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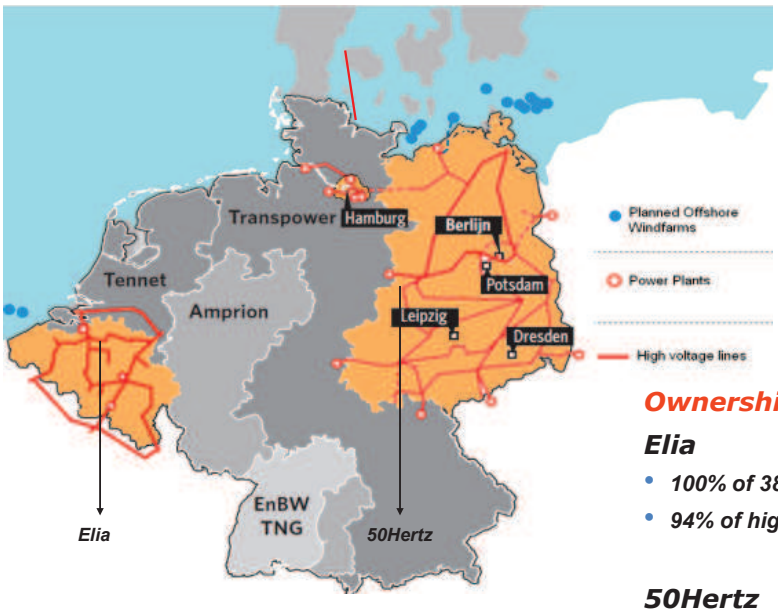
Projecting ideas, Delivering solutions

Innovation & Knowledge Management
September, 2012

Elia+50Hertz: a unique situation in the EU



Ownership

Elia

- *100% of 380-150kV network*
- *94% of high voltage network (70-30kV)*

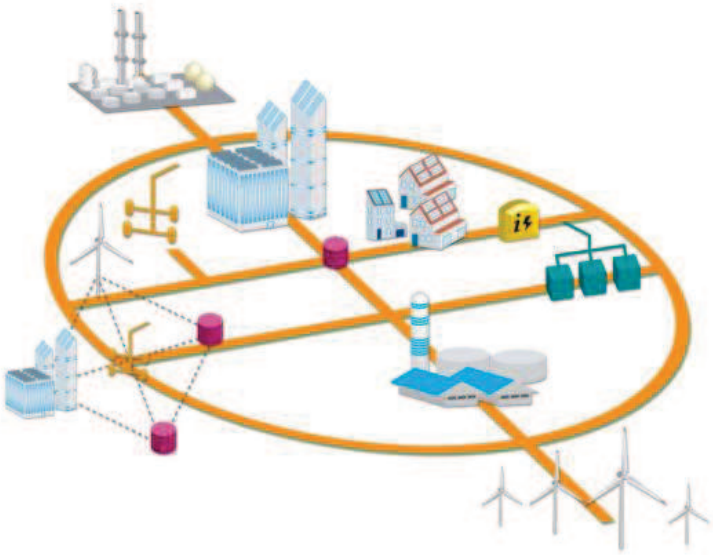
50Hertz

- *100% of 380-220kV network*
  - *34% of the German 380kV network*
  - *19% owner of the German 220kV network*

Agenda

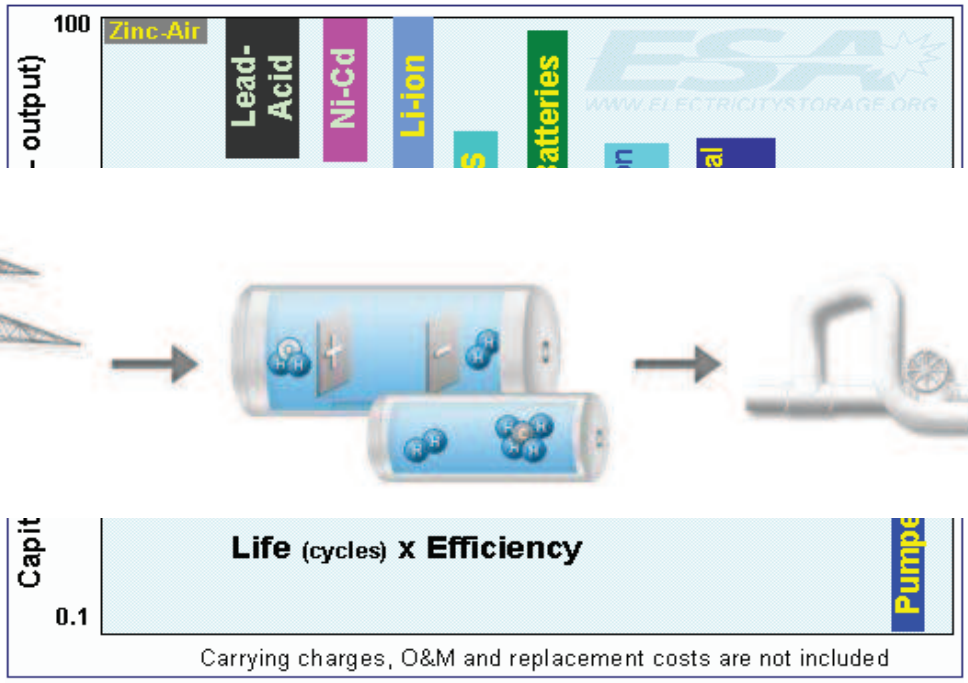
The challenges of energy revolution

Integrated structure

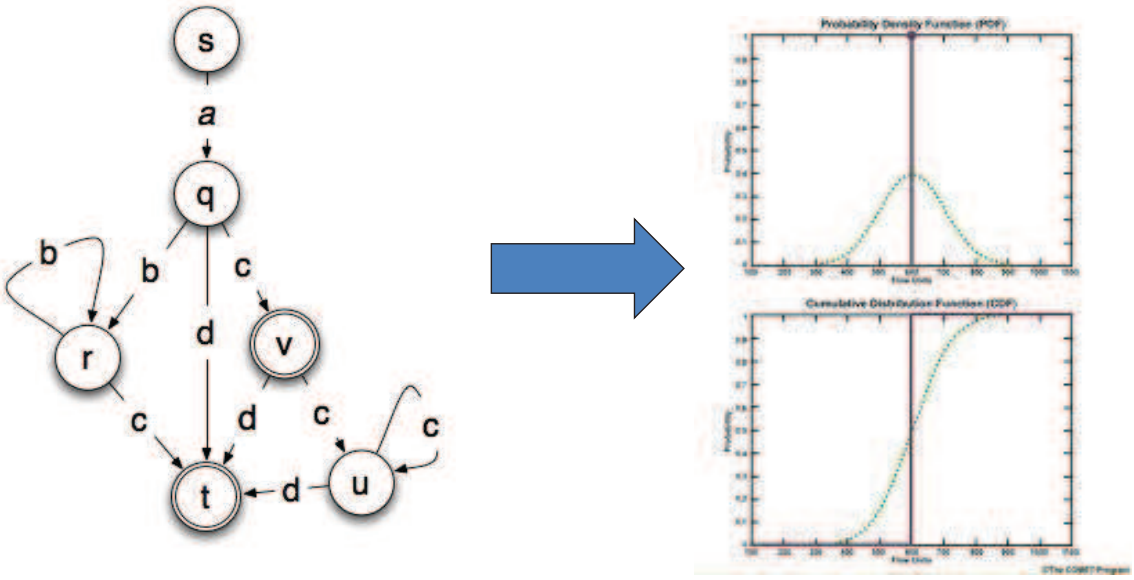


Balancing

Storage



Higher uncertainty & complexity



Integrated market

Putting the pieces together

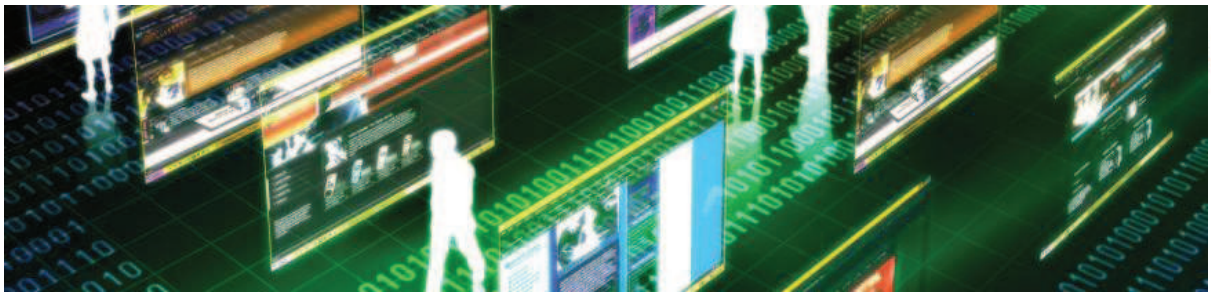
Critical data

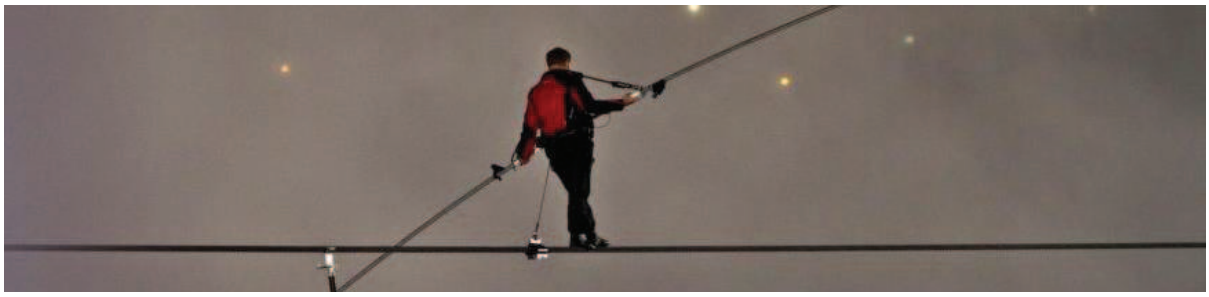
Knowledge

Nine challenges

ELIA Group Situation

- **Deliver electricity from the North to the South**
- **Generation exceeds consumption, and is more and more volatile**
- **Crossed by larger and larger flows**
- **Lack of usable flexibility in existing generation assets**





Elia Group Innovation Priorities

elia group
Powering a world in progress
50hertz
elia

New vision, new architecture RESMAN	New balancing source STORAGE	New decentralised resources DERIG	New vision, new methods GRIDFUT	New technology POWERTECH	New operation OPFUT
New balancing architecture	Compressed air Batteries	Congestion management DSM, VPP, ANM	Novel LT approach Grid expansion Reliability approach	Innovative overhead lines and technologies	Enhance the flexibility of the pan-EU system
New market products	Pumped storage	Demand response Real time market	Overlay grid (e-Highway2050, German studies)	Asset supervision and control	Novel reliability approaches
Optimal reserve dimensioning	Power to gas	Information exchanges forecasting	Enhance public acceptance	Asset management strategies	Assess impact of new technologies
Dynamic reserve management	Power to heat	Balancing reserves Aggregators Pooling concepts	Novel LT scenario tools	Data and information management	Design new processes
		Electric vehicles	Improved System Adequacy		New training tools

Approach

Thank you