

Roll-out of Sustainable Thermal Energy Technologies – Where Does Current Policy Lead Us?

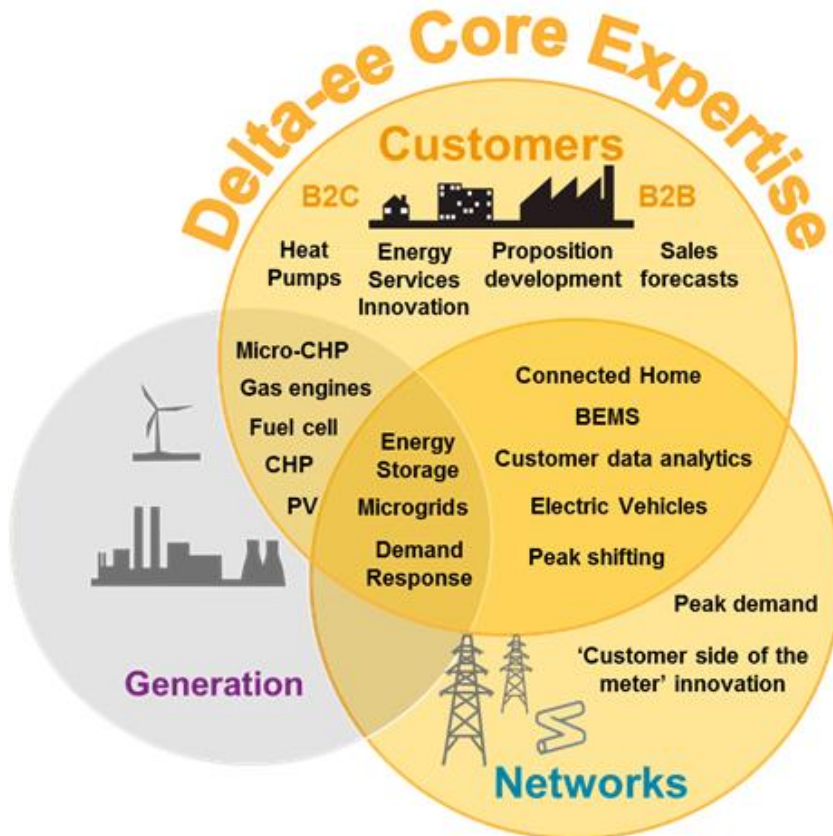
Coventry, 13th April 2016



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Delta-ee helps energy companies, network operators, policy makers and product manufacturers across Europe navigate the transformation to a more distributed, customer centric, service-orientated energy future.



Delta-ee provides:

- ▶ Customer insight
- ▶ Technology expertise on the customer side of the meter
- ▶ Policy & regulation analysis
- ▶ Business model innovation
- ▶ Market analysis & scenarios
- ▶ Demand forecasts & profiles
- ▶ Technology assessment
- ▶ Strategy development & business model analysis
- ▶ Customer propositions

Selected clients:



Research Services

Digital & Services Innovation

- ▶ Connected Home Service
- ▶ Customer Data Analytics
- ▶ Energy Services Innovation

Distributed Generation & Demand Side Flexibility

- ▶ Energy Storage Service
- ▶ Distributed Power Service
- ▶ Demand Response In Europe

Heat

- ▶ Microgen Insight Service
- ▶ Heat Pump Research Service
- ▶ Roadmap Service
- ▶ Pathways® Tool
- ▶ Micro-CHP Service

All European focus, except Distributed Power Service which is global, and Microgen Insight Service which is UK

Consultancy

- ▶ Market analysis and forecasts
- ▶ Strategy
- ▶ Propositions and customer research
- ▶ Technology and product
- ▶ Policy & regulation
- ▶ Energy Demand forecasts

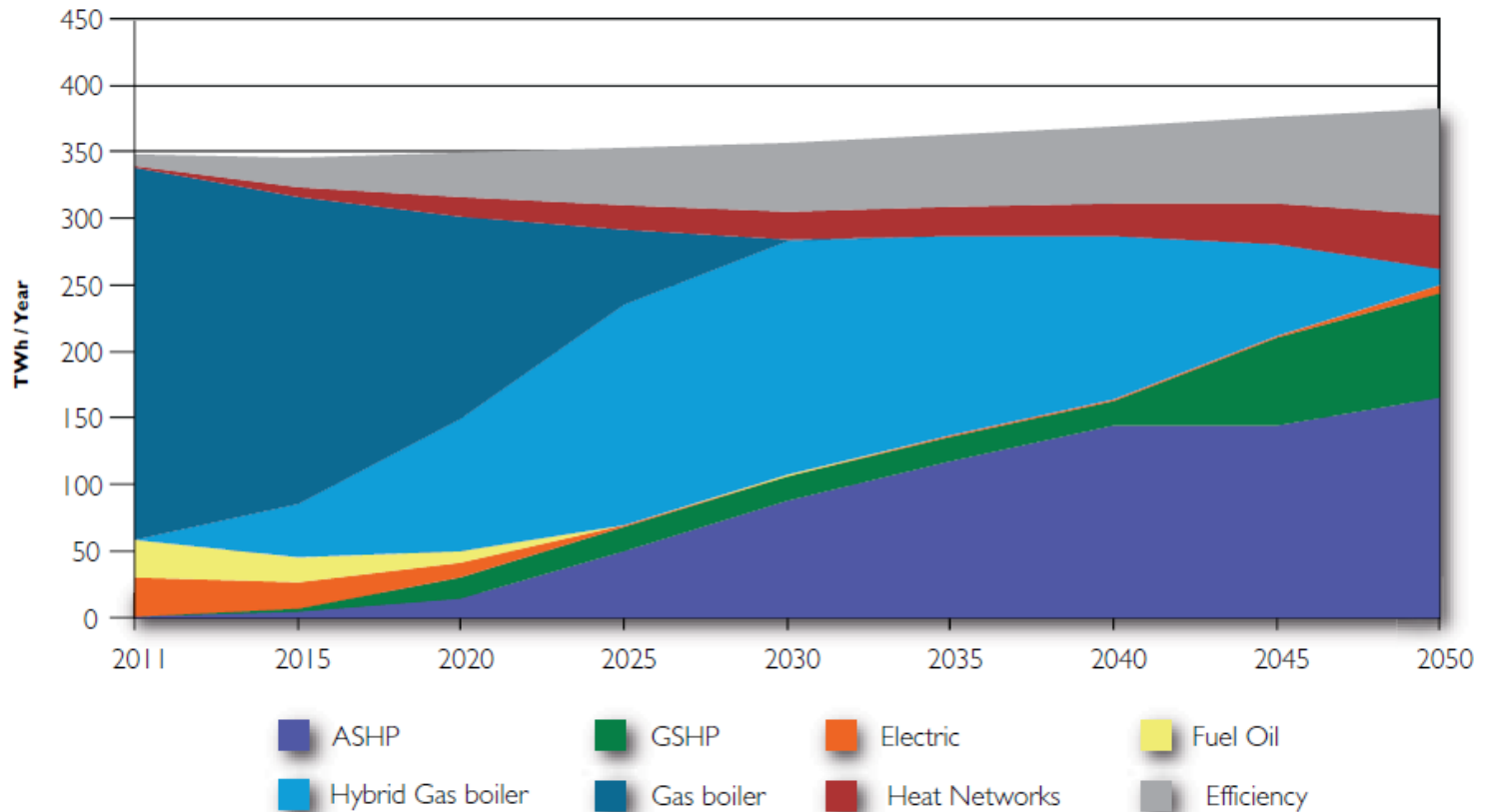
Summits

- ▶ European 'Connected Homes and Energy'
- ▶ Energy Services
- ▶ Micro-CHP
- ▶ Heat Pumps & Utilities

- ▶ **Current Status – Where are we at, and where are we going?**
- ▶ **What are the options?**
- ▶ **Electrification – How likely is it?**
- ▶ **What about heat networks?**
- ▶ **A future for gas?**
- ▶ **Conclusions**
- ▶ **Questions**

Current status – Where are we at, and where are we going?

Chart 29: Domestic space heat and hot water output by technology¹⁰⁴

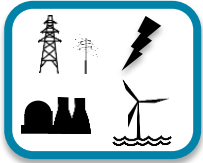


Source: RESOM core run

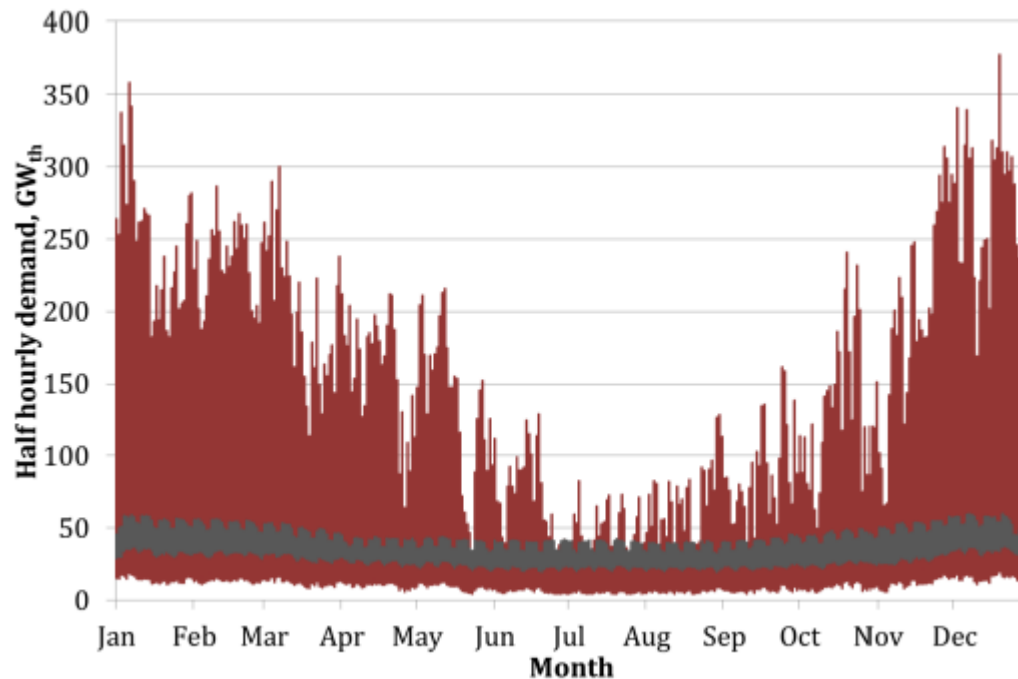
What are the options?



Electrification – How likely is it?

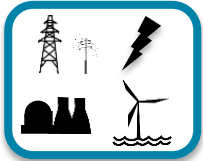


Preparing the networks and the UK's generation park is going to be a major challenge.



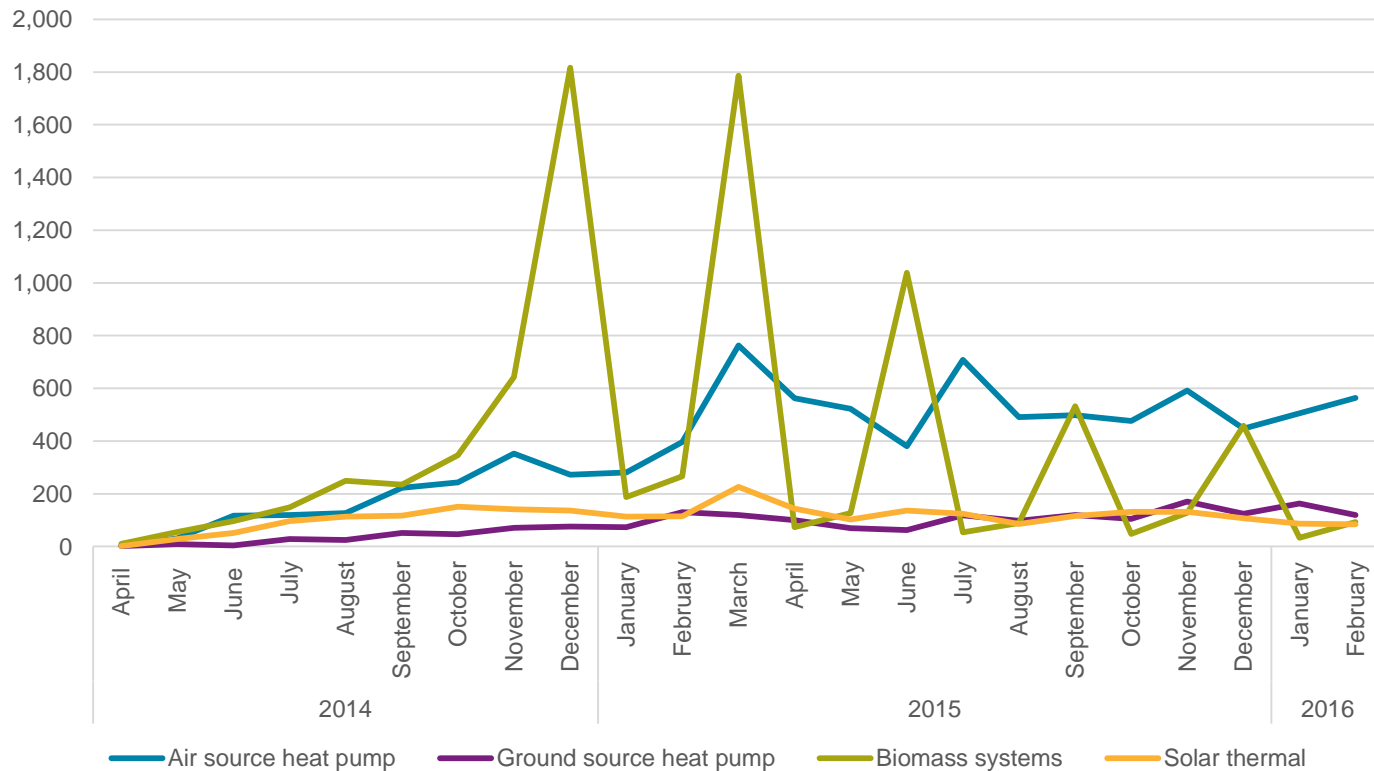
Source: R. Sansom (2015) – Decarbonising Low Grade Heat For A Low Carbon Future

Electrification – How likely is it?



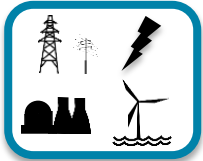
Is the installer the bottleneck? Maybe, but it is also not a very attractive market for them at the moment, with the main instrument to support its growth being slow to deliver

RHI applications, by month and technology



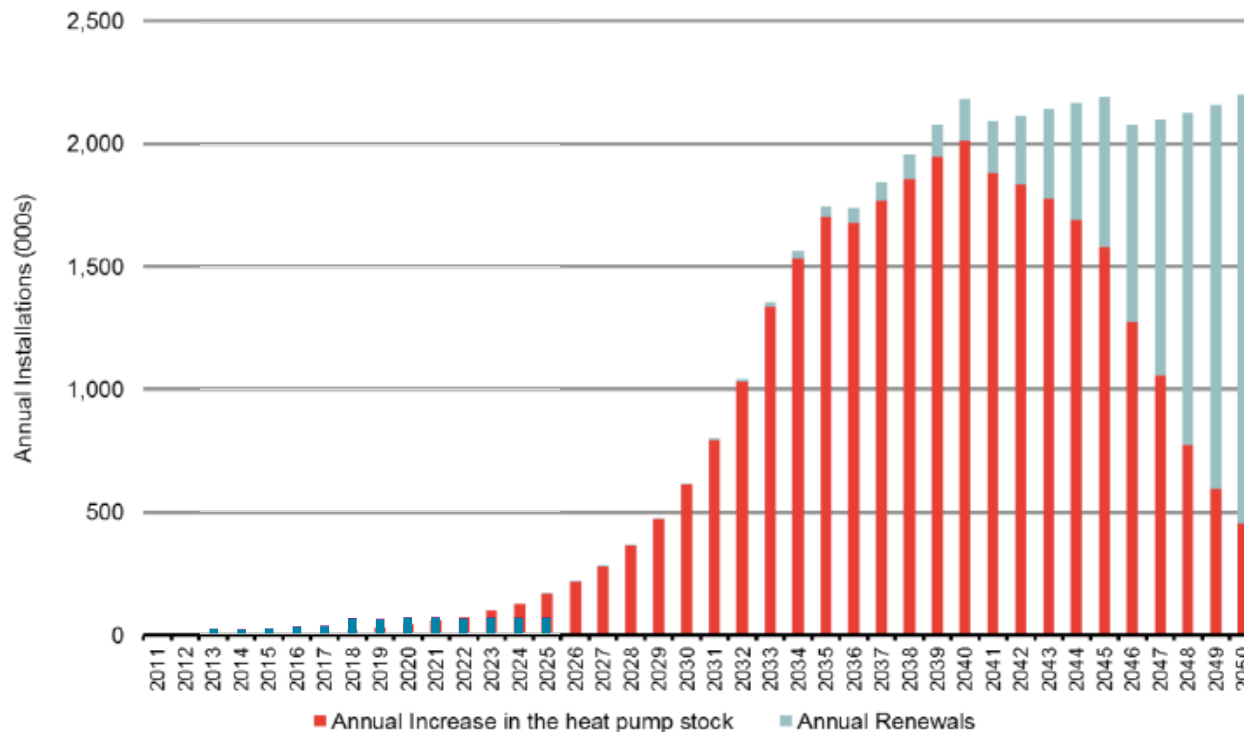
Source: Delta-ee, based on DECC's monthly RHI statistics

Electrification – How likely is it?



Reaching the required uptake rates will require significant policy intervention from 2020 onwards (& the introduction of more stringent new build regulations before that)

Critical path for meeting 80% of all residential and commercial properties' heat demand with heat pumps by 2050



Source: Frontier Economics

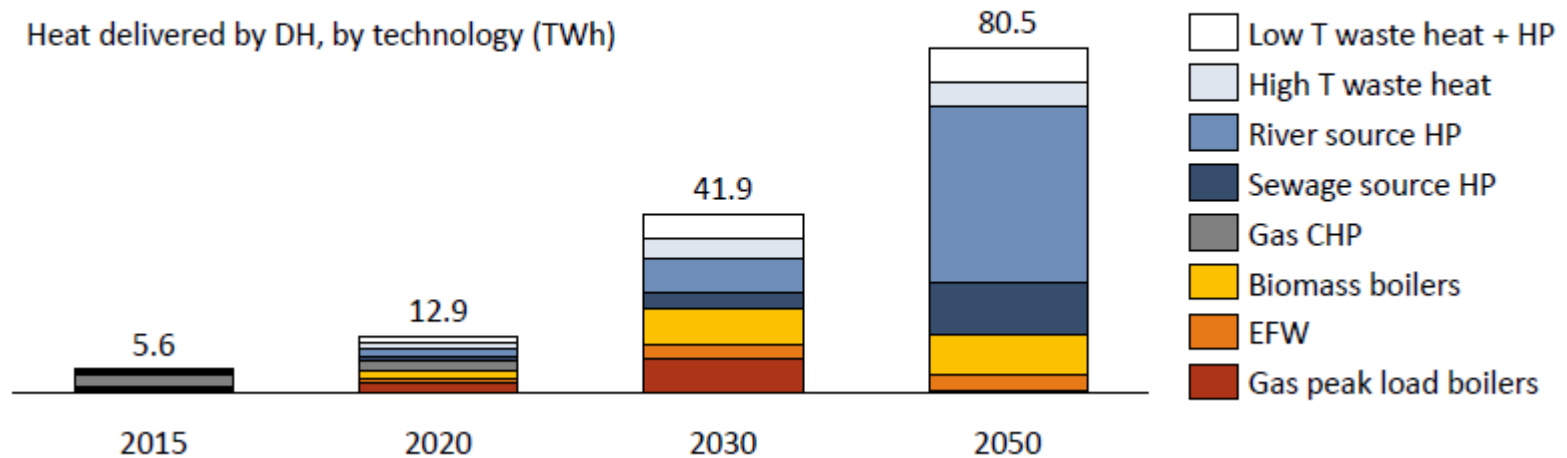
What about heat networks?



District Heating is going to be an important vector for decarbonising heat in dense urban areas, but by 2050 will have to rely heavily on HP technologies or carbon neutral fuel to be carbon free

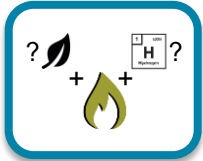
Technology mix in the Central scenario

Heat delivered by DH, by technology (TWh)

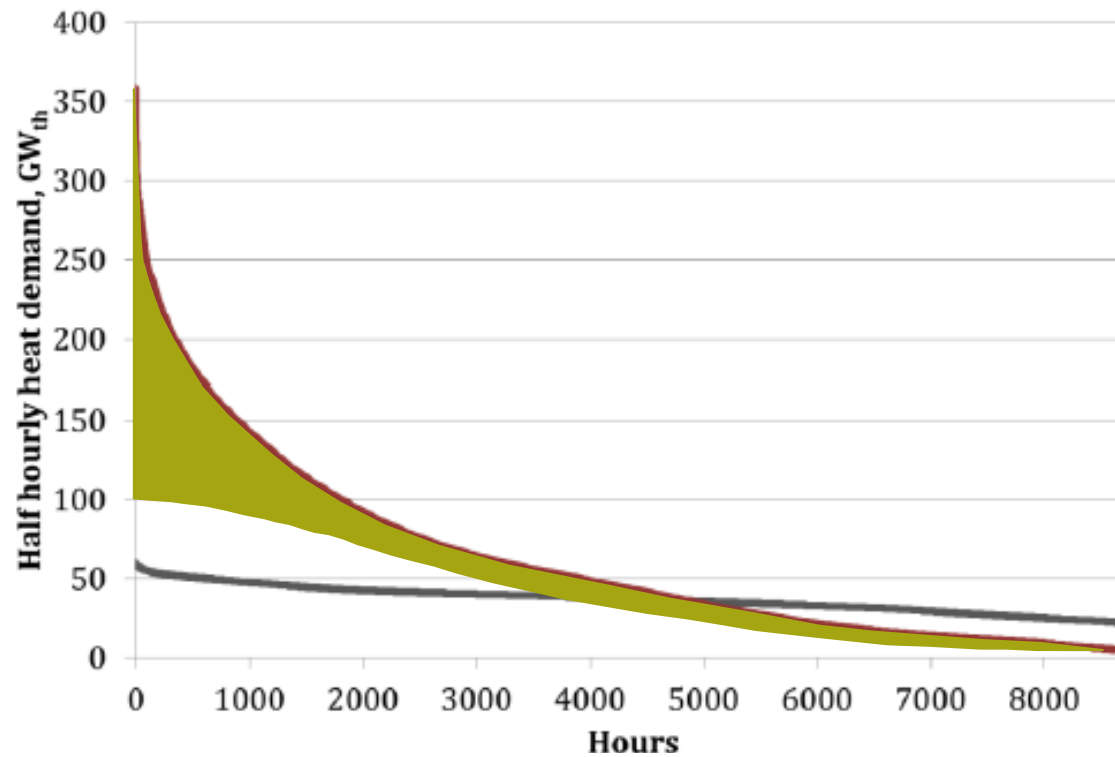


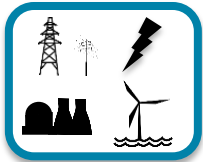
Source: Element Energy

A future for gas?

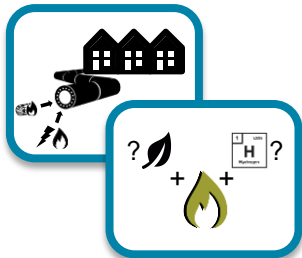


Two preconditions: Decarbonisation and (much) more efficient use

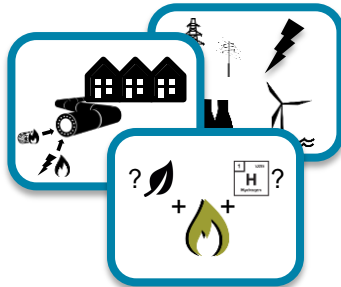




Electrification scenario poses significant challenges both on system and individual level. We consider such a future rather unlikely or requiring very strong additional measures to be taken.



Other options, like heat networks and the decarbonisation of heat are also challenging, but the sum of the combined challenges and the risks of a mixed approach is likely to be lower than if we put all eggs in one basket.



No matter how the future will look like, policy interventions will likely have to be stepped up a notch, and new and improved sustainable thermal energy technologies will play a major role.



Experience from other European countries shows that a long-term, cross-party and cross-stakeholder consensus on the future of the UK's energy system and the roles of the main energy vectors within this future would create the much needed stability for investment and innovation that so often still seems to lack today.

Questions?

