



CONNECTED. ENERGY. VALUE

Your marketplace for
innovative energy solutions

Untapping Supermarkets' Flexibility Reserves - Opportunities & Challenges -

Erschließen der Flexibilitätsreserven eines Supermarktes mit Photovoltaik

- Chancen und Herausforderungen -

Solarenergietage Niedersachsen 2018 , Hannover

Agenda

Introducing coneva GmbH

Connected = The challenge for supermarkets

Energy = Our solution for energy management

Value = How our customers benefit

Lessons Learned & Conclusion



Core of our business model is to create value via energy savings, energy management and/or the sale of energy

WHO ARE WE – CONEVA GMBH

Part of the SMA Solar Technology
digitalization strategy

One-Stop shop for innovative
data based energy services

c o n e v a
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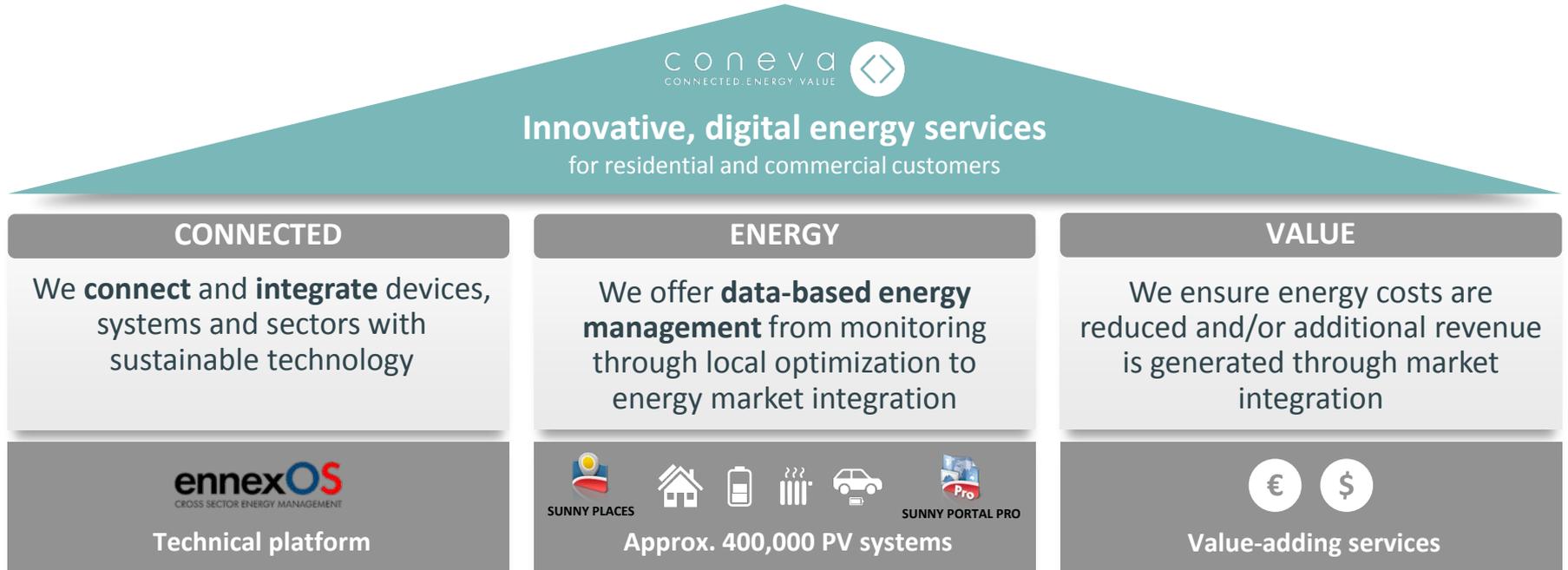


Market place for the development
of new business models

Forerunner for a successful positioning
in the digital energy world

cone va connects, optimizes and manages energies and hence creates value for its customers

CONEVA'S VALUE PROPOSITION

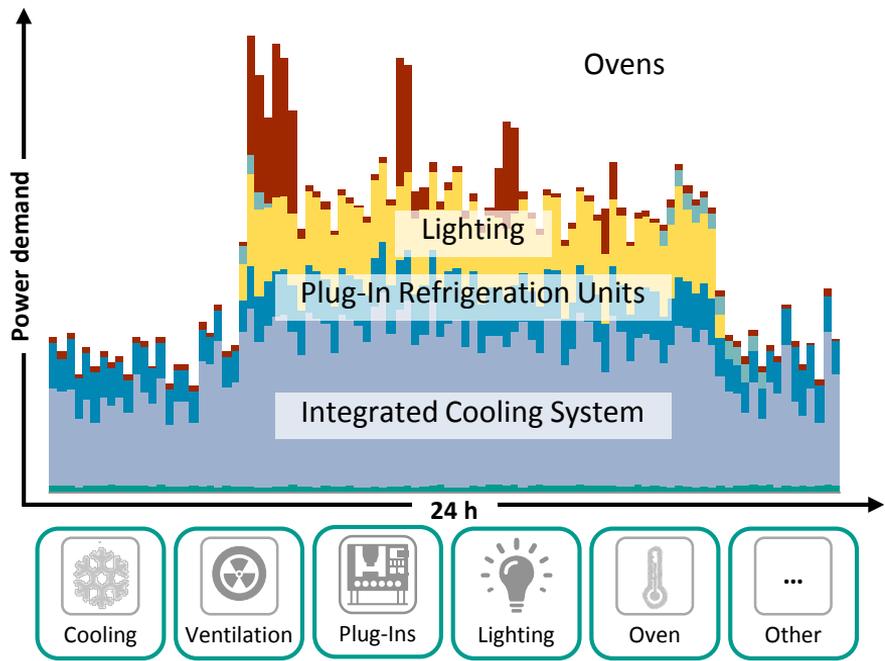


Today, cooling system assets provide most (reliable) flexibility – this will change in the future with effects unknown

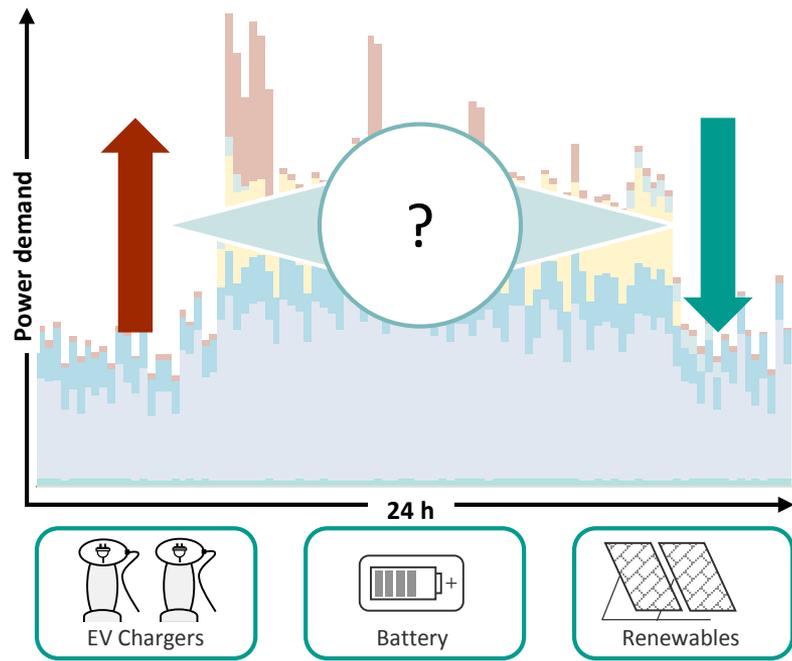
ADDRESSABLE FLEXIBILITY AS CHALLENGE

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Today's Asset Landscape and Load Curve (example)



Future Asset Landscape and Load Curve (unknown)



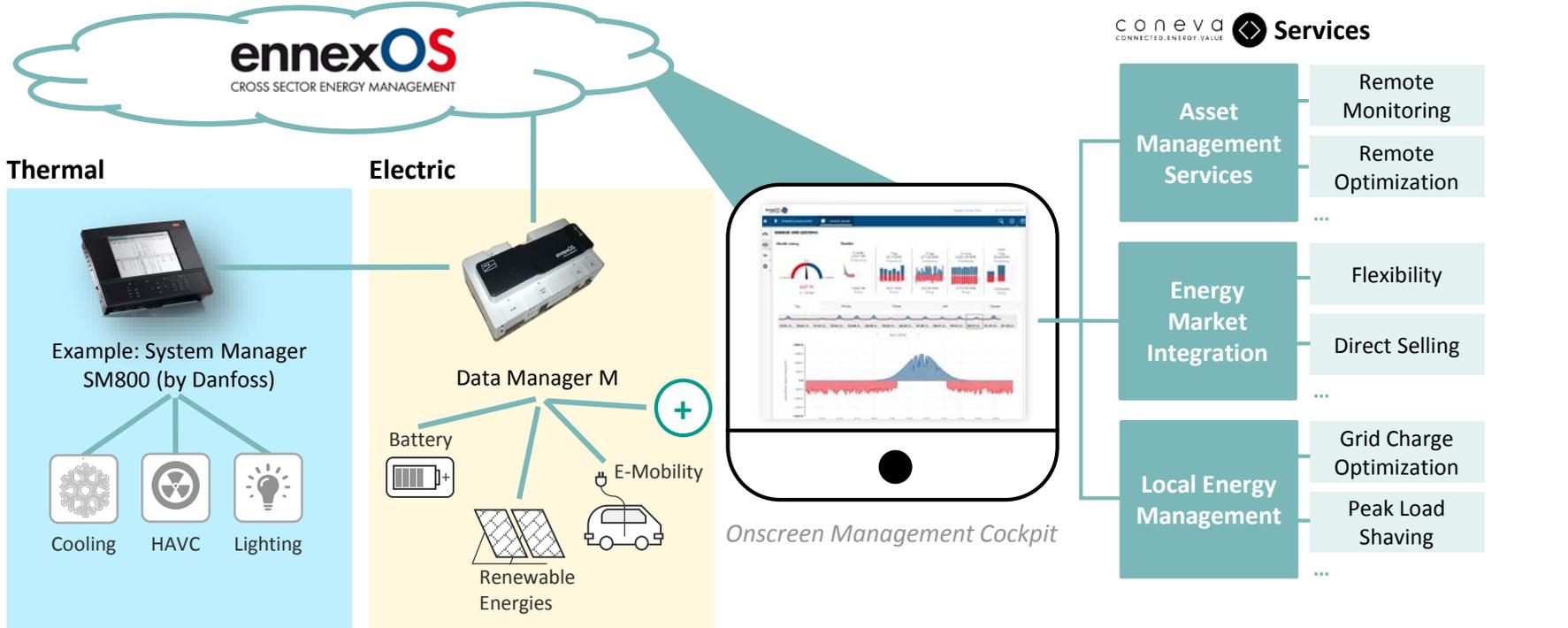
Our platform ennexOS integrates thermal and electric worlds, thus connecting all relevant assets – enabling our comprehensive service portfolio

ENNEXOS CONNECTS ASSETS AND DOMAINS

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Energy management has to optimize between different flexibility use cases as well as on individual and pool level at the same time

WHERE'S THE MONEY FOR ENERGY MANAGEMENT (IN THE FUTURE)?

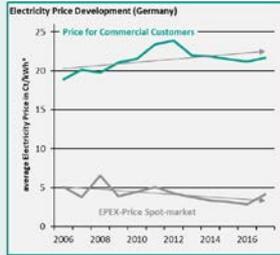
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NON-REGULATED

REGULATED

LOCAL

Self Consumption



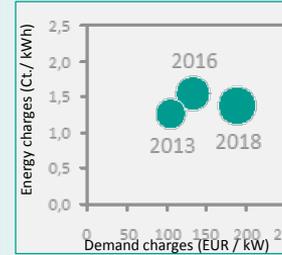
Challenges:

- > Price (e.g. levies) developments
- > Preferential treatment of on-site generation

Location 1

Location n

Grid Charges



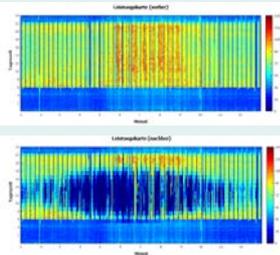
Challenges:

- > Price increases
- > Shift to demand charges
- > Changing regulation

Location 1

MARKET

Individual Utility Rates

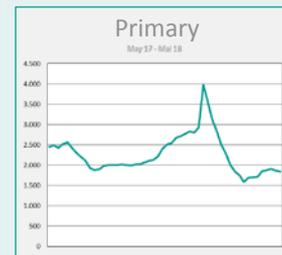


Challenges:

- > Reliable prediction of residual consumption
- > Value assessment

Location 1

Grid Services



Challenges:

- > Price developments
- > New products
- > Prequalification

Location 1

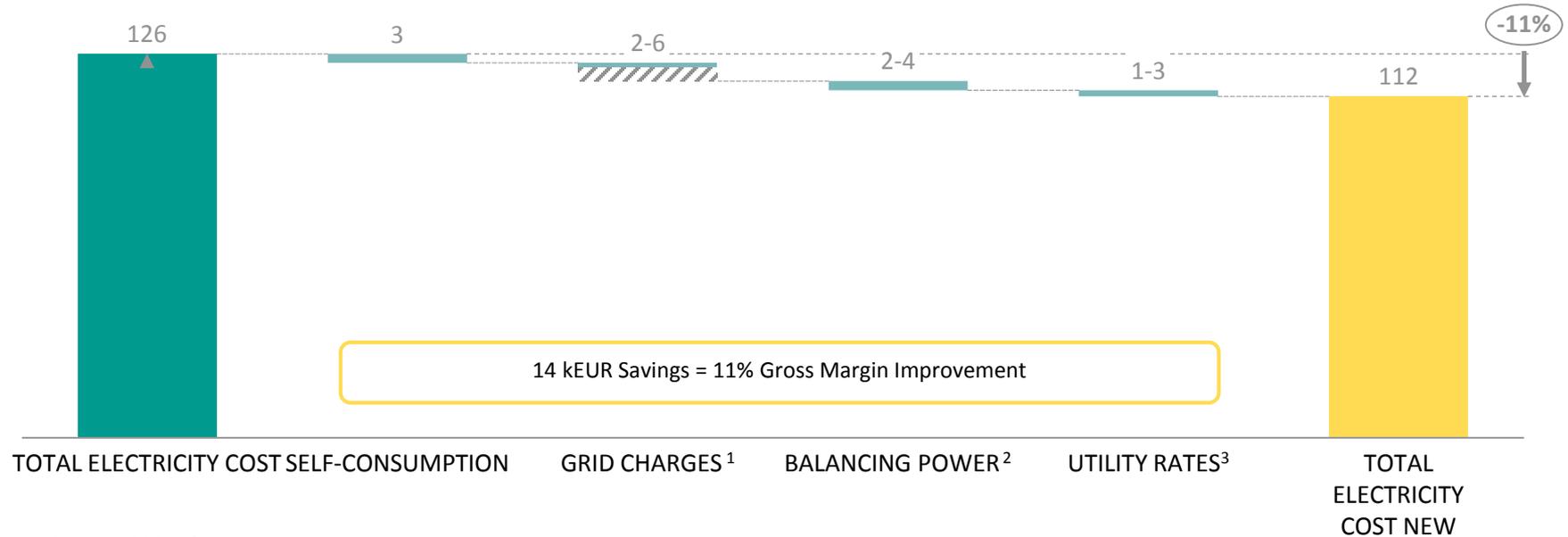
Our Energy Management Services will generate significant savings for our customers – while allowing them to focus on their core business: Retailing

AVERAGE COST AND SAVINGS - 10 YR PERSPECTIVE
(kEUR p.a.)

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- 1) Depending on Availability of Battery Storage
- 2) Requires today Battery Storage, depends on Price Developments
- 3) Depending on individual contract provisions

Innovative Supermarket Pilot in Cooperation with Danfoss to demonstrate benefits entered operational phase in June 2018

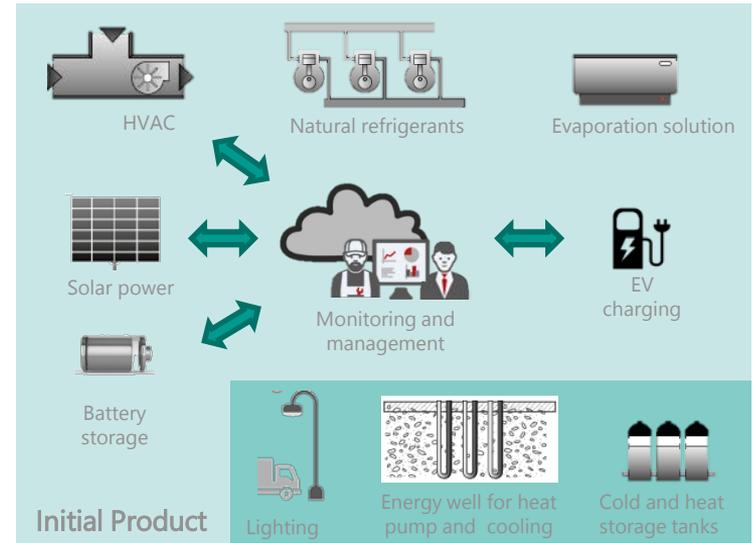
DEMONSTRATOR PROJECT

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Smart store in Germany: CO₂ refrigeration system incl. waste heat + PV + battery storage + EV charging infrastructure



Possible iterative extension



Summary & Conclusion

KEY LEARNINGS

- > **Every journey starts with a first step** – getting the basics right (sound design, professional installation according to plan, ...) provides foundation for future developments
- > **In Food Safety We Trust** – energy management's additional value is a friction of the cost of potential system failure when merchandise perishes
- > **The future is ... uncertain** – focus on a single niche is risky, flexibility regarding assets and markets is of high value
- > **Think green!** – meet the demand of consumers that are becoming more environmentally conscious
- > **Expand your boundaries** – focusing on single assets / locations may seem unattractive, but pooling offers new potentials

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