

## **Smart automation control platforms are essential for future power generation**

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**Integration of new power generation sources as they develop over the next decade will require advanced automation to create intelligent systems and find increased efficiency on a macro and micro scale.**

Mitsubishi Electric is globally renowned for manufacturing some of the most reliable, flexible and easy to use automation and electrical equipment for industrial and infrastructure applications. The company has recently launched solutions designed to tackle the changes that the power industry will be going through during the next few years.

*Morteza Seraj, Director Process Automation at Mitsubishi Electric's Factory Automation – European Business Group provides some insight into what has driven this development and the benefits for power generation operators, distributors and end users.*

If we are to truly take advantage of smaller, local [power generation](#) resources including those with variable inputs such as renewables, then the idea of a 'smart grid' has to become far more sophisticated and localised. Small, medium and large scale power users and generators all need to be able to seamlessly manage power at varying voltages and locations.

## **Virtual Power Plant (VPP) solutions provide control and harmonisation**

For this reason we have developed a [Virtual Power Plant](#) (VPP) concept to provide an ideal integration and management platform for power plants of all sizes and types.

The main aim for an active VPP is to combine the control of different sources of [renewable energy](#) with one effective monitoring and visualisation interface - in order to guarantee a stable energy network. The relevant renewable and smaller scale generation resources are brought on-line automatically based on availability and demand. Instantaneous economies of power generation are achieved by taking into account the entire collective of generation resources.

This can be a benefit for a large energy usage site such as an off-grid mine or heavy industry facility. It allows generation to be balanced with a draw from the grid, or, supplying energy to the grid from a number of sources when internal demand is lower but capacity is available. The advantage is that new economic possibilities open-up for the owners of power plants to participate in the energy market and loading is taken off the large grid-scale utilities, even in a market with growing power demands. Using the VPP to make better use of available power generation resources.

## **Efficiency optimisation at all levels of the power generation spectrum**

Efficiency needs to happen at both ends of the scale. A national or international scale 'smart grid' sounds like an ideal situation, all power sources are balanced over an intelligent network to provide power where and when it is needed by the consumer. This only works if larger generation facilities are also made to be as efficient as possible, balancing the efficiency scale with more localised renewables.

**Conclusion: smart control automation will ensure a smooth energy transition**

To allow new, smaller, local energy generation facilities to be used efficiently and take the pressure off grid scale generation, we need optimized management and integration to maintain a balance of efficiency. Energy generation is changing and smart automation along with cross platform integration is required to ensure energy transition happens smoothly.

**Note:**

See how Mitsubishi Electric is able to respond to today's automation demands: [eu3a.mitsubishielectric.com/fa/en/solutions](https://eu3a.mitsubishielectric.com/fa/en/solutions)

### **Image captions:**



**Picture 1:** The main aim for an active VPP is to combine the control of different sources of renewable energy with one effective monitoring and visualisation interface - in order to guarantee a stable energy network

[Source: Getty Images, ME-Automation Projects GmbH]



**Picture 2:** Morteza Seraj, Director Process Automation at Mitsubishi Electric's Factory Automation – European Business Group

[Source: Mitsubishi Electric Europe B.V.]

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## **About Mitsubishi Electric**

With over 95 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognised world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, as well as in products for the energy sector, transportation and building equipment.

With around 138,700 employees the company recorded consolidated group sales of Yen 4,238.6 billion (\$ 37.8 billion\*) in the fiscal year that ended on March 31, 2017.

Our sales offices, research & development centres and manufacturing plants are located in over 30 countries.

## **Factory Automation – European Business Group**

Mitsubishi Electric Europe B.V., Factory Automation - European Business Group (FA-EBG) has its European headquarters in Ratingen near Dusseldorf, Germany. It is a part of Mitsubishi Electric Europe B.V., a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of FA-EBG is to manage sales, service and support across its network of local branches and distributors throughout the EMEA region.

*\*Exchange rate 112 Yen = 1 US Dollars, last updated 31.03.2017 (Source: Tokyo Foreign Exchange Market)*

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