

Japan Energy Challenge: An invitation to innovators

Smart energy | With Japanese companies keen to learn from their counterparts in deregulated energy markets such as the UK, the Japan Energy Challenge provided the ideal forum for exchanging ideas. Andy Colthorpe reports

The 2019 edition of the Japan Energy Challenge, launched by analytics and AI company SMAP Energy, got significant buy-in from many influential businesses in Japan, including established players such as Tokyo Gas and innovative start-ups such as PV company Looop.

Companies from around the world were invited to share their knowledge and solutions for building a 'smarter' energy world, built around decarbonisation and digital innovation. One of the winners was UK-based Kiwi Power and Connected Energy, whose international market development leader, Nima Tabatabai, tells PV Tech Power what lessons Japan can learn from the UK

PV Tech Power: I've heard that Japanese companies are very interested to see what UK companies can offer them, having experienced its own energy market deregulation in the previous decades. Was that the case for Kiwi Power?

Nima Tabatabai: The UK was one of the first to open up flexibility markets. The US, or some parts of it, was first, it's now happening in Europe but in terms of accumulating years of experience, UK flexibility aggregators like Kiwi are some of the most experienced companies in the world because this [type of distributed flexibility platform] has really only existed for about 10 years.

We have a platform that can handle any type of flexibility assets, so for example it can manage demand response, generation assets, battery storage assets, it's agnostic to the technology.

It's basically a platform for connecting any type of distributed energy resource and allowing it to respond to a signal or price or whatever you want it to respond to. We have one platform but it can be deployed in many different ways, and in different types of assets, whether it's

commercial demand response, or any kind of aggregation.

There's always been an expectation that Japan's FIT programme would end in the early 2020s. There seems to be a general shift in Japan market from deployment of renewables in its own right and on to smart technologies that help to integrate them. Does that tally with what you've seen?

It's a natural transition as well for a market. So usually, renewables are always the easiest point of entry, with investable projects. In almost every market, if you look at the US and Europe, renewables happen first, but really renewables introduce intermittency into the energy system. And it's kind of the downstream effect of that which then drives the change into energy storage and smart grid technologies.

It's really how to manage the impacts of renewables that I think leads to these other types of solutions being demanded in the market. What I think is really interesting is how renewables have become economically competitive, outcompeting almost every other form of generation, so it's less politicised now. It's less about political buy-in and subsidies in almost every market. Whether people like renewables or not, it doesn't really matter anymore.

The downstream effect is that renewables start scaling up and you need the suite of technologies that will help manage the grid to integrate more than a certain threshold of renewable into any energy system.

So there are areas of knowledge and expertise that UK companies might have, that Japanese industry players may want to leverage. Are there any other similarities there, and conversely, any areas that appear to be 'new' challenges?



Kiwi Power's Nima Tabatabai (second from right) accepts the Japan Energy Challenge award, one of four winning companies

Credit: Japan Energy Challenge

Japan is an island, and an island grid is quite different than a continental grid to manage.

That encourages them to look at the UK more than perhaps the size of the UK market might warrant otherwise. The fact you have an isolated grid and you need to balance the grid at every moment in time... doing that on an isolated system is more challenging than on a well-interconnected system, so a European network is not a good analogy for the Japanese grid – which also has two frequencies, 50Hz (East Japan) and 60Hz (West Japan).

Some of the challenges are the land mass and topography. It's mountainous and the seas around Japan are deep, they're not on a continental shelf, like the UK. So the offshore wind technology that currently exists basically needs continental shelves. That's why the UK and Europe are really leading the deepwater wind technology which could be a good 10 to 15 years away – that's what's needed in Japan to drive offshore wind.

Until that's ready, there will be a natural constraint on deploying renewables. On the consumption and asset side, Japan is perfectly positioned because they have a high amount of personal electrification, they have highly developed industries that are all grid-connected. ▶