THE ELECTRICITY RULINGS PANEL **DECISION No. 1**

IN THE MATTER of the Electricity Act 1992 and its amendments, and the Electricity Governance Regulations 2003

AND

IN THE MATTER of a hearing on penalty against Transpower New Zealand Ltd acting as system Operator in relation to an admitted breach of rule 1.3.4.5 (now Rule 1.3.4.7) of schedule G6 of Part G of the Electricity Governance Rules 2003 as a result of the incorrect remodelling of the Otahuhu substation in the SPD model.

Rulings Panel Members
Neville Young - Chair
John Isles
John O'Sullivan
Gael Webster
Craig Taylor

Appearances for Electricity Commission
David Pay, General Counsel
Airihi Mahuika, Legal Counsel
Darryl Renner, Senior Advisor
Chadvar Petkov, Senior Investigator
Peter Wakefield, Investigator

Appearances for the System Operator
David Laurenson, Barrister
Chris Browne, Corporate Counsel
Fiona Abbott, System Operator
Dan Twigg, System Operator

Observer from Genesis Energy
Peter Kimber, Wholesale Market Manager

Date and Place of Hearing
26 July 2005
EQC Boardroom

DECISION OF THE RULINGS PANEL

Context of this Decision

Under Part 8 of the Electricity Regulations 2003 (the 'Regulations') the Rulings Panel (the 'Panel'), an independent body corporate appointed by the Electricity Governance Board (referred to as the Electricity Commission (the "Commission")), is given the function to decide complaints referred to it under the Regulations that a participant has committed a breach of these Regulations or the Electricity Governance Rules (the 'Rules').

This was the first hearing of the Panel and concerned a formal complaint referred by the Commission under the Regulations. All five members of the Panel have made this decision.

Referral of the Complaint to the Panel

The complaint concerns a breach of the Rules by the System Operator, which was self-reported on 22 June 2004. The matter was opened as a formal investigation by the Electricity Governance Rules Committee (a sub-committee of the Commission) after its' meeting on 18 August 2004. The investigation was notified to the System Operator and the market participants pursuant to Reg 74 and 75 on 20 August 2004. Contact Energy Limited joined the investigation as an affected party. The Investigator provided his report to the Electricity Governance Rules Committee in which he recommended that it approves the settlement in principle reached by Contact Energy Limited and the System Operator. The Electricity Governance Rules Committee recommended to the Electricity Commission not to approve the settlement but to lay a formal complaint. The Commission at its meeting held 31 May/1 June 2005 rejected the proposed settlement on the matter under Regulation 84(2)(b) and determined to lay a formal complaint with the Panel.

The Commission's recorded reasons for the referral of the complaint to the Panel were that:

- The modelling error was substantial and had remained undetected for some time;
- The error had caused increased costs to participants; and
- The Commission was concerned that the proposed settlement fell short of providing a meaningful remedy for the parties to the settlement and did not appear to contain appropriate performance incentives on the System Operator to comply with the Rules in the future.

Under Reg. 103, the Panel wrote to the investigator seeking further information, all correspondence, and a response to various questions it raised. This was provided to the Panel and the parties. All documents relied on by the Panel are noted at the conclusion of this decision. Contact Energy Limited ('Contact') did not make a submission or appear at this hearing.

The complaint: breach of rule 1.3.4.5

The complaint concerns the admitted breach by the System Operator of rule 1.3.4.5 of schedule G6 of Part G of the rules in that the System Operator failed to use revised availability information from the grid owner and therefore incorrectly modelled the Otahuhu Bus tie (OTA_TIE.2_3) between 1 March 2004 and 18 May 2004.

Rule 1.3.4.5 of schedule G6 of part G provides as follows:

1.3 Inputs used at each stage

This schedule will be provided using the following **input information:**
…

1.3.4 Dispatch schedules

Where this schedule is to be used as a **dispatch schedule**:
…

1.3.4.5 From grid owners

Information from the **grid owners** (rule 5 of section II of part G) and any revised information from the **grid owner** (rule 5.5 of section II of part G) about:

(a) The AC transmission system configuration, capacity and losses;

(b) The **HVDC link** configuration, capacity and losses; and

(c) Transformer configuration, capacity and losses;

This rule refers to the requirement to include certain inputs from the grid owner in the dispatch schedule. The System Operator admitted incorrectly modelling the Otahuhu bus tie in the Scheduling Pricing and Dispatch model (SPD) resulting in a failure to use revised availability information regarding OTA_TIE_2.3.

Factual Background

The essential facts giving rise to the admitted breach were not in dispute between the parties.

On 17 May 2004, the System Operator performed a manual review of the 19.00 pre dispatch schedule, which showed the OTA T2 transformer as binding in the schedule during a planned outage on the Penrose T10 transformer from 7:00 to 15:59 hours on 18 May 2004 and several branches in constraint in the Auckland region**.**

To determine the source of these constraints, the System Operator undertook a review and analysis of all branches in the SPD model.

At approximately 00:35 hours on 18 May 2004, the System Operator discovered that the Otahuhu bus tie had been incorrectly modelled in SPD. That is, it became apparent that one of the old OTA branches (OTA_TIE_2.3) which was supposed to have been permanently deactivated, had in fact been deactivated for only the 12:00 trading period on 24 November 2003. This meant it was accessible to the model from 1 March 2004 and had remained active from then until it was deactivated at approximately 00:59 on 18 May 2004 (within 25 minutes of its detection).

The OTA configuration had been remodelled in the SPD model in July 2003, and as a result of human error in this complex manual input process the incorrect MW branch flow maximum was inserted and the branch was not permanently deactivated. The changes were checked by a peer review when they were made, that process was also manual and the error on the OTA_TIE_2.3 was not detected. This new OTA configuration was activated on 24 November 2003.

Extent of the modelling error

In the Commission's view, the branch flow maximum should have been modelled at zero (i.e. deactivated), whereas it was modelled at 2000 MW.

There was some discussion about the nature and extent of the modelling error in the hearing.

The Commission had initially submitted that this was a substantial modelling error, whereby it could be considered that unlimited electricity flowed (given that 2000MW is substantial), whereas no electricity should have flowed for modelling purposes.

The System Operator submitted that this view was 'not soundly based as the 2000MW figure does not relate to the actual flow of electricity and is completely irrelevant to the materiality of the error. Rather it indicates a zero impedance branch (a branch with no losses)- a 'switch' in the model that is either in or out. The value use for such a switch could just as easily be 100MW and it would still work correctly in the model. The 2000MW figure is consistently used to flag zero impedance branches.' The error was leaving the branch activated in the model rather than the ascribed MW number.

Audit and introduction of Time stamping

The System Operator commenced an audit of the SPD model on 21 March 2005, which took six weeks to complete, and one other modelling error (related to the Papanui transformer) was discovered.

At the hearing the System Operator explained how a process known as time stamping had been implemented which removed the need to enter constraints in order to manage activation or deactivation changes to be made in a branch. This process therefore simplifies the complex process of remodelling the SPD, and thus greatly reduces the chances of a similar event reoccurring.

The System Operator confirmed in writing to the Panel that it had been considering the implementation of time stamping to improve the SPD model well before this breach occurred. An investigation report into time stamping had been released in April 2003, and the development project for time stamping began in October 2003. Implementation commenced in July 2004 and was completed in mid September 2004 at a cost of approximately $470,000.

Market impact assessment

No power system security impact was alleged as a result of the breach, but it had some market impact.

To determine the market impact, the Pricing Manager and then Clearing Manager were asked for re-calculated prices for the period, on the basis that the OTA_TIE_2.3 branch flow maximum should have been set as zero from 00.00hours on 1 March 2004 to 00:59 hours on 18 May 2004, to reflect how the OTA_TIE_2.3 should have been correctly represented in the SPD model (rather than at 2000 MW). This has the effect of removing the OTA_TIE_2.3 from service in the model as if it had been deactivated. (Refer letter System Operator to MCo 10 September 2004.)

This market impact assessment showed that, collectively, generators were overpaid by $13,331, purchasers were overcharged by $106,366, and loss constraint excess payments overpaid by $93,035.

There was some discussion in the hearing concerning the exact market impact; the System Operator preferring the lower figure of $93,000 on the basis that only the net losses should be considered where a participant was both a retailer and generator.

Submissions

Submissions on penalty were presented in writing and orally. It was agreed by both parties that Regulation 116 precluded the Panel from making an order to pay a sum of compensation to any affected participants given that such compensation would require a recalculation of final prices.

The Commission sought a civil pecuniary penalty at the low-moderate end of the scale and /or an order to pay the costs of approximately $7,620 in hiring the Clearing Manager to carry out the market impact assessment.

The main arguments put forward by the Commission for imposition of a penalty were:

- That the modelling error was substantial as branch flow maximum was modelled at 2000Mw instead of zero.
- The error remained undetected for nearly three months after the commencement of the Rules. (It had predated the Rules occurring in July 2003- but such period was outside the jurisdiction of the Panel).
- There was no review/audit planned to detect any existing errors prior to the Rules coming into force. The Commission considers that it would have been prudent to carry out such a review prior to the Rules coming into effect, or to have planned a review shortly after the Rules came into effect, rather than to react in relation to a particular breach.
- That the delay of ten months to undertake this review was unacceptable as the System Operator should have been put on notice of potential pre-rule modelling errors in the SPD model.
- Whilst it is arguable each dispatch schedule was a separate breach of the rule, it agrees with the System Operator that the continuing nature of the breach can be taken into account and reflected in the level of the penalty.
- Though the market impact was moderate; the significance of the financial effect of the breach should not be lessened by the fact the breach continued over a long period instead of, for example, over one (trading) period.
- It is appropriate to assess the effect on purchasers and generators in their different capacities, as generators and retailers are separate participants in the market.
- The similar breaches of the rules by the System Operator should be taken into account.

The main arguments submitted by the System Operator against imposition of a penalty were:

- The breach was the result of an inadvertent human error made during the very complex process of remodelling the configuration of the Otahuhu substation in the SPD network model.

- The breach was self-reported after thorough internal investigation.
- The breach was corrected 25 minutes after detection.
- The market impact of approximately $93,000 was very low given that the breach existed for nearly three months.
- Time stamping has been implemented so that constraints are no longer required to manage branch activations and deactivations.
- There was no benefit to the System Operator as a result of the breach.
- The 2000MW figure does not relate to the actual flow of electricity and is completely irrelevant to the materiality of the error.
- A full audit of SPD after commencement of the rules, or the OTA change was not necessary in view of the resources required to undertake the review and the System Operator's preferred approach of addressing a defect once detected.

Panel may make certain orders

Under section 172KE the Panel may make certain orders. The Commission sought a civil pecuniary penalty and/or costs, which are considered below.

Under section 172KE (2) the Panel must take into account its previous decisions in respect of similar situations previously dealt with by the Panel or the Commission. This is the first decision of the Panel and we received no submissions with respect to prior decisions that may have been made by the Commission.

Factors to be taken into account when determining penalty

Under Reg 109 (2) the Panel must take into account the level of civil pecuniary penalties it has ordered in any similar situations, which cannot be applicable in our first decision, and must seek to order payment of a civil pecuniary penalty that is commensurate with the seriousness of the case.

In making that assessment the Panel has had regard to the following matters as required under Reg 109(3).

(a) Severity of the breach
In our view the breach is not severe. This error related to one minor asset modelled in the SPD. If it had been a significant error, the Panel considers it would probably have been identified in the next trading period. The fact that the error remained undetected for around two and half months tends to support this finding.

The Commission submissions (paras 10 - 14) focussed on the branch flow being modelled at 2000MW as evidence of severity. However the System Operator's explanation in regard to this (as a proxy for a non-operative asset) was not challenged by the Commission at the hearing and supports the Panel's conclusion that the System Operator's explanation was correct.

(b) Impact of the breach on other participants
The impact on other participants is at the low end of the scale. The gross dollar impact was circa $100,000 which, over the period of the breach (two and a half months), had an average effect on the market of around $15,000 per week.

The Panel agrees in principle with the Commission that the gross amounts are as important as net amounts because participants may have at least two different market functions. However, the point was not argued before us in detail and the only parties before us were the Commission and the System Operator. We have no doubt that this issue will be argued before us in later hearings with broader representation, but we have not been required to determine this issue in this decision.

(c) The extent to which the breach was inadvertent, negligent, deliberate or otherwise
We find that the breach was inadvertent.

(d) The circumstances in which the breach occurred
This breach occurred at the time the Regulations and Rules came into force. The System Operator states that it takes no comfort from the fact the modelling error occurred before the start of the Rules and the Panel accepts this.

However, we concur with the Commission's view that given the fact that inputs are manually entered in SPD and that the System Operator is aware that this creates a risk of errors that cannot be completely eliminated, the Commission considers that it would have been prudent to carry out such a review prior to the Rules coming into effect, or to have planned a review shortly after the Rules came into effect, rather than to react in relation to a particular breach. We would have thought that specific data relating to an asset and its capacity would have been routinely checked in the normal course of operations, regardless of the Rules' existence.

We note there was a difference of view whether such an audit would have been onerous. When the System Operator did in fact carry out the review it took approximately 6 weeks.

In our view the issue is whether there needs to be regular audit checks undertaken by the System Operator, rather than as a reaction to a breach of the rules. This issue needs to be further considered by the parties.

(e) Any previous breach
The date of the breach was the first day that the regulations came into force - i.e. the 1st of March 2004 (the error being a pre-existing error that was carried over from the previous regime) and thereafter until it was discovered. The input error was made on that date and had effect until it was discovered and rectified.

On that basis there could be no previous breach of the Regulations.

(f) Whether the participant disclosed the matter to the Commission
The System Operator self- reported this breach to the Commission.

(g) The length of time the breach remained unresolved
The breach remained undetected and therefore unresolved for a period of two and a half months. Once the System Operator detected the breach it was quickly resolved.

The Rules require us to consider the number of breaches and it could be considered that a single event, which has multiple effects over succeeding trading periods, constitutes multiple breaches. To some extent, whether a breach is singular or multiple depends on the facts of the case. In this instance, parties have proceeded on the basis of there being a single breach that continued for a significant length of time.

(h) The participant's actions on learning of the breach
Firstly, the System Operator fixed the initial input to the model within approximately 20 minutes. Secondly, in September 2004 the System Operator introduced time stamping to improve the robustness of the grid modelling process. We are advised that this model change was underway before the incident occurred. Thirdly, an audit directed at matching the actual physical assets with those contained as inputs in the model was undertaken in May 2005.

We are advised one other error was uncovered.

(i) Any benefit that the participant obtained, or expected to obtain, as a result of the breach
In our view there was no benefit to the System Operator.

(j) Any other matters
The Panel did not think it appropriate to consider subsequent and similar breaches as being relevant to fixing redress or penalty.

The Panel acknowledges that one of the Electricity Commission's reasons for referring the complaint was its concern that the proposed settlement between Contact and the System Operator fell short of providing a meaningful remedy for the parties to the settlement and does not appear to contain appropriate performance incentives on the System Operator to comply with the Rules in the future.

The parties' rationale for the proposed settlement was that given compensation for the breach would involve a recalculation of final prices, no compensation for direct loss is available to Contact (unless voluntarily offered by the System Operator) due to the operation of Reg. 116. Further, that the only financial order available to the Panel is to order the System Operator to pay a penalty, which did not assist Contact in recovering its direct losses and therefore there was little value in Contact pursuing the matter further.

The Panel is aware that Reg 116 originated from a rule introduced into the NZEM rules after lengthy deliberations by participants on the issue of material financial disadvantage requiring a recalculation of final prices before the Market Surveillance Committee. This rule has been continued under the Regulations. The Panel considers itself barred from ordering compensation in this case due to Reg 116, but has given thought as to the consequence of this Regulation.

It allows losses to lie where they fall and prevents redress to parties who may have suffered significant financial loss as a result of a breach of the Rules by another participant. The imposition of a penalty up to $20,000, which is paid to the Electricity Commission and not the aggrieved party is not likely in itself to encourage the referral of a complaint to the Panel nor does it necessarily provide appropriate performance incentives to comply with the Rules.

The Commission and industry participants may wish to consider the appropriateness of Reg 116 in the context of the new regime.

Conclusions

a. There was an admitted breach flowing from an input error followed by an incorrect application of the SPD Model.

b. Having considered the submissions from both parties on the level of the penalty, we came to the view that the breach warranted a penalty of $1000, as there was a modelling error which had remained undetected for some time, and that error had caused increased costs to some participants. We fix that sum as the civil pecuniary penalty to be paid by the System Operator.

c. The Panel decided no other orders were appropriate.

Consideration of matters to be taken into account under Reg 111:

Neither party made any representations that there were matters that the Panel should take into account under Regulation 111 when determining the System Operator's liability.

The Panel notes that the heading of this regulation refers to security issues, but the text does not.

We do not consider that Regulation 111 has any bearing on our consideration of the System Operator liability in this complaint.

Costs

The Commission sought the costs it incurred in getting the Clearing Manager to carry out the market impact assessment, of approximately $7,620.

Regulation 88(2) (g) requires the Investigator's report to the Commission to include an assessment of the impact of the conduct alleged to constitute the breach on the other participants. The System Operator had provided an approximate assessment of the impact from some random samples but this was not satisfactory.

It would appear that an accurate assessment of the impact could only be derived from the Clearing Manager.

The System Operator has indicated by letter to the Electricity Commission dated 23 June 2005 that it does not intend to provide 'market impact' information to the Investigator in the future, as it is not well placed to provide the complete market information required. It considers that this should be obtained from the Clearing Manager who has access to final pricing and all relevant information.

The need for a market impact assessment is likely to arise in most cases where there is a formal investigation. The reason for requiring such an assessment arises due to an alleged or admitted breach of the rules. We anticipate that it is likely to be a regular claim in hearing for breaches of the rules.

Without foregoing its right to consider each case on its own merits, the Panel has considered whether this cost is a compliance and enforcement cost attributable across the whole industry or a cost to be borne totally or in part by the participant who has breached the rules.

In this case, we reserve our position on costs as a number of issues have arisen requiring further submission. In particular the Panel seeks further information on the following matters:

1. We note that compliance and investigation fees incurred by the System Operator are recoverable under the System Operator Service Provider Agreement. We would like to know whether there are any other arrangements

where costs imposed against the System Operator by the Panel may be recovered?

2. Where costs are incurred by the Electricity Commission when an Investigator seeks a market impact assessment owing to a rule breach, where do such costs finally reside?

3 If the costs of obtaining a market impact assessment are awarded by the Panel against a participant in favour of the Electricity Commission, where do such costs finally reside?

Comments

In our view it is preferable that a draft Investigator report be sent to the System Operator and any other party to the complaint before being referred to the Electricity Commission. This would allow for any misunderstandings of a technical nature to be addressed, such as the 2000MW only being a flag/proxy, before the report is tabled for the Commission to determine whether a formal complaint should be referred to the Panel.

We consider that, where a breach is admitted, an agreed statement of fact would improve the hearing process and take this opportunity to advise the industry that this will be our preferred course in any future hearings.

There were late submissions that had an effect on the efficiency of the hearing. We have prescribed timing constraints for submissions in our procedures but if they prove to be unworkable in future hearings we will consult with the industry with a view to extending them.

The Panel wishes to thank the parties for their co-operation and their willingness to engage with the Panel as it familiarised itself with the issues.

Documents

The following documents were relied on by the Panel:

1. All documents in the Correspondence folder compiled by the Investigator
2. The Investigator's response to the questions raised by the Panel
3. The initial submission and supplementary submission provided by the System Operator
4. The initial submission, and submission on penalty provided by the Electricity Commission

Neville Young
Chairman of the Rulings Panel
Wellington
22 September 2005