



3<sup>RD</sup> INTERNATIONAL CONFERENCE

# Energy & Meteorology

WEATHER & CLIMATE FOR THE ENERGY INDUSTRY

22 – 26 June 2015 | Millennium Harvest House, Boulder, Colorado USA

## Some words as an introduction

Mrs Claude Nahon

Senior VP for Sustainable Development

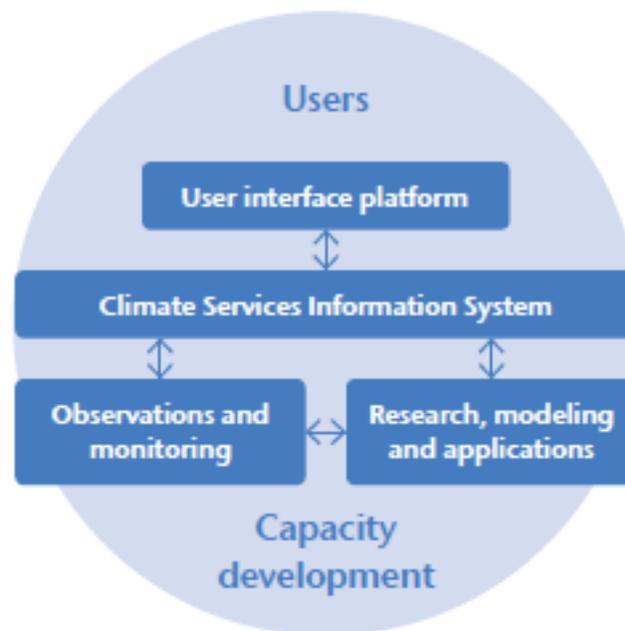
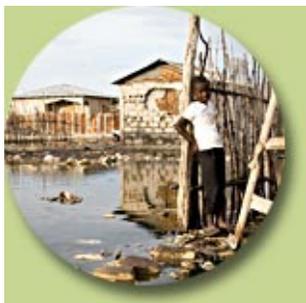
EDF Group





GFCS

## GLOBAL FRAMEWORK FOR CLIMATE SERVICES





« Climate services have the potential to become the intelligence behind the transition to a climate-resilient and low-carbon society »

ECMWF  
Copernicus  
Procurement  
Invitation to Tender



Copernicus Climate Change  
Service  
Section II

Sectoral Information System: Proof of  
Concept

ITT Ref: C3S\_441

ISSUED BY:  
ECMWF  
Administration Department  
Procurement Section

Date: 30/03/2015

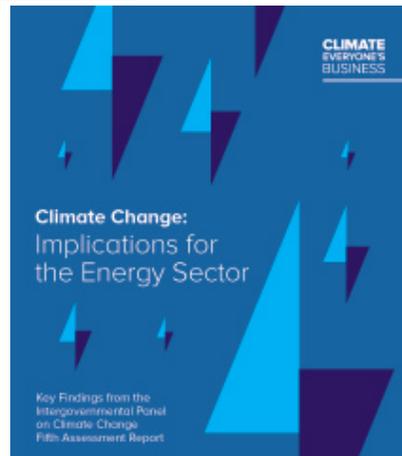
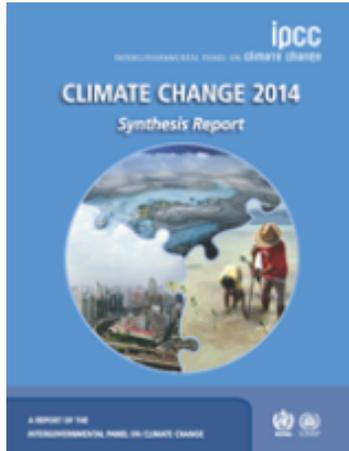
Version: Final



Funded by the European Union

Implemented by

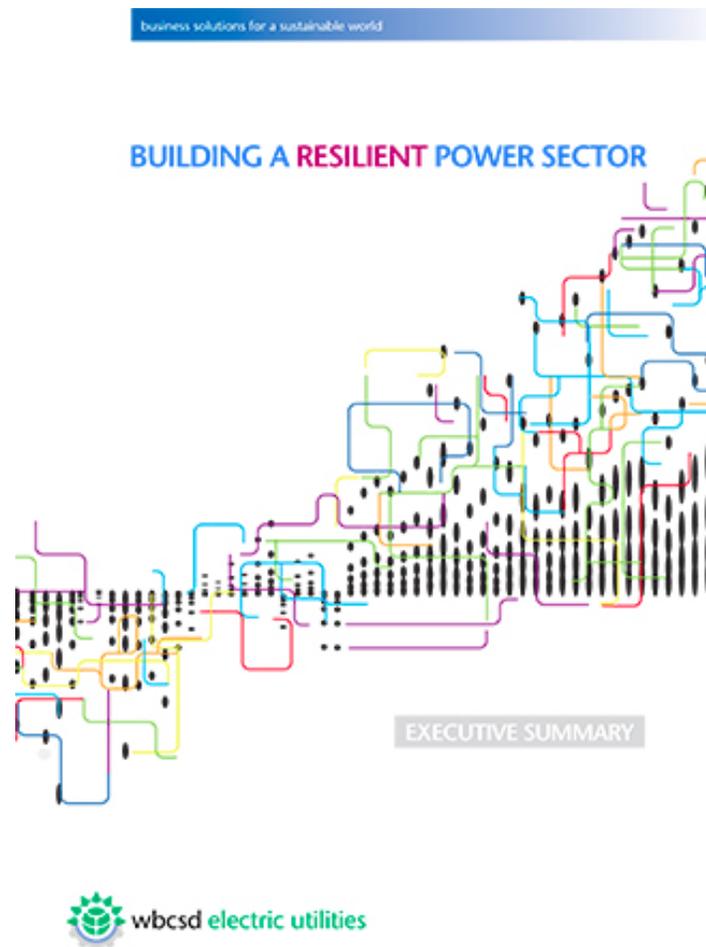




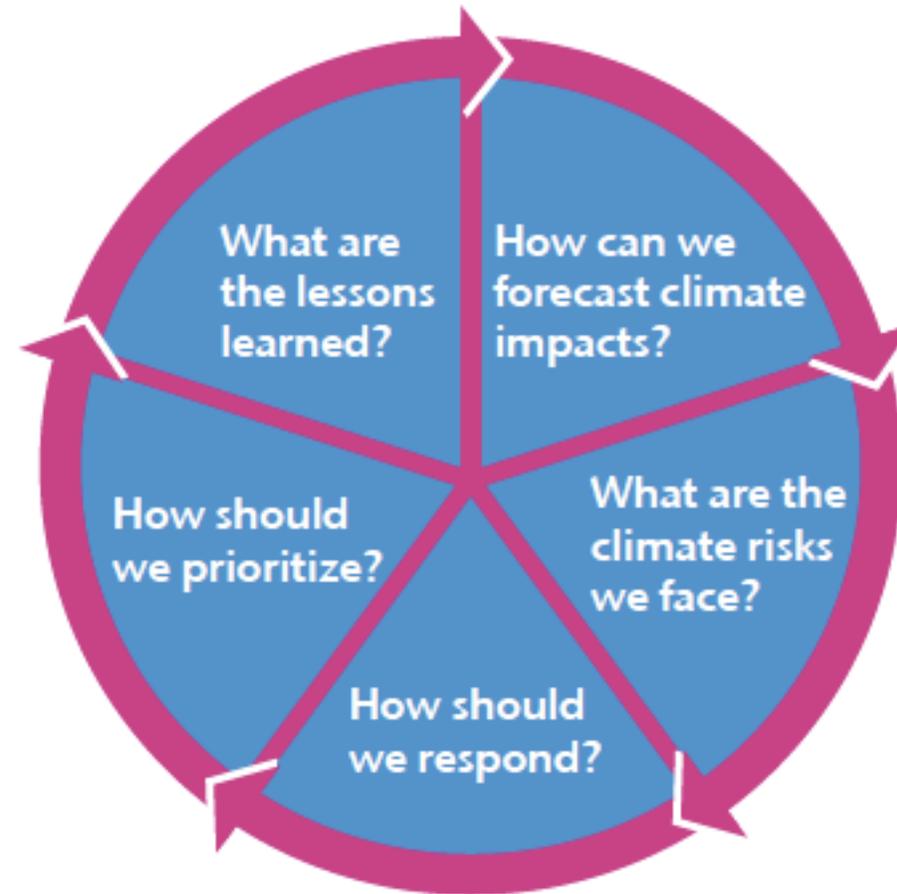
## Key findings:

1. Energy demand is increasing globally, causing greenhouse gas (GHG) emissions from the energy sector also to increase
2. Climate change presents increasing challenges for energy production and transmission
3. Significant cuts in GHG emissions from energy can be achieved through a variety of measures
4. Strong global political action on climate change would have major implications for the energy sector.
5. Incentivising investment in low-carbon technologies will be a key challenge

# WBCSD Electric utilities publication



WBCSD (2014)



Framework for climate change adaptation in the power sector

# Some highlights from it

## Risks and responses

	Risks	Responses
<b>Resilience</b> <a href="#">Click on the text above to go to the relevant chapter in the report</a>	Extreme events will create storm surges, heavy downpours, heat waves and high winds. Storm surges could be the greatest of these hazards for power infrastructure, much of which is close to the sea and faces increasing flood risks. Heat waves represent a major risk for infrastructure, water temperature and availability, and will increase cooling demand as customers respond to higher temperatures.	Crisis planning focusing on daily operations, including maintenance, operating parameters, damage limitation and operations management. It covers advance preparation and rehearsal of emergency plans, including lessons learned from reviews of previous crises.
<b>Long-term adaptation</b> <a href="#">Click on the text above to go to the relevant chapter in the report</a>	Longer-term impacts. Gradual changes in climate will raise sea levels and average temperatures, and affect precipitation volumes, with consequences for all links in the value chain (see Figure 5). Higher temperatures will be particularly significant because they will reduce operating efficiency.	Long-term planning to identify changing system requirements resulting from potential impacts and scenarios. Risk and cost assessment to prioritize action. This includes decisions about the remaining lifetime for existing assets, whether retrofitting or refurbishment is necessary, and about new or enhanced specifications and locations for new capacity.

# That makes sense here

## Recommendations for the industry

-  Build expertise in analyzing climate information to better understand risks, especially downscaling global climate models to a more local level.
- > Use risk management and risk-cost benefit analysis when developing adaptation strategies to determine which solutions are efficient and cost-effective.
- > Continue investing in R&D to develop effective upgrades to major infrastructure elements, broadening the range of options and reducing costs over time.
-  > Pool learning, exchange best practice and share resources to respond more effectively to extreme events.

## Recommendations for policymakers

- > Consider market signals and regional regulatory structures appropriate to local circumstances that can mitigate some of the risks.
- > Support a business model that is viable in the context of climate change, including incentives for utilities to invest in adaptation.
- > Adjust regulations to recognize the high-impact risks faced today and the likelihood of increasing frequency in future.
- > Reflect climate risks in system specification and equipment standards.

## Recommendations for public-private collaboration

-  > Organize cross-sector collaboration for long-term infrastructure planning and organize mutual aid for crisis response.
- > Organize effective pooling of technical expertise, risk assessment and understanding of socioeconomic costs and develop new business models to price and manage risk.
- > Develop more useful, local forecasts over time periods short enough to be relevant to business decision-making by giving utilities access to climate data and hydrological information.
- > Improve public-private collaboration to share information, especially on a local scale, to improve community resilience.

# Some words about COP21



Replay introductory video

FR • EN • ES 

**COP21/CMP11**  
France will host and  
preside the 21st Session of the  
Conference of the Parties to  
the UNFCCC.

[Read more](#)

  
**PARIS2015**  
UN CLIMATE CHANGE CONFERENCE  
COP21 • CMP11

**FOR A UNIVERSAL CLIMATE AGREEMENT** D - 1 7 5 #COP21

ON

## Agreements ratified between States

1992: UNFCCC (United Nations Framework Convention on Climate Change) came into force in 1994 with 189 parties.

1997: "Kyoto protocol" signed at COP3  
Ratified on 16 March 1998

- States meet once a year for the COPs (Conference of the Parties), with technical meetings held in Bonn in between
  - Christiana Figueres is the executive secretary
  - The US has signed the treaty
  - The meetings are attended by signatory countries (parties), together with observers and NGOs.
    - Companies are not invited as such.
- 1995: Berlin, 2009: Copenhagen, 2015: COP21 in Paris
- A total of 183 countries committed to reducing their greenhouse gas emissions by 5.5% by 2012 compared with that 1990 levels.
  - The US did not sign the protocol
  - The negotiators were faced with a complex task
  - An asymmetrical relationship between the developed countries, emerging countries and developing countries
  - It has been extended until 2020
- Europe enforced the EU-ETS scheme

## A few points worth noting

### Development

- A crucial subject for developing countries: reducing CO2 emissions means reducing consumption of fossil fuels for energy and limit development

### Adapting to climate change and being resilient

- The planet's coastal regions and islands going to disappear
- Extreme weather events: rain, drought, etc.
- Health, agriculture

### Financing

- The clean development mechanisms
- The famous "green fund"

### The negotiation process

- Treaties between nations
- Ratification by each country depending on its governance

## An agreement in Paris?

### The Paris Alliance for solutions

- A binding agreement between states
- Suitable governance in order to measure what the various states' policies can accomplish and review the agreement in 5 years
- A financing agreement :
  - Green fund
  - Green bonds and financing innovation
- Commitments from the actors involved
  - Cities and regions
  - Business
  - Civil society
  - NGOs

# Why to be involved as a company like EDF?

The rules of the game for our business

- The long-term CO2 framework
- Public policies in Europe, the US and China
  - To develop technologies: nuclear, hydraulic, wind power and solar
  - For R&D: emerging technologies, carbon capture and storage, smart grid
- The issue of the CDMs and technology transfer
- We support carbon pricing and do use it internally

The role played by electricity in decarbonising the economy

- An energy vector
- An energy and carbon efficiency tool
- EDF is a low carbon player
  - 116g/kWh at the group level
  - 35g/kWh at the French fleet level
  - when the European mix is 350g/kWh

**COP 21 will take place in Paris, we are a French electricity state owned company  
It makes sense we do support it**



- ✓ The energy (power) sector is weather/climate dependant (supply, demand, transmission & distribution, markets), at all timescales
- ✓ CO2 emissions reduction targets and RE increasing share will increase this dependance
- ✓ R&D is needed to better take account of weather and climate in energy systems planning and operations
- ✓ Need a strong(er) collaboration between Providers & Users

ICEM and WEMC are more than ever adressing key challenges at the nexus between Energy & Meteorology



3<sup>RD</sup> INTERNATIONAL CONFERENCE

**Energy & Meteorology**

WEATHER & CLIMATE FOR THE ENERGY INDUSTRY

22 – 26 June 2015 | Millennium Harvest House, Boulder, Colorado USA

THANK YOU



3<sup>RD</sup> INTERNATIONAL CONFERENCE

# Energy & Meteorology

WEATHER & CLIMATE FOR THE ENERGY INDUSTRY

22 – 26 June 2015 | Millennium Harvest House, Boulder, Colorado USA

