



All Energy – Vital Energi Decarbonising Heat

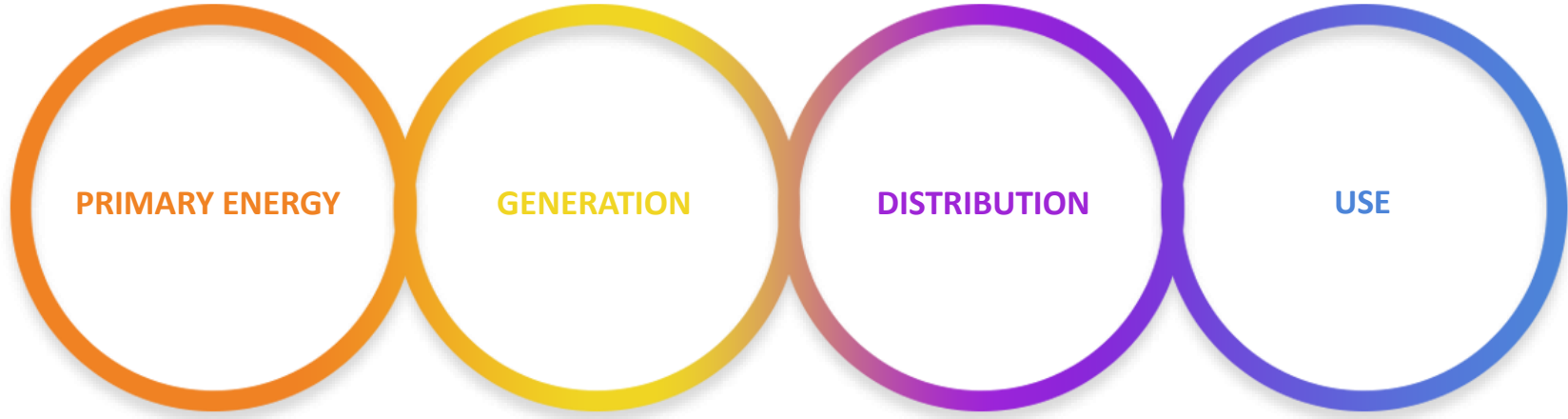
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The UK's leading innovator in efficient energy provision





PROCESS | example of an existing single low-density dwelling



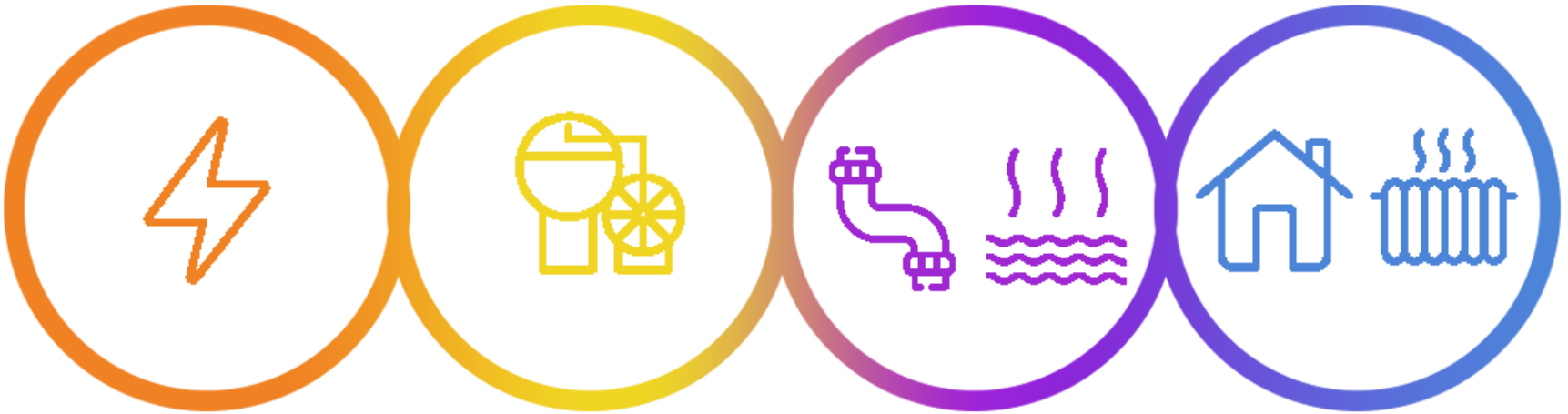
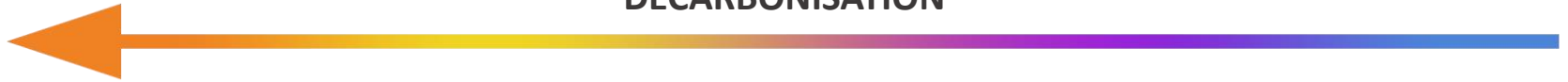
EXAMPLE





PROCESS | retrofit of an existing single low-density dwelling

DECARBONISATION



6. Switch to electricity

5. Install heat pump

3. Improve pipework insulation
4. Reduce hot water distribution temperature

1. Improve building insulation to reduce heat loss & heating consumption
2. Install thermostatic radiator valves & time clock control



WHY ISN'T EVERYONE DECARBONISING HEAT?



LACK OF IMPERATIVE

- > Generally, people want to do the right thing
- > Policy landscape is confusing, timescales aren't clear
- > Developers / homeowners are uncertain on what technology to choose

COST

- > Existing high carbon technologies are often cheaper
- > Changing to a low carbon solution will involve higher upfront cost and, possibly, a higher running cost

MULTIPLE DIFFERENT SOLUTIONS

- > Heat networks, individual heat pumps, electrical resistance heaters...etc

DIFFERENT SOLUTIONS NEEDED FOR SOME SECTORS

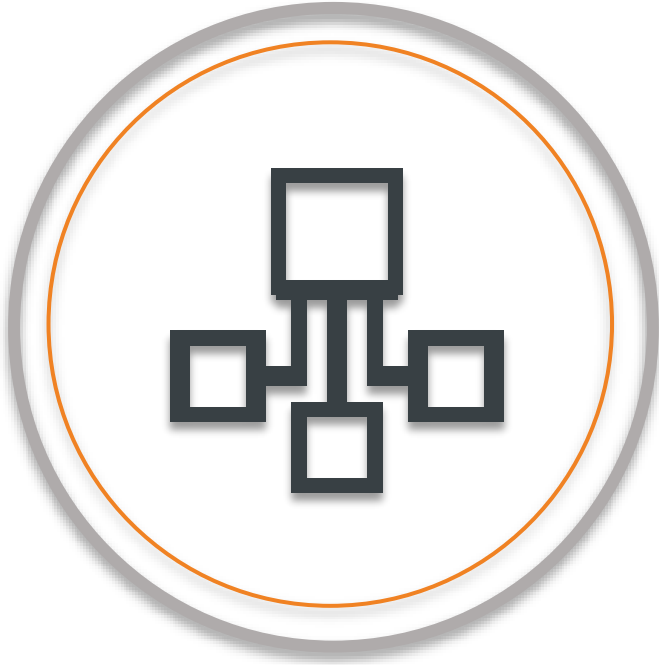
- > Higher temperatures needed for some industrial processes

MULTIPLE POTENTIAL GENERATION DECARBONISATION PATHWAYS

- > Electrification, hydrogen, biomass, carbon capture and storage
- > Each has challenges, and will rely on policy support mechanisms



POSSIBLE POLICY FRAMEWORK



- **Clear timescales** in which natural gas boilers can be installed (new build and retrofit)
- **Trajectory on carbon pricing** to 2050, with charges based on fossil fuel content of primary energy (climate change levy)
- **Zoning or zonal hierarchy** for heat networks or other low carbon technologies
- **Mandated building connections** in heat network zones with associated timeframe
- **Resolve geographical differences and uncertainties** created by SAP and Building Regulations compliance
- Allow gas fired CHP as a **transitional technology** for heat networks
- Level playing field for **heat network business rates** compared to other utilities
- Reallocation of low carbon policy costs (CfD, FIT, RO) from **electricity to all energy**
- Waste heat and/or **low carbon heat revenue incentive**



Case Study – Queens Quay



Queens Quay Heat Network Design, Build, Operate & Maintain

- The UK's first large scale water source heat pump development takes latent heat from the River Clyde to supply heat to the 23 hectare development via
- Will connect over 1,200 homes, commercial facilities and essential infrastructure such as health care with potential for more connections in the future
- Key energy centre equipment includes:
 - 2 x 2.6MW high temperature ammonia heat pumps
 - 2 x 7MW resilience boilers for back up
 - Futureproofed design with space for a further 2 x 2.6MW heat pumps and 1 x 7MW boiler
- Installation of vTherm^oe HIUs and Glass Smart App, when combined, our smart in-home technologies communicate to collect data that's used to enhance the network & boost efficiencies

Virtual tour: <https://my.matterport.com/show/?m=BR2QwAbcizg>