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"If you rip off your customers, you cannot work with us" p42

Bring SMEs into grid balancing without them even noticing

GridIMP has partnered with EDF in a bid to bring smaller firms into demand-side response. Its founders say open standards, intelligence and automation are key. Brendan Coyne reports

GridIMP's Richard Ryan and Ed Ross

Start-up GridIMP has partnered with EDF on a government-funded trial to develop fully automated demand-response systems that bring smaller firms and sites into grid balancing without specialist knowledge or kit and at lowest cost.

Directors Richard Ryan and Ed Ross believe their technology could ultimately bring households into demand-side response without occupants having to do anything.

The firm must first prove its technology at commercial scale by demonstrating it can react to grid and market signals without intervention and with no impact on core operations. A trial with EDF at Wells Cathedral School in Somerset aims to make that case and improve the intelligence behind the platform, which Ryan and Ross say is based upon machine learning algorithms.

The system uses wireless sensors to feed real-time energy data into the platform, which then learns consumption patterns and automatically optimises for DSR balancing – and takes actions via control systems – without the need for intervention.

Some DSR technology companies might ask what's new. Ryan and Ross claim their system can connect to any standard controls and sensors – and that they are not trying to build a walled garden. The firm believes using ZigBee standards included in Smets2 smart meter specifications, ensures broad interoperability.

"Our strategy is perhaps unusual, in that while there are competitors [working to automate DSR and bring in smaller sites], they have closed systems which only work with their own technology," says Ross.

"That is a way of locking people in. Our focus with the control hub is to be as widely compatible with standards-compliant kit as possible. If you follow the standards, you can connect to devices which we think will coalesce around the standards that are out there."

Resource issues

Interoperability removes technology and cost barriers that can prevent smaller firms from providing DSR.

"There are clear financial benefits for medium-sized companies to involve themselves in demand-side management," says Ryan. The problem is, setting up and managing systems can require a fair degree of interaction, either from a consultant or qualified, dedicated person.

"Many consumers are not large enough to spare that sort of resource, or employ a dedicated energy manager. Most are busy managing business, not energy – which is why so few small and mid-sized firms are looking at DSR."

No brain, no pain

Automating responses literally creates "no brainer actions that have solid financial benefits and that require neither time commitment nor a large degree of upskilling for operators", says Ryan.

"So we have designed our solution around a business as usual approach: no customer training whatsoever, no reconfiguration by a specialist; self-configuring technology that is automated and adaptable."

But convincing businesses to cede control of key pieces of kit – either to humans or algorithms – is a key emotional barrier that DSR aggregators must overcome. What is gridIMP doing differently where others have struggled to fully unlock the large corporate sector, let alone the SME market?

"Engaging smaller commercial users will be more challenging. People will not accept interference, which is where they need reassurance that DSR is controlling non-critical systems and can be overridden very easily," says Ryan.

"You have to demonstrate to them that it is, in effect, impossible for the system to interfere with business operations where it would pose a risk commercially," he adds.

"The system will only deliver a response as and when it can and will learn from availability periods, so it becomes increasingly unlikely to do something a customer does not like."

Big plans

The company aims to have a "minimum viable product available for large industrial and commercial firms by July this year", followed by full commercialisation over the next two years. The goal is to bring in solutions for standard office equipment – heating and lighting etc – over that period.

Ryan says GridIMP's ultimate goal is to bring "every smart meter in the UK" into DSR. te