

Integration of climate-related risks in scenarios at EDF

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What does the climate-risk imply in the electricity sector?

- Supply / Demand are both sensitive to weather and climate variability
 - On demand side : temperature (heating or cooling), cloudiness (lighting)
 - On supply side : Predictability of renewables (water resources, cloudiness, wind), thermal plants (Temperature of cold source of thermal power plants, River flow)
- Dimensioning the facilities
 - Networks : storms, freezing conditions, heavy snow, wind
 - Dams and floods: integrate water scarcity or abundance
 - Modify cooling systems
 - ...
- All decisions cycles are concerned
 - Management forecasting (from Day-1 to 3-5 years) with installations set
 - Crisis management
 - Designing electric facilities and infrastructures for the mid/long term

Minimize the impact of climate change on our physical assets: The Action Plan for Adaptation

1. Anticipation and crisis management
 - Reduce the impact of extreme events on our facilities to be able to serve our customers and be part of the resilience of communities
2. Assess the current and future impacts of climate change on existing facilities and business activities
 - Adaption of the installations making them less sensitive to the expected climatic conditions and increase resilience to extreme changes and situation
 - ⇒ Refurbishment work on French nuclear power plants
 - ⇒ Redesign of the sub-glacial water intake related to the accelerated glacier retreat
3. Take into consideration future climate in facilities' design
 - ⇒ Piano Key Weirs spillway technology in 8 hydro plants
4. Involve the R&D
 - The Climate services Department develops methods, models and sophisticated datababase tools with “ready to use” climate projections for the company’s different lines of business

We need middle term and long term climate scenarios including temperature, water frameworks and wind, they are provided by our R&D

Build resilience for the customers and the communities we serve and contribute to the energy transition

- The Action Plan for Adaptation gives EDF :
 - The ability to show resilience in the short term in order to reduce the impact of shortages in electricity on our customers
 - ⇒ Rapid Intervention Electricity Task Force (FIRE) : Mobilizing up to 2,000 people, 24 hours a day, 7 days a week, both in France and abroad => Called into action following hurricanes
 - The ability to anticipate and the long term vision of the climate risks where EDF operates and is used as a tool to enhance the resilience of the communities we serve
 - ⇒ Water Management and Dialogues on Water

Minimize the impact of climate change on our financial exposure

- Similarly to commodities prices scenarios, CO2 prices scenarios are used to assess the resilience of our investments in projects
 - ⇒ Assessment of the resilience of the projects to different CO2 prices
- The CO2 price is the compass to today's operations. A CO2 price can shift the merit order favoring the least emitting sources.
 - ⇒ Necessity for the market design to boost the CO2 price.
 - ⇒ Could represent 100 Mt/y in Europe!
- Increase in the demand for transparency, reporting and dialogue on climate-related risks by all our stakeholders including the financial markets
 - ⇒ Relevance of the work done by TCFD as a means to mainstream the conversation and to promote the measurement

