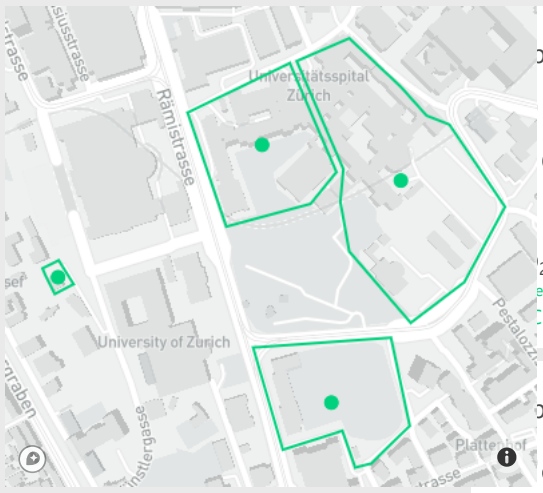
Optimal design and operation of scenario: PBD Neighborhood Exec



Optimal solution 1

911 k CHF

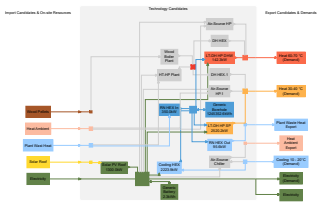
96.2 Tons

CO_2-eq

Green Premiums (GP)

CHF/Ton

This solution represents the energy system with the **minimum Costs** and has a Total Annualized Life-cycle Cost of 911 k CHF and Total Annual Emissions of 296.2 Tons CO_2-eq. The Annualized Green Premiums are 0 CHF/Ton CO_2-eq.



Optimal solution 4

984 k CHF

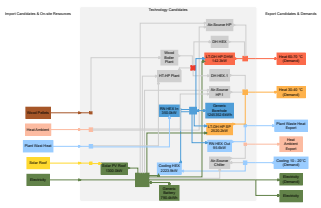
281.0 Tons

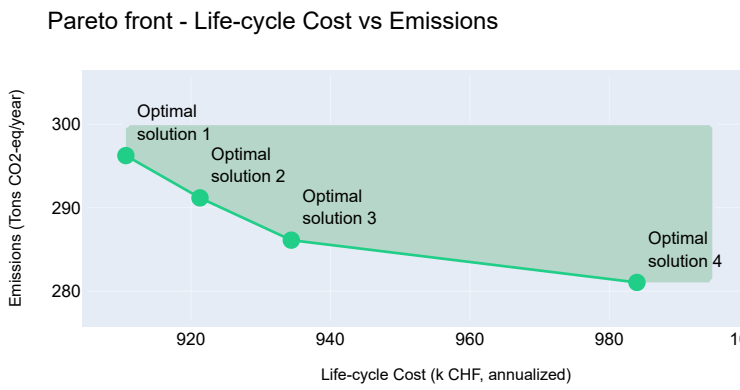
CO_2-eq

Green Premiums (GP)

4'825 CHF/Ton

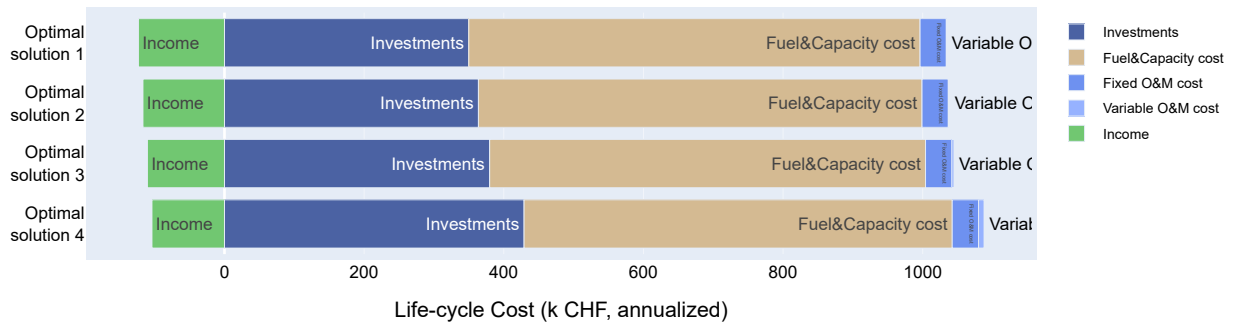
This solution represents the energy system with the **minimum Emissions** and has a Total annualized Life-cycle Cost of 984 k CHF and Total Annual Emissions of 281.0 Tons CO_2-eq. The Annualized Green Premiums are 4'825 CHF/Ton CO_2-eq.





Total Cost/Income Balance, (Annualized)

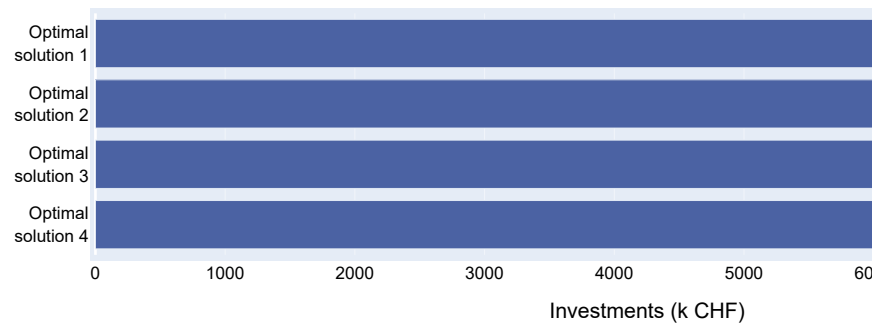
Total Cost/Income Balance, (Annualized) - Breakdown Technologies & Carriers



Total Investments

Total Investments - Breakdown Technologies

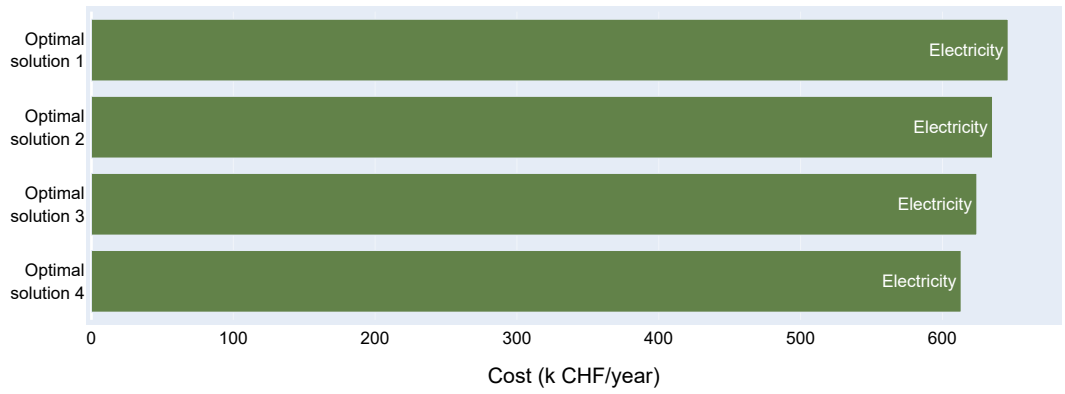
Total Investments - Breakdown Hubs



Import & Export Costs

Per Energy Carrier

Per Price Category & Energy Carrier



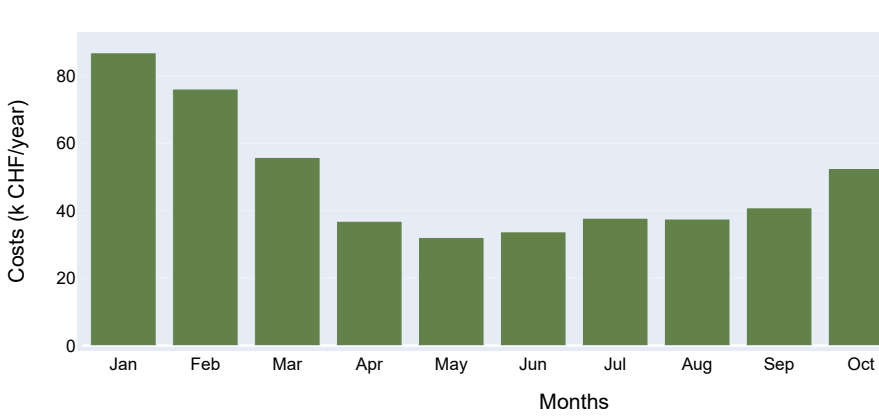
Import & Export Costs per Time

Optimal solution 1

Monthly

Quarterly

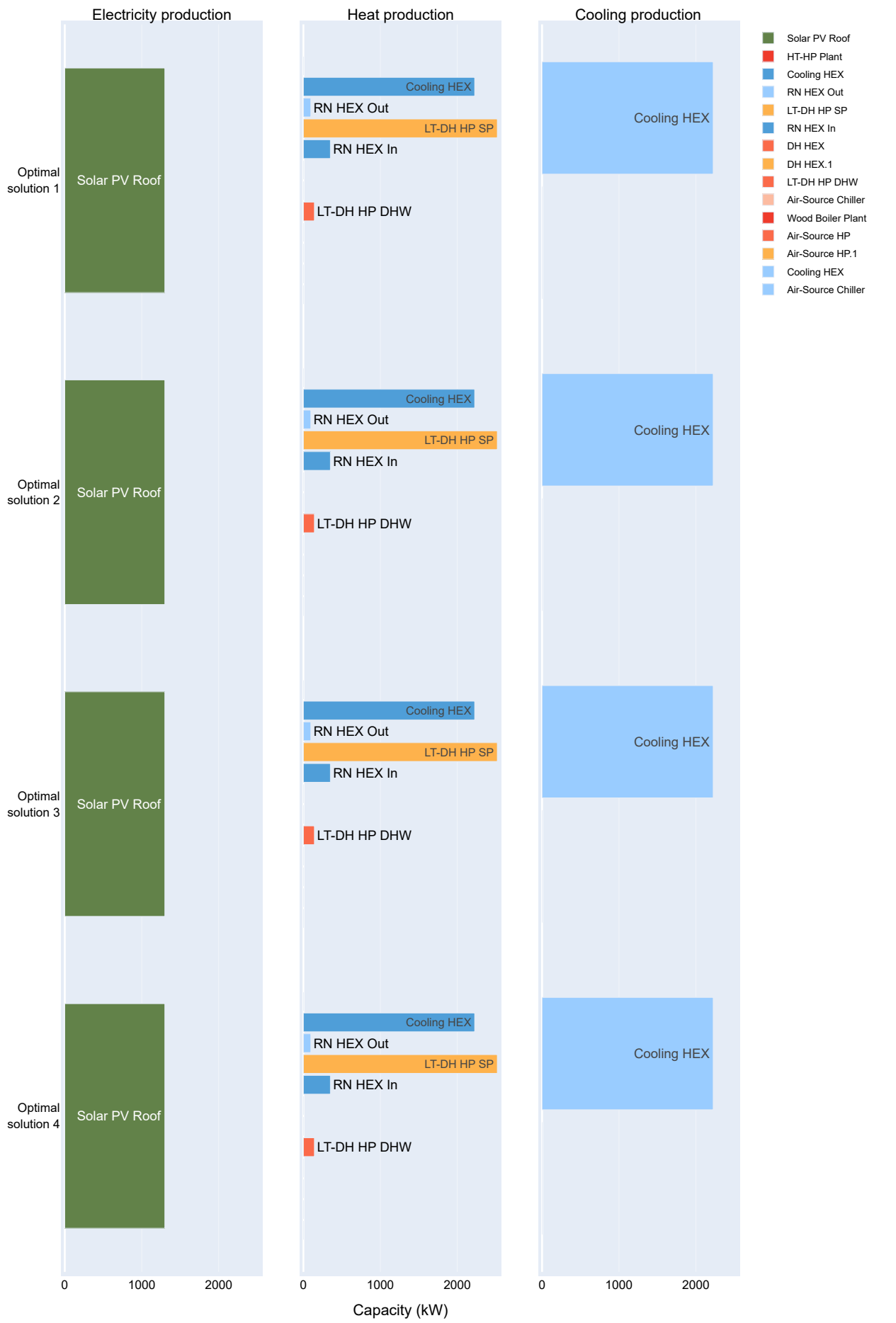
Half year



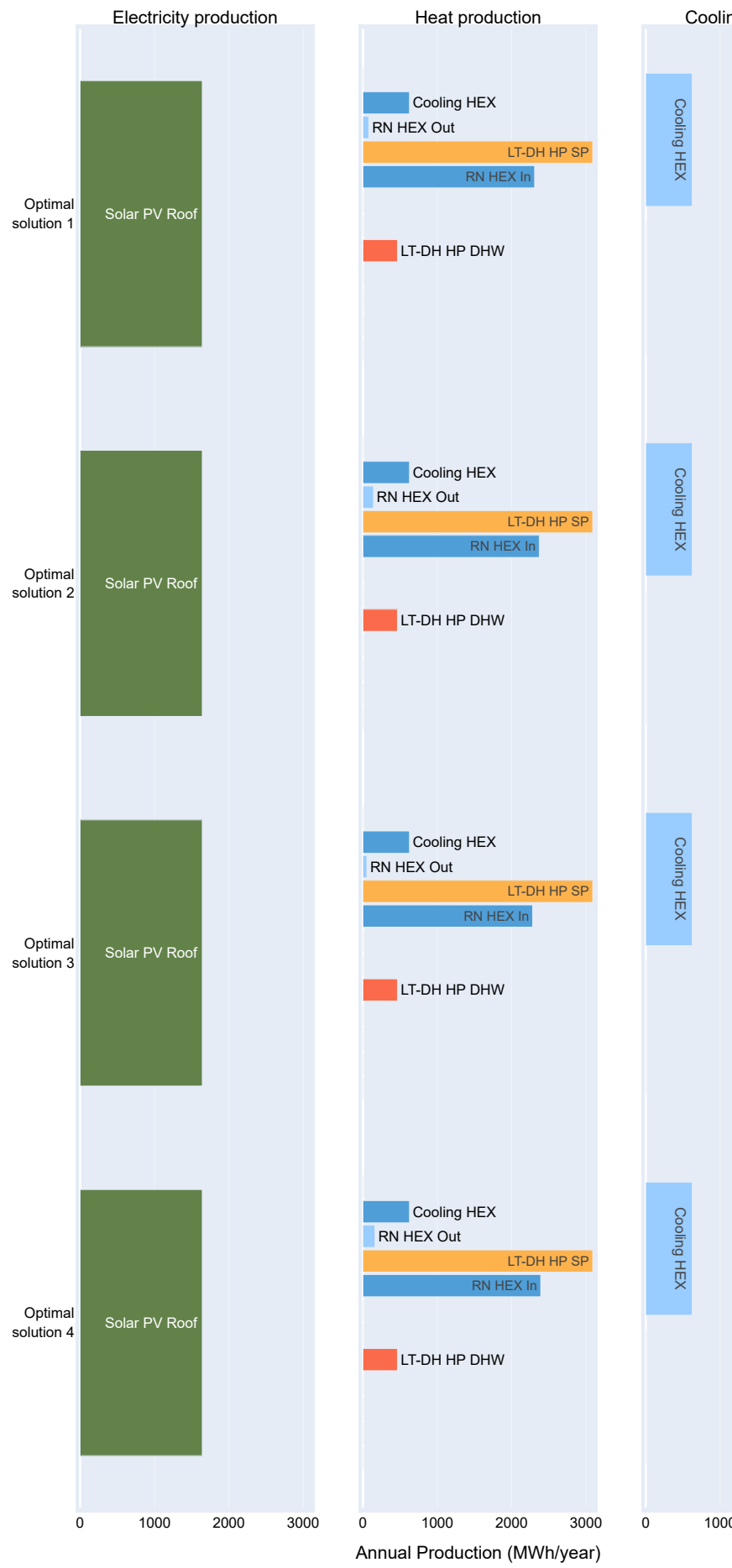
Optimal Design

Optimal Operation

Capacities of Conversion Technologies

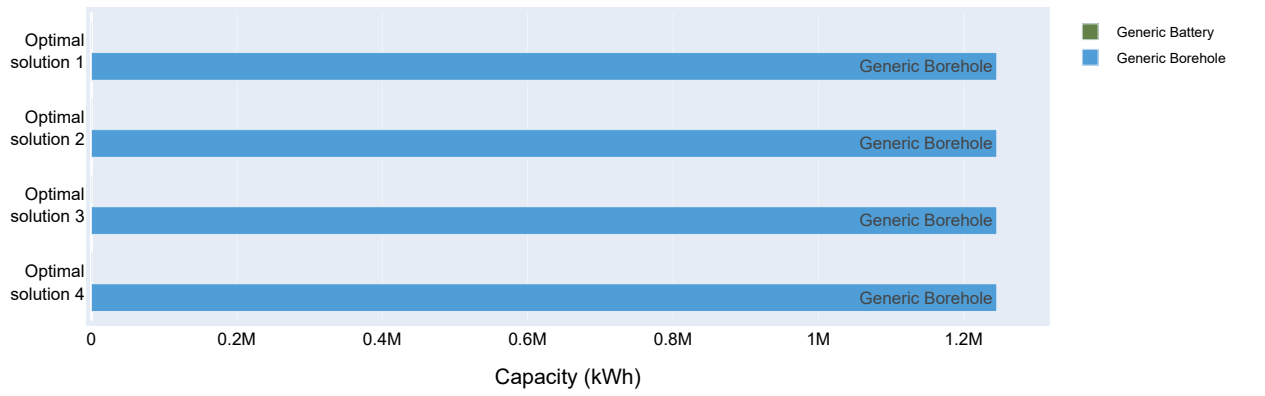


Annual Production of Conversion Technologies



Capacities of Storage Technologies

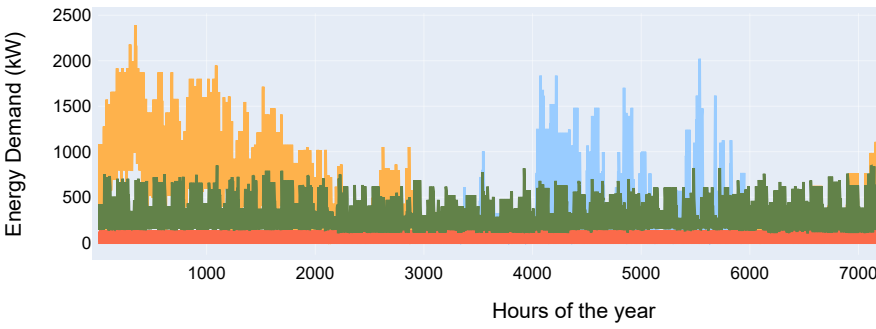
Capacities of EV Batteries

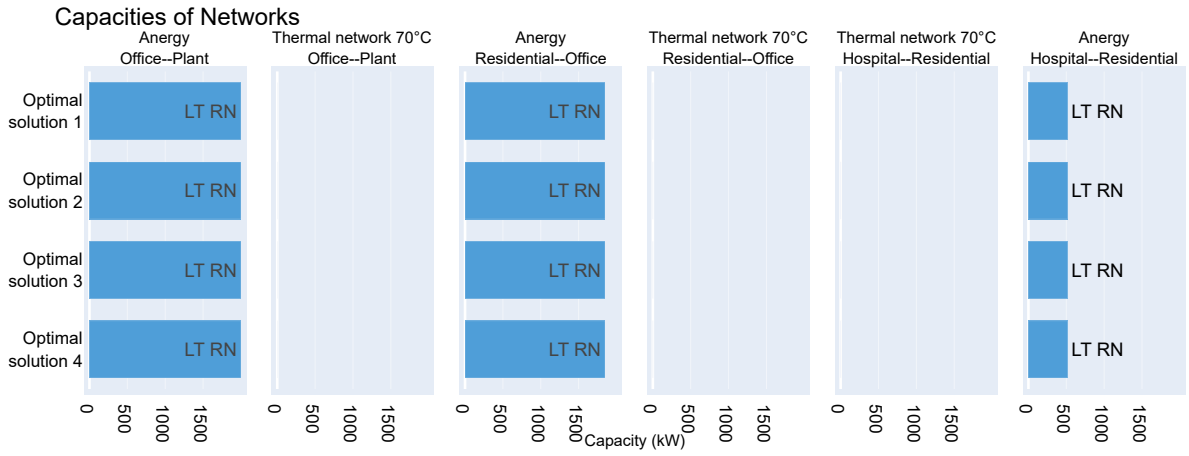


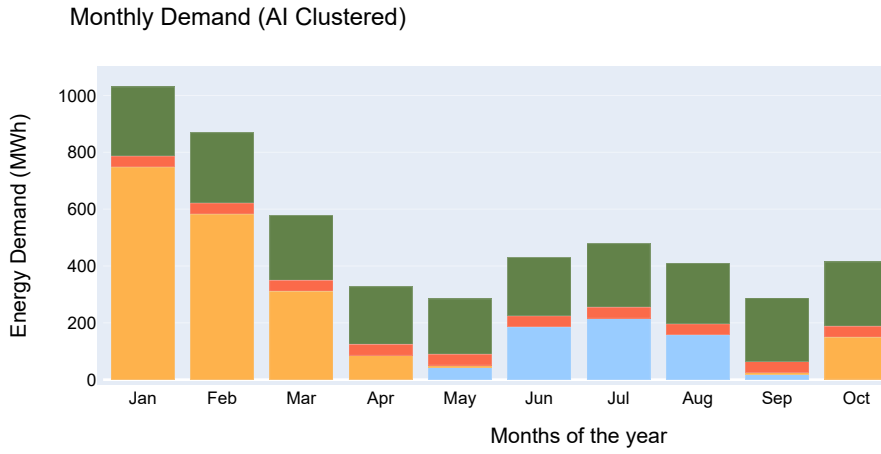
Hourly demand (AI Clustered)

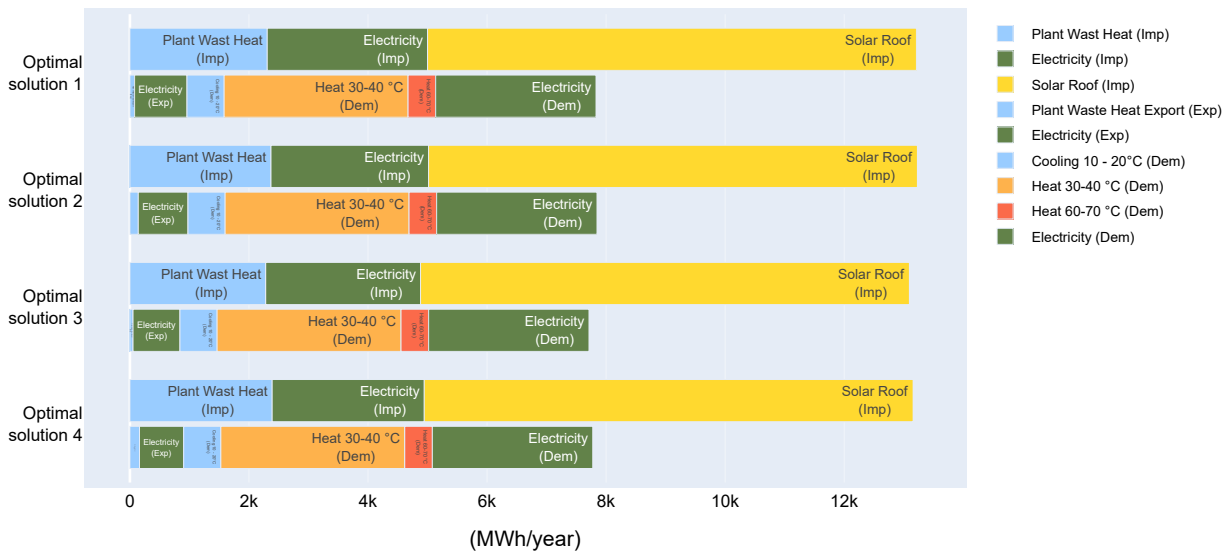
Load Duration Curve (AI Clustered)

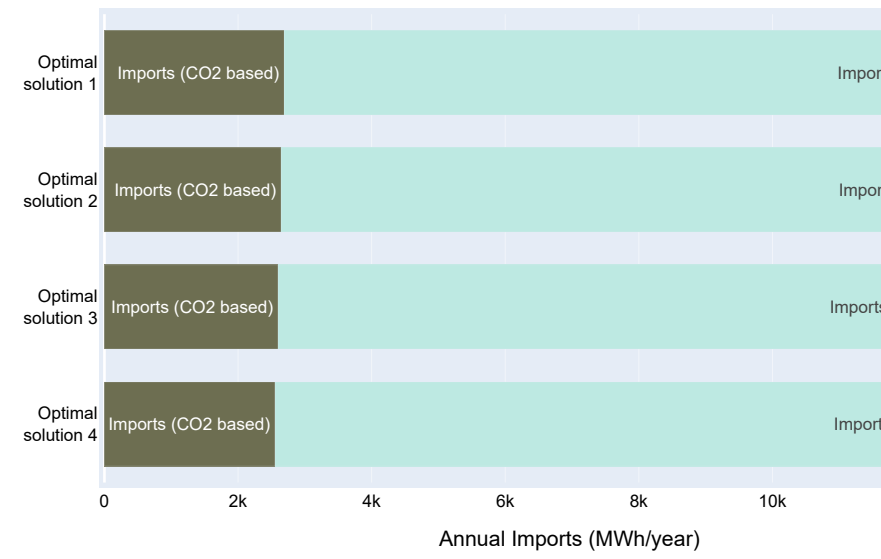
Load Duration Curve (Original vs AI Clustered)




Capacities of Networks
Anergy
Office--Plant
Thermal network 70°C
Office--Plant
Anergy
Residential--Office
Thermal network 70°C
Residential--Office
Thermal network 70°C
Hospital--Residential
Anergy
Hospital--Residential
Optimal solution 1
Optimal solution 2
Optimal solution 3
Optimal solution 4
LT RN
0
500
1000
1500
Capacity (kW)


Monthly Demand (AI Clustered)
Energy Demand (MWh)
0
200
400
600
800
1000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Months of the year


Annual Imports vs Exports & Demand
Optimal solution 1
Optimal solution 2
Optimal solution 3
Optimal solution 4
Plant Wast Heat (Imp)
Electricity (Imp)
Solar Roof (Imp)
Electricity (Exp)
Heat 30-40 °C (Dem)
Electricity (Dem)
Plant Waste Heat Export (Exp)
Cooling 10 - 20°C (Dem)
Heat 60-70 °C (Dem)
0
2k
4k
6k
8k
10k
12k
(MWh/year)


Annual Energy Imports (CO2 based vs CO2 free)
Optimal solution 1
Optimal solution 2
Optimal solution 3
Optimal solution 4
Imports (CO2 based)
0
2k
4k
6k
8k
10k
Annual Imports (MWh/year)