



Deliverable 0.1 Project Presentation

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Abstract: This document contains a brief presentation of the DESIRE project. The presentation is an overall introduction to the project, while further details can be found in the other project deliverables.



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DESIRE

Dissemination strategy on Electricity balancing for large-Scale Integration of Renewable Energy

In other words: A solution to upcoming problems on the European electricity market

1. DESIRED solutions

The European electricity market is facing upcoming problems. Proportions of renewable electricity rise in Europe, while local electricity systems are unable to absorb the excess capacity. Inter-connectors of electricity are blocked up by the need to transport excess supplies across the EU borders. At the same time, the competitiveness of the European electricity market is constrained. The DESIRE project addresses these problems.

In line with the EU Directive 2003/54 of June 2003 and the Cogeneration Directive 52/2003, the DESIRE project acknowledges the need for balancing various systems in the creation of a more competitive pan-European electricity market. Through case studies in Denmark, Germany, and the UK, the project demonstrates techniques of co-production of CHP (Combined Heat and Power) and wind power. These case studies are supplemented with studies carried out in Spain, Poland, and Estonia. In this way, an exchange of knowledge and experiences takes place and solutions are developed on the European level.

The co-production of CHP and wind power creates large packages of electricity which are attractive on the wholesale electricity market. Through this co-production, the CHP and wind power producers gain the benefit from consolidation. The problems that wind power producers face in relation to an intermittent electricity production are reduced. Furthermore, the co-production gives access to markets that are currently closed to fluctuating energy sources. Most wind power producers are dependent on other generators to produce the right frequencies, but in the co-production with CHP, the electricity product can be generated and thus supply ancillary markets. At present, most small and medium CHP plants have limited experience in offering ancillary services. However, through DESIRE, the case study plants in Germany, Denmark and UK gain experience and demonstrate how the balancing system works in practice.

CHP plants need accumulators to work with wind power and produce a balanced and predictable supply of electricity. When excessive wind power is produced, the CHP unit decreases its production and relies on its heat store in the accumulator to satisfy the heat demand. When wind production is low, the CHP plant operates in order to build up heat stores and make up for a lack of wind power electricity production. The techniques of co-ordinating CHP and wind power plants mean that these plants can help maintain reliability for electricity supplies rather than creating a problem for the electricity system. When CHP and wind power schemes combine through co-production, they are able to supply a wider range of electricity markets and secure more income. This contributes to the proliferation of renewable energy and CHP schemes and promotes electricity production on renewable sources within internal markets.

The DESIRE project disseminates software tools and systems that enable small and medium-sized CHP plants to combine or co-produce their electricity. This allows them to partly balance the fluctuating output of wind power plants and ensure that most wind power can be used locally. Furthermore, it relieves the pressure on international inter-connectors and allows for a more competitive international electricity trade. Thereby, consumer electricity prices fall and the quality of the electricity supplied becomes higher.

Thus, through the balancing of electricity systems, the following goals can be achieved:

- **Fluctuating renewable electricity supplies are integrated into local and regional electricity systems using CHP.**
- **The proportion of absorbable renewable electricity increases throughout Europe.**
- **The pan-European trade of electricity increases.**
- **The economic competitiveness of CHP and wind power is improved.**

2. Dissemination of results

The dissemination of project results is carried out by means of publications, bilateral meetings, conferences, seminars, and an interactive home page. The wide target audience of this dissemination comprises:

- Present and future owners and operators of small CHP plants
- Wind turbine operators
- Transmission System operators
- Distribution network operators
- CHP operators and developers
- Wind power operators and developers
- Renewable plant operators
- Leading energy utilities
- Public authorities
- Engineering groups
- Regulatory agencies
- Energy trading organisations
- NGOs concerned with environment and consumers
- Trade associations
- Policy makers
- Academic researchers

3. The DESIRE consortium

The DESIRE consortium consists of:

- Aalborg University (AAU), Denmark (co-ordinator)
- EMD International A/S (EMD), Denmark
- PlanEnergi S/I (PE), Denmark
- University of Birmingham (UoB), United Kingdom
- Institut für Solare Energieversorgungstechnik e.V. (ISET), Germany
- Universität Kassel (UniK), Germany
- EMD Deutschland, Chun und andere GBR (EMD-D), Germany
- Fundación Labein (LAbEiN), Spain
- Warsaw University of Technology (WUT), Poland
- Talinn University of Technology (TUT), Estonia

4. Duration and Budget

The duration of the project is 24 months, from 1 June 2005 to 31 May 2007.

The total budget of the project is €1.6 millions; the EU contribution is €1.2 millions.