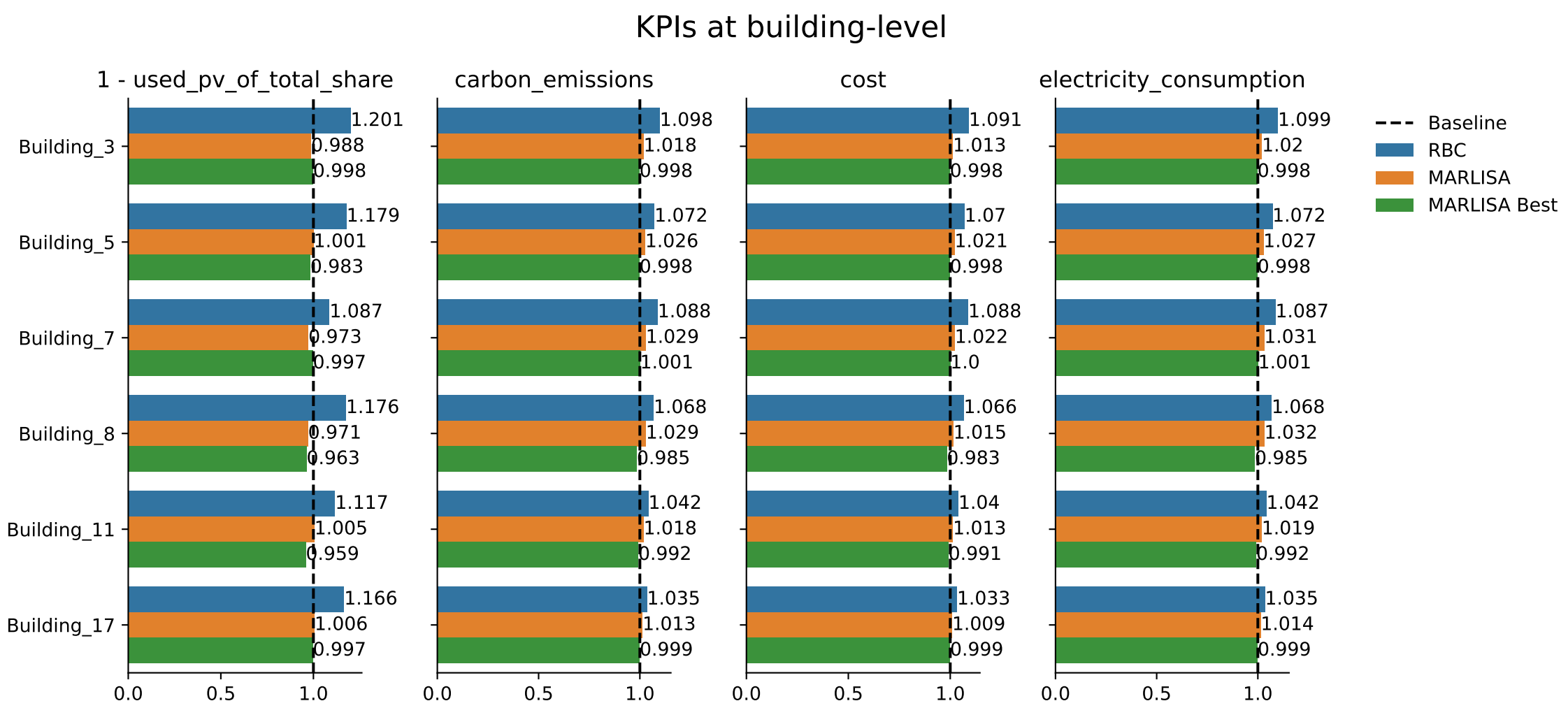
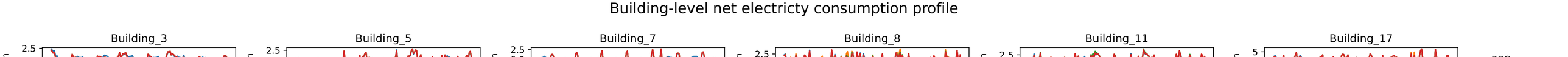
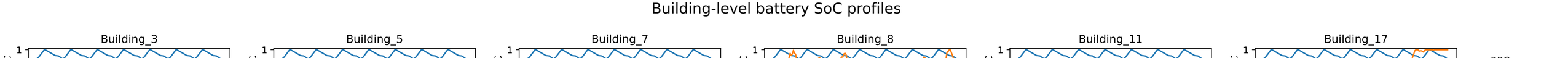
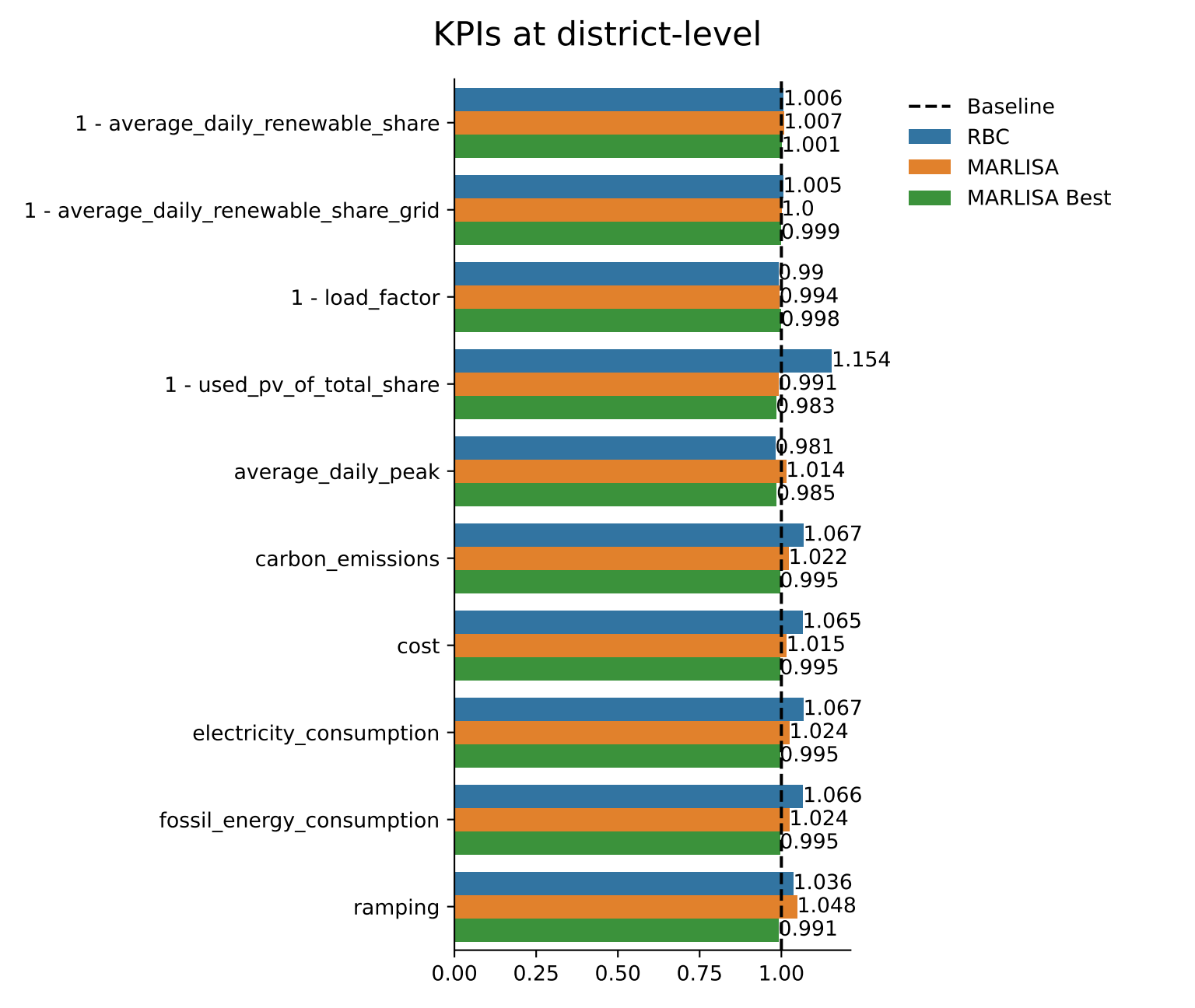
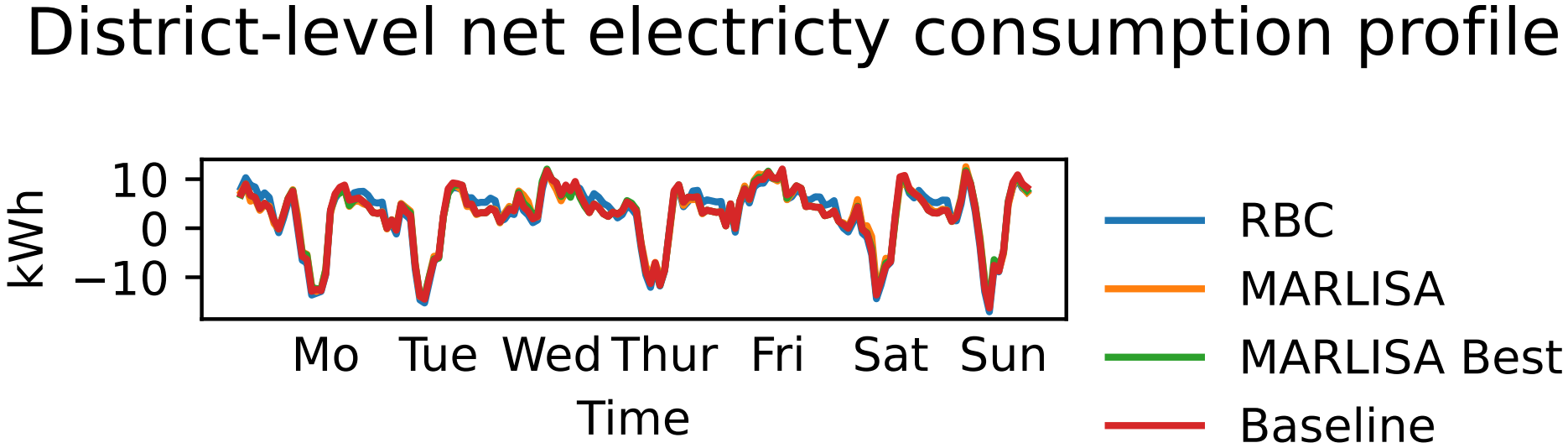
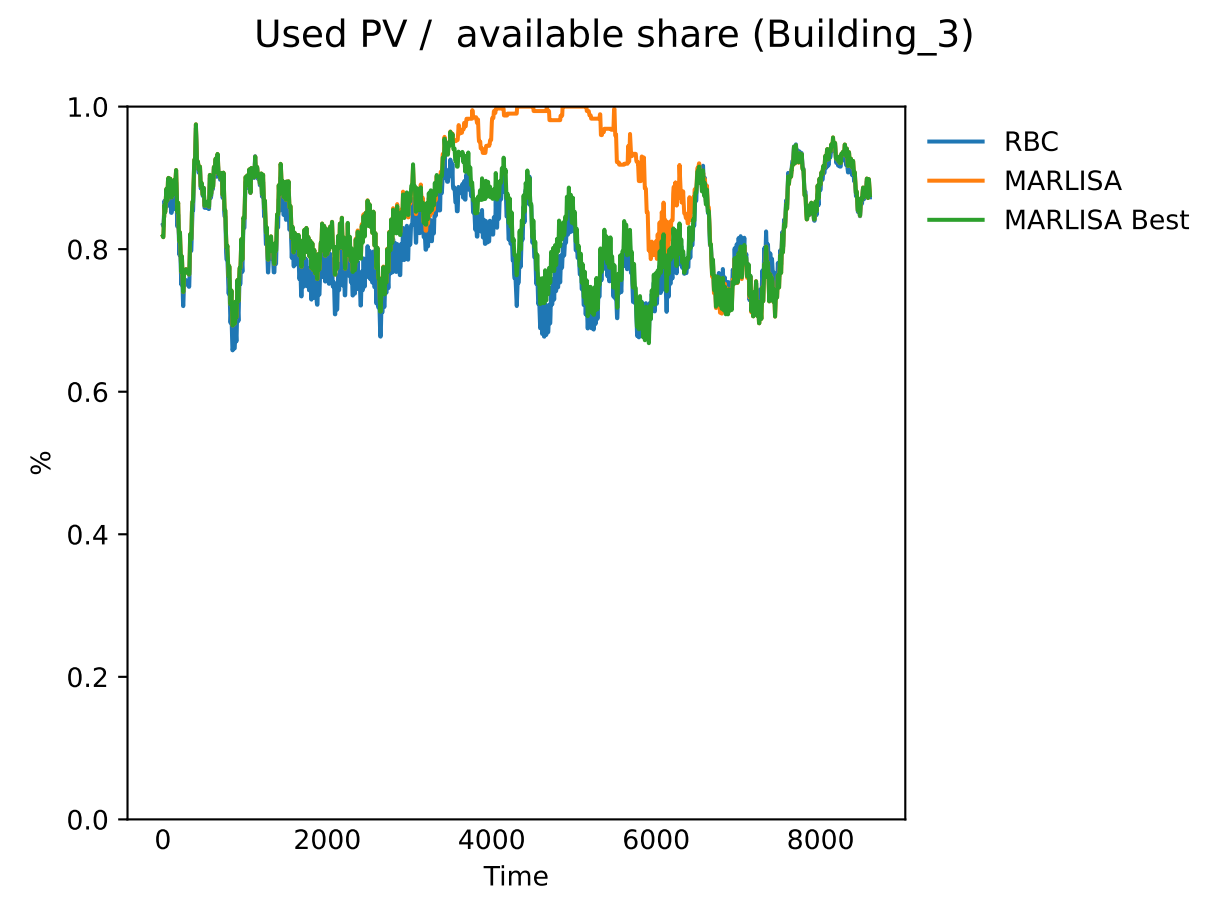

KPIs at building-level
1 - used_pv_of_total_share
carbon_emissions
cost
electricity_consumption
Building_3
Building_5
Building_7
Building_8
Building_11
Building_17
1.201
0.988
0.998
1.179
1.001
0.983
1.087
0.973
0.997
1.176
0.971
0.963
1.117
1.005
0.959
1.166
1.006
0.997
1.098
1.018
0.998
1.072
1.026
0.998
1.088
1.029
1.001
1.068
1.029
0.985
1.042
1.018
0.992
1.035
1.013
0.999
1.091
1.013
0.998
1.07
1.021
0.998
1.088
1.022
1.0
1.066
1.015
0.983
1.04
1.013
0.991
1.033
1.009
0.999
1.099
1.02
0.998
1.072
1.027
0.998
1.087
1.031
1.001
1.068
1.032
0.985
1.042
1.019
0.992
1.035
1.014
0.999
0.0
0.5
1.0
Baseline
RBC
MARLISA
MARLISA Best

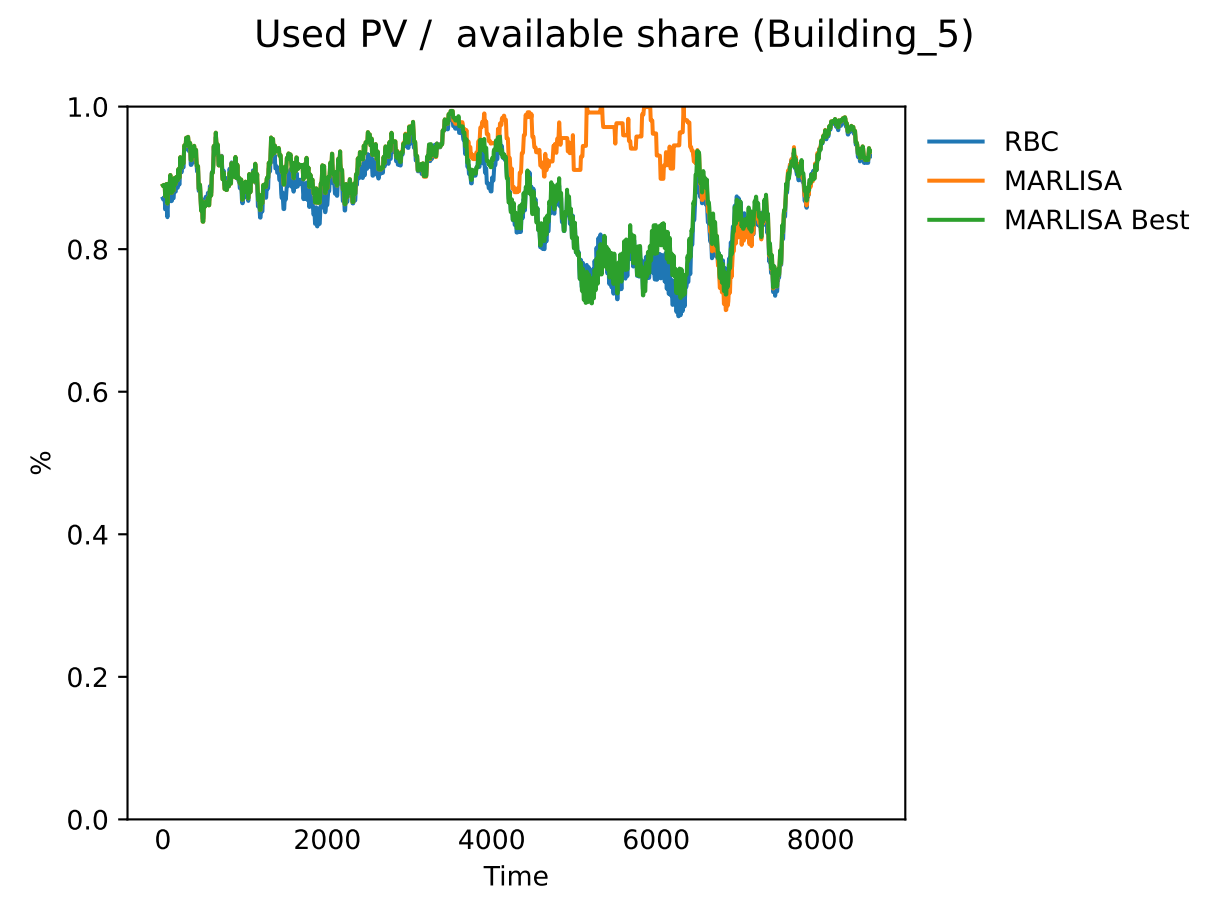

Building-level net electricty consumption profile
Building_3
Building_5
Building_7
Building_8
Building_11
Building_17
kWh
Time
Mo
Tue
Wed
Thur
Fri
Sat
Sun
RBC
MARLISA
MARLISA Best
Baseline

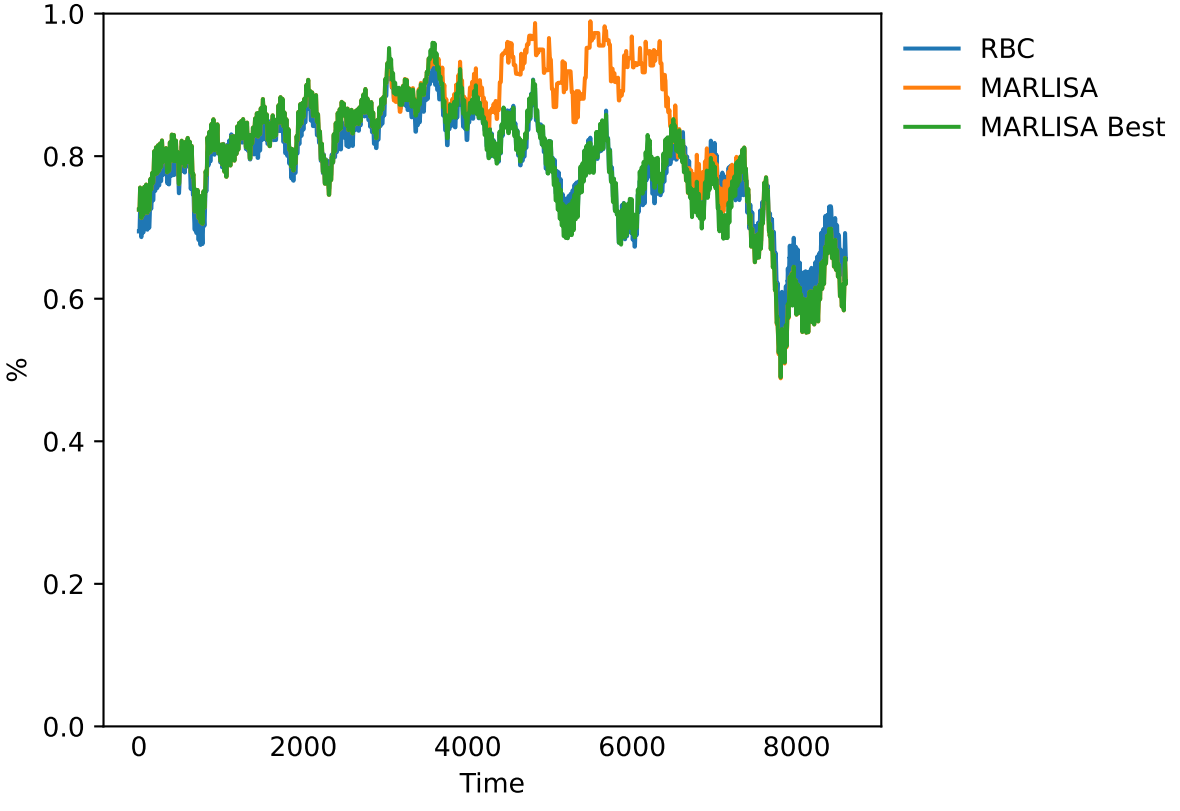

Building-level battery SoC profiles
Building_3
Building_5
Building_7
Building_8
Building_11
Building_17
SoC
1
0
Mo
Tue
Wed
Thur
Fri
Sat
Sun
Time
RBC
MARLISA
MARLISA Best

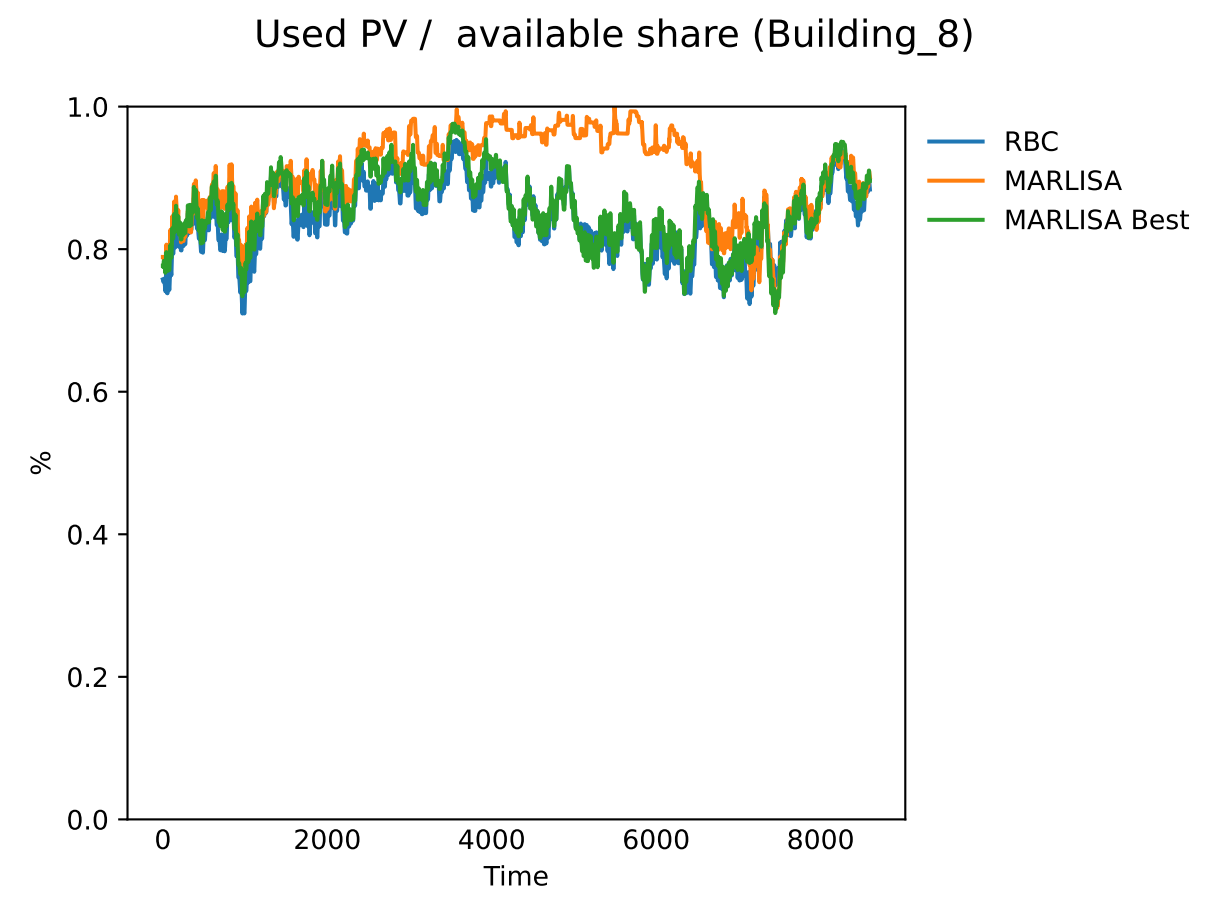

KPIs at district-level
Baseline
RBC
MARLISA
MARLISA Best
1 - average_daily_renewable_share
1 - average_daily_renewable_share_grid
1 - load_factor
1 - used_pv_of_total_share
average_daily_peak
carbon_emissions
cost
electricity_consumption
fossil_energy_consumption
ramping
1.006
1.007
1.001
1.005
1.0
0.999
0.99
0.994
0.998
1.154
0.991
0.983
0.981
1.014
0.985
1.067
1.022
0.995
1.065
1.015
0.995
1.067
1.024
0.995
1.066
1.024
0.995
1.036
1.048
0.991
0.00
0.25
0.50
0.75
1.00

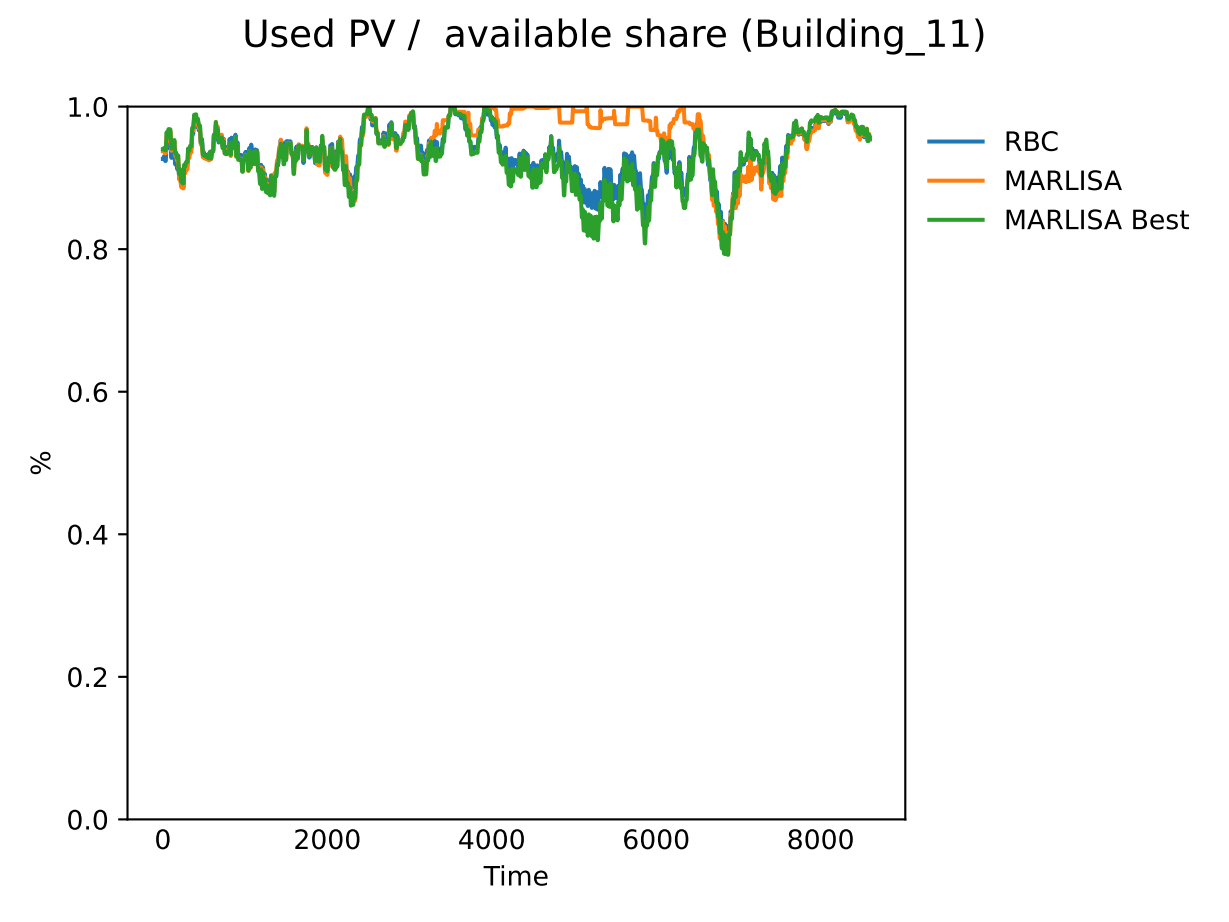

District-level net electricty consumption profile
kWh
10
0
−10
Mo
Tue
Wed
Thur
Fri
Sat
Sun
Time
RBC
MARLISA
MARLISA Best
Baseline

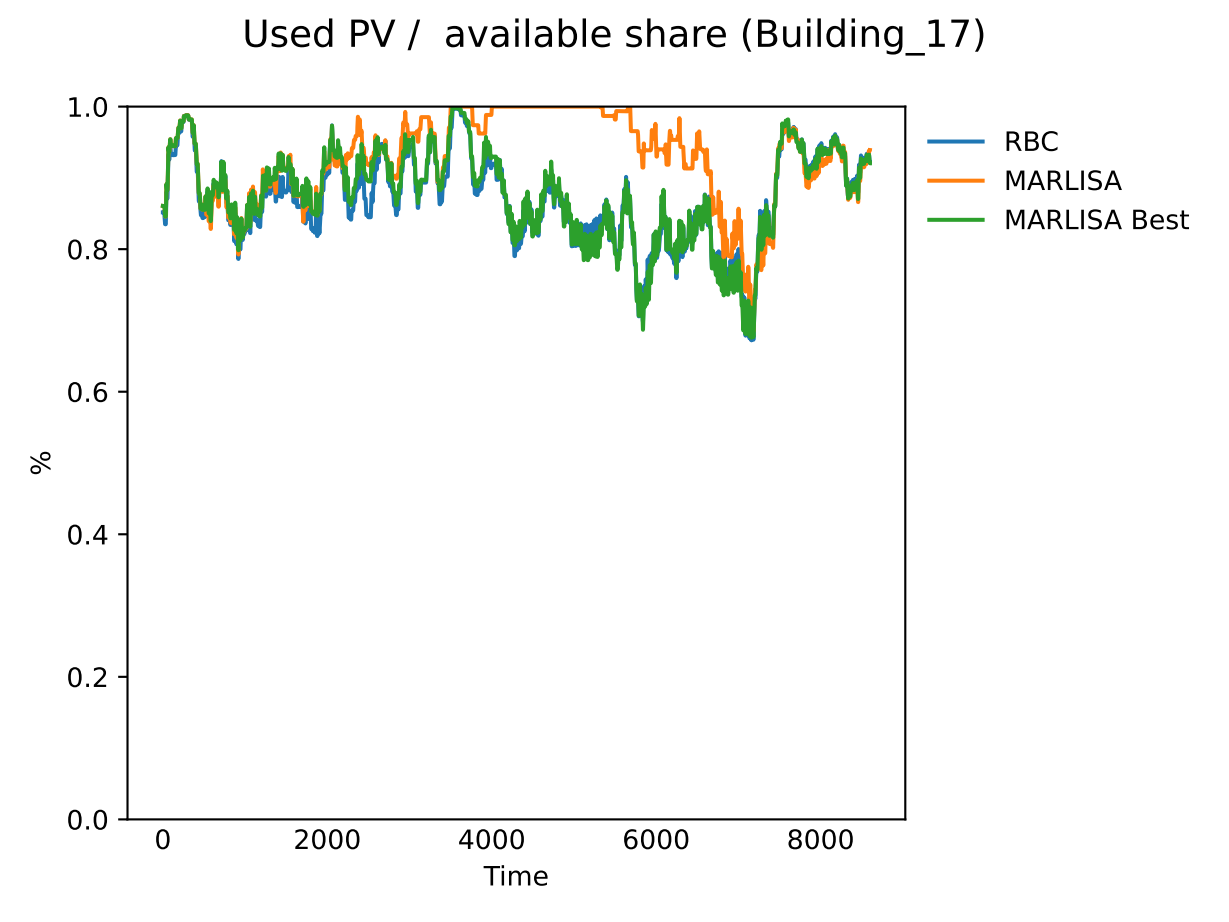

Used PV / available share (Building_3)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

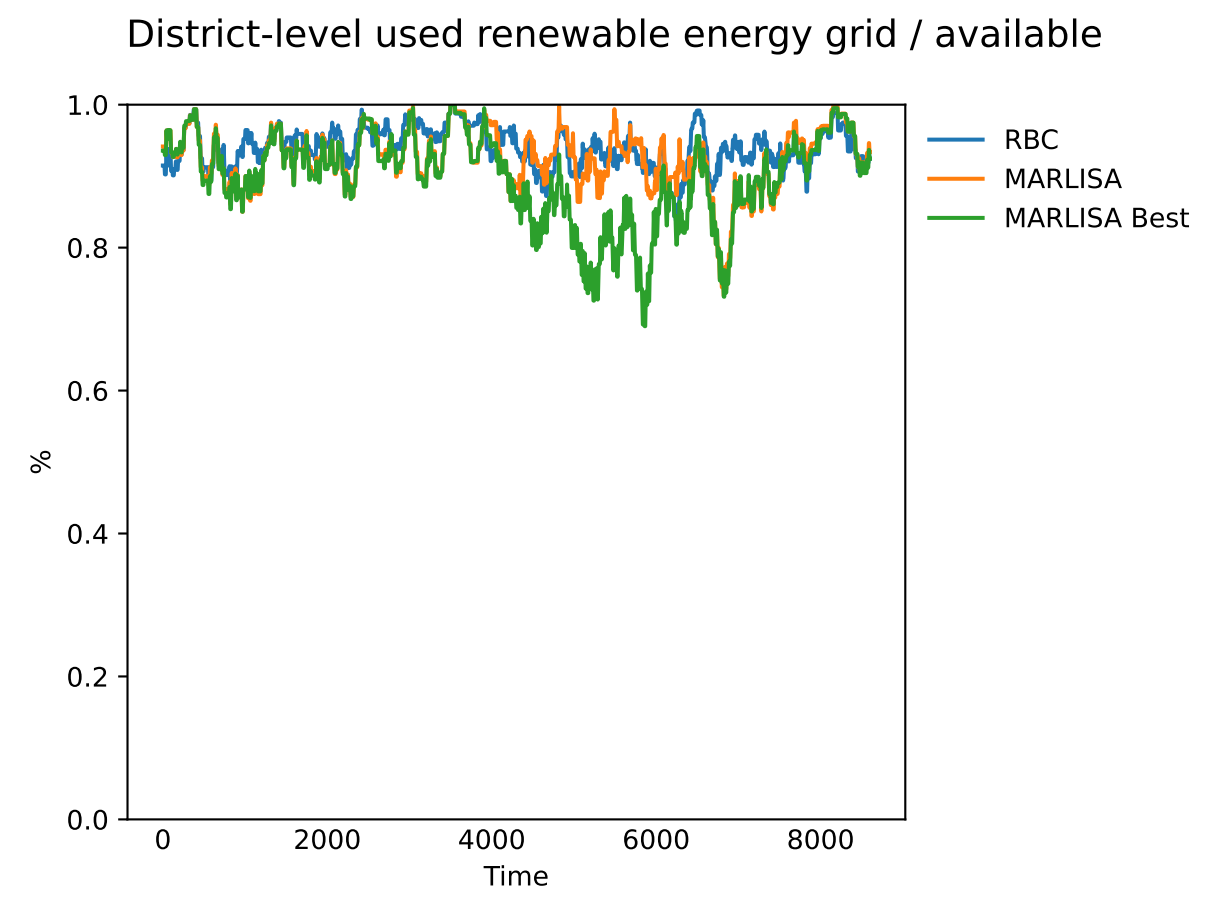

Used PV / available share (Building_5)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

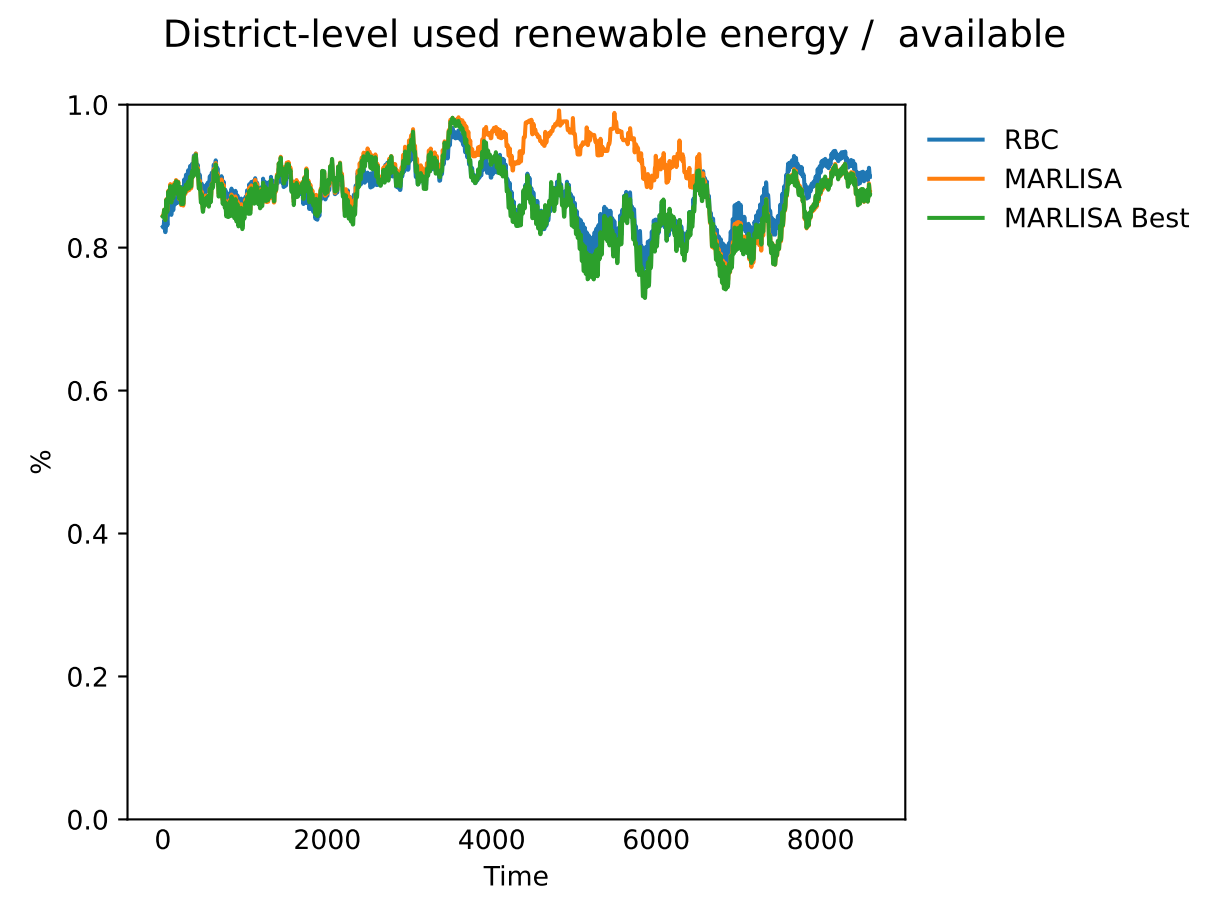

Used PV / available share (Building_7)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

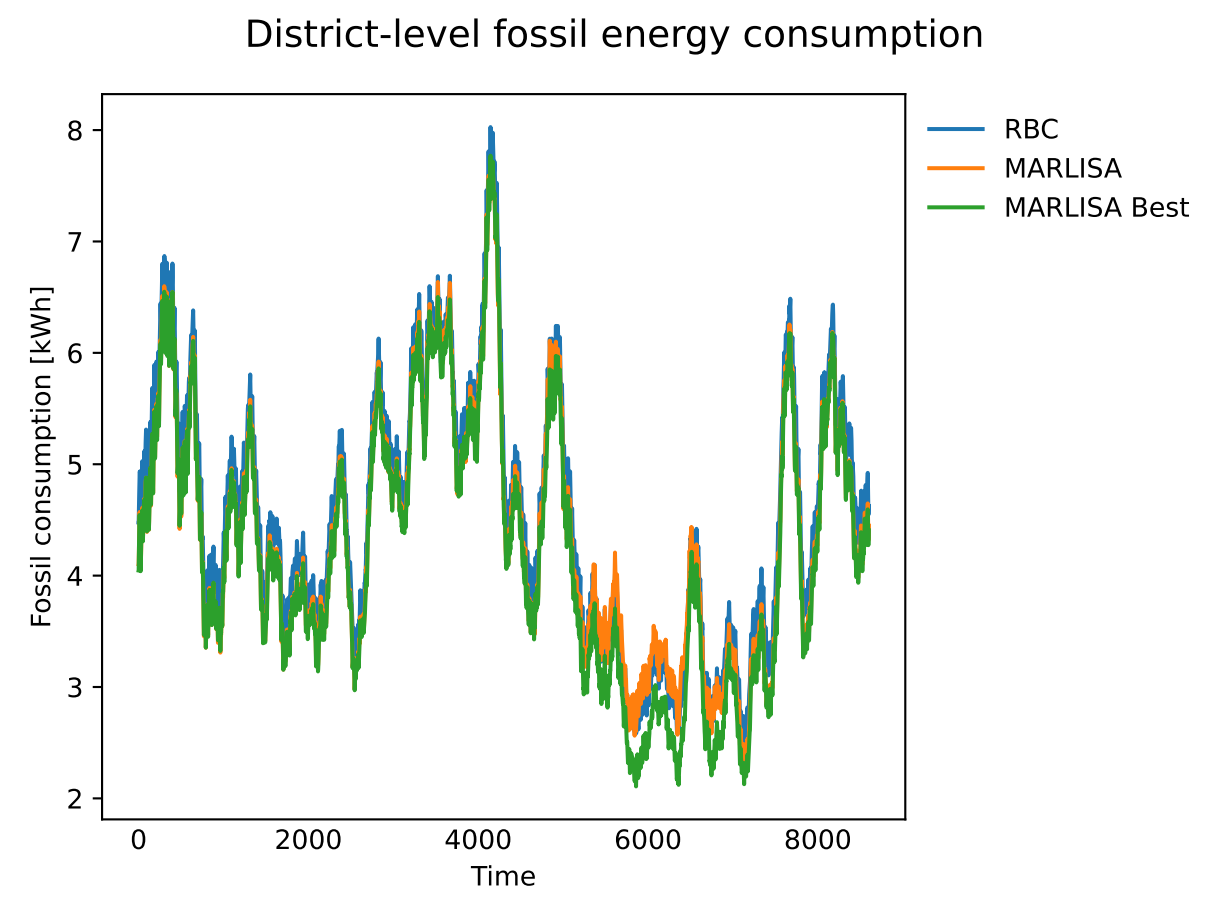

Used PV / available share (Building_8)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

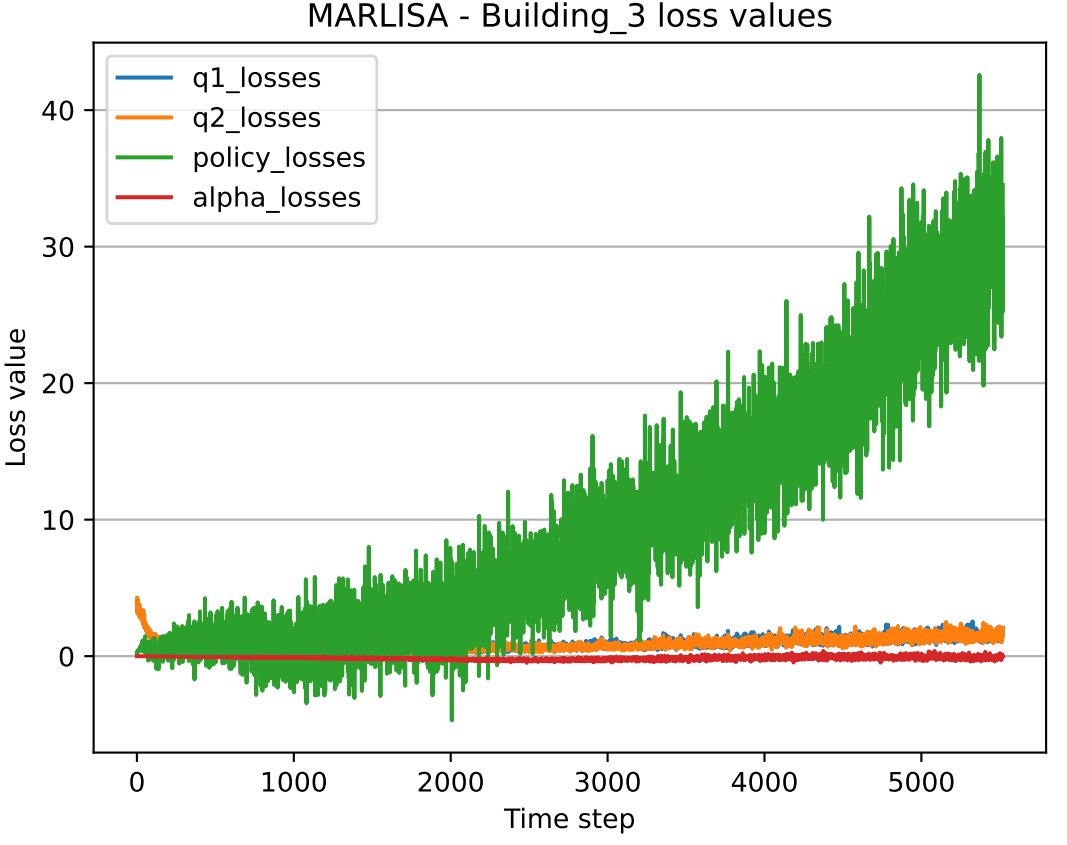

Used PV / available share (Building_11)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

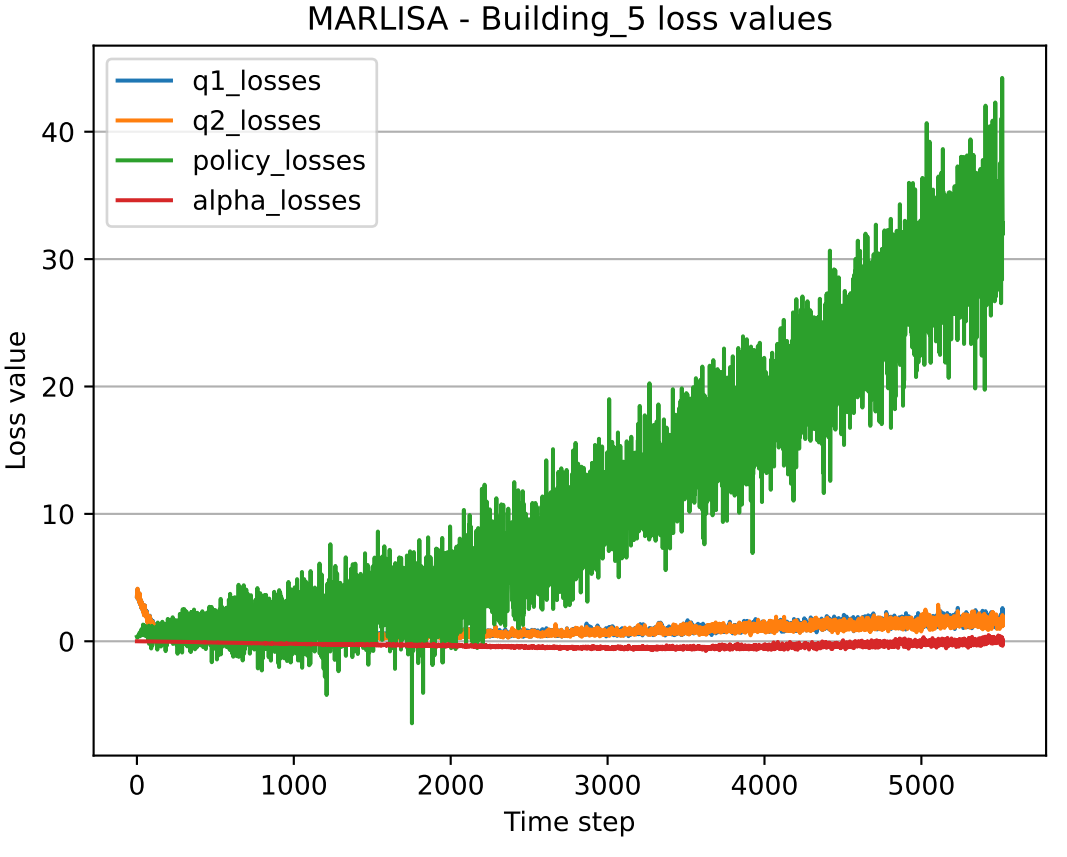

Used PV / available share (Building_17)
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

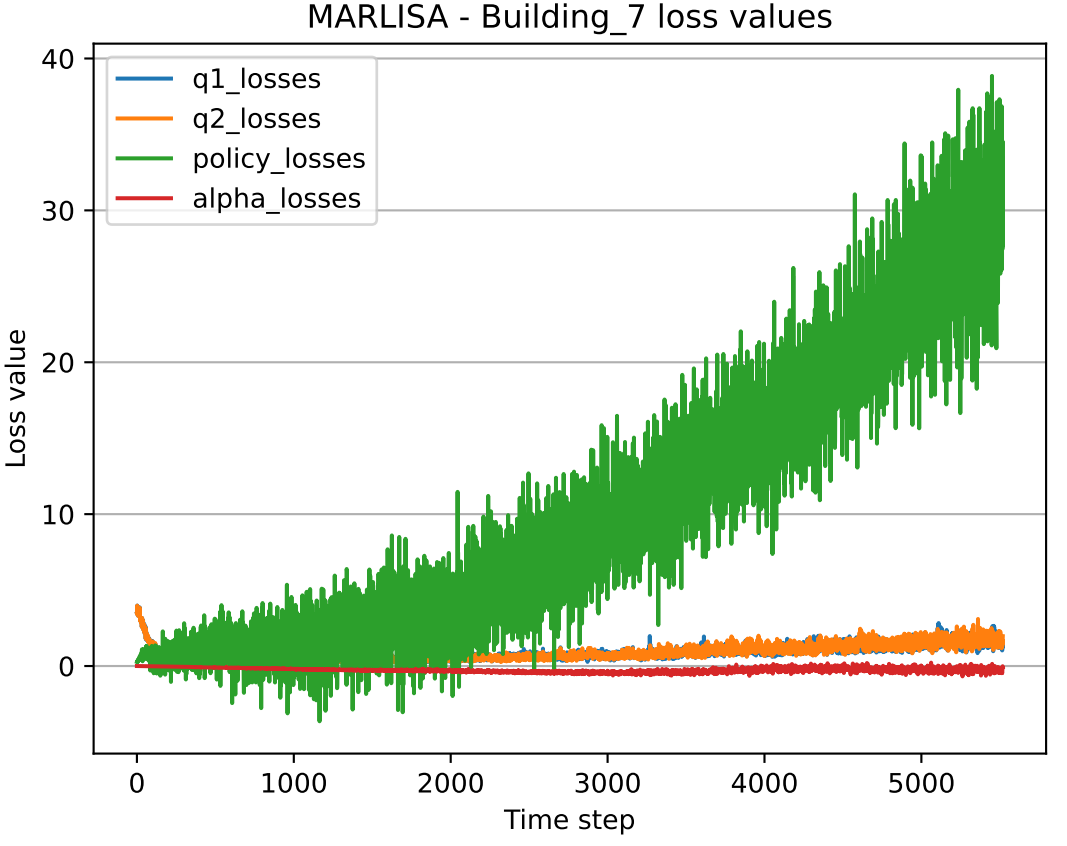

District-level used renewable energy grid / available
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

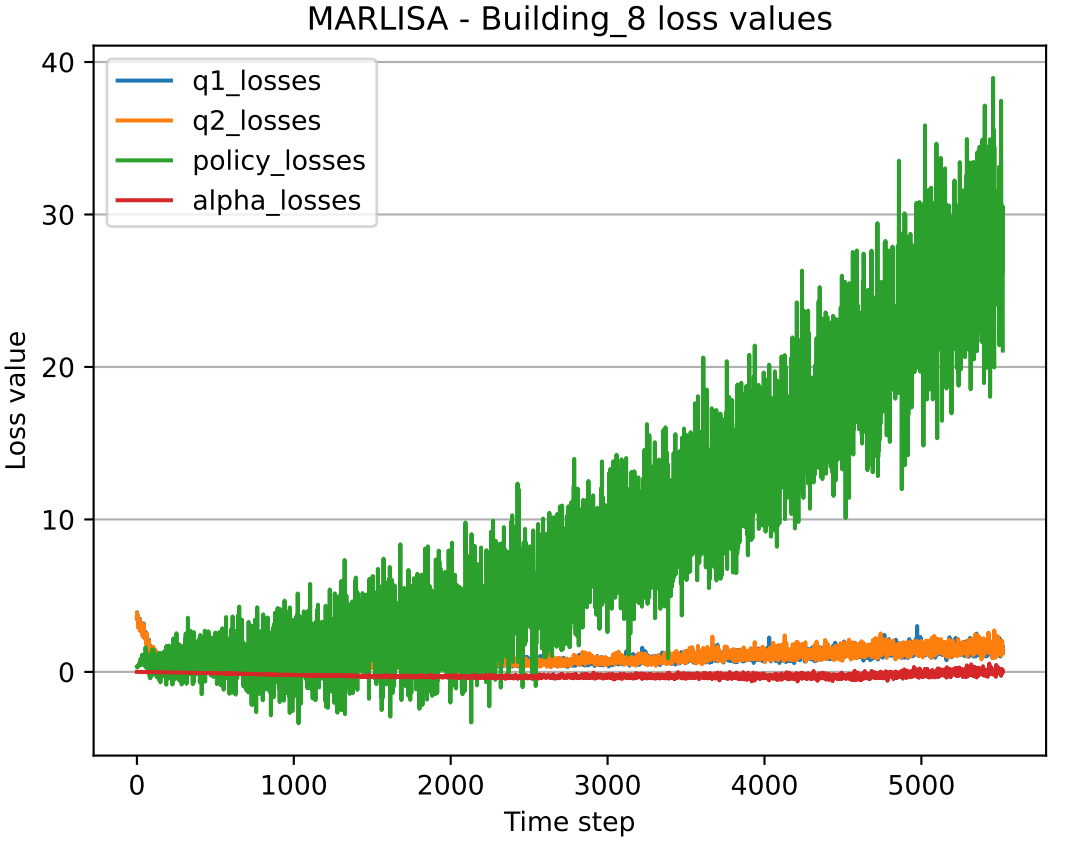

District-level used renewable energy / available
1.0
0.8
0.6
0.4
0.2
0.0
%
0
2000
4000
6000
8000
Time
RBC
MARLISA
MARLISA Best

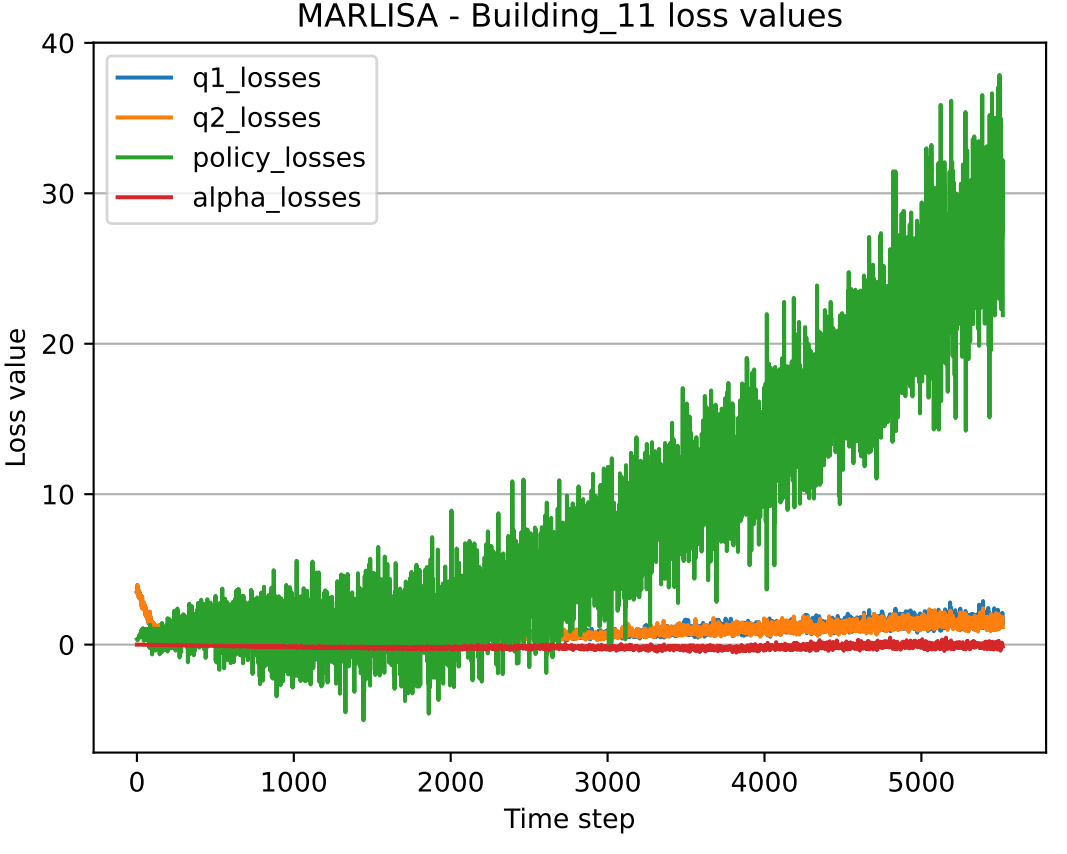

District-level fossil energy consumption
RBC
MARLISA
MARLISA Best
Fossil consumption [kWh]
Time
0
2000
4000
6000
8000
2
3
4
5
6
7
8

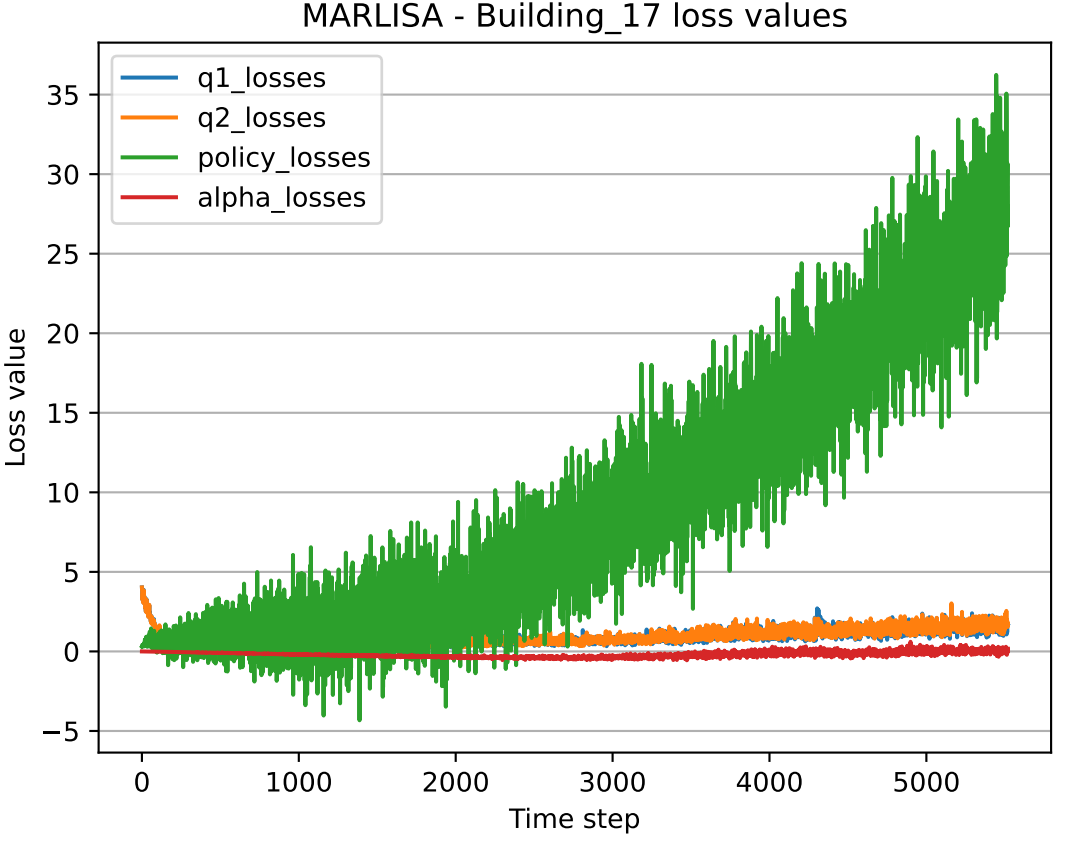

MARLISA - Building_3 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
40
30
20
10
0
0
1000
2000
3000
4000
5000
Time step

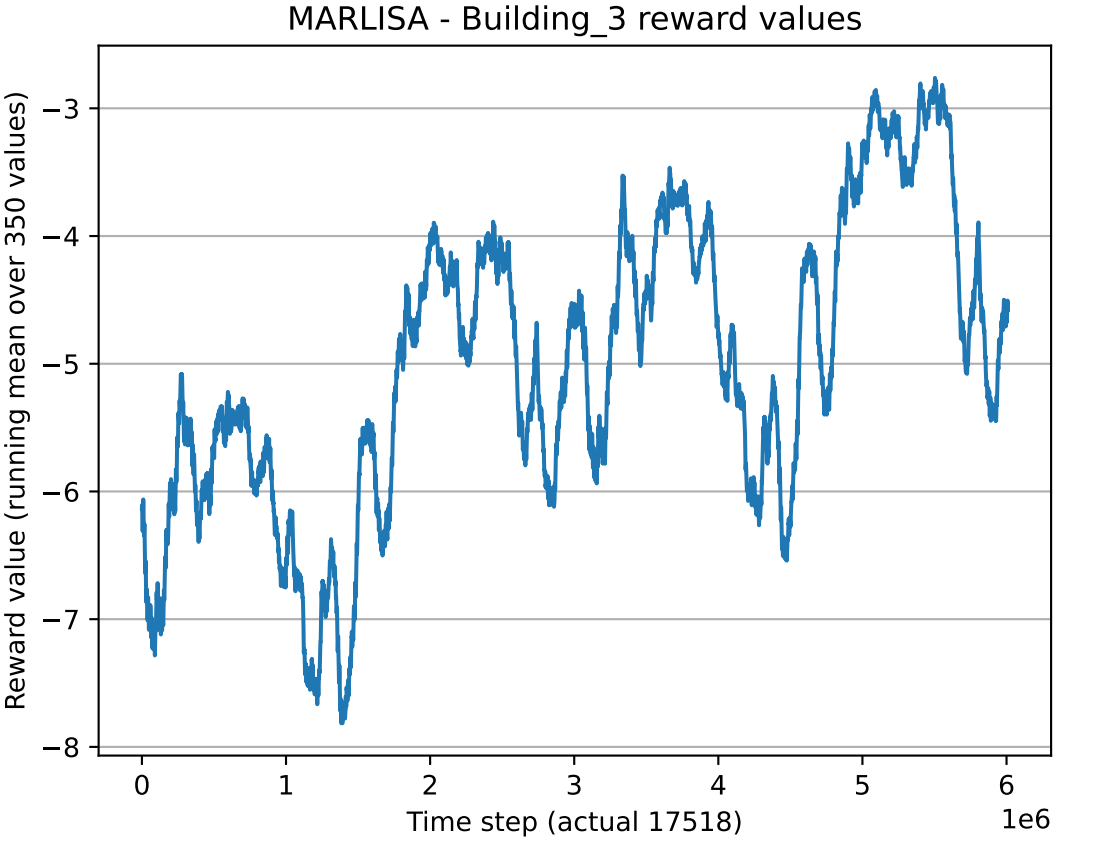

MARLISA - Building_5 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
40
30
20
10
0
0
1000
2000
3000
4000
5000
Time step

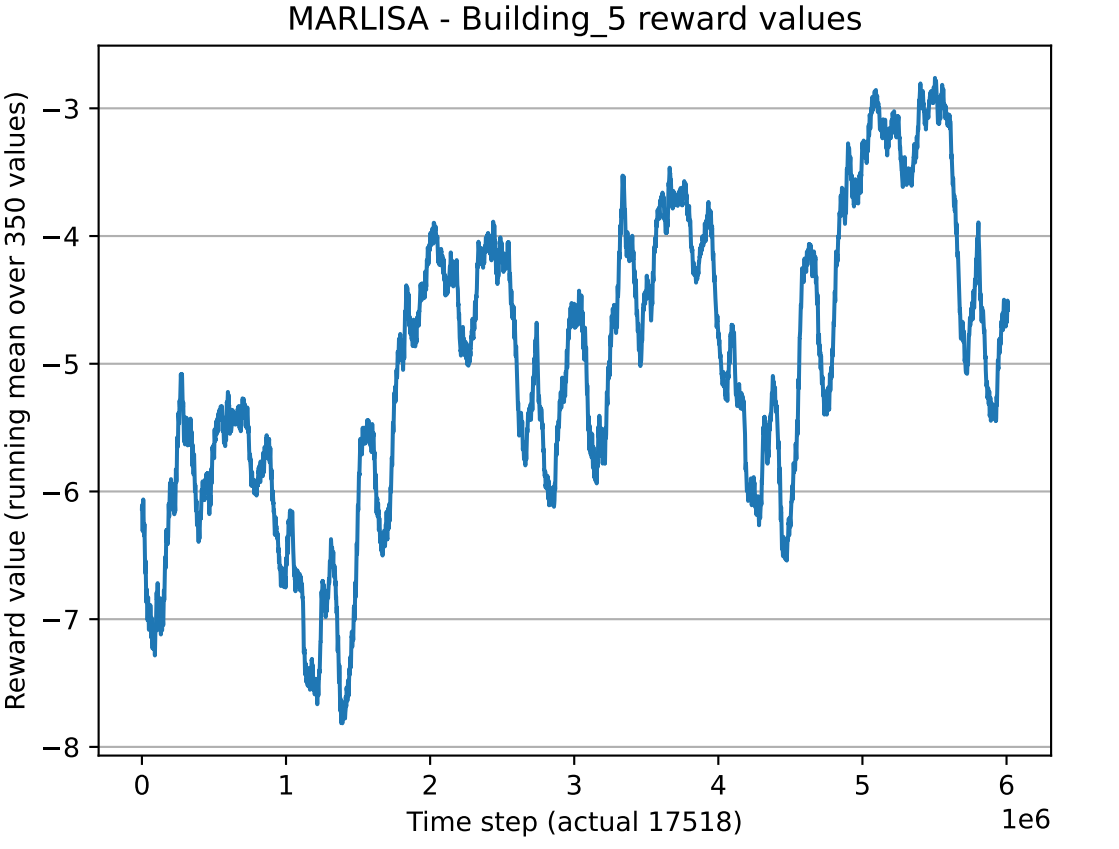

MARLISA - Building_7 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
Time step
40
30
20
10
0
0
1000
2000
3000
4000
5000

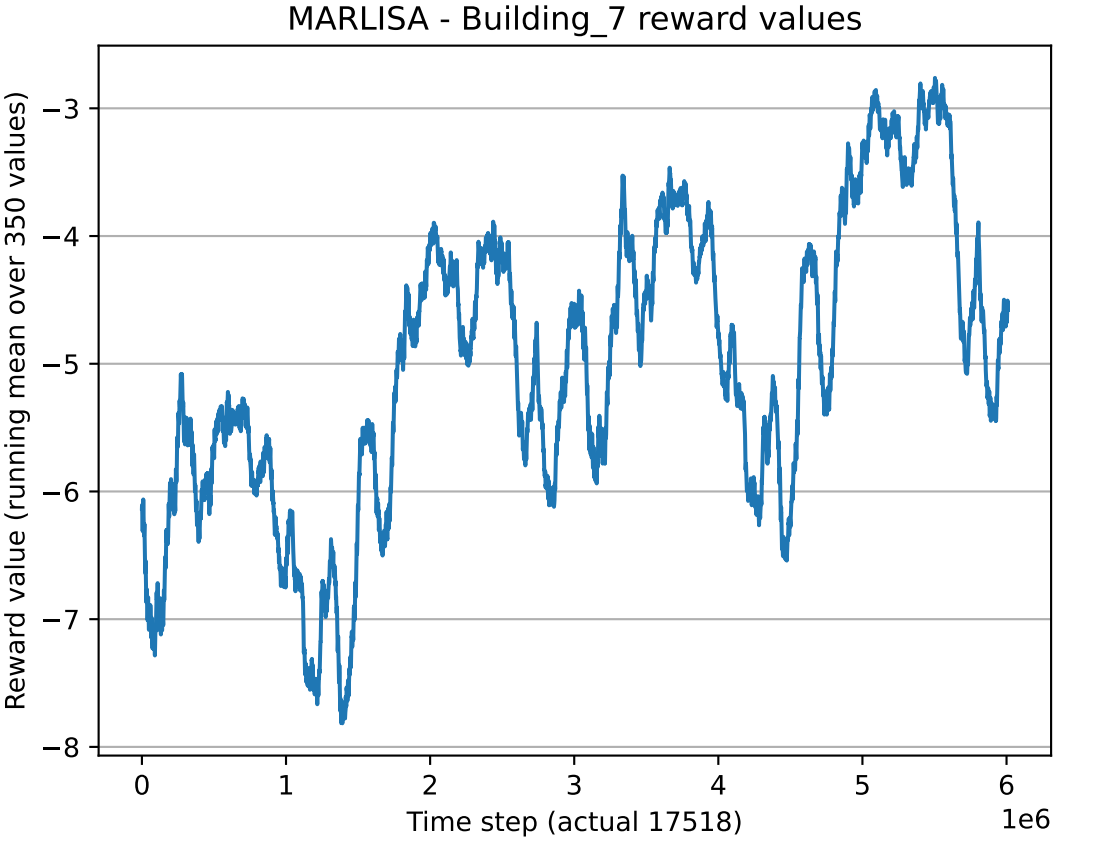

MARLISA - Building_8 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
Time step
40
30
20
10
0
0
1000
2000
3000
4000
5000

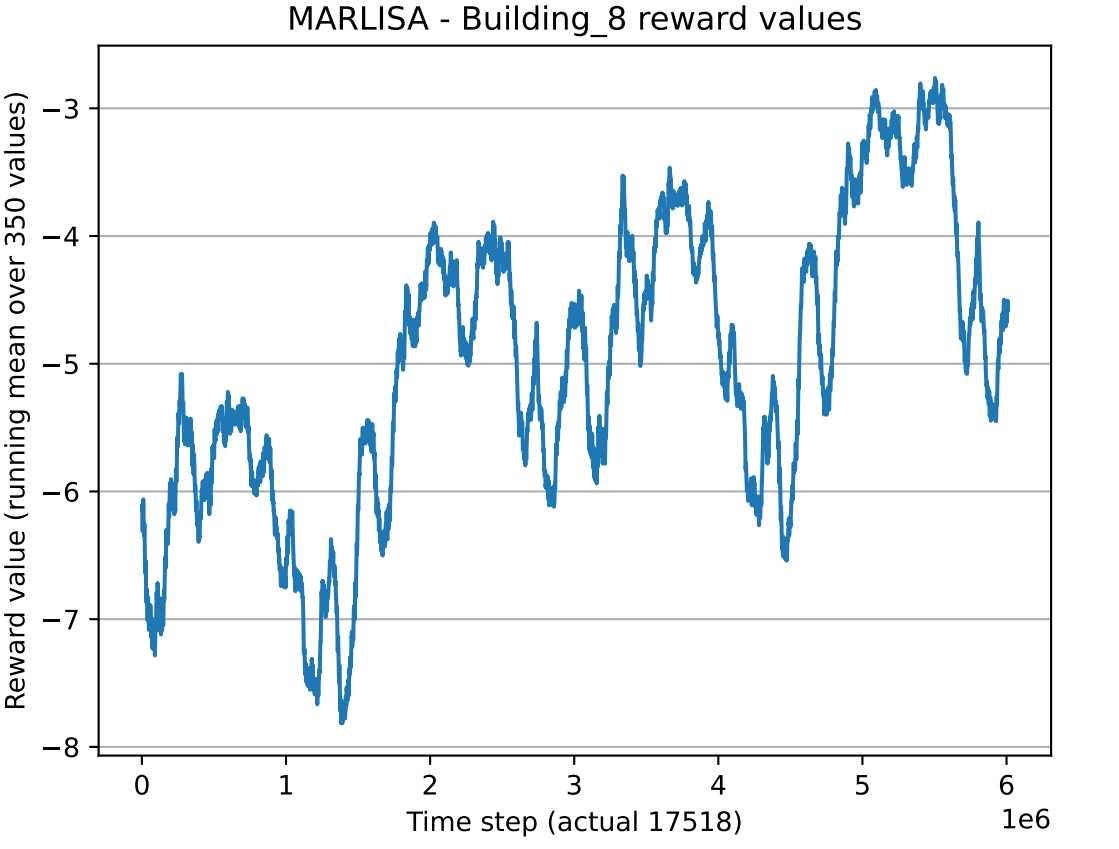

MARLISA - Building_11 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
Time step
40
30
20
10
0
0
1000
2000
3000
4000
5000

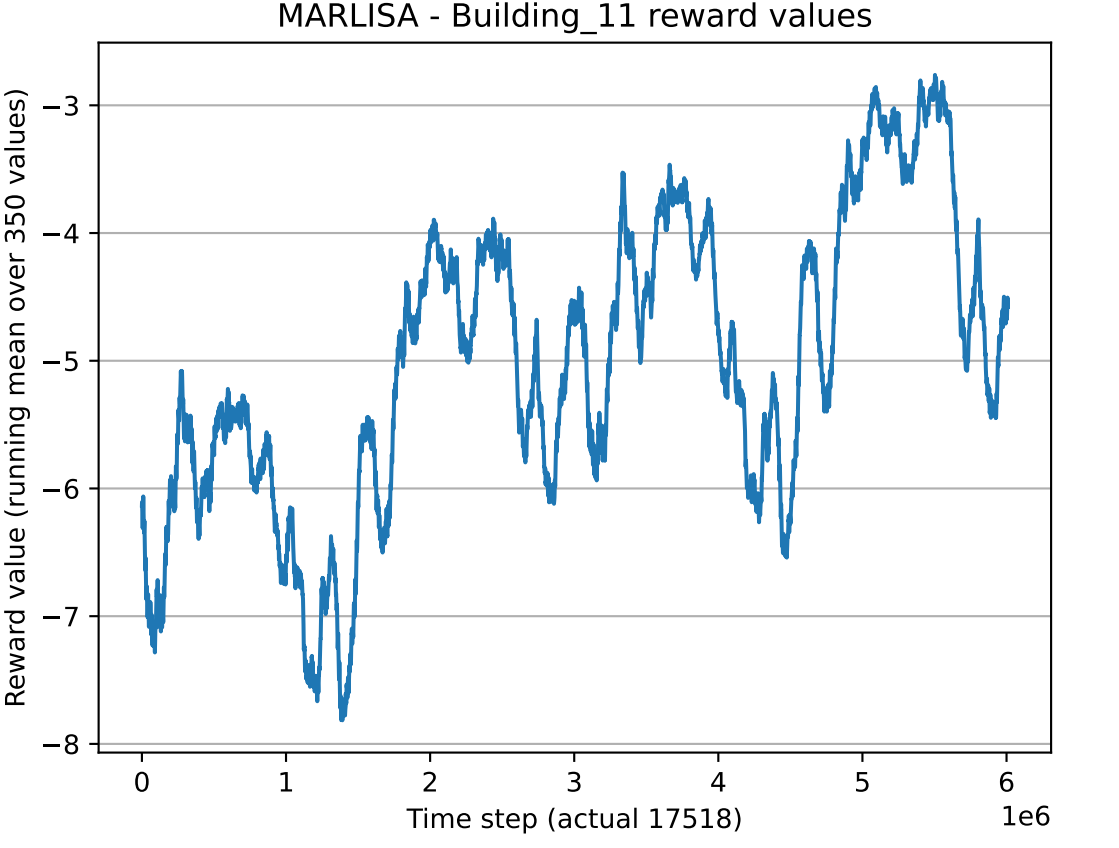

MARLISA - Building_17 loss values
q1_losses
q2_losses
policy_losses
alpha_losses
Loss value
35
30
25
20
15
10
5
0
−5
0
1000
2000
3000
4000
5000
Time step

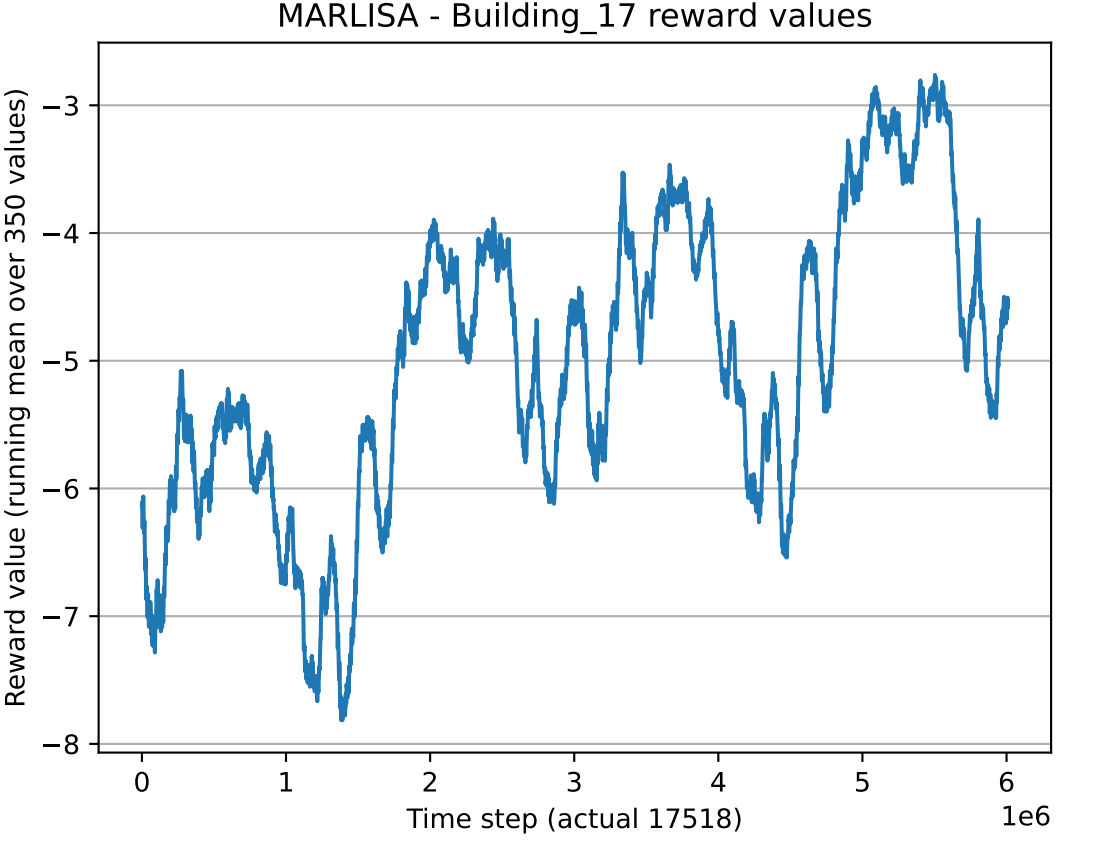

MARLISA - Building_3 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6

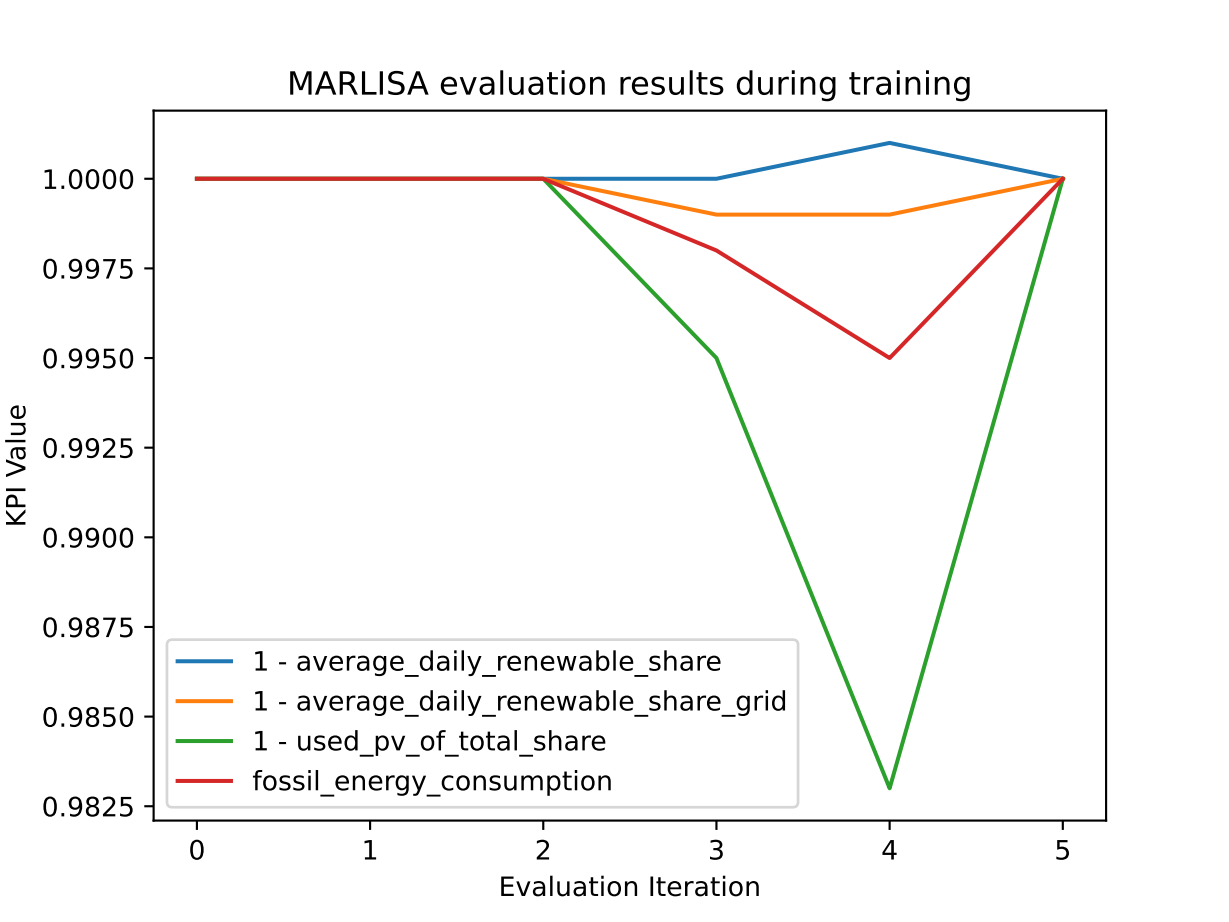

MARLISA - Building_5 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6


MARLISA - Building_7 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6


MARLISA - Building_8 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6


MARLISA - Building_11 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6


MARLISA - Building_17 reward values
Reward value (running mean over 350 values)
−3
−4
−5
−6
−7
−8
0
1
2
3
4
5
6
Time step (actual 17518)
1e6


MARLISA evaluation results during training
KPI Value
1.0000
0.9975
0.9950
0.9925
0.9900
0.9875
0.9850
0.9825
0
1
2
3
4
5
Evaluation Iteration
1 - average_daily_renewable_share
1 - average_daily_renewable_share_grid
1 - used_pv_of_total_share
fossil_energy_consumption