

# HOW HEAT PUMPS WORK

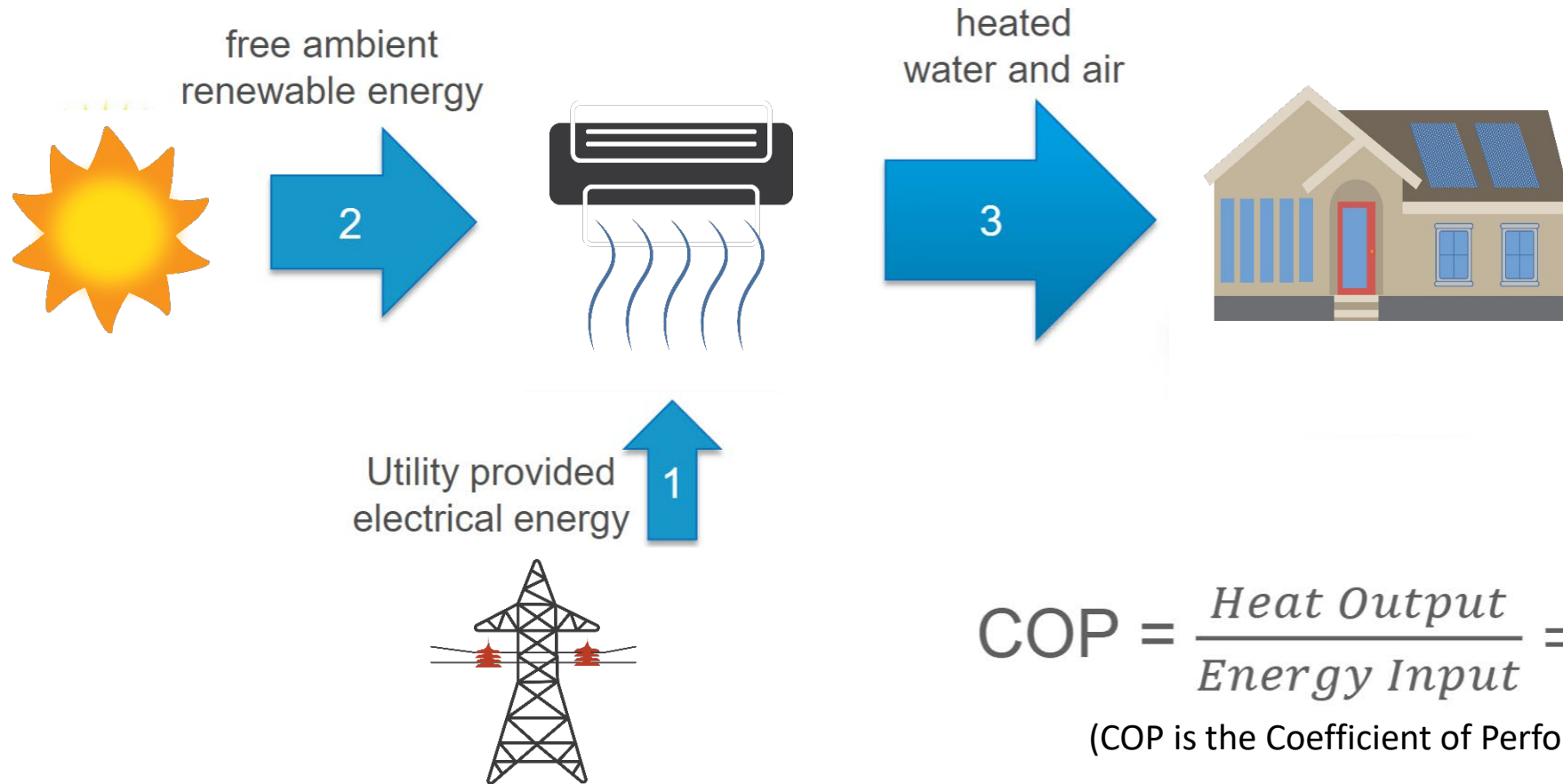
Heat pumps move heat, rather than create it.

- Heat pumps can remove heat from inside the building when in cooling mode
- They can collect and transfer heat into the building in heating mode
- Heat pumps operate like regular air conditioners when in cooling mode



# AIR SOURCE HEAT PUMP

*in heating mode*



# HEAT PUMP PERFORMANCE

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## Heat pump performance is temperature dependent:

- When it is cold outside, heat pumps must work harder to heat the building.
- When it is hotter, heat pumps must work harder to cool the building.
- Heat pumps operate most efficiently in mild climates and work effectively in a wide range of climate zones.



# HEAT PUMP BENEFITS

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- Approximately **50% energy use savings** for air-to-air heat pumps when compared with electric resistance heat, and typically provide savings when compared with combustion fuel-fired heating systems (though savings vary depending on the local cost of fuel).
- With increasingly renewable electricity supply, **heat pumps can reduce greenhouse gas emissions** associated with building heating with compared with the use of combusted fuels.
- Heat pumps can economically provide **both heating and cooling in one system.**
- **Reliability:** heat pumps are comparable to other types of combustion fuel-fired heating systems in terms of life and maintenance needs.