

FlexMeasures Technical Steering Committee

May 11 2023

Agenda

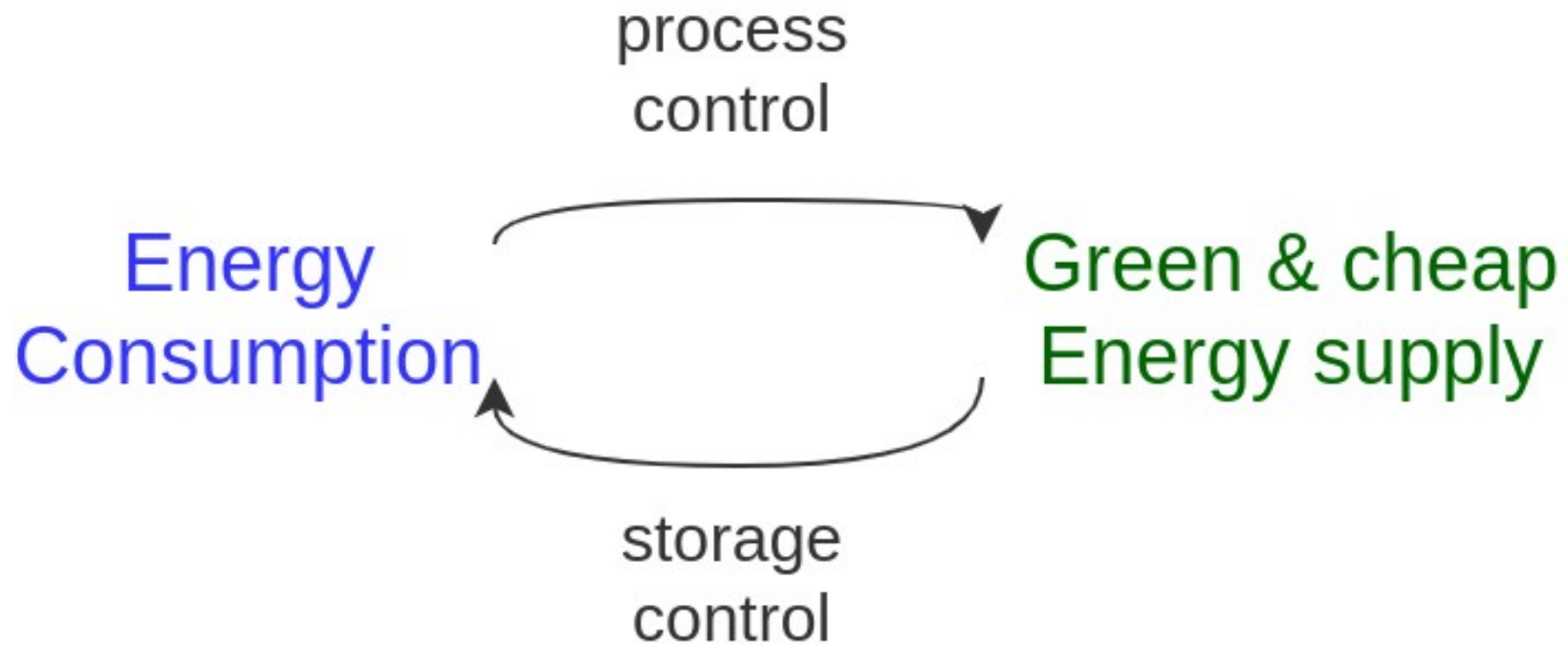
- Welcome & Short introduction to FlexMeasures
- What's new in v0.13?
- Our updated policy on API deprecation & sunsetting
- The new flexmeasures-client: Sneak preview
- Scheduling development: state of development
- v0.14
- Q&A

FlexMeasures is the intelligent & developer-friendly EMS to support real-time energy flexibility apps.

Go green in daily operations, stay in control.

- Smart industry
- Smart city

The matching challenge



FlexMeasures - simple



Use case: SteerOnCO₂ at Rijnland Water Board

We help water board Rijnland to only run their centrifuges for sludge dehydration when the CO₂ footprint in the grid is low.



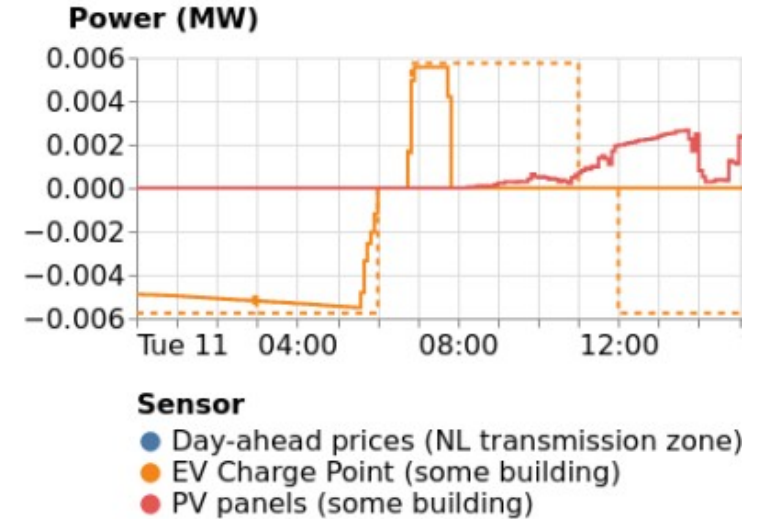
Use case: SteerOnPrice & SteerOnSolar at V2G@Home

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



Version 0.13 is out

- Overlay charts
- Account page
- Avoid re-computing the same schedule
- API sunsetting (v1, v1.1, v1.2, v1.3, v2)



API deprecation & sunset policy

Supported **headers**: “deprecation” & “sunset”

Stages:

- Stage 1: Deprecation: status 200 (OK) with relevant headers, plus a toggle to 410 (Gone) for blackout tests
- Stage 2: Preliminary sunset: status 410 (Gone), plus a toggle to 200 (OK) for sunset rollbacks
- *Stage 3: Definitive sunset: status 404 (Not Found), plus a toggle to 410 (Gone) for removal rollbacks (needed?)*
- Stage 4: Removal: status 404 (Not Found), and removal of relevant endpoints

The new flexmeasures-client: Sneak preview

A Python client for local systems to talk to FlexMeasures, async-ready.

- `request()` — incl. polling
- `request_once()`
- `get_access_token()`
- `post_measurements()`
- `trigger_storage_schedule()`
- `get_schedule()`
- `get_assets()`
- `get_sensors()`



Scheduling development

- Storage scheduler supports losses over time (#679)
- Add multiple maxima and minima constraints into StorageScheduler (#680)
- Price devices distinctively in scheduling (#618)

Version 0.14

(next to scheduling development)

- Reporting (#641 and #659)
- Support Pandas2 (#673)
- Modernize packaging & dependencies in Pypi package (#670, #671)
- Remove API versions 1.x and 2 (#667)
- ... ?

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)
- [2023] Congestion support (e.g. for DSOs in GOPACS)
- [2023] Sector coupling (optimize e-mobility and heating in one site)
- [2024] VPP (optimize multiple sites towards one market)

Roadmap – projects

- [Q1 2023] **More powerful algorithm configurations**, to support more use cases and more custom situations (e.g. research). For scheduling, as well as for forecasting. [work has started in Q4 2022]
- [Q2 2023] **KPIs support** (e.g. reporting of daily totals), customizable
- [Q2 2023] **Scheduling algorithm for heat buffering**
- [Q2 2023] Allow for **annotations on time series**, e.g. to model processes and operator feedback. [work has started in 2022]
- [Q4 2023] **Build out the flexibility modelling**, by supporting Fraunhofers Energy Flexibility Data Model (EDFM) and TNO's S2
- [tbd] **Authorization model for allowing "super-accounts"** to manage other accounts (e.g. for ESCOs) or add data to them (e.g. meter data companies).
- [tbd] **Smarter monitoring.**
- [tbd] **Scheduler compatible with ShapeShifter** (based on USEF flex trading protocol)
- [tbd] **Better plotting support** (via API/vega-lite), for plugins to define their own plots which are then made available in the FlexMeasures API (usable in custom frontends).
- [tbd] Better tooling to **work well at scale** (e.g. support load balancing, db sharding etc). Also using Docker to scale up more flexibly (e.g. in Kubernetes).

Resources – do get in touch!

- <https://github.com/FlexMeasures/flexmeasures/>
- <https://www.flexmeasures.io>
- <https://lists.lfenergy.org/g/flexmeasures>
- <https://twitter.com/flexmeasures>
- LF Energy Slack: #flexmeasures

FlexMeasures - integration

