RTE
The French Transmission System Operator
RTE TRANSMISSION LINES
FRENCH TRANSMISSION NETWORK

- Main and interconnexion network
  - 400 kV

- Regional distribution networks
  - 225 kV, 90 kV et 63 kV
7 RTE REGIONAL AREAS

- Nord
- Normandie Paris
- Ouest
- Rhône-Alpes Auvergne
- Sud Ouest
- Sud-Est
POWER DISPATCHING

National Control Centre

400 kV

TSO (RTE)

7 Regional Control Centres

225 kV 63 kV

DSOs

EDF & other distributors low & medium voltage
TWO MAIN AND INSEPARABLE ACTIVITIES

Power System

- transmission system access
- power system safety
- network development project management

Transmission Network

- network maintenance
- network development engineering

Flow management
≈ 1 000 people

Industrial management
≈ 6 000 people

Competencies and activities are at the same time different and complementary
EUROPEAN MARKET LIBERALISATION
NEGOCIATING THE DIRECTIVE

Between two extremes

Draft 1992 (TPA)
Draft 1993 (NTPA)
1995 Commission working document (coexistence NTPA-SB)
1996 Italian proposal
1995 Spanish presidency
1994 French proposal (SB)

Market-oriented

Public Sector-oriented
A COMPROMISE TEXT

• Progressive but limited market opening:
  1999: ≥ 27 %
  2000: ≥ 30 % of European market
  2003: ≥ 35 %

• But it’s only a step: new market opening before 2006

• Measures to ensure a smooth running of the market:
  ✨ independent transmission system operators
  ✨ account unbundling for generation, transmission & distribution activities
  ✨ independent national regulators
MARKET OPENING IN THE E.U.

<table>
<thead>
<tr>
<th>Country</th>
<th>2000 opening</th>
<th>production procedure</th>
<th>TSO unbundling</th>
<th>TPA</th>
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<td>Portugal</td>
<td>30%</td>
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<td>S.B. / reg.</td>
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<td>auth. + tender.</td>
<td>management</td>
<td>regulated</td>
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<tr>
<td>Greece</td>
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<td>regulated</td>
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<tr>
<td>Ireland</td>
<td></td>
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<td>33%</td>
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<td>S.B. / reg.</td>
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<tr>
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<td>regulated</td>
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<tr>
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<td>authorisation</td>
<td>ownership</td>
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<tr>
<td>U.K.</td>
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<td></td>
<td>own. / legal</td>
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<tr>
<td>Sweden</td>
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<td></td>
<td>ownership</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td>manag. / legal</td>
<td>negotiated</td>
</tr>
</tbody>
</table>
EVOLUTION OF E.U. ELECTRICITY PRICES

The bigger market opening, the stronger price reduction
TOWARDS A NEW DIRECTIVE - MARKET

13.03.2001 - Commission’s proposal

• Eligibility:
  ¬ 01.01.2003: all non-domestic electricity customers
  ¬ 01.01.2005: all electricity customers

• Unbundling:
  ¬ legally and functional separation
    of transmission & distribution system operators

• Third party access: ¬ regulated TPA only

• Regulation:
  ¬ independent regulatory authorities with competence
    to set/approve tariff & conditions for network access
In the framework of progressive liberalisation of electricity markets in Europe, the transmission function plays an essential role for smooth running of the market.

Access must seem easy to producers, traders, consumers...

TSOs manage the complexity of the system (technical constraints, balancing, bottlenecks...)

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**TRANSMISSION IN THE NEW CONTEXT**
APPLICATION TO FRANCE
EDF was ensuring the optimisation of all generation means in France, and was the unique supplier of final customers [exception: other distributors].
... TO LIBERALISATION

- Eligible consumers, who are free to choose their suppliers
- Non eligible consumers
- Foreign consumers

- Competing suppliers
ELECTRICITY GENERATION

- Long-term planning of generation investments
- Authorisation procedure:
  - $> 4.5$ MW: operating license
  - $\leq 4.5$ MW: simple declaration
- Tender procedure when capacities don’t fit objectives of long-term planning
- Electricity purchase obligation by EDF and other distributors:
  - “clean” energy
• Electricity Regulation Commission (CRE):
  - 6 qualified members:
    - six-year period non renewable mandate
    - various incompatibilities + impartiality, independence and professional confidentiality
  - services placed under president’s authority
ROLE OF RTE
IN THE NEW CONTEXT
RTE MISSIONS

• Transmission infrastructure management:
  🚗 operates and maintains public transmission grid
  🚗 is responsible for its development

• Power system operation:
  🚗 manages power flows and ensures balancing
  🚗 implements ancillary systems and compensates losses
  🚗 implements metering and compensates imbalances

• Ensuring access to public transmission system:
  🚗 concludes contracts with transmission system’s users

While ensuring:  ✓ least cost
                 ✓ system security
                 ✓ absence of discrimination
RTE POSITION

- Department within an integrated company, EDF
- Management independence from other EDF activities
- Account unbundling within EDF
ENSURING INDEPENDENCE

• **Financial independence:**
  - its CEO is entirely responsible for its management
  - within EDF, RTE has its own budget

• **Management independence:**
  - RTE employees can only receive instructions from CEO or one of his representative

• **Organic independence:**
  - RTE CEO cannot be member of EDF Board
  - protocols set the relations between RTE and EDF other activities (in particular conditions of access to system and application of access tariffs)
  - RTE set up its own information system
ROLE OF THE REGULATOR

• The CEO of RTE:
  ➢ is appointed by energy minister after CRE opinion
  ➢ reports on RTE activities to CRE

• Electricity Regulation Commission (CRE):
  ➢ gets RTE budget and accounts
  ➢ approves RTE annual investment programme
  ➢ approves unbundling rules
  ➢ settles disputes between RTE and system users
  ➢ proposes system use tariffs to energy minister
Le RTE vient de décider, après concertation avec la CRE, une hausse immédiate du seuil de tolérance de ces écarts de consommation de 5 à 10%.

Pour en savoir plus

http://www.rte-france.com
RTE and the POWER MARKETS
TWO TYPES OF MARKET PLAYERS

Electricity market players:
- suppliers
- traders
- “eligible” consumers
- even RTE itself, as energy purchaser to compensate its losses

Financial settlement of a posteriori imbalances

Physical players on electric grids:
- French producers
- French consumers
- distributors
- importers and exporters

Real-time system security
DIFFERENT MARKETS

- **bilateral contract**
  - supplier → consumer
  - MT or LT

- **Powernext**
  - supplier → consumer
  - balance responsible entity

- **Spot market**
  - supplier → consumer
  - D-1 (16 h)

- **Real time market**
  - balancing player → RTE
  - balancing mechanism

- **Time scale**
INTERACTIONS BETWEEN MARKETS

Physical players
(producers, consumers, importers, exporters)

Balance responsible entity

Imbalance
- generation
- purchase
- consumption
- supply
- incr. balancing
- decr. balancing

System access
- time limit

Forecast

Real time

A posteriori

OTC

spot

Electricity market players

Transit capacity allocation on interconnections

Balancing mechanism

Metering

Imbalances settlement

Balancing settlement

Metering
The EUROPEAN POWER MARKET
The advantages of networks interconnection:

- Pooling hazards to reduce their effects: all countries jointly contribute to safety
- Reduction of generation investments & mobilisation of the most economical generation means

→ the biggest synchronous grid in the World: “a huge machine with several pilots”
SYNCHRONOUS AREAS - 2002

- UCTE
- BRITAIN
- NORDEL
- UCTE 2
- CDO
ELECTRICAL EUROPEAN UNION TODAY

• Some data:
  ⊳ 22 countries: 15 E.U. + Switzerland, Norway, accession countries
  ⊳ annual consumption: about 2,800 TWh
  ⊳ annual exchanges: about 270 TWh

• TSOs get organized: ETSO