Date-time - 05/05/2017 22:59
Email to OFGEM
Subject - Targeted Charging Review: a consultation

Dear Sir/Madam,
I write in response to this consultation within your deadline I trust as this was marked 5th May 2017. I am very grateful if you could take my views into account.
Thanks for your work.
Yours Sincerely, Dr Theodore Holtom (Director, Wind Farm Analytics Ltd)

Question 1: Do you agree that the potential for residual charges to fall increasingly on groups of consumers who are less able to take action than others who are connected to the system, is something we should address?

Yes, this should be addressed but this detail is just one part of the greater use of system charging framework which is completely perverse, relying on arbitrary and illogical thresholds such as 100 MW on embedded generation, as well as the ridiculously arbitrary triad system. Therefore the detail of residual charges should be addressed as part of a major and radical overhaul of the charging system so as to install a consistent and logical new charging framework suitable for the modern flexible grid.

Question 2: If so, why do you think, or do not think, action is needed?

The whole charging system is unfair and does not support free market efficiencies. The complicated and arbitrary nature of the charging system appears designed to favour particular interests at the expense of others. Therefore this use of system charging system represents perversion of free markets and should be radically overhauled because money for nothing is being paid to unworthy recipients and vested interests, ultimately paid by the consumer.

Question 3: We are proposing to look at residual charges in a Significant Code Review. Are there any elements of residual charges that you think should be addressed more urgently? Please say why.

The whole Use of System charging system needs re-designing altogether for the modern grid. However, the one worthwhile change which could be made to residual charges is to exempt energy storage systems entirely from all use of system charging and to make energy storage competitive capacity auction winners the recipient of Energy Storage Use of System charges instead. This is because energy storage is entirely beneficial to the grid, providing flexibility and resilience as well as avoiding wasteful curtailment and improving grid utilisation.

The whole UoS charging framework is far too complicated and just needs total simplification. This is easily achieved by making use of system charges applicable to all generators in proportion to their annual metered energy. Since we have a national grid the use of system charges should be uniform across all regions. Suppliers need not pay any use of System charges directly but obviously will tend to get their electricity from grid connected generators at a price which will factor in the use of system charges. There should be no locational aspect or incentive in the use of system charges because it is about using the existing grid system, not some imaginary future grid system. Locational or type incentives should be provided through other mechanisms such as connection charges, competitive auctions or regulation. Simples.

With regard to what happens on private wires and the effect on grid utilisation and use of system charging it should be irrelevant what may or may not be done with private wires. The market prices will have to deal with it. The best way for the grid electricity to be competitive will be to add large

scale pumped hydro energy storage to the grid because this is the cheapest way to manage large volume of intermittent wind and solar energy. Lithium batteries are vastly more expensive when compared with pumped hydro energy storage on the correct basis of capex cost per MWh delivered over entire lifetime because the number of cycles in a 75-100 year pumped hydro lifetime is much more than a 6 year lithium battery lifetime and the cost per MWh capacity is also cheaper for pumped hydro when built with half decent parameters. Pumped hydro does not rely on imported foreign commodities such as lithium. The largest lithium battery in the world was recently reported as 120 MWh whereas a normal pumped hydro installation can easily be one hundred or one thousand times bigger (a small pumped hydro plant like Cruachan can easily run 440 MW power for more than 15 hours, ie 6600 MWh=6.6 GWh stored energy). Many wind farms within GB are dumping thousands of MWh in a single night thanks to wasteful curtailment and the variability of renewable generation can be tens of GWh per day so batteries just don't cut it for bulk energy storage whereas pumped hydro can easily manage this but we need much more of it.

Question 4: Are there elements of the approaches in other countries that you think could be appropriate for GB residual charges?

No. Although the MWh consumption based charging seems the best I would argue that this should be indirect as I believe the generators should share the direct charging in proportion to annual (or monthly) metered generation MWh, with consumers bearing their share indirectly according to the market prices of the generators.

Question 5: Are there other approaches that you know about from other jurisdictions, that you think offer relevant lessons for GB?

No.

Question 6: Do you agree that our proposed principles for assessing options for residual charges are the right ones? Please suggest any specific changes, or new principles that you think should apply.

The whole Use of System charging framework needs a total overhaul. Principles would be:
(1) simplification -- overly complex arbitrary systems such as triad do not work fairly
(2) no arbitrary thresholds,
(3) charges only in proportion to annual/monthly metered MWh
(4) direct charges only on the generation side; consumption side will pay indirectly
(5) no charges for energy storage because this is reducing stresses in the system
(6) competitive auctions govern all procurement
(7) openness -- all MWh, prices and competitive results should be published
(8) fairness - regional transmission and distribution monopolies should be made independent of generation and supply companies due to conflicts of interest
(9) fairness - regional transmission and distribution monopolies should be prohibited from owning energy storage due to conflict of interest
(10) if we have markets then let them be free and competitive
(11) do not destroy price signals via arbitrary constructs like "cap and floor"

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Locational or type incentives should be provided through other mechanisms such as connection charges, competitive auctions or regulation.

The system badly needs large scale energy storage for flexibility and resilience and to assist further decarbonisation. However investors require some incentive because cheapest energy storage is large scale pumped hydro taking some years in construction and large one-off capex cost before revenue starts coming in over next hundred years. The GB domestic and commercial consumer needs that the large scale energy storage is incentivised competitively to reduce cost of energy. Energy storage capacity auctions should be installed in sucessive rounds according to long term grid strategy. For instance auction bidders may bid to build 48000 MWh of pumped hydro or other energy storage at a winning price of £5000 per MWh of capacity. Winners of auctions will get paid revenue boost at end of each of 10 years operation. Therefore 48000MWh x £5000/MWh = £240 million is paid to the investor(s) at £24 million per year. If GB electricity generation were 350 million MWh then the cost for that 48000 MWh pumped hydro would be socialised annually at an insignificant Energy Storage Use of System charge of £0.06857 per MWh of metered generation. The energy storage asset owner beneficiaries of the ESUoS charges would trade their assets freely according to market prices. Energy storage responds very well to market price signals and the asset owners should want to maximise their trading utilisation throughout the year, earning income freely above the £24m annual payment during first ten years operation. No money was required up front but the ESUoS charges give the investors necessary certainty. These numbers are just for example but could be reasonable for a first round auction.

Please note that the above ESUoS system is better than the idea of "cap and floor" prices because cap and floor mechanism would destroy competitive market price signals. For instance if there is a cap on revenue from an energy storage unit and the cap is reached six months into the year then there is no incentive for the energy storage unit to do any trading after six months. Also a cap and floor system involves setting arbitrary thresholds which cannot be achieved through a simple auction process since there are two thresholds -- the cap and the floor, whereas the Energy Storage Use of System charge system has a price per MWh capacity which can be competitively minimised via auction.

Question 7: In future, which of these parties should pay the transmission residual charges: generators (transmission- or distribution-connected), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

Energy storage should be exempt from use of system charging since energy storage is wholly beneficial to energy security, flexibility and reducing cost to the consumer through increased utilisation and reduced waste.

I think demand side will pay indirectly if generation side pays 100%. Therefore I suggest generator side pays 100% of use of system charges.

Question 8: In future, which of these parties should pay the distribution residual charges: generators (transmission- or distribution-connected.), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

Similarly: Energy storage should be exempt from use of system charging since energy storage is wholly beneficial to energy security, flexibility and reducing cost to the consumer through increased utilisation and reduced waste.

I think demand side will pay indirectly if generation side pays 100%. Therefore I suggest generator

side pays 100% of use of system charges.

Question 9: Do you support any of the five options we have set out for residual charges below, and why?

No. option A would come closest but I prefer charging at the generation side rather than consumption side, as long as energy storage is exempt!

Question 10: Are there other options for residual charges that you think we should consider, and why?

As described previously apply charges in proportion to MWh metered generation. Make energy storage exempt.

Question 11: Are there any options that you think we should rule out now? Please say why.

B and C should be immediately ruled out on the basis they do not reflect "use of system"; it is MWh metered that best reflects use of system thoughout the year

D should be immediately ruled out on the basis that what goes on behind the meter cannot and maybe should not necessarily be known, unless additional metering installed by the owner is voluntary; private lines and private energy storage is private right?

Therefore E is also logically ruled out since it is a hyrbid combination of items including those ruled out. A consistent and uniform approach is better.

Question 12: Do you think we should do further work to analyse the potential effects of the charging arrangements for smaller EG (called 'embedded benefits')?

No further work is required. The system is ridiculously illogical and needs amendment.

Question 13: Do you think changes are needed to the current charging arrangements for smaller EG, and when should any such changes be implemented?

Yes. It would be a good idea to eliminate the notion of "small" embedded generators as different from non-"small". Generators are generators whether more than 100 MW or less. In principle this logical inconsistency should be removed forthwith.

Question 14: Of the embedded benefits listed in our table, do you think that any should be a higher or lower priority?

No. Just get rid of them all and replace with a single charge in proportion to annual metered MWh generation.

Question 15: Do you think there are other aspects of transmission or distribution network charging which put smaller EG, or any other forms of generation or demand, at a material disadvantage?

Possibly but even so I just don't think its relevant and we need a simplified consistent approach.

Question 16: Do you agree with our view that storage should not pay the current demand residual charge, at either transmission or distribution level?

Yes, but I would go further that energy storage should not pay any use of system charges. In fact I think it would be best if energy storage investors would compete in auctions to win support for their investment via RECEIVING Energy Storage Use of System charges. Energy storage system is just as important to the grid as transmission and distribution system.

Question 17: Do you agree with our view that storage should not pay BSUoS on both demand and generation?

Yes, energy storage should not pay any use of system charges at all!

Question 18: Which of the BSUoS approaches describe is more likely to achieve a level playing field for storage?

I suggest eliminate use of system charging for energy storage units. It does not make sense to try to describe energy storage as either generation or demand. Obviously it can act as both. It can also be idle for many hours per day but this is also important and useful - waiting in reserve for when it is needed, when a market price signal or contract dictates action. Certainly co-located energy storage should be allowed and encouraged. If you must consider energy storage as generation or consumption then do this on the basis of half hourly periods through the year, apply a weighted average according to generating periods, consumption periods. But if you just exempt energy storage from use of system charges then this is more straightforward and beneficial.

Question 19: Do you think the changes in this chapter should be made ahead of any wider changes to residual charging that may happen in future? Do you agree with our view that these changes should be implemented by industry through the standard code change process?

Please incentivise energy storage as much as possible as soon as possible. We urgently need energy storage. Some of GB's largest wind farms are dumping as much as 30% of their annual energy which is symptomatic of not enough flexibility on the grid.

Question 20: We would welcome your thoughts on the potential make-up of a CCG. Please refer to the potential role, structure, prioritisation criteria and assessment criteria.

Not sure. Please avoid situation where a few big six companies dominate matters. Energy storage needs to be deployed cost effectively for the consumer and for assisting decarbonisation so please keep it competitive. Wind Farm Analytics Ltd will be glad to assist where possible.

Question 21: Do you agree with our proposed delivery model, including its scope?

You seem to be doing great work so far. Please carry on and it will be great for GB consumers, energy security and resilience if you will find a way to encourage large scale energy storage (especially pumped hydro, especially co-located with hilly wind farms) which everyone agrees is much needed.

Question 22: Do you agree that our proposed SCR process is most appropriate for taking forward the residual charging and other arrangements for smaller EG discussed in this document?

I don't know but if that's the best way to achieve major change then we need major change.

Many thanks again for listening.
Yours Sincerely, Dr Theodore Holtom (Director, Wind Farm Analytics Ltd)