

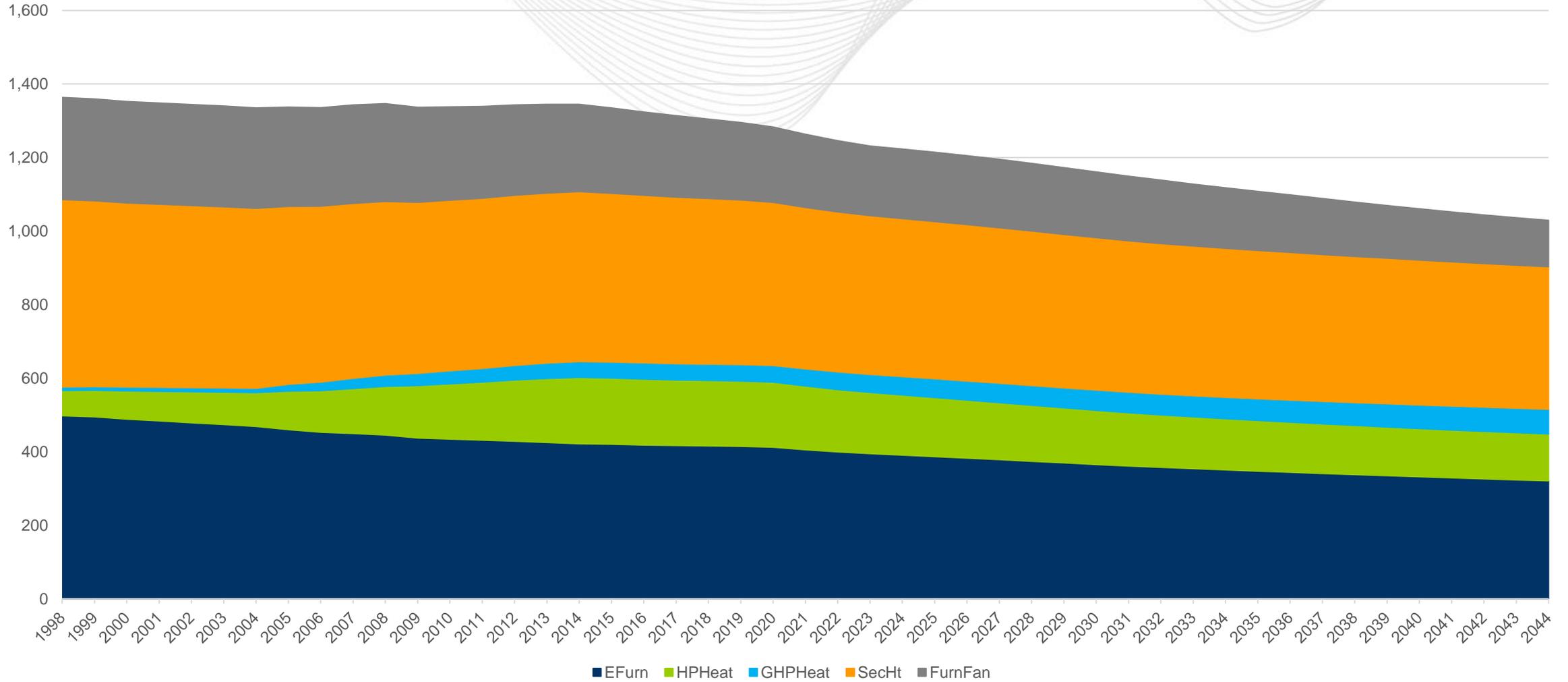
# End-Use Input Variables

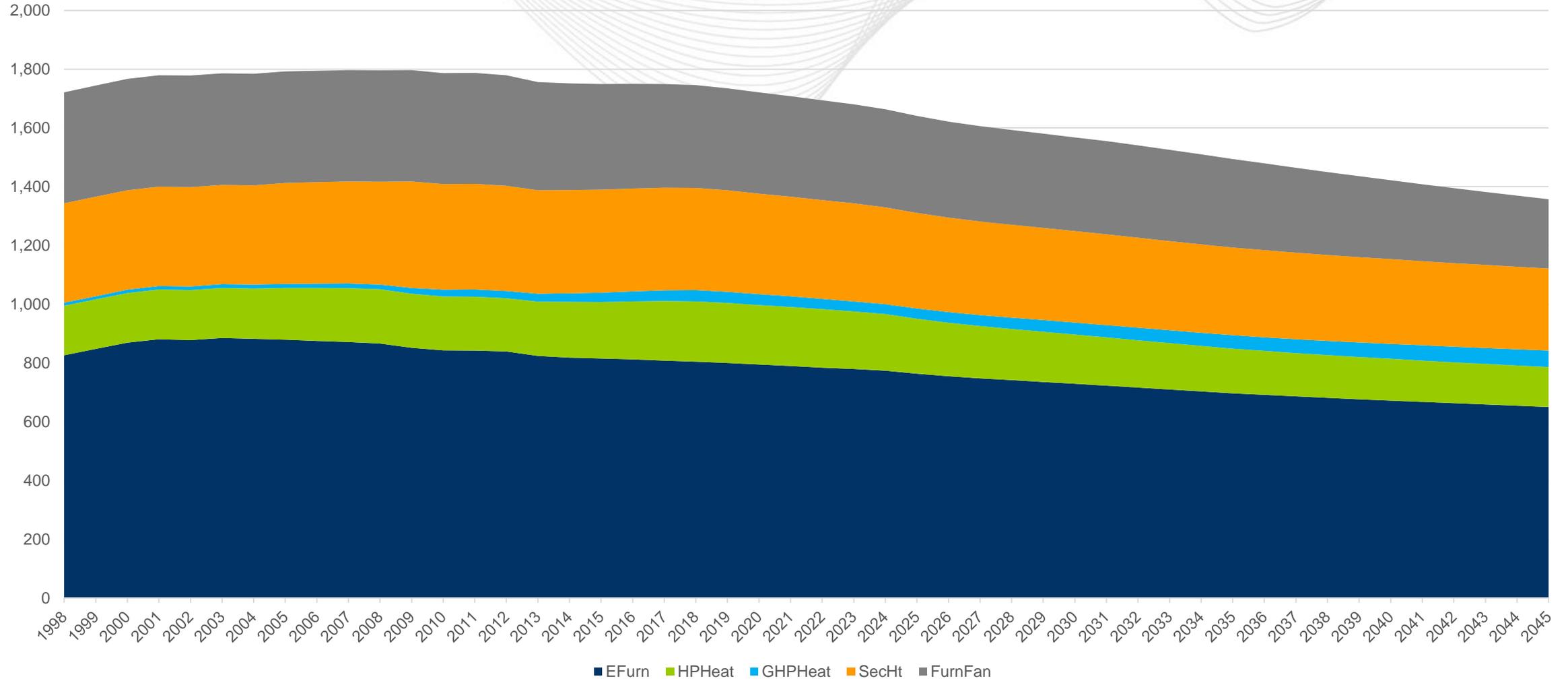
- PJM uses data obtained from Itron on end uses, which is drawn from data from the Energy Information Administration's 2023 Annual Energy Outlook.
- The following slides provide information on the various input history and forecasts for Residential and Commercial sectors by Census Division.
- Residential and Commercial data are intensities, which are the effects of appliance saturation adjusted for efficiency. For Residential this is expressed as kwh per customer. For Commercial this is expressed as kwh per square foot.

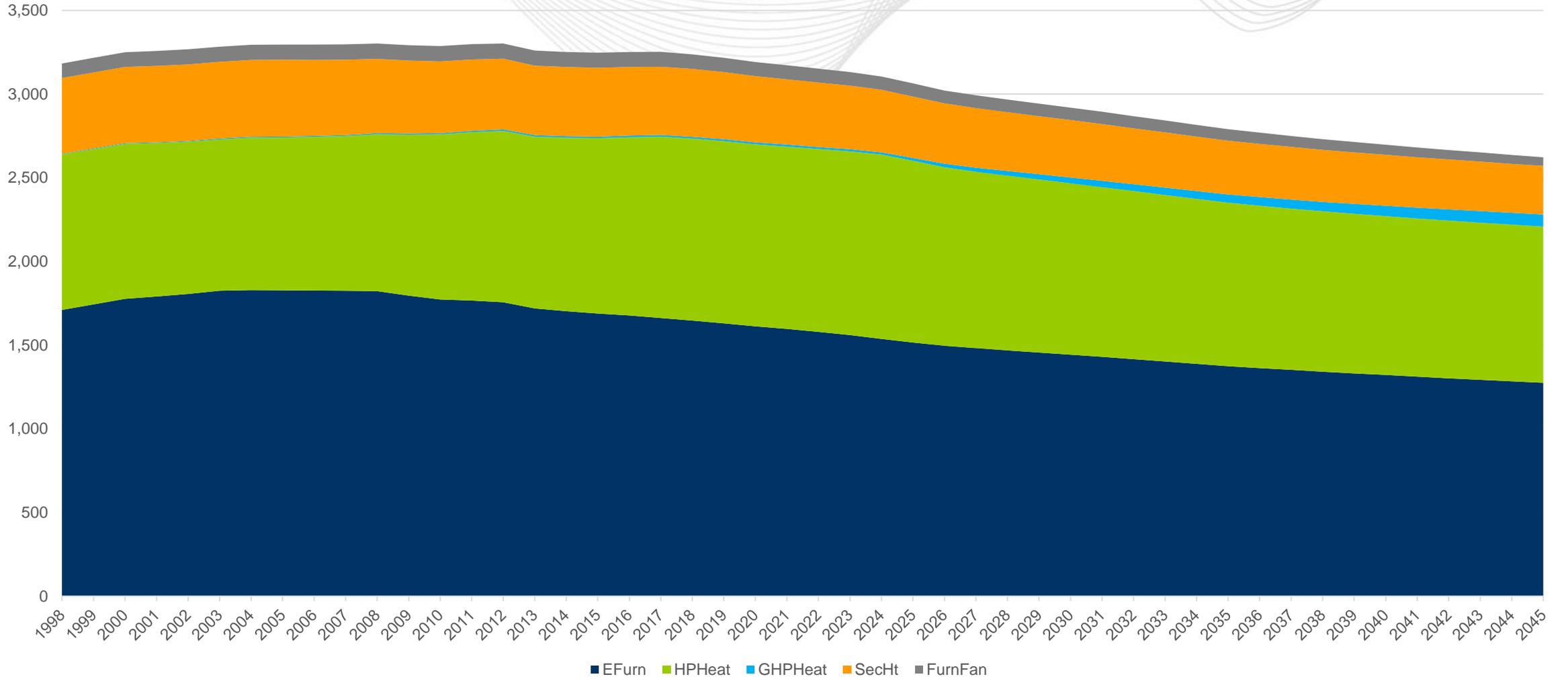


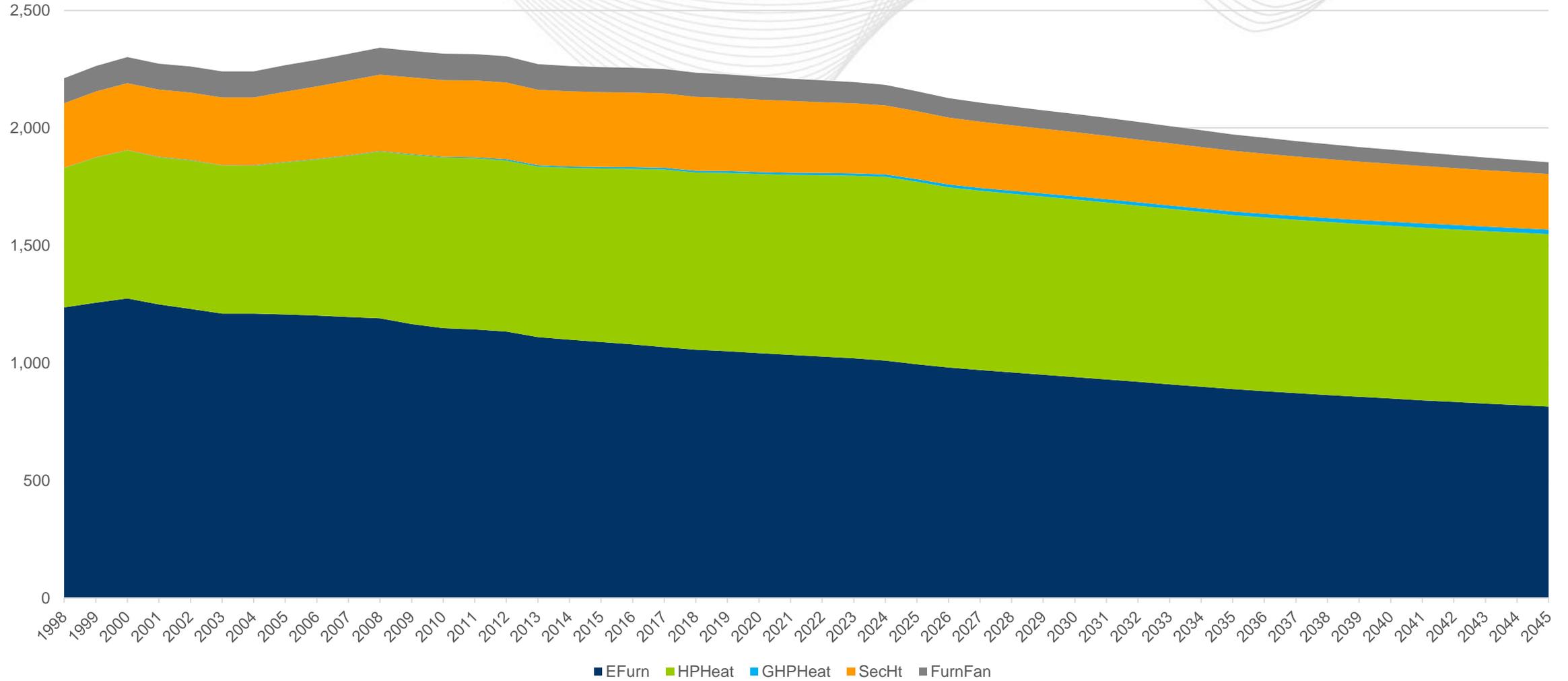
# Residential: Heating

- Heating
  - Electric furnace and resistant room space heaters
  - Heat pump space heating
  - Ground-source heat pump space heating
  - Secondary heating
  - Furnace fans
- Figures include building shell impacts





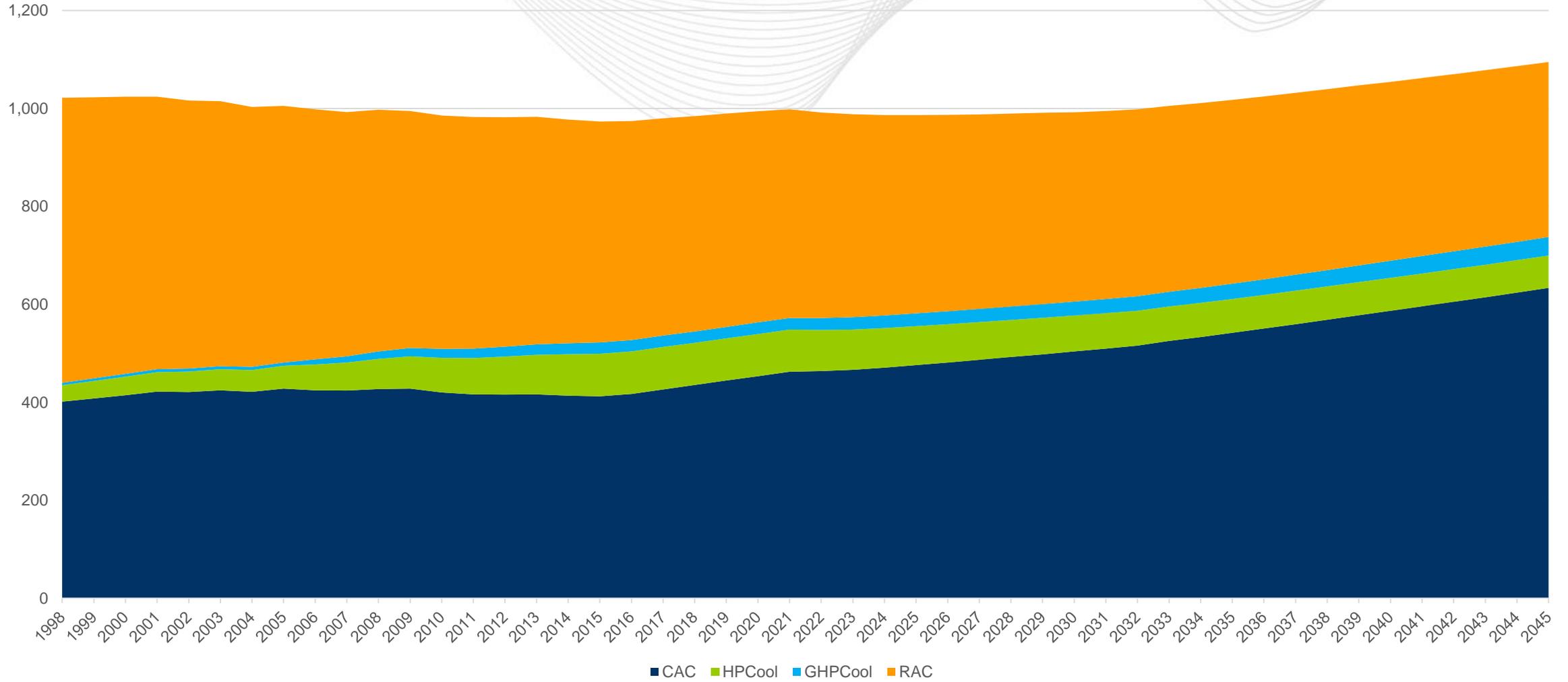


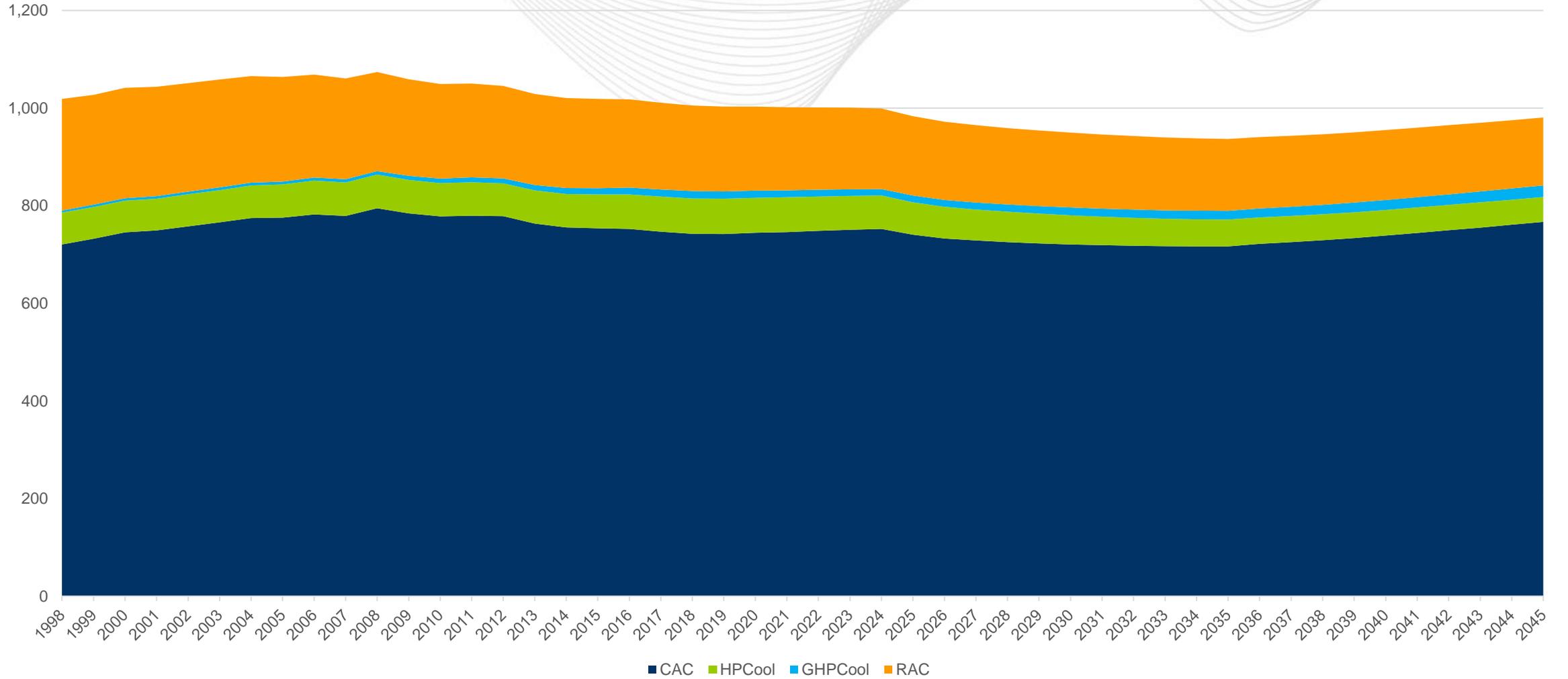


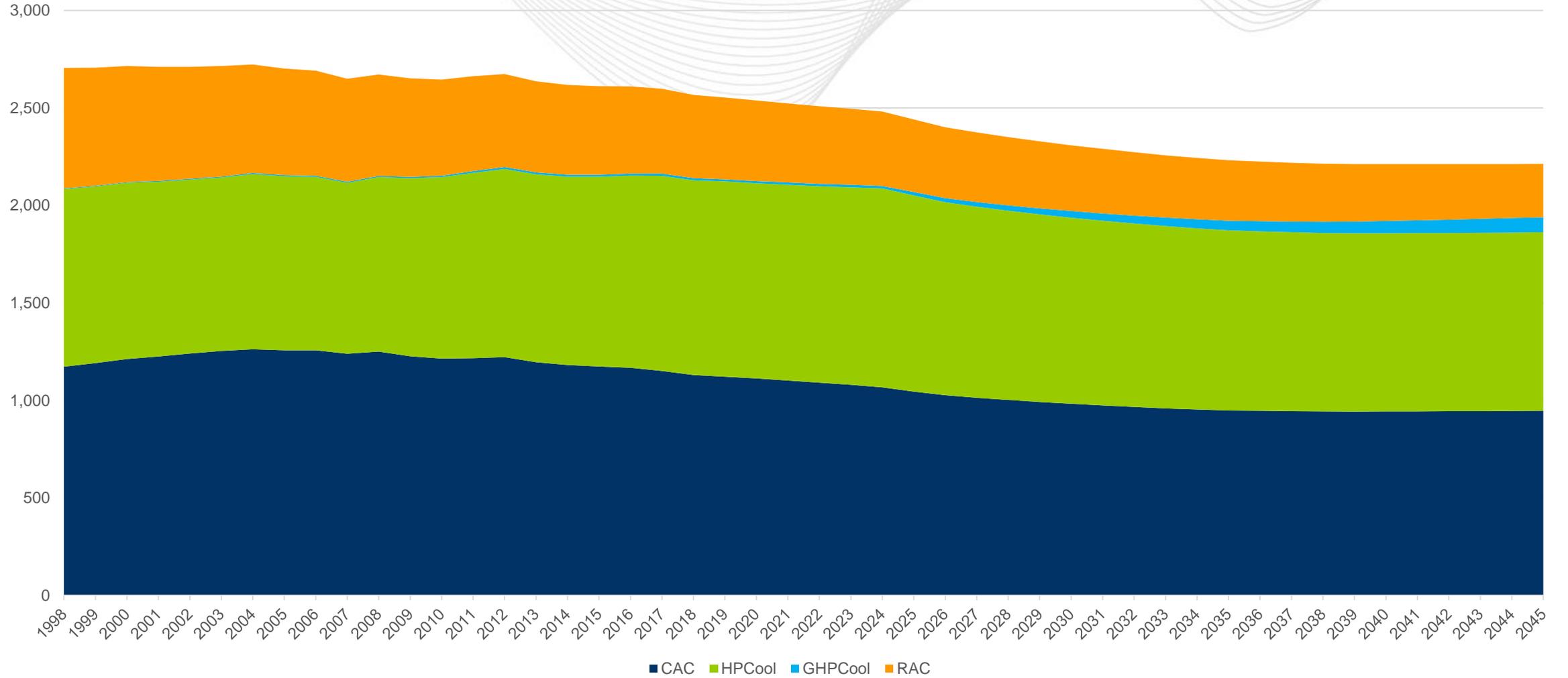


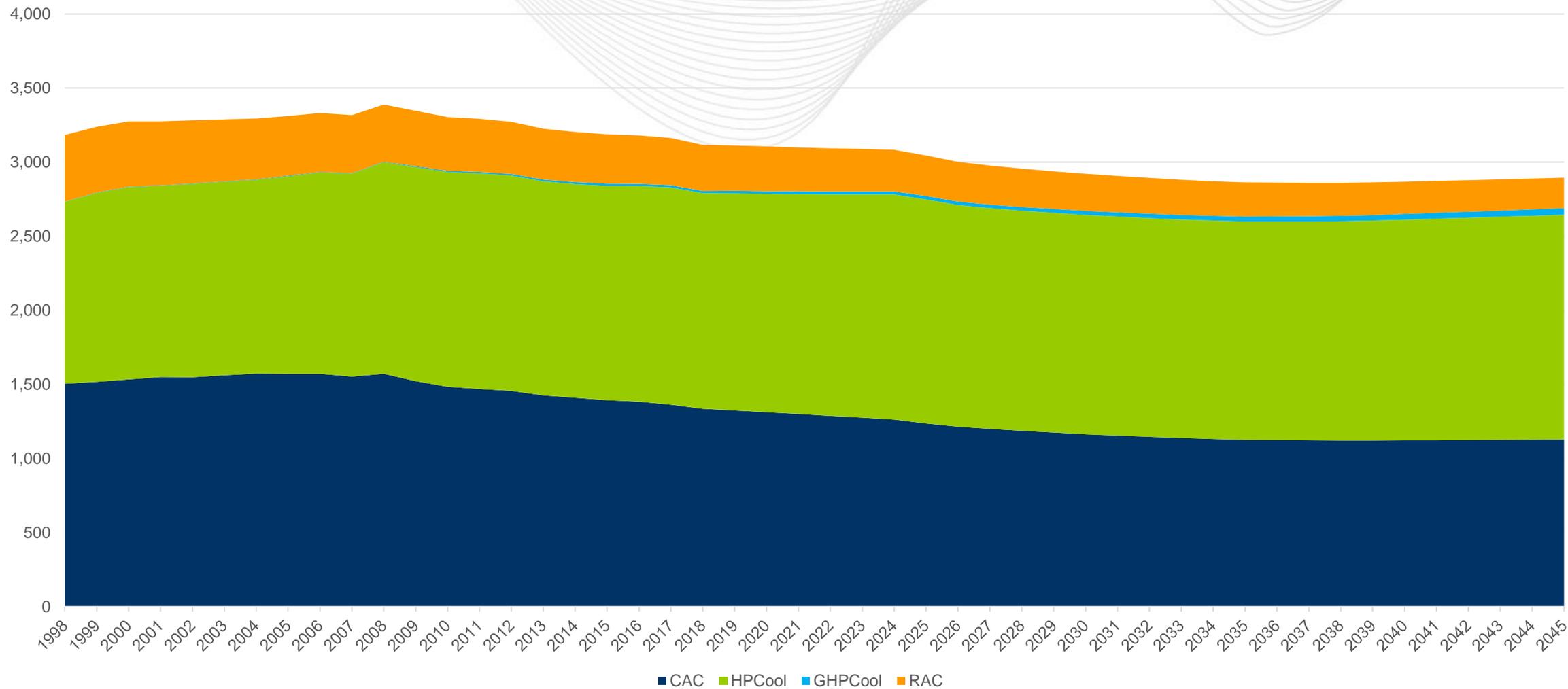
# Residential: Cooling

- Cooling
  - Central air conditioning
  - Heat pump space cooling
  - Ground-source heat pump space cooling
  - Room air conditioners
- Figures include building shell impacts







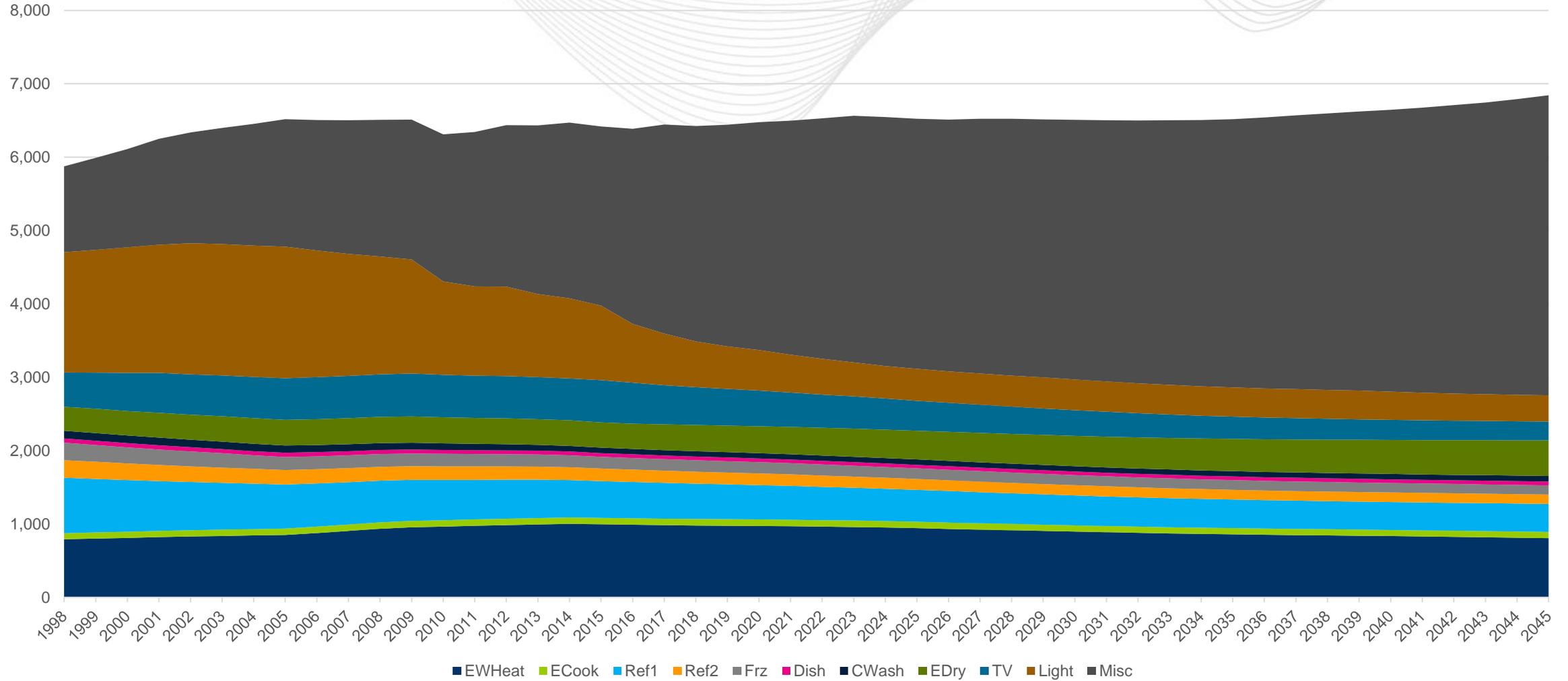


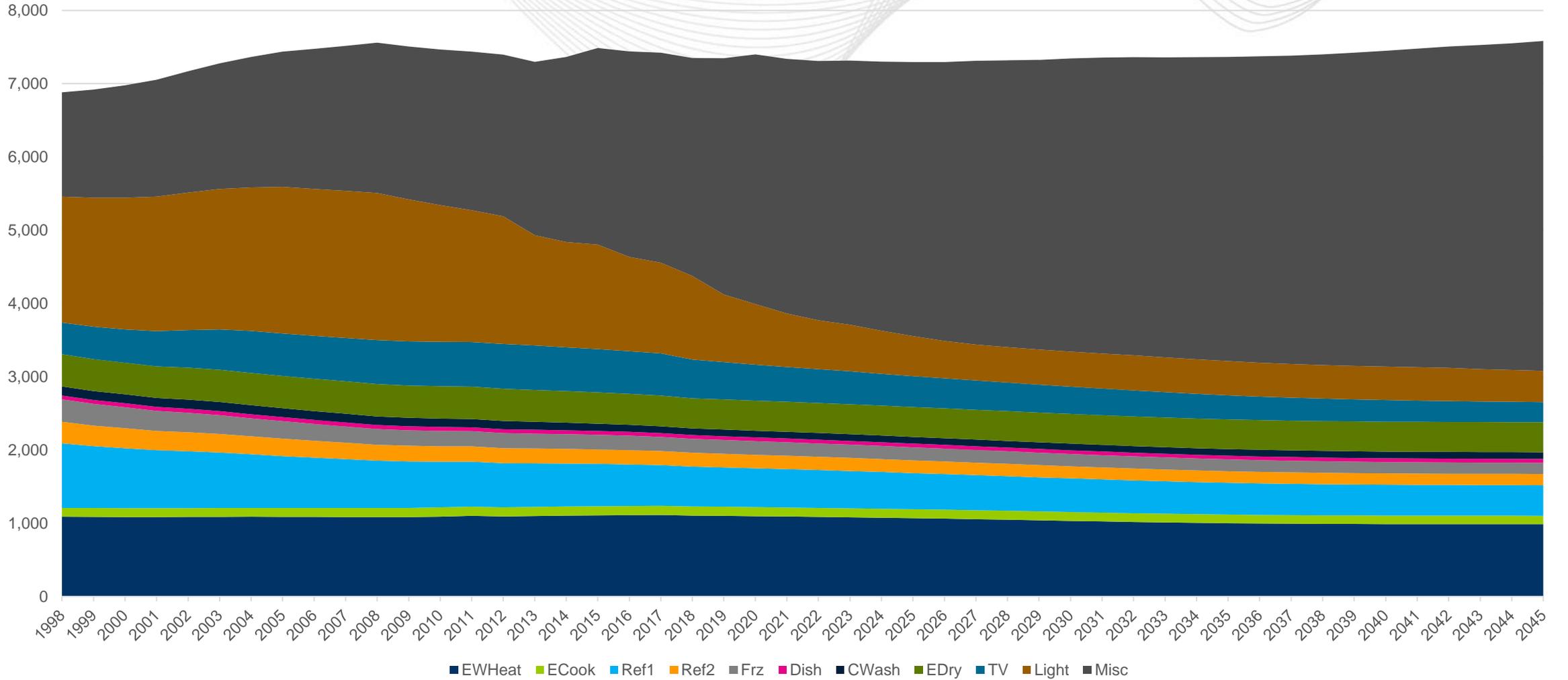
# Residential: Other

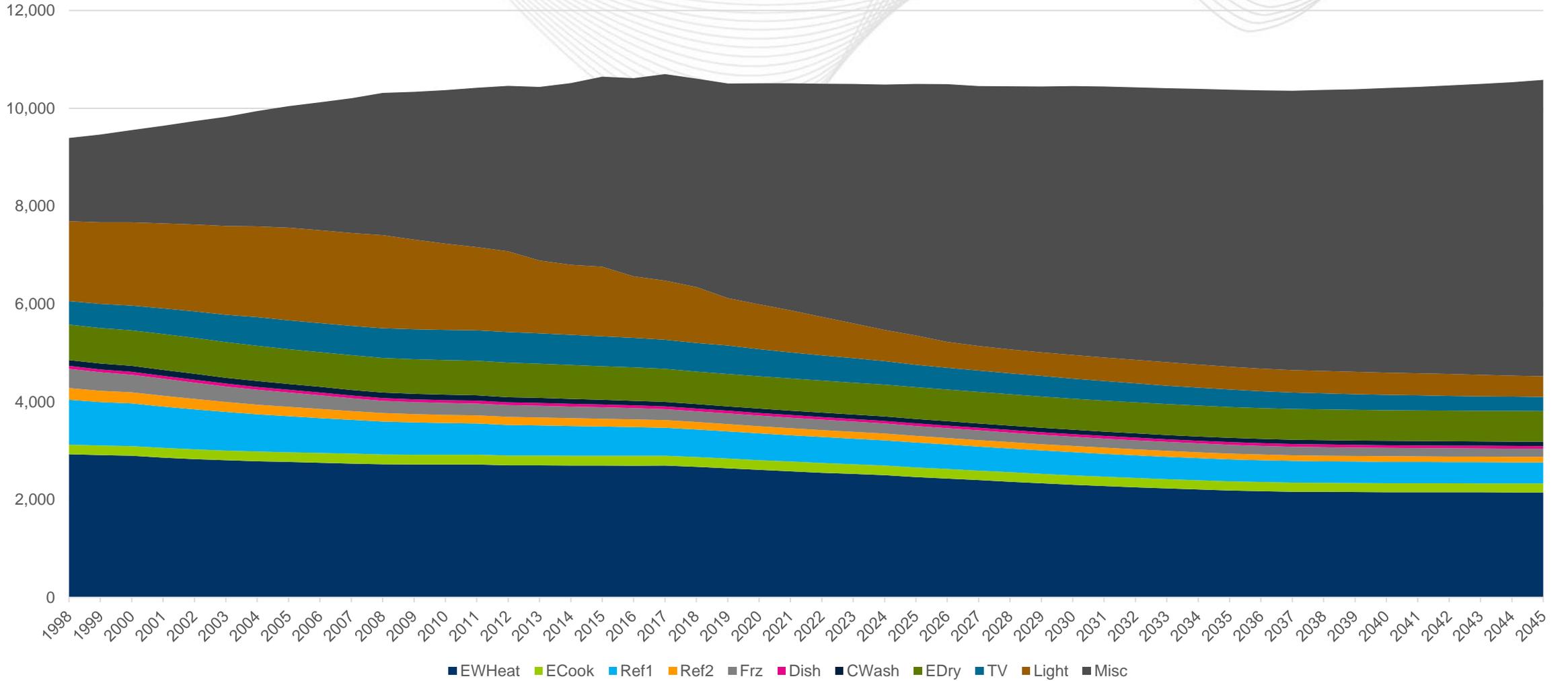
- Other

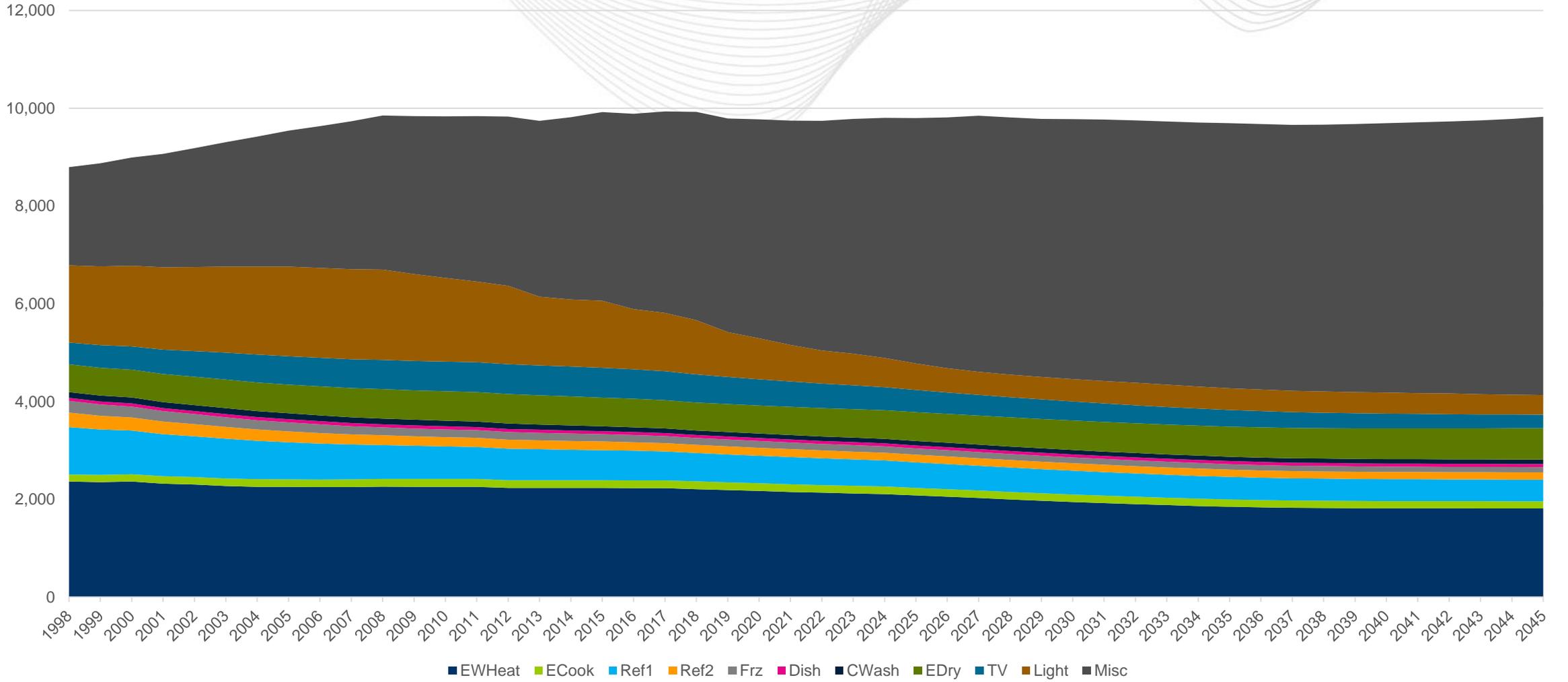
- Electric water heating
- Electric cooking
- Refrigerator
- Second refrigerator
- Freezer
- Dishwasher

- Electric clothes washer
- Electric clothes dryer
- TV sets
- Lighting
- Miscellaneous electric appliances

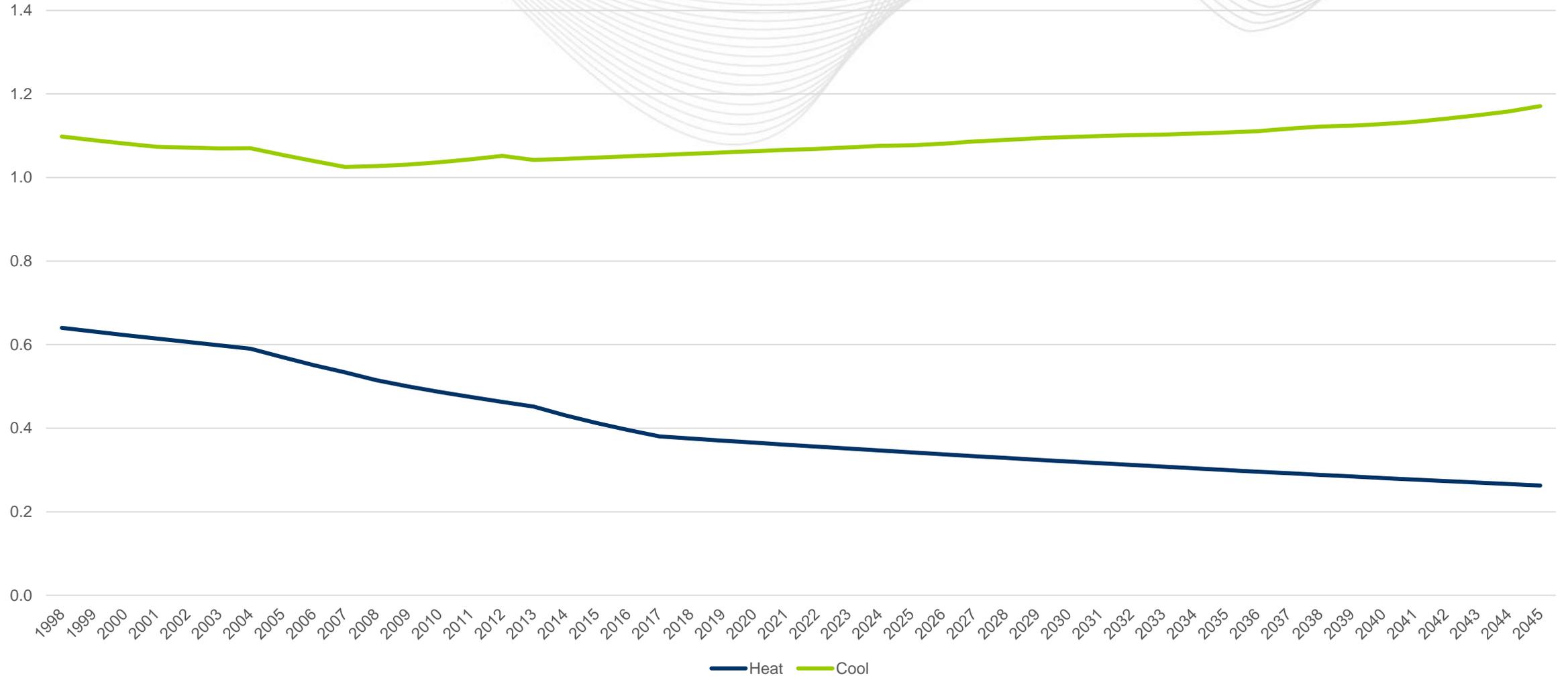


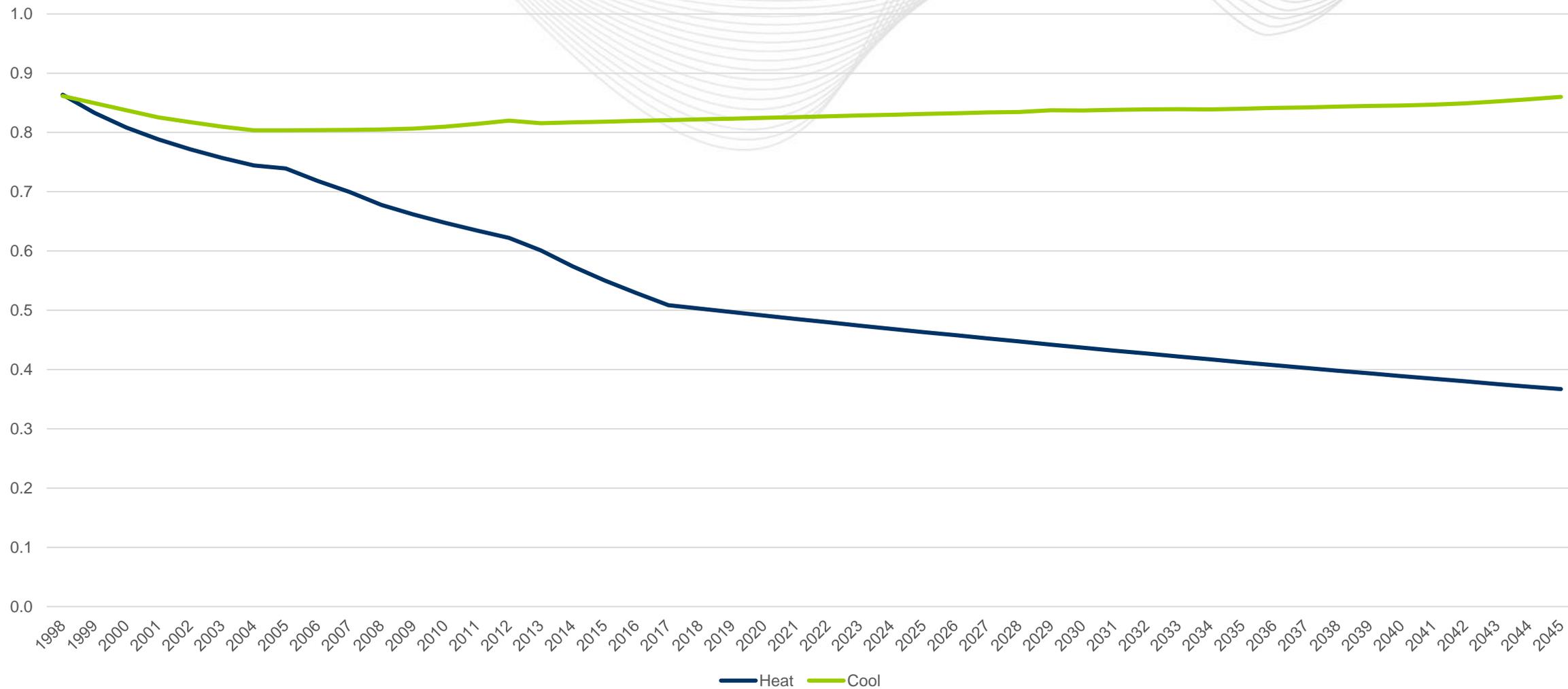


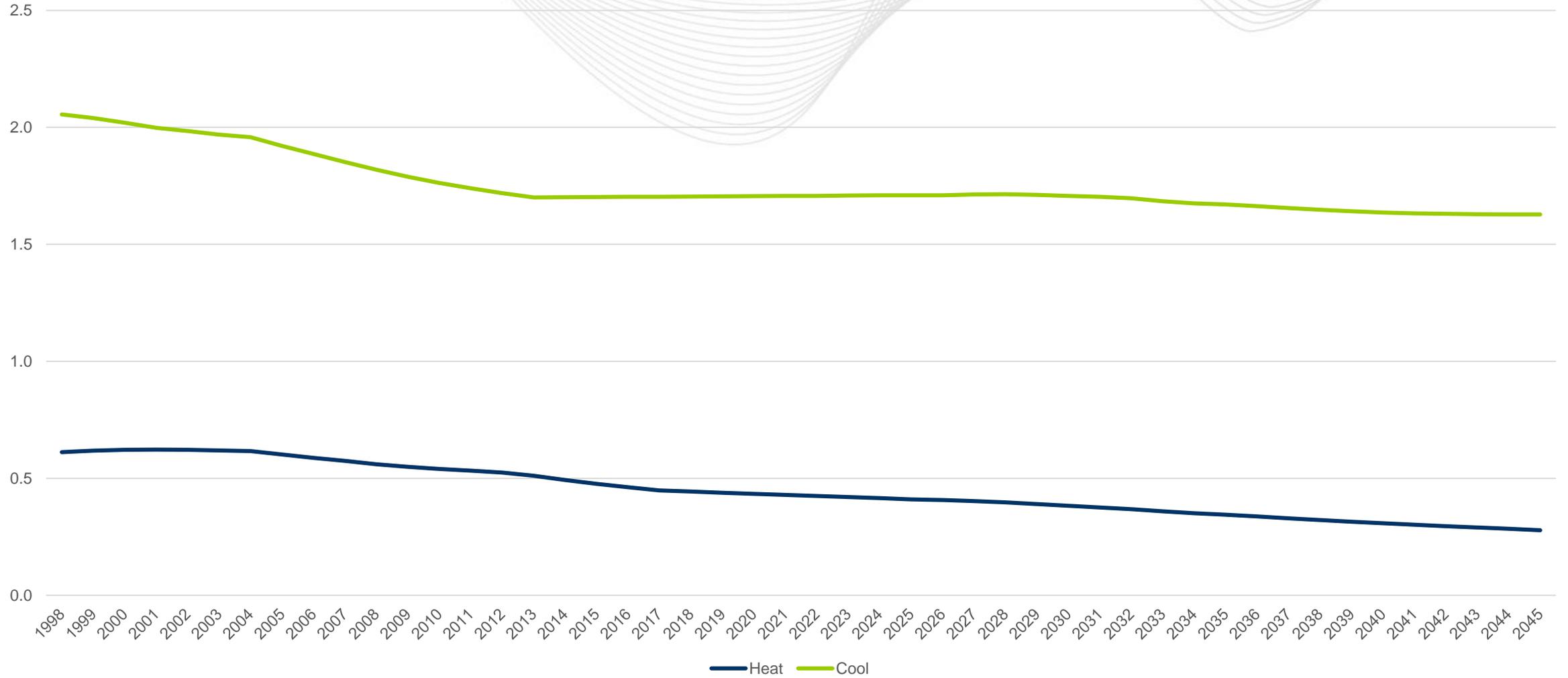


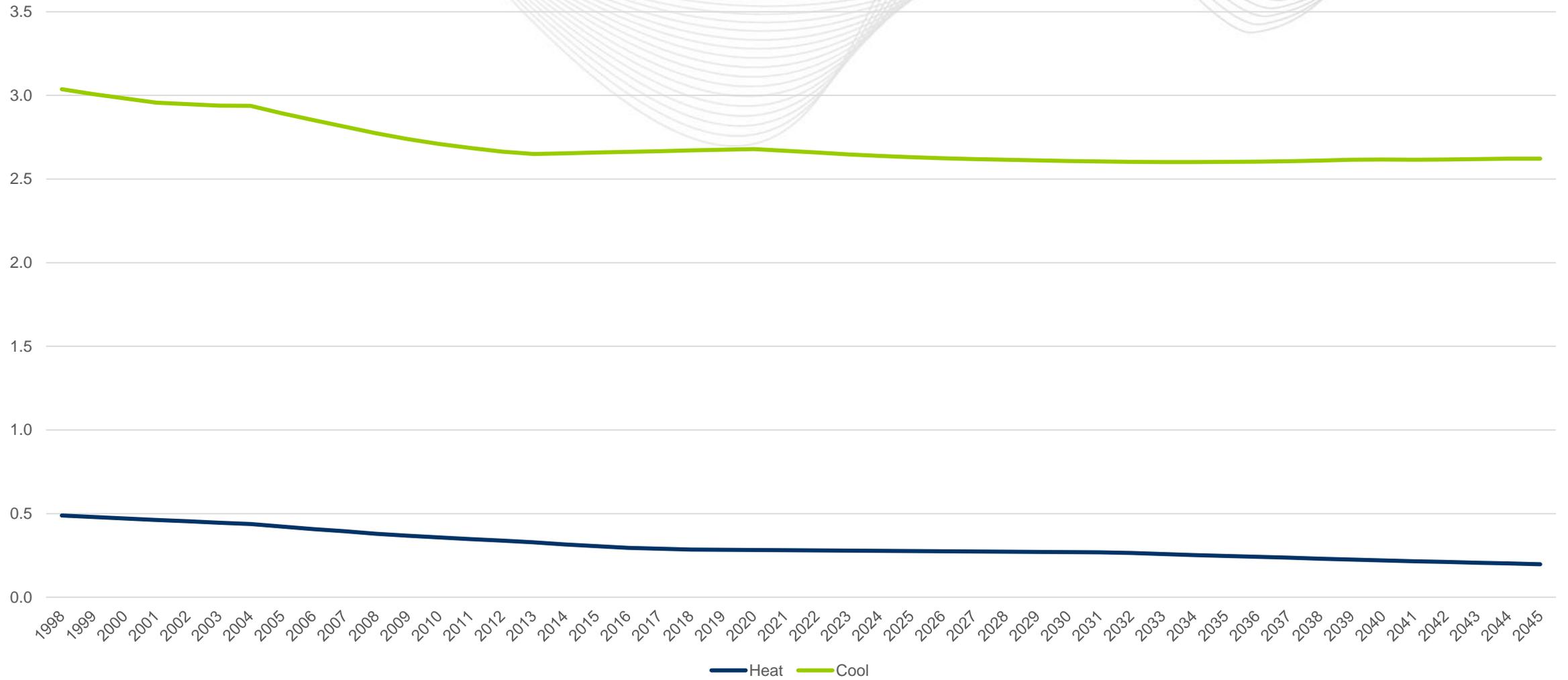


# Commercial: Heating and Cooling



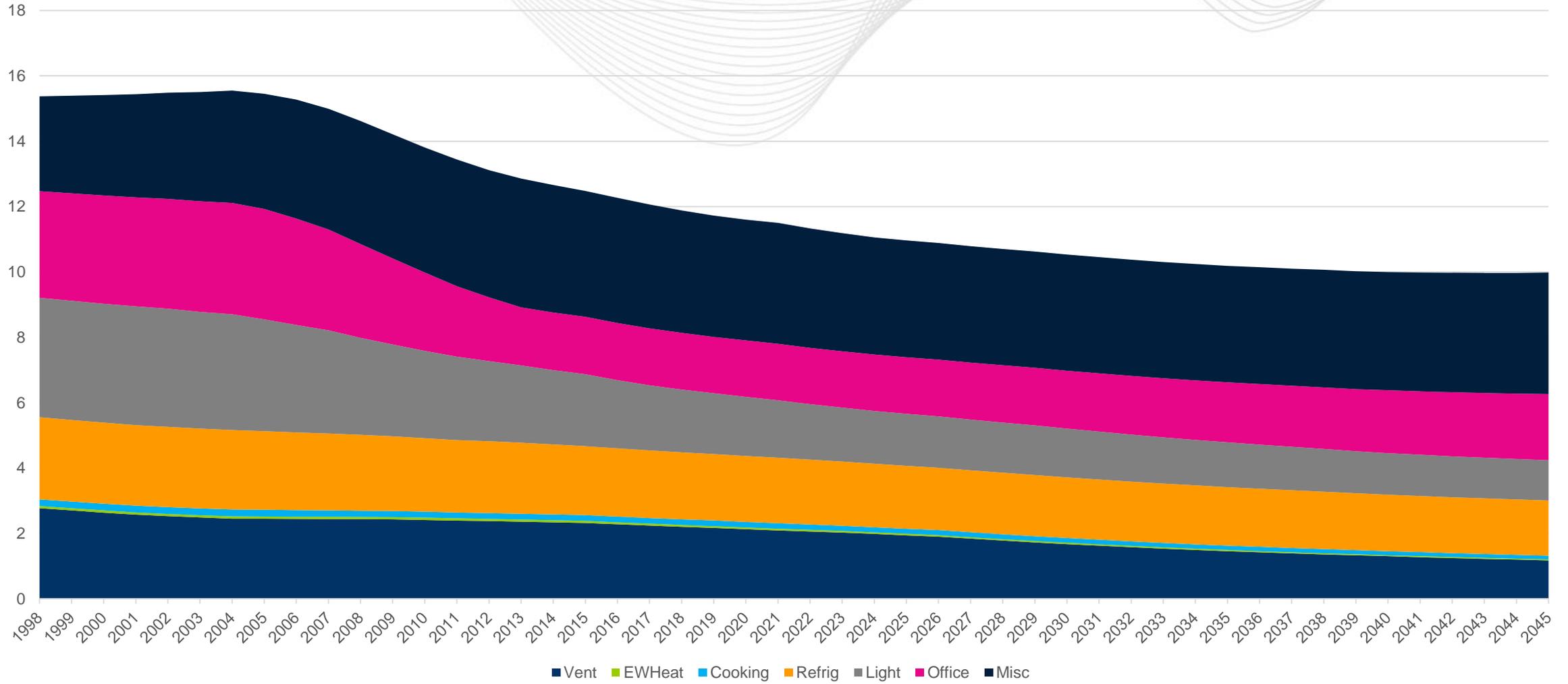


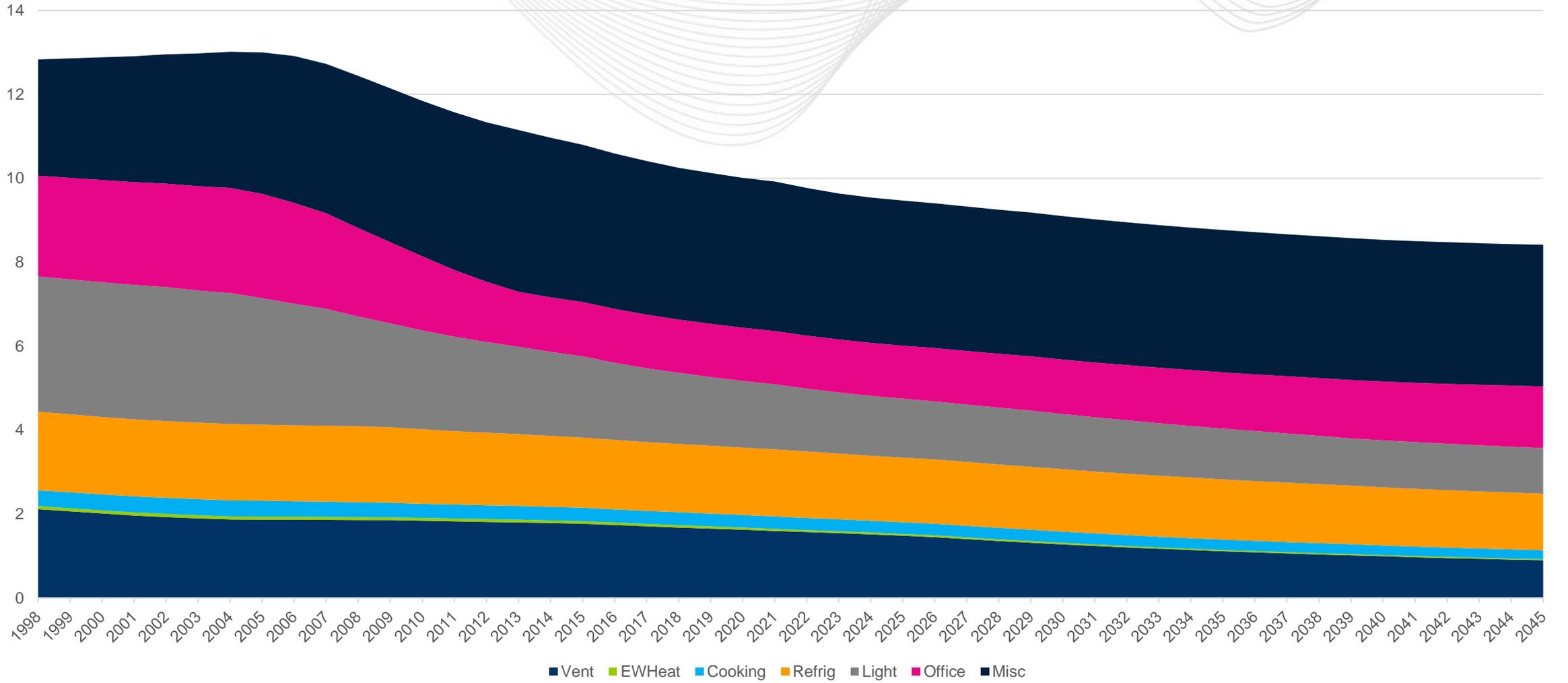


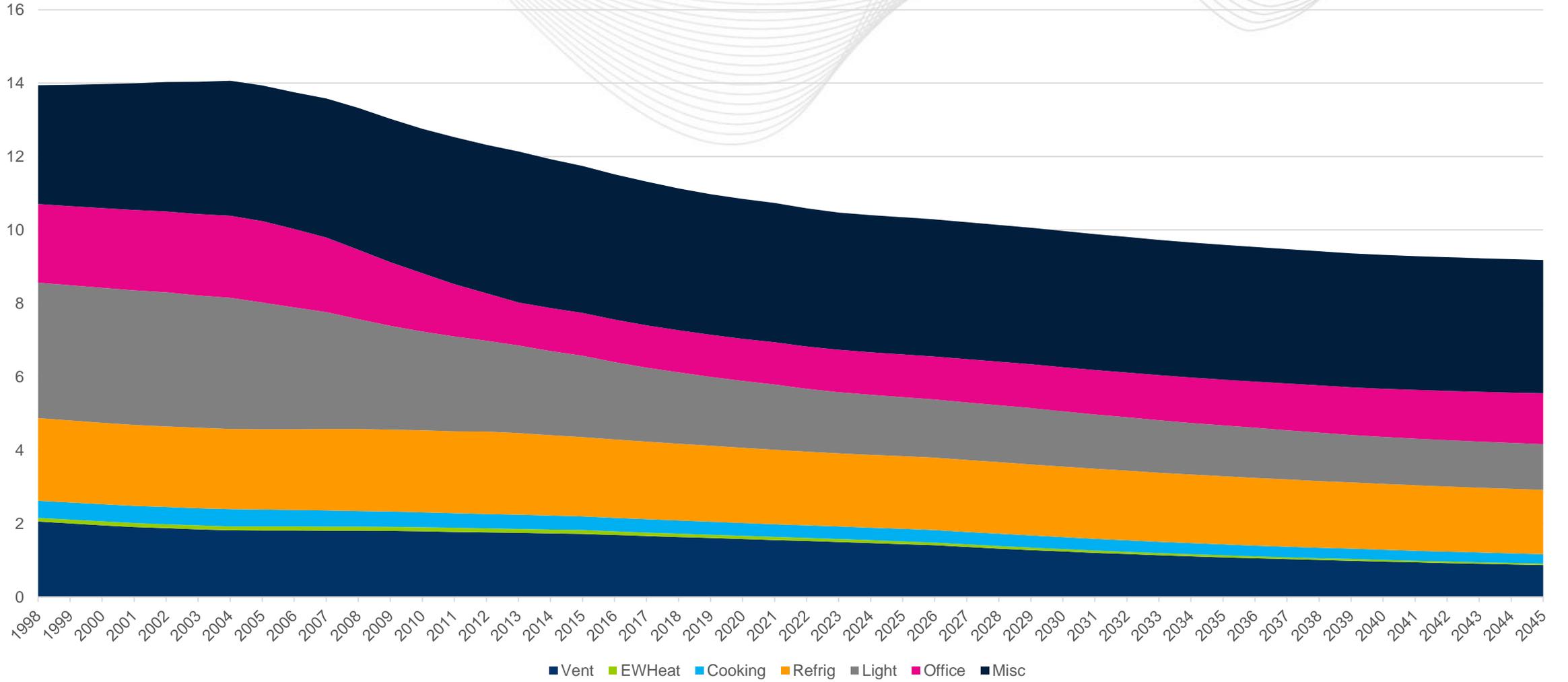


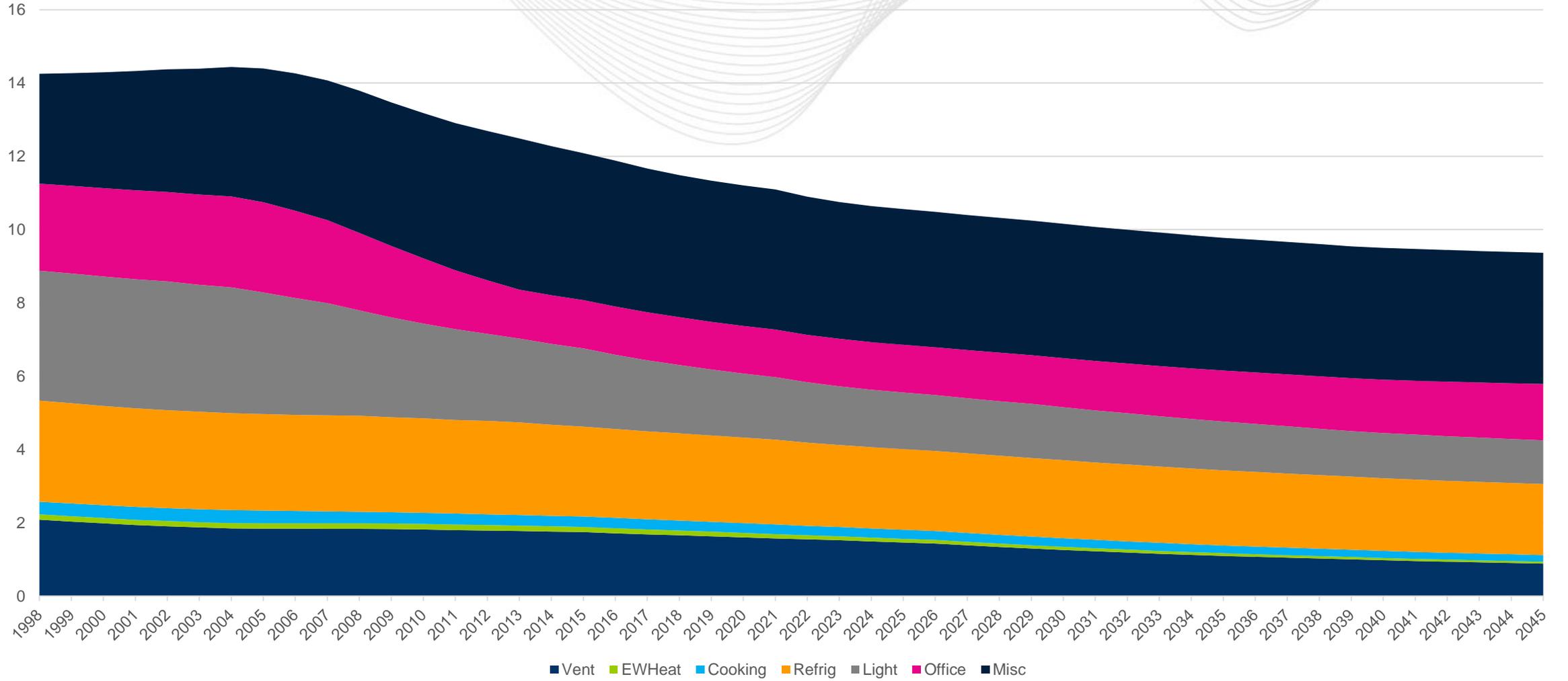
# Commercial: Other

- Other
  - Ventilation
  - Water Heating
  - Cooking
  - Refrigeration
  - Lighting
  - Office Equipment
  - Miscellaneous







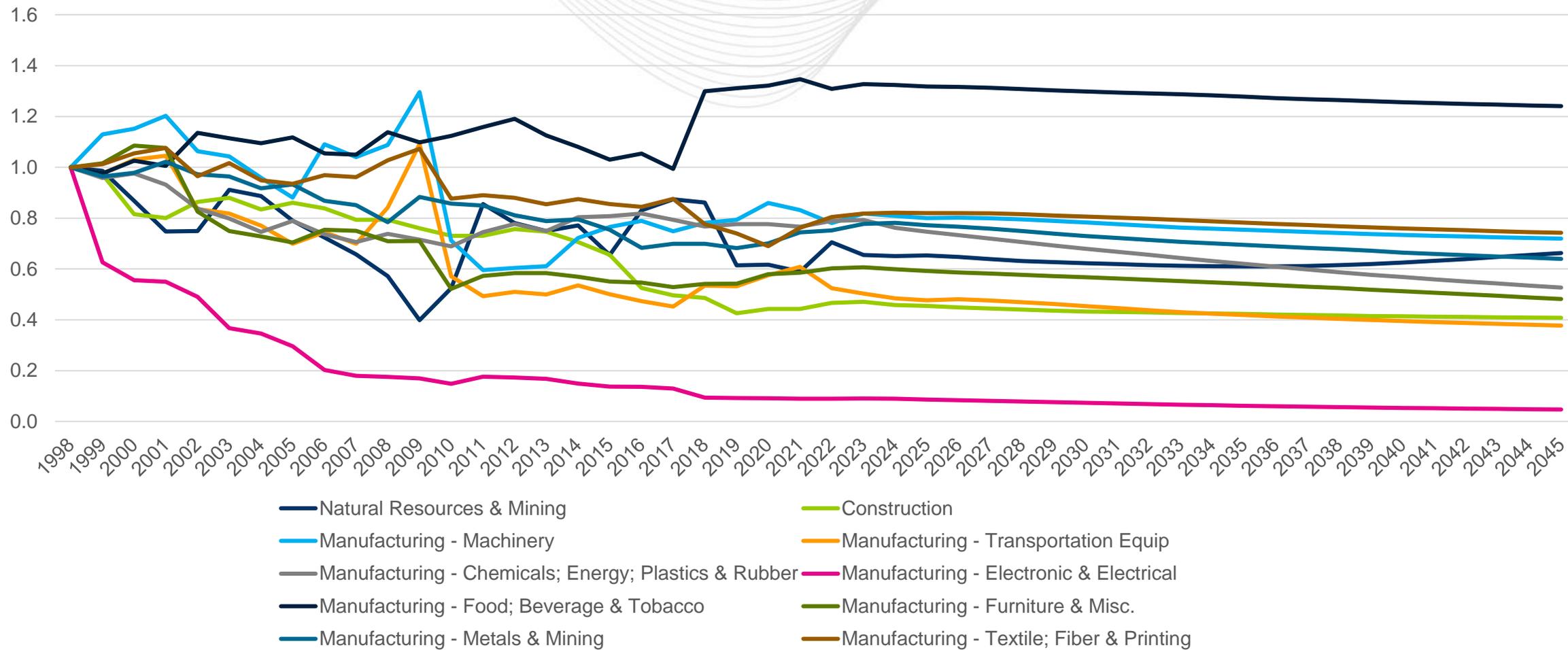


# Industrial Intensity

# Intensity by Industry

## Electric Use per Real Output (1998 = 1.0)

Intensity by Industry





# Industrial Intensity by Zone

## Electric Use per Real Output (1998 = 1.0)

