

*The integration of wind power into the national or EU energy supply systems is becoming relatively more problematic with increasing installed capacity and production, especially due to a mismatch of supply and demand of energy. The wind energy is produced at rather random times, whereas the energy use pattern shows distinct demand peaks during day time and office hours, and low levels during the night. To use a refrigerated warehouse as a giant battery for wind energy is a new possibility that should be studied for Wind Energy integration as well as a way to store all electricity produced during night-time by windmills all over Europe. In order to accommodate the random production of wind energy in the grid, it would be most convenient when alternative (renewable and conventional) electricity producers could balance out the difference between production of wind energy and electricity demand. The whole idea for “Night Wind” is a EU project included in the FP6 approved in 2006.*

*The Night Wind project will manage with existing technology and will develop new control strategies and control concepts which will be based on technical and economical aspects. The new control concepts are needed to set the optimal temperature level in refrigerated warehouses, taking into account economical aspects (derived from the actual balance between wind energy production and actual electricity demand) and technical aspects. The demanded temperature should also include the knowledge about maximum and minimum admitted temperature by the goods stored in the warehouses. Designing control strategies are only possible with the help of powerful simulation tools, which will be extended to the simulation of the refrigerated warehouse. The use of the simulators should prove the benefits of this electricity storage in refrigerated warehouses. Once these benefits are proved in the simulation environment, these new concepts will be tested in a real refrigerated warehouse system.*

Topics:

Integrating wind into electricity markets  
Wind's role in the global energy market  
Market developments and structures  
Wind power plants and grid integration  
Autonomous, hybrid and distributed systems