Virtual district heating – a new business model for DH under transformation

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Key message

- Maintaining a traditional business model is not feasible
- New models must internalize and make operational:
    - Energy efficiency
    - Demand management
    - Sector coupling
- Business transformation is a must, especially for small utilities
- Virtual district heating appears as an attractive option

Virtual district heating – a concept

- Focuses on energy services
- Supplies heat comfort not GJ
- Invests in customer assets that is pay-back from regulated revenue
- Operates & aggregates distributed resources
- May or may not preserve and operate a network
- Collects benefits of sector coupling with the power sector (DSR)

Virtual district heating responds to multiple challenges

- Shrinking market for heat
- Flourishing energy efficiency
- Increasing penetration of RES
- Stringent emission and air quality standards

Why Poland?

- DH in Poland
    - Has a big chunk of space heating (40% of Poles)
    - Needs a serious upgrade & deep transformation
    - Harboured in a very traditional business model

- Poland
    - Needs to make the power system more flexible
    - Experiences a shift in environmental consciousness

A couple of facts about Polish DH

- DH operates in almost all cities
- 75% coal, 8% RES (only!), 17% others
- 66% of heat from efficient systems (CHPs in large cities)
- 87,5% of systems do not have a status of efficient system

Conclusion: DH sits still, sticking to out-dated technologies

Strategic challenges

- Decarbonising the sector – external pressure
- Improving air quality in cities – growing domestic expectations
- Getting the status of efficient system – condition for grants
- Sector coupling with the power sector – opportunity

Conclusion: DH is expected to move

Regulatory challenges

- Less CO_2 – ETS, EU energy-climate goals for 2030
- Less SO_2, NOx, particulates – IED, MCP
- Efficient systems – a condition for receiving state aid
- A new support scheme for CHPs is under discussion
- Renovation roadmaps are required by EPBD

Conclusion: deadline in 2030 is coming soon

Demand Side Management – any progress to date?

- POWER
- HEAT

HEAT. Demand Side Management – any progress to date?

- Access to information (MPEC Tarnów, Fortum)
- Energy services (Veolia)
- ESCO (Siemens, Engie, Warbud)
- Thermal rehabilitation advances without utilities

Conclusions:

- no use of regulated revenue for energy efficiency
- limited proliferation of energy service business models

POWER. Demand Side Management – any progress to date?

- Thermal storage added to CHP (Warsaw)
- DSR programme by TSO – no DH involved
- DSR as a part of the capacity market – design suitable for DH

Conclusions:

1. new opportunities for DH
2. limited engagement

What role for energy efficiency?

- It should be the first, but it is the last
- Business models – production vs. conservation
- Energy efficiency in DH deserves “virtual district heating”
- Utility can recover a cost of energy services, but it does not

Conclusion: a joined effort to change the practice is needed

Where does a new model enter? Examples

1. use of regulated revenue to refurbish buildings instead of DH networks and boilers
2. converting large networks (high temperature) into micro networks (low temperature) & integrate RES (solar, heat pumps)

Conclusion: virtual district heating is a suitable business model for small utilities

Conclusions & recommendations

- DH sector drifts in Poland, approaching a wall of tough regulations
- Clock is ticking, while pouring money to the sector may not help
- New thinking, new business models are needed
- Energy services, demand side, sector coupling – essential terms
- Virtual district heating is an attractive answer