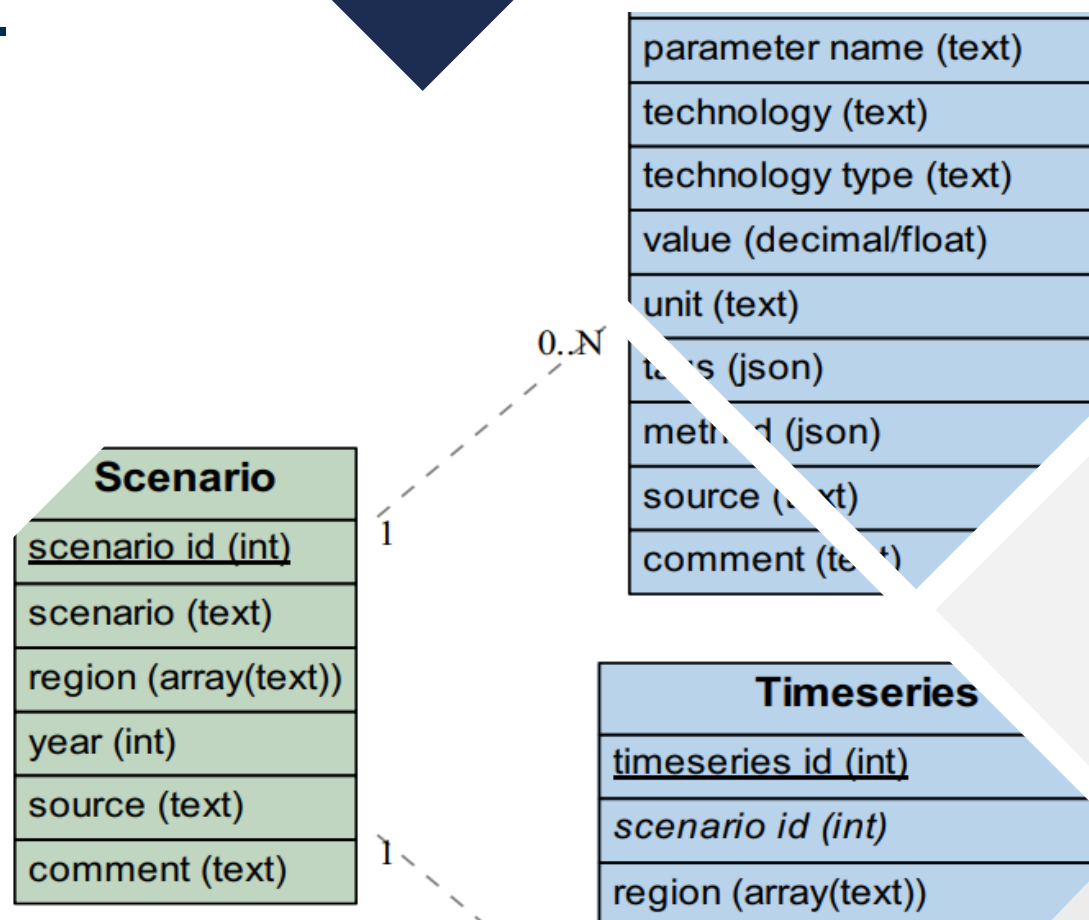


oedatamodel

- Open data model for multi-framework simulations

EMP-e 2020, FG5

Sarah Berendes

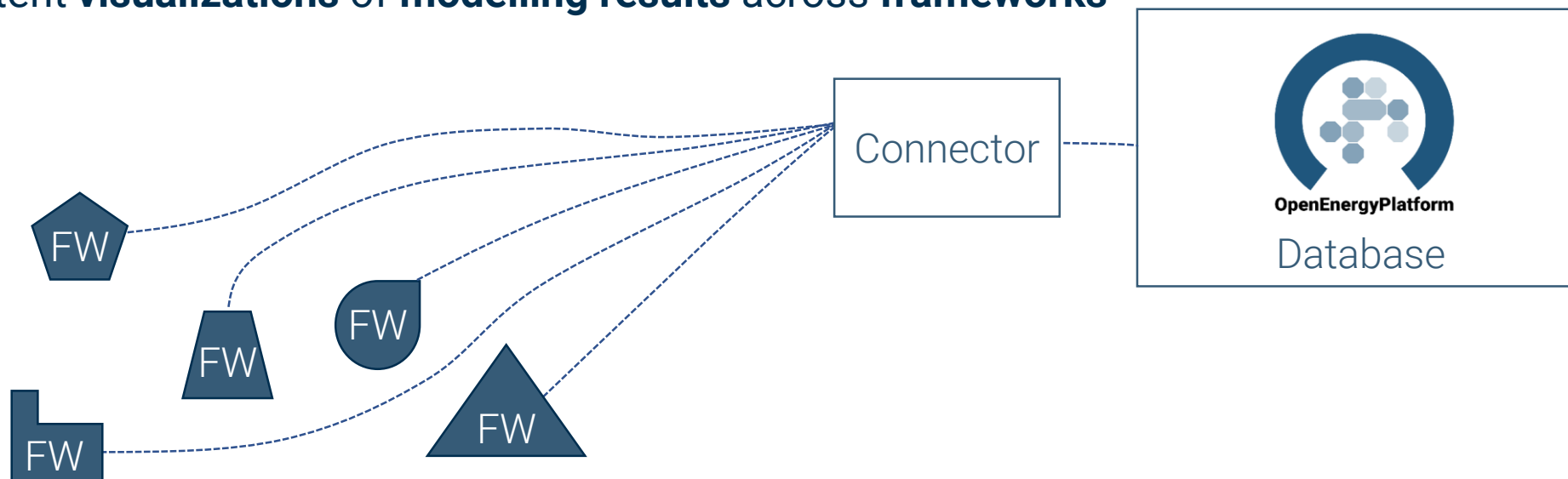


Motivation & Purpose



Data model to **facilitate application** of various **energy modelling frameworks** to same **scenario data**

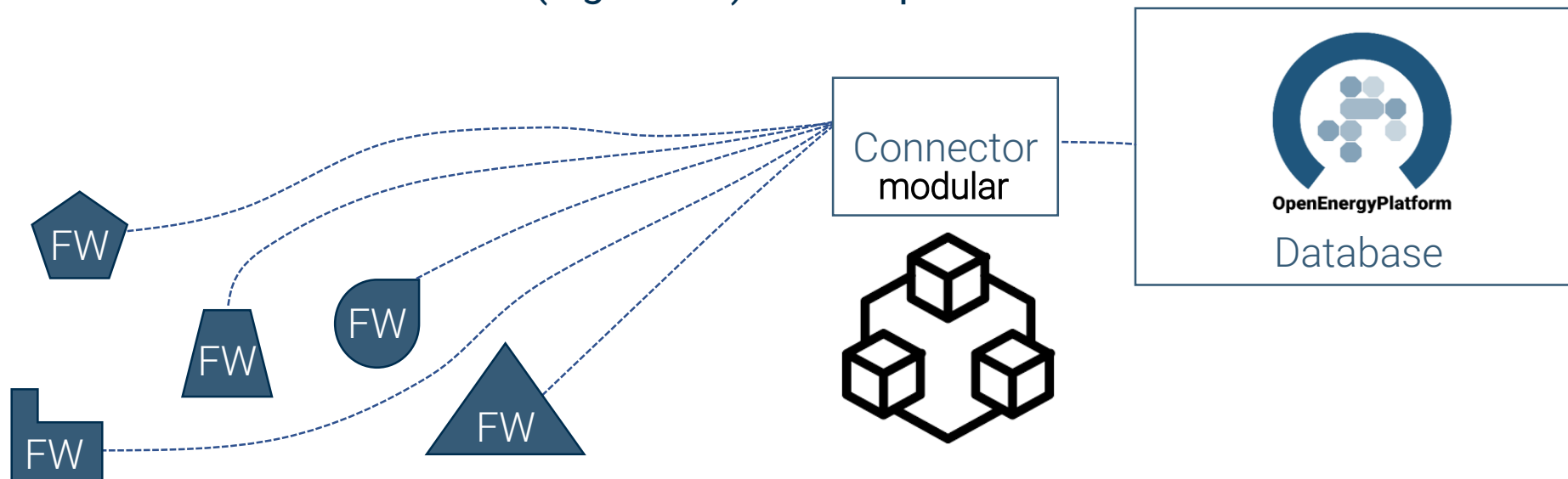
- ▶ **Efficient** and **user-friendly data processing**
- ▶ **Standardized data format** to enhance easy exchange of energy scenario data **across different frameworks**
- ▶ Consistent **visualizations of modelling results** across **frameworks**



Why another data model?



- ▶ **oedatamodel** is based on previous discussions on standardized data models (IAMC template, REEM, Open Energy Modelling Initiative)
- ▶ Adjusted to fulfil the requirements of energy system modellers with **adjustable temporal and spatial resolution** (not specifically optimized for macro-economic modelling)
- ▶ Programming language-independent connectors for easy mapping and converting with other frameworks and other data models (e.g. IAMC) or data platforms



Oedatamodel- variations



OEDataModel-concrete

- ▶ Main usage as .json and .csv files
- ▶ Tool that maps the concrete model to the normalization model will be provided. Please be aware about new features.

OEDataModel-normalization

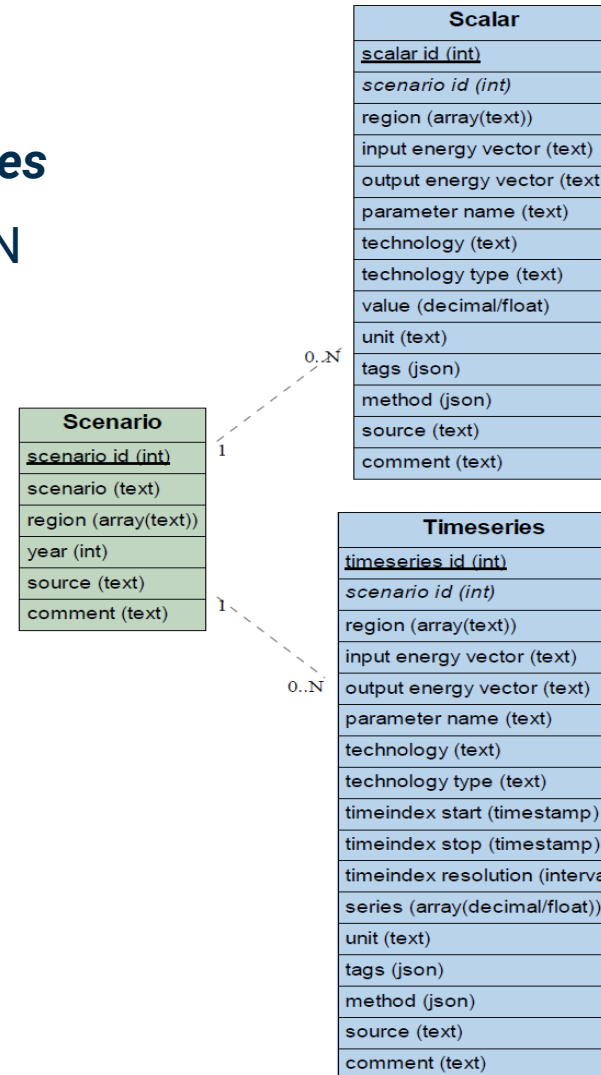
- ▶ Main usage database (relational database like postgresSQL)
- ▶ Optimized to store data in a relational data model
- ▶ Normalization for practical data relationships and reduced/no redundant fields to avoid redundant data

oedatamodel-concrete



Overview

- ▶ Three table types: **scenario**, **scalar** and **timeseries**
- ▶ Relation **scenario** to **scalar** and **timeseries** 1:0..N
- ▶ Hierarchical structure for parameter naming
 - ▶ *Input energy vector*
 - ▶ *Output energy vector*
 - ▶ *Technology*
 - ▶ *Technology_type*
 - ▶ *Parameter_name*
- ▶ **method** column for aggregation as json
- ▶ **source** field for referencing of data



Datamodel,
Documentation,
Your Contribution:

[https://github.com/
OpenEnergyPlatfor
m/oedatamodel](https://github.com/OpenEnergyPlatform/oedatamodel)

Workflow – download



- ▶ Use **oedatamodel-api** to download data from OEP
- ▶ Browser-based querying
- ▶ Mappings with JMESPath (modify RAWdata json)
- ▶ **Plug your specific mapping**
- ▶ Download scenario data as **.csv** or **.json** in **oedatamodel-concrete**

Store energy scenario input data and results in same open database

oedatamodel-api
(developer version)

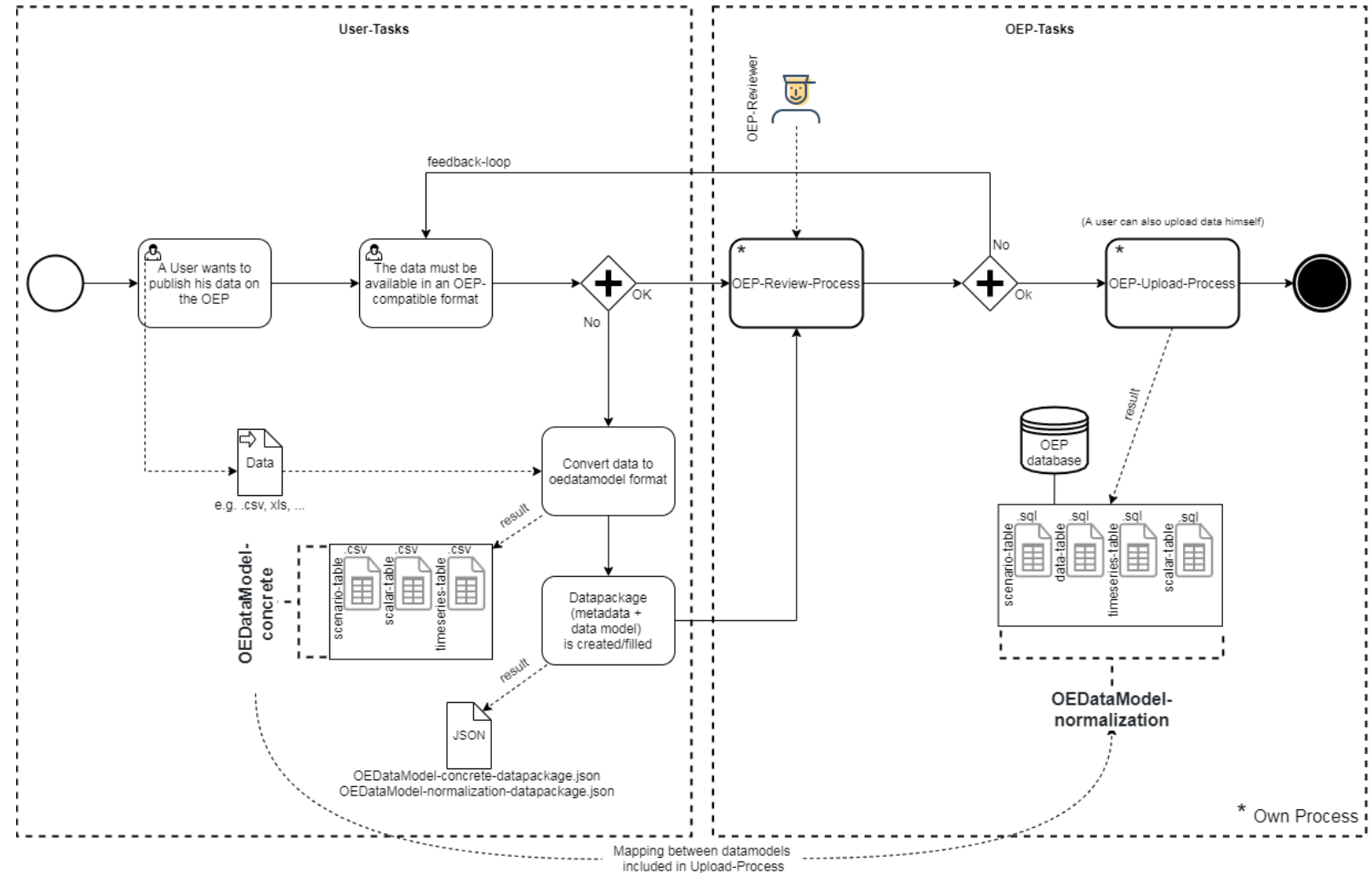
https://github.com/open-modex/oedatamodel_api/tree/main/oedatamodel_api/

Workflow – upload

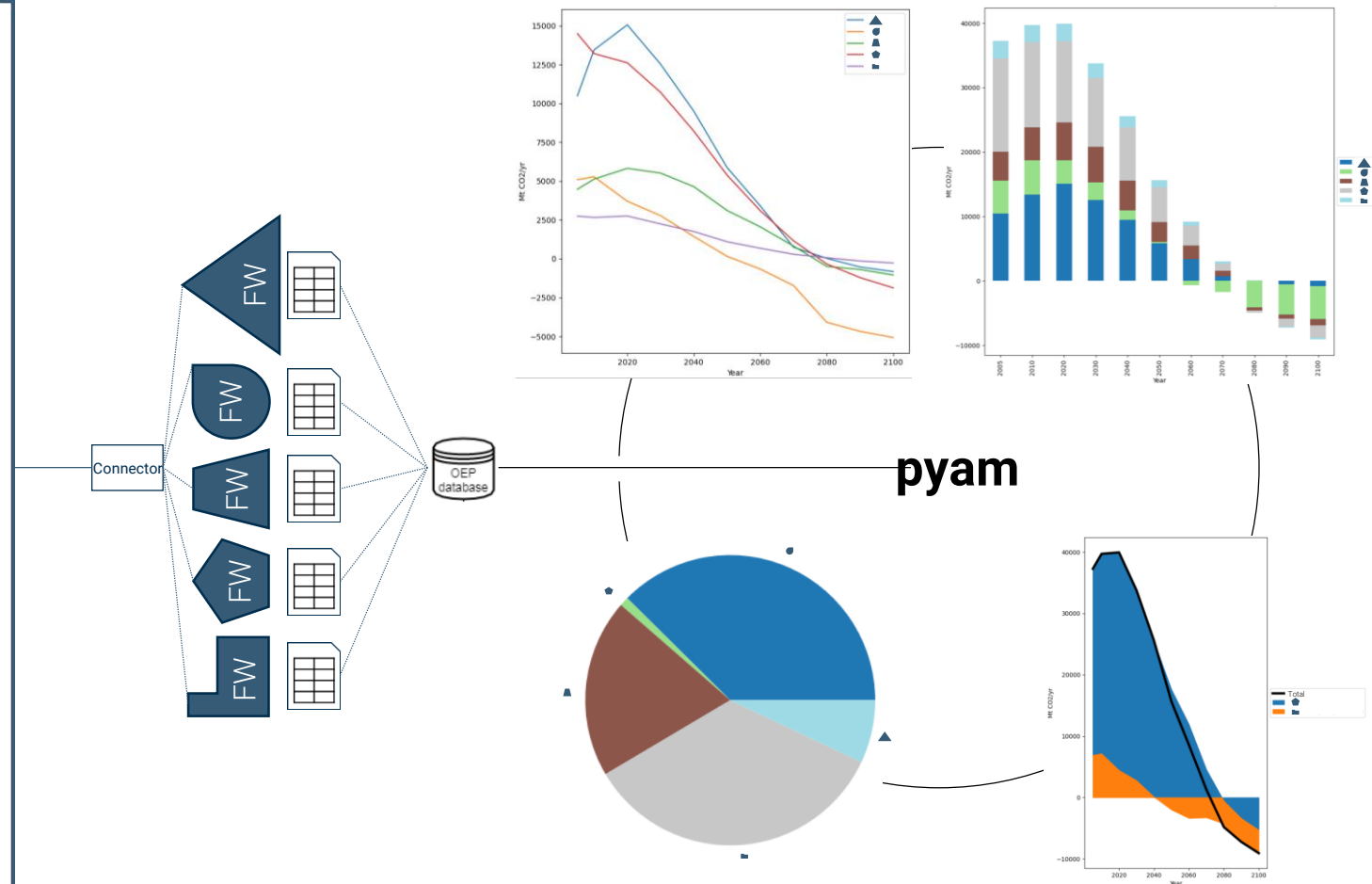
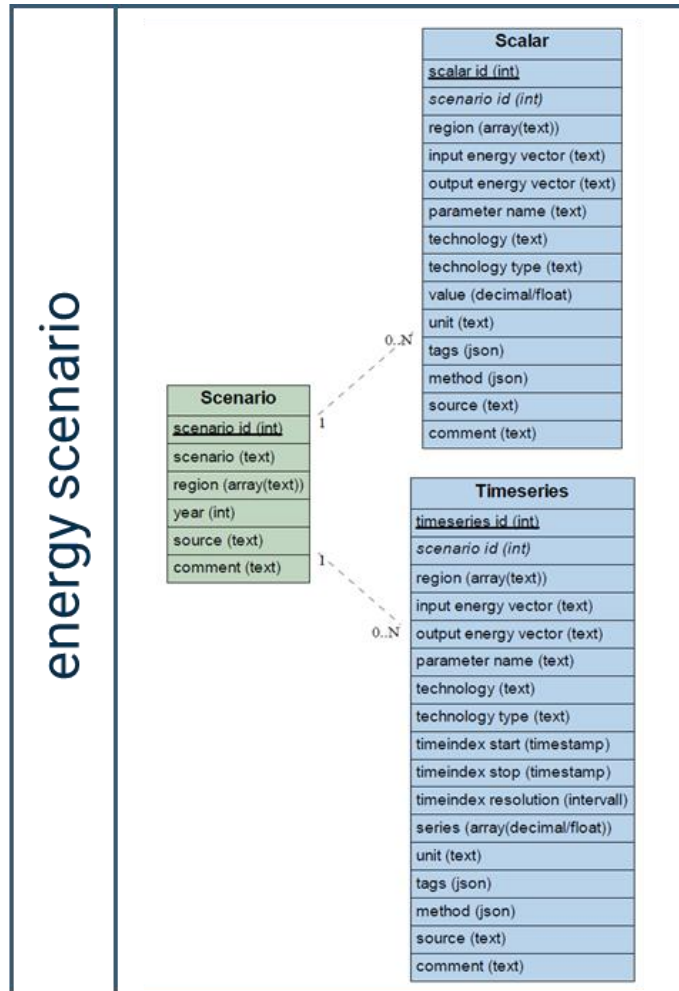


- ▶ Bring **data** into oedatamodel **concrete** format
- ▶ Fill in **metadata**
- ▶ **Review process** on Github
- ▶ **Upload** to OEP

Store energy scenario input data and results in same open database



Interfaces and further development



Thanks for you attention!



Sarah Berendes | open_MODEX

Tel: +49 (0)30 1208 434 42

E-Mail: sarah.berendes@rl-institut.de

Ludwig Hülk | OpenEnergyPlatform

Tel: +49 (0)30 1208 434 74

E-Mail: ludwig.huelk@rl-institut.de

Web: <http://www.rl-institut.de>



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