15 January 2015

EXPLANATORY NOTES ACCOMPANYING SLIDE PRESENTATION TO ESAP WORKSHOP V:
"DIFFERENT RELIABILITY STANDARDS IN NEIGHBOURING JURISDICTIONS: IS IT AN ISSUE?"
Michael Hogan

The most important question is probably not whether the reliability standards for neighbouring jurisdictions are the same, but rather whether or not the definition, application and enforcement of the standards are comparable:

1) The definition of standards is often too imprecise to draw conclusions about their comparability to standards in other jurisdictions. The tendency to state the standards in terms of hours per year of "loss of load expectation" leads both to misconceptions about what is being described (the tendency, as seen recently in the UK political process, to interpret that as "hours per year of the lights going out") and to ambiguity about what constitutes an hour of loss of load. PJM, for example, in some places describes their standard as 0.1 day per year (by which one might conclude that it's 2.4 hours per year) and in other places as one occurrence per ten years (without a definition of what they mean by "occurrence"). ERCOT states their standard as one "event" in ten years; a recently suggested interpretation is that an "event" is one hour when available resources, after the exercise of all other measures available, are short of demand by 1,500 MW, on a system with a peak demand of about 65,000 MW, though that interpretation is not formally stated anywhere. Ireland states a standard of 8 hours per year, the UK and France have both stated their standards at 3 hours per year, none of them having defined (as far as I know) what would constitute an hour of loss of load (1 MW short, 100 MW short, 1000 MW short?); and Germany doesn't have an established standard at all. To evaluate the comparability of standards it would be necessary to know how in practice they would translate to something like the number of

Global US China EU
The Regulatory Assistance Project
48 Rue de Stassart Building C, BE-1050 Brussels, Belgium
phone: +32 2-894-9300 fax: +32 2-894-9301
www.raponline.org

minutes per year per meter of involuntary load curtailment, or the number of kWh per year per meter of involuntary load curtailment (sometimes referred to as Expected Unserved Energy ("EUE")). ERCOT's standard, for instance, would translate to something like 32 seconds per average year per meter of involuntary load curtailment. Not only would such a formulation be more meaningful for comparability purposes but it would render the meaning of the standard more transparent to anyone wanting to know what it is they're paying for.

2) The application of standards is fraught with potential inconsistencies. The recent UK exercise illuminated a number of such possibilities that are common to all resource adequacy processes. The methodology for assessing the potential for demand response to contribute to meeting the resource adequacy standard is far different to the methodology used in France, for instance, and the potential for DR to participate in the UK's capacity market is far different from the provisions for DR participation in the French capacity market. The assessment by DECC of the amount of existing capacity expected to contribute to resource adequacy was woefully inadequate, as even the Government's own expert panel pointed out and as become clear when the results of the auction were published. The assumed peak period availability for coal and gas plants, for instance, was in the mid 80% range, which they justified by the average performance of the GB fleet over the past 7 years. But as both the expert panel and RAP pointed out, the past 7 years was a period of significant overcapacity in the GB market and when there were no financial incentives for generators to maximize their peak period availability; any objective assessment of availability achievable when proper incentives are in place, as they presumably would be under the new capacity mechanism, would show that the likely availability of the thermal fleet is easily greater than 90% and, very likely greater than 95%. The treatment of interconnector contributions and external resources is also vulnerable to wide variations in practice. In other words, whether or not neighbouring reliability standards are "the same" is highly contingent on whether performance against the standard is assessed using consistent methodology and consistent key

assumptions. Frankly, if the UK process demonstrated anything it demonstrated the inherently arcane and opaque nature of the resource adequacy process and the fact that few people are capable of critically evaluating the outcome. One could produce pretty much any answer one wants by manipulating a number of critical factors.

3) If enforcement of the standard is actuated via the energy and balancing services markets, it is more likely that any actual difference in resource adequacy standards would settle out between the two jurisdictions in such a way that the respective consumers are getting more or less what they're paying for (which, because of market coupling, may end up being slightly different to what it is their governments decided they should be paying for, which is a somewhat different issue). If enforcement of the standard is actuated (or reinforced) by some sort of administrative capacity mechanism, then all of the inherent limitations of such mechanisms come into play in dealing with the complexities of how much of what types of capacity are actually cost effective in meeting the standards. For instance, even if two neighbouring jurisdictions have the same standard, if one ends up meeting the standard with a heavy concentration of inflexible baseload capacity and the other chooses to transition to a more flexible mid-merit intensive generating fleet, the outcome for consumers from the application of the two standards can be quite different (to some extent the current situation facing Belgium and their neighbours illustrates just this scenario).

For these reasons the need for comparability is more critically applied to the definition, application and enforcement of the standards than to the headline standards themselves.