

Adaptive Systems Lab

ETH Zürich 2017 - 2018

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Architecture and Building Systems
ETH Zurich

Prof. Dr. Arno Schlüter
Moritz Begle
Dr. Prageeth Jayathissa

Quick Evaluation - Internal Only

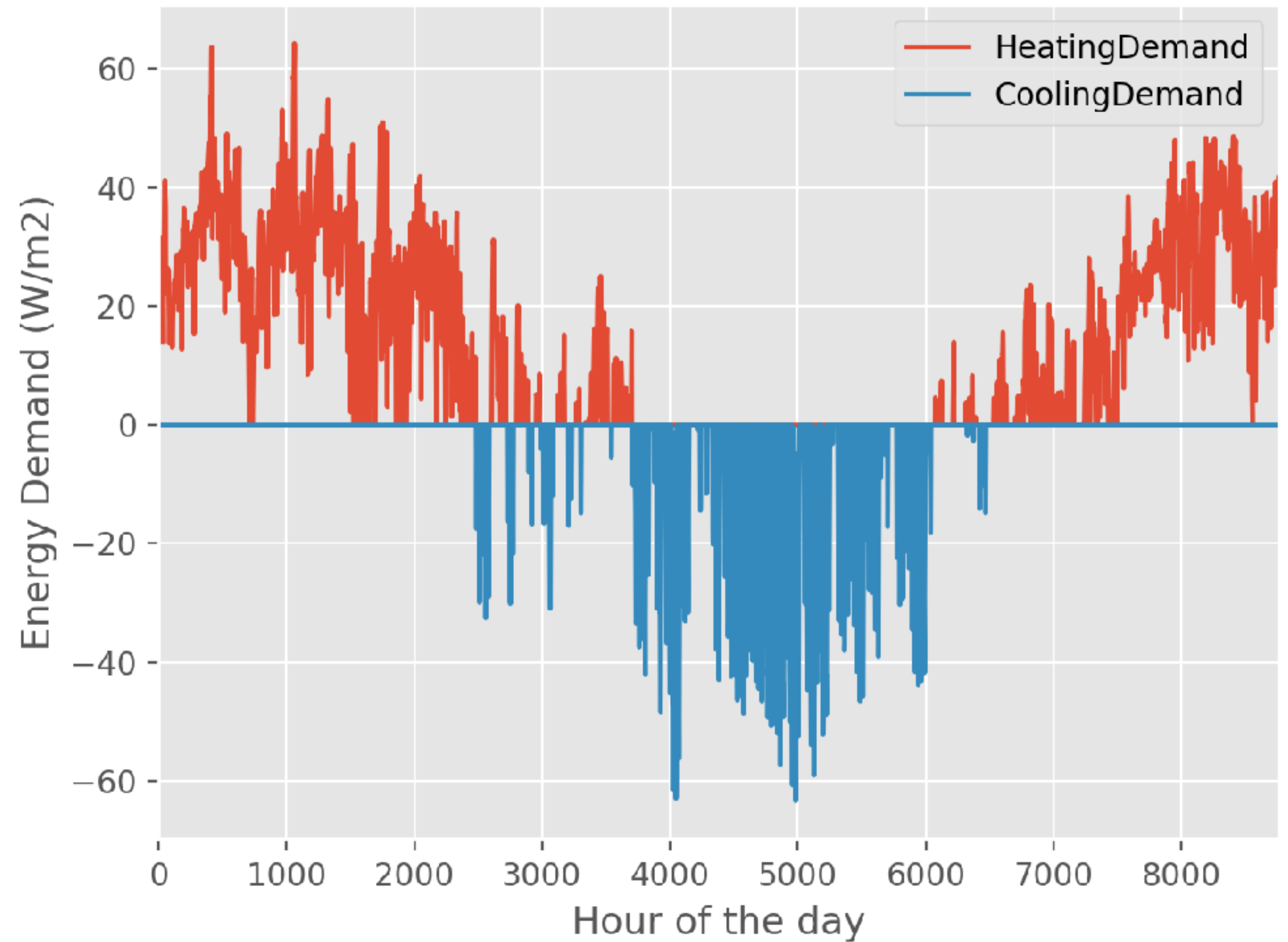
Note

- All these graphs were produced within an hour
- It is a quick evaluation for internal discussion only
- Data has not been validated or double checked
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Workspace Area

Assumptions

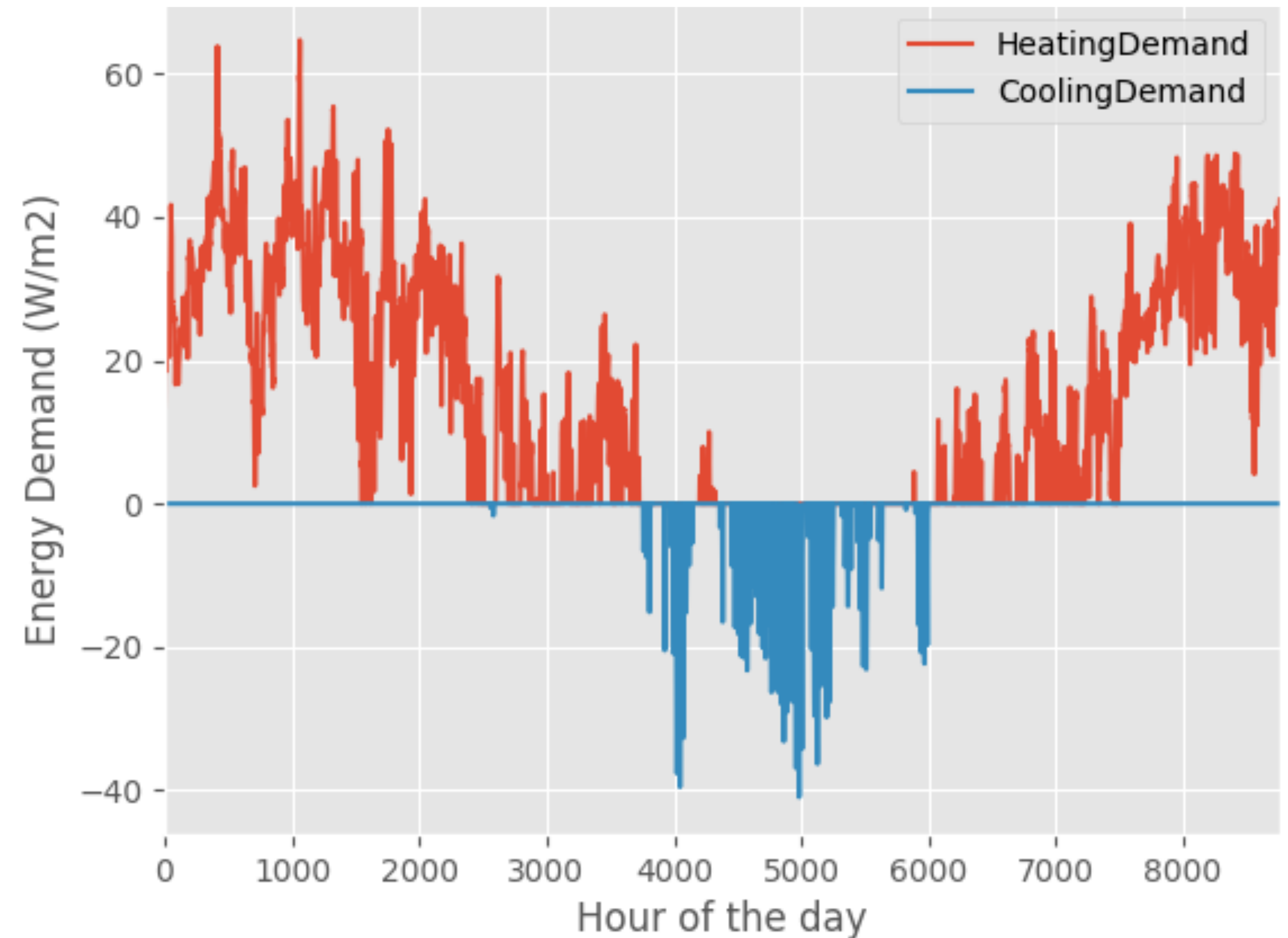
- U-wert Glass: 0.8
- U-wert Dach: 0.5
- G-Value: 0.19
- Arbeitsfläche (~80m²)



Workspace Area - reduce solar gains by a factor of 4 (shading, g-value or less windows)

Annahmen

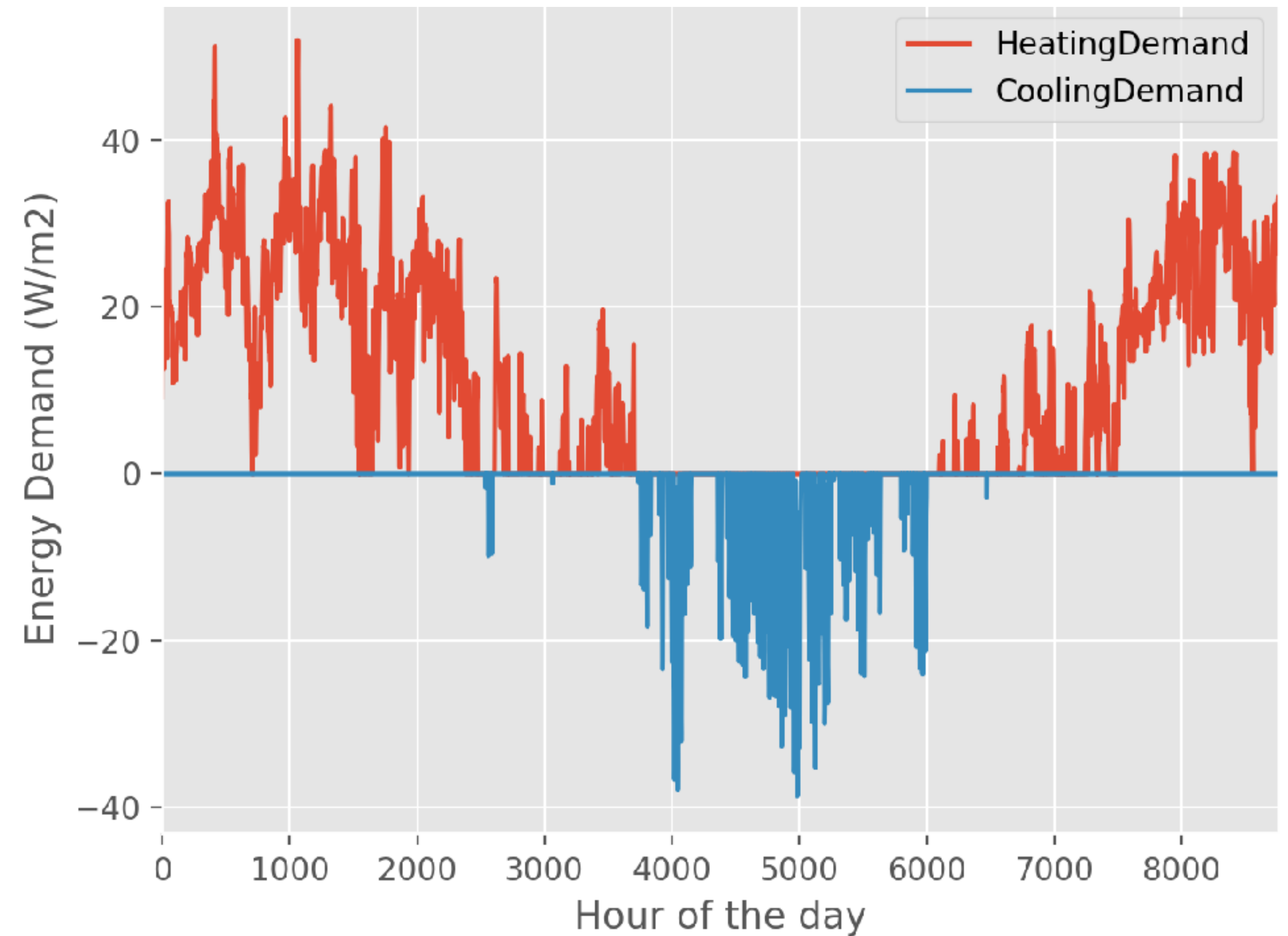
- U-wert Glass: 0.8
- U-wert Dach: 0.5
- G-Value: **0.19/4**
- Arbeitsfläche (~80m²)



Workspace Area - reduce u-value of glass to 0.2

Annahmen

- U-wert Glass: **0.2**
- U-wert Dach: 0.5
- G-Value: **0.19/4**
- Arbeitsfläche (~80m²)



Machine Room

Annahmen

- U-wert Glass: 0.8
- U-wert Opaque Wall: 0.2
- G-Value: 0.19
- Arbeitsfläche (~140m²)
- No heating or cooling
- **No internal gains!! (as they are unknown)**

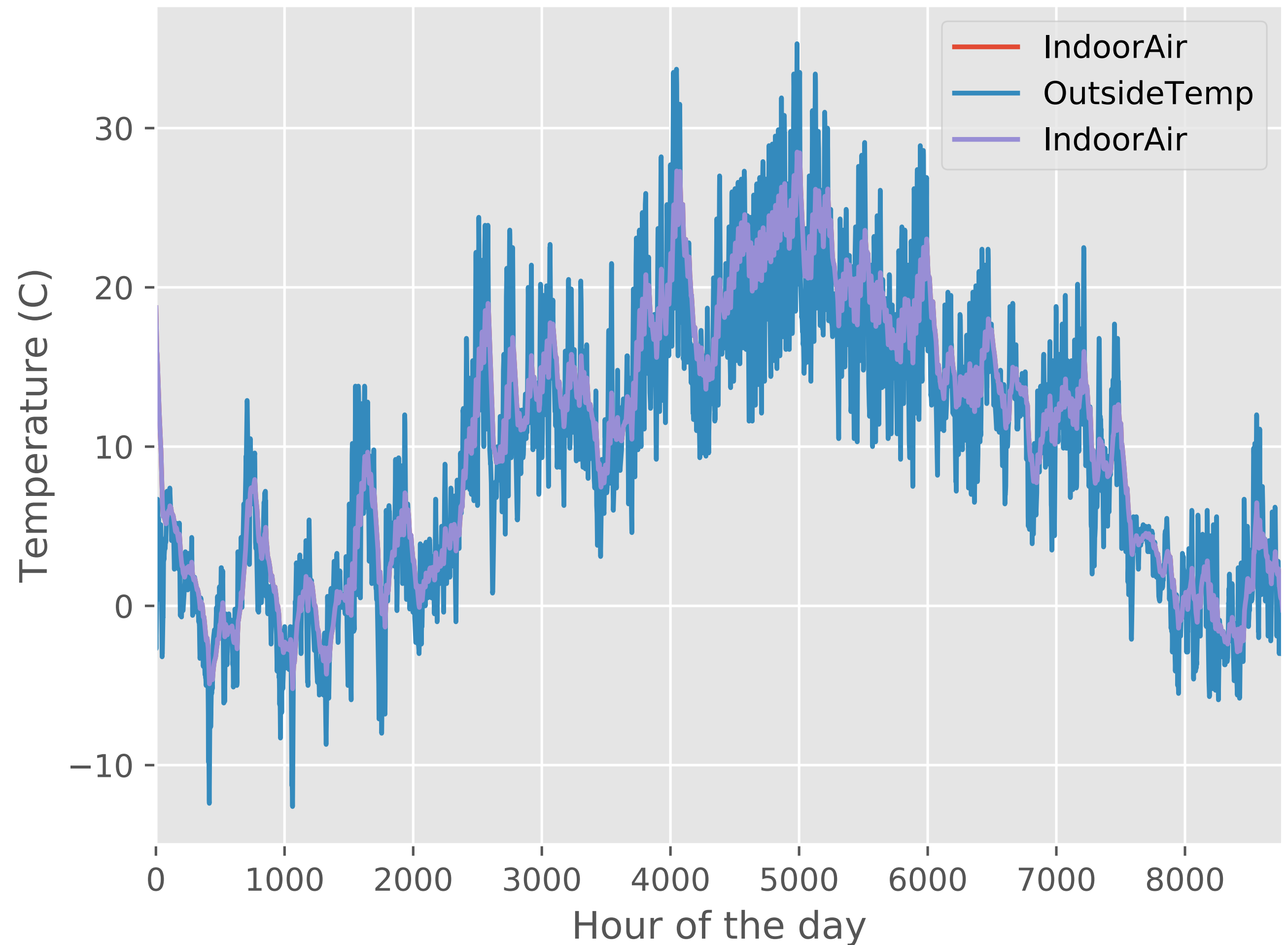


Machine Room - Sage glass always on (G=0.03)

Annahmen

- **U-wert Glass: 0.6**
- U-wert Opaque Wall: 0.2
- **G-Value: 0.03 (just for a simple calc)**
- Arbeitsfläche (~140m²)
- No heating or cooling
- **No internal gains!! (as they are unknown)**

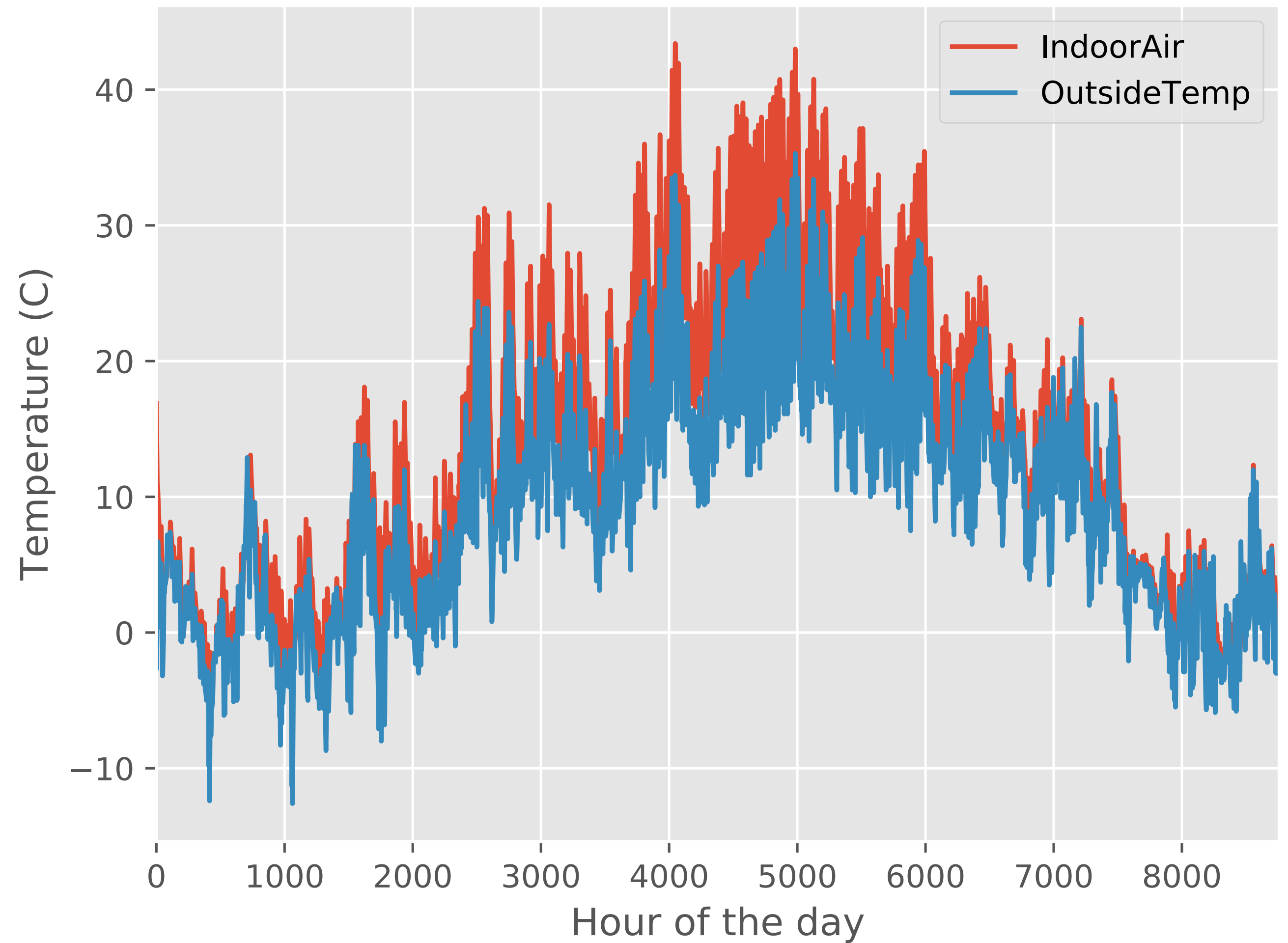
Its purple colour as the red line was hidden behind the blue and it took more than 2min to switch the order



Climate Chamber - working temperature

Annahmen

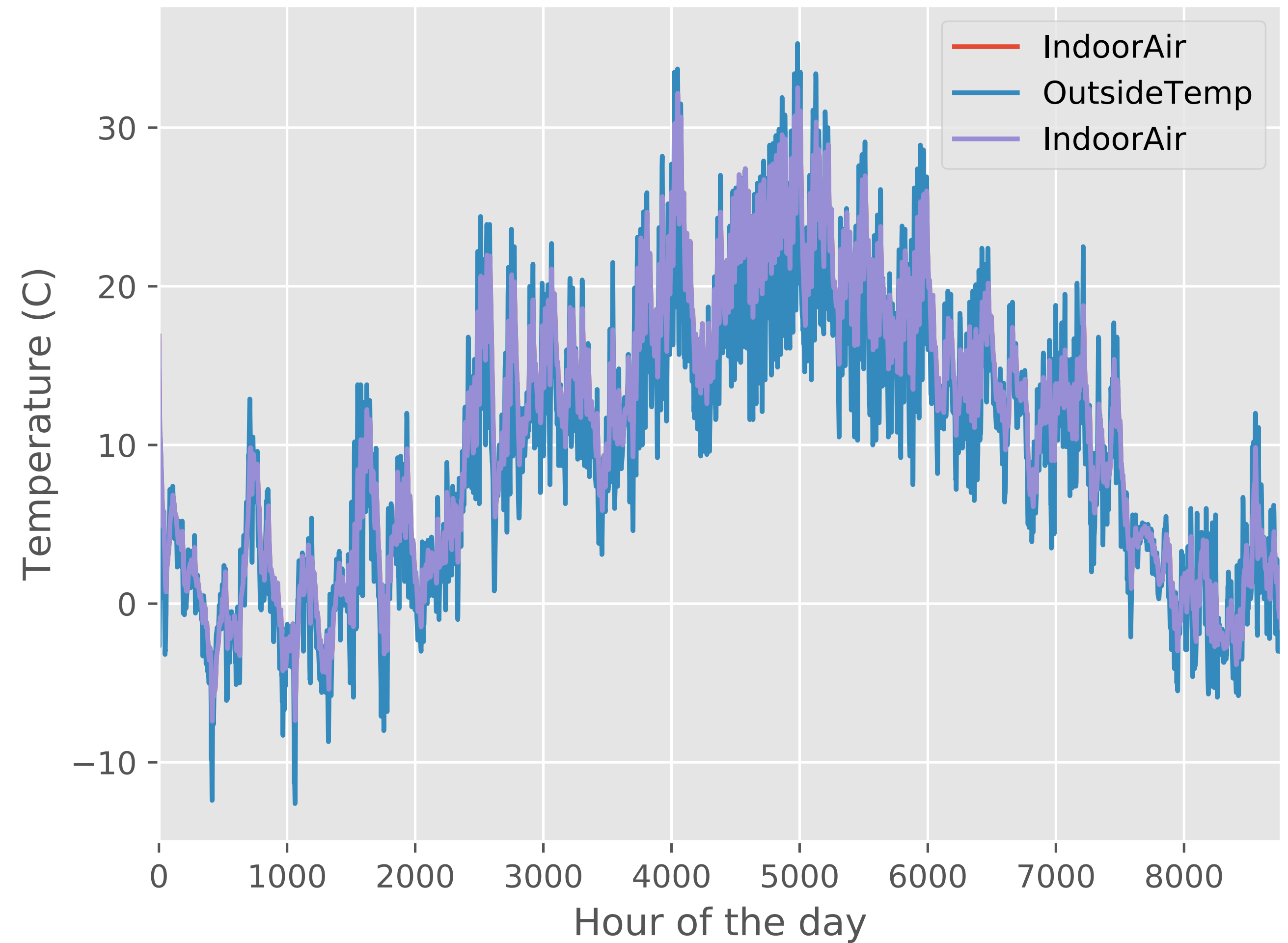
- U-wert Glass: 0.8
- G-Value: 0.19
- Arbeitsfläche (~70m²)
- No heating or cooling
- No ventilation
- **No internal gains**



Climate Chamber - working temperature - factor 4 reduced solar gains

Annahmen

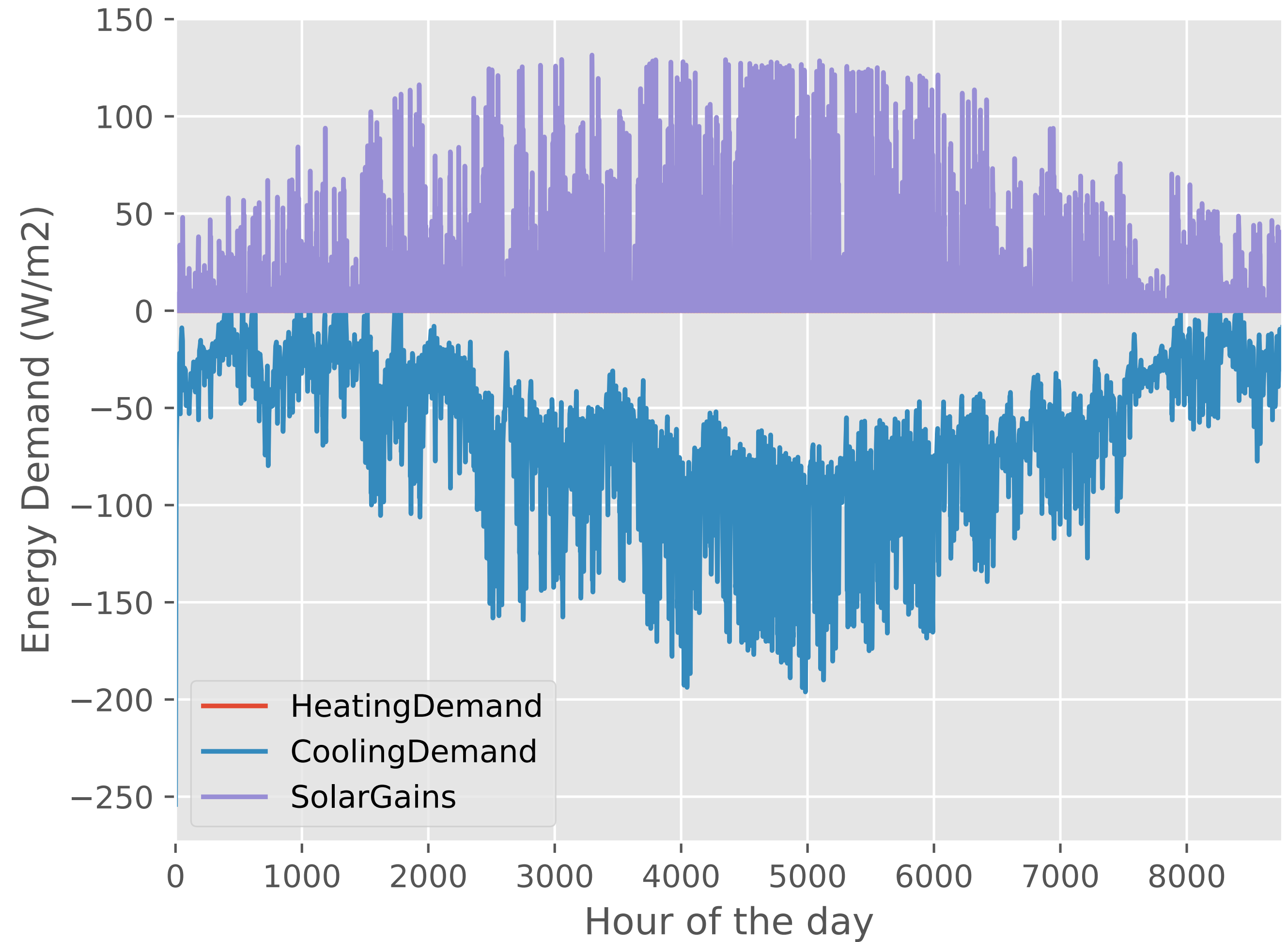
- U-wert Glass: 0.8
- **G-Value: 0.19/4**
- Arbeitsfläche (~70m²)
- No heating or cooling
- No ventilation
- **No internal gains**



Climate Chamber - Cooling Power required to maintain -5C

Annahmen

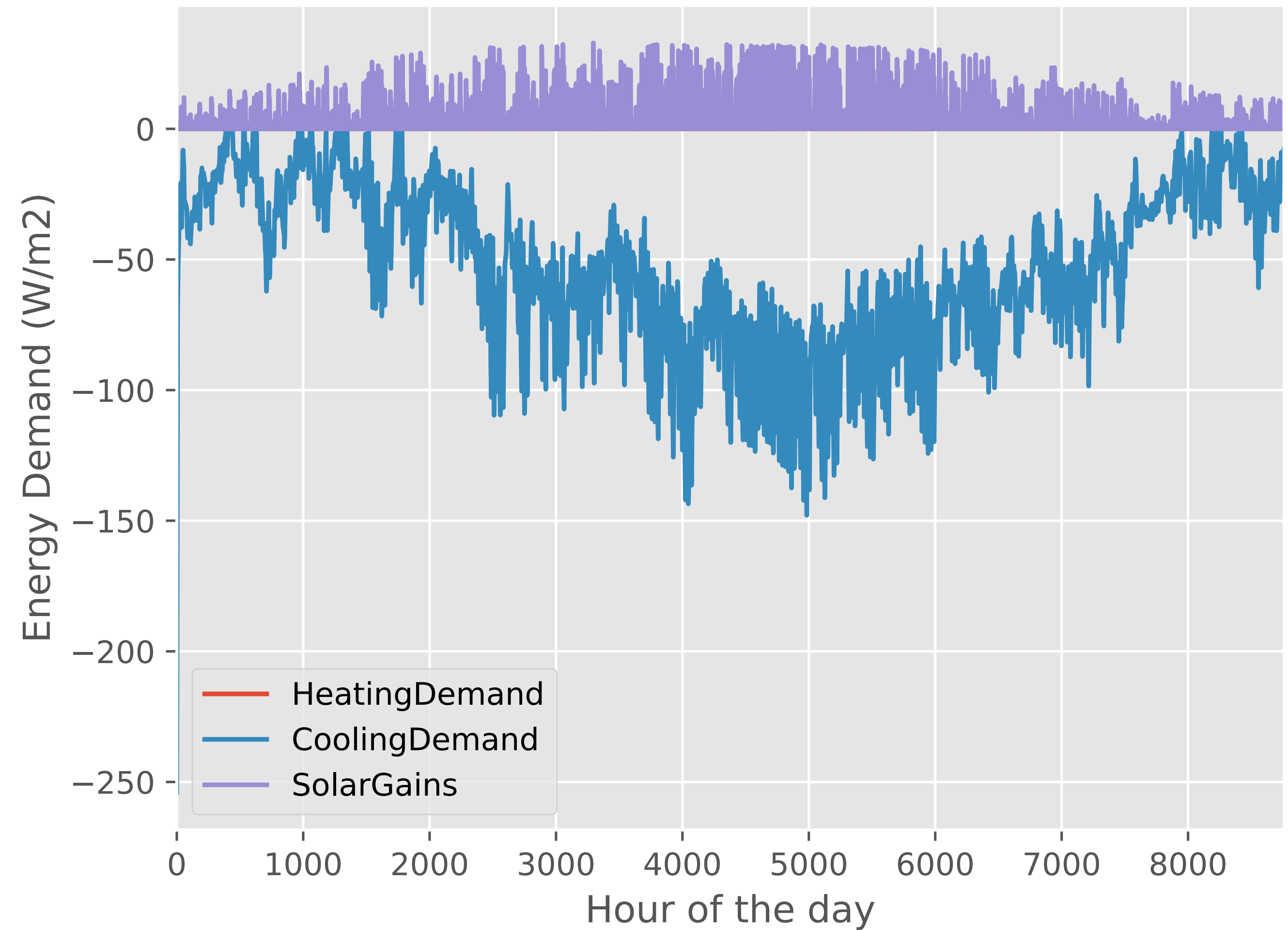
- U-wert Glass: 0.8
- G-Value: 0.19
- Arbeitsfläche (~70m²)
- No ventilation
- **No internal gains**



Climate Chamber - Cooling Power required to maintain -5C

Annahmen

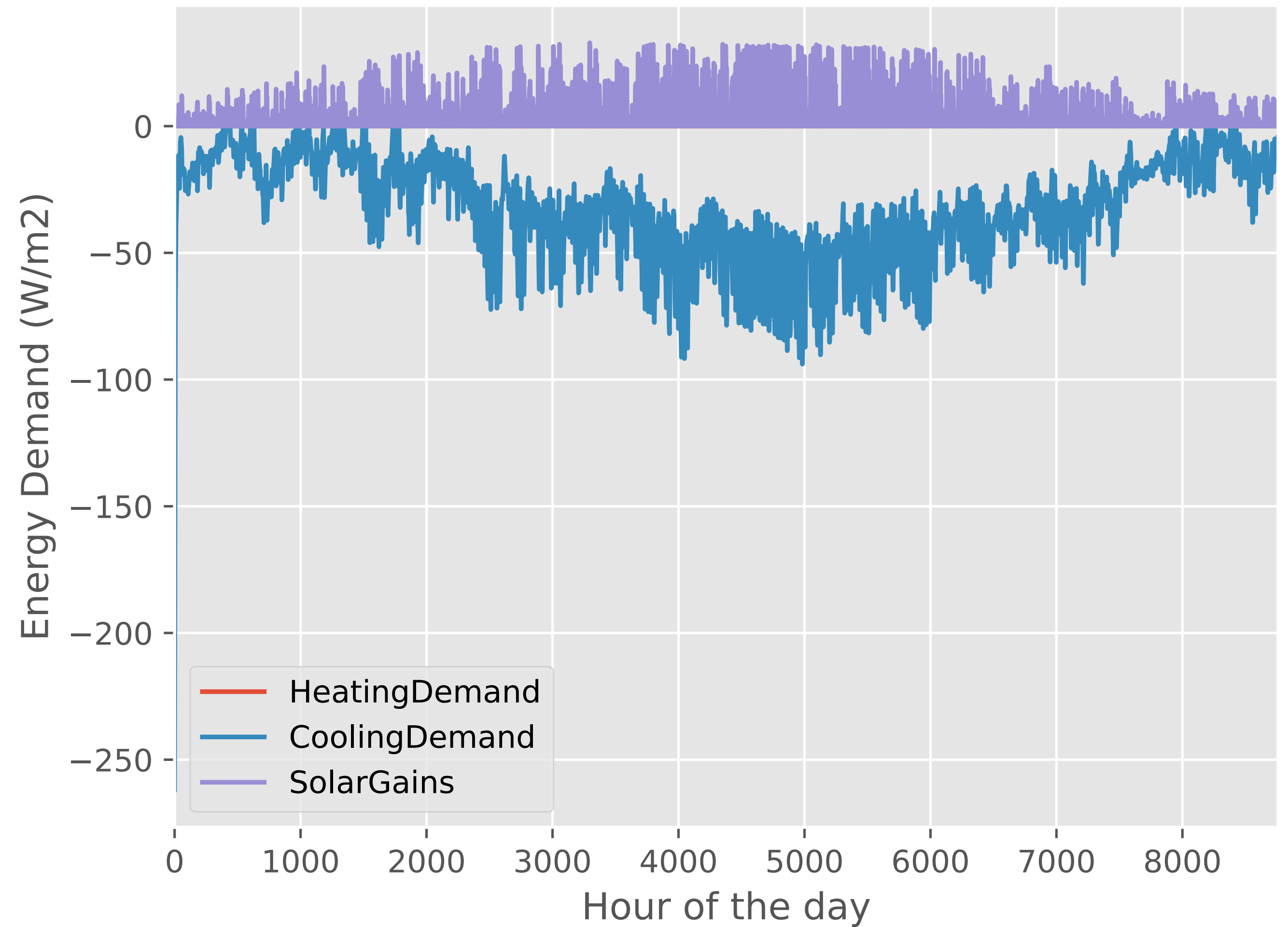
- U-wert Glass: 0.8
- **G-Value: 0.19/4**
- Arbeitsfläche (~70m²)
- No ventilation
- **No internal gains**



Climate Chamber - Cooling Power required to maintain -5C

Annahmen

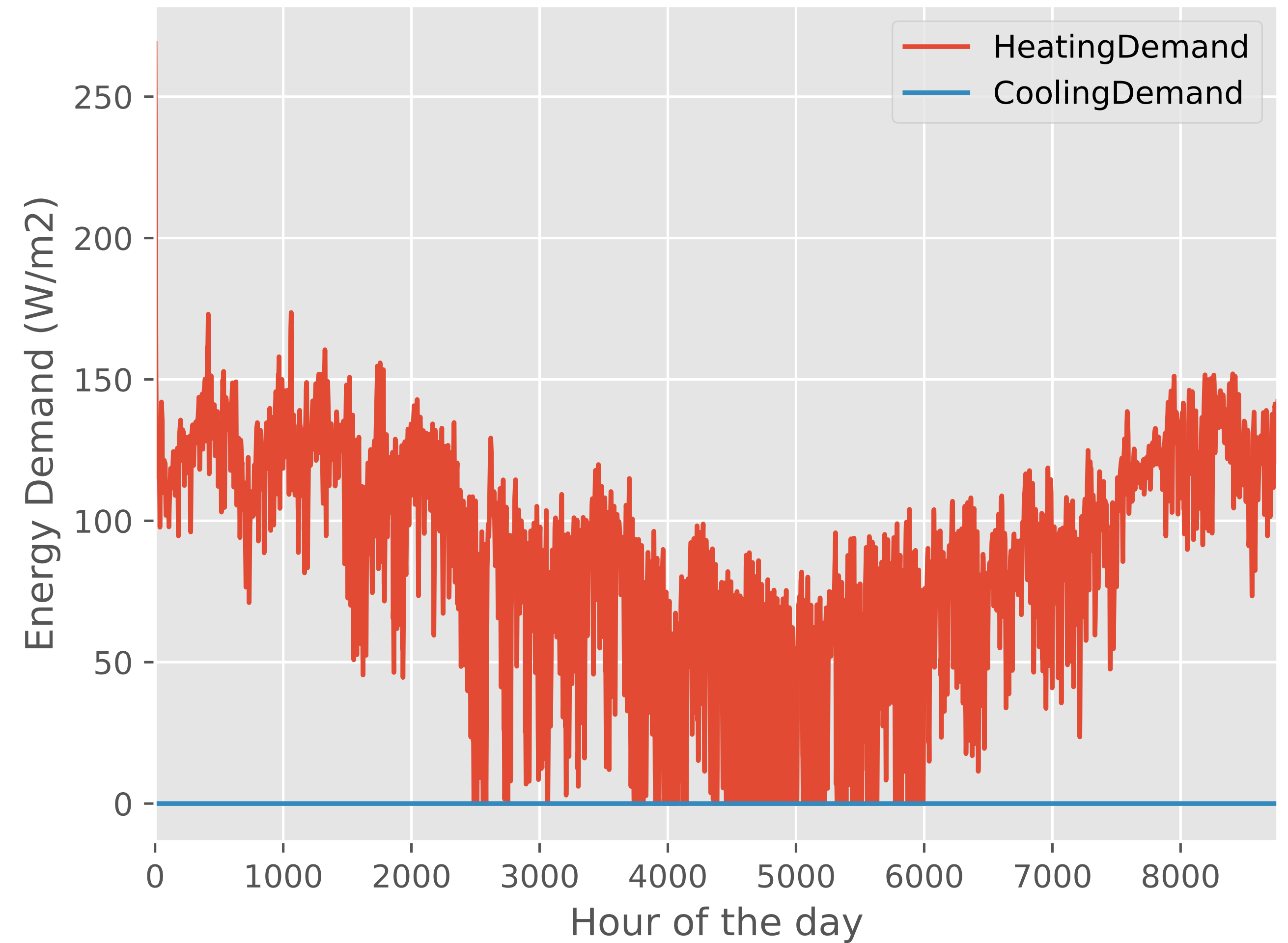
- U-wert Glass: 0.2
- G-Value: 0.19/4
- Arbeitsfläche (~70m²)
- No ventilation
- No internal gains



Climate Chamber - Heating Power required to maintain 40C

Annahmen

- U-wert Glass: 0.8
- G-Value: 0.19
- Arbeitsfläche (~70m²)
- No ventilation
- **No internal gains**



Climate Chamber - Heating Power

Annahmen

- **U-wert Glass: 0.2**
- G-Value: 0.19
- Arbeitsfläche (~70m²)
- No ventilation
- **No internal gains**

