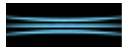




Planned Outage Co-ordination Process (POCP) Industry Review

Final Report – June 2009



1.0 Executive Summary 3

2.0 Summary 5

3.0 Introduction and Purpose 6

 3.1 Review Process 6

 3.2 Issues identified for Consideration 7

4.0 TAG consideration of issues..... 8

 4.1 Tool enhancement..... 8

 4.2 Information provision 10

 4.3 Future value 12

5.0 Next Steps..... 13

Appendix One 14

Appendix Two..... 16



1.0 Executive Summary

In December 2008, Transpower System Operator initiated its second review of the Planned Outage Co-ordination Process (POCP). The review was conducted through the establishment of a Technical Advisory Group (TAG), made up of technical specialists from within the Electricity Industry. The review and the associated meetings began in March 2009.

The intent of the review was to assist the System Operator in ensuring that POCP continues to deliver to the needs of the industry and the purpose it was designed for – “to identify, communicate and mitigate the impacts of outages” on the system security of the National Grid.

The key areas of focus for the TAG were:-

- Confirmation of the seven (7) Business Rules guiding POCP
- Quality of data, information, process and tools
- Timeliness of assessment information
- Database performance and sustainability
- Impact of changing regulations and IT enhancements
- Future proofing POCP

As in the previous review, a high level of industry engagement was achieved. The TAG was led by an independent chair, and included technical specialists from:-

- Contact Energy
- Electricity Networks Association
- Genesis Energy
- Major Electricity Users Group¹ (MEUG)
- Meridian Energy
- Mighty River Power
- Transpower Grid Owner
- Transpower System Operator
- Trustpower

¹ The MEUG representative, although not present at the TAG meetings, was included in distribution of TAG documentation



In working through the review process, the TAG concluded the following:-

- The primary role of POCP was to continue to identify, communicate and mitigate the impacts of outages on the security of the National Grid.
- The business rules underpinning the POCP were confirmed as appropriate and relevant
- The process could be improved by outage information being provided on a rolling 12 month ahead basis
- The principle of authorized access (subject to System Operator Approval) to POCP was appropriate
- That interrelationships between outages was a fundamental aspect in the outage planning, and that such relationships should be transparent to users. The group recommended an adaptation of the data structure to include parent/child relationships would be beneficial. It was acknowledged that this may require structural changes to the database and the way outage information is loaded by Transpower Grid Owner systems.
- Development of the New Zealand Energy Balance tool was beneficial for information purposes and seen as complementary to POCP, rather than as a replacement. It was agreed that the two databases should be linked and proposed a singular login for both systems.
- For transparency purposes, the POCP database should remain on an independent IT platform (currently Redspider), as it is an industry based tool which is managed by the System Operator for the benefit of the whole industry.
- MSP and the introduction of the Outage Protocol were not envisaged as having a negative impact on the POCP database or process.
- The ability to undertake a “post-outage” review was an important aspect of planning and understanding the impact of outages on the National Grid. The TAG proposes a “completed” status flag be added to the tool Information relating to any mitigation measures or agreements used for specific difficult outages be added into the comments section.
- Future initiatives such as demand side participation (DSP) should be considered in the next POCP review
- Encouraging full participation with POCP needs to be part of the ongoing review objectives.



2.0 Summary

The Planned Outage Coordination Process (POCP) has functioned successfully since its inception in 2003. On 18 December 2008 Transpower invited industry representatives to participate in the second review of POCP. The review process was initiated in March 2009 and the first review meeting was held on 09 April 2009.

This report summarises the discussion and outcomes from the TAG review of POCP. Meeting minutes, presentations and related documentation are all available from the system operator website (<http://www.systemoperator.co.nz/planned-outage-coordination-process-review>)

The more significant Review discussion is summarized in the following three sections; “Tool enhancements”, “Information Provision” and “Future value”.

Tool enhancements

A number of minor database, process and document clarifications were identified and implemented, or have been proposed to the System Operator for implementation as a result of the review. Ongoing liaison and engagement between the System Operator and industry participants, especially in relation to IT developments, was confirmed as being critical to the ongoing success of POCP.

Information Provision

A key aspect of POCP for both active participants and other industry users is the information the tool provides on the impact of outages on the security of the National Grid. It was acknowledged by the TAG that while the POCP database has good functionality, it was somewhat “clunky” in terms of the user interface. Much of the discussion around information provision was how to improve access to information held within the tool through the use of filters and settings such as “favourites”.

In addition, the group highlighted key sets of additional information which would be beneficial, such as mitigation measures and interrelated outages. The inclusion of such information within the tool would allow for increased understanding of the impact of outages going forward.

Future Value

The TAG agreed that the coordination of outages via the POCP and its associated toolset was of value to all industry participants. It further noted that moving forward it would be ideal to have all industry participants taking an active interest, and participating, in POCP. The group felt that if the process and toolset did not provide some participants the information specific to their needs, then these organisations should be encouraged to become part of the next POCP review TAG.



3.0 Introduction and Purpose

The System Operator hosts a Planned Outage Co-ordination Process (POCP) where industry participants upload and view planned outages of power system assets. The Process and associated tools allow both the System Operator and industry participants to manage and coordinate outage requirements of plant and equipment, while maintaining the security of the National Grid.

The original POCP was established in September 2003 by an industry forum. The forum designed and established POCP, the related database and the business rules. The forum's work commenced under the Transpower Common Quality Obligations but anticipated the inclusion of the "outage coordination" requirements in Technical Code D of Part C of the Electricity Governance Rules as introduced in March 2004.

The process and underpinning database have been in successful operation since its inception. There are currently 545 registered users, with an average 18000 hits per month, and at any one time the POCP database is providing notifications of approximately 3834 planned power system outages.

A review of POCP was initiated in December 2005, and again in December 2008 as a way for the System Operator to seek input from industry on process improvement and IT development planning and implementation.

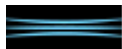
On 18 December 2008, Transpower System Operator invited industry participants to review the POCP process and associated toolset. The review process was initiated in March 2009, and the first of the review meetings were held on 09 April 2009. Meeting minutes, presentation and related documentation are available from the System Operator website.

3.1 Review Process

A Technical Advisory Group (TAG) was established as the principle tool for engaging industry participants in the second review of the Planned Outage Coordination Process.

The TAG was comprised of technical specialists from each of the industry participants who responded to the System Operators invitation to review POCP. The TAG was chaired by an independent industry consultant - Carmen Blackler.

The initial meeting provided TAG members with an update of the evolution of POCP since its inception in 2003, and as a result of the first review in 2005/06.



The TAG considered the existing process and toolset, regulation changes and current IT enhancements being implemented (and planned) by the System Operator. The group agreed a list of issues that warranted the consideration of the TAG as part of the review process. Each of these issues was addressed in turn at the subsequent TAG meetings.

Section 3.2 of this report lists the identified issues. Section 4 provides a summary of the discussion and actions for each issue.

Appendix One outlines the agreed amendments to the 7 Business Rules, which underpin the Planned Outage Co-ordination Process. Appendix Two provides a summary of areas requiring consideration at further POCP reviews.

3.2 Issues identified for Consideration

The following POCP issues were identified and prioritized by the Technical Advisory Group.

1. The ongoing role of POCP in identifying, communicating, and mitigating the impact of outages on system security of the National Grid
2. The relevance and importance of the Business Rules underpinning POCP
3. Access to POCP (open access versus authorized access)
4. Impact of changes in regulations (Outage Protocol) and introduction of new System Operator tools (MSP, NZEB)
5. Data presentation and database usability
6. Information provision
7. Increased user participation and stakeholder management
8. Future of POCP

The group agreed that the issues could be distilled into three areas of focus – “tool enhancement”, “information provision” and “future value”

The outcome of the Technical Advisory Group discussion on these issues is given in the following section.



4.0 TAG consideration of issues

4.1 Tool enhancement

The TAG agreed that POCP was a useful process, and the tool, while “clunky” was still an effective mechanism to share information relating to outages. There was some discussion around the provision of pricing outcomes as part of the POCP tool. However, it was agreed (unanimously) that there are other *market* tools available which are more suited to providing pricing information, and such information need not be included in POCP.

The TAG agreed that the primary role of POCP was to continue to identify, communicate and mitigate the impacts of outages on system security of the National Grid.

The TAG reviewed the seven (7) business rules which underpin the POCP. With the exception of a couple of clarifications within the business rules, it was agreed that the business rules were still valid and of value. The industry members of the TAG propose to the System Operator that the POCP be compiled on a rolling 12 month ahead basis. The recommended amendments to the Business Rules are attached in Appendix One.

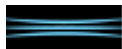
The TAG confirmed the principle of the POCP Business Rules, and have proposed some amendments.

The TAG discussed access to POCP and the change from open access to “restricted to authorized users (as approved by the System Operator)”. It was agreed that this was a sensible approach and consistent with other tools used by industry participants. Concern was raised however, as to whether restricted access would be considered anti-competitive. It was agreed that processes are in place for anyone wishing to gain access to the tool, and that authorized use (approved by the System Operator) was a cheaper alternative than being required to modify the tool with advanced security options for different types of users.

The restricted access also provided the benefit of providing the System Operator with an indication of the sustainability of the POCP database on the current platform. A significant increase in users would require the System Operator to reconsider where the POCP database is currently hosted (an independent platform with RedSpider).

The TAG agreed with the principle of “restricted access” for POCP

The TAG discussed in depth the issue of constraint information and the ability to include it within the POCP data set. The System Operator noted that the information had been removed from within POCP as it was a duplication to what was available in



Comit. The TAG members requested that a link be provided within the comments field of POCP as an alternative to the duplication of information.

It was noted by the group that the constraint information provided an indication of any “interrelationship” between various outages. The TAG agreed that instead of constraint information per se, it would be beneficial to have all the outages that are linked, to be identified within the POCP database. The group discussed the principle of a parent/child relationship with respect to outage data.

The TAG acknowledged that while the benefits of the Parent/Child data structure would enhance the functionality of POCP it would likely require structural changes to the database and the way outage information is loaded by the Grid Owner from their in-house tools (PROMS). The Grid Owner was charged with investigating this further.

The TAG recommends to the System Operator and Grid Owner, that the parent/child relationship be developed to assist in identifying inter-related outages within POCP.

The TAG discussed the ability to create a specified search of the data from POCP. As each participant may be looking for different information, it was agreed that an increase in the ability to filter in greater detail would be beneficial to the development of the tool. Filters may include by Region, participant or geographic area.

In addition, it was agreed that a “favourites” option would provide a simple and useful functionality within POCP.

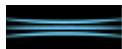
It was also agreed that the ability to “customize” the front end of POCP would be a way to encourage demand side and minor market participants to utilize and participate in the POCP.

The TAG recommends that additional filters be added to POCP, as well as the option of a “favourites” function.

As part of the functionality assessment, the System Operator demonstrated a new tool it is developing relating to the balancing of the energy market. The tool, called the New Zealand Energy Balance (NZEB), incorporates outage information that has been uploaded into POCP. The question was raised as to whether it would be better to continue to operate POCP as a standalone database or incorporate it into NZEB.

The group reviewed the NZEB tool and was generally impressed with the information both in terms of content and presentation. The TAG members agreed the two systems should be linked, but not necessarily combined. The group agreed that the user interface of NZEB was far superior to POCP, however, it was important to retain the integrity of the functionality of POCP.

Of specific interest was retaining the data structure underlying the front end. The majority of users have developed in-house tools which analysis data downloaded from



POCP. Any change to the underlying structure of the data could impact on the participants with such in house tools, and potentially increase costs to the industry should participants be required to modify their analysis tools.

The TAG agreed that POCP could be a linked page within NZEB (or vice versa) and that there should be a singular log in for both systems. The group also acknowledged that both databases are held on an independent platform, and are not part of the System Operator IT infrastructure. It was agreed that this was consistent with the POCP being an “industry” process and tool. The TAG noted this provided transparency and a sense of “impartiality” to end users. The TAG agreed that POCP should remain on an independent platform. It was further agreed that this should remain an item for further POCP review processes.

The TAG recommends the linkage of NZEB and POCP database, and the use of a singular log in for both systems. The TAG further agrees that the systems should remain on IT platforms independent of the Transpower IT infrastructure.

As part of the tool enhancements assessment, the TAG discussed the impact of the introduction of the Outage Protocol (as part of the Electricity Governance Rules) and the impending implementation of Market Systems Project (MSP).

The Outage Protocol, which begins on 01 July 2009, predominantly affects the Grid Owner, and the information that it is required to provide to the System Operator on transmission related equipment outages. It was agreed within discussions, that the Outage Protocol is unlikely to impact on the POCP, except in the fact that there are likely to be less changes to outages, due to the reporting criteria requirements of the protocol.

Similarly, the TAG discussed the impact of the introduction of MSP, and later the Simultaneous Feasibility Test (SFT) function within the tool. The information contained within POCP is an input into the System Operators Market tools, and therefore unlikely to be affected. The System Operator noted to the group, that MSP (and eventually SFT) are real time tools, whereas POCP is a planning tool. It is anticipated that ongoing improvements and/or enhancements to POCP will result in an improvement in data provision into the real time toolset.

The TAG agreed that the introduction of the Outage Protocol and MSP tool, is unlikely to have a negative effect (or any effect) on the POCP tool.

4.2 Information provision

It is the view of the TAG that information provision is the ability for participants to have access to key information (not just data) in a timely manner.

The TAG expressed concern at the timeliness of outage assessments. The group acknowledged that the System Operator was coordinating a large number of outages,



which are increasing in complexity, due to changes in investment of new assets, demand growth and the vagaries of the weather. However, it was felt that better information could be provided to participants, especially on inter-related outages and the need for constraints and/or other mitigation mechanisms to maintain system security.

Noting the reporting requirements of the Outage protocol, the TAG suggested that the timing of System Operator approval of outages be aligned to the new timetable imposed on the Grid Owner, thus creating a higher level of certainty around outages (e.g. greater than 40 days out).

It was noted that the System Operator and the Grid Owner process for engaging participants on the preparation of the annual outage plan was thorough on a one on one basis. However, the group indicated that the timing of the process was a little disjointed as it is run as an annual process with very little time between finalization of the annual plan, and the beginning of the “outage season”. The TAG proposed that the POCP could be improved by the outage information being provided on a rolling 12 month ahead process.

In addition, expanding the notification of outage plans from “up to 12 months ahead” to “a rolling 12 month ahead” basis, would create additional certainty within the Electricity market, and allow the market participants to recognize and address potential conflicts in good time (where possible).

The TAG proposes that the timing of System Operator outage approvals be aligned with the Grid Owners Outage Protocol requirements.

The TAG proposes that the outage information provided by all asset owners be on a “rolling 12 month ahead” basis.

The TAG expressed an interest in being able to review the impact of outages “post-outage”. This involves being able to extract data from the POCP database of outages that were successfully completed, and identifying any specific actions that were taken in order for the outage to proceed. To identify completed outages, an additional status category “completed” could be incorporated into the tool.

The TAG also acknowledged that with respect to difficult outages there is often a need to for mitigation measures or agreements, such as load control, to ensure the outage proceeds. The TAG identified that this information is useful, both in planning time, but also as part of a post outage review process, and therefore requested it be included in the outage assessment information held in POCP. The TAG acknowledged that the “mitigation measures” information is Grid Owner information, and is often finalized after the outage itself has been entered into POCP and the System Operator has assessed it.

At the time of writing the Grid Owner is considering the sensitivities around the release of the mitigation measure information, and how it might be added into its in-house tool (PROMS) and then potentially updated back into POCP. The TAG agreed that this was



an ongoing improvement option for POCP that should continue to be investigated and implemented if possible.

The TAG recommends that a “completed” status be added to POCP to enable post outage review. In addition, the TAG requests that any mitigation measure information also be provided in a comments field.

4.3 Future value

As noted earlier in the Report, the TAG agreed that the coordination of outages via the POCP and its associated toolset was of value to all industry participants. The TAG questioned why organisations other than the major generators and Transpower were not actively participating in the coordination process.

The TAG members noted that for transparency and consistency it would be beneficial to have more active participation in POCP, including other generators (Todd Energy and Top Energy for example), major energy users and lines companies. The TAG noted that a number of these participants use POCP for information provision, but not as a communication tool for their outage planning. The group further noted that even though some of these participants might consider themselves small in comparison, they could impact on the ability for the System Operator to maintain system security. In particular the TAG commented that the following information would have specific value in the process:-

- Interruptible load outages
- Annual shutdowns of plant (demand side & generation sets)
- Return to service information
- Commissioning of new plant (even to the level of 110kV network)
- Load shifting between nodes or the reconfiguration of a network (even to the level of 110kV network)
- Outages of reactive equipment (especially in voltage sensitive areas)

The TAG agreed that moving forward it would be ideal to have all industry participants taking an active interest, and participating, in POCP. Should the process and toolset not provide the participant with the information specific to their needs, these organisations are encouraged to become part of the next POCP review TAG.

The partial participation of industry members prompted a discussion on whether the “voluntary” status of POCP should be changed to mandatory (including a rule change within Technical Code D, Part C of the Electricity Governance Rules). The TAG members noted that while it was advantageous to have all industry members participating in POCP, it was unlikely to be achieved through making outage co-ordination mandatory. It was therefore the preference of the TAG that the status quo of voluntary participation remains.



The TAG agreed that encouraging full participation within POCP should be an ongoing objective of the Review process.

The Group discussed whether the POCP would be impacted in the future by the introduction of demand side participation (DSP), especially as it is likely major users would be active participants in that market. As the specifics of DSP are yet to be determined the group felt it was difficult to ascertain how POCP may or may not be affected. The group agreed that the development of DSP should be considered as part of the next review of POCP.

The TAG agreed that future initiatives such as demand side participation (DSP) should be considered in the next POCP review.

5.0 Next Steps

The TAG submits this report including the recommendations to the System Operator for consideration.

It is the TAG's expectation that following such consideration, the System Operator will provide a response to the TAG and the industry (in general), on the course of action it proposes to take (if any) relating to the further development of the Planned Outage Coordination Process. The TAG acknowledges that such response may include further consultation with the industry on a wider basis.

The production of this report, and the associated development of recommendations for POCP concludes the tasks assigned to the TAG as outlined in the Terms of Reference. The TAG has been disestablished at this point. It is acknowledged that the System Operator reserves the right to re-establish the TAG in the future, should the need arise.



Appendix One

Business Rules for planned outage co-ordination process

Proposed revisions as at 09 April 2009 (revisions marked as follows – revisions/amendments or ~~deletions~~)

Business Rule 1

General principles are:-

- Asset owners will use reasonable endeavours to provide accurate, up to date information about outages to the System Operator
- Asset owners reserve the right to change any planned outage

Business Rule 2

An outage is defined as

- Any asset which is not capable of the generation, conveyance or consumption of electricity

Business Rule 3

Asset owners will provide the System Operator with information about either:-

- All outages; OR
- Specific outages at the discretion of the individual asset owners

Business Rule 4

Asset owners will provide outage information to the System Operator

- Up to 12 months out from the planned outage, on a rolling 12 month ahead basis;
- As soon as practical in each instance.

The information will hold good until changed by notification from the Asset Owner

Business Rule 5

All outage information provided through the POCP will be ~~published~~ made available on the POCP website. Access to the POCP website is via the System Operator approval process

Business Rule 6

Asset owners will provide the following information:

- The asset owner's unique record ID
- The asset owner
- The asset
- Start date and start time
- Finish date and finish time
- Type
- GIP or GXP
- Change in asset capability, stated in applicable units, e.g. megawatts, megavars, amps
- Status of the outage (i.e. tentative, confirmed, cancelled, completed)



- Contact person
- Entered by (login/~~password~~)
- Category (i.e. direct connection, transmission, generation)
- Recall time
- Comments (free text)

In relation to each published outage, the System Operator will record:

- A unique POCP record ID
- The date the outage was published/modified
- The current assessment status (i.e. assessed, ~~assessed (e)~~, being assessed, changed, new, potential EGR issue)

Business Rule 7

Outage information received by the System Operator will be collated and published as soon as practical.

The System Operator will then assess the information in terms of meeting its Principle Performance Objectives

Where the assessment identifies a situation where there is a potential failure to meet the Principle Performance Objectives, then the System Operator will publish notifications of those situations (including details and supporting assumptions), and monitor responses to the notifications.



Appendix Two

Future Focus for POCP

The TAG discussed how the POCP (both the overall process and the supporting database) might develop over the next five years. Items noted were:-

In relation to the overall process

- Timing of outage assessment information from System Operator being aligned to requirements of the Grid Owner under the Outage Protocol
- The process remaining voluntary but having full industry participation
- Alignment between POCP and other System Operator IT developments (NZEBS, DSP, MSP), and singular login requirements for approved users

In relation to the database

- Additional filtering (by region, geographical zone etc), and use of Favourites functions
- Development of parent/child data structure to assist with transparency of inter-related outages
- Improving the “front end” of the POCP to make more user friendly for non-technical participants.
- Additional fields and information to enable “post-outage” analysis and review to be undertaken.