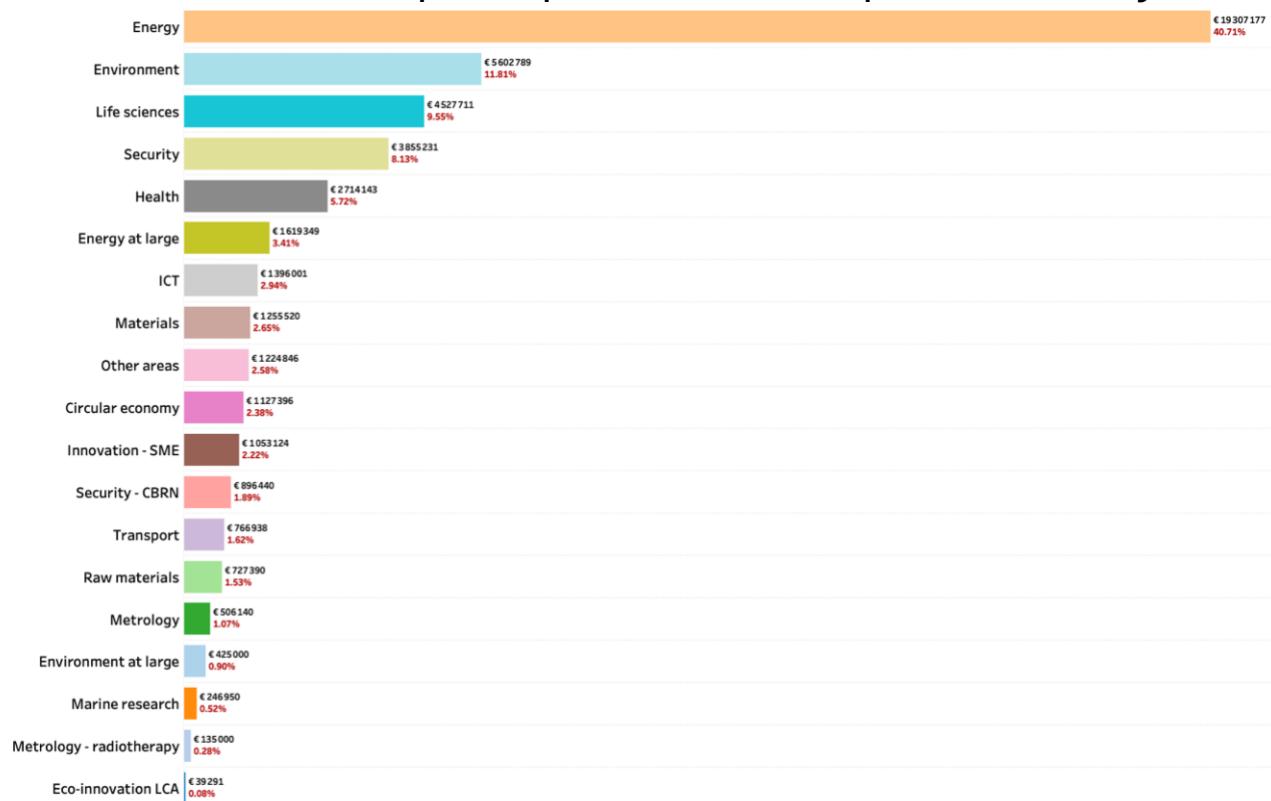


4.1 Aree tematiche

Allo scopo di fornire ulteriori elementi di analisi, tutti i progetti presenti nella banca dati sono stati classificati anche in base all'area tematica in cui ricade l'attività progettuale, identificata indipendentemente dallo strumento di finanziamento.

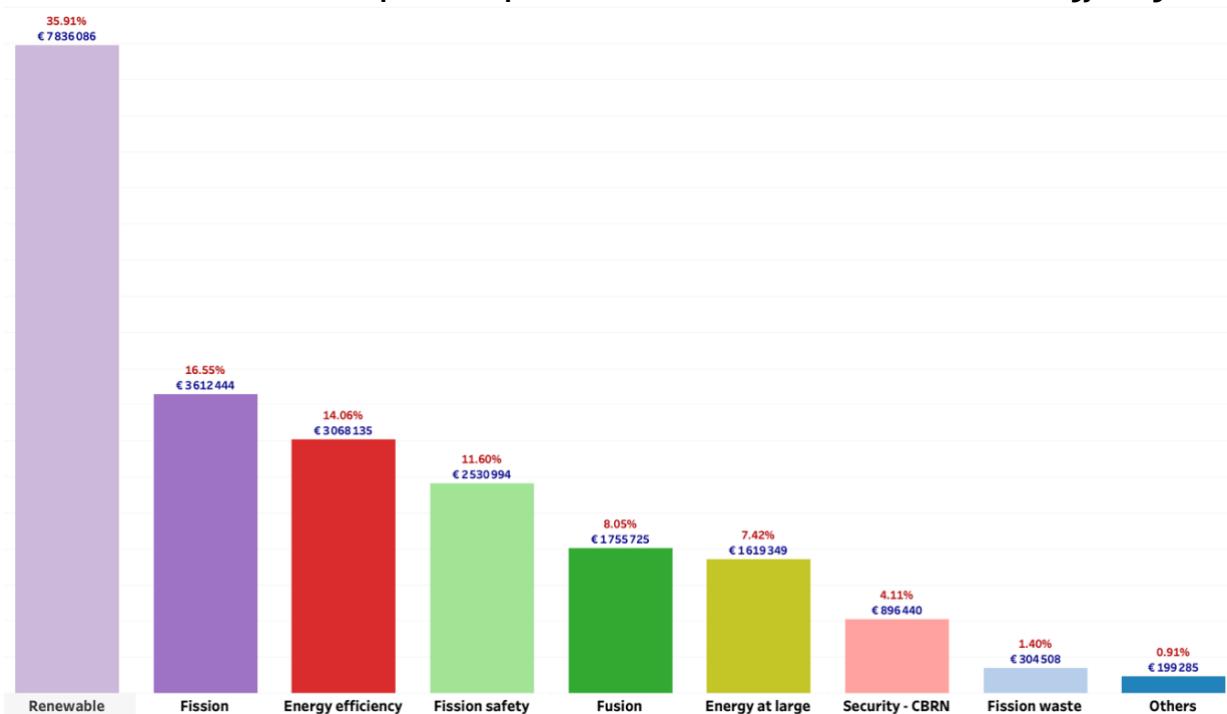
La Figura 6 mostra l'aggregazione per aree tematiche dei progetti in corso nel 2024 ed evidenzia che circa il 40.7% del contributo ottenuto dall'Agenzia deriva da progetti ricadenti nell'area energia, a cui seguono le aree Ambiente (11.8%) e Scienze della vita (9.55%).

Contratti in corso nel 2024 - Ripartizione percentuale del contributo per aree tematiche - Figura 6



Per quanto attiene alla sola area Energia, quasi il 36% del relativo contributo ricevuto dall'ENEA proviene da progetti nel settore delle Rinnovabili, il 16.5% dal settore della Fissione e il 14.1% dal settore dell'efficienza energetica (Figura 7).

Contratti in corso nel 2024 - Ripartizione percentuale del contributo, area tematica "Energy" - Figura 7



Con riferimento all'area tematica Ambiente, il 61.8% del contributo assegnato all'Agenzia deriva da progetti nel settore del Cambiamento Climatico e circa il 16.1% da quelli relativi alla Qualità dell'aria (Figura 8).

Contratti in corso nel 2024 - Ripartizione percentuale del contributo, area tematica "Environment" - Figura 8



In accordo con le aperture delle varie call, rispetto al 2021, si può notare una certa polarizzazione delle attività dell'ENEA (Tabella 4):

Contributi nei settori dal 2021 al 2024 - Tabella 4

Ambito Energia	2021	2022	2023	2024
Rinnovabili	29.7%	31.4%	35.2%	35.9%
Fissione	7.0%	12.9%	12.3%	16.1%
Efficienza Energetica	20.9%	19.1%	22.0%	14.0%
Ambito Ambiente	2021	2022	2023	2024
Cambiamenti Climatici	45.5%	52.0%	60.4%	61.8%
Qualità dell'aria	19.6%	23.3%	18.7%	16.1%

Se esaminiamo anche la serie storica dal 2021 della ripartizione percentuale del contributo per aree tematiche dei contratti in corso, possiamo notare come nel tempo l'area tematica energia sia rimasta costantemente centrale nelle strategie dell'ENEA (Tabella 5)

Contributi per area tematica dal 2021 al 2024 - Tabella 5

Area Tematiche	2021	2022	2023	2024
Energia	36.2%	41.0%	43.8%	40.1%
Ambiente	18.5%	13.3%	10.4%	11.8%
Scienza della vita	8.4%	10.4%	11.6%	9.6%
Sicurezza	4.0%	3.7%	6.8%	8.1%

4.2 Partenariato

I progetti finanziati da programmi dell'Unione Europea sono tipicamente multi-partner e transnazionali. Nei Programmi Quadro, i requisiti minimi di partecipazione prevedono almeno tre partner di tre diversi Stati membri o Stati associati, con alcune eccezioni per azioni specifiche. Le organizzazioni di Paesi membri dell'Unione Europea ricevono dall'UE il cofinanziamento previsto dalla tipologia di azione, così come i partecipanti dei Paesi che hanno concluso un accordo di associazione al Programma Quadro². I partner di Paesi terzi non associati, invece, non accedono al finanziamento UE; tuttavia, in alcuni casi, sono i governi dei Paesi Terzi a sostenerne la loro partecipazione. Inoltre, un Paese terzo può essere finanziato dall'UE soltanto se è considerato a reddito medio-basso, se è stato previsto nel programma di lavoro e se la partecipazione del soggetto è ritenuta essenziale dalla Commissione Europea per l'esecuzione del progetto.

Nel 2024 l'ENEA ha partecipato a 161 progetti, che hanno coinvolto complessivamente 1562 partner di 63 diversi Paesi e organizzazioni internazionali per quasi 3000 partecipazioni (Tabella 1). Le mappe di seguito mostrano la distribuzione geografica dei partner dell'ENEA nei progetti in corso nel 2024 (Figure 9, 10, 11, 12).

Contratti in corso nel 2024 - Partner europei e area mediterranea - Figura 9



² [Updates on the association of third countries to Horizon Europe](#)

Contratti in corso nel 2024 - Partecipazioni di partner europei e area mediterranea - Figura 10



Contratti in corso nel 2024 - Partner del resto del mondo - Figura 11



Contratti in corso nel 2024 - Partecipazioni di partner del resto del mondo - Figura 12



La Tabella 6 riporta il numero di contratti, di partner e di partecipazioni per Paese; i Paesi con il maggior numero di partecipazioni, dopo l'Italia (446), sono la Francia (310), la Germania (300), la Spagna (280) e il Belgio (169).

Tra i Paesi candidati all'adesione all'UE, e già associati a Horizon Europe, Ucraina e Turchia sono quelli con cui l'ENEA collabora maggiormente (19 e 17 partecipazioni rispettivamente); la Serbia ha 9 partecipazioni, la Bosnia-Erzegovina e l'Albania 5, la Moldavia 2 e il Montenegro 1. Nell'area mediterranea non UE, Israele conta 10 partecipazioni; la Tunisia è presente con 5 partecipazioni, il Marocco e altri con alcune partecipazioni ciascuno.

In quest'area è attivo in particolare il progetto meetMED iniziato nel 2018 e proseguito fino al 2024 con meetMEED II. Coordinato dall'Associazione MEDENER, di cui l'ENEA ha la Presidenza, il progetto aveva l'obiettivo di facilitare la transizione energetica nei Paesi euro-mediterranei attraverso un sensibile incremento delle fonti rinnovabili e dell'efficienza energetica nel mix energetico dell'area entro il 2040.

Tra i Paesi europei extra UE, le collaborazioni più numerose sono con il Regno Unito (117), associato a Horizon Europe dal 1° gennaio 2024, seguito dalla Svizzera (81), ad oggi associata a H2020 ma non ancora a Horizon Europe, dalla Norvegia, associata a entrambi i Programmi Quadro (rispettivamente 81 e 49 partecipazioni) e da Islanda e Russia con 1 partecipazione ciascuna.

Numerose sono anche le collaborazioni con il resto del mondo: Stati Uniti d'America (12 partecipazioni), Corea del Sud 4, Cina, Giappone e Taiwan con 3 partecipazioni ciascuno.

Da notare come, dal 2021 ad oggi, siano costantemente cresciute le collaborazioni con Francia, Germania, Spagna e Belgio ma anche Regno Unito, Stati Uniti d'America e Svizzera.

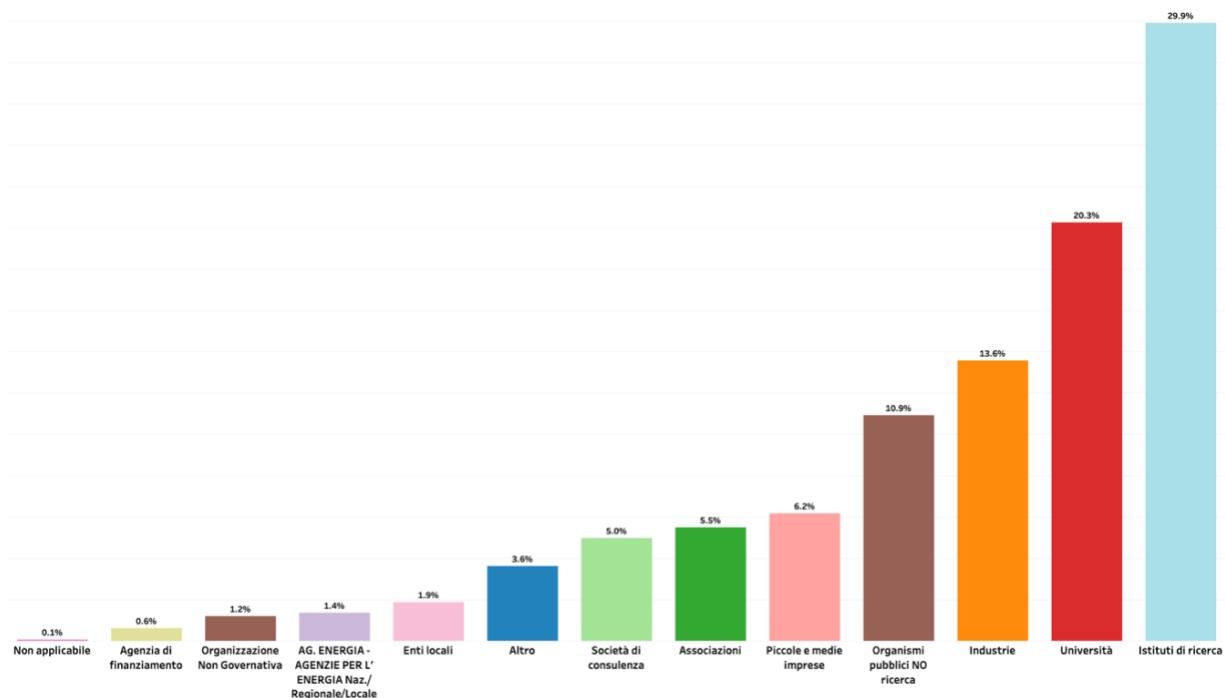
Contratti in corso nel 2024 - Numero di contratti, partner e partecipazioni per Paese – Tabella 6

Gruppi Paesi (politico)	Paese	N. Contratti	N. Partner	N. Partecipazioni
	Totale Complessivo	161	1,562	2,943
Membri UE	Austria	44	47	72
	Belgio	84	85	169
	Bulgaria	21	17	24
	Cipro	14	9	17
	Croazia	17	15	24
	Danimarca	29	15	35
	Estonia	11	10	14
	Finlandia	55	46	96
	Francia	99	147	310
	Germania	121	150	300
	Grecia	57	49	95
	Irlanda	18	15	21
	Italia	124	233	446
	Lettonia	10	7	10
	Lituania	20	14	22
	Lussemburgo	6	7	9
	Malta	6	3	6
	Paesi Bassi	67	58	118
	Polonia	51	42	69
	Portogallo	41	39	67
	Repubblica Ceca	51	33	78
	Romania	35	22	46
	Slovacchia	22	18	24
	Slovenia	33	18	41
	Spagna	107	155	280
	Svezia	48	40	83
	Ungheria	35	32	51
Candidati adesione UE	Albania (*)	3	5	5
	Bosnia-Erzegovina	4	3	5
	Macedonia	2	2	2
	Moldavia (*)	2	1	2
	Montenegro (*)	1	1	1
	Serbia (*)	9	4	9
	Turchia (*)	15	11	17
	Ucraina (*)	11	8	19
Mediterraneo non UE	Algeria	1	1	1
	Giordania	2	2	2
	Israele (*)	7	8	10
	Libano	2	2	2
	Marocco	2	3	3
	Siria	1	1	1
	Tunisia (*)	3	5	5
Europa e non UE	Islanda (*)	1	1	1
	Norvegia (*)	34	30	49
	Regno Unito	55	63	117
	Russia	1	1	1
	Svizzera	52	30	81
Resto del mondo	Australia	3	3	3
	Canada	2	2	2
	Cile	1	1	1
	Cina	2	3	3
	Corea del Sud	4	3	4
	Giappone	3	3	3
	Kenya	1	4	4
	Libia	1	1	1
	Peru'	2	2	2
	Ruanda	1	1	1
	Senegal	1	1	1
	Stati Uniti D'america	8	10	12
	Sudafrica	2	1	2
	Taiwan	2	2	3
	Uganda	1	2	2
Organ. Internazionali	Organ. Internazionali	32	15	39

(*) Paesi Terzi associati a Horizon Europe

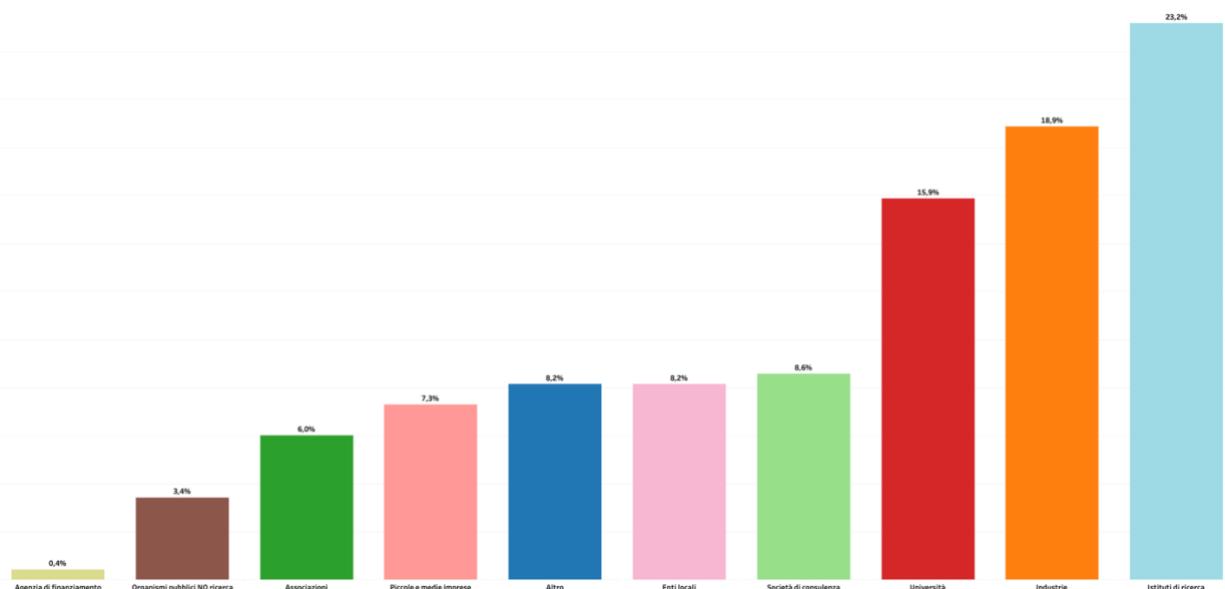
La natura dei partner internazionali di ENEA è evincibile nella Figura 13. L'analisi storica mostra un rapporto costante nel tempo con gli istituti di ricerca, le università e le industrie.

Contratti in corso nel 2024 - Natura dei partner internazionali di ENEA - Figura 13



I dati nazionali della Figura 14 mostrano sempre un rapporto preferenziale con il mondo della ricerca ma con un coinvolgimento del comparto industriale nazionale maggiore rispetto a quello internazionale.

Contratti in corso nel 2024 - Natura dei partner nazionali di ENEA - Figura 14



Per quanto riguarda, invece, la ripartizione geografica a livello italiano dei partner dell'ENEA (Figura 15), e delle partecipazioni (Figura 16), il Lazio è la regione con il maggior numero di partner (59), seguita da Lombardia (30), Puglia (18), Emilia-Romagna (18), Veneto (18) e Toscana (15). Analoga tendenza si può osservare anche nelle partecipazioni.

Contratti in corso nel 2024 - Partner italiani per regione Figura 15

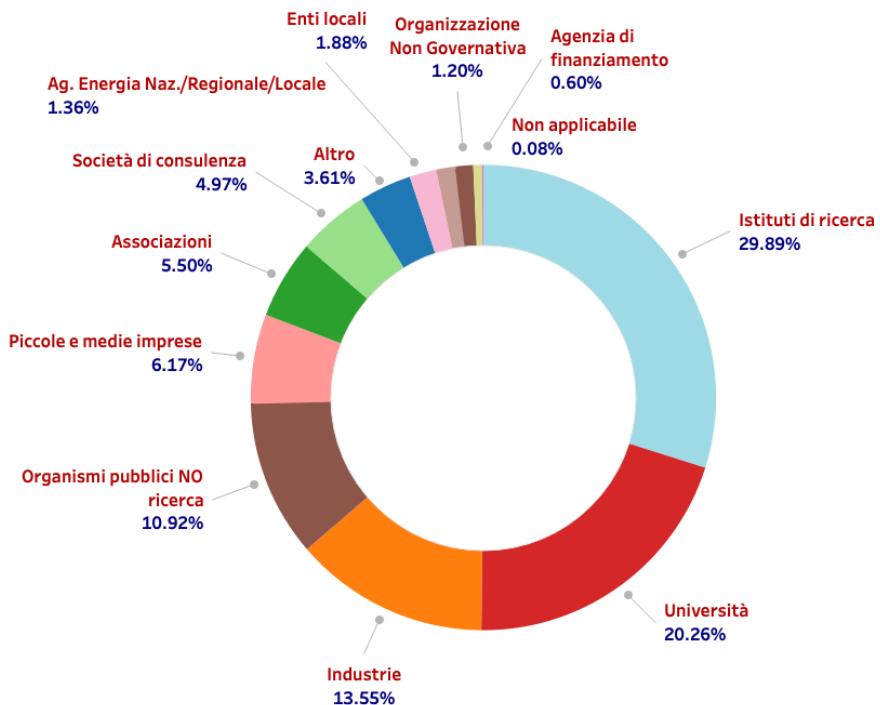


Contratti in corso nel 2024 - Partecipazioni dei partner italiani per regione Figura 16

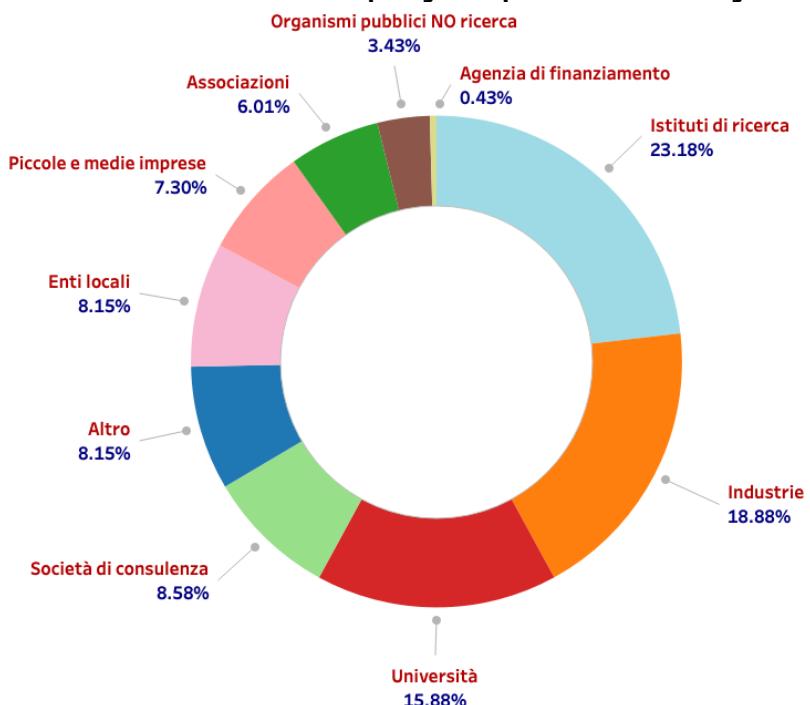


Se ora esaminiamo la natura dei partner internazionali (Figura 17) e nazionali (Figura 18) di ENEA nei contratti in essere al 2024, in entrambi i casi, gli istituti di ricerca (29.8% e 23.2%) sono i partner principali. Interessante notare come, a livello nazionale, i rapporti con il mondo industriale nazionale siano maggiori di quelli universitari (il dato è confermato anche dall'analisi della serie storica a partire dal 2021).

Contratti in corso nel 2024 - Tipologia dei partner internazionali - Figura 17



Contratti in corso nel 2024 - Tipologia dei partner nazionali Figura 18



Secondo i requisiti stabiliti dalla UE³, le piccole e medie imprese (PMI) costituiscono circa il 7.3% dei partner italiani (dato in costante aumento nel tempo a partire dal 2000 ma accelerato sensibilmente nell'ultima programmazione).

4.3 Coordinamento

Nel 2024 l'ENEA ha il coordinamento di 22 dei 161 progetti in corso, pari al 14% (dato in aumento rispetto all'anno precedente). Il budget complessivo assegnato all'ENEA nei progetti che coordina è di circa 12.3 milioni di euro (anche questo dato è in aumento rispetto all'anno precedente). Con riferimento, invece, ai progetti in cui l'ENEA partecipa come partner (131, pari al 86%), il contributo ad ENEA è stato di circa 34.3 milioni di euro. Nei restanti 6 progetti ENEA partecipa come affiliato o Subcontraente.

La Tabella 7 mostra l'elenco dei 22 progetti a coordinamento dell'Agenzia in corso nel 2024, indicando per ciascuno il programma di finanziamento e l'area tematica in cui ricade l'attività. Ulteriori informazioni di dettaglio sono disponibili nelle schede sintetiche di ciascun progetto (Allegato 1).

Contratti in corso nel 2024 - Progetti a coordinamento ENEA - Tabella 7

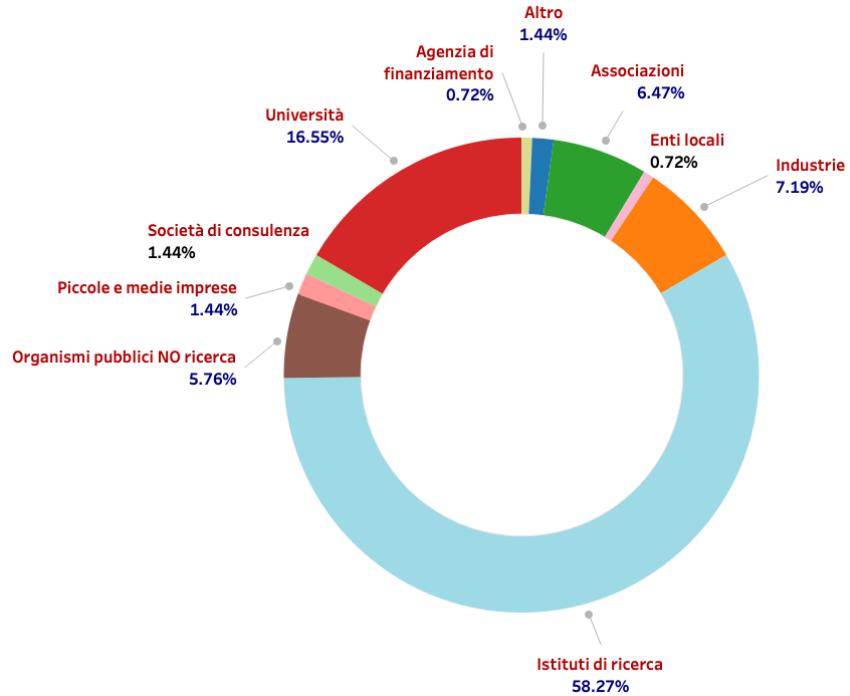
P0	Anno Stipula	Programma UE	Acronimo	Area Tematica	Contributo Totale Enea
Euratom2027	2022	Euratom fissione	SASPAM-SA	Energy - fission	342,656 €
	2019	Secure societies	INCLUDING	Energy - fission safety	564,606 €
	2020	Energq	eNeuron	Energy at large	487,500 €
		Secure societies	RISEN	Security	1,216,961 €
HORIZON 2020	2021	Energy	GREENROAD	Energy - efficiency	265,468 €
		Future and Emerging Technologies(FET)	RISEUP	Health	615,535 €
		JTI - EuroHPC	TEXTAROSSA	ICT	219,135 €
		JTI - Hydrogen	PROMETEO	Energy - renewable	416,000 €
			SO-FREE	Energy - renewable	324,500 €
HORIZON 2020 - Euratom	2020	Euratom fissione	PASCAL	Energy - fission safety	562,969 €
		F4E - Fusion for energy	F4E-FPA-327 SG07	Energy - fusion	1,267,827 €
HORIZON EUROPE	2022	Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment	REPRODIVAC	Life sciences	874,526 €
	2023	EIT - Raw Materials KIC	EIT Raw materials FENICE_23	Raw materials	230,506 €
		Research Infrastructures(2021-2027)	PRO-GRACE	Life sciences - food genetic	290,000 €
	2024	Cluster 3 - Civil security for society	NARCOSIS	Security	704,730 €
		Cluster 5 - D5 Clean and competitive solutions transport modes	ALRIGH2T	Energy - hydrogen	400,000 €
		Euratom	LESTO	Energy - fission	797,813 €
		Euratom radioprotezione	DISCOVER	Radioprotection	472,481 €
		Research Infrastructures(2021-2027)	METROFOOD-EPI	Metrology	380,433 €
Other programmes 2021-2027	2023	UCPM - Union Civil Protection Mechanism	RescEU-CBRN-DSIM-IT	Security	995,804 €
	2024	LIFE (2021-2027)	LIFE22-CET-LEAPto11	Energy - efficiency	404,160 €
		NDICI - GLOBAL EUROPE	P104	Security - CBRN	490,000 €
Totale Contributo ENEA					12.323.610€

Nei 39 nuovi progetti stipulati nel 2024, il coordinamento rimane saldamente nelle mani degli istituti di ricerca (21) e delle Università (9), dato pressoché stabile nel tempo.

³ La categoria delle microimprese, delle piccole imprese e delle medie imprese (PMI) è costituita da quelle che occupano meno di 250 persone, il cui fatturato annuo non supera i 50 milioni di EUR e/o il cui totale di bilancio annuo non supera i 43 milioni di EUR (estratto dall'articolo 2 dell'allegato alla raccomandazione 2003/361/CE).

Nella Figura 19 si può vedere la distribuzione della tipologia dei coordinatori dei 161 progetti a cui partecipa ENEA nel 2024

Contratti in corso nel 2024 – Ripartizione percentuale per tipologia dei coordinatori – Figura 19



Anche questa serie temporale dal 2021, ad oggi, non mostra significative variazioni nella natura dei partner. Anche l'analisi della stessa serie storica della ripartizione del contributo totale per paese mostra analoga tendenza.

La percentuale degli importi gestiti e la numerosità dei progetti, secondo la distribuzione geografica dei coordinatori nei 161 progetti, sono mostrati nelle Figure 20 e 21.

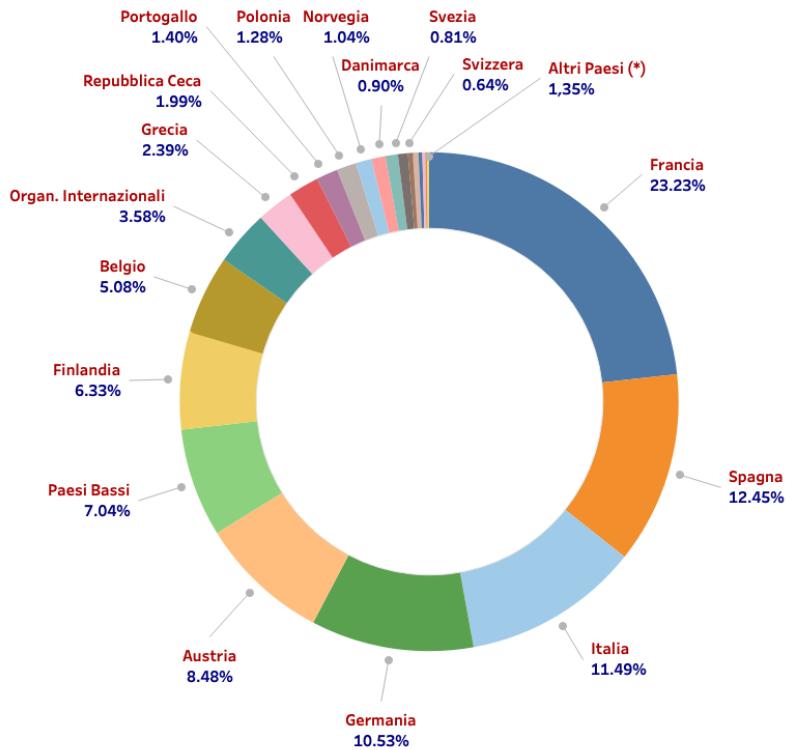
La serie storica dal 2021 ad oggi mostra come la Francia sia il paese che storicamente ha il maggior numero di coordinatori, con una percentuale quasi costante. Al contrario, nello stesso arco temporale, l'Italia tende costantemente ad avere meno coordinamenti.

Nei progetti in cui l'ENEA è uno dei partner, osservando il contributo totale gestito dai coordinatori, notiamo che i budget totali più alti sono gestiti dai francesi (23.3%), dagli spagnoli (12.5%), dagli italiani (11.5%) e dai tedeschi (10.5%).

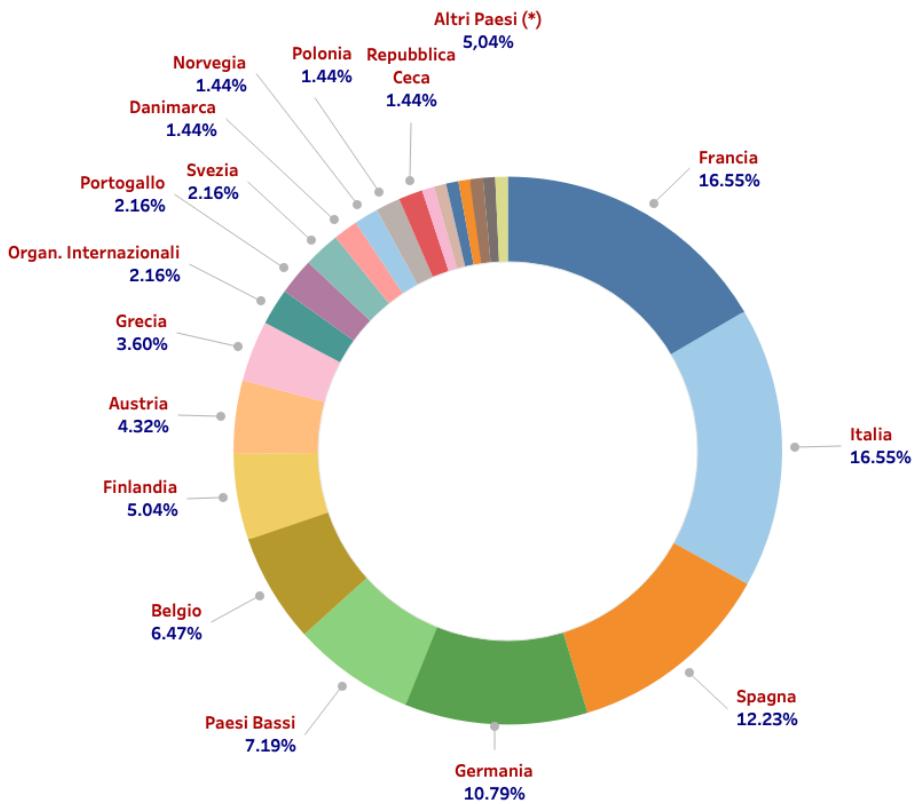
Con riferimento al numero di progetti, sono sempre le organizzazioni italiane e francesi a coordinare il numero maggiore (16.6% ciascuno), seguite da quelle spagnole (12.3%), tedesche (10.8%) e dei Paesi Bassi (7.2%).

Pertanto, si osserva che, rispetto ai contratti in corso nel 2023, il posizionamento nazionale risulta sostanzialmente invariato in termini di progetti gestiti dai coordinatori italiani e budget totale anche se si possono immaginare delle variazioni nel prossimo futuro.

Contratti in corso nel 2024 – Ripartizione percentuale del contributo per paese coordinatore – Figura 20



Ripartizione percentuale del numero di progetti per paese coordinatore – Figura 21



5. Elenco delle schede sintetiche dei progetti

CRBN SoS	H2Excellence	HARPERS
FISHIMPACT	DeliSoil	BRIDGEconomies 2022-2025
P104	LIFE22-CET-SEED MICAT	VERTIgO
MOIRAI	LIFE22-CET-EU Peers	LIFE MODERn (NEC)
INDICATE LIFE	EIT Raw materials PARSIVAL	STYX
EOSC-Beyond	B2030 CSA3	CAMS2_40
NARCOSIS	NiCE	CA EED3
KijaniBox	THOTH2	CoCliCo
OBSERVE	gEneSys	StORIES
CONNECT-NM	HySelect	e-SHIPS
LESTO	CAMEO	meetMED II
HASTA	MoSaIC	GREENROAD
EURAD-2	SYMBIOSYST	TRICK
EASI-SMR	ReMade-at-ARI	PHOTORAMA
LANDFEED	ECO-READY	VIPERLAB
SOLARIZE	PRO-GRACE	InnCoCells
APRENDE	LIFE21-CET-CA-CAEPBD6	RADNEXT
EEPLIANT4	LIFE21-CET-POLICY-	H2PORTS
HealthRiskADAPT	OdysseeMure fit-4-55	COOLHEAT
HYPER-AI	DRG4Food	SER
2B-BLUE	BIOMETHAVERSE	MINKE
ERN-ApuliaMED	BIOcean5D	TEXTAROSSA
NET	CETMA-DIHSME	RISEUP
EU-DREAM	EuPRAXIA	CHemPGM
SPECTRA	ASSASS	POLYRISK
IMAGEOMICS	OperaHPC	LEAPS-INNOV
DONES-ConP1	SALT0power	CLEANDEM
IRISCC	CapACITIES	EJP SOIL
RISEnergy	I-NEST	SO-FREE
PROTOSTACK	INNUMAT	PROMETEO
EoCoE-III	SEETIP Ocean	REACTT
NHyRA	ForestNavigator	PASCAL
ALRIGH2T	ESFR-SIMPLE	eNeuron
DISCOVER	REHOUSE	GICO
SCRREEN3	SEAKNOT	VIDIS
HyPEF	SECURE	CEM-WAVE
CAMAERA	CST4ALL	LIFE AIRFRESH
FHERITALE	FuelSOME	HARNESSTOM
AMIGDALA	TITANS	PUMMA
METROFOOD-EPI	AgroServ	PATRICIA
EuroPaTMoS	EMODNET Data Ingestion n. 3	PREDIS
ACROBAT	DUT	PASTELS
RescEU-CBRN-DSIM-IT	REPRODIVAC	CUSTOM-ART
LIFE22-CET-LEAPto11	TANDEM	19NET04 MIRA
LIFE22-CET-ENEFIRST PLUS	CRISTAL	RISEN
EVERPV	FREDMANS	19NET03 Support BSS
MULTICLIMACT	PROMEDLIFE	F4E-FPA-327 SG07
MSA-Trough	ANSELMUS	iNEXT-Discovery
LIFE22-CET-EPBD.wise	BEST	USER-CHI
tunES	PIANOFORTE	SANDA
AlphaMet	ENEN2plus	INCLUDING
EIT Raw materials FENICE_23	SASPAM-SA	Beyond EPICA
TraMeXI	HARMONISE	
GuideRadPROS	KNOWING	
SULPHURREAL	SEAWave	

Support for a European Metrology Network on reliable radiation protection regulation

Coordinatore: PTB PHYSIKALISCH TECHNISCHE BUNDESANSTALT (Germania)

N. Partner: 16

Abstract:

Radiation protection legislation has been overhauled to better protect European citizens. A revision of the EURATOM Directive broadened its scope to cover all radiation sources and categories of exposure. Occupational, medical, public and environmental risks are now all included, partly in response to lessons learned from the Fukushima nuclear accident. Radiation protection measurement (dosimetry) will need to become more responsive to changing needs, by supporting new technologies such as pulsed doses in nuclear medicine, more harmonised worker protection measures, and digitalisation trends. As there is no comprehensive facility capable of supporting all these requirements, a European Metrology Network for reliable radiation protection regulation is being considered, to help introduce a legally enforceable European quality assurance system. The project will formulate a defining scope and organisational basis for a network. After engaging with stakeholders, it will produce a research agenda designed to ensure that suitable reference fields and standards can be developed to support radiation protection regulations. Knowledge-sharing requirements and input to international standards will also be addressed. Facilities established by the project will support quality assessment in all radiation protection issues. On completion of the project, a network could be called upon to support the development of more harmonised procedures and capabilities in service provision and research, so the quality of radiation protection dosimetry can support better radiation protection measures for all European citizens.

Anno di stipula: 2020

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

Programma UE: EMPIR

Data inizio: 01-06-2020

Data scadenza: 31-05-2024

Contributo totale: € 476.467

Costo eleggibile totale: € 525.152

Contributo a ENEA: € 10.500

Costo eleggibile ENEA: € 10.500

Doc. approvazione: 184/2020/PRES

Codice atto: PF5AAG

Resp. scientifico ENEA: PINTO MASSIMO

Unità: FSN-INMRI

Attività ENEA:

INMRI ENEA partecipa a tutti work package.



Support for a European Metrology Network on the medical use of ionising radiation

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)

N. Partner: 10

Abstract:

Radiation therapies are expected to continue to be in the front line for providing effective cancer treatment and diagnoses. Europe has a strong record of developing medical applications of ionising radiation, and demands for improved treatments are expected to drive further innovation. For example, technologies are being developed that combine imaging and radiation, radio-pharmaceuticals and applications of pulsed radiation. Access to such devices is uneven across Europe as some metrology institutes are disadvantaged through lack of access to state-of-the-art research facilities, while the complexity, costs, evolving regulatory requirements, and discrepancies in knowledge and capability each act to compromise the provision of effective metrological infrastructure. Demand for new technologies imposes requirements for new measurement techniques, informed by the best research. Understanding of adverse side-effects is also essential. However, no single body exists specifically to coordinate solutions, so Europe's metrology institutes are not able to serve some important measurement needs of equipment manufacturers, academics, standards organisations, and bodies representing radiation oncology, medical physics, pre-clinical research, and medical staff. This four-year project will enable facilities to be shared and a dialogue initiated between stakeholders. A Strategic Research Agenda for the coming decade will be proposed, regulatory needs defined, and knowledge-sharing offered. Within 12 months, a specific plan for a metrology research infrastructure will be presented via a European Metrology Network. These actions are expected to support enhanced research reproducibility and standards development, enabling safer, more efficient treatments and diagnoses. Improved understanding will also speed the development of new therapies and diagnostic tools, while increased understanding of risk factors will improve patient safety.

Anno di stipula: 2020

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

EMPIR

Data inizio: 01-06-2020

Data scadenza: 31-05-2024

Contributo totale: € 396.963

Costo eleggibile totale: € 454.024

Contributo a ENEA: € 18.900

Costo eleggibile ENEA: € 18.900

Doc. approvazione: 070/2020/FSN

Codice atto: PF5AAI

Resp. scientifico ENEA: CAPOGNI MARCO

Unità: FSN-INMRI

Attività ENEA:

Il progetto è finalizzato alla realizzazione di reti metrologiche a supporto della comunità scientifica europea. Risulta strategico il contributo che INMRI-ENEA può apportare alla definizione delle Network sopra menzionate. Inoltre, la definizione e l'appartenenza ad una rete metrologica europea offrirà all'Istituto la possibilità di attivare nuovi e rilevanti servizi metrologici avanzati alla comunità medica nazionale.

2B-BLUE

Coordinatore: UNIV. MURCIA (UMU) (Spagna)

N. Partner: 21

Abstract:

The Blue Biotechnology (BBt) sector can have a significant impact on the environment, human wellbeing and economic growth, however in the Mediterranean basin it is currently in its infancy. B-BLUE project has built a preliminary network of actors related to BBt and analyzed best practices, key drivers, barriers and readiness factors of EuroMed companies for adopting blue biotechnologies, concluding with the most promising value chains for EuroMed area. The project allowed the establishment of 5 interactive Blue Biotechnology Hubs (BHHs) to facilitate collaborations, knowledge transfer and spill-over effects to spur innovation and business within the marine biotechnology value chains and address the challenges detected. At once, a digital community has been developed, using an ICT tool called B-Blue MatchMaking Tool, to support new joint initiatives. Moreover, the MEDIA - Mediterranean Innovation Alliance for Sustainable BlueBioeconomy - has been set-up in collaboration with Blue Bio Med and 2 specific collaborative working groups on BBt. 2B-BLUE aims to capitalize on B-Blue positive results to: 1) Exemplify evidence-based best practices identified to help communities turn BBt research into practice, 2) Build national demonstration sites (DS) to experiment emerging technologies or practices in local field conditions and bridge the gap among BBt research and industry for new technologies adaptation while help improve marine environment, 3) Establish strategic alliances of 5-helix stakeholders for the uptake of advanced blue biotechnologies by Med industries and 4) improve regional policies for enhancing sustainability, research and innovation capacities in Euro-Med area. Thus, the main challenges detected in the B-Blue work - most related to funding, normative and public and private collaboration- can be transformed into opportunities in 2B-Blue and result in more sustainable and efficient practices as well as better structuring of the BBt sector in the Mediterranean.

Anno di stipula:	2024
Tipo progetto:	N/A - Non applicabile
Programma UE:	Other programmes 2021-2027
Data inizio:	01-01-2024
Data scadenza:	30-09-2026
Contributo totale:	€ 2.331.149
Costo eleggibile totale:	€ 2.913.936
Contributo a ENEA:	€ 228.200
Costo eleggibile ENEA:	€ 282.250
Doc. approvazione:	98/2024/SSPT/USER
Codice atto:	PS6AEQ
Resp. scientifico ENEA:	DE CAROLIS ROBERTA
Unità:	SSPT-USER

Attività ENEA:

L'ENEA rivestirà il ruolo di co-leader (insieme all'Università di Murcia, coordinatore di progetto) del WP3 'Set-up of the BBt innovation ecosystem in the Mediterranean', ed è leader delle seguenti task: •Carbon footprint monitoring •Coordination and dialogue with thematic community and institutional dialogue projects



Coordinatore: VITO - FLEMISH INSTITUTE FOR TECHNOLOGICAL RESEARCH (Belgio)

N. Partner: 5

Abstract:

Globally, olivine-type lithium iron phosphate (LiFePO₄, LFP) batteries have gained a considerable share within the lithium ion battery (LIB) market (23-36% in 2015-2016). However, no dedicated, economically-viable, industrial-scale recycling process exists for LFP type LIBs in Europe or elsewhere. Nevertheless, LFP batteries contain three critical raw materials (CRMs), namely 0.8 wt.% lithium, 2.5 wt.% phosphorus and 16 wt.% graphite on battery cell basis. Efficient recycling of LFP LIBs is also required from an environmental point of view as the electrolyte contains toxic agents. ACROBAT aims to recycle end-of-life LFP LIBs via efficient, innovative and environmentally-friendly processes and separation techniques to recover a maximum amount of EU-CRMs as high-value products and base metals (ferrous and Cu/Al fractions). The specific ACROBAT objectives are to research, develop and validate (i) LFP-dedicated pre-treatment (i.e., shredding, mechanical separation) of EoL LFP LIBs with reduced cross-contamination; (ii) continuous, contact-free, in-line characterisation of LFP black mass; (iii) extractive recovery of electrolyte materials (i.e., conducting salts, organic solvents); (iv) recovery of graphite by froth flotation; (v) recovery of lithium as battery-grade lithium hydroxide monohydrate by HCl-based hydro-/solvo metallurgy; and (vi) direct recycling of LFP black mass by tandem hydrometallurgy-hydrothermal synthesis. The sustainability of the ACROBAT flowsheet is evaluated by a life cycle assessment. Overall, the ACROBAT consortium (VITO, ENEA, Fraunhofer ILT, KU Leuven, Accurec) aims to recover 90% of the EU-CRMs (i.e. Li, P and graphite) and recycle LFP cathode material, graphite and electrolyte, respectively up to 5.4, 6.2 and 4.4 kt/y by 2030 in Europe. This would represent an overall value of 180 M€. ACROBAT's Industrial Advisory Board (Umicore, Aurubis, Bebat, Sorbat and Electrocyling) will catalyse the industrial valorisation of the project results.

Anno di stipula: 2023

Tipo progetto: ERANET COFUND

HORIZON 2020

Programma UE: ERA-MIN3

Data inizio: 01-08-2022

Data scadenza: 31-07-2024

Contributo totale: € 1.124.296

Costo eleggibile totale: € 1.548.796

Contributo a ENEA: € 122.500

Costo eleggibile ENEA: € 245.000

Doc. approvazione: 202/2023/SSPT/USER

Codice atto: PS6AED

Resp. scientifico ENEA: FORTE FEDERICA

Unità: SSPT-USER-T4RM

Attività ENEA:

L'ENEA studierà le possibilità di valorizzazione dell'elettrolita con l'obiettivo di recuperare il sale (LiPF₆) e/o i solventi organici (dimetilcarbonato e carbonato di etilene). In particolare gli obiettivi realizzativi (coincidenti con le Task descritte nel progetto internazionale), sono elencati di seguito:

- Definizione del protocollo analitico (M1-M18)
- Sviluppo e ottimizzazione del processo di recupero (M13-M24)



Coordinatore: CNRS - FRENCH NATIONAL CENTRE FOR SCIENTIFIC RESEARCH (Francia)

N. Partner: 73

Abstract:

Developing a resilient and sustainable agriculture system, and the agroecological transitions requires a deep understanding of agroecosystems, their interactions with the environment, and management practices. AgroServ features a large consortium of research infrastructures, most of them being on the EU roadmap, and a vast offer of services at all scales, from the molecule to the organism, to the ecosystem, to the society. AgroServ will facilitate a systemic and holistic approach to understand the threats and challenges agriculture is facing, towards the implementation of a resilient and sustainable agri-food system. We propose a transdisciplinary offer of services, integrating the actors of the agriculture system in the research process, of which the farmers are the first, thanks to a wide offer of living labs across Europe. Most of the relevant field of sciences are represented in AgroServ, from natural to social sciences. We will develop a wider catalogue of integrated and customized services, thanks to a specific approach of service pipelines designed from a gap analysis, stakeholder and user demands. A strong community building and training program for access managers and users will be implemented to facilitate multi- and transdisciplinary research with all relevant actors. Results from the research performed under AgroServ will be synthetized to be used in the scope of evidence-based policy making. Data from AgroServ will be open and compliant with FAIR practices, and made available on the long-term to the communities, and be linked with the main European initiatives, as the EOSC. Strong links will be established with existing or future programs under H2020 and Horizon Europe, such as the partnerships agroecology, living labs and research infrastructures, and agriculture of data, as well as the two CSA AE4EU and ALL-READY, and the missions soil and plant health, and waters. AgroServ will collaborate with other relevant initiative in the Pillar II to of HE.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-09-2022

Data scadenza: 31-08-2027

Contributo totale: € 14.252.873

Costo eleggibile totale: € 14.252.873

Contributo a ENEA: € 493.245

Costo eleggibile ENEA: € 493.245

Doc. approvazione: 141/2022/SSPT-BIOAG

Codice atto: PS1ACS

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT-BIOAG

Attività ENEA:

ENEA è à coinvolto in 6 dei 9 WPs "tecnicci" nei quali si articola il progetto e nella fornitura di servizi integrati per il TNA. In particolare, ENEA partecipa ai seguenti WP: WP2 - AgroServ integration and customisation of services WP5 - Community building and user's engagement WP6 - Open innovation hub (WP Leader) WP7 - Developing a roadmap for long-term sustainability beyond 2027 WP8 - Outreach, dissemination, exploitation of results WP9 - Project management and monitoring WP14 - TA METROFOOD-RI

Coordinatore: CMI - CZECH METROLOGY INSTITUTE (Repubblica Ceca)

N. Partner: 17

Abstract:

Targeted alpha therapy (TAT) is a rapidly growing cancer treatment modality, whereby alpha-emitting radiopharmaceuticals selectively target tumours whilst minimising the radiation to healthy tissues. Presently only $^{223}\text{RaCl}_2$ has regulatory approval, but its success resulted in unprecedented levels of interest and investment in TAT for a variety of cancers. It is showing promising efficacy and increased survival in clinical trials; however, several unmet and unique measurement challenges remain a barrier to enable the safe and optimised implementation of emerging targeted alpha therapies. This project will provide the metrology needed to support end-to-end traceability before wide routine adoption.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

EPM - European Partnership on Metrology

Data inizio: 01-09-2023

Data scadenza: 31-08-2026

Contributo totale: € 1.887.356

Costo eleggibile totale: € 1.887.356

Contributo a ENEA: € 50.000

Costo eleggibile ENEA: € 50.000

Doc. approvazione: 123/2023/FSN

Codice atto: PF5AAN

Resp. scientifico ENEA: CAPOGNI MARCO

Unità: FSN-INMRI

Attività ENEA:

L'ENEA-INMRI, oltre alla partecipazione ai work package di impatto/comunicazione (WP5) e gestionale (WP6), parteciperà attivamente al WP1: Standards di attività e dati nucleari di decadimento per imaging e dosimetria per radionuclidi emettitori alfa. In questo work package l'ENEA-INMRI sarà impegnato soprattutto nello sviluppo, in collaborazione con altri partner europei, di un nuovo standard di Ac-225.

Coordinatore: ENEA (Italia)

N. Partner: 21

Abstract:

ALRIGH2T responds in full to the “expected outcomes” and “scope” of the HORIZON-CL5-2023-D5-01-07 topic, by developing and demonstrating two alternative technologies for LH₂ aircraft refuelling: - Direct LH₂ refuelling, encompassing the definition of operational protocols for safe and rapid refuelling, the development and testing of a LH₂ transfer pump and an instrumented tank, their integration in an iron bird laboratory for the execution of refuelling/defueling tests and the delivering of a digital twin model. - LH₂ tanks swap refuelling, encompassing end-to-end logistic and supply chain of tank modules, the design of the associated on- and off-site infrastructure and its demonstration. Both concepts will achieve TRL 6 by the end of the project, undergoing a comprehensive technology evaluation informed by demonstration results in two major airports, i.e. Milan Malpensa and Paris (Orly or LeBourget) respectively. The two technology lines are complemented by transversal activities for the definition of technical and techno-economic boundary conditions, the demonstration of the use of H₂ for ground operations (i.e. H₂ powered tow vehicle, demonstrated at the Malpensa site) as well as environmental, safety and regulatory cross-cutting aspects. ALRIGH2T has the ambition of demonstrating, for the first time, LH₂ refuelling in a scale compatible with airport operations, synergizing with the Clean Aviation research and development efforts at the aircraft level. The project is implemented by a consortium built on the competences of top European industrial players, positioned along entire hydrogen and aeronautic value chain, complemented by research and technology organisations and selected member of the Advisory Board, including the EASA. ALRIGH2T is expected to be a cornerstone in the path towards the deployment of LH₂ as an aviation fuel, strengthening the European research and industry leadership and consolidating the role of green airports as hubs of the H₂ economy.

Anno di stipula: 2024

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON EUROPE

Cluster 5 - D5 Clean and competitive solutions transport modes

Data inizio: 01-01-2024

Data scadenza: 31-12-2027

Contributo totale: € 9.999.720

Costo eleggibile totale: € 12.920.388

Contributo a ENEA: € 400.000

Costo eleggibile ENEA: € 400.000

Doc. approvazione: 319/2023/TERIN

Codice atto: PK4ABB

Resp. scientifico ENEA: CIGOLOTTI VIVIANA

Unità: TERIN-PSU-ABI

Attività ENEA:

L'ENEA coordina il progetto ed è quindi leader del WP1 (Project Management); è inoltre coinvolta nel WP2 (Technical specifications and techno-economic boundary conditions), nel WP6 (Demonstration activities and technology evaluation), nel WP7 (Environmental, safety, regulatory and cross-cutting aspects) e nel WP8 (Dissemination, communication and exp.).



Alliance for Modelling Industries towards the Green Deal's objectives And circuLArity

Coordinatore: TNO - NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH N. Partner: 12
 (Paesi Bassi)

Abstract:

The objective of the European Green Deal policy is to be climate-neutral by 2050. However, the key problem of the industry transition towards climate neutrality is that the combined response of demand, global trade and industrial production to policy measures is highly complex. The aim of the AMIGDALA project is to facilitate decision makers in governments and in the EU's industries to define and evaluate pathways towards climate neutrality, circularity and sustainability. In this project we combine insights in decision-making with integrated modelling of scenarios to analyze transformation pathways. We analyze decisions-making in government and in industry by the control options that they have such as incentives, regulatory measures and investments in capital projects to contribute to the Green Deal's objectives. We deliver an integrated model to represent EU industry's transformation pathways up to 2070 and cover historical developments from 1990. We develop a method to combine established models of separate domains and let them operate as one. This integrated model shows the combined effect of control options on economy, trade, energy, materials flow, biomass and industrial production on an EU systems-level and within a global context. On a local-level we use models to analyze the decisions by industry clusters to invest in transformative solutions and utility operators to build infrastructure. With the integrated model we run scenarios that we develop on the basis of the control options of decisionmakers to achieve industrial transformation towards climate neutrality. The integrated model allows to analyze the effect of framework conditions on the uptake of transformative solutions and products and on energy demand, emissions, and material use. The AMIGDALA consortium has a deep and shared knowledge of technologies, economy, life cycle analysis and complex systems modelling and decision support analysis.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 4 - Digital, Industry and Space

Data inizio: 01-01-2024

Data scadenza: 31-12-2027

Contributo totale: € 6.913.126

Costo eleggibile totale: € 6.913.126

Contributo a ENEA: € 266.500

Costo eleggibile ENEA: € 266.500

Doc. approvazione: 305/2023/TERIN

Codice atto: PK4AAZ

Resp. scientifico ENEA: AGOSTINI ALESSANDRO

Unità: TERIN-PSU-ABI

Attività ENEA:

Le attività svolte da ENEA sono di natura modellistica. In particolare, contribuirà a 7 task: • Task 1.4 Define & prioritize development needs per model; • Task 1.6 Develop data structure & define data needs; • Task 1.7 Define scenario structure & approach; • Task 2.4 Control levers, baseline scenario and sketching of other foreground scenarios; • Task 4.1 Finalizing models for all sectors and solutions; • Task 4.2 Finalize database and interactive data; • Task 4.5 Benchmark EU industry pathways against other pathways.

Coordinatore: SCK CEN - STUDIECENTRUM VOOR KERNENERGIE / CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE (Belgio) N. Partner: 17

Abstract:

The importance of low carbon energy sources in the efforts against rapid climate change makes nuclear energy part of a sustainable energy mix. Although there have been years of experience feedback with water cooled reactors, fundamental improvement, particularly regarding intrinsic safety and reduced nuclear waste generation is possible using advanced nuclear designs. Heavy metal cooled systems such as the lead fast reactor (LFR) combine the advantages of a fast reactor system that reduces waste with the intrinsic safety related properties such as the high boiling point, chemical inertia and improved heat transfer. ANSELMUS responds to the Horizon-Euratom -2021-NRT-01-02 call Safety of advanced and innovative nuclear designs and fuels. Its objective is to contribute significantly to the safety assessment of heavy-liquid-metal (HLM) systems, in particular ALFRED and MYRRHA as these are included in the roadmap for the development of advanced systems in Europe. It will use the maturity of both designs to create two detailed phenomena identification and ranking tables (PIRT) that identify all verification and validation needs and are used for further safety evaluation. The project will also experimentally validate key safety related sub-systems including the safety rods, failed fuel pin detection and the coolant chemistry control system. We also will improve the validation of numerical models describing the fuel assembly through experiments and simulations and work on reactor safety monitoring and inspection of HLM systems focusing on high temperature vessel inspection. Moreover, ANSELMUS will look into the societal impact of HLM reactors by assessing the integration of LFR in a mixed energy landscape, including economical aspects, and by addressing social and ethical considerations of advanced nuclear technologies. Finally, a dedicated effort will be put into education and dissemination towards all stakeholders including policy makers and the general public.

Attività ENEA:

ENEA è coinvolta nei seguenti work package (WP): - WP1 PIRT on HLM systems; - WP2 Fuel assembly safety (12 PM) - WP3 Validation of safety systems (30 PM) - WP4 Reactor safety monitoring & inspection

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-09-2022

Data scadenza: 31-08-2026

Contributo totale: € 3.464.443

Costo eleggibile totale: € 4.509.865

Contributo a ENEA: € 682.969

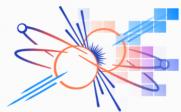
Costo eleggibile ENEA: € 921.875

Doc. approvazione: 081/2022/FSN

Codice atto: PF0AAR

Resp. scientifico ENEA: TARANTINO MARIANO

Unità: FSN-PROIN



APRENDE

Addressing PRiorities of Evaluated Nuclear Data in Europe

Coordinatore: CIEMAT - CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS (Spagna) Partner: 44

Abstract:

The conception, development, optimization, and safety evaluation of a broad range of nuclear energy (fission and fusion) and non-energy applications (radiation protection, radionuclide production, health, geosciences, space research, security, and industry) require reliable and accurate simulation tools. Such tools critically rely on accurate nuclear decay and reaction data. APRENDE has the ambition to improve nuclear data for modelling and simulation (M&S) tools used by European stakeholders in the application areas of the European Union and its member states that currently have the highest priority. The priority application areas identified by stakeholders of nuclear data and by national, European, and international projects and consultations are: A. All aspects of spent nuclear fuel (SNF), B. Reactor operational characteristics such as reactivity versus burnup, transients, and margins, C. Advanced reactor and fuel cycle development including small modular reactors (SMR) and GenIV systems based on lead and sodium coolants, molten salts, or an accelerator like MYRRHA, D. Criticality safety and shielding for safety assessments and safety assessment methodologies, E. Non-Energy applications, radiation protection. This ambition requires a comprehensive approach involving the eight objectives stated above, and a methodology and impact pathway as detailed below. The combination of this ambition, objectives, methodology and our pathway to create impact is what the proposers believe to be not only the best, but also an excellent response to the HORIZON-EURATOM-2023-NRT-01-06 call 'Improved nuclear data for the safety of energy and non-energy applications of ionising radiation'. In the following, we break down and explain our ambition by each of the priority application areas.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Euratom

Data inizio: 01-10-2024

Data scadenza: 30-09-2028

Contributo totale: € 3.999.900

Costo eleggibile totale: € 4.795.474

Contributo a ENEA: € 22.000

Costo eleggibile ENEA: € 27.000

Doc. approvazione: 107 (2024) NUC

Codice atto: PF6ABE

Resp. scientifico ENEA: GRASSO GIACOMO

Unità: NUC-ENER-PRO

Attività ENEA:

L'ENEA parteciperà attivamente al WP2 "New nuclear data measurements". In particolare, congiuntamente all'INFN, l'ENEA si farà carico delle attività legate alla predisposizione, conduzione ed interpretazione dei risultati, di una campagna sperimentale presso la facility n_TOF del CERN, relativa a nuove misure di sezioni d'urto per gli isotopi stabili del rame.



Coordinatore: IRSN - INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE (Francia) N. Partner: 14

Abstract:

The ASSAS project aims at developing a proof-of-concept SA (severe accident) simulator based on ASTEC (Accident Source Term Evaluation Code). The prototype basic-principle simulator will model a simplified generic Western-type pressurized light water reactor (PWR). It will have a graphical user interface to control the simulation and visualize the results. It will run in real-time and even much faster for some phases of the accident. The prototype will be able to show the main phenomena occurring during a SA, including invessel and ex-vessel phases. It is meant to train students, nuclear energy professionals and non-specialists. In addition to its direct use, the prototype will demonstrate the feasibility of developing different types of fast-running SA simulators, while keeping the accuracy of the underlying physical models. Thus, different computational solutions will be explored in parallel. Code optimisation and parallelisation will be implemented. Beside these reliable techniques, different machine-learning methods will be tested to develop fast surrogate models. This alternate path is riskier, but it could drastically enhance the performances of the code. A comprehensive review of ASTEC's structure and available algorithms will be performed to define the most relevant modelling strategies, which may include the replacement of specific calculations steps, entire modules of ASTEC or more global surrogate models. Solutions will be explored to extend the models developed for the PWR simulator to other reactor types and SA codes. The training data-base of SA sequences used for machine-learning will be made openly available. Developing an enhanced version of ASTEC and interfacing it with a commercial simulation environment will make it possible for the industry to develop engineering and full-scale simulators in the future. These can be used to design SA management guidelines, to develop new safety systems and to train operators to use them.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-11-2022

Data scadenza: 31-10-2026

Contributo totale: € 3.008.132

Costo eleggibile totale: € 3.700.349

Contributo a ENEA: € 160.875

Costo eleggibile ENEA: € 247.500

Doc. approvazione: 078 /2022/FSN

Codice atto: PF6AAU

Resp. scientifico ENEA: MASCARI FULVIO

Unità: FSN-SICNUC-SIN

Attività ENEA:

ENEA è coinvolta nei seguenti work package: . WP1 dedicato alla definizione della strategia di modellazione ed al supporto degli altri WP. . WP2 dedicato alla generazione del database necessario per il training degli algoritmi di machine learning per i modelli surrogati . WP3 dedicato all'esplorazione dell'applicabilità di diverse metodologie di machine learning e sviluppo di modelli surrogati . WP6 dedicato alla comunicazione ed alla disseminazione dei risultati del progetto, all'organizzazione delle attività di training e alle conclusioni del progetto.



BATTERY 2030-CSA3 large-scale research initiative: At the heart of a connected green society

Coordinatore: UNIV. UPPSALA (Svezia)

N. Partner: 23

Abstract:

Collaborative, long-term research on future battery technologies has since 2019 been supported by the European Commission with the BATTERY 2030+ initiative. This project, BATTERY 2030+ CSA3, builds on earlier CSA efforts to coordinate and monitor research projects earmarked BATTERY 2030+ to work together towards the goals in the BATTERY 2030+ roadmap. Other HE R&I projects are invited as associated. The overall aim of the BATTERY 2030+ initiative, is to invent the batteries of the future by providing breakthrough technologies to the European battery industry across the full value chain; to strengthen long-term European leadership in both existing markets (road transport, stationary energy storage), and future emerging applications (aerospace, medical devices, internet of things). In this third phase Accelerated Materials Discovery, Battery Interfaces, Smart Functionalities, Manufacturing and Recycling are covered. BATTERY 2030+ CSA3 builds on, and extends beyond, the earlier achievements of the BATTERY 2030+ initiative with five objectives: - Obj 1: Implementation and monitoring of the research activities contributing to the BATTERY 2030+ initiative - Obj 2: Update and develop the BATTERY 2030+ roadmap, by mapping ongoing R&I activities and identifying emerging obstacles and research needs - Obj 3: Accelerate the research by identifying and making available best practices and guidelines for ontology development, data sharing and standardizations - Obj 4: Contribute to European curricula in future battery technologies - Obj 5: Promote and communicate the objectives and the achievements of the BATTERY 2030+ initiative and strengthen collaboration with other EU R&I battery initiatives. The CSA3 consortium consists of 19 leading European universities and research institutes (UU, AIT, CEA, CIC Energigune, CIDETEC, CNRS/LRCS, DTU, EMPA, ENEA, FRAUNHOFER, FZJ, KIT, WWU, NIC, POLITO, SINTEF, TU Delft, VUB, and WTU) and 4 Associations (Recharge, EASE, EMIRI, and VDI-VDE-T)

Anno di stipula: 2023

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Cluster 5 - D2 Cross-cutting solutions

Data inizio: 01-09-2023

Data scadenza: 31-08-2026

Contributo totale: € 3.102.224

Costo eleggibile totale: € 3.102.224

Contributo a ENEA: € 30.500

Costo eleggibile ENEA: € 30.500

Doc. approvazione: 87/2023/TERIN

Codice atto: PK4AAX

Resp. scientifico ENEA: AURORA ANNALISA

Unità: TERIN-PSU-ABI

Attività ENEA:

Il consorzio Battery 2030+ è al suo terzo mandato e l'ENEA è presente in esso fin dalla prima costituzione. Da tal contesto sono scaturite ben due roadmap e una serie di call di H2020. In questa terza fase l'ENEA proseguirà con il suo ruolo attivo con l'obiettivo di continuare a rafforzare e coordinare i network nazionali da innestare a livello europeo. In questo progetto l'ENEA è coinvolta nelle seguenti task: 1. Task 1.2: Meetings with B2030+ associated projects to collaborate with the CSA3 and the B2030+ projects 2. Task 2.2: Research Vision and Research & Innovation Roadmap 3. Task 5.3: Communication and dissemination coordination within the European R&I landscape 4. Task 6.1: Strategic decision making

Coordinatore: KIC INNOENERGY SE (Paesi Bassi)

N. Partner: 15

Abstract:

Batteries Europe Secretariat (BEST) proposal aims to enrich, strengthen and extend the key role of Batteries Europe by gathering academia, industry and research expertise within the Secretariat to consolidate the Battery R&I community and assist the existing platform in the achievement of their ambitious goals. BEST consortium will engage in its experts working groups industry stakeholders, academia, policy makers, researchers and citizens from all the value chain, especially broadening involvement on underrepresented domains and countries. BEST will contribute to gain synergies among battery R&I stakeholders' landscape, consolidate the workflow among the initiatives, facilitate free and inclusive access to information, strength industry-research collaboration to push technology developments to reduce time to market of new solutions, reinforce European talent attraction capacity and provide fact-based orientations to policy makers. The Secretariat will gather expertise to develop Strategic R&I agenda, design updated roadmaps, establish KPIs per application (transport, stationary, portable, etc.) to nurture the SET Plan, contribute to standards and reporting methodologies harmonization, promote education on battery fields and rise social awareness. The Secretariat will organize workshops per objectives, complemented with experts' interviews, discussion forums, scientific papers review, etc. to confront current state of the art with future trends, considering international tendencies. BEST is formed by 11 partners and 4 affiliated entities, led by Innonergy, with ZABALA, CLERENS SINTEF, VDI/VDE INNOVATION, CICenergiGUNE INSTM (UNIMIB, UNIPV, POLITO), EERA, EASE and ENEA. The partners are promoters of main European initiatives related to batteries that has facilitated the establishment of collaboration flows to bring Batteries Europe Platform to next stage in 36 months.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Cluster 5 - D2 Cross-cutting solutions

Data inizio: 01-05-2022

Data scadenza: 30-04-2025

Contributo totale: € 2.999.886

Costo eleggibile totale: € 2.999.976

Contributo a ENEA: € 263.588

Costo eleggibile ENEA: € 263.588

Doc. approvazione: 104/2022/TERIN

Codice atto: PK4AAQ

Resp. scientifico ENEA: AURORA ANNALISA

Unità: TERIN-PSU-ABI

Attività ENEA:

L'ENEA è coinvolta con peso differente in tutti i WP ad eccezione del secondo. Il maggior e considerevole contributo è nel WP3 (R&I for European Industrial Competitiveness) in cui fornirà supporto nella stesura della (i) SRIA (Strategic Research and Innovation Agenda), (ii) delle Roadmaps dei singoli WG di Batteries Europe, (iii) nella definizione delle KPI (Key Performance Indicators) e nella definizione delle linee guida per uniformare gli standard e le metodologie di reporting nell'ambito della letteratura scientifica inerente alle batterie. In quest'ultima task l'ENEA svolge il ruolo di coordinamento.

Beyond EPICA Oldest Ice Core: 1,5 Myr of greenhouse gas – climate feedbacks

Coordinatore: CNR - CONSIGLIO NAZIONALE DELLE RICERCHE (Italia)

N. Partner: 12

Abstract:

To better constrain the long-term response of Earth's climate system to continuing greenhouse gas emissions, it is essential to turn to the past. A key advance would be to understand the shift in Earth's climate response to orbital forcing during the 'Mid-Pleistocene transition' [MPT, 900,000 (900 kyr) to 1.2 million years (1.2 Myr) ago], when a dominant 40 kyr cyclicity gave way to the current 100 kyr period. It is critical to understand the role of forcing factors and especially of greenhouse gases in this transition. Unravelling such key linkages between the carbon cycle, ice sheets, atmosphere and ocean behaviour is vital, assisting society to design an effective mitigation and adaptation strategy for climate change. Only ice cores contain direct and quantitative information about past climate forcing and atmospheric responses. However, the longest (EPICA) ice core record available to date covers only the last 800 kyr. The RIA Topic LC-CLA-08-2018 empowers the European ice core community to perform such an oldest ice core drilling and the project 'Beyond EPICA' is taking on this unique challenge and opportunity. The overarching scientific objective driving 'Beyond EPICA' is to obtain quantitative, high-resolution ice- core information on climate and environmental changes over the last 1.5 Myr. The cause and effect relationship that led to the enigmatic MPT change in the climate system is not understood yet, as important information on global changes in the climate system is still missing. Most of this information, including the phasing of these changes in the Earth System can only be derived from a continuous ice core from Antarctica covering the last 1.5 Myr. This proposal uses the planning derived during the recent BE-OI CSA, and offers an excellent team (the only team globally that could at present accept the challenge of the call), underpinned by excellent infrastructure and capacity, and is currently ensuring it has an excellent location for the core.

Anno di stipula: 2019

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Climate Action, Environment, Resource Efficiency and Raw Materials

Data inizio: 01-06-2019

Data scadenza: 31-05-2025

Contributo totale: € 10.999.942

Costo eleggibile totale: € 10.999.942

Contributo a ENEA: € 2.610.000

Costo eleggibile ENEA: € 2.610.000

Doc. approvazione: 96/2019/PRES

Codice atto: PA0AAK

Resp. scientifico ENEA: FREZZOTTI MASSIMO

Unità: SSPT-PROTER-OAC

Attività ENEA:

L'ENEA è impegnata nel progetto attraverso l'Unità Tecnica Antartide che ha il compito di attuare le attività logistiche, integrandole nella più ampia e generale gestione delle spedizioni antartiche e della stazione Concordia. Per gli aspetti scientifici del progetto l'Unità Tecnica Antartide si avvale del supporto del Dipartimento Sostenibilità dei sistemi produttivi e territoriali.

Coordinatore: EMBL - EUROPEAN MOLECULAR BIOLOGY LABORATORY (Organ. Internazionali) N. Partner: 31

Abstract:

Marine biodiversity sustains ecosystem services for planetary and human health. Recent surveys of marine ecosystems have unveiled our ignorance of the richness and functioning of marine life, which is changing in the Anthropocene at a faster pace than terrestrial life. BIOcean5D unites major European centers in molecular/cell biology (EMBL), marine biology (EMBRC), and sequencing (Genoscope), together with 26 partners from 11 countries, to build a unique suite of technologies, protocols, and models allowing holistic re-exploration of marine biodiversity, from viruses to mammals, from genomes to holobionts, across multiple spatial and temporal scales stretching from pre-industrial to today. A focus is to understand pan-European biodiversity land-to-sea gradients and ecosystem services, including marine exposomes, notably with an expedition (TREC, 2023/24) that will deploy mobile labs, research vessels including the Tara schooner, and innovative citizen science tools, across 21 coastal countries and 35 marine labs from the Mediterranean to Arctic seas. New data will be harmonized with existing data into an open-access data hub, leveraging international infrastructures, and generating transformative, crosstechnologies/cross-scales standard marine biodiversity knowledge at the socio-ecosystem level. Knowledge will inform and constrain (i) new theories and models of marine biodiversity ecological and evolutionary dynamics and drivers, at both taxonomic and functional scales, (ii) a portfolio of novel holistic indicators of marine ecosystem health, (iii) innovative methods and protocols for economic and legal valuations of marine biodiversity and services integrating the dynamical and functional complexity of marine life. BIOcean5D will create a unique opportunity to bridge molecular/subcellular biology to organismal biology, theoretical ecology and econometrics, and marine complex systems to social sciences, toward the sustainable preservation of our oceans and seas.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Data inizio: 01-12-2022

Data scadenza: 30-11-2026

Contributo totale: € 15.449.903

Costo eleggibile totale: € 15.449.903

Contributo a ENEA: € 141.945

Costo eleggibile ENEA: € 141.945

Doc. approvazione: 126/2022/SSPT-MET

Codice atto: PS2ACJ

Resp. scientifico ENEA: NAPOLITANO ERNESTO

Unità: SSPT-MET-CLIM

Attività ENEA:

Le attività ENEA prevedono la produzione di una simulazione di tipo hindcast (ricostruzione del clima passato) ad altissima risoluzione spaziale per il Mar Mediterraneo che tenga conto non solo delle variabili fisiche ma anche di tutte le variabili biogeochimiche. In particolare sono previste le seguenti attività: costruzione del modello fisico; implementazione della componente biogeochimica; produzione dei forzanti meteorologici; realizzazione della simulazione di hindcast.

Coordinatore: ISINNOVA - Istituto di Studi per l'Integrazione dei Sistemi (Italia)

N. Partner: 22

Abstract:

BIOMETHAVERSE (Demonstrating and Connecting Production Innovations in the BIOMETHAne uniVERSE) aims to diversify the technology basis for biomethane production in Europe, to increase its cost-effectiveness, and to contribute both to the uptake of biomethane technologies and to the priorities of the SET Plan Action 8. To this aim five innovative biomethane production pathways will be demonstrated in five European countries: France, Greece, Italy, Sweden, and Ukraine. The project is based on the following founding pillars: Demonstration of innovative biomethane pathways; Technology optimisation and upscaling by technoeconomic flowsheeting; Environmental and social sustainability assessment; Replicability, market penetration, support to planning decisions of other investors and project developers, policy recommendations to policy makers; Dissemination, exploitation and communication of project results. BIOMETHAVERSE relates, within the Work Program 2021-2022 on Climate, Energy and Mobility, to the Call "Sustainable, secure and competitive energy supply", specifically to the topic HORIZON-CL5-2021-D3-03-16: Innovative biomethane production as an energy carrier and a fuel. The project production routes cover one or a combination of the following production pathways: thermochemical, biochemical, electrochemical, and biological. As a starting point, four demonstration plants use conventional anaerobic digestion (AD), and one uses conventional gasification. In the BIOMETHAVERSE demonstrators, CO₂ effluents from AD or gasification and other intermediate products are combined with renewable hydrogen or renewable electricity directly to increase the overall biomethane yield. All demonstrated production routes go beyond conventional technologies, with a circular approach for energy and material, while aiming at reducing the overall biomethane production costs and increasing the biomethane production. The demonstrated technologies will reach TRL 6-7 at the end of the project.

Anno di stipula: 2022

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 5 - D3 Energy supply

Data inizio: 01-10-2022

Data scadenza: 31-03-2027

Contributo totale: € 9.871.769

Costo eleggibile totale: € 11.489.961

Contributo a ENEA: € 595.325

Costo eleggibile ENEA: € 595.325

Doc. approvazione: 196/2022/TERIN

Codice atto: PK4AAS

Resp. scientifico ENEA: AGOSTINI ALESSANDRO

Unità: TERIN-PSU-ABI

Attività ENEA:

Le attività di pertinenza ENEA sono di natura modellistica pertanto non richiedono l'utilizzo di laboratori e prevedono come prodotti rapporti, pubblicazioni e databases. 1 - Supporto al coordinamento (WP1) 1.1 leadership task 1.2 ed elaborazione e aggiornamento Data Management Plan (Task 1.2) (6 PM) 3 – leadership della valutazione e ottimizzazione dei casi studio (WP3) 3.1 definizione della metodologia e strategia di raccolta dati (task 3.1) 3.2 modellazione dei casi studio e valutazione tecnoeconomica (task 3.2)

Business Relays for Innovation and Development Growing Economies

Coordinatore: S.I. IMPRESA - SERVIZI INTEGRATI IMPRESA (Italia)

N. Partner: 13

Abstract:

The project "BRIDGeconomies_2022-2025 (Business Relays for Innovation and Development of Growing Economies) proposed by this consortium covers the following regions of Southern Italy: Abruzzo, Basilicata, Calabria, Campania, Molise, Apulia and Sicily. The members of the consortium and their Host Structures include public/semi-public entities, whose activities are directly addressed to SMEs, guaranteeing an interregional coverage and services providing in all activity areas indicated in the call. The Consortium, already having a multi-annual experience in the Enterprise Europe Network, includes: the Italian Chamber of Commerce System - representing all entrepreneurial associations and the labour/civil society - specialised in services to SMEs, including the Special Agency of Naples Chamber of Commerce (SI IMPRESA); - an industrial association at regional level, in Sicily (Sicindustria); - scientific and technological organisation, specialised in innovation/research services to SMEs, including the National government Agency for new technologies, energy and environment (ENEA). Consortium partner will support SMEs, to innovate, grow and scale in the single market and beyond, contributing to their triple transition towards: sustainability, digitalisation and resilience. The proposed Consortium has 12 partners, involved since 2008 in the Enterprise Europe Network and one new partner which is a public/private organisation participated by ENEA (CETMA).

Anno di stipula:	2022
Tipo progetto:	SA - Azioni di supporto
Programma UE:	Other programmes 2021-2027
Data inizio:	01-01-2022
Data scadenza:	30-06-2025
Contributo totale:	€ 7.088.722
Costo eleggibile totale:	€ 11.764.210
Contributo a ENEA:	€ 1.053.124
Costo eleggibile ENEA:	€ 1.755.207
Doc. approvazione:	10/2022/ISV
Codice atto:	PZ1AAC
Resp. scientifico ENEA:	AMERIGHI OSCAR
Unità:	ISV-DST-KES

Attività ENEA:

Le attività di pertinenza ENEA riguarderanno la partecipazione al nodo della rete Enterprise Europe Network (EEN) denominato BRIDGeconomies, nelle regioni del Sud Italia. In particolare ENEA parteciperà alle attività del nodo EEN BRIDGeconomies per le regioni Campania e Puglia. Unità ENEA coinvolte: ISV-DST-KES, ISV-STP, ISV-MARK; ISER-POR; TERIN, TERIN-ICT, TERIN-STSN-SGRE; SSPT-SEC, SSPT, SSPT-USER-RISE, SSPT-USER-T4RM



Concerted Action on the Energy Efficiency Directive

Coordinatore: MINISTRY OF ECONOMIC AFFAIRS AND CLIMATE POLICY (Paesi Bassi)

N. Partner: 28

Abstract:

The objective of the 3rd Concerted Action on the Energy Efficiency Directive (CA EED3) is to foster exchange of information and experience among Member States and other participating countries (Norway) with a view to facilitating the implementation of the Directive of 2018/2002 amending Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency (EED), including the implementation of the foreseen recast of this Directive. The Action follows on from the CA ESD, CA EED and CA-EED 2 which has helped MS with the interpretation of the legislation, the implementation options and support via detailed information and access to experts on mature policies and practices. The specific objectives of the Action are: • To enhance and structure the sharing of information and experiences from national implementation whilst promoting good practice concepts in activities to improve and strengthen MS implementation of the EED. • To encourage dialogue between MS on common approaches for the effective implementation of particular parts of the EED and synergies with RED and EPBD. • To complement the work of the EED Committee assisting the European Commission. The expected impact of the Action consists of a more harmonized approach and improved implementation of the EED in MS, as well as the transfer of good practices between countries and strengthened cross fertilisation with CA EPBD and CA RES. The CA EED3 brings together a unique group of experts and policy makers, it is the only informal group with full representation of all Member States and Norway and by its very nature provides MS, DG Energy and CINEA with a unique opportunity to communicate in an informal way on a technical level with relevant experts. The Concerted Action community has developed during the course of the CA ESD, CA EED and CA-EED 2 making it easy to find entry points in MS where without the Action contacts would be difficult. In turn the road is paved for bilateral cooperation.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON 2020
Energy

Data inizio: 01-01-2022

Data scadenza: 31-12-2027

Contributo totale: € 4.999.770

Costo eleggibile totale: € 4.999.770

Contributo a ENEA: € 70.490

Costo eleggibile ENEA: € 70.490

Doc. approvazione: 26/2021/DUEE-SPS

Codice atto: PW3ABA

Resp. scientifico ENEA: SALAMA ANNA MARIA

Unità: DUEE-SPS-MPE

Attività ENEA:

L'ENEA partecipa contribuendo alle attività di tutti i WP (sotto riportati) ma in particolare a quelle dei WP 3, 4, 5 e 7: . WP1: Coordinamento . WP2: Team di Gestione de I Progetto (Management Team) . WP3: Aree di Esperti e Settori Tematici (Domains) . WP4: Gruppi di Lavoro . WP5: Riunioni Plenarie di Progetto, Riunioni dei Punti di Contatto Nazionali e Visite Studio . WP6: comunicazione e divulgazione dei risultati . WP7: attività di reporting.



Coordinatore: HYGEOS SARL (Francia)

N. Partner: 15

Abstract:

The European Union's flagship Space programme Copernicus provides a key service to the European society, turning investments in space-infrastructure into high-quality information products. The Copernicus Atmosphere Monitoring Service (CAMS, <https://atmosphere.copernicus.eu>) exploits the information content of Earth-Observation data to monitor the composition of the atmosphere. By combining satellite observations with numerical modelling by means of data assimilation and inversion techniques, CAMS provides in near-real time a wealth of information to answer questions related to air quality, climate change and air pollution and its mitigation, energy, agriculture, etc. CAMS provides both global atmospheric composition products, using the Integrated Forecasting System (IFS) of ECMWF - hereafter denoted the global production system - , and regional European products, provided by an ensemble of eleven regional models - the regional production system. The CAMS AERosol Advancement (CAMAERA) project will provide strong improvements of the aerosol modelling capabilities of the regional and global systems, on the assimilation of new sources of data, and on a better representation of secondary aerosols and their precursor gases. In this way CAMAERA will enhance the quality of key products of the CAMS service and therefore help CAMS to better respond to user needs such as air pollutant monitoring, along with the fulfilment of sustainable development goals. To achieve this purpose CAMAERA will develop new prototype service elements of CAMS, beyond the current state-of-art. It will do so in very close collaboration with the CAMS service providers, as well as other tier-3 projects. In particular CAMAERA will complement research topics addressed in CAMEO, which focuses on the preparation for novel satellite data, improvements of the data assimilation and inversion capabilities of the CAMS production system, and the provision of uncertainty information of CAMS products.

Attività ENEA:

L'ENEA rivestirà il ruolo di partner di progetto. L'ENEA dovrà sviluppare all'interno del sistema modellistico MINNI il modello di deposizione secca delle particelle di aerosol per includere al meglio l'effetto del "land-use", in particolare della vegetazione. In particolare, l'attività prevedrà: - di innovare il codice delle deposizioni secche già esistente considerando nuove parametrizzazioni e nuovi dati di input; - di verificare i risultati del sistema modellistico MINNI partecipando a esercizi di "intercomparison" di produrre report periodici sulle attività svolte.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 4 - Digital, Industry and Space

Data inizio: 01-01-2024

Data scadenza: 31-12-2026

Contributo totale: € 2.998.418

Costo eleggibile totale: € 2.998.418

Contributo a ENEA: € 37.380

Costo eleggibile ENEA: € 37.380

Doc. approvazione: 296/2023/SSPT-MET

Codice atto: PS2ACU

Resp. scientifico ENEA: MIRCEA MIHAELA

Unità: SSPT-MET-INAT



Coordinatore: ECMWF - EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS N. Partner: 23
 (Organ. Internazionali)

Abstract:

Monitoring the composition of the atmosphere is a key objective of the European Union's flagship Space programme Copernicus, with the Copernicus Atmosphere Monitoring Service (CAMS) providing free and continuous data and information on atmospheric composition. The CAMS Service Evolution (CAMEO) project will enhance the quality and efficiency of the CAMS service and help CAMS to better respond to policy needs such as air pollutant and greenhouse gases monitoring, the fulfilment of sustainable development goals, and sustainable and clean energy. CAMEO will help prepare CAMS for the uptake of forthcoming satellite data, including Sentinel-4, -5 and 3MI, and advance the aerosol and trace gas data assimilation methods and inversion capacity of the global and regional CAMS production systems. CAMEO will develop methods to provide uncertainty information for users of CAMS emissions, policy, solar radiation and deposition products in response to prominent requests from current CAMS users. CAMEO will contribute to the medium to long-term evolution of the CAMS production systems and products. The transfer of developments from CAMEO into subsequent improvements of CAMS operational service elements is a main driver for the project and is the main pathway to impact for CAMEO. The CAMEO consortium, led by ECMWF, the entity entrusted to operate CAMS, includes several CAMS partners thus allowing CAMEO developments to be carried out directly within the CAMS production systems and facilitating the transition of CAMEO results to future upgrades of the CAMS service. This will maximise the impact and outcomes of CAMEO as it can make full use of the existing CAMS infrastructure for data sharing, data delivery and communication, thus supporting policymakers, business and citizens with enhanced atmospheric environmental information.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

HORIZON EUROPE

Programma UE: Cluster 4 - Digital, Industry and Space

Data inizio: 01-01-2023

Data scadenza: 31-12-2025

Contributo totale: € 7.499.953

Costo eleggibile totale: € 7.499.953

Contributo a ENEA: € 110.000

Costo eleggibile ENEA: € 110.000

Doc. approvazione: 231/2022/SSPT-MET

Codice atto: PS2ACM

Resp. scientifico ENEA: ADANI MARIO

Unità: SSPT-MET-INAT

Attività ENEA:

Le attività previste dal progetto CAMEO costituiscono il naturale prosieguo del progetto CAMS50 (leader Meteo France), svolto insieme ad altri 9 istituti europei e del progetto CAMS2_40 che prevede la messa in operatività del modello MINNI al pari degli altri partner. L'attività proposta consente all'Italia e al modello di calcolo di ENEA (diffuso tra l'altro in molteplici Agenzie Regionali per l'Ambiente) di sviluppare nuove funzionalità utili ai servizi CAMS e mantenere un livello di sviluppo pari agli altri sistemi modellistici del progetto CAMS2_40. L'ENEA dovrà sviluppare all'interno del sistema modellistico MINNI la capacità di poter assimilare i prodotti del sensore satellitare Tropomi montato su uno dei satelliti costellazione Sentinel nell'ambito del programma Copernicus. In particolare l'attività prevede:

- di innovare algoritmi di assimilazione già esistenti
- di produrre esperimenti numerici di assimilazione per gli inquinanti CO, O₃, SO₂ e NO₂
- di produrre report periodici sulle attività svolte

Coordinatore: METEO-FRANCE CENTRE NATIONAL DE RECHERCHES METEOROLOGIQUES N. Partner: 2
(Francia)

Abstract:

This ITT, entitled 'Regional air quality products' is for the operational delivery of the European-scale air quality component of CAMS. It consists of a set of services, which are further detailed in the technical specification in ITT documents. The production must be based upon a geographically distributed ensemble of more than ten individual models and a central processing function to deliver three numerical data streams: on a daily basis, analyses for the previous day and forecasts for key air pollutants up to +96h with a temporal resolution of one hour; with a delay of a few weeks (in order to maximise the number of observations), interim reanalyses shall be produced daily with systems frozen in their configuration of January 1st every year; with a delay of up to two years (due to the delay in getting fully validated data), reanalyses shall be produced with frozen systems, which are only updated every few years. All the individual Regional Systems must be mature, well-validated and operated by their main developers. This aspect is essential so that the operators can directly maintain a continuous workflow of changes to the numerical systems, in order to include new research developments, to make corrections reflecting findings from verification and validation activities, as well as to implement changes to better meet user requirements. Acquisition of data, production of analyses, reanalyses and forecasts, data dissemination services and support to the users form the bulk of the operational delivery and development activities that are procured within this ITT.

Anno di stipula:	2021
Tipo progetto:	Service contract
Programma UE:	Other programmes Copernicus
Data inizio:	01-11-2021
Data scadenza:	31-05-2025
Contributo totale:	€ 6.496.496
Costo eleggibile totale:	€ 6.496.496
Contributo a ENEA:	€ 466.000
Costo eleggibile ENEA:	€ 466.000
Doc. approvazione:	316/2021/SSPT-MET
Codice atto:	CS2ACA
Resp. scientifico ENEA:	ADANI MARIO
Unità:	SSPT-MET-INAT

Attività ENEA:

L'ENEA svolge in particolare le seguenti attività: . Congiuntamente con TERIN-ICT-HPC, mantenere attiva una versione operativa del modello previsionale nei termini del contratto CAMS2_40 Regional Air Quality Production, con: operazioni quotidiane di acquisizione delle previsioni meteorologiche operative ad alta risoluzione fornite da ECMWF; acquisizione del dataset di incendi e condizioni al contorno chimiche fornite dal programma Copernicus; acquisizione ed assimilazione delle osservazioni di qualità dell'aria fornite dall' European Environment Agency (EEA) e delle osservazioni avanzate sulla composizione chimica fornite dai programmi ACTRIS and EMEP; . Recepire gli sviluppi del modello così come richiesti dal committente a tutti gli 11 modelli operativi . Produrre report periodici di varia tipologia, secondo la tempistica indicata dal committente.

Coordinatore: UEFISCDI - EXECUTIVE UNIT FOR RESEARCH, DEVELOPMENT AND INNOVATION. Partner: 59
HIGHER EDUCATION FUNDING (Romania)

Abstract:

CapaCITIES will shape a European environment conducive to urban climate neutrality transitions for national, regional and local authorities. The project aims to initiate and strengthen national change processes by establishing national networks and governance structures and by providing dedicated support for public authorities to put enabling conditions and measures for cities in place for achieving the cities mission. To achieve this ambition, the CapaCITIES consortium represents 15 European countries who have committed to initiative and strengthen national change processes by ministerial or other high political level. CapaCITIES thereby build on a well-established network of national authorities (national ministries and agencies responsible for urban transition) with its relevant urban stakeholder organisations beyond the consortium partners and countries. To all project partners CapaCITIES offers dedicated services to in support of national change process. First, a transnational alliance for public authorities to exchange, learn and inspire each other in their transition towards climate neutral cities. Second, support in prototyping innovative multi-level and cross sector governance structures. Third, thematic capacity building for public authorities and support in taking effective local action and fourth, strategic synergies and access to other initiatives that address the climate neutral and smart cities mission.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Mission Climate neutral and smart cities

Data inizio: 01-10-2022

Data scadenza: 30-09-2024

Contributo totale: € 1.997.951

Costo eleggibile totale: € 1.997.952

Contributo a ENEA: € 65.187

Costo eleggibile ENEA: € 65.187

Doc. approvazione: 175/2022/TERIN

Codice atto: PK5AAK

Resp. scientifico ENEA: CLERICI MAESTOSI PAOLA

Unità: TERIN-SEN

Attività ENEA:

ENEA TERIN SEN coordina attività a supporto della crescita professionale dei dipendenti delle pubbliche amministrazioni urbane in merito ai temi della sostenibilità energetica e svolge funzioni di supporto alla diffusione ed alla replicabilità dei modelli di sostenibilità urbana anche attraverso strumenti e metodi già ampiamente utilizzati nel corso degli anni.

Novel Ceramic Matrix Composites produced with Microwave assisted Chemical Vapour Infiltration process for energy-intensive industries

Coordinatore: UNIV. PISA (UNIPI) (Italia)

N. Partner: 13

Abstract:

The “European Green Deal” aims at Europe as the first climate-neutral continent by 2050. Research and innovation on technologies allowing intense exploitation of renewable energy is paramount. Renewable energy sources are, for their very nature, fluctuating, and potentially generating extreme conditions. Adaptation and optimisation of current processes to changes caused by increased use of renewable energy sources is particularly important in energy-intensive industries. Novel materials are needed to sustain conditions, such as higher temperatures and corrosive environments and, at the same time, guarantee energy efficiency and high-performances. Materials potentially able to withstand such extreme conditions keeping excellent thermo-mechanical properties already exist, but are currently used only in sectors such as aerospace due to the high production costs: Ceramic Matrix Composites (CMCs). In CEM-WAVE we aim at introducing an innovative CMC production process, based on Microwave-assisted Chemical Vapour Infiltration (MW-CVI) technologies. This novel proposed process will extremely reduce processing costs, thus making CMCs sustainable for process industries in energy-intensive sectors such as steelmaking. In more detail, CEM-WAVE aims at validating, in a radiant tube furnace, a small scale CMC-based tube embedded with sensors, substituting Inconel/Stainless steel alloys currently employed. The research and innovation work will be flanked by Artificial Intelligence (AI)-aided modelling research to predict the material behaviour, and will develop innovative joining and coating technologies to produce complex shaped components and further improving their high-temperature corrosion resistance. Life-Cycle Assessment (LCA), Life-Cycle Costing (LCC) and Thermo-economic Analysis (TA) will guarantee that the project follows at every step the best directions in term of sustainability and future market uptake of the generated results.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

NMBP Nanotechn., Adv Materials, Adv Manufacturing and Processing, and Biotech

Data inizio: 01-10-2020

Data scadenza: 31-03-2024

Contributo totale: € 4.878.720

Costo eleggibile totale: € 4.878.720

Contributo a ENEA: € 189.614

Costo eleggibile ENEA: € 189.614

Doc. approvazione: 166/2020/SSPT-PROMAS

Codice atto: PS3ACV

Resp. scientifico ENEA: MINGAZZINI CLAUDIO

Unità: SSPT-PROMAS-TEMAF

Attività ENEA:

Le attività ENEA prevedono l'esecuzione di attività sperimentali relative alla qualificazione dei nuovi materiali, nonché un contributo alla messa a punto dei processi. L'ENEA è work package leader del WP4 (caratterizzazione meccanica ed ageing accelerato dei materiali) ed è anche coinvolto nei WP1, WP6, WP8, WP9 e WP10).

Coordinatore: CETMA - Centro di Ricerche Europeo di Tecnologie, Design e Materiali (Italia)

N. Partner: 15

Abstract:

The project proposes the creation of an EDIH by CETMA, a non-profit RTO with over 20 years of experience in innovation services to SMEs in Southern Italy. The project is strongly focused on the local economic and social reality (Apulia and Basilicata) where the partners are strongly rooted. It starts from the vision that AI, HPC and CS technologies can bring significant benefits to the development of the Territory, but this requires that all local actors are involved such as PA and SMEs, even the smallest and even those operating in more traditional sectors. Based on the experience of CETMA and analysis of innovation experts, CETMA-DIHSME starts from the consideration that to foster innovation in small businesses, in addition to "problem solving" services (technology consulting, research, engineering, etc.), it is necessary to support SMEs with "problem setting" services (strategic analysis, business planning, fundraising, supply chain relations, etc.). This is the way to break the vicious circle that grips them because they generally do not have their own resources to devote to these functions and are unable to seize the opportunities of new technologies. For this reason, the project foresees an integrated offer of "business and strategy setting" and technological services. An intensive promotional campaign has been planned to attract as much as possible the SMEs that are generally too busy in their daily routine. An integrated offer of demonstrations has been planned for all sectors of the local economy and for local administrations. The project aims to trigger synergies with the relevant opportunities offered by regional, national, and European innovation policies and funding. It also wants to exploit the great opportunities of the creation of a structured network of EDIH to promote cohesion between European territories to take advantage of social, economic, and environmental benefits.

Anno di stipula: 2022

Tipo progetto: DIGITAL Simple Grants

Programma UE: Other programmes 2021-2027

DIGITAL

Data inizio: 01-09-2022

Data scadenza: 30-09-2025

Contributo totale: € 2.924.738

Costo eleggibile totale: € 5.849.476

Contributo a ENEA: € 227.157

Costo eleggibile ENEA: € 454.313

Doc. approvazione: 188 /2022/TERIN

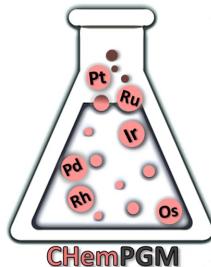
Codice atto: PK3AAF

Resp. scientifico ENEA: MARIANO ANGELO

Unità: TERIN-ICT

Attività ENEA:

Il progetto coinvolge competenze già presenti in ENEA nei seguenti campi: • Applicazione di sistemi di calcolo ad alte prestazioni (HPC); • Integrazione di grandi moli di dati (Big Data) provenienti da sorgenti eterogenee e funzionalità di accesso agli stessi in modo distribuito; • Gestione di ambienti virtuali basati su cloud computing; • Intelligenza Artificiale • Cybersecurity



Coordinatore: MONOLITHOS RECYCLING TECHNOLOGIES (Grecia)

N. Partner: 7

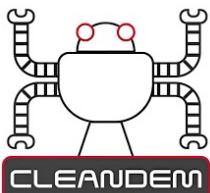
Abstract:

The CHemPGM project is a joint initiative of 7 expert organizations from the fields of chemistry, engineering, mining, metallurgy and materials science, designed to conduct fundamental research regarding the chemistry of platinum group metals (PGMs) and utilize the obtained knowledge to improve and secure the PGMs value chain. Specifically, the project aims: i) to establish fundamental knowledge regarding the chemistry of the PGMs, their reactions and complexation with other metals and chemical compounds, and the corresponding reactivities during leaching, separation and recovery processes; ii) to gain a complete understanding of the mechanisms associated with the above-mentioned processes, during the utilization of secondary materials to extract PGMs and incorporate them into new materials and processes such as nanomaterials, catalysis and CO₂ capture; iii) to create knowledge, provide expertise and educate the public. This will lead to the upgrading of existing processes and the development of new ones, aligned with sustainable principles, to ensure a circular operation model of the relevant industries. Through the involvement of universities, RTOs and SMEs, CHemPGM is backed by a well-rounded team, with multiyear expertise in the relevant fields, capable to deliver high-quality results regarding the project objectives. The consortium approaches the challenge from a multidiscipline aspect and proposes a balanced number of secondments alongside trainings, workshops, seminars and events that guarantee a cross-sectorial synergy among them. As a result, CHemPGM will broaden the expertise of the organizations, contribute to the advancement of the secondees and enhance the potential for innovation to its stakeholders and those inter-related with it. Overall, the methodology for carrying out the tasks involved, guarantees the smooth running of the project and the successful fulfillment of the objectives to contribute towards a more efficient and sustainable future.

Attività ENEA:

L'obiettivo specifico dei ricercatori ENEA all'interno del progetto è quello della sintesi e caratterizzazione di materiali innovativi che utilizzano i metalli del gruppo del Pt, riciclati dagli altri partner, per lo sviluppo di materiali innovativi per la cattura e riutilizzo della CO₂ e/o per l'implementazione di processi catalitici. Queste attività sono di importanza strategica per il gruppo e integreranno le attività già esistenti sulla cattura della CO₂.

Anno di stipula:	2021
Tipo progetto:	MSCA RISE - Research and Innovation Staff Exchange
Programma UE:	HORIZON 2020
Data inizio:	01-05-2021
Data scadenza:	30-04-2025
Contributo totale:	€ 736.000
Costo eleggibile totale:	€ 736.000
Contributo a ENEA:	€ 110.400
Costo eleggibile ENEA:	€ 110.400
Doc. approvazione:	430/2020/PRES
Codice atto:	PK4AAC
Resp. scientifico ENEA:	GRILLI MARIA LUISA
Unità:	TERIN-PSU-IPSE



Cyber physical Equipment for unmAnned Nuclear DEcommissioning Measurements

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)

N. Partner: 11

Abstract:

The CLEANDEM project, with its collaboration of 11 partners from 4 EU countries, proposes a technological breakthrough associated to various dismantling and decommissioning (D&D) operational steps with an Unmanned Ground Vehicle (UGV) Platform. The CLEANDEM strategy will be based on innovative detection technology systems that will constitute a toolbox for equipping an intelligent robotic platform for fully remote operations. The pre-identified technologies are low-cost sensors. The CLEANDEM project, with its collaboration of 11 partners from 4 different EU countries, proposes a technological breakthrough for dismantling and decommissioning (D&D) operations of nuclear sites, employing an Unmanned Ground Vehicle (UGV) Platform equipped with innovative radiological sensing probes. The aim of the project is to deliver a cyber physical system which will support the end-users' operations, initially performing a radiological assessment of the area and then monitoring D&D operations throughout the final characterization of the plant. This will result in a 3D and fully detailed digital twin of the surveyed area augmented with radiological information provided by the sensors, thus enabling an efficient and effective planning of the dismantling actions and optimizing the nuclear waste sorting for reprocessing or for delivery to the final storage. Targeted impacts of the UGV Platform are to: save time, drastically reduce costs, minimize human intervention, improve workers and population safety and be greener; all of those driving the project execution to match the stakeholders' expectation. The effectiveness of the UGV Platform will be assessed in an extensive testing and validation campaign that will be performed in laboratories, in simulated environment and finally on the field. A demonstration event in a real nuclear site, involving all project partners and external stakeholders, will conclude the three years project activities opening for further exploitation in the D&D market.

Anno di stipula: 2021

Tipo progetto: IA - Innovation Action

HORIZON 2020 - Euratom

Programma UE: Euratom fissione

Data inizio: 01-03-2021

Data scadenza: 29-02-2024

Contributo totale: € 2.795.752

Costo eleggibile totale: € 3.414.843

Contributo a ENEA: € 151.000

Costo eleggibile ENEA: € 151.000

Doc. approvazione: 019 /2021/FSN

Codice atto: PF1AAG

Resp. scientifico ENEA: LEPORE LUIGI

Unità: FSN-FISS-CRGR

Attività ENEA:

L'Agenzia ENEA è coinvolta principalmente nei Work Package 4 "Gamma and neutron detection and identification technologies", 6 "Contamination monitoring" e 8 "Data fusion and DT". Il ruolo dell'ENEA sarà quello di: - WP4: collaborare alle prove sperimentali inerenti al sistema di discriminazione Gamma Neutroni. Il Laboratorio di Caratterizzazione Radiologica parteciperà alla taratura del sistema in laboratorio; predisporrà ed eseguirà prove con le sorgenti di taratura gamma e neutroni per la caratterizzazione dei sistemi per testare e verificare le procedure operative. - WP6: progettare e realizzare un sistema di monitoraggio per la rivelazione continua di C-14 utilizzando elaborazioni digitali del segnale. Il sistema sarà installato in un idoneo impianto nucleare o deposito di rifiuti per il monitoraggio dell'aria atmosferica. - WP8: ottimizzare e coordinare i dati acquisiti da diverse fonti (sensori, campioni di materiali, database storico, ecc.).



Supercritical CO₂ power cycles demonstration in Operational environment Locally valorising industrial Waste Heat

Coordinatore: ETN - EUROPEAN TURBINE NETWORK A.I.S.B.L (Belgio)

N. Partner: 21

Abstract:

CO2OLHEAT will demonstrate at TRL7 in the CEMEX cement manufacturing plant in Prachovice (CZ) the operation of a 2 MW Waste-Heat-to-power (WH2P) skid based on a 2MW-sCO₂ cycle able to efficiently valorize local waste heat at a significant temperature of 400°C. Capitalizing consortium excellent knowledge coming from previous sCO₂ turbomachinery design experience and EU funded projects on industrial waste heat valorisation (TASIO, i-THERM, sCO₂-FLEX etc.) and stimulated by SPIRE roadmap and EU sCO₂ R&D initiatives, CO2OLHEAT aims to valorize waste heat even at higher temperature if compared with the traditional steam/ORC solutions. The project will demonstrate the EU MW scale first-of-a-kind waste heat-sCO₂ plant towards a cheaper/more flexible waste heat valorisation. The project will strengthen EU industrial leadership in both energy intensive industries (making them more competitive) and turbomachinery sectors, bridging the current gap on sCO₂ turbomachinery that EU has with US and Japan-Korea. The project will analyse sCO₂ WH2P potential from a technical, economic and environmental point of view, developing innovative models for the design of the cycle and of the turbomachinery as well as investigating CO2OLHEAT cycle benefits in the cement, glass, aluminium, power generation sectors via techno-economic and Life Cycle based replication feasibility studies, involving relevant EU industrial players (EDF, ENGIE, MYTH, CEMEX, SISECAM, CELSA). The project is coordinated by ETN and involves an industry driven consortium with key turbomachinery OEM (SIE-BH), energy intensive industries, energy utilities and R&D partners all committed to bring soon CO2OLHEAT sCO₂ cycle technologies on the market. Thanks to its robust demonstration and replication campaign (also foreseeing extra-EU stakeholders collaboration), CO2OLHEAT can be considered a “demonstration to market” project, being keystone for EU sCO₂ turbomachinery industry and for a more effective waste heat valorisation.

Attività ENEA:

Le attività che l'ENEA svolgerà all'interno del progetto "CO2OLHEAT" saranno inquadrati nei seguenti work packages: WP1 - analisi di scenario e definizione dei requisiti dell'impianto CO2OLHEAT; WP2 - unità turbo-expander: studi di scale-up del concetto e della tecnologia CO2OLHEAT per potenze maggiori di 5 MW; WP3 - turbina sCO₂: studi di scale-up del concetto e della tecnologia CO2OLHEAT per potenze maggiori di 5 MW; WP6 – campagna presso il sito di dimostrazione Prachovice; WP 7 - analisi di replicabilità e di impatto; WP 8 - disseminazione, comunicazione e sfruttamento; ; WP9 - coordinamento e gestione del progetto: coinvolgimento nei Task di gestione del consorzio sotto la guida di ETN, nel monitoraggio del progresso delle attività, nella redazione di rapporti, e nella gestione del piano di garanzia della qualità scientifica e dei rischi.

Anno di stipula: 2021

Tipo progetto: IA - Innovation Action

HORIZON 2020

Programma UE: Energy

Data inizio: 01-06-2021

Data scadenza: 31-05-2025

Contributo totale: € 13.999.996

Costo eleggibile totale: € 18.813.891

Contributo a ENEA: € 189.163

Costo eleggibile ENEA: € 189.163

Doc. approvazione: 53/2021/TERIN

Codice atto: PK4AAG

Resp. scientifico ENEA: MESSINA GIUSEPPE

Unità: DTE-PCU-IPSE



Coordinatore: BRGM - BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES (Francia) N. Partner: 18

Abstract:

Even if climate change mitigation objectives agreed in Paris are met, sea level will rise at least by 0.3 to 0.6m in 2100 and then continue rising for centuries. The potential impacts for coastal flooding are a major source of concern for Europe because many infrastructures are located close to shorelines or in low-lying areas. Broad scale coastal climate services and platforms available today have successfully addressed the need to raise awareness on mitigation. However, an authoritative, consistent and decision oriented platform is still missing to meet the needs of adaptation practitioners concerned with (1) the routine identification of coastal territories at risk from inundation, (2) coastal land use planning or (3) maintaining coastal infrastructure services. The Coastal Climate Core Service (CoCliCo) project aims at informing decision-making on coastal risk and adaptation, by delivering an open web-platform exploring dominant risk drivers, adjusting visualisation and analysis techniques to local decision contexts, and combining relevant and high-quality geospatial information layers. Through the platform, users will be able to visualize, download and analyse multiple decision-oriented coastal risk scenarios relevant to the rich user narratives of our Demonstration Case Studies addressing the three needs raised above. To meet this challenge, CoCliCo brings together European organizations and scholars that have proven track records of delivering broad-scale coastal risk and adaptation assessment, as well as leading research and technologies in interoperable geospatial data management, decision sciences and risk communication.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Climate Action, Environment, Resource Efficiency and Raw Materials

Data inizio: 01-09-2021

Data scadenza: 31-08-2025

Contributo totale: € 5.999.641

Costo eleggibile totale: € 5.999.641

Contributo a ENEA: € 297.125

Costo eleggibile ENEA: € 297.125

Doc. approvazione: 105/2021/SSPT-MET

Codice atto: PS2ABW

Resp. scientifico ENEA: SANNINO GIANMARIA

Unità: SSPT-MET-CLIM

Attività ENEA:

ENEA sarà coinvolta in 7 degli 8 Work-packages del progetto. Nel corso del progetto ENEA si occuperà principalmente dell'esecuzione di simulazioni climatiche per la proiezione del livello del mare in area mediterranea e del Mar Nero ad alta risoluzione e la gestione dei rapporti con Federlogistica Italia e la divulgazione dei risultati presso gli stakeholder nazionali (autorità portuali, RFI, Confcommercio, ecc).



Coordination of the European Research Community on Nuclear Materials for Energy Innovation

Coordinatore: CIEMAT - CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS (Spagna) Partner: 43

Abstract:

CONNECT-NM is a co-funded European Partnership on nuclear materials for all reactor generations that applies modern digital technologies to materials science practices for the acceleration of innovation. It implements plans elaborated in the ORIENT-NM CSA with 5 strategic goals: (1) Nuclear materials (NM) acceleration platforms; (2) NM test-beds for accelerated qualification; (3) Intelligent materials health monitoring; (4) Advanced methodologies for prediction of materials behaviour in operation; (5) NM knowledge organisation system. Accordingly, the work will be organised in 5 research lines: (1) Advanced materials development & manufacturing; (2) Materials & component qualification: testing, standardization & design rules; (3) Non-destructive examination & materials health monitoring; (4) Advanced materials modelling and characterization; (5) Nuclear materials knowledge & data management. Each research line will coordinate call-selected Projects. CONNECT-NM will centralize transversal activities for the benefit of all Projects: e.g. coordination & management; E&T and infrastructure access; communication, dissemination & result exploitation; interaction with stakeholders; data management. Collaboration is foreseen with international organisations and bodies dealing with safety, standardisation, data management, as well as with fusion & non-nuclear energy communities. All activities align with national and European initiatives on nuclear materials, strengthening R&D&I and avoiding fragmentation and duplication, with direct involvement of industry, TSOs and regulators as active partners and end-users.

Anno di stipula: 2024

Tipo progetto: Programme Cofund Actions

HORIZON EUROPE

Programma UE: Euratom

Data inizio: 01-10-2024

Data scadenza: 30-09-2029

Contributo totale: € 20.000.000

Costo eleggibile totale: € 36.363.813

Contributo a ENEA: € 257.744

Costo eleggibile ENEA: € 468.625

Doc. approvazione: Determinazione n.145/2024/NUC

Codice atto: PF4AAS

Resp. scientifico ENEA: MARTELLI DANIELE

Unità: NUC-ING-ITM

Attività ENEA:

ENEA coordina la RL3/WP6 "Materials and component qualification: testing, standardization and design rules", Inoltre è impegnata nelle seguenti attività: linea di ricerca RL1/WP4 "Nuclear materials knowledge & data management"; WP1 "Coordination and Daily Management", come subtask leader 1.7.1 "Gender Dimension"; e WP3 "Communication, Dissemination and Results Exploitation".



Enhancing cross-border CBRN operational readiness and effectiveness through an overarching System of Systems approach

Coordinatore: AIT - AUSTRIAN INSTITUTE OF TECHNOLOGY (Austria)

N. Partner: 20

Abstract:

The main idea of CBRN SoS (System of Systems) is to design an overarching information system that can integrate different existing national CBRN defence information systems and components in a modular and flexible way. It can be permanently stationed in a specific configuration of core components ready for on demand deployment. Additional elements from different Nations can be added dynamically depending on specific needs of the operation. CBRN SoS addresses Detection, Identification and Monitoring (DIM), Knowledge Management (KM), Physical Protection (PP), and Hazard Management (HM). First an EU CBRN solution inventory study for these components will be conducted. These results will be analysed to identify capability improvements in existing information systems and map out synergies between Member States to define potential entry points for the federated CBRN SoS. Subsequently, the detailed system architecture design will be derived, and key representative parts prototyped to validate the system through demonstrations. The main advantages of CBRN SoS result from the ability for multiple entities from different Member States to collaborate which enhances the overall situational awareness and leads to a faster and more efficient CBRN threat response. Using ATP 45 elements as key pillars for the distributed CBRN SoS software architecture, is an attempt to bring a well-established and known system structure into the fragmented landscape of isolated CBRN solutions. In this way different Nations can relate and map own structures to CBRN SoS more easily, which eventually improves the recognizability and identification of end-users with CBRN SoS. Rather than developing a completely new software solution from scratch, CBRN SoS uses the more efficient and more realistic approach to focus on interfaces to existing solutions and modules, as Member States want to continue using their own solutions and providers but still be able to cooperate in a federated way.

Anno di stipula:	2024
Tipo progetto:	EDF Development Actions
Programma UE:	Other programmes 2021-2027
	EDF - European Defence Fund (2021-2027)
Data inizio:	01-12-2024
Data scadenza:	30-11-2027
Contributo totale:	€ 12.553.708
Costo eleggibile totale:	€ 14.052.330
Contributo a ENEA:	€ 406.440
Costo eleggibile ENEA:	€ 443.250
Doc. approvazione:	215/2024/NUC
Codice atto:	PF7ACA
Resp. scientifico ENEA:	CIMINO MONICA
Unità:	NUC-TECFIS

Attività ENEA:

L'ENEA è partner del progetto e partecipa ai seguenti Work Package: WP2 – EU CBRN systems and CONOPS study (task T2.5: Future technology readiness and European sovereignty, T2.6: Certification and standardisation study, T2.7: Civil interfaces study) WP4 – Knowledge Management (KM) System Design (task T4.8: Emulators design for test and demonstration purposes (CBRN SCC to CBRN ACC)) WP6 – SoS Prototype (Task T6.4: System integration) WP7 – Test & Demonstration (task T7.1: Demonstration scenario definition, T7.2: User training, T7.3: Demonstration execution)



Climate resilient and environmentally sustainable transport infrastructure, with a focus on inland waterways

Coordinatore: LUKASIEWICZ - POZNAN INSTITUTE OF TECHNOLOGY (Polonia)

N. Partner: 16

Abstract:

It is the key objective of the project CRISTAL (36 months) to increase the share of freight transport on inland water transport (IWT) by a minimum of 20% and to demonstrate on its three pilot sites (Italy, Poland and France) strategies to improve reliability by 80%. CRISTAL project will assure IWT capacity at 50% even during extreme weather events. Towards that CRISTAL will co-create, test and implement integrated, cooperative and innovative solutions in its three pilot partners' areas identified in Italy, France and Poland. The project will include the aspects of technological innovation/development and digitalization; further advancement towards the Physical Internet, governance solution and business models, will be proposed while targeting sustainability and infrastructure resilience requirements.

Anno di stipula: 2022

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 5 - D6 Transport and Smart Mobility services

Data inizio: 01-09-2022

Data scadenza: 31-08-2025

Contributo totale: € 6.371.049

Costo eleggibile totale: € 6.837.453

Contributo a ENEA: € 421.563

Costo eleggibile ENEA: € 421.563

Doc. approvazione: 112/2022/TERIN

Codice atto: PK5AAH

Resp. scientifico ENEA: GIOVINAZZI SONIA

Unità: TERIN-SEN-APIC

Attività ENEA:

ENEA sarà leader del workpackage WP2, denominato "Technologies" nel quale sarà responsabile delle seguenti Tasks: - Task 2.1 Technologies for improving the resilient and reliable navigability - Task 2.2 Technologies for the resilient management of engineered Inland waterway infrastructures - Task 2.3 Software architecture of CRISTAL acquisition - Task 2.4 End-users interfaces including ad-hoc defined dashboards and mobile Apps for navigability, preventive maintenance as well as to support corridor management
ENEA contribuirà, inoltre, ad altri workpackages del progetto.



SUPPORT TO THE ACTIVITIES OF THE CONCENTRATED SOLAR THERMAL TECHNOLOGY AREA OF THE SET PLAN

Coordinatore: ESTELA EUROPEAN SOLAR THERMAL ELECTRICITY ASSOCIATION (Belgio) N. Partner: 5

Abstract:

The main hurdle the Concentrated Solar Thermal Technologies (CST) sector has been facing over the last decade in Europe is the assumed level of the costs of CSP power plants with a too narrow perception of its use as flexibility provider to the sole electricity systems. To mitigate this, the CST4ALL project identifies an array of hybridisation and cooperation initiatives at the interface between CST and other technologies for applications relevant to the 3 sectors (electricity, heat and fuels) incorporating the work products of various ETIPs. Well-aligned on current EU initiatives (Smart Sector Integration, Fit for 55, CETP) and specific energy strategies across the reviewed Member States to provide answers to the most urgent challenges of decarbonisation, the core deliverable of CST4ALL consists of an intertwined set of workshops with respective industry and R&I focus. These shall bring together, better coordinate and incentivise the interaction of main stakeholders at key technology interfaces with the CSP sector building on combined technological and non-technological improvements. Both the research and the industry perspectives are first analysed aiming primarily at supporting and enlarging the network of active stakeholders in the CSP Implementation Working Group in the SET Plan and to raise the general awareness about the role CST can play in a future sustainable energy mix. These workshops finally result in specific proposals at EUlevel from a cross-sector perspective to foster public/private funding for R&I and create the necessary political/regulatory framework conditions for the execution of the new CSP Implementation Plan.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Cluster 5 - D3 Energy supply

Data inizio: 01-10-2022

Data scadenza: 30-09-2025

Contributo totale: € 599.529

Costo eleggibile totale: € 599.529

Contributo a ENEA: € 50.625

Costo eleggibile ENEA: € 50.625

Doc. approvazione: 143/2022/TERIN

Codice atto: PK7AAF

Resp. scientifico ENEA: TURCHETTI LUCA

Unità: TERIN-STSN-SCIS

Attività ENEA:

ENEA partecipa alle normali attività di progetto tra cui: partecipazione ed organizzazione a meeting e workshop di progetto, raccolta ed elaborazione delle informazioni prodotte in questi eventi e stesura di report. Le attività di progetto saranno svolte con la partecipazione del personale afferente a TERIN-STS.



DISRUPTIVE KESTERITES-BASED THIN FILM TECHNOLOGIES CUSTOMISED FOR CHALLENGING ARCHITECTURAL AND ACTIVE URBAN FURNITURE APPLICATIONS

Coordinatore: IREC - FUNDACIO INSTITUT DE RECERCA DE L'ENERGIA DE CATALUNYA (Spagna) Partner: 17

Abstract:

CUSTOM-ART aims at developing the next generation of building and product integrated photovoltaic modules (BIPV and PIPV respectively), based on earth-abundant and fully sustainable thin film technologies. Nowadays, BIPV and PIPV are identified as key enabling technologies to make “near Zero Energy Buildings” and “net Zero Energy Districts” more realistic, through the integration of a new generation of photovoltaic modules capable of entirely replacing architectural/mobility/urban-furniture passive elements. This promising scenario of mass realisation of BIPV and PIPV solutions can only be achieved by developing cost-efficient and sustainable thin film technologies with unbeatable aesthetic functionalities, including mechanical flexibility and optical tuneability. Unfortunately, mature materials already available at the market such as Cu(In,Ga)Se₂ or CdTe are formed by scarce and expensive elements (In, Ga and Te), or toxic ones (Cd). Considering this, CUSTOM-ART will join for the first time a leading group of companies and academic partners all around Europe, to develop advanced BIPV and PIPV products (flexible and semi-transparent solar modules), based on earth abundant kesterite materials, which have been demonstrated in two previous European projects to be at the forefront of emerging inorganic thin film technologies. By combining advanced strategies for materials properties management, with customized modules design in a circular economy approach, two types of products will be developed including flexible PV modules (polymer and steel supports) and semi-transparent (polymer). CUSTOM-ART will bring these technologies from TRL4-5 up to TRL7, demonstrating very competitive conversion efficiencies (20% at cell and 16% at module level) and durability (over 35 years), at a reduced production cost (< 75 €/m²), using exclusively abundant elements and contributing to ensure the full sustainability and competitiveness of the European BIPV and PIPV Industry.

Anno di stipula:	2020
Tipo progetto:	IA - Innovation Action
	HORIZON 2020
Programma UE:	Energy
Data inizio:	01-09-2020
Data scadenza:	29-02-2024
Contributo totale:	€ 6.999.745
Costo eleggibile totale:	€ 8.016.422
Contributo a ENEA:	€ 216.512
Costo eleggibile ENEA:	€ 216.512
Doc. approvazione:	97/2020/DTE
Codice atto:	PT2ABD
Resp. scientifico ENEA:	MITTIGA ALBERTO
Unità:	DTE-FSN-TEF

Attività ENEA:

WP1: Sviluppo di celle ad alta efficienza e test di stabilità: TASK 1.1. Ottimizzazione dell'assorbitore in kesterite; TASK 1.2. Miglioramento della efficienza tramite droggaggio (con elementi alcalini) e modifiche alla composizione chimica dell'assorbitore in kesterite; TASK 1.3. Scelta e ottimizzazione dei contatti frontale e posteriore della cella. WP2 – Incapsulamento, stabilità e affidabilità: TASK 2.1. Tempo di vita dei dispositivi non incapsulati; WP5 – Analisi dei costi, riciclaggio, LCA; TASK 5.1. Life cycle assessment; TASK 5.2. Life cycle cost (lcc) analyses; TASK 5.3. Socio-economic impact analysis in the context of circular economy WP6 – Sfruttamento e disseminazione: TASK 6.1 Communication and dissemination strategy; TASK 6.2 Implementation of project identity and online communication channels TASK 6.3 Market and stakeholder analysis and needs TASK 6.4 Exploitation Plan

DeliSoil – Delivering Soil improvers through improved recycling and processing solutions for food industry residues streams

Coordinatore: LUKE - NATURAL RESOURCES INSTITUTE FINLAND (Finlandia)

N. Partner: 14

Abstract:

DeliSoil will adopt a multi-actor, transdisciplinary approach to co-design processes that minimise food processing waste and valorise its by-products. We will apply a circular bioeconomy approach to the waste hierarchy, creating sustainable soil improvers in support of soil health in Europe. DeliSoil's 5 regional Living Labs (LLs), with actors along the entire food value chain, will use innovative technologies to convert residues from food processing and production industries into tailored soil improvers. Research partners and companies will evaluate the soil improvers in state-of-the-art laboratories, and landowners will test the project's solutions. The tailored soil improvers will be tested for stability, biosafety and molecular parameters, and their impacts on soil health, agronomical performance, and environmental risks will be evaluated. Environmental footprints will also be measured for selected products. We will identify technological, legislative, financial, and social barriers and enablers for the conversion of food processing residue streams into organic soil improvers and fertilising products, and use these results to analyse fairness throughout the LL value chains. Together with stakeholders, we will build communities and create networks to facilitate knowledge sharing of DeliSoil's key exploitable results, empower interdisciplinary design processes to improve soil health through the valorisation of food by-products, and increase societal soil literacy. The Living Labs will share their solutions for using side-streams from vegetable, meat, insect cultivation, mixed food, tomato, olive oil, and wine industry actors. Our proposed Lighthouses will allow inter-European partnering and demonstrate improved waste management sites integrating optimal practices in a circular bioeconomy framework. We will work in close cooperation with other EU projects and the European Soil Observatory (EUSO) to ensure coordinated delivery of Soil Mission goals.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Mission Soil

Data inizio: 01-06-2023

Data scadenza: 31-05-2027

Contributo totale: € 7.000.000

Costo eleggibile totale: € 7.000.000

Contributo a ENEA: € 681.840

Costo eleggibile ENEA: € 681.840

Doc. approvazione: 131/2023/SSPT-BIOAG

Codice atto: PS1ADM

Resp. scientifico ENEA: BEVIVINO ANNAMARIA

Unità: SSPT-BIOAG-SOQUAS

Attività ENEA:

ENEA rivestirà il ruolo di Partner, Leader del WP2 'Soil health improvement' ed è coinvolto in tutti i 7 WP nei quali si articola il progetto: WP1: Food Industry processing residue streams WP2: Soil health improvement WP3: Enablers for the conversion of food by-products and waste to soil improvers and fertilising products WP4: Environmental care WP5: Multi-actors engagement and collaboration Tentative: "Lighthouses, multi-actors and socioeconomics" WP6: Dissemination, Exploitation & Communication WP7: Project Management & Coordination



Dissecting radlation effectS into the Cerebellum micrOenVironmEnt driving tumour pRomotion

Coordinatore: ENEA (Italia)

N. Partner: 4

Abstract:

Radiation carcinogenesis has classically been attributed to unrepaired or misrepaired DNA damage. By now, there is increasing recognition that radiation can induce changes within the microenvironment and cause epigenetic modifications, which can also contribute to the development of cancer, challenging the conventional target theory in radiobiology. However, the interplay between DNA damage, microenvironmental changes, and epigenetic modifications in radiation-induced carcinogenesis is complex and not yet fully understood. DISCOVER will study the impact of radiation-induced changes in the microenvironment and the influence of related cell communication processes on carcinogenesis. The project will exploit a robust model of radiation-induced carcinogenesis, the Pth1+/- mice, exhibiting a genetic predisposition for development of medulloblastoma (MB), a cerebellar tumour. Irradiation of these mice, even at low dose, increases MB incidence. The project aims to understand how different cerebellar populations, such as granule cell precursors, the MB cell of origin, and astrocytes, microglia and endothelium, representing microenvironmental components, respond to moderate (2 Gy) and low (0.1 Gy) radiation doses and contribute to tumour formation. Model systems of different complexity including (i) Pth1+/- mice, (ii) ex-vivo cerebellum slices and (iii) in vitro cerebellar cell cultures, will be used to evaluate the effect of the microenvironment in transmitting radiation signals driving carcinogenesis. We will conduct a comprehensive analysis of various types of data, including morphology, function, tumourigenesis and omics data. We will also investigate secretome, as well as extracellular vesicles from exposed tissue and their specific bioactive cargo for their role in mediating radiation tumourigenesis. An integrated analysis of DISCOVER animal data and publicly available human brain cancer data aims to identify patterns/signatures for MB development. By adopting this comprehensive approach, DISCOVER aims to uncover the interactions between different cellular components of the cerebellar microenvironment and their role in radiation oncogenesis. Overall, these findings have the potential to improve our mechanistic understanding of the pathogenesis of radiation-induced cancer with important implications for human health risk assessment.

Anno di stipula: 2024

Tipo progetto: Programme Cofund Actions

Programma UE: HORIZON EUROPE

Programma UE: Euratom radioprotezione

Data inizio: 01-02-2024

Data scadenza: 31-01-2027

Contributo totale: € 847.331

Costo eleggibile totale: € 1.344.970

Contributo a ENEA: € 472.481

Costo eleggibile ENEA: € 749.970

Doc. approvazione: 23/2024/SSPT-TECS

Codice atto: PS5ABH

Resp. scientifico ENEA: PAZZAGLIA SIMONETTA

Unità: SSPT-TECS-TEB

Attività ENEA:

L'ENEA coordina il progetto ed è leader del WP6 "Project Management" ed il WP7 "Training, Dissemination and Exploitation", in stretta collaborazione con gli altri partner del progetto. Il progetto prevede per ENEA l'esecuzione di esperimenti (in vitro, ex vivo e in vivo) per l'identificazione di segnali di danno e dei meccanismi molecolari che le cellule del microambiente potrebbero trasferire sulla cellula target, responsabile dell'insorgenza tumorale.



Coordinatore: esDONES - CONSORCIO IFMIF-DONES ESPAÑA (Spagna)

N. Partner: 10

Abstract:

DONES-ConP1 is a project which answers to the call of support action for consolidating the IFMIF-DONES ESFRI facility. It will be linked to the brandnew DONES Programme serving as a transition for policy makers until funds are available, consolidate and expand the users community. The project will deal not only with the Construction Phase of the facility, but also with the operation and exploitation phase of the project. Although the Andalucia and the Spanish Government are ready to finance the investment to the extent of 50%, Croatia a 5%, and EURATOM through F4E are also ready to invest another 20%, negotiations with different partners are ongoing in order to secure and equilibrate the full construction budget and to assure the operation costs. This Consolidation support action is the ideal framework to ensure these contributions. The project will work on critical financial, legal and organisational issues related to the international character of the IFMIF-DONES facility during its construction and operation phases. The experience of the partners supplying in-kind procurements to other European and International facilities is a clear asset to benefit and developing update models for all the documentation and planning related with in-kind of commercial procurements at IFMIF-DONES. One of the main objectives of the project is to consolidate the scientific users community of both fusion and non-fusion experiments. The project shall consolidate the recently created community, developing cutting edge proposals in fields of nuclear physics, medicine or industry. The DONES Experimental Programme is one of the key objectives of the project. Finally, the project will update all the DONES Programme documentation in order to ensure they are ready for the start of the construction, and also the installation and commissioning phases. This will include an update of the documentation related to licensing of the proposal of experiments, and the transport to support facilities.

Anno di stipula: 2023

Tipo progetto: CSA - Coordination and support action

Programma UE: Euratom2027

Programma UE: Euratom fusione

Data inizio: 01-11-2023

Data scadenza: 31-10-2025

Contributo totale: € 1.249.820

Costo eleggibile totale: € 1.906.700

Contributo a ENEA: € 86.960

Costo eleggibile ENEA: € 124.225

Doc. approvazione: 22/2024/FSN

Codice atto: PF6ABC

Resp. scientifico ENEA: TARANTINO MARIANO

Unità: FSN-SICNUC

Attività ENEA:

L'ENEA è coinvolta su tutti i 4 Work-packages WP1 - Coordination & dissemination WP2 - Outreach, development and engagement of scientific and engineering user community WP3 - Development of in-kind & partnering agreements WP4 - Project Preparation for construction



Empowering a fair and responsible European FoodRegister, fostering citizen sovereignty and creating a data-driven food system

Coordinatore: TWINDS (Belgio)

N. Partner: 8

Abstract:

The overall goal of our project is to achieve trust in a data-driven food system by implementing Digital Responsibility Goals for the food sector. This will enable new levels of innovation for example in food safety, sustainability, personalized nutrition, reduction of food waste and fair conditions throughout the entire food chain. The programme works on a clear strategic roadmap (a new virtual food system), a set technological enablers, demonstration of solutions, a structured funding programme with open calls, and measures to guide and support the food ecosystem of third party beneficiaries, citizens, stakeholders. As a consortium, we maintain the perspective that technology is not a means to an end, but acts merely as an empowering enabler, providing the means to achieve a wide variety of innovative and valuable use cases. Use cases that promise to serve a broader audience, provided that adequate access also is considered as a prerequisite. Currently however, technology is primarily developed from the perspective and needs of corporations and / or authorities- a limitation that risks perpetuating or further exacerbating the above-mentioned lack of trust within the markets that they serve. With a more diverse and human-centric driven perspective we believe the new use cases that will emerge and the technology development required to realise them will contribute to a more sustainable ecosystem that is "trustworthy by default". To truly design for trust, the entire chain of activities and underlying assumptions towards developing technology has to be based on fundamental values like responsibility, privacy and user control - especially when dealing with valuable and sensitive food data. The starting point of all assumptions needs to be the user and their values - not a business model or (legitimate) state interests.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

HORIZON EUROPE

Programma UE: Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Data inizio: 01-12-2022

Data scadenza: 30-11-2025

Contributo totale: € 4.000.000

Costo eleggibile totale: € 4.000.000

Contributo a ENEA: € 326.250

Costo eleggibile ENEA: € 326.250

Doc. approvazione: 271/2022/SSPT-BIOAG

Codice atto: PS1ADA

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT-BIOAG

Attività ENEA:

ENEA riveste il ruolo di Partner, partecipando alle attività di tutti i WP e svolgendo in particolare il ruolo di Task Leader per la Task 1.2 Scientific Coordination (WP Coordination & Project Management), monitoring and risk management e la Task 2.4 Policy Briefings (WP Virtual food system roadmap).

Coordinatore: BMK - FEDERAL MINISTRY FOR CLIMATE ACTION, ENVIRONMENT, ENERGY,
MOBILITY, INNOVATION AND TECHNOLOGY (Austria) N. Partner: 64

Abstract:

Driving Urban Transitions to a Sustainable Future (DUT) is the new programme of JPI Urban Europe starting in 2022. The DUT Partnership steps up the game to tackle urban challenges. Through research and innovation, we enable local authorities and municipalities, business, and citizens to translate global strategies into local action. We develop the skills and tools to make urban change happen and boost the urgently needed urban transformations towards a sustainable future with enhanced quality of life in cities. DUT is realised as a European partnership of more than 60 partners from 27 countries, involving national and regional policy makers, funders and urban-related policy agencies to invest in urban R&I and strengthen a European innovation eco-system for urban transitions. Building upon the JPI Urban Europe achievements, DUT aims to create a strong community around urban transitions and to establish a well-known research and innovation platform that will help cities become more sustainable, inclusive and liveable. DUT is one out of 49 European partnerships under Horizon Europe framework and the only one addressing urban development in its complexity, with a close link to the European mission of 100 climate-neutral and smart cities.

Anno di stipula: 2022

Tipo progetto: Programme Cofund Actions

Programma UE: HORIZON EUROPE

Programma UE: Cluster 5 - D2 Cross-cutting solutions

Data inizio: 01-01-2022

Data scadenza: 31-12-2028

Contributo totale: € 37.000.000

Costo eleggibile totale: € 172.369.768

Contributo a ENEA: € 578.125

Costo eleggibile ENEA: € 578.125

Doc. approvazione: 113/2022/TERIN e
195/2023/TERIN

Codice atto: PK5AAI

Resp. scientifico ENEA: CLERICI MAESTOSI
PAOLA

Unità: TERIN-SEN

Attività ENEA:

ENEA coordina il WP6 'Capacity building for the Transition Pathways' e sarà inoltre impegnato ad eseguire le seguenti attività: Task 2.2 Strategic development of the 15-Minute City Transition Pathway Task 2.3 Strategic development of the Positive Energy Districts Transition Pathway Task 2.4 Strategic development of the Circular Urban Regenerative Economies Transition Pathway Task 6.2 Target group specific empowerment Task 7.2.2 Develop and implement a valorisation strategy: Neighbourhood Transformation Showcasing Task 7.3 Towards replication and mainstreaming

Coordinatore: EDF - ELECTRICITE DE FRANCE SA (Francia)

N. Partner: 41

Abstract:

The EASI-SMR project intends to address the safety issues related to the LW-SMR in order to provide advances that should support implementation of such technologies as soon as possible. The EASI SMR project activities are aimed at ensuring that these reactors will be designed, constructed, commissioned and operated in the safest possible way and in accordance with existing regulations. The consortium was carefully chosen so that the research entities can provide the necessary research teams and support facilities across the European Continent and beyond. EASI-SMR will address the safety issues associated with major LW-SMR innovations: • Passive systems • Soluble Boron-free cores • Co-generation and hybridation • Additive manufacturing to improve compactness of Nuclear Steam Supply System • Multi-units operation The work aims to provide insights for European LW-SMR projects, in particular: • NUWARD SMR, a French design of a reactor generating 170 MW of electricity production. • LDR-50, a Finnish design of a district heating reactor of 50 MW EASI-SMR is closely linked with NUGENIA TA6 and the European SMR pre-Partnership's WS5.

Anno di stipula: 2024

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON EUROPE

Programma UE: Euratom

Data inizio: 01-09-2024

Data scadenza: 31-08-2028

Contributo totale: € 14.994.602

Costo eleggibile totale: € 19.934.031

Contributo a ENEA: € 528.150

Costo eleggibile ENEA: € 754.500

Doc. approvazione: 121 (2024) NUC

Codice atto: PF6ABF

Resp. scientifico ENEA: MASCARI FULVIO

Unità: NUC-ENER-SIC

Attività ENEA:

L'ENEA è leader del WP3 (Code validation, Scaling) ed è coinvolta nei seguenti Work Package: WP1 Transverse topics for LW SMR acceptability and licensing, WP2 Experimental tests program, WP4 Reliability of passive systems e WP8 Communication, Education & Training. In particolare l'ENEA si farà carico delle attività legate allo sviluppo di codici di calcolo utili alla validazione di codici termoidraulici e di incidenti severi, nelle analisi di affidabilità dei sistemi passivi, e nel supporto alla progettazione di impianti sperimentali specificamente per gli SMR.



Achieving Ecological Resilient Dynamism for the European food system through consumer-driven policies, socio-ecological challenges, biodiversity, data-driven policy, sustainable futures

Coordinatore: UNIV. CZECH OF LIFE SCIENCES PRAGUE (Repubblica Ceca)

N. Partner: 18

Abstract:

The ECO-READY project will develop a real-time surveillance system, an Observatory offered as an e-platform and as a mobile application. This will function as the necessary singular source of information, provide real-time assessments for the food system, and update forecasts frequently and consistently. The Observatory will be available to society, policymakers, the scientific community, and the agri-food industry, and integrated with a network of 10 Living Labs, supported through the third party funding process, covering all bioclimatic regions in Europe, forming the ECO-READY project knowledge infrastructure. ECO-READY will produce knowledgebased resilience strategies, and develop tools that will be embedded on the Observatory. The underlining principle behind the ECOREADY approach is, resilient dynamism, or tackling immediate problems and long-term challenges at the same time. The Living Labs network will facilitate 'concept to action' through the co-creation of scenarios addressing their regional needs, the development of policy recommendations, contingency plans, and resilience strategies, and embed them on the Observatory. Furthermore, ECO-READY will develop an early warning system and decision support tools using innovative Artificial Intelligence based on holistic prediction models and Life Cycle Assessment results. ECO-READY will ensure that European farmers and society's interests be reflected in future policymaking and monitoring, through early-stage active engagement incorporating bottom-up recommendations, facilitated by the increased usership of the digital tools developed, and resulting in increased awareness for climate-adaptive and mitigating agri-food products. Furthermore, the Observatory smart application will include tools that will empower the citizens to actively engage in policy making, and interact directly with the scientific community, farmers, and industry and policy makers, thus driving change in consumption habits.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Data inizio: 01-12-2022

Data scadenza: 30-11-2026

Contributo totale: € 13.628.429

Costo eleggibile totale: € 13.628.429

Contributo a ENEA: € 267.000

Costo eleggibile ENEA: € 267.000

Doc. approvazione: 285/2022/SSPT-BIOAG

Codice atto: PS1ADB

Resp. scientifico ENEA: BEVIVINO ANNAMARIA

Unità: SSPT-BIOAG-SOQUAS

Attività ENEA:

ENEA riveste il ruolo di partner ed è coinvolto nei seguenti workpackage: WP1 - Scoping and outlining the extended European Food Social-Ecological system WP2 - Stakeholders' engagement and empowerment WP6 - Communication and post-project sustainability WP7 - Project management In particolare, parteciperà attivamente alle attività previste dal WP1 con un ruolo di leader della Task T1.2 "Connecting the project scope with CAP, Green Deal and other EC Frameworks & Policies". Nel WP2 contribuirà attraverso l'expertise e la capitalizzazione di progetti in corso che prevedono il coinvolgimento degli stakeholder. In WP6 sosterrà le principali attività di comunicazione e disseminazione ed in WP7 collaborerà alla gestione del progetto.



Coordinatore: PROSAFE - THE PRODUCT SAFETY ENFORCEMENT FORUM OF EUROPE (PaesiN. Partner:
Bassi) 28

Abstract:

The Energy Efficiency Compliant Products 4 (EEPLIANT4) is an EU co-funded Concerted Action that builds on the success, good practices, and lessons learned from the three former EEPLIANT Actions since 2015. The aim of this new Concerted Action is to support the implementation and enforcement of the EU Ecodesign and Energy Labelling regulations for energy-related products and durably improve market surveillance in these fields. These regulations set minimum requirements for the energy efficiency and environmental performance of products. They also provide consumers with clear information on their energy consumption and environmental impact. The EEPLIANT4 Concerted Action will check and test products from different product categories and market segments, such as household appliances (including refrigerating appliances, cooking appliances, dishwashers, vacuum cleaners), airheating and cooling equipment, solid fuel space heaters, car tyres, and electronic displays. EEPLIANT4 will analyse the results of inspections and testing, measure the impacts generated from its activities, identify new good practices and common challenges, and provide empirical recommendations to improve the level of compliance and market surveillance of energy-related products in the EU. In addition to market controls and compliance verification testing, the EEPLIANT4 Concerted Action aims to improve the skills and knowledge of EU/EEA Market Surveillance Authorities (MSAs). The Action will continue supporting the harmonisation of practices related to the application of Ecodesign and Energy Labelling rules across Europe through a number of capacity-building, methoddevelopment and dissemination activities, also in cooperation with EU Customs and third parties (i.e., economic operators).Finally, the project will develop and implement technology-based solutions and tools that can improve the efficiency of certain tasks in the market surveillance workflow.

Anno di stipula: 2024

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027

LIFE (2021-2027)

Data inizio: 01-05-2024

Data scadenza: 30-04-2029

Contributo totale: € 7.999.999

Costo eleggibile totale: € 8.421.053

Contributo a ENEA: € 107.635

Costo eleggibile ENEA: € 113.300

Doc. approvazione: 1/2024/DUEE-SPS

Codice atto: PW0AAC

Resp. scientifico ENEA: PRESUTTO MILENA

Unità: DUEE

Attività ENEA:

Il progetto è suddiviso in 13 Work Package (WP). ENEA è leader del WP11 "Emerging issues and challenges", per l'analisi sulle problematiche emergenti nella sorveglianza del mercato, ed è coinvolta nei seguenti WP: wp1 "Management, Communication, Dissemination, Exploitation, Sustainability and Replication" per attività di management e coordinamento, WP2 "refrigerating appliances (household and refrigerators with direct sales function)" per la verifica della conformità degli apparecchi per la refrigerazione, il WP5 "domestic cooking appliances (electrical or gas ovens, hobs, and range hoods)" per la verifica della conformità degli apparecchi per la cottura, il WP6 "vacuum cleaners" per la verifica della conformità degli aspirapolvere, il WP7 "off-mode/network standby" per la verifica della conformità del consumo di energia in modalità "off" e del network standby, e il WP11 "joint activities with customs" per la collaborazione con le dogane

Coordinatore: ENEA (Italia)

N. Partner: 10

Abstract:

FENICE is a TRL 8 upscaling project on recyclable & biobased Fibre Metal Laminates (FML) and other composites for lighter, more sustainable & safer battery box production, with higher fire resistance. By the end of 2025, FENICE will deliver (1) validated and precertified materials, with customisable characteristics, SDS and TDS; (2) battery box demonstrators & production optimisation; (3) LCA. By 2026, industrialisation in transports will start, aiming at producing 100k-1M battery boxes per year

Anno di stipula: 2023

Tipo progetto: N/A - Non applicabile

Programma UE: HORIZON EUROPE

Programma UE: EIT - Raw Materials KIC

Data inizio: 01-01-2023

Data scadenza: 31-12-2025

Contributo totale: € 2.094.683

Costo eleggibile totale: € 2.996.579

Contributo a ENEA: € 230.506

Costo eleggibile ENEA: € 351.013

Doc. approvazione: 154/2023/SSPT-PROMAS

Codice atto: PS3ADX

Resp. scientifico ENEA: MINGAZZINI CLAUDIO

Unità: SSPT-PROMAS-TEMAF

Attività ENEA:

Attività finalizzate allo sviluppo di tecnologie di produzione di box batteria per la trazione elettrica in materiale a base FML (Fiber Metal Laminates).



Coordinatore: 9-TECH (Italia)

N. Partner: 9

Abstract:

PARSIVAL aims to solve the issue of EoL photovoltaic (PV) panels in Apulia (IT) and in Extremadura (ES) regions by studying the use of PV refurbishment&recycling technologies in these areas, and to create a value chain for silicon from PV recycling by studying three applications for recovered PV cells that contain mainly Silicon but also aluminum paste and silicon nitride. PARSIVAL will create a long-lasting network and help training future professionals for the RIS countries development.

Anno di stipula: 2023

Tipo progetto: N/A - Non applicabile

HORIZON EUROPE

Programma UE: EIT - Raw Materials KIC

Data inizio: 01-01-2023

Data scadenza: 31-12-2024

Contributo totale: € 934.967

Costo eleggibile totale: € 982.668

Contributo a ENEA: € 106.500

Costo eleggibile ENEA: € 112.500

Doc. approvazione: 134/2023/SSPT-PROMAS

Codice atto: PS3ADV

Resp. scientifico ENEA: PROTOPAPA MARIA LUCIA

Unità: SSPT-PROMAS-MATAS

Attività ENEA:

ENEA è coinvolta nella caratterizzazione del materiale a base silicio recuperato dal processo di carbonizzazione dei pannelli dismessi realizzato da 9-Tech (coordinatore di progetto). La lavorazione della polvere consentirà di ottenere una polvere a granulometria fine che verrà testata da ENEA come materiale anodico nelle batterie a ioni di litio. ENEA sarà anche coinvolta nella valutazione del processo di pre-trattamento dei pannelli fotovoltaici a fine vita finalizzato, tra l'altro, alla delaminazione del backsheet. ENEA è inoltre coinvolta nella diffusione dei risultati di progetto.

Coordinatore: INRAE - INSTITUT NATIONAL DE RECHERCHE POUR L'AGRICULTURE,
L'ALIMENTATION ET L'ENVIRONNEMENT (Francia)

N. Partner: 27

Abstract:

The main objective of EJP SOIL is to create an enabling environment to enhance the contribution of agricultural soils to key societal challenges such as climate change adaptation and mitigation, sustainable agricultural production, ecosystem services provision and prevention and restoration of land and soil degradation. The EJP SOIL will build a sustainable European integrated research community on agricultural soils and will develop and deploy a roadmap on climate-smart sustainable agricultural soil management. The EJP SOIL roadmap is based on a knowledge framework with 4 interacting components. Knowledge development is set out in project calls with internal and external partners. Knowledge sharing & transfer is framed in capacity building for young scientists, enhancing general public awareness and fostering societal understanding and appreciation of agricultural soil management and its contribution to society. Knowledge harmonization, storage & organization supports harmonised soil information and reporting practices. Knowledge application deals with ways to overcome barriers for adoption of novel practices in a European context, co-developing adequate tools and providing evidence-based recommendations for EU policies. EJP SOIL activities in interaction with stakeholders, MSs and DG AGRI will pursue the long-term goal of promoting farmers as stewards of land and soil resources and support policy development and deployment, in particular the CAP and Climate policies. The EJP SOIL addresses 6 expected impacts with targeted activities in response to societal, scientific, policy and operational challenges. A first annual workplan based on the roadmap is provided as part of the proposal. The EJP Soil consortium unites a unique group of 26 leading European research institutes and universities in 24 countries. The consortium has developed this proposal in close collaboration with its programme owners and has secured over 40M€ in co-funding and 10M€ for external calls over 5 years.

Anno di stipula: 2021

Tipo progetto: COFUND-EJP European Joint Programme COFUND

HORIZON 2020

Programma UE: Food Security, Sustainable Agriculture and the Bioeconomy

Data inizio: 18-03-2021

Data scadenza: 31-01-2026

Contributo totale: € 40.000.000

Costo eleggibile totale: € 80.000.000

Contributo a ENEA: € 74.406

Costo eleggibile ENEA: € 148.813

Doc. approvazione: 20/2021/SSPT-BIOAG

Codice atto: PS1ABX

Resp. scientifico ENEA: BEVIVINO ANNAMARIA

Unità: SSPT-BIOAG-SOQUAS

Attività ENEA:

L'ENEA in qualità di parte terza (Linked Third Party) si prefigge di collaborare con il Beneficiario (CREA) per il raggiungimento degli obiettivi legati alle attività tecnico-scientifiche previste nel progetto, in particolare nei seguenti WP: WP2 - Roadmap for EU Agricultural Soil Management research WP3 - Research alignment. Internal calls WP6 - Supporting harmonised soil information and reporting WP9 - Dissemination and outreach for European scale impacts



EMODnet



EMODnet - Ingestion and safe-keeping of marine data – n° 3

Coordinatore: MARIS MARINE INFORMATION SERVICE B.V. (Paesi Bassi)

N. Partner: 2

Abstract:

A partnership of over a hundred and twenty European organisations work together under EMODnet in seven thematic groups to assemble marine data from diverse sources and resources in order to make them more accessible and more interoperable. Part of their work involves building gateways to national, regional or thematic repositories and creating products based on marine and maritime data held by public bodies. However, many data collected by public authorities, researchers and private operators of coastal or offshore facilities still do not arrive to these national or regional repositories and are thus unavailable to potential users. This creates additional costs for those working on marine issues who will have the choice of accepting lower confidence in their analysis than would otherwise be the case, or being compelled to needlessly repeat observations. There is therefore the need to streamline the data ingestion process so that data holders from public and private sectors can easily release their data for safekeeping and subsequent distribution through EMODnet or other means.

Anno di stipula: 2022

Tipo progetto: Service contract

Programma UE: Other programmes 2021-2027

EMFAF - European Maritime, Fisheries and Aquaculture Fund (2021-2027)

Data inizio: 30-03-2022

Data scadenza: 29-03-2024

Contributo totale: € 2.680.000

Costo eleggibile totale: € 2.680.000

Contributo a ENEA: € 18.750

Costo eleggibile ENEA: € 18.750

Doc. approvazione: 133/2022/SSPT-PROTER

Codice atto: CS4ABH

Resp. scientifico ENEA: PECCI LEDA

Unità: SSPT-PROTER-BES

Attività ENEA:

ENEA partecipa al progetto come subcontraente del coordinatore MARIS; le attività ENEA sono relative ai seguenti workpackage: WP2- Mantenere ed ulteriormente sviluppare percorsi per facilitare le trasmissioni di dati marini nel repository appropriato WP3 - Facilitare il trasferimento machine-to-machine WP4 - Attività di marketing e disseminazione



Building European Nuclear Competence through continuous Advanced and Structured Education and Training Actions

Coordinatore: ENEN - EUROPEAN NUCLEAR EDUCATION NETWORK (Belgio)

N. Partner: 54

Abstract:

Nuclear power and non-power technologies are technically very complex facilities that operate in the increasingly challenging regulatory framework and market conditions. Development, construction, operation, decommissioning, waste management and oversight of these facilities require personnel with excellent education, skills and motivation: nuclear specialists, that are equipped to work in multidisciplinary, multicultural and competitive environments. ENEN# stands for the largest and most integrative nuclear Education and Training (E&T) efforts up to date. Attraction of excellent new talents followed by outstanding development through E&T, crosscultural and cross-disciplinary activities are the overarching objectives. Excellent workforce should remain the basic enabler of safe longterm operation of existing and development of advanced facilities. A detailed insight into the EU supply and demand of nuclear human resources for power and non-power applications will be developed. This will include industries, academia, technical safety organizations and regulators. Higher number of nuclear talents will be achieved through dedicated career related events and competitions for high school pupils and teachers, students (BSc, MSC, PhD), postdocs and lifelong learners. A strong mobility program will support over 100 personyears of nuclear career enhancing experience to about 1.000 learners with over 2,5 million EUR. Cross-border and cross-disciplinary mobility within and beyond EU will be promoted in cooperation with JRC, OECD/NEA and partners from USA, China, Korea and Japan. A single hub will be established to provide information on available educational, training and job opportunities. Appropriate connections with the complementary NRT-12 project facilitating access to research infrastructures will be maintained. A centralized platform with coherent information on vocational training programs, developed during the project, will be established.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-06-2022

Data scadenza: 31-05-2026

Contributo totale: € 6.819.707

Costo eleggibile totale: € 7.156.424

Contributo a ENEA: € 81.875

Costo eleggibile ENEA: € 81.875

Doc. approvazione: 077/2022/FSN

Codice atto: PF6AAX

Resp. scientifico ENEA: FERRUCCI BARBARA

Unità: FSN-SICNUC-TNMT

Attività ENEA:

L'ENEA partecipa ai seguenti work package (WP): WP1 – Human Resources analysis in the nuclear sector WP2 – Informing and attracting new talents WP3 – Enhancing nuclear competences: continuous E&T programs Le attività sono svolte presso i centri ENEA di Bologna e Brasimone.

Coordinatore: ENEA (Italia)

N. Partner: 17

Abstract:

The main goal of the eNeuron project is to develop innovative tools for the optimal design and operation of local energy communities (LECs) integrating distributed energy resources and multiple energy carriers at different scales. This goal will be achieved, by having in mind all the potential benefits achievable for the different actors involved and by promoting the Energy Hub concept, as a conceptual model for controlling and managing multi-carrier and integrated energy systems in order to optimize their architecture and operation. In order to ensure both the short-term and the long-term sustainability of this new energy paradigm and thus support an effective implementation and deployment, economic and environmental aspects will be taken into account in the optimization tools through a multi-objective approach. eNeuron's proposed tools enable tangible sustainability and energy security benefits for all the stakeholders in the LEC. Local prosumers (households, commercial and industrial actors) stand to benefit through the reduction of energy costs while leveraging local, low carbon energy. Developers and solution providers will find new opportunities for technologies as part of an integrated, replicable operational business model. Distribution system operators (DSOs) benefit from avoiding grid congestion and deferring network investments. Policy makers benefit from increasingly sustainable and secure energy supply systems. eNeuron is a high TRL project in line with the Work Programme, by developing innovative approaches and methodologies to optimally plan and operate integrated LECs through the optimal selection and use of multiple energy carriers and by considering both short- and long-run priorities. Through optimally coordinating all energy carriers and vectors, cost-effective and low-carbon solutions will be provided for fostering the deployment and implementation of this new energy paradigm at European level.

Anno di stipula: 2020

Tipo progetto: IA - Innovation Action

HORIZON 2020

Programma UE: Energy

Data inizio: 01-11-2020

Data scadenza: 31-10-2024

Contributo totale: € 5.731.118

Costo eleggibile totale: € 6.319.693

Contributo a ENEA: € 487.500

Costo eleggibile ENEA: € 487.500

Doc. approvazione: 101/2020/DTE

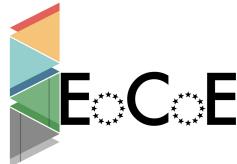
Codice atto: PT7AAP

Resp. scientifico ENEA: DI SOMMA MARIALAURA

Unità: DTE-STSN-SGRE

Attività ENEA:

L'ENEA coordina il progetto eNeuron (WP1) ed è anche responsabile del WP3 che ha l'obiettivo principale di identificare la "Comunità energetica locale integrata" in base agli sviluppi e alle politiche normative più recenti in Europa, nonché di definire una mappatura dettagliata delle principali tecnologie abilitanti e degli attori chiave con potenziale interesse per l'implementazione di questo nuovo paradigma energetico a livello locale. Sulla base di questa analisi preliminare, verranno sviluppati i casi d'uso e i modelli di business di eNeuron. L'ENEA inoltre parteciperà attivamente ai seguenti wokpackage: . WP2: attività relative all'analisi critica dell'attuale stato di implementazione di sistemi energetici multi-vettore locali integrati in Europa; . WP4 sviluppo del tool eNeuron; . WP5: modellizzazione degli elementi di flessibilità e delle reti di distribuzione e definizione degli scenari, nonché alla simulazione delle soluzioni tecniche fornite dal tool eNeuron; . WP6: valutazione tecno-economica dei risultati dei test svolti nei siti pilota in Europa; . WP7: valutazione del potenziale di replicazione delle soluzioni implementate nei siti pilota. L'ENEA contribuirà anche all'elaborazione di raccomandazioni e linee guida generali per favorire la decarbonizzazione delle isole energetiche; . WP8: attività di diffusione e disseminazione.



Fostering the European Energy Transition with Exascale

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia) N. Partner: 18

Abstract:

The Energy-oriented Centre of Excellence for exascale HPC applications (EoCoE-III) applies cutting-edge computational methods in its mission to foster the transition to decarbonized energy in Europe. EoCoE-III is anchored both in the High Performance Computing (HPC) community and in the energy field. It will demonstrate the benefit of HPC for the net-zero energy transition for research institutes and also for key industry in the energy sector. The present project will draw the experience of two successful previous projects EoCoE-I and EoCoE-II, where a set of diverse computer applications from four energy domains achieved significant efficiency gains thanks to its multidisciplinary expertise in applied mathematics and supercomputing. During this 3rd round, EoCoE-III will channel its efforts into 5 exascale lighthouse applications covering the key domains of Energy Materials, Water, Wind and Fusion. A world-class consortium of 18 complementary partners from 6 countries will form a unique network of expertise in energy science, scientific computing and HPC, including 3 leading European supercomputing centres. This multidisciplinary effort will harness innovations in computer science and mathematical algorithms within a tightly integrated co-design approach to overcome performance bottlenecks, to deploy the lighthouse applications on the coming European exascale infrastructure and to anticipate future HPC hardware developments. New modelling capabilities will be created at unprecedented scale, demonstrating the potential benefits to the energy industry, such as accelerated design of photovoltaic devices, high-resolution wind farm modelling over complex terrains and quantitative understanding of plasma core-edge interactions in ITER-scale tokamaks. These lighthouse applications will provide a high-visibility platform for high-performance computational energy science, cross-fertilized through close working connections to the EERA consortium.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
EuroHPC JU

Data inizio: 01-01-2024

Data scadenza: 31-12-2026

Contributo totale: € 2.999.394

Costo eleggibile totale: € 5.998.791

Contributo a ENEA: € 100.750

Costo eleggibile ENEA: € 201.500

Doc. approvazione: 3/2024/TERIN

Codice atto: PK3AAI

Resp. scientifico ENEA: CELINO MASSIMO

Unità: TERIN-ICT

Attività ENEA:

- Realizzare versioni di codici che siano in grado di sfruttare la potenza di calcolo exascale nelle applicazioni energetiche: vento (Alya e waLBerla-Wind), materiali (LibNEGf), fusione (Gysela-X), acqua (Parflow). • Creare comunità di utenti dei codici sviluppati attraverso il coinvolgimento di Castiel, EuroCC e Inno4scale e altre iniziative EuroHPC. Il contributo di Enea al progetto sarà nelle seguenti linee di attività WP2-Materials, WP7-Communication, dissemination and traini e WP8-Management.

Coordinatore: EGI FOUNDATION (Paesi Bassi)

N. Partner: 33

Abstract:

EOSC Beyond overall objective is to advance Open Science and innovation in research in the context of the European Open Science Cloud (EOSC) by providing new EOSC Core capabilities allowing scientific applications to find, compose and access multiple Open Science resources and offer them as integrated capabilities to researchers. To do so, EOSC Beyond supports a new concept of EOSC: a federated and integrated network of Nodes operated at different levels, national, regional, international and thematic, to serve the specific scientific missions of their stakeholders. Further specific objectives of the project are to accelerate ‘time to product’ of new scientific applications with software adapters, enable Open Science with machine composability and dynamic deployment of shared resources, support innovation in EOSC with a testing and integration environment, and align the EOSC Core architecture and specifications to integrate with European dataspaces. The project extends the state of the art of the EOSC Core and adopts a co-design methodology, including requirements elicitation, software development and validation in collaboration with different use cases from EOSC national and regional initiatives (e-Infra CZ, Czechia, NFDI, Germany, and NI4OS, South East Europe region), thematic research infrastructures from Social Sciences and Humanities (CESSDA), Life Sciences (CNB-CSIC and Instruct-ERIC), Environmental Science (ENES and LifeWatch), and Health and Food (METROFood-RI). EOSC Beyond builds on the capacities of prospective EOSC Nodes and partners with multi-annual experience in developing solutions for large-scale federated digital infrastructures and aligns with the technical architecture and requirements of data spaces from different business sectors. Ultimately, EOSC Beyond supports Open Science in modern, data-intensive, and multidisciplinary research, facilitating resource discovery, access, and reuse across scientific communities, organisations, and countries.

Attività ENEA:

ENEA partecipa alla proposta come istituto coordinatore di METROFOOD-RI; in particolare, ENEA partecipa ai seguenti Work Package: WP15 – Co-design and initial integration of EOSC Nodes and Data Spaces WP16 – EOSC Nodes, Data Spaces, Testing and Validation

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-04-2024

Data scadenza: 31-03-2027

Contributo totale: € 10.000.000

Costo eleggibile totale: € 10.000.000

Contributo a ENEA: € 47.935

Costo eleggibile ENEA: € 47.935

Doc. approvazione: 287/2023/SSPT-BIOAG

Codice atto: PS1ADT

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT



Coordinatore: UNIV. SALENTO (Italia)

N. Partner: 13

Abstract:

ERN-Apulia+MED targets to bring Citizens cERN-Apulia+ targets to bring Apulian Citizens closer to Researchers and viceversa and further extend the initiatives outside the region in the Mediterranean Area and extra-EU countries (at no cost), involving major public universities and Public and Private Research Institutions and representative schools. The large capacity of beneficiaries was already demonstrated in the past EU-funded projects for 2018- 2021 Nights and the continuation of activities in the unfunded 2022-2023 Nights. Here the initiatives for Citizens involvement will be further scaled up. Main objectives are: - to implement pre-events, the 2024 and 2025 ERNs and some post-events, with particular attention to students, industrial and professional organizations, municipalities and public administrations, already actively involved in the past editions; - to increase public awareness and recognition of the importance and impact of research in daily life, with specific examples from ICT to health and life sciences, from elementary particle to cultural heritage, etc; - to stimulate curiosity and interest and explain the fascinating world and the opportunities in research, especially to the youngest as a mean to encourage them to embark scientific careers; - to establish a tight connection among population/institutions and researchers to continue during the year; - to prepare and publicize dissemination materials along with scientific games and site visits (including laboratories and sites of cultural interest) to be available during the whole year for the general public; - to explain the spirit and opportunities of the European Research Area, the Marie Skłodowska-Curie actions and the principles of "The European Charter for Researchers"; to reach a number of Facebook Impressions >1.5M and Reach >400k, Youtube Views > 30k and watch time > 1000h, followers close to 200k, participants > 100k (among all the various initiatives) and a participants to the ERN > 50k.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

MSCA Marie Skł. Curie Actions

Data inizio: 01-04-2024

Data scadenza: 31-01-2026

Contributo totale: € 209.000

Costo eleggibile totale: € 209.000

Contributo a ENEA: € 18.000

Costo eleggibile ENEA: € 18.000

Doc. approvazione: 51/2024/SSPT-PROMAS

Codice atto: PS3AEL

Resp. scientifico ENEA: PENZA MICHELE

Unità: SSPT-PROMAS/MATAS

Attività ENEA:

L'attività proposta ERN-APULIA MED per il 2024-25 è la prosecuzione naturale delle edizioni "Notte Europea dei Ricercatori" edizione biennale 2018-2019, edizione annuale 2020 ed edizione annuale 2021. svolte in collaborazione con i partner del Sistema Accademico Pugliese e gli EPR operanti in Puglia. Il progetto riveste carattere di strategicità per l'Agenzia perché consente ad ENEA di essere presente sul territorio collaborando con i partner accademici ed EPR pugliesi, allargando la cooperazione nell'area del Mediterraneo (Albania, Spagna, Turchia). Le attività, che vedono coinvolto tutto il personale del Centro di Brindisi e più in generale del personale ENEA, consistono prevalentemente in attività sia in digitale che in presenza, se ci saranno le condizioni di sicurezza sanitaria. In particolare, visita guidata ai laboratori, allestimento di stand dimostrativi, presentazioni, discussioni, open desk, esperimenti didattici, esperienze multi-laboratoriali, giochi di ricerca con studenti, dibattiti, commenti a libri, conversazioni divulgative, illustrazione di dimostratori e prototipi, video esplicativi di scienza e tecnologia, video-collegamenti, tele-conferenze, interviste ad esperti. ENEA svolgerà il ruolo di coordinamento delle iniziative Notte Europea dei Ricercatori per la città di Brindisi



European Sodium Fast Reactor - Safety by Innovative Monitoring, Power Level flexibility and Experimental research

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)

N. Partner: 16

Abstract:

To facilitate the integration of the future nuclear reactors into the European energy system, it is necessary to demonstrate that the reactors have uncompromised safety and meet the future societal needs. The ESFR-SIMPLE project aims at challenging the current European Sodium Fast Reactor (ESFR) design to improve its safety and economics through implementation of innovative technologies in accordance with the ESNII roadmap. The project has 5 specific objectives: 1) Rethink the ESFR design in order to simplify it and make it more cost-competitive, while still achieving resource sustainability and having safety reinforced by intrinsic behaviour. This can be accomplished through reducing the size of the reactor, which will also allow taking advantage of Small Modular Reactor features such as transportability, modularisation, standardisation, and flexible operation, all ultimately leading to improved economics. 2) Assess impact of alternative technologies, such as metallic fuel and compact secondary system design, for the large-size ESFR on the economics and safety. 3) Propose, develop and assess advanced methods of monitoring and processing operational data using Artificial Intelligence, e.g., to optimise fault detection in steam generators at an early stage. 4) Produce new experimental data in order to assist in qualification of innovative components, such as expansion bellows, core catcher and thermo-electric pumps. 5) Ensure that the knowledge generated in the project is shared not only among the project partner institutions, but also with a wide range of stakeholders in Europe and internationally. The project activities will also be informed by the public and other stakeholders' perception of risks and benefits of ESFR technology. Close interactions with EU safety regulator experts will enable continued review and recommendation of the solutions proposed and developed in the project.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-10-2022

Data scadenza: 30-09-2026

Contributo totale: € 3.046.561

Costo eleggibile totale: € 6.506.234

Contributo a ENEA: € 78.727

Costo eleggibile ENEA: € 152.768

Doc. approvazione: 067/2022/FSN

Codice atto: PF6AAR

Resp. scientifico ENEA: POLIDORI MASSIMILIANO

Unità: FSN-SICNUC-SIN

Attività ENEA:

ENEA sarà coinvolta nei seguenti work package: WP4 dedicato a studi di sicurezza di SMR WP8 dedicato all'ottimizzazione dell'elemento di combustibile

Coordinatore: POLITECNICO DI MILANO (POLIMI) (Italia)

N. Partner: 15

Abstract:

Hydrogen fuel cells market potentials in the maritime sector have been demonstrated in the last years with several vessels flagship projects. Despite hydrogen is a worldwide considered a valid option to reach the emission reduction targets, also part of the International Maritime Organization (IMO) strategy, a regulatory framework applicable to hydrogen fuelled ships is not yet available. E-SHyIPS brings together the Hydrogen and maritime stakeholders and international experts, through an Advisory Board, to gather new knowledge based on regulatory framework review and experimental data on ship design, safety systems, material and components and bunkering procedures. The approach is ""vessel independent"", in order to avoid the burdens of customized projects, and is focused on the risk and safety assessment methodologies. Based on this, e-SHyIPS will define a pre-standardization plan for IGF code update for the hydrogen-based fuels passenger ships and a roadmap for the boost of Hydrogen economy in the maritime sector.

Anno di stipula: 2021

Tipo progetto: FCH2-RIA

HORIZON 2020

Programma UE: JTI - Hydrogen

Data inizio: 01-01-2021

Data scadenza: 31-12-2024

Contributo totale: € 2.500.000

Costo eleggibile totale: € 2.500.000

Contributo a ENEA: € 25.000

Costo eleggibile ENEA: € 25.000

Doc. approvazione: 134/2021/TERIN

Codice atto: PK4AAJ

Resp. scientifico ENEA: CIGOLOTTI VIVIANA

Unità: TERIN-PSU-ABI

Attività ENEA:

ENEA svolgerà il ruolo di terza parte di ATENA e sarà coinvolta nei seguenti WP come supporto ad ATENA; in particolare le attività di competenza ENEA si possono riassumere e sintetizzare nei seguenti punti: • WP1-Task 1.1: Project concept and functional scenarios definition and review; • WP2- Task 2.1: Vessel Requirements Definition: Functional and Technical; • WP6- Task 6.1: Definition of functional requirements for the use of hydrogen in maritime; • WP7- Dissemination, Communication and Exploitation. Le attività verranno condotte in diretta collaborazione con ATENA.



Effective Uptake of Digital Services to Repower European Consumers and Communities as Active Participants in Energy Transition and Markets

Coordinatore: UNIV. PORTO (Portogallo)

N. Partner: 22

Abstract:

EU-DREAM brings together a group of preeminent energy industry and research partners focused on accelerating innovation in digital tools and promoting the effective uptake of digital services. EU-DREAM is aligned with the EU Action Plan on the Digitalisation of the Energy System as it proposes to develop the next generation of energy services, solutions and products that really work for energy consumers, fully tested and demonstrated in 6 LLs in 6 EU countries (Portugal, Belgium, Italy, Ireland, Greece and Denmark). EU-DREAM will address the barriers, motivations, and drivers from the consumer's perspective, intertwining the new technological developments with SSH expertise. All EU-DREAM technical solutions will produce high-level TRL 6-7 results by the end of the project.

Anno di stipula: 2024

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON EUROPE

Cluster 5 - D3 Energy supply

Data inizio: 01-07-2024

Data scadenza: 31-12-2027

Contributo totale: € 3.999.992

Costo eleggibile totale: € 4.541.818

Contributo a ENEA: € 165.625

Costo eleggibile ENEA: € 165.625

Doc. approvazione: 77/2024/TERIN

Codice atto: PK7AAL

Resp. scientifico ENEA: VALENTI MARIA

Unità: TERIN-SSI-SGRE

Attività ENEA:

L'ENEA è coinvolta in 8 dei 9 Work Packages: WP1 Data-Driven Cross-Sector Integrated Services, Solutions and Products; WP2 Digital Twin, AI-based Assistant Tool and NLP-based Intermediator; WP4 Digital Platforms, Tools and Technologies for Energy Services; WP5 Market Design for Digital Tools Uptake and Flexibility Services; WP6 Social Innovation, Consumers' Digital Empowerment and Energy Literacy; WP7 Living Labs, SSH Intertwining, Replicability and Business Innovation; WP8 Dissemination, Exploitation and Communication Activities; WP9 Project Management and Coordination



Coordinatore: INFN - ISTITUTO NAZIONALE DI FISICA NUCLEARE (Italia)

N. Partner: 34

Abstract:

EuPRAXIA is a distributed, compact and innovative accelerator facility based on plasma technology. It has been selected for the 2021 Update of the ESFRI Roadmap. In its first phase, its consortium of 51 institutes and industry partners will construct an electron-beamdriven plasma accelerator in the metropolitan area of Rome, thus bringing innovation, potential for spin-off companies, state-of-the art scientific applications and a vibrant international user community to the middle of Italy. In its second phase, EuPRAXIA will build one laser-driven plasma accelerator at a site to be chosen between several options in Europe. EuPRAXIA will serve users in ultra-fast science, e.g. on high-resolution medical imaging, deeply penetrating positron annihilation spectroscopy for materials and with Europe's most southern free-electron laser (FEL). It will offer fascinating capabilities for research on biomolecules, viruses and microscopic processes. EuPRAXIA will thus be a transformative step in the development of ultra-compact accelerators and applications. The Preparatory Phase project EuPRAXIA-PP will prepare its full implementation.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-11-2022

Data scadenza: 31-10-2026

Contributo totale: € 2.490.000

Costo eleggibile totale: € 2.490.000

Contributo a ENEA: € 30.000

Costo eleggibile ENEA: € 30.000

Doc. approvazione: 114/2022/FSN

Codice atto: PF2AAK

Resp. scientifico ENEA: NGUYEN FEDERICO

Unità: FSN-FUSPHY-TSM

Attività ENEA:

L'ENEA partecipa al Work Package 9 – RF, Magnets and Beamline Components, del quale è il Co-Leader.

Coordinatore: ANDRA - AGENCE NATIONALE POUR LA GESTION DES DECHETS RADIOACTIFS. Partner: 141
(Francia)

Abstract:

Our Vision With the European Joint Programme on Radioactive Waste Management EURAD(-1) a step change in European collaboration was envisaged towards safe radioactive waste management (RWM), covering all phases including predisposal and disposal, through the development of a robust and sustained science, technology and knowledge management programme that supports timely implementation of RWM activities and serves to foster mutual understanding and trust between Joint Programme participants. EURAD-2 builds upon EURAD-1 and PREDIS to further implement a joint strategic programme of research, development and knowledge management activities at the European level, bringing together and complementing EU Member States programmes in order to ensure cutting edge knowledge creation and preservation in view of delivering safe, responsible and publicly acceptable solutions for the management of radioactive waste throughout all programme phases (from "cradle to grave") across Europe now and in the future. EURAD-2 will support the implementation of the Waste Directive in EU Member States, taking into account the various stages of advancement of national programmes, the differences in capabilities and inventories. The main goals are to: - Support Member States in developing and implementing their national RD&D programmes for the safe long-term management of their full range of different types of radioactive waste through participation in the RWM Joint Programme; - Develop and consolidate existing knowledge for the safe start of operation of the first geological disposal facilities for spent fuel, high-level waste, and other long-lived radioactive waste, and supporting optimization linked with the stepwise implementation of geological disposal facilities; - Building on the achievements of EURAD-1 and PREDIS, maintain a knowledge management system that enhances transfer of knowledge between organisations, Member States and generations

Anno di stipula: 2024

Tipo progetto: Programme Cofund Actions

HORIZON EUROPE

Programma UE: Euratom

Data inizio: 01-10-2024

Data scadenza: 30-09-2029

Contributo totale: € 20.000.000

Costo eleggibile totale: € 34.380.393

Contributo a ENEA: € 101.498

Costo eleggibile ENEA: € 169.163

Doc. approvazione: 132 (2024) NUC

Codice atto: PF1AAN

Resp. scientifico ENEA: LEVIZZARI RICCARDO

Unità: NUC-IRAD

Attività ENEA:

L'ENEA parteciperà, in qualità di beneficiario, ai seguenti Work Package: WP5 - ICARUS - Innovative characterisation techniques for large volumes; WP7 L'OPERA - Long-term performance of waste matrices, WP11 - CLIMATE - Impact of climate change on nuclear waste management



European Parabolic Trough with Molten Salt

Coordinatore: DLR - GERMAN AEROSPACE CENTER E.V. (Germania)

N. Partner: 10

Abstract:

EuroPaTMoS pulls together the European expertise and testing infrastructure for parabolic trough (PTC) with molten salt (MS), to accelerate transfer of technology from R&D to commercial deployment. Two leading European CSP companies (TSK Flagsol and Rioglass Solar) join forces with three SMEs providing risk assessment and quality assurance services (CSP Services GmbH), quality assurance equipment and measurement services (CSP Services España), electrical scope and operating teams for CSP (Ductolux) to develop a selling proposition with reduced risk and competitive cost. This industrial endeavor is supported by a strong R&D complement consisting of two large R&D institutions (DLR and ENEA) and three Universities (UCM, UNEX and UEVORA) with complementary specializations and abilities. Together they gather two of the most important European infrastructures for PTC-MS research and specialized lab and technical scale facilities for component testing and investigation of corrosion and salts degradation issues. This unique constellation enables the consortium to tackle all subtopics of Topic 2 by parallel investigations on the different test facilities, integrating the results and experiences of previous and ongoing projects in this field. In particular, the following issues will be addressed: Evaluate critical plant components regarding reliability (review of consortium joint knowledge, laboratory testing, operation in realistic environment). Develop a process control concept based on a virtual solar field, to be validated on a full size collector loop enabling hardware-in-the-loop simulation of a full solar field. Develop and demonstrate O&M procedures for exceptional molten salt operations (e.g. filling, draining, repair of leakages, re-vitalizing frozen parts). Carry out and document systematic risk assessment including mitigation measures. Develop high performance receiver tube and validate in relevant environment. Provide methods and equipment for advanced QA and monitoring during construction and operation of PTC-MS solar fields

Anno di stipula: 2022

Tipo progetto: ERANET COFUND

HORIZON 2020

Programma UE: ERA-NET

Data inizio: 01-02-2021

Data scadenza: 31-01-2024

Contributo totale: € 2.644.476

Costo eleggibile totale: € 3.404.387

Contributo a ENEA: € 150.000

Costo eleggibile ENEA: € 300.000

Doc. approvazione: 141/2022/TERIN

Codice atto: PK7AAE

Resp. scientifico ENEA: GAGGIOLI WALTER

Unità: TERIN-STSN

Attività ENEA:

L'ENEA, in qualità di leader del WP3-Demonstration of molten salt specific operations, sarà coinvolta nelle attività di Ricerca afferenti al raggiungimento dei Milestones di progetto n°1.2, per l'identificazione dei componenti dell'impianto da testare e sul milestone n° 3.1, per la definizione della matrice di test sperimentali. In aggiunta l'ENEA produrrà il Deliverable n°1.4, il rapporto sui test dei componenti chiave dell'impianto eseguiti presso l'ENEA; il Deliverable n°1.5, un report sul confronto dei risultati delle campagne di prova eseguite sui componenti chiave dell'impianto; e il Deliverable n° 3.1, il rapporto sui test sperimentali di riempimento e drenaggio dei sali fusi eseguiti in ENEA.



Highly efficient delamination technologies to recover and reuse metals, glass, polymers from end-of-life photovoltaic panels

Coordinatore:	CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)	N. Partner:	17
Abstract:		Anno di stipula:	2023
EVERPV's objective is to provide EU with efficient solutions for a sustainable treatment of end-of-life PV panels and recovery of high purity and high integrity materials. Based on the grinding of PV panels waste from the backside and/or the use of IR lamps heating, EVERPV will demonstrate two innovative technologies to delaminate the different layers of the PV panel. Combined with recycling processes, it will enable to recover glass with less than 1% impurities, encapsulant and backsheets polymers with a purity over 99%, and silver with a purity of 99%. Besides, the project will cluster with other EU-funded consortia already addressing the recycling of silicon (e.g. PHOTORAMA) to provide with a global solution. The new delamination technologies will be respectively demonstrated at ENVIE recycling plant and at 9TECH to reach TRL7. The technology demonstrated during EVERPV project targets to process more than 3000 tons of solar panels per year, thus recovering enough raw materials recovered to produce more than 350 000 new panels per year by 2030. EVERPV will finally demonstrate the potential for reusability of recovered materials in several industrial value chains in particular in the PV industry. The project will lead a strategic analysis on the potential of new EoL panels circular value chains based on estimated PV waste generation together with environmental and societal impact assessments. EVERPV has gathered a consortium of 16 participants from 8 countries whose expertise ranges from solar PV materials and recycling processes (CEA, CSEM, ENEA, TEC), recyclers (ENVIE, 9TECH), process industries and materials suppliers (SGB, DTF, DPL, JBR), PV modules manufacturing (VAL), collecting and waste treatment organizations (SOREN, ERION), policy-making, business and training facilitators (SPE, UNITAR, BI).	Tipo progetto:	IA - Innovation Action	
		Programma UE:	HORIZON EUROPE
		Data inizio:	Cluster 5 - D3 Energy supply 01-09-2023
		Data scadenza:	31-08-2026
		Contributo totale:	€ 5.367.184
		Costo eleggibile totale:	€ 5.367.184
		Contributo a ENEA:	€ 634.263
		Costo eleggibile ENEA:	€ 634.263
		Doc. approvazione:	199/2023/SSPT-USER
		Codice atto:	PS6AEC
		Resp. scientifico ENEA:	TAMMARO MARCO
		Unità:	SSPT-USER-T4RM

Attività ENEA:

L'ENEA partecipa come Partner per attività sperimentali e di studi. In particolare: attività sperimentali su impianto prototipale in Casaccia per ottimizzare il processo di recupero di materie dai rifiuti composti da pannelli fotovoltaici a fine vita e basato su brevetto ENEA-BetaTech; sviluppo in laboratorio di processi di recupero dell'argento contenuto nelle matrici recuperate con il processo sopra descritto; valutazione impatto ambientale, mediante LCA/LCC, dei processi di trattamento e recupero oggetto del progetto



Development of the final design and prototyping

Coordinatore: ENEA (Italia)

N. Partner: 7

Abstract:

The ultimate objective of the project is to complete the design of all ITER RNC components including electronics and software up to a Final Design stage such that final Built-To-Print and Manufacturing Specifications can be produced by a F4E contractor to input the Manufacturing Readiness Review.

Anno di stipula: 2020

Tipo progetto: N/A - Non applicabile

Programma UE: HORIZON 2020 - Euratom

F4E - Fusion for energy

Data inizio: 14-02-2020

Data scadenza: 13-04-2024

Contributo totale: € 1.819.126

Costo eleggibile totale: € 4.155.088

Contributo a ENEA: € 1.267.827

Costo eleggibile ENEA: € 2.820.040

Doc. approvazione: 015/2020/FSN

Codice atto: PF3AAF

Resp. scientifico ENEA: MAROCCHI DANIELE

Unità: FSN-FUSTEC

Attività ENEA:

L'ENEA coordina il progetto.

Coordinatore:

N. Partner: 9

Abstract:

This proposal systematically addresses the development, provision, and integration of services, across the European Research Infrastructures (RIs) landscape, that the scientific community can use to investigate the effects on health and the environment that artificial materials (including plastics, micro-, nano-, and biotechnological materials) can have. Exposure to such materials may occur as a result of their intended use (e.g., food packaging) or at the end of their lifecycle (e.g. plastic wear). These services, which are relevant to several areas of important societal and economic impact, are expected to span multiple scales and disciplines, including highquality metrology, structural biology, microbiology, and ecotoxicology. The main output of this proposal will be a thorough overview of extant service offer by European RIs with respect to questions from state-of-the-art of scientific research in the aforementioned domains. FHERITALE will identify common strategies for the coordination and optimization of services at different RIs geared towards increasing the accessibility of relevant technologies. In parallel, it will identify those service and technology gaps that are hampering high-impact research and preventing a timely assessment of the repercussions of new materials on health and the environment. These gaps constitute high-priority areas for future development. FHERITALE will design a coordination framework for the RIs to drive these key technological developments. The technological focus of this application includes emerging areas of research for which international interest is rapidly growing. The interdisciplinary nature of the cluster of identified technologies will connect health, food, and environment research, constituting one of the first examples of practical application of the “One Health” approach. This coordination effort will also serve as a fertile ground for further interdisciplinary research among RIs from the H&F and other domains.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-01-2024

Data scadenza: 31-12-2026

Contributo totale: € 2.002.190

Costo eleggibile totale: € 2.002.190

Contributo a ENEA: € 173.309

Costo eleggibile ENEA: € 173.309

Doc. approvazione: 213/2023/SSPT-BIOAG

Codice atto: PS1ADR

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT-BIOAG

Attività ENEA:

Il progetto si inserisce nelle azioni condotte da ENEA per la realizzazione ed il coordinamento dell'Infrastruttura di Ricerca METROFOOD-RI, fa seguito ai progetti PRO-METROFOOD e METROFOOD-PP si integra con il progetto Horizon Europe METROFOOD-EPI. ENEA è leader del WP5 Thematic landscape and gap analysis e partecipa ai seguenti WP: WP1 - Project management, dissemination and outreach RP1 WP2 - Project management, dissemination and outreach RP2 WP6 - Enabling selected priorities (ENEA task leader Task 6.1: Gap analysis) WP7 - Strategies for technology development WP8 - Long term engagement and coordinated actions



Promoting ESG principles and healthy nutritional habits to increase competitiveness, market diversification and effective communication for consumers in Adriatic-Ionian aquaculture and fishery sectors

Coordinatore: UNIV. SPLIT (Croazia)

N. Partner: 10

Abstract:

Fisheries and aquaculture provide healthy and nutritious food rich in proteins, essential omega-3 fatty acids, and bioavailable micronutrients. They also contribute significantly to employment and the economy. The Adriatic-Ionian region accounts for approximately 3.4% of Europe's total fish and shellfish production, reaching around 600,000 tonnes in 2022—52.8% of which came from aquaculture. This highlights the region's strong potential for developing a sustainable blue economy. However, achieving this potential requires addressing various environmental, social, and governance (ESG) challenges. There is a clear lack of tools and methodologies to properly assess and communicate the health, environmental, and social impacts of the sector. Without these tools, it's difficult to turn sustainability into a competitive business strategy. Furthermore, as aquatic resources are shared across countries bordering the Adriatic and Ionian seas, regional cooperation is essential. Each country's legal, administrative, and geopolitical contexts must be taken into account when designing efficient and collaborative management strategies. The FISHIMPACT project aims to: Gather existing information on labels and certification systems related to environmental, social, and health performance of aquaculture products across national, EU, and IPA markets; Develop a set of key performance indicators (KPIs) focusing on ESG standards, sustainability, and the nutritional value of aquatic products; Incorporate these KPIs into an easy-to-use, multilingual, self-evaluation online tool for businesses; Validate the tool through testing with a group of stakeholders and end users; Provide training for the sector on circular economy principles, Product Environmental Footprint (PEF)/Life Cycle Assessment (LCA), environmental labeling, and related sustainability topics; Disseminate results and build capacity to ensure the project's long-term impact throughout the region. FISHIMPACT's main outputs include: a transnational pilot action to test the FISHIMPACT toolkit designed to boost the competitiveness of small and medium-sized enterprises (SMEs) in fisheries and aquaculture; a set of guidelines for SMEs to support the integration of nutritional and sustainability standards into their operations; a Memorandum of Understanding to promote long-term international cooperation in the Adriatic-Ionian region and ensure the sustainability of project outcomes. Aligned with the EU Strategy for the Adriatic and Ionian Region and the European Green Deal, FISHIMPACT targets public authorities, sector agencies, SMEs, large enterprises, business support organizations, and consumers—who are the final beneficiaries of a healthier and more sustainable aquatic food sector. Ultimately, FISHIMPACT aims to raise awareness throughout the value chain about ESG-driven business practices and to encourage consumers to make more sustainable, healthy, and informed food choices. A policy recommendation paper will be made available to guide decision-makers in planning for a resilient and sustainable blue economy in the region.

Attività ENEA:

L'ENEA collabora a tutti i Work Package e le attività del progetto ed è leader dell'Activity 1.1 – State of art on the available labels/certification systems on the national, EU and IPA markets concerning ESGperformances of fisheries and aquaculture sector (WP1), dell'Activity 2.1 – Development of a Sustainability self-evaluation tool to improve fishery and aquaculture SMEs competitiveness leveraging ESGprinciples (WP2) e dell'Activity 2.3 – Development and creation of Sustainability Good Practices searchable tool

Anno di stipula: 2024

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes 2021-2027

Interreg IPA ADRION

Data inizio: 01-09-2024

Data scadenza: 31-08-2027

Contributo totale: € 1.486.089

Costo eleggibile totale: € 1.748.340

Contributo a ENEA: € 249.507

Costo eleggibile ENEA: € 249.507

Doc. approvazione: 256/2024/SSPT/EC

Codice atto: PS6AEZ

Resp. scientifico ENEA: CORTESI SARA

Unità: SSPT-EC-SSC



Navigating European Forests and forest bioeconomy sustainably to EU climate neutrality

Coordinatore: IIASA - INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS (Austria) N. Partner: 24

Abstract:

ForestNavigator aims at assessing the climate mitigation potential of European forests and forest-based sectors through modelling of policy pathways, consistent with the best standards of LULUCF reporting, and informing the public authorities on the most suitable approach to forest policy and bioeconomy. With a primarily European scope, ForestNavigator zooms into carefully selected EU Member States to enhance the consistency of the EU and national pathways, but the project also zooms out towards the global scale, and selected key EU trading partners, accounting for extra-EU future drivers and potential leakage effects. The project will rely on a newly developed integrated policy modelling framework for the EU forests and forest bioeconomy covering i) all relevant mitigation strategies from forest management to energy and material substitution, ii) climate change impacts, adaptation, and natural disturbances, iii) biophysical climate feedbacks, iv) systematically accounting for impacts on biodiversity, forest ecosystem services, and other forest functions, incl. jobs and green growth. To increase the accessibility of the models and pathways assessments, their understanding and transparency, a novel decision-making platform will be established consisting of the web-based ForestNavigator Portal, and a community of policymakers, national authorities, and modelers, the Forest Policy Modelling Forum. To reach its ambitious objectives, ForestNavigator will i) harmonize, integrate and continuously update existing datasets by, including national inventories with new remote sensing data and models ii) start from complex forest and climate models and through emulators build them into operational policy modelling tools, iii) integrate biophysical and socio-economic information, iv) consider EU forests and forest bioeconomy in the broader context of other land use and economic sectors, v) rely on input from policy makers and other stakeholders.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Cluster 5 - D1 Climate Sciences

Data inizio: 01-10-2022

Data scadenza: 30-09-2026

Contributo totale: € 5.995.241

Costo eleggibile totale: € 5.995.241

Contributo a ENEA: € 212.653

Costo eleggibile ENEA: € 212.653

Doc. approvazione: 93/2022/SSPT-MET

Codice atto: PS2ACI

Resp. scientifico ENEA: MICHETTI MELANIA

Unità: SSPT-MET

Attività ENEA:

Le attività ENEA prevedono il reperimento, la produzione e l'analisi di dati utili a: i) raccogliere le valutazioni di diversi portatori di interesse verso diverse combinazioni di gestione forestale; ii) valutare i trade-off tra diversi servizi ecosistemici forestali iii) produrre una metanalisi sul servizio ecosistemico culturale/ricreativo delle foreste. ENEA supporterà inoltre le attività di coinvolgimento di differenti categorie di stakeholder all'interno del progetto e la disseminazione dei risultati.



Fuel Recycle and Experimentally Demonstrated Manufacturing of Advanced Nuclear Solutions for Safety

Coordinatore: UNIV. TECHNOLOGY CHALMERS (Svezia)

N. Partner: 17

Abstract:

FREDMANS aims to increase safety and efficiency in both nuclear power production as well as the recycling of spent fuel. Changing from oxide fuel to a more fissile dense material with higher thermal conductivity can enhance both safety of operation and the economic impact of nuclear power. At the same time, a transition to a greener society with respect to both the generation and usage of electricity will drastically increase consumption of finite materials. Generation is predicted to increase by 16?20 times, in particular as electrification replaces the direct use of fossil fuels for heating and transportation. The nuclear industry can mitigate their part of the resource use through the recycling of spent nuclear fuel. This can enhance the actual power output by about 20 times. However, today there has been no full industrial demonstration of the complete recycling of nuclear fuel, although one time recycling, including of plutonium, has been used on large scale for many years e.g. in France. The model fuel is nitride fuel. It may be more energy efficient/economically advantageous to recycle not only the fissile material, but also the required isotopically enriched N-15 that is otherwise currently a costly raw material. The project sets objectives that address the overall goals of the SET plan, SNETP and EERA JPNM SRA to answer the specific aims of this call relating to the safety of advanced fuels and their recyclability, in particular nitrides highlighted in the call. We will prove that advanced fuels are a viable option for industrial use that can enhance the safety, sustainability and economics of nuclear power operation. The work packages are: Advanced Manufacturing, Recyclability, Waste Management, and Industrial Applications. Across all these WPs, the crucial aspect of safety is held in high focus. As the real safety of future nuclear systems is achieved through well educated people, an extensive Training & Education work package is included.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-09-2022

Data scadenza: 31-08-2026

Contributo totale: € 2.503.797

Costo eleggibile totale: € 2.904.416

Contributo a ENEA: € 22.000

Costo eleggibile ENEA: € 24.375

Doc. approvazione: 080/2022/FSN

Codice atto: PF6AAV

Resp. scientifico ENEA: LODI FRANCESCO

Unità: FSN-SICNUC-PSSN

Attività ENEA:

ENEA è coinvolta nei seguenti work package (WP): - WP4 dedicato al progetto concettuale dell'impianto di fabbricazione e riprocessamento di combustibile nitruro Task 4.2: Design concettuale della fabbrica di UN e relativo impianto di arricchimento di N-15. Il risultato sarà il layout preliminare dell'impianto, la definizione dei flussi di materiale e la descrizione concettuale dei principali componenti.

Coordinatore: AVL LIST GMBH (Austria)

N. Partner: 11

Abstract:

Shipping is responsible for the emission of about 1 billion tons of carbon dioxide (CO₂) and about 2.5% of global greenhouse gas (GHG) emissions worldwide. The drastic reduction of GHG emissions from ships has been set as one of the urgent targets to achieve the EU Green deal objectives. As a result, the maritime industry, which is a hard-to-decarbonize sector, is actively seeking for alternate solutions/technology which can make it more climate friendly but at the same time does not compromise on the current performance levels. Leveraging novel concepts as well as assets from former projects and initiatives, the project FuelSOME focuses on establishing the technological feasibility of a flexible, scalable, and multi-fuel capable energy generation system based on Solid Oxide Fuel Cells (SOFC) technology specially catered for long-distance maritime shipping. This system will be able to operate on Ammonia, Methanol and Hydrogen and their mixtures for which short and long-term sustainable supply pathways will be explored. Finally, on a broader level, an in-depth and detailed investigation on the environmental, social, and economic benefits of developing such a system for the European industry, the maritime sector and the citizens will be carried out. The future roadmap of the project is that the outcomes generated will not only benefit the maritime industry but can also serve as a blueprint/launchpad for implementing the same technology in other hard to abate emission sectors and/or, thereby enabling multi-fuel energy generators to become the norm in the future. The consortium comprises 8 partners: 7 partners from 6 European Member States and 1 partner from a non-associated third country (Switzerland). The FuelSOME consortium unites the necessary multidisciplinary knowledge, expertise, skills, and resources to constitute a representative value chain of actors, which together can achieve the project's ambitious objectives.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 5 - D2 Cross-cutting solutions

Data inizio: 01-09-2022

Data scadenza: 31-08-2026

Contributo totale: € 2.499.986

Costo eleggibile totale: € 2.687.486

Contributo a ENEA: € 25.000

Costo eleggibile ENEA: € 25.000

Doc. approvazione: 156/TERIN/

Codice atto: PK4AAR

Resp. scientifico ENEA: CIGOLOTTI VIVIANA

Unità: TERIN-PSU-ABI

Attività ENEA:

ENEA svolgerà il ruolo di terza parte di ATENA e sarà coinvolta nei seguenti WP come supporto ad ATENA; in particolare le attività di competenza ENEA si possono riassumere e sintetizzare nei seguenti punti: • WP4-Task 4.1: System definition and overarching impact assessment framework for TEA and LCSA; • WP4-Task 4.2: Techno-economic analysis; • WP4-Task 4.3: Prospective Life Cycle Sustainability Assessment (LCSA) focusing on environmental, social and economic impacts, including biodiversity); • WP5-Dissemination, Communication and Exploitation.



Transforming Gendered Interrelations of Power and Inequalities for Just Energy Systems

Coordinatore: CNR - CONSIGLIO NAZIONALE DELLE RICERCHE (Italia)

N. Partner: 8

Abstract:

gEneSys advances understanding of gender & social inequalities in energy transition policies, processes & outcomes through new research & by closing knowledge gaps. The Group of the Chief Scientific Advisers to the EU recommend that “the transition to carbon-neutrality must be just and fair”. Just Transition Mechanism states that “in order to be successful and socially acceptable for all, the transition has to be fair and inclusive” & all possible mechanisms should be deployed to mitigate adverse consequences. The European Green Deal takes a narrow focus on mitigation: mostly male workers in the old fossil fuel sectors. EGD includes the goal of “Supplying clean, affordable and secure energy”, which parallels SDG7 to “ensure access to affordable, reliable, sustainable, and modern energy for all”. Like EGD, SDG7 is gender blind: it has no gender indicators or targets, even though “access” & “affordable” are concepts that hide multitude of power and gender inequality relations. gEneSys cooperate with partners in Africa to tackle the gender concerns in the EU’s and UN’s aims to transform energy & will show how to integrate gender perspectives into SDG7 for gender equality benefits. gEneSys will improve understanding of “intersectionality” through analysis of existing data and by collecting, analysing, and theorising original data collected through extensive surveys. gEneSys conceptualises energy transition as a dynamic, gendered, mission-oriented sociotechnical innovation ecosystem with technological, policy, social, environmental, governance, & economic subsystems, each with its own sustainability visions, values, and priorities, as well as change actors and stakeholder. The dynamic nature of energy transition ecosystem opens-up opportunities to give women & men the same chances to participate influence, & benefit from the changes.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 2 - Culture, creativity and inclusive society

Data inizio: 01-02-2023

Data scadenza: 31-01-2026

Contributo totale: € 2.656.489

Costo eleggibile totale: € 2.656.489

Contributo a ENEA: € 425.000

Costo eleggibile ENEA: € 425.000

Doc. approvazione: 234/2022/TERIN

Codice atto: PK5AAM

Resp. scientifico ENEA: DE NICOLA ANTONIO

Unità: TERIN-SEN-APIC

Attività ENEA:

L’ENEA è coinvolta in qualità di leader nel WP1 (Gendered analysis of knowledge creation landscape for energy transition) e nei seguenti workpackage: . WP2 (Exploring gendered intersectional patterns in citizen’s behaviours and orientations towards energy transition) . WP3 (Development of Concrete Solutions to Advance Women in Energy Transition) . WP4 (International cooperation between Europe and Africa) . WP5 (Development of credible pathways for equitable, just, and fair energy transitions) . WP6 (Dissemination and Impact) . WP7 (Management and Coordination)

Gasification Integrated with CO₂ capture and conversion

Coordinatore: UNIV. GUGLIELMO MARCONI TELEMATICA (USGM) (Italia)

N. Partner: 10

Abstract:

In order to overcome the main barriers that prevent renewable energy technologies from forming the backbone of the energy system, GICO develops new materials (CO₂ capture sorbents; high temperature inorganic removal sorbents; catalytic filter candles; membranes for oxygen separation and methanol production) and technologies (Hydro Thermal Carbonisation; Sorption Enhanced Gasification; Hot Gas Conditioning; Carbon Capture, Storage and Use; Power To Gas via Plasma conversion) to: ? produce intermediate solid (5 vs 15 €/MWh) and gaseous (10 vs 30 €/MWh with zero particulate and ppb contaminants level) bioenergy carriers, ? capture CO₂ (40 €/t vs 90 €/t) receiving waste high alkali content and producing bricks, ? convert CO₂ to CO and O₂ (90 vs 10% efficiency) storing renewable electricity excess ? produce methanol (35 vs 75 €/MWh) and electricity (100 vs 200 €/MWh), GICO encompasses technology development (materials, processes, simulations, integrated system besides full-scale design) and assessment (techno-economical, environmental, social impacts and market) and dissemination activities. GICO activities are fully innovative and constitute a breakthrough (in materials and processes development and integration) involving methodological, technological and exploitation developments achieved previously by partners' research over many years. The GICO activities aim at developing small to medium scale residual biomass plants (i.e. 2-20 t/day and 500-5,000 kWe, compatible with the standard residual biomass availability of few thousand tons per year) will change the actual social acceptance of the energy plants. They will no longer be seen as distant large consumers of resources and emitters of pollutants but as local small/medium plants connected to communities (for waste, materials and energy with negative/zero emissions) within the circular business model (industrial symbiosis with jointly located industries) that GICO promotes.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020
Energy

Data inizio: 01-12-2020

Data scadenza: 30-11-2024

Contributo totale: € 3.928.258

Costo eleggibile totale: € 3.928.258

Contributo a ENEA: € 532.760

Costo eleggibile ENEA: € 532.760

Doc. approvazione: 162/2020/TERIN

Codice atto: PK4AAB

Resp. scientifico ENEA: STENDARDO STEFANO

Unità: TERIN-PSU

Attività ENEA:

Nelle attività sono coinvolti impianti e laboratori dei Centri Ricerca ENEA di Trisaia e di Casaccia. In particolare: Trisaia e Casaccia nel work package 2 'Gasification and sorbent test' ; Casaccia si occuperà anche del work package 3 'CO" Conversion to CO and O₂separation' e del work package 4 'Lab scale prototype: model, integration and tests'. Entrambi i centri contribuiranno anche alle attività trasversali previste nel WP1 (Management) e WP6 (Dissemination and exploitation) finalizzati rispettivamente alla gestione del progetto e alla implementazione delle azioni di diffusione e sfruttamento dei risultati generati.

GROWING ENERGY EFFICIENCY THROUGH NATIONAL ROUNDTABLES ADDRESSES

Coordinatore: ENEA (Italia)

N. Partner: 6

Abstract:

The project aims at facilitating the dialogue between Italian public and private key actors on financing issues related to energy efficiency in the existing and new buildings sector and fostering collaboration, innovation and action through the establishment of a permanent national roundtable and connected events at local level. The project will set up a national roundtable with selected high level stakeholders in order to allow an in-depth discussion about current barriers and market failures, as well as share best practice and innovative financing solutions, with the goal to improve stakeholders' awareness and knowledge and to identify the necessary political and regulatory framework. In parallel, local events and initiatives will be organized to engage as many stakeholders as possible, enabling capacity building, dissemination, replication activities and scale up of "success stories": local actors are one of the main drivers of the energy transition and they bring forward tremendous opportunities for investment and innovation in a number of fields. National roundtables and local events will be organised in order to trigger a continuous and mutually reinforcing virtuous circle. The combination of a top-down and bottom-up approach will create the conditions for the development of tailor made support tools and instruments for the different stakeholders involved. The outcomes of the national roundtables and the local events will be analysed, and a roadmap for PAs and industry sector including strategic and operative recommendations for the implementation of financial instruments will be elaborated. Connections with past and current similar initiatives at EU level will be pursued throughout the project, in order to keep the national outputs in line with EU requirements and the provisions put in place to face the ongoing global situation. Finally, different strategies to maintain the roundtables as a permanent forum after the end of the project will be proposed.

Anno di stipula: 2021

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON 2020
Energy

Data inizio: 01-09-2021

Data scadenza: 29-02-2024

Contributo totale: € 1.186.126

Costo eleggibile totale: € 1.186.126

Contributo a ENEA: € 265.468

Costo eleggibile ENEA: € 265.468

Doc. approvazione: 12/2021/DUEE-SPS

Codice atto: PW3AAV

Resp. scientifico ENEA: PANDOLFI EDOARDO

Unità: DUEE-SPS-MPE

Attività ENEA:

L'ENEA coordina il progetto, contribuendo alle attività di tutti i work package. In particolare: - è leader del WP1 - Coordination and Management che include tutte le attività di gestione del progetto volte a garantire che le attività rispettino quanto previsto nel GA inclusa la pianificazione temporale ed il relativo budget; - è inoltre leader del WP6 - Dissemination and communication volto alla promozione e diffusione dei risultati del progetto.

Harmonisation, update and implementation of standards related to radiation protection dosimeters for photon radiation

Coordinatore: STUK RADIATION AND NUCLEAR SAFETY AUTHORITY (Finlandia)

N. Partner: 18

Abstract:

The recent update of the basic standard for photon reference radiation fields, ISO 4037, presented huge challenges to calibration laboratories and industry in the field of radiation protection. To avoid a failure to implement ISO 4037, collaborative research is needed to solve several serious issues that became apparent during initial implementation. ISO 4037, in conjunction with the new quantities proposed in ICRU Report 95, provides the basis for type testing standards that must be harmonized early to ensure timely development of new dosimeters. This research, which is beyond the capabilities of a single NMI or country, will additionally provide metrology networks, IAEA, and policymakers with the necessary scientific data to guide a possible implementation in metrology institutes and industry.

Anno di stipula:	2023
Tipo progetto:	RIA - Research and Innovation Action
Programma UE:	HORIZON EUROPE EPM - European Partnership on Metrology
Data inizio:	01-06-2023
Data scadenza:	31-05-2026
Contributo totale:	€ 973.834
Costo eleggibile totale:	€ 973.834
Contributo a ENEA:	€ 41.250
Costo eleggibile ENEA:	€ 41.250
Doc. approvazione:	115/2023/FSN
Codice atto:	PF5AAL
Resp. scientifico ENEA:	PINTO MASSIMO
Unità:	FSN-INMRI

Attività ENEA:

L'ENEA partecipa attivamente al WP 1 'Validation of requirements and methods related to reference fields according to ISO 4037 and guide for spectrometry' e al WP 2 'Training on requirements of ISO 4037 and calibration in reference fields'.

H2Excellence: Fuel Cells and Green Hydrogen Centers of Vocational Excellence towards affordable, secure, and sustainable energy for Europe



Coordinatore: UNIV. OF APPLIED SCIENCES VAASA (VAMK) (Finlandia)

N. Partner: 23

Abstract:

2Excellence aims to establish a platform of centres of vocational excellence (CoVEs) in the field of fuel cells and green hydrogen technologies that will forge a collaborative educational, training and development program designed to close the existing industry skills gaps. The CoVEs will bring together all key stakeholders such as universities, VET schools, industrial partners, and governmental bodies, forming strong links at European, national, and regional level. It is envisaged that different local clusters will be set up across countries with strong potential in the industry (e.g., PT, ES, FR, FI, PL, and IT), with foreseen extension across Europe and a joint focus on different aspects of the hydrogen value chain, from production to applications and cross-cutting issues. H2Excellence will create world-class reference points for training in green hydrogen technologies for both initial training of young people, engineers as well as for up-skilling and res-skilling of adults, through flexible and timely offer of training for the skills needs of companies in the green hydrogen sector. The VET clusters will undertake activities such as developing transnational, joint curricula, and lifelong trainings; interaction with universities to understand the current state-of-the-art technologies; exchange of VET teachers, students, and staff; partnerships between companies and professionals; regional ecosystems mapping and integration within the national/regional economic and innovation ecosystems. H2Excellence brings together 24 partners from 8 different Erasmus+ EU countries (+ 1 international partner). Fully in line with the EU Green Deal goals and energy transition targets, the project intends to create the infrastructure necessary to embed vocational excellence in the European hydrogen sector, as well as to contribute to transforming the sector towards quality employment and career-long opportunities.

Anno di stipula:	2023
Tipo progetto:	ERASMUS-LS ERASMUS Lump Sum Grants
Programma UE:	Other programmes 2021-2027 Erasmus +
Data inizio:	15-06-2023
Data scadenza:	14-06-2027
Contributo totale:	€ 3.996.343
Costo eleggibile totale:	€ 4.995.436
Contributo a ENEA:	€ 184.992
Costo eleggibile ENEA:	€ 231.239
Doc. approvazione:	140/2023/TERIN
Codice atto:	PK4AAY
Resp. scientifico ENEA:	SANTONI FRANCESCA
Unità:	TERIN-PSU-ABI

Attività ENEA:

L'ENEA porterà avanti un'analisi approfondita dello stato dell'arte delle tecnologie delle celle a combustibile e dell'idrogeno, indicando le roadmap europee, nazionali e regionali al fine di valutare il livello di maturità di questo ecosistema, le rispettive tabelle di marcia e lo stato di attuazione dei progetti sull'idrogeno che potrebbero avere un impatto sul mercato del lavoro negli anni a venire (Task 2.1). Inoltre, sosterrà le azioni di mobilità previste dal progetto, con interesse ad ospitare e formare insegnanti e studenti sulle tecnologie per la produzione di Idrogeno verde sulla base delle iniziative e progetti di ricerca esistenti nei suoi laboratori (Task 3.7), e provvederà a supportare i partner per l'organizzazione di visite in loco dedicate a mostrare i progetti dimostrativi su larga scala (Hydrogen Demo Valley),(Task 5.4). Infine, contribuirà come pilastro scientifico alla H2Excellence European Hydrogen Academy (Task 4.6), e alla ricerca e formazione di aziende (PMI) su temi specifici dell'Idrogeno (Task 4.4).

Coordinatore: FUNDACION DE LA COMUNIDAD VALENCIANA PARA LA INVESTIGACION, PROMOCION Y ESTUDIOS COMERCIALES DE VALENCIAPORT (Spagna) N. Partner: 10

Abstract:

Hydrogen is an energy carrier with great potential for clean, efficient power in transport applications. Hydrogen can be obtained from different sources, which in combination with fuel cells it can improve energy efficiency especially when hydrogen is produced by renewable energy sources. The action proposed tries to introduce hydrogen as an alternative fuel in the port industry. The H2Ports project is an Action aligned with the needs and objectives of the European Commission and the port industry. The aim is to provide efficient solutions to facilitate a fast evolution from a fossil fuel based industry towards a low carbon and zero-emission sector. Hydrogen has been proved in other logistics and transportation sectors as a solution to power machinery and vehicles, therefore the action proposes different pilots to bridge the gap between prototypes and pre-commercial products:

- The first prototype will comprise a reach stacker powered with hydrogen and tested under a real life trial, in a Port Container Terminal.
- The second prototype will comprise a yard tractor equipped with a set of fuel cells. The design will enable the tractor to perform different operations like container horizontal transport or ro-ro loading/unloading operations.
- The third prototype will comprise a mobile Hydrogen supply station, which will provide the needed fuel under the appropriate thermodynamic conditions for guaranteeing the continuous working cycles of the abovementioned equipment.

The H2Ports project would also have a transversal objective that consists on developing a sustainable hydrogen supply chain at the port, coordinating all actors involved: customers, hydrogen producers, suppliers, etc. The expected results of the project are to test and validate hydrogen-powered solutions in the port-maritime industry, with the aim of having applicable and real solutions without affecting to port operations while producing zero local emissions.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Programma UE: JTI - Hydrogen

Data inizio: 01-07-2020

Data scadenza: 31-12-2024

Contributo totale: € 3.999.948

Costo eleggibile totale: € 4.117.198

Contributo a ENEA: € 28.750

Costo eleggibile ENEA: € 28.750

Doc. approvazione: 124/2020/TERIN

Codice atto: PK4AAA

Resp. scientifico ENEA: CIGOLOTTI VIVIANA

Unità: TERIN-PSU-ABI

Attività ENEA:

L'ENEA è parte terza del partner ATENA da luglio 2020 ed è coinvolta nelle attività del work package 4; in particolare: WP4-T4.1 "Design" - Definizione del proof of concept del nuovo veicolo elettrico con cella a combustibile; WP4-T4.1 "Design" - Analisi dei componenti necessari all'integrazione della cella a combustibile nello yard truck; WP4-T4.1 "Design" - Testing della cella a combustibile ? WP4-T4.3 "Piloting" - Analisi Costi/Benefici della nuova soluzione di veicolo FCV alimentato ad idrogeno e valutazione dei casi studio più significativi applicati all'ecosistema porto.

Harmonisation of licensing procedures, codes and standards for future fission and fusion plants

Coordinatore: LEI - LITHUANIAN ENERGY INSTITUTE (Lituania)

N. Partner: 17

Abstract:

HARMONISE puts forward a holistic approach for studying the body of knowledge required to accomplish harmonization and standardization of methodologies, codes and standards as well as the assessment of nuclear reactor components. Departure from a prescriptive-based to a performance-based approach in nuclear regulatory regimes is to be examined under the prism of conformity with the safety objectives of innovative fission and fusion facilities. To this end, data related to fusion installations is expected to stem from the ITER safety demonstrations, whereas data pertinent to advanced fission designs – such as fast breeder reactors and SMRs – will be extracted from relevant EC-funded projects. The basis for HARMONISE activities will be the outcomes of relevant research and cooperation activities in standardization and nuclear safety considering also the lessons learnt from the stress tests performed in the EU. HARMONISE will examine issues related to qualification, standardization, V&V and licensing of fission and fusion installations, while taking into account stakeholder involvement. The benefits of adopting digital twins of nuclear installations during the design phase will be reviewed, while also identifying the cross-cutting activities that contribute to collaborative research efforts between fission and fusion. HARMONISE will address issues related to the preliminary safety assessments and licensing needs of innovative fission and fusion installations; risk-informed, performance-based approaches in licensing reviews and regulatory decision-making; harmonisation and standardisation on component assessments, methodologies, codes and standards and draw lessons from earlier experience in harmonisation efforts. HARMONISE findings will be disseminated to the nuclear safety regulators of EU MSs along with the State Nuclear Regulatory Inspectorate of Ukraine as material to be considered during safety verification and licensing of future fission and fusion installations.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-06-2022

Data scadenza: 31-05-2025

Contributo totale: € 2.500.000

Costo eleggibile totale: € 2.843.500

Contributo a ENEA: € 177.750

Costo eleggibile ENEA: € 197.500

Doc. approvazione: 072/2022/FSN

Codice atto: PF6AAW

Resp. scientifico ENEA: LODI FRANCESCO

Unità: FSN-SICNUC-PSSN

Attività ENEA:

ENEA è coinvolta con ruolo di leader nel work package (WP2) dedicato all'individuazione delle necessità legate alla sicurezza di impianti innovativi e alle relative sfide di armonizzazione. È inoltre coinvolta con ruolo di supporto nei seguenti work package: • WP1 dedicato alla creazione di un network con tutti gli stakeholder i cui risultati del progetto possono essere di interesse; • WP3 dedicato allo sviluppo concettuale di un nuovo contesto di licensing basato su metriche di rischio e performance • WP4 dedicato alla individuazione dei gap presenti nelle attuali norme ingegneristiche (codes and standards) per applicazione a reattori innovativi • WP5 dedicato a disseminazione e comunicazione dei risultati per promuovere le attività del progetto



Harnessing the value of tomato genetic resources for now and the future

Coordinatore: CSIC - SPANISH NATIONAL RESEARCH COUNCIL (Spagna)

N. Partner: 22

Abstract:

Tomato is a paradigm of crop domestication: a widely cultivated and consumed vegetable but with reduced genetic diversity and therefore highly vulnerable to emerging diseases and climate change. Fortunately, tomato is rich in genetic resources and information to overcome those difficulties and a coalition of scientists and breeding experts which have generated a large amount of this information have been organized under an effective management structure and a series of objectives to overcome those threats. HARNESSSTOM aims to demonstrate that increasing use of Genetic Resources is key for food safety and security and can lead to innovation and benefit all stakeholders. By capitalizing on the large effort done recently in several EU-funded projects to connect phenotypes/genotypes in a large number of accessions from different germplasm banks and academia, HARNESSSTOM will first collect, centralize and normalize this wealth of information in a way that is easily searchable and displayed in a user-friendly manner adapted to different type of users. Second, HARNESSSTOM will develop four prebreeding programs addressing the major challenges of the field: 1) introducing resistances against major emerging diseases, 2) improving tomato tolerance to climate change, 3) improving quality 4) increasing resilience in traditional European tomato by participatory breeding. And additional goal is to increase speed and efficiency in prebreeding what is needed to be able to respond to the emerging challenges in a timely and effective manner. Joint leadership of both academia and industry in each of the WP and the participation of two NGOs representing different stakeholders guarantees the results of the project will have an impact in industry innovation and also in the society. An efficient management and outreach and communication platform is also in place to make sure the project runs smoothly and the interests of all stakeholders are protected

Anno di stipula: 2020

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON 2020

Food Security, Sustainable Agriculture and the Bioeconomy

Data inizio: 01-10-2020

Data scadenza: 30-09-2024

Contributo totale: € 7.048.236

Costo eleggibile totale: € 8.075.196

Contributo a ENEA: € 500.000

Costo eleggibile ENEA: € 500.000

Doc. approvazione: 126/2020/SSPT-BIOAG

Codice atto: PS1ABM

Resp. scientifico ENEA: GIULIANO GIOVANNI

Unità: SSPT-BIOAG

Attività ENEA:

ENEA coordina il WP4 (Tools to increase the speed, efficiency and precision of breeding) e partecipa ai seguenti WP: . 1 Project Management and Coordination . 2 Societal issues. Stakeholder engagement and project dissemination; legislation and public acceptance; ethics . 3 One-stop-shop for tomato GenRes information, visualization and prebreeding tools . 7 Improving fruit quality . 9 Global assessment of advanced materials, marketing strategy, life cycle assessment

Coordinatore: SCK CEN - STUDIECENTRUM VOOR KERNENERGIE / CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE (Belgio) N. Partner: 25

Abstract:

The project aims to establish and clarify the benefits and added value of more aligned and harmonised regulations and standards for prioritised topics related to decommissioning and initial phases of radioactive waste handling, including shared processing facilities between Member States (MS). The project has a two-phase approach: first engaging with Stakeholders to assess needs and pros/cons for harmonisation and identify priority areas for deeper analysis (WP2). The second phase will pursue deeper engagement with Stakeholders to further assess the highest ranked priority areas in Work Packages (WP) focusing on (i) cross border services and cooperation (WP3), (ii) circular economy (WP4), and (iii) advanced technologies (WP5). These WPs will review (inter)national practices, capture lessons learned, and assess opportunities. WP6 on Regulatory Framework will identify regulatory differences between MS and evaluate strengths, weaknesses, opportunities, and threats associated with harmonisation, while quantifying the benefits of aligned regulations and proposing harmonisation methodologies. The project will: - support coordination between Stakeholders, - enhance existing commitments to facilitate sharing and exchange of knowledge and experience, - develop strategies for shared treatment and storage facilities, cross border services and cooperation, and explore additional mechanisms to build capacity in MS, - assess and clarify the benefits and any disadvantages of harmonisation, - deliver S&T-based solutions and share best practices by engaging and supporting coordination between different actors through the TSOs and regulators, - define conditions and opportunities of a high safety circular economy. The action will reinforce the activities of the EURAD, PREDIS, and SHARE projects, while encompassing MS national programs and the wider European Community, including i.e. ERDO, ENSREG, WENRA, IAEA, OECD NEA, IGDTP, SNETP, DigiDecom.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-06-2022

Data scadenza: 31-05-2025

Contributo totale: € 2.434.460

Costo eleggibile totale: € 2.434.460

Contributo a ENEA: € 115.125

Costo eleggibile ENEA: € 115.125

Doc. approvazione: 069/2022/FSN

Codice atto: PF1AAK

Resp. scientifico ENEA: GANDOLFO GIADA

Unità: FSN-FISS-CRGR

Attività ENEA:

L'ENEA sarà leader del WP7 "Engagement and Dissemination", il cui scopo è coinvolgere la comunità nucleare e comunicare, diffondere e sfruttare i risultati generati nel progetto e identificare le parti interessate che trarrebbero maggior beneficio dalle attività del progetto. Inoltre, l'Agenzia sarà coinvolta nel WP1 "Project Management" e in 3 dei 5 Work Package tecnici: WP2 "Strategic Tasks", WP5 "Advanced Technologies" e WP6 "Regulatory Framework".



Hydrogen Aircraft Sloshing Tank Advancement

Coordinatore: UNIV. POLITECNICA MADRID (Spagna)

N. Partner: 16

Abstract:

Environmental concerns motivate a transition to liquid hydrogen aviation fuel in coming decades, and for this technology the size, placement and connections of the hydrogen tank on an aircraft are key decisions. The Hydrogen Aircraft Sloshing Tank Advancement project (HASTA) aims to experimentally and computationally investigate the storage of liquid hydrogen (LH₂) for airborne use as fuel in civil aircraft applications. Size and position of a LH₂ tank inside an aircraft are limiting factors for range, payload and aircraft size, and consequently play a crucial role in the environmental impact. The goal of facilitating tank design will be achieved through creation of design criteria for LH₂ aircraft tanks; these design guidelines will be based on the different tools and models of derived during the project, in particular those aimed at complex cryogenic sloshing. The experimentally validated design tools developed during HASTA are to be used for both conceptual and detailed design in the aircraft industry, and therefore span a range of fidelities from reduced order models to full computational methods. The primary focus of this project will be the development of LH₂ capabilities, and particularly the extension of mature capabilities already available for sloshing of standard civil aircraft fuel (kerosene) to the cryogenic temperatures associated with LH₂. These capabilities are well reflected in the composition of the consortium, which includes partners with both experimental and modelling experience of fuel slosh, as well as cryogenics for space applications. The ultimate goal of the project is development of experimentally validated numerical and analytical simulation tools to model the complex thermo-fluid-dynamics of cryogenic LH₂ coupled to the thermo-mechanical behavior of a tank and its operational environment.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 5 - D6 Transport and Smart Mobility services

Data inizio: 01-09-2024

Data scadenza: 31-08-2027

Contributo totale: € 3.294.824

Costo eleggibile totale: € 3.294.824

Contributo a ENEA: € 118.450

Costo eleggibile ENEA: € 118.450

Doc. approvazione: Determinazione n. 163/2024/TERIN

Codice atto: PK4ABD

Resp. scientifico ENEA: AGRESTA ANTONIO

Unità: TERIN-DEC-H2V

Attività ENEA:

L'ENEA partecipa alle attività del WP3 Thermo-Fluid Dynamics (Task 3.2 – "Single phase thermal convection") e WP5 Thermal-Fluid-Structure Coupling (Task 5.1 – "Algorithm design for TFI, FSI and TFSI"; Task 5.2 – "Implementation of coupled solutions"; Task 5.4 – "Verification and validation").



User-driven Health risk Assessment Services and Innovative ADAPTation options against Threats from Heatwaves, Air Pollution, Wildfire Emission and Pollen

Coordinatore: STIFTELSEN NILU - NORWEGIAN INSTITUTE FOR AIR RESEARCH (Norvegia) N. Partner: 25

Abstract:

Transformative adaptation is gaining recognition as the appropriate response to climate change as the current adaptive measures reach their limits. In addressing health risks associated with heat waves, air pollution, wildfire emission and pollen, the implementation of comprehensive transformative adaptation remains largely unreported in Europe. healthRiskADAPT's objective is to develop and implement a health risk assessment system for Mediterranean, Alpine and Continental regions. Its contents and tools will be in line with Climate-ADAPT described Urban adaptation support tool. This will support empowerment of local and regional authorities to make informed decisions in strategic planning, management and daily operational mitigation of health challenges related to climate change. healthRiskADAPT will address the fundamental causes of vulnerability and implement concrete adaptation measures aiming to mitigate the health impacts of climate change. The key details of this approach include: 1) Co-creation with users of integrated transformative adaptation options encompassing technical, nature based, and social solutions, reducing the impact of climate-related risks on human health in both indoor and outdoor environments. 2) Vulnerability assessments, health indicators, and risk indices related to climate change impact on health, considering different temporal and spatial scales. 3) Interactive and user-friendly toolkit for local & regional authorities to assess hazards, vulnerability, and risks specific to their regions. These toolkits will facilitate the prioritization, planning, and evaluation of adaptation options. healthRiskADAPT will use various communication techniques to actively engage with all stakeholders involved in the adaptation process, and develop an upscaling strategy to meet the ambitions of the Climate mission. Furthermore, we seek to enhance the preparedness of the healthcare system to respond effectively to the challenges posed by the effects of climate change.

Anno di stipula: 2024

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Mission Climate neutral and smart cities

Data inizio: 01-11-2024

Data scadenza: 31-10-2028

Contributo totale: € 5.633.151

Costo eleggibile totale: € 5.881.451

Contributo a ENEA: € 308.843

Costo eleggibile ENEA: € 308.843

Doc. approvazione: 129/2024/SSPT/MET

Codice atto: PS2ACZ

Resp. scientifico ENEA: D'ELIA ILARIA

Unità: SSPT-MET-INAT

Attività ENEA:

ENEA (SSPT) è partner del progetto, che si articola in otto work packages (WPs). Nello specifico, ENEA parteciperà ai seguenti work package: WP1 (roadmap): definire scenari, misure, analizzare informazioni disponibili; WP2 (hazards): fornire indicatori legati ad ondate di calore, inquinamento atmosferico, incendi e pollini; WP3 (health and social vulnerability): valutazione indicatori sanitario e fattori di rischio; WP6 (full pilots, impact and scaling up): test delle soluzioni individuate e valutazione nelle città pilota; WP7 (dissemination, exploitation and communication): comunicazione e disseminazione dei dati.



Promoting an environmentally-responsible Hydrogen economy by enabling Product Environmental Footprint studies

Coordinatore: FUNDACION IMDEA ENERGIA (Spagna)

N. Partner: 8

Abstract:

Fuel cells and hydrogen (FCH) systems are increasingly considered in energy and climate policies, roadmaps and plans all over the world. In order to avoid past criticalities, such as those leading to a climate emergency situation, sustainability criteria are being progressively implemented in these initiatives, e.g., by promoting low-carbon renewable hydrogen in Europe. In this regard, science-based criteria and procedures are required to guarantee the environmental suitability of FCH products, reporting their life-cycle environmental profile according to the principles of transparency, traceability, reproducibility, and consistency for comparability. While these principles are aligned with those of the general methodological guidance for Product Environmental Footprint (PEF) studies, further specification is required to effectively implement them when addressing FCH products. Hence, the HyPEF project aspires to support and promote the establishment of an environmentally-responsible hydrogen economy by developing and testing the first Product Environmental Footprint Category Rules (PEFCRs) specific to FCH products, while paving the way for subsequent related initiatives in the FCH sector. HyPEF is conceptualised as the natural step forward in methodological specification towards policy- and market-relevant lifecycle environmental assessment and benchmarking of FCH products. The interdisciplinary approach behind HyPEF leads to crucial advancements regarding (i) the first development and application of well-accepted PEFCRs tailored to three pre-selected FCH product categories (electrolysers for hydrogen production, tanks for hydrogen storage, and fuel cells for hydrogen stationary use), (ii) increased high-quality data availability for consistent environmental assessment and benchmarking of FCH products, and (iii) first PEF-oriented policy recommendations towards official qualification of an FCH product as an environmentally-responsible investment.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Clean Hydrogen JU

Data inizio: 01-01-2024

Data scadenza: 31-12-2026

Contributo totale: € 1.499.431

Costo eleggibile totale: € 1.499.431

Contributo a ENEA: € 119.700

Costo eleggibile ENEA: € 119.700

Doc. approvazione: 320/2023/TERIN

Codice atto: PK4ABC

Resp. scientifico ENEA: CARBONE CLAUDIO

Unità: TERIN-PSU-ABI

Attività ENEA:

ENEA è responsabile dei task 2.4 – Screening PEF of the three representative products (WP2 - Setting the Ground for FCH-PEFCRs) - e 4.2 - Application in case studies on hydrogen storage units (WP4 - Application of the FCH-PEFCRs in Case Studies)- finalizzati allo screening delle PEF di tre prodotti rappresentativi definiti nell'ambito del progetto, e l'applicazione delle PEF ad un caso studio sui serbatoi di stoccaggio dell'idrogeno. ENEA sarà anche leader della Subtask 3.2.2 - Development of the first draft of PEFCRs for tanks for hydrogen storage (WP3 - Development of PEFCRs for Three FCH Product Categories). ENEA inoltre contribuisce alle seguenti attività scientifiche: Task 2.1. Analysis of relevant existing (PEF)CRs, Task 2.3. Selection of FCH product categories and definition of the 3 representative products, Task 3.1. Set-up and management of the FCH-PEFCRs development process, Task 3.2. Development of three sets of FCH-PEFCRs, Task 3.3. Refinement and consolidation of FCH-PEFCRs. ENEA avrà anche la responsabilità di produrre 2 deliverable (Reports): D2.3: Screening LCA of the three representative products e D4.2: Report on case studies on hydrogen tanks.



Hyper-Distributed Artificial Intelligence Platform for Network Resources Automation and Management Towards More Efficient Data Processing Applications

Coordinatore: CERTH - CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS (Grecia)

N. Partner: 15

Abstract:

In HYPER-AI, we work with smart virtual computing entities (nodes) that come from a variety of infrastructures that span all three of the so-called computing continuum's layers: the Cloud, the Edge, and IoT. It focuses on intensive data-processing applications that present the potential to improve their footprint when hyper-distributed in an optimized manner. In order to give targeted applications access to computational, storage, or network services, HYPER-AI implements the idea of computing swarms as autonomous, selforganized, and opportunistic networks of smart nodes. These networks may offer a diverse and heterogeneous set of resources (processing, storage, data, communication) at all levels and have the ability to dynamically connect, interact, and cooperate. HYPER-AI proposes semantic representation concepts to enable heterogeneous resources' abstraction in a homogeneous way, under a common annotation (computing node), across the whole range of network infrastructures. The main orchestration and control concept of HYPER-AI is inspired by autonomic systems (self-CHOP principles) which employ swarmed computing schemes. Its objective is to make smart multinode (swarm) deployment scenario design, execution, and monitoring easier, through appropriate AIs for self-configuration (nodes assigned resources), self-healing (swarmed nodes lifecycle), self-optimizing (exploiting built-in situation awareness mechanisms) and self-protecting (intrusion detection, privacy, security, encryption and identity management) at application runtime. In order to support dynamic and data-driven application workflows, HYPER-AI suggests the flexible integration of resources at the edge, the core cloud, and along the big data processing and communication channel, enabling their energy, time and cost-efficient execution. Finally, distributed ledger concepts for security, privacy, and encryption as well as AI-based intrusion detection are also considered

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 4 - Digital, Industry and Space

Data inizio: 01-04-2024

Data scadenza: 31-03-2027

Contributo totale: € 4.628.975

Costo eleggibile totale: € 4.628.975

Contributo a ENEA: € 228.875

Costo eleggibile ENEA: € 228.875

Doc. approvazione: determinazione 96/2024/NUC

Codice atto: PF7ABY

Resp. scientifico ENEA: RAO MARCO

Unità: NUC-TECFIS-ACP

Attività ENEA:

ENEA partecipa al progetto con lo sviluppo di uno "Use Case" legato al reattore di ricerca TRIGA operato da NUC-IRAD e con tecniche di IA sviluppate da NUC-TECFIS-ACP l'ENEA partecipa attivamente a sette WPs: WP1 Project Management Phase 1; WP2 Project Management Phase 2; WP3 State Requirement Definition; WP7 Prototyping, Verticals Preparation and IDE; WP8 Applications, Verticals and Evaluation; WP9 Dissemination, Communication and Exploitation Phase1; WP10 Dissemination, Communication and Exploitation Phase1



Efficient water splitting via a flexible solar-powered Hybrid thermochemical-Sulphur dioxide depolarized Electrolysis Cycle

Coordinatore: DLR - GERMAN AEROSPACE CENTER E.V. (Germania)

N. Partner: 7

Abstract:

HySelect will demonstrate the production of hydrogen (H₂) by splitting water via concentrated solar technologies (CST) with an attractive efficiency and cost, through the hybrid sulphur cycle (HyS). The HyS consists of two central steps: the high temperature - yet below-900C -decomposition of sulphuric acid forming sulphur dioxide (SO₂) and the subsequent low temperature (50-80C) SO₂ depolarised electrolysis (SDE) of water to produce H₂. HySelect will introduce, develop and operate under real conditions a complete H₂ production chain focusing on two innovative, full scale plant prototype core devices for both steps of the HyS cycle: an allothermally heated, spatially decoupled from a centrifugal particle solar receiver, sulphuric acid decomposition-sulphur trioxide splitting (SAD-STS) reactor and a sulphur dioxide depolarized electrolyser (SDE) without expensive Platinum Group Metals (PGMs). Furthermore, a heat recovery system will be integrated to exploit the temperature difference within the cycle and boost the overall process efficiency. In the course of the work, non-critical materials and catalysts will be developed, qualified and integrated into the plant scale prototype units for both the acid splitting reactor and the SDE unit. Experimental work will be accompanied by component modelling and overall process simulation and culminate with a demonstration of the complete process integrating its key units of a 750kWth centrifugal particle receiver, a hot particles storage system, a 250kWth SAD-STS and a 100kWe SDE into a pilot plant. Testing for a period of at least 6 months in a large-scale solar tower, driven with smart operation and control strategies, will establish the HySelect targeted efficiency and costs. Finally, an overall process evaluation will be carried out in order to assess the technical and economic prospects of the HySelect technology, directly linked to the know-how and developments of the sulphuric acid and water electrolyzers industries.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Clean Hydrogen JU

Data inizio: 01-01-2023

Data scadenza: 31-12-2026

Contributo totale: € 3.982.105

Costo eleggibile totale: € 3.982.105

Contributo a ENEA: € 314.063

Costo eleggibile ENEA: € 314.063

Doc. approvazione: 227/2022/TERIN

Codice atto: PK7AAG

Resp. scientifico ENEA: LANCHI MICHELA

Unità: TERIN-STSN-SCIS

Attività ENEA:

ENEA è presente nei seguenti workpackage: WP1: attività di coordinamento WP2: focalizzato sulle attività di progettazione e simulazione di processo, oltre che sull'analisi tecnico-economica (ENEA Lead partner) WP8: dedicato alla definizione delle strategie operative e di controllo, all'interfacciamento del processo con la sorgente solare, all'integrazione dei componenti e al testing dell'impianto WP9: diffusione dei risultati della ricerca

Optimizing Benefit/Risk Ratio in Breast Cancer Diagnosis and Radiotherapy: Identifying Molecular, Cellular and Imaging Signatures of Breast Cancer Heterogeneity to Improve Personalized Therapeutic Strategies for Synergistic Treatment Combinations

Coordinatore: NNGYK - NATIONAL CENTRE FOR PUBLIC HEALTH AND PHARMACY (Ungheria) N. Partner: 7

Abstract:

A major objective of PIANOFORTE is to innovate in ionising radiation based medical diagnostic and therapeutic applications combating cancer to improve patient health and safety. Combating cancer is in the focus of other EU initiatives as well, such as the Samira action plan, Europe's Beating Cancer Plan and Horizon Europe Mission on Cancer. IMAGEOMICS adheres to these initiatives by proposing new imaging modality to improve cancer diagnosis and solutions to increase the benefit of cancer patients from radiotherapy. The main aims of IMAGEOMICS are to improve benefit/risk ratio of breast cancer (BC) patients by identifying patients with a predicted favourable response to combined radiotherapy (RT) and immunotherapy and to develop new imaging modality with increased diagnostic potential and reduced ionizing radiation exposure. These aims will be realized through the following specific objectives: a) investigate how RT influences immunogenic heterogeneity of BC cells of different molecular subtypes using in vitro and in vivo approaches; b) test the applicability of nanoparticles for X ray fluorescence computed tomography (XFCT) to be used for the detection of BC heterogeneity; c) to identify local and systemic signatures that predict patient benefit from combined RT and immunotherapy and test their clinical applicability; d) to integrate data retrieved from experimental models and human studies with epidemiological data to build up a protocol for optimal patient stratification. High-throughput techniques such as immunopeptidome analysis and spatial multiomics analysis coupled with single cell imaging will be used. The innovative aspects of the project rely on providing an integrative analysis based on in vitro (3D bioprints, organ-on-a-chip systems), in vivo and human studies on markers reflecting interactions between BC RT and immunotherapy as well as investigating the applicability of molecularly targeted nanoparticles to be used in XFCT, opening the possibility for further developments in their theranostic application. The successful completion of IMAGEOMICS tasks is guaranteed by its multidisciplinary team, involving radiation physicists, radiation oncologists, radiation and molecular biologists, as well as epidemiologists, all strongly committed to advance radiation protection research for the benefit of the public and patients.

Anno di stipula: 2024

Tipo progetto: Programme Cofund Actions

Programma UE: HORIZON EUROPE

Programma UE: Euratom radioprotezione

Data inizio: 01-02-2024

Data scadenza: 31-05-2027

Contributo totale: € 885.295

Costo eleggibile totale: € 1.405.230

Contributo a ENEA: € 12.600

Costo eleggibile ENEA: € 20.000

Doc. approvazione: 47/2024/SSPT-TECS

Codice atto: PS5ABJ

Resp. scientifico ENEA: ANTONELLI
FRANCESCA

Unità: SSPT-TECS-TEB

Attività ENEA:

L'ENEA rivestirà il ruolo di Partner. Non sono previste attività tecnico-scientifiche: il progetto prevede che l'ENEA dovrà garantire esclusivamente la gestione dei rapporti con la UE e il trasferimento del flusso economico verso l'Affiliated Entity (AE) "Laboratorio di Biofisica delle Radiazioni e Radiobiologia dell'Università di Pavia"



Innovative Cluster for Radiological and Nuclear Emergencies

Coordinatore: ENEA (Italia)

N. Partner: 14

Abstract:

INCLUDING connects 15 Partners from 10 EU Member States (MS), bringing together infrastructure, equipment and experts coming from Medical Organizations, Fire Corps, Government Department, Municipalities, Law Enforcement Agencies, Ministries, Governmental and Civilian Research Institutes and Industries operating in the field of radiological and nuclear emergencies. Far from being a simple aggregation of entities separated geographically and with complementary expertise, INCLUDING pursues to develop a Federation in which individual Members will cooperate together to provide a common framework to standardize access to their respective facilities, enhance interoperability and to allow a more intensive use of expensive equipment. The operative tool to manage the Federation will be a web-based platform with a sophisticated architecture and whose functionality has been proven in a previous EU project. At the same time the project aims to enhance practical know-how and to boost a European sustainable training and development framework for practitioners in the Radiological and Nuclear Security sector. The INCLUDING project will be flexible in order to include new facilities and innovation in technology, organizations and procedures. The plurality of facilities and expertise in the INCLUDING Federation reflects the complex and intertwined structure of the prevention and response phases of RN threats and will provide to the practitioners a set of real or emulated scenarios where to test concept of operations in a controlled environment. The Joint Actions will be the focal points of the project. They are multidisciplinary field exercises, tabletop exercises, training, serious gaming and simulation organized at their premises by the project partners and with the objective of demonstrating the added value of the Federated scheme and of the use of an innovative tool like the INCLUDING web based Platform to manage a pan European network of training facilities and resources.

Anno di stipula: 2019

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON 2020

Programma UE: Secure societies

Data inizio: 01-08-2019

Data scadenza: 31-07-2024

Contributo totale: € 3.585.529

Costo eleggibile totale: € 3.585.529

Contributo a ENEA: € 564.606

Costo eleggibile ENEA: € 564.606

Doc. approvazione: 116/2019/FSN

Codice atto: PF7AAS

Resp. scientifico ENEA: CIMINO MONICA

Unità: FSN-TECFIS-DIM

Attività ENEA:

L'ENEA coordina il progetto. La partecipazione al progetto coinvolge personale di diverse unità tecniche dell'ENEA: FSN-TECFIS-DIM, FSN-SICNUC, FSN-FISSION, ISER-CAS, DTE-PCU-STMA. L'ENEA è leader dei seguenti WP: WP1 Project Management, WP7 Dissemination and exploitation, WP8 Ethics requirements. Inoltre l'ENEA partecipa alle attività del WP2 The Federated Cluster

Coordinatore: SMITH INNOVATION APS (Danimarca)

N. Partner: 23

Abstract:

INDICATE LIFE generates the methodological and data foundations essential for developing national whole-life-carbon (WLC) across Europe. Reducing the lifecycle emission of buildings is indispensable to ensure the construction sector is on a path to reach carbon neutrality by 2050. On the more short term, the project prepares the ground for the effective implementation of the EPBD recast provisions on WLC (Art. 7 and Annex 3). Building on the success and mirroring the method of the “INDICATE – National Building LCA Data Accelerator” project in IE, SE and CZ, INDICATE LIFE aims to fill the gap in building Life Cycle Assessment data needed for the design and rollout of WLC regulations in other promising EU Member States. The consortium brings together leading European experts and national consortia with representatives from industry, academia, data-providers, and policy communities in Austria, Croatia, Italy, Luxembourg and Hungary. The objective is to develop WLC benchmarks on national level that support the development of science based decarbonisation pathways for new construction and renovations. Guidance and technical support are provided throughout the project by experts in the field of policymaking and implementation, building-LCA and WLC benchmark development, industry engagement and strategic dissemination, and coordination, community building and project exploitation. Beyond data collection and generation, INDICATE LIFE will collect market and policy insights that will enable the formulation of national and EU level WLC policy recommendations. INDICATE LIFE provides a peer-to-peer exchange platform for WLC experts in implementing countries and leading experts in the EU. INDICATE LIFE contributes to the much needed quantitative evidence based that EU and Member State level policymakers urgently require to agree on common guiding benchmarks, targets, thresholds and limit values which will be tightened over time in line with the 2050 decarbonisation trajectory

Anno di stipula: 2024

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027
LIFE (2021-2027)

Data inizio: 01-10-2024

Data scadenza: 30-11-2026

Contributo totale: € 1.994.889

Costo eleggibile totale: € 2.164.088

Contributo a ENEA: € 39.291

Costo eleggibile ENEA: € 41.360

Doc. approvazione: 177/2024/SSPT/EC

Codice atto: PS6AET

Resp. scientifico ENEA: RINALDI CATERINA *

Unità: SSPT-EC-SSC

Attività ENEA:

ENEA è partner del progetto. Partecipa alle attività dei seguenti Work Package: WP5 Sustainability, replication, and exploitation of project results WP7 – National level INDICATE LIFE implementation, in particolare all'interno del WP7.3, ENEA coordinerà la task T7.3.5 “Sustainability, replication, and exploitation of project results”.



Italian National hub Enabling and Enhancing networked applications & Services for digitally Transforming SMEs and Public Administrations

Coordinatore: CNIT - CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI (Italia) N. Partner: 8

Abstract:

I-NEST (Italian National hub Enabling and enhancing networked applications and Services for digitally Transforming Small-Medium Enterprises and Public Administrations) provides a transversal, multi-sector digitalization support for connected businesses, administrations and other digital innovation hubs, exploiting fixed and mobile network infrastructures and cloud-native, intelligent, highperformance, secure services. The hub operates with a national coverage, thanks to a network of points-of-presence and demo-centers implemented at the 88 offices of the Italian Chambers of Commerce and in 5 National Research Laboratories of CNIT, a consortium of 38 Italian Universities. The hub is specialized in emerging intelligent and secure communication and computing infrastructures, exploiting 5G as a powerful innovation platform. These infrastructures can enable innovative applications in multiple fields, improve efficiency and sustainability of supply chains and industrial ecosystems, and create new opportunities for SMEs and PAs. The hub services are designed for addressing the knowledge, capability, demand-supply and financial gaps of stakeholders working in non-ICT vertical domains. Technology awareness will be built by presenting concrete 5G economical scenarios and use cases, showcasing innovative artificial intelligence applications and analysing cybersecurity threats. Training programs and consultancy services will exploit the hub testing facilities and prototyping platforms, including a high-performance-computing platform for process simulation. Multiple players will be encouraged to share tools and interact on these facilities for creating conditions for collaboration, circularity, and open innovation. Support will be provided not only for identifying and applying for funding opportunities, including the current National Plan for Resilience and Recovery, but also for effectively and efficiently utilizing the granted funds.

Anno di stipula: 2022

Tipo progetto: DIGITAL Simple Grants

Programma UE: Other programmes 2021-2027

Programma: DIGITAL

Data inizio: 01-10-2022

Data scadenza: 30-09-2025

Contributo totale: € 2.878.550

Costo eleggibile totale: € 5.757.103

Contributo a ENEA: € 572.149

Costo eleggibile ENEA: € 1.144.299

Doc. approvazione: 180/2022/TERIN

Codice atto: PK5AAL

Resp. scientifico ENEA: D'AGOSTINO GREGORIO

Unità: TERIN-SEN-APIC

Attività ENEA:

L'ENEA ha la responsabilità del WP3 relativo al "Training and Skill Development" e partecipa a tutti gli organi direttivi del progetto (WP1 "EDIH Management and Sustainability"). Parteciperà prevalentemente al WP3 e WP4 "Test-Before-invest Innovation Support".

Coordinatore: NKI - NATIONAL CANCER INSTITUTE (Paesi Bassi)

N. Partner: 26

Abstract:

Structural biology reveals the molecular architecture of life; the three-dimensional structure of biomolecules and how they interact to form complex machineries and cells. Structural biology is key to innovations in chemistry, biotechnology and medicine: new drugs, advanced vaccines, novel biomaterials, engineered enzymes for food production, a cleaner environment, and efficient biofuels. iNEXT-Discovery takes on the challenge of proactively supporting the uptake of existing tools, and the innovation of new tools, to promote scientific Discovery and translation in a range of disciplines, building on the success of the H2020 project iNEXT (infrastructure for NMR, EM and X-rays for Translational research). iNEXT-Discovery brings together a strong network of leading structural biology facilities in partnership with regional experts and ESFRI communities in medicinal chemistry, translational medicine, biological imaging, and food research, to disseminate knowledge and services. We aim to stimulate the wider uptake of structural biology across Europe, across scientific disciplines and research sectors. Significant hardware and software advances allow targeting transnational access to advanced instrumentation also to scientists without previous expertise in structural biology: uptake will be facilitated by training and thematic calls focused on new communities. Access to our instrumentation and expertise will ultimately allow European scientists to gain structural insight that can translate into innovations in the biomedical, food, biotechnological and biomaterials sectors. Our joint research activities will roll-out advances in key technologies for translational research: fragment screening for drug development, EM efficiency and capacity, NMR applications to extend structures beyond three dimensions, and integrative structural biology approaches to look at macromolecules in cells. All our activities support innovative research of both academic and industrial users.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-02-2020

Data scadenza: 31-01-2024

Contributo totale: € 9.987.744

Costo eleggibile totale: € 9.987.744

Contributo a ENEA: € 24.375

Costo eleggibile ENEA: € 24.375

Doc. approvazione: 284/2019/SSPT-BIOAG

Codice atto: PS1ABG

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT-BIOAG

Attività ENEA:

L'ENEA riveste il ruolo di partner, partecipando alle attività previste dal work package 3 e in particolare dalla task 3.4 'Engaging with the food research community'. In qualità di coordinatore del progetto METROFOOD-RI l'ENEA ha il compito di coordinare i link con il "food" definendo le opportunità per potenziali collaborazioni inter-settoriali e promuovendo attività di ricerca congiunta e training.

**Innovative high-value cosmetic products from plants and plant cells**

Coordinatore: VTT - TECHNICAL RESEARCH CENTRE OF FINLAND (Finlandia)

N. Partner: 17

Abstract:

The InnCoCells project will develop innovative and sustainable plant-based production processes for the commercial exploitation of scientifically validated cosmetic ingredients based on underutilised plant resources. We will optimise these resources for profitable and sustainable production using cell cultures, aeroponics and greenhouse/field cultivation. We will apply systematic approaches including metabolic engineering tools to optimise growth conditions and the yields of valuable bioactive, small-molecule compounds and ingredients. The optimised processes will be demonstrated by pilot-scale production and subsequent product extraction/purification. We will bring at least ten cosmetic ingredients to the pre-commercial stage. InnCoCells includes a cascade biorefinery concept in which by-products and biowaste are utilised for the extraction of further bioactive molecules. The processes will be characterised by techno-economic assessment and life cycle analysis to ensure economic feasibility and a reduced environmental footprint. The ingredients and extracts will be evaluated using a unique panel of innovative enzyme-based and cell-based assays to ensure safety and validate claimed activities based on robust scientific data without animal testing. We will implement a unique stakeholder engagement strategy, including the assembly of a Stakeholder Group to guide our research program based on the needs of industry, academia, farmers, policymakers and consumers. The consortium includes eight SMEs and one large company from the cosmetic sector among the 17 partners to facilitate exploitation. We will develop bespoke communications strategies for different stakeholders and for public engagement. We will also interact closely with the regulatory authorities in Europe. This industry-driven and interdisciplinary project will ultimately increase the strength of the European bioeconomy by supporting the development of innovative biobased goods and markets.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Food Security, Sustainable Agriculture and the Bioeconomy

Data inizio: 01-05-2021

Data scadenza: 30-04-2025

Contributo totale: € 7.905.559

Costo eleggibile totale: € 7.905.559

Contributo a ENEA: € 339.063

Costo eleggibile ENEA: € 339.063

Doc. approvazione: 57/2021/SSPT-BIOAG

Codice atto: PS1ABZ

Resp. scientifico ENEA: DIRETTO GIANFRANCO

Unità: SSPT-BIOAG-BIOTEC

Attività ENEA:

L'ENEA è coinvolto nei work package 1, 5, 7 e 8 del progetto, svolgendo attività di ricerca inerenti la crescita di specie vegetali fuori suolo (coltivazione idroponica) e di metabolomica, caratterizzazione di prodotti bioattivi innovativi, sostenibilità, disseminazione, comunicazione e management.

Coordinatore: KIT - KARLSRUHER INSTITUTE OF TECHNOLOGY (Germania)

N. Partner: 37

Abstract:

INNUMAT aims to develop innovative structural materials for nuclear applications and put them on track towards qualification for fission lead-cooled and molten salt fast reactors as well as fusion DEMO. High entropy alloys (HEAs), a new class of materials with a vast development potential and very promising properties, as well as alumina forming austenitic (AFA) steels, already identified as prospective structural materials for Gen IV and Small Modular Reactors, are in the main focus in which advanced material solutions are considered as well, in particular weld overlay and coated 15-15Ti for lead-cooled fast reactors, among others MYRRHA and ALFRED, and coated EUROFER and advanced oxide dispersion strengthened (ODS) steel for fusion DEMO. Some of these structural materials are of potential applicability also outside the nuclear field, e.g. in concentrated solar power and/or in H₂ confinement. The project is thus cross-cutting because of the target applications as well as because of the accelerated methodologies for materials discovery, screening and qualification that it pursues, applied at different technology readiness levels (TRLs). The differences in TRL, application conditions and requirements of the considered materials result in different objectives and hence different research tracks through the project with even different efforts. Common goal is to rapidly increase the TRL for the desired nuclear applications towards requirements of corrosion resistance, high temperature strength, thermal stability and irradiation tolerance, which are not met by current structural materials. Therefore, computational and experimental high throughput material screening methods will be applied and roadmaps for accelerated qualification will be established paving a fast way to more efficient safe sustainable nuclear energy systems with considerable contribution to the overall mission of developing economic energy systems with reduced/zero CO₂ emissions.

Attività ENEA:

L'ENEA partecipa ai seguenti work package: WP1. dedicato all'approvvigionamento ed alla sintesi dei materiali per tutte le linee di ricerca ed alle caratterizzazioni in ingresso WP2. Nel WP2 verrà studiata la compatibilità dei materiali sviluppati nel WP1 con l'ambiente applicativo (metalli liquidi pesanti e sali fusi) rispetto alla corrosione, erosione ed al deterioramento delle proprietà meccaniche. WP3. La caratterizzazione meccanica avanzata dei materiali considerati sarà condotta nel WP3 ben oltre la caratterizzazione di base prevista nel WP1. Il lavoro sperimentale del WP3 comprenderà anche prove di thermal aging WP4. Questo work package sarà dedicato ad esplorare la tolleranza all'irraggiamento neutronico dei materiali sviluppati attraverso programmi di irradiazione ionica e neutronica. WP5. Metodologie di qualifica e standardizzazione. WP7. Disseminazione dei risultati e gestione dei dati prodotti

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-09-2022

Data scadenza: 31-08-2026

Contributo totale: € 7.815.063

Costo eleggibile totale: € 9.880.955

Contributo a ENEA: € 679.634

Costo eleggibile ENEA: € 894.566

Doc. approvazione: Disp. 376/2022/PRES

Codice atto: PF4AAR

Resp. scientifico ENEA: BASSINI SERENA

Unità: FSN-ING-SMN

Coordinatore: LUKE - NATURAL RESOURCES INSTITUTE FINLAND (Finlandia)

N. Partner: 78

Abstract:

Adaptation to climate change requires in-depth understanding of climate change driven risks, including their determinants (hazards, exposure and vulnerabilities) and impacts to human, production and natural systems. Integrated Research Infrastructure Services for Climate Change Risks (IRISCC) is a consortium of diverse and complementary leading research infrastructures (RIs) covering disciplines from natural sciences to social sciences, across different domains and sectors. IRISCC provides scientific and knowledge services to foster cutting-edge research and evidence-based policymaking to improve Europe's resilience to climate change. IRISCC ensures a "one-stopshop" for various user communities on climate change risk related RI services by setting up a dedicated Catalogue of services and related access management system both for granting transnational (onsite and remote) and offering virtual access. The Catalogue of services will be built through three consecutive releases, each delivering increasingly integrated services to its user communities. The IRISCC service integration will include Service Design Labs employing co-design and transdisciplinary action, and Service Demonstrators benchmarking the integrated cross-RI services. In addition to services aimed towards the scientific community, IRISCC will offer knowledge services aimed towards policymakers and other stakeholders. This is done together with risk management platforms. The research enabled by IRISCC contributes to future reports on climate change effects (IPCC, IPBES) as well as policy- and decision-making to meet the targets of climate adaptation strategies. IRISCC contributes to training a new generation of scientists to efficiently use RI services and for data stewardship. Data from IRISCC will be open and made available in compliance with FAIR principles and linked to European initiatives such as EOSC. Strong links will be created between IRISCC and current and future efforts under Horizon Europe.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-04-2024

Data scadenza: 30-09-2028

Contributo totale: € 14.499.858

Costo eleggibile totale: € 14.499.858

Contributo a ENEA: € 38.851

Costo eleggibile ENEA: € 38.851

Doc. approvazione: 259/2023/SSPT-PROTER

Codice atto: PS4ADQ

Resp. scientifico ENEA: PACE GIANDOMENICO

Unità: SSPT-PROTER-OEM

Attività ENEA:

Le attività ENEA prevedono la messa a disposizione e l'esecuzione di campagne di misura presso la Stazioni di Osservazioni Climatiche di Lampedusa realizzando così gli accessi transnazionali (TNA) in modalità di condivisione da remoto della strumentazione attiva presso le infrastrutture di ricerca di cui fa parte l'ENEA, in particolare l'infrastruttura ACTRIS (Aerosols, Clouds and Trace Gases Research Infrastructure) col fine di promuovere la formazione di nuovi utenti e lo sviluppo di nuovi prodotti e servizi scientifici. Tali attività e accessi sono previsti nel WP10 – TA01 - Transnational access provision for climate change risk services.



Transforming African Organic Waste into Green Energy for Cooling

Coordinatore: UNIV. TECHNICAL DRESDEN (TU DRESDEN) (Germania)

N. Partner: 14

Abstract:

KijaniBox is a highly innovative project that will accelerate the African green transition and provide energy access for small businesses along the food supply chain. The target is to leverage the organic waste and transform them into green energy for cooling and refrigeration applications in order to prevent food losses and sanitary risks. The project aims to demonstrate the concept in 3 pilot sites in partnership with local waste management companies, food value chain actors and cold supply chain industries. In order to implement the concept, the project proposes highly innovative approaches called "Green Transition Enablers". These are i) KijaniBox System itself, a smallscale, off-grid, industrial-grade waste to cooling system ii) Application Solution Boxes (ASB), application specific KijaniBox solution for three use cases iii) Co-creation Factory, enabling the local manufacturing capabilities for cost-effective solution, and finally iv) Business-in-a-Box, a comprehensive toolkit for entrepreneurs and stakeholders business support in order to ensure successful take-up and commercialization of the solution. KijaniBox is a highly innovative driven consortium composed of fourteen (14) entities, 7 European and 7 African partners, coming from 6 different countries. The ultimate target of KijaniBox is to pave the way for long-term sustainable economic growth and job creation opportunities in Africa and Europe.

Anno di stipula:	2024
Tipo progetto:	IA - Innovation Action
Programma UE:	HORIZON EUROPE
Data inizio:	01-09-2024
Data scadenza:	31-08-2028

Contributo totale:	€ 4.999.285
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Costo eleggibile totale:	€ 5.550.685
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Contributo a ENEA:	€ 614.500
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Costo eleggibile ENEA:	€ 614.500
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Doc. approvazione:	Determinazione n. 129/2024/TERIN
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Codice atto:	PK1AAJ
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Resp. scientifico ENEA:	STOPPIELLO GIOVANNI
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Unità:	TERIN-BBC
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Attività ENEA:

ENEA è leader del WP2 - Development of application solution boxes, Task 4.4: Capacity building for local assembly and manufacturing ed è coinvolta nelle seguenti attività: progettazione e sviluppo del sistema KijaniBox (basato sul processo di digestione anaerobica) in base ai requisiti/esigenze e scenari identificati all'interno del WP1 (Sustainable design of the green transition solution); caratterizzazione delle biomasse disponibili e utilizzabili per il processo di conversione energetica; realizzazione di un prototipo iniziale del sistema, comprensivo degli adattamenti per i componenti ausiliari (biodigestore, unità di refrigerazione, ecc.); sperimentazione del prototipo presso i centri di ricerca ENEA, fino alla produzione di acqua calda risultante da una caldaia; .capacity building per gli operatori locali, per le fasi di realizzazione e assemblaggio del sistema.

Framework for defining climate mitigation pathways based on understanding and integrated assessment of climate impacts, adaptation strategies and societal transformation

Coordinatore: AIT - AUSTRIAN INSTITUTE OF TECHNOLOGY (Austria)

N. Partner: 20

Abstract:

According to the EU's Climate Adaptation Strategy (COM(2021) 82), "improving knowledge and managing uncertainty" is key for realising the vision of a climate neutral and climate-resilient Union, as "Climate change is having such a pervasive impact that our response to it must be systemic". Thus, there is an urgent need for an integrated approach for an enhanced understanding of the interaction, complementarity and trade-offs between adaptation and mitigation measures, especially regarding the expected increase in regional mean temperature, precipitation and changing soil moisture (IPCC AR6 WG I). Furthermore, this understanding and knowledge needs to be provided to a broad audience to support local authorities in EU partner countries in developing regional programmes. KNOWING aims to develop a modelling framework to help understand and quantify the interactions between impacts and risks of climate change, mitigation pathways and adaptation strategies. The framework will be used to assess thAdvancing climate science and further broadening and deepening the knowledge base is essential to inform the societal transition towards a climate neutral and climate resilient society by 2050, as well as towards a more ambitious greenhouse gas reduction target by 2030. There is a need for research that furthers our understanding of past, present and expected future changes in climate and its implications on ecosystems and society, closing knowledge gaps, and develops the tools that support policy coherence and the implementation of effective mitigation and adaptation solutions. Currently, there is a lack of knowledge of the Earth system and the ability to predict and project its changes under different natural and socio-economic drivers, especially regarding complex interrelations, rebound effects and behavioural aspects. Therefore, a holistic, system-aware and behaviour centred approach is needed to identify and implement realistic and effective climate mitigation pathways.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 5 - D1 Climate Sciences

Data inizio: 01-06-2022

Data scadenza: 31-05-2026

Contributo totale: € 6.204.907

Costo eleggibile totale: € 6.204.910

Contributo a ENEA: € 260.146

Costo eleggibile ENEA: € 260.146

Doc. approvazione: 88/2022/SSPT-MET

Codice atto: PS2ACH

Resp. scientifico ENEA: PISACANE GIOVANNA

Unità: SSPT-MET-CLIM

Attività ENEA:

Le attività ENEA prevedono il reperimento, la produzione e l'analisi dei dati climatici necessari per il progetto e la partecipazione attiva alla definizione dei parametri critici. In particolare: la ricognizione delle analisi e dei dati esistenti e produzione dei dati aggiuntivi necessari attraverso simulazioni numeriche; la raccolta dei dati e loro organizzazione e selezione; la partecipazione alle attività di co-creazione con gli stakeholder, per la definizione dei sistemi dinamici di interesse e dei parametri critici che li descrivono; il calcolo e mappatura degli indicatori critici; la disseminazione dei risultati. Il laboratorio ENEA TERIN-ICT-HPC fornirà il supporto informatico necessario alla realizzazione delle simulazioni climatiche sull'infrastruttura HPC CRESCO6.



Coordinatore: NEIKER - INSTITUTO VASCO DE INVESTIGACION Y DESARROLLO AGRARIO SA N. Partner: 21
 (Spagna)

Abstract:

LANDFEED will focus on creating value from under-utilised waste from the agro-food industry, forestry, urban and natural waste, implementing circular and local solutions that allow waste to be valorised by placing it in a circular framework, and producing innovative biofertilisers to improve Europe's self-sufficiency. In addition to optimising and implementing innovative nutrient recovery technologies, work will be carried out on a new generation of coatings for these bio-based fertilisers, capable of improving their efficiency through controlled nutrient release mechanisms. In this way LANDFEED will contribute to a better management of the fertiliser provided, we will contribute to lower greenhouse gas emissions and a reduced impact on the environment's water resources. LANDFEED will ensure that the solutions and results of the project are locally driven through the different use cases. The use cases will consider all links in the value chain that will participate as lighthouses, serving as demonstrators and disseminators of the technologies, results and applications developed during the project. These use cases will also contribute to the objectives of the Soil Strategy by enabling the restoration of soil health through the enhancement of its specific and functional biodiversity. At the global level, the business model will be defined in its entirety, with the aim of maximising the replicability of these Use Cases and facilitating their implementation in other European areas and regions

Anno di stipula: 2024

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Data inizio: 01-09-2024

Data scadenza: 31-08-2028

Contributo totale: € 6.532.131

Costo eleggibile totale: € 7.997.753

Contributo a ENEA: € 350.154

Costo eleggibile ENEA: € 380.603

Doc. approvazione: 128/2024/SSPT-USER

Codice atto: PS6AES

Resp. scientifico ENEA: LUCIANO ANTONELLA

Unità: SSPT

Attività ENEA:

L'ENEA riveste il ruolo di partner ed è Leader del WP5 "Multistakeholder engagement and Industrial Symbiosis (IS) Platform" Inoltre è coinvolta nel WP1 "Raw Materials Supply: Characterisation, Sourcing, Pretreatment And Transportation" Le attività ENEA prevedono l'implementazione di una piattaforma di gestione della filiera produttiva di biofertilizzante da varie matrici e la realizzazione di tavoli di lavoro di Simbiosi Industriale. ENEA implementerà una piattaforma web multiutente per facilitare la gestione dei residui agroindustriali e il loro utilizzo sostenibile per la produzione di fertilizzanti in un'ottica di simbiosi industriale. La piattaforma sarà implementata come potente strumento di gestione dell'intera catena del valore dei fertilizzanti di origine biologica e verrà implementato un sistema di passaporto digitale dei prodotti (DPPS).



LEAPS pilot to foster open innovation for accelerator-based light sources in Europe

Coordinatore: DESY - DEUTSCHES ELEKTRONEN SYNCHROTRON DESY (Germania)

N. Partner: 22

Abstract:

The European synchrotron radiation sources and free electron lasers serve a broad scientific community with more than 24000 users and play a vital role in most research fields from basic science in physics, chemistry and biology to applied areas in health, engineering, environment, cultural heritage and high-impact industrial applications. Rising international competition requires the European facilities to coordinate and combine complementary strengths and capabilities. Established in 2017, the League of European Accelerator-Based Photon Sources (LEAPS) seeks to realise synergies across Europe's light sources. The increasing complexity of technology and a shorter life cycle require the photon sources to open up innovation to their partner facilities, users and industrial suppliers to promote creativity, novelty and resource efficiency. The LEAPS-INNOV pilot project will contribute to solving key technological challenges for the light sources, over 50 facilities in Europe and worldwide, and in particular will support their newest generation - diffraction-limited storage rings and X-ray FELs. It will kick-start the implementation of the LEAPS Technology Roadmap and, at the same time, will enhance partnership with industry through open innovation by offering joint technological developments and advanced research capabilities for industry as collaborators, suppliers and users. Six technology work packages (WP) form the heart of LEAPS-INNOV, based on their potential for co-innovation and their ability to enhance European leadership of both, LEAPS facilities and industry. They integrate 50-some companies, are supported by an industry networking WP and complemented by pilot activities towards co-creation with the Horizon Europe clusters. In the context of open innovation, LEAPS-INNOV focusses on new approaches for partnership between industry and the photon science community, with the goal of accumulating a strategy for long-term industry engagement for LEAPS in Europe

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-04-2021

Data scadenza: 31-03-2025

Contributo totale: € 9.999.991

Costo eleggibile totale: € 10.000.000

Contributo a ENEA: € 27.500

Costo eleggibile ENEA: € 27.500

Doc. approvazione: 038/2021/FSN

Codice atto: PF2AAJ

Resp. scientifico ENEA: NGUYEN FEDERICO

Unità: FSN-FUSPHY-TSM

Attività ENEA:

L'ENEA partecipa al Work Package 6 – LEAPS Insertion Devices, dispositivi d'inserzione, con esplicito riferimento agli ondulatori magnetici, nel Task 6.1 – Industry involvement.



Coordinatore: ENEA (Italia)

N. Partner: 24

Abstract:

Shortening the time-to market of the LFR technology is an ambitious, but undeniably important factor to attract additional investments, thanks to the lower initial risk, added flexibility, and faster return of experience. Industries and utilities sharing the vision of a competitive LFR of a small and medium-size with modular features will be attracted by the compressed deployment roadmap, and will play a leverage role at national and European level, strengthening synergies and creating public–private–partnership opportunities. In this context, the European community working on the LFR development and deployment assumed the commitment, among others, to highlight the technical open issues and existing research infrastructures, aiming to support the R&D phase through European, national and in-kind contribution of the involved partners. The aim of the LESTO project is moving on along the depicted roadmap, aiming at further developing the LFR technology, supporting the demonstration that LFRs can be designed, sited, constructed, commissioned and operated in line with the requirements of the actual safety standards, with particular focus on their safety features and passive safety systems. Along the project the most relevant facilities in Europe and UK will be adopted to implement a large and very comprehensive experimental database for code validation, safety assessment and component/system demonstration. Among the others, it is worth to mention the large-scale pool type ATHENA facility, being commissioned in Romania, the CIRCE pool in Italy, as well as MELECOR in UK. These facilities, with the support of research infrastructure in Belgium, Germany and Sweden represent the state of art for the LFR R&D. Large emphasis will be devoted to transient analysis in large pools, allowing the community to cross the death valley from laboratory to industry scale

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Euratom

Data inizio: 01-11-2024

Data scadenza: 31-10-2028

Contributo totale: € 3.998.638

Costo eleggibile totale: € 4.734.756

Contributo a ENEA: € 797.813

Costo eleggibile ENEA: € 1.063.750

Doc. approvazione: Determinazione n. 288/2024/DIRGEN

Codice atto: PF6ABG

Resp. scientifico ENEA: GIANFELICI SIMONE

Unità: NUC-ENER-SIC

Attività ENEA:

ENEA è leader del WP2 LFR Passive Systems e del WP6 Coordination and Management. Inoltre partecipa attivamente ai seguenti WP: WP1 LFR Sustainability, in supporto alle analisi neutroniche per migliorare i modelli presenti in codici di performance del combustibile; WP3 LFR materials and coolant chemistry control, supportando RATEN-ICN nell'implementazione presso la facility ATHENA di un sistema di controllo dell'ossigeno nella cover gas e conducendo insieme a newcleo test di corrosione in piombo ad alta temperatura; WP4 Thermal-hydraulics of large-scale systems, operando le modifiche e i test nella facility CIRCE e conducendo relative analisi di pre-test e post-test insieme agli altri partner, conducendo analisi di pre-test e post-test insieme agli altri partner degli esperimenti nella facility ATHENA; WP5 Education, Training and Networking, supportando le attività di training e formazione previste per tutti i partner



Air pollution removal by urban forests for a better human well-being

Coordinatore: ARGANS LTD (Francia)

N. Partner: 4

Abstract:

Urban reforestation, e.g. by increasing the tree density in cities, and peri-urban reforestation near densely populated cities where it is not easy to plant trees, can help improve air quality in cities. As large-scale reforestation is not feasible within a project, a test area will be implemented in Aix-en-Provence and Florence as front-runner cities and living labs. AIRFRESH aims to: . Estimate the air pollution (PM, NO₂, CO₂ and O₃) removal capacity by urban trees and shrubs by a reforested test area in both cities. . Estimate and quantify the environmental and health benefits provided by a new reforested test area. . Propose recommendations for reforestation policies (e.g. number and type of tree species to be planted) for attainment of the legislative air quality standards in both cities. . Our findings will be translated into a guidebook to support urban policies for sustainable city planning (local urban masterplan) and to make choices for "greening up" the environment to improve citizens' well-being.

Anno di stipula: 2020

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

LIFE (2014-2020)

Data inizio: 01-09-2020

Data scadenza: 01-12-2024

Contributo totale: € 673.512

Costo eleggibile totale: € 1.225.070

Contributo a ENEA: € 152.196

Costo eleggibile ENEA: € 276.620

Doc. approvazione: 338/2020/PRES

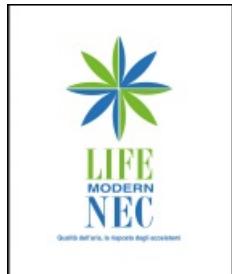
Codice atto: PS2ABR

Resp. scientifico ENEA: DE MARCO
ALESSANDRA *

Unità: SSPT-PVS

Attività ENEA:

La partecipazione al progetto AIRFRESH, svolto in stretta collaborazione con i partner europei estremamente qualificati, consente all'ENEA di sviluppare ulteriori competenze e rivestire un ruolo di primo piano nella lotta all'inquinamento atmosferico.



new MOnitoring system to Detect the Effects of Reduced pollutants emissions resulting from NEC Directive adoption

Coordinatore: ARMA DEI CARABINIERI - Comando Unità Forestali, Ambientali e Agroalimentari (CUFAA) (Italia) N. Partner: 8

Abstract:

The main objective of the LIFE MODERn (NEC) project is to comply with the NEC Directive and enhance the representativeness of sites and indicators, thus improving the Italian NEC network. In particular, the project aims to: Establish national emissions ceilings of certain atmospheric pollutants, linking them to the impacts on ecosystems; Expand the network of monitoring sites so that it is fully representative of the variety of Italian freshwater and forest ecosystems; Introduce and test a new set of indicators and develop new monitoring protocols to study the impacts of air pollution on biodiversity (plant functional groups, lichens, selected groups of fauna, and selected biological indicators in water bodies) and air pollution chemistry and transparency; Measure pollutant effects in remote areas that can provide the full background level for comparison with health-related impacts in urban areas; Assess mass balances of the major nutrient and pollutant flows through the atmosphere-forest-soil-water system, to quantify the long-term trends of the most relevant impacts; Distinguish between impacts resulting from pollutant emissions and those related to other drivers (climate change, management, land-use) by applying a multivariate statistical approach on NEC Directive target pollutants and on data collected during the 20-year environmental monitoring at ICP Forests and ICP Waters sites in Italy; Improve the awareness of experts in the Italian and European NEC network by promoting internet data dissemination through the FAIR (Findable, Accessible, Interoperable and Reusable) Data Principles and the development of specific software; Raise awareness among the Italian public about pollution sources and their impacts on ecosystems, including by promoting the NEC network; and Increase knowledge exchange between EU Member States involved in implementation of the NEC Directive to discuss and promote common strategies and solutions.

Anno di stipula: 2021

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

LIFE (2014-2020)

Data inizio: 01-10-2021

Data scadenza: 30-09-2025

Contributo totale: € 1.877.109

Costo eleggibile totale: € 3.414.809

Contributo a ENEA: € 143.768

Costo eleggibile ENEA: € 287.536

Doc. approvazione: 9/2021/PRES

Codice atto: PS0ABA

Resp. scientifico ENEA: DE MARCO
ALESSANDRA *

Unità: SSPT-PVS

Attività ENEA:

Le attività di ENEA prevedono: . Interazione e contatto con la EU; . Valutazione della rete di monitoraggio per gli ecosistemi terrestri e acquatici e per gli impatti dell'ozono sulla vegetazione; . Messa a punto e validazione di metodologia per la quantificazione del "Visibility Index", che sarà però posto come nuovo indicatore per l'implementazione della direttiva NEC.

6th Concerted Action supporting Member States and participating countries in implementing the Energy Performance of Buildings Directive

Coordinatore: DEA DANISH ENERGY AUTHORITY (Danimarca)

N. Partner: 28

Abstract:

The overall objective of the Concerted Action EPBD is to foster exchange of information and experience among Member States and other associated countries (Norway) with regards to the implementation of the specific European Union legislation and policy on the energy performance of buildings, and in particular with regards to the transposition and implementation of the EPBD (DIRECTIVE 2018/844/EU) and the on-going revision of this directive. The specific objectives of the CA are to: 1. Enhance and structure sharing of information and experience from national implementation and promote good practice in activities of Member States for implementation of the Energy Performance of Buildings Directive (EPBD). 2. Create favourable conditions for faster convergence of national procedures on EPBD-related matters. 3. Develop a direct collaboration with the other two buildings-related Concerted Actions that were established within the IEE programme: the CA-RES, focussing on transposition and implementation of the Renewable Energy Systems Directive (DIRECTIVE 2018/2001/EU); and the CA-EED, focusing on transposition and implementation of the Energy Efficiency Directive (DIRECTIVE 2018/2002/EU), where National Energy Plans are expected to include initiatives towards building energy efficiency. 4. Supplement the work of the Article 26 Committee and establish a dialogue with the European Committee for Standardization (CEN) in their work and implementation of standards to support the implementation of the zero carbon and life cycle calculations. 5. Support for European Member States and Norway to use National Renovation Plans to support progress on the EPBD implementation and increased renovation activities. As with previous instalments of the Concerted Action, CAV_EPBD will strive to result in a more harmonized approach, improved implementation and actual application of the EPBD in all the countries involved, as well as helping to disseminate best practices between the countries.

Attività ENEA:

L'ENEA partecipa alle otto task del progetto e coordina la Task 2.5: Decarbonization/Zero emission buildings.

Anno di stipula:	2022
Tipo progetto:	N/A - Non applicabile
Programma UE:	Other programmes 2021-2027 LIFE (2021-2027)
Data inizio:	01-11-2022
Data scadenza:	31-10-2027
Contributo totale:	€ 5.000.000
Costo eleggibile totale:	€ 5.263.175
Contributo a ENEA:	€ 141.964
Costo eleggibile ENEA:	€ 149.436
Doc. approvazione:	44/2022/DUEE-SPS
Codice atto:	PW3ABD
Resp. scientifico ENEA:	AZZOLINI GABRIELLA
Unità:	DUEE-SPS-SAP

Odyssee-MURE – Monitoring the Energy Efficiency Pillar for Climate Neutrality

Coordinatore: ADEME - AGENCE DE L'ENVIRONNEMENT ET DE LA MAITRISE DE L'ENERGIE N. Partner: 34
 (Francia)

Abstract:

ODYSSEE-MURE "Monitoring the Energy Efficiency Pillar for Climate Neutrality" aims at supporting policy makers in EU Commission, Member States (MS) and Energy Community (EnC) countries to implement the framework of the EU Energy Efficiency Directive (EED) as efficiently as possible at national level. It provides updated, well-experienced, user-friendly databases and web-tools for monitoring and evaluating impacts of EE policies. The ODYSSEE database and facilities contain and analyse latest available energy demand and energy efficiency indicators. The MURE database and facilities contain and analyse energy efficiency policies and measures. These tools have been successfully used in the past and will be extended from 27 EU MS to 9 EnC countries, supported by a specific buddy system from selected partners of the EU27. New tools, such as a web-based Energy Efficiency Policy Assessment Tool and a Policy Radar, will strengthen capabilities of EU MS and EnC. The project will enhance, update and modernise ODYSSEE-MURE tools and databases for support to EU MS and EnC through regional and national training events as well as dissemination channels such as country/sector profiles, newsletters, policy briefs, webinars and social media. In addition, we disseminate the analysis developed in this project, through cooperation with the European Council for an Energy Efficient Economy (eceee) that organises the most important energy efficiency events, and which gathers policy makers, researchers and industry. We further disseminate the results through cooperation with international/ regional organisations such as the Energy Community Secretariat, the International Energy Agency IEA, EEA, UNCept/Eclac and OLADE. ODYSSEE-MURE has a decental, though harmonised, approach combining a strong Technical Coordination (ADEME, Enerdata, Fraunhofer ISI) with a large number of National Teams(EE agencies), and an efficient project management structure adapted to the large number of partners.

Anno di stipula:	2022
Tipo progetto:	N/A - Non applicabile
Programma UE:	Other programmes 2021-2027
Data inizio:	LIFE (2021-2027)
Data scadenza:	01-10-2022
Data scadenza:	31-03-2025
Contributo totale:	€ 1.853.113
Costo eleggibile totale:	€ 1.950.645
Contributo a ENEA:	€ 35.163
Costo eleggibile ENEA:	€ 36.986
Doc. approvazione:	48/2022/DUEE-SPS
Codice atto:	PW3ABE
Resp. scientifico ENEA:	IORIO GIULIA
Unità:	DUEE-SPS-MPE

Attività ENEA:

L'ENEA è l'unico partner italiano del progetto ed è coinvolto nelle attività previste nei WP1, 2, 3 e 6 che prevedono principalmente: . il monitoraggio dei progressi in materia di efficienza energetica (database e strumenti in ODYSSEE); . la valutazione delle misure di politica di efficienza energetica (database e strumenti in MURE); . l'organizzazione di un meeting di progetto per consentire il dialogo e lo scambio di esperienze tra i partner al fine di rafforzare le competenze interne.

Coordinatore: IEECP - INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY STICHTINGN. Partner: 8
 (Paesi Bassi)

Abstract:

The energy efficiency first (EE1st) principle is defined and endorsed in EU legislation. The purpose of EE1st is to consider the demandside resources, such as energy efficiency and demand-response as the other types of energy resources for energy planning, investment, and policy. However, the previous evaluations of the National Energy and Climate Plan (NECP) and similar projects, such as ENEFIRST show that implementing the EE1st is easier said than done. Therefore, the ENEFIRSTPLUS proposal aims to support the key stakeholders to complement the existing resources (from European commissions, ENEFIRST and other projects) for investment in energy infrastructure, energy planning, and designing incentives. Through this project, new practical guidelines and “real-life examples” are provided on implementing the EE1st. In addition, the ENEFIRSTPLUS pursues to test the resources for 8 “real-life” cases in 4 countries and extend the outcomes to 27 MS. Building capacity and stakeholders’ engagement through learning cycles are one of the core components of ENEFIRSTPLUS which results in a community of practice. Furthermore, one-stop-shop is developed to provide the most relevant information and resources about EE1st in a single place.

Anno di stipula:	2023
Tipo progetto:	LIFE Project Grants
Programma UE:	Other programmes 2021-2027
Data inizio:	01-11-2023
Data scadenza:	31-10-2026

Contributo totale:	€ 1.493.437
Costo eleggibile totale:	€ 1.572.039
Contributo a ENEA:	€ 158.269
Costo eleggibile ENEA:	€ 166.599

Doc. approvazione:	26/2023/DUEE-SIST
Codice atto:	PW4ABA
Resp. scientifico ENEA:	MATERA MAURIZIO
Unità:	DUEE-SIST-SUD

Attività ENEA:

ENEA partecipa a tutti i WP, in particolare sarà: - leader del WP 6 “Sustainability, Replication and Exploitation activities”; - leader del Task T.4.3 “Analysis and discussion of the pilot cases’ results and outputs”; - leader del Task T.6.3 “EE1st forum and Community of Practice”

Effective implementation of the EPBD in line with short-term and long-term policy requirements

Coordinatore: UNIV. TECHNICAL WIEN (Austria)

N. Partner: 9

Abstract:

Energy and climate targets require a radical increase in efforts for implementing and strengthening policies in the building sector. The proposal for a revised EPBD introduced several elements to reach these goals e.g., zero-emission buildings (ZEB), national building renovation plans (NBRP), minimum energy performance standards (MEPS). Other instruments are strengthened: building renovation passports (BRP) and energy performance certificates (EPC). Recent developments (gas/energy/economic crises) have triggered shortterm actions and objectives, leaving Member States (MS) with the challenging task to find solutions to implement them all at once and avoid lock-in effects. The project will achieve three objectives: 1) Support public authorities in six MS (focus countries) in the design, implementation and evaluation of instruments (re-) defined in the proposal of the EPBD (ZEB, NBRP, MEPS, BRPs, EPCs) 2) Adopt a consistent approach for the implementation of building policies stemming from the EPBD recast and use synergies with Fitfor55 and other EU strategies 3) Build a replicable model to support the implementation of EU legislation by closely engaging with CA-EPBD, network agencies, and national partners of the Renovate Europe Campaign as well as policy makers and stakeholders. We will analyse national examples, provide support and technical advice and develop tailored policy packages and tools adapted to the specific needs of focus countries. These will include guidelines on how to design policies and instruments, measure their effectiveness (monitoring, reporting and policy evaluation) and adjust to EU and national needs and objectives. The project will establish an intensive stakeholder engagement in focus countries, including policy fora and bilateral exchanges with implementing bodies. Selected activities and results will be provided to focus countries; replication and adaptation to EU-27 will be assured through a series of workshops at EU level.

Attività ENEA:

L'ENEA partecipa al WP1 di coordinamento ed è leader del Task 2.1, che si occuperà di investigare il concetto di "zero emission building" (ZEB). Partecipa anche ai seguenti work package: WP 3 (Minimum Energy Performance Standards); WP4 (Building Renovation Passport – per il monitoraggio dei policy needs, l'elaborazione di soluzioni per l'implementazione ed il monitoraggio nei Focus Country e per la realizzazione di linee guida per la replicabilità in altri Paesi membri UE; WP5 (Energy Performance Certificates): gruppo di lavoro policy needs e status quo degli EPC; WP6 per verificare e garantire che le soluzioni di policy individuate nei WP 2-5 siano coerenti ed armonizzate tra loro. WP7 (coinvolgimento degli stakeholder e comunicazione e disseminazione).

Anno di stipula:	2023
Tipo progetto:	LIFE Project Grants
Programma UE:	Other programmes 2021-2027 LIFE (2021-2027)
Data inizio:	01-10-2023
Data scadenza:	30-06-2026
Contributo totale:	€ 1.999.308
Costo eleggibile totale:	€ 2.104.535
Contributo a ENEA:	€ 84.022
Costo eleggibile ENEA:	€ 88.444
Doc. approvazione:	25/2023/DUEE-SIST
Codice atto:	PW4AAZ
Resp. scientifico ENEA:	ZANGHIRELLA FABIO
Unità:	DUEE-SIST-NORD

European Practitioners for Integrated Home Renovation Services

Coordinatore: CLIMATE ALLIANCE - KLIMA-BUENDNIS - ALIANZA DEL CLIMA e.V. (Germania) N. Partner: 11

Abstract:

Integrated Home Renovation Services (IHRS) offer holistic solutions for home renovations and are part of the enabling framework breaking barriers to renovation. The overall objective of EU Peers is to support the development of IHRS as key instruments to accelerating residential energy renovation in the EU. By creating a European Community of Practice of IHRS practitioner, involving at least 615 members, including 175 IHRS, EU Peers will strengthen and upscale the IHRS concept. The inclusive Community will provide multiple entry points and opportunities to participate in order to provide the maximum benefit to its members. For this purpose, 7 Community platforms, for 6 priority countries (IT, FR, ES, LV, HU, IRE) as well as for other EU countries, will be established. At least 45 exchange & collaboration meetings will take place at national and European level. The first generation of IHRS will strongly benefit from exchange of experience and convergence to foster residential retrofit. Beside an online knowledge repository and digital collaboration tool to network among peers, EU Peers will offer 3 types of capacity-building, consisting of at least 34 capacity building sessions. EU Peers will contribute to a faster and better implementation of IHRS models across Europe, providing a start-up aid to at least emerging IHRS initiatives. The project will advocate for improved framework conditions: European and national policy recommendations will be developed and be subject of 7 public policy debates. EU Peers will tackle improvements in the collaboration among actors along the renovation journey by organising 12 stakeholder dialogues. In addition, a campaign to engage public authorities to support the IHRS deployment in their area will target 150 public authorities across Europe. Creating a strong effect within the Community and beyond, EU Peers will provide data-based evidence that will illustrate the results and impact of its members and the IHRS movement in general.

Anno di stipula:	2023
Tipo progetto:	LIFE Project Grants
Programma UE:	Other programmes 2021-2027 LIFE (2021-2027)
Data inizio:	01-09-2023
Data scadenza:	31-08-2026
Contributo totale:	€ 2.438.812
Costo eleggibile totale:	€ 2.567.171
Contributo a ENEA:	€ 242.791
Costo eleggibile ENEA:	€ 255.570
Doc. approvazione:	18/2023/DUEE-SIST
Codice atto:	PW4AAY
Resp. scientifico ENEA:	HUGONY FRANCESCA
Unità:	DUEE-SIST-NORD

Attività ENEA:

L'ENEA è coinvolta in tutti i WP; in particolare nel WP4 – “Tackling Community challenges through capacity building”, di cui è responsabile, e nel WP6 'Towards improved framework conditions for the deployment of IHRS'.



Linking Energy Audit and EnMS Policies towards new EED article 11

Coordinatore: ENEA (Italia)

N. Partner: 11

Abstract:

The LEAPto11 project aims to support European Member States during the transposition and rollout phase of the new article 11 of the EED recast through a joint action of cooperation of their respective National Energy Agencies. The project main goal is to contribute to a comprehensive improvement of the quality framework for Energy audits and Energy management systems (EnMs) through the evaluation, update, upgrade and optimisation of current national programmes. The project will also investigate other parts of the Recast EED dealing with energy savings in the business sector, to promote synergies among energy audits, EnMS, Energy Efficiency Obligation Schemes and alternative measures, information programmes. Such goal will be reached through the following specific objectives: • Improving the effectiveness of National programmes for a better data management and Key Performance Indicators production, with benefits for the Public and the Private sector. • Supporting Ministries, Business actors (business associations, networks), auditors and National Agencies during the art.11 transposition with data-driven and knowledge-based high-level policy advice, to get all stakeholders ready when National legislations will enter in force. • Spreading the culture, use and uptake of Standards and Protocols to increase the implementation of the energy efficiency measures recommended in audits and EnMS.

Anno di stipula: 2024

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027
LIFE (2021-2027)

Data inizio: 01-02-2024

Data scadenza: 31-01-2027

Contributo totale: € 1.686.526

Costo eleggibile totale: € 1.775.291

Contributo a ENEA: € 404.160

Costo eleggibile ENEA: € 425.432

Doc. approvazione: 41/2023/DUEE-SPS

Codice atto: PW3ABH

Resp. scientifico ENEA: BIELE ENRICO

Unità: DUEE-SPS-ESE

Attività ENEA:

L'ENEA è coordinatore del progetto e Leader del WP1 "Management and coordination" e del WP4 "Towards the policy implementation of the provisions on "Energy management systems and energy audits" in the recast EED. In particolare: WP1: L'ENEA si occuperà di tutti gli aspetti trasversali relativi alla gestione e alle procedure. Tali attività comprendono la pianificazione e la gestione del progetto, la programmazione e l'emissione della documentazione e della reportistica interna ed esterna, la gestione finanziaria e della qualità. WP4: l'ENEA avrà il compito di svolgere tutte le attività atte a costruire il quadro di riferimento per un'efficace attuazione del nuovo articolo 11 nei Paesi delle Agenzie partecipanti. Inoltre l'ENEA contribuirà al: WP 3 "Resource Efficiency and Pilot cases" con attività dedicate allo sviluppo di tre case studies e all'organizzazione di un workshop sulla gestione dell'efficienza delle risorse WP5 "Sustainability, communication, replication, and exploitation of project results" con attività relative alla sostenibilità, replicabilità e valorizzazione dei risultati del progetto

Support Energy Efficiency Deployment with the Multiple Impacts CAlculation Tool

Coordinatore: FHG - FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN. Partner: 9
FORSCHUNG E.V. (Germania)

Abstract:

SEED MICAT supports EU and member states at national, regional and local governance levels in including Multiple Impacts (MI) of carbon neutrality pathways in their operationalisation and implementation of the Energy Efficiency First (EE1) principle, "sowing thus the seeds" for a broad application of the principle. Considering MI in target setting (such as impacts on health, on supply security, on area use and on biodiversity) argues for a fast phase-out of fossil fuels but also for a careful analysis of MI related to different pathways to climate neutrality, with varying contributions from energy demand and energy supply options. This requires in particular extending the MI framework (previously developed in the MICAT project for energy efficiency) to renewable energy sources (and other climate neutrality pathways such as hydrogen). It further advocates the integration of policy modules (as developed in the ODYSSEE-MURE and REFEREE projects) to allow for an assessment of single and cross-sectoral policies, broadening the potential applications of the MI framework and the MICATool (a modular tool developed previously in MICAT and which allows to adapt the MI framework flexibly to different climate neutrality pathways). Further, new MI need to be considered in the MI framework, such as the impacts of climate neutrality pathways on on biodiversity. Through showcases of the MI framework at European, national, regional and local levels, as well as thematic showcases (on import dependency, on energy system resilience and on impacts on biodiversity), we demonstrate the ability of the MI concept to implement the EE1 principle based on an analytical approach. SEED MICAT accompanies these showcases with a replication analysis (notably at national level), a capacity building component on the MI framework and the MICATool, as well as a strong dissemination approach for spreading knowledge on how the MI framework supports implementing the EE1 principle.

Anno di stipula: 2023

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027

Programma: LIFE (2021-2027)

Data inizio: 01-12-2023

Data scadenza: 30-11-2026

Contributo totale: € 1.494.151

Costo eleggibile totale: € 1.572.791

Contributo a ENEA: € 114.458

Costo eleggibile ENEA: € 120.482

Doc. approvazione: 17/2023/DUEE-SIST

Codice atto: PW4AAX

Resp. scientifico ENEA: TAMBURRINO
SALVATORE

Unità: DUEE-SIST-SUD

Attività ENEA:

L'ENEA è coinvolta nei seguenti work package: WP1 - Project management and coordination WP4 - Analysing and showcasing Multiple Impacts of energy efficiency and climate neutrality pathways at national, regional and local levels WP7 - Communication and dissemination

Mitigation enabling energy transition in the Southern Neighbourhood



Coordinatore: MEDENER - MEDITERRANEAN ASSOCIATION OF NATIONAL AGENCIES FOR ENERGY MANAGEMENT (Organ. Internazionali) N. Partner: 14

Abstract:

MeetMED project begins its second phase aiming to enhance the energy security of beneficiary countries (namely Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestine and Tunisia) while fostering their transition to low carbon economy. Accordingly, meetMED II will be contributing to the creation of more stable, efficient, competitive and climate-resilient socioeconomic contexts in the targeted countries. MeetMED II activities aim at strengthening the implementation of EE measures and improving countries' energy mix focusing on building and appliances' sectors through a multiscale, multi-partner and inclusive approach at local and regional levels, thereby fostering regional cooperation.

Anno di stipula: 2021

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

ENI - European Neighbourhood Instruments (2014-2020)

Data inizio: 01-01-2021

Data scadenza: 30-06-2024

Contributo totale: € 5.000.000

Costo eleggibile totale: € 5.556.380

Contributo a ENEA: € 352.913

Costo eleggibile ENEA: € 436.798

Doc. approvazione: 266/2021/PRES

Codice atto: PW3AAW

Resp. scientifico ENEA: VIOLA CORINNA

Unità: DUEE-SPS-MPE

Attività ENEA:

ENEA svolge le seguenti attività nel progetto: • Partecipazione al WPI - Project Management; • Work Package Leader del WP2 - Strategies and policies; • Task Leader del Task 2.1 - Stakeholders' engagement and dynamic dissemination of information; • Task Leader del Task 3.1.4 - Implement a set of tools for energy management in schools and provide guidance for deep building renovation, which includes renewable energy solutions, storage, and energy management system; • Partecipazione al Task 3.2 - Professional training and capacity building; • Task Leader del Task 5.1.2 - Financing Energy Efficiency in Buildings and Appliances; • Partecipazione al WP6 "Communication / information and Education strategy".



Coordinatore: ENEA (Italia)

N. Partner: 13

Abstract:

METROFOOD-RI is a distributed research infrastructure (RI) that promotes scientific excellence in food quality and safety. It provides metrology services in food and nutrition across various highly interdisciplinary, interconnected fields along the food value chain, such as agrifood, sustainable development, food safety, quality, traceability and authenticity, environmental safety, and human health. In May 2022, it completed its preparatory phase upon the H2020 METROFOOD-PP project (GA871083). However, a few bottlenecks were identified in the final evaluation report; furthermore, the consortium prepared plans for the next short- and medium-term phases and the Board of Governmental representatives proposed several suggestions. METROFOOD-EPI was established with the overarching mission to build METROFOOD-RI as an infrastructure consolidated for its full implementation and to begin the operational phase, addressing any critical issues. Four specific objectives have been identified: support the establishment of the legal entity that will manage the RI, specify the technical implementation of the RI as service-oriented, consolidate its position in the landscape and secure long-term sustainability. METROFOOD-EPI will act on four layers, covering: ERIC set-up, including membership consolidation, governance establishment, securing funding, and distributed architecture; technical organisation and implementation of the RI for its operation, including a definition of user requirement specifications for the e-component and set-up of the core components, data management solutions, access, and services; consolidation of the RI's positioning in the agrifood research & innovation landscape, including an update of the scientific strategy and contribution to the ERA, community building, and liaising with other complementary initiatives; long-term scientific & financial sustainability, including impact, risk management and user engagement.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-01-2024

Data scadenza: 31-12-2024

Contributo totale: € 1.499.897

Costo eleggibile totale: € 1.499.897

Contributo a ENEA: € 380.433

Costo eleggibile ENEA: € 380.433

Doc. approvazione: 212/2023/SSPT-BIOAG

Codice atto: PS1ADQ

Resp. scientifico ENEA: ZOANI CLAUDIA

Unità: SSPT-BIOAG

Attività ENEA:

L'ENEA coordina il progetto che fa seguito ai progetti PRO-METROFOOD (GA 739568) e METROFOOD-PP (GA 871083), già coordinati da ENEA, per la realizzazione delle diverse fasi del ciclo di vita dell'infrastruttura METROFOOD-RI. Le attività del progetto si articolano su 4 livelli di azione (AI), che coprono rispettivamente: - AI1. Azioni incentrate sulla costituzione dell'ERIC, tra cui il consolidamento dei membri, l'istituzione della governance, la garanzia di finanziamenti e l'architettura distribuita - AI2. Azioni incentrate sull'organizzazione tecnica dell'infrastruttura per il suo funzionamento, tra cui la pre-implementazione della componente elettronica, lo sviluppo di soluzioni di gestione dei dati, l'accesso e la fornitura dei servizi - AI3. Azioni incentrate sul consolidamento del posizionamento nel landscape, compresa la strategia scientifica e il contributo all'ERA, azioni di community building e l'integrazione con altre iniziative - AI4. Azioni incentrate sulla sostenibilità a lungo termine, compresa la sostenibilità finanziaria, l'impatto, la gestione del rischio e lo user engagement.

Coordinatore: CSIC - SPANISH NATIONAL RESEARCH COUNCIL (Spagna)

N. Partner: 22

Abstract:

MINKE will integrate key European marine metrology research infrastructures, to coordinate their use and development and propose an innovative framework of “quality of oceanographic data” for the different European actors in charge of monitoring and managing the marine ecosystems. MINKE proposes a new vision in the design of marine monitoring networks considering two dimensions of data quality, accuracy and completeness, as the driving components of the quality in data acquisition. This new vision will be framed in a quintuple helix model of innovation, incorporating all the elements involved in the monitoring network design: ? the context (ocean health), identifying the Essential Ocean variables (EOVs) as the key parameters to monitor ? the civil society (NGO, Makers community, Social media and Citizen Science platforms) as the key actors to ensure data completeness ? the academia researching new methods to ensure the accuracy and the global quality of the final products, developing tools for integrating the information of top-qualified oceanographic instruments and low-cost instrumentation. ? the industry improving the performance of the observations with new instrumentation, data-transmission systems and cost-effective technologies ? the governments that provide the legal and socio-economic frameworks to develop the proposed network. The present proposal, through the different Integration Activities (Networking, Transnational-Virtual Access and Joint Research), aims to lay the groundwork for creating the necessary synergies among the different involved actors in the quintuple helix model of innovation, creating a new community with complementary capabilities for Ocean & Coastal Observation, that will facilitate the transition towards a blue growth socio-economic system.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-04-2021

Data scadenza: 31-03-2025

Contributo totale: € 4.994.955

Costo eleggibile totale: € 4.994.955

Contributo a ENEA: € 55.057

Costo eleggibile ENEA: € 55.057

Doc. approvazione: 39/2021/SSPT-PROTER

Codice atto: PS4ACR

Resp. scientifico ENEA: RESEGHELLI FRANCO

Unità: SSPT-PROTER-BES

Attività ENEA:

ENEA è coinvolto nel WP2 (Promoting Operational Integration through Harmonization of Procedures) e si occuperà di: • misure in situ e caratterizzazione metrologica della strumentazione marina; • sviluppo delle migliori pratiche per gli strumenti e analisi dell'incertezza relativa agli EOV. ENEA è coinvolto inoltre nel WP10 (Management, Communication and Ethics), come gli altri 21 partners partecipanti alla proposta, per lo svolgimento della seguente attività: • l'obiettivo generale del WP10 è fornire, promuovere e gestire tutti i compiti, gli strumenti, le strutture e le strategie necessarie per una gestione e governance quotidiana efficace, adeguata e trasparente del consorzio durante tutto l'arco di vita del progetto .



Multiscale Ocean models and Information for climate Risk Assessment and Impact mitigation

Coordinatore: UNIV. NATIONAL TECHNICAL ATENE (NTUA) (Grecia)

N. Partner: 15

Abstract:

MOIRAI, named after the three Greek goddesses of fate, stands as a pioneering project at the intersection of past, present, and future. MOIRAI endeavors to weave a comprehensive understanding of the ocean's dynamics and biogeochemical cycles through advanced models, integrating historical data, current observations, and future projections. Integrated into the frameworks of Destination Earth (DE) and the European Digital Twin of the Ocean (DTO), key components of the broader Digital and Green transitions, MOIRAI aims to significantly advance our comprehension and mitigation of climate-related challenges. MOIRAI is set to advance the next generation of regional to coastal ocean and biogeochemical climate models in European seas, bridging the gaps between operational and regional ocean climate models. Benchmarked with improved climate modelling and prediction capacities in the estuarial-coastal-open sea continuum, the developed models will contribute to the European Green Deal, addressing resilience to climate change (both mitigation and adaptation) in coastal areas. The quality of its coastal models forms the backbone of MOIRAI's commitment to delivering reliable outcomes for end-users. At its core, MOIRAI, in conjunction with the establishment of REASSHORE (Resilience and Adaptation Strategies Selection Hub for Ocean risks Assessment and End-users feedback), aims to create replicable scientific frameworks and pave the way for basin-scale services, fostering collaborative initiatives across European regional seas. Designed to be modular and interoperable, REASSHORE will seamlessly integrate with existing and future digital infrastructures for ocean climate and risk services.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Data inizio: 01-11-2024

Data scadenza: 30-04-2028

Contributo totale: € 4.499.160

Costo eleggibile totale: € 4.499.160

Contributo a ENEA: € 298.070

Costo eleggibile ENEA: € 298.070

Doc. approvazione: 38/2024/SSPT/CLIMAR

Codice atto: PS2ADB

Resp. scientifico ENEA: IACONO ROBERTO

Unità: SSPT-CLIMAR-MSC

Attività ENEA:

ENEA rivestirà il ruolo di partner del progetto e parteciperà ai seguenti work package: WP1 (Project Management): partecipazione attività di coordinamento scientifico e di monitoraggio del progetto; WP2 (Refined ocean physics and climate models for regional seas): sviluppo di modelli oceanici innovativi ad alta risoluzione e produzione di simulazioni climatiche sul bacino mediterraneo ad altissima risoluzione (circa 2 km); WP5 (Model assessment and optimization): valutazione dei risultati delle simulazioni e relative ottimizzazioni; WP7 (Demonstration, validation and feedback): valutazione delle performance dei nuovi modelli in casi di studio dedicati; WP8 (Communication, Dissemination and Policy recommendation): partecipazione attività di disseminazione dei risultati del progetto.



real-time Monitoring and Sampling of CB menaces for improved dynamic mapping of threats, vulnerabilities and response capacities

MoSaiC

Coordinatore: FONDAZIONE SAFE (Italia)

N. Partner: 8

Abstract:

MoSaiC is a research project focused on real-time monitoring of CBRN events paired with innovative sampling capabilities, to enhance dynamic mapping of threats, vulnerabilities and response capacities, inter alia addressing CBRN forensics priorities. The initiative will provide additional features to existing CBRN DIM platforms by working on the integration of a set of sensing capabilities which include: • Research on innovative and low-cost CB monitoring technologies installed on UAV and UGV systems (building inter alia on the H2020 projects ROCSAFE and 5G!Drones, and focusing on miniaturization of previously deployed technological solutions); • Research on innovative sampling technologies based primarily on the concept of “smart swabs”, enabling fast and non-destructive in situ analysis of a sample that can later be analyzed a second time in the lab by standard forensic; • Nearly real-time 3D mapping and processing of areas affected by CBRN contamination (indoor and outdoor), with a high-degree of autonomy. • Real-time visualization for Incident Commanders, including flowing of data from 3D mapping and CB monitoring sensors. • Real-time communication between C2 systems and drones, robots and sensors for CB monitoring and sampling missions. The project is formally supported by five EU Member States MoDs (Italy, Austria, Denmark, the Netherlands and Estonia) thanks to the cooperation of their industrial players as well as public/private academic and research institutions. Over its thirty-six months of implementation, MoSaiC will provide tangible research outcomes with the complete design of an integrated, disruptive CBRN DIM technology able to provide real-time monitoring of CB threats, enhanced real-time C2 solutions for EU military forces. It will set a cornerstone for an improved industrial sovereignty of the EU in CBRN DIM applications.

Anno di stipula:	2023
Tipo progetto:	EDF Research Actions
Programma UE:	Other programmes 2021-2027 EDF - European Defence Fund (2021-2027)
Data inizio:	01-01-2023
Data scadenza:	31-12-2025
Contributo totale:	€ 4.401.672
Costo eleggibile totale:	€ 4.401.672
Contributo a ENEA:	€ 467.500
Costo eleggibile ENEA:	€ 467.500
Doc. approvazione:	195/2022/FSN
Codice atto:	PF7ABU
Resp. scientifico ENEA:	FIORANI LUCA
Unità:	FSN-TECFIS-DIM

Attività ENEA:

L'ENEA partecipa alle attività afferenti ai WP1, WP2 e WP8: . WP1: partner per la gestione degli aspetti organizzativi e di gestione del progetto. . WP2: sviluppatore di tecnologie laser per l'identificazione ed il monitoraggio di minacce chimiche e biologiche in situazione di crisi derivanti da scenari di attacco da parte di soggetti intenzionati a destabilizzare l'ordine all'interno della Comunità Europea. . WP8: il laboratorio FSN-TECFIS-DIM dell'ENEA coordinerà le attività finalizzate a validare il sistema MOSAIC ed a sviluppare un programma di sfruttamento futuro dei risultati ottenuti dal progetto.

Coordinatore: UNIV. EVORA (Portogallo)

N. Partner: 7

Abstract:

Within the MSA-Trough project a fix-focus parabolic trough is developed by an international consortium of 7 partners. The novelty of the new collector is the complete independence (detachment) between the concentrator and the fixed absorber tube, so that the absorber tube string is not moved by the concentrator and can be designed in a continuous line up to a length of more than 0,8km. Due to the new design not only the collector connection piping becomes obsolete but also all flexible connections in the solar field are omitted, leading to a significant reduction in investment costs as well as in pressure drop and heat losses. Because of its horizontal "storm-position" wind loads are reduced by 75%, thus steel structure, pylons and foundations can be designed very light and cost-saving. In addition, biodegradable and very stable thin-glass sandwich mirrors will be developed, which increase the optical efficiency by 2% due to better reflectivity. A further important project highlight is the development of an automatic mirror washing device, which will recycle about 90% of washing water and increase the solar field performance by 4% because of daily washing. The new MSA-Trough design will be especially suitable for dispatchable power generation at very high temperature (555°C) using directly molten salt as heat transfer fluid and storage medium, thus reaching a very high cycle efficiency and an excellent volumetric storage capacity. A 350m-collector (aperture 6,7m) will be erected and tested with molten salt at the EMSP. Optical, mechanical and thermal tests will be carried out in order to verify the collector quality and efficiency. In order to eliminate heat losses during nights the "overnight drainage strategy" will be tested and optimized. Compared to current parabolic trough power plants the use of MSA-Trough collectors will increase the annual electrical output by 24,5% and reduce the solar field costs by 30%.

Anno di stipula: 2023

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 5 - D3 Energy supply

Data inizio: 01-10-2023

Data scadenza: 31-03-2027

Contributo totale: € 5.421.360

Costo eleggibile totale: € 6.535.765

Contributo a ENEA: € 468.125

Costo eleggibile ENEA: € 468.125

Doc. approvazione: 201/2023/TERIN

Codice atto: PK7AAJ

Resp. scientifico ENEA: RUSSO VALERIA

Unità: TERIN-STSN

Attività ENEA:

ENEA è presente in tutti i WPs del progetto tranne il WP2 relativo alla realizzazione del prototipo. L'Agenzia, in particolare, avrà la responsabilità del WP5 "Optimization of collector operation and maintenance" e dei task 5.2 (Night operation optimization by additional receiver insulation), 5.3 (Part load operation optimization) e 5.6 (Evaluation and optimization of operation and maintenance). L'ENEA è responsabile dei seguenti Deliverable: D5.3 – Report on "night operation with additional insulation, D2.1 - MS driven energy system management and power/gas grid integration solutions, D5.1 on night operation with additional insulation.", D5.4 – Part load operation report, D5.8 – Final operation-maintenance evaluation report e Milestone MS15- Outlet temperature controller successfully tested, MS17 - Final operation and maintenance concepts developed.



multiclimact

CLIMATE adaptation ACTions to improve resilience, preparedness and responsiveness of the built environment against multiple hazards at multiple scales

Coordinatore: RINA CONSULTING (Italia)

N. Partner: 26

Abstract:

As climatic conditions are constantly changing and the frequency of extreme events increases, there is an urgency of planning, designing and retrofitting the built environment in order adapt it to present and future risks. Too frequently the built environment is a driver of vulnerability, rather than being a shelter for citizens. For this reason, mitigation and adaptation need to be pursued actively, putting built environment and human resilience at the center of a climate and future-proofing action. The MULTICLIMACT project aims to develop a mainstreamed framework and a tool for supporting public stakeholders and citizens to assess the resilience of the built environment and its people at multiple scales (buildings, urban areas, territories) against locally relevant natural and climatic hazards and supply-chains, as well as to support them to enhance their preparedness and responsiveness across their life cycle. The mainstreamed approach will include a method specifically targeted for including several types of built environment assets, including human well-being, health, and quality of life as an essential scale of analysis and action. MULTICLIMACT will support resilience-enabling ACTions by implementing a toolkit of 18 reliable, easy-to-implement and cost-effective Design methods, Materials, and Digital Solutions, enabling users to easily estimate the impact of their implementation on the resilience of the targeted asset, integrating a multidisciplinary approach integrating socio-economic, life, engineering, and climate disciplines. The MULTICLIMACT approach is integrated with relevant international and European initiatives, building upon existing knowledge and instruments, and demonstrating the proposed approach in four case studies that represent various geographical location, natural and climatic hazards, social and economic systems and scales of analysis, ranging from single buildings (including cultural heritage) to the urban and territorial scales

Anno di stipula:	2023
Tipo progetto:	IA - Innovation Action
Programma UE:	HORIZON EUROPE
Data inizio:	01-10-2023
Data scadenza:	31-03-2027
Contributo totale:	€ 7.499.166
Costo eleggibile totale:	€ 7.499.166
Contributo a ENEA:	€ 495.250
Costo eleggibile ENEA:	€ 495.250
Doc. approvazione:	206/2023/TERIN
Codice atto:	PK5AAP
Resp. scientifico ENEA:	DI PIETRO ANTONIO
Unità:	TERIN-SEN-APIC

Attività ENEA:

Le attività in cui ENEA è coinvolta è riconducibile a otto work package: WP1: supporting the built environment adaptation to climate change – Plan and Design WP3: Materials and Technologies for supporting the built environment preparedness and responsiveness to disrupting events – Plan and Design WP4: Digital solutions for supporting the protective role of the built environment for people safety and quality of living – Plan and Design WP9: Materials and Technologies for supporting the built environment preparedness and responsiveness to disrupting events – Develop WP10: Digital solutions for supporting the protective role of the built environment for people safety and quality of living – Develop WP11: MULTICLIMACT in-field demonstration – Test WP15: MULTICLIMACT in-field demonstration - Deploy WP17: Project coordination for Phase 3

Coordinatore: ENEA (Italia)

N. Partner: 18

Abstract:

The rapidly changing nature of the New Psychoactive Substance (NPS) market and the overall large number of substances that need to be monitored have presented challenges for early warning activities in recent years. Since the number of illicit drug classes is growing exponentially over time, the current challenge is no longer to search substances during an investigation, but rather to provide a sort of preliminary identification of the substance as illicit, i.e., to tag it as such, especially when it is a new type of drug. Today several instruments equipped with up-to-date libraries allow for the rapid identification of drugs of abuse. However, this approach suffers from four main problems: 1) The instruments' libraries are not updated regularly; 2) The instruments do not easily overcome the matrix effect; 3) NPSs are trafficked and sold in smaller doses, making their detection and identification more difficult; 4) Routine methods of analysis during forensic analysis are no longer effective in screening drugs of abuse, the parent drugs but also their metabolites, due to the lack of structural information and commercial reference materials. NARCOSIS (Non-tArgeted foRensic multidisCiplinary platfOrm for inveStigation of drug-related fatalitieS) will provide a set of features for fast, robust, and reliable multidisciplinary approach to harmonise forensic investigations by means of an up-to-date and updateable diagnostic platform with the following key features: 1) A set of selected orthogonal instruments operable both on-site and in laboratories (Raman/SERS, IR, HSI, HRMS) will be adapted to be used with the NARCOSIS platform; 2) Build a comparable and shareable (cross-organisation) reference spectra (meta-spectra) database for faster detection and identification of drugs of abuse; 3) Create an AI-assisted spectra management and integration toolkit for analytical measurements to support the EU Early Warning System to rapidly detect, assess and respond to NPS.

Attività ENEA:

ENEA coordina il progetto con il compito di sviluppare tecnologie innovative per applicazioni forensi. È leader del WP1 Project Management, del WP5 Validation and Demonstration, Training and Evaluation e del WP8 Ethic requirements. Inoltre partecipa attivamente al WP2 Needs, specifications and practitioners support.

Anno di stipula:	2024
Tipo progetto:	IA - Innovation Action
Programma UE:	HORIZON EUROPE
	Cluster 3 - Civil security for society
Data inizio:	01-11-2024
Data scadenza:	31-10-2027
Contributo totale:	€ 4.410.856
Costo eleggibile totale:	€ 4.635.295
Contributo a ENEA:	€ 704.730
Costo eleggibile ENEA:	€ 704.730
Doc. approvazione:	147/2024/NUC
Codice atto:	PF7ABZ
Resp. scientifico ENEA:	CHIRICO ROBERTO
Unità:	NUC-TECFIS-DIM

Coordinatore: CNR - CONSIGLIO NAZIONALE DELLE RICERCHE (Italia)

N. Partner: 13

Abstract:

Throughout its history, Rome has been a leading centre for culture and science, and still today the city and its environs are home to Italy's largest concentration of research centres, laboratories and universities; in fact one of the largest concentration in Europe. In 2019, the ScieNcETogether NETwork was established, primarily just by those roman research organizations that had a long-standing tradition of interaction and cooperation among them and with international scientific contests and wanted to lay the foundation for an active collaboration also in science dissemination. In these four years of joint work taught us that to make the Night a more engaging and inclusive experience and address a large number of citizens and young people, joining forces and collaboration is key and brings added value. Consequently we have developed a formula to celebrate the Night: a major event with researchers from all NET partners institutions and representative of the stakeholder groups in Rome (the NET village) but, at the same time, we are also aware that celebrating the ERN means feeling part of a larger European community. So, on the one hand we are inviting the partners' branch laboratories and research centres scattered all over Italy (20 cities from north to south Italy) to share NET's objectives and contribute to a national celebration, on the other hand we have searched for partners/project stakeholders outside Italy that could help us enhance the European and international dimension of the ERN. Having based our communication strategy on Marie Slodowska Curie as NET Night goodmother, it has been almost natural to look at Poland (Polish Academy of Sciences), France – (Marie Curie Museum) and Sweden (Tekniska museet | National Museum of Science and Technology), the three countries that sort of represent three different stages in the scientist's life.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

MSCA Marie Skł. Curie Actions

Data inizio: 11-03-2024

Data scadenza: 10-03-2026

Contributo totale: € 774.988

Costo eleggibile totale: € 957.452

Contributo a ENEA: € 55.769

Costo eleggibile ENEA: € 79.670

Doc. approvazione: Determinazione n. 106/2024/SSPT

Codice atto: PS0ABH

Resp. scientifico ENEA: FALCONIERI FABIOLA LETIZIA

Unità: REL-EVENTI

Attività ENEA:

L'ENEA è Leader del WP3 Researchers at Schools activities 1 e del WP8 Researchers at Schools activities 2 con attività che favoriscono il contatto dei ricercatori con il sistema scuola, su tutto il ciclo di studi. Inoltre, l'ENEA partecipa ai seguenti WP: WP2 Awareness Campaign 1 e WP6 Awareness Campaign 2; WP2 Activities during the NIGHT 2024 e WP7 Activities during the NIGHT 2025; WP4 Impact Assessment 1 e WP9 Impact Assessment 2; WP5 Management 1 e WP10 Management 2



Coordinatore: SNAM SPA (Italia)

N. Partner: 15

Abstract:

How much hydrogen (H₂) is released from the value chain? To answer the question is very challenging since insufficient and, when available, no standardized data can be found in the literature. However, it is essential to cover this knowledge gap to perform any credible and scientifically validated research regarding the H₂ value chain impact on the climate change. The literature is full of studies investigating and calculating the risk of H₂ leakages in case of failures, accidents, and emergencies. But significant knowledge gaps exist about the amount of anthropogenic H₂ (in the atmosphere) from the H₂ value chain. The research community needs to address this by improving the capability to quantify small and large releases, delivering validated methodologies and techniques for measuring or calculating them. A universally accepted and open-access inventory is needed as soon as possible. Likewise, an open access and comprehensible tool that is easy to be used is also asked by the stakeholders to better quantify the leaks from the whole in H₂ value chain while the momentum is fast gathering to upscale H₂ energy applications. The NHyRA project is specifically designed to address these urgent needs. The project will deliver a "H₂ releases" inventory to serve as a reference for the scientific and industrial community. New or adequately adapted experimental, theoretical, and simulation methodologies will be validated to perform laboratory or in-field measurements to achieve the ambitious goal. Experimental tests will also be performed on the most critical elements of the H₂ value chains by the partners of the Consortium. A complete picture of the H₂ releases' scenarios in the middle (2030) and long (2050) term will be developed to enable decision-makers to identify and prioritize effective mitigation actions. And finally, the project will formulate recommendations for Standards and Technical Specifications.

Anno di stipula:	2024
Tipo progetto:	RIA - Research and Innovation Action
Programma UE:	HORIZON EUROPE Clean Hydrogen JU
Data inizio:	01-01-2024
Data scadenza:	31-12-2026
Contributo totale:	€ 2.086.684
Costo eleggibile totale:	€ 2.086.684
Contributo a ENEA:	€ 174.125
Costo eleggibile ENEA:	€ 174.125
Doc. approvazione:	309/2023/TERIN
Codice atto:	PK4ABA
Resp. scientifico ENEA:	AGOSTINI ALESSANDRO
Unità:	TERIN-PSU-ABI

Attività ENEA:

In particolare, ENEA è chiamata a contribuire alle seguenti 7 tasks scientifiche:

- Task 1.1: Definition of the H₂ supply chains and unit processes (M1 – M6) [Lead partner: FBK; Participant partners: UNIBO, FBK, SNAM, ENEA, SURREY, DLR, ENGIE, BH, LINDE, EQN]
- Task 1.3: Priority list of the most critical elements (M3 – M12) [Lead partner: UNIBO; Participant partners: SURREY, ENEA, DLR, INIG, ENGIE, BH, NPL, SNAM, LINDE, EQN]
- Task 4.1: Modelling of the H₂ releases from hydrogen value chain (M12 – M26) [Lead partner: ENGIE; Participant partners: FBK, SURREY, ENEA, INIG, DLR, UNIBO, BH, SNAM]
- Task 4.3: Mitigation benefits at value chain level (M30 – M34) [Lead partner: ENGIE; Participant partners: FBK, ENEA, SURREY, UNIBO, BH]
- Task 5.1: Hydrogen H₂ economy Scenario identification (M12-M24) [Lead partner: FBK; Participant partners: ENEA, SURREY, INIG, UNIBO, DLR; GERG]
- Task 5.2: H₂ releases from H₂ economy Scenarios (M24-M36) [Lead partner: FBK; Participant partners: ENEA, SURREY, INIG, UNIBO, DLR, ENGIE]
- Task 5.3: Liaison with project on H₂ fate in the atmosphere and climate forcing (M31-M36) [Lead partner: ENEA; Participant partners: FBK, SURREY, INIG, SNAM, UNIBO, DLR, ENGIE]

From Niche to Centre - City Centres as Places of Circular Lifestyles

Coordinatore: UBA - GERMAN ENVIRONMENTAL AGENCY (Germania)

N. Partner: 9

Abstract:

European city centres are changing: In recent decades, they were resource-intensive centres of consumption. Currently, the online trade is growing, which increasingly shifts consumption from stationary trade to the digitalised sphere. In connection with the COVID19 pandemic, numerous shops had to close and supply chains were interrupted. In contrast, alternative and sustainable consumption models leading to more circularity and sufficiency increase. However, due to the current framework conditions these models usually only remain in their niche and are only seen by "interested parties" at most. Consumers therefore lack a central and easily accessible offer of alternative forms of consumption. NiCE brings these two challenges together: a transformation of central places in cities that make it easy for their inhabitants to implement sustainable lifestyles and at the same time to (re)animate centres in a more circular way. We want to show various practical approaches in different settings that consciously strengthen these new forms of consumption, make them visible in urban centres and bring all relevant actors together. One such setting is for example a "multifunctional resource centre", where several services and offers (such as different repair services) are accessible at one central spot. NiCE partners will prepare, document and evaluate these approaches in transnational teams to develop viable, transferable models and approaches: How to use empty spaces for circular offers? How to run and economically sustain central resource centres? How to combine transnational online trade with local circular services? Educational, inspirational, and exchange formats at transnational, national and regional level will transfer our results to municipalities, regions, providers of alternative consumption and business models, citizen associations and policymakers and invites for further joint activities to establish circular city centres throughout Central Europe

Anno di stipula: 2023

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes 2021-2027

Interreg Central Europe
2021-2027

Data inizio: 01-05-2023

Data scadenza: 30-04-2026

Contributo totale: € 1.776.614

Costo eleggibile totale: € 2.220.767

Contributo a ENEA: € 153.735

Costo eleggibile ENEA: € 192.169

Doc. approvazione: 115/2023/SSPT

Codice atto: PS0ABG

Resp. scientifico ENEA: CORTESI SARA

Unità: SSPT-SEC

Attività ENEA:

Le attività ENEA prevedono l'esecuzione di un pilota sul tema della gestione circolare della risorsa idrica, attraverso un ULL sviluppato dall'ENEA all'interno della città di Bologna nonché la partecipazione alle attività del progetto, ai meeting interni e a quelli di diffusione dei risultati. L'ENEA parteciperà a tutti i work package: • WP 0 Project Management per la redazione di report di progetto e la partecipazione ai meeting con i partner; • WP 1 Assessing, showing and framing the challenges and potentials of circular lifestyles in city centres: contribuirà all'assessment dello status quo dell'economia circolare a livello locale e regionale e alle attività di raccolta delle buone pratiche di consumo circolare a livello urbano; • WP 2 Development of practical tools and approaches to promote circular lifestyles in city centres: si occuperà della realizzazione del pilot italiano nella città di Bologna con focus sulla risorsa idrica; • WP 3 Transfer and capitalisation of solutions promoting circular lifestyles in city centres: svolgerà un ruolo attivo nei workshop ed eventi interattivi sui temi del progetto e nella disseminazione e diffusione delle fasi e dei risultati di progetto.



Coordinatore: IEECP - INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY STICHTINGN. Partner: 10
 (Paesi Bassi)

Abstract:

To achieve the reduction of carbon emissions in the building sector, policymakers should be provided with reliable and updated data to facilitate monitoring and periodic assessment of the effectiveness of building-related policies and strategies. The lack of reliable and highquality data of the building sector, the disparities regarding the type and quality of data among Member States and the lack of standard approaches and templates for data collection, management and reporting create an urgent need for more efficient and well-established data procedures through the EU. The recast of the EPBD introduces key provisions for the promotion of a more reliable and transparent data framework in the EU. OBSERVE aims to guide national authorities develop national Building Stock Observatories by developing and standardising protocols for the systematic collection and aggregation of building-related data, optimising data collection methods and streamlining the coordination of all relevant bodies. OBSERVE will also enhance synergies and interaction between several relevant EU and national initiatives and projects. Special attention will be given to establish cooperation with the overarching EU Building Stock Observatory. OBSERVE will directly support six Member States (Croatia, Cyprus, France, Greece, Italy and Spain) and further spread good practices and governance models to other EU countries. OBSERVE's collaborative effort is expected to enhance the transparency and utility of building data, thereby assisting national authorities to better implement energy and climate policies towards 2030 and support more informed policy and decision-making in the realm of building energy efficiency and regulation compliance

Anno di stipula: 2024

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027

LIFE (2021-2027)

Data inizio: 01-11-2024

Data scadenza: 31-10-2027

Contributo totale: € 1.978.640

Costo eleggibile totale: € 2.094.756

Contributo a ENEA: € 199.285

Costo eleggibile ENEA: € 209.774

Doc. approvazione: Determinazione n.
 38/2024/DUEE-SAIP

Codice atto: PW4ABH

Resp. scientifico ENEA: PAGLIARO FRANCESCA

Unità: DUEE-SAIP-PEF

Attività ENEA:

L'ENEA è leader del WP3 "Data-driven process for OBSERVE's national BSOs"; è inoltre coinvolta in misura moderata sui seguenti Work Packages: WP1 "Project management and coordination", WP4 "Ensuring stakeholder engagement at national and EU level, WP5 "Synthesis and policy recommendations" e in modo massivo sul WP2 "Requirements' analysis and specification of OBSERVE's national building stock observatories".



OPEn HPC theRmomechanical tools for the development of eAtf fuels

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)

N. Partner: 18

Abstract:

Increasing further the safety of light water nuclear reactors in the new operating conditions induced by their integration in a more varied energy mix brings many new challenges for fuel development. This calls for effective and validated tools enabling one to capture the complexity of the behaviour of fuel elements under various operation conditions from nominal to design basis accident ones.. The objective of the OperaHPC proposal is to develop open tools using High Performance Computing (HPC) enabling a full 3D high-fidelity thermo-mechanical simulation of the fuel element including the material microstructure. This will contribute to the design of so-called fuel element digital twins. This development includes an ambitious basic research program devoted to the investigation of non-linear mechanical behaviour of irradiated fuel using multiscale experiments and simulations from the atomic scale up to the material law. This will yield the detailed description of the in-pile behaviour of the fuel element and the materials data necessary for the simulation. The tools developed will be assessed against state-of-the-art 1D/3D fuel performance codes for verification, definition of boundary conditions and coupling with neutronic, thermochemical and thermohydraulic codes. Validation and uncertainty analyses will also be performed through the comparison of the results of the 3D simulations with the experimental data available from irradiation programs. The knowledge from these advanced simulations will be transferred to industrial fuel performance codes thanks to the application of new methods based on reduced order and meta models, including Artificial Intelligence. The HPC tools will finally be applied to the detailed evaluation of innovative fuel element concepts, including (enhanced) accident tolerant fuels, under transient conditions in several light water reactor designs.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-11-2022

Data scadenza: 30-04-2027

Contributo totale: € 2.846.944

Costo eleggibile totale: € 4.515.552

Contributo a ENEA: € 170.300

Costo eleggibile ENEA: € 262.000

Doc. approvazione: 104/2022/FSN

Codice atto: PF6ABA

Resp. scientifico ENEA: CERVONE ANTONIO

Unità: FSN-SICNUC-SIN

Attività ENEA:

ENEA è coinvolta dei seguenti Work Package: • WP4 - Development of 3D HPC simulation tools for the thermomechanical behavior of fuel elements under irradiation • WP5 - Verification and validation, uncertainties and sensitivity analyses • WP6 - Development of improved models for industrial fuel performance codes • WP7 – Simulation of fuel element behavior in operating and accidental transient conditions • WP8 – Education and training, exploitation, dissemination and communication



Strengthening crime scene forensics and prosecution capabilities in investigating CBRN incidents in the Middle East Region

Coordinatore: ENEA (Italia)

N. Partner: 8

Abstract:

This tender is to address specific global and trans-regional threats to peace, international security and stability, through enhancing governance and cooperation on CBRN risk prevention, detection and mitigation. Actions are targeted to improve the detection of and mitigation against risks related to CBRN materials or agents and risks related to installations or sites through the EU CBRN Centres of Excellence Initiative and associated actions. In particular, the overall objective of the project of which this contract will be a part is strengthening CBRN forensics capacities in the Middle East region (Lebanon, Jordan and Iraq) which includes:

- Strengthening existing traditional forensic capabilities in investigating and prosecuting CBRN incidents among all relevant stake holders.
- Development of a training programme on forensic investigations and prosecution in CBRN-related cases.
- Improve forensic awareness for first responders.
- Fostering the interoperability of institutions and first responders involved in CBRN incidents
- Establishing networks of CBRN and forensics-related institutions and experts dealing with CBRN-related investigations at national and regional level.

Anno di stipula:	2024
Tipo progetto:	Service contract
Programma UE:	Other programmes 2021-2027 NDICI - GLOBAL EUROPE
Data inizio:	26-11-2024
Data scadenza:	25-11-2027
Contributo totale:	€ 1.968.000
Costo eleggibile totale:	€ 1.968.000
Contributo a ENEA:	€ 490.000
Costo eleggibile ENEA:	€ 490.000
Doc. approvazione:	211-2024-NUC
Codice atto:	CF7AAN
Resp. scientifico ENEA:	DE DOMINICIS LUIGI
Unità:	NUC-TECFIS

Attività ENEA:

ENEA è il contraente capofila che dovrà coordinare un Consorzio per perseguire l'accrescimento delle competenze degli operatori locali nel settore CBRN in Giordania, Libano e Iraq. In particolare l'ENEA svolgerà attività di supporto tecnico-scientifico per "Strengthening crime scene forensic and prosecution capabilities in investigating CBRN incidents in the Middle East Region"

PROOF OF AUGMENTED SAFETY CONDITIONS IN ADVANCED LIQUID-METAL-COOLED SYSTEMS



Coordinatore: ENEA (Italia)

N. Partner: 16

Abstract:

The PASCAL project is devoted at significantly contribute to the advancement of the safety research on innovative heavy liquid metal cooled reactors, with the ambition to generate evidence that is ready-for-use in the discussions between the ALFRED and MYRRHA designers and the respective safety authorities in the pre-licensing phase. The goals of PASCAL also set an ambition of relevance and quality to the results, which is reflected in structuring and organizing the proposal. Relevant experiments in representative conditions are planned, and - wherever applicable - accompanied by simulations with the objective of extending their domain of validation and reducing uncertainties. The selected activities all address the main reference: supporting the justification of resilience to severe accident conditions, aiming to demonstrate the claim that no off-site emergency measures are needed for an HLM-cooled system. Finally, the project will strengthen the longstanding collaborations among European organizations, and will strongly support the education and training of a new generation of experts, to secure safety culture is preserved.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020 - Euratom
Euratom fissione

Data inizio: 01-11-2020

Data scadenza: 31-10-2024

Contributo totale: € 3.799.238

Costo eleggibile totale: € 4.610.189

Contributo a ENEA: € 562.969

Costo eleggibile ENEA: € 750.625

Doc. approvazione: 140/2020/FSN

Codice atto: PF6AAQ

Resp. scientifico ENEA: GRASSO GIACOMO

Unità: FSN-SICNUC-PSSN

Attività ENEA:

L'ENEA coordina il progetto ed è coinvolta nei seguenti work package. . WP4 dedicato allo studio di tecniche di prevenzione di fallimenti (ENEA coordina) Task 4.1: vibrazioni fluido-indotte sul fascio di barrette di combustibile (ENEA coordina) Sub-Task 4.1.1 progettazione, allestimento ed esecuzione di prove sperimentali di vibrazioni fluido indotte nel fascio di barrette di un elemento di combustibile di ALFRED (ENEA coordina) Sub-Task 4.1.2 analisi numerica dei risultati sperimentali, loro interpretazione e validazione dei codici di calcolo . WP6 dedicato alla gestione del progetto (ENEA coordina)



PAssive Systems: Simulating the Thermal-hydraulics with Experimental Studies

Coordinatore: EDF - ELECTRICITE DE FRANCE SA (Francia)

N. Partner: 11

Abstract:

PASTELS aims to significantly increase the knowledge within Europe of innovative passive systems, namely SACOs and CWCs, and the ability of several European system and CFD computational codes to be able to accurately model key phenomena such as natural circulation loops and condensation. This is very challenging due to their very specific properties, i.e. small driving forces working against high resistive forces which are specific to the concept of these technologies. Given the growing use of the SACO and CWC technologies in non-European NPPs, it is essential, especially with the foreseen future use of Small Medium Reactors (SMR) that the European nuclear community is able to adapt its current numerical tools to this promising technology. Extensive experimental testing (SET, CET and integral experiments) with representative operating conditions on semi-industrial full scale test facilities (PKL facility [DE] and PASI facility [FI]) will provide essential data to support the improvement of the numerical activities. Existing data from PERSEO and HERO-2 facilities will also be used. The numerical and experimental activities will be conducted in an integrated step-by-step approach. PASTELS will investigate improvements to models, novel methodologies for the coupling of system and CFD codes working at different scales. Additionally, important knowledge on the behaviour of the SACO and CWC will be captured through the observation of their behaviour during the test campaigns. Different and similar computational codes will be used by the partners in order to be able to benchmark and compare the different results obtained, understand the causes and propose strategies to improve them. All project results will feed into extensive methodology guidelines and a roadmap to achieving licensing and implementation of these innovative passive system technologies in future European NPPs.

Anno di stipula: 2020

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON 2020 - Euratom

Euratom fissione

Data inizio: 01-09-2020

Data scadenza: 29-02-2024

Contributo totale: € 2.993.263

Costo eleggibile totale: € 3.801.458

Contributo a ENEA: € 188.300

Costo eleggibile ENEA: € 269.000

Doc. approvazione: 67/2020/FSN

Codice atto: PF6AAO

Resp. scientifico ENEA: POLIDORI
MASSIMILIANO

Unità: FSN-SICNUC-SIN

Attività ENEA:

ENEA è coinvolta nei seguenti work package: • WP2 dedicato allo studio di test a effetti separati (SET) e combinati (CET • WP3 dedicato alla costruzione di un Safety Condenser e sperimentazione su facility PKL

Coordinatore: SCK CEN - STUDIECENTRUM VOOR KERNENERGIE / CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE (Belgio) N. Partner: 27

Abstract:

Climate change is one of the main issues facing humanity. Due to its low CO₂ emission, nuclear power is part of a sustainable energy mix. However, safety and waste issues cannot be taken lightly. For the latter the way forward is to recycle spent fuel with the goal to close the fuel cycle. This eases ultimate radioactive waste management, increases proliferation resistance and drastically improves economy and sustainability by better use of fuel resources. The SNETP deployment plan describes a technical needs fuel recycling including partitioning of spent fuel, fabrication and characterisation of minor actinide bearing fuel and the development of transmutation systems. This proposal follows that plan and answers to NRFP7 of the 2018-2019 EURATOM call: Research and Innovation for Partitioning and/or Transmutation. It focusses on research on advanced partitioning to efficiently separate Am from spent fuel, on experimental and fuel performance code development work studying the behaviour of Am bearing fuel under irradiation and on the safety related research supporting the licensing process of MYRRHA in its role in the development trajectory for a dedicated accelerator driven transmuter. It may be noted that for first time, the communities working of partitioning, transmutation and the development of MYRRHA are joint in one project. Besides the technical work described above, dedicated work packages deals with education focussing on pre-and post-graduate students, and with dissemination where besides the specific stakeholders also high school pupils and the general public is targeted. A further task on knowledge management includes the both foreground data as well as metadata to so ensure proper QA for V&V is possible. The project is performed using a combination of experiments, theoretical studies and numerical simulations for which the expertise of 26 research centres and universities from 14 EU countries, Switzerland, Korea, Russia and the US is pooled.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020 - Euratom
Euratom fissione

Data inizio: 01-09-2020

Data scadenza: 31-08-2024

Contributo totale: € 6.499.980

Costo eleggibile totale: € 8.924.941

Contributo a ENEA: € 380.213

Costo eleggibile ENEA: € 503.125

Doc. approvazione: 075/2020/FSN

Codice atto: PF4AAN

Resp. scientifico ENEA: MARTELLI DANIELE

Unità: FSN-ING-PRO

Attività ENEA:

ENEA è coinvolta nel Dominio 3, 4, 5: - DOMAIN 3: WP31 (WP7) Fuel Cladding Behavior 3 Nell'ambito del TASK 312 "Mechanical Properties of corroded fuel pins" ENEA contribuirà a verificare gli effetti della corrosione indotta dal metallo liquido pesante (LBE) sulla resistenza meccanica delle cladding in 15-15Ti proposte per il reattore MYRRHA. - DOMAIN 4: WP42 (WP11) System Thermal Hydraulics Safety Nell' ambito del TASK 4211 "Experimental investigation of the transition between natural circulation modes in CIRCE" ENEA condurrà sperimentazioni sulla stabilità della circolazione naturale in condizioni rappresentative degli scenari incidentali di riferimento per il reattore MYRRHA. - DOMAIN 5: WP52 (WP14) Knowledge management, education and training Nell' ambito del TASK 521 "Dissemination, education and communication" ENEA organizzerà incontri annuali con le scuole medie-superiori locali e non allo scopo di presentare il progetto, i risultati raggiunti e includendo visite ai laboratori e alle facility sperimentalni. Nell' ambito del TASK 522 "Knowledge management" ENEA provvederà alla elaborazione e stesura di un data management and quality plan.



PHOtovoltaic waste management - advanced Technologies for recOvery and recycling of secondary Raw Materials from end-of-life modules

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)

N. Partner: 13

Abstract:

Since the last decades, Waste Electrical and Electronic Equipment (WEEE) have been drastically increasing in Europe, particularly for recent technologies such as Photovoltaic (PV) devices. These products are designed as complex sandwiches, which make the recovery of the critical (Si, In, Ga) and precious (Ag) raw materials encapsulated in the layers extremely challenging. The overall objective of PHOTORAMA is to draw up a profitable and sustainable circular value chain that will lead to a carbon neutral PV industry. PHOTORAMA will develop and demonstrate the industrial prospective of recycling solutions to recover and recycle all the materials 'components from End-of-life PV panels. A complementary consortium of 13 European companies and research institutes has built the framework of PHOTORAMA as follow: (1) the development of innovative processes and technologies from TRL4-5 to TRL7 to establish a sound recycling scheme to increase significantly resource efficiency with decisive cost-cutting solutions. The implementation of automated disassembly and sandwich opening as layer separation (MONDRAGON, DFD, CEA) enabling high-recovery (> 95%) of secondary raw materials: Ag, Si (SINTEF, CEA, IDENER) and In, Ga (LUXCHEMTECH) from EoL PV panels (crystalline silicon, thin films), (2) the full-circularity approach emphasised from collection (PV CYCLE) to marketable new products from Si, In, Ga, Ag (RHP), glass (MALTHA) mainly for PV manufacturing (EGP), (3) the demonstration of the business viability and attractiveness of its technological solutions (BIFA, ENEA) as one of the most competitive perspective for PV recycling. PHOTORAMA will strengthen this ambitious model with environmental impacts assessments and a strategic dissemination and exploitation plan supported by a strong effort for raising societal awareness (ZSI). The implementation of PHOTORAMA recycling scheme would unlock already more than 100,000 tons of valuable secondary raw materials by 2030.

Anno di stipula: 2021

Tipo progetto: IA - Innovation Action

HORIZON 2020

Programma UE: Climate Action, Environment, Resource Efficiency and Raw Materials

Data inizio: 01-05-2021

Data scadenza: 30-04-2024

Contributo totale: € 8.381.666

Costo eleggibile totale: € 10.365.764

Contributo a ENEA: € 400.134

Costo eleggibile ENEA: € 400.134

Doc. approvazione: 93/2021/TERIN

Codice atto: PK2AAB

Resp. scientifico ENEA: IZZI MASSIMO

Unità: TERIN-FSD-IIF

Attività ENEA:

L'ENEA partecipa alle attività di sviluppo di linea pilota per Tecnologie avanzate per il recupero di materiali critici e preziosi da pannelli fotovoltaici a fine vita come Silicio, Indio, Gallio, Argento. In particolare il progetto mira allo sviluppo di un ecodesign attraverso 2 diversi tipi di processo di recupero dei metalli che riducono al minimo l'uso di sostanze chimiche consentendo, al contempo, un elevato tasso di riciclaggio dei materiali di ingresso. Riuso dei materiali riciclati per linea produzione PV.

Partnership for european research in radiation Protection and detection of ionising radiation: towards a safer use and improved protection of the environment and human health

Coordinatore: IRSN - INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE (Francia) N. Partner: 58

Abstract:

The ambition of the PIANOFORTE Partnership is to improve radiological protection of members of the public, patients, workers and environment in all exposure scenarios and provide solutions and recommendations for optimised protection in accordance with the Basic Safety Standards. Research projects focusing on identified research and innovation priorities will be selected through a serie of three competitive open calls. The input to define the research priorities will be based on the priorities defined in the Joint Road Map (JRM) developed during the H2020 CONCERT EJP but also on the results of ongoing H2020 projects and on the expectations expressed by other actions carried out in other European programmes, in particular the SAMIRA action plan. High priority will be dedicated to medical applications considering that 1) medical exposures are, by far, the largest artificial source of exposure of the European population and 2) the fight against cancer is a top priority of the present European Commission. In order to ensure an appropriate continuity in the research goals and methodologies, in line with the contents of the CONCERT JRM, two other priorities have been identified to further understand and reduce uncertainties associated with health risk estimates for exposure at low doses in order to consolidate regulations and improve practices and to further enhance a science-based European methodology for emergency management and long-term recovery. Once the research priorities defined, the open call system will promote excellence in science and widening participation through a process open to the whole radiation protection community. Beyond the research actions, the selected projects will be able to benefit from the system of sharing and mutualisation of infrastructures that will be implemented at the European level. This will be accompanied by education and training schemes for health workforce and young scientists to increase Europe's research capacity in the field.

Anno di stipula: 2022

Tipo progetto: EJP COFUND - Coordinamento di progetti nazionali di Ricerca ed Innovazione

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-06-2022

Data scadenza: 31-05-2027

Contributo totale: € 29.414.411

Costo eleggibile totale: € 45.252.945

Contributo a ENEA: € 30.371

Costo eleggibile ENEA: € 46.725

Doc. approvazione: 119/2022/SSPT

Codice atto: PS5ABE

Resp. scientifico ENEA: PAZZAGLIA SIMONETTA

Unità: SSPT-TECS-TEB

Attività ENEA:

L'ENEA rivestirà il ruolo di Partner nel progetto nella Task 2.2 (Update of the Joint Road Map) e sarà Sub-Task leader (Identification of changes affecting the Joint Roadmap including the update of platform SRAs). In particolare l'ENEA coordinerà l'analisi dei cambiamenti nel campo delle applicazioni mediche delle radiazioni ionizzanti dovute ai progressi tecnologici, e/o ai cambiamenti ambientali e climatici. Il time-frame di questa analisi permetterà di includere i progressi scientifici e tecnologici nelle tematiche dei bandi di ricerca finanziati da PIANOFORTE. Questo imput sarà sintetizzato nella milestone 2.2.2 al mese 32 del progetto. ENEA ha accettato l'università di Pavia come "Affiliated Entity" in PIANOFORTE.

Coordinatore: UNIV. UTRECHT (Paesi Bassi)

N. Partner: 15

Abstract:

The POLYRISK project aims unraveling the risks of microplastic and nanoplastic particles (MNP) that are ubiquitous in our environment and are likely to be entering the human body via inhalation and ingestion. The most bioavailable low-micron and nano-sized MNP, pose the biggest analytical challenges or today's analytical chemists. Existing knowledge about the adverse pro-inflammatory effects of airborne particulate matter and nanoparticles, combined with pro-inflammatory evidence of MNP exposure observed in animal models and in vitro pilot tests with human immune cells, suggests that MNP may cause immunotoxicity in humans. Occupational exposure of workers to fibrous MNP can indeed lead to granulomatous lesions, causing respiratory irritation, functional abnormalities and flock worker's lung. Currently, human health risk assessment protocols specific to MNP are not available and key data is missing. This hampers science-based decision making. On this backdrop, POLYRISK's human risk assessment strategy will combine highly advanced sampling, sample pretreatment and analytical methods to detect MNP in complex matrices, up-to-date fit-for-purpose hazard assessment technologies and multiple real-life human exposure scenarios. We will focus on key toxic events linked to several chronic inflammatory diseases. The consortium uniquely brings together interdisciplinary experience and know-how on quality-controlled chemical analyses of MNP and additives, intestinal and respiratory toxicity models, human exposure epidemiology, immunotoxicology and real-life high-exposure studies. POLYRISK's novel human risk assessment strategy is based on mechanistic reasoning and pragmatically accommodates the complexity of the MNP toxicant class. Building with ground-breaking science, stakeholder engagement and strong communication, POLYRISK aims to rapidly reduce current MNP risk uncertainties and support EU efforts to ensure public health is adequately protected from the potential risks of MNP pollution. POLYRISK is a part of the European cluster on Health Impacts of Micro- and Nanoplastics.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020
Health

Data inizio: 01-04-2021

Data scadenza: 31-03-2025

Contributo totale: € 5.991.078

Costo eleggibile totale: € 5.991.078

Contributo a ENEA: € 185.250

Costo eleggibile ENEA: € 185.250

Doc. approvazione: 10/2021/SSPT-PROTER

Codice atto: PS4ACQ

Resp. scientifico ENEA: MANZO SONIA

Unità: SSPT-PROTER

Attività ENEA:

L'ENEA è coinvolto nella preparazione di materiali e nella messa a punto di metodi per la valutazione dell'esposizione (WP1), nella caratterizzazione di materiali plastici in scenari di vita reale (WP3), nella definizione del rischio da microplastiche (WP4) e nella redazione di Standard operational procedures per la valutazione delle microplastiche (WP5). In particolare, ENEA si occuperà principalmente di produrre e qualificare un set di materiali plastici micrometrici arricchiti con contaminanti ambientali selezionati (e.g. IPA, PCB, ecc.) e di caratterizzarli anche per gli effetti ecotossici

Coordinatore: VTT - TECHNICAL RESEARCH CENTRE OF FINLAND (Finlandia)

N. Partner: 47

Abstract:

The PREDIS project targets the development and implementation of activities for pre-disposal treatment of radioactive waste streams other than nuclear fuel and high-level radioactive waste. Member States will profit from measurable benefits including the further development and increase in Technological Readiness Level of treatment and conditioning methodologies for wastes for which no adequate or industrially mature solutions are currently available, including metallic material (WP4), liquid organic waste (WP5) and solid organic waste (WP6), and by testing and evaluating innovations in cemented waste handling and pre-disposal storage (WP7). These technical Work Packages align with priorities formulated within the Roadmap Theme 2 of EURAD and with those identified by the project's industrial End Users Group (EUG), and follow the 50% co-funding principle. Furthermore, PREDIS will produce tools guiding decision-making on the added value of the developed technologies and their impact on the design, safety and economics of waste management and disposal (WP2). PREDIS will also liaise with EURAD to provide complementarity on areas including the adaptation and update of the reference founding documents of the EJP (vision, roadmap, governance and implementation mechanisms) (WP2), and the organisation of training courses and mobility training schemes to enhance sharing and transfer of knowledge and competences as part of knowledge management activities (WP3). The PREDIS consortium, which includes 47 partners from 18 Member States, and EUG, which specifically targets Radioactive Waste Producers (RWP) as a separate group within the radioactive waste management process. PREDIS also encompasses the wider European Community, allowing cross-fertilisation and interaction between different national programmes. Numerous dissemination activities (WP1), including with Nugenia, IAEA and NEA, will be undertaken to maximize PREDIS's impact to all the identified Stakeholders in the field

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020 - Euratom
Euratom fissione

Data inizio: 01-09-2020

Data scadenza: 31-08-2024

Contributo totale: € 14.000.000

Costo eleggibile totale: € 23.773.742

Contributo a ENEA: € 87.885

Costo eleggibile ENEA: € 175.770

Doc. approvazione: 065/2020/FSN

Codice atto: PF1AAF

Resp. scientifico ENEA: MARZO GIUSEPPE AUGUSTO

Unità: FSN-FISS-CRGR

Attività ENEA:

L'ENEA è coinvolta nel WP5 "Innovations in liquid organic waste treatment and conditioning" e, più specificatamente, nei Task 5.4 (Study of conditioning matrix) e Task 5.6 (Implementation & Dissemination). Nel WP5 saranno studiate le prestazioni delle diverse matrici di condizionamento dei rifiuti liquidi organici. L'Agenzia sarà coinvolta per un totale di 18.7 mesi/uomo (PM).

Coordinatore: ENEA (Italia)

N. Partner: 31

Abstract:

Plants are the basis of all food, feed and renewable bioenergy production and are essential for the transition from a fossil-based to a bio-based economy. Plant Genetic Resources (PGR) play a key role in ensuring this transition, as well as food security and climate mitigation. More than 2 million plant accessions are preserved "ex situ" in 410 institutes in Europe and associated countries and listed in the EURISCO database; even more diversity is found "in situ" in European farmlands and wild habitats, where it contributes significantly to agricultural resilience and climate mitigation. Detailed information on "ex situ" accessions is, at best, fragmentary, while for "in situ" accessions it is almost non-existent. A considerable part of these resources could be lost over the coming decade due to limitations in the "ex-situ" infrastructure and management, climate change, habitat loss, and invasive/alien species. The roadmap 2016 of the European Strategy Forum on Research Infrastructures (ESFRI) identifies a clear gap in the sector "Plant facilities – unlocking green power", i.e. the lack of a European Research Infrastructure (RI) specifically dedicated to PGRs. PRO-GRACE will undertake the first step to fill this gap, by developing the concept of a novel (RI) dedicated to the conservation and study of PGRs. The concept will describe the proposed distributed structure, governance, economic plan and scientific services of the proposed RI, and will be the basis for a full proposal at the next ESFRI call. If implemented, this new RI will aim to catalog, describe, preserve and enhance European plant agrobiodiversity, and translate the results into conservation practices and agricultural innovation, and will collaborate with global organizations dedicated to Plant Genetic Resources and with other established ESFRI RIs working on complementary fields. (eg ELIXIR, EMPHASYS, DISSCO, LIFEWATCH, MIRRI).

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-01-2023

Data scadenza: 30-06-2025

Contributo totale: € 2.847.250

Costo eleggibile totale: € 2.847.250

Contributo a ENEA: € 290.000

Costo eleggibile ENEA: € 290.000

Doc. approvazione: 495/2022/PRES

Codice atto: PS1ADC

Resp. scientifico ENEA: GIULIANO GIOVANNI

Unità: SSPT-BIOAG

Attività ENEA:

L'ENEA coordina il progetto, partecipando a tutti i WP, ma svolgendo le principali attività nei seguenti workpackage: . WP1 (Inventory and information system), nel quale curerà la base di dati fenotipici, genomici e metabolomici sviluppata nel progetto G2P-SOL (coord ENEA) appena concluso, e la interfacerà al database Europeo sulle risorse genetiche EURISCO; . WP3 (Technologies and scientific services) nel quale parteciperà alle fasi di "concept development" e "proof of concept" dei servizi offerti dalla futura infrastruttura di ricerca, proponendosi come uno dei nodi fornitori di tali servizi. . WP6 (Dissemination, communication and training) in cui parteciperà alle varie fasi di disseminazione, comunicazione e "training" del progetto, organizzando fra l'altro il "workshop" finale.

Novel food products for the PROmotion of MEDiterranean LIFESTyle and healthy diet

Coordinatore: FEM - FONDAZIONE EDMUND MACH (Italia)

N. Partner: 12

Abstract:

PROMEDLIFE aims to increase adherence to the MD through a multi-actor approach by encouraging the adoption of a healthy eating lifestyle while decreasing the environmental and economic impact of food production and processing. It also aims to attain optimal food communication and education through training programs that target primary and (upper) secondary students as well as their families, from children to older adults.

Anno di stipula: 2022

Tipo progetto: N/A - Non applicabile

Programma UE: HORIZON 2020

PRIMA (2018-2028)

Data inizio: 01-04-2022

Data scadenza: 31-03-2026

Contributo totale: € 2.363.973

Costo eleggibile totale: € 2.590.863

Contributo a ENEA: € 253.313

Costo eleggibile ENEA: € 253.313

Doc. approvazione: 01/2022/SSPT-BIOAG

Codice atto: PS1ACG

Resp. scientifico ENEA: DIRETTO GIANFRANCO

Unità: SSPT-BIOAG-BIOTEC

Attività ENEA:

L'ENEA, partner del progetto, parteciperà allo studio degli stili di vita adottati nei Paesi coinvolti grazie ad approcci innovativi e avanzati per la caratterizzazione, la rintracciabilità e la verifica dell'autenticità dei prodotti agro-alimentari, unendo le sue competenze scientifiche ad un'analisi delle percezioni dei consumatori.



Hydrogen PROduction by MEans of solar heat and power in high TEMperature Solid Oxide Electrolyzers

Coordinatore: ENEA (Italia)

N. Partner: 9

Abstract:

PROMETEO aims at producing green hydrogen from renewable heat & power sources by high temperature electrolysis in areas of low electricity prices associated to photovoltaic or wind. Solid Oxide Electrolysis (SOE) is a highly efficient technology to convert heat & power into hydrogen from water usually validated in steady-state operation. However, the heat for the steam generation may not be available for the operation of the SOE when inexpensive power is offered (e.g. off-grid peak, photovoltaics or wind). Thus, the challenge is to optimize the coupling of the SOE with two intermittent sources: non-programmable renewable electricity and high-temperature solar heat from Concentrating Solar (CS) systems with Thermal Energy Storage (TES) to supply solar heat when power is made available. In PROMETEO a fully integrated optimized system will be developed, where the SOE combined with the TES and ancillary components will efficiently convert intermittent heat & power sources to hydrogen. The design will satisfy different criteria: end-users' needs, sustainability aspects, regulatory & safety concerns, scale-up and engineering issues. The players of the value-chain will play key roles in the partnership created around the project: from developers and research organizations, to the electrolyzer supplier, system integrator/engineering and end-users. A fully-equipped modular prototype with at least 25 kWe SOE (about 15 kg/day hydrogen production) and TES (for 24 hours operation) will be designed, built, connected to representative external power/heat sources and validated in real context (TRL 5). Particular attention will be given to partial load operation, transients and hot stand-by periods. Industrial end-users will lead to techno-economic & sustainability studies to apply the technology upscaled (up to 100 MW) in on-grid & off-grid scenarios for different end-uses: utility for grid balancing, power-to-gas, and hydrogen as feedstock for the fertilizer & chemical industry.

Anno di stipula: 2021

Tipo progetto: FCH2-RIA

HORIZON 2020

Programma UE: JTI - Hydrogen

Data inizio: 01-01-2021

Data scadenza: 30-06-2024

Contributo totale: € 2.499.531

Costo eleggibile totale: € 2.765.206

Contributo a ENEA: € 416.000

Costo eleggibile ENEA: € 416.000

Doc. approvazione: 193/2020/TERIN

Codice atto: PK7AAB

Resp. scientifico ENEA: GIACONIA ALBERTO

Unità: TERIN-STSN

Attività ENEA:

L'ENEA assume il triplice ruolo di coordinatore del progetto/consorzio, coordinatore tecnico di un Work Package e di sviluppatore della tecnologia. Per la copertura dei ruoli di coordinamento l'ENEA potrà avvalersi di una struttura già attrezzata, disponibilità di risorse umane e consolidata esperienza maturata nel coordinamento e gestione di progetti Europei simili (per dimensione, tipologia e ambizione). Le attività sperimentali riguardano lo sviluppo di un prototipo di sistema di accumulo termico integrato con generatore di vapore: per tale sperimentazione la divisione TERIN-STSN usufruirà dei propri laboratori attrezzati e del personale qualificato.

Tubular proton conducting ceramic stacks for pressurized hydrogen production

Coordinatore: SINTEF (Norvegia)

N. Partner: 8

Abstract:

PROTOSTACK will create a radically new, compact and modular PCCEL stack design with integrated hot-box for operation and delivery of hydrogen up to 30 bar. The stack will be demonstrated at 5 kW and provide a pathway for further scale-up to systems of hundreds of kW. These achievements will be an important proof of technological feasibility that will attest to the advancement of PCCEL technology from TRL 2 to TRL 4. To achieve its ambitious goals, the project consortium gathers research and industry partners that are world-leading within proton ceramic technologies, with recognized expertise relevant to the research and development of electrolyzers, membrane-reactors, materials, electrochemistry, and process engineering. The overall consortium will engage in wide communication and dissemination activities to ensure maximum impact of the project's outcomes and the industry partners have high ambition for business exploitation and commercialisation of the PROTOSTACK technology.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Clean Hydrogen JU

Data inizio: 01-01-2023

Data scadenza: 31-12-2025

Contributo totale: € 2.497.014

Costo eleggibile totale: € 2.497.014

Contributo a ENEA: € 25.000

Costo eleggibile ENEA: € 25.000

Doc. approvazione: 32/2023/TERIN

Codice atto: PK4AAV

Resp. scientifico ENEA: CIGOLOTTI VIVIANA

Unità: TERIN-PSU-ABI

Attività ENEA:

ENEA SVOLGE il ruolo di Affiliated Entity di ATENA ed è coinvolta, come supporto ad ATENA, nelle seguenti task del WP6: • WP6-Task 6.1: Evaluation framework and data collection strategy; • WP6-Task 6.2: Techno-economic assessment; • WP6-Task 6.3: Environmental sustainability evaluation; • WP6-Task 6.4: Opportunity assessment and business case development; • WP7-Dissemination, Communication and Exploitation.

Coordinatore:	CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia)	N. Partner:	20
Abstract:	The PUMMA project will define different options for Pu management in Generation-IV systems and evaluate the impact on the whole fuel cycle in addition to safety and performance aspects. Fast neutron reactors with the associated fuel cycle strategy have been chosen to cope with these options because they are flexible: they offer the possibility of isogeneration, burning or breeding of plutonium. A wide range of Pu content (20 to 45%) corresponds to the highest concentration that can be encountered for plutonium multirecycling (~30-35% Pu to compensate degraded isotopic composition) and targeted plutonium burning (40-45%). The fuel cycle scenarios associated with the different strategies will be evaluated at different stages of the cycle in terms of impact on the facilities. These studies will be completed with dissolution tests as there is currently no dissolution data on fuels with very high plutonium contents. Studies to date have been limited to concentrations of less than 30%. Today, knowledge on MOX fuel behavior in Generation-IV reactors comes mainly from feedback on SFRs that have operated in the past in Europe, with Pu contents varying between 15% to 30% and Linear Heat Rate often in the 300 to 450 W/cm range. This knowledge is insufficient to cover future needs, whether in terms of reactor concepts (GFR, LFR, F-SMR ...), Pu management option or operating regime. PUMMA will provide complementary results on fuel properties and characterisations of 45%Pu-fuels irradiated in HFR and Phénix under nominal conditions and overpower. The safety standards will then be extended to this fuel composition as well as the fuel performance code validation. PUMMA will make the link between Europe and others international organisations: the fuel cycle studies at IAEA and OECD, the GEN-IV systems at ESNII and GIF, the fuel material studies at OECD. PUMMA will provide common data in E.U. for Pu management on : fuel cycle, fuel behavior, fuel properties and safety st-	Anno di stipula:	2020
		Tipo progetto:	RIA - Research and Innovation Action
		Programma UE:	HORIZON 2020 - Euratom Euratom fissione
		Data inizio:	01-10-2020
		Data scadenza:	30-09-2024
		Contributo totale:	€ 3.795.801
		Costo eleggibile totale:	€ 6.749.591
		Contributo a ENEA:	€ 80.625
		Costo eleggibile ENEA:	€ 154.063
		Doc. approvazione:	063/2020/FSN
		Codice atto:	PF4AAM
		Resp. scientifico ENEA:	DEL NEVO ALESSANDRO
		Unità:	FSN-ING-SIS

Attività ENEA:

Nell'ambito del progetto PUMMA è assegnato ad ENEA il coordinamento della Task 4.1 "Irradiation in MTR vs FR: comparison of irradiation conditions", ENEA è coinvolta nel progetto come partecipante dei Work Package 2 ("Fuel Pin behaviour in reactor with high Pu content: Nominal and transient"), 3 ("Fuel properties with high PU content: Measurements and modelling"), con anche il compito di organizzare e ospitare un Workshop di progetto, dedicato alle proprietà del combustibile nucleare interesse, dal punto di vista della sua fabbricazione, misura e modellazione. ENEA è stata proposta per ospitare il quarto Workshop tematico (Task 6.2): Workshop 4 on fuel properties: fabrication & modelling & measurements – Uncertainties reduction and impact on safety margins.

Coordinatore: CERN - EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH (Svizzera)

N. Partner: 31

Abstract:

New applications in the industrial sectors of space, automotive, IoT, nuclear dismantling and civil applications, medical and accelerators among others require innovative radiation testing methodologies. As well, for coping with the industrial demand and market timelines, streamlined and coordinated testing becomes highly necessary. Although punctual exceptions exist, Europe does not count with a coordinated network of cost-effective testing facilities helping these purposes. Such a network could enormously help fast innovators such as SMEs who in many cases find difficult to access the required facilities and related test expertise. As well, it will offer a competitive advantage to large Corporations. Novel testing methodologies will also pave the way for generating new standards since the existing ones are mainly restricted to classical space applications and radiation-hardened components. Pan-European and National Research Infrastructures can play a key role for boosting European Industry by taking the first steps in the creation of a sustainable, coordinated and streamlined irradiation testing facilities network. It will also respond to the need of establishing a radiation hardness evaluation based on risk assessment and mitigation rather than on complete risk avoidance. This project aims at increasing and optimizing the access of system developers to irradiation facilities in which representative conditions of their final application are reproduced, and that can serve as a satisfactory validation for the end-users. Such optimization will be based on a network of irradiation facilities with a common entry-point, in which users can define, prepare, carry out and analyze their irradiation campaigns. A key point of such improvement would be that of advancing in the harmonization and standardization of the system level testing methodology, so not to multiply efforts around the same common objective.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-06-2021

Data scadenza: 31-05-2025

Contributo totale: € 5.000.000

Costo eleggibile totale: € 5.000.000

Contributo a ENEA: € 400.938

Costo eleggibile ENEA: € 400.938

Doc. approvazione: 052/2021FSN

Codice atto: PF3AAG

Resp. scientifico ENEA: FIORE SALVATORE

Unità: FSN-FUSTEC-TEN

Attività ENEA:

ENEA sarà coinvolta in misura diversa nei vari work packages del progetto RADNEXT. In generale coordinerà tutte le attività connesse alla gestione del Transnational Access attraverso il progetto, i cui costi costituiscono piu' della metà del budget complessivo del progetto; svolgerà inoltre attività di irraggiamento con il Frascati Neutron Generator.



Coordinatore: JSI - JOZEF STEFAN INSTITUTE (Slovenia)

N. Partner: 9

Abstract:

Solid Oxide Electrolysis (SOE) and its possibility to operate in reversible mode (rSOC) can play a major role in H₂ production at low cost and for renewable energies storage. These operating modes with high current and transients can induce degradation that needs to be mitigated for successful system deployment. Federating the cumulated advances built up in preceding collaborative projects, REACTT, with an established expert team, will realize a Monitoring, Diagnostic, Prognostic and Control Tool (MDPC) for SOE and rSOC stacks and systems. Its hardware platform will embed diagnostics and prognostics algorithms, and interact with the system power converters without modification. It contains (a) an innovative excitation module to probe the stack with PRBS (pseudo-random binary signal) or sine stimuli, and (b) a control coordination unit, interfaced with real-time optimisation (RTO). The latter uses on-line measurements with a constraint-adaptive algorithm that drives the system to optimal operation, respecting all safety boundaries. Together, this approach will achieve to supervise and analyse the (reversible) electrolyser system, increase its reliability and extend its stack lifetime. REACTT will demonstrate the effectiveness of this approach by tests on a SOLIDpower (SP) 5 kWe SOE system and on an rSOC x kWe CEA system, both at TRL6. This validation in two different operating modes with two different stack designs will prove the generic character of the developed tools, which can then be extended towards multiple technologies and higher power applications. It will reduce the operation and maintenance costs by 10%; the additional cost of the MDPC tool will not exceed 3% of the overall system manufacturing costs. These ambitious targets will be pursued in close collaboration between 6 R&D (IJS, UNISA, CEA, VTT, EPFL, ENEA and HES-SO) and 3 industry partners (SP, Bitron and AVL) on the whole value chain from tests to systems through hardware and software developments.

Anno di stipula: 2021

Tipo progetto: FCH2-RIA

HORIZON 2020

Programma UE: JTI - Hydrogen

Data inizio: 01-01-2021

Data scadenza: 31-12-2024

Contributo totale: € 2.712.323

Costo eleggibile totale: € 2.712.323

Contributo a ENEA: € 128.125

Costo eleggibile ENEA: € 128.125

Doc. approvazione: 194/2020/TERIN

Codice atto: PK4AAE

Resp. scientifico ENEA: PUMIGLIA DAVIDE

Unità: TERIN-PSU-ABI

Attività ENEA:

Le attività che l'ENEA svolgerà all'interno del progetto REACTT verteranno sulla gestione del piano di disseminazione e valorizzazione del know-how e del prodotto generato nel progetto, diffusione nei mercati e promozione del prodotto facendo leva sulle piattaforme dedicate Europee, mediante l'organizzazione di workshop e la pubblicazione di articoli. Proposta di standardizzazione dei protocolli di controllo in ambito normativo internazionale

Coordinatore: FUNDACION CARTIF (Spagna)

N. Partner: 25

Abstract:

The main objective of REHOUSE is to develop and demonstrate 8 renovation packages of promising technology innovations until TRL7. The renovation packages are fully designed for a wide range of building renovation actions, including deep renovations, that overcome the main barriers that slow down the current EU renovation ratios, following circularity principles, including multifunctionality through active/passive elements integration, prefabrication and off-site construction of components and respect of buildings aesthetics, architectural and historic value. REHOUSE also implements an inclusive people-centric social engagement strategy to endow the renovation wave with a resident and owner perspective towards affordability, satisfaction and attractiveness of sustainable renovation. The renovation packages will be deployed across 4 locations serving as demonstrators located in Greece, Italy, France and Hungary. These buildings renovations include detailed design, pilot set-up, demonstration and evaluation to validate in operational conditions (social) the prototypes of the 8 renovation packages. REHOUSE proposes solutions that cover together a set of 5 renovation principles offering technically and economically affordable renovation solutions with enough flexibility to tackle almost 100 % of the building renovation challenges at EU level. The aim is to boost market uptake, scalability and replicability of REHOUSE renovation packages, linking its value proposition with critical economic, technical, social, regulatory and data security/protection aspects and barriers and propose practical recommendations on how to overcome them.

Anno di stipula: 2022

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 5 - D4 Energy use

Data inizio: 01-10-2022

Data scadenza: 30-09-2026

Contributo totale: € 10.016.536

Costo eleggibile totale: € 12.561.347

Contributo a ENEA: € 313.438

Costo eleggibile ENEA: € 313.438

Doc. approvazione: 31/2022/DUEE-SIST

Codice atto: PW4AAP

Resp. scientifico ENEA: MISCEO MONICA

Unità: DUEE-SIST-SUD

Attività ENEA:

Il progetto si inserisce nelle attività di ENEA a supporto alla pubblica amministrazione per la riqualificazione energetica degli edifici, considerando un approccio che parte dalle diagnosi energetiche e arriva al coinvolgimento degli utenti. In particolare nel progetto verranno affrontati i temi di riqualificazione energetica che includeranno l'integrazione tra aspetti energetici e strutturali; l'approccio EU di "Energy Efficiency First" in un percorso di riqualificazione che include gli aspetti sociali; lotta alla povertà energetica lavorando su modelli di integrazione che siano economici e facilmente replicabili; coinvolgimento degli utenti secondo il "Behavioural change". ENEA è coinvolta maggiormente nei WP1 (SOCIAL INNOVATION FOR PEOPLE-CENTRIC RENOVATION PROCESSES) e WP2 (WP4: DEMONSTRATION OF THE 8 RENOVATION PACKAGES: ENEA è responsabile del DEMO Italiano). Parteciperà inoltre a tutti gli altri work package.

RECYCLABLE MATERIALS DEVELOPMENT at ANALYTICAL RESEARCH INFRASTRUCTURES

Coordinatore: HZDR - HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF EV (Germania)

N. Partner: 47

Abstract:

A radical shift to the Circular Economy is urgently needed to cope with the challenge of finite resources decreasing at a frightening pace while the quantity of waste increases alarmingly. The European Commission's (EC) Circular Economy Action Plan (CEAP) adopted in March 2020 has identified seven key product value chains that must rapidly become circular, given their environmental impacts and circularity potentials. This requires substantial research on materials with a very high recycling capability while exhibiting competitive functionalities. In ReMade@ARI, the most significant European analytical research infrastructures join forces to pioneer a support hub for materials research facilitating a step change to the Circular Economy. ReMade@ARI offers coordinated access to more than 50 European analytical research infrastructures, comprising the majority of the facilities that constitute the Analytical Research Infrastructures in Europe (ARIE) network. ReMade@ARI offers comprehensive services suiting any research focusing on the development of new materials for the Circular Economy in the key areas highlighted in the CEAP and plays an important role in the preparation of the common technology roadmap for circular industries. Senior scientist, facility experts and highly trained young researchers contribute scientific knowledge and extensive support to realise a user service of unprecedented quality, making each promising idea a success. Particular attention is attributed to the implementation of attractive formats to support researchers and developers from industry. The comprehensive service catalogue is complemented by an extensive training programme. Communication and dissemination activities are underpinned by a continuous impact assessment, which also enables evidence-based decision-making in the context of the proposal selection. Routes to sustainability of the platform will be explored towards the end of the project.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-09-2022

Data scadenza: 31-08-2026

Contributo totale: € 13.679.983

Costo eleggibile totale: € 13.728.333

Contributo a ENEA: € 46.872

Costo eleggibile ENEA: € 46.872

Doc. approvazione: 01/2023/FSN

Codice atto: PF2AAM

Resp. scientifico ENEA: CONSOLI FABRIZIO

Unità: FSN-PLAS-PAX

Attività ENEA:

L'ENEA partecipa al progetto come affiliato del partner Laserlab Europe AISBL. In particolare l'ENEA mette a disposizione una parte del tempo macchina degli impianti di ABC e CETRA.



Next-generation vaccines and diagnostics to prevent livestock reproductive diseases of worldwide impact

Coordinatore: ENEA (Italia)

N. Partner: 16

Abstract:

Endemic and zoonotic infectious reproductive diseases of livestock cause major economic losses globally and threaten both food security and public health. REPRODIVAC will develop new and improved vaccines and diagnostic tools required to better control four priority abortifacient diseases: porcine reproductive and respiratory syndrome (PRRS), Q fever, ovine enzootic abortion (OEA), and porcine brucellosis. The consortium spans academia and industry with complementary expertise including structural biology, microbiology, immunology, plant and veterinary sciences. This enables us to address reproductive disorders with an interdisciplinary approach: (1) applying reverse and structural vaccinology to select and design vaccine and diagnostic candidate antigens; (2) exploiting relevant protein expression systems for the production of these antigens; (3) producing rationally attenuated and viral vectored vaccines; and (4) developing a suite of molecular and immunological diagnostic tests, including point-of-care tests (PoC) to discriminate vaccinated from infected animals (DIVA). We will develop a broadly protective PRRSV vaccine, and a serological ELISA that will reliably correlate with PRRSV neutralising antibody titres. We will identify protective subunit vaccine candidates for Q fever and validate a companion serological DIVA test. We will further refine an OEA vaccine for commercialisation and pursue a complementary approach towards a DIVA-compatible next-generation subunit vaccine and serological and molecular DIVA/PoC tests. We will develop live attenuated Brucella suis vaccines and brucellosis diagnostic tests with improved specificity. These new vaccines and diagnostics will be further developed by our industrial partners and made accessible to users. Thereby by using the latest technologies in vaccine and diagnostic development REPRODIVAC will improve animal health and welfare, productivity and sustainability of the livestock sector, as well as human health.

Anno di stipula:	2022
Tipo progetto:	IA - Innovation Action
Programma UE:	HORIZON EUROPE
	Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment
Data inizio:	01-09-2022
Data scadenza:	31-08-2025
Contributo totale:	€ 3.125.324
Costo eleggibile totale:	€ 3.136.284
Contributo a ENEA:	€ 874.526
Costo eleggibile ENEA:	€ 874.526
Doc. approvazione:	82/2022 e 103/2022/SSPT-BIOAG
Codice atto:	PS1ACO
Resp. scientifico ENEA:	BASCHIERI SELENE
Unità:	SSPT-BIOAG-BIOTEC

Attività ENEA:

ENEA coordina il progetto e partecipa alle attività dei seguenti work package (WP): WP5 - Stakeholder engagement, dissemination, exploitation, and communication WP6 – Project & IP management WP7 – Ethics requirements Partecipa inoltre alle attività dei seguenti work package (WP): WP1 - Target antigen identification and structure-based vaccine design WP2 - Antigen and antibody production and delivery platforms WP3 - Evaluation of vaccine antigen formulations in vivo WP4- Specific diagnostic tests and DIVA strategies



Development and maintenance of rescEU CBRN mobile laboratories and rescEU CBRN detection, sampling, identification and monitoring capabilities

Coordinatore: ENEA (Italia)

N. Partner: 10

Abstract:

The rescEU-CBRN-DSIM-IT proposal brings together First Responders, National CBRN Authorities, Research Organizations and leading Private Organizations to develop a plurality of CBRN mobile laboratories equipped with the most advanced detection, sampling, identification and monitoring (DSIM) capabilities, placing the EU at the forefront of global efforts to protect citizens, infrastructure and the environment from CBRN incidents and accidents. As CBRN threats grow in scale and sophistication, the rapid mobilization of human and technological resources directly on the crisis area is key to provide data on the nature of the CBRN agents, real-time diffusion and level of hazard. All these pieces of information are instrumental to plan commensurate mitigation and recovery actions. The rescEU-CBRN-DSIM-IT proposal is based on the leading capabilities of various national actors and foresees the development of a modular capacity strategically located in Lombardia, Lazio and Veneto regions, and with the operational management of the Italian Fire Brigades which allows effective mobilization of the capacity on the entire EU territory. Furthermore, the proposed CBRN DSIM capacity is designed to be an added value in the roster of the rescEU and European Civil Protection Pool (ECPP) capacities, with all the solutions interoperable and compliant with the applicable international standards. A unique approach to training and testing will complete the capacity with the most advanced Virtual and Augmented Reality training and simulation packages, through development of a dedicated mixed reality CBRN training facility open to all EU MS authorities. The DSIM components will be made available in modular format over thirty-six months , and the full capacity will be operationally tested with an “on-the-job” training at the Winter Olympic Games of Milan-Cortina of 2026, with complementary visibility and outreach activities to underline the value added of the new rescEU capacity.

Attività ENEA:

L'ENEA coordina il progetto e partecipa a sei dei sette Work package del progetto, svolgendo attività incentrate sullo sviluppo e gestione di una serie di laboratori mobili per la prevenzione e risposta ad eventi CBRN (minacce Chimiche, Batteriologiche, Radiologiche e Nucleari) sia dovuti a cause naturali che ad azioni deliberate.

Anno di stipula:	2023
Tipo progetto:	UCPM Project Grants
Programma UE:	Other programmes 2021-2027 UCPM - Union Civil Protection Mechanism
Data inizio:	30-10-2023
Data scadenza:	29-09-2026
Contributo totale:	€ 26.701.048
Costo eleggibile totale:	€ 26.701.048
Contributo a ENEA:	€ 995.804
Costo eleggibile ENEA:	€ 995.804
Doc. approvazione:	201/2023/FSN
Codice atto:	PF7ABW
Resp. scientifico ENEA:	DE DOMINICIS LUIGI
Unità:	FSN-TECFIS



Real-time on-site forenSic tracE qualificatioN

Coordinatore: ENEA (Italia)

N. Partner: 20

Abstract:

While time is an important factor for successful outcome of the crime investigation, the traditional forensic examinations are usually time consuming. It can be very problematic when investigations are underway and quick results are needed. Traces must be detected on-site as soon as possible before they degrade and loose forensic information important for criminal investigation. Based on the results of the FORLAB project, the aim of the RISEN project is the development of a set of real-time contactless sensors for the optimization of the trace, detection, visualisation, identification and interpretation on site, with a consequent reduction of the time and resources in the laboratory, and for a fast exchange of information among LEAs. The new proposed approach could be applied to the classical forensic investigations and to disaster sites, e.g. after a terrorist attack. The objectives of the RISEN project will be obtained by: -Developing and demonstrating contactless, non-destructive, automated sensors to identify, select and label trace materials; -Processing and sending in real-time acquired in-situ data to a 3D Augmented Crime Scene Investigation system to produce an interactive 3D model of the scene with position and labelling of traces and relative results of the on-site analysis. The recreated 3D model of the scene resorts to augmented reality techniques for sensor data, collected evidence and identified points of interest in order to deliver a realistic and immersive visual environment for investigators, allowing them to conduct highly detailed investigations. The crime scenes, with analytical information from traces, will be digitally frozen to be available at any time for several purposes in the criminal justice system. The identified traces will be digitally marked and inventoried, and a digitalised Chain of Custody will be established in real-time implementing mechanisms that assure data integrity over its lifecycle.

Attività ENEA:

L'ENEA coordina il progetto RISEN con responsabilità diretta nel WP1 (Management) e nel WP7 (System Validation) oltre a partecipare a tutti gli altri WP. In particolare, Il laboratorio DIM contribuisce notevolmente al WP5 "Sviluppo di sensori e test di laboratorio" durante i quali DIM svilupperà in sensori basati sulle tecnologie Raman, LIBS LIF e imaging iperspettrale. Nelle attività relative a questo progetto è coinvolto oltremodo il personale tecnico e scientifico del laboratorio DIM oltre alle sue strutture interne quali laboratori laser, chimici e biologici, aree dedicate e la segreteria periferica di sicurezza.

Anno di stipula: 2020

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Secure societies

Data inizio: 01-07-2020

Data scadenza: 30-06-2024

Contributo totale: € 6.995.876

Costo eleggibile totale: € 6.995.876

Contributo a ENEA: € 1.216.961

Costo eleggibile ENEA: € 1.216.961

Doc. approvazione: 54/2020/FSN

Codice atto: PF7AAW

Resp. scientifico ENEA: CHIRICO ROBERTO

Unità: FSN-TECFIS-DIM



Coordinatore: KIT - KARLSRUHER INSTITUTE OF TECHNOLOGY (Germania)

N. Partner: 53

Abstract:

The European Green Deal aims to transform the EU into a modern, resource-efficient and competitive economy with zero net greenhouse gas emissions by 2050. To achieve more efficient, competitive and cost-effective energy systems and devices, RISEnergy fosters a European ecosystem of industry, research organizations and funding agencies aimed at developing novel energy technologies and concepts. RISEnergy brings together a consortium of 69 beneficiaries from 23 countries: ERIC institutions, technology institutes, universities and industrial partners, to jointly improve the economic performance of technologies. Members of the European Energy Research Alliance are establishing the core European ecosystem. The main objectives of RISEnergy are: 1.) enable research and innovation to increase energy efficiency and reduce the cost of energy technologies to foster wider use of renewables into energy systems through proactive innovation management having single entry point with tailor-made access roads for academics, industry, and SMEs, and advising RI providers, all acces Users, and policy makers on LCA, ICT development and networking issues; 2.) provide efficient transnational access (TNA) to facilities to support renewable energy technologies and systems: Provide more than 2,500 days of access to major European and international world-leading analytical facilities; 3.) reach out to all stakeholders performing research along the value chain, from materials and technology development to applications in the eight most relevant fields of PV, CSP/STE , hydrogen, biofuels, offshore wind, ocean energy, integrated grids, and energy storage, research infrastructure providers and policy makers; 4.) provide comprehensive services of unprecedented quality: new cross-RI services, a single entry point, tailor-made access roads for academia industry, and SMEs with a particular focus on scientists from research fields in which the use of research infrastructures is not yet established.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures
(2021-2027)

Data inizio: 01-03-2024

Data scadenza: 31-08-2028

Contributo totale: € 14.499.998

Costo eleggibile totale: € 14.499.998

Contributo a ENEA: € 426.085

Costo eleggibile ENEA: € 426.085

Doc. approvazione: 297/2023/TERIN,
13/2024/TERIN

Codice atto: PK7AAK

Resp. scientifico ENEA: ZIMBARDI FRANCESCO

Unità: TERIN-STS

Attività ENEA:

L'ENEA coordinerà lo svolgimento di accessi transnazionali riguardanti la gasificazione delle biomasse e l'upgrading del syngas, rendendo disponibili le facility del dipartimento TERIN attive presso il CR Trisaia, includendo impianti di gasificazione e laboratori, per un totale di 25 giorni a ricercatori o team di ricercatori europei o extraeuropei che nei loro Paesi non hanno accesso allo stesso tipo di infrastrutture. In particolare l'ENEA parteciperà alle attività dei seguenti Work Packages: WP1 Building an energy RI ecosystem; WP2 Transnational and Virtual Access to world-class Research Infrastructures; WP4 Proactive Innovation Management



Regeneration of Injured Spinal cord by Electro pUlSeD bio-hybrid imPlant

Coordinatore: ENEA (Italia)

N. Partner: 6

Abstract:

Spinal Cord Injury (SCI), a major cause of paralysis, currently has no effective therapies. Every year almost 500.000 people are diagnosed with SCI worldwide. In Europe, the average investment is up to 2 M€ per patient in health care. The difficulty on the neuronal restoration after SCI is based on the complex cascade of events that inexorably cause a degenerative chronic stage mainly favored by the non-permissive environment and limited capacity for axonal regrowth. Multifaceted strategies are considered the unique solution for functional restoration by including cell substitution, neuroprotection and axonal growth promotion. RISEUP proposes to attain neuronal functional regeneration after SCI by an unprecedented and unique bio-hybrid-compatible electro-activated and wireless-rechargeable implantable technology. RISEUP introduces high voltage microsecond electric pulses (micropulses) stimulations and low amplitude direct currents on a combination of stem cells (induced neural stem cells and multipotent stromal cells), whose transplantation is facilitated by an innovative scaffold biomaterial. The RISEUP concept is that micropulses, being able to impose and control cytosolic Calcium oscillations, will facilitate cell maturation, survival and neurotrophic factors secretion. Because Calcium signaling is essential for neuronal activity, endogenous neuronal re-connections will also be favored. RISEUP goal, even if ambitious, is concrete due to the multidisciplinary partners' competences, initiating from TRL1 a radically new line of technology (electro-activated, remotely controlled, biocompatible, biodegradable cell-containing implants for the repair of neuronal lesions) establishing its proof-of-principle (TRL3). The long-term vision of RISEUP is the radical change in SCI treatment modality to assure the cure delivery without any machinery connection, dramatically improving patients' quality of life.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

Future and Emerging Technologies (FET)

Data inizio: 01-05-2021

Data scadenza: 31-10-2024

Contributo totale: € 2.999.836

Costo eleggibile totale: € 2.999.836

Contributo a ENEA: € 615.535

Costo eleggibile ENEA: € 615.535

Doc. approvazione: 252/2020/SSPT/TECS

Codice atto: PS5AAV

Resp. scientifico ENEA: CONSALES CLAUDIA

Unità: SSPT-TECS-SAM

Attività ENEA:

L'ENEA coordina il progetto, occupandosi anche della gestione degli aspetti organizzativi e manageriali del progetto e del consorzio. Dal punto di vista più strettamente sperimentale, invece, l'ENEA studierà, mediante l'esecuzione di test in vitro, effettuati sulle cellule staminali piastrate sia adese ad una superficie piatta, che sullo scaffold, mantenendo così la loro forma tridimensionale, l'analisi della risposta biologica alla stimolazione elettrica. In particolare saranno valutati i seguenti parametri: · Sopravvivenza, proliferazione, morte cellulare · Cambiamenti dell'espressione genica e modulazione dell'epigenoma delle cellule · Meccanismi di attivazione e trasduzione di segnali intracellulari · Valutazione dell'attivazione della risposta infiammatoria



European facility on Molten SALT technologies TO power and energy system applications

Coordinatore: UNIV. EVORA (Portogallo)

N. Partner: 3

Abstract:

The use of Thermal Energy Storage (TES) in combination with the thermal conversion of solar irradiation – Concentrated Solar Power (CSP) – has long been regarded as an important technological solution for the production of dispatchable electricity. Whereas thermal oil based systems have set the standard in the first generation of commercial CSP Plants, the use of Molten Salts as heat transfer and storage media has been gathering research efforts and is regarded, by the industry, as the foregoing standard for new commercial plants. Molten Salt (MS) research has been deployed along the past decade in Germany and Italy, alongside with the erection of dedicated Research Infrastructure (RI) enabling the study and experimental test of e.g. materials, components or O&M procedures suiting this innovative technological approach. With the recent commissioning of a full-fledged Molten Salt Solar system emulating a commercial MS-CSP Plant in Évora, Portugal has joined this research effort with a new outstanding RI in this field. Gathering the unique experience of two non-Widening partners in the development and operation of the most important MS-RI at European level with the incumbent new RI capacity available in a Widening country, the present proposal aims at enhancing the scientific excellence and innovation capacity of the Consortium in the foregoing exploitation of this outstanding RI. SALTOpower has a strong focus on an enhanced capacity building of researchers going beyond purely scientific capacities, strengthening the research management and administration skills of the Widening RI. By means of enhanced cooperation duly framed on a common research strategy aiming at further developing MS technologies, SALTOpower aims at creating the reference European facility for the development and testing of Molten Salt based technologies for energy storage and dispatchable power production solutions, for the integration of different renewable energy sources, power and gas grids.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

WIDERA - Widening participation and spreading excellence

Data inizio: 01-11-2022

Data scadenza: 31-10-2025

Contributo totale: € 1.499.011

Costo eleggibile totale: € 1.499.011

Contributo a ENEA: € 447.000

Costo eleggibile ENEA: € 447.000

Doc. approvazione: 128/2022/TERIN

Codice atto: PK7AAD

Resp. scientifico ENEA: D'AURIA MARCO

Unità: TERIN-STSN-SCIS

Attività ENEA:

ENEA è presente in tutti i WPs del progetto ed in particolare avrà la responsabilità del WP2 "Excellence R&D" e del WP4 "Aligned strategy" e dei task 1.3 (Widening Profile); task 2.1 (MS driven Thermo- Electrochemical H₂/syngas production); task 3.3 (Mentoring); task 4.2 (Scientific alignment) e task 5.1 (quadrupla elica). ENEA è responsabile dei seguenti Deliverable: D1.5 - Widening Profile Report, D2.1 - MS driven energy system management and power/gas grid integration solutions, D5.1 – Relevant Impacts Report e Milestone MS3 - Widening upgrade MS6- Beyond SoA Know-how, MS15 SALTOpower identity established

Coordinatore: CIEMAT - CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS (Spagna) Partner: 35

Abstract:

The project will include experimental measurements of new or improved quality data, evaluation, validation and dissemination of the data to produce libraries that can be used by safety authorities, research institutions, the nuclear energy industry, health organizations, other non-energy applications and the EU society at large. The project will also include in smaller fraction support to detector development, facility setups and samples fabrication to prepare important measurements and validations that are not possible in the time framework of the present proposal but that will be required in near future for the safe and efficient use of nuclear technologies. The selection of topics, isotopes, reactions, measurements, experiments and evaluation has been made taking into account the relevance, expected impact and priorities of the resulting data according to the NEA/OECD and IAEA high priority lists and committees as well as the experience of the participants and of previous EU proposals with large participation of the partners for the present proposal (CHANDA, ANDES,...). The impact has been evaluated from the perspective of a safe, efficient and competitive use of nuclear technologies. In comparison with previous projects, the present proposal proposes to concentrate more efforts on delivering actual results than in the preparation for the future, by enhancing the support to evaluations, validations and actual measurements. Also special attention has been paid to make sure that the topics included cover the non-energy application requiring nuclear data as well as it will cover the needs of the nuclear energy sector. Respecting those principles, the proposal has also tried to be as inclusive to the different EU research groups and countries as possible maintaining the manageability of the project, its efficiency and the maximum quality and relevance of the action and involved partners.

Anno di stipula: 2019

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020 - Euratom
Euratom fissione

Data inizio: 01-09-2019

Data scadenza: 31-08-2024

Contributo totale: € 3.499.948

Costo eleggibile totale: € 4.666.600

Contributo a ENEA: € 105.000

Costo eleggibile ENEA: € 105.000

Doc. approvazione: 691/2019/FSN

Codice atto: PF6AAI

Resp. scientifico ENEA: MENGONI ALBERTO

Unità: FSN-SICNUC-PSSN

Attività ENEA:

L'ENEA è coinvolta nei work package 2 e 5. Nel WP2 'New nuclear data measurements for energy and non-energy applications - coordinerà le misure di cattura neutronica. Nel WP5 'Nuclear data validation and integral experiments' saranno effettuate misure integrali su attinidi minori presso l'impianto TAPIRO in Casaccia.



Safety Analysis of SMR with PAssive Mitigation strategies - Severe Accident

Coordinatore: ENEA (Italia)

N. Partner: 23

Abstract:

Small Modular Reactors (SMR) are one of the key options for the near-term deployment of new nuclear reactors. Currently in Europe there is a growing interest towards the deployment of SMRs, and several activities are underway in many countries preparing for possible licensing needs. In particular, Integral Pressurized Water Reactor (iPWR) are ready to be licensed as new builds because they start from the well-proven and established large Light Water Reactor (LWR) technology, incorporate their operational plant experience/feedback, and include moderate evolutionary design modifications to increase the inherent safety of the plant. However, despite the reinforcement of the first three levels of the Defence-in-Depth (DiD), e.g., with the adoption of passive safety systems, a sound demonstration of Ipwr ability to address Severe Accidents (SA) should be carried out (DiD levels 4-5). The main objectives of the project will be to transfer and adapt such knowledge and know-how to iPWR, in view of the European SA and Emergency Planning Zone (EPZ) analyses. The main elements considered are: (i) the identification of plausible SA scenarios for iPWRs with the related conditions in the vessel and in the containment, (ii) the study of the applicability of the existing experimental databases to iPWR and identify new experimental needs, (iii) the assessment of the capability of internationally recognized European and Non-European computational tools (largely used in Europe) to describe the behaviour of the most promising iPWR designs during SA scenarios, and (iv) the prediction of the resulting radiological impact on- and off-site, taking into account special SA mitigation/management strategies. The expected outcomes of the project will help speeding up the licensing of iPWRs in Europe, as well as the siting processes of these reactors in light of their possible use near densely populated areas.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-10-2022

Data scadenza: 30-09-2026

Contributo totale: € 2.991.694

Costo eleggibile totale: € 4.276.039

Contributo a ENEA: € 342.656

Costo eleggibile ENEA: € 456.875

Doc. approvazione: 059/2022/FSN

Codice atto: PF6AAT

Resp. scientifico ENEA: MASCARI FULVIO

Unità: FSN-SICNUC-SIN

Attività ENEA:

L'ENEA coordina il progetto e partecipa ai seguenti Work Package (WP): WP1: coordinamento del progetto. WP2: sviluppo di input-deck ed analisi di scenari di incidente severo. WP3: analisi del database sperimentale. WP4: analisi della capacità dei codici di simulare e valutare il contenimento del corium nel vessel. WP5: analisi delle capacità dei codici di simulare il contenimento degli iPWR e caratterizzarne l'efficacia delle misure di mitigazione. WP6: caratterizzazione dell'Emergency Planning Zone per iPWR. WP7: "communication", "dissemination" ed "exploitation".

Coordinatore: BRGM - BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES (Francia) N. Partner: 23

Abstract:

Based on the experience and background of SCRREEN1 and SCRREEN2, the prolongation of the project SCRREEN3 will continue to develop and animate an Expert Network which will contribute to expert advice in support of decision-making at the EU level covering all the raw materials and their value chains screened in the CRMs assessment.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

HORIZON EUROPE

Programma UE: Cluster 4 - Digital, Industry and Space

Data inizio: 01-01-2024

Data scadenza: 31-12-2026

Contributo totale: € 2.998.759

Costo eleggibile totale: € 2.998.759

Contributo a ENEA: € 96.750

Costo eleggibile ENEA: € 96.750

Doc. approvazione: 327/2023/SSPT/USER

Codice atto: PS6AEK

Resp. scientifico ENEA: PREKA ROVENA

Unità: SSPT-USER

Attività ENEA:

Le attività ENEA prevedono l'esecuzione di sviluppo della rete (network development) e relativa animazione, in continuità con il ruolo che già svolge in SCRREEN2. Inoltre, sarà Leader del WP11 "Other non Ferrous metals" e sarà responsabile per lo sviluppo dei factsheet di 8 elementi.



SEVERE ACCIDENT RESEARCH AND KNOWLEDGE MANAGEMENT FOR LWRS

Coordinatore: CIEMAT - CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS (Spagna) Partner: 17

Abstract:

Severe Accidents (SA) are known to dominate the risk associated with the commercial production of nuclear energy and a vast amount of research has been done for decades in order to practically eliminate SAs with the potential for large early releases. At present time, when some of the knowledge acquired is at risk of being lost (as many specialists have already retired or are retiring) and new approaches for the SA assessment are being explored, it seems appropriate timing to deeply review and document the sound existing background and project it into the future, including an update on experimental research on SA mitigation tools. By putting in place the best resources possible to conduct any needed additional research and by articulating the most efficient ways possible to bring the young generation on board to face near- and mid-term research challenges, the best use of the current SA background with guarantees to target those issues bearing most uncertainties nowadays might be ensured. Therefore, it is of utmost relevance to conduct a firm assessment of the current State-of-the-Art and to pass this onto the generation who are inheriting such legacy. Management, exploitation, and assessment of this knowledge, are the main objectives of the SEAKNOT project. In addition, new emerging research needs, as those concerning Small Modular Light Water Reactors (SMLWR) and Accident Tolerant Fuels (ATF), will be considered. Meeting SEAKNOT objectives requires entails carrying out a deep, critical assessment of the current state of the art of the experimental infrastructure and analytical tools that would be necessary to efficiently tackle the challenges posed. The main expected outcomes will be: a sound and critical analysis of the current knowledge on SA; an update of the experimental research needs remaining; a strengthening of background and skills of young generations in the field.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-10-2022

Data scadenza: 30-09-2026

Contributo totale: € 2.158.321

Costo eleggibile totale: € 2.726.994

Contributo a ENEA: € 79.547

Costo eleggibile ENEA: € 106.063

Doc. approvazione: 071/2022/FSN

Codice atto: PF6AAS

Resp. scientifico ENEA: MASCARI FULVIO

Unità: FSN-SICNUC-SIN

Attività ENEA:

ENEA è coinvolta nei seguenti work package: WP1 dedicato allo sviluppo di una Phenomena Identification Ranking Table (PIRT) per incidenti severi. WP2 dedicato alla costruzione di un database di validazione basato sui database esistenti per incidenti severi. WP4 dedicato alla diffusione della conoscenza.

Scientific-Based Exposure and Risk Assessment of Radiofrequency and mm-Wave Systems from children to elderly (5G and Beyond)

Coordinatore: UNIV. ARISTOTLE OF THESSALONIKI (AUTH) (Grecia)

N. Partner: 15

Abstract:

The pervasiveness and social-economic dependence on wireless technology has steadily increased over the last three decades. Currently, the 5th generation (5G) New Radio (NR) cellular system is being deployed to unlock the potential of new applications that require the connection of many more devices (Internet of Things), higher data rates and low latency (autonomous driving, 'Factory of the Future'). 5G operates in two frequency bands, 5G NR FR1 and 5G NR FR2. Many exposure parameters of 5G are similar to those of 2G-4G. However, there are also many differences that lead to major knowledge gaps, all of which will be addressed by the SEAWave project. SEAWave will (i) quantify the differences in exposure patterns between 2G-4G and 5G for the entire population including children; (ii) provide new tools and instruments for reliable exposure evaluation of base stations, local networks in factories, and end-user devices; (iii) provide the means to minimise exposure; (iv) generate important new scientific data for assessing the health risk from exposure to the new frequency bands (FR2), especially with regard to the potential (co-)carcinogenicity of skin exposure and other hazardous effects; and (v) provide knowledge for effective health risk communication and dissemination to various stakeholders. To achieve these ambitious objectives, the interdisciplinary consortium consists of highly experienced partners with leading expertise in the field who ideally complement each other to achieve maximum impact. European citizens, workers, national public health authorities, European Commission services, regulators, and standardisation bodies will all benefit from the SEAWave results as they will support science-based decisions and policies for the safe deployment and use of 5G and future wireless networks. Project SEAWave is part of the European cluster on EMFs and health.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Cluster 1 - Health

Data inizio: 01-06-2022

Data scadenza: 31-05-2025

Contributo totale: € 7.317.777

Costo eleggibile totale: € 7.317.782

Contributo a ENEA: € 1.913.358

Costo eleggibile ENEA: € 1.913.358

Doc. approvazione: 218/2022/PRES

Codice atto: PS5ABD

Resp. scientifico ENEA: MANCUSO MARIA TERESA

Unità: SSPT-TECS-TEB

Attività ENEA:

L'ENEA riveste il ruolo di leader del WP6 e partecipa anche alle attività dei WP 5,7,8,9 e 11. In particolare sono previste le seguenti fasi: • Utilizzo di due diversi modelli murini per valutare l'impatto dell'esposizione cronica (dall'età neonatale a quella adulta) alla frequenza mm del 5G sulla cancerogenesi cutanea, in particolare valutando le incidenze di basalioma e carcinoma a cellule squamose. • Valutazione dei meccanismi molecolari strettamente correlati al rischio di insorgenza di tumori cutanei. • Valutazione dell'impatto dell'esposizione su altri distretti tessutali potenzialmente a rischio come l'ippocampo, l'occhio e il sistema riproduttivo maschile.

Strengthening the European Chain of sUpply for next generation medical RadionuclidEs

Coordinatore: NCBJ - NATIONAL CENTER FOR NUCLEAR RESEARCH (Polonia)

N. Partner: 18

Abstract:

SECURE project aims to make a major contribution to the sustainability of medical isotope production and its safe application in Europe. It is focusing on promising developments in the design of irradiation targets, production routes for existing and new isotopes in nuclear therapy and diagnostics. Isotopes critical in the success of nuclear medicine are selected and research activities are identified to address some of the major challenges in securing its future availability, with the objectives: 1. to remove critical barriers along the production of its selected alpha and beta emitting isotopes that restrict a sustainable production; 2. to develop a framework of guidance and recommendations that enables exploring the full clinical potential of alpha and beta particle therapy and its safe application; 3. to provide important lessons learned that act as a demonstration case for addressing issues in upscaling and sustained isotope production. At present, Ra-223 is the only radiopharmaceutical which has been granted marketing authorization to treat adults with prostate cancer. This has paved the way for a wider use of other alpha emitters such as Ac-225 or Bi-213. The expected demand of nuclear medicine for novel alpha emitters and beta- emitters requires re-evaluation of their production methods and inventories of target materials and parent radionuclides. The ambition of SECURE consortium is to identify and efficiently use the current resources for new radionuclides, in particular for alpha emitters and the relevant beta emitting theranostic radionuclides. The development of alternative technologies for production of such therapeutic radionuclides for improved patient treatment requires multidisciplinary scientific and technological knowledge including physics, chemistry, material science, machining of target materials, chemistry, biology and radiobiology, radiopharmacy and nuclear medicine. All this chain of expertise is present in SECURE consortium.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Programma UE: Euratom fissione

Data inizio: 01-10-2022

Data scadenza: 30-09-2025

Contributo totale: € 3.630.426

Costo eleggibile totale: € 3.657.175

Contributo a ENEA: € 370.719

Costo eleggibile ENEA: € 370.719

Doc. approvazione: 070/2022/FSN

Codice atto: PF1AAL

Resp. scientifico ENEA: CAPOGNI MARCO

Unità: FSN-INMRI

Attività ENEA:

L'ENEA, oltre a partecipare al WP5, dedicato all'impatto del progetto, partecipa attivamente a 3 dei 4 WPs tecnico-scientifici: WP1: Sviluppo di bersagli di irraggiamento (Target development) WP2: Vie di produzione (Production routes) WP4: Raccomandazioni per sperimentazioni cliniche e radioprotezione

Coordinatore: ASSOCIATION EUROPEENNE DE L (Belgio)

N. Partner: 9

Abstract:

SEETIP Ocean's mission is to enhance cooperation and collaboration amongst stakeholders both inside and outside of the European ocean energy sector. This mission is broken down into 6 objectives: 1. Maximise European scientific excellence in ocean energy 2. Make sustainability and the Just Transition an integral part of ocean energy's development 3. Build a deeper understanding of how ocean energy can optimally fit into the wider energy, industrial & infrastructure systems and planning systems, and help realise this integration 4. Empower the SET Plan Ocean Energy Implementation Working Group and other public authorities by monitoring, analysing and reporting annual commentary on the sector's progress 5. Reinforce and expand the ocean energy network through strong outreach actions 6. Continue the work of ETIP Ocean and SET Plan Ocean Energy IWG after the project ends Ocean energy can power European society and economic life with electricity that is renewable, dependable and in harmony with local communities and environments. To reach this potential, sectoral stakeholders must collaborate, share knowledge and avoid duplication of efforts. SEETIP Ocean will do this by supporting the activities of both the European Technology & Innovation Platform for ocean energy (ETIP Ocean) and the SET Plan Ocean Energy Implementation Working Group. The project's objectives will be achieved through coordination actions bringing individuals and organisations together to exchange knowledge, create new knowledge and build more and deeper connections. Widespread knowledge-sharing will be facilitated via webinars and workshops. Based on these exchanges, SEETIP Ocean will publish accessible studies and reports that will be widely disseminated across and beyond the ocean energy sector. The SET Plan Ocean Energy IWG's work will be supported with annual updated information on sector's progress and policy and funding support. Up-to-date and accurate data will inform the IWG's decision-making.

Anno di stipula: 2022

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

Cluster 5 - D3 Energy supply

Data inizio: 01-08-2022

Data scadenza: 31-07-2025

Contributo totale: € 788.254

Costo eleggibile totale: € 788.254

Contributo a ENEA: € 67.410

Costo eleggibile ENEA: € 67.410

Doc. approvazione: 155/2022/SSPT-MET

Codice atto: PS2ACK

Resp. scientifico ENEA: STRUGLIA MARIA VITTORIA

Unità: SSPT-MET-CLIM

Attività ENEA:

Le attività svolte da ENEA riguardano l'adozione di metriche appropriate ed efficaci per monitorare e valutare i progressi tecnologici e applicativi nel campo dell'energia dal mare. ENEA contribuirà inoltre alla diffusione di competenze tra gli stakeholder del settore e parteciperà alle attività di trasferimento tecnologico del progetto, per stimolare lo sviluppo in ambiti specifici riconosciuti come prioritari.



Social Energy Renovations: Maximizing social impact and boosting clean energy investments in the non-profit sector through de-risking, aggregation, and capacity building

Coordinatore: GNE - GLOBAL NEW ENERGY FINANCES SL (Spagna)

N. Partner: 7

Abstract:

In Europe, the non-profit sector employs 28 million full-time workers engaged in education, research, housing, counselling, workforce training and other social activities. The sector remains underserved by the financial industry, making it challenging to obtain funding to undertake clean energy investments. SER brings together 7 organizations from 4 EU countries to maximise social impact by boosting clean energy investments in the non-profit sector. SER intends to design, set up, and implement an innovative de-risking financing mechanism that entails financing and technical standardisation, project aggregation, social impact assessment and credit enhancement. Under SER's financing scheme, an ESCO raises low-cost long-term capital via a forfaiting contracts to a financing instrument coupled with a de-risking mechanism. Social enterprises gain access to affordable sustainable renovations, coupled with technical assistance, while investors gain access to secure, high impact investments aligned with ESG and impact investment criteria. SER is positioned to strengthen social enterprises and generate more than 500M in clean energy investments over the course of 5 years after the project, translating into nearly 9,000 jobs, 24,633 Co2 emissions saved per year and massive social impact involving energy poverty mitigation, improvements in social inequality, health, wellbeing, productivity, financial literacy, and overall social cohesion. The initial focus is on Italy, with further replication foreseen in Bulgaria and France, and exploratory efforts in Germany, Czech Republic, Slovakia, and Poland. SER Consortium represents an ideal mix of partners including a specialized lender, an ESCO, a financing and de-risking advisory, social impact experts, an energy agency and local replicators in Bulgaria and France. SER strengthens the non-profit sector – a key driver in achieving a just and fair clean energy transition and a post-COVID-19 recovery.

Anno di stipula:	2021
Tipo progetto:	CSA - Coordination and support action
Programma UE:	HORIZON 2020 Energy
Data inizio:	01-05-2021
Data scadenza:	30-04-2024
Contributo totale:	€ 1.794.423
Costo eleggibile totale:	€ 1.794.423
Contributo a ENEA:	€ 200.280
Costo eleggibile ENEA:	€ 200.280
Doc. approvazione:	11/2021/DUEE-SPS
Codice atto:	PW3AAU
Resp. scientifico ENEA:	FIORINI ALESSANDRO
Unità:	DUEE-SPS-MPE

Attività ENEA:

ENEA partecipa alle attività dei Work Package 1, 2,3,4,5 ed è lead partner del Work Package 3 "Technical Assistance: Training and Community Development". Il WP 3 ha lo scopo di supportare e agevolare le organizzazioni no-profit, ESCO e altri operatori attivi nei settori della finanza etica e verde, nell'effettuare interventi di ristrutturazione sostenibile degli edifici.

Solid oxide fuel cell combined heat and power: Future-ready Energy

Coordinatore: ENEA (Italia)

N. Partner: 9

Abstract:

The overall objective of SO-FREE is the development of a fully future-ready solid oxide fuel cell (SOFC)-based system for combined heat and power (CHP) generation. This means a versatile system concept for efficient, near-zero-emission, fuel-flexible and truly modular power and heat supply to end users in the residential, commercial, municipal and agricultural sectors. Beyond the primary objective required by the call topic – i.e. the delivery of a pre-certified SOFC-CHP system allowing an operation window from zero to 100% H₂ in natural gas and with additions of purified biogas – the SO-FREE project will endeavour the realization of a standardized stack-system interface, allowing full interchangeability of SOFC stack types within a given SOFC-CHP system. This interface design will be taken to the International Electrotechnical Commission (IEC) as a new work item proposal (NWIP) for international standardization. In such a way all commercial barriers to full and free competition between SOFC stack suppliers and system integrators aim to be levelled. Furthermore, this interoperability will be proved by doubling the required demonstration period: two systems will be run for 9 months each, each operating, alternately, two different stacks, which will be exchanged between the two systems. One system will be operated to assess compliance with all applicable certification requirements of a TRL 6 prototype, defining the outstanding pathway to full product certification; the other system will run at TRL7 (demonstration in operational environment) providing combined heat and power with natural gas with injections of hydrogen. As a final proof of robustness and flexibility, the two stacks integrated in each of the two systems (one developed by AVL, the other by ICI Caldaie) will be characteristic of the extreme ends of the spectrum of SOFC operating temperatures: 650°C (Elcogen) and 850°C (Fraunhofer IKTS).

Anno di stipula: 2021

Tipo progetto: FCH2-RIA

HORIZON 2020

Programma UE: JTI - Hydrogen

Data inizio: 01-01-2021

Data scadenza: 31-08-2024

Contributo totale: € 2.739.094

Costo eleggibile totale: € 3.045.355

Contributo a ENEA: € 324.500

Costo eleggibile ENEA: € 324.500

Doc. approvazione: 201/2020/TERIN

Codice atto: PK4AAF

Resp. scientifico ENEA: MC PHAIL STEPHEN
JOHN

Unità: TERIN-PSU-ABI

Attività ENEA:

L'ENEA coordina il progetto e partecipa ai seguenti Workprogramme (WP): WP1: Coordinamento tecnico del progetto armonizzando le attività di ricerca del consorzio all'interno del progetto e L'ENEA sarà inoltre l'interfaccia tra il consorzio e la Fuel Cells and Hydrogen Joint Undertaking (FCH JU), soggetto . WP2: Attività sperimentali volte a validare le prestazioni dei due tipi di stack operati in condizioni definite dall'architettura dei due sistemi. WP5: Gestione del piano di disseminazione e valorizzazione del know-how e del prodotto generato nel progetto, diffusione nei mercati e promozione del prodotto facendo leva sulle piattaforme dedicate Europee, mediante l'organizzazione di workshop e la pubblicazione di articoli. Proposta di standardizzazione dell'interfaccia stack-sistema in ambito normativo internazionale.



Coordinatore: EU-SOLARIS ERIC - EUROPEAN SOLAR RESEARCH INFRASTRUCTURE FOR CONCENTRATED SOLAR POWER (Spagna) N. Partner: 12

Abstract:

The SOLARIZE project intends to enhance the long-term sustainability of the EU-SOLARIS ERIC by successfully achieving its general objectives: enlargement of the membership; further involvement of R&D institutes and national funding institutions at the National Nodes; educating new researchers to make appropriate use of the RIIs; reinforcement of international cooperation and of science diplomac; improvement of the managerial skills of its staff; strengthen the interaction between industrial stakeholders and CST researchers; increase of the general awareness of other possible applications of CST RIIs, e.g. industrial process heat; development of new standards and testing protocols; creation of the first e-infrastructure providing Remote/Virtual access to the R&D centres; study of best ways to combine CST with other energy sources and last but not least, targeting the greening of technologies and methodologies used by the CST RIIs.

Anno di stipula: 2024

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

Research Infrastructures (2021-2027)

Data inizio: 01-07-2024

Data scadenza: 31-12-2027

Contributo totale: € 3.557.638

Costo eleggibile totale: € 4.468.405

Contributo a ENEA: € 102.500

Costo eleggibile ENEA: € 128.125

Doc. approvazione: 113/2024/TERIN

Codice atto: PK7AAM

Resp. scientifico ENEA: GAGGIOLI WALTER

Unità: TERIN-SSI

Attività ENEA:

ENEA contribuirà alle attività dei seguenti WP: WP1, WP2, WP3, e WP5. ENEA sarà responsabile del Deliverable: D3.5.1 – “Strategic Research and Innovation Agenda of European CST; e del task 3.5 dedicato alla Progettazione di una strategia congiunta di ricerca a lungo termine a livello europeo. Le attività di questo task saranno finalizzate alla esplicitazione di un quadro generale di attività strategiche di ricerca, sviluppo e innovazione che occorre attuare affinché il settore del CST possa contribuire in maniera fattiva alla realizzazione di un'economia a zero emissioni nette di gas serra entro il 2050



TWINNING COORDINATION FOR ENHANCED SCIENTIFIC CAPACITY IN WATER QUALITY, FOOD SAFETY, TRACEABILITY, AND AUTHENTICITY BY USING INNOVATIVE APPROACHES

Coordinatore: UNIV. ARISTOTLE OF THESSALONIKI (AUTH) (Grecia)

N. Partner: 5

Abstract:

SPECTRA aims to improve AUTH R&I capacities to strengthen its scientific reputation, attractiveness, visibility, and networking channels. SPECTRA will stimulate scientific excellence and innovation in key research areas of Water Quality and Food Safety, Quality & Traceability (WQ&FSAT) for addressing the challenges that emanate from ongoing and accelerating climate changes in Greece. SPECTRA approach will be achieved by a unique combination of research activities, "hands-on" training, academic and non-academic mobilities /courses and workshops on scientific and complementary transferable skills facilitated by the academic-non-academic composition of the consortium. It will reinforce R&I and knowledge transfer capacity of AUTH's research staff, including its permanent scientists and Early-Stage Researchers (ESR), fostering collaboration between academia, industry, and stakeholders in Greece within a sustainable research framework, promoting international networking, mobility, and integration into the European Research Area (ERA). At scientific level, it is expected to enlarge the community of competitive prestigious researchers at AUTH in WQ&FSAT, stronger and better-connected to a core of international and relevant R&I systems, supported by skilled R&I managers with their international networks. At social level, it is expected an improvement in WQ&FSAT by providing new breakthrough scientific knowledge on quality of water resources, advancing food safety supervision performance, increasing consumer and market confidence in Greek food product safety, facilitating monitoring, inspections, decision-making by competent authorities, and supply chain actors and policymakers and enhancing networking, and engaging with food safety high-level experts. At an economic level, the project will contribute to the development of an innovative WQ&FSAT industry and the profitability of regional companies through new product development, approaches and tools, innovation support, and job creation.

Anno di stipula: 2024

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON EUROPE

WIDERA - Widening participation and spreading excellence

Data inizio: 01-10-2024

Data scadenza: 30-09-2027

Contributo totale: € 1.492.415

Costo eleggibile totale: € 1.492.415

Contributo a ENEA: € 230.384

Costo eleggibile ENEA: € 230.384

Doc. approvazione: 97/2024/SSPT-BIOAG

Codice atto: PS1ADY

Resp. scientifico ENEA: DIRETTO GIANFRANCO

Unità: SSPT-BIOAG

Attività ENEA:

ENEA è Leader del WP5 (Sustainability actions to step-up and continuously grow the excellence).

Coordinatore: KIT - KARLSRUHER INSTITUTE OF TECHNOLOGY (Germania)

N. Partner: 17

Abstract:

According to the European Green Deal goals, new energy storage technologies will supply more flexibility and balance in the grid, providing a back-up to intermittent renewable energy and contribute to seasonal energy storage challenges. Above all, the main challenge for energy storage development is economic. In order to achieve more performing, competitive and cost effective energy storage devices, the project fosters a European ecosystem of industry and research organisations on energy storage technologies aimed at developing novel concepts and technologies. StoRIES brings together a consortium of 32 beneficiaries from 17 countries: ESFRI facilities, technology institutes, universities and industrial partners to jointly improve the economic performance of storage technologies. Members of the European Energy Research Alliance and from the industry lead European Association for Storage of Energy are establishing the core of this world-class European ecosystem. The main objectives of StoRIES are linked to the energy storage development by providing access to world-class research infrastructures and services, with a focus on improving materials for devices and optimizing hybrid energy systems with a view to make energy technologies more competitive and reducing costs. In addition, StoRIES focuses on the analysis of socio-technical and environmental aspects of new developments and systems and provides training and education on these issues. By promoting complementary expertise, interdisciplinary cooperation and a broader exchange of knowledge and technologies throughout the academic world and with industry, StoRIES will significantly improve the technological basis for energy storage applications. Furthermore, StoRIES will establish an ecosystem with international peer partners from Research and Industry to foster open science and promote new energy technology standards.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-11-2021

Data scadenza: 31-10-2025

Contributo totale: € 6.999.980

Costo eleggibile totale: € 7.001.439

Contributo a ENEA: € 413.031

Costo eleggibile ENEA: € 413.031

Doc. approvazione: 217/2021/TERIN

Codice atto: PK4AAM

Resp. scientifico ENEA: PAOLETTI CLAUDIA

Unità: TERIN-PSU-ABI

Attività ENEA:

ENEA svolge attività relative a: . gestione dei dati (WP1 - task leader per FAIR Data); . fornire accesso a infrastrutture di livello mondiale (WP2 – 3 Infrastrutture di ricerca); . Sviluppo di strumenti per tecnologie ibride (WP3 – dai materiali ai sistemi); . Definizione della roadmap (WP3); . Attività sulla valutazione della sostenibilità (WP4).

Coordinatore: FOI SWEDISH DEFENCE RESEARCH AGENCY (Svezia)

N. Partner:

4

Abstract:

The project STYX aims at developing and test systems for detecting and identifying explosive threats, such as improvised Explosive Devices (IEDs), fast and from a stand-off distance. Recently, an increased awareness of threats from “grey zone” hybrid warfare has emerged, these threats include the use of IEDs by military or para-military/adversary networks, which can both reside and operate cross border. Such IED threats are a significant challenge for Member States Armed Forces and will be a cause of hazard for civilians. They also have the potential to severely disrupt both military and civilian logistic support, damage critical infrastructures (e.g. military bases, government buildings, air bases/airports, harbours, power plants, chemical industry, oil/fuel depots, ...) and affect strategic lines of communication (e.g. bridges, roads, railways, ferries, ...). In this way, these “grey zone” hybrid threats will be more complex than route clearance threats that Armed Forces have encountered in previous military operations (e.g. Afghanistan or Iraq). Key capabilities, to ensure an enhanced Force Protection, require fast, accurate and safe techniques to detect, identify and defeat/neutralize explosive threat devices. Therefore, the aim of the project is to identify new sensors for fast stand-off detection of existing and new types of explosives embedded in IEDs and other explosive threats. Such sensors should be able not only to detect the explosive but also to identify it, in order to minimize false positive alarms. Stand-off sensors for both trace and bulk explosives will be considered. The STYX project will be a starting point for research and development of novel stand-off detection sensors for explosives applied to hybrid warfare scenarios, aiming to reach TRL 5-6. It will strengthen the European knowledge base for future advanced stand-off detection equipment, materials and their applications. At the end of the project, both technological system development as well as the work done in testing and evaluation, will contribute to the long term goal of increasing the overall capability to tackle explosives used in hybrid warfare.

Anno di stipula: 2021

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

European Defence Agency CAPTECH

Data inizio: 15-12-2021

Data scadenza: 14-12-2025

Contributo totale: € 700.000

Costo eleggibile totale: € 1.400.000

Contributo a ENEA: € 350.000

Costo eleggibile ENEA: € 700.000

Doc. approvazione: 491/2021/PRES

Codice atto: PF7ABT

Resp. scientifico ENEA: SANTORO SIMONE

Unità: FSN-TECFIS-DIM

Attività ENEA:

L'ENEA partecipa in quasi tutte le attività del progetto con particolare contributo nello sviluppo di un sensore per la rivelazione in tracce di sostanze energetiche (esplosivi e loro precursori) che possa operare in tempo reale e a distanza nel WP300. Questo nuovo sensore implementerà una soluzione tecnica innovativa nel rimuovere la fluorescenza emessa dal substrato utilizzando un laser ad impulsi ultra corti con relativa catena elettronica veloce. Sempre nello stesso WP300, il laboratorio DIM collabora con il Fraunhofer ICT ai test sulla tecnica SERS. Una dimostrazione finale è prevista dopo il terzo anno a cui a seguire ci sarà una valutazione dei dati acquisiti.



An innovative thermochemical cycle based on solid sulphur for integrated long-term storage of solar thermal energy

Coordinatore: DLR - GERMAN AEROSPACE CENTER E.V. (Germania)

N. Partner: 9

Abstract:

SULPHURREAL aims at demonstrating and validating a breakthrough approach for next generation, carbon-free, direct conversion of solar energy into chemicals storable for a virtually unlimited time, based on elemental sulphur produced and consumed on-demand via a solar-aided thermochemical cycle. The project is targeted on the one hand to develop disruptive catalytic technologies for the two catalytic steps of this solid sulphur thermochemical cycle, namely the high- (800-850 C) and medium- (600-650 C) temperature catalytic SO₃ splitting to SO₂ and oxygen and the subsequent disproportionation of SO₂ to solid sulphur and sulphuric acid. The research line involves identifying, developing and testing novel catalysts and reactor designs under operating conditions so that these two, less developed steps of the cycle cf. sulphur combustion, can be integrated and performed in sequence with maximum compatibility in a first-of-its kind integrated approach. Innovations to be introduced concern not only novel catalyst compositions but also novel reactor designs and methods of applying and distributing the catalysts within the reactors, to achieve maximum utilisation of the active catalytic materials and optimal combination of improved performance, conversion efficiency and process cost reduction. On the other hand, SULPHURREAL will further develop and upscale a first-of-its-kind sulphur burner operating at power density > 5 MW/ m³ at ambient pressure and having demonstrated potential for prolonged operation at power densities of > 75 MW/cbm for typical operating pressure of 15 bar by simulations. The proposed combination integrates renewable energy sources (solar energy) with valorisation of non-CRM substances currently produced as industrial by-products from oil and gas (solid sulphur) and steel industries (Fe-containing slags) and industrial-scale chemicals production (sulphuric acid industry) in absolute accordance with a circular economy environment and industrial symbiosis.

Anno di stipula: 2023

Tipo progetto: EIC Grants

HORIZON EUROPE

Programma UE: EIC - European Innovation Council

Data inizio: 01-10-2023

Data scadenza: 30-09-2026

Contributo totale: € 3.982.133

Costo eleggibile totale: € 3.982.134

Contributo a ENEA: € 527.625

Costo eleggibile ENEA: € 527.625

Doc. approvazione: 146/2023/TERIN

Codice atto: PK7AAI

Resp. scientifico ENEA: SAU GIOVANNI SALVATORE

Unità: TERIN-STSN-SCIS

Attività ENEA:

ENEA è leader dei WP3 "Sulphur dioxide disproportionation catalysts" e WP6 "Sulphur dioxide disproportionation reactor". E' inoltre presente nei seguenti WP: 1 'Project coordination and management'; 2 'Sulphur trioxide splitting catalysts'; 4 Advanced materials shaping; 8 System integration, Techno-Economic Analysis and Life Cycle Assessment; 9 Knowledge and innovation management, dissemination and communication.

Coordinatore: EURAC - ACCADEMIA EUROPEA DI BOLZANO (Italia)

N. Partner: 18

Abstract:

The decarbonisation of the energy sector is one of the top priorities at various political levels including at the European level. Photovoltaics (PV) is widely seen as one of the key technologies to drive the energy transition. The difficulties arise when the targets for PV (usually set at national level) needs to be put into practice at regional / local level. Although the PV rooftop potential is extremely large and could potentially contribute to the ambitious targets, the rate of installation of PV rooftop systems will not be fast enough to support a rapid transition. On the other hand, large utility-scale PV installations in open fields are not an option in many regions. It is in this context that the concept of Agrivoltaics is emerging. What several decades of efforts developing Building Integrated PV (BIPV) products and systems for rooftops and facades have taught us is that there are multiple levels of integration and various stakeholders across the value chain which can all generate significant barriers to widespread adoption. Agrivoltaics is in fact in the unique position to learn from the past mistakes made with BIPV which delayed the development of cost-effective BIPV solutions and market acceptance. In SYMBIOSYST we will not develop solutions that are highly customized as this would drive the costs up. We will rather innovate by adapting standardized cost-effective solutions in terms of PV modules, mounting structures and Operation and Maintenance (O&M) practices to the specific needs of various crops in different climates and landscapes. We will also find aesthetically pleasing solutions that can be mass manufactured and integrated with the agricultural land in a harmonious way while maintaining the primary goal of farming. The interdisciplinary consortium in SYMBIOSYST is composed of partners across the value chain with decades of experience in agriculture, precision farming, PV modules and systems, social science and integrated PV applications.

Anno di stipula: 2023

Tipo progetto: IA - Innovation Action

HORIZON EUROPE

Programma UE: Cluster 5 - D3 Energy supply

Data inizio: 01-01-2023

Data scadenza: 31-12-2026

Contributo totale: € 4.827.668

Costo eleggibile totale: € 5.775.143

Contributo a ENEA: € 242.750

Costo eleggibile ENEA: € 242.750

Doc. approvazione: 226/2022/TERIN

Codice atto: PK2AAE

Resp. scientifico ENEA: SCOGNAMIGLIO ALESSANDRA

Unità: TERIN-FSD-DIN

Attività ENEA:

Le attività che l'ENEA svolge all'interno del progetto SYMBIOSYST saranno inquadrata nel work package 'Agrophotovoltaics modelling value chain': Strumento di integrazione del paesaggio basato su GIS: l'ENEA guiderà lo sviluppo di un tool transdisciplinare basato su uno strumento GIS che integra una metodologia descrittiva spazialmente centrica, con l'obiettivo di facilitare e valorizzare l'integrazione dell'agrivoltaico nel modello paesaggistico.



Small Modular ReacTor for a European sAfe aNd Decarbonized Energy Mix

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia) N. Partner: 18

Abstract:

Small Modular Reactors (SMRs) can be hybridized with other energy sources, storage systems and energy conversion applications to provide electricity, heat and hydrogen. SMR technology thus has the potential to strongly contribute to the energy decarbonisation in order to achieve climate-neutrality in Europe by 2050. However, the integration of nuclear reactors, particularly SMRs, in hybrid energy systems is a new R&D topic to be investigated. In this context, the TANDEM project aims to provide assessments and tools to facilitate the safe, secure and efficient integration of SMRs into smart low-carbon hybrid energy systems. It proposes to specifically address the safety issues of SMRs related to their integration into hybrid energy systems, involving specific interactions between SMRs and the rest of the hybrid systems; new initiating events will have to be considered in the safety approach. An open-source "TANDEM" model library of hybrid system components will be developed in Modelica language to build a hybrid system simulator which, by coupling, will extend the capabilities of existing tools implemented in the project. TANDEM intends to focus on two main study cases corresponding to hybrid system configurations covering the main trends of the European energy policy and market evolution: a district heating network and power supply in an urban area, and an energy hub serving energy conversion systems, including hydrogen production, in a regional perspective. TANDEM will provide assessments on SMR safety, hybrid system operability and techno-economics. Societal considerations will also be encased by analyzing the European citizen engagement regarding SMR technology safety. The work will result in technical, economic and societal recommendations and policy briefs on the safety of SMRs and their integration into hybrid energy systems for industry, R&D teams, TSOs, regulators, NGOs and policy makers. The TANDEM consortium will involve 17 partners from 8 countries.

Attività ENEA:

ENEA sarà coinvolta nei seguenti work package: • WP2: Modelling for the simulation of the hybrid system behaviour, dedicato allo sviluppo dei modelli necessari alla simulazione del comportamento del sistema ibrido di test a effetti separati (SET) e combinati (CET). Task 2.1: si contribuirà a definire la strategia da adottare per la modellazione e per condurre le simulazioni. Task 2.4: ENEA svilupperà il modello CATHARE dell'intero sistema che dovrà essere impiegato per le analisi da condurre nel WP4. • WP4 dedicato ad analisi di transitorio ed incidentali da condurre per dimostrare l'affidabilità e la sicurezza dell'intero sistema.

Anno di stipula: 2022

Tipo progetto: RIA - Research and Innovation Action

Programma UE: Euratom2027

Euratom fissione

Data inizio: 01-09-2022

Data scadenza: 31-08-2025

Contributo totale: € 3.372.401

Costo eleggibile totale: € 3.781.490

Contributo a ENEA: € 140.375

Costo eleggibile ENEA: € 159.125

Doc. approvazione: 073/2022/FSN

Codice atto: PF6AAZ

Resp. scientifico ENEA: LOMBARDO CALOGERA

Unità: FSN-SICNUC-SIN

Coordinatore: ENEA (Italia)

N. Partner: 16

Abstract:

To achieve high performance and high energy efficiency on near-future exascale computing systems, a technology gap needs to be bridged: increase efficiency of computation with extreme efficiency in HW and new arithmetics, as well as providing methods and tools for seamless integration of reconfigurable accelerators in heterogeneous HPC multi-node platforms. TEXTAROSSA aims at tackling this gap through applying a co-design approach to heterogeneous HPC solutions, supported by the integration and extension of IPs, programming models and tools derived from European research projects, led by TEXTAROSSA partners. The main directions for innovation are towards: Enabling mixed-precision computing, through the definition of IPs, libraries, and compilers supporting novel data types (including Posits), used also to boost the performance of AI accelerators Implementing new multilevel thermal management and two-phase liquid cooling Developing improved data movement and storage tools through compression Ensure secure HPC operation through HW accelerated cryptography Providing RISC-V based IP for fast task scheduling and IPs for low-latency intra/inter-node communication These technologies will be tested on the Integrated Development Vehicles mirroring and extending the European Processor Initiative ARM64-based architecture, and on an OpenSequana testbed. To drive the technology development and assess the impact of the proposed innovations TEXTAROSSA will use a selected but representative number of HPC, HPDA and AI demonstrators covering challenging HPC domains such as general-purpose numerical kernels, High Energy Physics (HEP), Oil & Gas, climate modelling, and emerging domains such as High Performance Data Analytics (HPDA) and High Performance Artificial Intelligence (HPC-AI)

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020
JTI - EuroHPC

Data inizio: 01-04-2021

Data scadenza: 31-03-2024

Contributo totale: € 2.051.376

Costo eleggibile totale: € 6.012.709

Contributo a ENEA: € 219.135

Costo eleggibile ENEA: € 795.125

Doc. approvazione: 38/2021/TERIN

Codice atto: PK3AAA

Resp. scientifico ENEA: CELINO MASSIMO

Unità: TERIN-ICT

Attività ENEA:

Il contributo di Enea al progetto verte nell'area tecnico-scientifica dell'High Performance Computing con particolare riguardo allo sviluppo di ambienti di programmazione, all'ottimizzazione del processo di raffreddamento e al porting delle applicazioni su architetture parallele. In particolare ENEA è leader di due workpackage, il n. 1 e il n. 8, gestiti da TERIN-ICT. Il laboratorio TERIN-PSU-IPSE è coinvolto nella caratterizzazione e valutazione delle performance di raffreddamento dei sistemi di calcolo.



NOVEL METHODS OF TESTING FOR MEASUREMENT OF NATURAL GAS AND HYDROGEN MIXTURES

Coordinatore: SNAM SPA (Italia)

N. Partner: 14

Abstract:

How maximize hydrogen (H₂) blending potential in natural gas (NG) networks, supporting European energy system decarbonisation? The answer lies in the need of a systemic, multi-disciplinary approach to make NG infrastructure resilient to the challenges of tomorrow. Industrial and research players' competences are required. In this framework, THOTH2 consortium focuses on energy measurement value chain and instruments' ability to accurately measure physical parameters of H₂NG mixtures with increasing H₂ percentages, up to 100%. Including gas TSOs, DSOs, metrological and research institutes and academia, THOTH2 consortium has all competences and skills to reach the goals of i) define standards to evaluate the metrological performances of measuring devices at different H₂ blending rates (up to 100%), ii) verify safety and durability of the same devices, and iii) suggest future needs to overcome the observed barriers and limitations. SNAM competences in managing NG assets are essential for the coordination and synergic integration of the 14 partners, recognized as experts in NG and H₂ industry (GRTGAZ, GAZ-SYSTEM, Enagás, INRETE), metrology (CESAME, INRIM, METAS), H₂ blending technologies and measuring devices design, engineering, and R&D activities (UNIBO, INIG, FBK, ENEA, CSIRO). The communication and dissemination strategy by GERG will give visibility to project's results, including contributions to Mission Innovation 2.0 and EURAMET projects. THOTH2 vision will lead to an acceleration towards H₂ economy, contributing to REPowerEU and NextGeneration EU objectives. The project impact potential includes the establishment of a R&D Hub center, including THOTH2 partners and Advisory Board members, to translate into valuable results achieved by the project, aiming to i) the development/update of international standards, ii) foster innovation in the field of H₂NG blending measuring devices, and iii) supporting H₂ value chain development leveraging on the EU gas infrastructure.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE
Clean Hydrogen JU

Data inizio: 01-02-2023

Data scadenza: 01-07-2025

Contributo totale: € 1.997.361

Costo eleggibile totale: € 1.997.361

Contributo a ENEA: € 43.125

Costo eleggibile ENEA: € 43.125

Doc. approvazione: 17/2023/TERIN

Codice atto: PK4AAT

Resp. scientifico ENEA: GISLON PAOLA

Unità: TERIN-PSU-ABI

Attività ENEA:

L'ENEA partecipa ai seguenti workpackage: WP1: predisposizione del Report Deliverable 1.3 "Normative gaps towards H₂NG gas grid" WP4: supporto nella definizione di nuovi standard e nella identificazione delle innovazioni tecnologiche necessarie alla conversione delle reti gas a miscela idrogeno/gas naturale WP5: supporto alla disseminazione dei risultati WP6: supporto alla organizzazione generale del Progetto



Tritium Impact and Transfer in Advanced Nuclear reactorS

Coordinatore: CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (Francia) N. Partner: 21

Abstract:

The TITANS (Tritium Impact and Transfer in Advanced Nuclear reactorS) multidisciplinary project is built to contribute to Research and Innovation to "improve knowledge on tritium management in fission/fusion facilities" and provide "robust science to EU safety regulators, radiation protection authorities and decision makers". TITANS will answer the main challenges of the call: i) Tritium permeation description and associated modeling, ii) tritium measurement, iii) mitigation of tritium release, iv) gain expertise on dismantling activities, v) improve knowledge in radiotoxicity and radiobiology, both combined to dosimetry specific to each biological model studied. The TITANS work program is established from the results obtained in the former EU TRANSAT project and thanks to scientific discussion within TRANSAT SAC, TITANS members and external experts from EU/broader countries. TITANS will improve modelling tools to assess tritium inventory/migration in nuclear fission/fusion reactors in order to identify where the new barrier concept developed within TITANS are needed to limit the spread of tritium. The tritium release during dismantling of tritium-contaminated setup will be evaluated with the help of innovative tritium inventory measurement techniques developed within TITANS. Finally, to ensure tritium circular economy, a mobile device for tritiated water processing will be developed. At last, human and environmental toxicity impacts after an accidental release of tritiated particles will be assessed through studies on i) the behaviour of aerosols in the environment, ii) biological effects on a mussels population, iii) biokinetics by the skin route and iii) genotoxic effects on human lung macrophages. In order to estimate a dose-response relationship, a dosimetric study specific to each organism or cell type will be carried out. This 3 years project with a 3 M€ allocated budget gathers 21 partners from European countries and UK all involved in tritium activities.

Attività ENEA:

Il progetto vede il coinvolgimento dell'ENEA nei seguenti Work Packages: - WP1, Proposals for enhancement of barriers against tritium permeation and tritiated waste management, - WP2, Tritium inventory management and modeling - WP4, Dissemination, Communication & Stakeholders Engagement

Anno di stipula:	2022
Tipo progetto:	RIA - Research and Innovation Action
Programma UE:	Euratom2027
Data inizio:	Euratom fissione
Data scadenza:	01-09-2022
Contributo totale:	31-08-2025
Costo eleggibile totale:	€ 2.843.297
Contributo a ENEA:	€ 3.854.193
Costo eleggibile ENEA:	€ 197.225
Doc. approvazione:	€ 281.750
Codice atto:	095/2022/FSN
Resp. scientifico ENEA:	PF3AAH
Unità:	TOSTI SILVANO
	FSN-FUSTEC-TEN



Traceability in medical X-ray imaging dosimetry

Coordinatore: STUK RADIATION AND NUCLEAR SAFETY AUTHORITY (Finlandia)

N. Partner: 14

Abstract:

X-ray imaging, covering diagnostic and interventional examinations, is an important part of modern medicine but on the other hand it forms the largest component of exposure to artificial ionizing radiation in Europe. Therefore, accurate and consistent quantification of patient radiation exposure with calibrated dosimetry equipment is essential to comply with Council Directive (2013/59/Euratom) and to ensure safety to patients. Currently, the calibration procedures used by calibration laboratories are based on relevant standards (IEC 61267, IEC 61674, IEC 61676) and international protocols (IAEA TRS-457) however they do not fully consider the recent technical developments within medical X-ray imaging. This project will perform a critical assessment of conditions applied in calibrations compared to those used in clinical practice and will study the performance of different clinical dosimeters and for calibrations. Based on the results, updated and traceable measurement and calibration procedures will be proposed to IEC and IAEA for inclusion into forementioned standards and protocols.

Anno di stipula: 2023

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON EUROPE

EPM - European Partnership on Metrology

Data inizio: 01-06-2023

Data scadenza: 31-05-2026

Contributo totale: € 1.098.530

Costo eleggibile totale: € 1.098.530

Contributo a ENEA: € 85.000

Costo eleggibile ENEA: € 85.000

Doc. approvazione: 116/2023/FSN

Codice atto: PF5AAM

Resp. scientifico ENEA: PINTO MASSIMO

Unità: FSN-INMRI

Attività ENEA:

L'ENEA partecipa a tutti i work package tecnici del progetto e coordina il Work package 2 "Classification of dosimeters based on their performance".

PRODUCT DATA TRACEABILITY FROM CRADLE TO CRADLE BY BLOCKCHAINS INTEROPERABILITY AND SUSTAINABILITY SERVICE MARKETPLACE

Coordinatore: FRATELLI PIACENZA SPA (Italia)

N. Partner: 29

Abstract:

In EU a garment is worn an average of 3 times in its life, with €400 Bln lost a year discarding clothes which can still be worn and 92 Mln tons of waste, 87% of clothes ending up in landfills. But due to growing awareness on ethical and environmental impacts, 66% of consumers are ready to pay more for sustainable products . TRICK will provide a complete, SME affordable and standardised platform to support the adoption of sustainable and circular approaches: it will enable enterprises to collect product data and to access to the necessary services on a dedicated marketplace, open to third party solutions. TRICK demo will be run in 2 highly complex and polluting domains: textile-clothing as main pilot and perishable food for replication. EC estimates that up to 10% of the 88 million tons of food waste generated annually in the EU are linked to date marking, with associated costs estimated at €143 billion. Secured traceability will rely on the data needed for the preferential certification of origin (PCO), used for duty calculation. It will be certified by Customs as member of the consortium, representing anti fraud public forces. The data extracted by the fiscal documents for the PCO will be integrated with the bill of materials, saved in the Blockchains (BC) per each lot of production to grant traceability continuity, and with the additional ones to enable the six services provided by TRICK: traceability, circular assessment, PEF, health and social assessment, A.I. for anti counterfeiting. BC will secure information through the whole process, ending to consumers for informed purchasing. Data confidentiality and privacy will be granted by the exploitation of Blockchains smart contracts while the adoption of different technologies will be solved by the development of Blockchain interoperability connectors between the two BC providers. End users will cover the whole TC value chain, from raw materials to recycling.

Anno di stipula:	2021
Tipo progetto:	IA - Innovation Action
Programma UE:	HORIZON 2020
	Climate Action, Environment, Resource Efficiency and Raw Materials
Data inizio:	01-05-2021
Data scadenza:	30-04-2024
Contributo totale:	€ 7.997.854
Costo eleggibile totale:	€ 9.600.449
Contributo a ENEA:	€ 374.000
Costo eleggibile ENEA:	€ 374.000
Doc. approvazione:	113/2021/TERIN
Codice atto:	PK5AAF
Resp. scientifico ENEA:	CIACCIO GESSICA
Unità:	TERIN-SEN-CROSS

Attività ENEA:

ENEA partecipa ai seguenti work package: . WP1 (Use Case Requirements); . WP2 (Development of TRICK platform); . WP3 (Blockchain design and implementation); . WP4 (B2B marketplace development and service implementation); . WP7 (Communication and dissemination) . WP8 (Management).

Coordinatore: EMPIRICA (Germania)

N. Partner: 11

Abstract:

tunES brings together 7 national Energy Agencies, representing 132 million citizens, who will tackle the common challenge of making building energy efficiency and smartness instruments work. Member States (MS) receive technical assistance, support and consulting from 4 research organisations, forming the Technical Support Team (TST). tunES will impact positively on the shortcomings of implementing EPC, SRI, and linked instruments, by structuring work into five building blocks to better collect, share, implement and replicate good practice: Understanding EPC, Upgrading EPC, Databases & Tools, SRI Development & Deployment, and, as horizontal block, Integration of Instruments to maximise harmonisation, coherence and synergies. Each building block is represented by MS Leaders having implemented good practice. MS Followers design policy options, packages and pathways that will facilitate uptake of good practice. tunES deploys a Technical Support and Assistance Framework based on the EU Better Regulation Guidelines (BRG). For each stage of the policy design process (inception, data collection, analysis, policy options design, prioritisation, impact assessment, iteration, roll-out planning and throughout stakeholder engagement). Simultaneously and across the building blocks, the TST prepares for the Energy Agencies the necessary methods and tools to safeguard consistency within and across MS. From the beginning, results on good practice as well as how to apply BRG methods are publicly shared in a guidance. Other MS are invited to apply all or selective methods in-sync with the project. The core outcome are seven national policy measure packages including extensively vetted policy options, with clear impact, stakeholder reaction, and concise actions for realising full national implementations. On the EU-level, a comprehensive guidance strategy allows other stakeholders not only to access use cases but have all tools readily at hand for effective replication.

Anno di stipula: 2023

Tipo progetto: LIFE Project Grants

Programma UE: Other programmes 2021-2027
LIFE (2021-2027)

Data inizio: 01-09-2023

Data scadenza: 31-08-2025

Contributo totale: € 1.999.707

Costo eleggibile totale: € 2.104.954

Contributo a ENEA: € 208.942

Costo eleggibile ENEA: € 219.939

Doc. approvazione: 20/2023/DUEE-SPS

Codice atto: PW3ABF

Resp. scientifico ENEA: DI PIETRA BIAGIO

Unità: DUEE-SPS-SEI

Attività ENEA:

ENEA è leader del work package n. 1 "Facilitation of cross-border Exchange and external Follower Network" ed è coinvolta in tutti gli altri work package: . WP2 Data Collection and National Stakeholder Engagement . WP3 Policy Development & Ex-ante testing . WP4 Data analysis & Impact Assessment . WP5 Sustainability, Replication and Exploitation of Project Results + Dissemination . WP6 Project Management & Coordination

Coordinatore: ETRA INVESTIGACION Y DESAROLLO SA (Spagna)

N. Partner: 24

Abstract:

USER-CHI aims at unlocking the massive potential of electromobility in Europe. This will be achieved by: (1) integrating different innovative charging technologies with a holistic perspective; (2) putting the user at the centre and empowering it; (3) exploiting the synergies between electromobility and the process of greening and smartification of the grid which is taking place to achieve the energy transition in Europe, (4) integrating the technological tools, business models and regulatory measures which will transform the elements cited above into an actual, working ecosystem which improves the user experience of EV drivers beyond the current levels of ICE vehicles drivers, whilst at the same time makes financially attractive for the relevant private and public actors the large scale deployment of Europe's required user centric charging infrastructure. USER-CHI will boost a large-scale e-mobility market take up in Europe, by means of developing integrated smart solutions, novel business models and new regulatory framework conditions, which will be demonstrated and validated in 5 urban areas all along the European territory: Barcelona metropolitan area (Spain), Rome (Italy), Berlin (Germany), Budapest (Hungary), and Turku (Finland). These 5 sites act as connecting nodes of the key Mediterranean and Scandinavian-Mediterranean TEN-T corridors, while their different sizes, complementary contexts and e-mobility maturity level offer a holistic view of e-mobility in Europe, facilitating the scalability and replicability of the demonstrated solutions. Since large scale replication and transferability of USER-CHI results is one of the cornerstones of the project, a replication city has been included in each of the TEN-T corridors involved in the project: Murcia (Spain) in Mediterranean corridor and Florence (Italy) in Scandinavian-Mediterranean corridor. This, together with the involvement of EUROCITIES will maximise the project impact even after its completion.

Anno di stipula: 2020

Tipo progetto: IA - Innovation Action

Programma UE: HORIZON 2020

Data inizio: 01-02-2020

Data scadenza: 31-01-2024

Contributo totale: € 14.263.188

Costo eleggibile totale: € 17.486.866

Contributo a ENEA: € 345.375

Costo eleggibile ENEA: € 345.375

Doc. approvazione: 76/E/2019/DTE

Codice atto: PT4ABB

Resp. scientifico ENEA: ANDRENACCI NATASCIA

Unità: DTE-PCU-STMA

Attività ENEA:

Within this task detailed EV charging infrastructure models will be designed properly defining and formalizing their flexibility characteristics and their control and response capabilities to be integrated in the smart grid. Modelling activities will tackle all necessary components and will incorporate capacity and flexibility parameters for local grid optimization. On the other hand, this task will deliver algorithms and models for profiling of EV batteries and charging infrastructure for optimal charging and discharging actions. Analysis of battery energy storage system solution dedicated to the peak load shave will be also considered, with a particular attention to the re-use of exhausted EV batteries (second-life). This task will focus mainly on the solutions available in the USER-CHI demo sites, with special attention to the integration of new electric mobility modes



Virtual Enhanced Reality for inTeroperable training of CBRN military and civilian Operators

Coordinatore: FONDAZIONE SAFE (Italia)

N. Partner: 9

Abstract:

VERTIgO will develop a simulation platform for military CBRN training, which integrates a Virtual Reality headset and a CBRN mask for enhanced realism. The project "Virtual Enhanced Reality for inTeroperable training of CBRN military and civilian Operators" (VERTIgO) supports an integrated approach to conflicts and disaster relief by virtualization and simulation of CBRN (chemical, biological, radiological and nuclear) defence training. The project's overall objective is the validation of a European Exercise Simulation Platform (EESP) for virtual reality (VR) applications to CBRN training, complemented by the prototyping of an ad-hoc hardware solution, which integrates a VR headset and CBRN mask for enhanced realism and user experience.

Anno di stipula: 2021

Tipo progetto: N/A - Non applicabile

Programma UE: Other programmes

EDIDP (2019-2020)

Data inizio: 01-12-2021

Data scadenza: 31-05-2024

Contributo totale: € 2.598.416

Costo eleggibile totale: € 2.736.614

Contributo a ENEA: € 120.236

Costo eleggibile ENEA: € 120.236

Doc. approvazione: 154/2021/FSN

Codice atto: PF7ABR

Resp. scientifico ENEA: GUARNERI
MASSIMILIANO

Unità: FSN-TECFIS-DIM

Attività ENEA:

Nel progetto ENEA con il laboratorio DIM ricoprirà due ruoli di strategica importanza essendo cosviluppatore della piattaforma di virtualizzazione 3D con specifiche competenze, oltre a contribuire con le proprie competenze alla definizione ed individuazione di possibili scenari in cui ambientare gli addestramenti in ambito soprattutto di eventi nucleari. DIM svolgerà anche il ruolo di utilizzatore della piattaforma stessa per addestrare il proprio personale deputato ad interventi in ambito CBRN sul territorio nazionale, come previsto nei piani dell'Ente.

VIRTUAL CENTRE FOR DISTRIBUTED ATMOSPHERIC SENSING FOR REDUCTION OF POLLUTION PRESSURES

Coordinatore: VINCA INSTITUTE OF NUCLEAR SCIENCES (Serbia)

N. Partner: 4

Abstract:

Air quality still poses a challenge to health, ecosystems and climate in Europe, despite decades of positive developments. Since the adoption of the first EU legislation on ambient air, the process knowledge has increased, the remote and in-situ observing technologies have undergone major developments, and new potent ICT infrastructures have emerged. Low cost sensing technologies have enabled a paradigm shift in air quality monitoring, triggering new research needs and opportunities in order to underpin the new capabilities. VIDIS will develop strategic partnership of VINCA Institute (SR) with leading international counterparts known for research on low-cost sensing (ENEA (IT), NILU (NO), Queensland University (AU)). VIDIS will establish scientific collaboration and networking and generate new knowledge that will allow the society to meaningfully utilize the new technologies, e.g., the emerging democratized data collection. VINCA is recognized in atmospheric research and in-situ monitoring including low-cost technologies. In order to fully capitalize on and improve this expertise, there is a need to establish a strategic partnership with institutions excellent in areas VINCA has been pursuing. VIDIS will improve observing capabilities and develop quality systems needed to ensure meaningful data integration. It will develop artificial intelligence and machine learning methods allowing to integrate the new types of data into existing information systems. Building on methods and data collected from ongoing projects of all partners, VIDIS will establish collaborative research, education, training and dissemination activities, early stage researcher training and mobility, and support early stage researcher career development also in research administration and stakeholder contact. This will increase the innovation capacities of VINCA and partners, improve VINCA's collaborative potential, and contribute to excellence of European research and innovation.

Anno di stipula: 2020

Tipo progetto: CSA - Coordination and support action

Programma UE: HORIZON 2020

Spreading Excellence and Widening Participation - WIDESPREAD

Data inizio: 01-11-2020

Data scadenza: 30-04-2024

Contributo totale: € 899.125

Costo eleggibile totale: € 946.250

Contributo a ENEA: € 194.125

Costo eleggibile ENEA: € 194.125

Doc. approvazione: 95/2020/DTE

Codice atto: PT1AAW

Resp. scientifico ENEA: DE VITO SAVERIO

Unità: TERIN-FSD-SAFS

Attività ENEA:

ENEA metterà a disposizione i dati rilevati dai sensori MONICA (MONItoraggio Cooperativo della qualità dell'Aria), dotati di strumenti di intelligenza artificiale che hanno permesso di realizzare vere e proprie mappe della qualità dell'aria ad altissima risoluzione spazio-temporale durante le campagne di monitoraggio. L'ENEA è leader del work package 3 nel quale è in particolare responsabile dell'organizzazione di contributi on-line di base per le summer schools coordinando i contributi dei diversi partner. Partecipa inoltre ai work package: ? WP1: sviluppo del centro VIDIS che collegherà le 4 istituzioni partecipanti con competenze complementari integrandole in un Sistema di conoscenze sinergico alla creazione e al supporto di ricerche cooperative (progetti) e di programmi di training e sviluppo competenze per gli early stage researchers; ? WP2: incrementare l'esperienza del partner Widening Country (VINCA) e la leadership dei partecipanti supportando la diffusione delle competenze complementari su atmospheric science and air pollution assessment (QUT), Air Pollution Modeling (NILU) Artificial intelligence and machine learning (ENEA) . Scientific training per early stage researchers.



Fully connected virtual and physical perovskite photovoltaics lab

Coordinatore: HELMHOLTZ-ZENTRUM BERLIN FUR MATERIALIEN UND ENERGIE GMBH (HZB) N. Partner: 15
 (Germania)

Abstract:

VIPERLAB identifies perovskite PV as the key emerging technology that will be the lever for a future market penetration of EU-based PV production with lowest costs and lowest carbon footprint. Therefore, through facilitated and coordinated access to the best EU perovskite infrastructures and the use of advanced data mining approaches, VIPERLAB will stimulate European academic and industrial researchers to work together on the research and development of the next generation of solar cell technology, which will accelerate the perovskite PV technology development in Europe. Top-level material synthesis, state-of-the-art device design and development, as well as standardized testing methods, simulation methods, and databases will be the main services offered in order to validate at lab-scale and at pre-industrial-scale, the technology that will form the backbone for EU PV recovered worldwide leadership all along the value chain. VIPERLAB will boost this ambition for the emerging perovskite community by providing transnational and virtual access aiming to: (1) combine European top-ranked, relevant and complementary perovskite PV infrastructures to foster perovskite solar cells and module development and testing. Facilitate access to these perovskite-focused infrastructures for the community of EU PV academia and industry; (2) connect and support the starting European perovskite community through physical and virtual infrastructures and through targeted networking activities and (3) further develop physical and virtual perovskite infrastructures, build an up-to-date database on materials and devices, on long-term performance and on environmental and economic impact (enabling evidence-based commercial and political decision making. Hence, VIPERLAB will build up a close dialogue with the emerging perovskite industry with the help of new initiatives such as EPKI as well as more established players such as the European solar industry association Solar Power Europe.

Anno di stipula: 2021

Tipo progetto: RIA - Research and Innovation Action

Programma UE: HORIZON 2020

European Research Infrastructures

Data inizio: 01-06-2021

Data scadenza: 30-11-2024

Contributo totale: € 5.520.125

Costo eleggibile totale: € 5.520.125

Contributo a ENEA: € 376.610

Costo eleggibile ENEA: € 376.610

Doc. approvazione: 28/2021/TERIN

Codice atto: PK0AAC

Resp. scientifico ENEA: ROCA FRANCESCO

Unità: TERIN

Attività ENEA:

L'ENEA partecipa alle attività del progetto con un ruolo cruciale in quanto: - è responsabile, del WP5-NA2 Communication, dissemination, exchange and training; - ha il ruolo di Communication & dissemination manager per il progetto ed ha sviluppato direttamente procedure e strumenti quali sito il web del progetto, la Knowledge Exchange Platform, e le strategie di comunicazione tramite canali scientifici e media - offre inoltre le infrastrutture Tandem PSK/si Lab e CRESCO computing lab.