
Sustainable Places 2017 – Keynote Stefan Lodeweyckx (CEO & founder Enervalis)

*How next generation smartgrid software can enable the mass-role out of net-zero social houses"*

# Some relevant EU nrs …

40% energy consumption = buildings

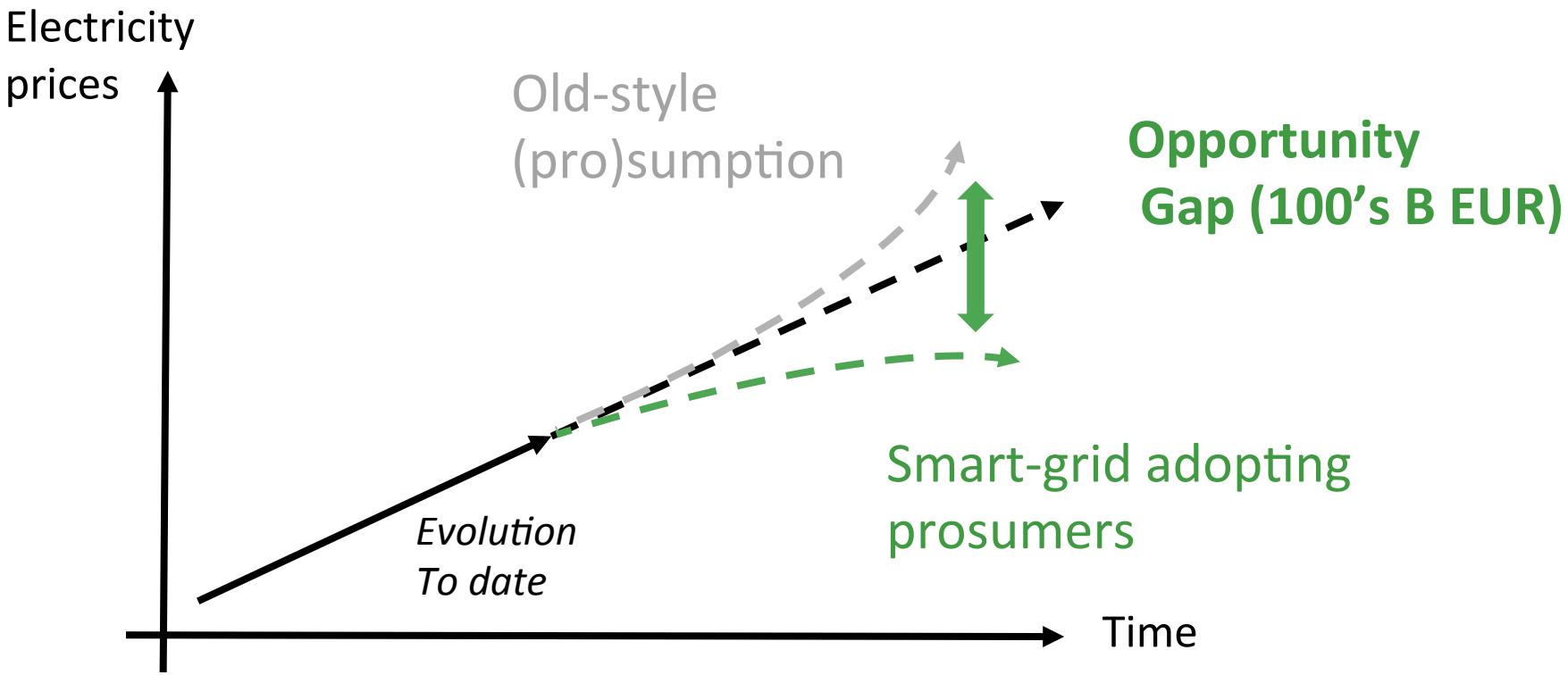
75% building floor space = residential

Residential = 56.17 % EU building energy consumption (1.600 TWh/y)

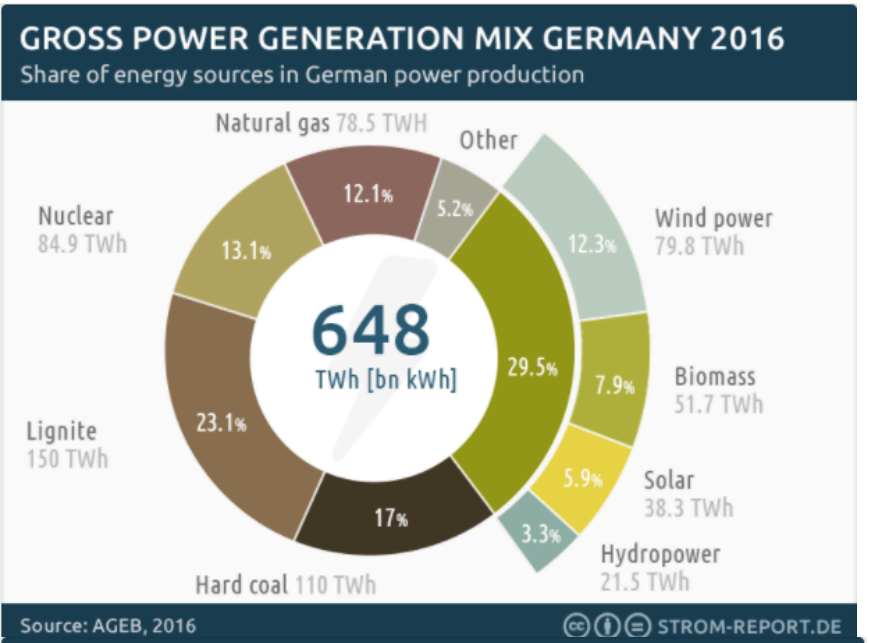
40% residential built before 1960

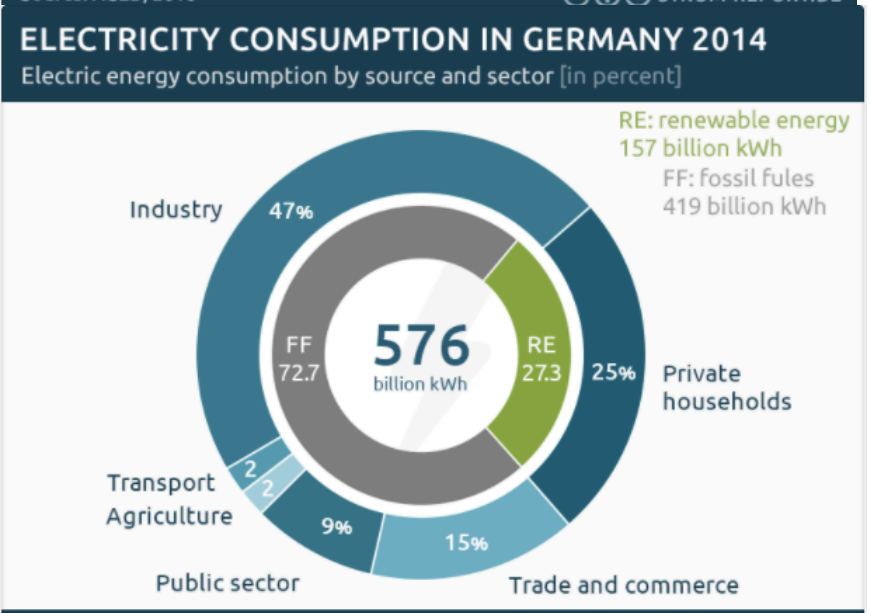
12% EU27 residential = social = 25M units

# Setting the new energy scene …

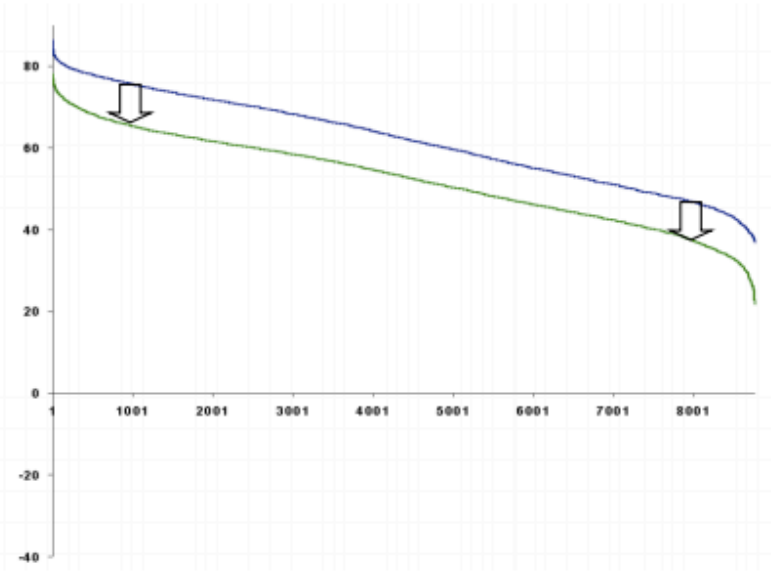


# Germany as an interesting example …

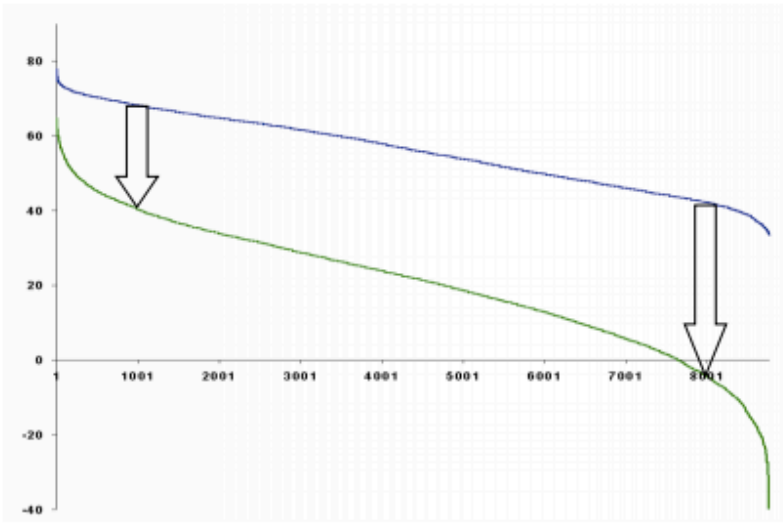



**Load duration 2010 in Germany**




**Load duration 2030 in Germany**




RE contribution lowers full load hours of the residual system,
which will lead to an increase in cost
(RE share in power generation 2030: 65%)

## So …

Buildings = key

Social housing = big impact opportunity

Smart Green = must

# Enervalis positioning …

Passive consumers
(incl HPs, Evs, Batteries, etc)

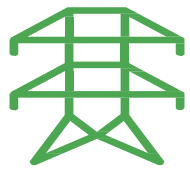
Enervalis creates the evolution towards

**Smartpower Suite**

- **Smart EV Charging**
- **Smart Buildings**
- **Smart Micro-Grids**

*Consumers want the control on their energy consumption*

**Active part of the energy system**



*Network congestion will occur in the future*


*Flexibility will be needed by the Electricity markets*

***Enervalis enables the "internet of energy" to support next generation mass-market Energy Service As a Service***

# And NL example: drivers for a smart green microgrid

**100’s M EUR/y DSO OPEX (inc gas)**

**2,6M social houses => 100% green**

**=>> 13TWh/y & > 5Mton CO2/y (grey displace)**

**BUT >15GWp!! (worst case)**

# UK typical residential energy profile

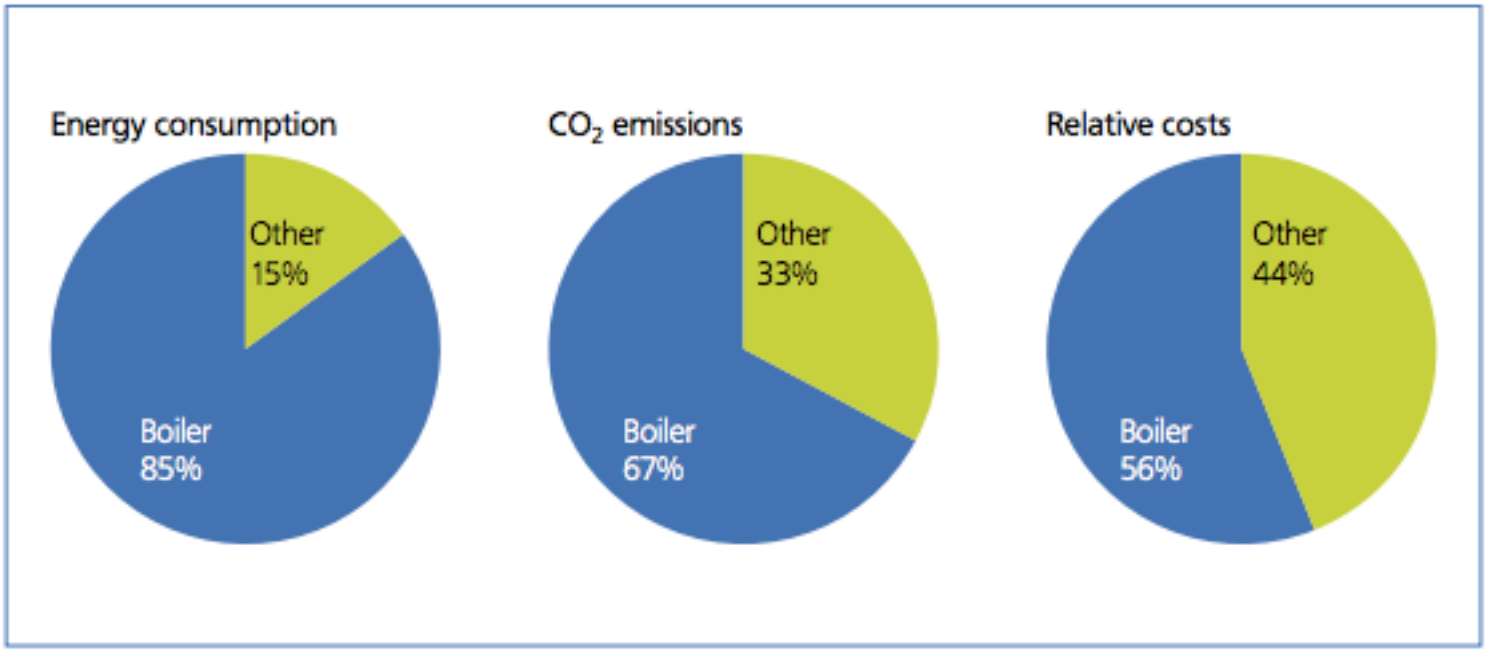



Figure 1: Heating and hot water as a proportion of total energy usage in homes heated by natural gas

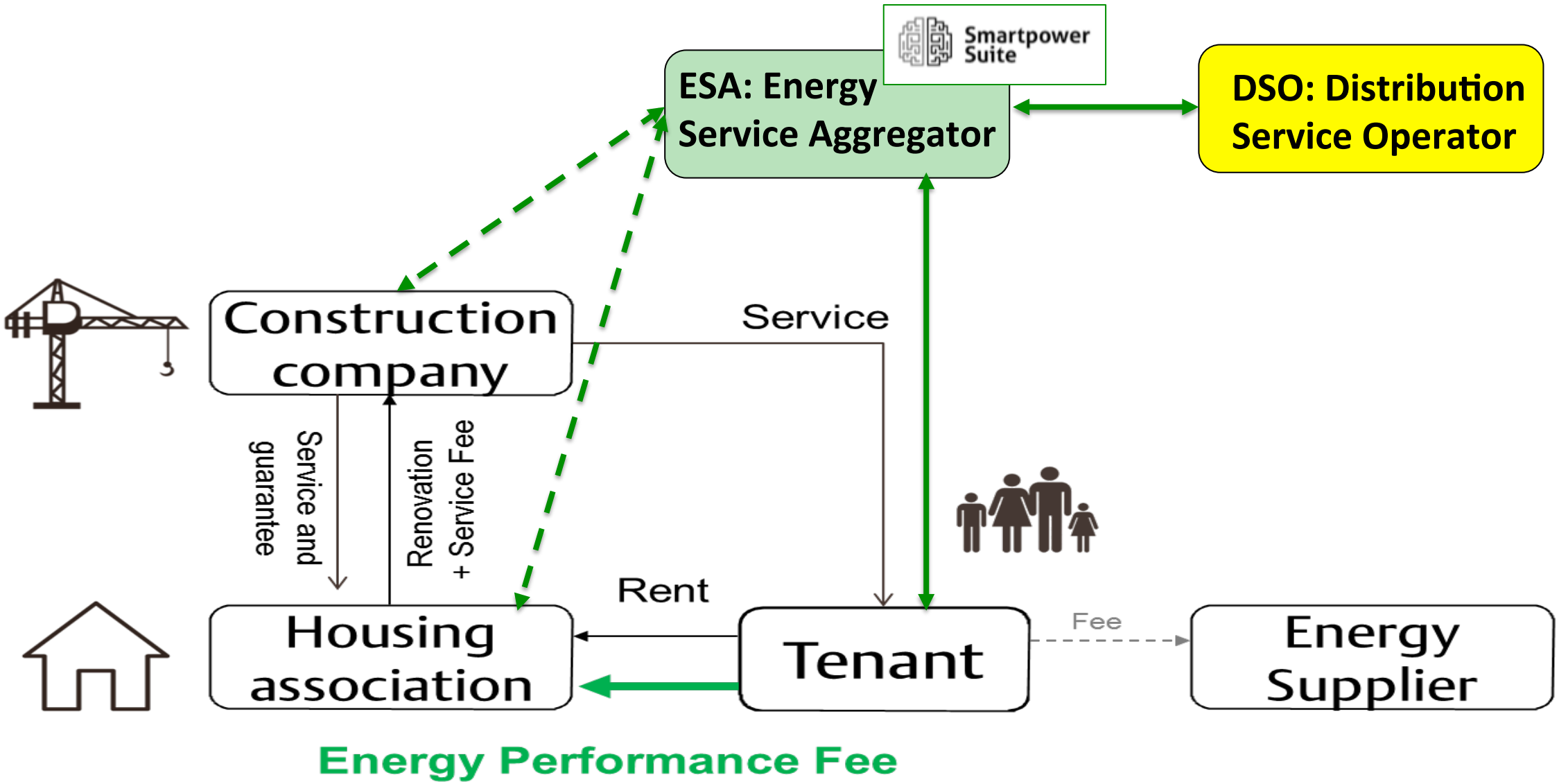
# Energy modules

The cost-effective way to a sustainable all-electric future

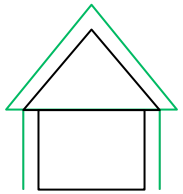
# What does it look like in reality?


RENNOVATES

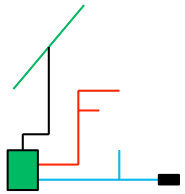
# Smart Energy model ("ZOM+"): roles



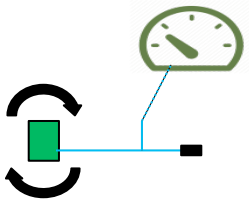
# Smart Energy model (“ZOM+”): key values



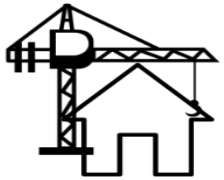
**Save** energy through insulating the building using a modular, pre-fabricated system (50% save)



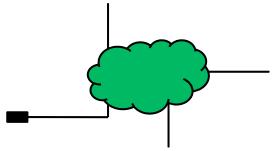
Minimize consumption by using **efficient** installations in the pre-fabricated Energy Module (25% save) and add local generation



**Optimize local** energy consumption and productoin and enable flexibility in value cases (5+ % saving)



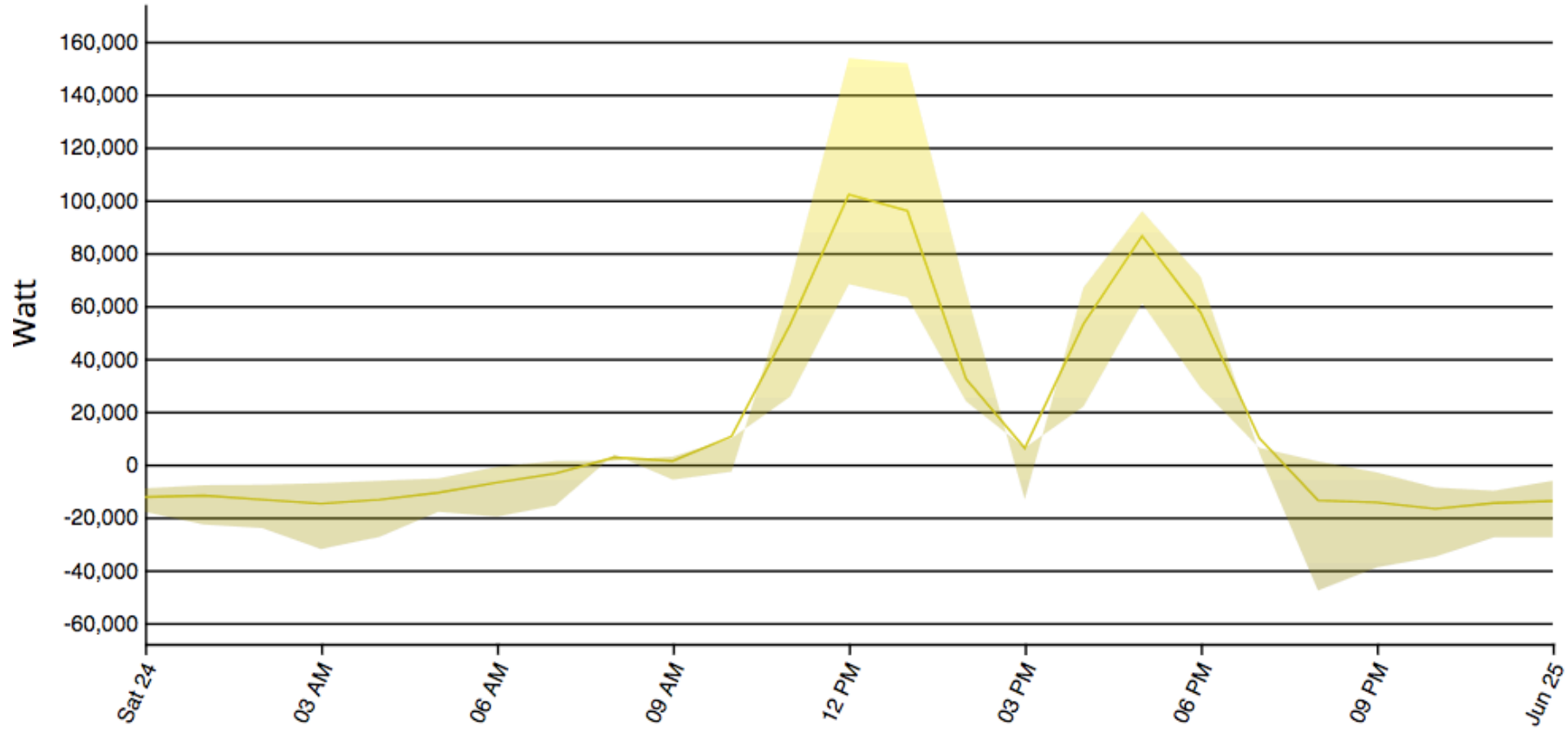
>5% ROI for housing associations



**Orchestrate** neighbourhood interaction to support the infrastructure and community (+3-5% income)

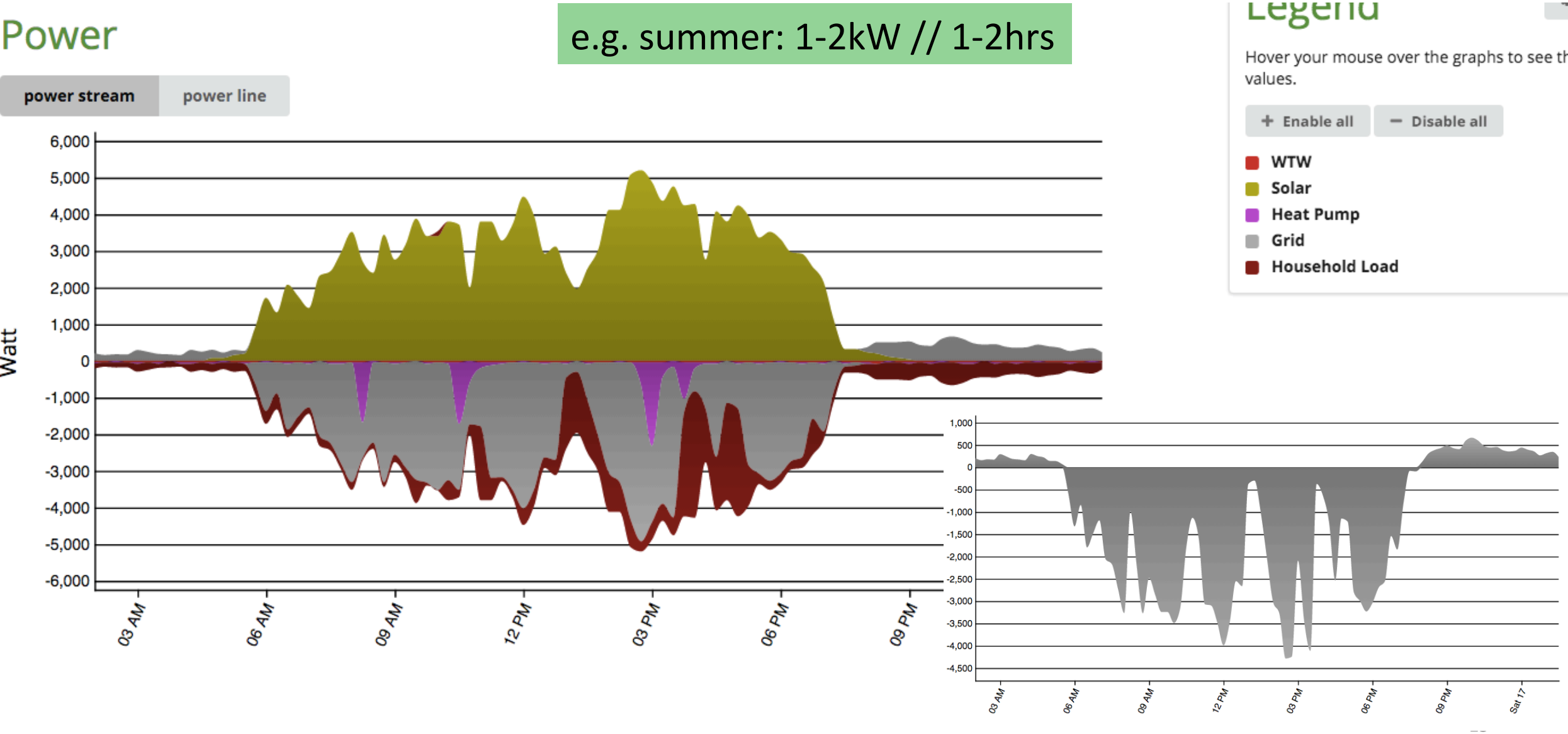
Increase comfort, health, sustainabiliy and cohesion

# A snapshot of a day in june from a smart microgrid project

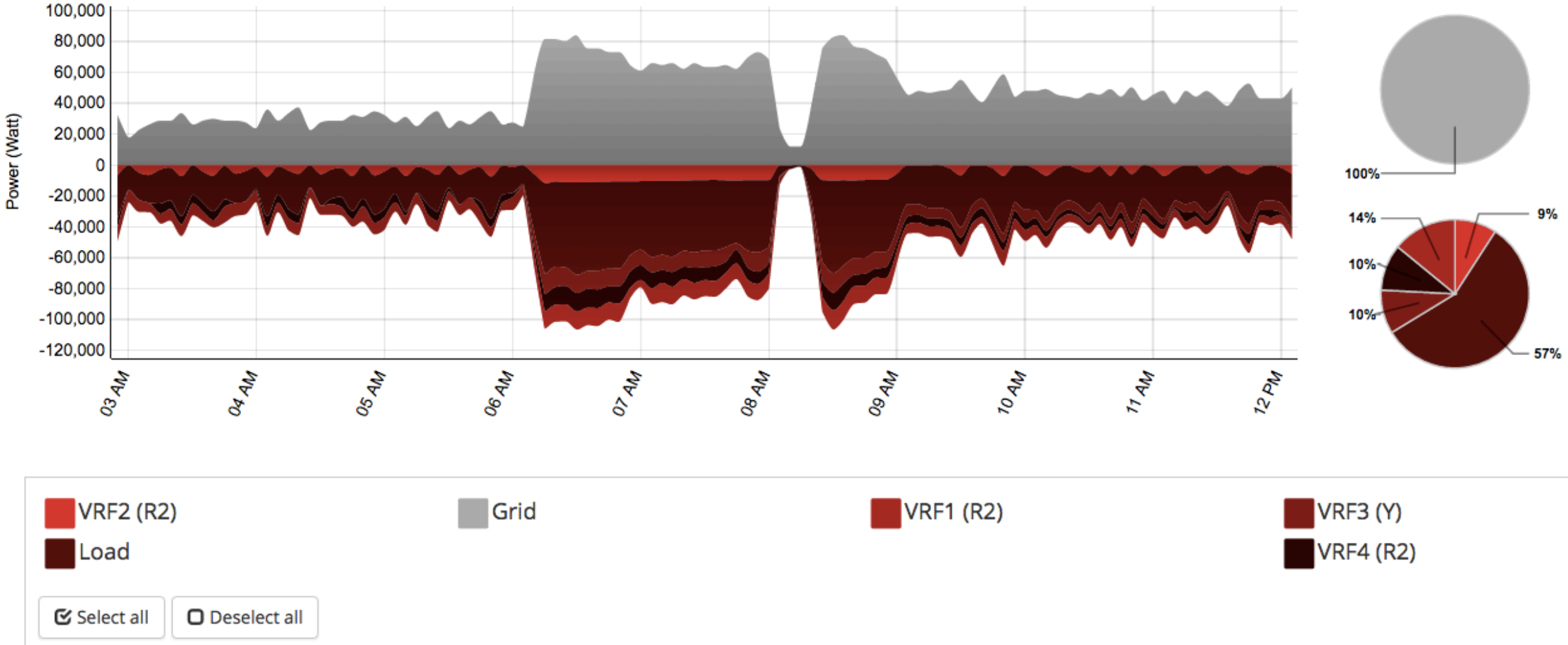


# Smart energy value: congestion management

e.g. summer: 1-2kW // 1-2hrs

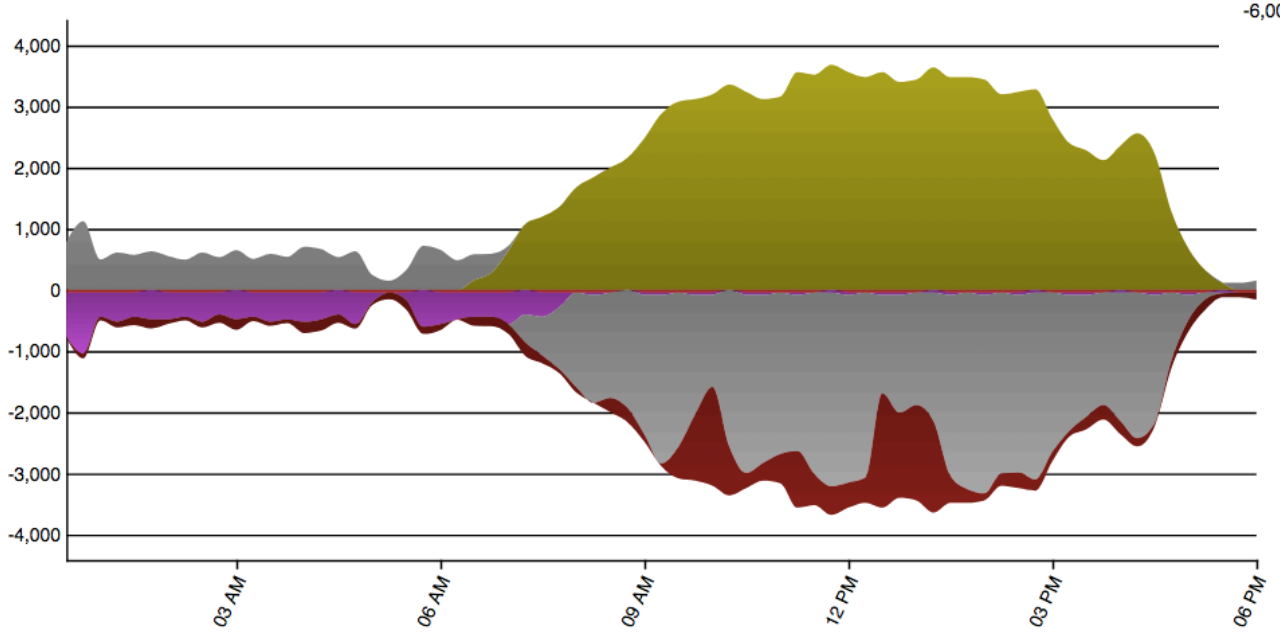


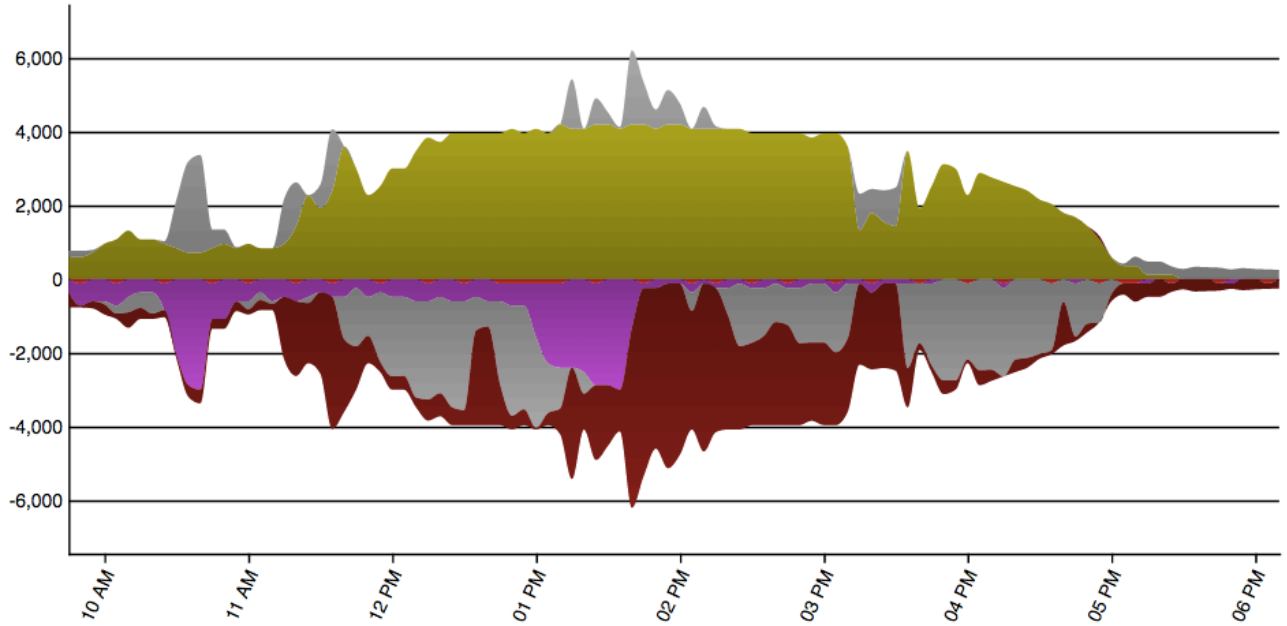
# Alternative congestion management example



# Smart Energy value: self-consumption

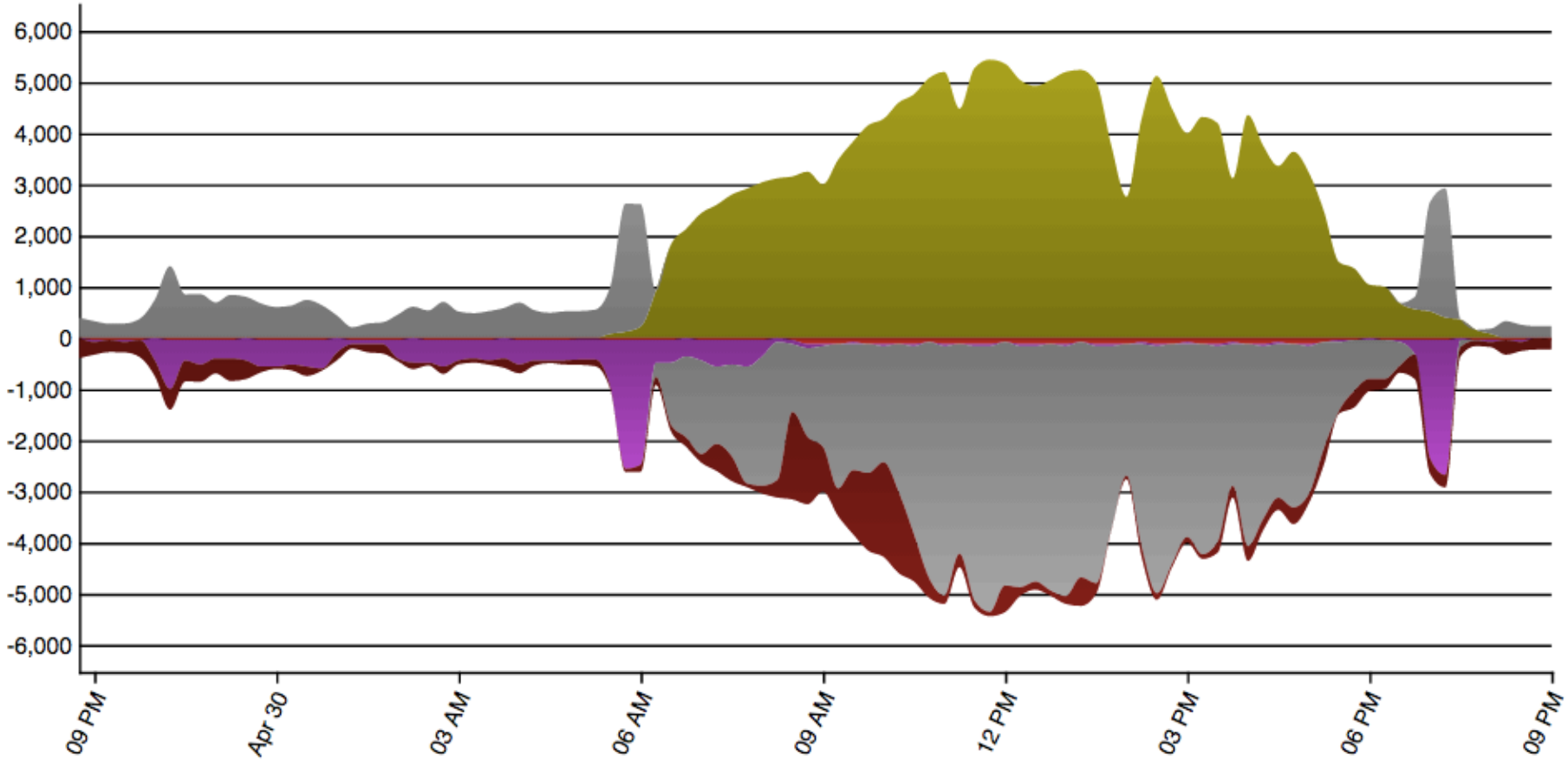
+75%



# Smart energy value: Energy efficiency

20% savings - 250-300kWh/y



# To conclude

Community based smart energy management

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Key to cost-effective net-zero social housing in EU

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**150+TWh/y green // 25++MTon CO2/y!**

*Without network cost impact*