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OPEN ENTRANCE

LC-SC3-CC-2-2018: Modelling in support to the transition to a Low-Carbon Energy System in Europe,

Horizon 2020, Secure, Clean and Efficient Energy

About Open ENTRACE

- **Aim:** to develop, apply and disseminate an open, transparent and integrated modelling platform designed to assess low-carbon transition pathways in Europe.
- **Partners**: 12 universities and research organisations, 1 industry partner and 1 partner responsible for dissemination and communication
- **Coordinator**: SINTEF Energi Dr Ingeborg Graabak
- **Stakeholders**: 45 (so far)
- **Project period**: 2019-2022
- **Budget:** 4.985 million Euro

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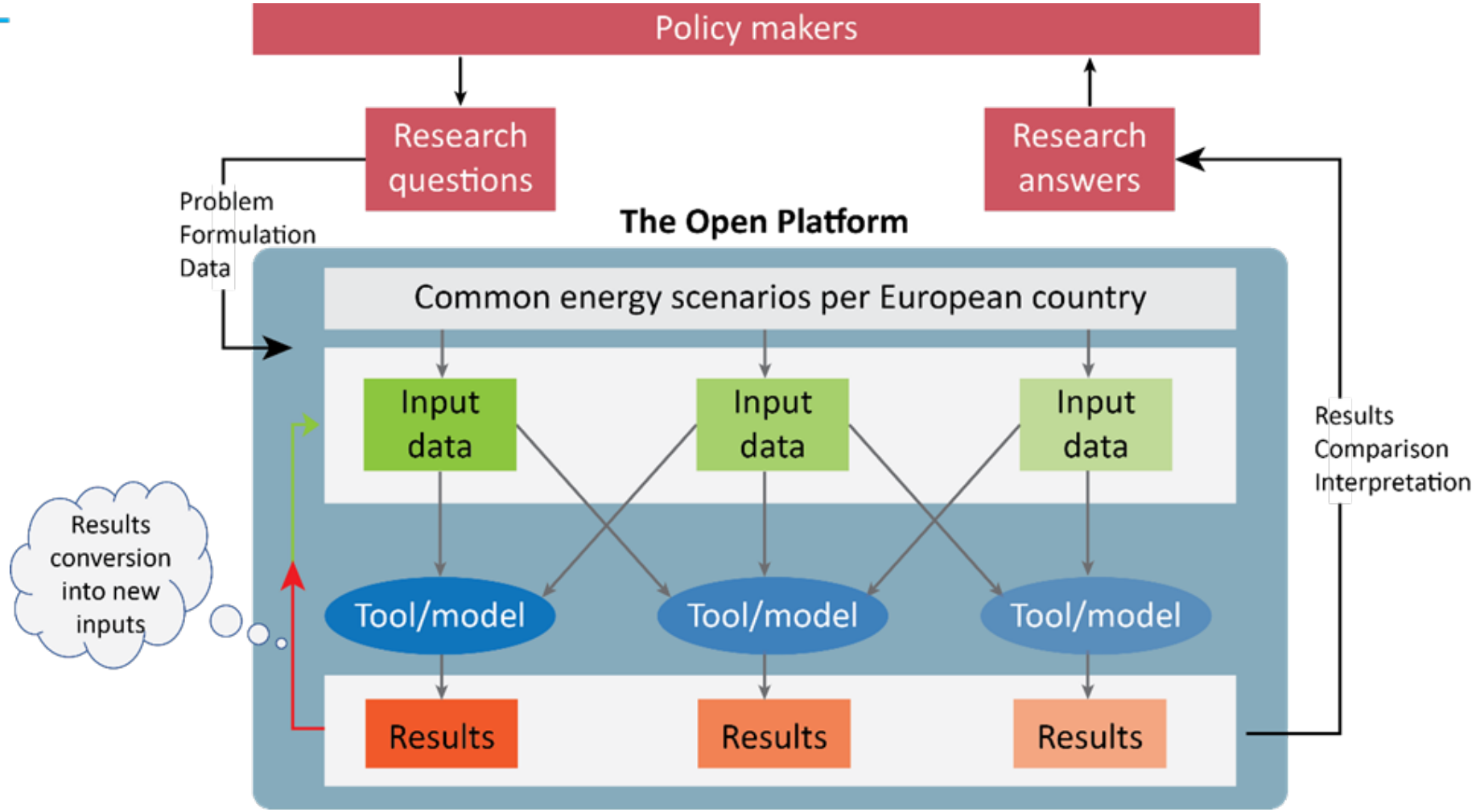
Concept



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Open ENTRANCE will improve the relevance of energy modelling by:

- Make the Open database (including data and models) available for third part actors
- Link models to enable faster analytical work and the performance of sensitivity analyses
- Incorporate large-scale empirical data on human behaviour into energy modelling tools
- Combine detailed bottom-up and top-down approaches
- Enable comparative studies using different models
- Optimise the quality of the models included in the modelling platform

Open models integrated via a database

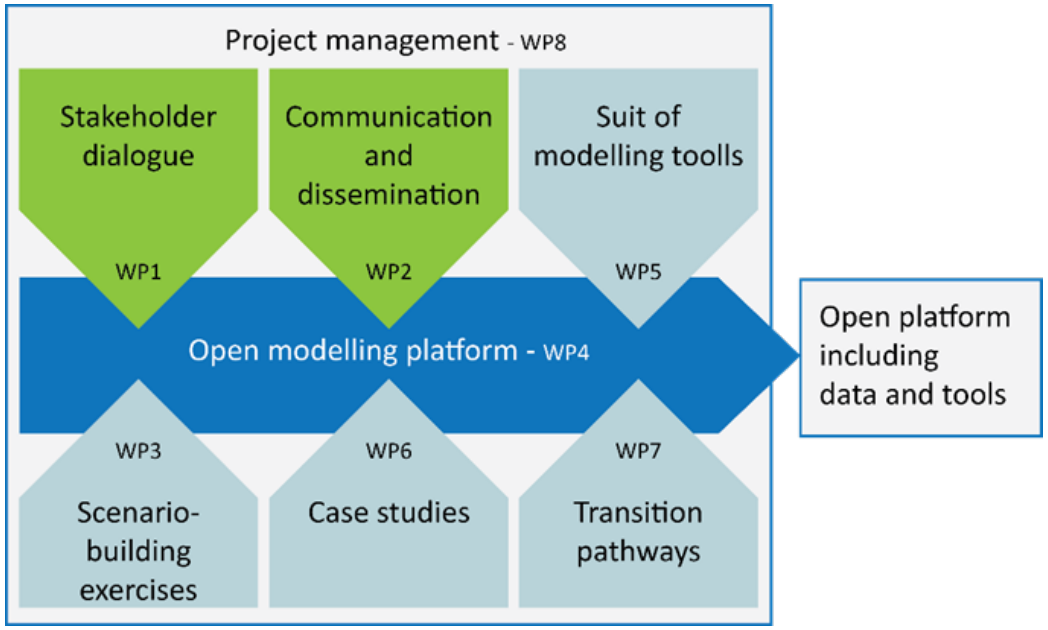
MODEL	LEAD PARTNER	DESCRIPTION	ELEC-TRICTY	HEAT	GAS	TRAN-SPORT
GENeSYS-MOD	TU Berlin	Energy System Model, cost-optimizing linear program, focusing on long-term developments	x	x	x	x
REMES	NTNU/ SINTEF	Regional Economic Modelling with focus on the Energy System	x	x		x
EXIMOD 2.0	TNO	Multisector multi region CGE model, measures the environmental and economic impacts of policies.	x	x	x	x
EMPIRE	NTNU	Power infrastructure investment model	x			
TEPES	Comillas	Power infrastructure investment model	x			
HERO	TU Wien	Optimal capacity allocation and dispatch of distributed generation and battery storage for meeting the energy services needs of local energy communities	x	x	x	x
OSCARS	TU Wien	Optimal utilization of small battery storages and flexible loads on prosumer level under various operation strategies	x	x		
Plan4EU	EDF	Modelling suite for the electricity system: i/ a capacity expansion model ii/ a seasonal storage valuation tool iii/ an European operational dispatch model	x			
FRESH:COM	TU Wien	FaiR Energy SHaring in Local COMmunities: Multi-objective optimization tool for local RES technology portfolio dimensioning	x			x

Case studies

1. Demand-Response from household consumers.
2. Demand-Response from communities of actors.
3. Flexibilities and storage.
4. Cross-sector integration, with a specific focus on the flexibilities provided by electric vehicle owners to the electricity system.
5. Compare different levels of geographic coordination for investment decisions, both at regional and European level, focusing on the topic of decentralisation.
6. Use of innovative technology in terms of underground rocks for seasonal storage of heat from summer to winter in a district in Oslo, Norway.
7. Evaluate how the use of flexibilities from the heating sector at different time scales may have an impact on the system operation costs and network expansion needs.
8. Investigate the role of natural gas storage in current and future energy systems in transition

Consortium of 14 partners

- TU Wien, Austria
- IIASA, Austria
- TU Berlin, Germany
- EDF, France
- Comillas, Spain
- KHAS, Turkey
- NTNU, Norway
- Energy Institute, Austria
- Fraunhofer, Germany
- TNO, The Netherlands
- DIW Berlin, Germany
- DTU Denmark
- WFC, Germany
- SINTEF Energi, Norway



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45 stakeholders, among other

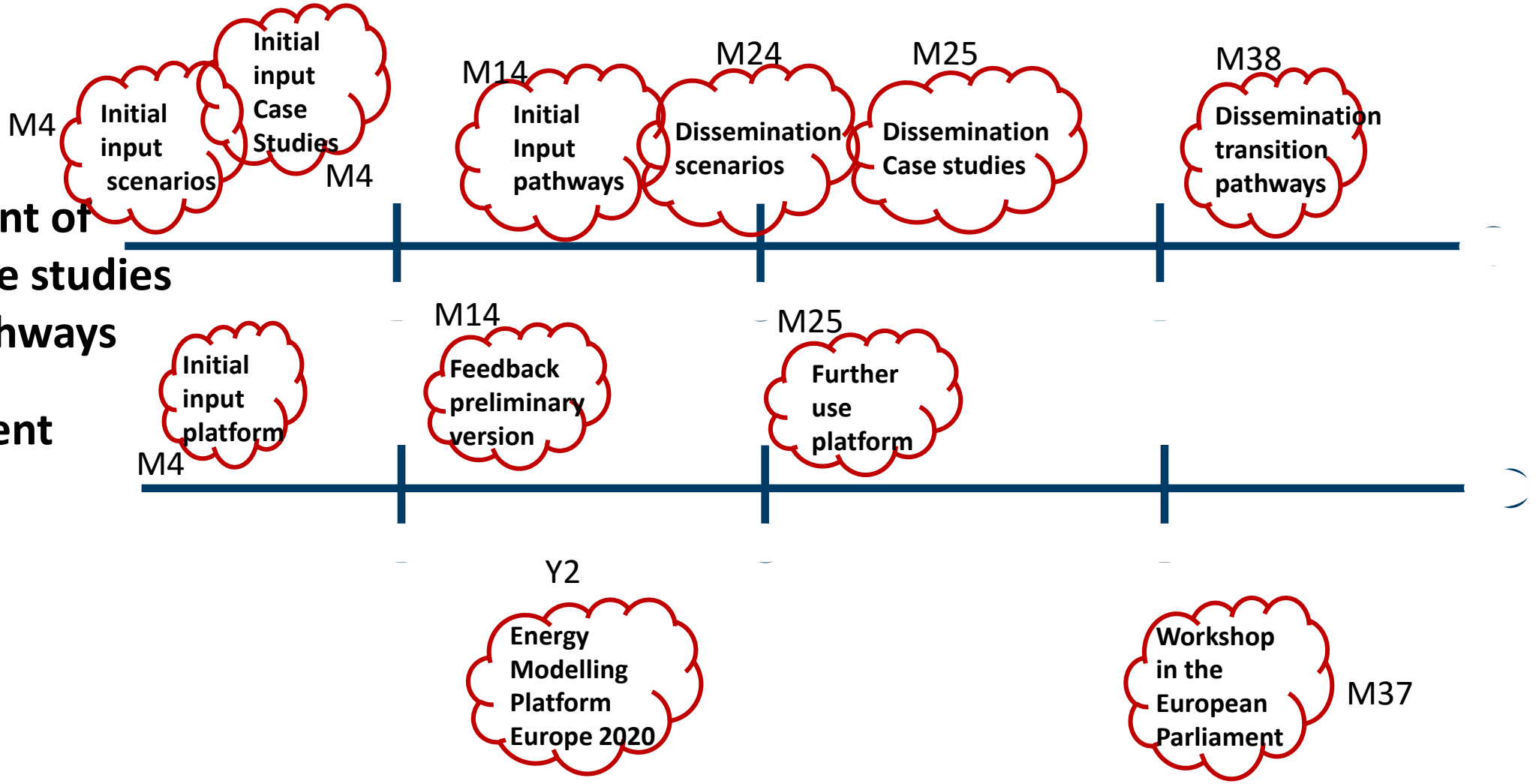
- Statkraft
- Enova
- EON
- Enel
- Iberola
- Wien Energie
- Verbund
- EDSO
- Netherland association for renewable energy
- ……..

Workshops with stakeholders

1. Development of scenarios, case studies transition pathways

2. Development of the Open Platform

3. Other



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Teknologi for et bedre samfunn