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The six implications of the EU's "Fit for 55" package for your Heating Network

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On 14 July, the European Commission published the long-awaited Fit for 55 Package, which targets achieving the EU's 2030 goal of cutting emissions by 55% and reaching climate neutrality by 2050. Although it is still unclear how this will translate into national regulations and implementations given the negotiations and legislative process that are still to take place, heating networks should prepare for a changing regulatory landscape that will impact every District Heating (DH) company significantly.

Overall, the package provides opportunities for the DH sector and underlines the role of DH networks in the decarbonization of the EU's heating market. It also echoes the supportive tone in the European Commission's recent publications regarding the growth and the importance of DH networks in enabling decarbonization on the way to Net-Zero 2050 targets.

Overall, the package provides an urgent call to act for the DH industry to decarbonize and accelerate the move away from fossil-fuel based heat supply systems and increase renewable heat sources (including access heat from industry and data centers) in the DH networks.

Here are the six key implications for DH companies:

1. EU considers District Heating even more important than before in reaching Net-Zero 2050 targets

The package underlines that EU District Heating networks "should be stepped up and steered towards harnessing a wider range of renewable heat sources". As mentioned in various documents from the commission over the last years, the efficiency increases of heating systems and building insulation are lower than anticipated, and it is widely acknowledged that heating demand will remain central in the EU energy sector. As a result, it is critical to speed up the roll-out of renewable and waste heat - as outlined in Commission Strategy on Heating and Cooling, 2016. Within this strategy, District Heating has great potential to deliver that by increasing the share of renewable heat sources and leveraging waste heat in line with the strategy towards Net-Zero as outlined in the RED directive. Also, the revised Directive sees District Heating as "a key component of a more integrated circular energy system". DH can participate to further integration of renewables through the direct use of intermittent electricity and large-scale thermal storage.

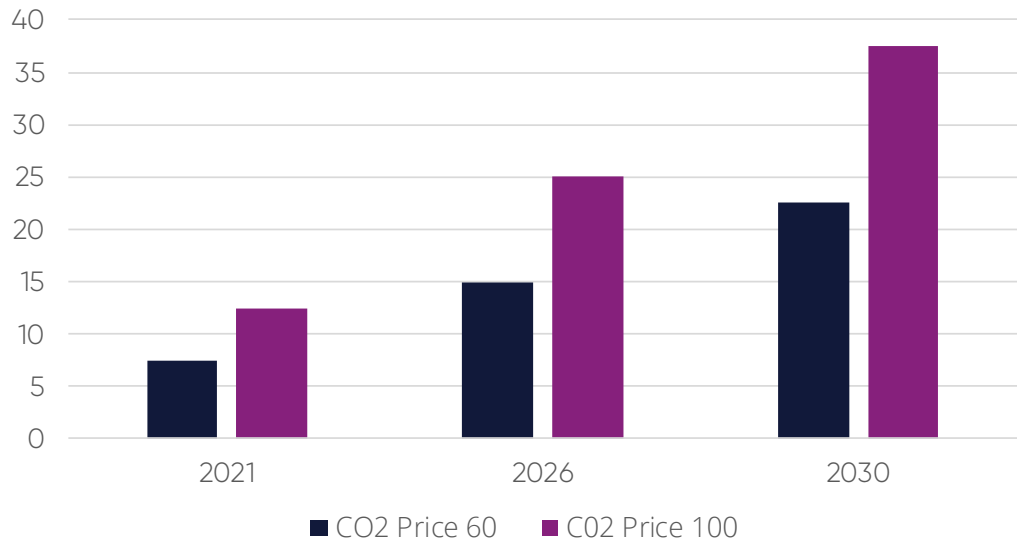
2. Every District Heating company will be covered by the new ETS system and needs to pay CO2 tax for all heating fuels

The package introduces a separate ETS system for buildings, adjacent to the current ETS system to address all heating and cooling fuels. Many heating companies were already (indirectly) paying for ETS via heat generated from CHPs (which were already included in the current ETS system for the electricity generated). However, activities covered by the new system also include heat-only boilers as well as all heating fuels and all heating plants for District Heating networks for commercial and residential buildings. From 2026 all district heating companies will be included in the regulated entities, and they will have to purchase allowances. There is also a change for CHPs: the current exemption for plants smaller than 20MW is removed in the latest proposal.

3. Potential cost impact could be significant: even at current ETS price levels of 60 EUR/ton, the new ETS system could triple the effective cost of CO2 by 2030, if DH heating networks are not decarbonized

In 2021, the total CO2 cost of the EU DH industry is estimated to be in the range of 6-9 Billion Euros. This includes the CO2 cost from CHPs, which in 2020 was in the range of 20%-30% of the total cost depending on the fuel source (e.g. coal vs gas), allocation schemes from CHPs for Heat and Electricity production, local implementations of ETS and allowance schemes in member states. Even with the current EU ETS CO2 price levels of 60 Euro/ton, the proposed ETS regulations could triple the CO2 cost for the overall DH industry by 2030, if DH heating networks are not decarbonized and CO2 footprints stay at current levels. In a scenario where CO2 prices are at 100 Euro/ton, the total CO2 cost of the EU heating sector could even increase to 35-40 Billion Euros by 2030.

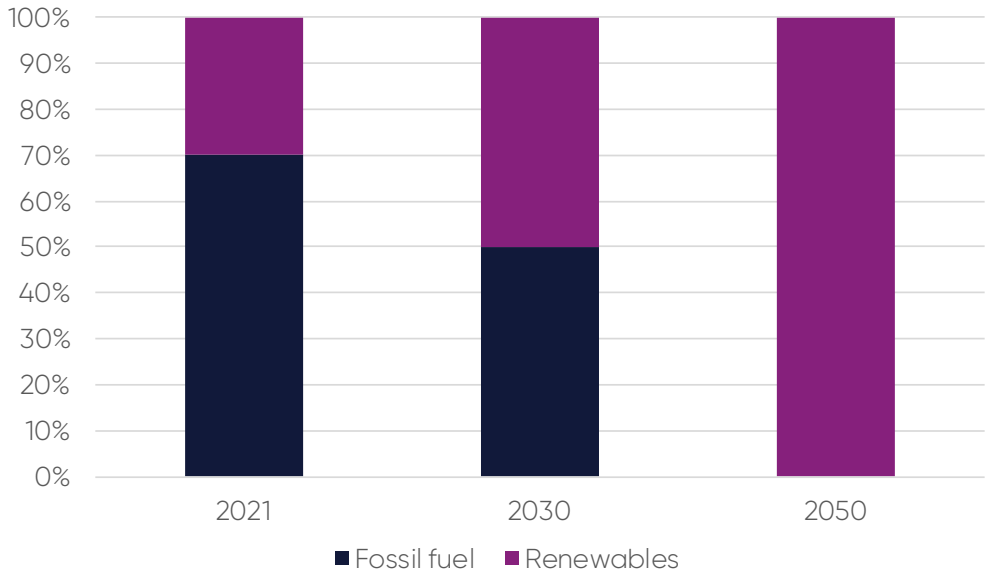
CO2 cost of EU Heating Sector, Billion Euros



4. Increased target for share of renewables to accelerate decarbonization of DH Networks

The indicative 1.1 percentage point target of increase for the share of renewables on the heating market up to 2030 now becomes binding. Depending on the upcoming negotiations and legislative process, "binding" could mean more pressure on the member states on the implementation of national plans and enabling actions at regional and national level for the increase of the Renewables share in the DH systems. Secondly, the package establishes a 2.1 percentage points indicative target for the increase of the share of renewables and waste heat in District Heating systems. Decarbonization of DH Networks needs to be accelerated to be able to reach the 2.1 percentage points indicative target by 2030 and ultimately to reach Net-Zero by 2050.

Share of Renewables in EU Heating Sector, Percentage



5. Biomass is under scrutiny as a renewable heat source

The EU biomass sustainability criteria are further strengthened in line with the increased climate and biodiversity ambitions of the European Green Deal.

Specifically, there are higher standards on sourcing, usage for energy and heat production and retrospectively requiring existing installations to comply with greenhouse gas regulations, and not only for new heating plants. Today, already 90% of what we call "renewable DH" consists of Biomass as a fuel source for the whole EU District Heating networks. The additional scrutiny on the biomass sources will make it more difficult to use as a solution to decarbonize DH networks, and instead trigger the need for alternative renewable heat sources to decarbonize existing systems e.g. heat pumps, geothermal etc.

6. Viability of natural gas as transition fuel is under pressure

Gas is treated as an interim fuel meaning it will have to be replaced at some point with renewable heat sources in the perspective of Net-Zero by 2050. However, the funding available for investment in gas in the short to midterm is unclear. This will be dependent on negotiations and legislative processes, while business cases will be heavily challenged by the relatively short duration in which this "transition" is viable, as a faster path to full decarbonization. Additionally, the recent price hikes in Europe and global fuel markets (January versus September 2021 prices: Natural Gas x4, Coal x2 and ETS x2) and CO2 cost implications from the new ETS system for Heating market add more pressure to the investment decisions on Gas fueled heating systems.

In conclusion, District Heating is here to stay and grow, but making it work within the even more aggressive transition to Net-Zero by 2050 is a challenge. There is no easy fix that could work in every region of Europe given the existing fuel mix and infrastructure challenges in different countries around the EU. For example: in Denmark which is seen as a pioneer today (rightfully so) in decarbonization of DH networks, the majority of the renewable heat sources that replaced fossil fuels over the last decade are from a solution which is highly questionable in terms of scalability in other countries: Biomass.

What can District Heating companies do today? Take full control of your DH System, and be ready to lead the transformation ahead – even when faced with uncertainties.

In the absence of "silver bullets" and with a lack of clarity around regulation and prices that the future will bring, there is still a lot that district heating companies can do today to maximize the chance of success. More specifically – leaders of the transition will have a few things in common: they will know exactly what the options are to make their network work in terms of business case and decarbonization. Secondly, they have the skills and tools available to quickly assess changes in technology, prices and regulations. And last but not least, they will show a track record of "good operatorship" with year-on-year efficiency targets being set and achieved, building confidence with regulators and investors that a successful transition can be managed.

Based on what leading DH companies are doing today, the following actions are recommended:

1. **Start with the as-is:** understand your existing network(s) in terms of opportunities, constraints, and risks
2. **Capture efficiencies in the heat sources and DH networks for energy savings and reduce the CO2 footprint of the system** – push for no regret moves as of today
3. **Prepare your DH company for the transition** – e.g. scenario planning against uncertainties from the negotiations and legislative process and Fuel and ETS markets going forward
4. **Prepare your organization for the challenging road ahead.** Equip it with the skills and tools needed to manage the efficiency and transformation ahead

One example of tools that can be instrumental in driving the change are Digital Twins. Future Gradyent whitepapers will discuss how heating companies have successfully applied Digital Twins in their decarbonization journey. Click **here** to subscribe and automatically receive these new whitepapers.

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