

# Degree Day Analysis

January 25, 2026

Multi-City Energy Demand Comparison

HIGHEST ENERGY DEMAND

**Chicago, IL**

TOTAL DEGREE DAYS

**1509**

LOWEST ENERGY DEMAND

**Houston, TX**

CITIES ANALYZED

**5**

## Energy Demand Comparison

City	HDD (Heating)	CDD (Cooling)	Total DD	Dominant Load
<b>Chicago, IL</b>	1509	0	<b>1509</b>	Heating
<b>Denver, CO</b>	1156	0	<b>1156</b>	Heating
<b>Seattle, WA</b>	889	0	<b>889</b>	Heating
<b>Miami, FL</b>	23	438	<b>460</b>	Cooling
<b>Houston, TX</b>	271	166	<b>437</b>	Heating

## Energy Planning Implications

City	Avg Temp	HVAC Sizing	Peak Season
<b>Chicago, IL</b>	1.4°C	Heating-dominant system	Winter
<b>Denver, CO</b>	5.3°C	Heating-dominant system	Winter

<b>Seattle, WA</b>	8.2°C	Heating-dominant system	Winter
<b>Miami, FL</b>	22.6°C	Cooling-dominant system	Summer
<b>Houston, TX</b>	16.9°C	Heat pump optimal	Winter

### Key Insights:

- Total degree days indicate overall HVAC energy consumption potential
- HDD/CDD balance determines optimal equipment type (heat pump vs single-purpose)
- Cities with balanced HDD/CDD benefit most from reversible heat pumps

**Methodology:** Degree days calculated using 18°C (65°F) base temperature. HDD =  $\sum_{\text{max}(0, 18 - \text{Tavg})}$  for heating demand. CDD =  $\sum_{\text{max}(0, \text{Tavg} - 18)}$  for cooling demand. 90-day analysis period from Open-Meteo ERA5 data.

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Data Source: Open-Meteo API (ERA5)