Wholesale Advisory Group

- Addressing pricing issues

Alan Eyes
20 February 2014.

Wholesale Advisory Group

Chair's Half Yearly Report to the Electricity Authority Board

July to December 2013

15 January 2014

5 Pricing alignment project

5.3.3 These short-term spot price forecasts are usually quite reliable, but they can occasionally be wildly inaccurate, particularly when the power system is under stress. The unreliability of short-term spot price forecasts discourages parties from responding to them. After buyers have observed several

WAG recommended that the Authority:

a) proceed with incremental improvements to the spot pricing process already planned or underway including existing work to improve the quality of demand and intermittent generation forecasts

b) implement new initiatives to:

   i) align the assumptions used in real-time pricing with those used in settlement pricing as far as possible

   ii) improve the availability of real time price information to users

c) consider the merits of other incremental improvements to the pricing process:

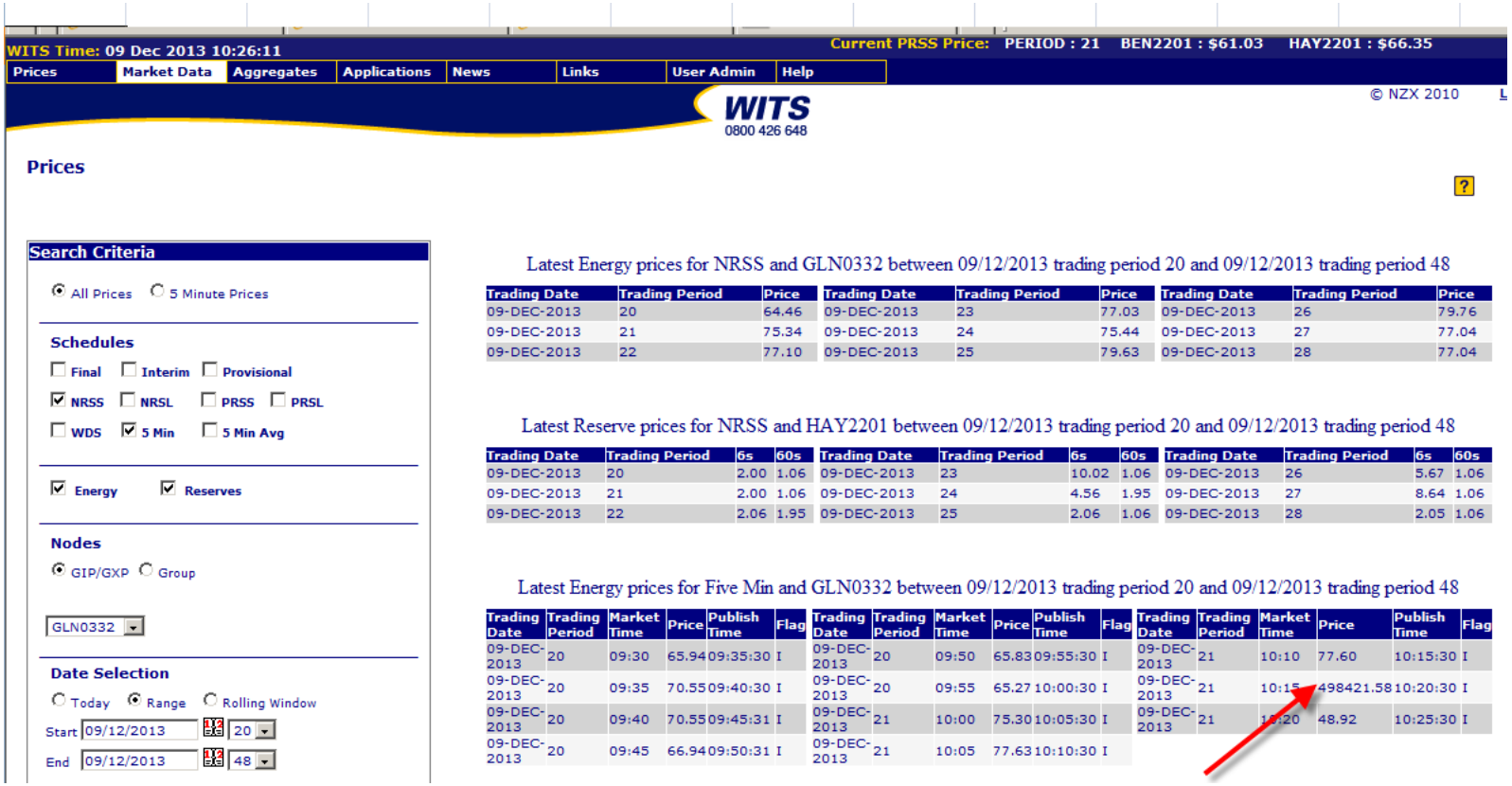
   i) flagging infeasibilities in forecast schedules

   ii) reducing the gate closure period

d) investigate options for the spot market design to settle on ex ante or real time prices and also consider other aspects of the design that could improve retail competition, such as zonal pricing

e) note that settlement on ex ante or real time prices could support efficiency on the supply side as well as the demand side.

The $400k 5 minutes for 6+ weeks



WITS Time: 09 Dec 2013 10:26:11 — Current PRSS Price: PERIOD : 21 BEN2201 : $61.03 HAY2201 : $66.35

Prices | Market Data | Aggregates | Applications | News | Links | User Admin | Help

WITS 0800 426 648 — © NZX 2010

Prices

Search Criteria

All Prices / 5 Minute Prices

Schedules

Final / Interim / Provisional

NRSS / NRSL / PRSS / PRSL

WDS / 5 Min / 5 Min Avg

Energy / Reserves

Nodes

GIP/GXP / Group

GLN0332

Date Selection

Today / Range / Rolling Window

Start 09/12/2013 20

End 09/12/2013 48

Latest Energy prices for NRSS and GLN0332 between 09/12/2013 trading period 20 and 09/12/2013 trading period 48

Trading Date	Trading Period	Price	Trading Date	Trading Period	Price	Trading Date	Trading Period	Price
09-DEC-2013	20	64.46	09-DEC-2013	23	77.03	09-DEC-2013	26	79.76
09-DEC-2013	21	75.34	09-DEC-2013	24	75.44	09-DEC-2013	27	77.04
09-DEC-2013	22	77.10	09-DEC-2013	25	79.63	09-DEC-2013	28	77.04

Latest Reserve prices for NRSS and HAY2201 between 09/12/2013 trading period 20 and 09/12/2013 trading period 48

Trading Date	Trading Period	6s	60s	Trading Date	Trading Period	6s	60s	Trading Date	Trading Period	6s	60s
09-DEC-2013	20	2.00	1.06	09-DEC-2013	23	10.02	1.06	09-DEC-2013	26	5.67	1.06
09-DEC-2013	21	2.00	1.06	09-DEC-2013	24	4.56	1.95	09-DEC-2013	27	8.64	1.06
09-DEC-2013	22	2.06	1.95	09-DEC-2013	25	2.06	1.06	09-DEC-2013	28	2.05	1.06

Latest Energy prices for Five Min and GLN0332 between 09/12/2013 trading period 20 and 09/12/2013 trading period 48

Trading Date	Trading Period	Market Time	Price	Publish Time	Flag	Trading Date	Trading Period	Market Time	Price	Publish Time	Flag	Trading Date	Trading Period	Market Time	Price	Publish Time	Flag
09-DEC-2013	20	09:30	65.94	09:35:30	I	09-DEC-2013	20	09:50	65.83	09:55:30	I	09-DEC-2013	21	10:10	77.60	10:15:30	I
09-DEC-2013	20	09:35	70.55	09:40:30	I	09-DEC-2013	20	09:55	65.27	10:00:30	I	09-DEC-2013	21	10:15	498421.58	10:20:30	I
09-DEC-2013	20	09:40	70.55	09:45:31	I	09-DEC-2013	21	10:00	75.30	10:05:30	I	09-DEC-2013	21	10:20	48.92	10:25:30	I
09-DEC-2013	20	09:45	66.94	09:50:31	I	09-DEC-2013	21	10:05	77.63	10:10:30	I						

The $400k 5 minutes

Sent: Monday, 13 January 2014 10:50 a.m.
To: NZ Steel – Eyes; Fraser Clark; Murray Henderson
Cc: Greg Williams; Lisa Dhanji; Ralph Matthes (Meug); NZSAKL; Weaver, Mark MJ
Subject: RE: WITS Anomaly: 5min price spikes Sat 21Dec2013 - Sun 12Jan2014 inclusive (cumulative file)

Hi Alan

The two high prices below have two separate causes.

The first is due to a problem with the initial MW for all generators not being available in time for this RTP schedule. The schedule then starts with all generators at zero. Binding ramp rates cause the high prices for this solve. This is not correct and we are investigating solutions to this problem.

The second is an infeasibility where the risk setting generator is also the selected frequency keeper with an associated control min constraint. Due to a large reserve requirement and a shortage of reserves SPD has chosen to break the control min constraint at the associated penalty price to reduce the maximum risk and therefore the amount of reserves required. When seen by the coordinator this would be resolved by change the selected frequency keeper prior to the next schedule.

Regards

Rupert Holbrook
Senior Analyst
Market Services
Transpower New Zealand Limited

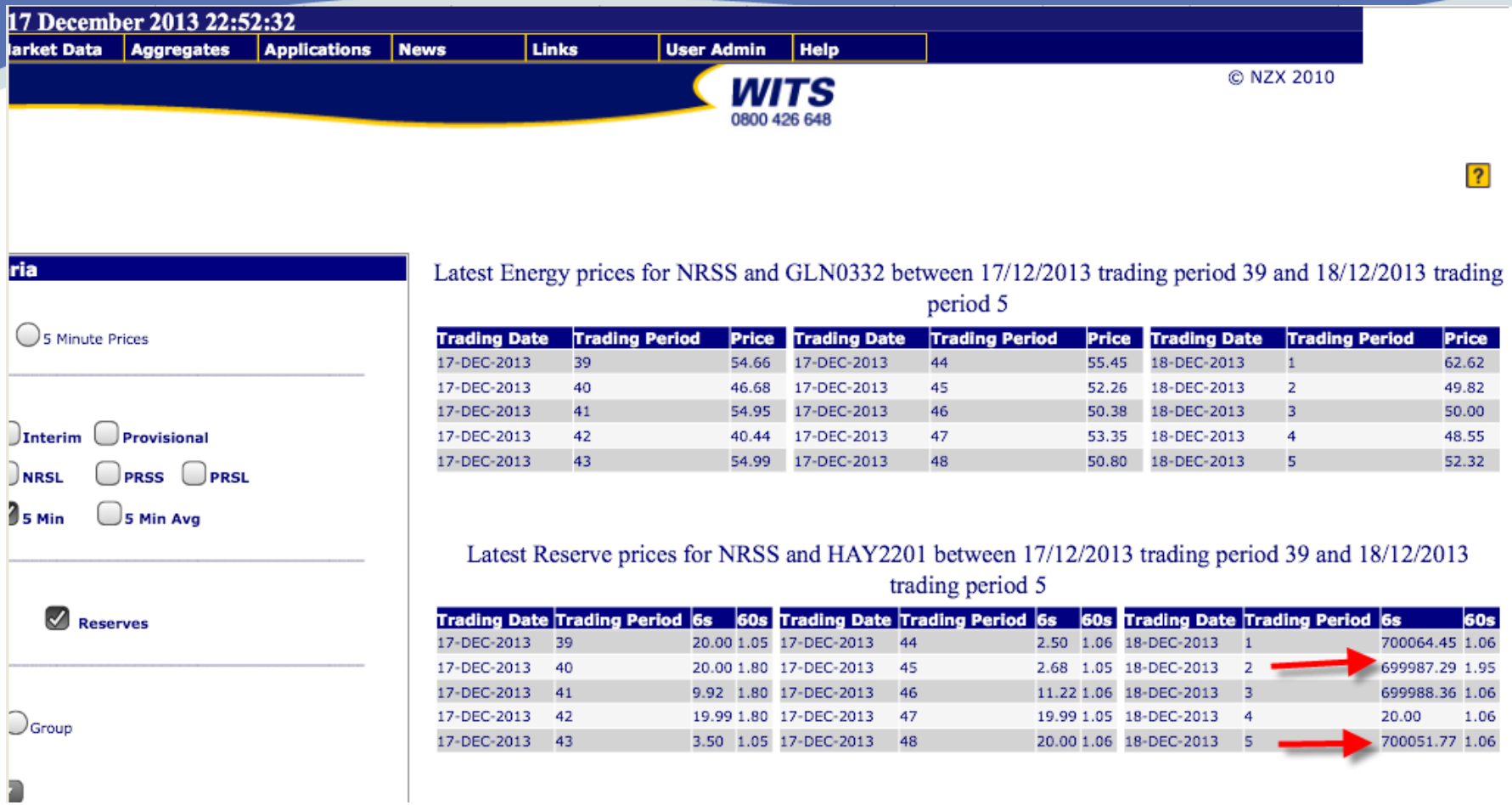
Will the system operator be self-breaching for running a new RTP schedule when opening gen MW is not known?
RTP has always been produced on a best endeavours basis as it was originally set up as a trial of transitioning to five minute pricing. As such there is no formal obligation to breach against.

Infeasible prices?

What is Real? What is not?

MW	5 min price	30 mins	5 mins
60	$ 498,000	$14,940,000	$2,490,000
60	$ 100,000	$3,000,000	$500,000
60	$ 4,980	$149,400	$24,900

Reserve information is also wrong



Latest Energy prices for NRSS and GLN0332 between 17/12/2013 trading period 39 and 18/12/2013 trading period 5

Trading Date	Trading Period	Price	Trading Date	Trading Period	Price	Trading Date	Trading Period	Price
17-DEC-2013	39	54.66	17-DEC-2013	44	55.45	18-DEC-2013	1	62.62
17-DEC-2013	40	46.68	17-DEC-2013	45	52.26	18-DEC-2013	2	49.82
17-DEC-2013	41	54.95	17-DEC-2013	46	50.38	18-DEC-2013	3	50.00
17-DEC-2013	42	40.44	17-DEC-2013	47	53.35	18-DEC-2013	4	48.55
17-DEC-2013	43	54.99	17-DEC-2013	48	50.80	18-DEC-2013	5	52.32

Latest Reserve prices for NRSS and HAY2201 between 17/12/2013 trading period 39 and 18/12/2013 trading period 5

Trading Date	Trading Period	6s	60s	Trading Date	Trading Period	6s	60s	Trading Date	Trading Period	6s	60s
17-DEC-2013	39	20.00	1.05	17-DEC-2013	44	2.50	1.06	18-DEC-2013	1	700064.45	1.06
17-DEC-2013	40	20.00	1.80	17-DEC-2013	45	2.68	1.05	18-DEC-2013	2	699987.29	1.95
17-DEC-2013	41	9.92	1.80	17-DEC-2013	46	11.22	1.06	18-DEC-2013	3	699988.36	1.06
17-DEC-2013	42	19.99	1.80	17-DEC-2013	47	19.99	1.05	18-DEC-2013	4	20.00	1.06
17-DEC-2013	43	3.50	1.05	17-DEC-2013	48	20.00	1.06	18-DEC-2013	5	700051.77	1.06

Delay in publishing 5 minute prices in time of high prices.

From: Eyes, Alan [mailto:Alan.Eyes@bluescopesteel.com]
Sent: Wednesday, 29 January 2014 3:51 p.m.
To: Fraser Clark
Cc: Ralph Matthes; NZSAKL Energy Reporting; Weaver, Mark MJ
Subject: dealyed 5 minute prices

Hi Fraser
Another subject of concern to NZ Steel.
You may be aware of the current high spot prices $1000+. Hence we are watching very closely and holding back production.
There has just been quite a delay in publishing 5 min prices. I have queried the WITS 0800 person who has repeated what they told me last time ie they just publish and do not review or monitor anything. I gave him may opinion on that... politely of course.
Here is a screen grab. The publish times are not correct. It was about 1535 when 1515 came up and the others come through slowly after that.
It is these times of supposed grid/generation stress that we most need these prices to take production decisions.
It will be appreciated if you look into the matter and what responsibilities there are to keep the information updated.

29-JAN-2014	31	15:00	1020.40	15:05:30	I
29-JAN-2014	31	15:05	1020.40	15:10:31	I
29-JAN-2014	31	15:10	249.50	15:15:30	I
29-JAN-2014	31	15:15	249.50	15:20:30	I
29-JAN-2014	31	15:20	249.51	15:25:30	I
29-JAN-2014	31	15:25	260.12	15:30:30	I
29-JAN-2014	32	15:30	1041.51	15:35:30	I

NZX have checked at their end, and their processing times between receipt of the data from the system operator are where they are expected to be. They have advised that they understand that every Wednesday sometime between 3 and 3:30 the system operator takes some of its integration software offline as part of its system management and disaster recovery testing processes. This then slows down the file transfer to WITS before it catches back up again between 3:30 and 4. This happens every week, but presumably it generally goes un-noticed because the prices are 'normal' so are not being watched as closely as they have been today.

We'll make a note of the issue here, and look at bringing it up with the system operator when discussing the recommendations identified from the spot price improvement project.

Planned WITS outage during Maui shut and high prices.

On 5/02/2014, at 12:42 pm, "COMIT Administrator" <cadmin@nzx.com> wrote:

Good afternoon,

Transpower wishes to advise of a scheduled Market System outage on Thursday 13th February, 11:00am until 12:30pm (approximately). This outage is required in order to carry out an inter-site switch over from Hamilton to Wellington.

During this outage orders will be held unconfirmed on WITS.. Dispatch will be from SAD for approximately 45 minutes.

It is anticipated that the following schedules will be affected:
RTP schedules between 11:00 and 12:30, the 11:00,11:30 & 12:00 NRSS/PRSS, as well as the 12:00 NRSL/PRSL schedule.

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Regards

WITS Support Team
0800 4COMIT
cadmin@nzx.com

NZX Limited
Level 2, NZX Centre, 11 Cable Street, Wellington 6011
PO Box 2959, Wellington 6140, New Zealand

Summary of the ‘problems’

- $400k 5 minute prices due to missing input data.
- Delay in publishing 5 min prices at time of high prices due to weekly testing in the middle of the business day.
- Planned upgrade work continued despite gas field outage and high prices.

This on top of WAG identified work to:

- Align assumptions used in real-time pricing with those used in settlement.
- Improve availability of real-time price information
- Flagging infeasibilities
- Reducing gate closure

Observations

- Missing / inaccurate price information contributes to load variations which increases price volatility which can stress the system which contributes to missing and inaccurate data ALL of which discredits the market and increases risk which inhibits participation and increases hedging costs.
- Everybody I seek information from (NZX, SO, Transpower, EA) openly and objectively discusses the issues as solutions are sought, BUT with a technical focus. Where are the CUSTOMER focused systems and processes?
- The issues I have outlined are not ones of market design; they are delivery issues.
- An ex ante market is not going to solve many of these issues.
- A real time market will not function unless the issues are solved.
- An ex ante market will presumably require a 'balancing market' and a number of the alignment issues will need to be dealt with, or we will be faced with much larger variations albeit for volume at the margin.
- THE BEST PAYBACK WE CAN GET IS TO INVEST 10% OF THE EFFORT TO GET A 90% OUTCOME. We may find most of the issues pushing the industry to a new market model have gone away.
- AS AN INDUSTRY LET US PUT MORE EFFORT INTO IDENTIFYING AND SOLVING THE DETAILED ISSUES THAT DRIVE BEHAVIOR; BE THAT GENERATOR, RETAILER OR END CONSUMER.