

# Regulatory Recommendations for the Deployment of Flexibility

Dipl.-Ing. Dr. techn. Werner **FRIEDL**



## **AIT Austrian Institute of Technology**

### **EC Smart Grids Task Force**

Expert Group 3 – Regulatory recommendations  
for smart grid deployment



**E-Control** (Energie-Control Austria)

**CEER** (Council of European Energy Regulators)



# CEER/EC-activities to Smart Grids regulation

## CEER Status Review on European Regulatory Approaches Enabling Smart Grids Solutions (“Smart Regulation”)

- The definition of smart grids
- The regulatory and commercial challenges
- Plans for implementation of smart grids
- Encouraging innovative solutions in el. networks
- Cost benefit analysis
- Potential performance indicators

- Regulatory and Commercial Challenges
  - Regulations vary at national level
  - integration of RES/EV, customer engagement in DSR, data protection

- Roles and Responsibilities
  - DSO major role - TSOs to a lesser extent
  - Customers are involved in DSR in a few countries

- Incentive Mechanisms
  - mechanisms are in place to incentivise DSOs to undertake innovation projects
  - projects funded by network charges & “other” sources



# Potential key issues

„last mile“!

## Incentives

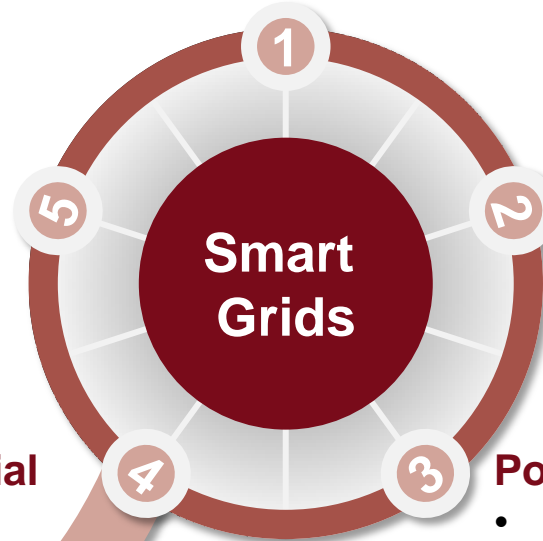
- Mechanisms
- Structure



## Regulatory and Commercial Arrangements:

- role of the DSOs/TSOs
- trading/provision of smart grid services ... **use market mechanism whenever possible!**

**Opportunities that Smart grids could deliver**  
 interactions and synergies of gas, electricity, heat and cooling  
 → to increase flexibility



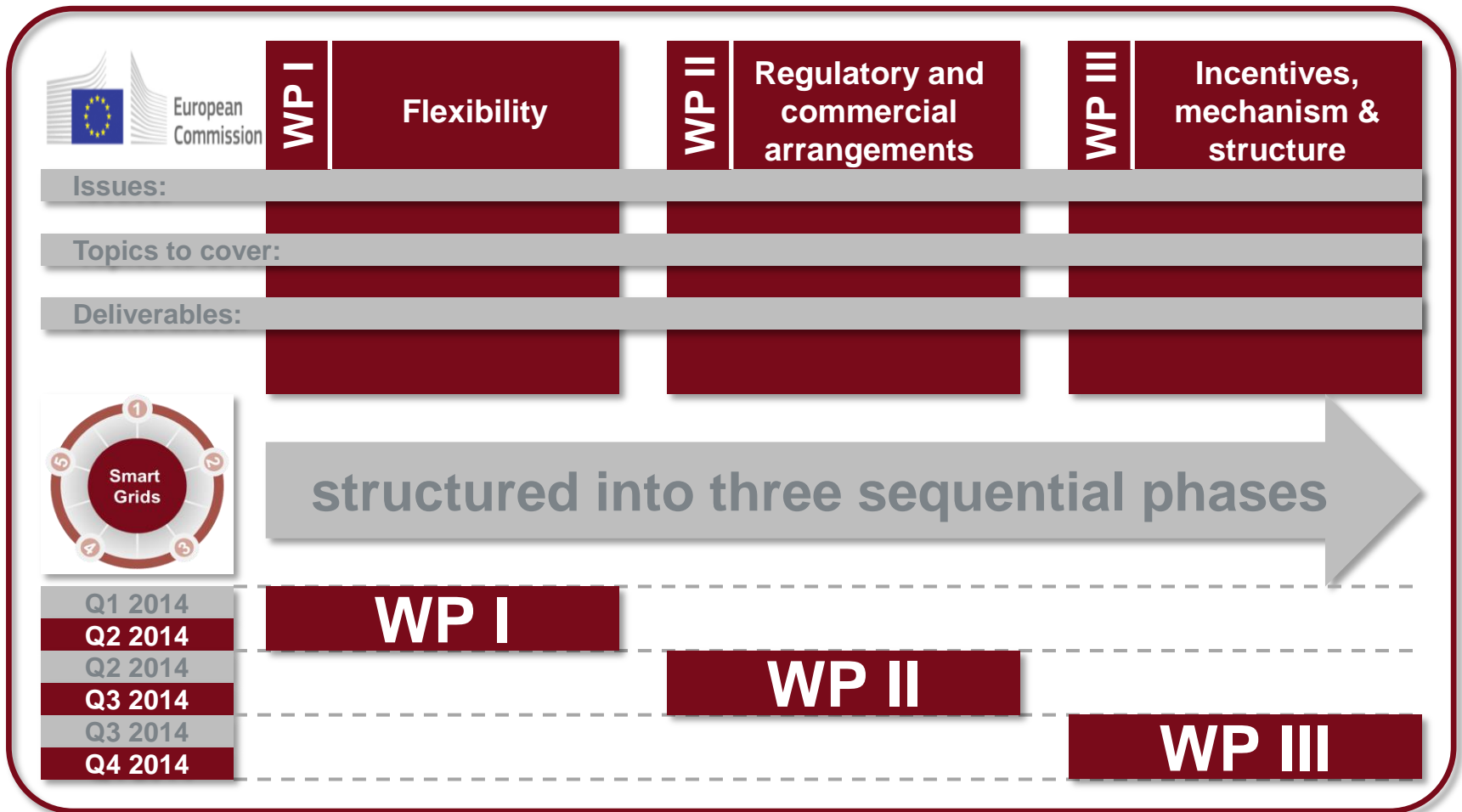
## Demand Side Response & flexibility

- maximise incentives
- minimise entry barriers

## Potential Barriers, including:

- data access (previous work)
- use of storage

# Work programme of EC-Smart Grid Task Force (EG3) in 2014





- Executive Summary
- Flexibility
- Regulatory and Commercial Arrangements
- Incentives
- **Recommendations**
- Annex

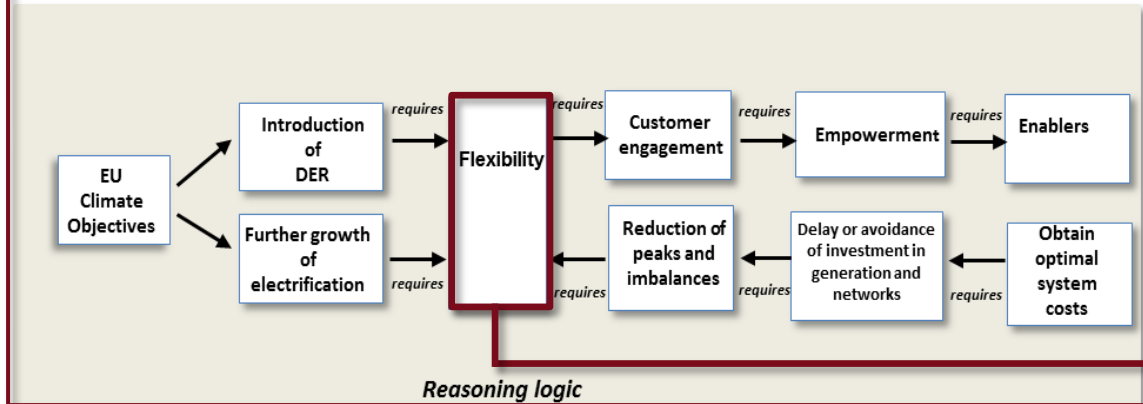
# Flexibility

- Definition of Flexibility (gas and electricity!)
- Rational. Why do we need flexibility?

## Consumer Empowerment

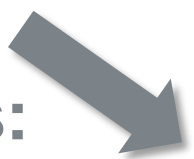
**Definition:**

- On an individual level, flexibility is the modification of generation injection and/or consumption patterns in reaction to an external signal (price signal or activation) in order to provide a service within the energy system. The parameters used to characterize flexibility in electricity include: the amount of power modulation, the duration, the rate of change, the response time, the location etc. In gas potential parameters can be the market area, pressure level, gas quality.



- Flexibility services

# Users:



national differences



# list of Flexibility services

- frequency control
  - primary
  - secondary
  - tertiary
- frequency response
- short term operating reserve
- fast response
- peak shifting (avoid grid reinforcement)
- overall load reduction
- constraints management (load reduction)
- portfolio optimization
  - peak shifting
  - valley filling
- fault management
- voltage control
- losses reduction
- black start reserve

# Provider:





# Flexibility

- **Key Enablers:**

Smart Appliances  
and Smart Meters

Market rules  
and processes

Regulation & Codes

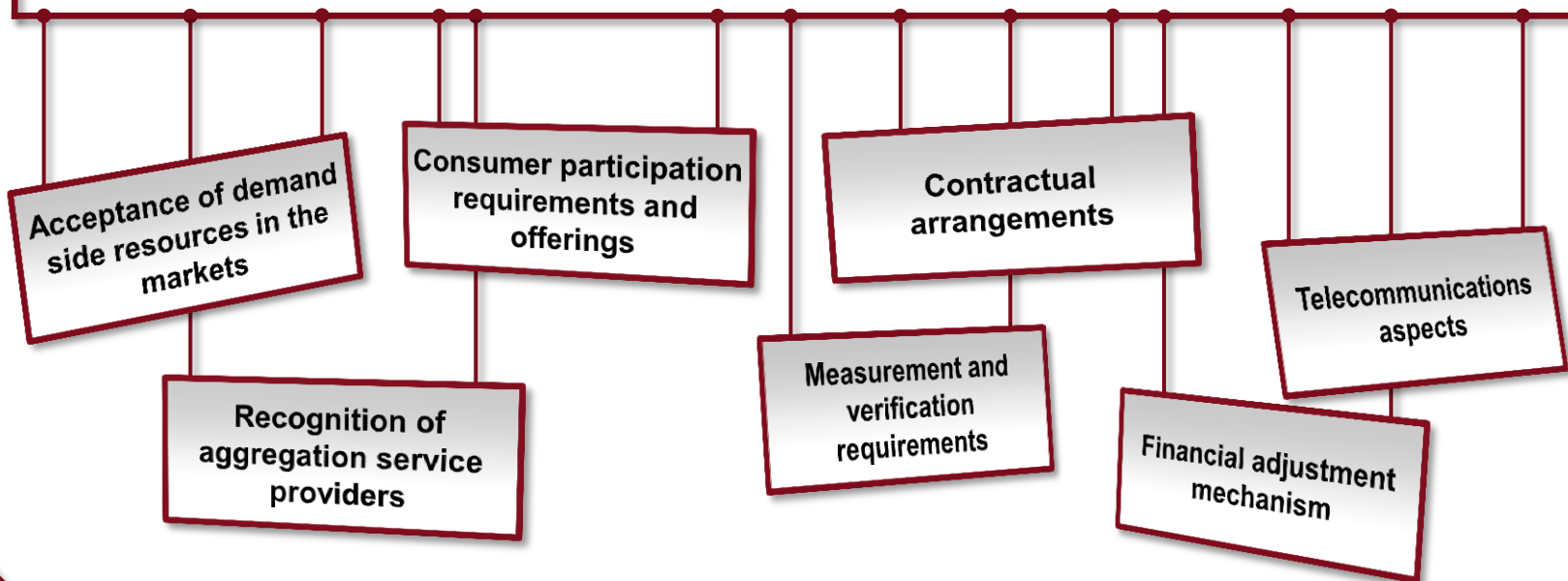
Grid and retail  
products & tariffs

ICT technology  
and standards

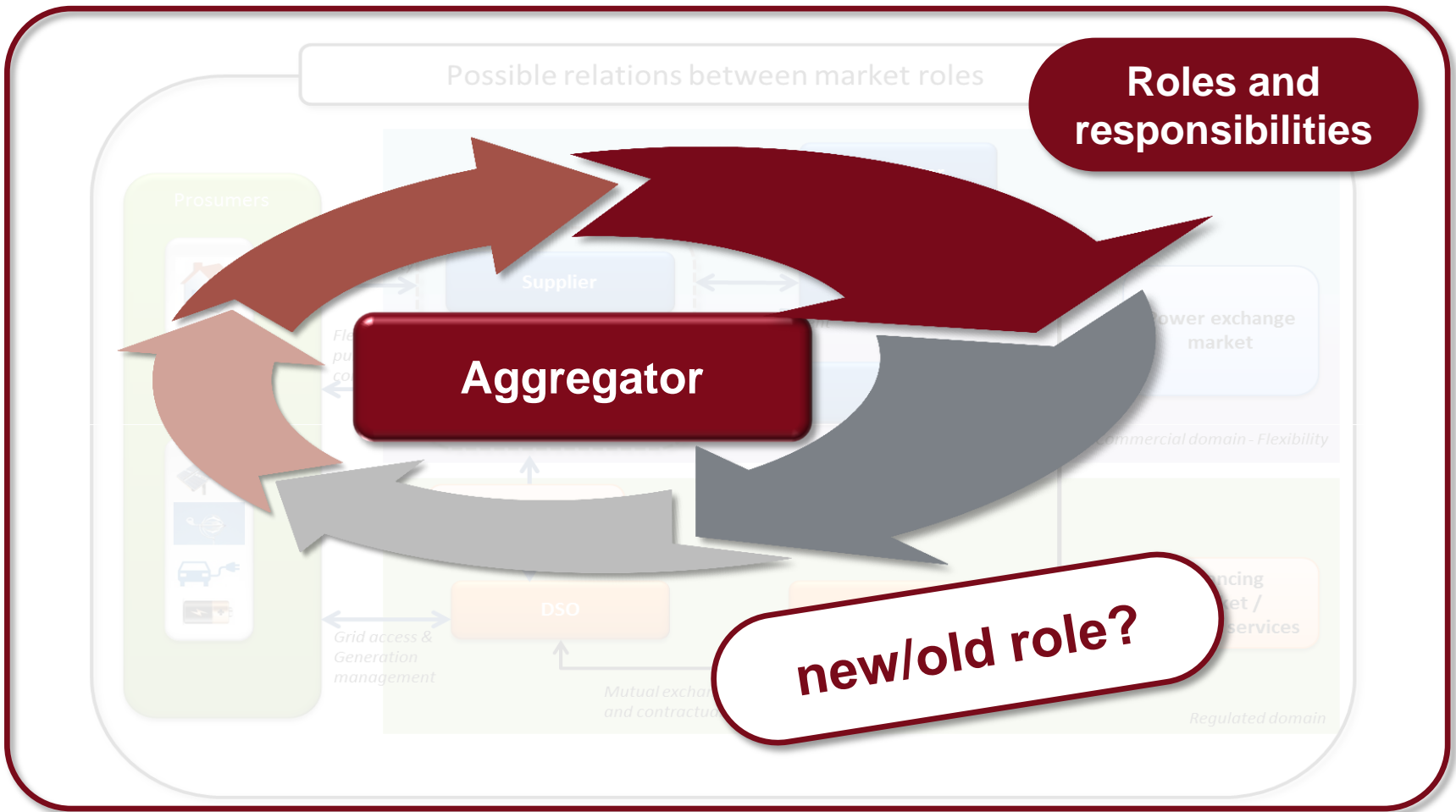
- Value of flexibility
  - Benefits for providers of flexibility services
  - Benefits for users of flexibility services
- Maximising the value of Flexibility Services

# Regulatory and Commercial Arrangements

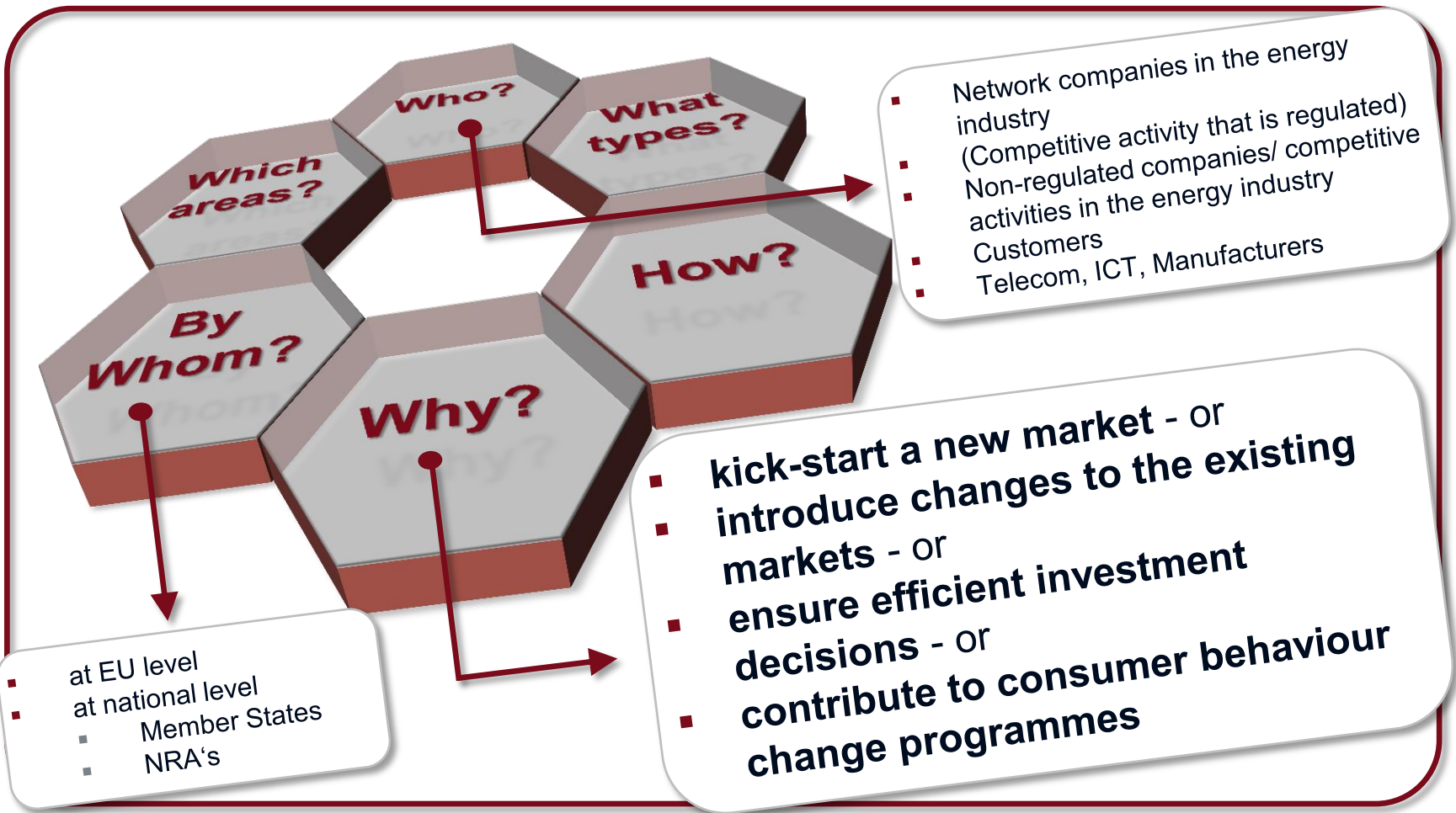
## How to realise consumer flexibility?



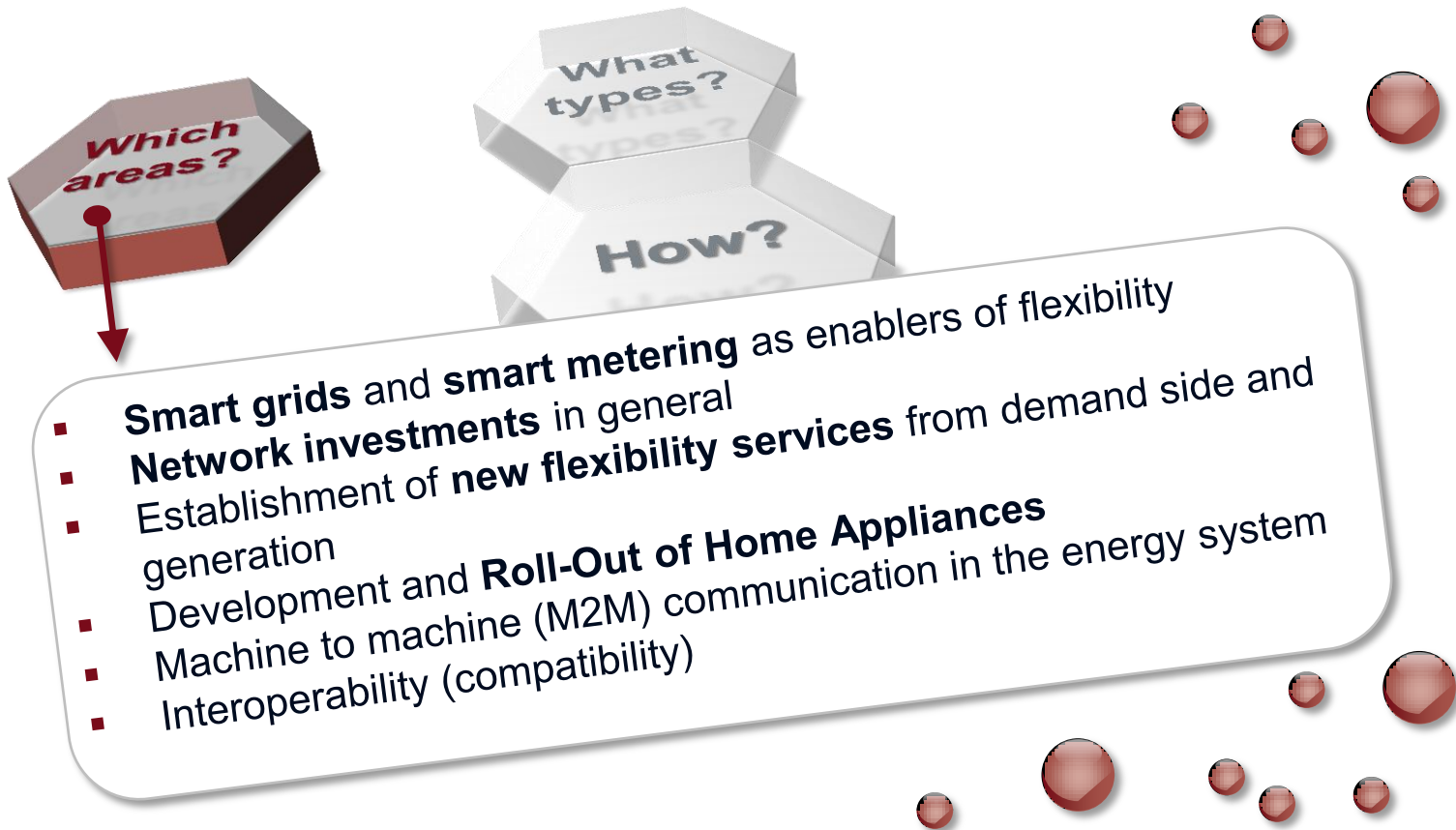
# Regulatory and Commercial Arrangements



# Incentives



# Incentives



# Recommendations

**R #1:** Assess the Flexibility Potential  
and maximise the value of flexibility

**R #2:** Equal access to Electricity Markets

**R #3:** Contractual arrangements

**R #4:** Financial adjustment mechanisms

**R #5:** Definition of  
Balance Responsibility in a connection



# Recommendations

**R #6:** Standardised measurement methodology for flexibility

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**Measurement of Flexibility**

**R #7:** Timely access to data while ensuring consumer privacy

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**Consumers**

**R #8:** Clear framework for domestic customers

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**R #9:** Communication & coordination for secure grid operation

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**Grid Operation**

## Recommendations

**R #10:** Open and interoperable standards for interfaces

**R #11:** Secure communication infrastructure and services & utility-telco synergies

**R #12:** Incentivise grid operators to enable and use flexibility

**R #13:** Improve price signals to incentivise consumers' response

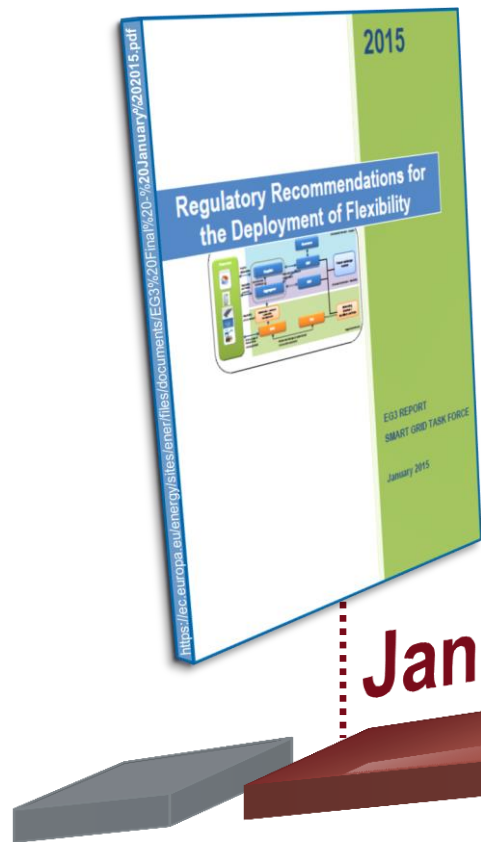
**R #14:** Smart appliances for end users



**Incentives**



## Next Steps



- refine the recommendations
- maximise the impact for the upcoming market design initiative in the Energy Union framework

end of Q2-2015

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# AIT Austrian Institute of Technology

your ingenious partner

Dipl.-Ing. Dr. techn. Werner **FRIEDL**

**AIT Austrian Institute of Technology GmbH**

Giefinggasse 2 | 1210 Vienna | Austria

T +43 50550-6037 | M +43 664 9667231

[werner.friedl@ait.ac.at](mailto:werner.friedl@ait.ac.at) | <http://www.ait.ac.at>