



Storelectric Consultation Response to the **Electricity System Operator draft Forward Plan**

We greatly welcome this draft plan, and wish greatly that you would act consistently with it.

You say that you seek to facilitate competitive markets and competition in networks. However in reality you (with examples):

- ◆ Double incentivise interconnectors (cap-and-floor, and no incremental carbon pricing so the electricity they sell has paid £9/tonne of CO2 emissions instead of the UK's £32 - you should be charging the incremental £23);
- ◆ Greatly incentivise existing plant to stay open (Capacity Market, 2-year contracts);
- ◆ Greatly disincentivise new plants from being built (no 15-year contracts);
- ◆ Favour batteries over other storage (paying for EFR, not inertia);
- ◆ Disadvantage storage in other markets (black start must have a hyper-long duration, rather than just long enough to get the grid up and running);
- ◆ Disadvantage storage in comparison with renewable generation by providing CfDs etc. for the latter but not the former;
- ◆ Triple charge storage for grid connection (import, export and within the electricity price) which you propose to reduce to mere double charging (export and price) by defining it as a subset of generation rather than using interconnectors as a template (storage moves electricity in time while interconnectors move it in space - much the same thing), thereby disincentivising it in relation to generation and doubly so in relation to interconnection;
- ◆ Propose to impose huge grid code burdens on storage by defining it as generation rather than like interconnection;
- ◆ Propose to prevent all investment tax incentives for storage that apply to other grid assets, by defining it as generation rather than interconnection.

You say that you seek to facilitate whole system outcomes. Yet you:

- ◆ Only want very short duration flexibility (DSR, 0.25-05 hours; batteries 0.3 - 1 hour) rather than longer duration zero-carbon flexibility and balancing

Grid-scale electricity storage using an innovative form of Compressed Air Energy Storage



services, even though when the sun goes down on a windless winter evening we need at least 5 hours' output to carry us through the peak;

- ◆ Seek to rely on imports for 20% of peak demand while Brexiting, following which our neighbours (who, according to Ofgem, have similar peak times and generation capacity crunches to us) will legally be allowed to favour their consumers over ours at any price – a recipe for blackouts;
- ◆ Rely on imports rather than our own domestic resources, when the UK is better endowed than most EU countries with renewable resources (wind, sun, waves, tides) if only we developed un-subsidised storage to make best use of it;
- ◆ Expect to take in most interconnection through the most congested parts of the transmission grid (the SE corner of England) rather than benefiting from existing grid connections to storage in central, northern and western England;
- ◆ Incentivise intermittent generation to remain intermittent rather than to add or contract with storage at a sufficient scale and duration to turn their intermittent generation into dispatchable or baseload;
- ◆ Seek a second "dash for gas" even though the law-enshrined 5th Carbon Budget requires no more gas generation sourced emissions in 2030 than 2010 even while all coal-fired power stations are closed, meaning that either we break the law or any new gas plants will have a commercial operating life of 5-10 years at enormous cost to the industry;
- ◆ Plan on 8GW of CCS generation to fill the gap even though it has proved itself to be fantastically expensive - too expensive even for America to fund: when the 2 projects were on-going the aspirational figures from DECC's website could be multiplied out to show a best possible outcome as costing £27bn p.a. to capture just 80% of the emissions of 8GW coal-fired generation, without considering the inefficiencies (~12%) imposed on the generation by the CCS - whereas we could install 50GW emissions-free storage for £27bn one-off which would trade without subsidy in a market costing no more than today's market.

Large scale long duration storage can solve all these challenges without subsidy, provided you remove the disincentives, level the playing field and support first-of-a-kind plants. And I'm not asking you to pick winners either - any FOAK plant in any technology should be supported, in order to encourage (a) development and implementation at scale of novel grid-scale solutions to grid-scale challenges, and (b) development of a British-based industry that solves these challenges, rather than always importing at ever increasing cost as our currency goes down and trade barriers are likely to go up, thereby increasing greatly the costs to the energy system.

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Your efforts in developing “forecasting services and code administration, system access for outage management, as well as billing and connections to the transmission system” and your IT systems are very good, as far as they go. But if the fundamental system is as rotten as I describe above, it matters not how brilliantly we forecast generation and demand or administer connections, the system will not cope. You are tinkering at the edges of a system that is in danger of collapse.

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Storelectric is developing Compressed Air Energy Storage in the UK, to store many gigawatt-hours' worth of electricity in order to make renewable energy more useful and profitable, costing ~1/3 the cost per GW and an incremental ~1/100 the cost per GWh of pumped hydro-electric storage, in more useful locations and without major environmental impact. We have patent pending technologies to increase efficiency to well beyond that achieved by any other CAES installation.