

Issues to be Considered in a Potential Overrun Costing Model

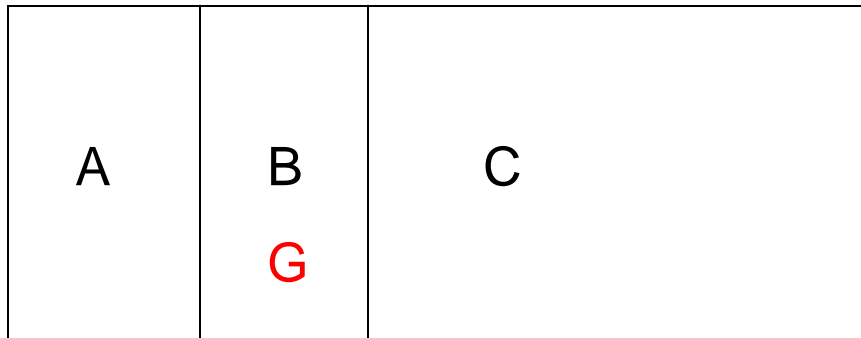
There are a number of costs and benefits that could arise from a unit overrunning. These are:

- 1a) Cost of taking bids within the constraint zone to reduce zonal output to within constraint
- 1b) Cost of buying replacement energy outside the constraint
- 1c) Cost of replacing sterilised headroom
- 2) Cost of unnecessary start up instructions
- 3) Cost of arming intertrips to increase export capability across a constraint
- 4) Benefit from voltage support
- 5) Benefit from avoided offers
- 6) Benefit to local import constraint

1 can be costed using a model such as the Balancing Actions Autopsy Report currently used by National Grid. Charging for these costs should be based on a clearly laid out hierarchy of rules. Note that this may well be a complicated model – the current BAAR process applies over 50 rules. There should be an appeals procedure where any party, including National Grid, can request a review of charges where it believes that a situation occurred that was not fairly covered by the published rules. The rules could be applied either via a fully automated process or with some manual intervention as at present, either applying judgement or just following rules.

4 – in some circumstances a start up instruction could be issued unnecessarily as a result of PNs by units indicating an intention to overrun, and then not overrunning. For example if at four hours out PNs suggest that a constraint will bite, a unit may be instructed to start to provide replacement energy. If in the event units that had indicated a likelihood of overrunning do not do so, who pays for the start up instruction? Associating an overrun charge with this cost means that a unit could incur overrun charges without actually overrunning. It would also give a perverse incentive to units considering overrunning to submit inaccurate PN data.

5 – overrunning units may result in intertrips being armed in order to increase circuit flows. It is proposed that units contributing to the need to arm the intertrip pay the arming cost divided according to the number of MW of overrun.



In the situation where there are export constraints from A to B and from B to C, with a generator in zone B intertripped to the constraint from B to C then: If A to B is not active then all overrunning generation in A and B should pay for the arming cost of G; If A to B is active, then the flow to B from A is fixed and so generation in A is not directly contributing to the need for G to be armed, and so only generation overrunning in B should pay for the arming cost. Should overrunning generators, or generators with the capability to overrun, contribute to the availability payment for the intertrip?

6 – in some situations there is a requirement to run a minimum amount of generation in an area for voltage support. This could still be in an export constrained zone. In some situations an overrunning generator may save National Grid from having to run additional generation. Should the overrunning generator get a payment for this benefit. Note that there are scenarios where the generator would still be paying overrun charges as well.

Consider a zone with an export limit of 1000 MW, with a requirement for a minimum of 700 MW of generation to be running for voltage support. Within the zone there are two 500 MW generators, A and B, each with 500 MW of TEC, and six 100 MW generators with no TEC. In the situation where A put in 0 FPN, and in the absence of overrun, National Grid would have to buy 200 MW from the generator A. With overrun, if between two and five of the smaller generators are generating at 100 MW, then there is a benefit from the overrun, as there is no need to buy energy from A. However, if the last small generator also runs, then there is 600 MW of overrun, and so National Grid would have to buy B down by 100 MW, thus giving all six small generators overrun charges.

7 – A generator overrunning outside an export constraint would reduce the need to purchase energy to replace that brought off within the constraint. Should the overrunning generator get a payment for this benefit?

8 – Similarly if a generator overruns within an import constraint it may relieve the import constraint. Should it be paid for this benefit?

Options

There are a number of alternatives that could be chosen to address the issues discussed above. These are summarised below:

Issue	Option A	Option B	Option C
1. Energy and Headroom	Fully automated system applying complex system of rules to allocate costs to overrunning generators	Partially automated system. Manual intervention but only applying pre-defined rules. Able to identify and raise abnormal events	Partially automated system. Manual intervention using engineering judgement to allocate costs as fairly as possible
2. Start up instructions	Cost of start up instruction split by volume between all overrunning parties contributing to the need to issue the start up instruction.	Cost of start up instruction split by volume below PN between all overrunning parties contributing to the need to issue the start up instruction. i.e. Generator that follows PN does not pay for start up costs	No charge. Costs socialised
3a. Intertrip arming costs	Cost split by volume between all overrunning generators contributing directly to the need to arm the intertrip (i.e. B only in diagram above)	Cost split by volume between all overrunning generators above the constraint (i.e. A and B in diagram above)	No charge. Costs socialised
3b. Intertrip availability costs	Proportion of cost that can be allocated to overrun split monthly by volume between all generators that have overrun in that month	Cost of availability split between all generators affecting the intertripped circuit with the capacity to overrun	No charge. Costs socialised
4. Voltage support benefit	Benefit paid to all overrunning generators where FPN of all generators with TEC < minimum generation required	Benefit paid to all overrunning generators where FPN of all generators with TEC between minimum generation required and export constraint	No payment. Benefit socialised
5. Replacement energy benefit	Benefit split by volume between all overrunning generators	No payment. Benefit socialised	-
6. Import constraint benefit	Benefit split by volume between all overrunning generators	No payment. Benefit socialised	-