AGENDA

1. EDF key figures
2. EDF strategy
3. EDF EPR on-going projects
EDF GROUP: KEY FIGURES

EDF produces around 22% of the European Union’s electricity, primarily from nuclear power.
AGENDA

1. EDF key figures

2. EDF strategy

3. EDF EPR on-going projects
EDF GROUP STRATEGY

CAP 2030

3 PRIORITIES

CUSTOMER FOCUS
To create new competitive decentralised solutions, new personalised energy services and smart grids

LOW CARBON GENERATION
To rebalance the energy generation mix by speeding up the development of renewables and guaranteeing the safety and efficiency of the existing and new nuclear fleets

INTERNATIONAL DEVELOPMENT
To penetrate new international markets by developing our low carbon solutions in emerging economies, whilst consolidating our positions in Europe

EDF, a highly efficient and socially responsible electricity company, championing low carbon growth

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EDF GROUP FUTURE

ALL THE OPTIONS ARE OPEN TO SECURE A LOW CARBON MIX

NUCLEAR
EDF worldwide nuclear operator
Leader of the French Nuclear Industry
Committed to develop new builds projects worldwide

RENEWABLES
EDF SOLAR PLAN (2020 – 2035)
Develop and build solar plants in France totalling 30GW of installed capacity and a 25Bn€ investment

STORAGE
EDF ELECTRICITY STORAGE PLAN
Further storage capacity of 10GW representing investment of €8 billion
Doubling the investment in Research and Development

EDF is engaged in the energy transition and promotes the complementarity of nuclear and renewables energies in tomorrow’s energy mix

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EPR REACTOR ALREADY LICENSED IN 4 COUNTRIES

- HPC 1&2, United Kingdom
- Flamanville 3, France
- Olkiluoto 3, Finland
- Taishan 1&2, China

EPR ONGOING PROJECTS
EPR ONGOING PROJECTS
EPR FLAMANVILLE 3: THE REFERENCE PLANT

GENERAL INFORMATION

- EPR Reference Plant
- First EPR reactor in France
- Power output: 1,650 MW
- EDF as owner & operator

SCHEDULE

Current status:
- March 2016: Welding of 1st Primary Circuit
- January 2018: Cold tests carried out

End 2018
- Hot functional tests

4th Quarter 2019
- Fuel loading and start-up operation to begin

August 2017
- Nuclear circuit cleaning

August 2018
- Functional tests vessel open successfully completed
EPR ONGOING PROJECTS

TAISHAN 1 & 2

GENERAL INFORMATION

- The first two EPR reactors in China
- Power Output: 1,750 MW each
- EDF as co-owner and co-operator
- The project had to be tropicalized to adapt to the country's climate

CURRENT STATUS

- September 2015: Vessel Flushing Operations
- April 2018: First fuel loading
- 6 June 2018: 1st criticality
- 29 June 2018: Connection to the grid
- Q4 2018 COD Unit #1
- Second half of 2019 COD Unit #2

SCHEDULE

- July 2017: End of hot functional tests
- 29 June 2018: Connection to the grid
- 2018 COD Unit #1
- Second half of 2019 COD Unit #2

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EPR ONGOING PROJECTS

EPR HINKLEY POINT C

GENERAL INFORMATION
- First nuclear construction project in the UK in 30 years
- A certification process: GDA requirements for reference plant EPR Flamanville 3 adaptations
- Contract For Difference guarantying a fixed price of electricity for 35 years
- Chinese partnership - EDF as co-owner and operator
- Power output: 1,638 MW each

CURRENT STATUS
- September 2016
  Final contracts signed
- October 2013
  UK Governments agrees Contracts For Difference for HPC
- March 2017
  First concrete successfully poured for power station galleries

SCHEDULE
- Mid-2019:
  1st concrete
- 2025:
  COD Unit #1
- 2026:
  COD Unit #2
DZIĘKUJĘ
# FRENCH NUCLEAR SECTOR ORGANIZATION

## REACTOR ACTIVITIES UNDER EDF’S LEADERSHIP

### Fuel Cycle
- Mining: Prospection and development of mining projects; extraction and processing of uranium
- Front-end: Conversion, chemistry and enrichment
- Back-end: End-of-cycle management solutions for used fuel and waste management, and logistics solutions

### Power Plant
- Power plant
  - Design of nuclear island (NI)
  - Architect of nuclear island (NI)
  - Leadership for the preparation of offers
  - Architect of conventional island (CI) and balance of plant (BOP)

### Reactors Components
- NSSS (Nuclear Steam Supply System):
  - Design & manufacture of NSSS
  - Instrumentation & control

### Nuclear Fuel
- Fuel assembly & services

### Nuclear Services
- Supply of products and services to:
  - Commission or upgrade existing reactors
  - Reduce operation and maintenance costs
  - Improve safety and performance
  - Increase availability & operation lifetime

### End of Life Services
- Engineering, project management and operations on nuclear plants and fuel cycle facilities
- Decommissioning, dismantling of nuclear facilities and nuclear waste management

### Research Reactors
- Research reactors technology
- Research reactor fuel
EPR REACTOR
MAIN DESIGN CHARACTERISTICS

- **Power:**
  - Core Thermal Power: 4590 MWth
  - Generated Electrical Power: > 1600 MWe

- **Availability:** > 91%

- **Radiation Protection:** collective dose < 0.5 man.Sv/y

- **241 Fuel assemblies in core**

- **Fuel cycle length:** up to 24 months

- **Design service life:** 60 years

- **Ready for power maneuvering**

Designed for sustainably reducing O&M costs
EPR REACTOR
SAFE TECHNOLOGICAL IMPROVEMENTS

- **Safety**
  - Accident probability reduction (factor 10)
  - External hazard protection (shell able to resist an airplane crash)
  - Evolutionary design (core catcher)

- **Radioprotection**
  - At least 40% cut in collective annual exposure

- **Environment**
  - Very important reduction in radioactive waste and gaseous and liquid discharges

A PROVEN REACTOR DESIGN – A REFERENCE FOR THE SAFETY
- Licensed in 4 countries
- Fully compliant with the European Utility Requirements (EUR)
- Strong resistance confirmed by the European Post-Fukushima stress tests