Reflections on the locational pricing debate in Great Britain and transmission reinforcement in a zonal market

The decision on whether or not to move to zonal pricing under REMA is expected imminently. It is fair to say that both sides have argued their cases vigorously. Those in favour of zonal pricing have argued that the benefits (particularly to consumers) are large and, while producers overall would lose out, the risks to investment are negligible and/or can be managed easily. Those on the other side have tended to argue the benefits are relatively small and managing any increase in investment risk is critical, as even relatively small increases in cost of capital could wipe out any overall welfare benefit, given the huge level of investment required to 2030 and beyond.

We'll soon know which decision has been made. But it seems to us that if the decision is for enhanced national, it will be because the risk management frameworks that conceivably could have enabled zonal market efficiency gains without adding a significant risk premium were never adequately developed, the confidence of investors was never won, and a Government with bold investment objectives felt unable to go for it. Any cost of capital increase that might result from a move to zonal pricing is, in the end, empirical and dependent on investor perception at least as much as economic theory; those who argued that increased investor risk is a non-issue probably didn't help build the required confidence in the cause they were fighting for.

Some observations on FTI's latest report on potential welfare gains and network cost savings from zonal pricing and also to close some points:

- AFRY previously assessed these both in our 2023 quantitative report (link) and more recently in our GB zonal sensitivity report (here), accounting for both the welfare impact and the costs of network reinforcement. FTI's claim that previous AFRY analysis of this has not accounted for the costs of the network in its assessments is untrue (link, p.6, footnote 14).
- For example, in our most recent report (which started with a scenario combining the FES 24 Holistic Transition Scenario and Beyond 2030 network plan) we found that in the sensitivity cases with adjusted interconnector and offshore wind build out assumptions, a zonal market could achieve an additional welfare benefit from reduced network reinforcement of £4.7 billion if only HVDC reinforcement is possible (which takes into account a network cost saving of £5.4 billion (all figures NPV 2030-2050); see link, p.6, p.25. FTI have previously criticised this additional network reinforcement as highly implausible given NESO's statement that achieving the Clean Power 2030 is "at the outer edges of feasibility" (link, p.16); however our additional network reinforcement occurs only from 2035 onwards, beyond the immediate challenge of the next 5 years.
- Our approach in the zonal case is based on comparing congestion rent with the cost of reinforcement; FTI have challenged this approach as not taking account of additional welfare gains from producer and consumer transfers (link, p.8). We did make some allowance for internal rates of return based on congestion rent alone to be systematically below rather than systematically above required hurdle rates to allow for the lumpiness of network reinforcements in practice; this would also have the effect of building somewhat more network capacity than a strict assessment based on congestion rent alone, bringing the assessment closer to one that accounts for the additional welfare gains from reinforcement in the zonal case. We would argue that our approach is reasonable approximation to a full welfare assessment for each line; one advantage of this is that it allowed us to assess economic reinforcement across all zonal boundaries, rather than only 5 example lines, as FTI have done.

- FTI have also challenged our use of total welfare rather than consumer welfare to assess the impact on consumer bills: we assessed that in the FES 24 Holistic Transition Scenario plus Beyond 2030 network plan case a £25.0bn total economic welfare gain would correspond to a saving in annual electricity costs of £13 if used to offset bills for a medium consumer (link, p.7). Our calculation simply assumes that the consumer welfare gain is equal to the total economic welfare gain (with intra-GB congestion rent implicitly allocated accordingly) which is not a methodological error although it is probably an assumption FTI would disagree with: by allocating all intra-GB congestion rent to consumers FTI's estimation of consumer welfare (£54.9 billion) effectively allocates both the total welfare gain to society of £25.2 billion and an additional wealth transfer of £29.7 billion to consumers. An additional footnote explaining this in our report would have been beneficial. If the £54.9 billion figure is preferred, it would amount to an annual reduction of £29 on consumer bills.
- Finally, FTI challenged our cost of capital sensitivity which counted the disbenefit as part of societal welfare, whereas it should be netted off (at least in part) from consumer welfare. We note that our approach is consistent with the Impact Assessment carried out by the Government for the introduction of Electricity Market Reform, which attributed the reduced financing costs for projects supported by CfDs to total (net) welfare (link, p.40-41) before going on to consider distributional impacts between consumers and producers; by contrast FTI's approach differs from this in only considering the potential distributional impact on consumers, with no consideration of the potential impact (even in part) on total welfare, which is the primary question. We acknowledge that any increases in producer cost of capital under a zonal market could be passed on in full to consumers through various routes including higher CfD strike prices.

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🌐 Review of electricity market design in Great Britain