Minutes from CEESA Meeting - August 2007

Date: 28-29 August 2007
Place: Gl. Vrå Slot

Participants

Henrik Lund, AAU
Frede Hvelplund, AAU
Poul Alberg Østergaard, AAU
Bernd Möller, AAU
Per Christensen, AAU
Brian Vad Mathiesen, AAU
Georges Salgi, AAU
Mette Reiche Sørensen, AAU
John K. Pedersen, AAU
Mads Pagh Nielsen, AAU
Birgitte Bak-Jensen, AAU
Marie Münster, AAU/DTU-Risø
Poul Erik Morthorst, DTU-Risø
Frits M. Andersen, DTU-Risø
Thomas Astrup, DTU
Henrik Wenzel, SDU
Niclas Scott Bentsen, KU-life
Claus Felby, KU-life
Jesper Munksgaard, AKF
Peter Karnøe, CBS
Kim Winther, Dong
Niels I. Meyer, DTU/AAU
Thomas B. Johansson, Lund University

Agenda

Tuesday 28 August 2007

1. Welcome and introduction
2. WP1 Scenarios and WP5 LCA
3. WP2 Transportation and Biomass
4. WP3 Electric Power Systems

Wednesday 29 August 2007

5. WP4 Market and Public Regulation
6. Comments from Advisory Board
7. Discussion

Prior to the meeting, the following working papers were sent to the Consortium:

1. WP1 and WP5: Scenario framework (Poul Erik Morthorst)
2. WP1: Energy system analysis of 100 per cent RE systems (H. Lund and B.V. Mathiesen)
3. WP2: Transport demands (Brian Vad Mathiesen)
4. WP2: Progress report (Mads Pagh Nielsen)
5. WP2: Vehicle fuel matrix (Mads Pagh Nielsen)
6. WP4: Status and framework (Poul Erik Morthorst)

These papers can be downloaded from http://www.ceesa.dk/intranet/index.php

1. Welcome and introduction **(Chaired by Henrik Lund)**

Henrik Lund welcomed the Consortium and sketched the project and the status of the project work.

In relation to the **Ph.D. positions**, status is as follows:

- WP2: Niclas Scott Bentsen has been employed at KU and has initiated his work on the project.
- WP3: Prior to the meeting, a qualified candidate had been found for the position at AAU. However, the candidate in question has now announced that he does not wish to assume the position. Therefore, other candidates will be considered again and if none of them wish to assume the job, the position will be advertised again.
  At DTU, no suitable candidate has been found and Poul Alberg Østergaard will contact DTU in order to follow up on the status and plan for the employment of a Ph.D.
- WP5: At SDU, the position has been advertised and qualified candidates have applied. The deadline for application has not been reached yet. As soon as this happens, the employment procedure will begin.

Mette Reiche Sørensen informed the Consortium that the Programme Committee on Energy and Environment (EnMi) must be notified whenever a Ph.d. position funded by the grant is filled. Furthermore, we must send a copy of the Ph.D. student's CV to EnMi.

In relation to the **project home page**, www.ceesa.dk, Henrik Lund urged all Consortium members to use the home page. All relevant project documents are placed on the intranet page. A more extensive use of the home page is intended for the future. Prior to each meeting and on other occasions, Mette Reiche Sørensen will send an e-mail to the Consortium including password and link to the home page, so that all members can download the relevant material from the page.

In relation to the **Cooperation Agreement**, Mette Reiche Sørensen informed the Consortium that the signatures of a few partners are still missing. Mette has on a continuous basis reminded the partners in question of the missing signatures and she will continue to do so during the following weeks.

In relation to the **project reporting**, Mette Reiche Sørensen reminded the Consortium of the following deadlines:

1 April 2008	Financial statement covering 2007
1 April 2009	Financial statement covering 2008 Status report
1 April 2010	Financial statement covering 2009
1 April 2011	Financial statement covering 2010 Final financial statement Final report

Financial statements must be documented by the detailed statement of accounts of each contractor. Mette informed the Consortium that she would distribute further information on the reporting tasks later this year.

Henrik Lund and Mette Reiche Sørensen

2. WP1 Scenarios and WP5 LCA **(Chaired by Poul Erik Morthorst)**

Framework scenarios and energy system analysis (Henrik Lund)
Henrik Lund suggested to analyse three main scenarios:

- Biomass (low demand)
- Wind (low demand)
- High demand (bio and wind)

It was decided to analyse a centralised and a decentralised subscenario for each of the three scenarios adding up to 6 scenario variants in total. First energy system analysis (ESA) and then LCA will be undertaken for each of the subscenarios in an iterative process. The goals of the scenario process have to be defined more clearly. It is important to have a close dialogue between the scenario group and the other WPs.

LCA analysis and methodologies (Thomas Astrup)
Thomas Astrup showed the results of an LCA screening comparing the environmental effects of the Biomass (low demand) and the Wind (low demand) scenarios excluding production of energy used for producing e.g. wind turbines abroad.

Some preliminary results were shown:

- in the biomass scenario the main burden in terms of energy use stems from the production of energy crops
- in the wind scenario energy use was related to production of wind turbines and hydrogen storage.tanks
- a very high quantity of ytrium (~1.000.000 PR) was used for producing fuel cells, but this figure is very uncertain.

It was argued that it may be necessary to undertake LCAs showing the full environmental burden of the subscenarios rather than only looking at differences. Another possibility is to compare all the subscenarios with a reference, which is then to be decided upon.

Finally, Henrik Wenzel underlined that the important environmental effects will be use of land and displacement of crops etc. abroad. To estimate these effects close cooperation is needed between the Market and policy WP (WP4) and LCA WP (WP5).

Demand Forecasting (Frits Møller Andersen)
Frits Møller Andersen showed a forecast of the energy demand onto 2050 using the forecast of the Ministry of Finance, the energy prices estimated by ENS (2006) and efficiency improvements as a continuation of the improvements the last 10-15 years.

Demand for transport was changed from the original forecast, which assumed that the development was connected to the development in GDP - resulting in a negative development in number of cars - to being connected to the development in number of inhabitants. Comments and suggestions regarding the transport demand were welcomed.

Some discussion arose about using ENS energy prices, as they are known to be conservative, but no conclusion was drawn.

Marie Münster and Poul Erik Morthorst

3. WP2 Transportation and Biomass (Chaired by Henrik Lund)

In relation to WP2, the following presentations were made:

- Brian Vad Mathiesen presented a proposal for transportation demand scenarios.
- Mads Pagh Nielsen presented a status paper on transportation technologies.
- Niclas Scott Bentsen presented some initial considerations concerning biomass resources.
- Claus Felby presented new developments within biomass conversion technologies.

All slides from these presentations can be found at http://www.ceesa.dk/intranet/index.php

It was decided that WP2 within the next year will concentrate on:

- the identification of suitable transportation technology solutions and
- the identification of suitable biomass production solutions

for each of the 3 scenarios in each of the two variants (decided in WP1)

Moreover, it was decided to include the BAU-2050 ***goods*** transportation demand in all three scenarios and to include

- the high ***person-km*** transportation demand (2050) in the "High demand" scenario, and
- the low ***person-km*** (2004) demand in the two "low demand" scenarios.

Henrik Lund

4. WP3 Electric Power Systems (Chaired by Poul Alberg Østergaard)

In relation to WP3, Birgitte Bak-Jensen presented the work on WP 3.1 so far. This has resulted in hiring Javier Ruiz Guillén, Spain, to begin his work on September 3rd 2007.

Following the seminar it was unfortunately found that the Ph.D. applicant had withdrawn his engagement at the university, so it has subsequently been decided to proceed with the second ranking candidate for the position, though this will invariably cause some delay.

DTU was not present at the seminar, so WP 3.2 was not addressed. However, the DTU people had apparently had problems filling out their Ph.D. position. It was advised to announce the Ph.D. position internationally as this had generated a decent response for the Ph.D. position in 3.1.

Contact has been established with Jacob Østergaard, DTU, regarding this.

WP 3.3 is so far ahead in time that it was not relevant to address at this meeting.

There was a considerable discussion following the presentation of WP3.1 regarding how to model the system. Should neighbouring areas be modelled –e.g. only as a possible North Sea grid – or should the system boundaries coincide with the national borders. The latter was decided.

Poul Alberg Østergaard

5. WP4 Market and Public Regulation **(Chaired by Poul Erik Morthorst)**

Two presentations were given at the meeting:

The Market Context – An overview (Peter Karnøe)
A Catalogue of Policy Instruments (Jesper Munksgaard)

Highlights from the discussions:

- Markets are to be seen in a wider context and existing market set-ups should not constrain our analyses.
- The Danish wind power case could be used as a reference case for the development of other renewable technologies.
- Markets should not only include the energy supply side but also the demand side.
- In relation to policy and market development an international framework is to be decided upon.
- Taxes are difficult to utilize due to international constraints.
- Different sectors should be treated differently, e.g. home market sectors not exposed to international competition could get heavier burdens in terms of energy conservation.
- It is important not to forget enforcements as part of the policy measures catalogue.
- WP4 has to be closely coordinated with other WPs.

Poul Erik Morthorst

6. Comments from Advisory Board **(Chaired by Henrik Lund)**

The comments from the International Advisory Board (IAB), represented by Niels I. Meyer and Thomas B. Johansson, comprised the following subjects:

1. The co-ordination of work packages.
2. The system boundary of the study.
3. The EnergyPLAN model.
4. Economic models.
5. Market development and regulation.
6. Policies.
7. GHG emissions.
8. Technical potentials.

In relation to this, the IAB presented the following recommendations:

1. An efficient co-ordinating group should be created in order to secure comprehensive results.
2. This group should write an up-dated paper each year, connecting the results of each WP, prior to each project meeting.
3. More attention should be given to the system boundary of the study in terms of linking energy use and emissions to consumption.
4. Boundaries in relation to EU and WTO should be clarified.
5. The absolute level of energy demand should be considered a significant parameter and the demand side should be given more attention.
6. The credibility of the models used is essential. Therefore, transparency is required.
7. Some concepts should be explained in more detail, see slides from IAB.
8. Macro-economic models should be complemented by bottom-up modelling.

9. The discrepancy between the calculations of the Danish Ministry of Finance and the Danish Society of Engineers used should be clarified.
10. Higher priority should be given to detailed analyses of merits and disadvantages of concrete policy instruments in relation to market development and regulation.
11. Recommendations on the best policy instruments and a description of the expected effects of these should be presented as a result.
12. Policy packages should be identified that could implement energy scenarios in agreement with desired societal goals.
13. International trade and WTO influence could be addressed together with the role of competition and the development of the energy sector in the EU.
14. GHG emissions should be calculated and given as CO2 eqv, not CO2 alone.
15. Be careful to explain how GHG emissions are included on a life cycle basis.
16. Technical potentials for renewables in Denmark should be analysed and included.
17. Environmental constraints should be described and included in the analyses of technical potentials.

Mette Reiche Sørensen

7. Discussion **(Chaired by Thomas Astrup and Frede Hvelplund)**

During the final discussion, the following decisions were made:

Steering committee

It was decided to form a steering committee of the WP leaders and maybe the IAP chairman to strengthen the coordination of the project. The first task of the steering committee will be to identify proper milestones for the collaboration between the WPs. WP meetings must then be settled in relation to the milestones defined. A close collaboration in and between the WPs is important.

Main tasks of each WP

The main tasks of each WP during the following year were defined as these:

WP1: To define three scenarios with two variants within the following three months. Emphasis will be placed on biomass and wind. In order to do this, the members of the WP will be in close contact and a meeting or seminar will probably be arranged.

WP2: To identify suitable transportation packages and present these at the meeting next year.

WP3: To employ the Ph.D. students and to present inputs to the scenario specifications.

WP4: To continue the development of the catalogue of policy instruments and direct this work towards the scenarios.

WP5: To work on the methodology and define the needs for input and boundary conditions, data, land use, etc. To define the impacts which must be taken into account and present suggestions for appropriate scenarios.

“Open” or “closed” system

It was decided to work with a closed system, in which Denmark is self-sufficient, during the next year. Before the next meeting, each WP will send a discussion paper to the steering committee describing a potential open system. These papers will be discussed at the next consortium meeting.

Next consortium meeting
Next consortium meeting was scheduled for **Tuesday 3rd to Wednesday 4th of June 2008**. Fyn was proposed as the place of the next meeting.

The participation of the IAB
It was concluded that the IAB to the extent possible should participate in each annual consortium meeting.

Mette Reiche Sørensen