



Current trends in electricity market design

Workshop: “Electricity Markets and RES
Integration”

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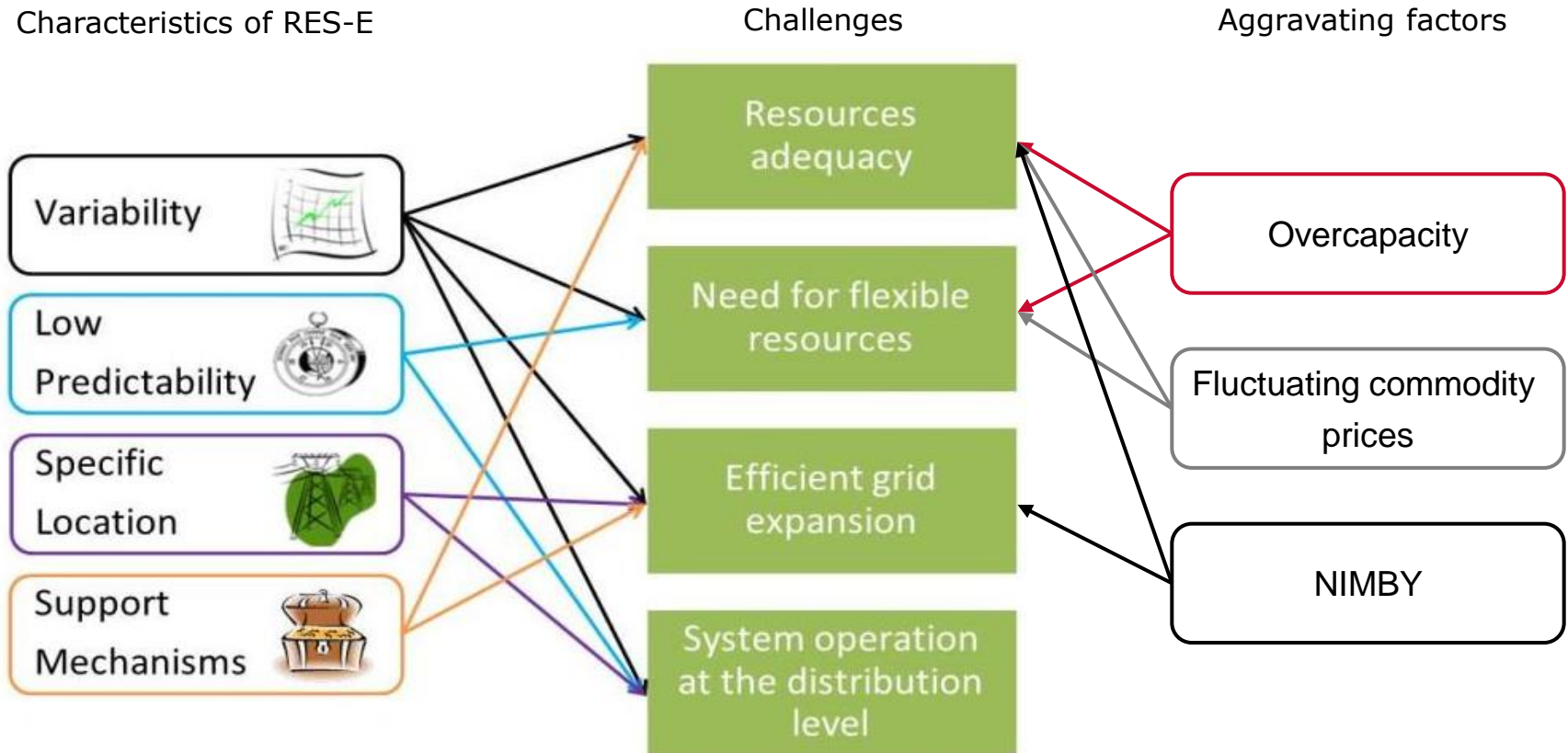


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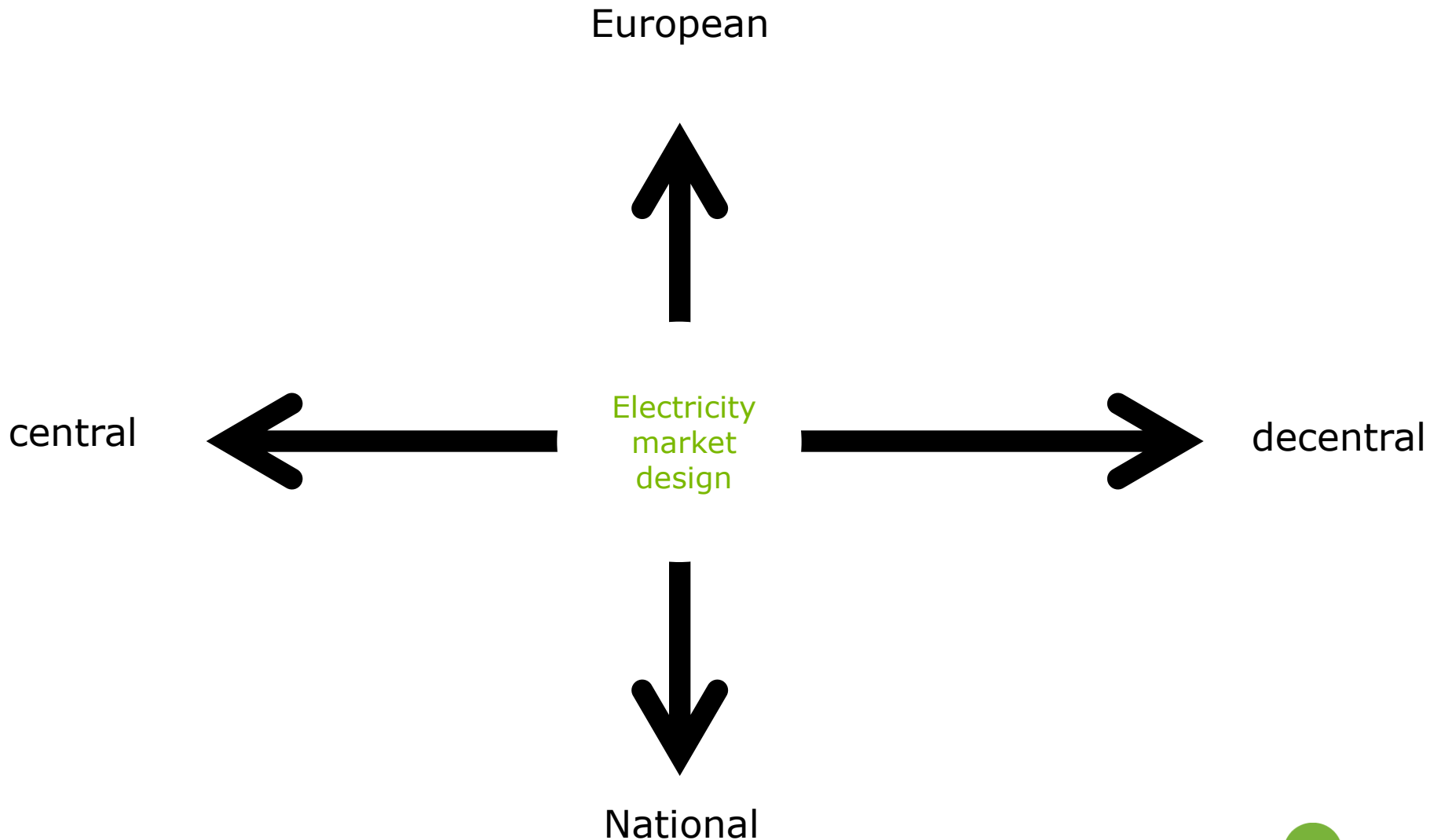


National characteristics increase challenges



- > Low investment incentives due to overcapacities
- > High risks for long term investments due to fluctuations in commodity prices and increasing shares of short term trade
- > Local stakeholders prevent changes in their direct environment ("Not In My BackYard")

Trends can be categorised in two dimensions



Multiple layers of regulation address challenges

> **European Union**

- > Target model (Market coupling, etc.)
- > Projects of common interest
- > ENTSO-E's Ten Year Network Development Plan
- > Smart grid regulation
- > State aid guidelines
- > Environmental standards
- > Network codes
- > Liberalisation
- > Further action expected: EC proposal on market design

Resources
adequacy

Need for flexible
resources

Efficient grid
expansion

System operation
at the distribution
level

> **National authorities**

- > Capacity mechanisms
- > Renewable support schemes
- > National grid development plans
- > Local smart grid initiatives
- > Storage support
- > National grid codes
- > Price caps
- > Electricity trading rules (gate closure, etc.)

Technically challenges can be addressed in a centralised and in a decentralised way

> Centralised

- > Supergrids
- > Central definition of required capacity in capacity mechanisms
- > Coupling of national markets

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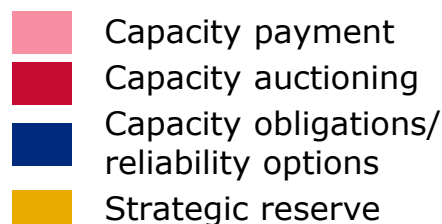
> Decentralised

- > Nodal pricing
- > Smart grids at distribution level
- > Regulation for net metering and self consumption

Policies to target resource adequacy: The example of capacity remuneration

> National level

Several countries implemented capacity mechanisms to address the challenge of resource adequacy. While capacity auctions define demand on a central level, capacity obligations and reliability options favour decentral solutions.

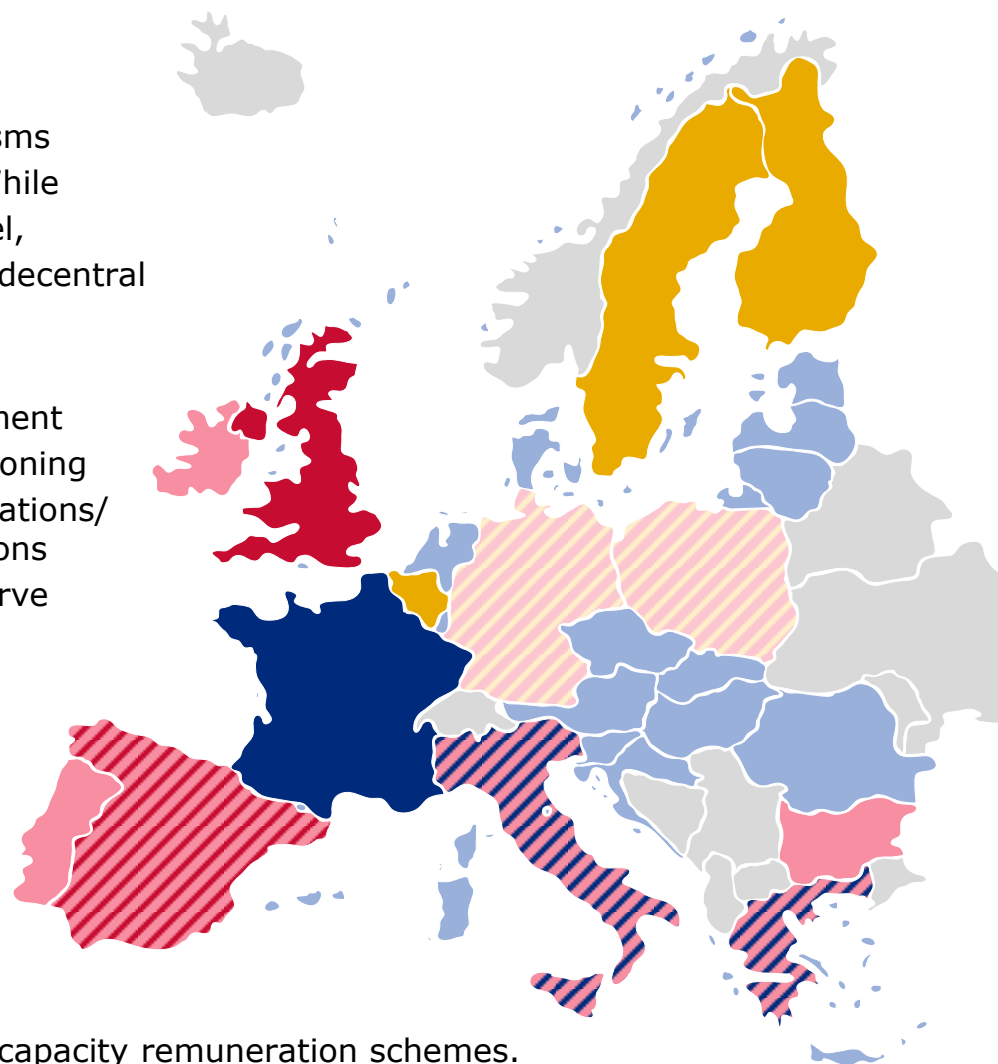


> European level

Capacity markets need to be notified at European level. They are subject to the Environmental and Energy state Aid Guidelines.

> Trend

Several countries consider to implement national capacity remuneration schemes. The EC calls for opening schemes for bidders from neighbouring countries.



Policies to target the need for flexible resources: The example of demand response

> National level

Demand Response is one option for flexibility in markets. While France, Great Britain, Ireland, Belgium and Finland already opened markets for participation, the Spanish and the Italian market are still closed for bidding from the demand side.

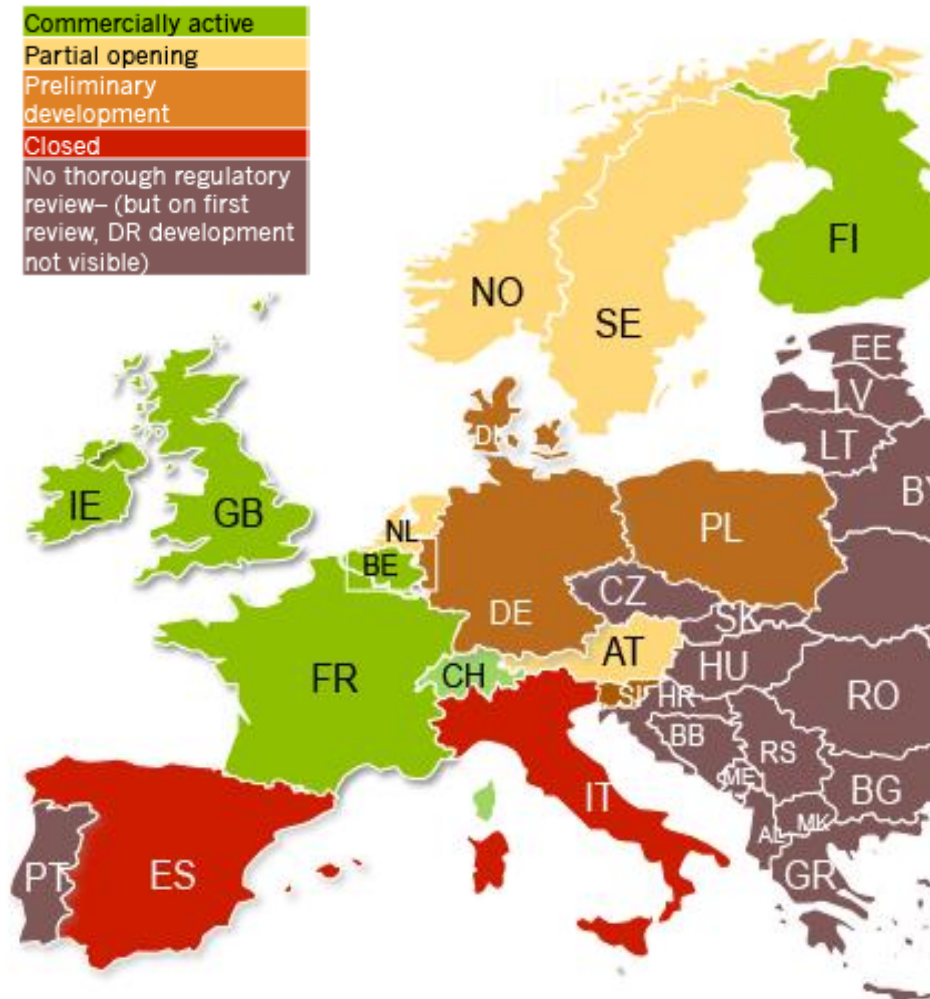
> European level

The European Commission provides information and funding for pilot projects. A network code for demand side installations is to be implemented until 2019. It will harmonise rules for demand side installations and facilitate integration in existing markets.

> Trend

There is a clear trend to increase the usage of demand response to provide flexibility in electricity markets. The Demand Connection Code is expected to facilitate further integration in electricity markets.

Commercially active
Partial opening
Preliminary development
Closed
No thorough regulatory review– (but on first review, DR development not visible)



Policies to target efficient grid extension: Grid development projects

> National level

Countries tend to favour investments that help to establish one national electricity price.

> European level

Building on Ten Year Network Development Plans from the association ENTSO-E, the European Commission defined projects of common interest (see map).

> Trend

Through EU funding, there is a clear trend to define favoured electricity grid extension on European level. Many national projects help to increase capacity for international trade.



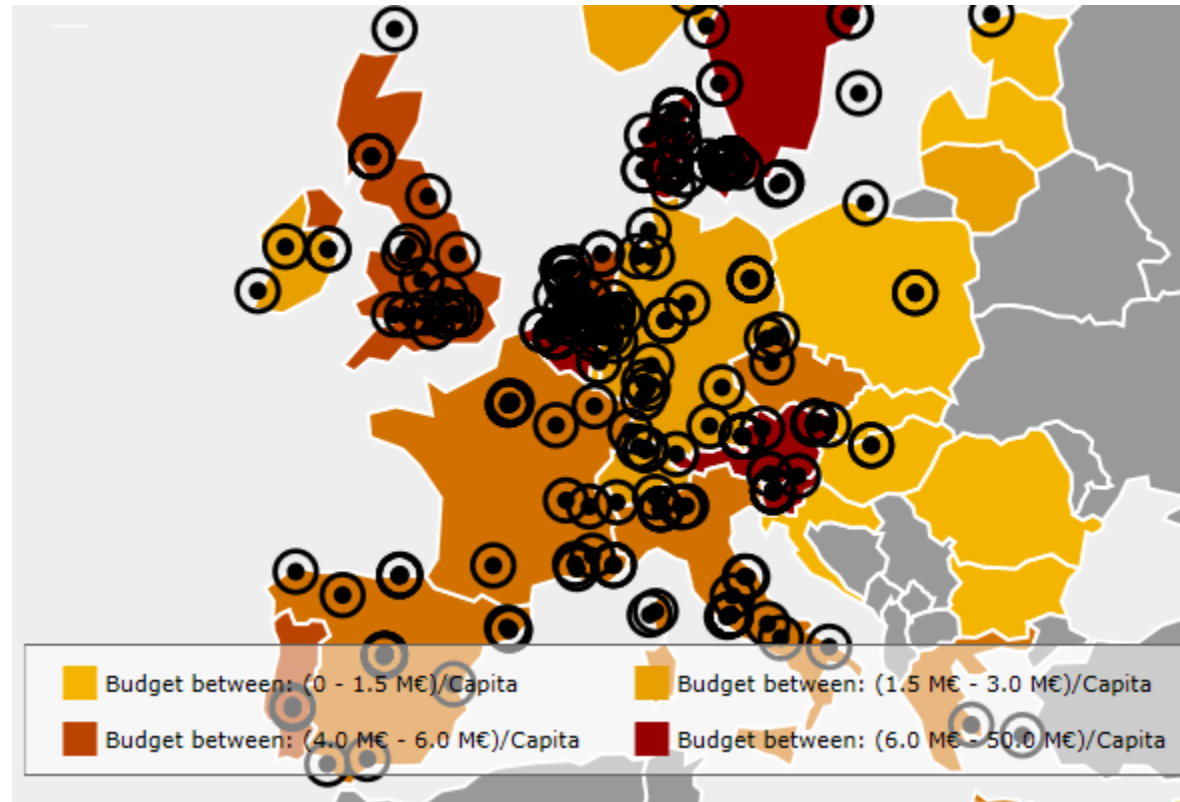
Policies to target system operation on distribution level: Example of smart grid pilot projects

> National level

There are plenty of pilot projects for smart grids in Europe (see map).

> European level

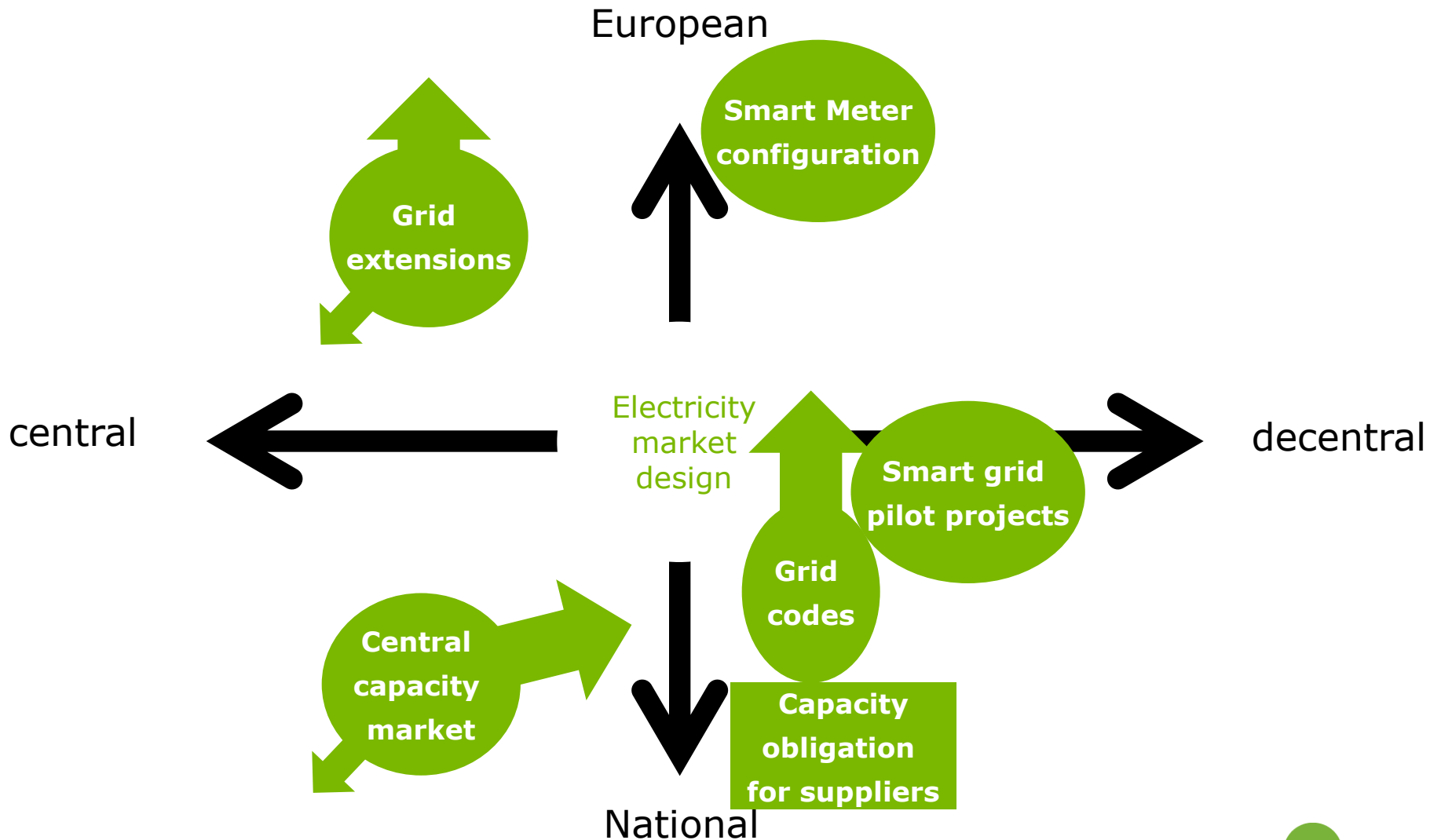
The European Commission set up a Smart Grids Task Force in 2009 to advise on issues related to smart grid deployment and development. It consists of five Expert Groups who focus on specific areas. Their work is expected to shape EU smart grid policies.



> Trend

Utilities and regulators regard distributed generation and smart grids as the future of electricity systems.

Trends can be categorised in two dimensions



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