

# EIPGRID brings security and flexibility to its virtual power plant technology

**Virtual power plants (VPPs) enable energy sources like solar and battery storage to be easily integrated into grids. VPPs aggregate and orchestrate energy generation, storage and load balancing from diverse sources to smooth out fluctuation at critical times.**

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## Industry

Digital Energy

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## Location

South Korea

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## Solution

EIPGRID xVPP™ platform with Intertrust XPNTM

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“We’re delighted to partner with EIPGRID to support their platform with secure, distributed management system that brings clean cost-effective energy to global customers.”

## Customer profile

EIPGRID is a community energy services and solutions provider that serves a vast array of energy stakeholders – from VPP operators, power aggregators and utilities to end-users. EIPGRID’s cutting-edge technology is powered by AI and supports various business applications, including demand-response, solar generation, battery storage management, curtailment forecasting, and vehicle-to-grid power management. It also allows VPP operators to take advantage of corporate renewable energy initiatives and carbon credit trading.

However, most current orchestration solutions work within proprietary ecosystems and lack the functionality necessary to manage broader, disparate, distributed energy resources.

Security, data privacy, and transparency are inconsistent across different providers and cannot be applied evenly across partners, third parties, and other participants that support VPPs. Third-party infrastructure is exposed with large attack surfaces that hackers can exploit, potentially jeopardizing entire energy systems.

EIPGRID advances virtual power plant (VPP) integration with xVPP, an AI service platform that organizes VPPs into a streamlined, unified energy ecosystem. xVPP relies on Intertrust XPNTM to deliver transparent data and device authentication for IT/OT convergent systems.



XPNTM helps EIPGRID protect data and secure IT and OT systems.

## The challenge

As VPPs proliferate across the energy landscape, it is important they integrate seamlessly into the grid. However, multiple diverse VPPs cannot easily participate freely in all the functions of a grid framework unless they do it securely—without security and scalability, business growth stifles. Secure, scalable device and data interoperability is critical in modern, digitized grids.

Orchestrating multiple energy assets and business models while maintaining a high level of data integrity and device authentication is challenging even for the most advanced VPP platforms.

- **Poor security**

VPPs have an enormous attack surface because they support hundreds of different types of devices, which have easily exploited hardware and software vulnerabilities. This makes persistent device and data security laborious and protected authorized commands difficult.

- **Limited device reach**

VPPs are most effective when they can reliably control a large number of devices, but different communication protocols and encryption methods prevent devices from seamlessly interacting with all participants. Straightforward plug-and-play environments with diverse hardware and software systems are unrealizable.

- **Unreliable communications**

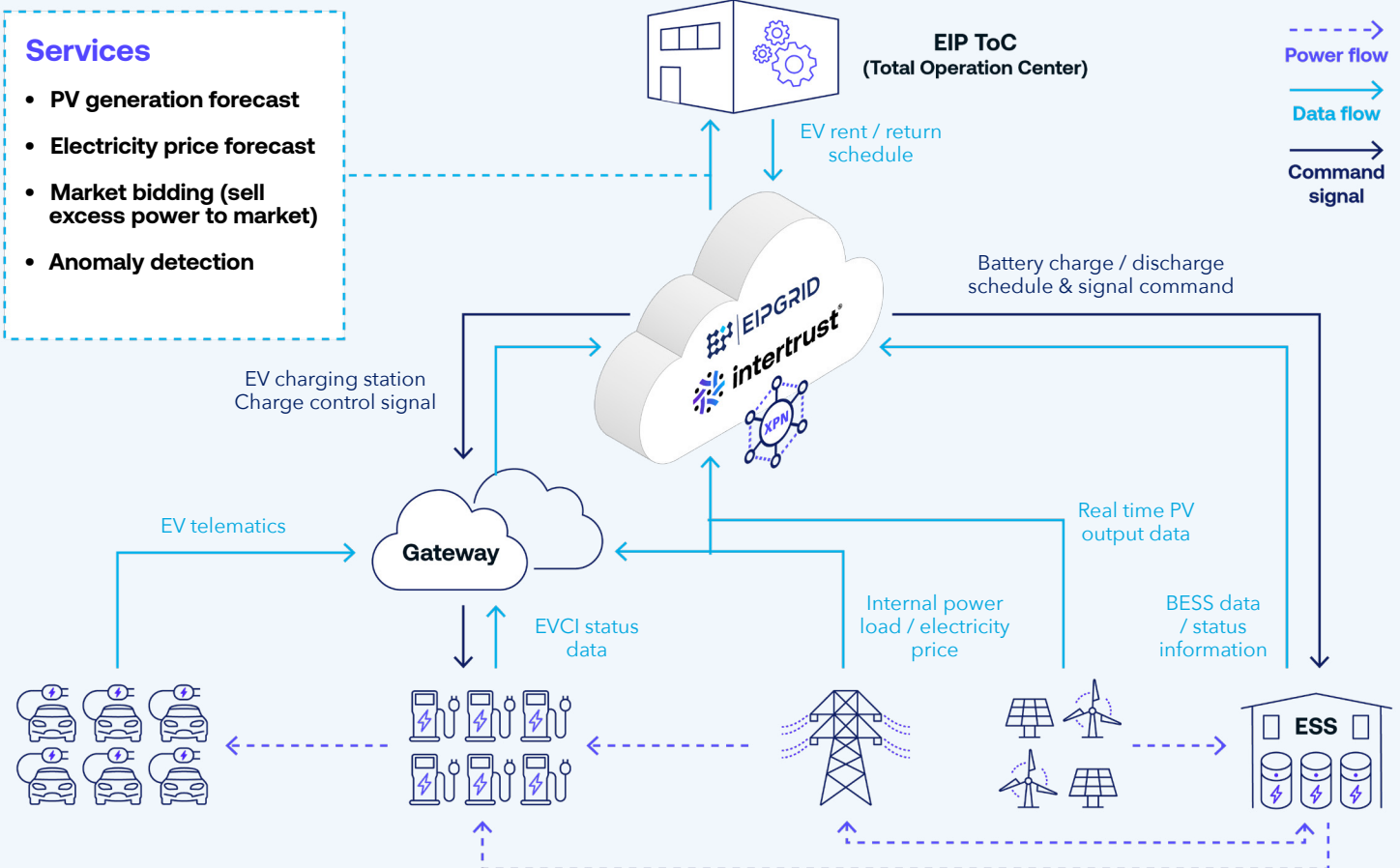
Commands are often lost in transit, reducing the total dispatchable power and revenue to operators. There is a need for secure store-and-forward protocols to enhance reliability and deliverability of those messages.

- **Securing IT/OT convergence**

VPPs work across IT and OT systems. OT systems, which control physical infrastructure, are typically isolated from IT systems, which manage data and communication. The convergence of these systems in VPPs creates a potential attack surface that cybercriminals can exploit.

Diagram 1.

Multi-resources orchestration on a unified platform.



## The solution

Intertrust worked with EIPGRID to integrate XPN into their xVPP platform to ensure device and data interoperability and security. The result was improved business flexibility and scalability. In addition, Intertrust enhanced EIPGRID's data governance reporting and regulatory compliance.

EIPGRID selected Intertrust XPN because it:

- Provides persistent data protection and authorized device commands**  
 Customers can protect IoT data across the entire data fabric – whether at rest, in transit, or in use.
- Offers plug-and-play communications**  
 With XPN, device and semiconductor OEM partners can interoperate with greater ease.
- End-to-end system protection**  
 XPN works across IT and OT systems. OT systems are enhanced with zero-trust architecture for data and commands. IT system data is protected across all OSI layers with persistent, encryption optional security. Hence, the convergence of IT and OT frameworks is comprehensively protected.
- Open and flexible**  
 XPN simplified interoperability across an entire ecosystem of DERs and is based on open standards. As a result, organizations can easily deploy XPN in any digital energy environment. XPN adds value to xVPP by functioning across the entire energy value chain.

With XPN, EIPGRID enhances VPP data security and infrastructure scalability, thereby lowering both CAPEX and OPEX.

### Diagram 2.

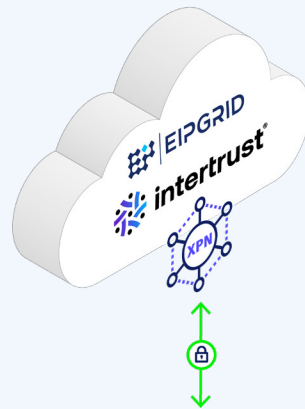
EIPGRID, protected by Intertrust, delivers safe, easy-to-use energy services.

## Energy market participation



## VPP layer

## Security layer



## Distributed resources aggregation



## Industries benefitting from EIPGRID services

- Telecommunications
- Automotive
- Manufacturing
- Agriculture
- IT services
- Steel making
- Hospitality
- Data centers
- Retail shopping centers
- Food & beverage
- Healthcare

“We selected Intertrust XPN because it is agnostic of the IT and OT technologies used and is based on open standards. As a result, organizations can deploy XPN in any digital energy environment. Without robust security and authentication, VPPs are ripe for malicious attacks and data breaches. However, with Intertrust XPN, we can seamlessly support a large number of secure, distributed, endpoint devices and data sets in their implementations. The result is best-in-class trust, security, and energy efficiency for our customers.”



Implementing XPN provides xVPP with:

- Persistent data protection**  
 Data is signed and encrypted – optionally – from the device to the cloud, and is verified and decrypted within secure enclaves.
- Secure tunneling through insecure networks**  
 Leverages zero trust architectures to traverse insecure networks – even Zigbee networks benefit from XPN’s strong data protection tunneling.
- Bridging across environment**  
 Facilitates secure and authenticated data ingestion from OT devices to IT systems and vice versa for authorized commands.
- Open-standard trust model**  
 XPN is built on a trust model interoperable with any protocol compliant with the Trusted Energy Interoperability Alliance (TEIA) specification, promoting wide-ranging integration.

## The results

EIPGRID delivers solutions that not only provide VPPs with all-around efficient asset management, but also constant pervasive security across IT and OT fabrics. With XPN, EIPGRID enhances VPP data security and infrastructure scalability, thereby lowering both CAPEX and OPEX over several years as well as supporting business adaptability as the digital energy industry evolves.

With bullet proof data management enhanced with XPN, EIPGRID ensures AI decisions generated by xVPP are reliable and transparent, fulfilling its promise to deliver secure, flexible and expandable VPP frameworks. EIPGRID is the first to provide an energy management platform with an integrated data protection layer. With XPN, EIPGRID helps energy stakeholders to confidently integrate complex AI tools that modernize their infrastructure without compromising data integrity and security.



Building trust for a connected world.

Learn more at: [intertrust.com/xpn](https://intertrust.com/xpn)  
 Contact us at: [energy@intertrust.com](mailto:energy@intertrust.com)  
 +1 408 616 1600

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