

Energy transition challenges for public policy & regulation

Bruno Liebhaberg,
Director General, CERRE

World Forum on Energy Regulation, Istanbul, 26 May 2016
Plenary Session III: Sustainability & regulation



CERRE: advancing the understanding and development of regulation in Europe's network industries

Scientific excellence

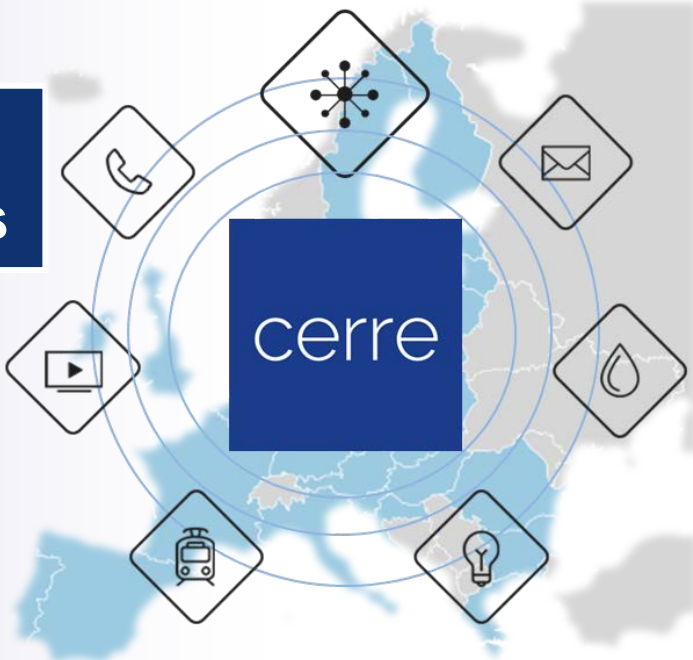
Multi-disciplinary

Policy recommendations

Cross-sector & intra-industry

Independence & original governance

EU + national perspectives





Energy transition challenges for public policy and regulation

1. ENERGY TRANSITION

2. EFFECTS OF CHANGING ENERGY MIX ON MARKETS AND POLICIES

3. POLICY OPTIONS AND TOOLS

4. APPROACHES AND ALTERNATIVES TO ACHIEVE SECURITY OF SUPPLY

5. ROLE OF REGULATORS IN ENERGY TRANSITION

An illustration featuring a large, stylized power cord. The cord is white with a black plug and a black cord, which transitions into a blue and purple wavy line. This line connects a factory on the left, emitting white smoke, to a landscape on the right with green grass, solar panels, and wind turbines. The background is a light blue sky.

“People’s well-being, industrial competitiveness and the overall functioning of society are dependent on secure, sustainable and affordable energy”

“Transforming the European energy system is imperative for reasons of climate, security and the economy.”

European Commission (2012)

Bill Butcher

Energy Transition: ambition, novelty and complexity

Long, politically driven, process
of **structural changes** in the energy system
aimed at drastically
reducing greenhouse gas emissions

Modernisation strategy with broad consequences for
R&D, growth, and competitiveness

New players in the energy sector,
new governance structures

Energy security & sustainability

Energy security and sustainability are **public goods**

Attributes: **non-excludable** and **non-rivalrous**

The **market fails** in the provision of **public goods**

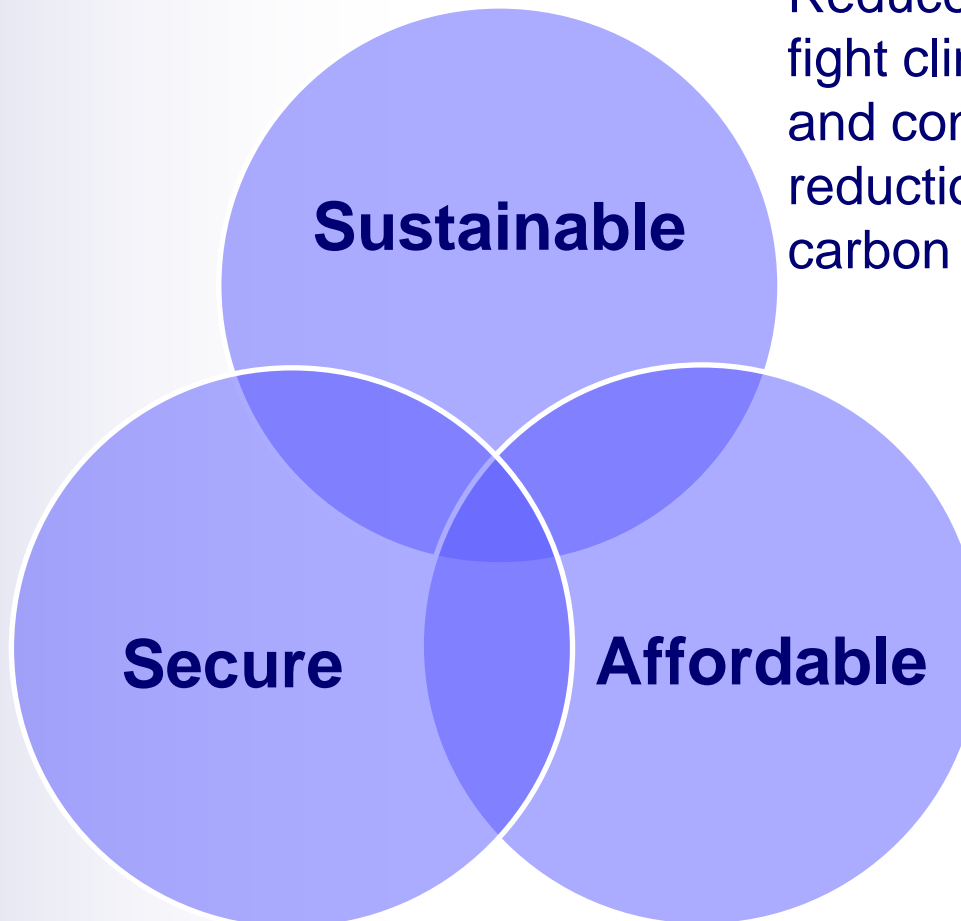
Public goods are **at the heart of regulation**

As public goods, energy security and sustainability
are **at the heart of EU energy regulation**

Energy policy trilemma

Energy today has to be...

Maintain system stability, meet future energy demand, assure independence



Reduce emissions to fight climate change, and contribute to cost reductions of low carbon technologies

Ensure reasonable energy costs for households and avoid loss of competitiveness for industry



Energy transition challenges for public policy and regulation

1. ENERGY TRANSITION

**2. EFFECTS OF CHANGING ENERGY MIX ON
MARKETS AND POLICIES**

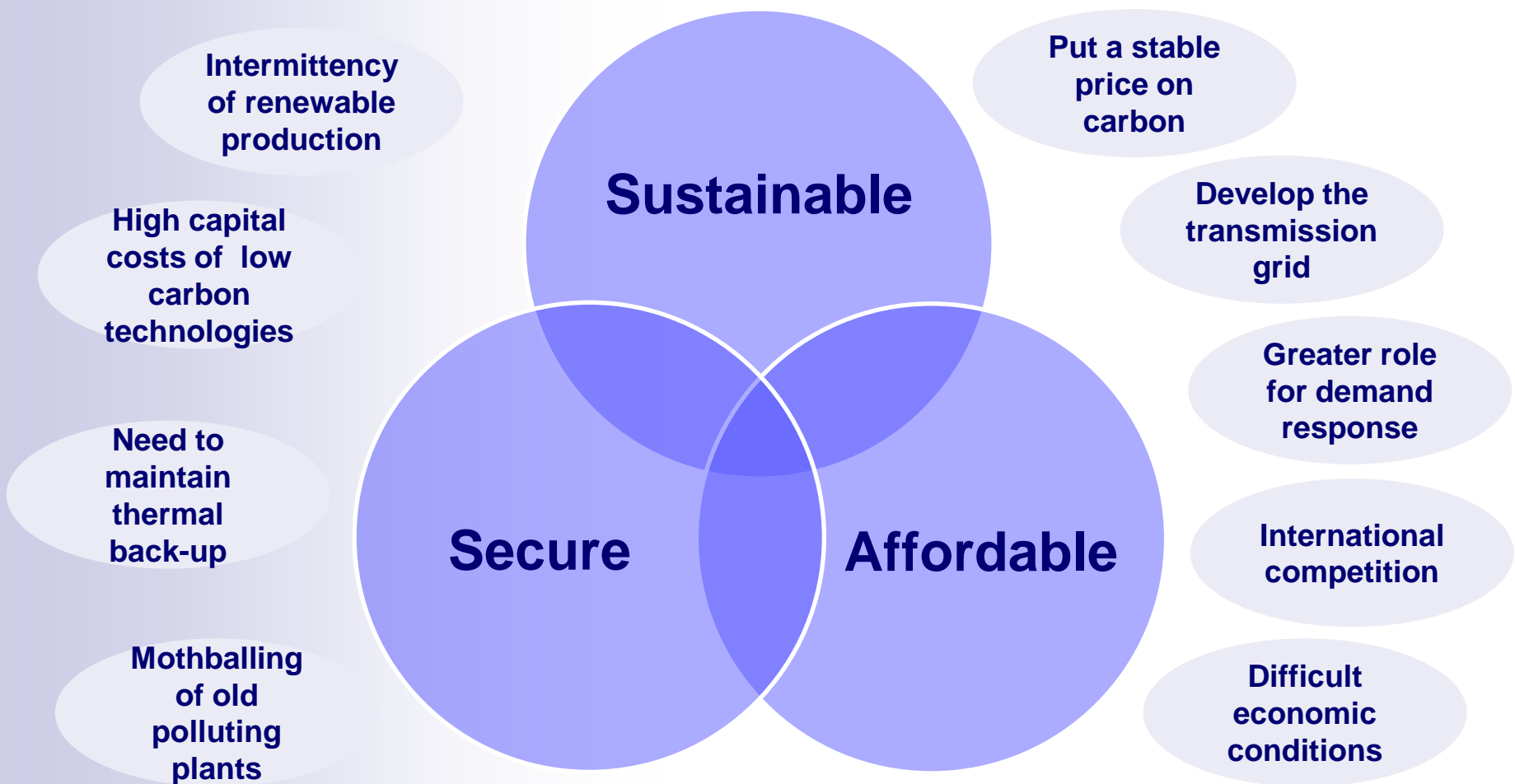
3. POLICY OPTIONS AND TOOLS

4. APPROACHES AND ALTERNATIVES TO ACHIEVE
SECURITY OF SUPPLY

5. ROLE OF REGULATORS IN ENERGY TRANSITION



Changing the energy mix brings about new challenges



A changing energy landscape.....

	NOW	FUTURE
Cost structure	Mainly variable	Mainly fixed
Pricing	Mainly energy	Mainly capacity
Operation	Flexible supply	Flexible demand
Generation	Centralised	Distributed
Demand side	Passive	Active
Grids	Neutral	Smart

...which impacts all aspects of the market

Affordability becomes an issue

■ Transition to a low carbon economy →

- Reduced costs after 2030...
- But price rise expected until then.

■ Affordability, a real issue for consumers

- e.g. UK: 20% of all households spend over 10% of disposable income on gas and electricity.
- current economic difficulties exacerbate the issue, pressure on manufacturing as well.



Energy transition challenges for public policy and regulation

1. ENERGY TRANSITION

2. EFFECTS OF CHANGING ENERGY MIX ON
MARKETS AND POLICIES

3. POLICY OPTIONS AND TOOLS

4. APPROACHES AND ALTERNATIVES TO ACHIEVE
SECURITY OF SUPPLY

5. ROLE OF REGULATORS IN ENERGY TRANSITION

There's an overarching need to future-proof electricity markets

- Shift the focus from the short to **the long-term**
- More active role for **regulators** and **antitrust**
- **Auctions**: long-term contracts for new capacity
 - Renewables
 - Back-up capacity
- Liquid **spot markets**
- Strengthened roles for **System Operators**
- Strengthened role for the **demand side**

Necessary conditions for the energy transition

A difficult balance, involving
sustainability,
security of supply and affordability,
while simultaneously promoting **competitiveness**

→ Requirements for a robust policy mix:

- Carbon pricing
- Innovation promotion
- Regulatory stability
- Citizens' involvement
- Cooperation with neighbours



Energy transition challenges for public policy and regulation

1. ENERGY TRANSITION

2. EFFECTS OF CHANGING ENERGY MIX ON
MARKETS AND POLICIES

3. POLICY OPTIONS AND TOOLS

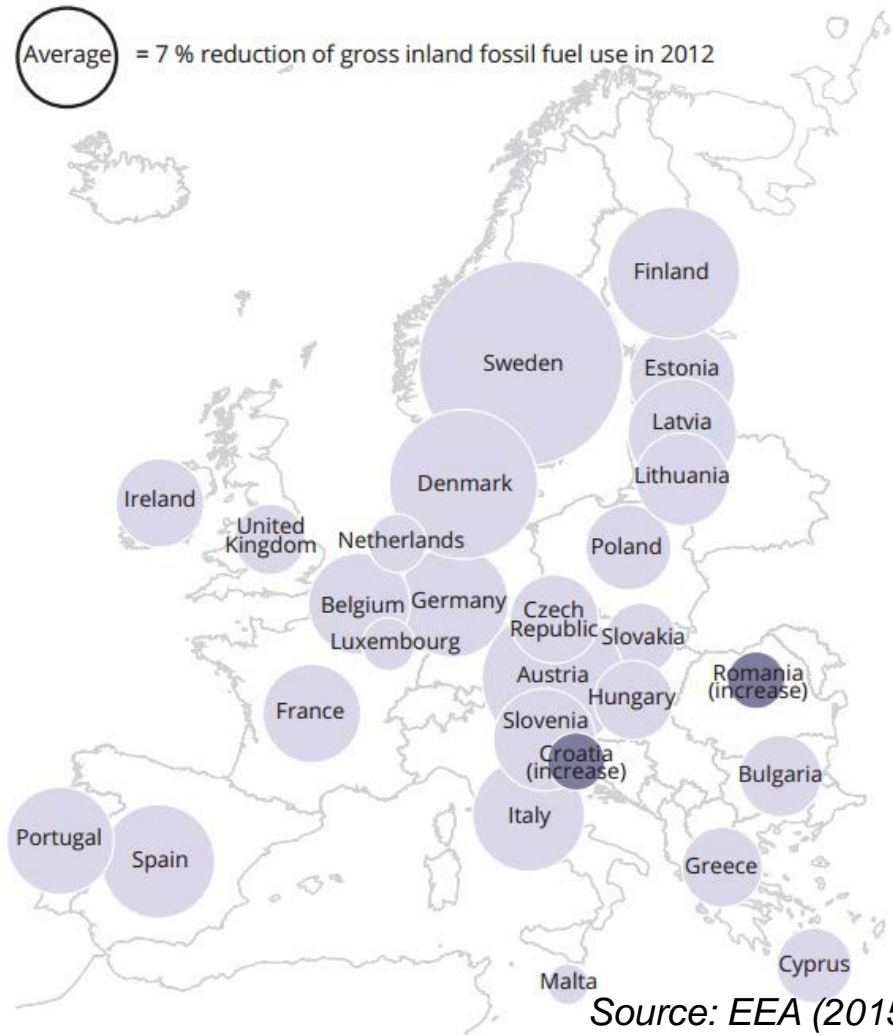
**4. APPROACHES AND ALTERNATIVES TO ACHIEVE
SECURITY OF SUPPLY**

5. ROLE OF REGULATORS IN ENERGY TRANSITION



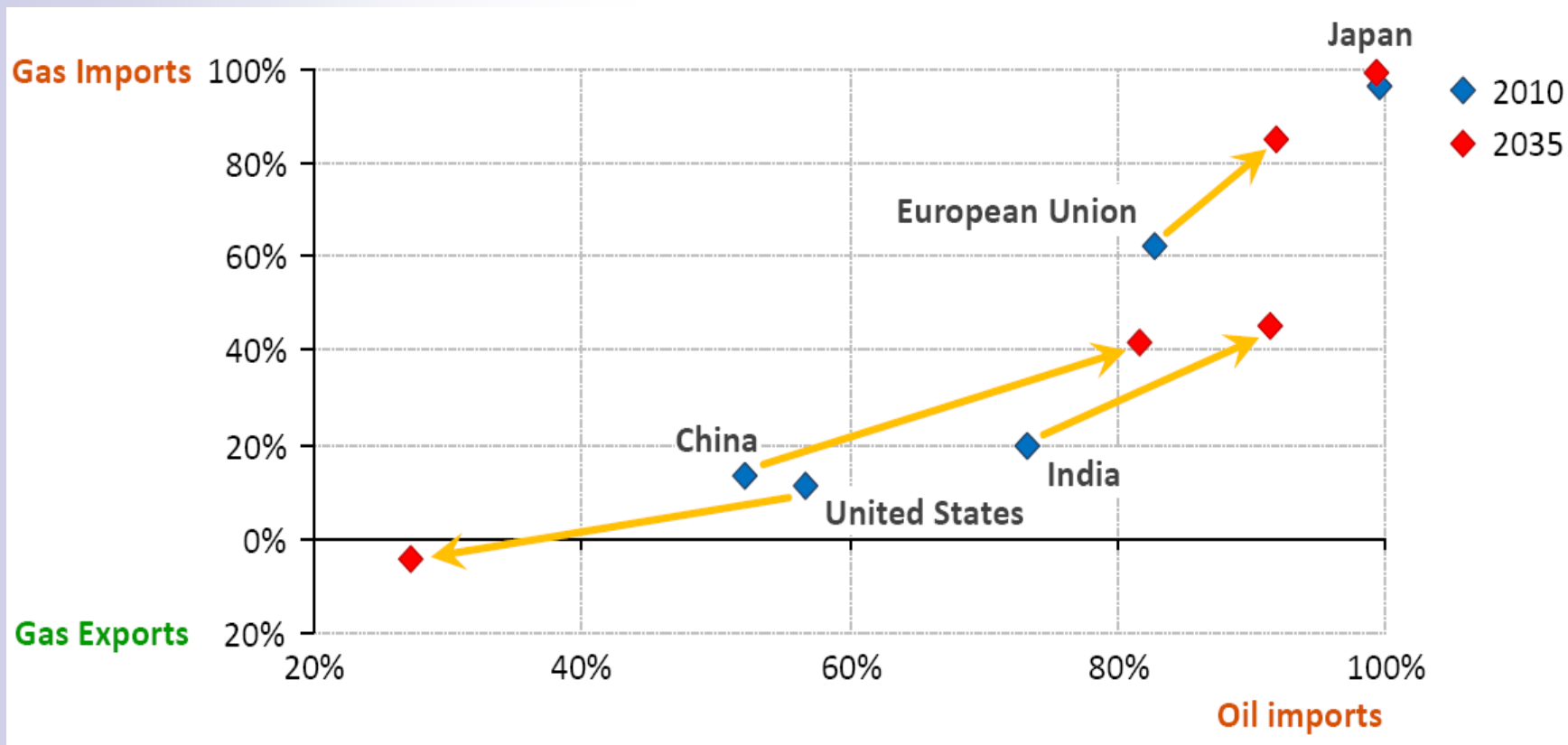
Contribution of renewable energy to reducing imported fossil fuels

Renewable technologies and energy efficiency
→ reduced demand for imported fossil fuels
→ increased energy security





Adoption of renewables can reduce dependence on fossil fuels



Source : IEA 2012.



Integration of renewables also poses challenges for security of supply

■ Need for flexible resources

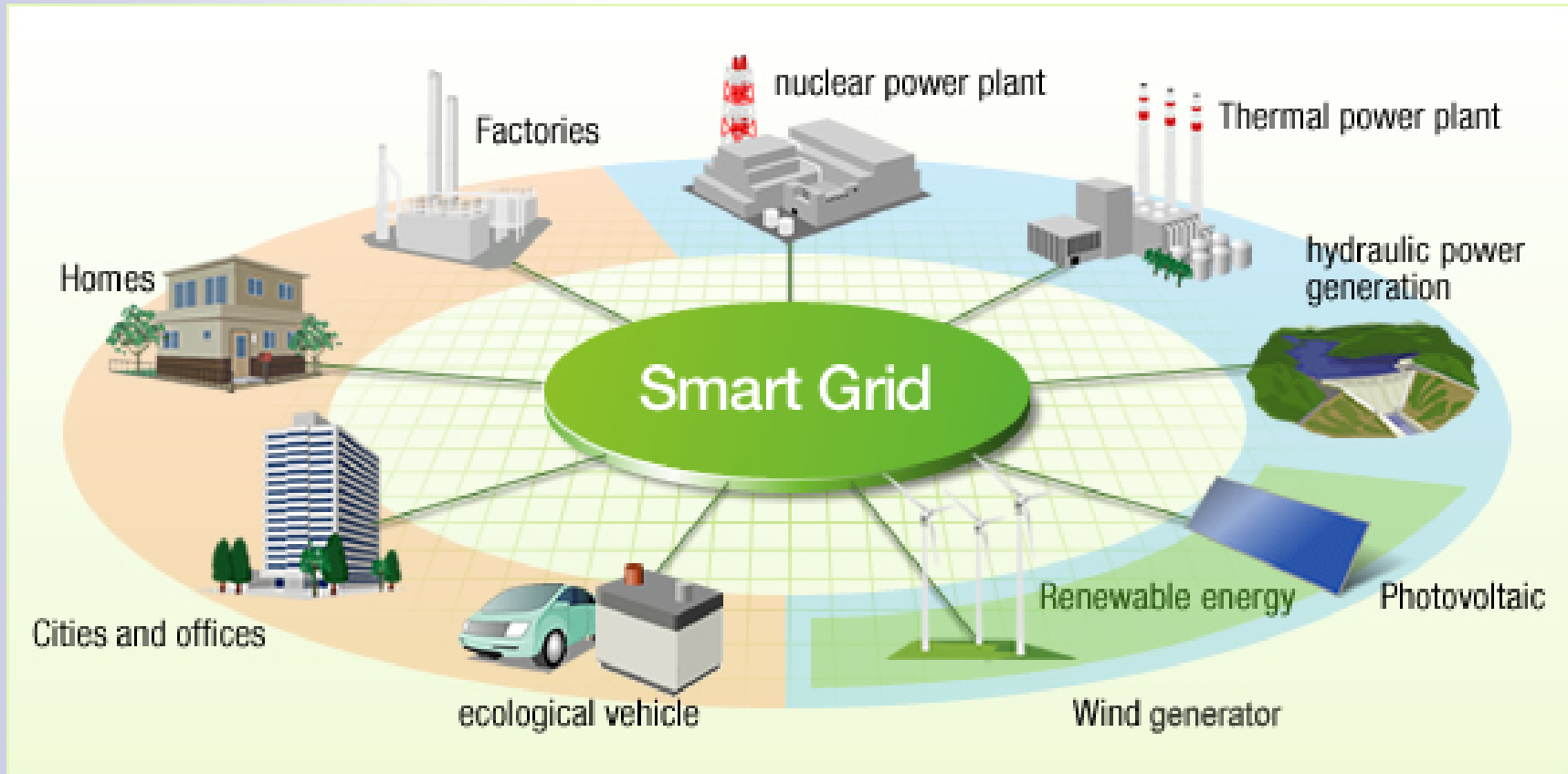
- Flexible generation, storage, demand management, etc.

■ Impact on wholesale prices:

- low-carbon generation = low variable costs + relatively high fixed costs → increasing number of very low prices hours
- → reduced revenues for generators →
- >< security of supply + increased volatility.



Energy grids need to become smarter





Energy transition challenges for public policy and regulation

1. ENERGY TRANSITION

2. EFFECTS OF CHANGING ENERGY MIX ON
MARKETS AND POLICIES

3. POLICY OPTIONS AND TOOLS

4. APPROACHES AND ALTERNATIVES TO ACHIEVE
SECURITY OF SUPPLY

5. ROLE OF REGULATORS IN ENERGY TRANSITION

Energy transition increases demand for public intervention

Public goods

New business models

Traditional market models fail

Externalities

Missing markets

Incomplete contracts



Need to guide, advise and protect consumers

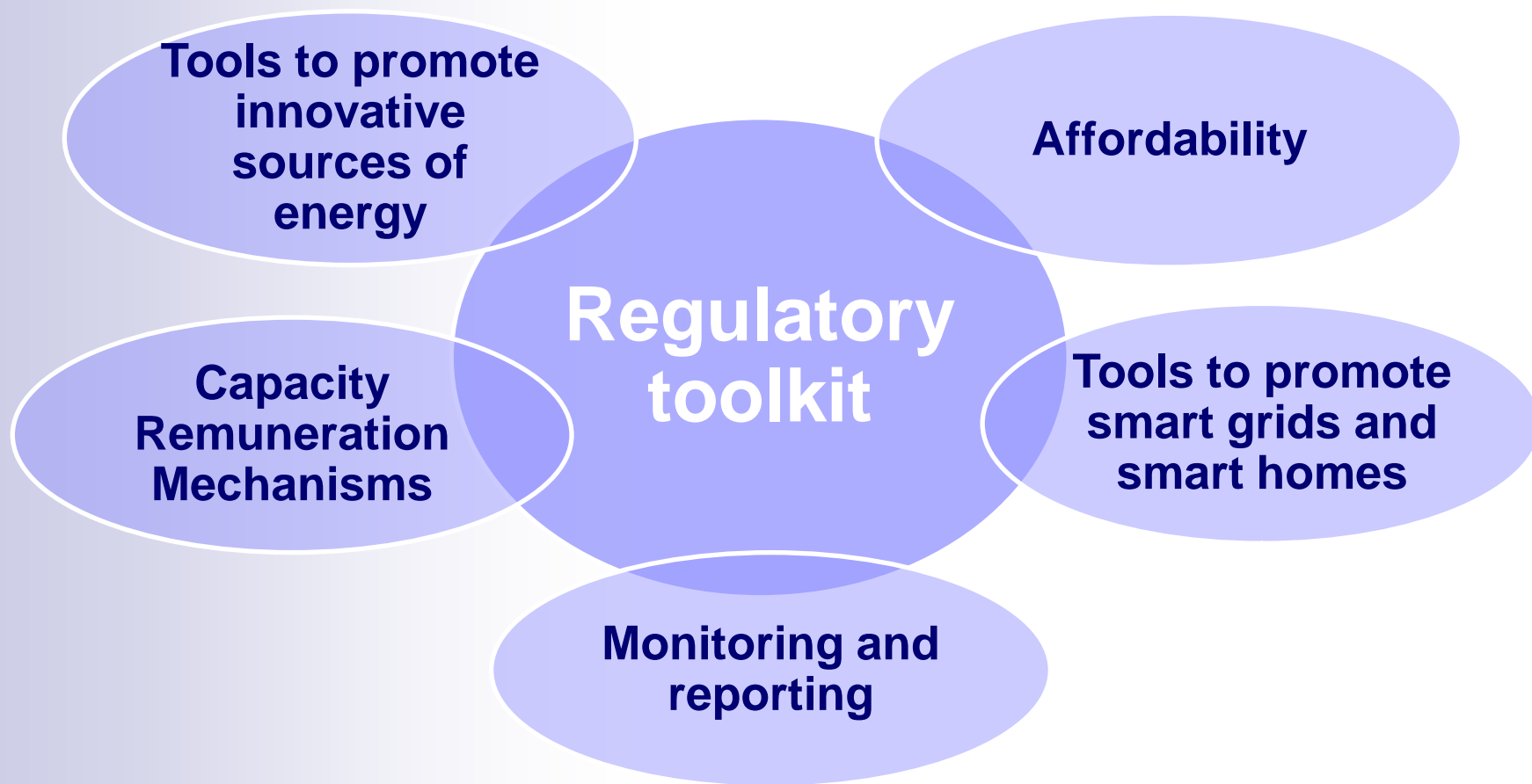


The role of regulators: to ensure markets work well

- **Regulators: a more active role** during energy transition, **but cannot be the driving force**
- **Main drivers** must be:
 - political will and commitment;**
 - institutional design;** and
 - innovation**
- **Governments: setting objectives and pace**

Regulators need clear, enhanced remit and empowerment

Towards a new toolkit of regulatory instruments to address market failures



Professor Bruno Liebhaberg
Director General, CERRE

BL@cerre.eu

+32 2 230 83 60

www.cerre.eu

References

“Energy Transition in Europe: towards a low carbon European power sector”, presentation by Professor Natalia Fabra, Universidad Carlos III, Madrid and CERRE, to a CERRE Executive Seminar, 6 May 2015;

“Energy security and sustainability: what role for gas in the Energy Union?” CERRE Policy Paper by Professor Natalia Fabra (Joint Academic Director, CERRE, and Universidad Carlos III, Madrid) and Professor José Luis Moraga (Research Fellow, CERRE, and VU University Amsterdam), 23 April 2015