5MS Dispatch Focus Group

Friday 15th February 2019

AEMO Office, LEVEL 2, 20 BOND STREET, SYDNEY

This slide pack was developed for the Joint Dispatch/Systems Focus Group meeting. This version of the slides has been annotated with notes from the meeting. These additional notes are either in blue text or on new slides that have a yellow background.

Agenda

NO	TIME	AGENDA ITEM	RESPONSIBLE
Preliminary Matters			
1	10:00am – 10:10am	Welcome, introduction and apologies	Michael Sanders (AEMO)
Matters for Discussion			
2	10:10am – 10:30am	Notes and actions from previous meeting	Michael Sanders, Hamish McNeish, Emily Brodie (AEMO)
3	10:30am – 10:50am	Bid file submission document	Hamish McNeish (AEMO)
4	10:50am – 11:05am	Spot market operations timetable	Michael Sanders (AEMO)
5	11:05am - 11:50am	Dispatch and Bidding Data Model	Hamish McNeish (AEMO)
6	11:50am – 12:30pm	LUNCH	
7	12:30pm – 1:30pm	Web user interface development	Pierre Fromager (AEMO)
Other Business			
8	1:30pm – 1:45pm	General questions and next steps	Michael Sanders & Hamish McNeish (AEMO)

Attendees

Attendee	Organisation
Dominic Acock	Origin
Methsiri Aratchige	Origin
Boris Basich	AGL
Sonia Kolar	Alinta
Zahir Ally	Alinta
Hugh Macfarlane	Snowy Hydro
Stephanie Easton	Infigen
Victor Sanchez	Infigen
Oliver Jessup	Stanwell
Ron Logan	ERM
Jeremy Mendoza	EnergyAustralia
Michael Sanders	AEMO
Hamish McNeish	AEMO
Emily Brodie	AEMO
Pierre Fromager	AEMO
Tom Butterworth	AEMO

Notes and actions from previous meeting

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Actions from previous meeting (1) 27 November 2018, Melbourne

Action	Responsible	Due date	Response
AEMO to investigate and communicate how long it takes to publish data Dispatch instruction timing: consider bringing this forward so DIs are sent at the start of the interval, rather than 30 s or so later. Requested clear diagram or table of different timings and runs.	AEMO	14 Dec 2018	Closed. Presented at SWG (31 January)
AEMO to consult on software release approach.	AEMO	Dec 2018	This will be discussed in a subsequent SWG.
AEMO to provide a sandbox timeline and scope	AEMO	Jan 2019	Timeline provided. To be presented in Feb SWG.
Participants to provide cost impacts of dispatch instruction timing under 5MS.	Participants	31 Dec 2018	Closed.
Review and update web user interface design for next round of consultation	AEMO	Feb 2019	Closed. To be discussed at this meeting.

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AEMO feedback on items from prior meetings (1)

- 5MS implementation rule change request:
  - AEMO will submit a rule change request to the AEMC in February asking:
    - MLF calculation basis to remain at 30 min with flexibility to reduce granularity if there is a future case to do so
    - Fast start inflexibility profiles to be included in 5-minute pre-dispatch
    - Relax consultation requirements for the spot market operations timetable. ERM commented that industry would still like visibility of timetable changes and ability to comment on them. AEMO to include commentary to this effect in the rule change request.
- ST PASA update:
  - Intent is to use the lowest availability interval in a 30-m period
  - Investigating impact on design

AEMO feedback on items from prior meetings (2)

- Five-minute pre-dispatch update
  - P5 is now mandated by the rules ("pre-dispatch for each trading interval")
  - P5 will run every 5 minutes covering at least 1 hour (12 x 5-minute intervals)
  - The effective bids and offers for each 5-minute trading period covered are used in the P5 process.
  - The P5 pre-dispatch XML solution file may change
  - Based on industry feedback and internal discussion AEMO aims to:
    - Extend the schedule to 6 hours
    - Calculate price sensitivities
    - Include daily energy constraints
    - Include fast start inflexibility profiles (FSIP)
- Next Steps – raising a change request and assessing project impacts

Further notes on 5MPD

- Reducing data volumes by providing only a subset of constraint information from the solution sounds sensible, but risks excluding data that may in the future become useful. (The example of inertia constraints was given.)
- General agreement that 5-minute resolution over the entirety of the current PD period is pointless, and that six hours seems a sensible maximum.
- AEMO to propose a 5MPD structure for further discussion e.g.
  - 5-minute resolution over the next 1-3 hours, published every five minutes (similar output to current 5MPD, but also including demand sensitivities)
  - 5-minute resolution from the end of the hour 3 to the end of hour 6, updated every 30 minutes
    - Forecast horizon will be extended as far as possible, up to 6 hours, subject to solution speeds
    - Each hour within the forecast horizon may be published sequentially as the results become available, subject to solution speeds
    - Will include demand sensitivities; may exclude some constraint information
  - No 5-minute resolution beyond 6 hours

Bid file submission

Hamish McNeish

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Bid file submission - Recap

- Changes
  - Bids will be submitted in a new JSON format
  - Acknowledgements will be in a new JSON format
  - Bids are offered for 288 5-minute periods
  - Rebid explanation requires time of event/occurrence to be provided as a separate field, support for additional fields has been added for "rebid category" and "time of decision"
  - ~~0 fixed load treatment changes – to mean 0 not no fixed load~~
  - Zero will be an invalid value for fixed load – fixed load must be whole MW > 0. A participant wanting a fixed load of zero should set MaxAvail = 0.
  - Rebid reason should be completed as per the AER rebidding guidelines
  - The current TXT format will be retired from the rules commencement

- Supported Submission Methods
  - FTP
  - Web UI
  - Web Upload (potential CSV support)
  - API

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Bid file submission – Next Steps

- An initial draft of the format and submission process has been issued in the Tech Spec

- We are currently reviewing the format against:
  - Simplifying price and availability arrays
  - Providing a JSON schema that can be used by participants
  - Reviewing MNSP and batteries bid structure
  - Testing of the JSON format and schema processing for performance
  - Confirmation from the AER on rebid field names

- The format will be provided in the draft Bidding Format Document this month, we will then seek feedback on this document

- The Bidding Format Document will replace the existing:

  Energy -MNSP-FCAS Bid File Submission document.

  http://www.aemo.com.au/-/media/Files/PDF/Participant-Input-Interface-EnergyMNSPFCAS-Bid-File-Submission.pdf

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Spot market operations timetable

Michael Sanders

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Spot Market Operations Timetable Consultation

- The Spot Market Operations Timetable specifies the schedule for:
  - Operating the spot market
  - Publishing market information
- National Electricity Amendment (Five-Minute Settlement) Rule 2017 No.15 mandates five-minute pre-dispatch
- AEMO believes this requires a change to the timetable
- NER 3.4.3 requires a Rules consultation before the timetable can be changed
- AEMO does not expect the consultation to be complicated because the contents of the timetable are based on the contents of the Rules
- An issues paper and draft timetable will be published in Q1 2019
- DFG members invited to provide comments on the existing timetable

Dispatch and Bidding Data Model

Hamish McNeish

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Dispatch and Bidding Data Model - Recap

- The current FTP and CSV delivery mechanism (batcher/loader) remains unchanged
- We are progressively updating the EMMS 5MS Technical Specification
- The bidding data model changes have been released in the draft Technical Specification
- We will discuss the planned review process at the SWG on 18th Feb
- We will look to have a set review period for issued Draft and Final documents.
- The timeline for the P5 required data model changes is not yet confirmed

PACKAGE: BIDS – for discussion (1)

Package	Table name	Change	Details
BIDS	BIDOFFERFILETRK	New fields	Add: TRANSACTIONID REFERENCEID COMMENT VERSION
	BIDDAYOFFER	New fields	Add new rebid fields: REBIDEVENTTIME REBIDAWARETIME REBIDCATEGORY
	BIDPEROFFER	Deprecated	Stores 30-minute bid interval data
	BIDPEROFFER5	New table	Stores 5-minute bid interval data Child table to BIDDAYOFFER

PACKAGE: BIDS – for discussion (2)

Package	Table name	Change	Details
BIDS	MNSP_DAYOFFER	Added fields	Add new rebid fields: REBIDEVENTTIME REBIDAWARETIME REBIDCATEGORY
	MNSP_PEROFFER	Deprecated	Stores 30-minute bid interval data
	MNSP_PEROFFER5	New table	Stores 5-minute bid interval data Child table to MNSP_DAYOFFER
	BIDDAYOFFER_D	Deprecated	Can be replaced by a query joining DISPATCHBIDTRK and BIDDAYOFFER
	BIDPEROFFER_D	Deprecated	Can be replaced by a query joining DISPATCHBIDTRK, BIDDAYOFFER and BIDPEROFFER

PACKAGE: BIDS – proposed (1)

BIDOFFERFILETRK – New Fields

Field Name	Data type	Comment
TRANSACTIONID	VARCHAR2(32)	A GUID used to identify the submission transaction in AEMOs systems
REFERENCEID	VARCHAR2(32)	A participant provided reference, which is expected to be unique per submission
COMMENT	VARCHAR2(100)	A participant provided comment
VERSION	NUMBER(3)	The version number provided in the submission

Discussion:

Issued On – The Participant supplied submission date is not currently included

ReferenceId – Thoughts on uniqueness, should it be be enforced?

Questioned reference data and whether it was Public or not. 'Authorised by', for example is private and propose that 'comment' be private as well.

AEMO confirms that the data from BIDOFFERFILETRK table is private.

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PACKAGE: BIDS – proposed (2)

BIDDAYOFFER – New Fields

Field Name	Data type	Comment
REBIDEVENTTIME	DATE	Date/Time of event that triggered the rebid
REBIDAWARETIME	DATE	Date/Time of awareness of the event
REBIDCATEGORY	VARCHAR2(1)	The rebid category expected to be one of: P, A, F, E

REBIDEVENTTIME shouldn't have a data type of DATE because NER 3.8.22(c)(2)(ii) requires only the time, not the date

REBIDAWARETIME should have a data type of VARCHAR because AEMO will not be validating the contents of this field.

Discussion:

Currently no proposed field to indicate 5-min vs 30-min bids

Joining BIDPEROFFER to BIDDAYOFFER will provide 30-minute bids

Joining BIDPEROFFER5 to BIDDAYOFFER will provide 5-minute bids

PACKAGE: BIDS – proposed (3)

BIDPEROFFER5 – New Table

The columns will mirror BIDPEROFFER

Discussion:

Current column sizes have been raised as an issue – due to the space requirements

Other packages

Package	Table name	Change	Details
DISPATCH	NEGATIVE_RESIDUE	*Pending approach*	*TBC*
P5MIN		*Pending approach*	*TBC*
FORCE_MAJEURE	REGIONAPCINTERVALS	Data	Possible change of intervals to 5-minute resolution from 30-minute
MREVENT	MR_PEROFFER_STACK	Data	Change of intervals to 5-minute resolution from 30-minute

Discussion:

These are indicative only, detailed analysis is not yet complete.

Bid Version Number

- The treatment of Version number was discussed.
  - Currently AEMO does not guarantee processing order based on version number
  - A submission version number is checked against the filename
  - Some participants submit bids in order based on version number
  - Some participants submit bids out of order
  - The Web UI submits a version number of 1 for every submission

- AEMO has reviewed and will propose that Version number is removed from 5-minute bids in the technical specification, as it's use and treatment lead to confusion
- AEMO believes that the new field ReferenceId or Comment can be used instead

Web user interface development

Pierre Fromager

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Web User Interface

- Caveat: Draft only – likely to change
  - Reviewing bid structure for MNSP and batteries – Allow multiple DUs per bid , thus allowing a pairing between links or charge/discharge for batteries (if not using single DU).
  - Dealing with different bid types (esp. 'Energy' or 'FCAS') differently.
  - Extended search facility may not be required (participants use the Data Interchange to look up details in their own systems).
  - Ability to download and upload CSV may make extended Web functionality unnecessary.
  - Look and feel will be radically different and will follow AEMO standards and review by Web design team. Current look and feel is quite acceptable to participants – would prefer no change.
- Guiding principles:
  - Full functionality for creating submissions with multiple bids should be provided.
  - Users are likely to be occasional users so 'expert' functions should be avoided (e.g. shortcuts, entering codes rather drop-downs).

  Identified that existing screens are not bad so just need to improve efficiency (including response time).

Functional overview

- Look up submissions or bids based on selection criteria. Need quick access to effective bid, especially for urgent rebid.
- Create submissions and/or one or more bids. Still important – for bid portfolio – retrieve effective bids for portfolio.
- Copy existing submissions or bids to 'draft' submission. Confusion between 'submission' and 'bid'. Needs to be explained.
- Download or upload to CSV or JSON
- Submit via UI or submit files
- View, download or retrieve results
- Sparse view of periods – expandable
- Bulk update still popular – especially if combined with quick access to effective bid.
- Submission of JSON or CSV files
- Retrieval of 'as submitted' or 'as accepted' version of submissions.
- New rebid fields

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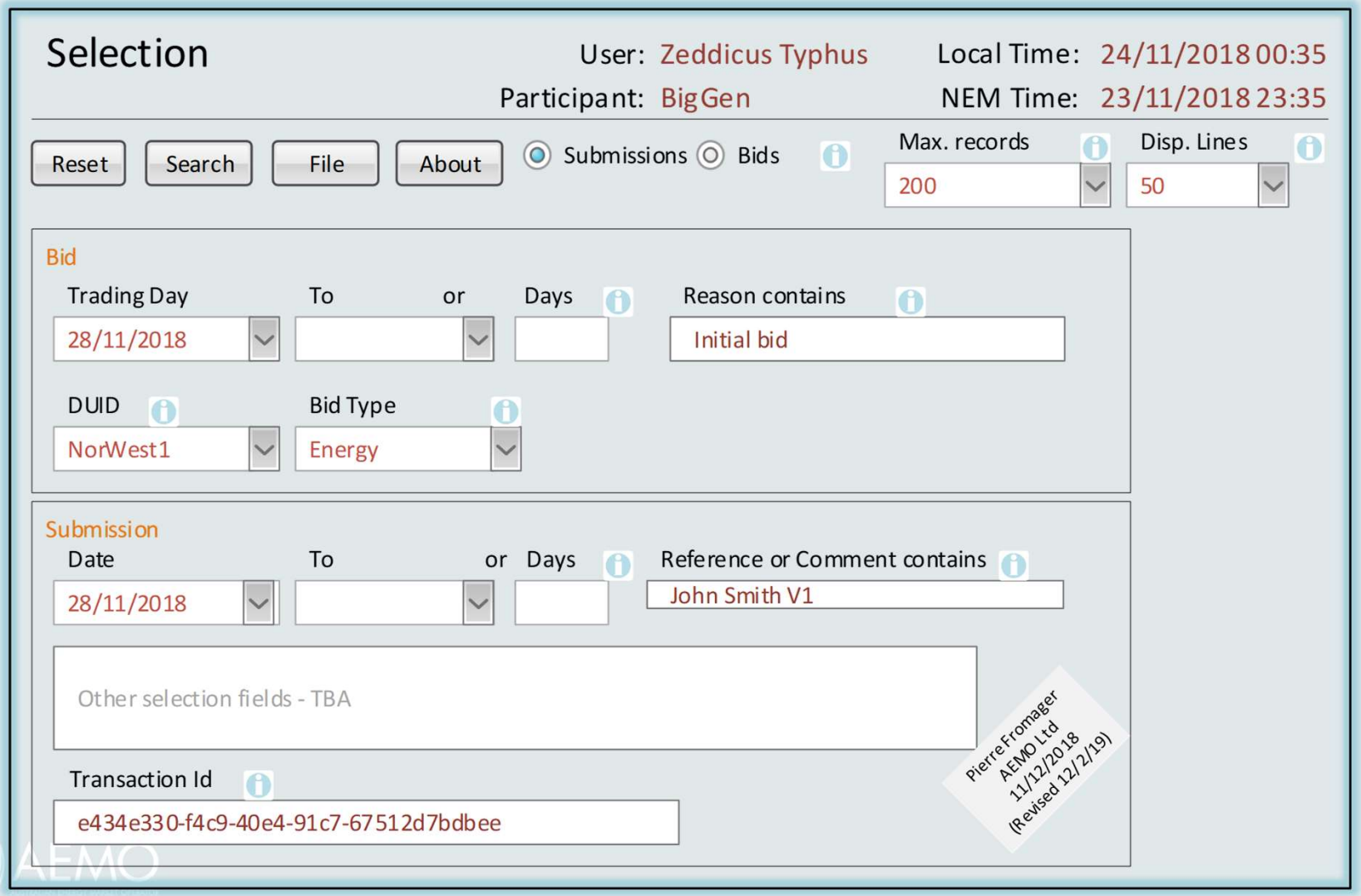
Functional Questions

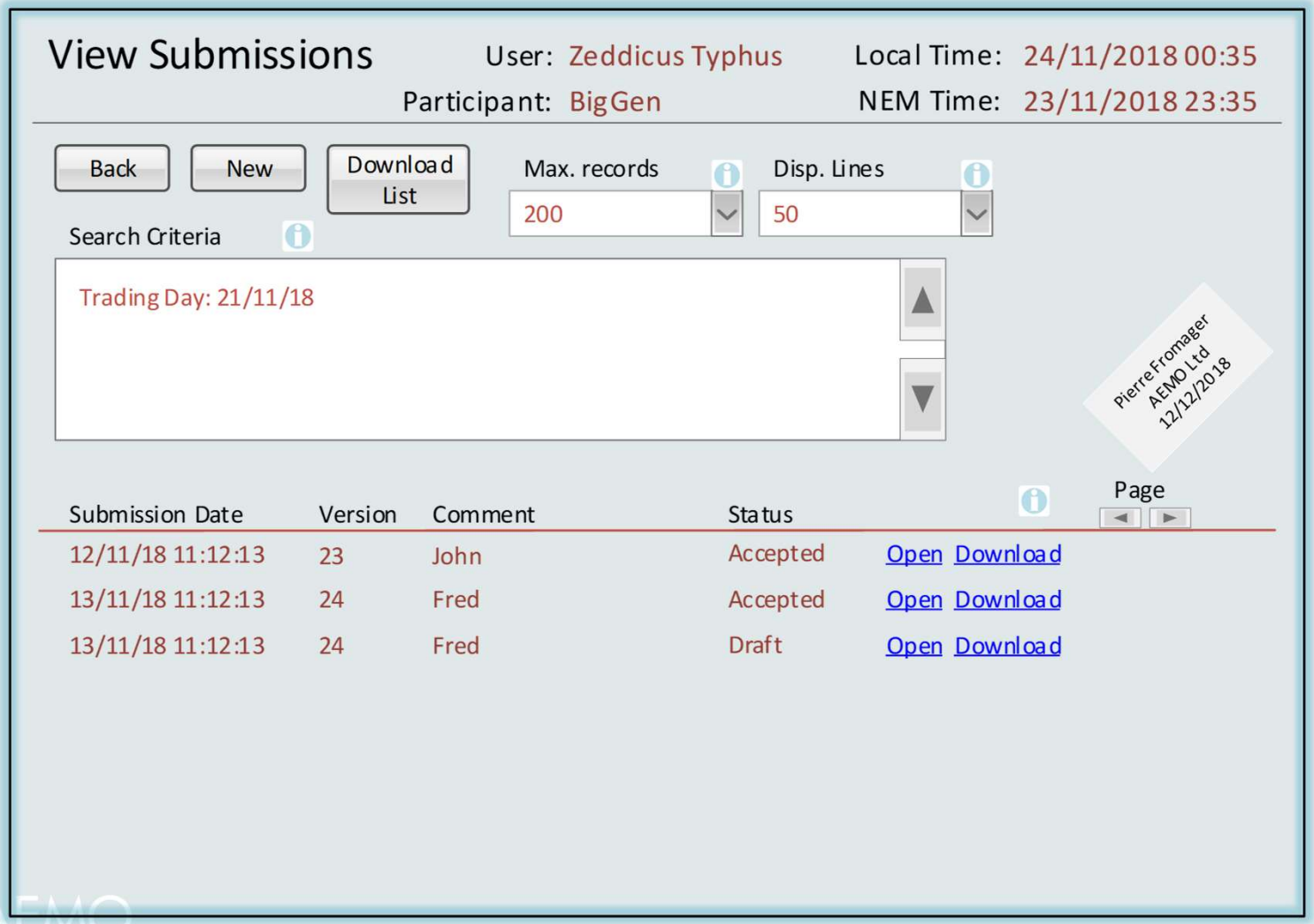
- *Retain Excel cut and paste (to and from), drag-down?* Quite like this feature.
- *One draft submission per user?* OK. In fact, one draft per session. When user logs out, reset draft. Logging back in has no memory of previous draft.
- *Not including MNSP?* OK.
- *Only allow single participant ID at a time?* OK.
- *Identify submission method? Web UI, API, FTP.* OK. Not critical.
- *Identify 30 or 5mn bid submission?* To be discussed further.

- Need quick submission of single bid for urgent rebid.
- Need clarification of submission v bid. Submission is collection of bids and carries metadata about the submission of the bids.
- Use of 'effective' bids
- Nice to have validation only, for testing and training.
- Consider bid 'shape' intelligence - e.g. adjust trapezium when max load is reduced.

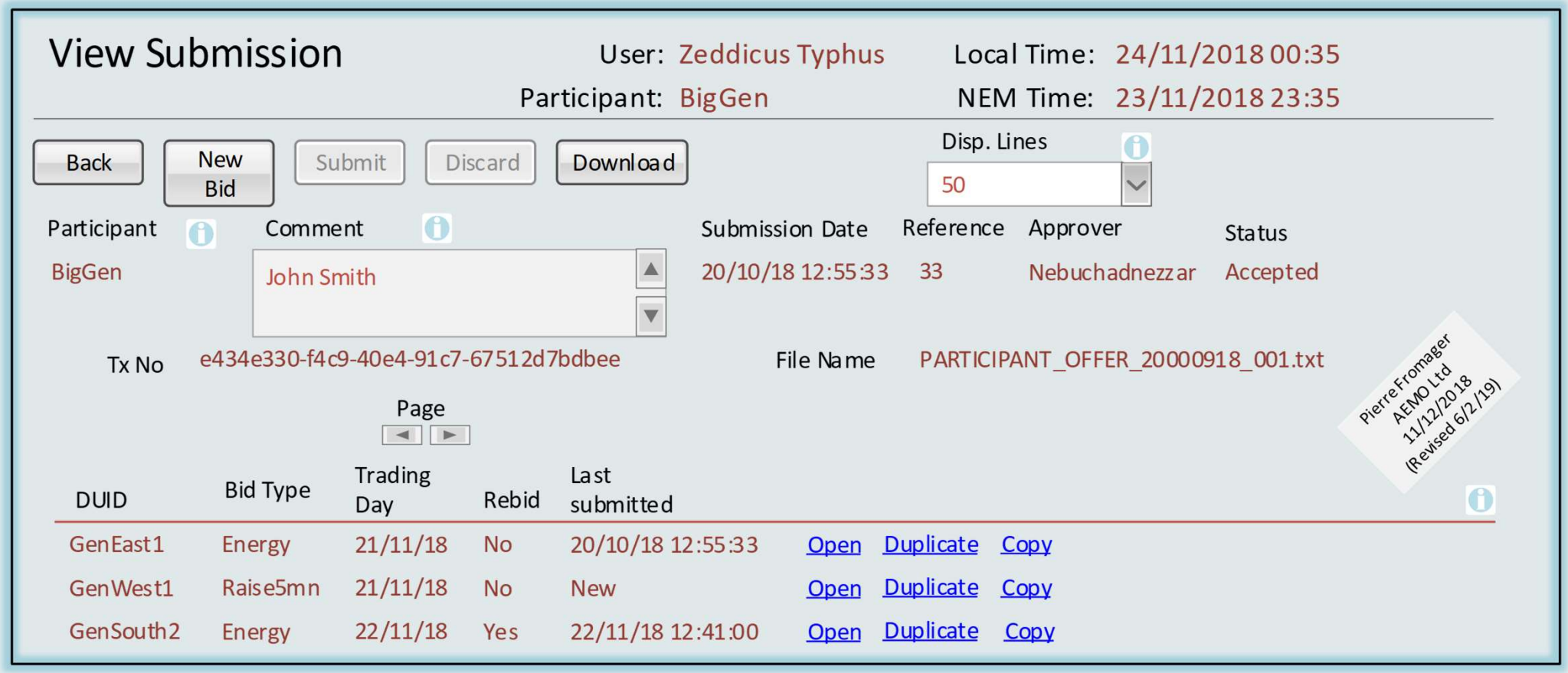
Selection Criteria:
View Submission / Bid selection page



List of submissions



View all details for a submission



View Submission

User: Zeddicus Typhus Local Time: 24/11/2018 00:35

Participant: BigGen NEM Time: 23/11/2018 23:35

Back | New Bid | Submit | Discard | Download

Disp. Lines: 50

Participant	Comment	Submission Date	Reference	Approver	Status
BigGen	John Smith	20/10/18 12:55:33	33	Nebuchadnezzar	Accepted

Tx No: e434e330-f4c9-40e4-91c7-67512d7bdbee

File Name: PARTICIPANT_OFFER_20000918_001.txt

Pierre Fromager AEMO Ltd 11/12/2018 (Revised 6/2/19)

Page

DUID	Bid Type	Trading Day	Rebid	Last submitted			
GenEast1	Energy	21/11/18	No	20/10/18 12:55:33	Open	Duplicate	Copy
GenWest1	Raise5mn	21/11/18	No	New	Open	Duplicate	Copy
GenSouth2	Energy	22/11/18	Yes	22/11/18 12:41:00	Open	Duplicate	Copy

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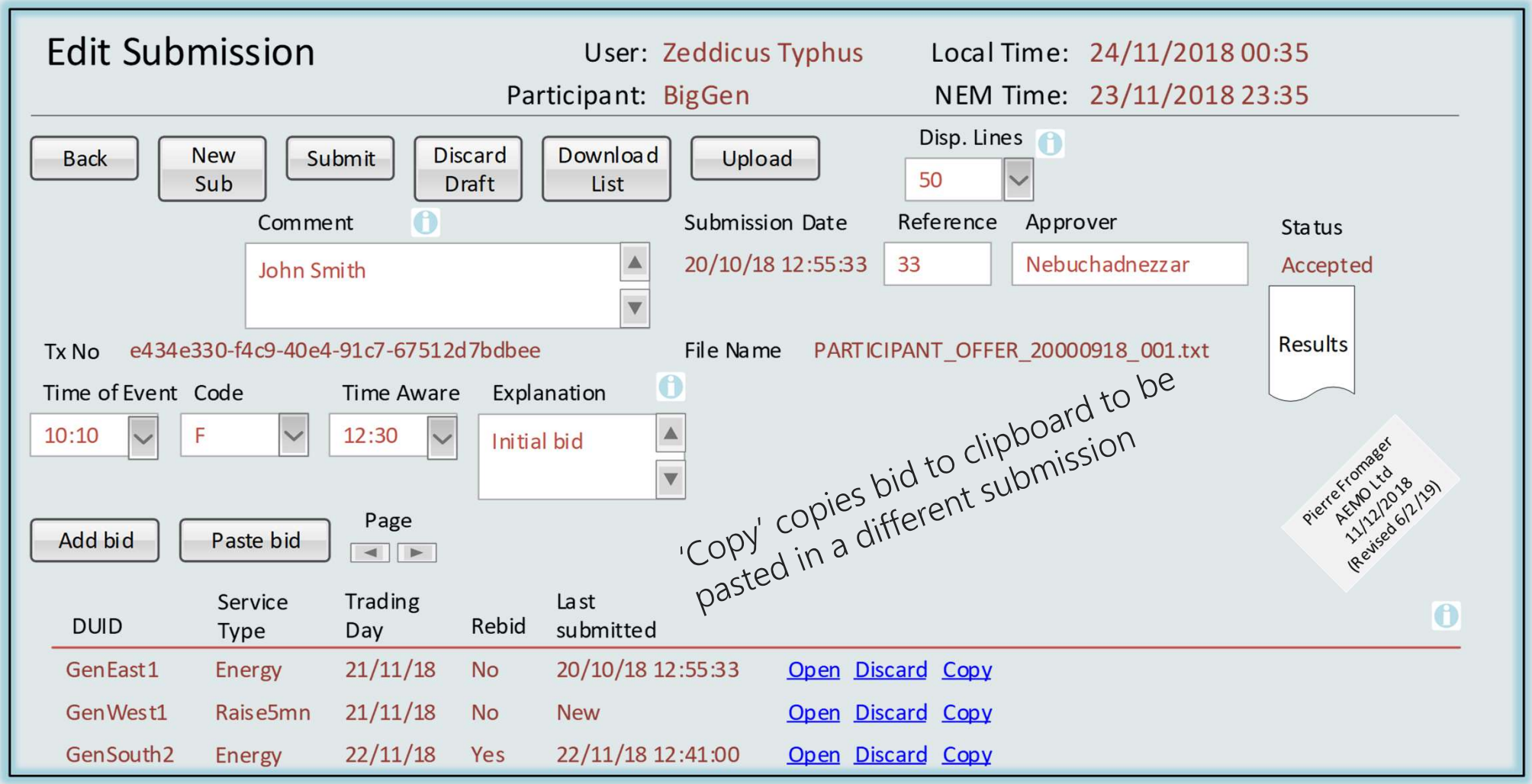
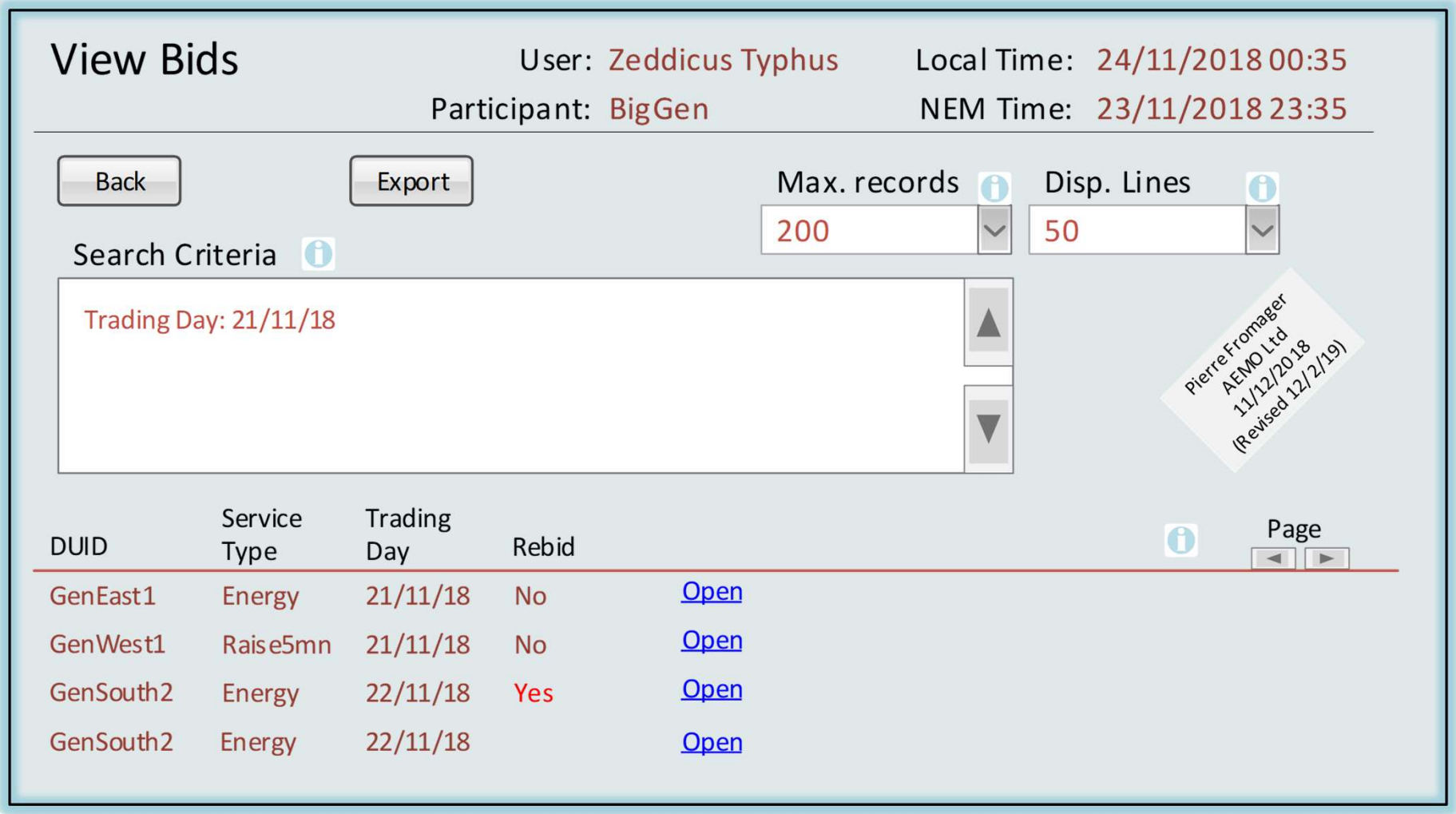
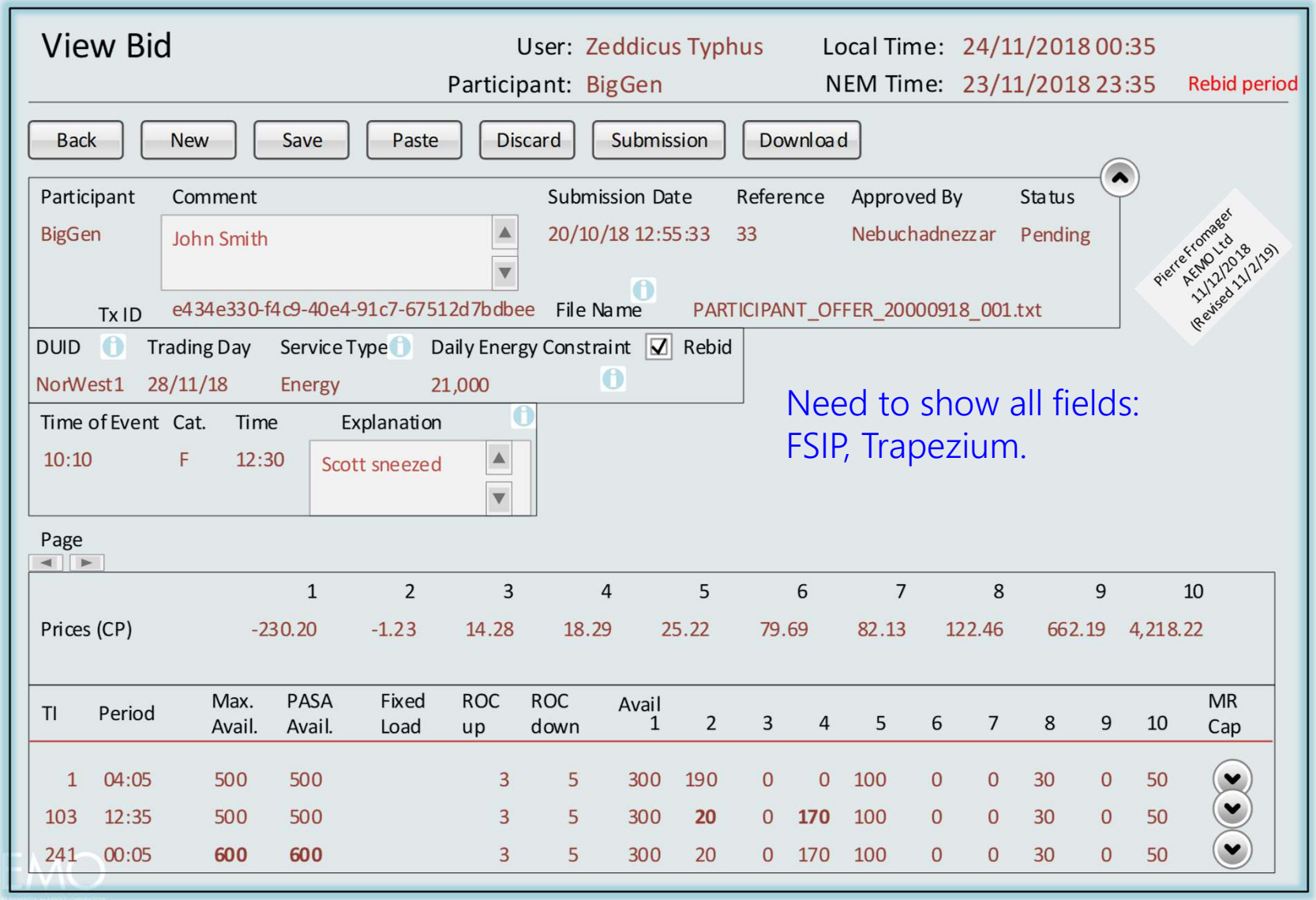
Edit (or new) Submission



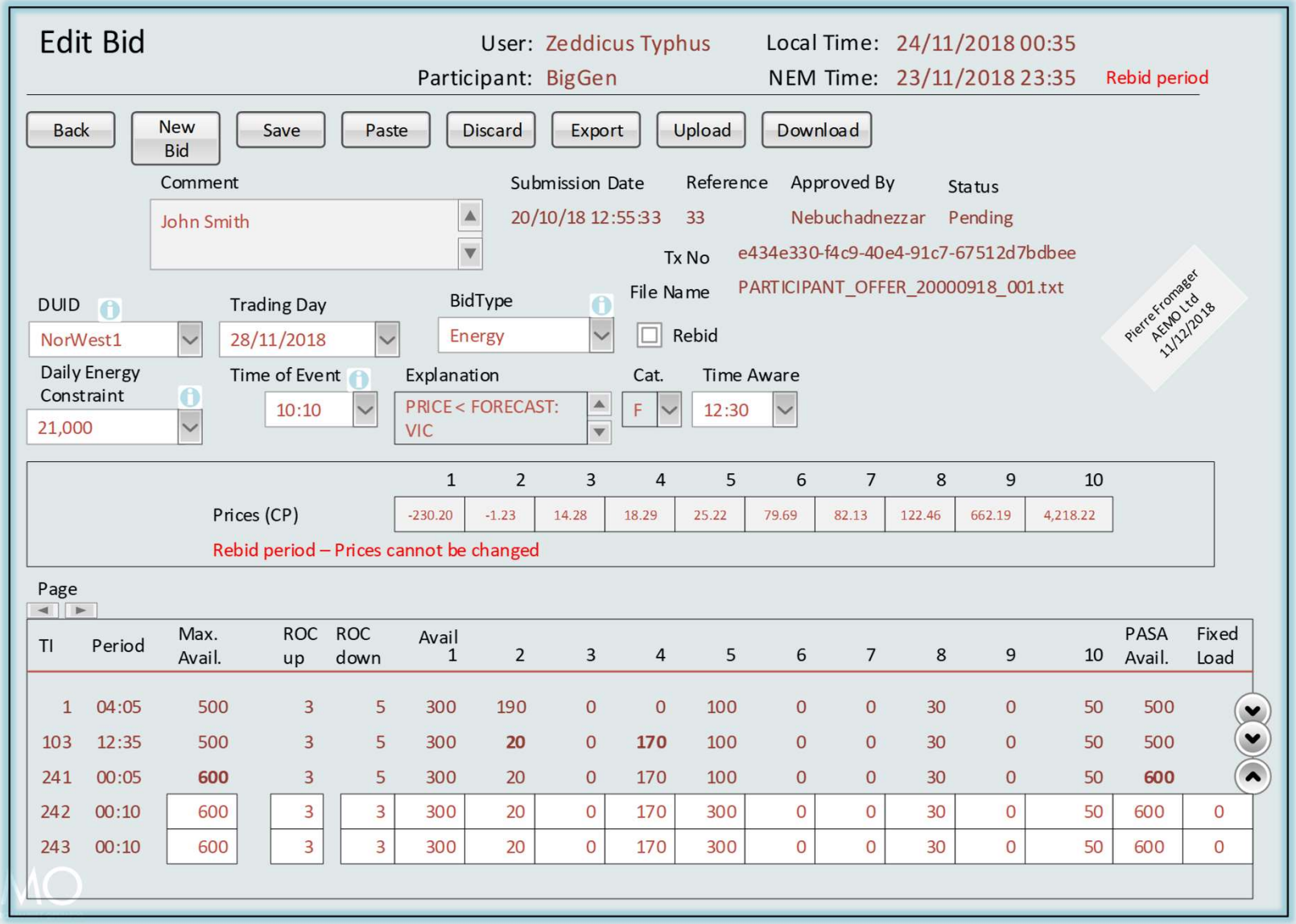
View list of bids matching selection criteria



View all details for a bid



New (or edit) bid



Edit Bid

User: Zeddicus Typhus Local Time: 24/11/2018 00:35

Participant: BigGen NEM Time: 23/11/2018 23:35 Rebid period

Back | New Bid | Save | Paste | Discard | Export | Upload | Download

Comment: John Smith

Submission Date: 20/10/18 12:55:33 Reference: 33 Approved By: Nebuchadnezzar Status: Pending

Tx No: e434e330-f4c9-40e4-91c7-67512d7bdbee

File Name: PARTICIPANT_OFFER_20000918_001.txt

Pierre Fromager AEMO Ltd 11/12/2018

DUID: NorWest1 Trading Day: 28/11/2018 BidType: Energy Rebid

Daily Energy Constraint: 21,000 Time of Event: 10:10 Explanation: PRICE < FORECAST: VIC Cat.: F Time Aware: 12:30

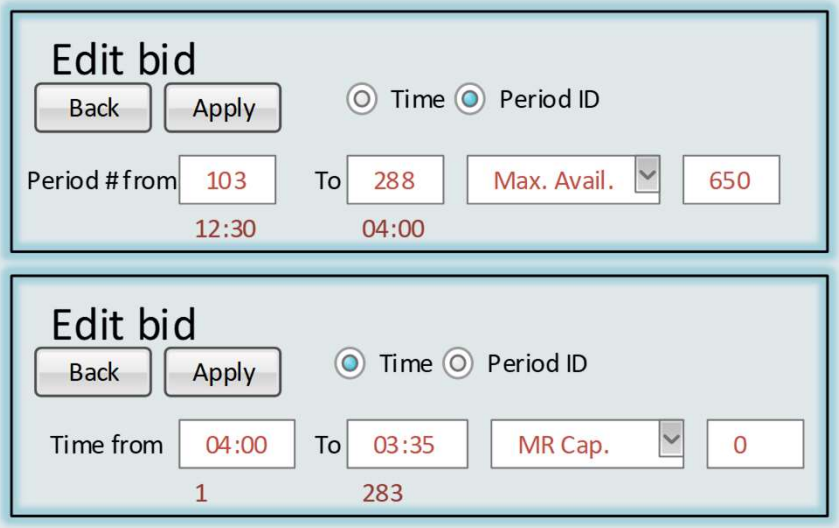
	1	2	3	4	5	6	7	8	9	10
Prices (CP)	-230.20	-1.23	14.28	18.29	25.22	79.69	82.13	122.46	662.19	4,218.22

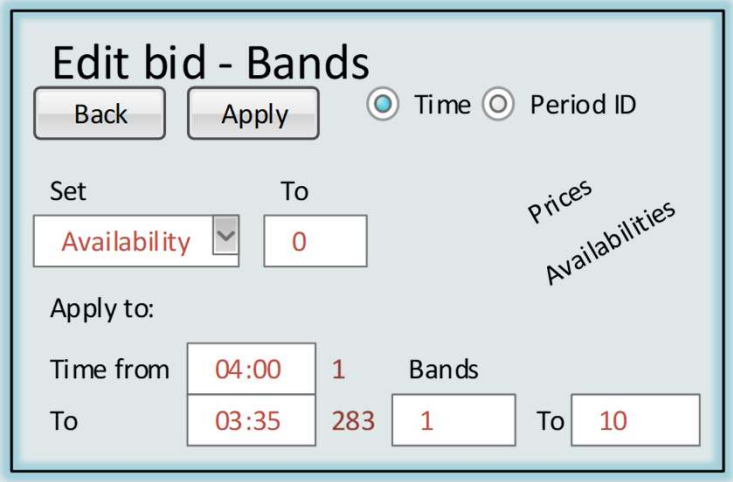
Rebid period – Prices cannot be changed

Page

TI	Period	Max. Avail.	ROC up	ROC down	Avail 1	2	3	4	5	6	7	8	9	10	PASA Avail.	Fixed Load
1	04:05	500	3	5	300	190	0	0	100	0	0	30	0	50	500	
103	12:35	500	3	5	300	**20**	0	**170**	100	0	0	30	0	50	500	
241	00:05	**600**	3	5	300	20	0	170	100	0	0	30	0	50	**600**	
242	00:10	600	3	3	300	20	0	170	300	0	0	30	0	50	600	0
243	00:10	600	3	3	300	20	0	170	300	0	0	30	0	50	600	0

Bulk edit periods



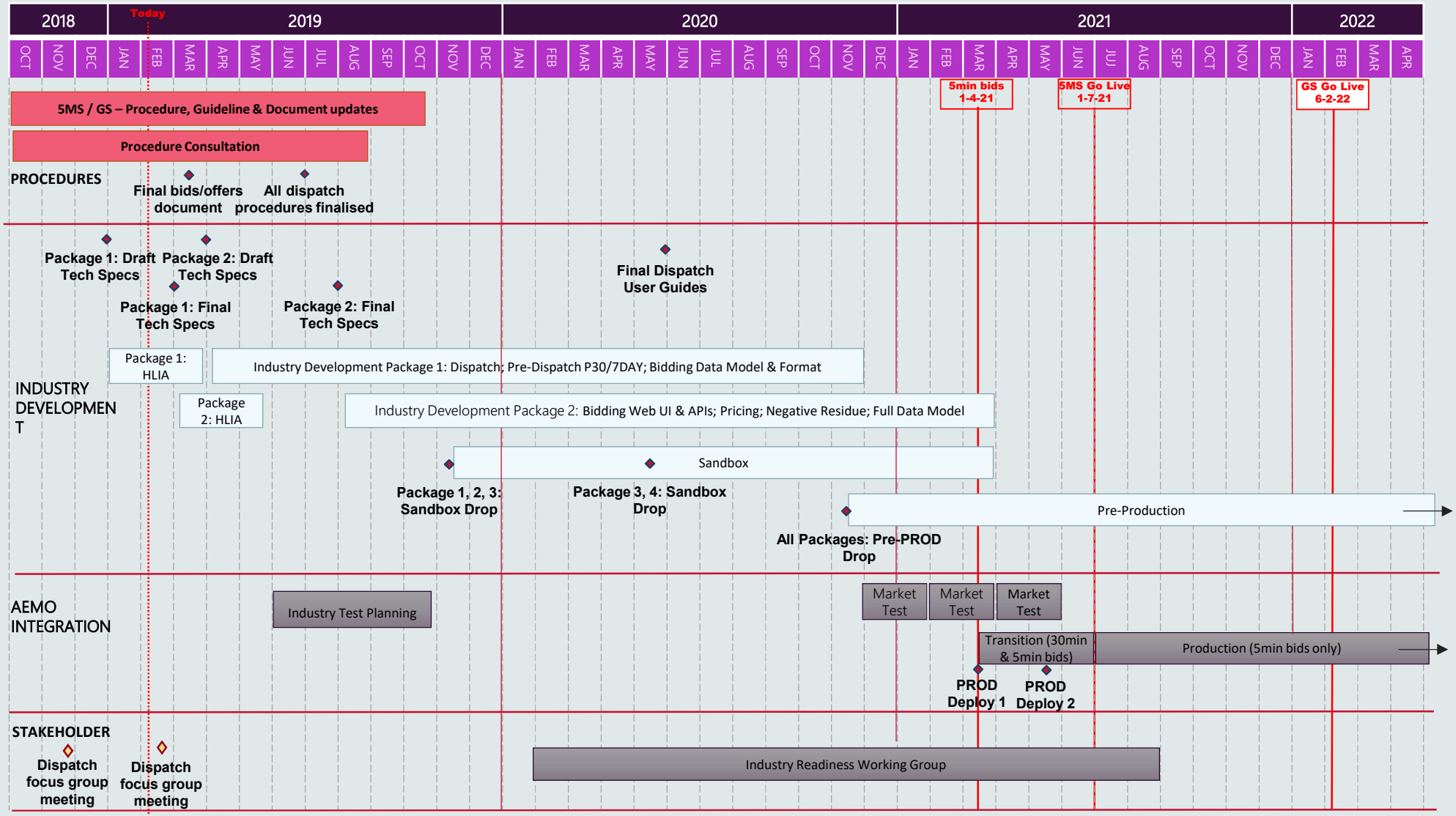


General questions and next steps

Michael Sanders & Hamish McNeish

5 Minute & Global Settlements Program – INDICATIVE TRANSITION OVERVIEW – DISPATCH AND BIDDING SYSTEMS

Indicative Industry Overview V0.1 – 29 January 2019



Package 1: Dispatch; Predispatch P30/7DAY; PASA; Bidding Data Model; Bidding Format.
Package 2: Bidding Web UI and APIs
Package 3*: Predispatch P5
Package 4*: RERT, Trading Price / Price Revision; Administrated Pricing and CPT; Suspension Pricing; Negative Residue Management; Full Data Model^
* Dates TBC for External HLIA, Tech Spec and Sandbox
^ Includes Settlements Data Models

For Information: HLIA = High Level Impact Assessment

Milestone
Working group meeting

For detailed meeting schedule and agendas, see AEMOs Stakeholder Relations Website

Next Steps

- Issuing of meeting notes
- Web UI
  - Review of focus group feedback
  - Engagement with small generators through Clean Energy Council
  - Review of small generator feedback
- P5
  - Further design work
  - Estimation of program impact and required change request
- Bidding Format
  - Draft bidding format document due this month
  - Feedback from participants/vendors
- Bidding Data Model
  - Review of technical specification draft feedback
  - Confirm design for final technical specification

Other Notes

- Requested API service to reset API password (needed every 90 days) - URM password used for authentication to APIs.
- Agreed to the concept of 'genuine attempt' at submission. E.g. submitting a file with extension of .doc will be rejected and not even be considered a submission.

ACTIONS

Action	Responsible	Due Date	Response
AEMO to provide table of dispatch, pre-dispatch and PASA process timings [slide 5]	AEMO	22 March 2019	
AEMO to include commentary in 5MS implementation rule change request on how industry will be engaged if the spot market operations timetable consultation requirements are relaxed.	AEMO	Early March 2019	
5MS Program to refer dispatch instruction timing as an issue to the NEM Wholesale Consultative Forum	AEMO	22 March 2019	
DFG to comment on the spot market operations timetable	AEMO	8 March 2019	
AEMO to distribute bidding format HLIA and draft bidding Tech Spec to DFG	AEMO	1 March 2019	
AEMO to find out whether bid / offer comments need to be public	AEMO	CLOSED	AEMO confirms that the data from BIDOFFERFILETRK table is private.
5MS Program to refer commitment of fast start plant with T1 < 5 as an issue to the NEM Wholesale Consultative Forum. AEMO to distribute Ron Logan's (ERM) note on current implementation of FSIP	AEMO	22 March 2019	
AEMO to consider treatment of energy-limited plant in PD and PASA	AEMO	CLOSED	This work is already being considered by AEMO as a part of integrating energy storage systems into the NEM.

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