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# **WG 1: Network Assets**

## **Topic 5:**

# **Multiple Energy Carrier Systems**

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# Topics to discuss

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- q **Situation (what & why)**
- q **Problem to deal with**
- q **Solutions**
  - Key deliverables
  - Enablers
  - Measures of success



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# Situation / Tasks

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## q **Other energy distribution networks:**

- natural gas
- district heating
- ...
- possible future hydrogen infrastructure

## q **Actually no common understanding of the best possible development**

- economical
- environment friendly
- technical



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# Situation / Tasks

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- q **Transition to hydrogen path at least for mobility but in the far future perhaps stationary infrastructure**
- q **Network infrastructure : big investments**
  - Potential for synergies and economic gains



# Problems to deal with

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- q **Possible integration – synergies between the different energy networks:**
  - necessity of modelling
  - dynamics of interchanges
- q **Coupling with other topics as**
  - demand side management
  - storage in other form of energy
  - new automation and control options



# Problems to deal with

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- q **Methodology to take into account the different aspects: technical, environmental, economical**
- q **Integration of regulation influence**
- q **Coupling with local/regional circumstances:**
  - existing infrastructure
  - demand structure and density



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# Solution – Key deliverables

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- q **Optimised solution with justification and key assumptions: demand structure and density, existing networks and infrastructure, demand side management and distributed generation schemes**
- q **Connection with consumption model**
- q **Development of a methodology and a decision support tool**
- q **Formulation of a transition path**



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# Solution

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## Enablers:

- q **Real option analysis**
- q **Decision support methods, information about the different topics**
- q **Development of IT, communication and advanced electronics**
- q **Behaviour of consumers**
- q **Cost of operating multiple infrastructures**



# Solution

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## Measures of success:

- q **Developed tools in use**
- q **Documented decisions on integration**
- q **Integration and merging experiments**
- q **Number of DSM/DR schemes operational**
- q **Better environmental situation**