



Innovations in the energy sector

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CEO

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Venios is a young IT company that develops innovative software solutions for the efficient management of new challenges in the energy sector

Company



Young software company

Founded in 2012, located in Frankfurt (DE, HQ) and Hartberg (AT), cash-flow funded



Satisfied customers & partners

Municipal and Investor-owned Utilities & DSOs across Europe



Award-winning software

Start-up of the year, European Utility Week

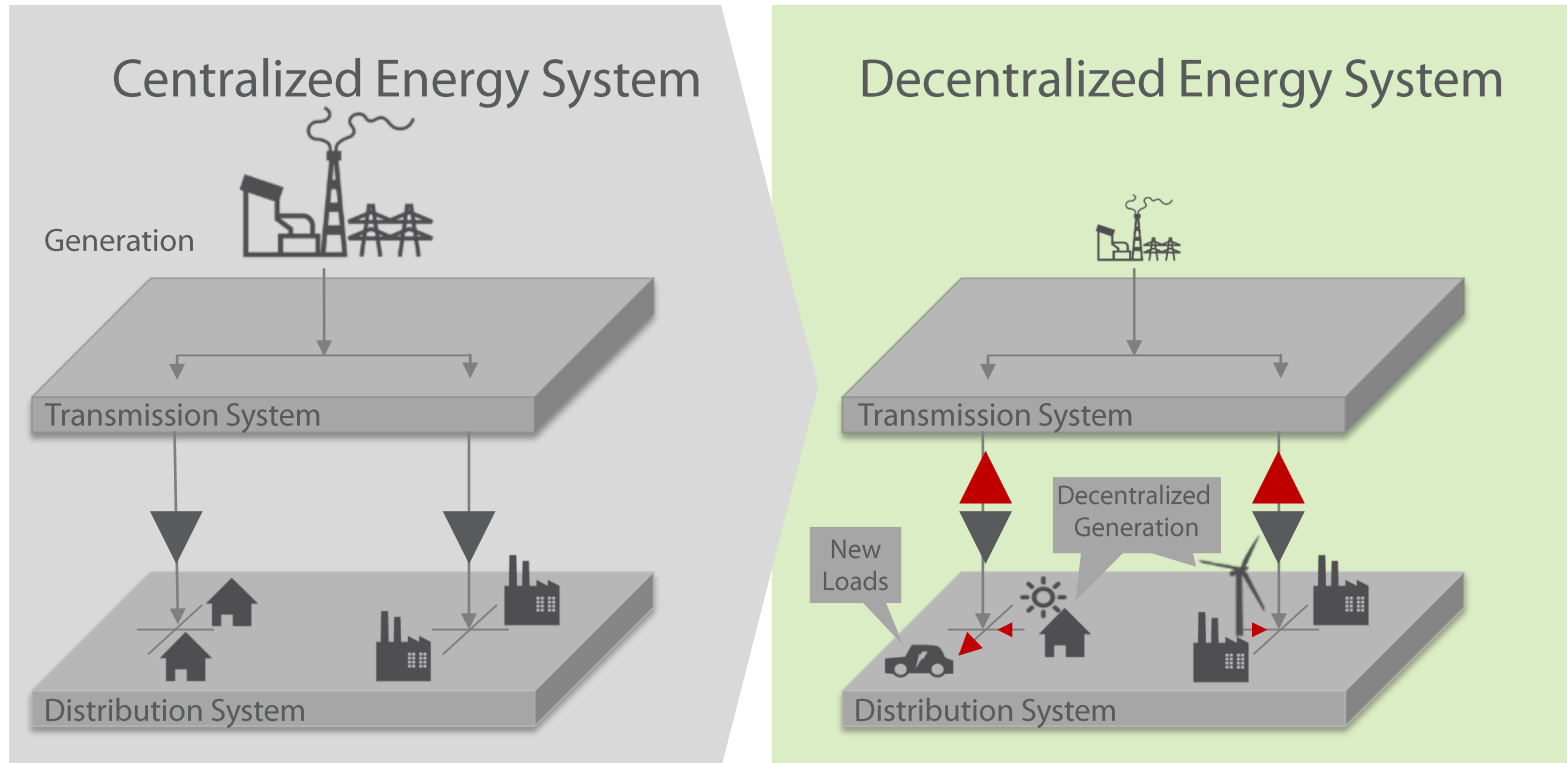


Strong partnerships (selection)

GE - *Hardware*, Microsoft - *Cloud solutions*,
Telefonica - *communications*

The electricity grid was built for the centralized, not the decentralized energy system and has to be adjusted to the decentral transformation of the grid

Paradigm shift in the power grid



1

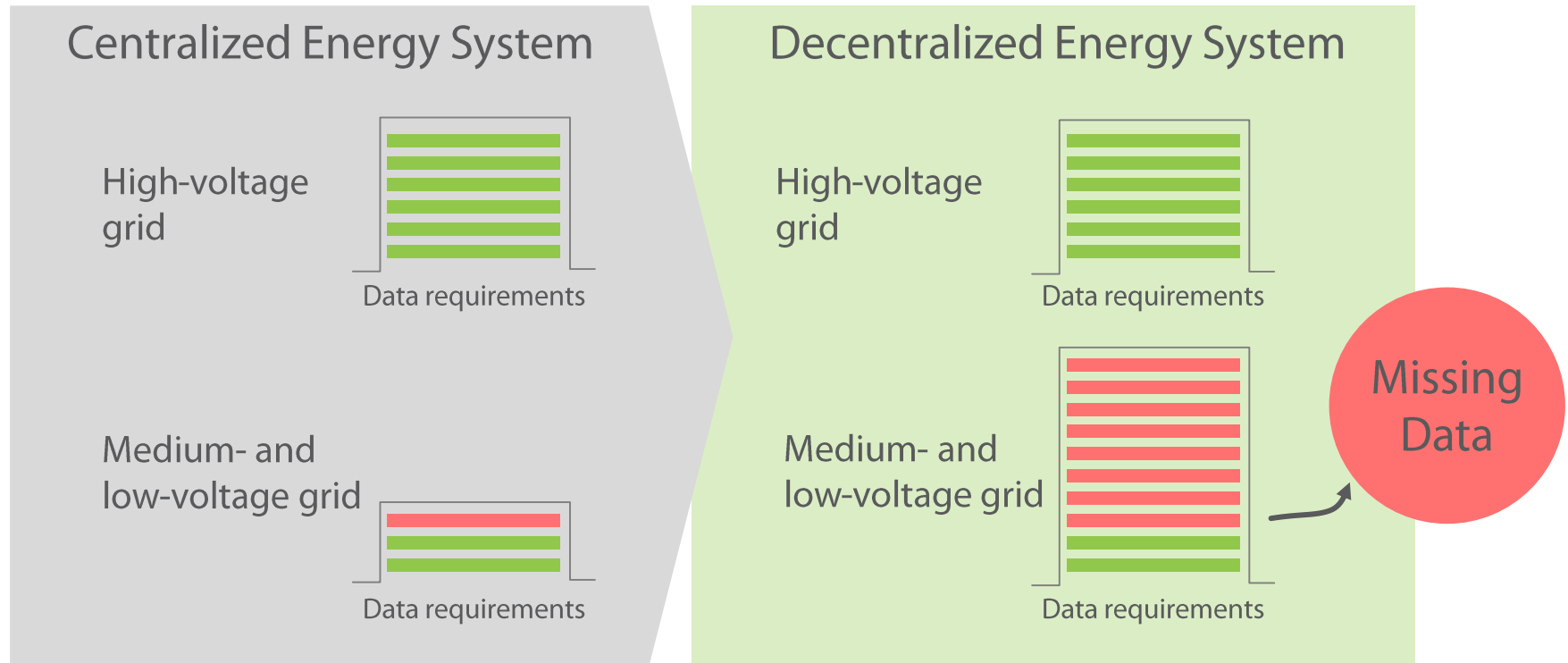
Significant volatile bottom-up feed-in of power causes a multitude of technical problems in the existing power grid

2

Grid expansion and continuous adjustment become necessary, DSOs face the majority of the resulting cost

Missing data in the distribution grid evokes the need to complement this missing data by modelled or measured data

Missing data and systems



1

DSOs need better insights into the distribution grid to know what happens there, but necessary data is missing in most of the cases

2

The data requirements cannot be accomplished by current IT-systems

Challenges in the distribution grid & Venios Energy Solution

Challenges for DSOs

Complexity

Physical factors



Decentralisation of energy system & volatile feed-in

Economic factors



Aging grid infrastructure



Cost-cutting pressure

Financial Challenge

CAPEX



Increased investments in existing assets



Increased investments in new assets

OPEX



Increased maintenance costs



Increased fault-clearing costs

Solution

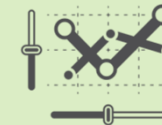
Venios Energy Solution

Cost-efficient transparency



Hybrid approach: asset data, live data & third party data

Investment optimization



Scenario-based grid planning to optimize CAPEX, among others

Operational optimization



Current and predicted grid statuses in real-time, 24/7 and at every point in the grid, among others

Venios Energy Solution merges available power grid data and enables the data-based grid management on a flexible platform

Venios Energy Solution

Input

Currently available data



Internal data of DSO



Live data (if available)



External, 3rd party data

Venios Energy Solution

Software for geospatial grid data management, modelling and analysis



modular



scalable



high performant



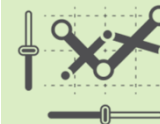
server-based

Output

Browser-based grid management



Monitoring & analysis



Planning



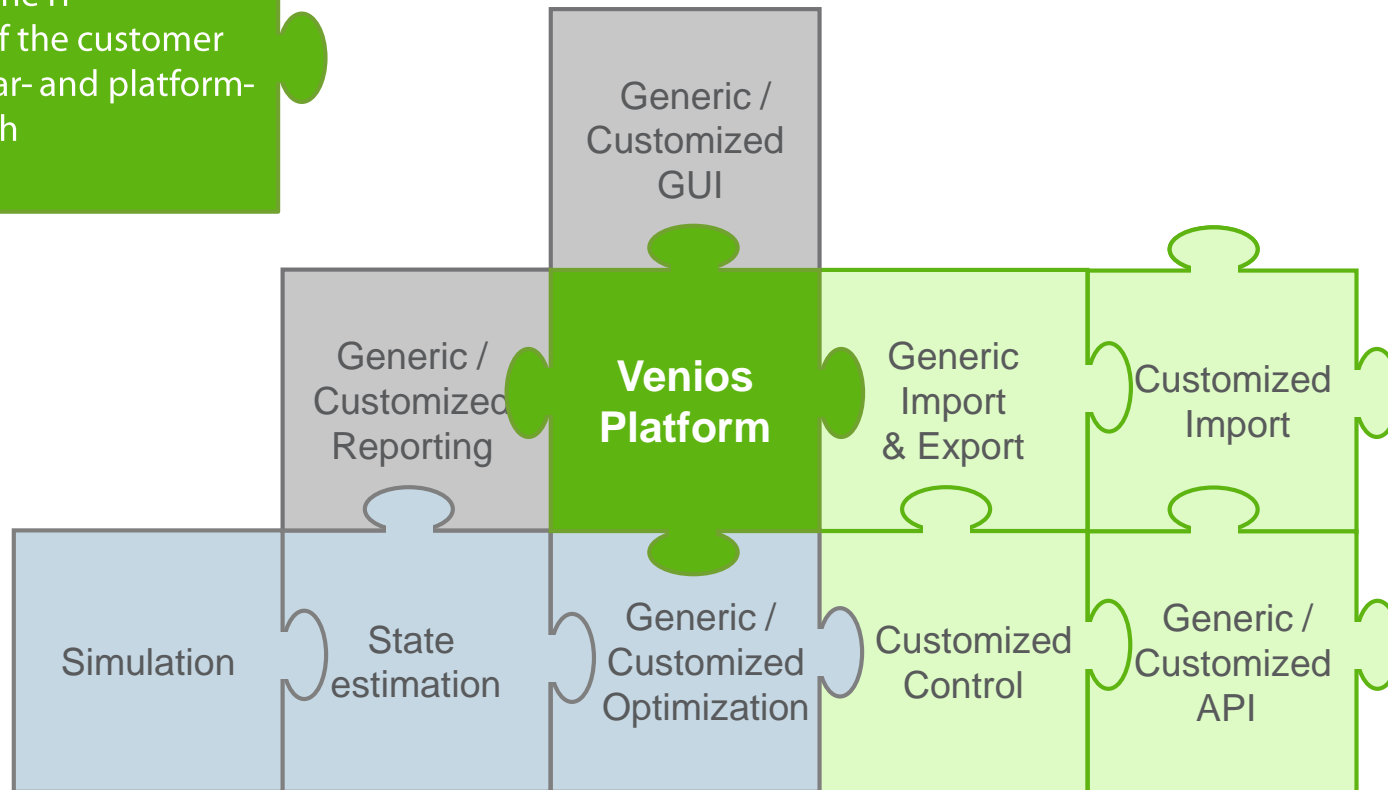
Maintenance & control

Future:
Central system for
grid data

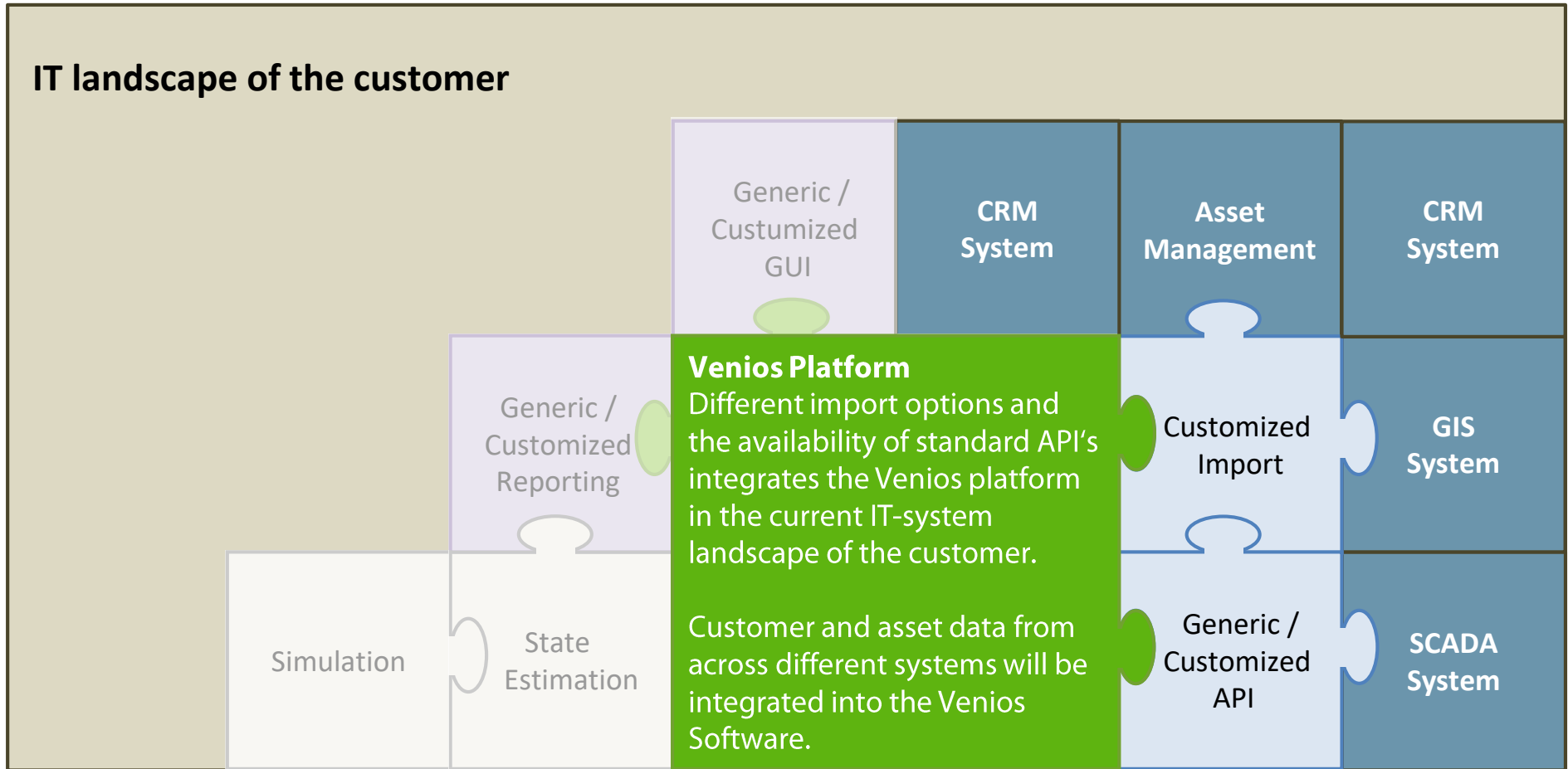
The Venios software is modular-based and a fully configurable system

Available modules for grid monitoring

VES adapts to the IT-environment of the customer with its modular- and platform-based approach

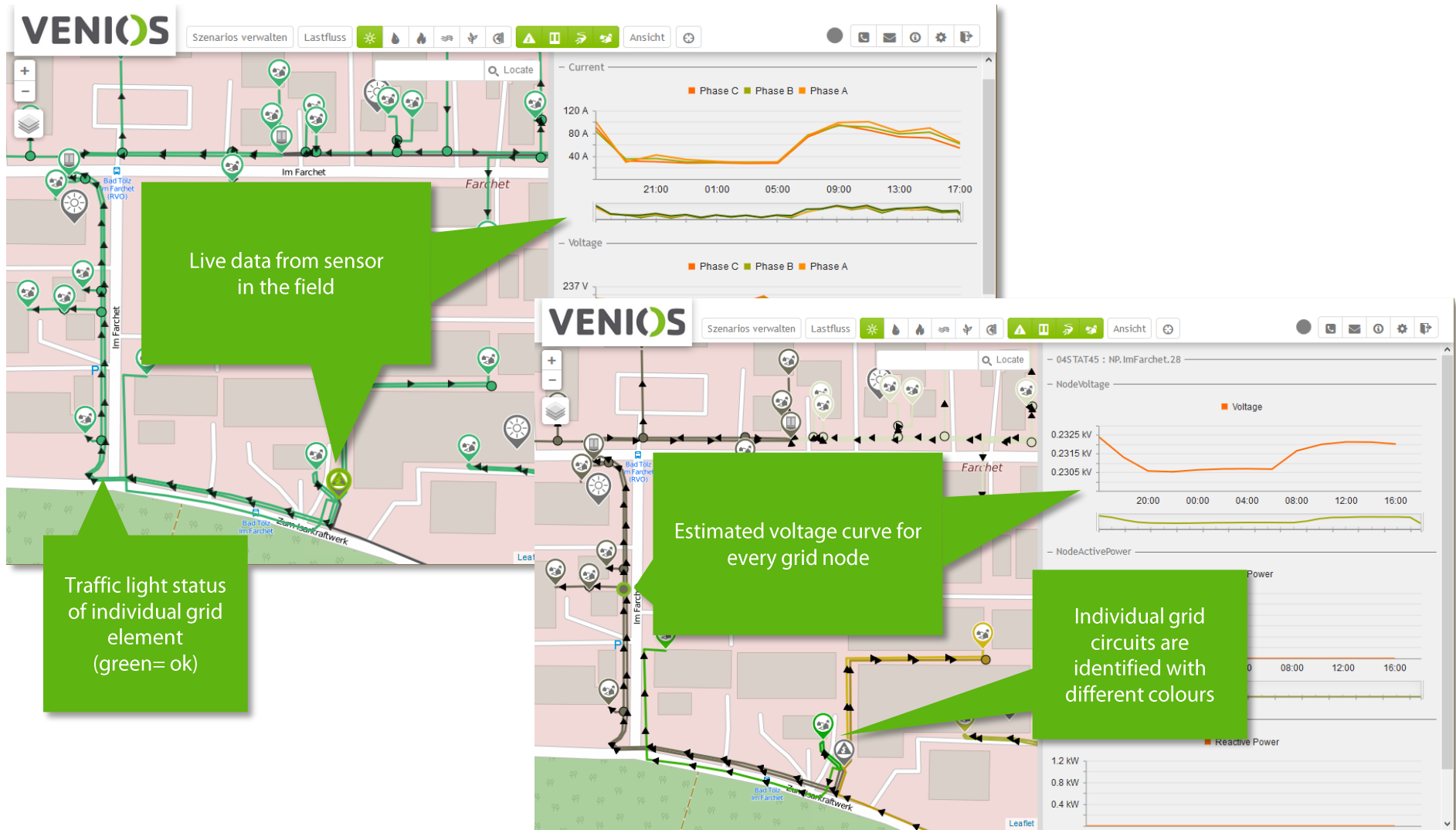


Grid monitoring based on current data of grid assets and customer data



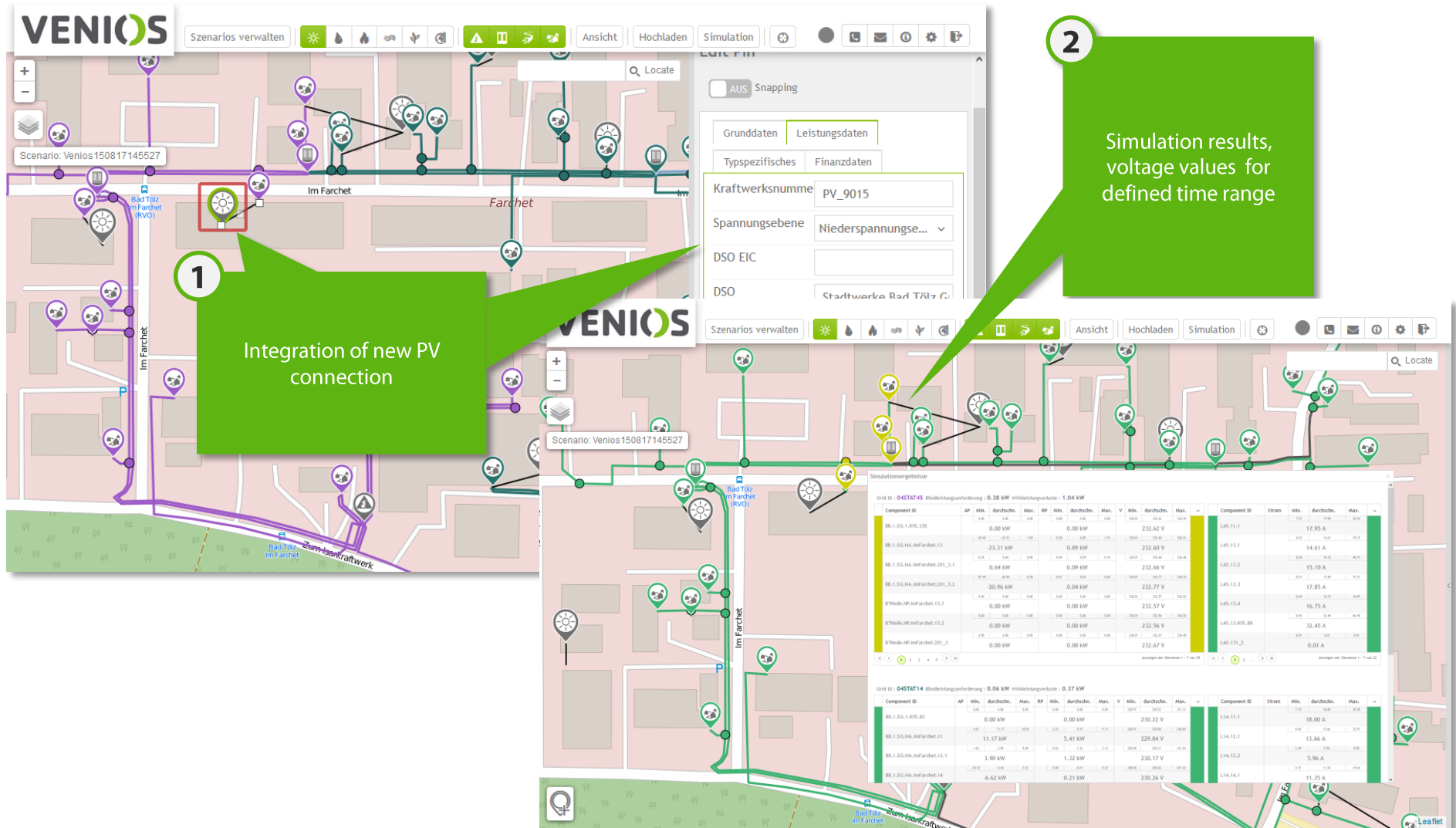
The user interface offers various functions for the visualization and analysis of grid statuses and is extended regularly

Display of grid status and Power Quality Analysis



The impact of new PV connections can be easily simulated and in case of a necessary grid extensions, all the parameters can be extracted

PV connection planning and grid planning



VES is a holistic software solution for data- and status based grid management on the LV&MV level. By using its potential, significant optimization potential can be realized

Use cases & advantages

Solution

Venios Energy Solution

Use Case

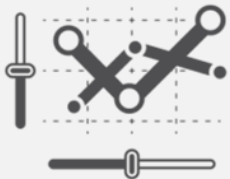


Optimized operations

- Diverse functions for maintenance and grid management
- Online-grid status at every grid point, 24/7
- Grid data available in one, real-time system
- Analysis and prognosis functions
- Reduction of energy losses
- Quick assessment of congestion points

Advantage

min. 10%
efficiency increase
in OPEX



Optimized planning

- Diverse functions for grid planning and asset management
- Fast and easy check if new PV can be connected to grid
- Flexibilisation of investment timing/volume
- Scenario based grid planning
- Less metering hardware needed

40-60%
saving potential for
CAPEX¹
& interest rate
optimization for
regulation



¹Source: dena-Verteilnetzstudie 2012, BMWi Verteilnetzstudie 2014, own calculations, please refer to case study in the appendix

Technical specification

Privacy

- EU-Privacy conform
- EU Safe Harbour



Performance

- Resources as-a-Service
- Usage of highly performant No-SQL-data bank



Reliability

- 99,95% availability
- Redundancy (either locally or geographically)



Scalability

- <5 min for more instances
- Growth without any disadvantages

Venios Energy Solution is successfully used by our customers since 2013, our customer base grows continuously across Europe

Status quo



● Selected VES project implementations

500

grid substation
until end of 2016

60k

consumers/feed-ins
until end of 2016

Venios Energy Solution (VES)

15

VES implementations
until end of 2016

4

countries
in Europe



Our customers benefit of the additional value delivered by the usage of VES, especially regarding the significant investments savings for grid expansion

Customer quotes



„Venios Energy Solution helps us to gain transparency about congestion points in the grid and manage the grid in an optimal way.“

Michael Hofmann, former CEO of SW Bad Tölz GmbH (Germany)

„With the means of a time continuous measurement of the power flow in the grid done by VES, we are able to see for the first time dynamic load shifts in real-time, which enables us to make grid reinforcements on the right spot and save unnecessary investments in grid expansion.“



Dr. Ralf Levacher, Technical Director of SW Saarloius GmbH (Germany)



„The Venios Energy Solution helps us to get insight in the actual behavior in the fast changing developments in low voltage grids in such a way that we are able to optimize the usage of the available capacity and do grid expansions at the right time.

Edward Coster, Expert Asset Management Stedin (NL)

Contact



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