VENIOS

The future in real time

O futuro das redes de distribuição em tempo real // The future of distribution grids in real time

Tobias Gierling
Sales Manager LATAM & IBERIA at Venios GmbH, Cabo Verde, November 2025

Who is VENIOS?

- VENIOS is a young IT company that develops software solutions for the efficient grid operation of the future.

We are

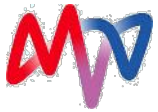
Innovative | Founded in 2012 | At home in Frankfurt a.M. and Hartberg (AT) | Owner-managed | Award-winning | Digital | Fast | Always available | Reliable

We are excellent for

innovative utility software | pioneering cloud technology | among the top 10 energy technology solutions in Europe | outstanding energy software solution in Germany | winner of the VDE | FNN - InnovationHub "Grid Monitoring"

More than 80 global customers

Energy suppliers | municipal utilities | distribution system operators | mostly satisfied | the most important thing for us



Micro-Grid Campus pilot project in Colombia

Energía Estratégica

ENERGÍAS RENOVABLES ENTREVISTAS EVENTOS CONTACTO

LAS NOTICIAS DE SU PAÍS ARGENTINA CHILE COLOMBIA MÉXICO LATAM CENTROAMÉRICA EL CARIBE

10 de noviembre 2025 Colombia

Venios implementa su software Venios.NET en el UPB EcoCampus

Se trata de una solución para la gestión del futuro de redes de baja y media tensión. Es posible integrar de manera sencilla Venios.NET con protocolos abiertos. En el SEC los datos de medidores inteligentes se reciben en tiempo real.

https://www.energiaestrategica.com/venios-implementa-su-software-venios-net-en-el-upb-ecocampus/#

About Venios.NET

Venios.NET

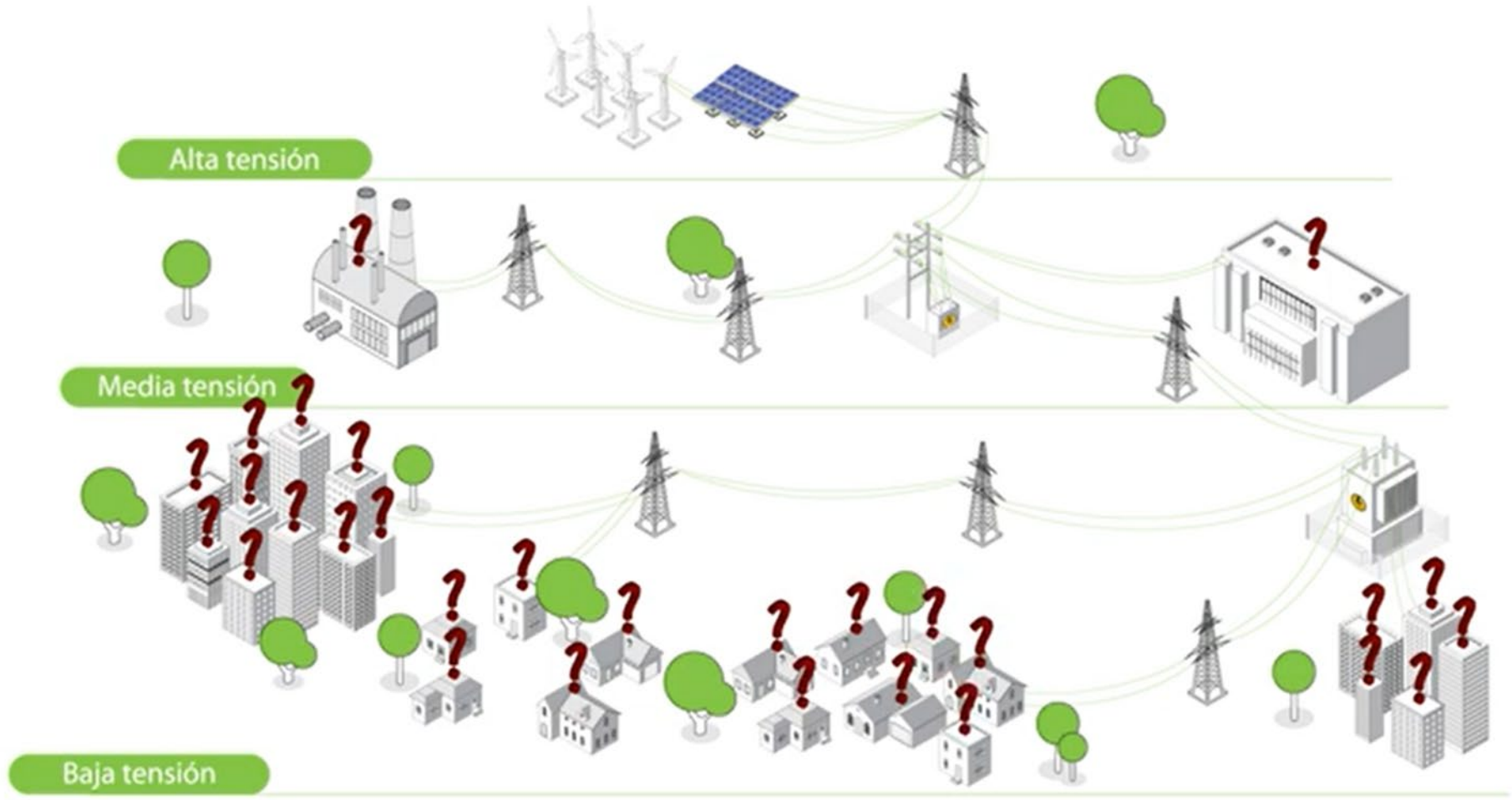
É uma solução inovadora para o monitoramento,

planificação, controle e gestão inteligente

de redes de distribuição elétrica,

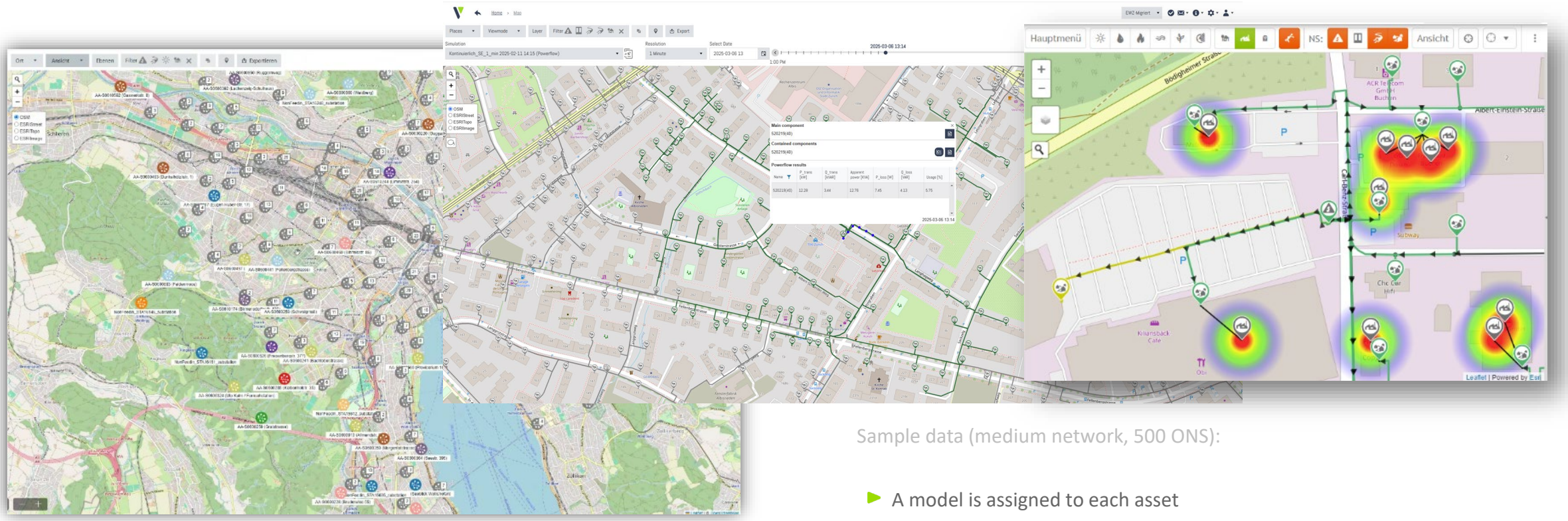
impulsionando a transição energética.

Video about Venios.NET



Start vídeo

Venios.NET = solution for modern grid operation



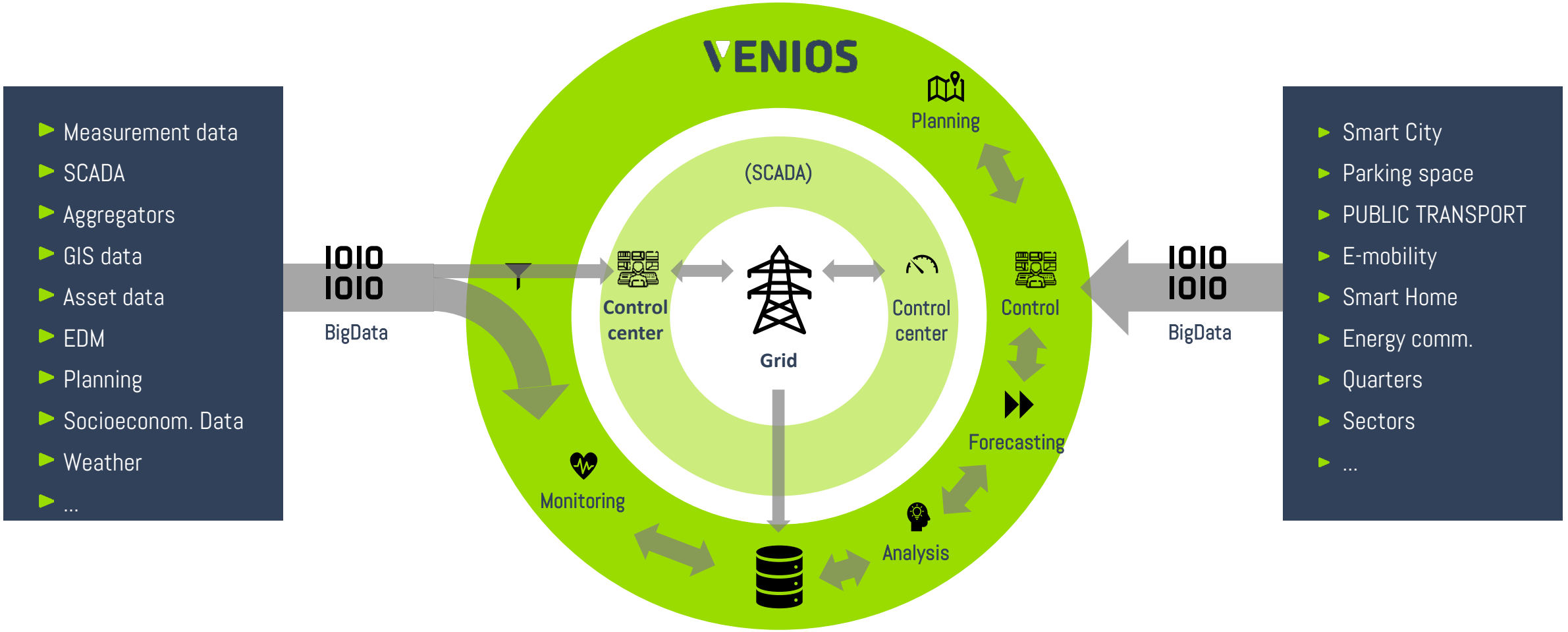
- Venios.NET is fail-safe, transaction-proof, audit-proof and real-time capable, regardless of the volume of data
- The network model in Venios.NET includes all assets, including technical parameters and the exact electrical wiring
- Network model contains 3,000 - 4,000 objects per ONS

Sample data (medium network, 500 ONS):

- A model is assigned to each asset
- Measurement/model data standardized to minute values
- State estimation every 15 minutes as standard
- State estimation generates approx. 144,000,000 index values per day
- Load flow calculation per ONS incl. valuation in 200 mSec.
- Calculations can be parallelized as required

Extend classic SCADA & network control systems

- ...for big data functions, simulations, analytics and forecasting capabilities



How Venios works

Input

Mandaotory base data

- Generators
- Consumers
- Grid

Optional time series

- Historical measurements
- Real time measurements

Other data

- Socio-Economic
- SCADA

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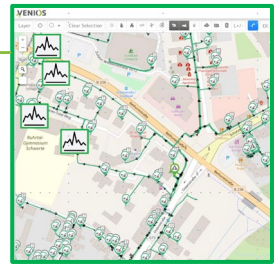
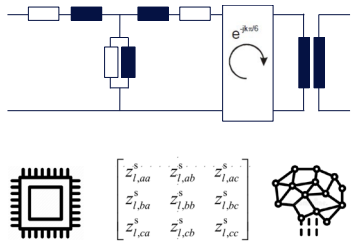
Continuous processing in performant cloud-based, horizontolly scalable platform





Output

First order output

Results of continuous power-flow state estimation on low- and medium voltage:

- Calculation of state for all nodes and edges in the grid
- Result of Newton-Raphton algorithms
- Runs 15-minute wise (or more frequently if required)
- Numeric values can be exported for arbitrary time periods
- Visualized in intuitive user-frontend

Modelled substitute values for all assets, consumers and generators with no real time measurements:

- AI-based models are continuously calculated for each grid part
- Training over longer time period enables accurate state estimation when having only 20% measurements

Second order output

En resumen: La plataforma de gestión energética

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El futuro en tiempo real

- ... is a real-time network operation tool for a smart grid
- ... creates a live view of low and medium voltage grids below classic SCADA systems
- ... predicts future grid load (short/long term)
- ... recognises flexibility and capacity
- ... Proposes solutions to address bottlenecks (market, sector coupling, etc.)
- ... can control the infrastructure directly and in a highly automated manner if desired
- ... offers the possibility of visualising electricity infrastructure and is also suitable for water and fibre optic cable networks.
- ... offers mobile applications for employees in the field
- ... has been tried and tested for over 10 years in more than 80 projects

Benefits for different user groups

Grid operation

Real-time insights, continuous forecasts on current, voltage and power quality

- Enable real-time grid insights with only a small fraction of measurement device coverage
- Get automated forecasts of grid capacity and congestions and alerts for threshold violations
- Enable field crew to directly interact with mobile devices t document changes immediately
- Control or delimit assets to resolve congestions

Grid planning

Use digital twin as a sandbox for modern network planning

- Handle more connection requests in shorter time periods
- Generate and plan different scenarios for the future evolution of your grid
- Get automated suggestions for grid upgrades based on techno-economic optimization

Asset management

Improved monitoring and prediction of grid asset utilization

- Increase asset lifetime by steadier asset utilization
- Increase grid efficiency by optimizing asset usage
- Predict failures based on asset usage patterns

IT

Scalable cloud-native platform that integrates different isolated solutions

- Non-relational databases for a powerful and efficient data processing
- Security compliant cloud-connection
- Better data quality enabled through direct visualization and crew interaction

Balance group management

Reduce imbalance costs by improved forecasts

- Integration with flexibility management to automatically settle deviations
- Better forecast the generation and consumption by using state-of the art AI-based models
- Continuous usage of available AMI data offers unique accuracy

Consumer Mgmt. & grid fees

Empower consumers with self-service and automation

- Frontend for end-users for automated grid connection requests
- Automatically calculate grid tariff schemes to optimize grid capacity usage
- Automatically inform customers in case of incidents about status and recovery

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