

A new form of energy retail will keep you in business

Tieto Distributed Energy Solution (DES)

tieto *EVRY*



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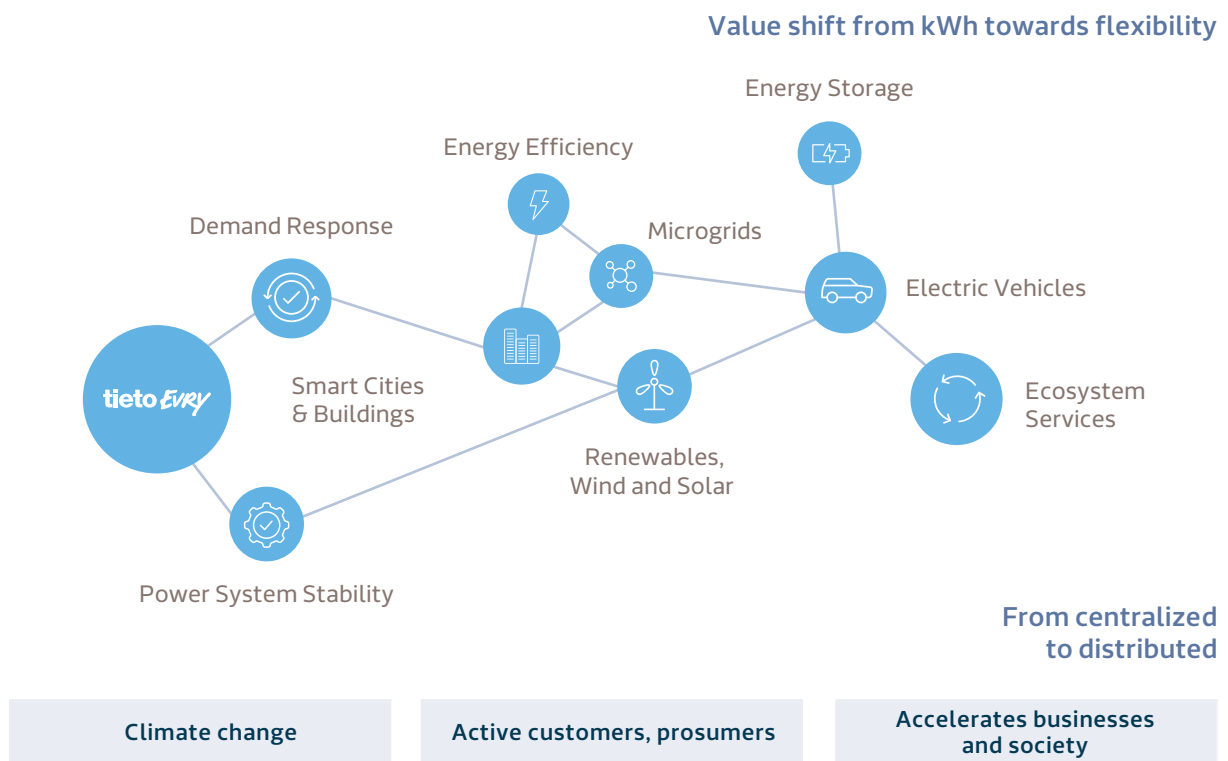
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Executive summary

The energy revolution is powered by advances in renewable energy technologies, electrified transport, energy storages and digitalisation. The utility industry is grappling with ways of staying relevant – and indeed, staying in business – in this rapidly changing new operational environment where players also from outside the industry are looking to grab market share. There is a strong drive for transformation from an electricity retailer to an energy service provider.

Digital revolution progresses with the strive for CO₂ neutral society



The big change

Meeting the climate targets requires a holistic transformation in the way energy is produced and used. Countries need to significantly increase the portion of renewable energy production and electrify transportation in major steps. Doing this will have an impact on the whole energy system, leading to increased volatility in the energy system and market price. The energy market trading and balancing activities need to be close to real time to enable system stability and profitable energy trade. Meeting the climate targets will not be possible without automated digital management of the whole value chain from energy production to consumption.

Micro-production and storage

Small-scale energy production and storage will play a bigger role in every country. Automated management of micro-production and storage at individual households will add the needed flexibility to the whole energy system.

Electric vehicles

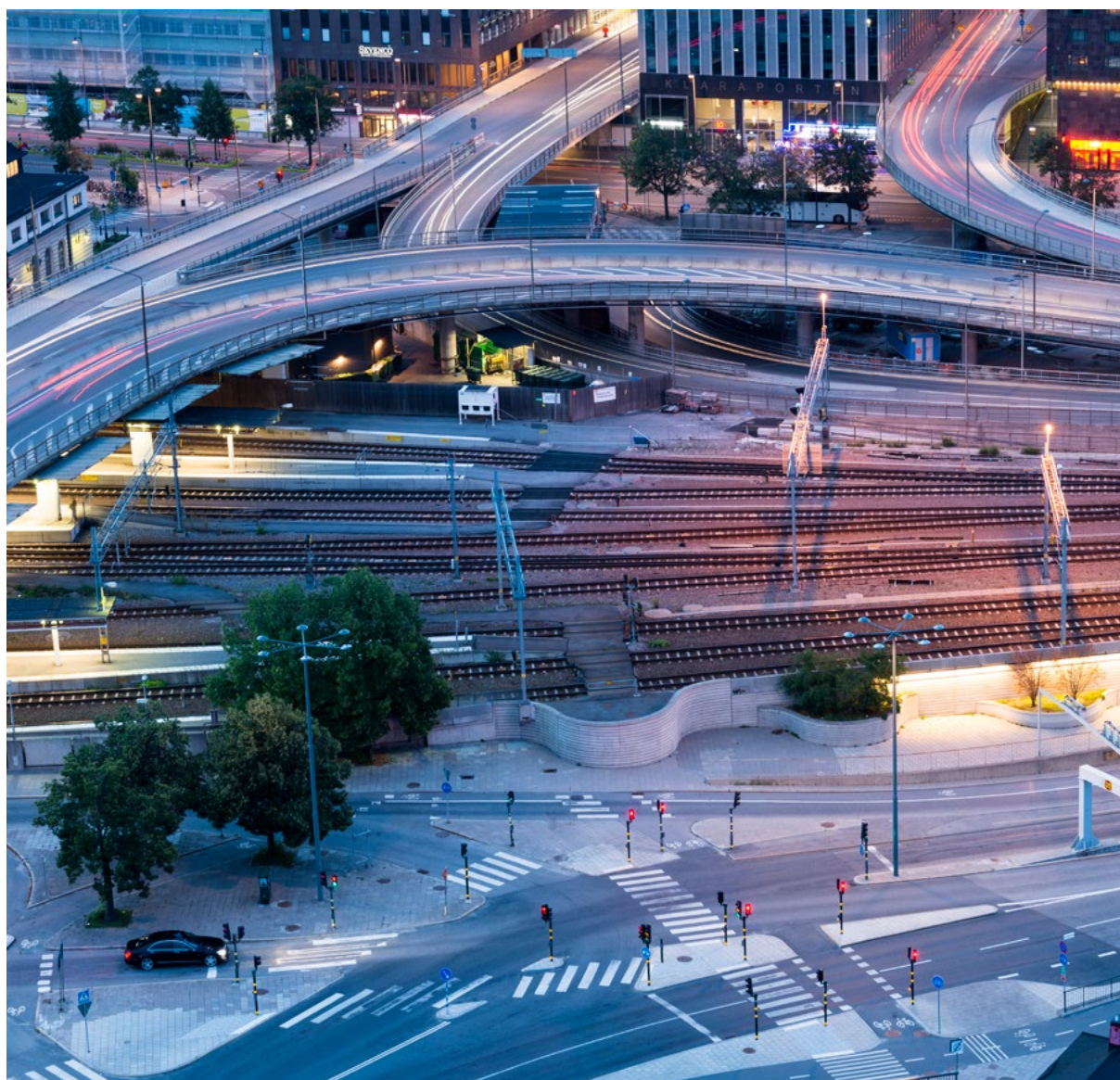
The European countries are approaching a critical point in making practical decisions on their electric vehicle charging infrastructure for the future. This requires new types of automated services and systems to control supply and demand, and use electric vehicle batteries as part of the energy system balancing assets.

Smart, connected buildings and homes

Buildings are responsible for approximately 40% of energy consumption and 36% of CO2 emissions in the EU. This consumption needs to be managed through IoT connectivity to balance the energy system and enable cost efficient and sustainable living.

Customer engagement

The customers in the digital era are used to seamless customer experience and the ability to choose from a wide variety of products and services globally. This sets the bar high for energy related services also, as you have to have relevant, well defined and productised service offering to get your customer community engaged and acting as promoters.



The first steps into a new form of energy business

The fundamental shift from fossil fuels towards renewables, and the distribution of energy resources like micro production assets, electric vehicles and energy storages are opening up new opportunities and business models for energy service providers. Digitalisation of the energy system enables total system management where active customers with controllable energy resources become seamlessly a part of the energy system.

With TietoEVRY's DES you can operate virtually the entire value chain from utility level assets to small-scale distributed energy resources, providing full service in managing the new energy business.

With DES, you get a holistic, real-time overview of your operations, so you can see how to optimise them and generate new revenue streams. You can help end-customers understand and contribute to the future of green energy with services such as smart home and building applications, and electric vehicle charging.

As the world moves towards renewables and greener energy sources, you can transform your business offering from a commodity to smart services and gain earnings by utilising distributed energy resources in your operations.

You can leverage your existing customer base and customer commitment, optimise energy trading, earn income from reserve markets through demand response and manage demand peaks, thereby potentially avoiding the use of expensivelyrun peak power plants.

The most easily monetisable value comes from optimised energy trading, ancillary markets, improved customer commitment and new services sales.

A theoretical example, based on **100,000 customers**:

Trading optimisation: **15–20% profitability increase** for electricity retail

Ancillary market participation: **10 million euro per year**
(flex capacity of ~1kW per customer)

New services: **12 million euro per year** (service fee €10 per customer per month)

Total: 20–30 million euro per year



Solution overview

TietoEVRY's Distributed Energy Solution essentially means complementing the current energy production infrastructure with a large network of small energy generation, consumption and storage points controlled centrally. Customers' solar panels or wind turbines produce power, smart control of assets optimises consumption, and customers' own electricity storage facilities, such as home batteries or electric vehicles, form a virtual power plant to make your energy market operations more efficient.

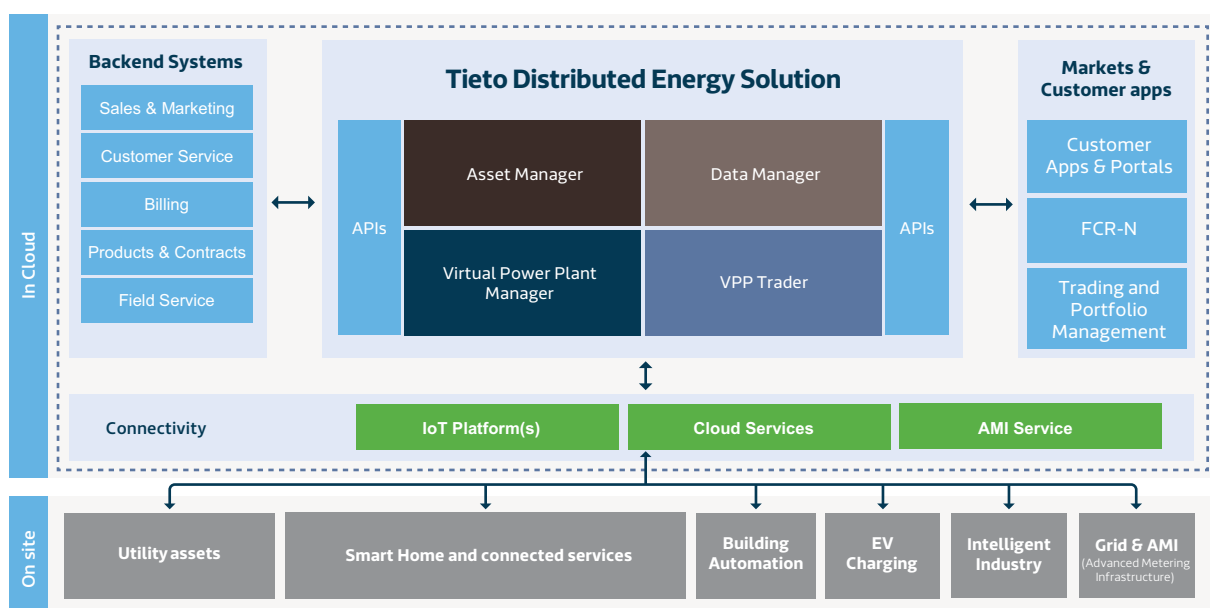
DES enables the integration of different assets from multiple base systems to one management system. These base systems can be IoT platforms or cloud services from service providers specialising in an asset or service. This enables holistic management of an operational environment that is built from multiple systems from multiple service providers. DES is a system of systems that makes integrated service management possible at a cloud level. This makes it possible to use the best of breed service providers to build complex end services and makes it easy to add or remove services and providers.

Solution components

DES is a modular and scalable solution offered as a cloud service. The approach allows you to start with basic functionality and scale up when you want to expand your use of the system.

The modular approach also means the system is easily scalable to fit a large variety of use cases.

DES is used through a browser-based dashboard-style Cockpit. It is a digital description of the physical system, from which it is easy to drill down to individual devices and their operation.



Asset Manager

The Asset Manager module forms the core of DES by documenting and managing different types of assets and their relationships to their owners, locations and to other assets. Asset information includes location, customer information, device and service properties, maintenance information and device status. Assets can be added, deleted and edited.

Data Manager

The Data Manager module has all the capabilities needed by DES to store, use, analyse and visualise masses of data coming in from various IoT platforms, cloud services, third-party solutions and physical devices. It is also possible to relay data to third-party systems, such as endcustomer apps, through data APIs.

VPP Manager

The VPP Manager module provides a holistic management solution for Virtual Power Plants. Customers' micro production, real-time consumption control, and customers' own electricity storages, such as home batteries or electric vehicles, form a virtual power plant that is automatically controlling the connected assets based on the desired or planned target outcome.

VPP Trader FCR-N

Designed specifically for the FCR-N, the VPP Trader module enables automatic capacity calculation and bidding in FCR-N markets.

Onboarding and pricing

We help you all the way from defining the vision to running the business platform. This includes shaping the scope of end customer services and targets, piloting, implementing and running daily platform operations.

With a scalable pricing model, DES optimises your new services operation from the beginning and the service will immediately deliver business results and benefits will grow stronger over time.

Business benefits

TietoEVERY's DES provides one central solution to manage all your Distributed Energy Resources and related services. Through its versatility with regard to new services design, it opens up new revenue streams for the energy retailer. With a wide range of possibilities, it enables a better customer experience, thereby improving the retailer's company image, customer retention and customer commitment. When participating in various trading markets, the computing and analytics powers of DES improve your margins.

Summary and conclusions



DES is a cloud-based, modular solution for automated digital management of the whole value chain from energy production to consumption.

Quick to deploy, constantly updated, scalable, modular and flexible, the solution will help you design a profitable service portfolio and give you new opportunities for success in the changing energy market.

Want to know more?

Get in touch with us to get started on a business that ensures your business continuity in the face of the ongoing energy market revolution.

We will be happy to arrange a meeting to give you more detailed results.

TietoEVRY creates digital advantage for businesses and society. We are a leading digital services and software company with local presence and global capabilities. Our Nordic values and heritage steer our success.

Headquartered in Finland, TietoEVRY employs around 24 000 experts globally. The company serves thousands of enterprise and public sector customers in more than 90 countries. TietoEVRY's annual turnover is approximately EUR 3 billion and its shares are listed on the NASDAQ in Helsinki and Stockholm as well as on the Oslo Børs. www.tietoevry.com

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