edf

EDF'S INTERNAL CLIMATE SERVICE

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EDF AND CLIMATE ?

- NO DOUBT !
- As an Electricity Company, EDF activities are highly impacted by weather conditions

□ Winter (19h): → - 1°C ~2400 MW additional demand
 □ Summer (12h): → +1°C ~400-500 MW additional demand

- Hence, in a changing climate... every entity of the Group is concerned
 - Production (thermal, nuclear, hydro, wind, solar,...)
 - Transmission & Distribution
 - Trading and Sales & Marketing
 - Energy services
- But, how much ? What could EDF do or expect ?



HOW DOES EDF ADDRESS THE QUESTION OF CLIMATE CHANGE?

- Early 90's ! First work with the LMD model (now part of the IPSL climate model)...
- Serious start, the 2003 heatwave
 - EDF entities (Sustainable Development, Corporate Risks, R&D...) launched series of research programs on the impacts of climate change on EDF activities
- EDF defines Climate Change as one of its important challenges



WHY A CLIMATE SERVICE AT EDF ?

- Clear need for an integrated approach of climate change impacts on EDF activities :
 - ensure the coherence of the underlying assumptions of the different impact studies
 - enable shared position on climate change adaptation strategies
- Facing the growing regulatory demands related to climate change :
 - nuclear safety authorities (France and UK) for power plant design and lifespan
 - environmental impact assessments
 - □ water policy
- providing an internal scientific expertise on climate change:
 - to be able to carry out internal studies on sensitive issues (designing, hydropower production, cooling system availability...)
 - to support EDF entities when confronted to climate change issues



EDF CLIMATE SERVICE SET-UP



 EDF's aim with this internal climate service is not to duplicate or replace other external climate services, but rather to act as a « one-stop-shop » between these services and EDF's needs



CLIMATE IMPACT STUDY IN EDF FRAMEWORK





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EXAMPLES OF IMPACT STUDIES

Local scale

- Climate projections at power plant locations:
 - Air temperature;
 - Water temperature;
 - River run-off.
- Extreme events for power plant design
 RAW DATA



Global scale

- Global energy balance:
 - Temperature (demand);
 - Wind (energy production);
 - Solar (energy production).

NO DOWNSCALING SUB-SAMPLING





COMMUNICATING !





CONCLUSIONS AND NEXT STEPS (1/2)

- Climate change is of prime interest for EDF
- EDF internal Climate Service
 - Supporting EDF entities to address the question of climate change
 - □ Set up on three main pillars : DATA EXPERT SUPPORT TOOLS
 - A relay between EDF entities and institutional/external Climate Services

What we have learned so far

- Data is key : Observations, re-analysis...
- □ Interacting with « clients » is essential from the beginning to the end of their studies
- In general, too many models to handle for impact studies -> need to define subsampling methods
- Communication on climate variability and change is difficult but key to an optimal uptake by users
- Clear need for decadal predictions



CONCLUSION AND NEXT STEPS (2/2)

- Carry on improving EDF internal climate service (data, tools, GUI, ...)
- Develop links & inter-operability with external services (C3S, ...)
- Anticipate and prepare for CMIP6 data
- Step into coastal climate informations :
 - What is the state of the art for local climate projections ?
 What can we expect ?
 - Data
 - Tools
 - Links with dedicated climate services



Thank you

