SIXTH FRAMEWORK PROGRAMME

Project no: **502687**
NEEDS
New Energy Externalities Developments for Sustainability

INTEGRATED PROJECT
Priority 6.1: Sustainable Energy Systems and, more specifically,
Sub-priority 6.1.3.2.5: Socio-economic tools and concepts for energy strategy.

Deliverable n° D 4.17 – RS 2a
"Milestone 4: Workshop – "Macro-Consistency of the Pan European model" (WS4)"

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VIII RS 2a Workshop
"Macro-Consistency of the Pan European model" (MS4)

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"Macro-Consistency of the Pan European model" (MS4)

October 24, 2007 (Special problems / cases: Monday / Tuesday 22- 23)

Venue: **ECN**
Radarport Office Building
Radarweg 60 1043 Amsterdam Sloterdijk,
The Netherlands (www.ecn.nl/ps /amsterdam)

Minutes of the Plenary Session
(As of November, 8)

Agenda Item	Who	Timing
1.Welcome, tour de table and approval of the Agenda	K. Smekens/ V. Cuomo	9.00
2. General achievements and updates Chairperson: K. Smekens		
Integration: state of the art and input –output flows	M Blesl / D. Van Regemorter	9.30
Transferring the knowledge: the IPR of RS2a results	C. Cosmi	10.00
Coffee break		*10.30*
News on incoming activities and projects	M. Gargiulo, other RS2a partners	10.50
EIE RES 2020: state of art and synergies with NEEDS RS2a.	G. Giannakidis / M. Gargiulo/ *other RES2020 representatives*	11.10
Discussion and action list		
3. RS2a advancements Chairperson: V. Cuomo		
The third year reporting documentation: a summary	C. Cosmi	11.30
Planning the IV year activities	C. Cosmi/All	11.40
Pan – European model: final results and open problems. Plans for future integrated runs and efficient dissemination of information to partners involved in WP3.	M. Blesl	11.50
The scenario analysis	D. Van Regemorter	12.20
Lunch		*13.00*
4.Conclusion and further developments		
Summary of the decisions and action list		14.30

List of participants

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1. Welcome, tour de table and approval of the Agenda

K. Smekens welcome the participants and open the meeting.

2. General achievements and updates

It is agreed to anticipate the presentation on IPR, to allow a wider discussion on it and to regroup the common items of the following presentations.

2.1 Transferring the knowledge: the IPR of RS2a results

L. Cosmi takes the floor for presenting a summary of the situation with regard to the utilization of the NEEDS results outside the project. Many requests of data were sent to the project coordinator regarding the outcomes of RS2a activities (e.g. contribution to ETP reports and other EU funded activities, distribution of the data for academic and/or no profit purposes) therefore it is necessary to agree a strategy for making available the data and publicizing the information.

The problem is to define what results will be officially available to the community outside NEEDS and when, taking into account the project deadlines and commitments. In this framework it should be also considered that dissemination and exploitation results are a main issue of the project, as strongly underlined by the reviewers. A wide discussion was undertaken mainly centered on better defining what are the "products" and the "results" that we will deliver. The main concern is the PEM database that is the main "product" of RS2a: the discussion is focused on its future use.

The main conclusions are resumed in the following:

- The priority is to produce/utilise the results within the NEEDS project, therefore the results cannot be shared/distributed outside of the NEEDS community before their official release.
- The reports and other documentation are public and each participant is allowed to use his own data without any conflict
- Only cleaned version and tested data should be circulated and a disclaimer should be added in the first page of reports, also in order to attribute the responsibility to the partners that developed the products
- Different guidelines should be set according to the type of products (e.g. reports, databases, software developed in the framework of the project)
- TIMES use is regulated by ETSAP rules
- Interactions between NEEDS and other projects should be regulated and the responsible of the interactions should be identified
- A proposal for the utilization of the RS2a database outside the NEEDS project will be circulated

The session continues with the next issue

2.2 Integration: state of the art and input –output flows
D. Van Regemorter and M Blesl take the floor for illustrating in brief the situation about the operating integration of LCA and ExternE. Many data should be provided by RS1a (LCA), RS1b, and RS1c (external costs).
At now, no data were provided by RS1a and RS1c on LCA, whereas data on external costs for LAP were provided by RS1b last August and are being integrated in some country models (test cases Belgium and Italy) as well as in the PEM
M. Blesl illustrates the state of the art relatively to the information flows tables circulated in July 2007.
As concerns RS2a, many interactions are ongoing with RS1a and RS2b.
RS2a (IER) have provided RS1a and RS2b with summary results concerning both the BAU scenario and CO_2 preliminary runs that can be used to finding out the changes occurring in the LCA data as well as for applying MCDA. According to the outcomes of the Krakow validation meeting, the EPG database was harmonized including the suggestions of the stakeholders about the penetration of photovoltaic (regarding the capacities to be installed) and a sensitivity analysis on EPG technologies' costs was also performed by IER, providing RS1a with the data ('440ppm' Scenario, with harmonized EPG data and '440ppm' SENTECH scenario, based on RS1a cost data).
Ongoing interactions with RS2b concern data exchanges on the countries selected for the application of MCDA (Germany, Italy, Switzerland and France): total fuels consumption, weight factors and indicators for security of energy supply, energy prices. The feedbacks from RS2b regarding the BAU PEM results as well as the Switzerland country model were useful to improve on overall the PEM model performances. Feedbacks on the CO_2 scenario results are expected. As an indirect outcome, an additional analysis of marginal abatement costs for electricity prices is envisaged.
As concerns the other RSs no direct interactions are foreseen and it is only necessary to inform the other RSs about the availability of the BAU scenario results.

The discussion was addressed to the problem of data missing and on the open issues that should be solved within RS2a. It is clear it is not possible to make integration operating if data are not provided and that the delays in data release are affecting the overall time schedule of integration. Nevertheless a recovery strategy should be defined rather than fixing a new deadline and waiting for the data.
As concerns the LCA data, M. Blesl says that to speed up the process it is possible to use the preliminary data elaborated from RS1a and delivered to CASES that are extended up to 2030, and eventually use the final data from RS1a when available.
D. Van Regemorter, agreeing with him observes that, as concerns the external costs, CO_2 values are not really necessary because in the integration process their values are considered as a tax. Nevertheless, a set of values can be examined, on the basis of the outcomes of Krakow validation meeting. It could be concluded

that for implementing the integration process, the missing data don't represent a main problem. Nevertheless, she says that to run the policy scenarios it is necessary to complete the RS2a templates including the abatement technologies for local pollutants. To this issue it should be noticed that the emission balances in total come up in the right way between 2000 and 2010 as the emissions for the base year technologies were completed and most of the technologies are already characterized with all the emissions. Data are already available for the electricity sector, CHPs and boilers. For Transport the fuels changes from high to low sulfur content is sufficient for pursuing emissions abatement. Some data are still necessary for industry and residential but more or less the technology database is complete.

After this general discussion, it was agreed to discuss the technical aspects in more detail after the meeting.

From this overview it could be concluded that most of the work was done, nevertheless the residual integration activities need additional coordination efforts (mainly under the responsibility of the RSIN coordinator) to come to a successful ending of the project.

2.3 News on incoming activities and projects: REACCESS

M. Gargiulo takes the floor for illustrating the main features of the REACCESS project, with concern to the possible interrelationships with NEEDS.

The negotiation phase was concluded and the project is supposed to start in March- April '08

As concerns the modeling framework, the idea is to use NEEDS RES2020 for EU27 and ETSAP TIAM for the region outside Europe but nothing is still decided and in the first phase a preliminary analysis will be addressed to check which models are best suited for the development of the project issues. In particular it is necessary to identify the most efficient way for modeling the new countries (e.g. if including them in the NEEDS model or using a different model for representing the non EU countries).

In this framework, K. Smekens asks how to define and set the rules for determining when a NEEDS product (e.g. PEM) switches from being a NEEDS product to a product from a new project (be it RES2020 or REACCESS)

2.4 EIE RES 2020: state of art and synergies with NEEDS RS2a

No update on RES2020 activities was presented by G. Giannakidis as the main topics were widely discussed in detail in the RES2020 Forum and Progress Meeting. A document to formalize the interactions between RES2020 and NEEDS will be circulated ASAP.

3. RS2a advancements (Chairperson: V. Cuomo)

3.1 The third year reporting documentation: a summary
3.2 Planning the IV year activities

L. Cosmi takes the floor for illustrating the state of art of RS2a activities and the plans for the last year of the project, according to the reporting documentation.

3.3 Pan – European model: final results and open problems

M. Blesl takes the floor for illustrating the latest results on PEM.

The main changes made in the PEM are the following:

- Improvement of the SubRES (on the basis of the preliminary results and the observations of RS2a partners and other RSs leaders)
- Characterization of the missing local pollutant emissions and GHGs
- Characterization of the potential of CCS according to the GESTCO 2004 study

- Industry: improvement of the modeling of heat process demand, implementation of CHP for heat production and energy saving measures.
- Residential and Commercial: implementation of heat pumps and energy saving measures
- Transport: Implementation of costs of new infrastructures, modeling of biofuels blending and short-long distance outputs from cars
- Implementation of tidal technologies

Some problems are still arising from the current demand projections. In the CO2 scenario electricity and biofuels increase remarkably. In particular, it can be observed a significant switch of fuels in transport with a high use of hydrogen and methanol driven by the very high targets for EU27. This behavior emphasizes that the potential of biofuels is a sensitive parameter. On this issue some comments from RES2020 will be welcome to improve/checking the PEM model. For Residential there are no much changes on electricity use due to renewable increase (the demand of electricity is more or less the same).

In electricity production lignite is fully going out whereas there is a bigger production in the area of natural gas (that should be further investigated) as well as a high amount of electricity by wind.

The sensitivity analysis of the input data (performed utilizing the PV values of RS1a) shows an increase of PV share. Additional production costs for wind should be added and an in depth analysis of these data should be performed comparing them with their evolution with the reference data for year 2000 (e.g. hydro and wind respect to thermal production).

Some questions and comments arise from the audience about the emissions and prices considered and about CO2 targets, which are summarized in the following.

- As concerns the aviation emissions, it was confirmed that only domestic flights and marine bunkers emissions are included in the model.
- The large amount of gas outlined by the first runs results can be also explained taking into account that CO2 capture efficiency for PP is larger with coal fired plants and gas PP are preferred in some conditions
- As concerns the prices, for the energy vectors two markets were considered: the domestic prices for all the fuels except electricity (for which a unique price inside EU was set). Marginal cost of avoidance of CO_2 were also considered in CCS
- The model's assumptions regarding the energy prices should be revised and updated taking into account the current situation (for oil a cost of 100$ per barrel should be considered, V. Cuomo suggest of performing a sensitivity analysis to verify the effects of higher prices). Prices for materials should be also inserted in the model. A minimum amount of transfer for steel produced should be considered
- A global target for CO2 emissions reduction should be set

K. Smekens observes that it would be nice to send to the country modelers the emissions levels achieved by country (this information could be useful for fixing the country targets) and M. Blesl, agreeing with him, promised to send them this information.

3.3 The scenario analysis
D. Van Regemorter updates the audience on scenarios analysis. The scenarios were defined and approved and no changes were made to the final configuration presented in Leuven. An update on scenarios documentation is foreseen by January. New demand projections are already available and will be taken into account in the reference scenario. For the local pollution scenario the external costs will be used in the optimization. The only criticality concerns the abatement technologies and, as agreed it will be discussed after the meeting.

4. Conclusion and further developments

V. Cuomo draws the conclusions of the meeting inviting the audience to make their comments on the "to do list".

M. Blesl says that the integration of LCA and ExternE data doesn't affect the BAU scenario results for what concerns fuel and technology mix, therefore a unique deadline concerning the policy scenarios should be set for the integrated model. Regarding this issue D. Van Regemorter observes that in the BAU scenario external costs could be added but LCA data could be omitted because emissions coming from the technologies are negligible (as agreed in Madrid). As concerns the policy scenarios including the LCA data on technologies no relevant differences are expected except for PV. M. Blesl adds that in the BAU scenario a 5 – 10 % of emissions increase is expected.

About IPR it was agreed that the databases developed by the NEEDS partners can be used by the partners themselves and a proposal for its utilization outside the project will be formulated.

As concerns dissemination of results, a contact point for coordinating the publications regarding the common issues developed in the framework of RS2a activities is advisable and a dissemination plan could be devised (this topic will be discussed in more details in the next RS2a Meeting).

As concerns the participation to the incoming meetings, it is agreed that D. Van Regemorter will represent the RS2a community to the next ETSAP meeting, presenting an update of the activities on PEM.

Moreover, M. Blesl and D. Van Regemorter will participate to the III Annual Review and the Steering Committee/Integration meeting that will be held in Rome on December, 11-12, 2007, also in order to discuss the open issues concerning the operating integration.

As concerns the next RS2a Meeting, F. Nemry says that JRC-IPTS is available to host it in Seville, next February (proposed date February, 14 - 15, 2008).

An updated to do list summarizing the main decisions taken is attached.

V. Cuomo thanks K. Smekens for the kind hospitality and all the participants, concluding the meeting at 16.30.

To do list

What	Who	When
Data Exchanges outside the NEEDS project IPR of the NEEDS RS2a products	All	A draft documentation will be circulated ASAP
Scenarios Update the documentation on scenarios Scenarios implementation	KUL, PSI KUL, PSI, IER	January '08 December '07
Integration: ✓ LCA data for construction/dismantling phase ✓ LCA data for fuels imported into EU ✓ Damage factors per unit emission Implementation of preliminary data in a country model test case (Italy) Integration of LCA/ExternE data in the Pan European model	RS1a RS1b IMAA, KUL KUL, IER + + other WG3 participants	(Final data by January?) August '07 (GHG still missing) December '07 December '07 (Possible use of LCA data delivered to CASES as a preliminary data)
Pan European model: Integration of LCA/ExternE data in the Pan European model Scenario analysis: ✓ Reference Scenario ✓ Policy scenarios - Not Integrated model ✓ Policy scenarios - Integrated model Data transfer to other RS (RS1a, RS1b, RS1c, RS2b): ✓ Reference case ✓ Policy cases	KUL, IER + + other WG3 participants IER + KUL + other WG3 and WG4 participants IER +KUL + other WG3 and WG4 participants	December '07 December '07 (Reference Scenario Final data) February '08 (Policy scenarios preliminary data) April '08 (Policy scenarios, final data) December '07 (Reference Scenario Final data) April '08 (Policy scenarios, final data)
Documentation Analytical Overview Interim Report on Integrated Pan EU model including results for BAU scenario Documentation on the Pan EU model	IMAA IER, IMAA, with the contribution of WG3 and WG4 participants KUL, IER with the contribution of WG3 and WG4 participants	After the Meeting November'07 June '08
Dissemination Contribution to NEEDS general issues (e.g. Newsletter, website,…etc) Peer reviewed publications Conferences attendance	All	Please respect the official deadlines and circulate the information!!

Dissemination Plan	All	To be discussed in Next Meeting
Next meetings ETSAP Meeting - Brasilia	KUL (presentation on PEM advancements)	November, 19-23, '07
III Annual Review Meeting – Rome	IMAA, IER, KUL	December, 11 -12, '07
IX RS2a meeting "Draft scenarios results" RES2020 Meeting	WG3 and WG4 participants	February, 14 – 15 2008 (hosted by JRC- IPTS in Seville)