



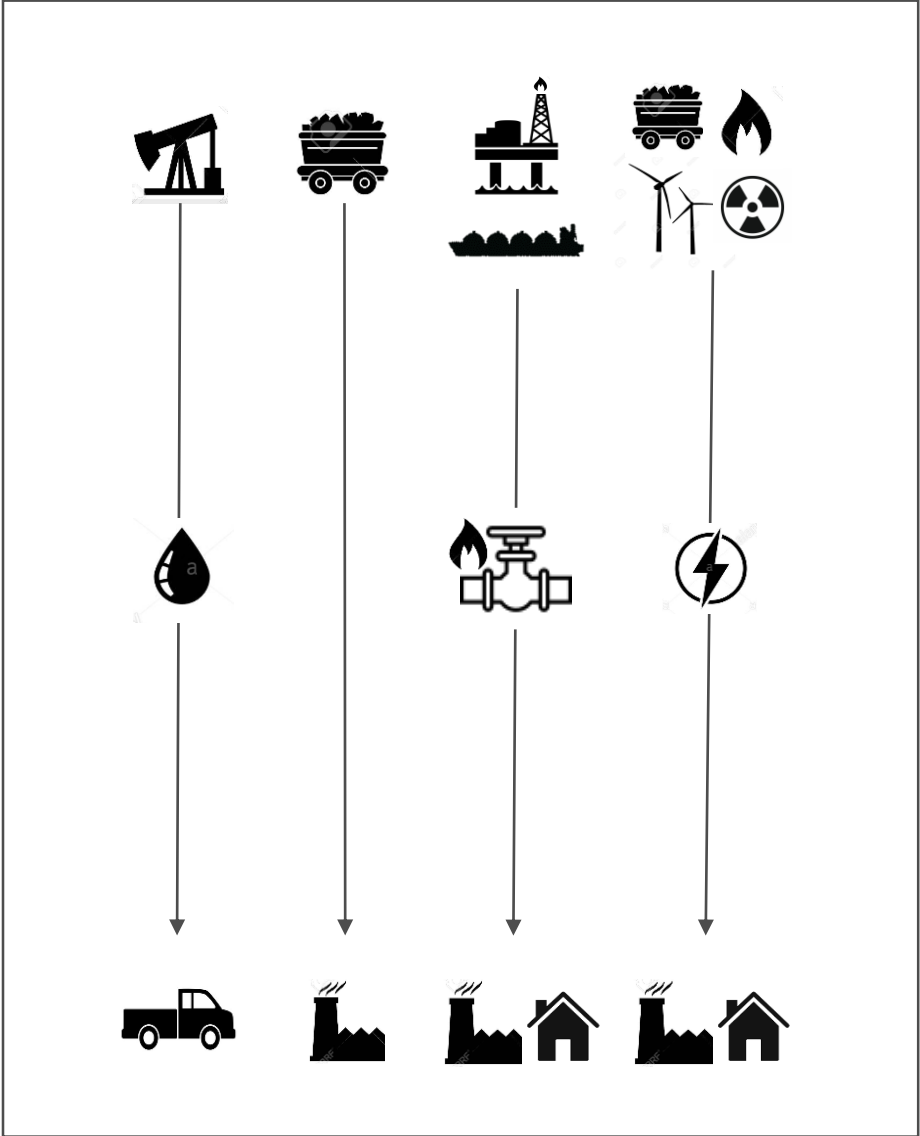
Energy System Integration

HyENet meeting

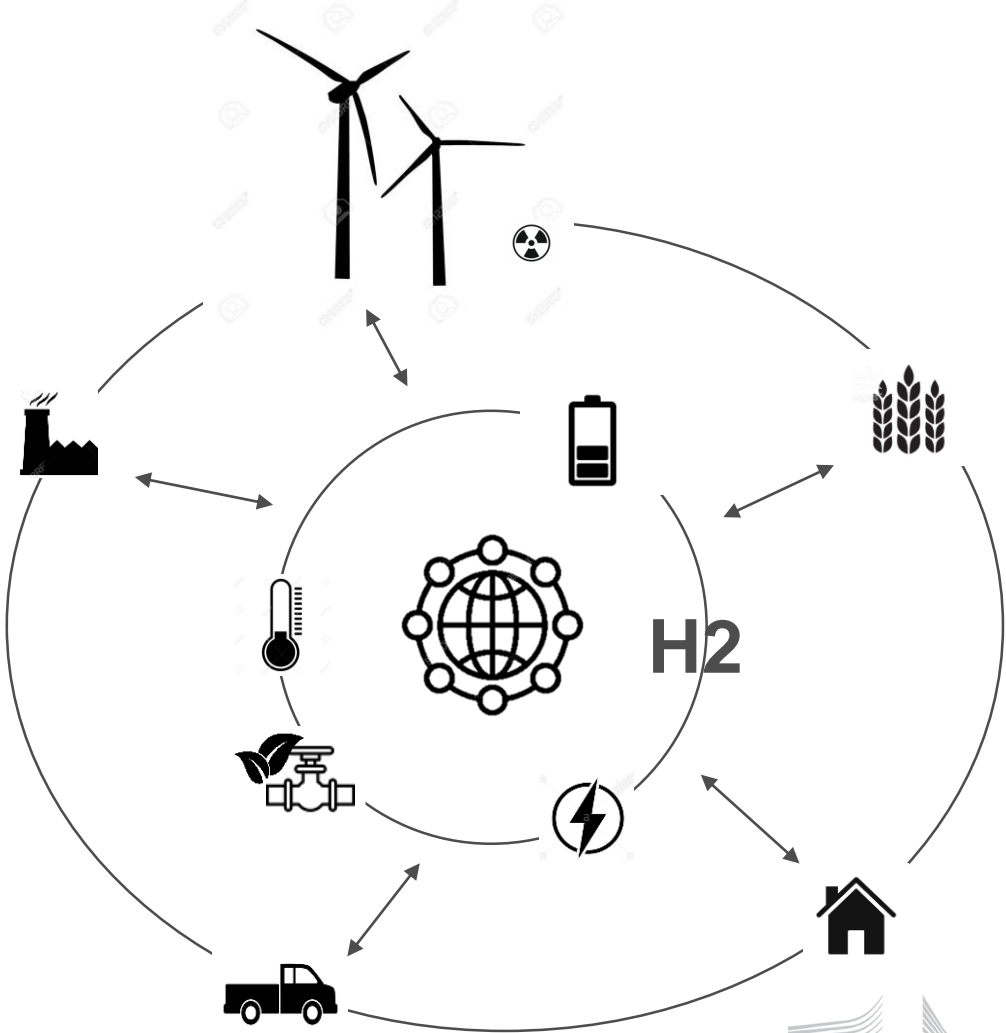
26 May 2020

Pierre Loaëc

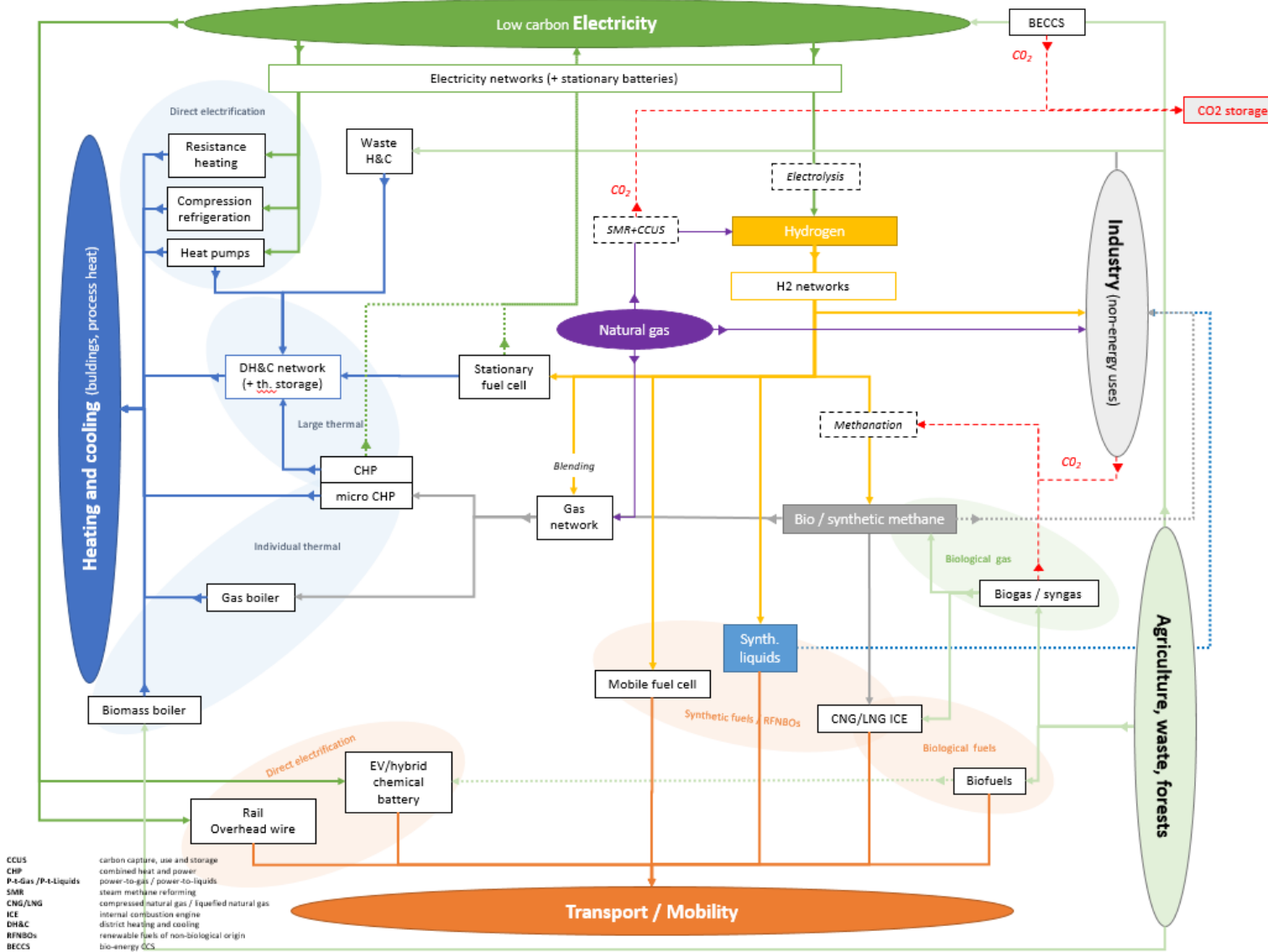
The energy system of today



The integrated energy system of tomorrow



The interlinkages of the “smartly integrated” energy system



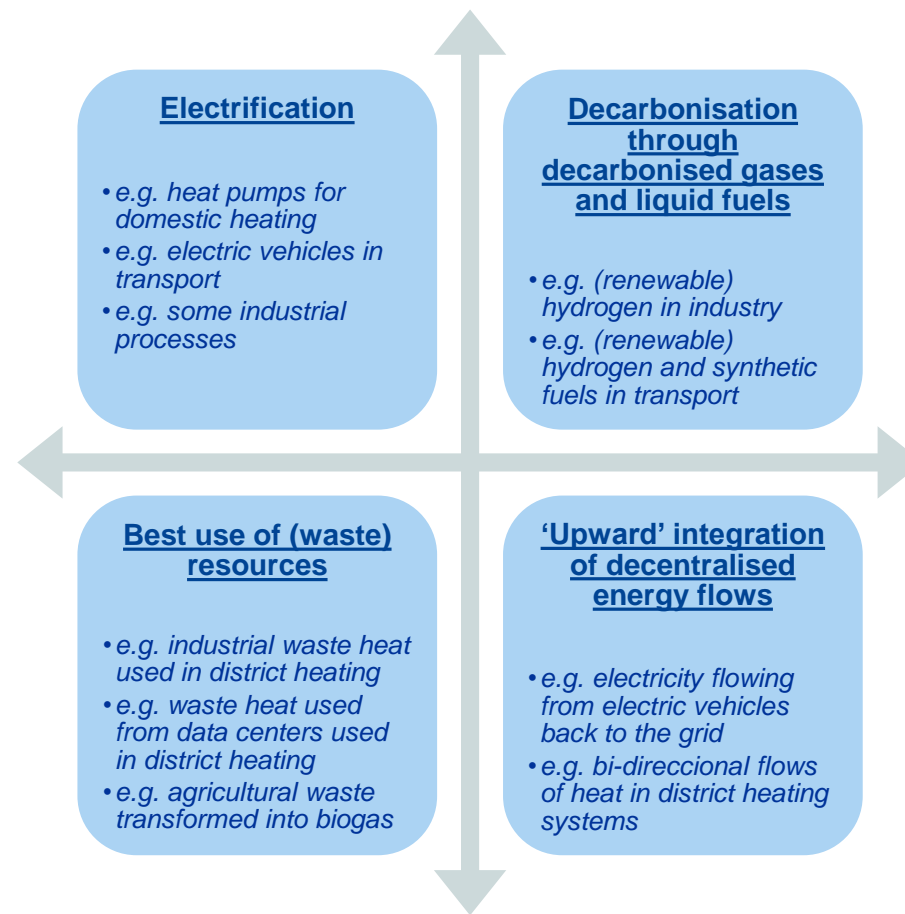
What do we mean by “system integration”?

In the broad sense:

Energy System Integration is the coordinated planning and operation of the energy system, **across multiple energy carriers** (electricity, gas, liquids, heat, cold), **infrastructures, and consumption sectors.** (buildings, mobility, industry, agriculture).

It is the strategy for an effective, affordable and deep decarbonisation of the European economy.

*In more details,
sector integration encompasses several concepts:*



Why do we need energy system integration?

An **integrated energy system** will be at the heart of **Europe's economic recovery post-COVID19**

Energy system integration is **the most cost-effective pathway** to a deep decarbonisation of the energy system. Indeed:

1. It helps reduce emissions in **sectors with limited abatement options (buildings, transport, industry, agriculture)**
2. It helps speeding up the deployment of clean energy in the electricity sector by **providing flexibility/storage**
3. It helps make the best use of existing infrastructure and **avoid over-investment**

Additionally, energy system integration can support **EU leadership in the development of new clean technologies** and business models

The Clean Energy Package as the starting point

Renewables Directive (REDII)

Heating and Cooling (HC)

- Indicative target 1.3 pp a year for HC & 1 pp a year for district heating and cooling (DHC)
- Inclusion of waste heat and cold
- Electricity DSOs to assess DHC potential for balancing and storage
- Regulatory principles on DHC and increased rights for consumers

Transport

- 14 % target including biofuels, electrification and Renewable Fuels of non-biological origin (e.g. renewable hydrogen)
- 3.5% sub-target advanced biofuels and biogas

The wider Clean Energy Package

EPBD/EED

- Electro mobility and deployment of recharging infrastructure
- Assessments of high efficiency cogeneration and efficient heat generation options

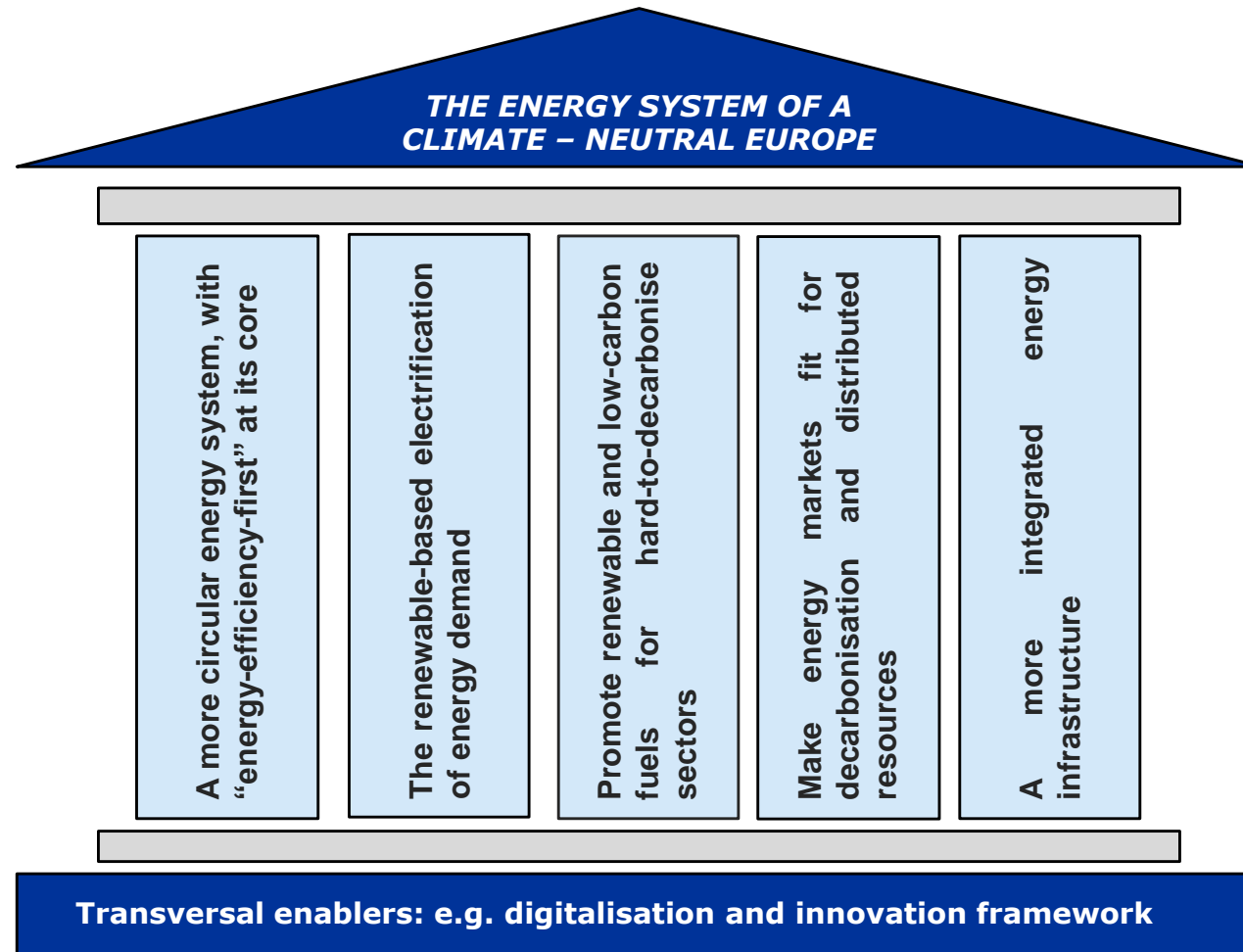
Electricity Reg. & Dir.

- Electricity Market design fit for Renewables
- Definition of energy storage (incl. P-to-X)

Governance

- Energy Efficiency First principle
- National Energy and Climate Plans

The Strategy for Energy System Integration



Thank you



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