

Pan Pac Participant Rolling Outage Plan

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Definitions

AUFLS	Automatic Under Frequency Load Shedding
Authority	The Electricity Authority
Code	The Electricity Industry Participation Code 2010
developing event	An event that evolves over time, e.g. as the result of a period of unseasonably low inflows to hydro catchments
EMP	The system operators Emergency Management Policy. Current version published 9th January 2013
GXP	Transpower Grid Exit Point at which the Pan Pac load is connected
GEN	Grid Emergency Notice
immediate event	An event that occurs with little or no warning, e.g. as a result of a transmission or major power station failure
PROP	Participant Rolling Outage Plan (this plan)
Pan Pac	Pan Pac Forest Products Limited
Regulations	Electricity Governance (Security of Supply) Regulations 2008 and Electricity Governance (Security of Supply) Amendment Regulations 2009
Rolling Outages	Planned electricity disconnections spread over different parts of the electricity system at differing times to avoid prolonged outages at any one location.
SOROP	System operator rolling outage plan
Supply shortage declaration	Declaration made by the system operator under Clause 9 sub part 2 of the Code.
System Operator	Operator of the national electricity

	transmission grid (Transpower)
Transpower	Transpower New Zealand Limited
Transmission line	A high voltage supply line owned and operated by Transpower New Zealand Limited

Associated documents

1. Emergency Management Policy published by the system operator on 9th January 2013.
2. System Operator Rolling Outage Plan - Issued by the Electricity Commission on 30 September 2010
3. Pan Pac operational procedures

Purpose of this plan

4. Part 9 of the Electricity Industry Participation Code (the Code) relates to security of supply and includes provisions relating to the system operator rolling outage plan (SOROP) and participant rolling outage plans (PROPs).
5. This plan was written to satisfy the requirements of the Code that relate to PROPs. Clause 9.8 of the Code requires that each PROP must
 - a) be consistent with the system operator rolling outage plan; and
 - b) comply with the requirements specified in the notice sent under clause 9.6(2)(a); and
 - c) specify the actions that the specified participant will take to achieve, or contribute to achieving, reductions in the consumption of electricity (including any target level of reduction of consumption of electricity in accordance with criteria, methodologies, and principles specified in the system operator rolling outage plan) to comply with a direction from the system operator given under clause 9.15.
6. This PROP covers the following site:

Site name	Physical location	GXP
Pan Pac Forest Products	Whirinaki, Hawke's Bay	WHI 0220

7. This PROP provides details of how Pan Pac Forest Products Limited (Pan Pac) will respond following a supply shortage declaration and how the system operator should communicate any requests for reductions in demand to Pan Pac.
8. The outage plan provides details of the main energy saving measures that can be called on and how these are structured and implemented.

Supply shortage declaration

9. Part 9 Sub part 2 of the Code sets out how supply shortage situations will be managed.
10. Under the provisions of the Code the system operator has powers to direct outages following a supply shortage declaration. As a specified participant Pan Pac must comply with any direction given by the system operator following a supply shortage declaration.
11. A supply shortage declaration may apply to:
 - a) All of New Zealand; or
 - b) Regions specified in the declaration
12. When a supply security declaration is made Pan Pac must comply with a direction given by the system operator in accordance with this PROP.
13. The system operator may, at any time in the period during which a supply shortage declaration is in force, direct Pan Pac to contribute to achieving reductions in the consumption of electricity by implementing outages or taking any other action specified in the direction.
14. A direction may be communicated through the information system operated by the system operator.
15. The system operator will notify Pan Pac when a supply shortage declaration has been revoked
16. This PROP sets out the actions that Pan Pac will take, who is responsible for implementing the actions and how communications will be managed between Pan Pac and the system operator.

Background

The Electricity Authority

17. The Electricity Authority (Authority) is an independent Crown entity responsible for regulating the New Zealand electricity market. The Authority's objective is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.
18. The core functions of the Authority are to:
 - a) make and administer the Electricity Industry Participation Code 2010 (Code) governing the New Zealand electricity market;
 - b) undertake market-facilitation measures (such as providing education, guidelines, information, and model arrangements) and monitor the operation and effectiveness of market-facilitation measures;
 - c) monitor and enforce compliance with the Code, various regulations, and the Act;
 - d) proactively monitor the performance of the electricity industry in regard to competition, reliable supply and efficient operation; and
 - e) contract service providers to operate the New Zealand electricity system and market in accordance with the Code

Transpower

19. Transpower is a State Owned Enterprise, tasked with owning and operating New Zealand's National Grid - the network of high voltage transmission lines and substations that transports bulk electricity from where it is generated to distribution line companies and directly (grid) connected major electricity consumers.

System operator

20. As system operator, Transpower manages the real-time operation of New Zealand's electricity transmission system by matching supply (generation dispatch) with demand.

Pan Pac

21. The business of Pan Pac is: Growing, processing and marketing forest based products while providing a secure supply of competitively priced fibre for its shareholders.
22. Pan Pac produces over 220,000 tonnes of thermo mechanical wood pulp annually, a large proportion of which is used in its shareholder's paper making operation in Japan. Chip exports through the Port of Napier provide wood fibre for Oji Paper's kraft pulp and paper operations in Japan.
23. Pan Pac is wholly owned by Oji Paper, one of the largest pulp and paper producers in Japan.

Security of supply events covered by this plan

24. In its Emergency Management Policy the system operator provides the steps that the system operator will take and the circumstances that will need to exist for a supply security declaration to be made. Those steps provide for a series of last resort emergency measures, which would not be implemented unless there was a significant risk that it would not be possible to meet the demand for electricity on a sustained basis.
25. The types of event likely to require the implementation of the EMP include an extended period of extremely low inflows to hydro catchments, a major asset outage that was expected to be sustained for a long period, or some combination of these events.
26. The EMP describes two categories of events that could lead the system operator to make a supply shortage declaration these are:
 - **Developing Event** – Events that evolve over time – for example as the result of a period of unseasonably low inflows to hydro catchments; and
 - **Immediate Events** –. Events that occur with little or no warning – for example as a result of a transmission or major power station failure, the impact of which are expected to extend over a period of weeks rather than days.
27. Rolling outages under a supply shortage declaration are a last resort measure the system operator may initiate, after consultation with the Authority, only if there is a shortage of electricity supply (generation) or transmission capacity if the system operator considers:
 - a) that the normal operation of the wholesale market is, or will soon be, unlikely to facilitate the adjustment of supply and demand necessary to ensure that supply matches demand; and
 - b) that, if planned outages are not implemented, unplanned outages are more likely than not.

Full information & partial information PROPS

28. The System Operator Rolling Outage Plan sets out the following requirements for direct connect PROPs.

Full information plans: *These plans must contain sufficient information for the system operator to make a decision on the most appropriate savings target for the direct-connect user.*

A direct-connect user's full information plan must inform the system operator about:

- the nature of the load on site;

- whether any load is used to provide other services to the electricity sector such as interruptible load;
- the extent to which different levels of savings can be achieved;
- the nature of the measures that could be implemented; and
- the cost associated with different levels of savings.

Partial information plans: These plans may contain some of the information required for full information plans. If the system operator sets a savings target for a region where there is a direct-connect user with a partial information plan, their savings target will likely be set to achieve the same percentage saving as distribution companies in that region.

What this PROP contains

29. This PROP includes procedures for managing both developing and immediate category of event.

Section	Content
Communications	Contact details for communications during a supply shortage declaration
Description of Load	A description of the Pan Pac load
Site response	How the site will respond to different types of event including a plan of possible savings
Coordination with the system operator	Sets out how Pan Pac will coordinate with the system operator
Monitoring and reporting	How Pan Pac will monitor and report savings made

30. This PROP contains all the information required for Full Information Plan.

Communications

All urgent operational communications should, in the first instance, be made to:

Contact: Pulpmill Operator
Phone: 06 8310106 x 810
Email: refiners@panpac.co.nz

The Manager will communicate with the System Operator for operational communications using the following details:

Transpower National Control Centre
Energy Desk Duty - 0800 535 123
Security Desk Duty - 0800 488 500

Hamilton Co-ordination Centre
Fax (07) 843 7176

Wellington Co-ordination Centre
Fax (04) 496 9109

Communications from the system operator about a supply shortage declaration should be made to:

Contact: General Manager - Pulp
Phone: 06 8310100
Mobile: 021366939
Email: tony.clifford@panpac.co.nz

If unable to be contacted, then try:

Contact: Pulp Mill Manager
Phone: 06 8310100
Mobile: 027 2307151
Email: roger.jones@panpac.co.nz

The relevant Pan Pac people in the above positions will be responsible for reporting to the system operator on performance against savings targets are either:

Contact: Pulp Division Accountant
Phone: 06 8310100
Mobile:
Email: Gerald.cowan@panpac.co.nz

or:

Contact: General Manager - Pulp
Phone: 06 8310100
Mobile: 021 366939
Email: tony.clifford@panpac.co.nz

Participant Rolling Outage Plan

The relevant person who the system operator should notify for revocation of the shortage declaration is:

Contact: General Manager – Pulp
Phone: 06 8310100
Mobile: 021 366939
Email: tony.clifford@panpac.co.nz

If unable to be contacted, then try:

Contact: Pulp Mill Manager
Phone: 06 8310100
Mobile: 027 2307151
Email: roger.jones@panpac.co.nz

The above people in the above positions will communicate with the system operator for administration and reporting against targets using the following details:

System Operator

Transpower

Level 7

Transpower House

96 The Terrace

PO Box 1021

Wellington

Telephone: 64 4 495 7000

Fax: 64 4 495 7100

The Pan Pac person who is responsible for communicating with the media (if required) is:

Contact: General Manager - Pulp
Phone: 06 8310100
Mobile: 021 366939
Email: tony.clifford@panpac.co.nz

Description of site load

31. The total electrical loading of the site is approximately 85MW. Due to on-site generation capability the net loading at the grid connection point is approximately 80MW.
32. The electrical loads are:

Load	Description	Approximate Loading MW
Refiner line 1	Thermo mechanical processes are used to produce wood pulp. Refiner lines operate 24 hours per day.	12
Refiner line 2		12
Refiner line 3		12
Refiner line 4		12
Refiner line 5		12
Refiner line 6		15
Lumber Division	Handling and preparation of timber for manufacturing processes	3
Chip Mill	Manufacturing of wood chips from whole logs	1
Boilers	Boilers utilise wood waste and other waste products. Output steam from the boilers is used in process and electricity generation. Continuous operation of the boilers is essential to the refiner processes.	1
Auxiliary loads	General site auxiliary loads (including bleach plant and secondary effluent system)	5
	Site total load	85
	On-site generation	(5)
	Net load taken from Grid	80

33. The refiner loads are offered as interruptible load into the instantaneous reserves market. The offering of instantaneous reserve is undertaken through Contact Energy acting as agent for Pan Pac.
34. The refiner loads are price responsive and will be removed if the wholesale electricity spot price reaches a price that makes production commercially unviable.
35. Currently, Pan Pac has an exemption from providing AUFLS which expires on a date specified by the system operator in the extended reserve schedule under clause 8.540 of the Code. This plan assumes that no load at the Pan Pac Whirinaki site will be subject to AUFLS.

How the site will respond to different types of event

Immediate & Developing Event

36. The system operator is responsible for making a supply shortage declaration and for directing specified participants to implement rolling outage. Communication of such a declaration and direction to Pan Pac to reduce demand should be given to the following person.

Contact: General Manager - Pulp
Phone: 06 8310100
Mobile: 021 366939
Email: tony.clifford@panpac.co.nz

37. In practice a declaration pursuant to the regulations will be communicated to Pan Pac directly from the system operator. Directions to implement the savings plan (e.g. reduce load) will be made by the System Operator to Pan Pac. Directions to reduce load should be made to:

Contact: Pulp Mill Manager
Phone: 06 8310100
Mobile: 027 2307151
Email: roger.jones@panpac.co.nz

38. The above person has the authority to make demand reductions and is responsible for coordinating emergency demand response at Pan Pac and communicating with the System Operator when a directive is in force.
39. Any load that has already been reduced due to a Grid Emergency notification will be considered to have contributed towards the requested savings under a Directive.
40. Any load that is included in the response to a direction will not be offered as instantaneous reserves until the direction has ceased to have effect. It should be noted that there may be a delay in responding to a direction due to the time needed to withdraw load from the instantaneous reserves market.
41. Following receipt of a direction Pan Pac will, as soon as reasonably possible, issue a directive to all staff to reduce all discretionary electricity use. Discretionary means electricity use that does not impact on production and the health and safety of people and security of the site.
42. If further reductions are necessary to meet the direction Pan Pac will implement the savings plan set out in the following section.

Savings Plan

43. All Pan Pac staff will be contacted by email and asked to implement a reduction in discretionary electricity use that does not impact on production and the health and safety of people and security of the site.
44. It is likely that the refiner load will have been reduced in response to high wholesale electricity spot prices. If the required percentage savings has already been achieved through reductions in response to spot prices no further savings are to be made.
45. If the refiner loading has not already responded to spot prices and reductions are required to meet the system operator’s direction then the following plan will be followed.
46. Refiners can be removed from load for up to two hours without requiring a long restoration period. If an outage is less than 2 hours a minimum cost will be incurred. This assumes the refiners are shut down in a managed and orderly manner. If the shut down is longer than 2 hours a prolonged restoration time of up to 8 hours may be required due to the need to remove solidified materials and cleaning.
47. Prices are therefore provided for savings periods of up to two hours per refiner. If the outage is longer than 2 hours the outage time has been extended by a further 8 hours to account for restoration.

Indicative costs of savings up to 2 hour outage duration

Load Group	MW Saving	Cumulative MW	Cumulative savings as a % of net load	Minimum cost for 2 hour or less savings
Refiner line 1	12	12	15%	\$3,133
Refiner line 2	12	24	30%	\$6,266
Refiner line 3	12	36	45%	\$9,399
Refiner line 4	12	48	60%	\$12,532
Refiner line 5	12	60	75%	\$20,385
Refiner line 6	15	75	94%	\$28,238

Minimum costs of savings for above 2 hour outage duration

Load Group	MW Saving	Cumulative MW	Cumulative savings as a % of net load	Minimum cost for above 2 hour savings
Refiner line 1	12	12	15%	\$12,532
Refiner line 2	12	24	30%	\$25,064
Refiner line 3	12	36	45%	\$37,596
Refiner line 4	12	48	60%	\$50,128
Refiner line 5	12	60	75%	\$81,540
Refiner line 6	15	75	94%	\$112,952

48. Indicative plans for various levels of savings, and their associated costs, are provided in the tables below.

Indicative savings plan

5% Weekly MWh savings plan

Options	Expected potential MW	Duration (Hours/day)	Expected weekly savings (MWh)	Expected weekly savings (%)	Estimated cost	Estimated \$/MWh
Remove single refiner	12	7.5	630	5.0%	\$105,000	\$167

10% Weekly MWh savings plan

Options	Expected potential MW	Duration (Hours/day)	Expected weekly savings (MWh)	Expected weekly savings (%)	Estimated cost	Estimated \$/MWh
Remove two refiners	24	7.5	1260	10.0%	\$210,000	\$167

15% Weekly MWh savings plan

Options	Expected potential MW	Duration (Hours/day)	Expected weekly savings (MWh)	Expected weekly savings (%)	Estimated cost	Estimated \$/MWh
Remove two refiners	24	11.3	1890	15.0%	\$298,200	\$158

20% Weekly MWh savings plan

Options	Expected potential MW	Duration (Hours/day)	Expected weekly savings (MWh)	Expected weekly savings (%)	Estimated cost	Estimated \$/MWh
Remove two refiners	24	15.0	2520	20.0%	\$386,400	\$153

25% Weekly MWh savings plan

Options	Expected potential MW	Duration (Hours/day)	Expected weekly savings (MWh)	Expected weekly savings (%)	Estimated cost	Estimated \$/MWh
Remove first refiner	12	24.0	2016	16.0%	\$295,680	\$147
Remove second refiner	12	13.5	1134	9.0%	\$189,000	\$167
Total	24		3150	25.0%	\$484,680	\$154

49. Sequential daily outages of individual refiners 10 hours or less duration can be made to provide total savings of up to 25% of expected consumption at the costs indicated in the table. As Pan Pac would not cycle all refiners savings above 8% of total daily usage should be assumed to be at the above 2 hour rates. E.g. the cost of an additional 8 hour outage must be added to the actual duration of the savings period required to give the requested % savings. Note that it is restoration times and potential sales contract performance liabilities that have a major impact on the costs of extended duration outages.
50. If the savings have resulted in a reduction in the quantity of interruptible load that Pan Pac can offer as instantaneous reserves, additional costs of the IR revenue foregone should be added to the above costs. These additional costs will be dependent on the reserves market price at the time the savings are made.
51. It should be noted that a time period may be necessary before savings can be made if load has to be withdrawn from the instantaneous reserves market.
52. It is important to note that the above figures are based on assumptions made for a number of variable production levels and cost components. A significant cost is likely to arise if Pan Pac cannot meet contracted deliveries due to the implementation of the savings plan. If a supply shortage declaration is made a current estimate of the cost of savings will be submitted to the system operator.
53. The MW figures above depend on the production conditions of the various plants at the time the request to reduce load is given. The cost figures above depend on the demand for and selling price of various finished products that the company makes. Therefore, the figures given should be considered to be indicative only and it may be appropriate to update them if a supply shortage is declared.

Coordination with the System Operator

54. Communications from the System Operator for coordination of Pan Pac's operations will be made in the first instance to:
Contact: Pulpmill Operator
Phone:
Mobile: na
Email: refiners@panpac.co.nz
55. The Refiner Operator will confirm, by telephone to the System Operator, all emails received requesting load reductions under a direction. Load reductions will only be made once telephone confirmation has been made.
56. Pan Pac has a documented procedure that provides instruction and guidance to the Pulpmill Operator for supply shortage events. This procedure includes information regarding coordination with the System Operator during implementation of savings and restoration of the load.
57. Pan Pac has an exemption from providing AUFLS which expires on a date to be determined. This plan assumes that the savings identified in this plan will not be affected by any subsequent changes to the AUFLS requirements at Pan Pac Whirinaki .
58. In the event that a Grid Emergency is coincident with a request for savings under this PROP it is assumed that the Grid Emergency requirements made by the system operator will take precedence over the PROP savings plan. The level of savings available under this plan will, therefore, be reduced by the level of any load reductions made in response to a Grid Emergency.
59. Once a Grid Emergency has ceased the load savings under this PROP will be recommenced.

Monitoring and reporting

60. Monitoring and reporting for operational purposes will be to the system operator.
61. For major loads, Pan Pac's internally captured data will be used to produce daily or weekly reports of savings achieved.
62. For unmetered loads, savings will be calculated by comparison with an average energy consumption profile and the observed actual loading reductions for during a supply shortage event.
63. Monitoring and reporting is the responsibility of Gerald Cowan
64. Reporting to the system operator will be undertaken as requested or on a weekly basis.
65. Should it be required reporting to the Electricity Authority will be undertaken at intervals as required by the Authority.