

Meeting of DJJ with Euroheat & Power, 4 February 2020

Participants:

Euroheat & Power: [REDACTED]

COM: Ditte Juul-Joergensen, [REDACTED]

Key points:

- Short introduction on Euroheat & Power and district heating and cooling and **emphasis on the importance of heat sector** as the bulk of the EU energy consumption, yet not given sufficient attention.
- **Sector integration** is already a **well-known and practiced field** in the heating sector and was **addressed five years ago** in the context of the **EU Heating and Cooling Strategy** (adopted in February 2016). The Strategy addressed how heat grids are interacting with the electricity and other energy grids. **Heat is part of the energy system** and **local heat grids are integrated with the wider EU energy networks**. The danger is that EU energy networks will be understood in a narrow and not realistic sense to mean only electricity and gas.
- The current **overwhelming focus on green gases overlooks several on-going decarbonisation and sector integration solutions** that are **already applied in the heat sector**. While **green gases** will certainly have a role, they **should be channelled into the right places**. **In residential heating, green gases will be very expensive solutions** in comparison with already existing and mostly cost-effective renewable solutions. It is **uneconomic to burn high value-added green gases to heat buildings to 20 degree Celsius**. **Low temperature renewables and surplus heat can fully cover the EU space heating needs**. **Green gases** will be important **to decarbonise other pockets** of the energy sector, where there are no other solutions.
- Another consideration is that **heat networks are essential provider of sector integration solutions** to **integrate** large amount of variable **renewable electricity**. For example, Denmark **would not be able to integrate the current high share of wind energy** in its system **without that big battery**, which is its **large district heating system**. Denmark is **using district heating system as energy hubs** to ensure strong electric grids. These district heating systems **use renewable electricity, industrial surplus heat, gas, geothermal and solar thermal**. Denmark decided to **gradually phase out fossil gas in heating**. Denmark therefore **gradually removes network gas as an option for heating**. That does not mean Denmark will not have gas, but it will be mobilised for other purposes. **Heat pumps** do already and will play a big role in the heating and district heating system.
- Denmark has around **500 thousand homes heated with gas boilers**. There is a need of **good and realistic assessment of the options** as regards how to **facilitate their transition to sustainable heating**. Denmark evaluate the role of biomass, waste, industrial waste heat. This latter might have fossil origin. Studies conducted e.g. by Aalborg University have shown the **flexibility** that can be **provided by district heating systems**. The **government intends to increase wind power capacity** together with the deployment of heat pumps. Denmark has made already great advances in finding **decarbonisation pathways** and these are partly thanks to the **strong district heating sector**, which are an essential part of this decarbonisation path. The main benefits of the large

wind turbine capacity in the country in terms of decarbonisation and self-sufficiency would not be possible to harness without the flexibility district heating systems provides in Denmark.

In answer to questions by DJJ as regards **what the EU can** do, what the **lessons learned** are and how relevant the Danish example is for Member States without district heating:

- Need to build on the **philosophy derived from the oil crisis**. Due to the oil shock in the 70s, Denmark switched to an interventionist energy policy, whereby **energy efficiency** and **system thinking** have been put in focus. This was a response to the imperative that the country had to get rid of oil.
- The **Danish energy planning** introduced back then and further refined until today is **reflected well in the comprehensive heating and cooling assessments under Article 14 of the Energy Efficiency Directive**. The **Commission has to ensure that Member States** use this instrument and **implement it**. We are losing energy in our energy system in the EU. There are **more waste heat** from energy production, industrial processes and the service sector **than we need to heat all buildings in the EU**. To use this waste heat is not a technical but rather **an organisation issue**. Higher **sector integration** within the various parts of the energy system **should be prioritised**. In Denmark it is already the focus and the country relies more on higher internal balancing than on balancing through external interconnectors. This is a debate each Member State must have internally. Each country must **establish decarbonisation pathways**. Another important element to **address the infrastructure puzzle: which types of energy infrastructures will be essential** for the future. Finally, there is a **need for effective carbon pricing**. The Danish lesson says: stop burning gas. A study by ENGIE (the Belgian energy utility) shows that if the price of CO₂ reaches 80 EUR per tone, there will be a switching away from gas.
- As regards **electrification**, the synergies are **easy to model** but no one in the heat sector really believes it is realistic as a single solution. Similarly, **green gas can be modelled but it is a completely different issue to make it work**. Mayors, who are trying to put their cities on a sustainable energy path, testify that **these are not realistic solutions**, while **district heating is**. These mayors are looking at things that can be done. The Netherlands plans to have 20-40% share for district heating as this allows using local energy sources of all kinds. The fact that most Member States do not yet have a well developed district heating system and much practice does not mean that they cannot do it. It is a realistic and already tried solution that works.
- One important hurdle is the **distorted price structure favouring gas**. A gas boiler can be bought for 2500 EUR. This is very cheap and disincentivises any switching away from gas.
- The **Commission scenarios**, e.g. in the Long-term Decarbonisation Strategy are not amenable to consider heating properly. The DNA of the Commission is to **look at electricity and gas networks only**. The modelling exercises are structurally geared to either gas and electricity, because the heat sector **is not well** and fully **represented** and **district heating is not properly modelled**.
- According to Commission modelling the response to heat decarbonisation is **renewable hydrogen and hydrogen derived green gases**. However, the reality is that these solutions are there only in the modelling and **in practice they are not real solutions today** and will in any case be **too expensive in the future**. Due to the modelling, such as the Long-term Decarbonisation Strategy, the **messages the Commission gives is that hydrogen and synthetic green gases are just around the corner**. The result is that **Member States are waiting** and **national administrators are stalled**. They **wait instead of doing what they could very well do already today** by implementing renewable heating (geothermal, solar thermal, heat pumps, waste and waste heat utilisation, etc.) and district heating.

