



# General overview of the Wilmar project

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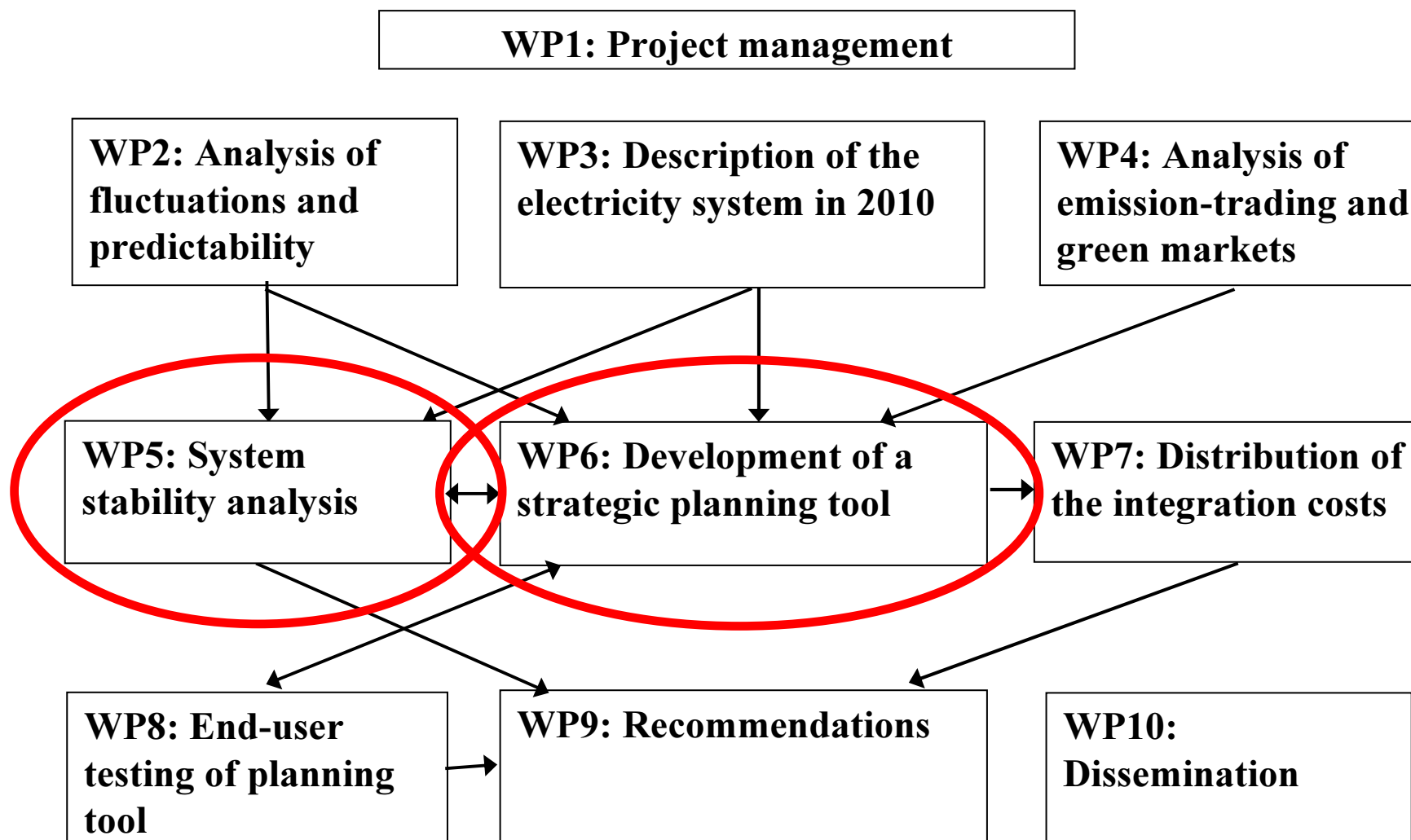
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Risø's mission is to promote environmentally responsible technological development that creates value in the areas of energy, industrial technology and bioproduction through research, innovation and consultancy.

[www.risoe.dk](http://www.risoe.dk)

- 9 partners:
  - Research institutions: DTU (DK), IER (D) , KTH (S), Risø (DK), SINTEF (N), VTT(F),
  - TSO: Elkraft (DK)
  - Power producer: Elsam (DK)
  - Power pool: Nord Pool Consulting (N),
- Resources: approximately 20 man years
- Funding: Partly funded through EUs fifth framework programme, 1.4 MEuro from EU
- Duration 3 years, finalised this month

# WP structure



- Model development
  - Wilmar Planning tool
    - Analysis of wind power integration with hourly time resolution
    - Consisting of several sub models
  - Stepwise power flow model
    - Analysis of wind power integration with resolution of minutes
  - Development of interaction between Planning tool and stepwise power flow model

# Results

- Model development
  - Extension of 23 generator model in DigSilent/PSSE
    - Analysis of system stability issues with time resolution of milliseconds

- Data collection:
  - Development of databases
  - Collection of data for production, transmission and storage units
  - Collection of time series for electricity demand, heat demand, exchange third countries, hydro inflow ...
  - Collection of wind speed and wind power production data

- Results generation concerning:
  - Technical impacts of wind power
  - Price impacts of wind power
  - Avoided costs of wind power
  - Performance of integration measures  
(transmission extension, electricity storage,  
heat pumps)

## Dissemination activities

- Public website: [www.wilmar.risoe.dk](http://www.wilmar.risoe.dk)
  - Planning tool available on website
- Half-yearly newsletter
- Conference presentations:
  - EWEC 2004, IAEE 2004 & 2005, ...
- Articles
- Recommendations



# The future

- More testing and calibration of models
- Analysis of the integration costs of wind power and the performance of integration measures
- Documentation and dissemination
- Public models put on the Wilmar homepage:  
[www.wilmar.risoe.dk](http://www.wilmar.risoe.dk)
- New EU project: SUPWIND