FlexMeasures Technical Steering Committee

August 10 2023

Agenda

- Welcome & Short introduction to FlexMeasures
- The latest release: v0.15 — a quick tour
- Roadmap: What should be in v0.16?
- Q&A

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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

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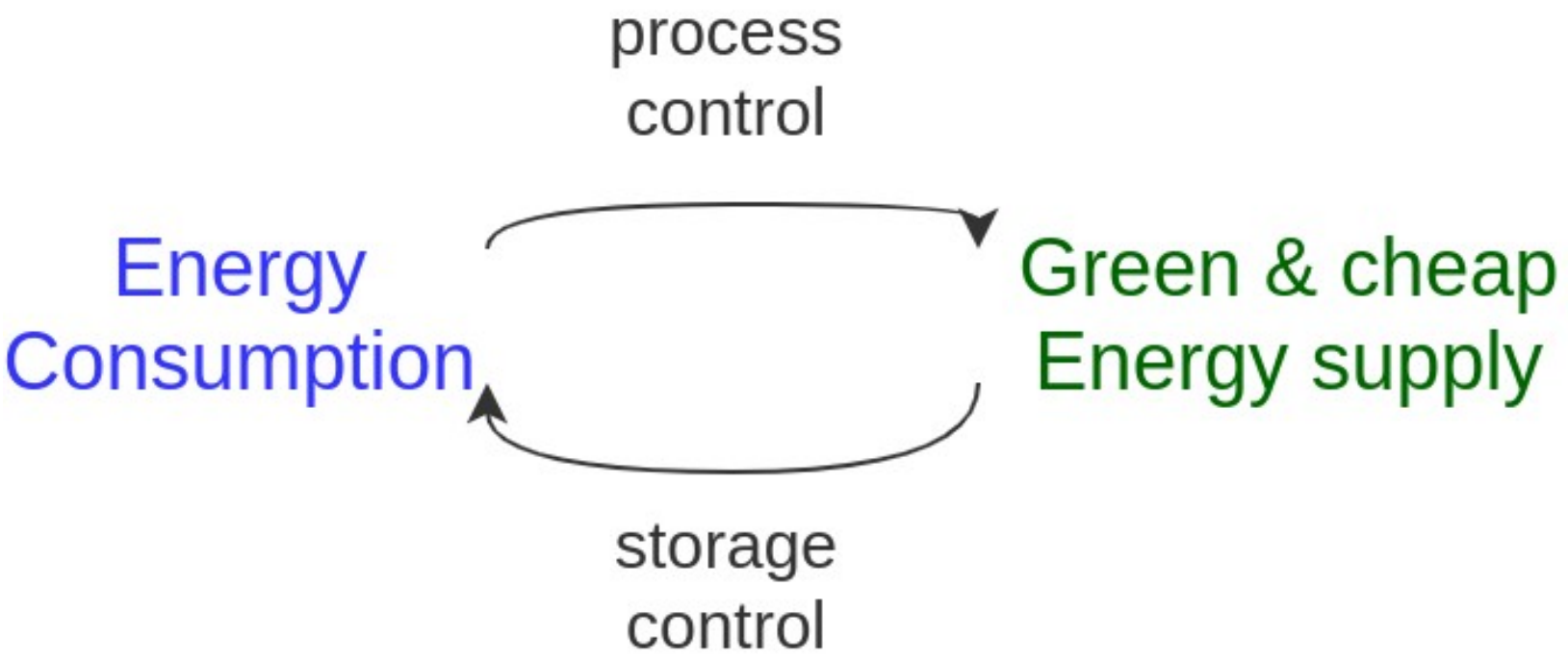
The matching challenge



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FlexMeasures - simple

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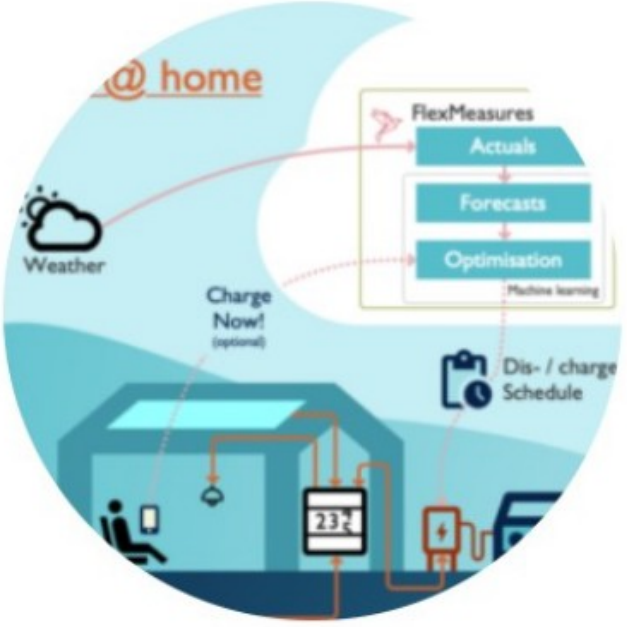
Use case: SteerOnCO_2 at Rijnland Water Board

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 0.15 is out

- schedule energy processes
- a new data visualization: Daily activity heatmap
- Sensor CRUD API

https://flexmeasures.io/015-process-scheduling-heatmap/

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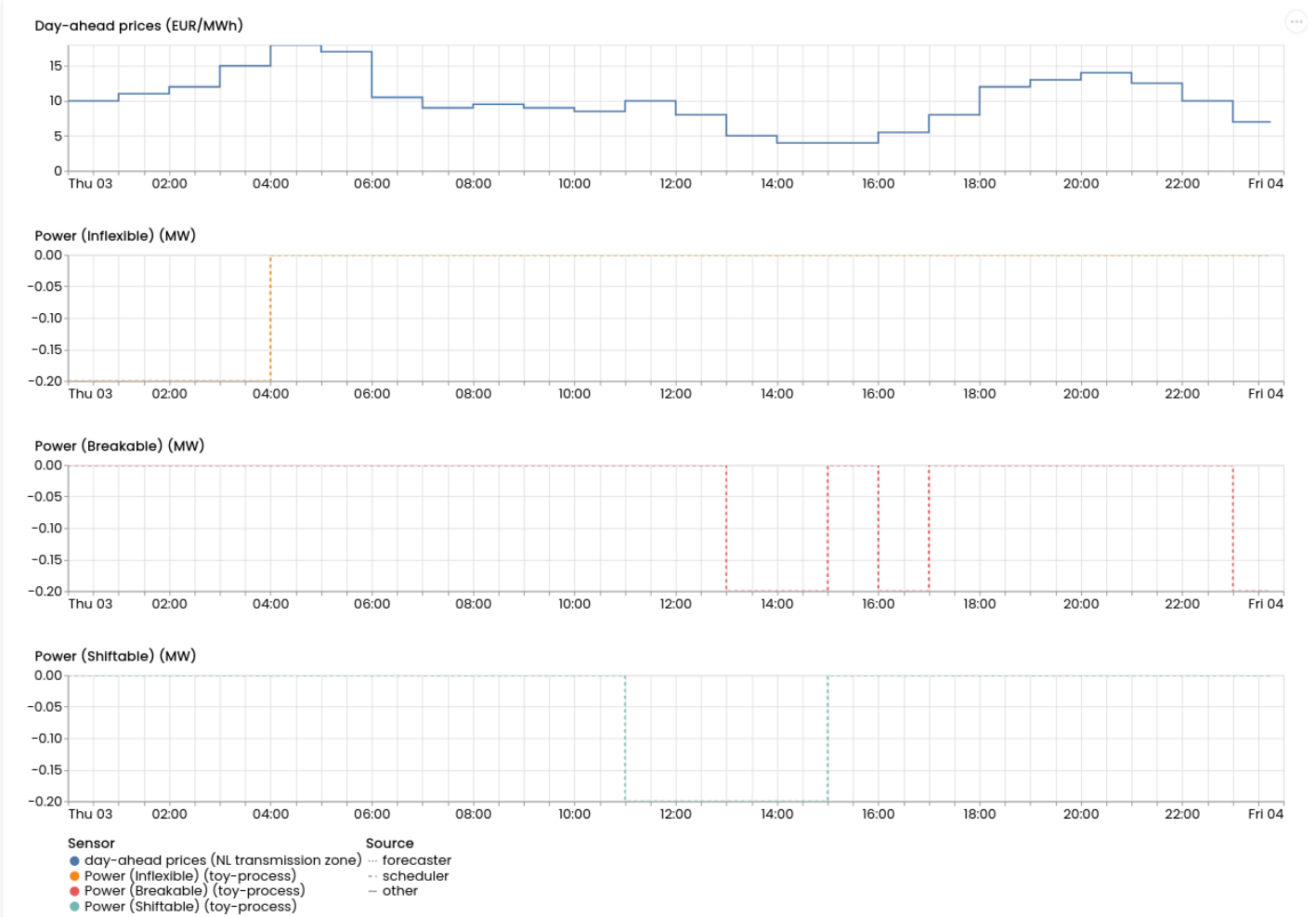
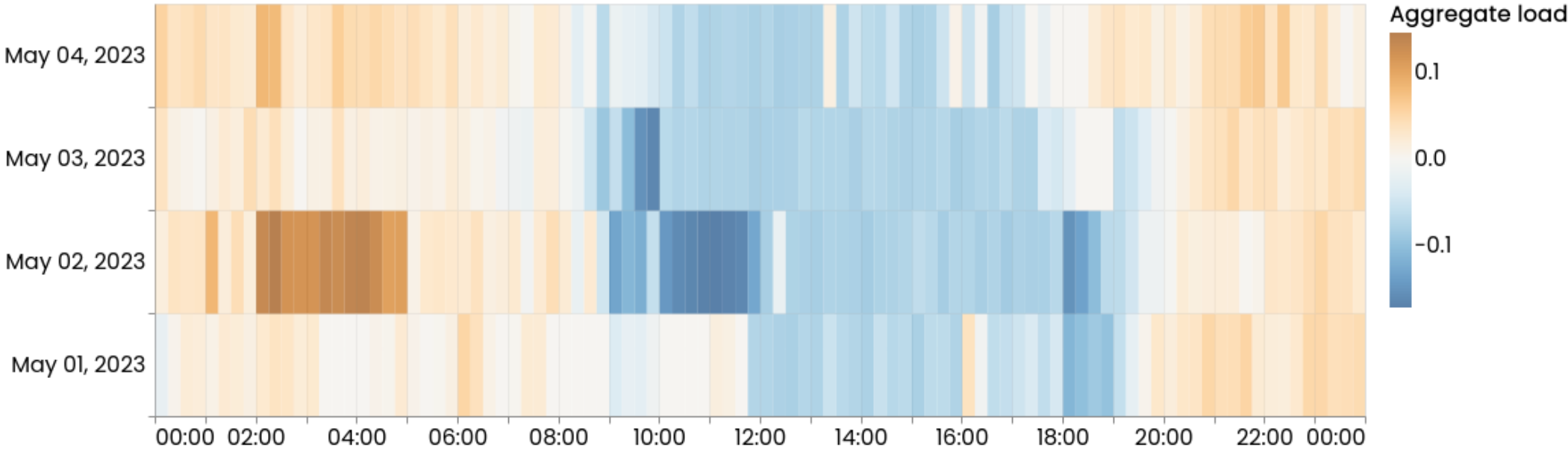
Schedule processes



Daily activity heatmap



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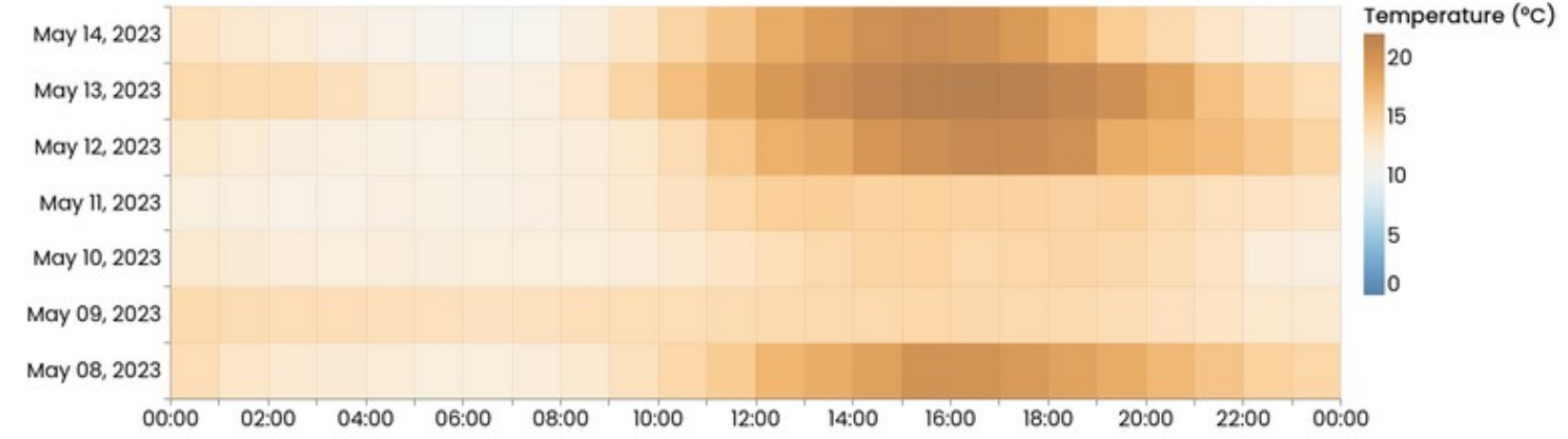
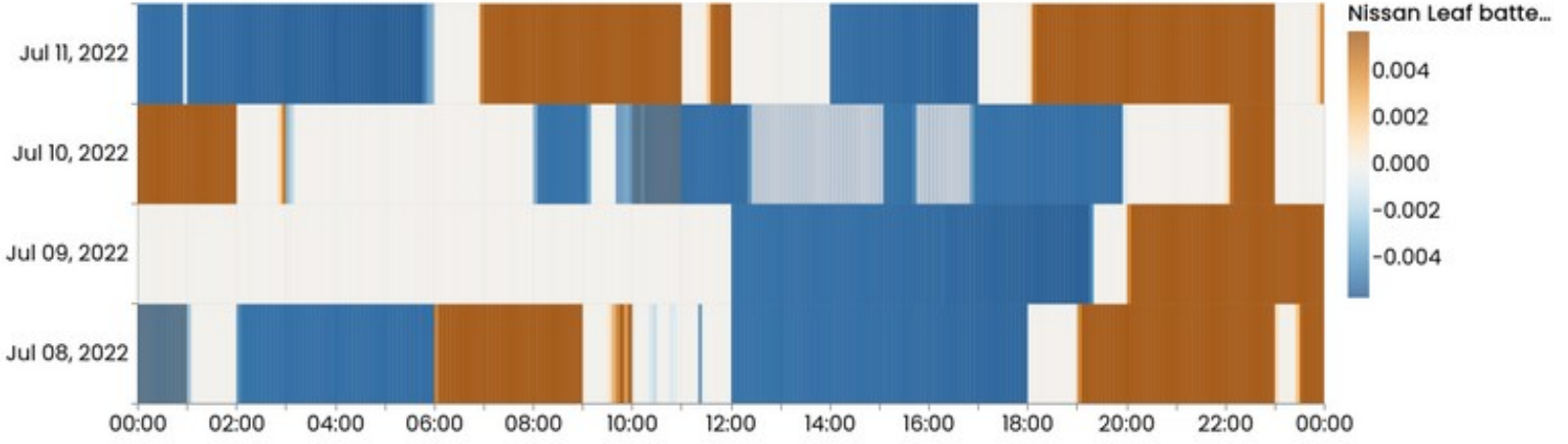
Daily activity heatmap





Sensor CRUD API

Sensor	GET /api/v3_0/sensors	Download sensor list
	POST /api/v3_0/sensors	Create a new Sensor
	DELETE /api/v3_0/sensors/(id)	Delete a sensor
	GET /api/v3_0/sensors/(id)	Get a sensor
	PATCH /api/v3_0/sensors/(id)	Update a sensor

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Ideas for version 0.16

- Documentation improvements
- More granular authentication system (ability for super-accounts to administer their customer accounts)
- Forecasting
- API modernization (OpenAPI, less legacy dependencies)
- Scheduling multiple devices: group different devices under unique constraints
- Capacity constraints as time series

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Q&A

- What are you working on?
- What is unclear?

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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).

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https://flexmeasures.io/roadmap/

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

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FlexMeasures - integration