Menu of Issues for Consideration by the Constraints Issues Group

(Version 5) 17/08/2004

Issue ID	Title	Description	Notes	Action Plan	Issue Status
1	Spring washer formula and network characteristics	When the spring washer effect occurs, the inter-nodal price differences are established by the effect of the incremental losses and the ratios of electrical impedance characteristics of the lines involved in the loop flows. In the Tauranga case the ratios of 100:1 seem high. Are the electrical network characteristics correctly applied in SPD?		Two Tasks - 1 - System Operator to conduct analysis of actual flows versus modelled flows for trading period 36. SO to report back to the CIG. If analysis confirms the results, then Task complete. If not, CIG to consider the next step - verification of reactance of lines/transformers in SPD/TPIX. 2 - SO to provide a explanation of how reactance is treated in SPD. The CIG to consider the explanation (Task Complete). SO presentations to be incorporated in the CIG Issues Paper. A core concern of the CIG relates to the accuracy of the data held within the models.SO to run an experiment, scoped by Graeme Everett to establish if a local analysis of the data values in the model would produce a meaningful result. (Task Complete) SO to run the experiment to determine the impact of the wider network on the local Tauranga system. If the wider inpact is not material then the SO to carry out and alalysis of the key assets causing the sppring washer effect. If there is a wider impact then a cost benefit of a network wide review is to be considered, (by	The System Operator conducted an analysis and made a presentation to the CIG on 20/07/04. The System Operator advised that whilst there were some differences between the linear and non linear programmes the analysis of period 36 demonstrated that they were small and within expected tolerances averaging 0.75% over the year. CIG satisfied that further analysis is not required. The SO also provided information on how reactance is treated in SPD with detailed formulas and explanations. The CIG will place this information in the Issues Paper. Following a special meeting on this issue the System Operator has agreed to conduct an experiment on the local Tauranga netwpork to establish if that part of the system can be viewed in isolation of the overall network and if it can confirm the accuracy of the key reactances in the local modelled network. Graeme Everett to scope the
2	Degenerate SPD Solutions	Some parties have suggested that there may be flaws in the algorithms or equations within SPD.		SO to provide a report to the CIG regarding the degeneracy of solutions in SPD (covering the processes, monitoring of, and materiality of degeneracy). The CIG will then consider if further work is required. If not issue complete, if so then either pass back to SO for further work, or recommend to EC that further steps be taken.	SO completed action and provided detailed presentation. The CIG accepted that the issue had been covered in detail by the NZEM and also in a previous paper. The CIG had no reason to challenge the SPD sensitivity margins regarding degeneracy

3	Small variations big effects	Small variations in load inputs into the price calculation process can have a dramatic effect on price, is this correct and desirable?		The CIG is to consider the acceptability of high price outcomes at the next meeting. If not acceptable, CIG to provide an array of possible solutions to the issue, or to pass to the relevant group to progress. If acceptable then the issue is complete.	Issue discussed at the CIG meeting on 20/07/04 Market administrator asked to research the options available and provide a paper to the CIG. Issue progressing
4	RTP and Provisional Price variances	In period 36 the RTP was $80,410 and the provisional price was $8,272, why was there such a large variation and how can this be understood and managed by market participants? The RTP and Provisional Prices do not provide reliable indications of final prices under these circumstances and are therefore useless at the time they are needed most.	Meeting 14 June - noted this was primarily about the accuracy of real time and dispatch prices. Another issue was the range of infeasibilities that are flagged on COMIT.	Two Tasks - 1 -The Senior Adviser to update the CIG with the status of RTP and DSB. Once updated, Task complete. 2 - The SO to detail which infeasibility situations are covered by flags on COMIT. The CIG to then consider if there is need for further flags on COMIT, if so then request the EC give to another group to progress, if not, Task complete.	Issue complete. CIG to recommend to the EC that the WMAG consider rule changes to provide flags when all infeasibilities are encountered.

5	Provisional prices for one day	Final prices cannot be changed, therefore having a reasonable period where provisional prices can be reviewed and challenged would be desirable.	Meeting 14 June - required further information before a decision to be made. Meeting 20 July discussed the issue further and concluded that the criteria by which provisional prices were triggered could include an addition of high (scary) price. The MA was asked to research the options.	Market Administrator to provide background papers to the CIG for the next meeting outlining the rationale for next day final pricing. CIG to then consider the desire to move to delaying final price publication to the day following the next day. If there is a desire, recommend to the EC that another group progress. If not, issue complete.Market Administrator to produce a paper on potential triggers for establishing provisional prices where spring washer effects occur. The paper is also to include a suggested criterea which would be used by the pricing manager/SO to establish whast action to take under these circumstances.The paper has been produced in draft and will be circulated to CIG members for comment. The recommended actions will be passed to the EC for consideration of inclusion in the WMAG workstream.	Paper to be produced by Market Administrator
6	Increase in Security Constraints	Some have commented that the number of security constraints modelled in SPD has increased. This trend appears to be continuing in 2004 with increased security constraints seen over 2003 levels. What are the reasons for this increase?		Bruce Smith is to further investigate this issue, and to report back to the CIG. The CIG to then decide if further work is necessary, if so direct the suitable party to undertake the work, if not issue complete.	Issue progressing. Bruce Smith to provide an update for the Issues Paper by 6/9/04

7	Solving infeasibilities	When the SPD solution is said to be infeasible the SPD model resolves the infeasibility by applying non physical quantities. 'Deficit generation' and 'deficit branch group constraints' are used with infeasibilities and each carries its own penalty factor. What is the logic behind the use of these non physical quantities and how can market participants understand if they are applied correctly?	Meeting 14 June - Additional question was raised of the SPD model - does the imposition of penalty factors 'cap' the spot market price? The meeting of 20 July discussed this issue further and concluded that as SPD would select a non physical quantity ahead of a real generator offer which was higher than the penalty factor, there was effectively a cap on price.	Two Tasks - 1 - The SO to provide an explanation of the number of penalty factors in SPD, and the possibility of rationalising the number. If CIG determines further work is required, the SO to undertake this work, otherwise the Task is complete. 2 - The SO to provide a confirmation that the penalty factors create an effective cap on the spot market price. Once confirmation has been given, Task is complete.	Issue complete Information to be included in the Issues Paper.
8	Why 1MW	The System Operator uses an increment of 1MW to relieve constraints until feasible prices are determined. Would a lower increment produce a lower pricing effect? *"The System Operator's practice of incorporating a branch group deficit variable is questionable, and should be reviewed as it appears to be unnecessary given that there are already bus deficit variables, and more importantly because it leads to confusing nodal price outcomes"*	At the 20/07/04 CIG meeting the SO explained that the background to the use of 1MW was not clear. However the SO usually operated in 5MW quantities. The CIG concluded that further work should be completed on the cost/benefits of various options.	The So is to provide to the CIG a guide to how it resolves infeasibilities in SPD, and its reasons for choosing 1MW increments in the alleviation of constraints. Upon provision of this guide, issue complete.	Only one response received from the CIG members. Confirmation required from CIG that this issue is closed.
9	Regulation 59 consultation period	It has been suggested that the Electricity Commission considers extending Regulation 59 consultation periods to more than two working days.	At meeting on 14 June, issue was completed by checking the regulation.	Market Administrator to remove from register.	Issue Complete
10	Transparency of Transpower's policies		At meeting on 14 June, issue was amended to create an appendix to the Issues paper outlining Transpowers policies as System Operator.	Create an appendix detailing Transpowers actions in determining constraints and removing infeasibilities.	Issue progressing. SO to provide process information.
11	Treatment of Rentals at spring washers	The revenue from the nodal price differences is allocated by Transpower under the loss and constraint rentals methodology, that is, the revenue is spread over all distribution companies. Is this appropriate and desirable under the spring washer conditions?	The CIG considered that the current allocation of rentals did create a value/wealth transfer from constrained regions. It was concluded that this should be taken into account when reviewing the FTR and hedge market issues by the appropriate work stream.	Market Administrator to distribute the relevant papers from the LCAWG to the CIG. Once considered the CIG to determine whether this constitutes an issue. If so, recommend that the EC direct the WMAG to consider the issue. If no, issue complete.	Issue complete - CIG to recommend to the EC that the constraint issues are taken into account by the appropriate Advisory Groups and Workstreams.
12	Relax the constraint to create a marginal generator.	Transpower could be required to relax the constraint (that is causing the spring washer effect) until the highest generator offer in the constrained region sets the price.	At meeting on 14 June, issue was agreed to be covered under the explanation of the spring washer.	Market Administrator to remove from register.	Issue Complete

13	Nodal price sensitivity	Spring Washer effects are wound up by increasing demand, the level of metering accuracy, reactance values and branch capacities. These values have a crucial bearing on the magnitude of price. The sensitivity of the outcome price to small changes in these variables should be debated.	At meeting on 14 June, issue was agreed to be addressed with issue 3.	Market Administrator to remove from register.	Issue Complete
14	Penalties for errors which cause a UTS	Transpower will face no penalty for making the error which led to the period 36 prices other than if it is challenged for breaching a rule. Also there is no guidance on what will happen the money from any fines which the Commission imposes.	SA provided information about fine revenue - goes to crown, covered under Regulation 109.	Two Tasks - 1 - Senior Adviser to provide information to the CIG as to what the current procedure is for allocating revenue received from fines. Once information is provided issue complete. 2 - CIG to consider the need for an amendment to the definition of a provisional price situation to include a reason for errors in System Operator Inputs. This should be considered with the issue with delaying publication of final prices.	Issue progressing Will now be covered in the Market Administrator paper on provisional price triggers.
15	Increasing UTS claims	A consequence of the period 36 events may be that participants will claim UTS for any situation where they suspect an error has been included in the calculation of provisional prices. There is little to be gained by participants alleging breaches as compensation is not awarded. There is therefore potential for an increase in the number of UTS claims. Is this an appropriate outcome? More information is required regarding how the Commission will treat UTS claims in the future.	SA provided this information to the CIG. Best guide as to how the EC will deal with future UTS is via its historical decisions.	The Senior Adviser will provide information about the future treatment of UTS claims to the CIG. Once information is provided, issue complete.	Issue Complete
16	Dispatch of Kaimai out of merit order	The present spot market where prices are discovered discretely every five minutes does not model the limited storage available for a scheme like Kaimai, and thus does not provide an optimum pricing solution. Kaimai may be dispatched when national prices increase with the subsequence that there is no water available when required later to meet local demand causing constraints to bind with resulting high prices.	At meeting on 14 June this was agreed to not be addressed by the CIG. It will be passed to WMAG for consideration.	Senior Adviser to pass this issue to the WMAG. Once passed, issue Complete	Issue Complete. Senior Advisor has passed to the wholesale workstream
17	Effect on load participants	The existing pricing process could result in extreme price outcomes in various regions, under various conditions, in an unpredictable manner, offering load participants no ability to manage their exposure.	At meeting on 14 June, issue was agreed to be addressed with issue 3.	Market Administrator to remove from register.	Issue Complete

18	The use of a conditioning number of the basis matrix	Under certain spring washer effects, there may be a point at which the basis matrix (used to calculate prices) will be so unstable that the solutions of SPD can not be relied on. It could be that a conditioning number of x is another definition of infeasibility which can be used alongside the definitions currently used. The conditioning number could be used to avoid the most spectacular spring washer effects.	This issue was raised following the first CIG meeting. The CIG have asked the MA for a paper on the options to extend the criteria of when provisional prices are raised, consideration of this issue will be included in that paper.	To be considered at the July CIG	Issue progressing Will now be covered in the Market Administrator paper on provisional price triggers.
19	SO cannot dispatch RTD solutions with significant infeasibilities.	SO cannot dispatch RTD solutions with significant infeasibilities given the addition of non physical quantities to solve. The SO must therefore; depart from the dispatch objective and use discretion; or, take alternative action to remove/resolve ahead of dispatch.	Is this an issue for the CIG or the WMAG?	To be considered at the August CIG	Recommendation in the Issues paper that this issue is added to the WMAG workplan.
20	Forecasting accuracy and response in PDS	Increased accuracy of PDS inputs and demand bids will produce better outputs.E.g. demand bids in Tauranga were not correct, if they had been the situation could have been foreseen and a demand-side response initiated.	Is this an issue for the CIG or the WMAG and the Demand-side participation project?	To be considered at the July CIG	Issue completed - recommendation to be passed to the WMAG
21	Accuracy of load allocations in SPD	Load forecast allocations of demand to GXPs are not perfect. If the allocation was more dynamic the Period 36 situation might have been foreseen.		To be considered at the August CIG	Recommendation that this issue is considered under the Dem,and-side participation initiative on the WMAG workstream.
22	RTP awareness	Are participants aware of RTP's limitations given the participants high reliance on its price outcomes? Concerns regarding this are raised from requests to declare a UTS when infeasible outcomes are seen and also from calls are made to real time staff by traders when 'interesting RTP results are seen'.		To be considered at the July CIG	Issue discussed at the 20 July meeting, information to be included in the Issues Paper. Issue completed
23	Increasing number of constraints	SO notes that the number of constraints require a lot of manual process and have a scope for error. The current approach provides good visibility of outcomes through the use of explicitly advised constraints. Capacity reserves or variable line ratings will require a complete overhaul of the constraint design and application process. Other SO use automated security tools that dynamically design the constraints to meet security criteria. These issues need to be considered.	Are these issues to be passed to WMAG?	To be considered at the July CIG	Issue to be recommended for consideration by WMAG for further work. Issue completed.