



DE BELGIQUE

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#### ENERGY SYSTEM INTEGRATION UNDER THE LENS OF RESOURCE EFFICIENCY

Anne Houtman IAEE Webinal Series, 5 May 2021



## **1. Efficiency is the main driver of ESI**

### 2. Some key EU instruments to foster efficiency



## 1. Efficiency is the main driver of ESI



### EU objective : deep decarbonisation of all sectors of the economy by 2050 (« the European Green Deal »)

**Solution** ESI is the way to reach this objective in an efficient way

- « Energy efficiency first » principle
- Efficient use of all natural resources: « no harm » oath
- Least cost



- Don't waste anything (circularity): re-use heat, exploit biowaste & waste water, recycle batteries etc
- Privilege direct use of (cheap renewable) energy sources:
  —> <u>electrify</u> where possible (EV, heat pumps, electric furnaces, ...)
- <u>Only where not feasible/efficient</u>, use renewables and low carbon fuels, <u>exploiting synergies</u> between electricity & gas grids and end-use sectors —> role of H2
- Activate consumers' participation to reduce need for additional capacities & infrastructures —> demand response, smart charging / V2G, C2C, bio-methane injection at local level, …



**Resulting integrated energy system will be:** 

- More electrified,
- More decentralised (« a system of systems »),
- Multi-directional & digitalised
- Linking all energy sources and uses
- With a coordinated planning and operation

... and will look like this:





# 2. Four key EU instruments to foster efficiency

(in addition to Energy Efficiency Directive and Energy Performance of Buildings Directive, EU Internal Market rules etc, to be revised)



Four EU instruments to ensure that investments flow towards the most efficient solutions for decarbonisation

- The EU Emission Trading System (EU-ETS) and a Carbon Border Adjustment Mechanism (CBAM)
- State aid control
- ♦ Taxation
- Taxonomy



#### ◆ The EU-ETS and a CBAM

- EU-ETS to be aligned to new 2030 target of 55% reduction of GHG emissions
- EU-ETS to be extended to new sectors (transport, buildings)
- Risk of carbon leakage: e.g. steel or H2 production may receive free allowances AND State aid to compensate for indirect emission costs (see new rules of Sept.2020)
  - --> more efficient solution: a CBAM



#### State Aid Control: rules to be revised

- Learn the lessons from renewables: use mechanisms that
  - Are market based and market responsive (market premium)
  - Take into account system costs
  - Are technologically neutral (with exceptions)
- Encourage wide EU-level cooperation on important projects of common European interest (IPCEI)
- Eliminate fossil fuels subsidies



#### Taxation: EU 2003 Directive on the Taxation of energy products to be revised to

- Eliminate the bias against electricity
- Fix rates related only to energy and GHG content
- Avoid double taxation
- Ensure level-playing field (e.g. H2 and storage)



- Taxonomy (« green list » for sustainable finance) to help orient investments towards low-carbon & resource efficient economic activities:
- (Provisional) delegated act of 21 April 2021 sets a performance threshold for
  - Manufacturing (batteries, H2 & H2-based synfuels, low-carbon vehicles, cement, iron/steel, aluminium, ammonia, ...)
     e.g. 3t CO2/tH2
  - Electricity generation (from RES), transmission, distribution, storage (incl. low-carbon H2)
  - Transmission & distribution for renewables & low-carbon gases (incl. H2 dedicated & retrofits)
- New delegated act to come for natural gas and nuclear: ?



## **THANK YOU**