

National Grid Electricity Transmission plc Balancing Principles Statement Review

Supplement to the Balancing Principles Statement report for
the year ended 30 September 2006

Prepared by: PricewaterhouseCoopers LLP dated 28 November 2006

**Supplement to our report on compliance with the Balancing Principles
Statement for the year ended 30 September 2006**

- 1 We have reviewed the extent to which National Grid Electricity Transmission plc (“National Grid”), in its procurement and use of Balancing Services, has complied with the Balancing Principles Statement (“BPS”) prepared by National Grid pursuant to Paragraph 5 of Condition 16 of its Transmission Licence, for the year ended 30 September 2006 (“the Year”). We have undertaken this review in accordance with the Terms of Reference, dated 8 March 2004, which have been agreed between National Grid and ourselves.
- 2 The results of our review for the Year have been communicated to both National Grid and to the Office of Gas and Electricity Markets (“Ofgem”) in our main report (“BPS Report”) which should be considered in conjunction with this Supplement.

Purpose of this Supplement

- 3 This Supplement has been prepared in conjunction with the BPS Report to provide additional details relating to the work performed in respect of the compliance by National Grid with the BPS.
- 4 This Supplement describes the review approach adopted by us in our role as the Balancing Principles Statement Auditor.

Use of this Supplement

- 5 This Supplement is intended solely for the use of the Directors of National Grid and Ofgem. While we acknowledge that this Supplement will be published on the National Grid website, this is for information purposes only and we do not intend that it should be relied upon by anyone other than the parties mentioned above.
- 6 The maintenance and integrity of the National Grid website is the responsibility of the Directors of National Grid. The work that we carried out does not involve consideration of the maintenance and integrity of that website and, accordingly, we accept no responsibility for any changes that may have occurred to this report since it was initially presented on the website.
- 7 This Supplement has been prepared in the expectation that National Grid and Ofgem will have sufficient experience of Balancing Services to understand the issues raised without further background explanation and to evaluate the contents of this report in the context of the scope of our work.

Review approach

Objective and scope of the BPS Review

- 8 The BPS sets out, at a high level, National Grid's obligations and responsibilities in respect of the management of supply and demand over the national transmission network and has been written to be consistent with National Grid's licence obligation to "operate the licensee's Transmission System in an efficient, co-ordinated and economical manner".
- 9 The objective of our review, as set out in our Terms of Reference, is to form an independent opinion based on our review work as to the compliance of National Grid, in all material respects, with the BPS in respect of the use of Balancing Services for the Year.
- 10 For the period 1 October 2003 to 31 August 2004 Condition C1 of National Grid's Transmission Licence defined Balancing Services as:
 - (a) "Ancillary Services;
 - (b) offers and bids made in the Balancing Mechanism; and
 - (c) other services available to National Grid, which serve to assist it in operating the Transmission System in accordance with the Electricity Act 1989 or the Transmission Licence and/or in doing so efficiently and economically."
- 11 With effect from 1 September 2004 Condition C1 of the Transmission Licence was amended such that it defined Balancing Services as follows:
 - (a) "Ancillary Services;
 - (b) offers and bids made in the Balancing Mechanism; and
 - (c) other services available to the licensee which serve to assist the licensee in operating the licensee's transmission system or co-ordinating and directing the flow of electricity onto and over the GB transmission system, as appropriate in accordance with the Act or the standard conditions and/or in doing so efficiently and economically, but shall not include anything provided by another transmission licensee pursuant to the System Operator - Transmission Owner Code."
- 12 The scope of our review covered:

- (a) the receipt and validation (including application of default data) of Physical Notification (“PN”) data;
 - (b) the consistency of demand and operational data provided to market participants during the Day Ahead and within day balancing processes to data used internally by National Grid and confirmation that the required timetable for the issue of this data has been met;
 - (c) the call off of Balancing Services in cost order during the day-ahead balancing process. Balancing Services to include Ancillary Services active power contracts only;
 - (d) the call off of Balancing Services in cost order during the within day balancing process. Balancing Services to include Ancillary Services active power contracts and accepted Bids and Offers in the Balancing Mechanism including Pre Gate Closure BMU Transactions (“PGBTs”); and
 - (e) National Grid’s adherence to internal operating procedures for activities that impact the call off of Balancing Services during the day-ahead and within day balancing processes. For the avoidance of doubt, this includes internal operating procedures that relate to the management of transmission constraints and response/reserve holdings during the day-ahead and within day balancing processes.
- 13 For the purpose of clarity we note that, in assessing internal operating procedures relevant to the above activities, those aspects that involve engineering decisions that National Grid make are expressly excluded from the scope of our review, as agreed with National Grid.
- 14 In agreement with National Grid we have excluded from the scope of our review the procedures of National Grid which address the following activities described in the BPS:
- (a) Emergency Instructions and Involuntary Reductions as described in the Grid Code for use in preserving system security in exceptional circumstances;
 - (b) operational planning activities undertaken prior to the Day Ahead stage;
 - (c) engineering decisions taken in the calculation of transmission constraints and response/ reserve holdings;
 - (d) engineering decisions made in the call off of Ancillary Services or acceptance of Bids and Offers in the balancing mechanism;

- (e) the procurement of Balancing Services to provide services to external system operators via System-to-System Services;
 - (f) acceptance of arbitrage trades made within the Balancing Mechanism;
 - (g) the management and planning of transmission system outages; and
 - (h) the use of 'other services' as referred to in the definition of Balancing Services in paragraphs 10 (c) and 11 (c) above.
- 15 For the avoidance of doubt, it is not the responsibility of the BPS Auditor to:
- (a) confirm that the BPS is consistent with legislation/statutory obligations;
 - (b) confirm that system security has been maintained at all times; or
 - (c) review the accuracy of forecast demand as prepared by National Grid compared to actual demand.
- 16 In interpreting the BPS, we have relied on our own interpretation of that statement. We are not legal advisors and have not taken independent legal advice and shall therefore have no responsibility to National Grid or Ofgem were a court to interpret or construe the BPS in a different way from us.

Call-off of Balancing Services in cost order

- 17 As described above, we are required, as part of our review, to assess whether Balancing Services have been called-off in cost order. Part C paragraph 5 of the BPS, recognises that under certain circumstances it may not be possible to call-off Balancing Services in cost order and lists these circumstances. We have discussed the interpretation of cost order with National Grid as it relates to our review and have agreed that we should apply the following assumptions to our review of the call-off of Balancing Services:
- Balancing Services called-off during the "day ahead" balancing process (Ancillary Services active power contracts) have been selected based on lowest cost over the next 24 hour period;
 - Balancing Services called-off during the "within day" balancing process (Ancillary Services active power contracts and accepted Bids and Offers in the Balancing Mechanism) have been selected based on lowest cost over the subsequent 'Gate Closure period' following the service being called-off. The term 'Gate Closure period' is defined as the length of time between Gate Closure for a given Settlement Period and the end of that Settlement Period;

- Where it is not possible to call-off Balancing Services in cost order, Part C paragraph 5 of the BPS states that National Grid may take account of the '*observed and declared dynamic operating characteristics of available generation and demand Balancing Services*'. During the course of our work we have assumed that the observed operating characteristics, are those characteristics observed by National Grid since NETA 'go-live' on 27 March 2001; and
- We have assumed that PN data forms part of the '*observed and declared dynamic operating characteristics of available generation*'. As such, we have assumed that actions taken by National Grid to mitigate risks to the security of the Transmission network arising from abnormal PN data is within the scope of Part C paragraph 5 of the BPS.

Review approach

- 18 Our review approach consisted of the following, in respect of National Grid's use of Balancing Services:
- (a) reviewing the computer systems and/or internal operating procedures that National Grid have in place that relate to the use of Balancing Services;
 - (b) testing on a sample basis to the extent we considered necessary, the ongoing operation of the relevant computer systems and/or internal operating procedures during the period subject to review; and
 - (c) testing on a sample basis to the extent that we considered necessary, the data processed by the relevant computer systems and/or internal operating procedures during the period subject to review.
- 19 We designed our testing to provide reasonable assurance that the call-off of Balancing Services during the year subject to review has been carried out in accordance with the sections of the BPS within the scope of our review.
- 20 In undertaking our review, we assessed the risk of a material non-compliance of the areas of the BPS within the scope of our review. In areas where we have identified specific risks, or where weaknesses have been identified in the operation of specific internal controls, these compliance tests have been supplemented by substantive tests of detail of the relevant underlying data.

- 21 We selected eight Settlement Days for testing in the Year. The selection of the particular days reviewed was based solely on our assessment of risk. It represented a mixture of “normal” days and other days where we identified unusual factors (e.g. weekends, clock change days or days around a specific event) which, in our view, represented a risk as to compliance with internal operating procedures.
- 22 In respect of our review of accepted Bids and Offers in the Balancing Mechanism we selected and reviewed 48 half-hour periods drawn from the eight sample days selected per paragraph 21 above. Our selection of half-hour periods reviewed was weighted towards periods of high activity in the Balancing Mechanism and also where accepted Bids and Offers resulted in higher System Buy Prices or lower System Sell Prices.
- 23 Throughout our work, we continued to monitor developments that impact upon the call-off of Balancing Services and where we identified a resulting risk in respect of our review we assessed the risk and determined an appropriate response.

Materiality

- 24 We have planned and performed our review so as to be able to provide reasonable assurance that National Grid has used Balancing Services in all material respects in accordance with the BPS.
- 25 The assessment of what is material, and therefore what issues, if any, warrant inclusion in the BPS Report and this Supplement, is a matter of professional judgement. However, in applying this professional judgement, we have judged a failure on National Grid’s part to comply with the BPS as being material if, in our opinion, a reasonable professional person, considering National Grid’s adherence to the BPS in the round, would form a different view as to whether National Grid had complied with the BPS dependent as to whether or not the matter was disclosed to them. In applying this judgement we took into account the following factors:
- (a) the extent to which the actual outcome would have been different had the principles set out in the BPS been applied;
 - (b) the surrounding circumstances at the time(s) of any failure to comply with the BPS;
 - (c) the aggregate impact in the period of any failure to comply with the BPS; and

- (d) the relative significance of the particular provision of the BPS that we have failed to comply with.

More detailed description of review work undertaken

- 26 The review work that we have carried out can be divided into the main areas shown below.

Receipt and validation of Physical Notification data

- 27 Validation/accepted data:

- Sample tested accepted data items, confirming data complies with required validation rules;
- Reviewed validation controls built into file transfers (e.g. record counts, hash totals etc.); and
- Identified and sample tested key management controls over quality of data and, where relevant, sample tested any instances where validation rules have been overridden for a valid reason.

- 28 Default data:

- Sample tested data items that have been defaulted to check that the correct default data has been applied; and
- Sample tested defaulted data items to check that a valid PN data submission had not been made by the relevant market participant.

- 29 Incidents/exceptions:

- Reviewed a sample of incidents where electronic transfer had been interrupted and of the actions taken designed to prevent data files being lost/duplicated;
- Reviewed a sample of correspondence/help desk queries from market participants questioning rejection of a data file; and
- Sample tested rejected items to check that data was rejected for a 'valid' reason.

The consistency of data provided to market participants during the “day-ahead” and “within-day” balancing processes to data used internally by National Grid

30 Accepted items and controls:

- Sample tested data items to check that the data had been submitted to the Balancing Mechanism Reporting Agent (‘BMRA’) directory in the required timescales;
- Sample tested data items, reviewing evidence that procedures have been complied with (e.g. sign off of checklist, evidence of review and approval of value);
- Sample tested controls over input of data to SORT/SPICE (e.g. sign off of input, one-for-one checking); and
- Sample tested data items to check values reported to BMRA to data input sheets.

31 Incidents/exceptions:

- Reviewed a sample of any complaints/disputes raised by market participants to identify any that related to the late provision of data; and
- Reviewed a sample of operational log/fault log for IT systems to check for any system failures that had resulted in late delivery of data.

The call-off of Ancillary Services contracts in cost order during the “day-ahead” balancing process

32 Accuracy of data available:

- Checked for a sample of days that the list from which contracts had been selected agrees to a list of contracts in place at that time;
- Sample tested days to confirm that the assessment of the need for warming contracts had been carried out as required and documented in procedures;
- Confirmed for the sample of days evidence of management’s review and approval of decision; and
- Sample tested warming contracts called, to check that the decisions had been made in accordance with documented procedures.

33 Analytical review:

- Sample tested warming contracts called, to check the cost of contract compared to others available that met geographical or constraint limitations.

The call-off of Balancing Services in cost order during the “within-day” balancing process

34 Accuracy of data available:

- Confirmed for a sample of days that the list from which Ancillary Services contracts had been selected agreed to a list of contracts in place at that time;
- Sample tested days to confirm that the assessment of the need for Ancillary Services contracts had been carried out as required and documented in procedures;
- Sample tested Ancillary Services contracts called, to check that the decision had been made in accordance with documented procedures;
- Confirmed evidence of management’s review and approval of decision; and
- Sample tested PGBTs issued to check that the decision to issue the PGBT had been taken in accordance with the documented procedures.

35 Analytical review:

- Sample tested Ancillary Services contracts that had been called to review cost of contract compared to others available that met geographical or constraint limitations;
- Sample tested Bids/Offer to check that the “operational plan” indicates that balancing measures had been required and that the Bid/Offer accepted met requirement stated in the plan;
- Sample tested Bids/Offer accepted to check the preparation of the “operational plan” that identifies the need for balancing measures and check that this had been prepared in accordance with documented procedures;
- Sample tested Bids/Offer to confirm whether accepted Bid/Offer had been the least cost of the Bids/Offer available. Where this was not the case, reviewed any explanation provided by National Grid control

engineers and checked this explanation against the available information. We reviewed explanations provided by National Grid for instances where the least cost Bid/Offer was not accepted for reasonableness. We are not, by profession, engineers and our challenge on engineering decisions was therefore limited as to whether the explanation seemed to us reasonable;

- Reviewed for the sample of days evidence of authorisation/post-event review of decision by management;
- Reviewed analytically Bids/Offer accepted over the course of review period to seek to identify whether any Balancing Mechanism Units appeared to be selected more frequently than others;
- Sample tested the PGBTs issued to check that such an action was appropriate in view of the operational plan produced;
- Sample tested the PGBTs issued to check that a suitable number of PGBT Offers had been received by National Grid prior to the decision to select a specific generating unit, and that the PGBT issued formed part of the least cost solution, subject to constraints, and displayed no bias.

General IT Controls Testing

- 36 The majority of transactions regarding input and output of data are sent and processed electronically. Consequently, significant assurance over these procedures was obtained by reviewing the strength of the IT controls existing over these areas.
- 37 Our review focussed on the following in respect of controls over SPICE and SORT:
- security administration;
 - software change control;
 - logical access control;
 - computer operations;
 - contingency planning; and
 - physical security.