Jorge Velásquez

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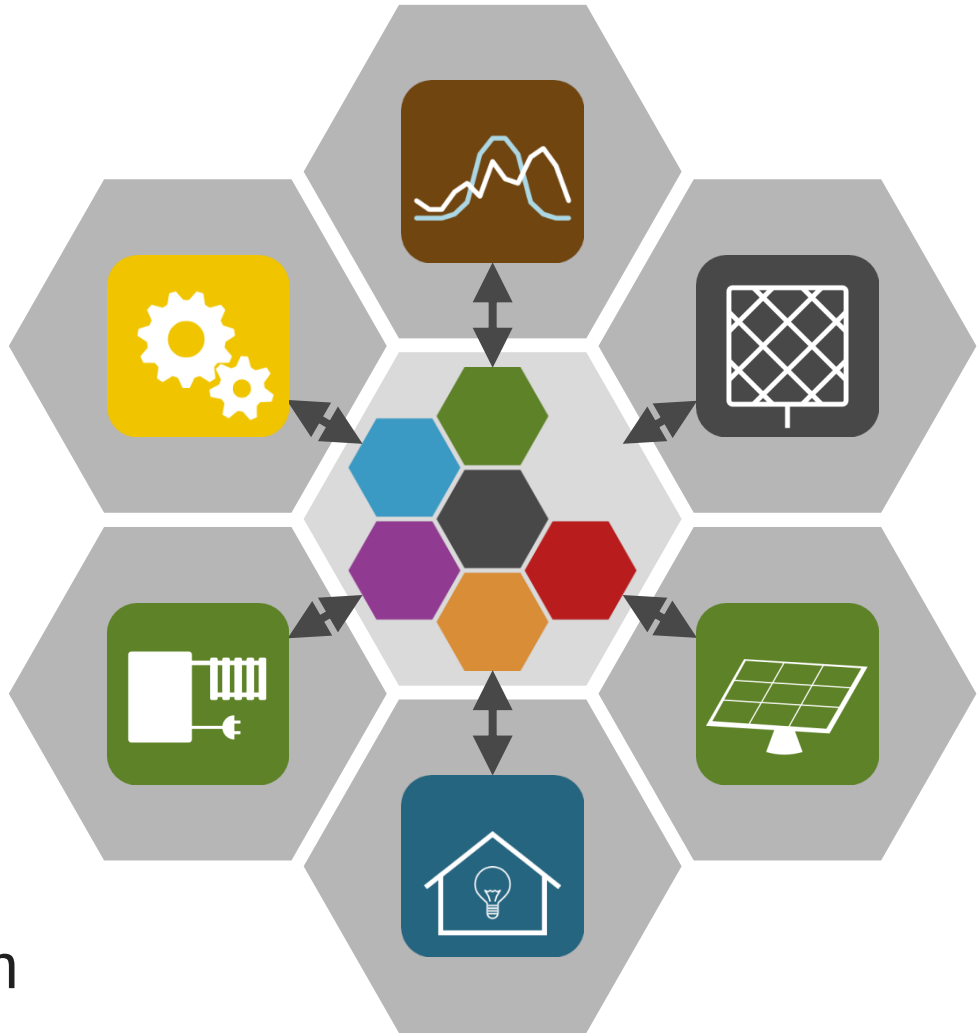
OFFIS

mosaik

A Flexible Smart Grid Co-simulation Framework

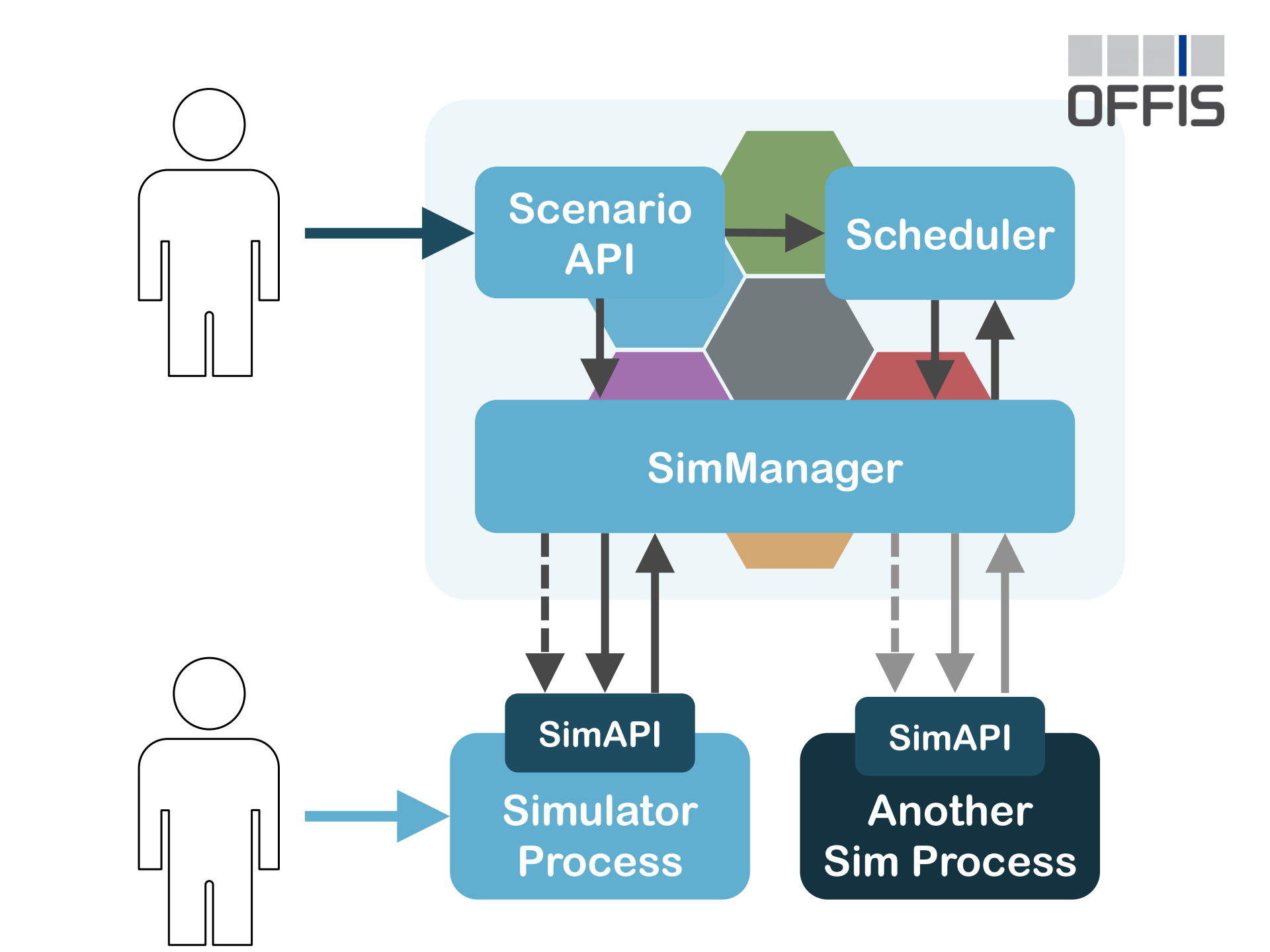
OFFIS

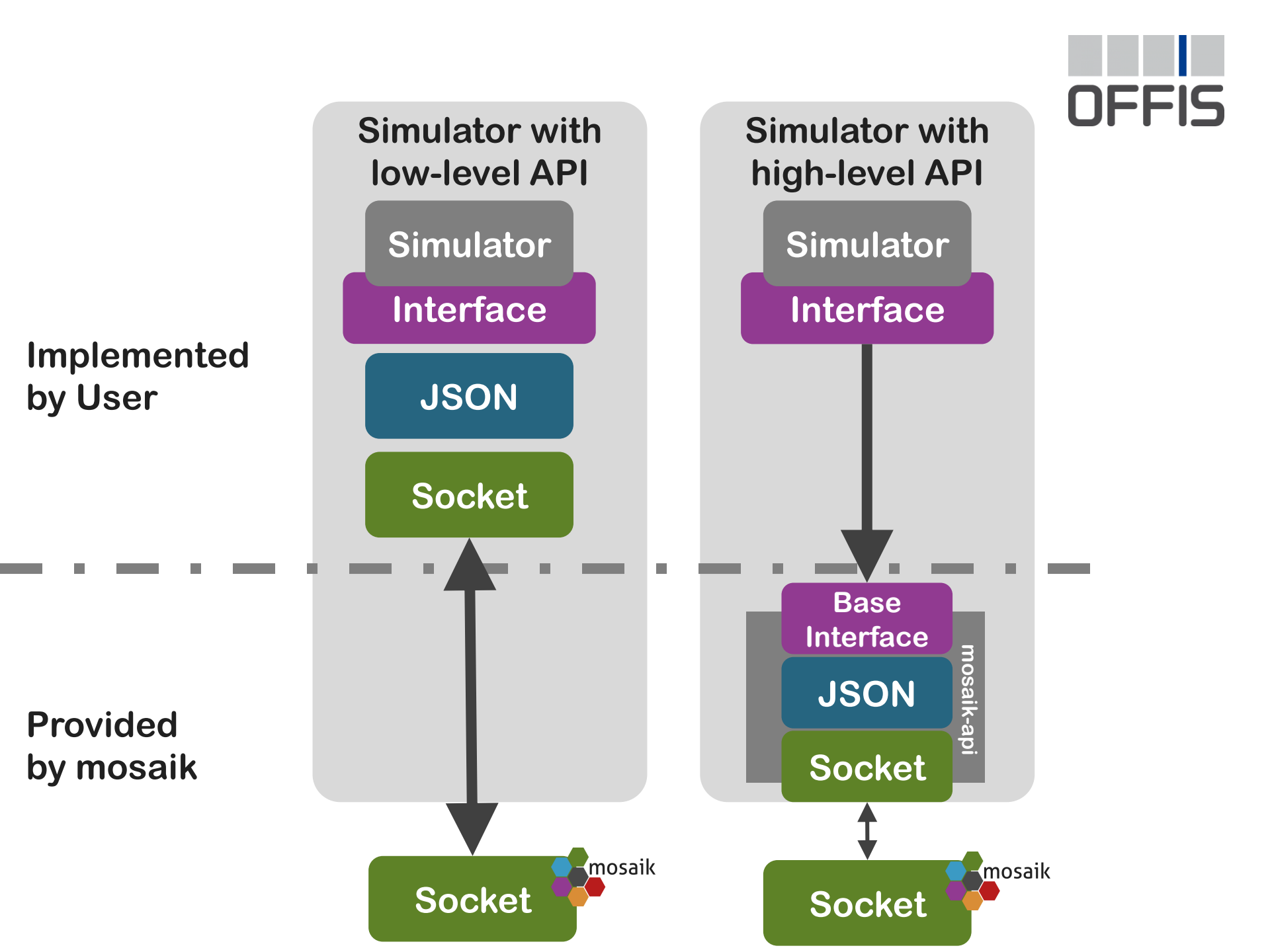


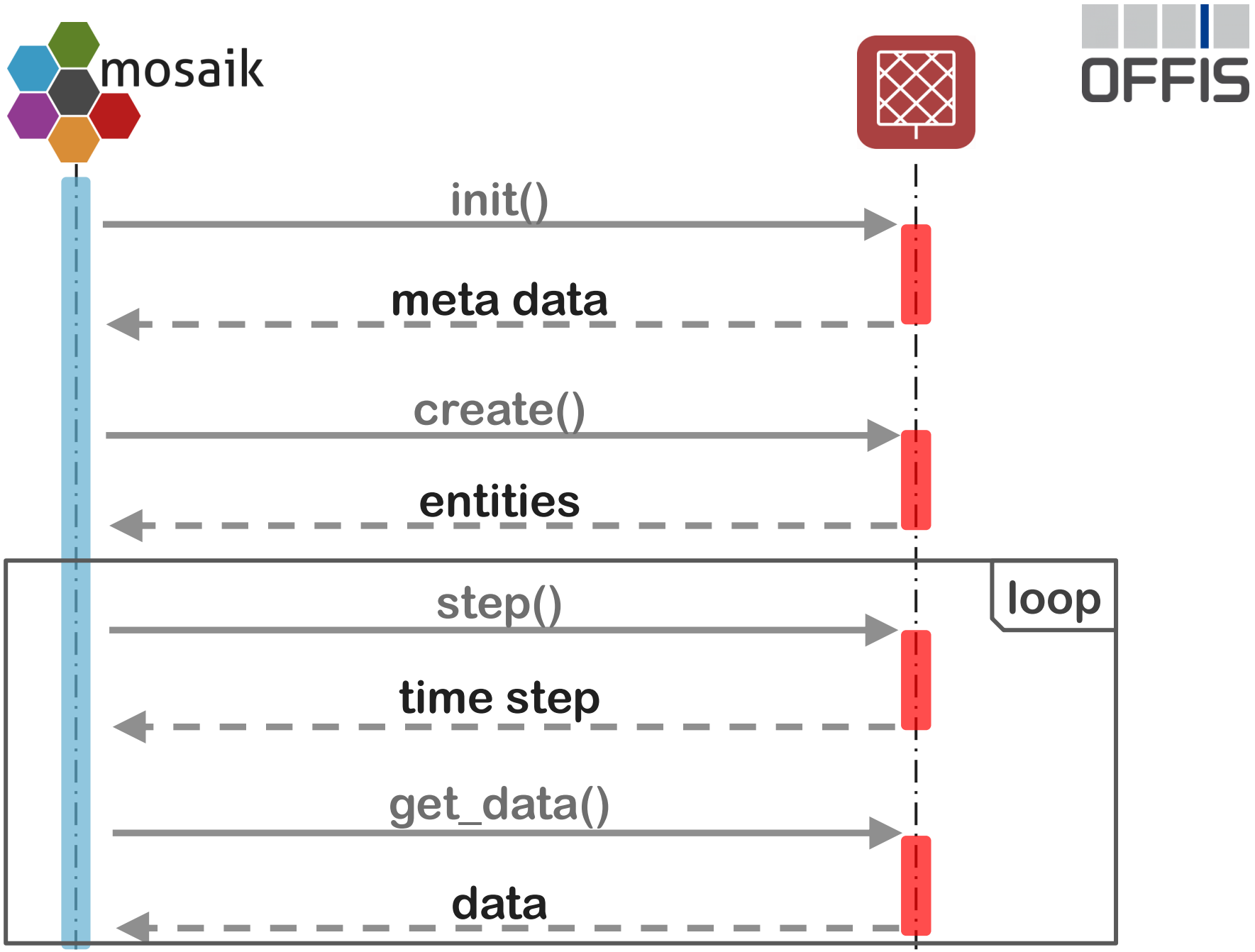
mosaik

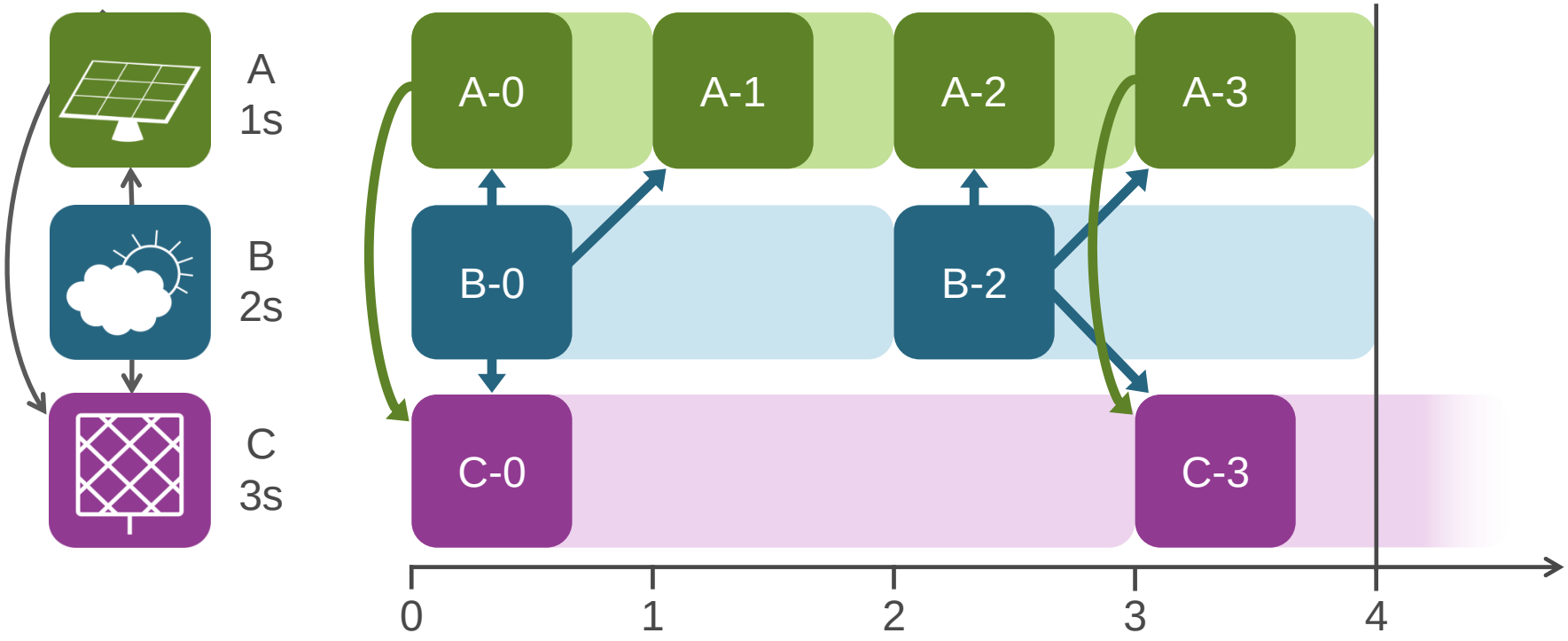
Eco-system

https://mosaik.offis.de/


OFFIS
Scenario API
Scheduler
SimManager
SimAPI
Simulator Process
SimAPI
Another Sim Process


OFFIS
Simulator with low-level API
Simulator
Interface
JSON
Socket
Simulator with high-level API
Simulator
Interface
Implemented by User
Provided by mosaik
Base Interface
JSON
Socket
mosaik-api
Socket
mosaik
Socket
mosaik


mosaik
OFFIS
init()
meta data
create()
entities
loop
step()
time step
get_data()
data



A.step(C.step(3) → 6 (2) → 4

acceptance

specialized and detailed simulation

validated simulators are oftentimes commercial

simplicity to use

budget

research project have limited amount of money

PowerFactory

- Used and accepted by the industry
- AC and DC power flow
- Short-circuit analysis
- Graphical user interface

http://www.digsilent.de/

OFFIS

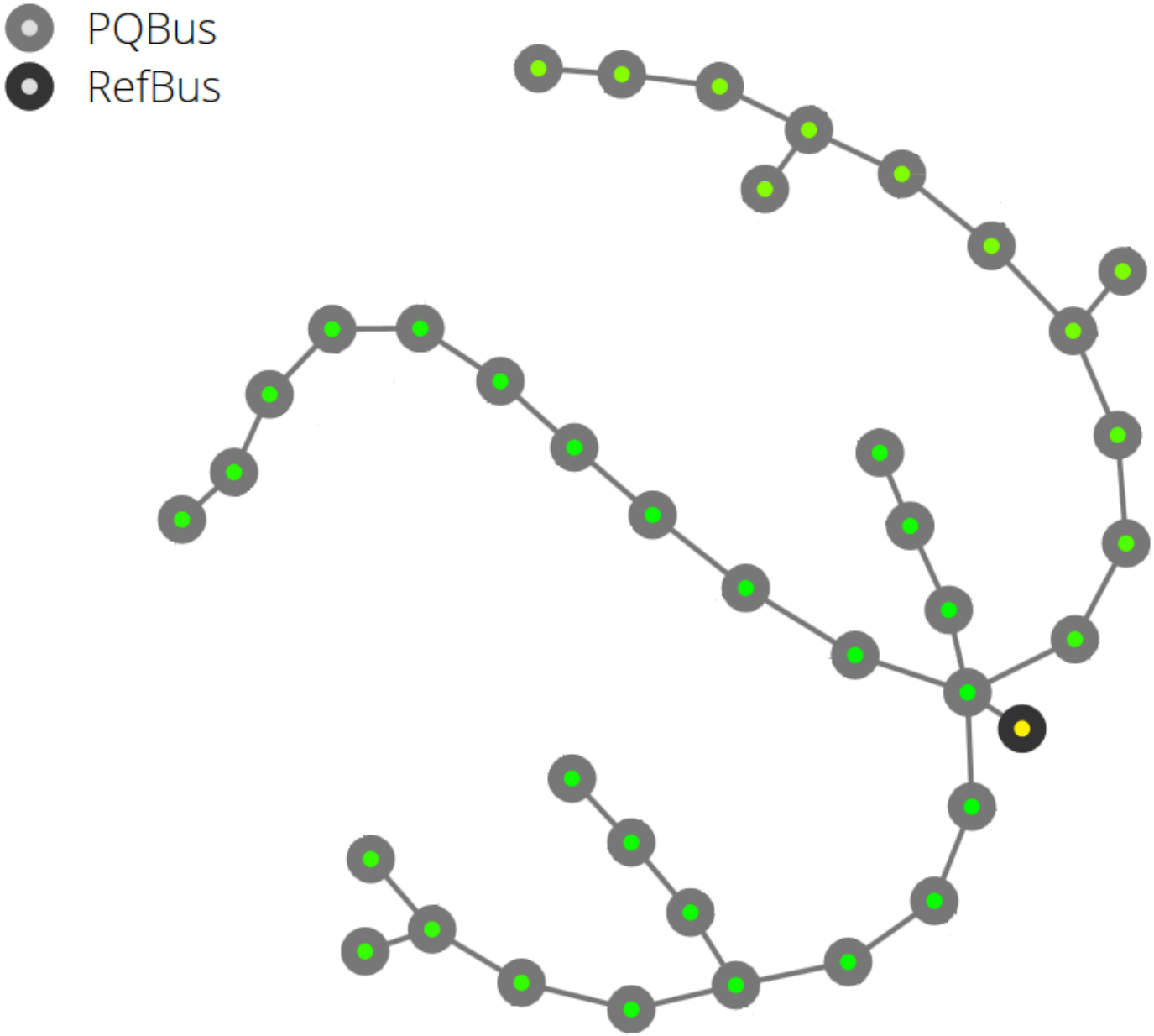
PYPOWER

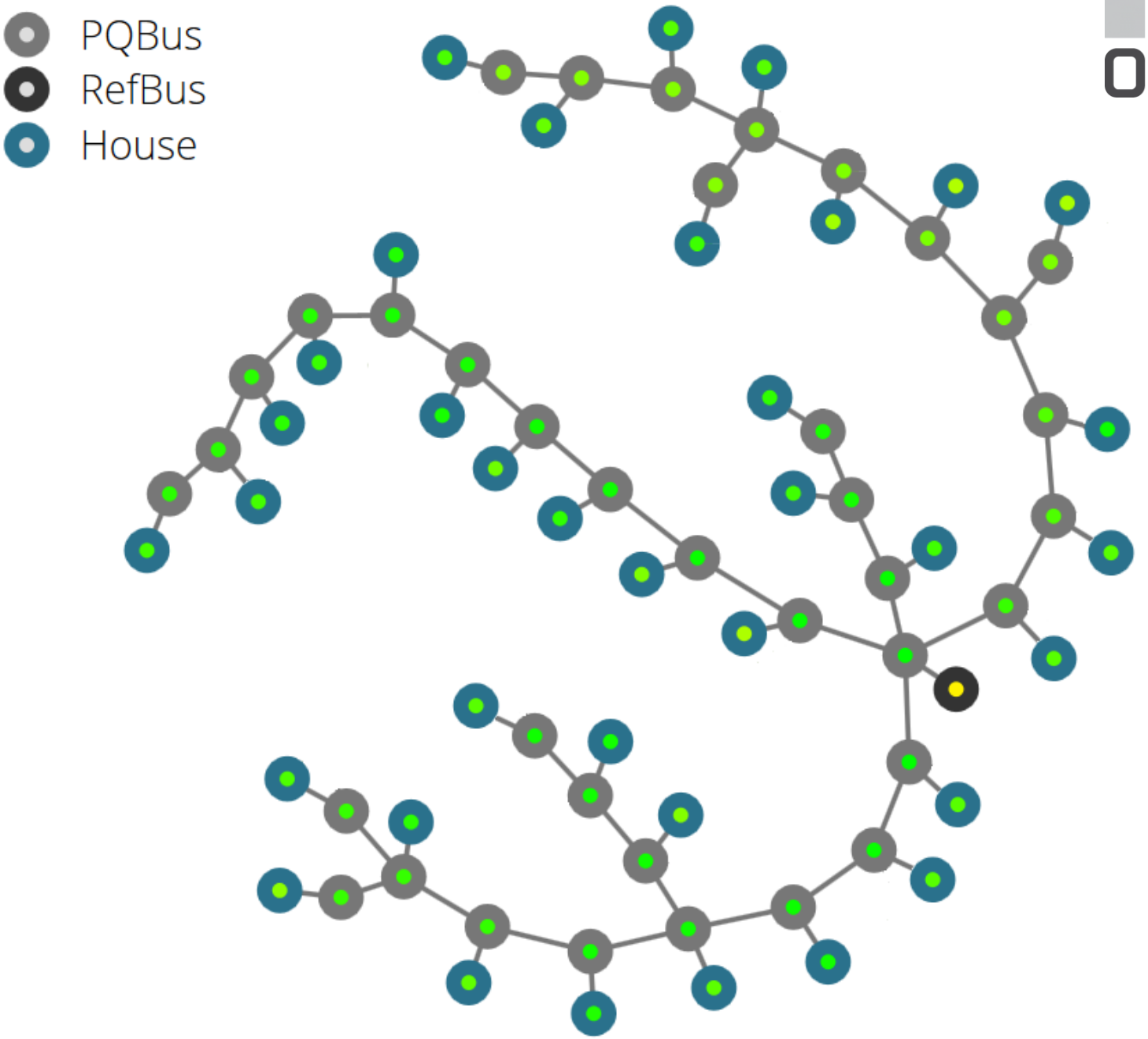
Open source

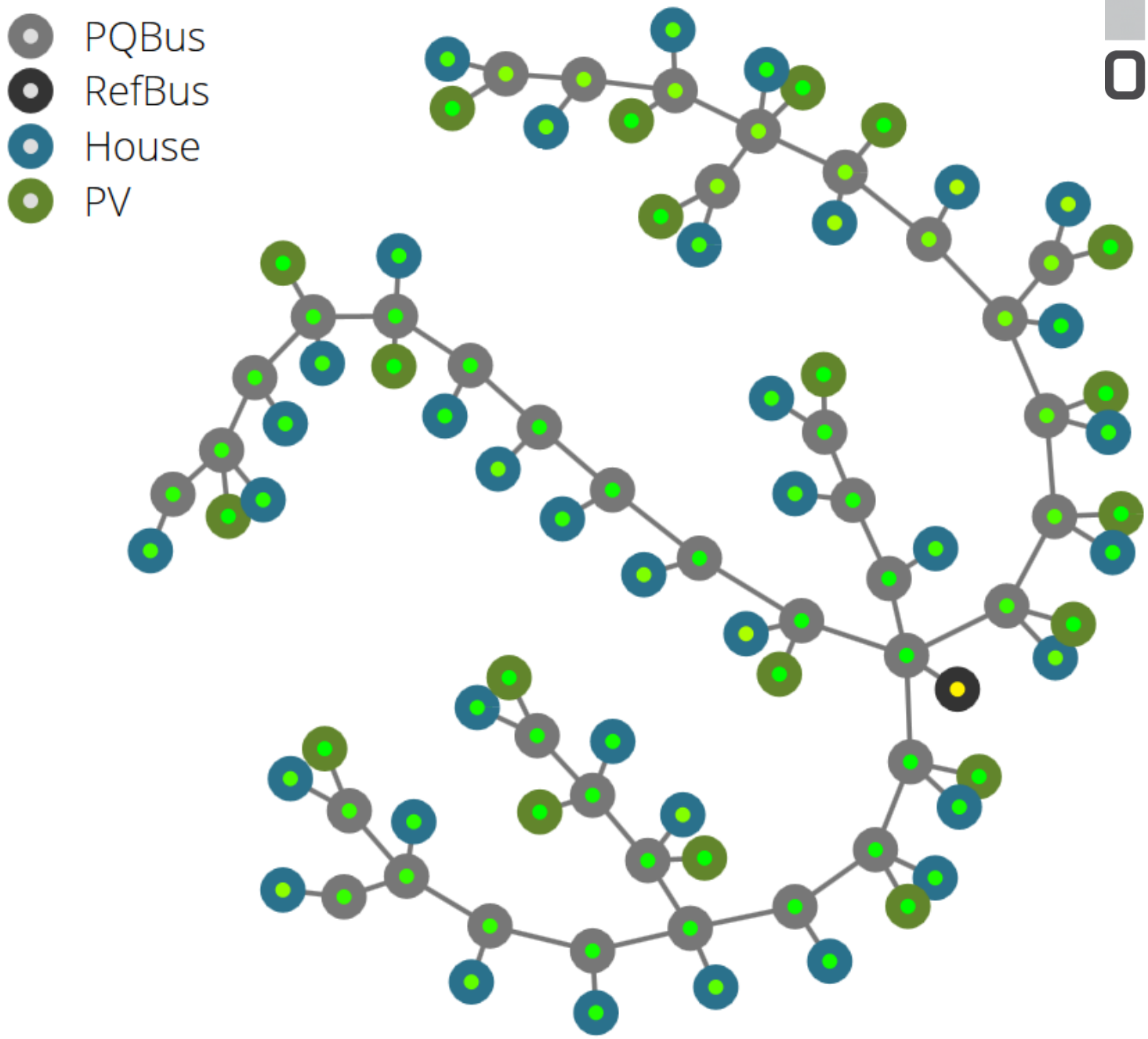
Used mainly for academic purposes

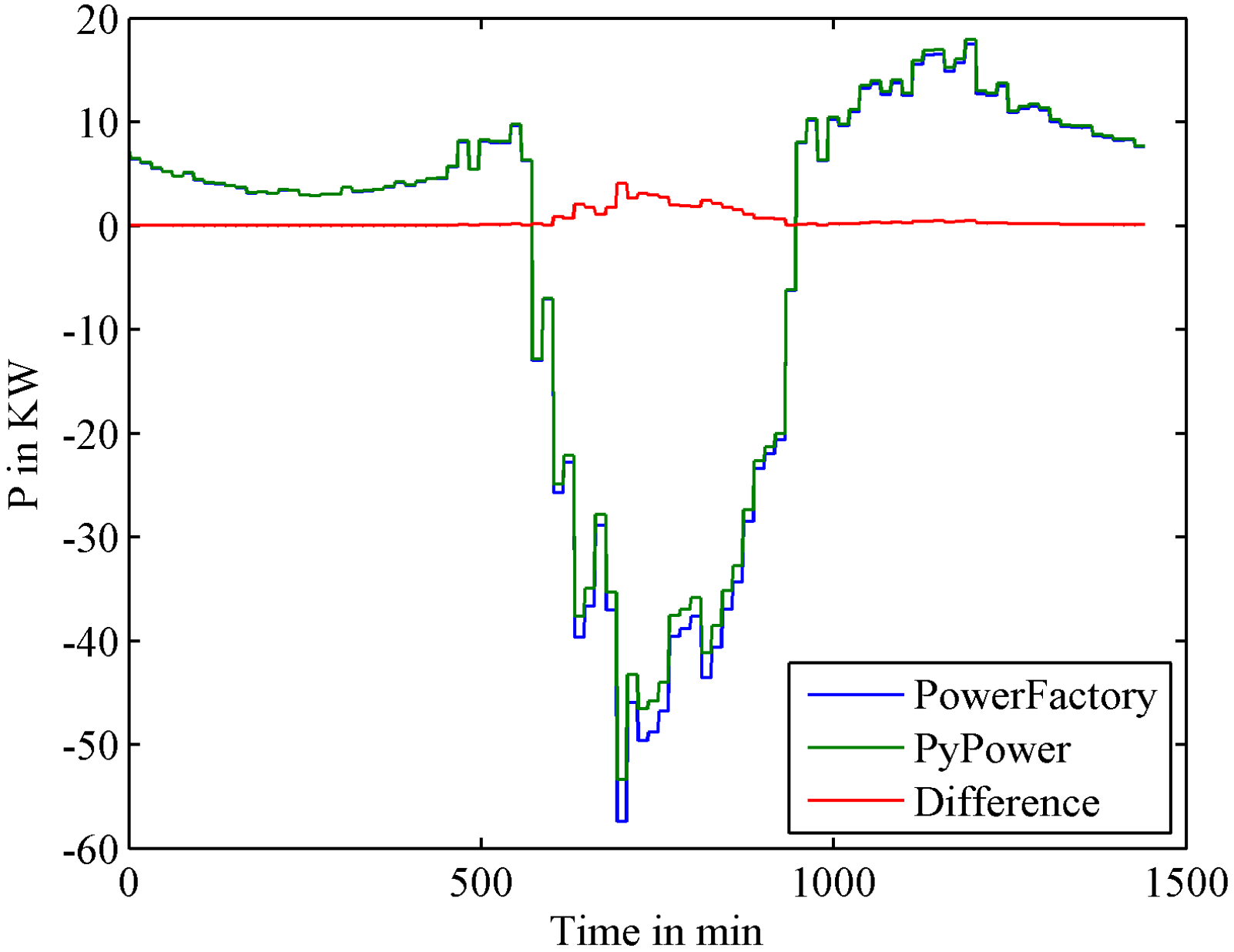
Straight forward to use

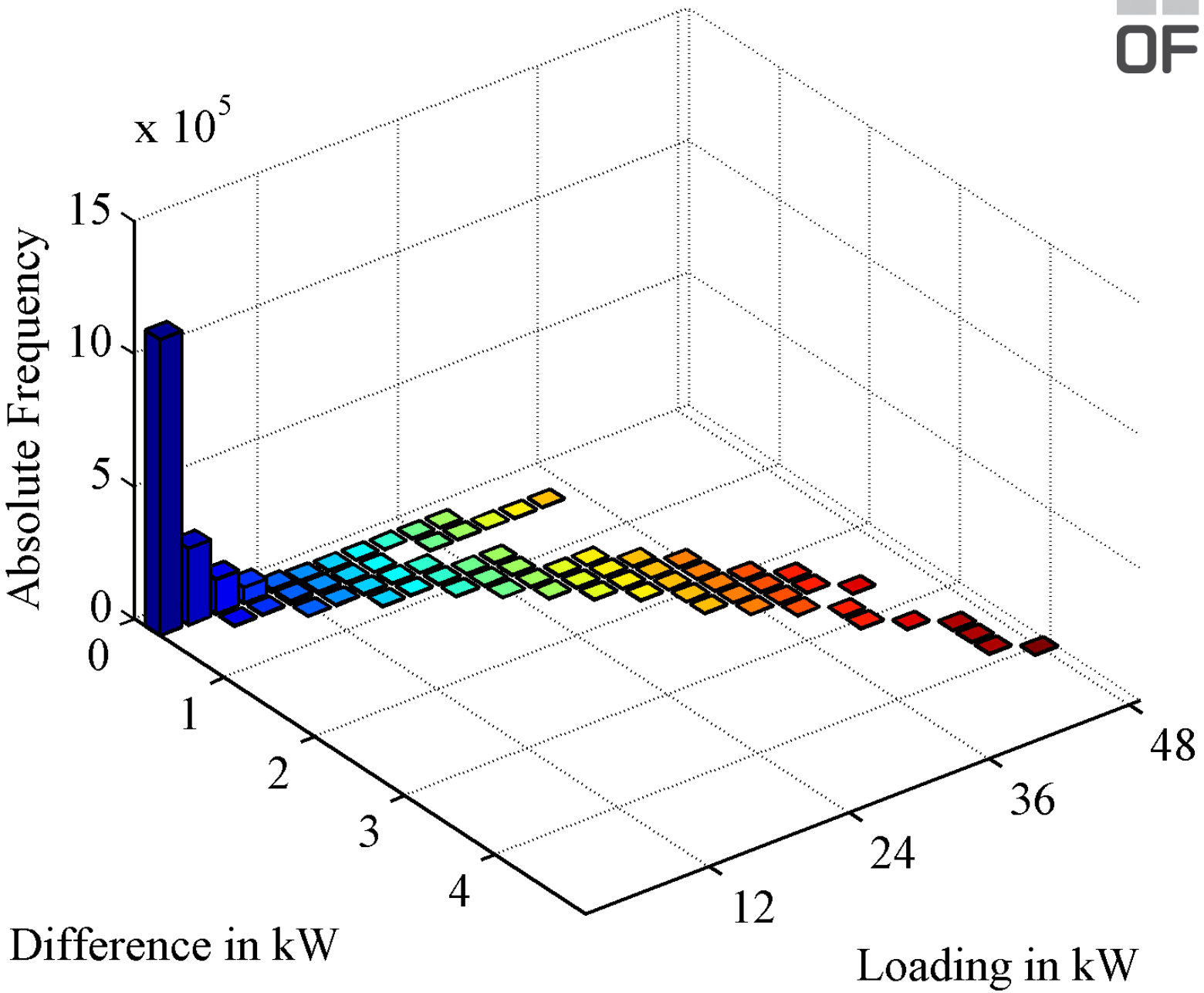
https://pypi.python.org/pypi/PYPOWER/4.0.0

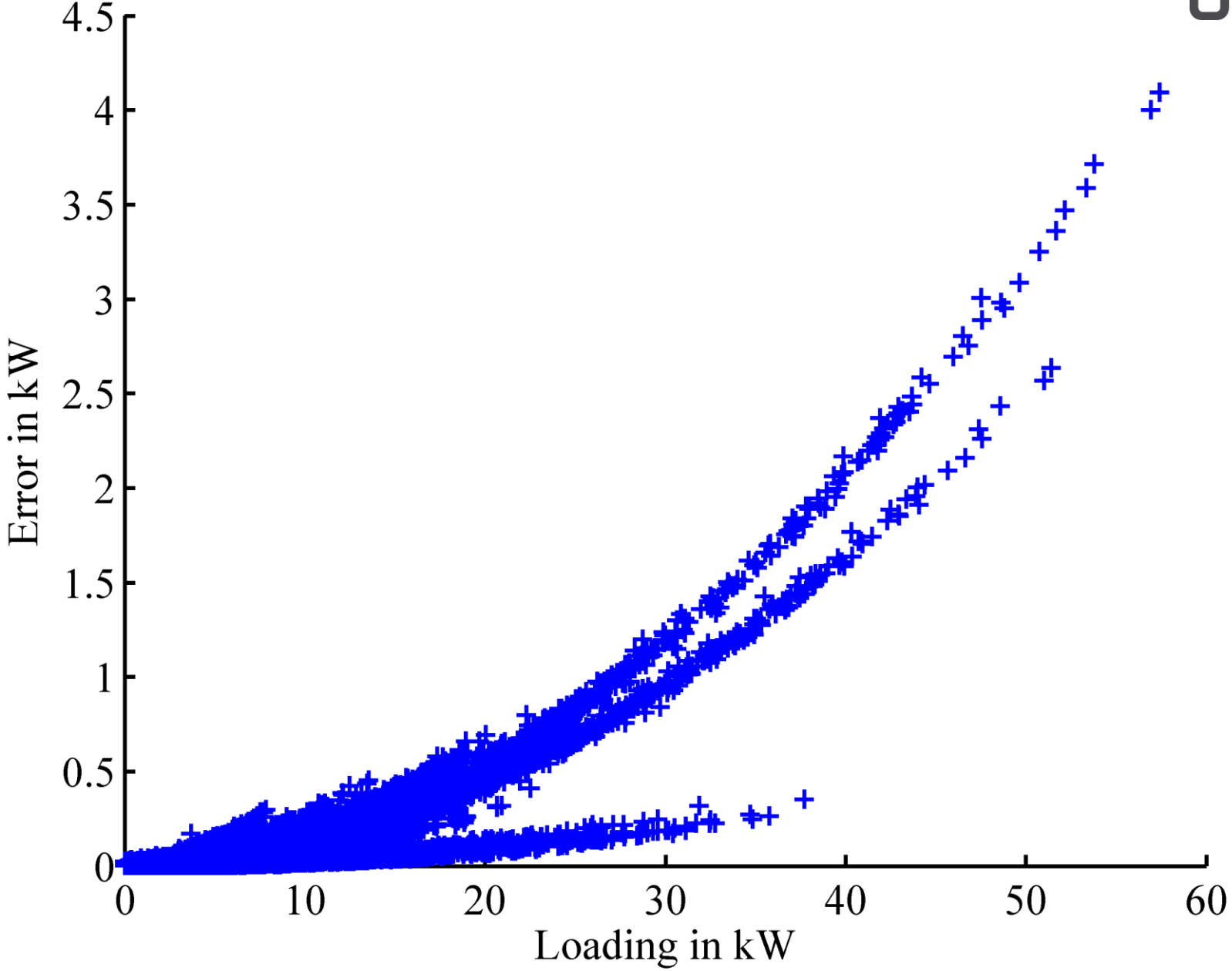

PQBus
RefBus


PQBus
RefBus
House


PQBus
RefBus
House
PV


20
10
0
-10
-20
-30
-40
-50
-60
P in KW
0
500
1000
1500
Time in min
PowerFactory
PyPower
Difference


x 10^5
15
10
5
0
Absolute Frequency
0
1
2
3
4
Difference in kW
12
24
36
48
Loading in kW


4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Error in kW
0
10
20
30
40
50
60
Loading in kW

exchange different models to use them in a common context

combine simulators with different cost trade-offs

assess simulator quality

validate self-developed or new simulators