

Partecipazione ai programmi di collaborazione tecnologica dell'Agenzia Internazionale dell'Energia ([IEA TCP](#))

USI FINALI DELL'ENERGIA (Delegati Italiani al comitato EUWP, Ezilda Costanzo (ENEA) e Michele De Nigris (RSE))			
Programmi TCP IEA	Paesi Membri (sottolineato il paese con ruolo di Coordinatore)	Progetti <i>Annex-Task</i> , numero - titolo	Delegati italiani ENEA-DTE al Comitato Esecutivo (ExCo)
BUILDING			
<p>Energy in Buildings and Communities (EBC) Area riservata stakeholder Italiani</p>	<p>Australia Austria Belgium Canada China Denmark Finland France Germany Ireland Italy <u>Japan</u> Korea Netherlands New Zealand Norway Portugal Singapore Spain Sweden Switzerland United Kingdom United States</p>	<p>Annex 5 - Air Infiltration and Ventilation Centre Annex 67 - Flexible Buildings Annex 68 - Design and Operational Strategies for High IAQ in Low Energy Buildings Annex 69 – Strategy and Practice of Adaptive Thermal Comfort in Low Energy Buildings Annex 70 – Building Energy Epidemiology: Analysis of Real Building Energy Use at Scale Annex 71 - Building Energy Performance Assessment Based on In-situ Measurements Annex 72 - Assessing Life Cycle Related Environmental Impacts Caused by Buildings Annex 73 - Towards Net Zero Energy Public Resilient Communities Annex 74 Competition and Living Lab Platform Annex 75 - Cost-effective Building Renovation at District Level Combining Energy Efficiency & Renewables Annex 76 - EBC Annex 76 / SHC Task 59 Deep Renovation of Historic Buildings Towards Lowest Possible Energy Demand and CO2 Emissions Annex 77 - EBC Annex 77 / SHC Task 61 Integrated Solutions for Daylight and Electric Lighting Annex 78 - Supplementing Ventilation with Gas-phase Air Cleaning, Implementation and Energy Implications Annex 79 - Occupant-Centric Building Design and Operation Annex 80 - Resilient Cooling Annex 81 – Data-Driven Smart Buildings Annex 82 – Energy Flexible Buildings Towards Resilient Low Carbon Energy Systems Annex 83 - Positive Energy Districts</p>	<p>Michele Zinzi</p>
<p>Energy Conservation through Energy Storage (ECES) Area riservata stakeholder Italiani</p>	<p>Austria Belgium Canada China Denmark Finland France Germany Italy Japan <u>Netherlands</u> Norway Portugal Slovenia South Korea Sweden Switzerland</p>	<p>Annex 27 - Quality Management in Design, Construction and Operation of Borehole Systems Annex 32 - Modelling of Energy Storage for Simulation/ Optimization of Energy Systems Annex 33: Material and Component Development for Thermal Energy Storage Annex 34 - Comfort & Climate Box Annex 35 - Flexible Sector Coupling Annex 36 - Carnot Batteries - (approvato nov.2019) Ground source de-icing of transport infrastructure (proposta) District heating and storage (proposta, interesse italiano) Smart Design and Control of Energy Storage Systems (proposta, interesse italiano)</p>	<p>Pier Paolo Prosinì Raffaele Liberatore</p>

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	Turkey United Kingdom, United States		
Heat Pumping Technologies <i>(HPT)</i> Area riservata stakeholder Italiani	Austria Belgium Canada China Denmark Finland France Italy Germany Japan the Netherlands Norway South Korea Sweden <u>Switzerland</u> United Kingdom United States	Annex 43 - Fuel-driven sorption heat pumps Annex 45 - Hybrid Heat Pumps Annex 46 - Domestic Hot Water Heat Pumps Annex 50 - Heat Pumps in Multi-Family Buildings for space heating and DHW Annex 51 - Acoustic Signature of Heat Pumps Annex 52 – Long-term performance measurement of GSHP Systems serving commercial, institutional and multi-family buildings Annex 53 _ Advanced cooling/refrigeration technology development Annex 54 - Heat pump systems with low GWP refrigerants Annex 55 - Comfort and Climate Box Annex 56 - Internet of Things for Heat Pumps	Maurizio Pieve
<u>INDUSTRY</u>			
Industrial Energy-Related Technologies and Systems <i>(IETS)</i> Area riservata stakeholder Italiani	Austria Canada Denmark France Germany Italy The Netherlands Norway Portugal <u>Sweden</u>	Annex XI - Industry-based Biorefineries Annex XIV -Energy Efficiency in the Iron and Steel Industry Annex XV - Industrial Excess Heat Recovery Annex XVI - Energy Efficiency in SMEs Annex XVII - Membrane Processes in Biorefineries Annex XVIII - Digitalization, Artificial Intelligence and Related Technologies for Energy Efficiency and GHG Emissions Reduction in Industry Annex XIX - Electrification in Industry	Stefano Stendardo Insieme a Simone Maggiore (RSE)
<u>TRANSPORT</u>			
Advanced Fuel Cells <i>(AFC)</i> Area riservata stakeholder Italiani	Austria, China, Croatia Denmark, France <u>Germany</u> Israel Italy Japan Korea Mexico Spain Sweden, Switzerland, United States	Annex 30 - Electrolysis Annex 31 - Polymer Electrolyte Fuel Annex 32 - Solid Oxide Fuel Cells Annex 33 - Fuel Cells for Stationary Applications* Annex 34 - Fuel Cells for Transportation Annex 35 - Fuel Cells for Portable Application Annex 36 - Systems Analysis Annex 37 Modelling of Fuel Cells Systems	Stephen MCP hail Viviana Cigolotti
Hybrid and Electric Vehicles <i>(HEV)</i> Area riservata stakeholder Italiani	Austria Belgium <u>Canada</u> Denmark Finland France Germany Ireland Italy Norway The Netherlands Republic of Korea Spain Sweden Switzerland Turkey United Kingdom United States	Task 1 - Information Exchange Task 23 - Light-Electric-Vehicle Parking and Charging Infrastructure Task 26 - Wireless Power Transfer for EVs Task 29 - Electrified, connected and automated vehicles Task 30 - Assessment of environmental effects of electric vehicles Task 32 - Small Electric Vehicles Task 33 -Battery Electric Buses (considering) Task 34 - Batteries (considering) Task 35 - Fuel Cell Electric Vehicles Task 36 - EV consumer adoption and use Task 37 - Extreme Fast Charging Task 38 - Marine Applications (e-Ships) Task 39 -Interoperability of e-Mobility Services	Francesco Vellucci

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		<p>Task 40 - CRM4EV - Critical Raw Material for Electric Vehicles</p> <p>Task 41 - Electric Freight Vehicles</p> <p>Task 42 - Scaling Up EV Markets and EV City Casebook</p> <p>Task 43 - Vehicle/Grid Integration</p> <p>Task 44 - Impact of Connectivity and Automation on Electrified Vehicle Usage and Benefits</p>	
RINNOVABILI		(Delegati Italiani al comitato REWP: Simona De Iuliis (ENEA) e Luca Benedetti (GSE))	
<p>Bioenergy</p> <p>Area riservata stakeholder Italiani</p>	<p>Australia, Austria, Belgium, Brazil, Canada, Croatia, Denmark, Estonia, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, The Netherlands, New Zealand, Norway, South Africa, Sweden, United Kingdom, United States, European Commission</p>	<p>Task 32 - Biomass Combustion</p> <p>Task 33 - Gasification of Biomass and Waste (Task SHC 58)</p> <p>Task 34 - Direct Thermochemical Liquefaction</p> <p>Task 36 - "Material and Energy valorisation of waste in a Circular Economy", (ex. Integrating Energy Recovery into Solid Waste Management Systems)</p> <p>Task 37 - Energy from Biogas</p> <p>Task 38 - Climate Change Effects of Biomass and Bioenergy Systems</p> <p>Task 39 - Commercialising Conventional and Advanced Liquid Biofuels from Biomass</p> <p>Task 40 - Sustainable biomass markets and international bioenergy trade to support the biobased economy</p> <p>Task 42 - Biorefining in a Circular Economy</p> <p>Task 43 - Biomass Feedstocks for Energy Markets</p> <p>Task 44 - Flexible Bioenergy and System Integration</p> <p>Task 45 - Climate and Sustainability Effects of Bioenergy within the broader Bioeconomy</p> <p>Inter - Task Projects</p> <p>SP - Special Projects</p>	<p>Insieme a Luca Benedetti (GSE)</p> <p>Vito Pignatelli</p>
<p>Concentrated Solar Power (SolarPACES)</p> <p>Area riservata stakeholder Italiani</p>	<p>Australia, Austria, Belgium, Brazil, Chile, China, France, Germany, Greece, Israel, Italy, Mexico, Morocco, Namibia, Korea, South Africa, Spain, Switzerland, United Arab Emirates, United States</p>	<p>TASK I - Solar Thermal Electric Systems</p> <p>TASK II - Solar Chemistry Research</p> <p>TASK III - Solar Technology and Advanced Applications</p> <p>TASK IV - Solar Heat Integration in Industrial Processes</p> <p>TASK V - Solar Resource Assessment and Forecasting (</p> <p>TASK VI - Solar Energy and Water Processes and Applications</p>	<p>Massimo Falchetta</p>
<p>Hydrogen</p> <p>Area riservata stakeholder Italiani</p>	<p>Australia, Austria, Belgium, China, Denmark, Finland, France, Germany, Italy, Japan, Korea, United Kingdom, Greece, Israel, Lithuania, The Netherlands, New Zealand, Norway, Spain, Sweden, European Commission, Switzerland, (UNIDO)</p>	<p>Task 37 - Hydrogen Safety</p> <p>Task 38 - Power-To-Hydrogen and Hydrogen-To-X</p> <p>Task 39 - Hydrogen in Marine Applications</p> <p>Task 40 - Energy Storage and conversion based on hydrogen</p> <p>Task 41 - Data and Modelling (Sub-Task C – Cooperation with ETSAP) (to be approved)</p> <p>Task (dbd) - Renewable Hydrogen Production (in preparation)</p>	<p>Alberto Giaconia</p> <p>Massimiliano Della Pietra</p>

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<p>Photovoltaic Power Systems (PVPS)</p> <p>Area riservata stakeholder Italiani</p>	<p>Australia, Austria, Belgium, Canada, Chile, China, Denmark, Finland, France, Germany, Israel, Italy, Japan, Korea, Malaysia, Mexico, Morocco, The Netherlands, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United States, European Commission</p>	<p>Task 1 - Strategic PV Analysis & Outreach Task 12 - PV Sustainability Task 13 - Performance, Operation and Reliability of Photovoltaic Systems Task 14 - High Penetration of PV Systems in Electricity Grids Task 15 - Enabling Framework for the Acceleration of BIPV Task 16 - Solar Resource for High Penetration and Large Scale Applications Task 17 - PV for Transport Task 18 - Off-Grid and Edge-of-Grid Photovoltaic Systems</p>	<p>Ezio Terzini</p> <p>Insieme a Salvatore Guastella RSE</p>
<p>FONTI FOSSILI</p>		<p>_(Delegato Italiano al comitato FEWP: Eugenio Giacomazzi ENEA)</p>	
<p>Clean Coal Centre (CCC)</p> <p>Area riservata stakeholder Italiani</p>	<p>Australia, Germany, Italy, Japan, Poland, South Africa United States European Commission</p>	<p>Collaboration on Sotacarbo Summer school; [ONE] Only Natural Energy digital magazine; training activities. 2019-21 Studies programme. Co-written reports: Use of fly ashes; The Energy Trilemma; Technology developments for cofiring biomass with coal</p>	<p>Stefano Giammartini</p> <p>Insieme a Gianni Serra (SOTACARBO)</p>

Progetti R&S (Annex/Task) a partecipazione italiana: **In grassetto se presenti esperti ENEA.**

*Progetto a coordinamento Italiano.

Le linee in grigio indicano Annex/Task in cui l'Italia non è rappresentata.

Le colleghe DTE [Elena De Luca](#) e [Alessandra Scognamiglio](#) sono rispettivamente delegate agli ExCo dei programmi [Clean Energy Education and Empowerment \(C3E\)](#) e [Solar Heating and Cooling \(SHC\)](#) insieme a colleghi di altri Dipartimenti/Unità ENEA.

Glossario:

TCP (Technology Collaboration Programme): Il programma è svolto da esperti indipendenti da tutto il mondo che contribuiscono alle analisi periodiche dell'Agenzia Internazionale dell'Energia (IEA) per un sistema energetico più sicuro e sostenibile. I diversi programmi collaborativi (TCPs) promuovono lo sviluppo e la commercializzazione delle tecnologie più promettenti in vari settori energetici in linea con gli obiettivi IEA. Tali programmi coinvolgono oltre 6000 esperti internazionali e rappresentano circa 300 organizzazioni pubbliche e private in 55 paesi, non solo OCSE come Cina, India, Brasile. I TCP IEA sono attualmente 38, 22 a partecipazione italiana. Esperti ENEA DTE rappresentano l'Italia nei comitati esecutivi di 13 programmi collaborativi di ricerca TCP.

Annex/Task dei TCP: Progetti tematici su efficienza energetica, rinnovabili, combustibili fossili e su temi trasversali. Oltre 20 esperti ENEA DTE coinvolti in Annex/Task dei TCP IEA

Working Parties IEA: I sottogruppi del Committee on Energy Research and Technology (CERT), *Working Party on Energy End-Use Technologies (EUWP)*, *Working Party on Renewable Energy Technologies (REWP)*, *Working Party on Fossil Energy (WPFE)* forniscono supporto al CERT su sviluppi e politiche relativi alle tecnologie energetiche (per gli usi finali, l'EUWP; per le rinnovabili, il REWP; per il miglioramento dei combustibili fossili il FEWP).