ETSI The Standards People

IoT Conference 2023

Towards an Updated SAREF4ENER Version for Energy Flexibility

Presented by:

TNO innovation for life

05-07-2023

Towards an Updated SAREF4ENER Version for Energy Flexibility

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ETSI IoT Conference

5 July 2023

What is energy flexibility?

Energy flexibility can be defined as the ability of a smart device to deviate from the normal energy production and/or consumption pattern (over time and/or by power level), while still fulfilling its intended function. This flexibility may be used by third parties to help alleviate imbalance or congestion.

The freedom in executing the user goal can be utilized for energy optimization purposes (e.g. power grid balancing or congestion management)

User has a high end goal in mind, e.g.

- Washing machine should be ready by 6 PM
- Car should be charged for at least 80% by 8 AM

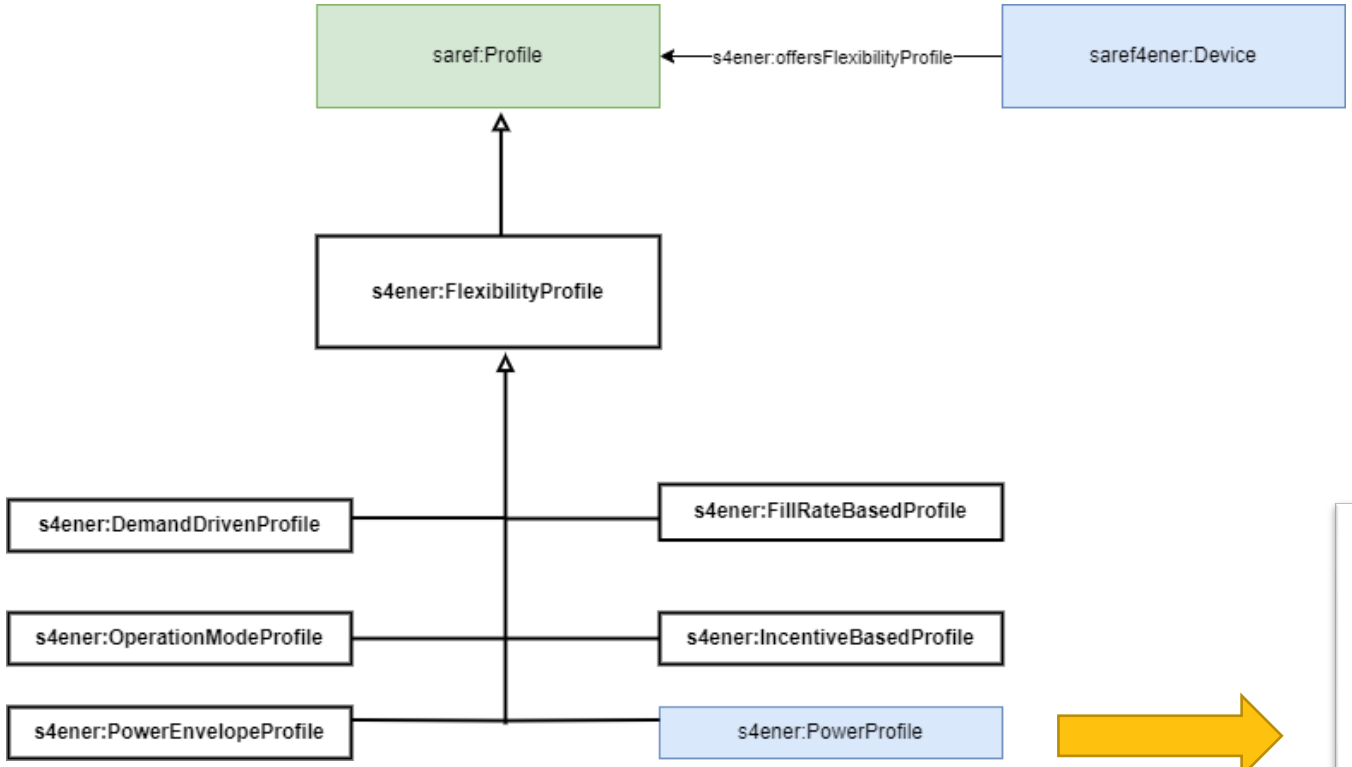
Device needs low level, specific instructions, e.g.

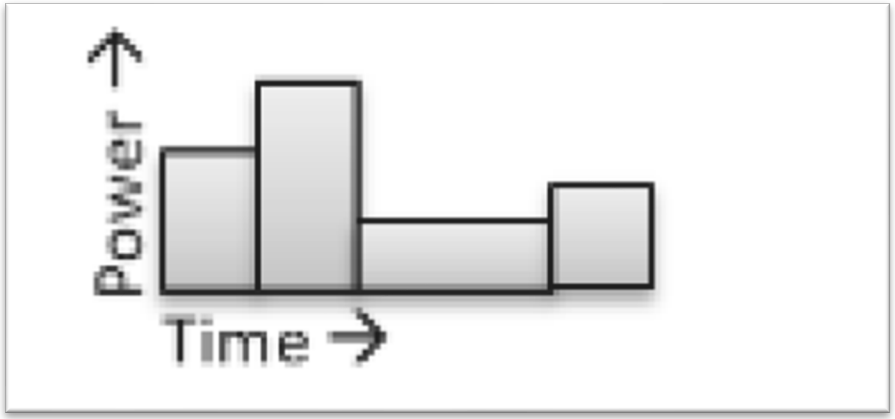
- Start washing program C at 15.35
- Start charging with 32(Watts now

The H2020 InterConnect project

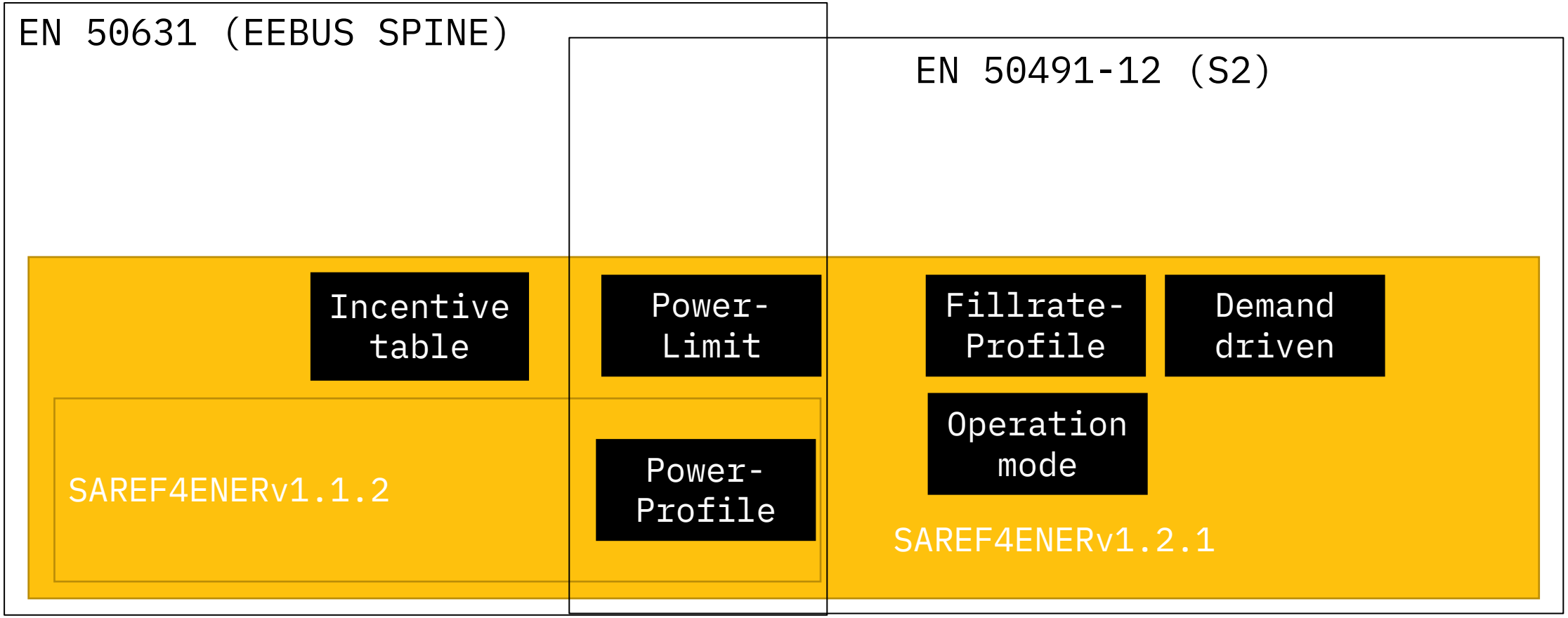
- H2020 Large Scale Pilot for interoperability of smart homes, buildings and grids (https://interconnectproject.eu/)
- Duration 4.5 years (October 2019- March 2024)
- InterConnect gathers 50 European entities to develop and demonstrate advanced solutions for connecting and converging digital homes and buildings with the electricity sector.
- The project pioneers cross-domain semantic interoperability without a centrally hosted facilitator leveraging the SAREF framework of ontologies.
- Validation in seven connected large-scale test-sites in Portugal, Belgium, Germany, the Netherlands, Italy, Greece and France.

Interconnect Contribution to SAREF4ENER



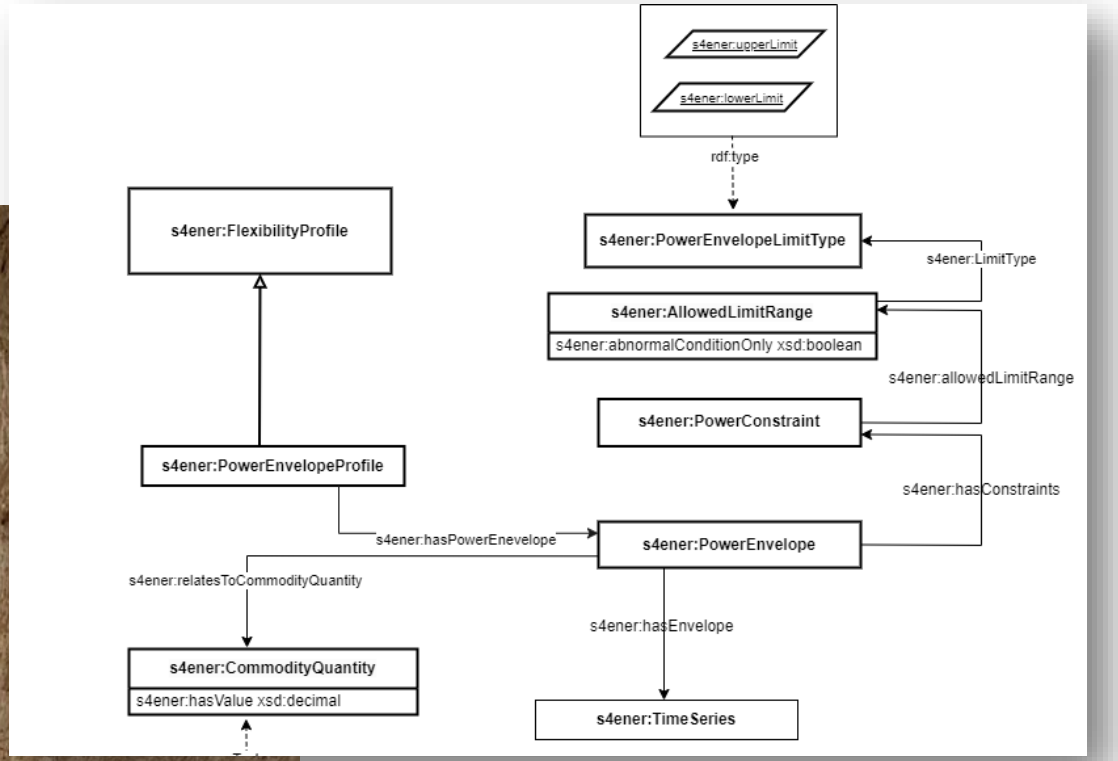


SAREF4ENER Extensions overview



Power limit or power envelope

- Power limits (EEBUS) or Power envelope (S2)
  - Solar panel inverters
  - Heat pumps
  - Electric vehicles



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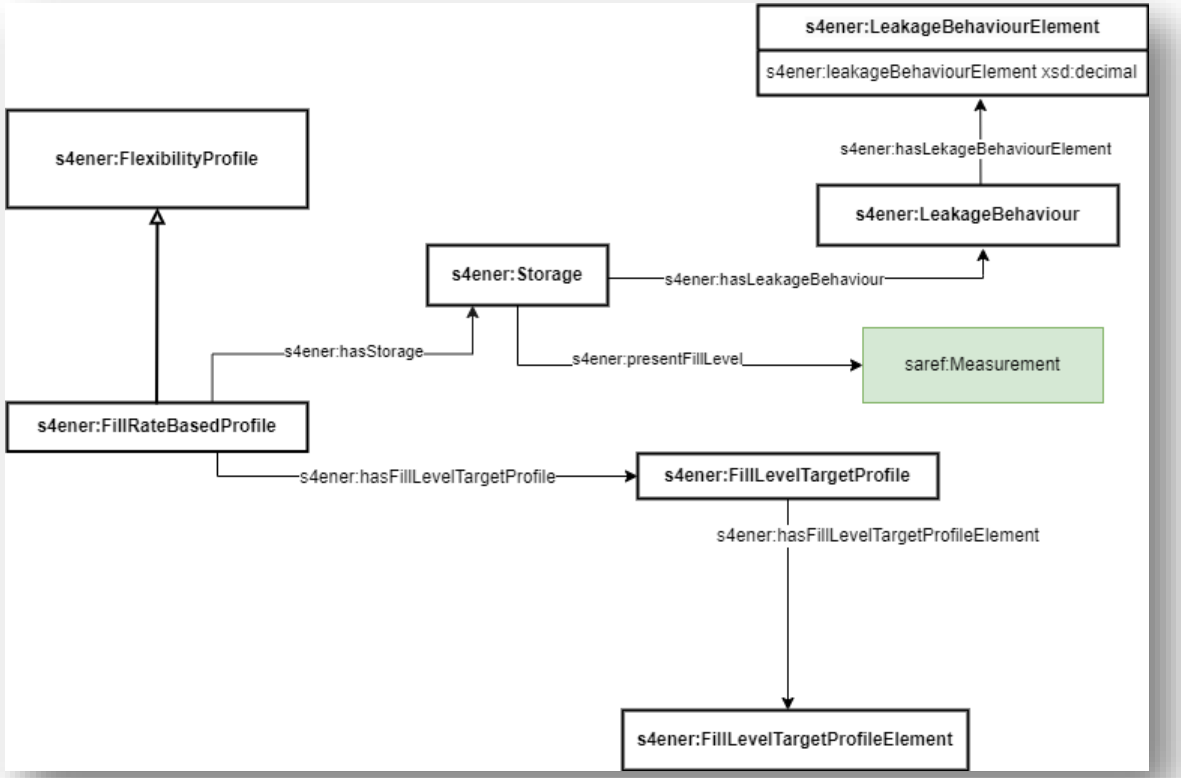
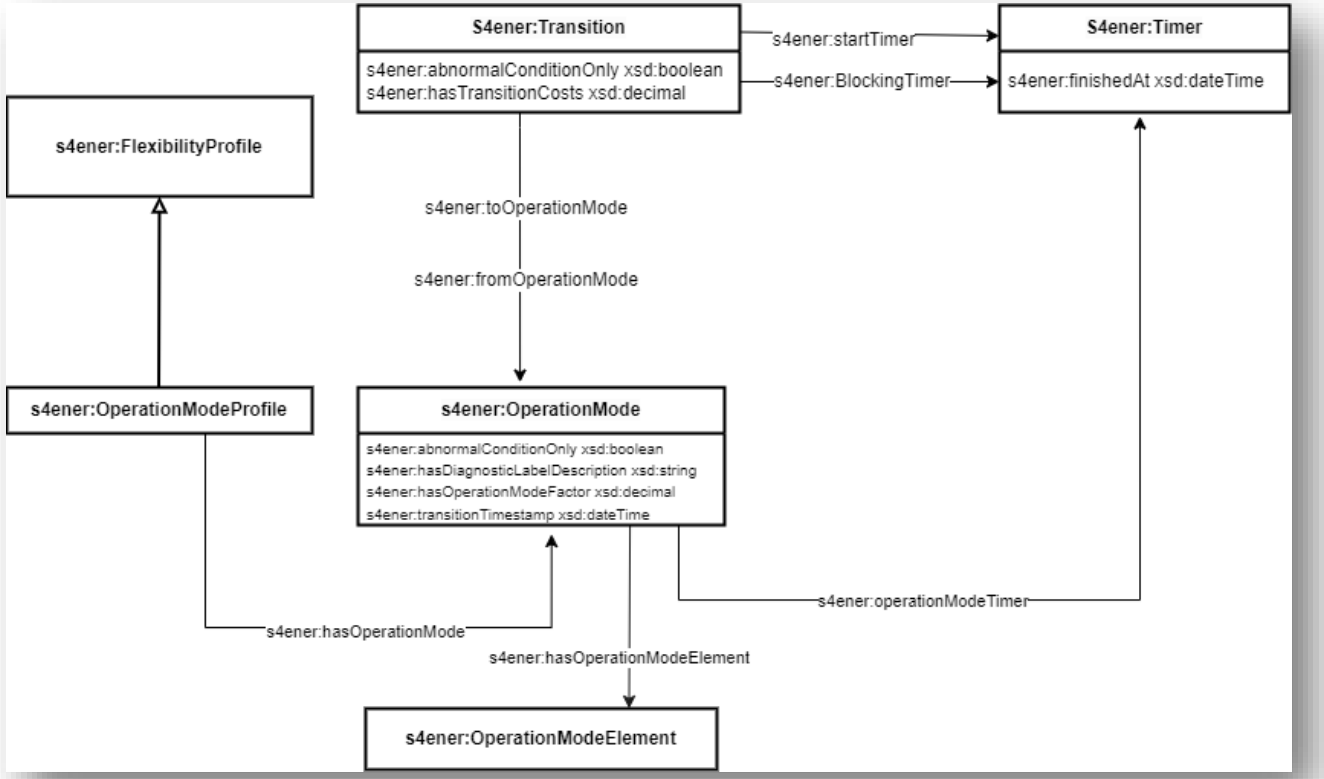
Fill rate based profile

- Fill rate based
  - All devices containing batteries
  - Heat pumps
  - Electrical vehicles



Operation mode

- Operation mode
  - Very flexible real-time choices of energy usage
  - Diesel generator



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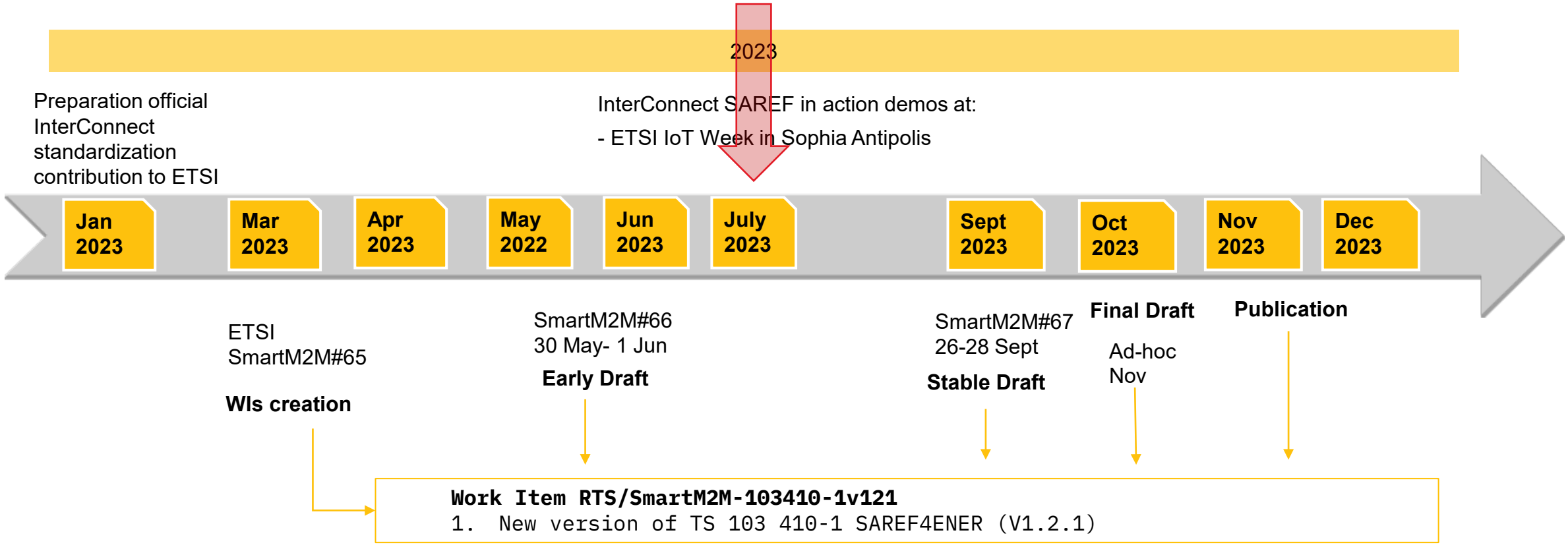
Timeline SAREF4ENER 1.2.1



Summary of SAREF4ENER v1.2.1 contributions

- SAREF4ENER v1.2 adds several types of energy flexibility, e.g.
  - Batteries
  - Power limits
  - Operation modes
  - Incentive tables
- Alignment between messages of EN 50631 (EEBUS SPINE) and EN 50491-12 (S2) initiatives
  - Power profiles
  - Power limits
- Expected publication end of 2023