Easy Smart Grid GmbH

Local

energy suppliers and grid operators

Local energy suppliers and grid operators can make better use of renewables and sector coupling

Easy Smart Grid can be integrated seamlessly into existing energy systems and grow step by step – up to 100% of renewable energy (RE).

Opportunities and challenges for the electricity system

Local energy suppliers and grid operators convince their customers by proximity, service and green, reliable energy. Locally generated electricity and attractive pricing improve customer loyalty. Maintain your success with innovative technology that allows making better use of renewable energies and sector coupling!

○ **Sector coupling**

Fossil energy still dominates electricity generation, heating and mobility. The transformation of the electricity sector now expands into de-carbonisation of building and traffic sectors. This sector coupling contributes substantially to efficient storage of volatile energy: electric vehicles are charged flexibly, heating of buildings and water uses flexible heat pumps and thermal storage – they at the same time act as low cost "virtual batteries". Flexible small CHP plants produce electricity when sun and wind are not available.

○ **Impact on the electric grid**

Electricity consumption could triple by de-carbonization. Variations of solar and wind generation further increase grid load as more energy must be transported in shorter time – the grid must be extended. Local balancing of supply and demand, however, reduces this extension need.

○ **Resilience against disturbances, blackout, data theft or cyber-attacks**

Growing energy system complexity makes it difficult to keep it under control and act correctly in case of emergency. While information and communication technology can help here, they also facilitate data misuse and hacking of this critical infrastructure. Therefore Easy Smart Grid combines proven principles into innovative solutions with less complexity and cost, yet better performance, resilience, data and cyber protection.

The Easy Smart Grid added value

Our technology helps mastering two of the current challenges:
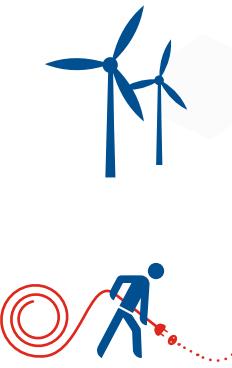
1. Optimum use of locally generated volatile electricity

Local balancing of volatile generation and flexible demand increases own consumption and reduces cost of storage. Econonomics improve as expensive purchasing and poorly paid export of electricity is minimized.

2. Minimize grid extension and its cost

Our technology reduces grid extension even if more electricity is needed for heating and mobility. Supply and demand are mostly balanced at the distribution level and CHP operates when sun and wind do not need the grid. The existing grid can thus transport roughly double the amount of energy, and less capacity is needed at higher grid levels.

Dynamic tariffs and the future energy system

- **New market design supports the energy transformation**

  Today's energy markets plan several hours ahead, and any deviation from schedule must be compensated by fossil plants or battery storage. Dynamic electricity tariffs achieve the same effect by flexible operation of electric appliances, CHP or solar batteries, and thus avoid additional CO_2-emissions and cost.

- **Prosumers drive energy transformation with attractive investments**

  Most investments into renewables, storage, CHP, electric vehicles and heat pumps are done by private actors today. The European Commission requires the introduction of dynamic tariffs to reward their flexible operation tomorrow. This will change the role of consumers to become the drivers of the future renewable energy system. Growing flexibility of participants, higher dynamics and stronger interaction require innovative ICT solutions that also must be robust and scalable – just like Easy Smart Grid. Local and highly dynamic energy markets ensure cost optimal energy systems and highest benefit for each customer.

Heat pumps

Household appliances

Photovoltaics

Electric cars

Wind energy

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CHP

Price determination

Electricity grid
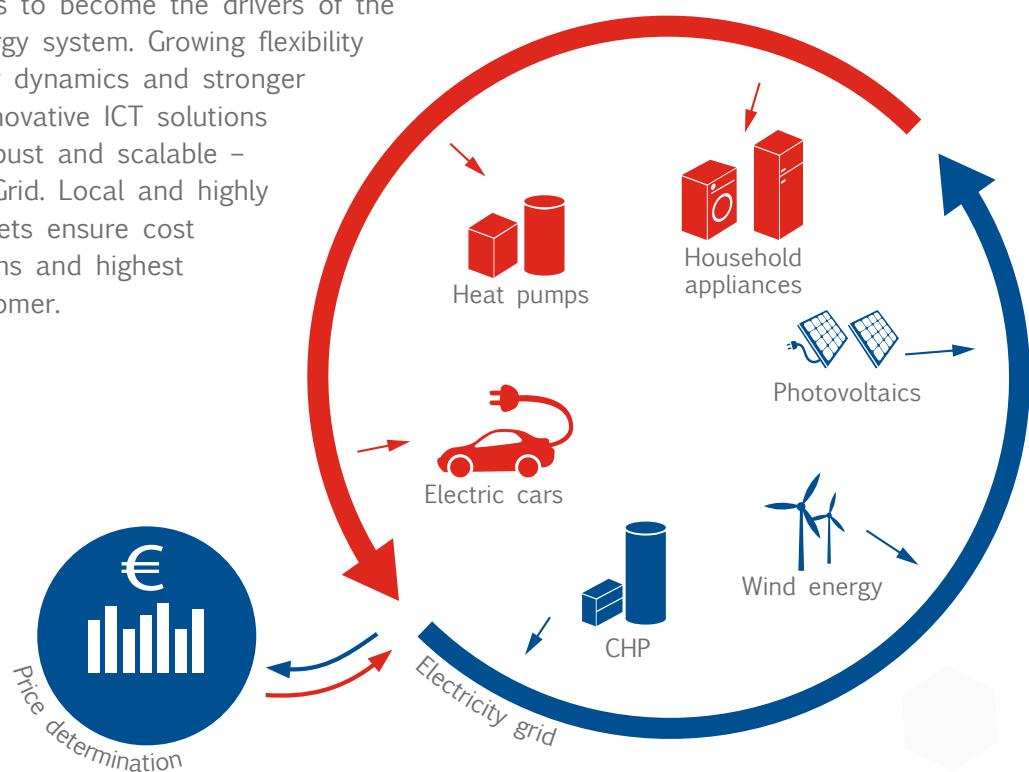
Project SoLAR

In the community of Allensbach on Lake Constance a demo project has been started 2018, funded by the Ministry for environment and energy in Stuttgart. A property with 22 flats will be equipped with our technology. Solar rooftops, a CHP generator, heat pumps, car chargers and specially equipped household appliances are coordinated by a local energy market (LEM). This compensates the generation volatility and minimizes grid load. Our technology maximizes consumption of locally generated electricity, and minimizes control complexity as well as the cost of automation and energy storage.

First simulations suggest a reduction of 75% of building's CO_2-emissions without energy cost increase. At the level of the community of Allensbach, roughly 80% of the required energy could be produced locally and transported by the existing distribution grid, as conventional fossil sources for heating and traffic are replaced by electricity and coordinated by intelligent, de-central energy management.

Easy Smart Grid

was founded in Karlsruhe/Germany in 2014 with a clear vision: An energy system dominated by renewable sources. Our mission is to supply the missing puzzle piece - a real time energy management technology with unmatched price/performance ratio to make the energy transformation simple and affordable.

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