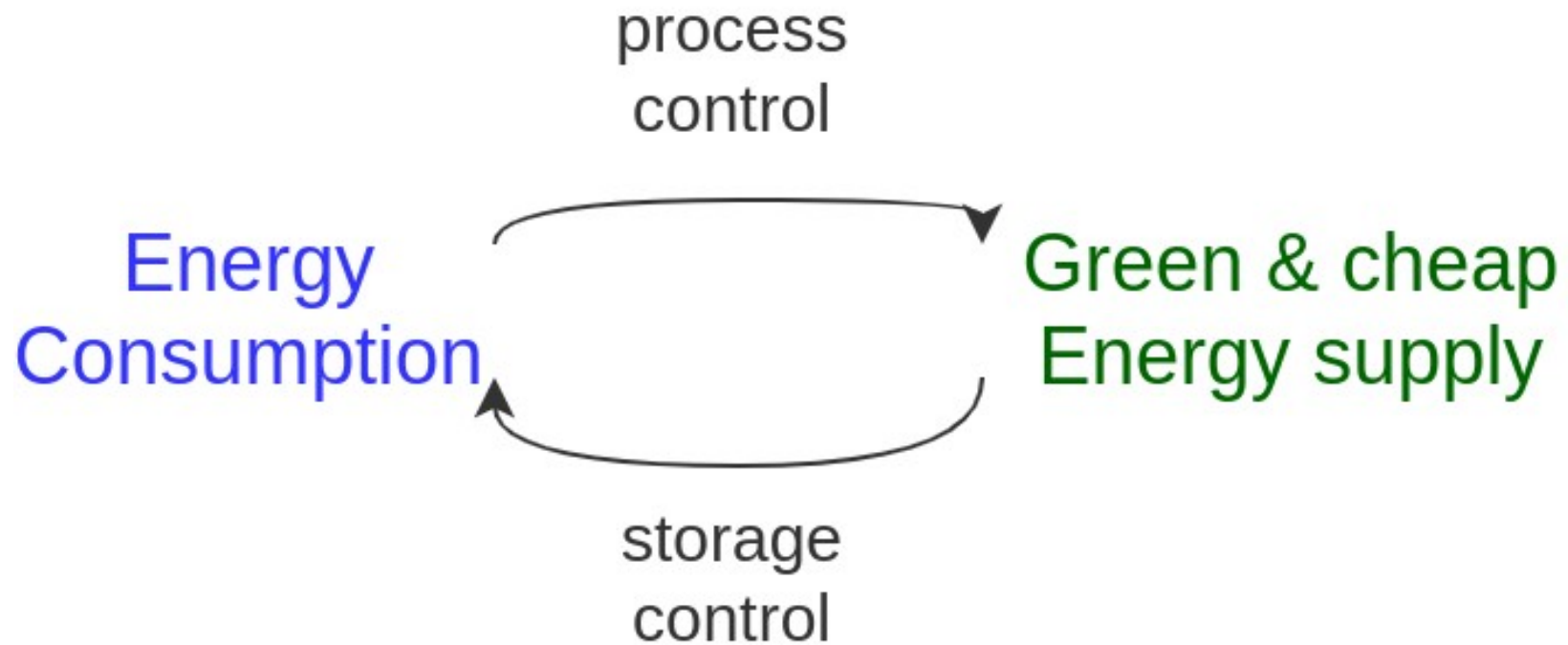# FlexMeasures Technical Steering Committee

September 19, 2024

# Agenda

- Welcome & Short introduction to FlexMeasures

- What's new in v0.23?

- Roadmap for v0.24 and 1.0

- Q&A

# The matching challenge

process
control

Energy
Consumption

Green & cheap
Energy supply

storage
control

LF ENERGY
FlexMeasures

# FlexMeasures is the intelligent & developer-friendly EMS to support <u>real-time energy flexibility apps</u>.

Go green in daily operations, stay in control.

- Smart industry
- Smart city

# FlexMeasures - simple

## Use case: SteerOnCO₂ at Rijnland Water Board

We help water board Rijnland to only run their centrifuges for sludge dehydration when the $CO_2$ footprint in the grid is low.

## Use case: SteerOnPrice & SteerOnSolar at V2G@Home

We optimize (dis)charging of Nissan Leaf cars with Wallbox chargers to save costs and use solar power, with zero user interaction needed.

# Version 0.23 is out

- More info on sensor page

- White-labeling

- More expressiveness in flex-model and flex-context

- Faster assets index page

- Small fixes (see link below)


https://github.com/FlexMeasures/flexmeasures/milestone/49

LF ENERGY
FlexMeasures

# More info on sensor page

| Properties | |
|---|---|
| Name | Nissan Leaf battery power |
| Unit | MW |
| Event Resolution | 0:05:00 |
| Timezone | Europe/Amsterdam |
| Knowledge Horizon Type | ex_post |

| Statistics | |
|---|---|
| Min Event Start | Mon, 17 Jan 2022 15:15:00 GMT |
| Max Event Start | Wed, 04 Sep 2024 11:55:00 GMT |
| Min Value | -0.0057 |
| Max Value | 0.0057 |
| Mean Value | 0.0001 |
| Sum Values | 30.0449 |
| Count Values | 257780 |

*Select source for statistics* Ard ▾



Histogram: Count vs Nissan Leaf battery power (MW)
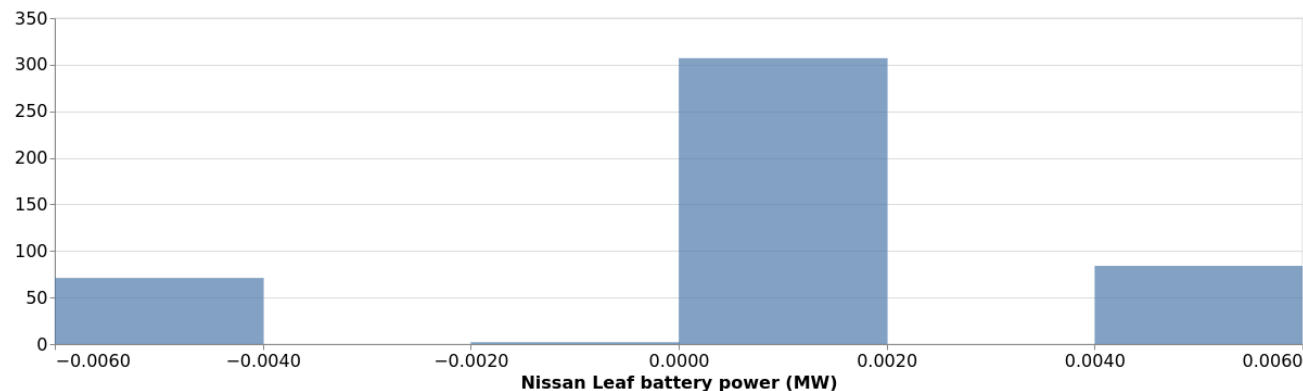
Source
■ Seita
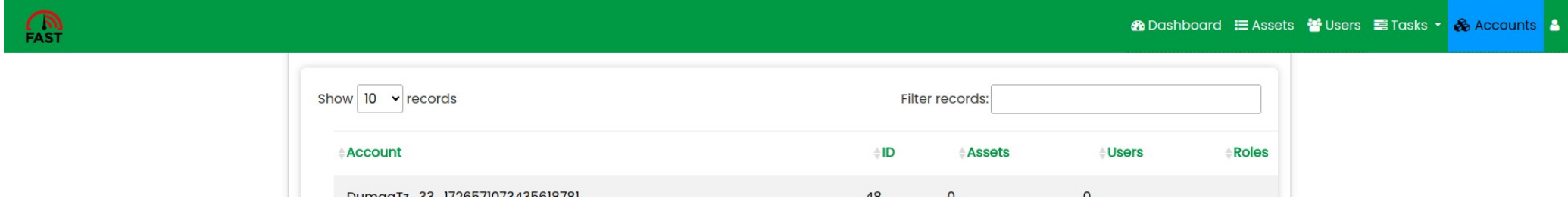
# White labeling



Account

*Account: Positive Design*

| | |
|---|---|
| ID | 1 |
| Roles | Prosumer, E-mission subscriber, V2GLiberty subscriber |
| Consultancy | Seita |
| Primary Color | ■ |
| Secondary Color | ■ |
| Logo URL | Seita |

# White labeling

# More expressive flex-context & model

Synchronizes support for specifying time series data in a flex model in three distinct ways:

- As a constant quantity, such as:

```
"10 kW"
```

- As a time series, such as (NB the below example assumes the unit is specified via a separate field):

```
[
    {
        "value": 51,
        "start": "2024-02-04T10:35:00+01:00",
        "end": "2024-02-05T04:25:00+01:00"
    }
]
```

- As a sensor, such as:

```
{
    "sensor": 101
}
```

# Scheduling: State of the art

**Done**

- Storage: Battery
- Storage: Heat
- Processes

**Next**

- Sites (start: PR#855, #1065)
- Imbalance
- Sector coupling
- Grid services
- VPP

LF ENERGY
FlexMeasures

# Ideas for version 0.24

Focus (currently):

- Relaxed storage scheduler & multi-commitment
- Data dashboard: Editing, separate legends
- Some dev improvements

LF ENERGY
FlexMeasures

# Ideas for milestone v1.0

- **Site optimization (multi-asset).** Why? Fulfill crucial milestone of mission. Current solution? Optimize flexible assets in sequence. Progress? Good, needs projects/testing.

- **Editable flex-model and context.** Why? Ease of use & maintenance for non-developers. Current solution? Send all info in API. Progress? PoC for flex-context (prices) but big design question remains - store on data model (use API & SQL features) or JSON (more flexible in usage and extension, needs own schemas)?

- **Support all energy units in the API** Why? Diversity in data per project/site. Current solution? Might be fixed now, recently still needed MW in some places, needs work on docs. Progress? #1007 & #386 are done now. #483 worth doing?

LF ENERGY
**FlexMeasures**

# Q&A

- What are you working on?

- What is unclear?

# Roadmap – Big goals

- [2022 - mature] Model & pilot e-mobility optimization (price-based, V2G)
- [2023 - started] Model & pilot heating optimization (price-based, also with heat buffers)
- [2024] Multi-asset scheduling
- [2024] Imbalance market support
- [2025] Sector coupling (optimize e-mobility and heating in one site)
- [2025] Congestion support (e.g. for DSOs in GOPACS)

# Resources – do get in touch!

- https://github.com/FlexMeasures/flexmeasures/
- https://www.flexmeasures.io
- https://lists.lfenergy.org/g/flexmeasures
- https://fosstodon.org/@flexmeasures
- LF Energy Slack: #flexmeasures

# FlexMeasures - integration