gridX

# Dynamic electricity tariffs

Marlon von Coburg
Business Development Representative

m.voncoburg@gridx.de
+49 241 412597 12



e·on GOLDBECK innogy DHL VIESMANN

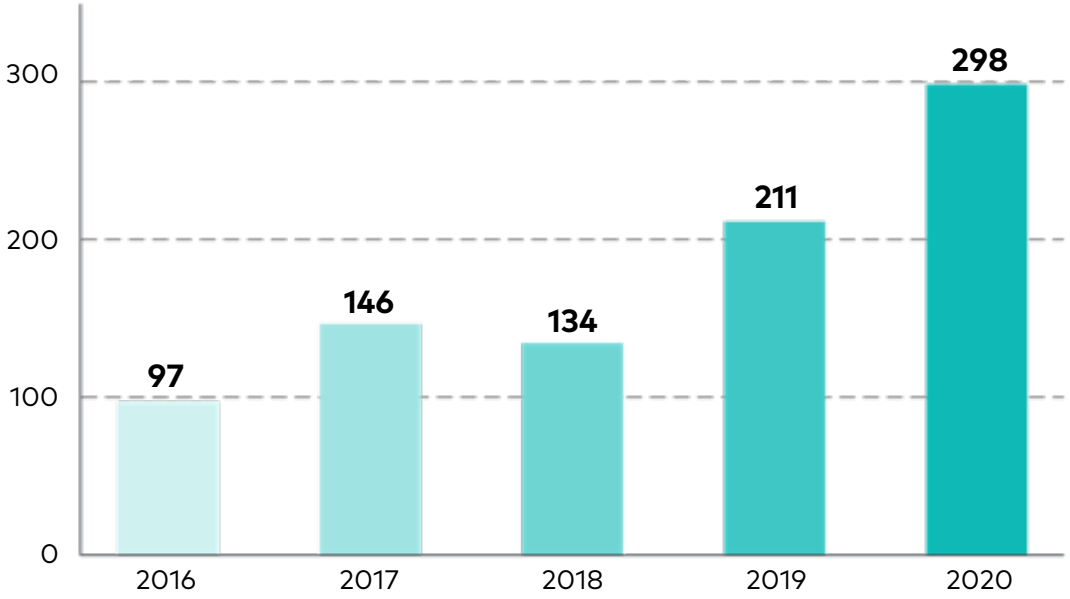
gridX

# Marlon von Coburg

Business Development Representative

gridX

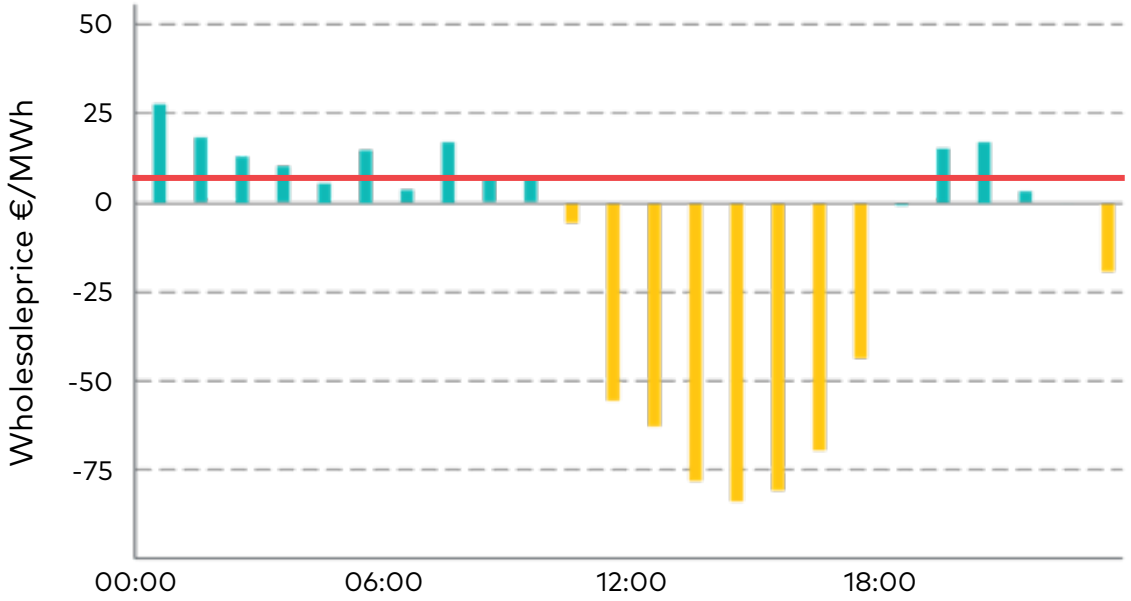
# Growing mismatch between demand and supply




Number of hours with negative wholesale electricity prices in Germany per year

Source: Smard.de

# Electricity prices vary drastically during the course of a day




- With fixed price contacts, private consumer is not involved in price fluctuations
- Lost opportunity to give consumers incentive to shift loads

Wholesale price per MWh in Germany on 22 April 2019 by hour

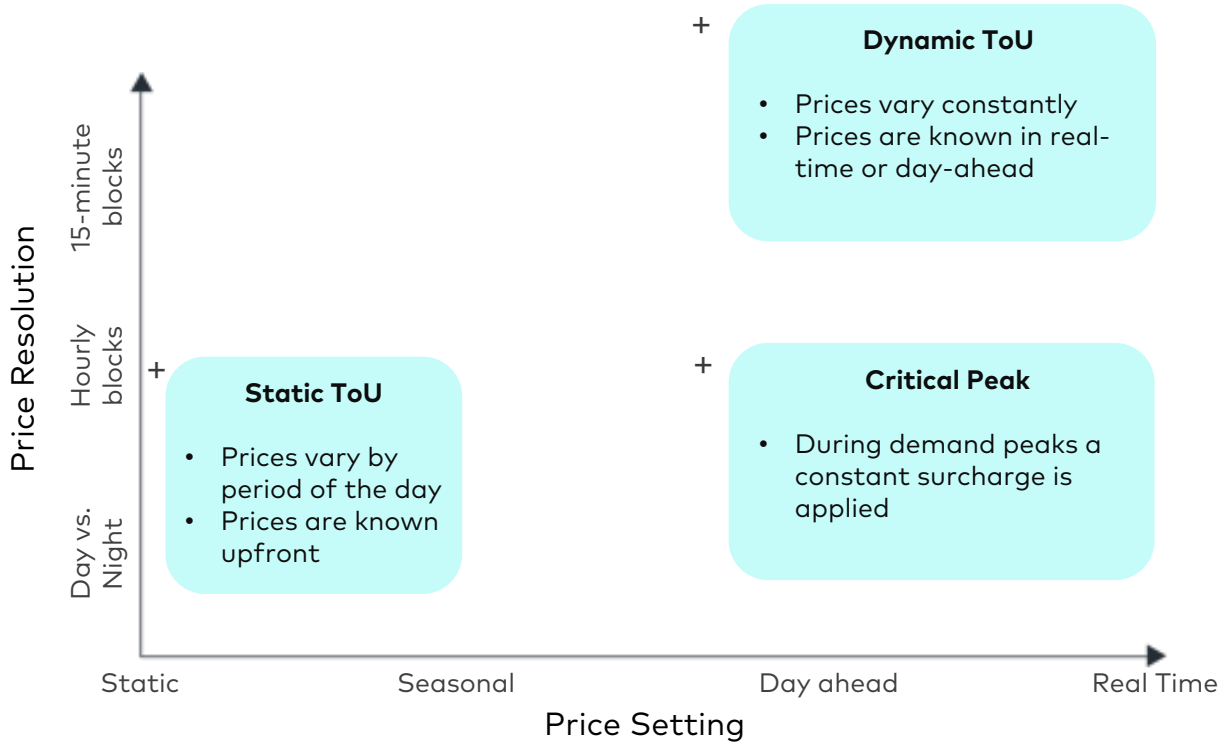
Source: Smard.de

# Time-of-use (ToU) tariffs vary on two axes

gridX

**1. Price Resolution –** How often do prices change?

**2. Price Setting –** How long is the period between the publication of a price and the period it applies?




Source: Smard.de

# Three forces are driving interest in ToU tariffs

gridX

## Technological Advances

Automatic load shifting
Precise real time metering

## Ongoing Electrification

Large controllable loads

## Favorable Regulation

Requirement to offer ToU

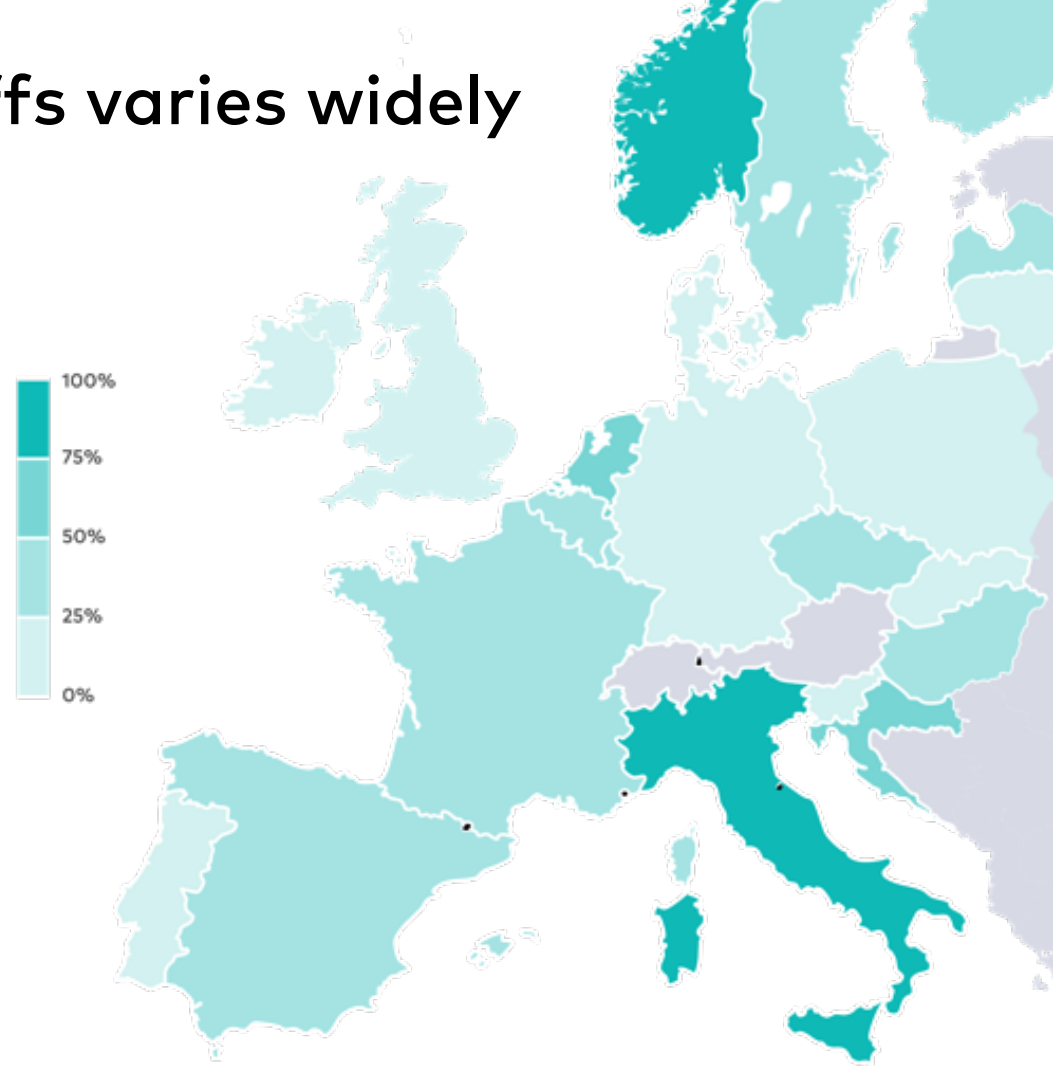
# Adoption of ToU-Tariffs varies widely

🇩🇪 „Historic“ Day/night-tariffs

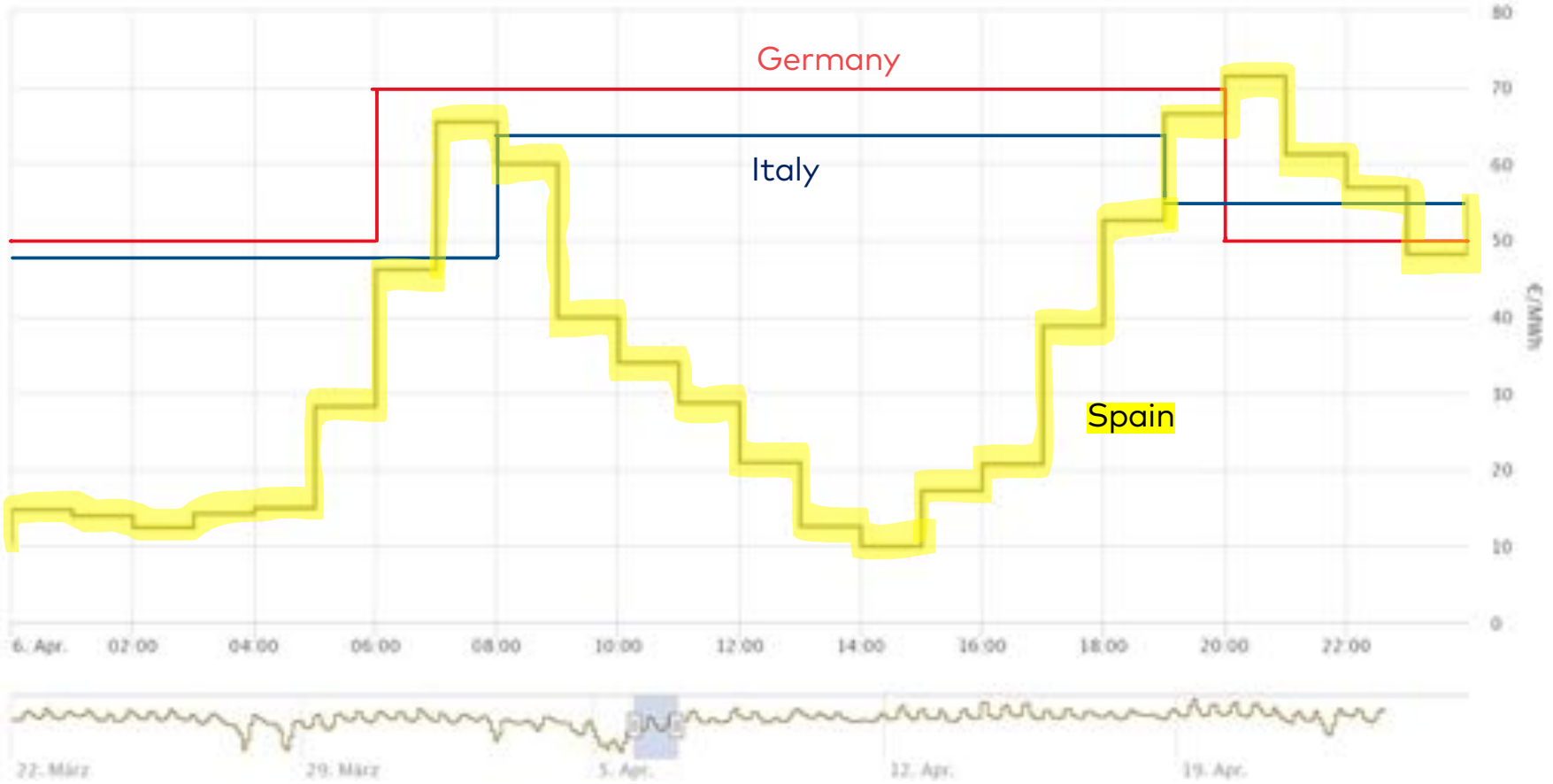
🇮🇹 Static ToU-tariffs as default

🇪🇸 Usage of dynamic ToU tariffs

ToU-tariffs exist for grid fees, too!



# Different countries, different tariffs



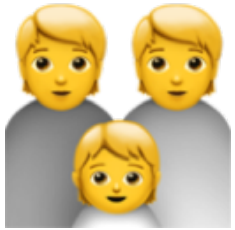

Source: EEX wholesale prices, April 6, 2021

# Main Customer Pains

In terms of ToU tariffs

**Unawareness of consumer benefits**

**Insufficient savings to be made**



**Preference for fixed contracts**

› Those pains can be overcome by offering substantial cost-saving potentials!

Source: ACER Market Monitoring Report 2015

# Decentralized Energy Resources (DER's) enable additional profits on ToU tariffs

**EV's** can be charged and discharged in consideration of current price signals

**PV** enables self-consuming or even selling electricity in higher cost-time periods during the day

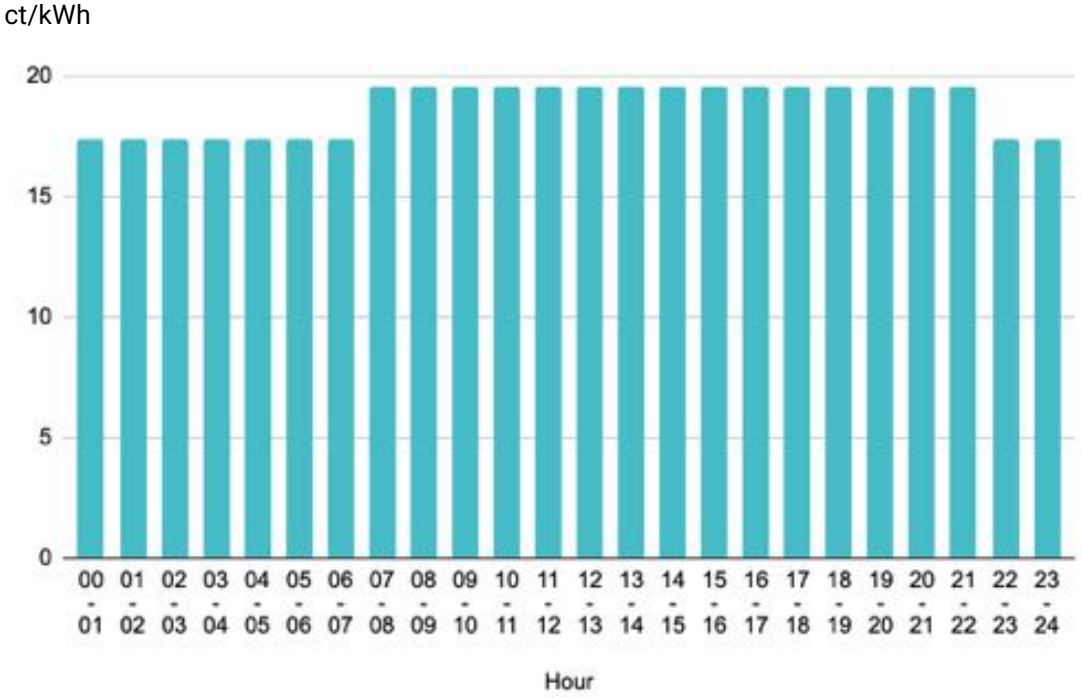
**Energy storages** enable self-consuming/selling electricity during peak times and buying during low demand-times.

**Heating pumps** enable heating during low demand-times and not operating during peak times

# Usage with EV charging:

## Example 1: day/night tariff

2021-05-11




**Savings of 1,10 Euro** possible if
EV is charged
btw 2:00 and 5:00
instead of btw 18:00 and 21:00

<u>Yearly savings of appr. 80 Euro</u>

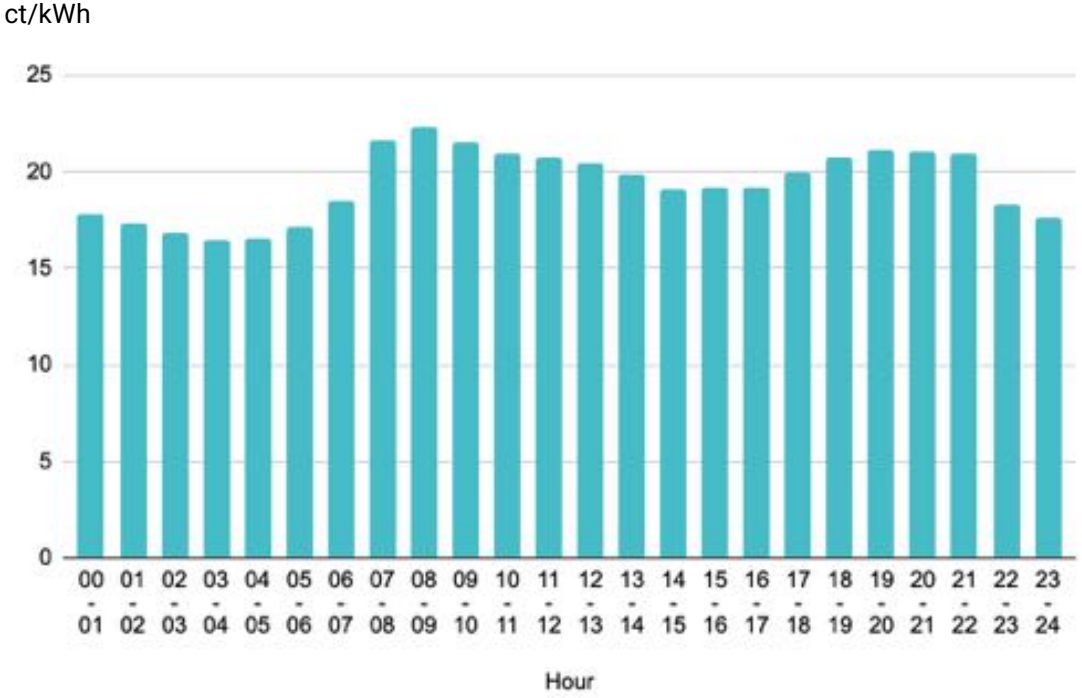
Assumptions:

- Belgium - Region Fluvius West (Flanders)
- 11.05.2021
- Charging: 50kWh over 3 hours
- 15.000 km range
- 25 kWh / 100 km

# Usage with EV charging:

## Example 2: Dynamic tariff

2021-05-11




**Savings of 2,20 Euro**
possible if EV is charged
btw 2:00 and 5:00
instead of btw 19:00 and 22:00

<u>Yearly savings of appr. 160 Euro</u>

Assumptions:

- Belgium - Region Fluvius West (Flanders)
- 11.05.2021
- Charging: 50kWh over 3 hours
- 15.000 km range
- 25 kWh / 100 km

# Technical requirements

According to IRENA

**Hardware**

**Smart Meter**, data processing software and two-way communication between consumer and energy supplier.


**Software**

**Energy management system** that can respond to electricity price signals and automatically adjust consumption

**Communication Protocols**

**common interoperable standards** to **increase the co-ordination** between the stakeholders

Source: IRENA innovation landscape brief, 2019

# XENON Platform

Energy Cloud by gridX

## Distributed energy resources

DERs produce, store and consume energy

## Edge services


**Connect** DERs to XENON

## Cloud services

**Process**, store and consolidate data

## User interfaces

**Visualize and manage** DERs

# Operating Models

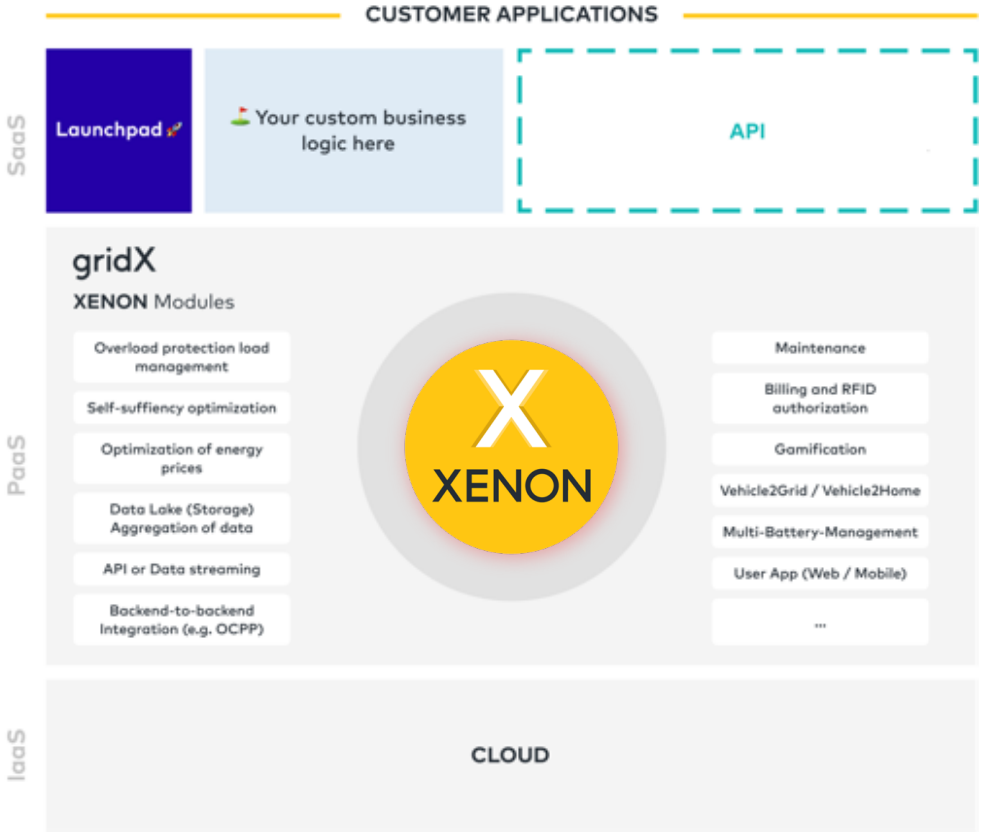
Options for collaborations

## XENON launchpad

- Your product built with already existing XENON modules
- gridX experts support with product design + development
- Extend the product by adding new XENON features
- Hosting on XENON

## Your App on XENON

- Build your own Apps on XENON
- Leveraging the unified platform API
- Intellectual Property never leaves customer application



# Thank you!

gridX

Scan the QR code and
arrange a direct meeting!

Marlon von Coburg
Business Development Representative

m.voncoburg@gridx.de
+49 241 412597 12