

1. Was sind
Technologieplattformen ?

2. Die TP „Smart Grids“

Ziele der Technologieplattformen



TPs sollen

- einen signifikanten Beitrag im Rahmen der Lissabon-Strategie liefern
- zum Ausbau des Europäischen Forschungsraums beitragen
- von der Industrie getragen sein, aber alle Stakeholder einbeziehen

http://cordis.europa.eu/technology-platforms/home_en.html

Entstehung der TP

- strategische Aktionen der EU im Gefolge der Lissabon-Strategie
- teilweise Reaktion auf bestimmte (insbesondere energie-) politisch forcierte Inhalte; z.B. IPHE und CSLF
- teilweise bottom-up Reaktion der einzelnen Interessensgruppen

- die Stakeholder im engeren Sinn
- die EU, vorwiegend über das 7. RP
- die Staaten, über ihre nationalen FTD Programme und über die Rahmenbedingungen
- über Europa hinausgehende Partnerschaften

Aktueller Stand



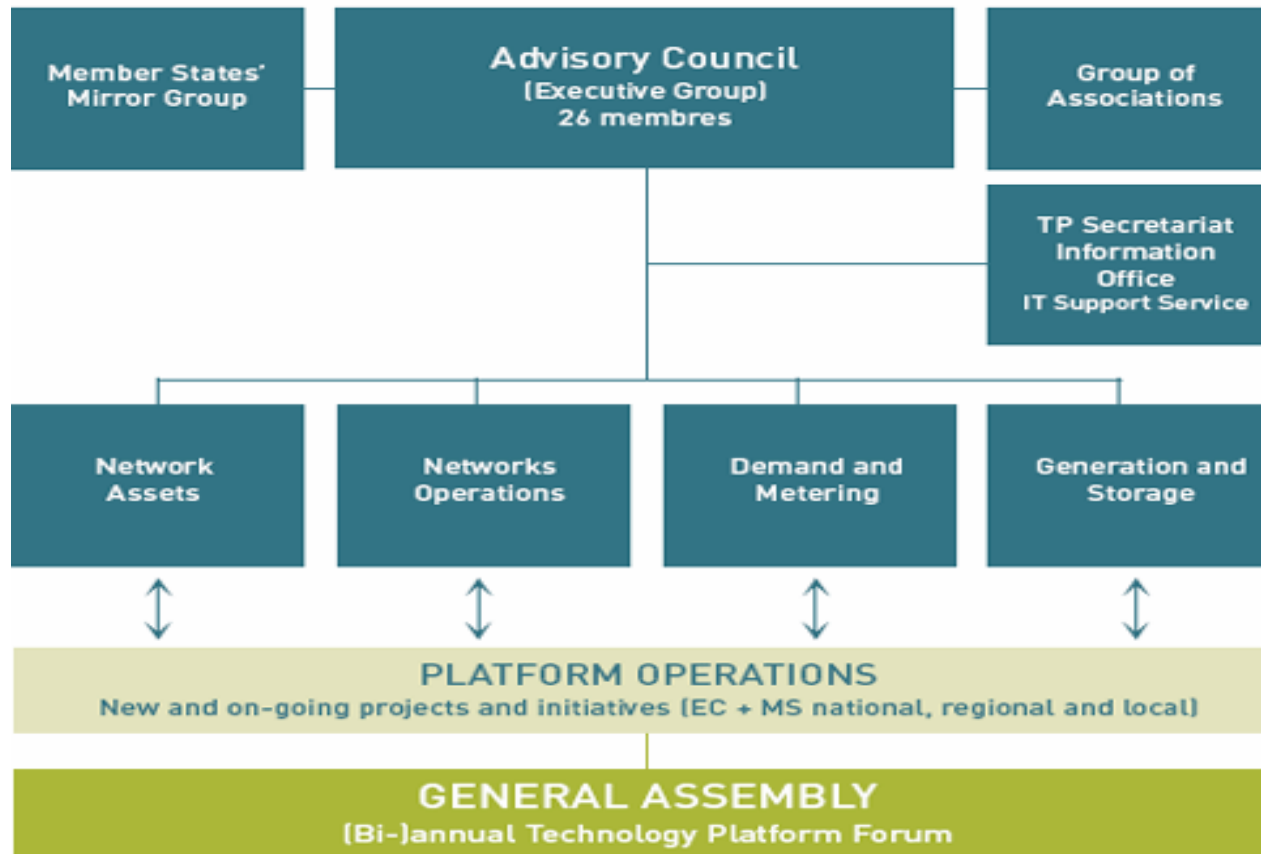
- rund 30 „hochhoffizielle“ TP
- energierelevant sind insbesondere
 - Hydrogen and Fuel Cells
 - Zero Emission Fossil Fuel Power Plants
 - **Smart Grids**
 - Photovoltaik
 - Solar Thermal (DG TREN)
 - Biofuels
 - Wind Energy (DG TREN)
 - Construction
 - Forest based



TP Smart Grids Structure

S M A R T G R I D S

Electricity Networks of the Future Technology Platform



European Technology Platform “SmartGrids” (Electricity Networks of the Future), presented at 1st International Symposium on Distributed Generation, Vienna October 18th - 19th, 2006



SMARTGRIDS

The Vision Team

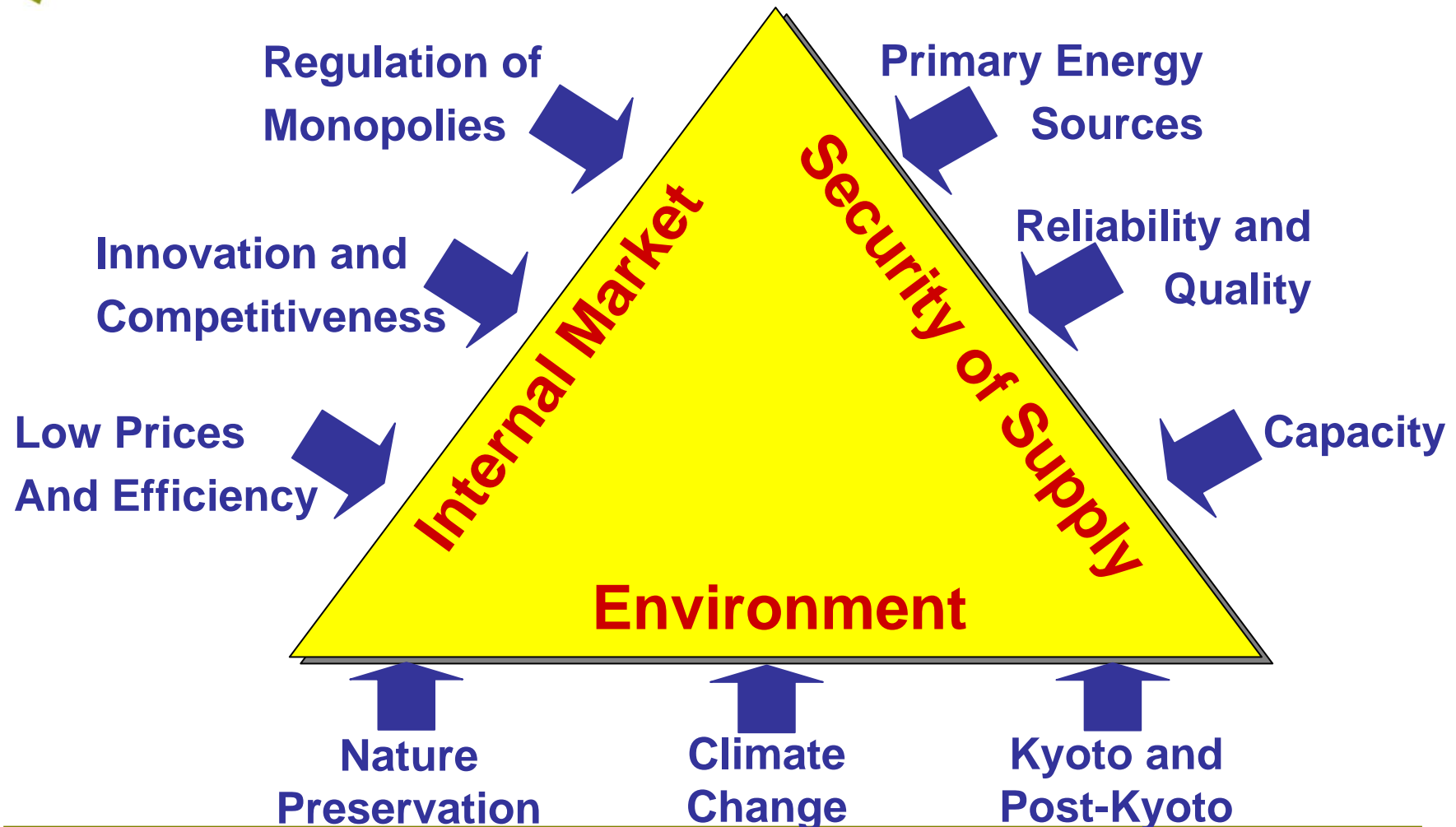


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Drivers towards SmartGrids

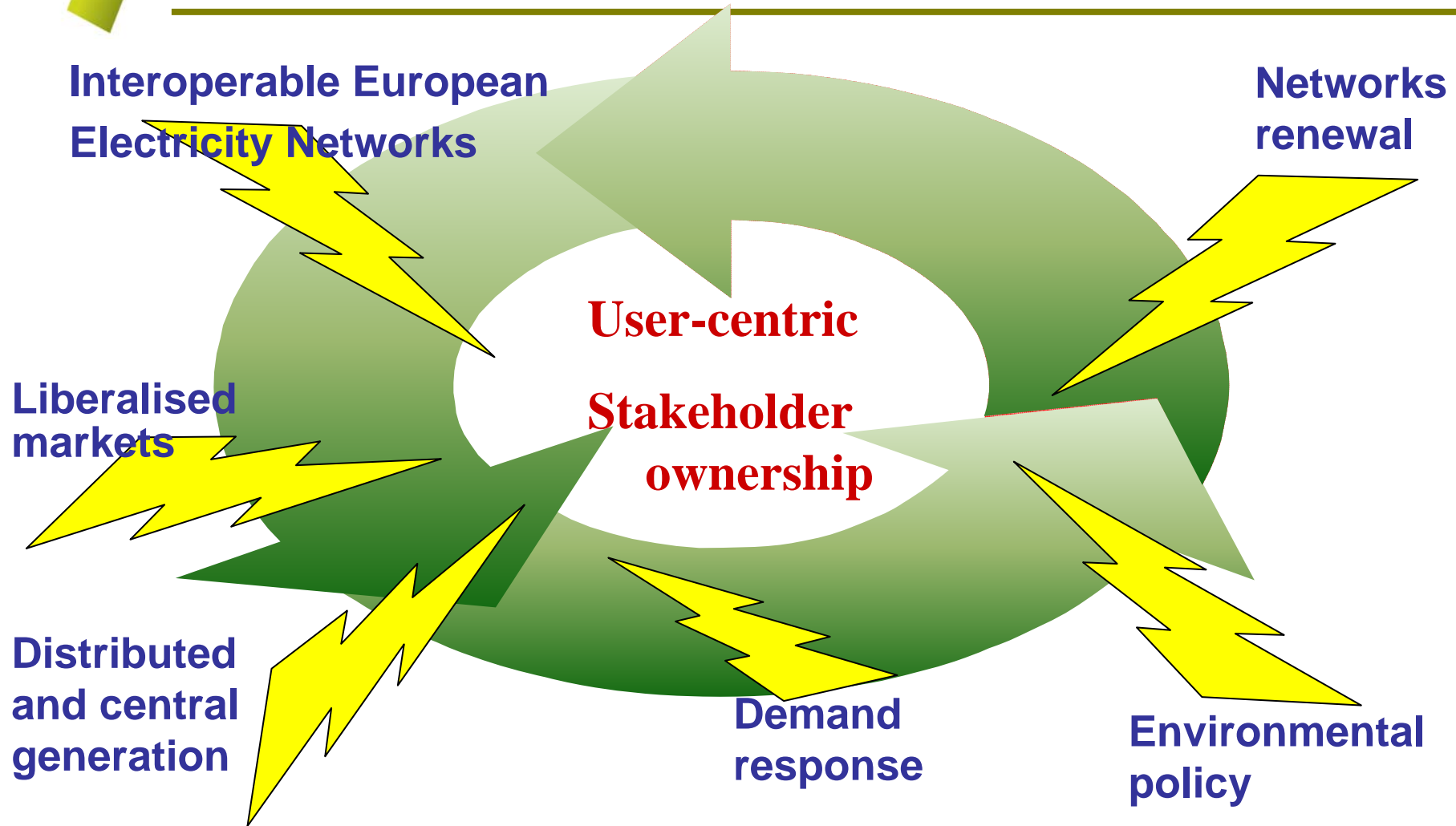


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SMARTGRIDS

Why SmartGrids?

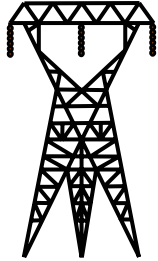


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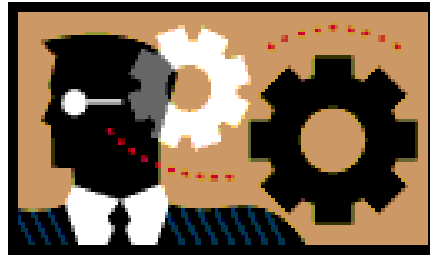


SMARTGRIDS

The Stakeholders



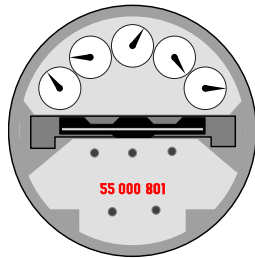
Network companies



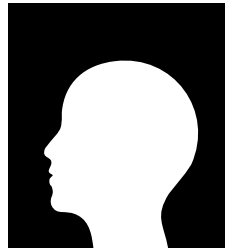
Technology providers



Researchers



Energy service providers



Users



Regulators



Governmental agencies



Traders



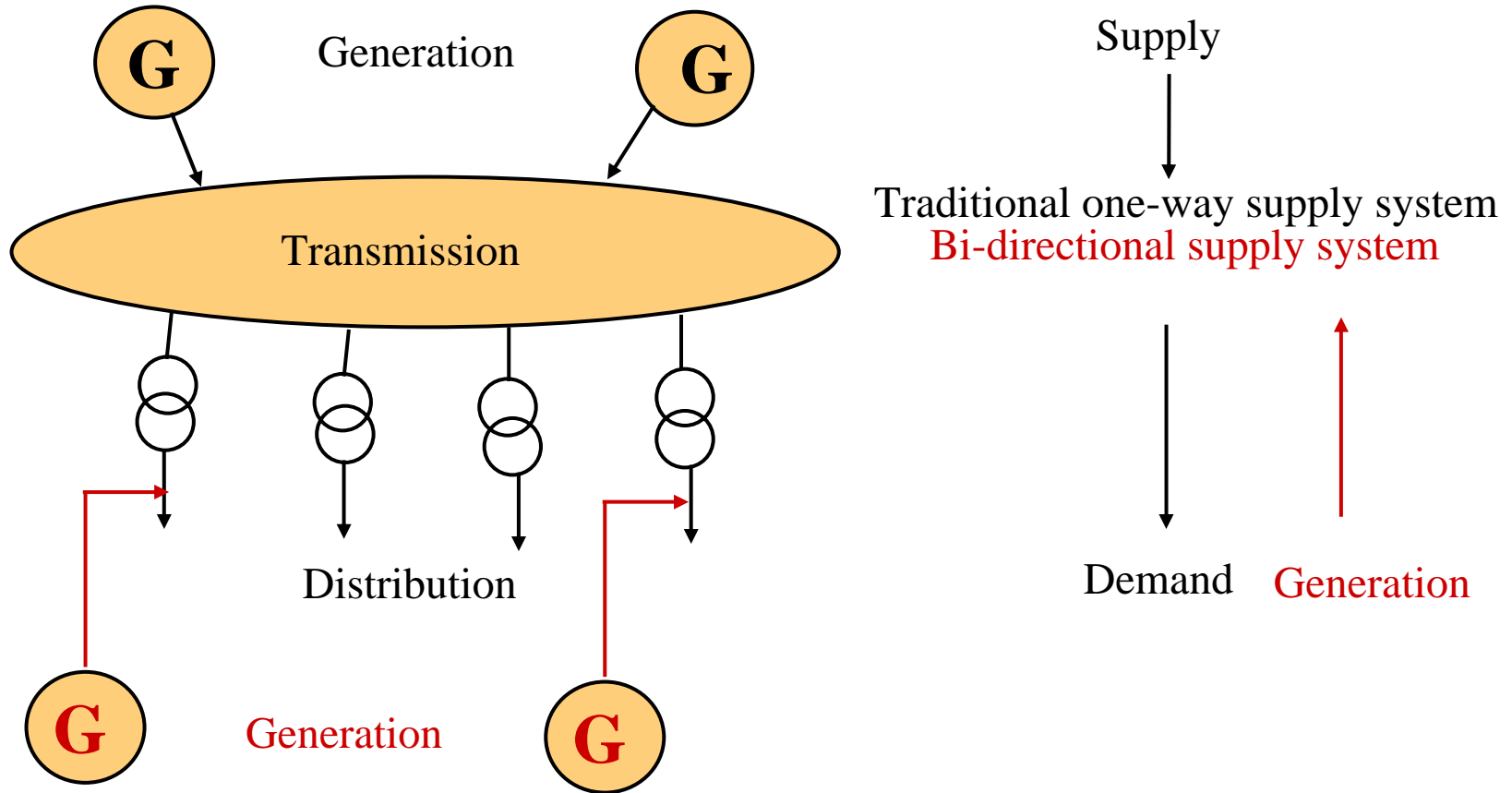
Generators

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SMARTGRIDS

Networks Today

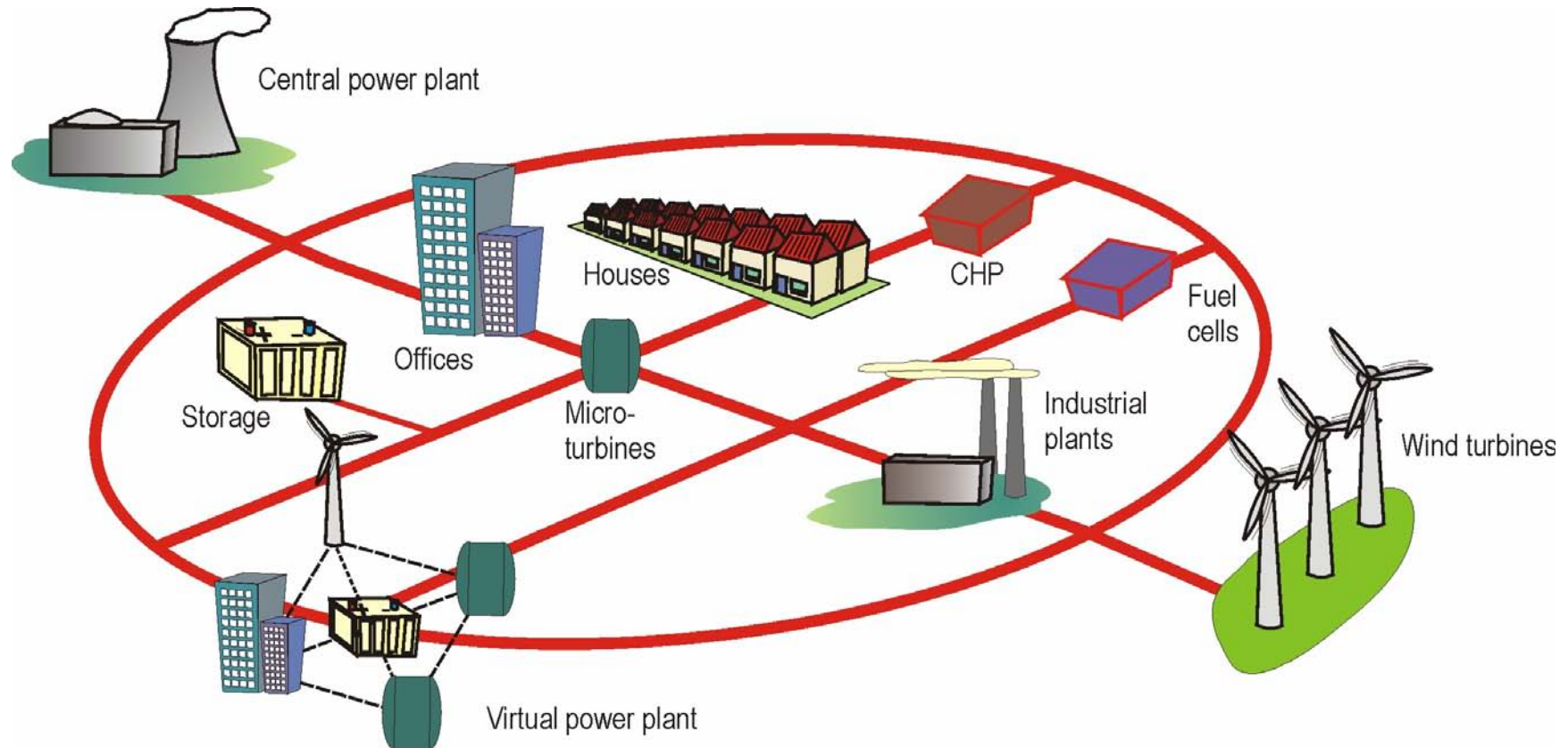


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Networks Tomorrow



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Europe's Electricity Networks

Future requirements:

- Flexible: user-centric and designed for the future**
- Accessible: connect all users**
- Reliable: security of supply in a digital age**
- Economic: best value -> innovation, efficiency and competition**



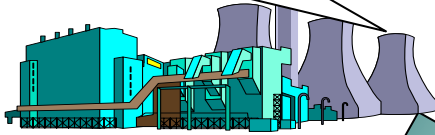
The interactive Grid

Present and forecast: capacity, availability, price, contract terms



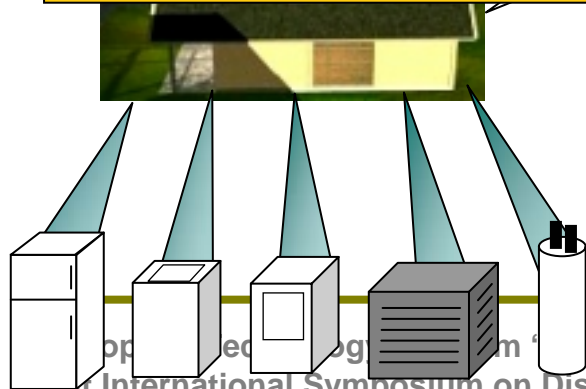
Present and forecast: capacity, availability, price, contract terms. Managing balance, losses, voltage, frequency, reserve.

Grid operator



Intelligent Metering is the gateway

and
ce
eets
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Appliances, Equipment



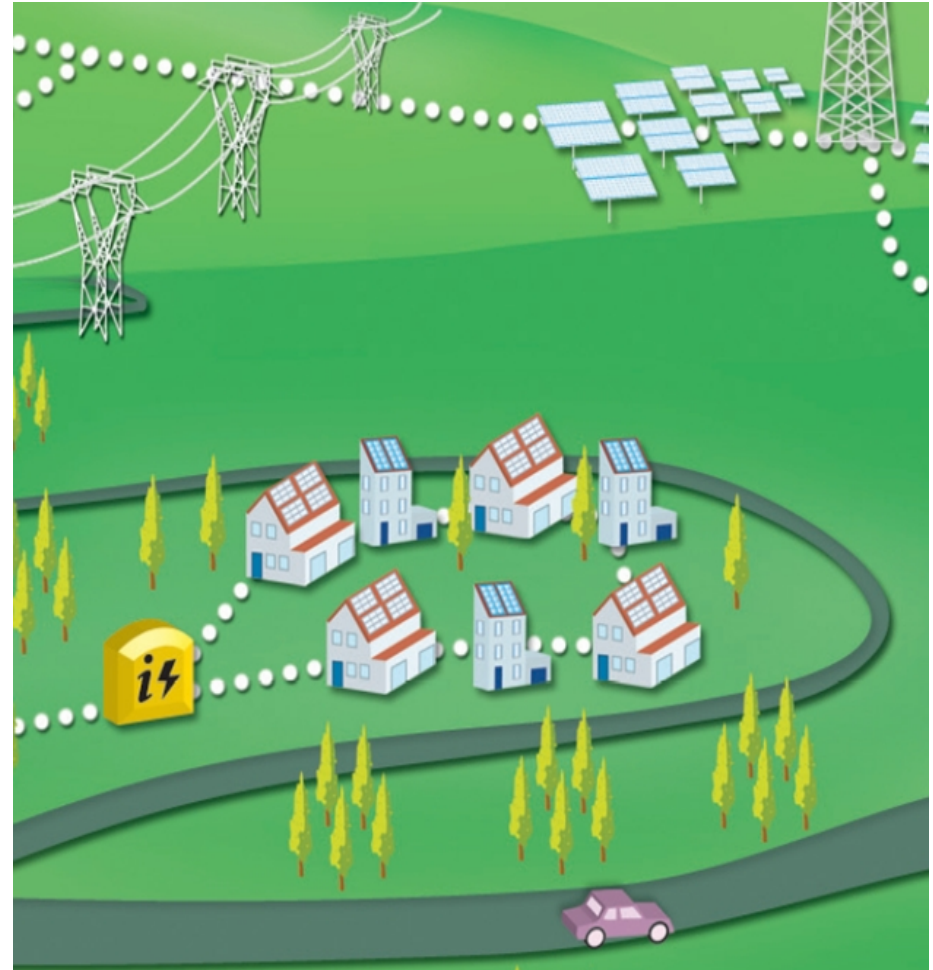
User



SMARTGRIDS

Concepts for the future

- **Microgrids:**
 - Low voltage networks with DG sources, local storage and controllable loads, automatic islanding



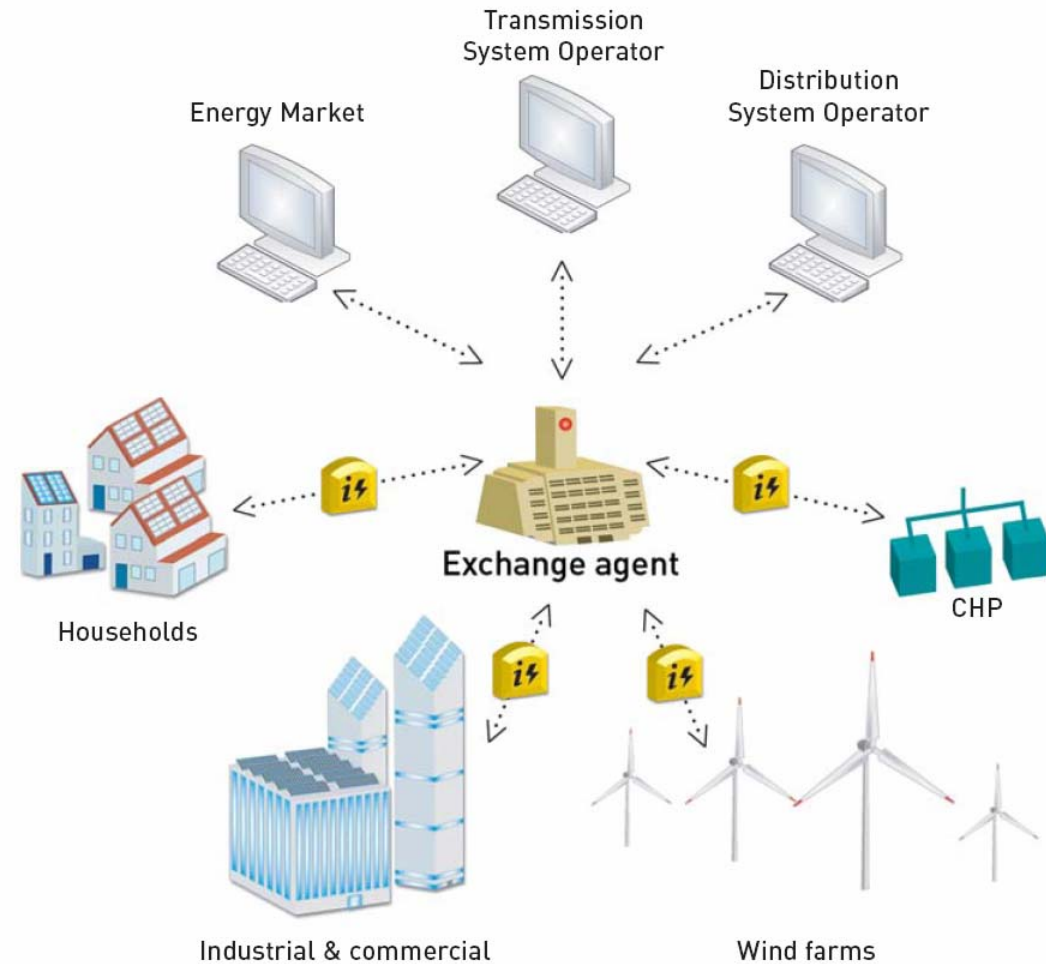
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Concepts for the future

S M A R T G R I D S

- **Virtual Utilities:**
Configure and deliver ->
“Internet” model



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Enabling Technologies

- Active Distribution Networks**
 - Improved power flow: FACTS, WAMS, WAPS**
 - Power electronic technologies**
 - Smart Metering**
 - Communication for DSM, on-line services, energy management**
 - Stationary energy storage**
-

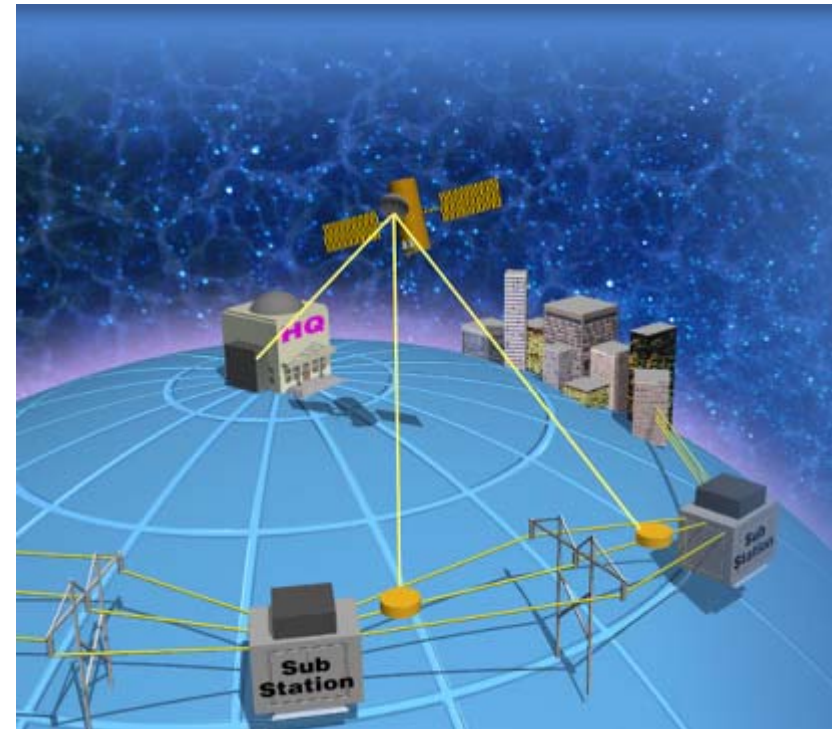


SMARTGRIDS

The IntelliGrid Vision

Makes use of communications, computing & power electronics to create a system that is:

- **Self-Healing** and **Adaptive**
- **Interactive** with consumers and markets
- **Optimized** to make best use of resources and equipment
- **Predictive** rather than reactive, to prevent emergencies
- **Distributed** across geographical and organizational boundaries
- **Integrated**, merging monitoring, control, protection, maintenance, EMS, DMS, marketing, and IT
- **More Secure** from attack



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What is better than a Vision?

...making it happen!

The Strategic Research Agenda

**Networks
Operations**

**Network
Assets**



Input please!

**Generation
and Storage**

**Demand and
metering**



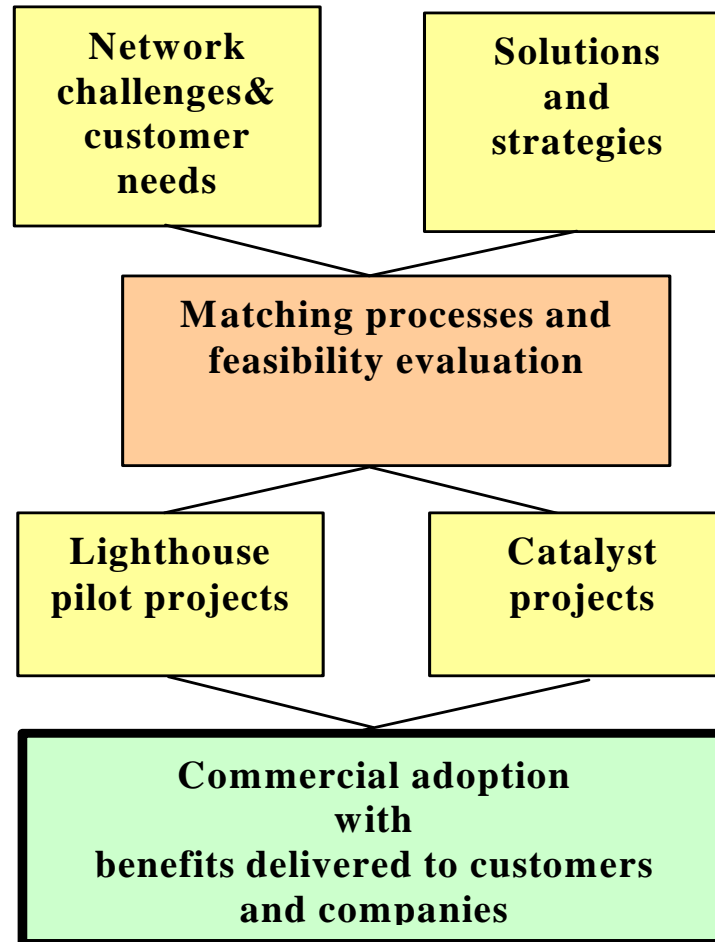
Points to consider

- Technical, commercial and regulatory solutions**
- Central and distributed generation**
- Integration of innovative technologies**
- Harmonisation of equipment standards**
- Improved cross-border flow**
- Higher education and skills**
- Increased FUNDING to make it happen!**



SMARTGRIDS

The flexible Framework



The R&D process envisaged for delivering the SmartGrids Vision



Conclusion

- We have a **VISION**
- Strategic Research Agenda launched**
- Solutions and strategies – technical, commercial and regulatory – will be identified**
- Catalyst and lighthouse projects will be undertaken**
- Your input please!**



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