

Corporate takeover: the end of independence?

M&A | The growth potential of energy storage has drawn interest from some of the biggest names in the power business and beyond. With the trend set to continue, Andy Colthorpe explores how three of the recent targets are faring under new ownership



Credit: Flickr/tom jervis

The urgency of the need to act on climate change grows in tandem with the modernisation of the energy industry and is also taking renewables and therefore energy storage – into the mainstream. Over the past couple of years, this has manifested itself primarily as growth in investment into the sector and big players now wanting to own significant pieces of the market as it rapidly develops.

It will be interesting to see if they've got it right in terms of the types of energy storage companies they target, with many expecting widespread consolidation to obliterate all but the best – or biggest – in the industry. It will also be interesting to see if the acquired companies are well-positioned to succeed as part of a bigger corporation or if they'll continue to do what they've always done – only bigger.

We've spoken with three energy storage companies that have in the past couple of years been the object of that intensifying interest. Sonnen, which was recently acquired by Shell, Greensmith Energy Management Systems, owned since 2017

by gas engine manufacturer and power producer Wartsila, and Younicos, which is now part of portable energy solutions company Aggreko.

To be prepared is to survive

Florian Mayr of consultancy Apricum says that Shell is "seeing the overall trend that the world has made the choice: to decarbonise, to do something against climate change", through electrification of the power, heat and transport sectors. Mayr points out that it's "not a given" that fossil fuel companies will prepare for the long-term future in this way, with Chevron and Exxon seemingly doubling down on their ambitions to lead the planet to disaster while lining their pockets.

"Shell is saying that they want to prepare for this time and feel it is also a means to ensure their long-term survival. Shell claims to create a 'utility of the future' covering all relevant end user demands looking forward," Mayr says, with the company on a current wave of acquisitions.

Among others, it has already hoovered

up UK-based companies Limejump, an aggregator, energy supplier First Utility – and its 750,000 customers – and Dutch EV charge solutions company New Motion as well as Sonnen. While it's still early days, joining the dots between those different segments appears the obvious way forward in creating a behemoth of the energy transition.

Sonnen CEO Christoph Ostermann says that there's scope for partnering what Sonnen does with those other acquisitions. To use an old phrase, the combination could represent a greater value than the sum of its parts.

"Shell is already present in more than 140 countries around the world and some of them are already interesting as markets for Sonnen as of today, some of them will become interesting in the future," Ostermann says.

"So I think one-plus-one is not two in this case, it is more. Simply because there are synergies and we can also leverage existing businesses within the Shell Group. The equipment we provide is a solution for residential customers. A customer can supply themselves with self-generated solar power on the one hand, on the other hand, in the bundle with First Utility, First Utility (now rebranded as Shell Energy) could provide that customer with the remaining grid power that they still need."

As opposed to that long-term strategic decision from Shell, for Aggreko and Wartsila, "energy storage is a natural extension of their core business and current product portfolio which can help their customers to save money today", Apricum's Florian Mayr says. Aggreko's mobile (yet sizeable) solutions power everything from gold mines in Australia to the Olympics around the world, while Wartsila supplies gas engines in 170 countries.

"By adding storage and PV to existing fossil generation, for example, you reduce the run time of the fossil generation assets

A drop in the ocean? While the likes of Shell have invested big in the clean energy sector, for now, much of their main business remains unchanged

and thereby save fuel, you also save fuel by being able to run the gensets more efficiently because you can then do fossil firming – to make a firm output profile and keeping the genset at a high utilisation which improves efficiency. You also save Capex because you don't need spinning reserve if you're adding energy storage," Mayr says.

At one such project, Granny Smith's gold mine in Australia, the addition of Younicos' battery system and battery management to existing power solutions expects to make fuel savings of 13%. The economic value of that is obvious but the sector is very conservative on operational risk. The endeavour is something of a gamble to begin with; that they bought a solution from a company started by self-confessed "solar hippies from Berlin" is all the more surprising.

Similarly, the addition of battery storage to Wartsila engines, either existing or new, can have a dramatic impact on ROI, with payback of two years modelled at some of the company's newest projects. Using technology and staff gained since the addition of Greensmith for around US\$170 million in 2017, a range of battery-backed

hybrid engine solutions was launched as this edition of *PV Tech Power: Smart Power & Storage* went to press.

100% renewable? Really?

Although it may sound at odds for a gas engine company like Wartsila to claim a mission towards 100% renewable energy and for Greensmith, Younicos and Sonnen – all from a background almost entirely rooted in renewables – now to be owned by companies that have an undeniable stake in the fossil fuel game, it is to be hoped that the combination of different energy system stakeholders' interests will give the best outcome for everyone.

Wartsila's Andy Tang, himself a Greensmith alumnus and renewable energy advocate, is bullish that, whatever our collective best efforts, natural gas is not going to go away just yet. Equally, he says, that does not need to be at odds with a vision of a world powered by renewables, nor does it needlessly endanger the survival of a species already locked in a race against time to decarbonise.

"I'm all for 100% renewables, I see that you can get to that on the capacity side but on the true energy side: you don't have

wind everywhere, right? And solar power is an eight to 12-hour resource, depending on where you are. Are you really going to massively overbuild the solar power system by x2 and have batteries of 12-hour duration to be able to store all of that excess solar power and run it at night? I don't think so.

"I don't think that's the cost-effective power system and I don't think that's the carbon neutral solution or the best carbon mitigated solution. When you look at the price tag on that I don't think that our ratepayers, citizens of the world are going to be willing to pay for that," Tang says.

While the renewables community has, out of necessity, always viewed a push to majority renewable energy as an incremental process, the increases are now getting so big that the industry has a responsibility to ensure it can keep adding clean capacity without the system breaking down. Reaching a kind of capacity addition stasis on reaching 20% penetration of renewables in a typical grid scenario, Tang says that the only answer is to add "flexible power resources that can turn on and off really quickly". While a Wartsila gas engine can be switched on and running in five minutes,

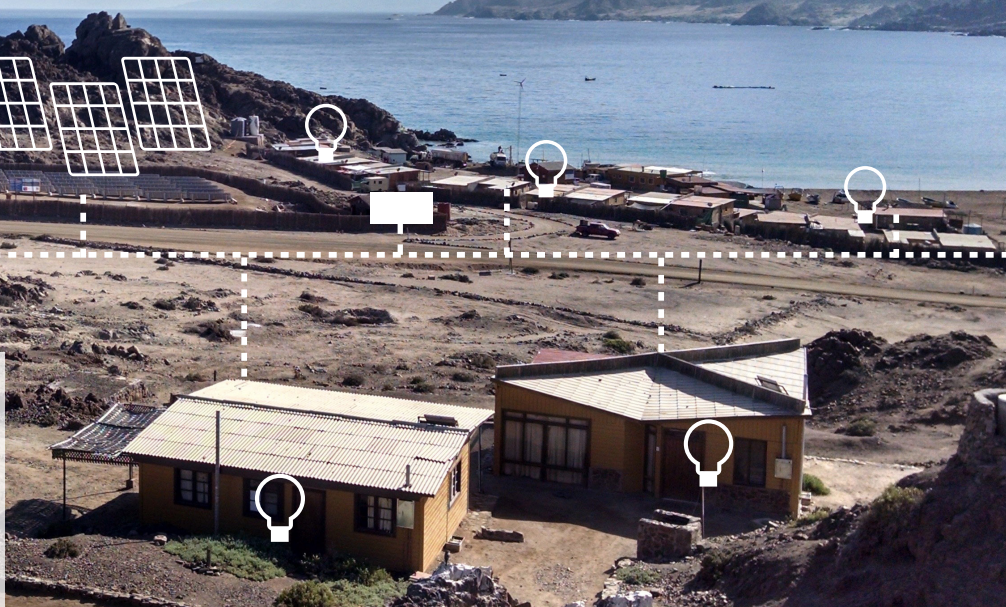
Mini-grid

Smart and Flexible Energy

Electrification of 22 houses in Pan de Azúcar, Chile



Meet us at
Intersolar Europe,
booth B2.470
in Munich, Germany
May 15-17, 2019





Credit: Sonnen

a battery-Wartsila engine hybrid “can be ramped up immediately”, providing fuel and carbon savings and ensuring reliability and quality of power.

“We have a path mapped out,” Tang says.

“We think that there’s this interim period where you’re getting from 20% to 60-80% renewables during which you need this flexible fuel source. Maybe I’m a little bit different [to some 100% renewables advocates], but I look at the 100% renewables and I’m not convinced that the most efficient way to do that is renewables plus massive batteries.”

Carrying on the theme, Tang’s colleague Magnus Miemois says that according to the “number crunching we have done in creating our energy vision and our perspectives: there is a clear correlation that the more renewables you put into a system the more flexibility you are going to need. Decarbonisation is obviously one objective, but you have the objective of grid reliability to attend to at the same time.

“Some of the traditional forms of generation are simply way too inflexible for existing assets to perform that role. You add energy storage to thermal [generation], you get a better performance and minimise the carbon emissions. So it is a necessary element of future energy systems. You might have various existing assets, CCGT, they might prove to be not able to provide the flexibility in an economical sense.” Framed in this context, the acquisition of a battery system integrator sounds a necessity for the Finland-headquartered gas (and latterly wind turbine) company.

Business models and scalability

Taken at face value, these are acquisitions in the truest sense. Large companies have spotted that rather than force their way up a steep learning curve by trying to do it all themselves in-house, it is better in some cases to acquire expertise and technology that fits into their plans. Whether

that’s today’s plans in the case of Wartsila and Aggreko, or from a longer-term play perspective in the case of Shell and Sonnen. Big players are seeking not only expertise and technology, but those things have to fit into scalable and viable business models.

Aggreko’s Dan Ibbetson, says that post-acquisition, it wants to use Younicos’ decade of experience with battery systems to deliver complete bundled solutions, in this case for commercial and industrial (C&I) customers. He also cites the mining sector, data centres and cheap LNG-powered Caribbean Islands as huge segments of market potential perhaps previously not readily accessible to Younicos. Aggreko’s business model of renting equipment and solutions to customers is a perfect fit for the ‘energy storage as-a-service’ offerings that Younicos was already delivering to its customers, Ibbetson says. It has also enabled Aggreko to tout new product lines including mobile containerised solar-plus-storage, also for rent.

“You come to us, you want energy, we’ll have a discussion about the right mix of solar and thermal and then the kind of batteries that you need to integrate those two and then it’s all in one contract. You don’t have three different suppliers. Then all the kit is designed in a way that it fits really well together.”

The all-in-one rental model can potentially work well for both energy system provider and customer. The customer is no longer burdened with a high Capex, while what was formerly known as Younicos is able to leverage the balance sheet of its new parent to execute projects on an ongoing and presumably increasingly ambitious basis. Apricum consultant Florian Mayr cites the example of an energy intensive but temporary mining site which might be in operation for less than 10 years. The owners of that site need power, but they don’t need to buy a system.

“Having a storage solution which is more

Sonnen has heavily emphasised not only the sales of its battery units, but also the networked grid services and energy trading aspects of its business model

energy as a service and not being sold and needs to be amortised over 20 years but can also be moved to a different mining location, that could help a lot [in persuading customers to try it],” Mayr says.

The role technology plays

A couple of years ago, as the importance of battery and energy management and control software became clear, Younicos, Greensmith and others were selling their software platforms as a kind of side-line to their more complete system integration businesses. For both companies, this has changed, not inspired by their respective takeovers but coinciding with a wider market shift. That shift being a recognition that the system integrators’ core expertise is in delivering a complete, working system.

“I don’t believe that in this industry, there’s a strong case for a software-only business model,” Greensmith alumnus and now Wartsila’s Andy Tang says.

“The biggest challenge you run into as a software-only business is that the solution the customer is looking at is a system: it’s the total thing that’s working and any time there’s any problem, whether it be a hardware or software problem, it’s on the software vendor. A hardware problem shouldn’t be, but because it’s viewed as a system, the hardware problem becomes the responsibility of the software vendor. You don’t really have control over having specified the equipment and if you don’t have control over having the commercial relationship with the hardware equipment provider, you have no leverage to help fix the situation.”

While Greensmith had a hand in a third of all US installations in the 2014 mini-boom, the company was cautious not to overextend itself pre-takeover



Credit: Greensmith Energy

Not only that but with Greensmith's GEMS software platform, and those made by rivals, if deployed to manage energy storage's operation and performance at the heart of the energy system, it is better for the software platform to run the overall system itself.

De-emphasising certain aspects of their existing strategies and in Younicos' case making several pivots over time have been key to the survival of all of the companies pre-acquisition. Tang says that in addition to the decisions around software, Greensmith also had to know not to get too hungry for new projects during the early 'mini-boom' in energy storage projects from 2013 to 2015, although the company's software ended up in around 30% of projects deployed the US that year.

In the meantime Sonnen is given scope to expand the existing base of sales of its systems and subscriptions to its services in Germany, as well as the US and particularly Australia, where the company just prior to acquisition announced the construction of a local factory to enter domestic content eligibility for South Australia's Home Battery Scheme.

The appeal of the Australian market is

something of a no-brainer at the moment, with Sonnen's German domestic rival Senec also launching its Australian division (with Senec also in post-takeover mode after a 2018 buyout by utility EnBW) this year. But in terms of manufacturing, does the backing of a fossil fuel supermajor give Sonnen aspirations to fully vertically integrate into battery manufacturing as well? While Ostermann says system assembly and manufacturing could continue to be integrated, he is highly doubtful on the latter point.

The core focus is on the battery and energy management and control software and hardware in terms of creating a self-contained home energy system. Then, as the company has shown in becoming the first home storage participant in Germany's Primary Control Reserve (PCR) ancillary services market, turning that into something that can become part of an orchestra of virtual power plants (VPPs) and communities of energy sharers and traders on the grid. That's not to say the choice of battery is not important.

"Sonnen decided in the beginning of the company history in 2010 to focus on lithium iron phosphate (LFP) chemistry for

two simple reasons: the first is that being a residential player, safety was extremely important for us and LFP is the safest cell chemistry you can find within the lithium-ion cell family, regarding thermal runaway – no smoke, no fire, no explosions, no crazy stuff like that, and that was key for us," Ostermann says.

"Secondly, lithium iron phosphate has the highest cycle life. Always given that you use a decent quality [cell] of course. This choice has set us a little bit apart from other players in this industry, whereas now we recognise that more and more of our competitors, laughing at us in the past about this choice, are now also orienting themselves toward LFP, which I find interesting!"

Ostermann also says that not using higher energy density nickel manganese cobalt (NMC) cells also frees Sonnen from some of the supply chain issues which struck energy storage companies reliant on the same cells used in electric vehicles last year.

All roads lead to home

There's an understandable excitement at these previously almost 'alien' and futuristic



Emissions-free technology Towards a 100% renewable energy future

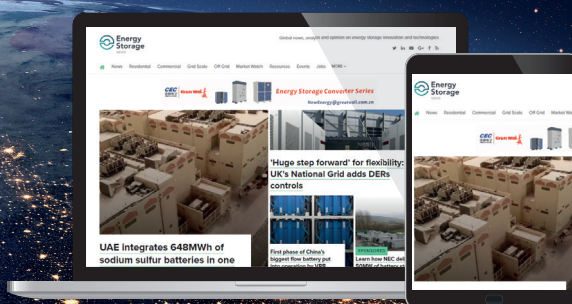
www.energy-storage.news

Since 2014, www.energy-storage.news has been first for news, exclusive commentaries and unparalleled insight in the global energy storage industry value chain, for a business audience. In-depth analysis on big topics and industry developments, covering notable projects, business models, policies and regulations, tech innovations and more.

Over
82,000
page views
per month.

Reach key
decision
makers

160
countries



Sign up to the newsletter to receive the latest news for a business audience on the global energy storage industry straight to your inbox.

www.energy-storage.news/subscribe

For more information contact: marketing@solarmedia.co.uk

companies being taken over by such significant names, but why these three? And why now? And can being part of a much larger 'mothership', as one interviewee described it, bring the scale and reach our industry needs – that our planet needs – to truly play a key role in effecting the global energy transition?

Sonnen's Christoph Ostermann certainly thinks so. Back when Shell led an investment round in the Bavaria-headquartered start-up in mid-2018, Ostermann told me that the involvement of the world's major energy companies was a positive for the "clean energy future", a view that he stands behind even more emphatically since the company became a part of the Royal Dutch Shell Group.

It's a little surreal to think of a company many of whose employees still live in a renewable energy-powered village in the remote southern German countryside, that touted energy independence from the big utilities as its selling point to many of its customers, is now dependent – in the long-term at least – on the utility ambitions of an oil company. As Ostermann reels off a list of geographies that could open beyond the company's core territories in Europe, the US and Australia in the near future, it might almost be easier to compile a much shorter list of territories, which the Sonnen CEO does not think will have a residential energy storage market before long.

"Japan is a market we will look into closely in the near future. We're also looking at other geographies in Asia, such as the Philippines, which we will look at more intensively in the future. There are a couple of countries in Africa, so, just to give some examples, there's Nigeria or South Africa, where we have preliminary plans to enter these markets. Then you have new markets in Latin America, where we're looking at the moment. At the end of the day, due to the

fact that renewable energy generation is already price competitive all over the world, and storage prices come down more and more, I deeply believe that we will see a lot more geographies in the future that turn out to be residential storage markets."

Greensmith Energy's systems on the other hand have been supplied in eight countries to date (80 systems) and Andy Tang predicts that in a year's time the number of countries will have more than doubled.

"The growth we're seeing because of Wartsila's sales organisation selling our energy storage, we expect that to really, really, grow incredibly. Energy storage I think is still in its infancy as a market but I think now is the time to enter these new geographic markets that are opening up," Tang says.

It isn't just the geographies; it's also the range of projects and systems the company is now integrating batteries with that's increasing. In tandem with that, the number of different applications the systems perform increases and so too does the complexity of managing the entire energy system that is created.

"If you think about how people are beginning to use energy storage, there's a lot of single-application deployments around the world, where energy storage is thought of as one or two things: peak shifting or smoothing out renewables. A lot of our customers are applying four or five different applications out of our software to get the maximum outcome. Not just from storage, but from software," Tang says.

Commitments not compromises

Whether their takeovers are judged a success will all come down to the value each of these companies can provide to their new owners, although obviously they will be judged on other metrics too,

A needs-led, thematic approach to investment: A quick look at one big player's approach

Centrica, the global energy giant behind British Gas, launched an innovation fund two years ago, seeking to plough some £100 million in tech start-ups that could help it navigate the energy transition.

In its first two years it has backed the likes of New York-based blockchain start-up LO3, Israeli EV software firm Driivz and a host of other companies operating at the grid edge.

Sam Salisbury, director at Centrica Innovations Labs, says the division starts by being led by a need, indicating that two of Centrica's present themes are driven by societal issues, namely mobility and 'active ageing', or making people feel more comfortable in their homes.

"We try to have a bigger vision of what we're trying to achieve and then look at who can contribute to that vision and who we can assemble together to create a big solution for our customers," he says.

Plugging capability gaps with a well-timed, strategic investment stands to be significantly cheaper than ploughing resource into an in-house R&D department like other industries can, and is often the only option in an energy retail sector famed for its slim margins.

But Centrica's activity is becoming increasingly consumer-led, a notion backed by the company's work in establishing a peer-to-peer renewable trading network in Cornwall, one of the UK's most sun-drenched areas, which is to feature a heady mix of solar, various storage technologies and blockchain.

"Certainly my view is we need to find out how to make the homes more self-sufficient... as an energy supplier we have to be developing more solutions for our customers," Salisbury says.

Author: Liam Stoker

such as their contribution to decarbonisation. Apricum's Florian Mayr says that with US\$1-2 billion invested per year through Shell's New Energy Ventures VC wing the company's "magnitude of investment is too much to be considered 'greenwash'". However, to put it in context, Shell is nonetheless spending perhaps tenfold that amount on oil exploration activities still and is "definitely not exiting the oil business today", Mayr says.

The flexibility energy storage can bring to the renewable energy transition is critical on both an environment and long-term economically sustainable level. Whether that means the continued acquisition of smart new companies or the development of their own products, big players are swooping.

As Mayr says, it's likely that for costs associated with residential storage to continue falling and "a widespread, globally applied business model" to be feasible a mass market is needed and big balance sheets and a recognition of the need to change will play a big part in that. As the examples of Aggreko and Wartsila also show, albeit from other angles, non-residential storage is also in the sights of those big players. Let's hope it's not too bumpy a road.

Aggreko's history of powering major events and industrial operations around the world using containerised solutions includes sports and stadiums: the LA 2024 Olympic Games are pledged to be carbon neutral



Credit: Flickr/Tony Webster