3.2 The benefits of heat pumps

Heat pumps are an extremely efficient way of providing heating and have multiple benefits compared to other heating technologies:

- **Heat pumps can operate with zero emissions**
  The ambient energy harnessed by the device is already renewable and, when powered by increasingly cheap, clean electricity, heat pumps can replace fossil fuels and provide zero-emissions heat.

- **Heat pumps are energy efficient and can substantially reduce primary energy consumption**
  They produce three to five times more useful energy than they consume by extracting useful heat from the environment. They can also utilise waste heat as an ambient heat source.

- **Heat pumps can play an important role in cooling**
  Reversible heat pumps can produce heating and cooling in a single appliance.

- **Heat pumps can help to decarbonise heating networks**
  Large heat pumps can play a central role in providing low-carbon heating and cooling to district heating networks.

- **Heat pumps can enable the use of more clean electricity**
  As well as increasing the demand for clean electricity, flexibly operating heat pumps can enable the cost-effective integration of variable renewable power sources, such as solar and wind.

- **Heat pumps are cost-efficient**
  Due to the energy savings that heat pumps provide, they can achieve running costs similar to or better than fossil fuel heating. Multiple national and international analyses show them as a critical, cost-effective technology for decarbonising heat.

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REGULATORY ASSISTANCE PROJECT