



# Power to Gas in EU Energy Policy

***Jyri Ylkanen***  
***European Commission – DG Energy***  
***Office of the Principal Adviser***

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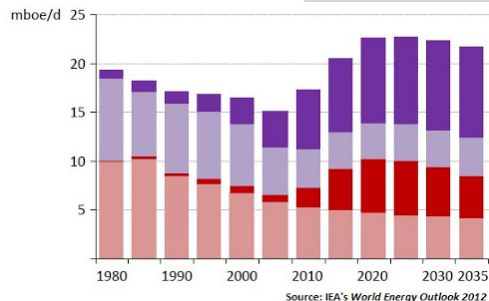
# Climate and energy: where do we stand?

- **Developments since the 2009 Energy and Climate change package**

**Renewable energy saw rapid cost decreases**  
Technologies are gradually becoming competitive  
But large scale integration is a challenge

**Impact of the financial crisis**  
Fall in private investment, tight financing conditions

**Shale gas**  
US oil and gas production



Unconventional gas  
Unconventional oil  
Conventional gas  
Conventional oil

**COP21 -Paris**

**Ukraine**

**Rising demand -> rising prices**  
By 2030, world economy set to double and energy demand to rise by 1/3

**Fukushima**

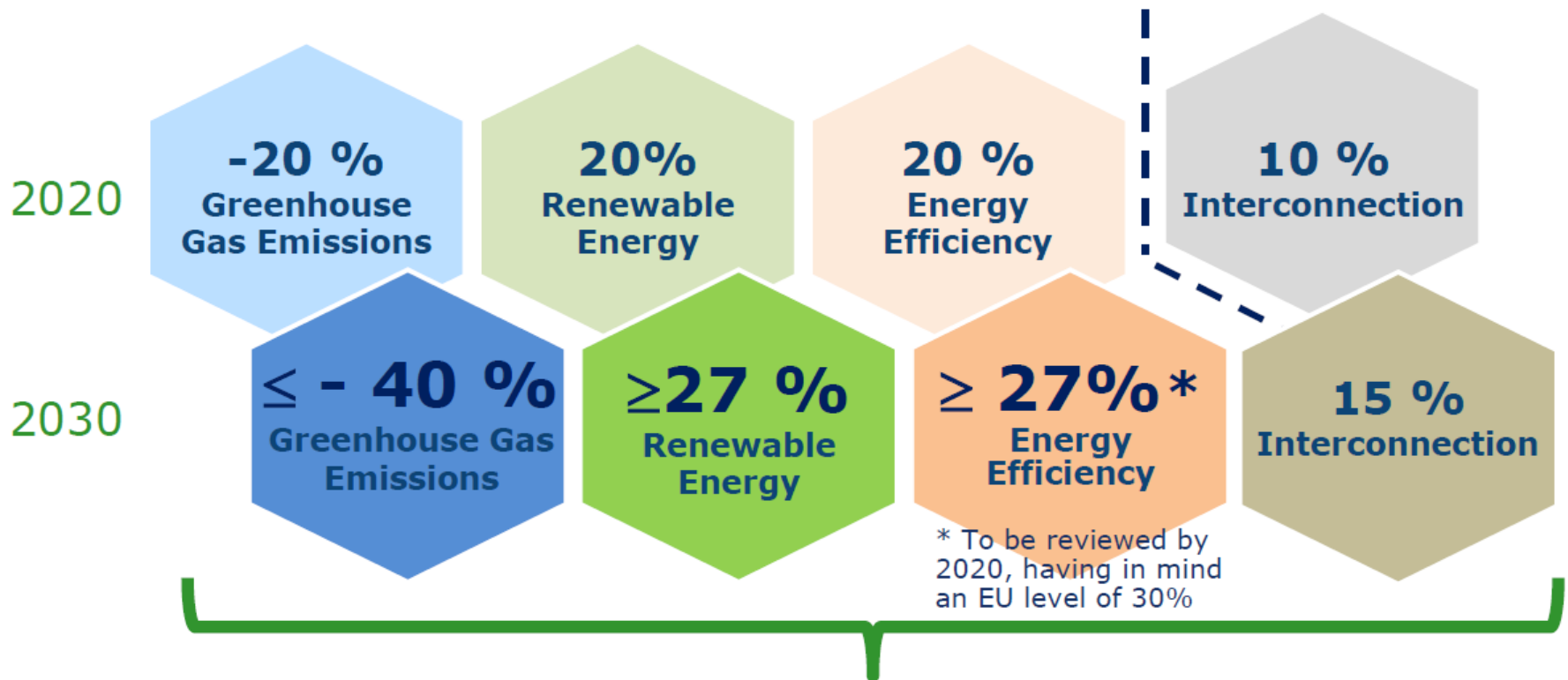


Some countries phase out nuclear power production

# Major energy challenges in Europe

- Import Dependency
- Energy Prices
- Decarbonisation
- Technology mix

# 2030 framework for climate and energy policies



**New governance system + indicators**



# The EU Energy Security Strategy

## Main messages:

Energy security is inseparable from 2030 climate and energy policy framework.

We need to act now to ensure supplies this winter and in the medium-long term:

Moderate energy demand	Increase sustainable energy production
Emergency and security mechanisms	Including our neighbours
More integrated energy market	Intensify our diversification efforts
Accelerate interconnections	Full use of EU financial instruments
Compliance of infrastructure projects	Coordination of national energy policies
Coherent external energy policy	Synergy with foreign policy instruments



# The way towards: **The Energy Union**

## **Where** we want to go:

A secure, sustainable, competitive, affordable energy for every European

## **What** this means:

- Energy security, solidarity and trust
- A fully integrated internal energy market
- Energy efficiency first
- Transition to a long-lasting low-carbon society
- An Energy Union for Research, Innovation and Competitiveness

## **How** we want to reach it:

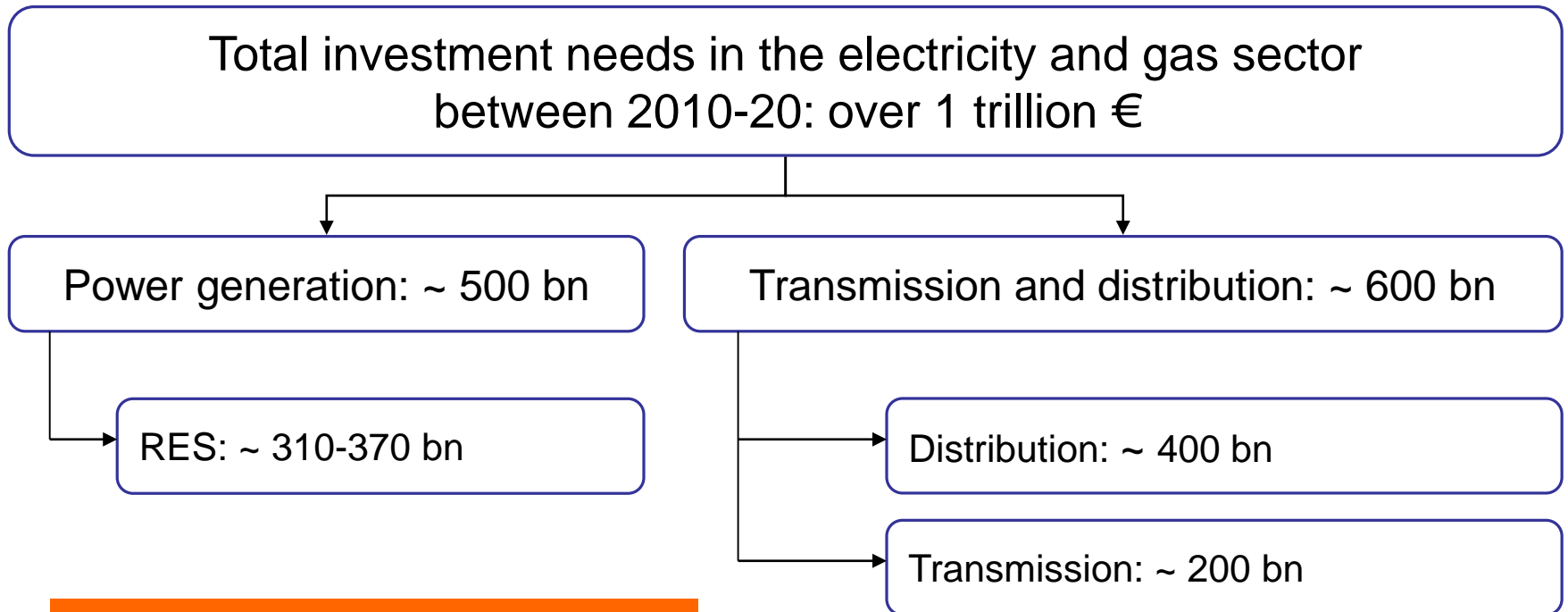




## Key activities relevant to P2G

- **A new market design**
- **Strengthen European regulatory framework**
- **Alternative fuels & integration of energy and transport sectors**
- **Renewables package 2016-2017**
  - Self-consumption
  - Bioenergy sustainability
  - post 2020 RES legal framework
- **Initiative on global technology and innovation leadership on energy and climate<sub>7</sub>**

## Energy system investment needs



NB: approximative figures, mainly  
from DG ENER calculations based  
on data from PRIMES, ENTSO-E,  
KEMA, ECOFYS etc.



## EU Funding for Sustainable Energy – MFF 2014-2020

- **Cohesion Policy** to allocate some 38 billion € (estimate!) to investments in energy efficiency, renewable energy, smart grids and urban mobility, including research and innovation in those areas in complementarity with Horizon 2020
- **Horizon 2020:** some 5.4 billion € to be allocated to research and innovation in "Secure, clean and efficient energy"
- **Connecting Europe Facility:** some 5 billion € to be allocated to investments in TEN-E infrastructure of highest European added value
- Other **European Structural and Investment (ESI) Funds:**
  - European Agricultural Fund for Rural Development (EAFRD)
  - European Maritime and Fisheries Fund (EMFF)
  - European Social Fund (ESF)
- **LIFE+** and **COSME** might also be relevant for certain aspects
- **EEEF**



# "The Juncker Plan"

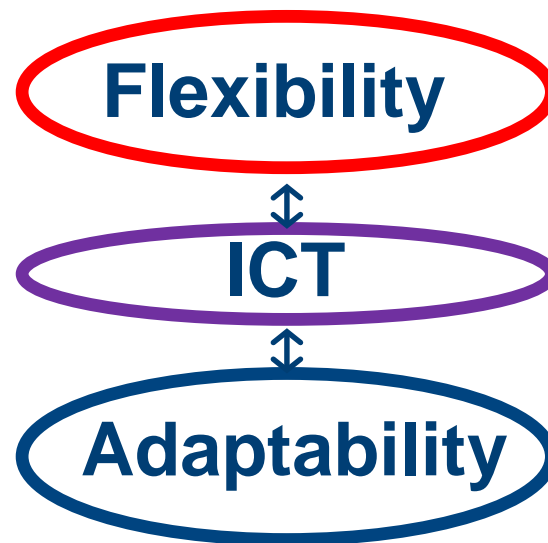
## European Fund for Strategic Investments (EFSI)

- Mobilise at least €315 billion in additional investment
- Will finance projects with a higher risk profile
- Established within the European Investment Bank (EIB), with the Commission as strategic partner.

# A flexible and adaptive energy system

## Smart Energy System

- Generation
- Demand
- Electricity, gas and heat networks
- Storage



**Power generation**

**Grid**

**Storage**

**Demand management**

**Transport; BEV, etc.**

**Prosumers**

**Markets**

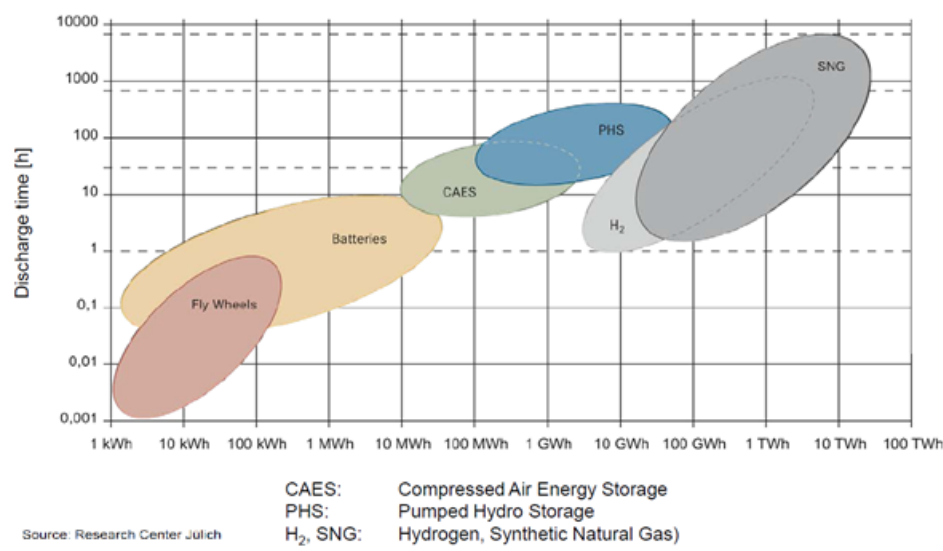
**Fuel switching**

**Avoid lock-in**

**Adaptation of the gas grid**

## Flexibility and RES integration

- Diversification of supply and routes is a key component of the EU energy policy
- Strategic energy reserves for crisis situations
- Large scale energy storage could complement strategic energy reserves (oil & gas)
  - Synergies between RES and the natural gas grids
  - Indigenous energy sources more important in future



# H2 and Natural Gas

**The proposal of integrating P2G with the natural gas grid brings up the issues concerning natural gas and the related infrastructure**

- **Technical possibilities: blending & materials**
- **Standards (safety, amount, end-use)**
- **Gas quality: impact of SNG & hydrogen– as well as biomethane**
- **Decarbonisation of the gas infrastructure – scale of impact on objectives**
- **Markets – treatment of the low-carbon/carbon free content of natural gas**
- **Regulatory aspects – access and tariffs**

## **Energy markets**

### **Regulatory and policy topics - electricity and gas**

- » **The long term investment models for all technologies (FIT, grid fees, etc.)**
  - **Securing essential long-term investments**
- » **Functionalities of the capacity market schemes**
  - **Role of gas (NG & H2) as a buffer and for security**
- » **Creation of an electricity market model for balancing and for demand side flexibility.**
- » **The pricing models and network tariff structures which could integrate the increasing variability of power generation.**
- » **Reinforce the governance framework, (incl. distributed generation (RE), storage, smart technologies, etc.)**
- » **Gas quality standards (including the blending and bio-methane)**
- » **Certification (=market) for low-carbon gas (P2G), linking to the electricity market.**

**Thank You for Your Attention!**

**[jyri.ylkanen@ec.europa.eu](mailto:jyri.ylkanen@ec.europa.eu)**

**<http://ec.europa.eu/energy>**

