Data Info

Schedule Model Data:

Size tag (Relative size of file)

Phase number (Phase 1 or 2)

File Info ⟨*# buildings*⟩ ⟨*# solar*⟩ ⟨*# battery*⟩ ⟨*# recurring*⟩ ⟨*# once-off*⟩

Building ⟨*building id*⟩ ⟨*# small*⟩ ⟨*# large*⟩

Solar ⟨*solar id*⟩ ⟨*building id*⟩

Metadata:

⟨*solar id*⟩ : The first identifier is the solar series in the data set

Battery ⟨*building id*⟩ ⟨*capacity kWh*⟩ ⟨*max power kW*⟩ ⟨*efficiency*⟩

Metadata:

⟨*efficiency*⟩ : round-trip efficiency of the battery

Actual load on grid: ⟨*max power kW*⟩ * (1/sqr(⟨*efficiency*⟩))

Discharging at max power: ⟨*max power kW*⟩ * sqr(⟨*efficiency*⟩)

Battery Capacity at start of month: 100%

Recurring activities ⟨*act. id*⟩ ⟨*# rooms*⟩ ⟨{S, L} *room size*⟩ ⟨*load kW*⟩ ⟨*duration*⟩ ⟨*# precedences*⟩ ⟨*act. Id*⟩∗

Metadata:

⟨*duration*⟩: in 15 minutes time steps (four 15 time steps corresponds to 1 hour)

⟨*load kW*⟩: Load per room (Two rooms in the same building draw twice the kW value)

⟨*# rooms*⟩: Number of rooms in ⟨{S, L} *room size*⟩

⟨{S, L} *room size*⟩: Small or Large room

Time constraint: Activity must be between 9am and 5pm on a weekday

Precedent constraint: (recurring) activities to be scheduled on days earlier in the week.

Once off activities ⟨*act. id*⟩ ⟨*# rooms*⟩ ⟨{S, L} *room size*⟩ ⟨*load kW*⟩ ⟨*duration*⟩ ⟨*$ value*⟩ ⟨*$ penalty*⟩ ⟨*# precedences*⟩ ⟨*act. id*⟩∗

Metadata:

⟨*duration*⟩: in 15 minutes time steps (four 15 time steps corresponds to 1 hour)

⟨*load kW*⟩: Load per room (Two rooms in the same building draw twice the kW value)

⟨*# rooms*⟩: Number of rooms in ⟨{S, L} *room size*⟩

⟨{S, L} *room size*⟩: Small or Large room

Precedent constraint: (once off) activities to be scheduled on days earlier in the week.

Time: If scheduled outside working hours (9am and 5pm on a weekday) then activity receives ⟨*$ value*⟩ - ⟨*$ penalty*⟩

Once off activity gives ⟨*$ value*⟩

Output of Schedule:

(Activity and Battery Schedule)

ppoi ⟨*# buildings*⟩ ⟨*# solar*⟩ ⟨*# battery*⟩ ⟨*# recurring*⟩ ⟨*# once-off*⟩

Metadata:

This ppoi retrieved from the instance file being solved.

sched ⟨*# recurring scheduled*⟩ ⟨*# once-off scheduled*⟩

Recurring or Once off activities ⟨*act. id*⟩ ⟨*start time*⟩ ⟨*# rooms*⟩ ⟨*list of building IDs*⟩

Metadata:

⟨*start time*⟩: Is it 15*⟨*start time*⟩ = Time ? ? ?

Scheduled Activities ⟨*battery id*⟩ ⟨*time*⟩ ⟨{0, 1, 2} *decision 0=charge, 1=hold, 2=discharge*⟩

Metadata:

⟨{0, 1, 2} *decision 0=charge, 1=hold, 2=discharge*⟩: Hold decisions can be omitted

⟨*time*⟩: index for solar series time column

Input for optimisation problem:

- Schedule data model
- Phase 1 or 2 training data
- Price data from AEMO for nov 2020