

Virtual Energy Storage Network based on Residential Heating Systems

Martin Geidl
Head of Energy Services
Swisscom Energy Solutions AG

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tiko

Swisscom Energy Solutions AG

2012:

- Foundation of Swisscom Energy Solutions AG
- Launch of be-smart.ch (today tiko.ch)

2013:

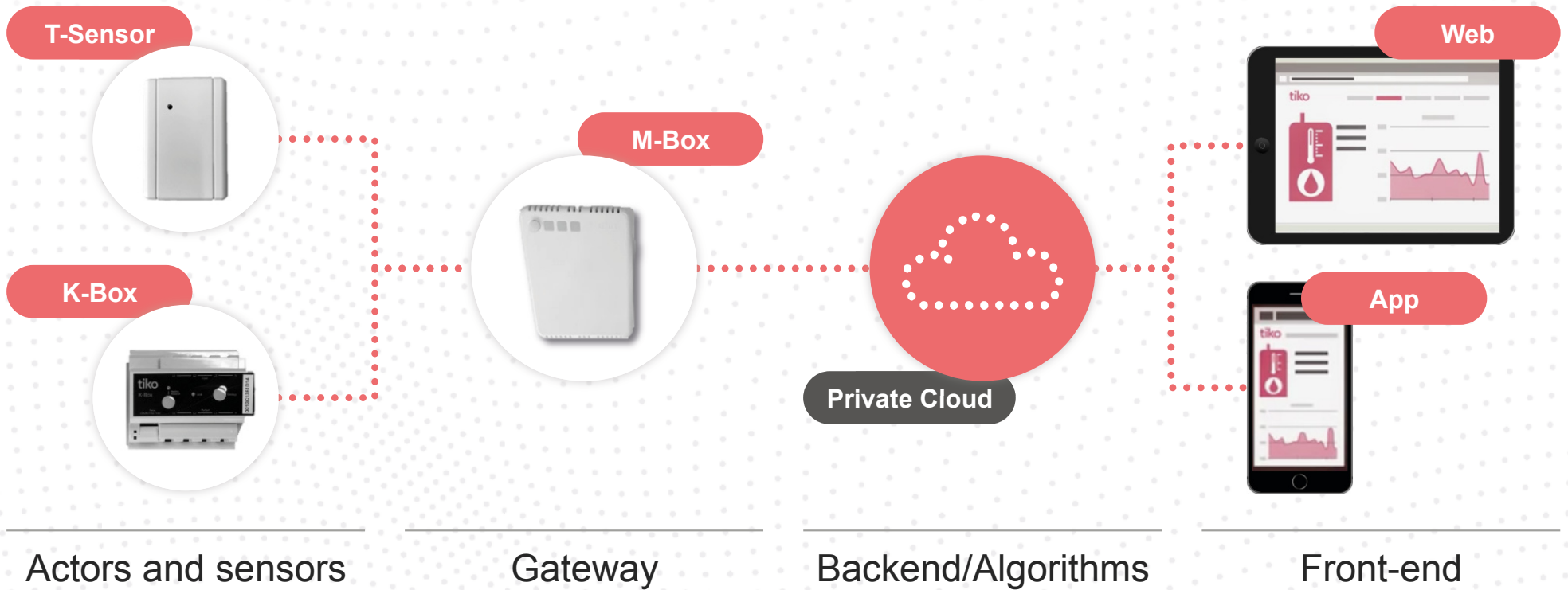
- Partnership with Repower
- TRL market entry
- Successful prequalification test for SRL

2014: SRL market entry

2016:

- Successful prequalification test for PRL
- Launch of tiko sun and tiko mountain
- Projects in Germany, France, and Austria

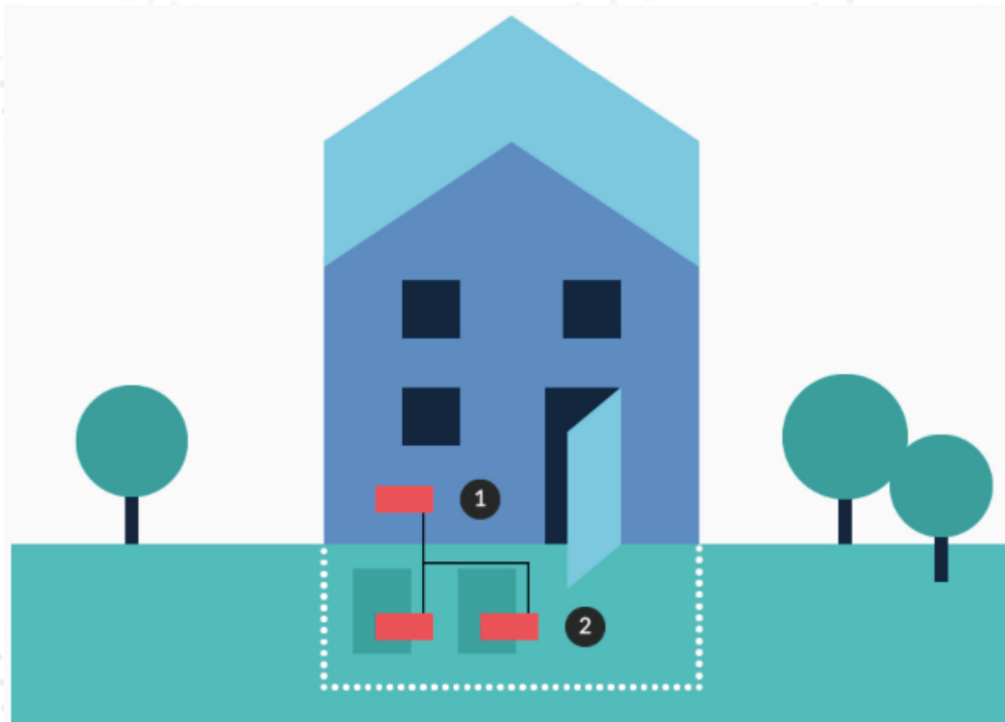
The **tiko** Demand Management Platform



tiko power Storage Network

- Control of electric loads that can be delayed without significant impact on customer comfort
- Focus on small residential loads such as heat pumps, electric heaters, night storage heaters, water boilers
- Accept utility's tariff structures and ripple control times
- The participants keep full control over their devices
- The solution has to be highly secure

tiko power Installation



1: M-Box: Communication module (one per house)

2: K-Box: Measurement and control module (one per device)

tiko power Hardware



Control Aspects

Local weather conditions



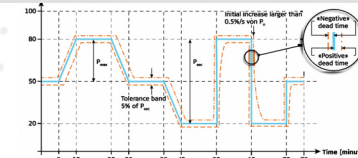
Ripple control times



Consumer behavior



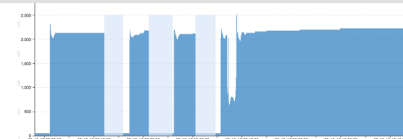
Ancillary service requirements



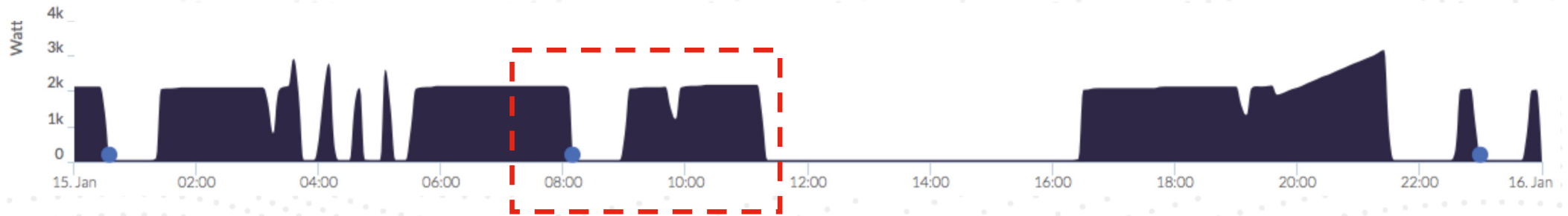
Consumer comfort



Device properties and state



Example: Air-Water Heat Pump



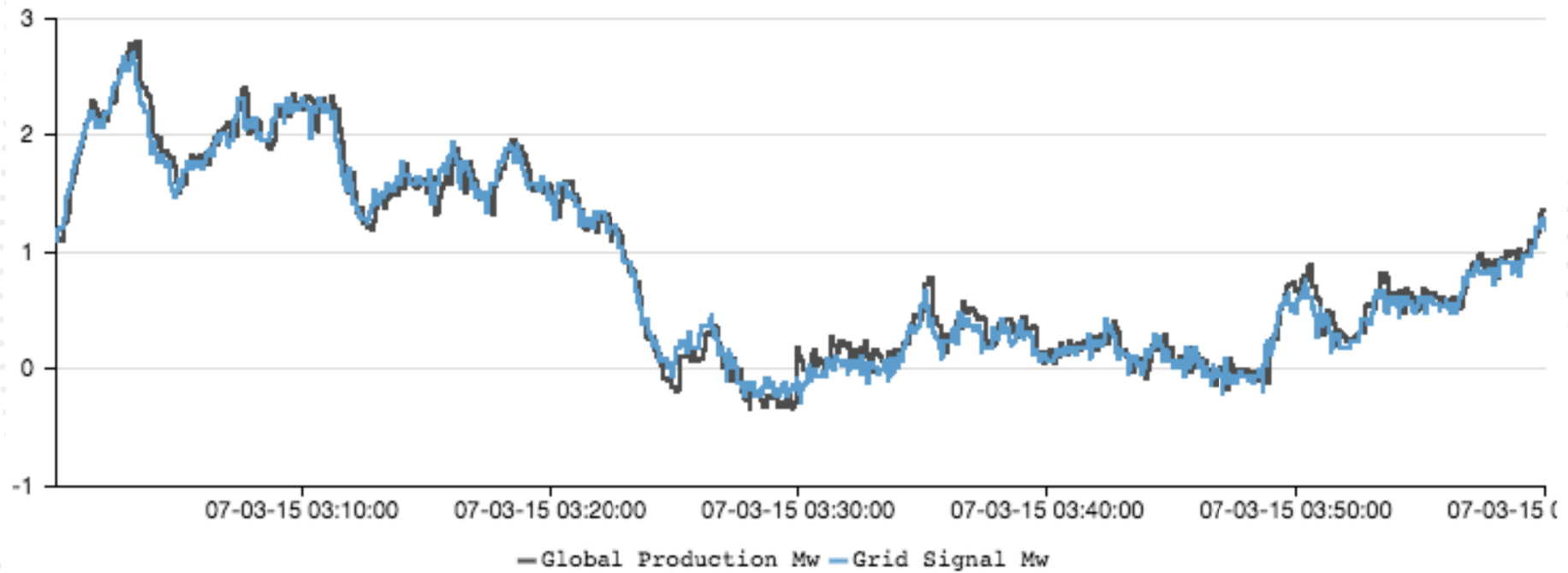
**More than 6500
domestic participants
in operation**

Prequalified and in operation

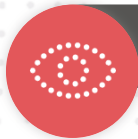
- **SRL since 2014**
- **PRL since 2016**

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Secondary Control Example

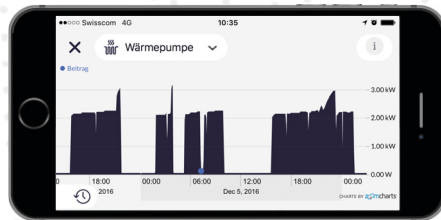


Value Proposition for tiko Participants



Monitoring

Detailed consumption analysis and comparison with other users



Comfort & Savings

Remote control Ecomode for energy savings



Security

Alarming system for device failure



Special Characteristics of tiko

1

Small loads

- Focus on domestic loads, mainly electricity based residential heating
- Small and medium enterprises
- Creating additional value for participants

2

Proven concept

- First aggregator in the world providing primary and secondary control / dynamic FFR with domestic loads
- 24 x 7 operations since 2014

3

Inhouse development hardware/software

- All options for parameterisation
- Changes and further developments are easy to integrate

4

Data and control per second

- Real-time power measurement of each device in the pool
- Individual control commands to each device

5

Centralized and decentralized intelligence

- Intelligence can be centralized or decentralized depending on application
- Combinations of centralized and decentralized intelligence

tiko is reality

REPOWER

ail

AMB
Azienda Municipale
Bellezzone

SES
Società Elettrica Sopracenerina

ELEKTRA
Seoborg - Graubünden - Riedheim

ctc
Enertech Group

Società Ova elettrica
Lumbrein

EKS

EW Rothrist
Wasser und Strom

Hoval

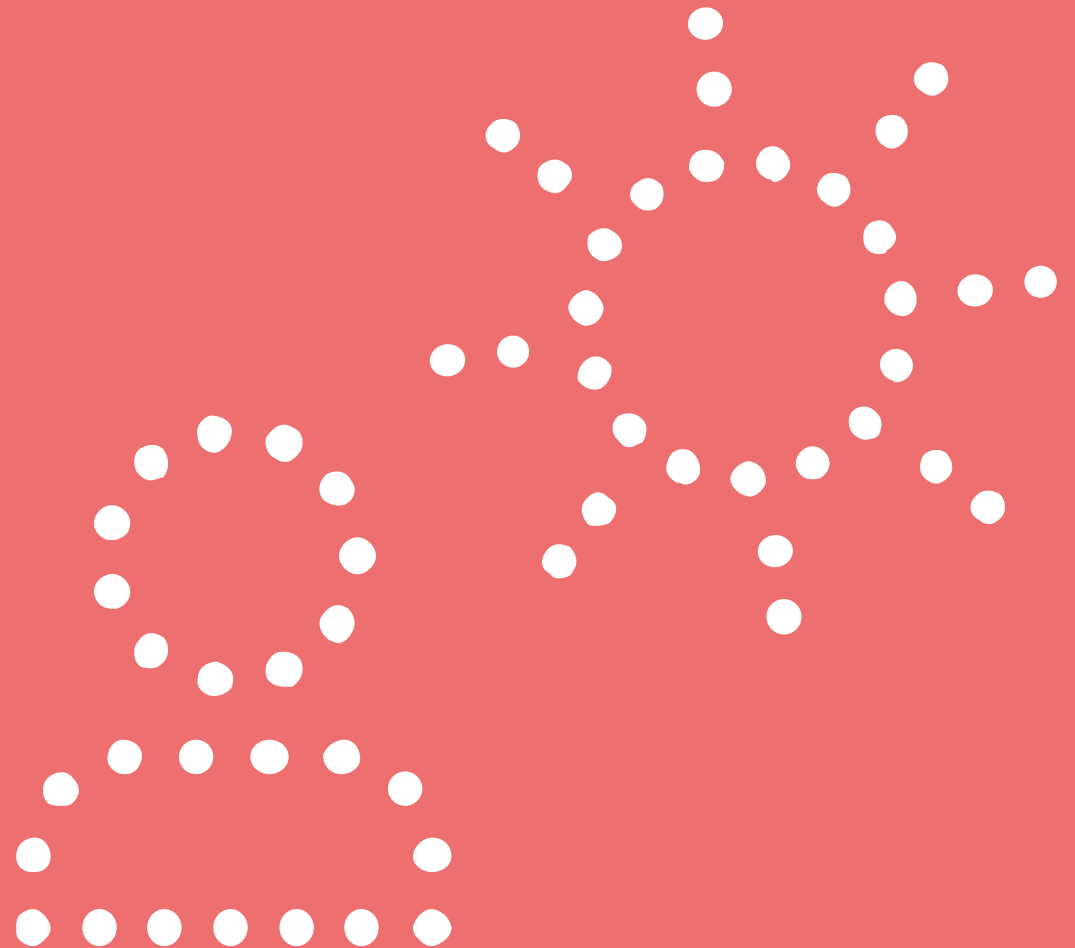
TOBLER

EWU
ENERGIE
PLANUNG
INSTALLATIONEN
KUNDENZENTRUM

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Thank you!

martin.geidl@tiko.ch



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