Can an EOM enable resource adequacy in a ~100% RE power system in Netherlands?

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TradeRES

traderes.eu

STEP **1**
Optimal electricity trad-ing with ~100% RES

STEP **2**
Market Design and Regulation for ~100% Renewable Power Systems

STEP **5**
Engagement of Stakeholders in the new Market's Open-access Tools

STEP **3**
Development of Open-access Market Simulation Models and Tools

STEP **4**
Performance Assessment of the Market(s) Design(s)

LEC   National/ Regional   Pan-European
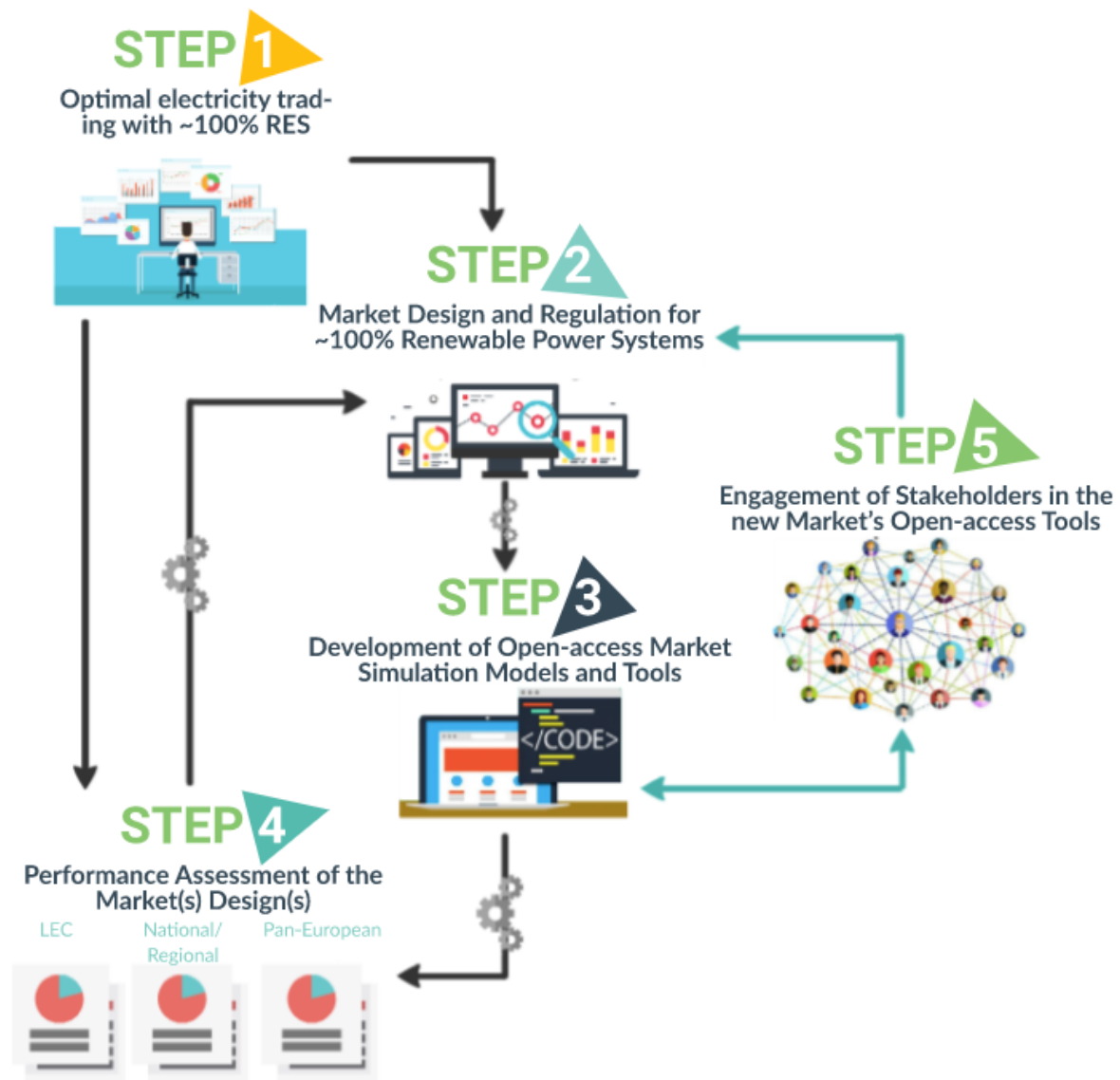
Soft coupling long-term and short-term ABM

EMLabpy

- Developed by TU Delft,

- Myopic investment decisions

- Dismantling decisions (profit-based)

- Capacity mechanisms

- Inspired in EMLab, modular and in python

AMIRIS

- Developed by DLR

- Can represent flexibilities:
  - Batteries (load shifting)
  - Demand side response (load shedding)
  - Hydrogen / Electrolyzers

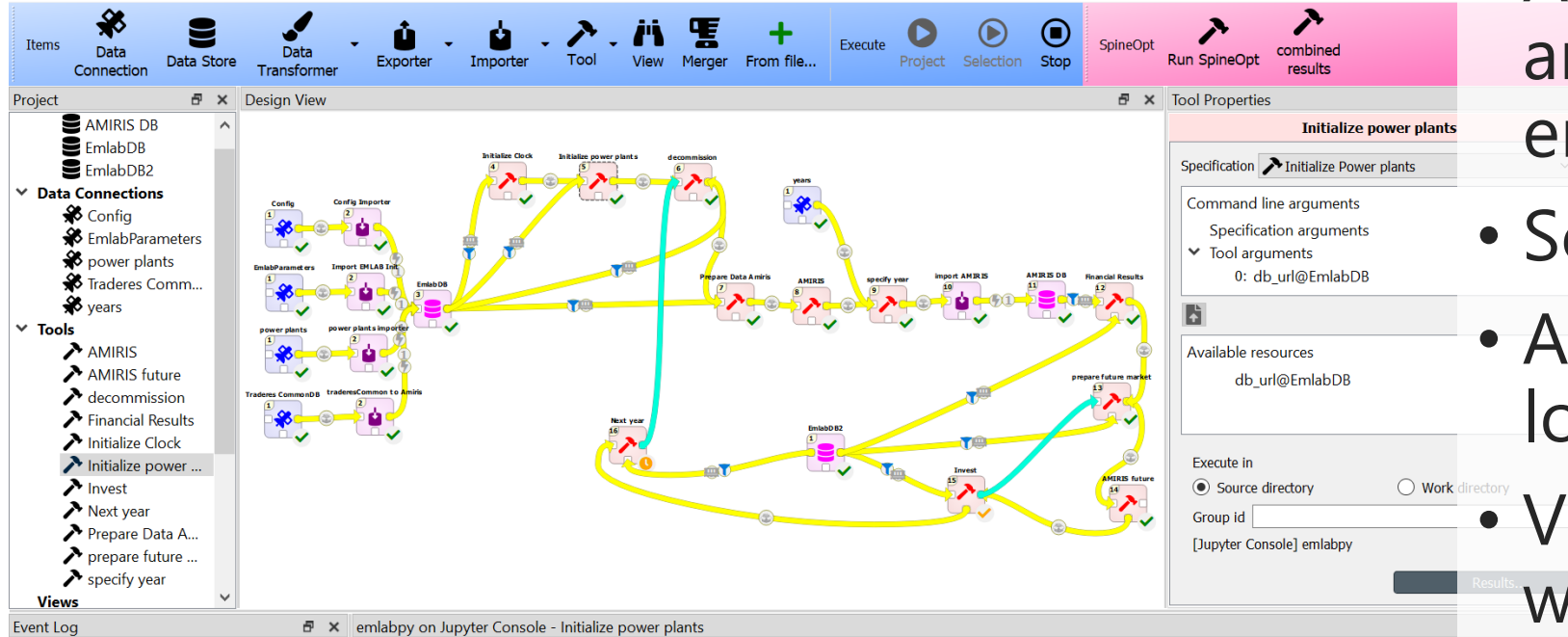- Power plants as objects, runs in minutes
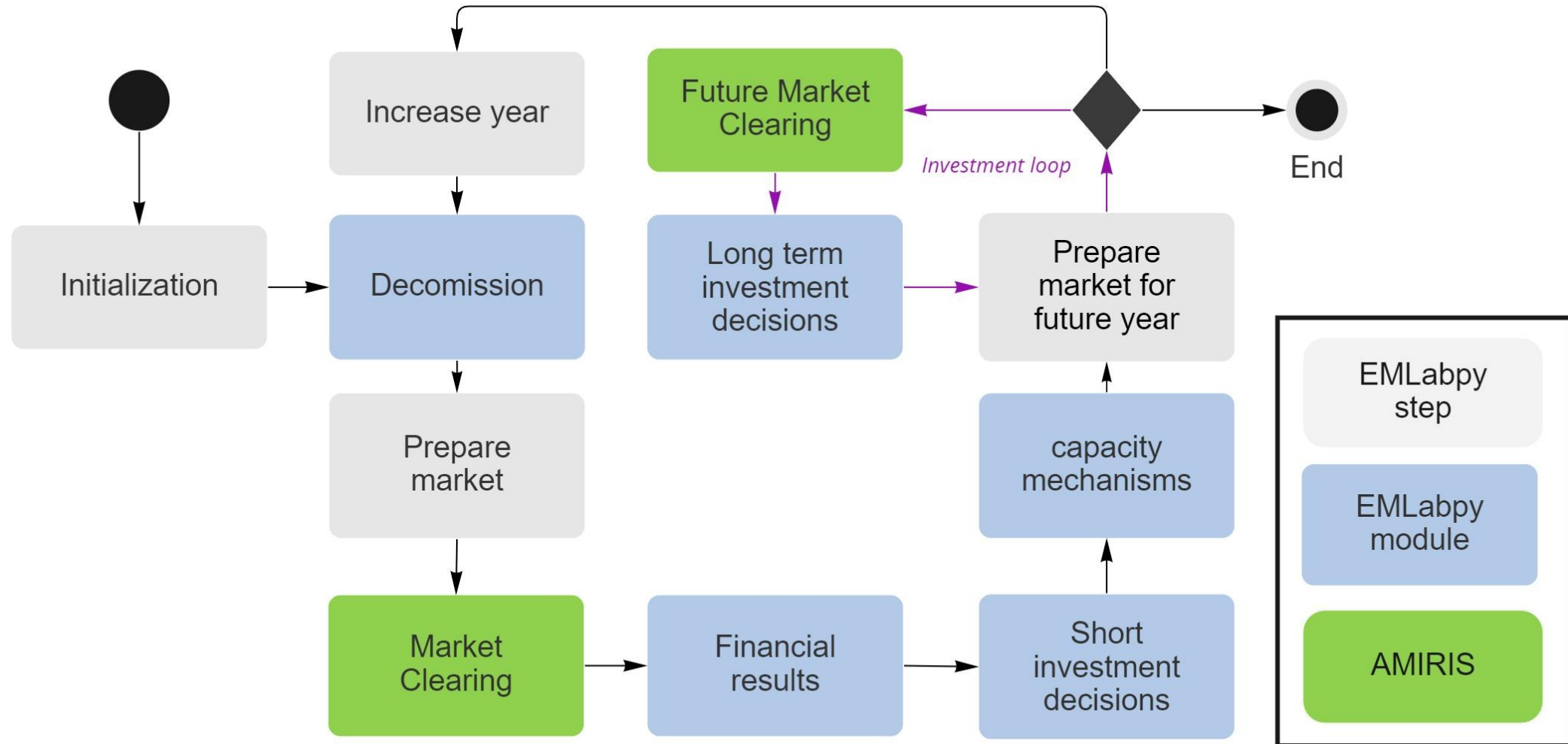
- Renewable support schemes

Parametrizable from external files

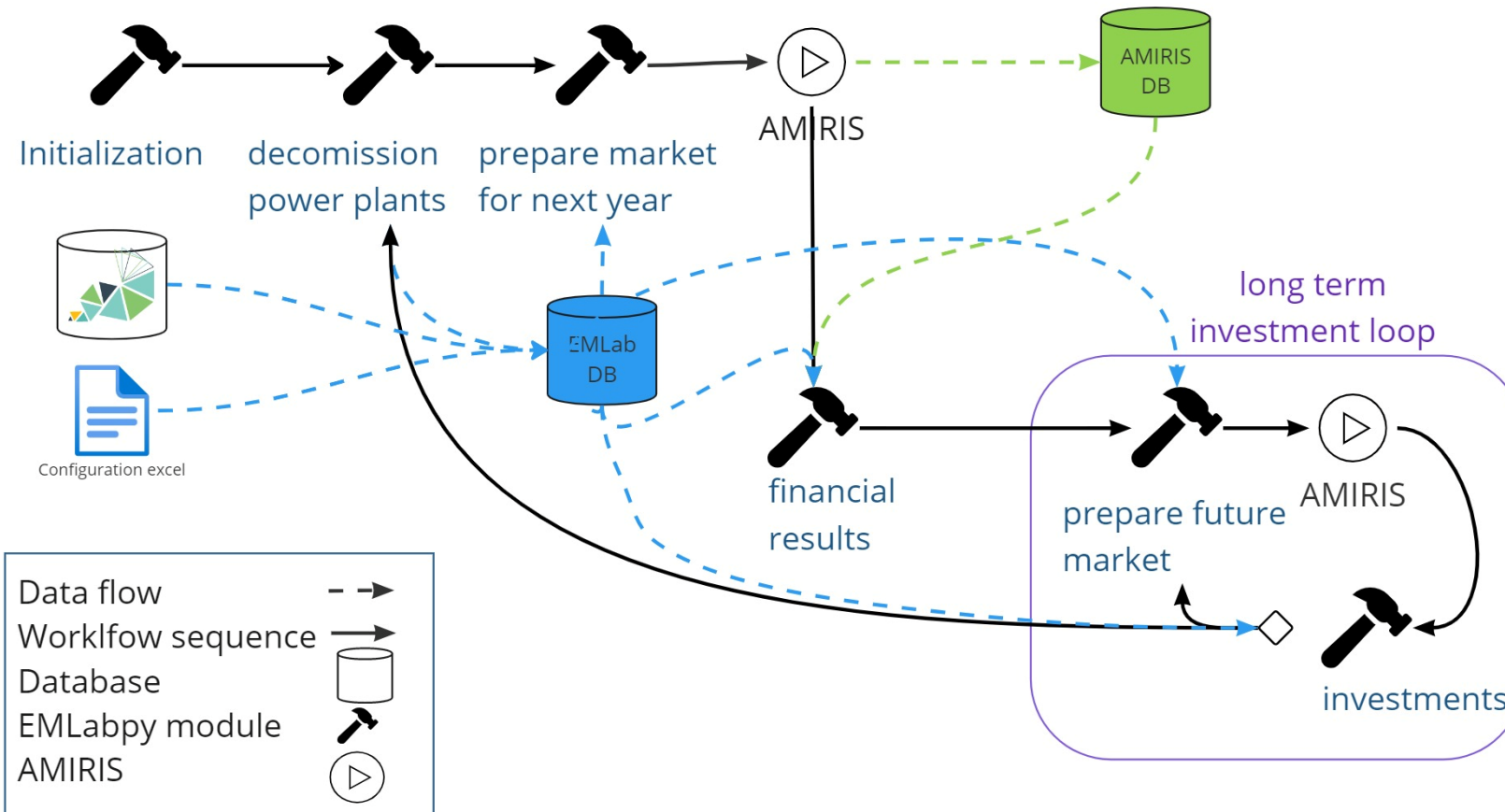# Soft coupling Amiris – Emlabpy in Spinetoolbox

- Allow to keep data in DB and modify specific entries

- Scenario management

- Allows modeling workflow loops
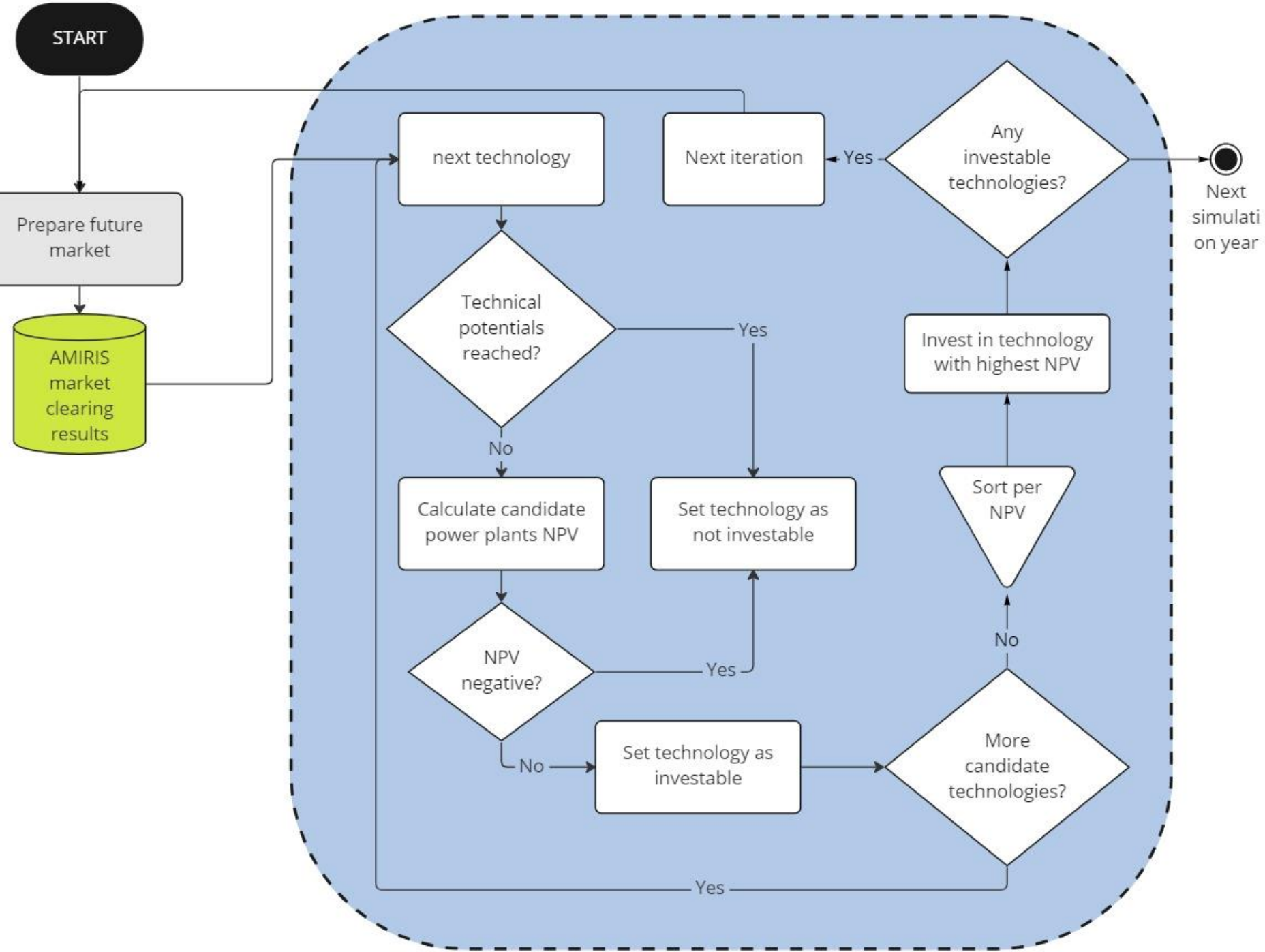
- Visualization of time series within the tool

Soft coupling Amiris – Emlabpy workflow
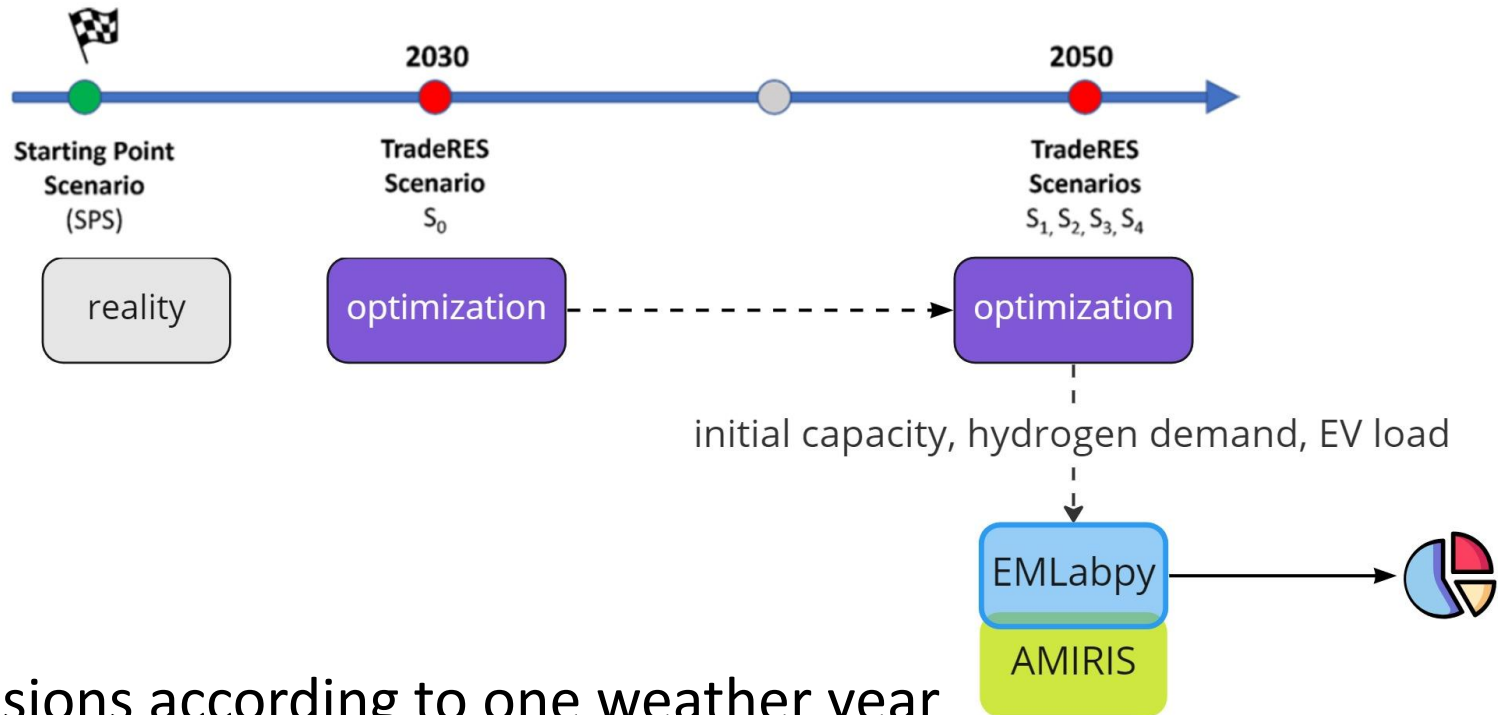
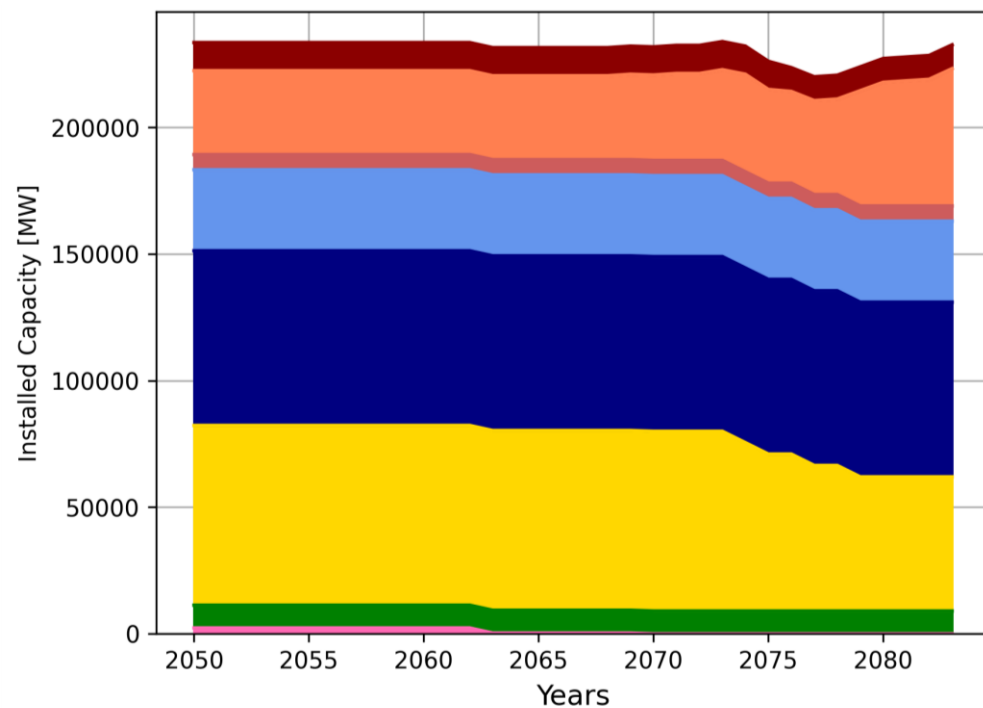# Soft coupling Amiris – Emlabpy dataflow

Investment

Case study: Netherlands ~100% REs

- Investors make decisions according to one weather year
- In yearly dispatch the weather profiles are random
- Fix Demand
- Fix fuel (H2) prices
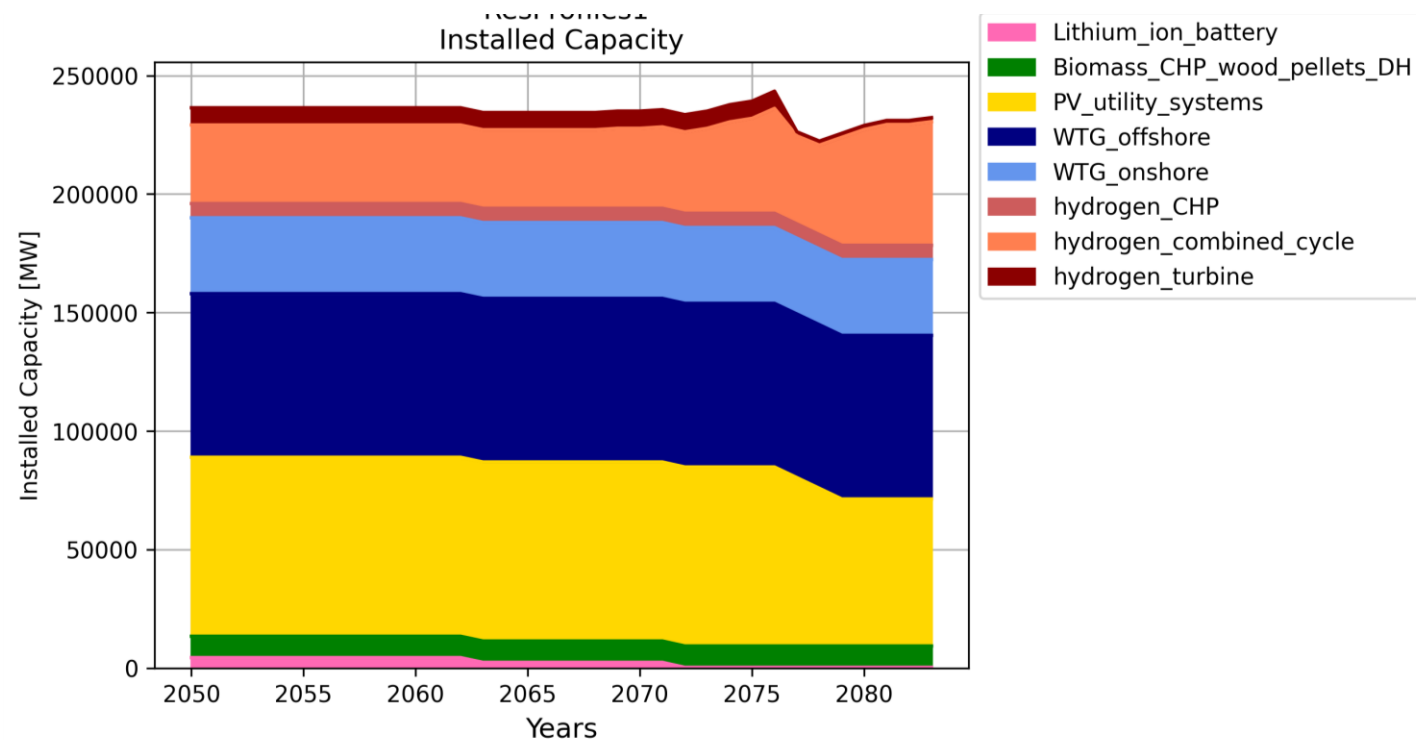- Candidate investments: RES, batteries, hydrogen
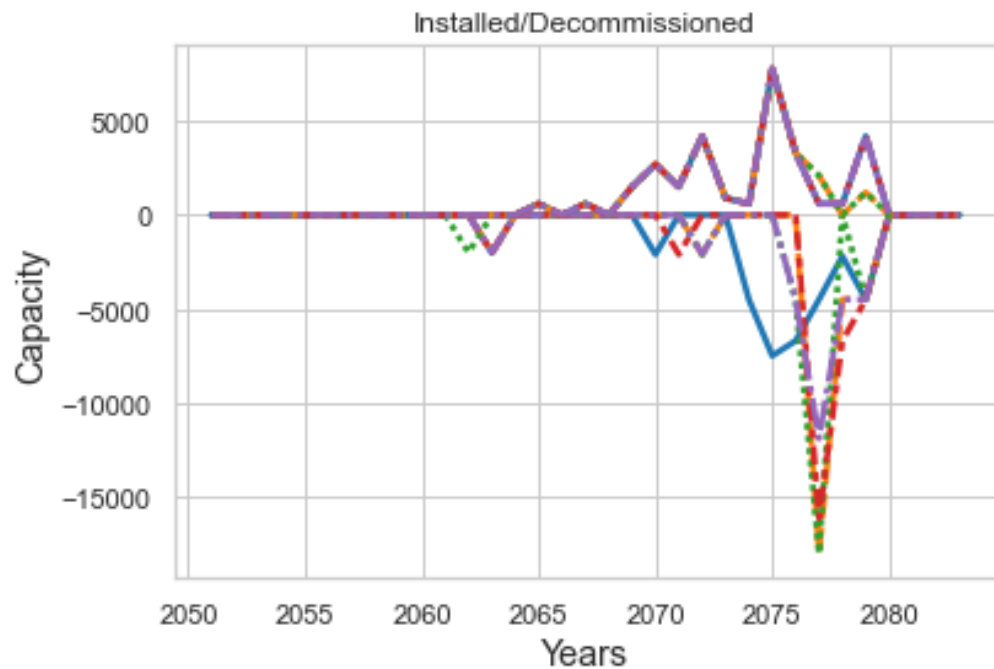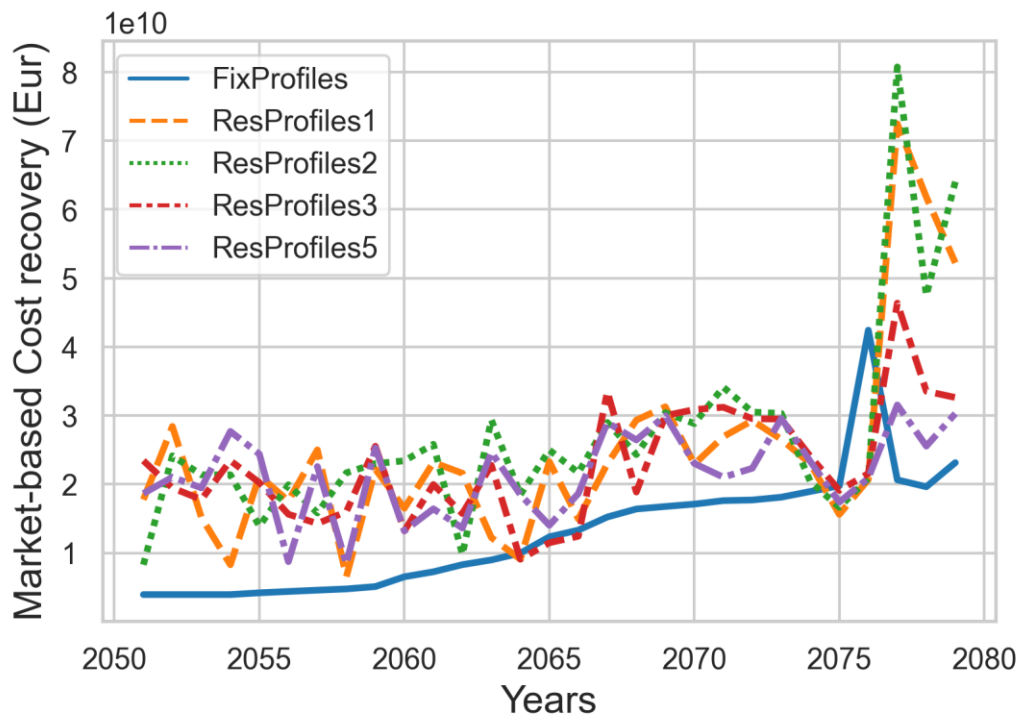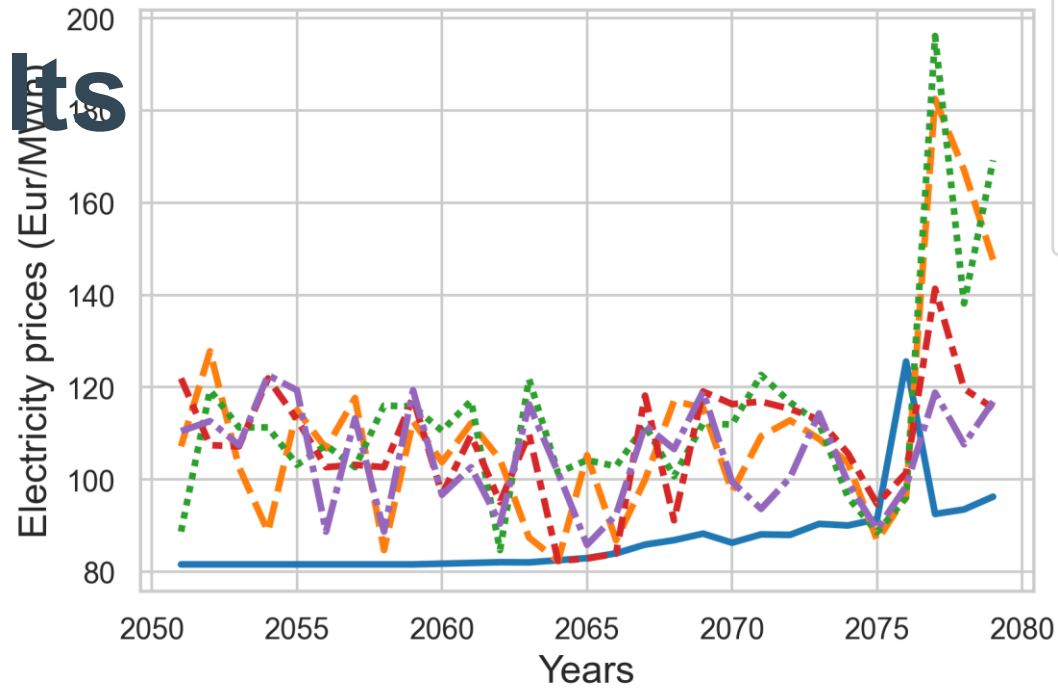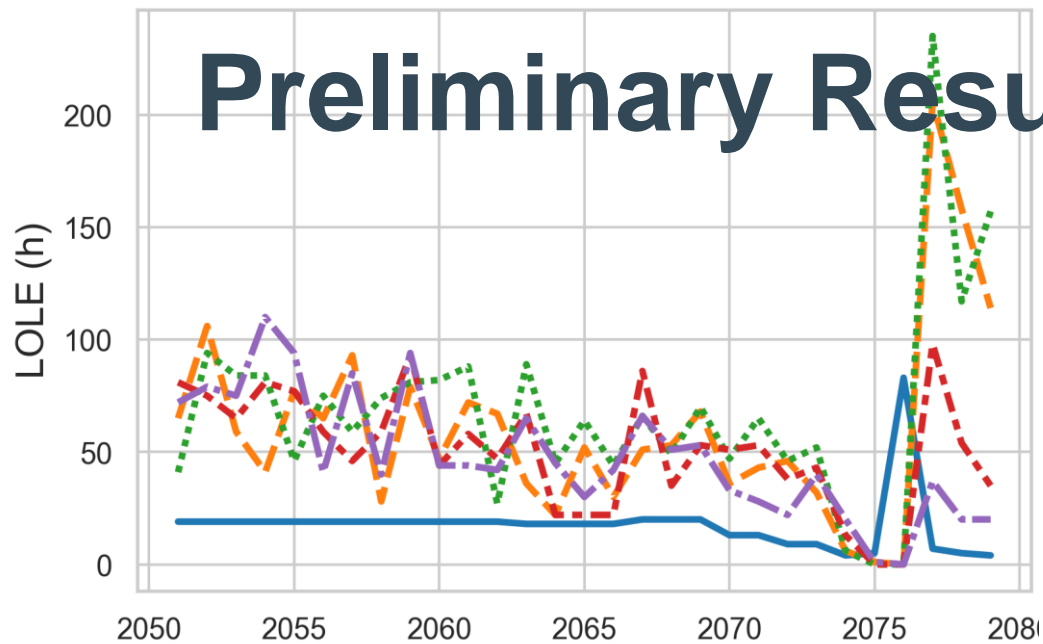
Preliminary results
Installed capacity

One weather year

30 weather years

Preliminary Results

Next steps

- Capacity mechanisms, incl. capacity subscription
- Transition scenario with RES support scheme and capacity mechanisms
- Add more demand-side response
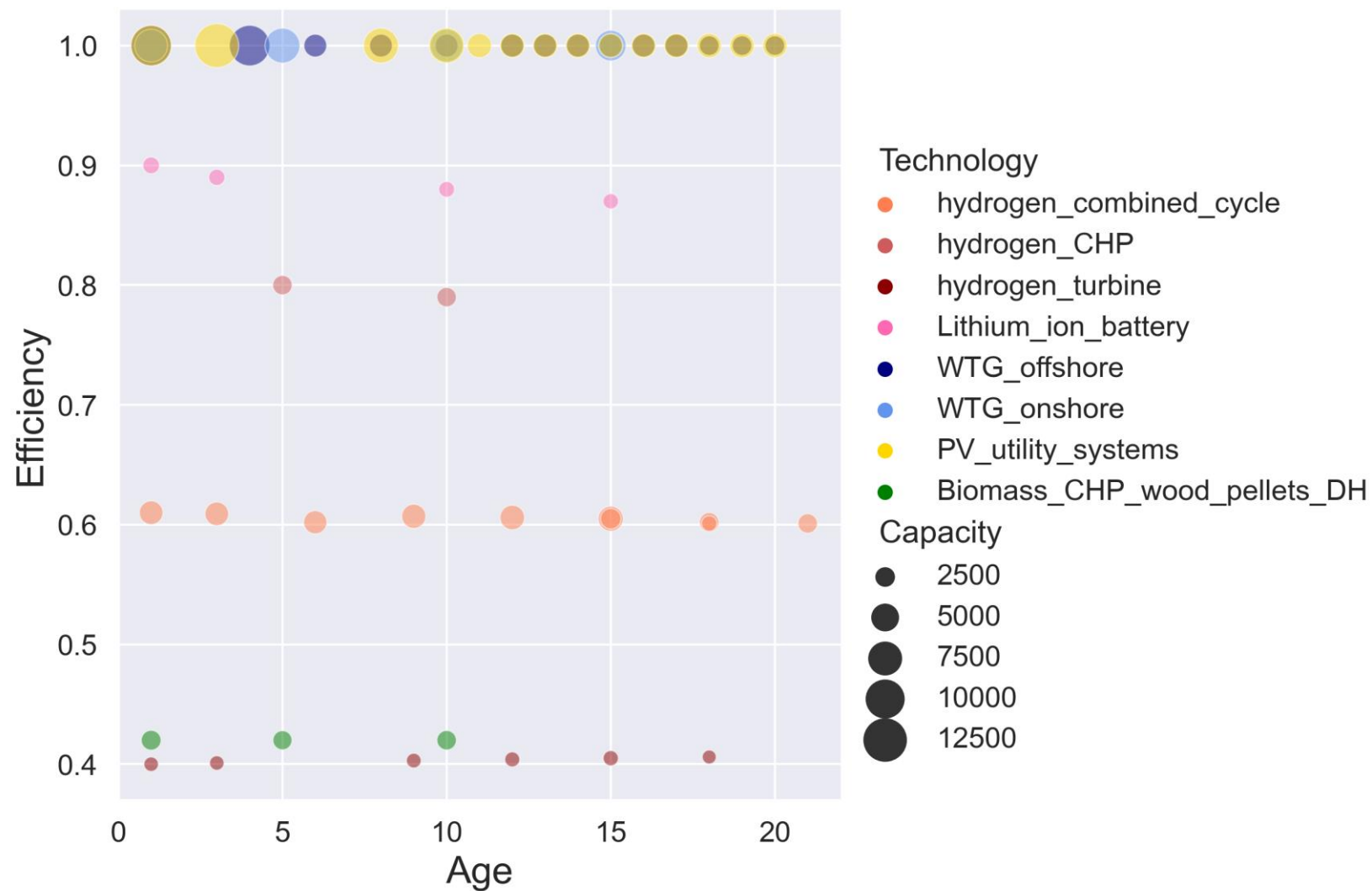- Add quick investments decisions

Thank you!

Initial power plants
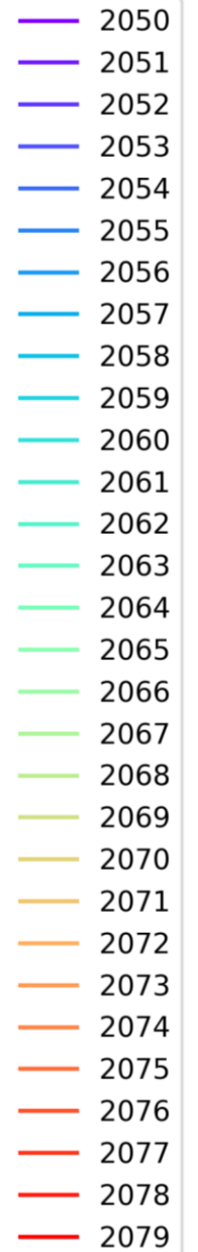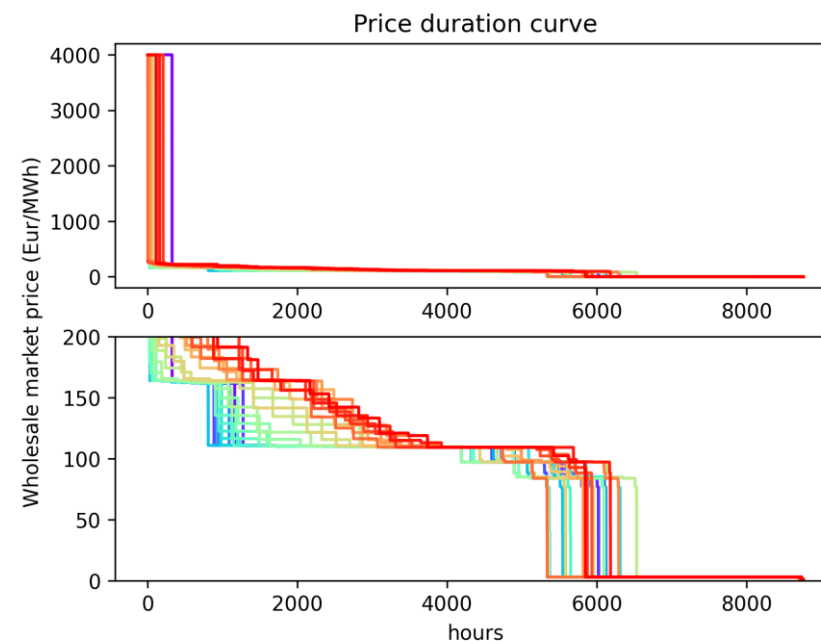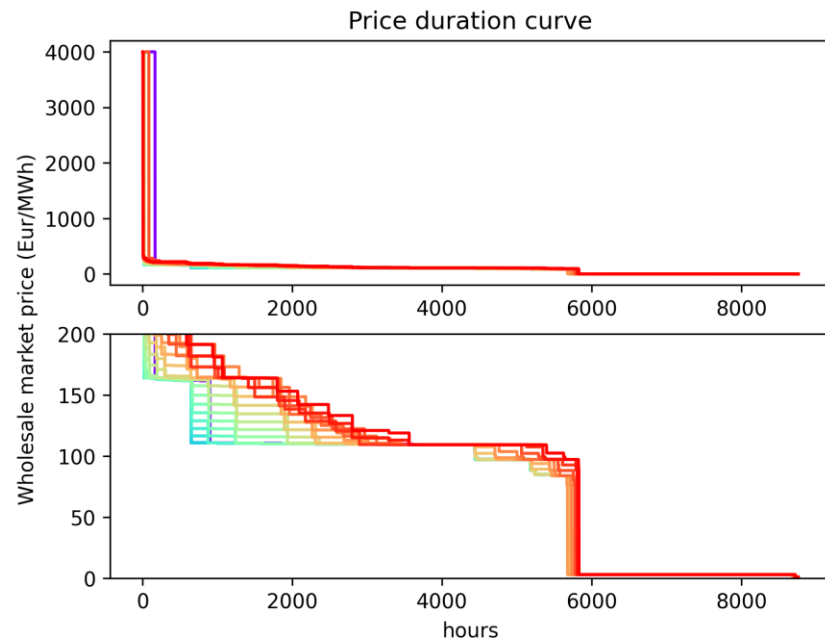
Investments/Dismantles
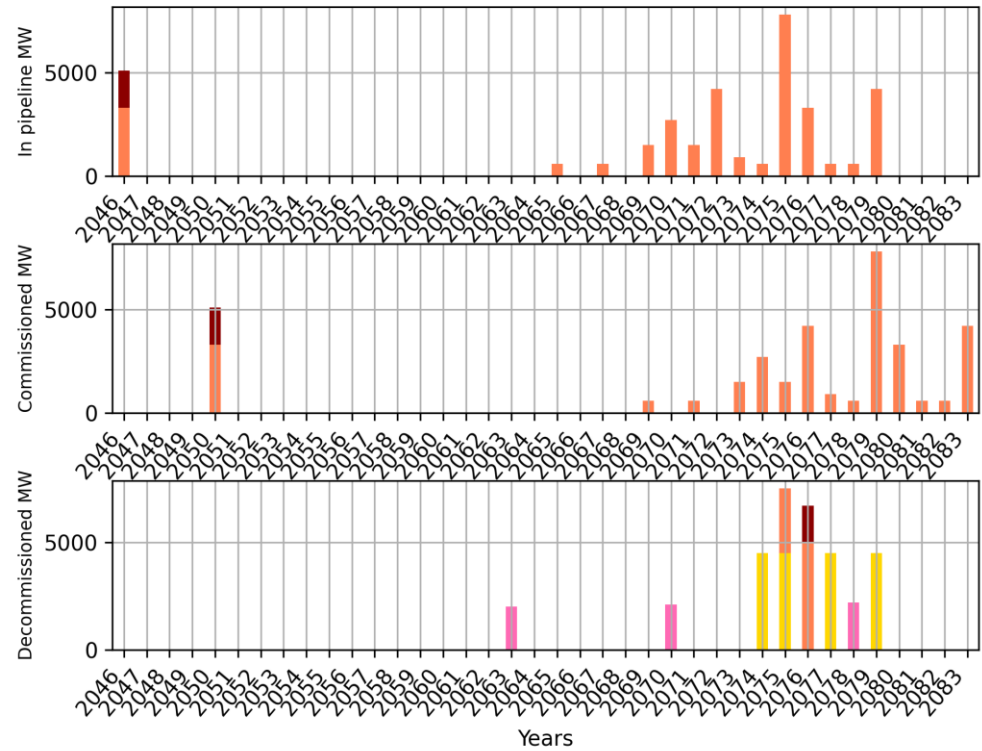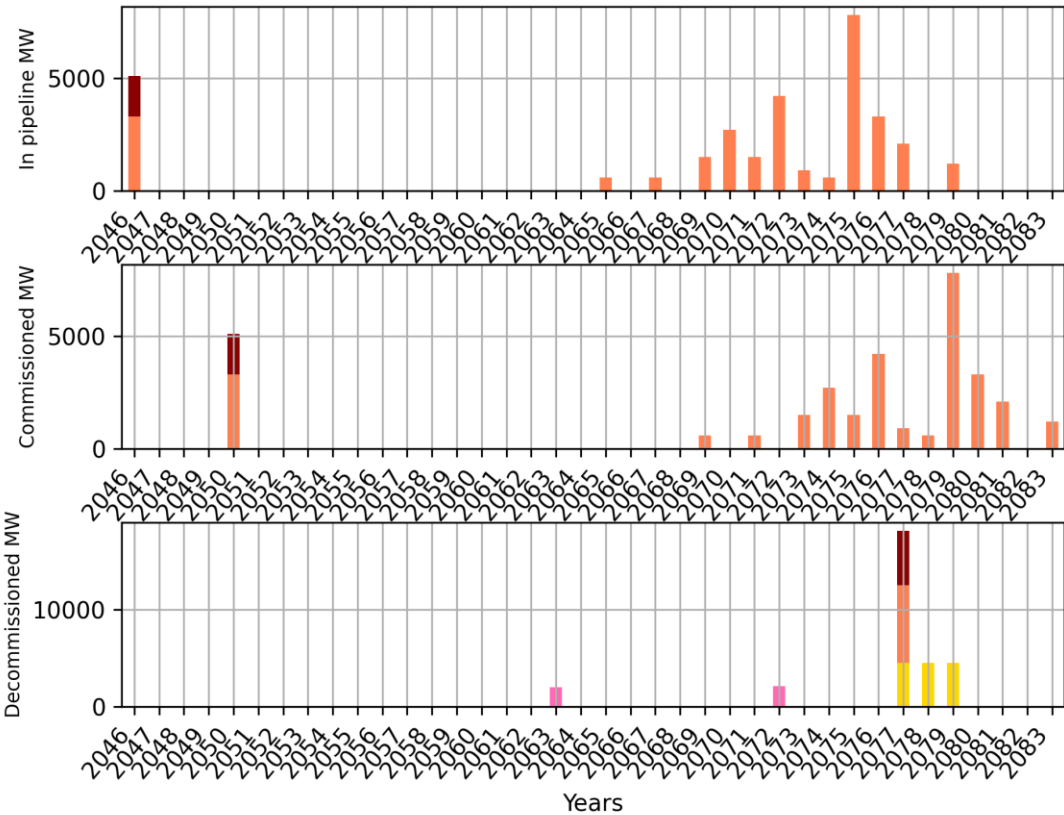
Price duration curves

- One weather year

More weather years: profiles1

Decommission