The Future of heating in New Developments.

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ENERGY MANAGER

Chancellor's Spring Statement

- We will publish proposals to require an increased proportion of green gas in the grid, advancing decarbonisation of our mains gas supply.

- And finally, we will introduce a Future Homes Standard, mandating the end of fossil-fuel heating systems in all new houses from 2025.

No Gas - What will this mean for new developments!

Options available:

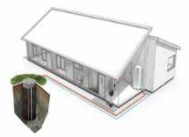
- Heat Pumps
- Hydrogen networks and hydrogen boilers
- District Heating
- Decentralised energy and SMART Energy Networks

Heat Pumps– the basics

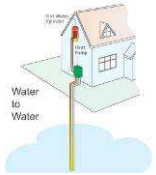
Heat pumps move temperature from a source (ground, air or water) to a destination (your community building) in order to provide heating or cooling. They work in the same way as your fridge!

Different types of heat pumps

Air source



Ground source



Water source

Heat Pumps video

https://www.youtube.com/watch?v=Bafo5fy5P7A

Hydrogen Networks and Boilers

Hydrogen Heating Fast Facts

The UK has an advanced and efficient gas network that currently supplies the energy to heat 82% of the UK's buildings. It also supplies the vast majority of the UK's industrial heat.

The gas network delivers six to seven times more of the UK's peak energy than the electricity network. The gas network therefore has a major role to play in the journey to decarbonisation.

Heating homes and industry accounts for nearly half of all energy use in the UK and one third of the country's carbon emissions.

If hydrogen were blended with natural gas across the UK , it could save around 6 million tonnes of carbon dioxide emissions every year, the equivalent of taking 2.5 million cars off the road.

Hydrogen was a major component in 'town gas', gas created from coal and used widely throughout Britain before the discovery of North Sea gas in the 1960s. Up to 60% of the gas (by volume) being used by consumers was hydrogen.

Across Europe, permitted levels of hydrogen in the gas supply vary, from 0.1% in the UK to up to 12% in parts of the Netherlands

Hydrogen

Developments in the UK

Southern Gas Networks (SGN) H100 programme.

The H21 North of England is a detailed engineering solution for converting 3.7 million UK homes and businesses from natural gas to hydrogen, in order to reduce carbon emissions.

H21 North of England report proposes conversion will begin in 2028, with expansion across 3.7 million properties in Leeds, Bradford, Wakefield, York, Huddersfield, Hull, Liverpool, Manchester, Teesside and Newcastle over the following seven years.

Hydeploy project at University of Keele.

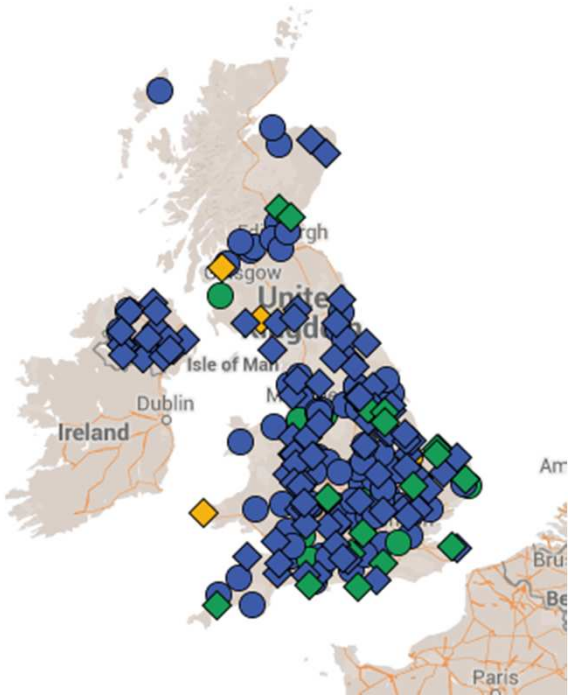
Hydrogen boiler developed by Worcester Bosch

Hydrogen fuel cell for transport development.

Hydrogen for Heat Programme run by BEIS/Arup

The Future of Fuel: What the future holds for the UK's mains gas network, is available to download via the Worcester Bosch website at worcester-bosch.co.uk/hydrogen.

Biomethane Injection into Gas Grid



District Heating

Large scale heat pumps to provide heating and hot water.

More energy efficient designed housing needing less energy e.g Passivhaus standards of design .

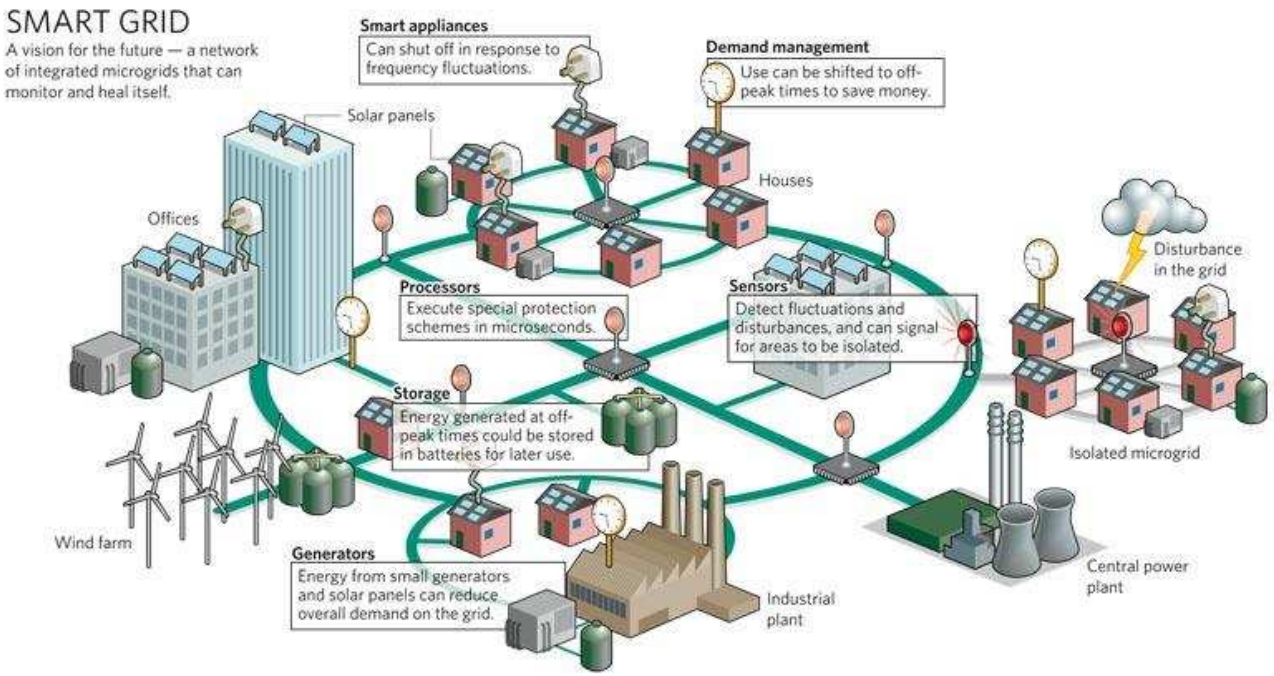
Opportunities in Kent – Maidstone Heat Network Project

Other developments e.g Otterpool, Ebbsfleet?

Future fuels like hydrogen, fuel cells, use of thermal stores.

How will this fit with current building regulations/planning commitments.

Smart Energy Networks/decentralised energy



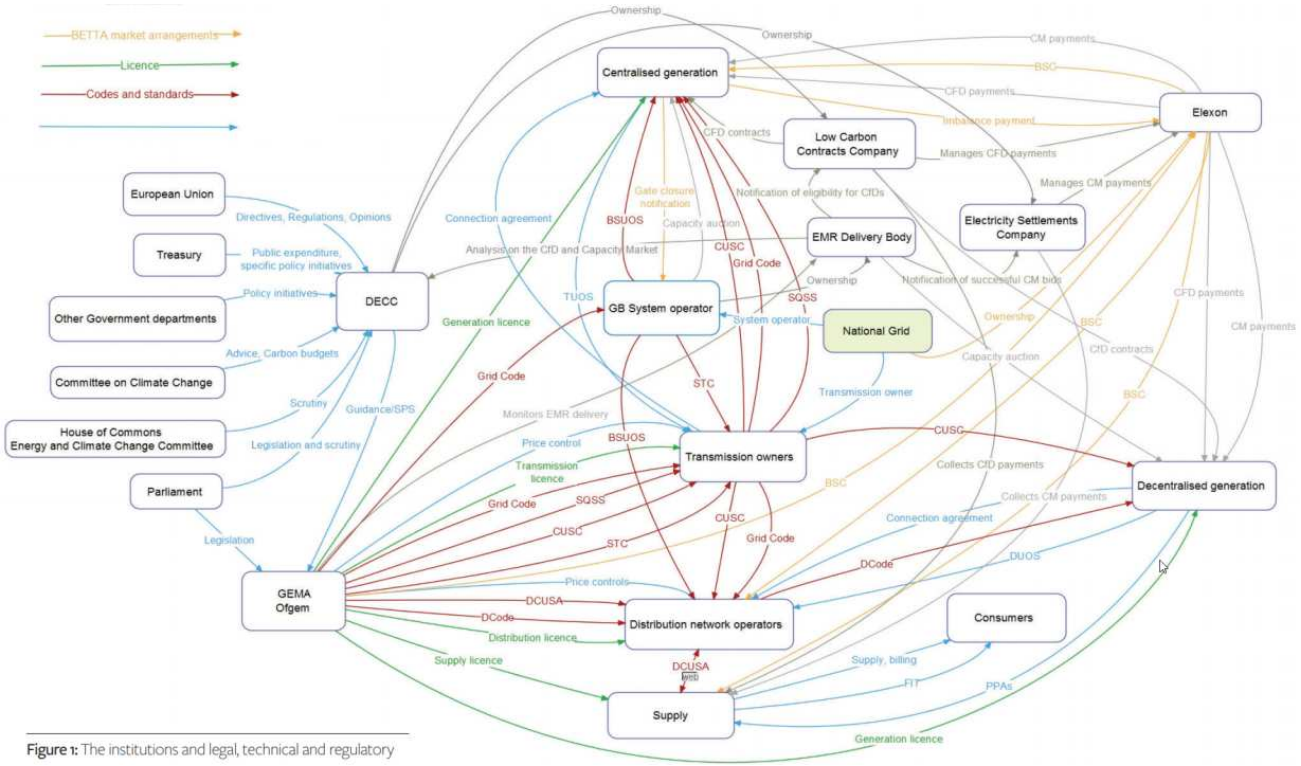


Figure 1: The institutions and legal, technical and regulatory

Ouch! – Complexity!

Could we be innovative in Kent

Conclusions

- There could be many solutions for future developments.
- Need some comprehensive policy, planning and technical co-ordination.
- It will need to be financed adequately.
- Could produce significant economic, social and environmental benefits if implemented.
- Need to plan now for 2025.