Newsletter of the ATEsT project **No. 2 –May 2011**

Analysing Transition Planning and Systemic Energy Planning Tools for the implementation of the Energy Technology Information System is one of the SET-Plan instruments analysing the evolution of the European energy infrastructure networks and systems planning for the transition towards a low carbon society. The goal is to create a knowledge platform in which energy models, techniques and data are collected and shared. www.atest-project.eu

Work Packages Organization

Achieved
WP1: List of answers the models have to provide
WP2: Inventory of Models according to SET-Plan needs

Ongoing
WP3: Evaluation of modelling Tools

Next steps
WP4: Tools Data Analysis
WP5: Tools Validation
WP6: Suggestions for Future Tools
WP7: Dissemination of Information

WP1 defines the specifications of the models and tools to best address and support the SET-Plan decision making and implementation. Full report at: http://www.atest-project.eu/pdf/D.1.1_Specification_Report.pdf

WP2 maps existing models and tools that cover transition planning and systemic energy topics through consultation of modelling team and by literature reviews. Full report at: http://www.atest-project.eu/pdf/D_2_1_Models_Characterisation_Report.pdf

WP3 proposes a methodology to find and evaluate suitable combinations of tools in order to support energy policy questions related to SET-Plan. Full report at: http://www.cres.gr/atest/pdf/ATEST_Model_Rankings.pdf

ATEsT Second Workshop, Brussels 31st January 2011

Adaptation of the ATEsT toolbox to the SET-Plan needs

Outcome of the Workshop on expectations from the ATEsT toolbox:

- To adapt to social and economic dynamics, like changes in markets and competitiveness.
- To integrate interactions between the energy sector and the rest of the economy.
- To integrate new technologies addressing 2020 goals.
- To reproduce optimal transition path, but also unexpected events or irrational behaviors.
- To explicitly address the supply of materials.
- To include non-technological barriers from market and social points of view.
- To be evaluated by at least one model user as well as by the model developer.
- To be validated periodically by policy makers and industrial stakeholders.
- To be an open toolbox, easy to update and to access.

Minutes at http://www.atest-project.eu/pdf/ATEST%20Second%20Workshop-Minutes.pdf

Work Package 2. INVENTORY AND CHARACTERIZATION OF EXISTING TOOLS AND MODELS

Step 1. A list of 85 models and tools is identified based on experts' suggestions and literature review.

• **An Open Call Consultation** was launched, containing 40 questions addressed to modeling teams. It helped at characterizing models as a function of their ability to evaluate SET-Plan needs.
• **A review of literature** was achieved by the ATEsT members and partners, when missing response from modeling teams (about 45% of the mapped models).

Step 2. The models identified at Step 1 are characterized based on the List of Specifications from Work Package 1.

Step 3. Several Matrices are built to evaluate the model degree of coverage for the different Specifications.

Four Matrices were built to assess the Primary Focus of each model. They map the models that cover a given specification as their primary focus of analysis, but also models that can be potentially useful in answering a specification (second best options). Four additional Matrices were built to analyse the features of each model. They show the level of detail covered by a model - technological, geographical, temporal, sector, etc.

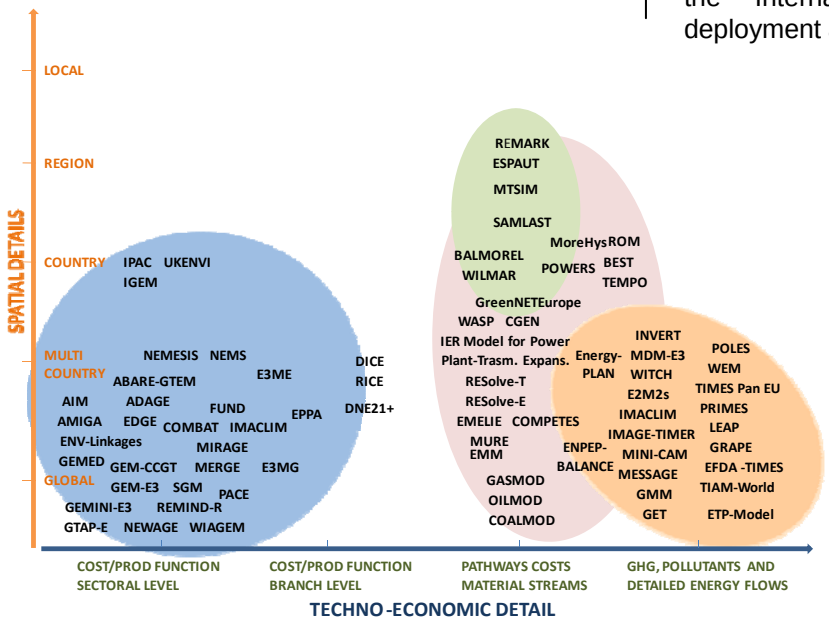
Main findings from Work Package 2 are organized around the four Specifications classes.

1. Strategic Planning
Most of the specifications within this class are well covered by different types of identified models. Further modelling improvements could be done for covering the issue of "Bottlenecks to technology deployment".

2. Technology Deployment & Transition planning
Most of the specifications are appropriately covered by different types of models. More efforts should be deployed in modelling to describe the relation between technical and behavioural issues; and also to perform a more detailed coverage to can answer spatial and sectoral specifications such as "Territorial integration", "Migration flows" or "Supply chain logistics".

3. Innovation and R&D
A good number of models covers most of the specifications related to innovation. Still challenges remain to collect detailed data, in particular private R&D data or feedback from R&D investments on sales. From modelling perspective, there is a need to improve the description of spillover effects and the bottleneck issues for the technology deployment.

4. International Cooperation
General specifications are well covered by the models. Challenges for modelling are the analysis of the International Cooperation on Technology deployment and on R&D.



Techno-economic detail and geographical coverage of identified models

Examples of models and tools types:

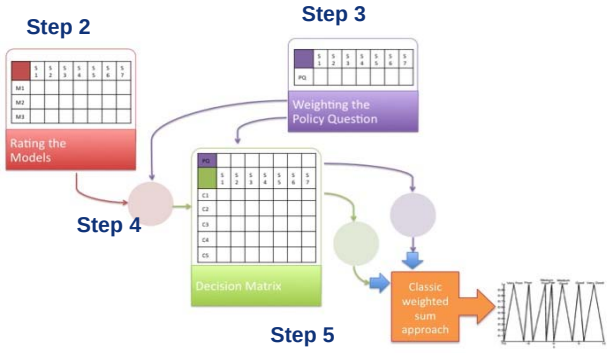
- Disaggregated energy models
- Energy Sector or Market level
- Energy system models
- Macro-economic models
- Energy behaviour tools
- Socio-technical scenarios
- Horizon Scanning methodologies

Work Package 3. EVALUATION OF MODELLING TOOLS

Objective: Develop a methodology to find and evaluate suitable combinations of tools in order to support energy policy questions related to SET-Plan.

Approach: Specifications need to be addressed from both the "Model perspective" – the usefulness of a tool to consider the specification, and from the "Policy question perspective" – the importance of the specification in answering a specific policy question. Both the usefulness of the models and the importance of specifications will be evaluated through the judgment of experts. A high accuracy of the evaluation is attained by using linguistic information.

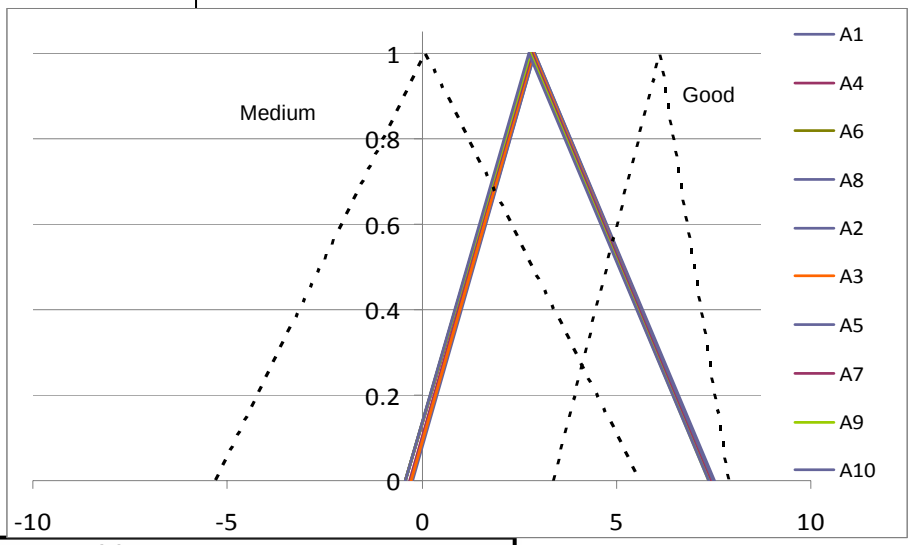
Methodology:
Step -1: Define the translation of "linguistic" information into triangular fuzzy number.
Step -2: Weight the tools according to their usefulness in considering given specifications.
Step -3: Weight the importance of the specifications to answer policy questions.
Step -4: Identify applicable combinations of tools able to answer the policy question.
Step -5: Create the Decision Matrix –evaluate the the ability of a combination of models to answer a policy question.



Example for a policy question
"Where should new energy installations be best located?"

The "top ten" combination of models/tools, according to this methodology, is presented in the figure below.

The combinations' rankings are very close to each other, since the difference between alternative combinations is of only one model, and the most two different models .



Combination	Models					
A1	TIMES-FI	COMPETES	IER_Transmission	STSc	MECHanisms	Behave
A2	TIMES-FI	COMPETES	STSc	MECHanisms	Behave	INVERT
A3	TIMES-FI	COMPETES	WILMAR_TOOL	STSc	MECHanisms	Behave
A4	TIMES-FI	COMPETES	STSc	MECHanisms	Behave	CGEN
A5	TIMES-FI	IER_Transmission	STSc	MECHanisms	Behave	INVERT
A6	TIMES-FI	COMPETES	WILMAR_TOOL	STSc	Behave	INVERT
A7	TIMES-FI	COMPETES	IER_Transmission	STSc	Behave	INVERT
A8	TIMES-FI	COMPETES	POWERS	STSc	MECHanisms	Behave
A9	TIMES-FI	IER_Transmission	POWERS	STSc	MECHanisms	Behave
A10	TIMES-FI	COMPETES	WILMAR	STSc	MECHanisms	Behave

Example ranking of model combinations.

ATEsT Website

www.atest-project.eu

ATEsT Partners

- CENTER FOR RENEWABLE ENERGY SOURCES (CRES)
- ENERGY RESEARCH CENTRE OFTHE NETHERLANDS (ECN)
- AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE (ENEA)
- UNIVERSITY OF STUTTGART (IER)
- TECHNICAL RESEARCH CENTER OF FINLAND (VTT)
- POLICY STUDIES INSTITUTE – UNIVERSITY OF WESTMINSTER (PSI)
- CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS (CIEMAT)
- ENERGY INSTITUTE HRVOJE POZAR (EIHP)
- EUROPEAN COMMISSION - JOINT RESEARCH CENTER (INSTITUTE for ENERGY)

Contact:
George Giannakidis
Centre for Renewable Energy Sources and Saving
Tel. +30 2106603324 • Fax +30 2106603301
E-mail: ggian@cres.gr