



NL Agency
Ministry of Economic Affairs

IEA Wind en TKI WoZ

TKI bijeenkomst Internationale
Afstemming

27 maart 2013, Nieuwegein

André de Boer, AgentschapNL

» *Focus on energy
and climate change*



International Energy Agency (IEA)

Founded 1974.

International treaty founded as an autonomous body within the OECD.

Initial objectives - to represent major energy-consuming nations and to work for stability in world energy markets

Today mission: Energy Security, Environmental protection, Economic development

Strategic Challenges

- Secure energy supply
- Reduce growing energy-related greenhouse gas emissions
- Overcome lack of access to modern energy for more than a quarter of the world's population
- Create framework for investment



Subjects within IEA

42 Agreements, ~ 90 tasks, average of 10 countries per IA

Area of Collaboration

- Renewable Energy Technologies
- Efficient End-Use Technologies
- Energy Technology Information Centres and Modelling
- Fossil Fuel Technologies
- Nuclear Fusion Science and Technology



Within Renewables and Hydrogen:

1. BioEnergy
2. Geothermal Energy
3. Hydrogen
4. Hydropower
5. Photovoltaic Power Systems
6. Solar Heating and Cooling
7. Solar Power and Chemical Energy Systems
8. Wind Energy Systems
9. Ocean Energy Systems
10. Renewable Energy Technology Deployment



Under Wind Energy Systems:

15 tasks:

- Task 11 Base Technology Information Exchange (*)
- Task 19 Wind Energy in Cold Climates
- (Task 23 Offshore Wind Energy Technology and Deployment)
- (Task 24 Integration of Wind and Hydro Power Systems)
- Task 25 Power Systems with Large Amounts of Wind Power
- Task 26 Cost of Wind Energy
- Task 27 Labelling Small Wind Turbines
- Task 28 Social Acceptance of Wind Energy Projects
- Task 29 MexNext Aerodynamics
- Task 30 Comparison of Dynamic Computer Codes and Models for Offshore Wind Energy
- Task 31 WAKEBENCH - Benchmarking Wind Farm Flow Models
- Task 32 Wind lidar systems for wind energy deployment (LIDAR)
- Task 33 Reliability Data
- Task 34 Environmental Impacts and Monitoring of Wind Energy Projects *new*
- Task 35 Full-Size Ground Testing for Wind Turbines and Their Components *new*



A Task....

Is a subject on which (actors in) national programs work together, share information, in simple words: Collaboration.

- intellectual property protection
- equal voluntary partnership
- flexibility

Advantages:

- Better quality of work
- Saving costs because of sharing of information
- ...



Example: Task 29, Mexnext (I)

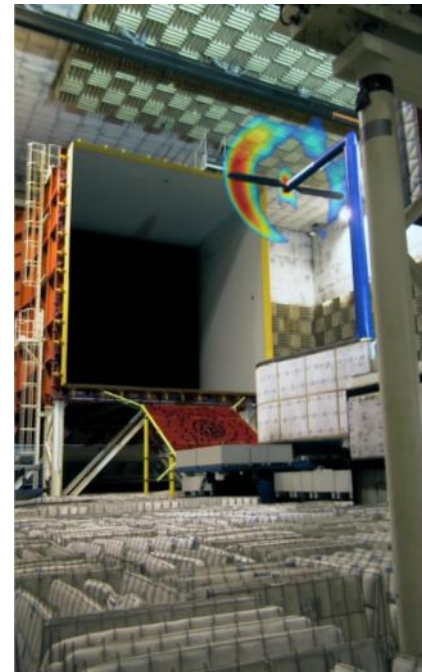
Mismatch in real wind turbine response (power, loads) and modelling of it.

Uncertainties in

- 3D geometric and rotational effects
- yaw effects
- stall
- tower disturbances
- etc

Results in:

- instabilities
- power overshoot
- higher loads
- etc





Example: Task 29, Mexnext (II)

Measurements:

- Open field (ECN, TUD Imperial College, NREL, Risoe)
- NREL wind tunnel measurements (5 countries)
- German Dutch Wind Tunnel Experiments, Mexico (5 countries)

Now: Modelling/ measurements + involved industry:

- Netherlands: ECN, TUDelft, TUTwente, SBT-Holland
- Denmark: DTU, Vestas, SBT-Denmark(?)
- Germany: Forwind, IWES, UAS Kiel/CEWind, Ustutt, Enercon, WindNovation
- Japan: Mie/AIST
- Korea: Kari (Kier?)
- Norway: IFE/NTNU
- Spain: Cener, INTA
- Sweden: KTH, HGO
- China: CWEA
- USA: NREL



Membership

Two levels:

- EZ is member on behalf of the NI (alternate: NI Agency)
- Membership per task: industry, R&D institutes, (local) government.

Criteria for membership of task:

- You have to bring in knowledge, work
- You have to return knowledge, work
- The work in return has to be shared
- Not against Dutch national policy



Costs of Participation ; Criteria

- IEA Wind Membership (national): covered by EZ
- Per task: ~5 – 12 k€ per year per task: in principle covered by EZ.
- Hour costs, travelling costs = own costs (=different from history!)
- Criteria: see before
- Obligations: short reporting to AgNL-> EZ about profits (enabling, cost saving, sharing data, etc).



Task #11 meetings: Technical Expert Meetings (TEM)

Meetings for technical experts (1-2 per country) on a specific subject, as wind farm control, social acceptance, etc. Planning for 2013:

#72 Forecasting, 23/24 April, Milano – Italy

#73 Noise reduction technologies, May, location ??

#74 Operation and Maintenance Challenges, 14/15 October, CWEA

#75 Wind energy in complex terrain, 19/21 November, Uni Stuttgart

Invitation via AgNL to experts.



ExCo meetings

2x/year, country representative

Gives insight in progress in tasks

Gives insight in development in countries

Routine businesses/administrative

Report sent afterwards.



New developments

Countries

Israel and France just became partners of IEA Wind

- * France: strong growth offshore
- * Israel: high tech country (low cost Lidar, Meteo Logic, bird vision system, ...)

New tasks

- * #34
- * #35





Task #34 “Full scale testing...”

Objectives and Expected Results International documentation and recommendation of test procedures for wind turbines and their components with the focus on:

-Detection of the structural component loads

- Clarify the dynamic interaction
- Definition of reference load collectives
- Hardware in the Loop (HIL) model requirements for wind- & grid load calculation

-Function & certification test procedures

- replacement/extension of conventional in field test procedures
- comparison between IEC field tests and ground tests

-Durability test procedures

- Increase the quality of prediction for the prognosticated durability



Task #35 “..... Environmental Effects”

Objectives

- Expand knowledge of environmental effects, mitigation and monitoring methods, and research being conducted to assess risk that is occurring around the world
- Increase accessibility of information on a variety of topics, including assessment methodologies, cumulative impact studies and impact mitigation strategies
- Development of an internationally accepted framework for pre- and post-construction (which includes during the operational phase) assessments
- Collaboration on the development and testing of proven mitigation strategies
- Methodologies for cumulative impact assessments for species for which there is limited understanding of wide scale population effects, as well as effects on their habitats
- Impact assessments and data collection methodologies for avian and bat mortality, including new technology-based assessment options
- Develop an understanding of the effects of offshore wind on marine animals



More information:

<http://www.ieawind.org/>

Questions:

Andre.deboer@agentschapnl.nl / 088-6022446