



Market Operations

Monthly Service Provider Report

This report details monthly information in relation to the Wholesale Information & Trading System (WITS), clearing manager, pricing manager and reconciliation manager functions performed by NZX under contract to the Electricity Authority (Authority).

May 2017



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1. Introduction

1.1 Purpose

This report details monthly information in relation to the Wholesale Information & Trading System (WITS), clearing manager, pricing manager, reconciliation manager and extended reserve manager functions performed by NZX under contract to the Electricity Authority (Authority).

This report contains core reporting requirements in compliance with Clauses 3.13 and 3.14 of the Electricity Participation Code 2010 and relevant Market Operator Service Provider (MOSP) agreements.

1.2 Contact Details

The following is a list of contact details for further information or questions pertaining to this report:

IT Operations

| | |
|--------------------------|-----------------------|
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| Head of Energy IT | |

Service Operations

| | |
|---------------------------|-----------------------|
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| Energy Operations Manager | |



2. Compliance

2.1 Compliance with Regulations and Code

For this month, to the best of our knowledge, the WITS, reconciliation manager, pricing manager and extended reserve manager service providers fully complied with the Code and regulations.

There was one breach of the Code by the clearing manager. Under Clause 14.15 the clearing manager is required to calculate amounts owing for any hedge settlement agreements (HSAs) lodged with the clearing manager. The clearing manager incorrectly calculated amounts owing for a lodged hedge settlement agreement for the April 2017 billing period. This was due to analyst error and the amount involved was relatively minor. The clearing manager is intending to introduce a new feature to its system whereby HSA information is uploaded via a csv, avoiding manual data entry. This feature would though, most likely be used for complex HSAs only.

2.2 Operation of the Regulations and Code

For this month, the NZX service providers have not identified any areas of the Code that require addressing.

2.3 Compliance with MOSP Agreements

All provisions of the WITS, reconciliation manager, clearing manager and pricing manager MOSP agreements have been adhered to during the reporting month.



3. Service Level Reporting

3.1 WITS service levels against target

| Measure | Target | Achieved this month |
|--|--------------|---------------------|
| WITS availability | >99.72% | 100% |
| WITS file upload availability | >99.72% | 100% |
| Average time to publish NRSS & PRSS | <1 minute | 60.5 sec |
| Average time to publish NRSL & PRSL | <7 minutes | 2 min 11 sec |
| Average time to publish provisional/interim/final prices | <1.5 minutes | 27.5 sec |

3.2 Clearing manager service levels

3.2.1 Clearing manager service levels against targets

| Measure | Target | Achieved this month |
|--|---------|----------------------|
| No. of wash-up notifications published later than the 5th business day of the month | Zero | 0 late publications |
| No. of hedge settlement agreement amounts published later than the 5th business day of the month | Zero | 0 late publications |
| No. of constrained amounts sent to system operator later than 09:00 hrs on 8th business day of the month | Zero | 0 late notifications |
| Availability achieved during the month | > 99.5% | 100% |

3.2.2 Clearing manager service level reporting

| Measure | Metric | Achieved this month |
|--|------------|--|
| Number of publication targets missed | No. | 0 |
| Number of invoice revisions during the month | No. | 0 |
| Date of issue of last invoice during the month | Date | 11/05/2017 |
| Number of unplanned outages during the month | No. | 0 |
| Number of planned outages during the month | No. | 1 |
| Availability achieved during the month | % attained | 100% |
| Number of prudential defaults during the month | No. | 0 |
| Scaling applied to generator payments | % attained | 0% |
| Number of data files provided to the Authority | No. | 18 constrained amount files; 4 weekly prudential summaries. |

3.3 Pricing manager service levels

3.3.1 Pricing manager service levels against targets

| Measure | Target | Achieved this month |
|---|--|---------------------------------------|
| Interim prices published by 09:20 hrs, provided there is no provisional price situation, and the input information has been received by 07:30 hrs | No more than one late publication in a rolling three month period | 0 late publications |
| On a weekday, provisional prices published before 10:20 hrs, provided the input information has been received by 07:30 hrs | No more than one late publication in a rolling three month period | 0 late publications |
| On a weekend day, provisional prices published before 09:20 hrs, provided the input information has been received by 07:30 hrs | No more than one late publication in a rolling three month period | 1 late publications |
| A price that has been published as provisional will be republished as interim on the same day that a revised data notice is received, provided that a notice is received before 03:00 hrs | No more than one late publication in a rolling three month period | 0 late publications |
| No. of price processing errors in a calendar month | Zero | 0 price processing errors |
| Average time to recommend to the Authority a resolution to a pricing error claim over a rolling 12 month period (from 1 November 2016) | Two business days over a rolling 12 month period (in the event of price processing errors) | 4.3 (includes SO response time) |
| Months since last disaster recovery test for standalone Scheduling, Pricing and Dispatch (SPD) | No more than six months | 1 months (DR test in Apr 2017) |
| Months since last test of back-up pricing at Transpower | No more than six months | 4 month (back up pricing at TP Jan 3) |
| No. of unplanned system outages | Zero | 0 unplanned system outages |
| Planned outages coordinated with the system operator | Yes (in the event of an unplanned outage) | 0 |
| No. breaches of the incident response levels contained in Section 6 of this report | Zero | 0 breaches |
| Pricing case files and pricing case file status sent to the Authority on time (as specified in 9.2 of the MOSP agreement) | Yes | Yes |



3.3.2 Pricing manager service level reporting

| Measure | Metric | Achieved this month |
|---|--|---------------------|
| Number of interim or final prices published late in current reporting month | No. | 0 |
| Number of interim or final prices published late in last twelve months | No. | 3 |
| Average time to recommend to the Authority, a resolution to a price error claim | Days | 4.3 |
| Number of price error claims received | No. | 0 |
| Disaster recovery and backup obligations | Achieved | Achieved |
| Total outages: | | |
| - Planned | No. planned | 0 |
| - Planned without system operator coordination | No. planned without system operator coordination | 0 |
| - Unplanned | No. unplanned | 0 |
| Number of data files provided to the Authority late | No. | See above |

3.4 Reconciliation manager service performance

3.4.1 Reconciliation manager service levels against targets

| Measure | Target | Achieved this month |
|--|--------|---------------------|
| Availability between business days 1 and 4, and 9 and 13 | 99.8% | 100% |
| Availability for other times of the month | 99.5% | 100% |

* See section 2.3

3.4.2 Reconciliation manager service level reporting

| Measure | Metric | Achieved this month |
|---|------------|---------------------|
| Number of days late for publication of reconciliation information | 0 Days | 0 days |
| System availability between business days 4, 7, 9 and 13 for the month | % attained | 100% |
| System availability outside business days 4, 7, 9 and 13 for the month | % attained | 100% |
| Number of volumes disputes resolved in the month | No. | 0 |
| Number of requests to re-run reconciliation as a result of an invoice dispute | No. | 0 Request |

| Measure | Metric | Achieved this month |
|---|------------|---------------------|
| Setup of approved profiles within 1 business day of receiving a notification from the Authority | % attained | 100% (none) |
| Total outages: | | |
| - Planned | No. | 0 hours |
| - Unplanned | No. | 0 hours |



4. Systems Update

4.1 Functional specification status

| System | Latest revision | Approved by the Authority** |
|------------------------|-----------------|-----------------------------|
| WITS | 4.10 | ● |
| Clearing manager | 20.7 | ● |
| Pricing manager | 4.3 | ● |
| Reconciliation manager | 9.27 | ● |

**For this table, and for the remaining tables in this report, ● indicates yes and ● indicates no.

4.2 Backup requirements

| System | Daily data backup requirement meet ¹ | Weekly data backup requirement meet ² | Reason for requirement not being met |
|------------------------|---|--|--------------------------------------|
| WITS | ● | ● | N/A |
| Clearing manager | ● | ● | N/A |
| Pricing manager | ● | ● | N/A |
| Reconciliation manager | ● | ● | N/A |

4.3 Disaster recovery and BCP testing

| Date | Service | Application/Scope | Status |
|-------------|--------------|--------------------------|----------|
| 24 May 2016 | All services | BCP facilitated exercise | Complete |
| 12 Sep 2016 | All services | BCP functional test | Complete |

¹ Backup copies of all data and processed data must be taken at least daily and stored in a secure offsite location. Likewise, copies of the latest version of the software must also be kept offsite.

² At least weekly, a backup copy of the data, processed data and software must be delivered and stored at an offsite location at least 100km from the premises used to provide the regular services.

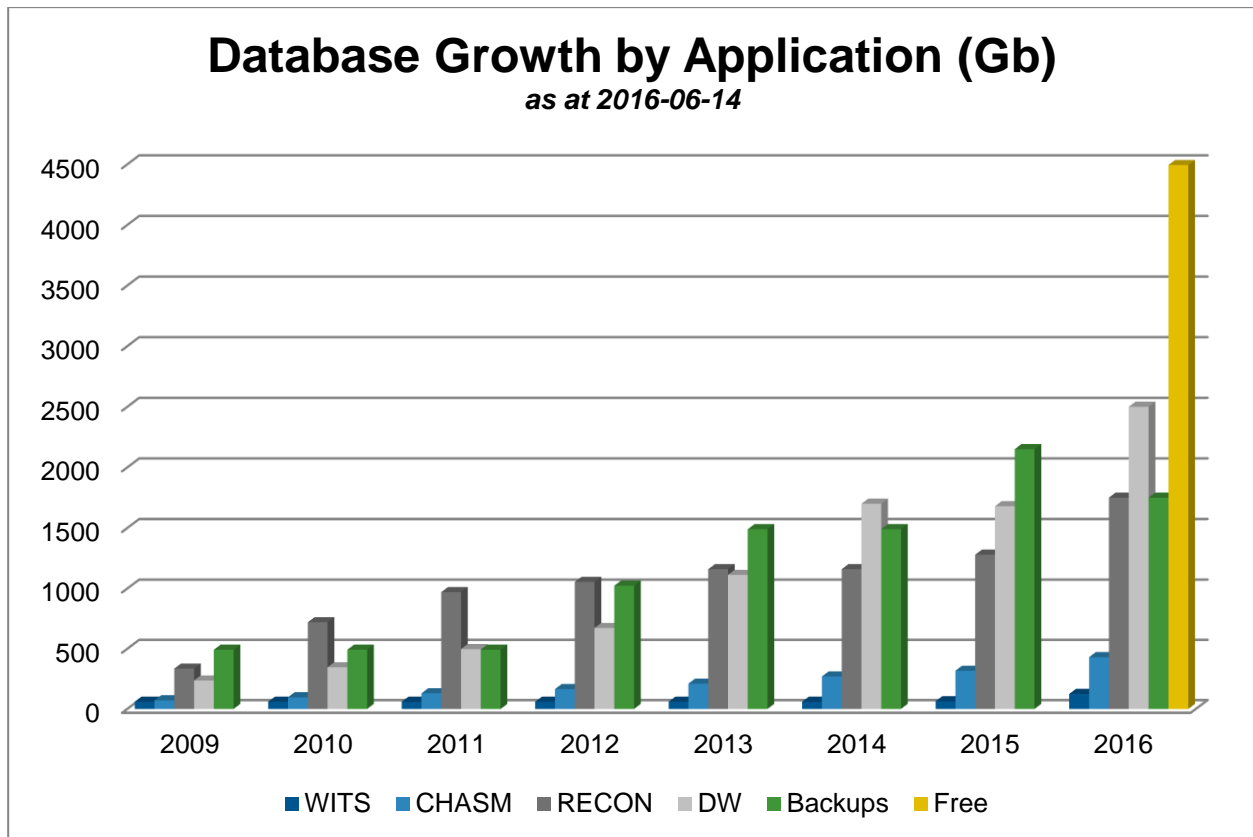
| Date | Service | Application/Scope | Status |
|---------------------|------------------------|-------------------|----------|
| 3 - 17 May 2016 | Reconciliation manager | Disaster Recovery | Complete |
| 3 - 17 May 2016 | Clearing manager | Disaster Recovery | Complete |
| 3 - 17 May 2016 | Pricing manager | Disaster Recovery | Complete |
| 3 - 17 May 2016 | WITS | Disaster Recovery | Complete |
| 14 - 28 Sep 2016 | Reconciliation manager | Disaster Recovery | Complete |
| 14 - 28 Sep 2016 | Clearing manager | Disaster Recovery | Complete |
| 14 - 28 Sep 2016 | Pricing manager | Disaster Recovery | Complete |
| 14 - 28 Sep 2016 | WITS | Disaster Recovery | Complete |
| 19 Apr – 3 May 2017 | Reconciliation manager | Disaster Recovery | Complete |
| 19 Apr – 3 May 2017 | Clearing manager | Disaster Recovery | Complete |
| 19 Apr – 3 May 2017 | Pricing manager | Disaster Recovery | Complete |
| 19 Apr – 3 May 2017 | WITS | Disaster Recovery | Complete |

4.4 Developer access to production systems

Reporting system for this metric are in development



5. System Capacity



Note: (Free space shown from 2016 only)

6. Incidents

6.1 WITS incident - fault response and resolution times

| Priority | Measure | Standard | Achieved this month | Incident Ref # |
|----------|---|----------|---------------------|----------------|
| 1 | Respond within 15 minutes of receipt of a support request | 100% | 100% | 40459, 40453 |
| | Work around or resolve within 6 hours | 100% | 100% | 40459, 40453 |
| | Work around resolved within 20 business days | 100% | 100% | 40459, 40453 |
| 2 | Respond within 2 hours of receipt of a support request | 100% | 100% | 40617 |
| | Work around or emergency fix within 1 business day | 100% | 100% | 40617 |
| | Resolve within 20 business days | 100% | 100% | 40617 |
| 3 | Respond within 1 business day | 100% | 100% | 0 |
| | Resolve within 40 business days | 100% | 100% | 0 |
| 4 | Acknowledgment of downgrade of severity to level 4 within 1 business day of downgrade | 100% | 100% | 0 |
| | Resolve at the next convenient opportunity as agreed with the Authority | 100% | 100% | 0 |

6.2 Clearing manager incident – fault response and resolution times

| Priority | Measure | Standard | Achieved this month | Incident Ref # |
|----------|--|----------|---------------------|----------------|
| 1 | Respond within 15 minutes of receipt of a support request, received between 07:30 hrs to 19:30 hrs on a business day | 100% | 100% | 40473 |
| | Work around or resolve within 6 hours | 100% | 100% | 40473 |
| | Work around resolved within 20 business days | 100% | 100% | 40473 |
| 2 | Respond within 2 hours of receipt of a support request, received between 07:30 hrs to 19:30 hrs on a business day | 100% | 100% | 40420 |
| | Work around or emergency fix within 1 business day | 100% | 100% | 40420 |
| | Resolve within 20 business days | 100% | 100% | 40420 |
| 3 | Respond within 1 business day | 100% | 100% | 40510, 40438 |
| | Resolve within 40 business days | 100% | 100% | 40510, 40438 |

| | | | | |
|---|---|------|------|---|
| 4 | Acknowledgment of downgrade of severity to level 4 within 1 business day of downgrade | 100% | 100% | 0 |
| | Resolve at the next convenient opportunity as agreed with the Authority | 100% | 100% | 0 |

6.3 Pricing incident - Fault response and resolution times

| Priority | Measure | Standard | Achieved this month | Incident Ref # |
|----------|---|----------|---------------------|----------------|
| 1 | Respond within 15 minutes of receipt of a support request | 100% | 100% | 0 |
| | Work around or resolve within 6 hours | 100% | 100% | 0 |
| | Work around resolved within 20 business days | 100% | 100% | 0 |
| 2 | Respond within 2 hours of receipt of a support request | 100% | 100% | 0 |
| | Work around or emergency fix within 1 business day | 100% | 100% | 0 |
| | Resolve within 20 business days | 100% | 100% | 0 |
| 3 | Respond within 1 business day | 100% | 100% | 0 |
| | Resolve within 40 business days | 100% | 100% | 0 |
| 4 | Acknowledgment of downgrade of severity to level 4 within 1 business day of downgrade | 100% | 100% | 0 |
| | Resolve at the next convenient opportunity as agreed with the Authority | 100% | 100% | 0 |



6.4 Reconciliation manager incident – Fault response and resolution times

| Priority | Measure | Standard | Achieved this month | Incident Ref # |
|----------|--|----------|---------------------|----------------|
| 1 | Respond within 15 minutes of receipt of a support request, received between 07:30 hrs to 19:30 hrs on a business day | 100% | 100% | 0 |
| | Work around or resolve within 6 hours | 100% | 100% | 0 |
| | Work around resolved within 20 business days | 100% | 100% | 0 |
| 2 | Respond within 2 hours of receipt of a support request, received between 07:30 hrs to 19.30 hrs on a business day | 100% | 100% | 0 |
| | Work around or emergency fix within 1 business day | 100% | 100% | 0 |
| | Resolve within 20 business days | 100% | 100% | 0 |
| 3 | Respond within 1 business day | 100% | 100% | 40549 |
| | Resolve within 40 business days | 100% | 100% | 40549 |
| 4 | Acknowledgment of downgrade of severity to level 4 within 1 business day of downgrade | 100% | 100% | 0 |
| | Resolve at the next convenient opportunity as agreed with the Authority | 100% | 100% | 0 |



7. Stakeholders

7.1 User group meetings

| Role | Date | Status |
|--|------------------------------|----------|
| Reconciliation manger and clearing manager | 10 August 2016 (Wellington) | Complete |
| WITS and pricing manager | 12 October 2016 (Wellington) | Complete |
| All roles | 23 May 2017 (Auckland) | Complete |
| All roles | Q4 2017 (Wellington) | Planned |

7.2 Stakeholder meetings

| Date | Participant | Status |
|-----------|-------------|----------|
| 24/5/2017 | OMFM | Complete |
| 24/5/2017 | ELKI | Complete |
| 24/5/2017 | PUNZ | Complete |



8. Clearing and Settlement Market Summary

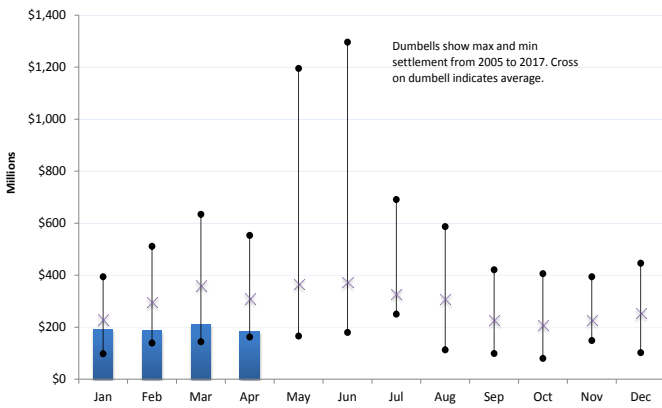
Settlement Data

| Amount | |
|----------------------------|------------------|
| Settlement month | April 2017 |
| Settlement date | 22 May 2017 |
| Amounts owed from payers | \$183,772,752.21 |
| Amounts owed to payees | \$178,178,303.90 |
| Loss and constraint excess | \$3,737,315.23 |
| Payer volumes | 3,203,333 MWh |
| Payee volumes | 3,313,814 MWh |

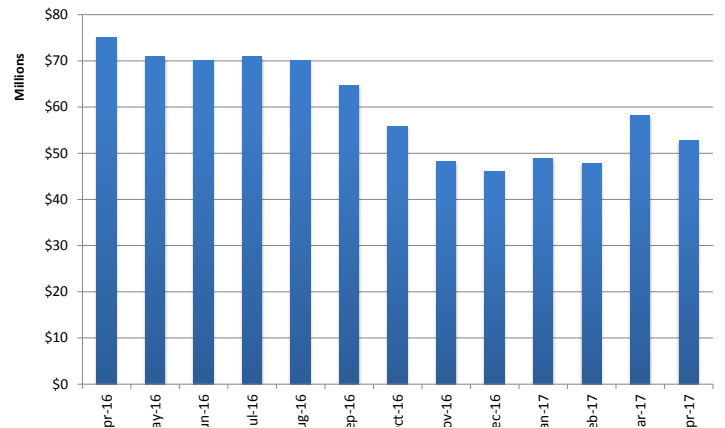
Prudential Data

| Amount | |
|----------------------------------|------------------|
| As at date | 31 May 2017 |
| Total security held | \$239,268,878.61 |
| Total assessed exposure | \$70,917,569.90 |
| No. of security increases | 27 |
| No. of security reductions | 2 |
| Settlements made from prudential | 4 |

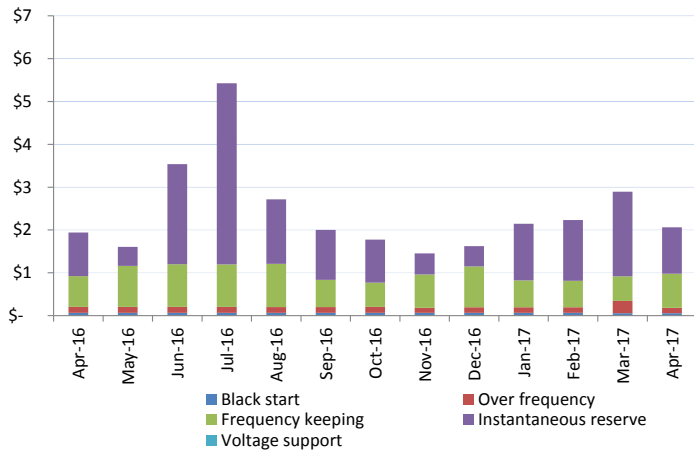
2017 Payer Amounts Owed Relative to Previous Years



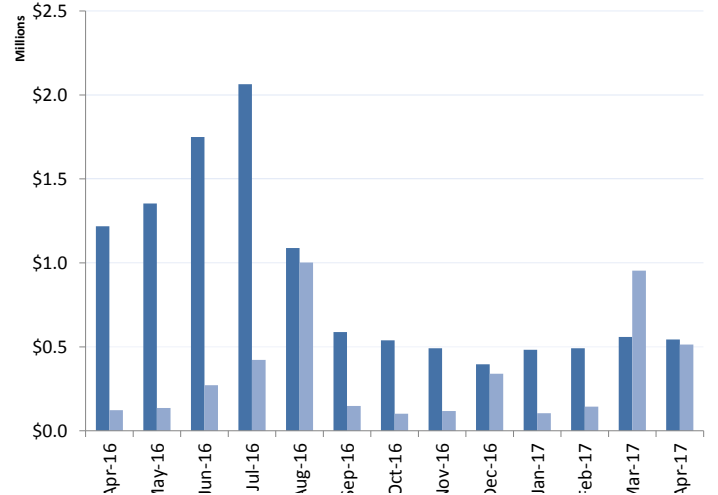
2017 Amounts Payable since Net Settlement Introduced



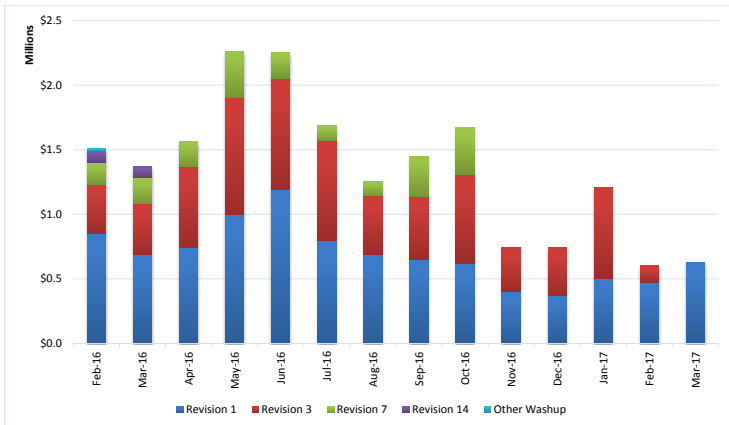
13 Month Rolling Total Ancillary Service Amounts



13 Month Rolling Total Constrained Amounts



14 Month Rolling Washups*



This chart shows total wash-ups due to the clearing manager by billing period and by wash-up revision month

Must Run Dispatch Auction

| Amount | |
|------------------------------|--|
| Month | May 2017 |
| Cleared day auction prices | \$0.01 for all days |
| Cleared night auction prices | \$0.02 for 08/05/2017 \$0.01 for 01/05/2017 |
| No. of revised bids | 2 |

Washup Totals

| April 2017 Washups | Value \$ |
|--------------------|--------------------|
| Revision 1 | \$630,026 |
| Revision 3 | \$696,691 |
| Revision 7 | \$305,613 |
| Revision 14 | \$83,591 |
| Total | \$1,715,921 |

This chart shows total wash-ups due to the clearing manager by billing period and by wash-up revision month

9. Pricing Market Summary

Pricing Statistics

| | Amount |
|--|----------|
| Month | May 2017 |
| No. of solves | 55 |
| No. of solves not published | 8 |
| No. of solves published as provisional | 16 |
| No. of solves published as final | 31 |
| No. of pricing error claims | 0 |

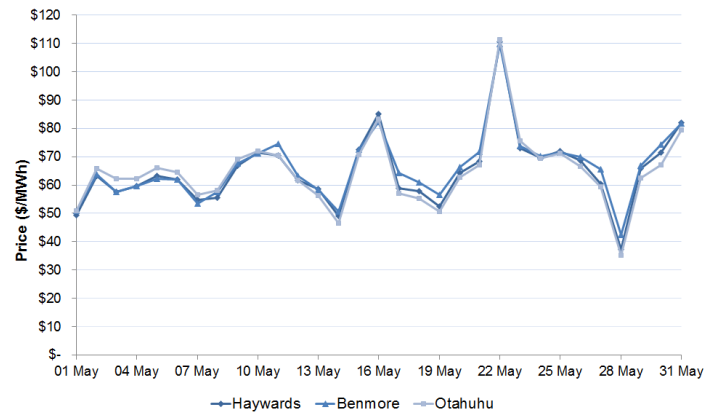
Provisional Price Situations

| | Amount |
|--|----------|
| Month | May 2017 |
| No. of infeasibility situations | 13 |
| No. of metering situations | 13 |
| No. of high spring washer price situations | 0 |
| No. of SCADA Situations | 0 |

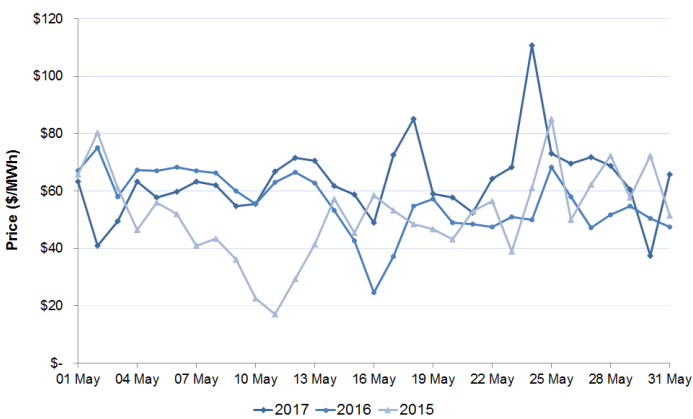
Pricing Publication Times

| | Amount |
|---|--------|
| 1st solve published same day before 9:22 | 9 |
| 2nd solve published same day before 12:00 | 8 |
| 2nd solve published same day before 17:00 | 2 |
| 2nd solve published interim 1st business day following weekend or weekday provisional | 8 |
| Interim solve publication delayed more than one business day | 4 |

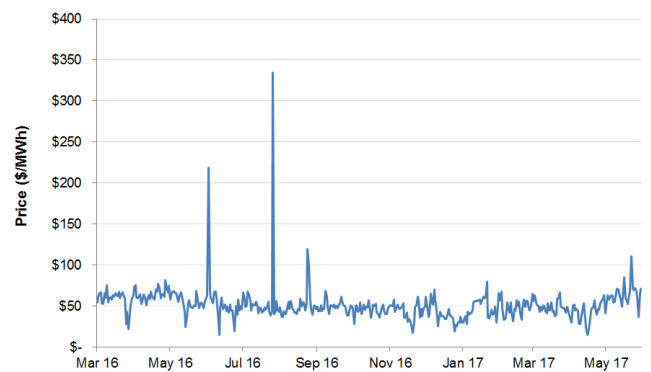
Daily Average



Daily Average Haywards Price Comparison



Haywards 13 Month Daily Average Price Comparison



10. Reconciliation Market Summary

