



Danish
Utility Regulator

ENERGINET

INTEGRATED NATIONAL NETWORK DEVELOPMENT PLANS

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Infrastructure development – Roles and responsibilities

Ministry of Climate, Energy and Utilities/ Energy Agency	Energinet (TSO)	Danish Utility Regulator
Full ownership of Energinet	TSO for gas <u>and</u> electricity	Economic regulation of Energinet
Approves Energinet's investments	Network development plans and needs assessment	Monitoring and reporting on TYNDP and PCI

New regulatory regime for Energinet by 2023

- Long term development plan
- Business plan for electricity SO



How can regulation be conducive towards system integration?

Challenges

Complexity and lack of level playing field

Risk of stranded assets



Solutions

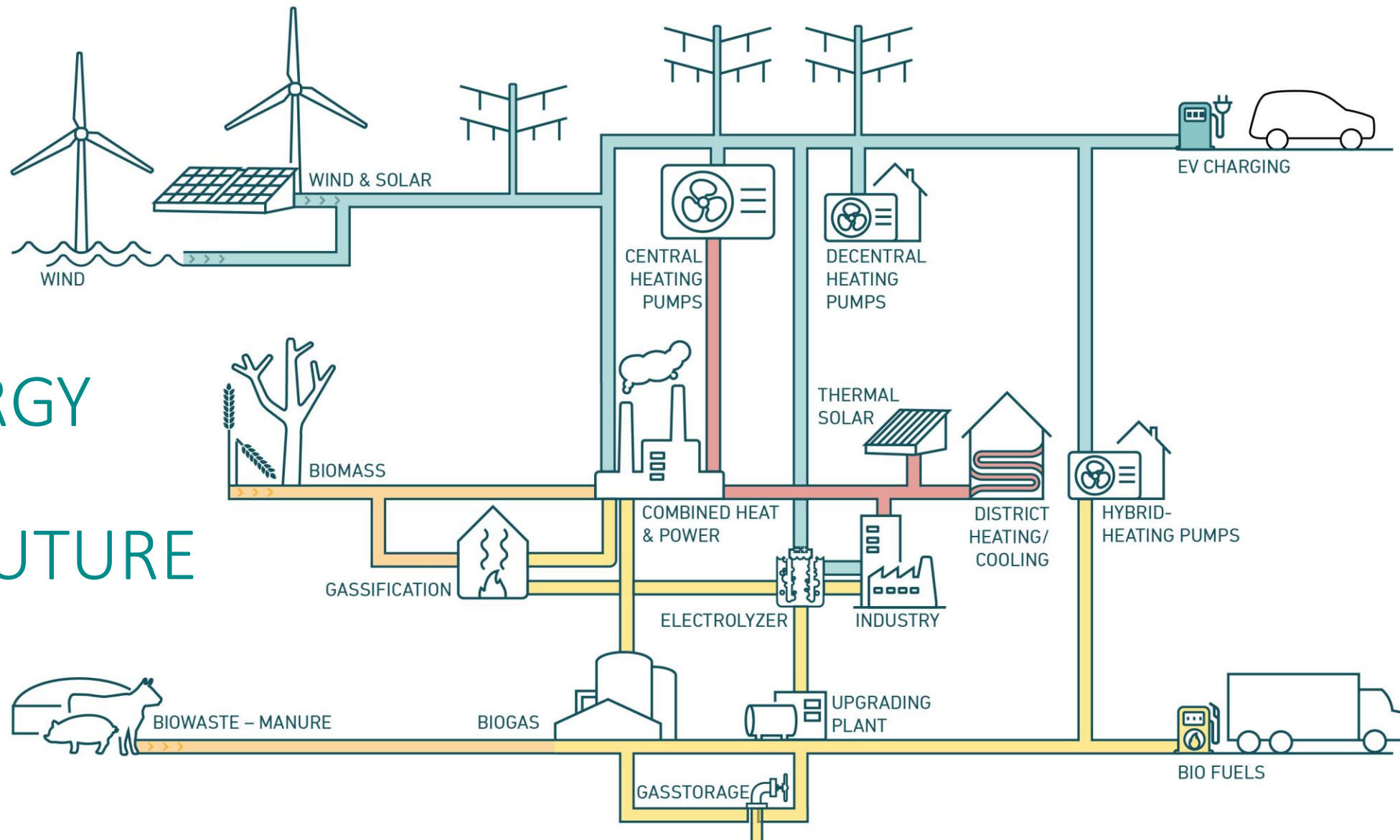
Regulation of energy, irrespective of utility type

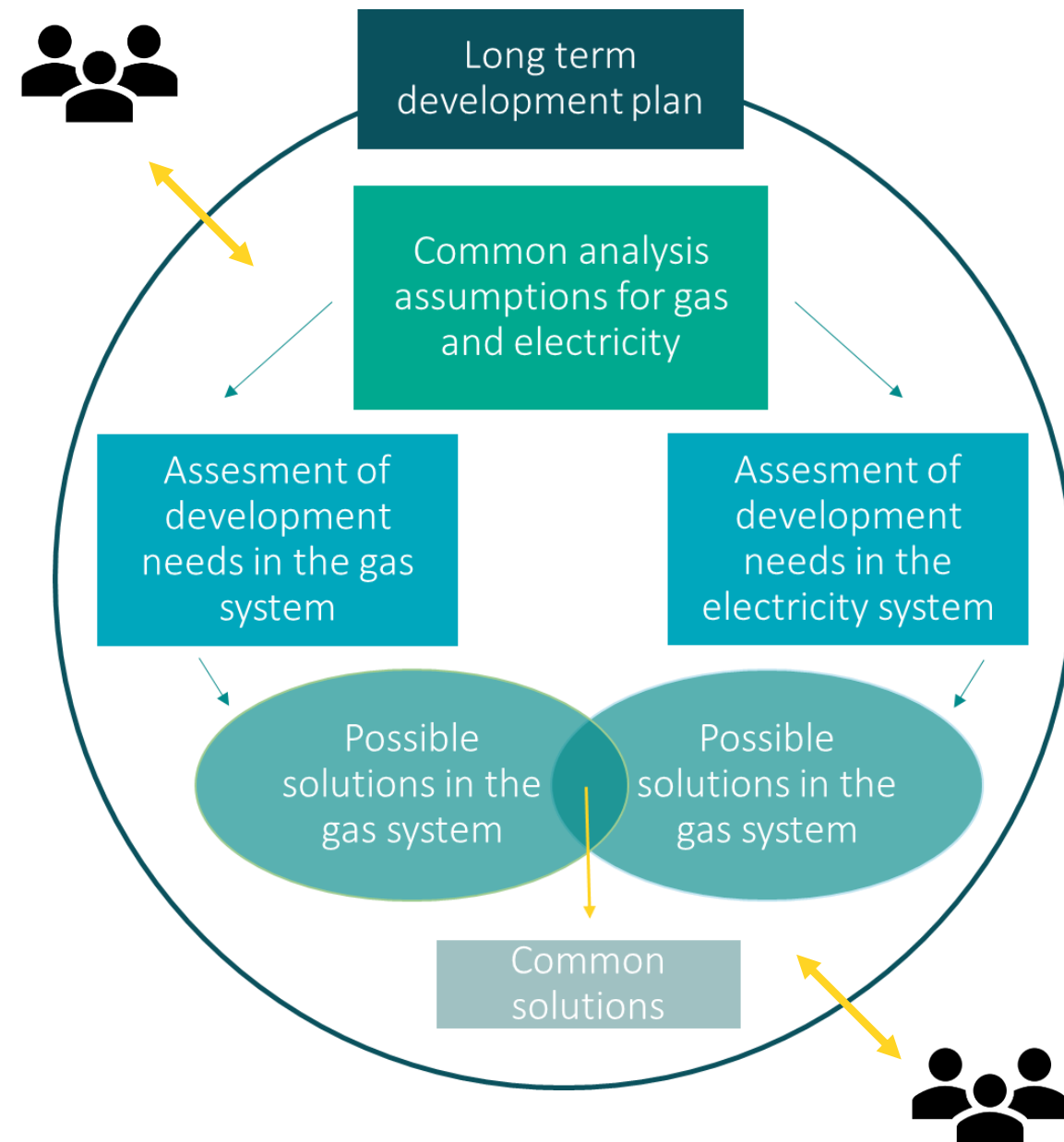
Dynamic regulation:

- Flexibility and swiftness in possibility to revise
- Regulatory experiments within a given framework
- Mutual understanding between NRAs and TSOs on roles and responsibilities without regulatory capture



THE ENERGY SYSTEM OF THE FUTURE



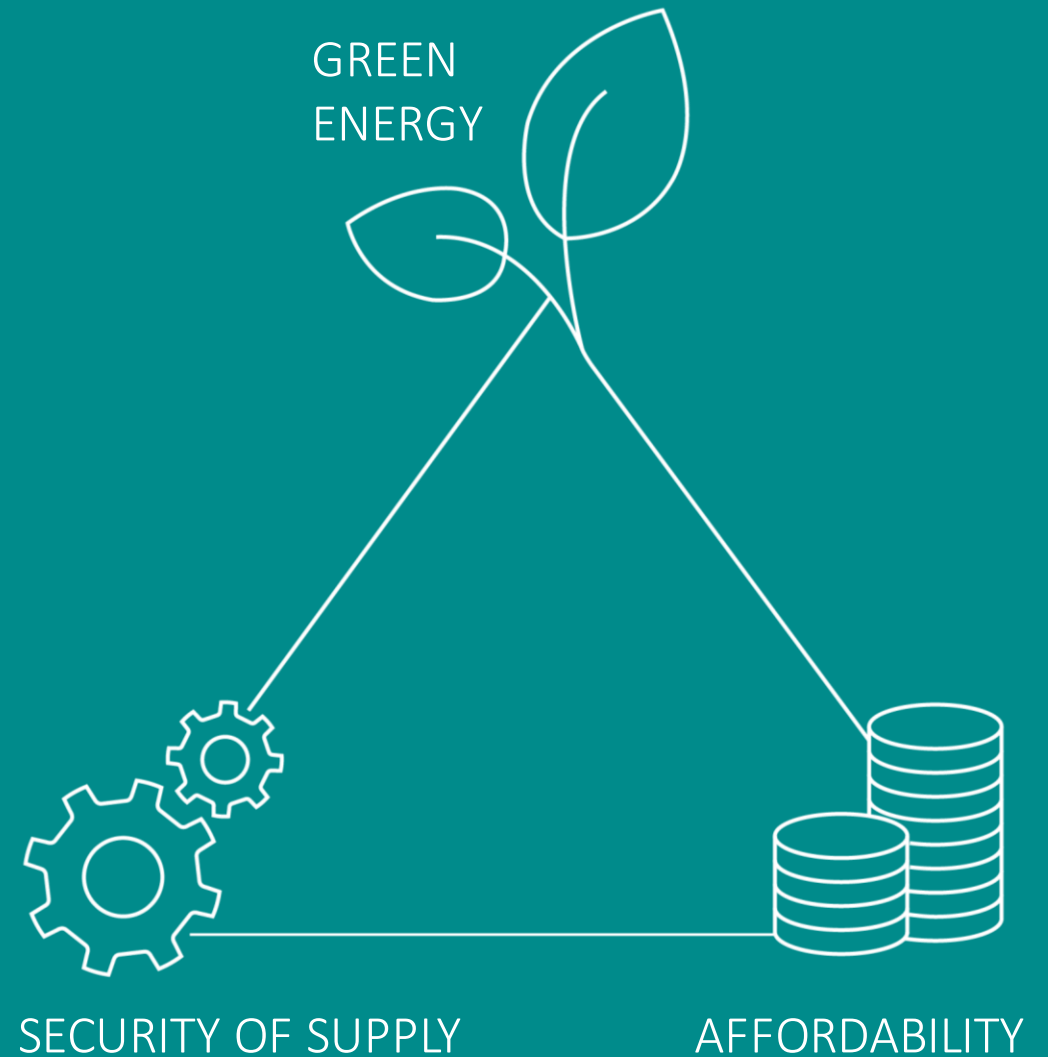


NEW REGULATION NEW REQUIREMENTS NEW DEVELOPMENT PLAN

- Energinet's Long-Term Development Plan for Electricity and Gas
- Needs analysis and possible solutions
- 20 years outlook
- Danish Energy Agency Analysis Assumptions
- Stakeholder involvement led by Energinet
 - Including solutions by others

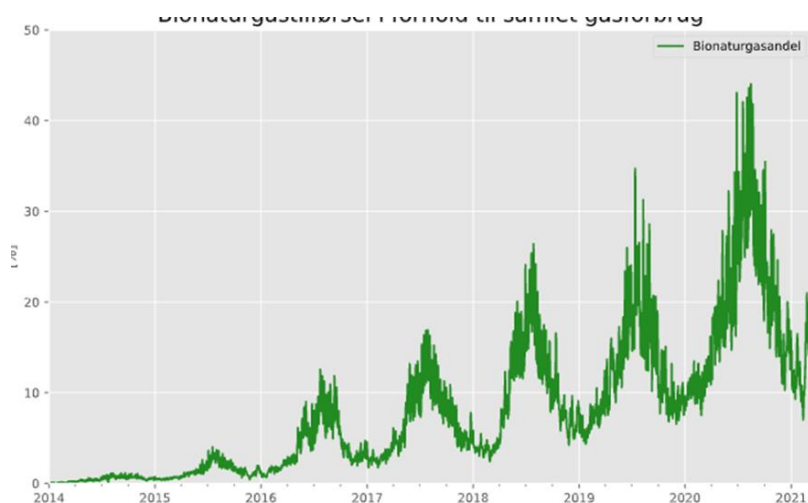
LINKING DEVELOPMENT PLANS TO INVESTMENT DECISIONS

- New challenges
 - Sector coupling, increased flexibility, digitalization, tariffs
- New players and stakeholders
 - Farmers, investors, industries, municipalities, neighbors
- Socio economical developments
 - Defines the evolution of the energy system
- Final investment decision by the Minister



BIOMETHANE INTEGRATION IN NETPLAN

Biomethane constitute up to 40% of consumption on daily basis and reached a total of 17% in 2020. The share will increase to 100% at the latest in 2040.



- Production into low pressure grid, remodeling of flow
- Alternative use of infrastructure (cost efficient)
 - Local island systems
 - Integration of distribution grids
 - Reversed flow to higher pressure
- Operational focus
 - comparability to natural gas
 - oxygen level, deodorization

UNLOCKING THE RES POTENTIAL

PtX development plan

