



FP7 - Topic ENERGY.2007.9.1.1: Energy security of supply

Collaborative Project with predominant research
and policy components

Acronym: REACCESS

Full Title: Risk of Energy Availability:
Common Corridors for Europe Supply Security



Partners



The Partners

- **POLITO**: *Politecnico di Torino – Italy*
- **ASATREM**: *Applied System Analysis, Technology And REsearch, Energy Models – Italy*
- **CCCC**: *Climate Change Coordination Center – Kazakhstan*
- **CIEMAT**: *Centro de Investigaciones Energéticas, medioambientales y Tecnológicas – Spain*
- **DLR**: *Deutsches Zentrum für Luft und Raumfahrt, German Aerospace Center – Germany*
- **KANLO**: *Kanlo Consultants – France*
- **IET**: *Institute for the Economy in Transition – Russia*
- **IFE**: *Institute of Energy Technology - Norway*
- **NTUA-EPU**: *National Technical University of Athens - Greece*
- **ARC**: *Austrian Research Centres – Research Studios Austria – Austria*
- **F-UNED**: *Fundación General de la Universidad nacional de Educación a Distancia – Spain*
- **VTT**: *Valtion Teknillinen Tutkimuskeskus, Technical Research Centre of Finland – Finland*
- **USTUTT**: *University of Stuttgart – Germany*
- **CNR-IMAA**: *Institute of Methodologies for Environmental Analysis - Italy*



Work Packages



The Work Packages

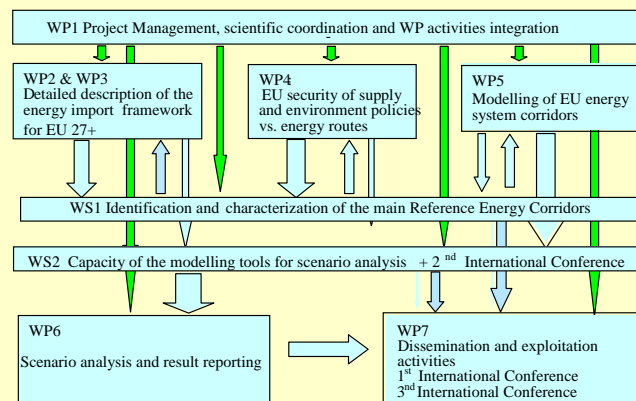
- WP1:** Project management, scientific co-ordination and WP activities integration (POLITO)
- WP2:** Identification and detailed description of the “captive” energy import framework for EU 27+ energy routes (DLR)
- WP3:** Identification and detailed description of the “open sea” energy import framework for EU 27+ energy routes (DLR)
- WP4:** EU security of supply and environment policies vs. energy routes (F-UNED)
- WP5:** Modelling the EU energy system supply corridors (KANLO)
- WP6:** Scenario analysis and result reporting (ASATREM)
- WP7:** Dissemination and exploitation activities (NTUA-EPU)



WP and WS inter-relationships

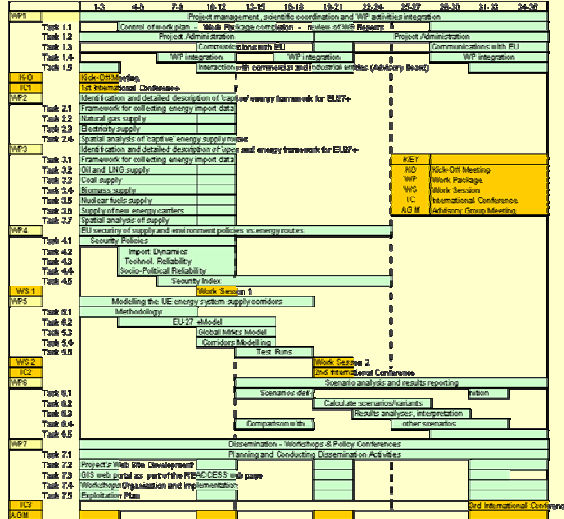


WP and WS inter-relationships





Scheduling



The time schedule

- ✓ 7 Work Packages
- ✓ 2 Intermediate Work Sessions
- ✓ Ad hoc sub-sessions with commercial and industrial entities
- ✓ Duration: 36 months



Features of Previous Projets



NEEDS (New Energy Externalities for Developments in Sustainability)
Including the externalities to the direct costs of commodities and technologies.

RES2020
Describing the renewable energy sources and their development potential and impacts with more detail.

TIAM (Times Integrated Assessment Model)
Multiregional model of the energy systems of 15 regions covering the entire world. Trade regional module is included.

ENCOURAGED (Energy corridor optimization for European markets of gas, electricity and hydrogen)
To assess the economic optimal energy interconnections and network infrastructure for electricity, gas and hydrogen of EU with and through neighboring regions.



Energy supply security

The availability of energy at all times in various forms, in sufficient quantities, and at reasonable and/or affordable prices

Uncertainty

Energy infrastructure reliability

Transport (to EU)

Probability distribution of the risk for each corridor

Risk to continuity of energy supply will be evaluated and integrated into the TIMES optimization procedure

Environmental impacts

Economic Competitiveness



REACCESS objectives

- Analyzing EU **present policies** about energy import;
- Identifying main **energy corridors** for primary/secondary commodities and electricity;
- Evaluating **technical, economical, environmental features** of present and future energy corridors;
- Introducing suitable parameters, indicators and cost components describing also technical and socio-economical **reliability**;
- Including the energy corridors into an **adjusted version of an EU-TIMES model** (PEM, ...);
- Evaluating of the best approach in order to include the reliability issue (**stochastic approach, ...**);
- Analyzing scenarios.



Work Sessions

WS 1 Identification and characterisation of the Reference Energy Corridors (between month 10 and month 12)

WS 2 Capacity of the modelling tools for scenario analyses (between month 19 and month 21)

Ad hoc sub-sessions will be devoted to interaction with commercial and industrial entities of the energy sector (**Advisory Board**).



International Conferences

- i) the first (**IC1**), in connection with the Kick-Off Meeting, for launching the project and the effective dissemination of the proposed objectives to relevant stakeholders, key energy market players, policy makers and the civil society;
- ii) the second one (**IC2**), for presenting the energy corridors modelling processes and the definition and composition of the scenarios (development of new energy "streams", implementation of new electricity supply schemes, competition with major importing countries, innovative energy transmission technologies, reliability associated on corridors and regions); (between month 18 and month 20)
- iii) the third one (**IC3**) - in Brussels, Belgium – at the end of the project, in order to present the project's results, disseminate useful and appropriate information, provide energy policy recommendations and guidelines to EU energy policy makers, governmental organisations, academic institutions and key energy market players, support the decision making process gained from the model insights, present the implications that may occur and the results interpretation. Analyzing EU present policies about energy import. (between month 34 and month 35)



REACCESS structure

- the **General Assembly (GA)** is the strategic body where all project members are involved;
- the **Steering Committee (SC)** is the executive body of the project;
- the **Project Coordinator (PC)** is responsible for the coordination and supervision of all the activities to be implemented within the project; he will be supported by the **Project Office (PO)** in the overall management;
- the **Work Package Committee (WPC)** is in charge of managing the activities implemented under the responsibility of the Work Package Leader;
- the **Advisory Board (AB)**, a selected group of commercial and industrial entities operating in the energy sector.



Personnel costs	2100	kEuro
390 p-m	WP1	60.5 p-m
	WP2	26,0 p-m
	WP3	44.5 p-m
	WP4	60.0 p-m
	WP5	77.0 p-m
	WP6	79.0 p-m
	WP7	41.0 p-m
Travel costs	370	kEuro
Indirect costs	1500	kEuro
Total cost	4085	kEuro
EU contribution	3022	kEuro



In the modelling tools that will be developed, all conventional and non conventional energy commodities (such as heavy and extra heavy oil, oil sands, shale oil, coal bed methane, hydrogen, biomass, electricity, natural gas, liquefied natural gas, etc ...) will be explicitly considered.

Particular care will be paid to:

- the present and estimated size of the energy sources, associating reserves to expected mining/producing costs and overall energy prices;
- the description and characterisation of infrastructures and technologies involved in the energy routes, taking into account that pipelines, electricity interconnection lines, terminals and storage facilities in each corridor are supplying several countries (in general, both inside and outside EU27+);
- technological and socio-economic reliability and risks associated to each energy commodity and technology for and each exporting region;
- externalities associated to the construction and operation of infrastructures, facilities, etc



The data related technical-economic characteristics, risk and externalities are collected in WP 2 and WP 3 of the project. Work Sessions 1 and 2 will guarantee the appropriate coordination of these interrelated WPs (WP 2, 3 and 4 for data collecting, WP 5 and 6 for modelling and scenario analysis).

Since EU27+ does not constitute the only energy importing country in the global energy market, particular attention will be paid to model the competition between EU 27+ and the other main energy importers (USA, Japan, China and India).

Therefore, although the project focuses on the energy security of EU27+, the geographical scope of data collection and modelling will be World based so that EU27+ dynamics can be evaluated in relation with the Rest of the World. Available international sources of information and networks, already existing World models as well as non European partners of the project will contribute to this World coverage.



The present version of PEM-Times developed in NEEDS and improved in RES2020 seems to be too large, complex and not sufficiently homogeneous to be used without relevant modifications.

Suitable aggregation of Countries selected with reference to their interactions with energy supply schemes (outside and inside EU) could be useful and probably necessary.





REACCESS budget



		Estimated budget (whole duration of the project)										
Organisation Nr.	Short Name	Organisation Country	RTD	Demonstration	Training	Coordination	Support	Management	Other	Total	Total receipts	Requested EU contributions
1	POLITO	IT	499107	0	0	0	0	132546	78468	710121	0	585344
2	ASATREM	IT	355200	0	0	0	0	15840	5280	376320	0	198720
3	CCCC	KZ	136000	0	0	0	0	4000	4000	144000	0	110000
4	CIEMAT	ES	155400	0	0	0	0	12275	4075	171750	0	132900
5	DLR	DE	277920	0	0	0	0	22520	5680	306120	0	236640
6	KANLO	FR	409280	0	0	0	0	16640	5600	431520	0	226880
7	IET	RU	144000	0	0	0	0	4000	4000	152000	0	116000
8	IFE	NO	368000	0	0	0	0	24000	8000	400000	0	308000
9	NTUA-EPU	EL	272000	0	0	0	0	40000	96000	408000	0	340000
10	ARC	AT	136000	0	0	0	0	4000	20000	160000	0	126000
11	F-UNED	ES	285000	0	0	0	0	12000	15000	312000	0	240750
12	VTT	FI	273028	0	0	0	0	16716	5572	295316	0	227059
13	USTUTT	DE	112000	0	0	0	0	4000	4000	120000	0	92000
14	CNR-IMAA	IT	66035	0	0	0	0	3564	28515	98114	0	81605
Total			3488970	0	0	0	0	312101	284190	4085261	0	3021898