Covid-19, power demand and… the role of energy storage

Covid-related lockdown measures have triggered an unprecedented fall in commercial and industrial power demand, only mitigated by an increase in residential consumption from households transforming their homes into… offices, schools and workshops.

Given the zero-marginal cost of renewable energy sources such as solar and wind, conventional power plants have taken the brunt of the demand collapse, leading to minimal utilization rates and very irregular working patterns. In Italy, the share of power sales from renewable sources has exceeded 50% over the last few weeks. National Grid, the UK system operator, had to call for emergency powers to curtail renewable production in case of overgeneration, and negotiated the terms for the emergency reduction of inflexible nuclear production upon need.

While we all long for a rapid recovery of industrial and commercial activity, the sudden increase of the share of renewables on the grid provides a glimpse of things to come, as cheap green energy continues to displace conventional generation. Conversely, it also provides clear evidence of system operators' desperate need for alternative flexibility sources, to keep the grid stable and the lights on without curtailing renewable energy.

The very mission of an electricity system operator is to continuously balance electricity demand and supply on the grid, every second, every day. Traditionally, this critical task for the ordinary working of society has been accomplished by tweaking in real time the operation of conventional power plants, reducing or increasing their output in response to perpetually changing grid conditions. Over the last decade, the accelerating penetration

of intermittent renewable sources has gradually reduced the number of conventional plants in operation, in particular at certain times (e.g. the central hours of the day in sunny regions), and even before the Covid-crisis hit, strains on grid stability had been emerging with increasing frequency.

The good news is that we have the answer to system operators' concerns, and it is so cost-effective to come at negative cost for ratepayers. The answer lies in storing energy in large lithium-ion batteries, whose cost is on a constant downward trend, driven by increasing supply to power electric vehicles. Batteries can instantaneously react to system operators' needs, by immediately supplying power to the grid in case of deficit, or swing into charging mode to clear any excess supply.

ENGIE EPS has been a pioneer in the deployment of battery systems to support greener power networks, from its landmark experience in the Terna Storage Lab in Italy to the supply to Endesa of a 20MW storage system in Spain, and is now at the forefront of ENGIE's push into the global storage space.

We bring Italian excellence, competitiveness, and reliability worldwide. Together we win.

20 May, 2020

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