Meeting of DJJ with Euroheat & Power, 4 February 2020

Participants:

Euroheat & Power:

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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 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 intrument and implement it. We are loosing 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 already is the focus and the country relay more on higher internal balancing than on balancing through external interconnectors. This is a debate each Member States 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 synergys are easy to model but no one in the heat sector really beleives the 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 paths testifies 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 exercices 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.