NEMOSIS: NEM Open-Source Information Service
Change in the NEM is driving increasing stakeholder interest

Increasing deployment of:
• Wind
• Solar
• Energy storage

Withdrawal of:
• Older thermal generators
Almost all the data used in the central dispatch process is available

nemweb.com.au -
/Data_Archive/Wholesale_Electricity/MMSDM/2018/MMSDM
Almost all the data used in the central dispatch process is available

nemweb.com.au -
/Data_Archive/Wholesale_Electricity/MMSDM/2018/MMSDM

[To Parent Directory]

Friday, November 16, 2018 1:02 AM 821 PUBLIC_DVD_ANCILLARY_RECOVERY_SPLIT_201810010000.zip
Friday, November 16, 2018 1:02 AM 376 PUBLIC_DVD_AUCTION_201810010000.zip
Friday, November 16, 2018 1:02 AM 444 PUBLIC_DVD_AUCTION_CALENDAR_201810010000.zip
Friday, November 16, 2018 1:02 AM 510 PUBLIC_DVD_AUCTION_IC_ALLOCATIONS_201810010000.zip
Friday, November 16, 2018 1:02 AM 516 PUBLIC_DVD_AUCTION_TRANCHE_201810010000.zip
Friday, November 16, 2018 1:03 AM 3593646 PUBLIC_DVD_BIDDAYOFFER_201810010000.zip
Friday, November 16, 2018 1:03 AM 915889 PUBLIC_DVD_BIDDAYOFFER_D_201810010000.zip
Friday, November 16, 2018 1:02 AM 29846 PUBLIC_DVD_BIDDUIDDETAILS_201810010000.zip
Friday, November 16, 2018 1:02 AM 10621 PUBLIC_DVD_BIDDUIDDETAILSSTRK_201810010000.zip
Friday, November 16, 2018 1:18 AM 48172664 PUBLIC_DVD_BIDPEROFFER_201810010000.zip
Friday, November 16, 2018 1:56 AM 125450432 PUBLIC_DVD_BIDPEROFFER_D_201810010000.zip
Friday, November 16, 2018 1:03 AM 593 PUBLIC_DVD_BIOTYPES_201810010000.zip
Friday, November 16, 2018 1:03 AM 370 PUBLIC_DVD_BIOTYPESSTRK_201810010000.zip
Thursday, November 16, 2018 10:38 PM 4453 PUBLIC_DVD_BILLING_CODEC_PUBLICATION_201810010000.zip
Thursday, November 16, 2018 10:38 PM 419 PUBLIC_DVD_BILLING_CODEC_PUBLICATION_TRK_201810010000.zip
Friday, November 16, 2018 1:03 AM 23588 PUBLIC_DVD_BILLINGCALENDAR_201810010000.zip
Friday, November 16, 2018 1:04 AM 1387 PUBLIC_DVD_BILLINGDAYTRK_201810010000.zip
Friday, November 16, 2018 1:04 AM 7828 PUBLIC_DVD_BILLINGREGIONEXPORTS_201810010000.zip

25 GB / month
There are already many ways to access data from AEMO, why another one?
There are already many ways to access data from AEMO, why another one?

OpenNEM
There are already many ways to access data from AEMO, why another one?

• Transparency
• Ease of use
• Breadth of data
• Flexibility
There are already many ways to access data from AEMO, why another one?

- Transparency
- Ease of use
- Breadth of data
- Flexibility
- Open-Source
There are already many ways to access data from AEMO, why another one?

- Transparency
- Ease of use
- Breadth of data
- Flexibility
- Open-Source
- Graphical user interface
There are already many ways to access data from AEMO, why another one?

- Transparency
- Ease of use
- Breadth of data
- Flexibility
- Open-Source
- Graphical user interface
- Minimal processing
There are already many ways to access data from AEMO, why another one?

• Transparency
• Ease of use
• Breadth of data
• Flexibility

• Open-Source
• Graphical user interface
• Minimal processing
• Custom tables
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values
4. Merge specified data tables
5. Save output files in CSV format
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values
4. Merge specified data tables
5. Save output files in CSV format

![Diagram of NEMOSIS interface](image)
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values
4. Merge specified data tables
5. Save output files in CSV format
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
   Optionally filter using data values
   Merge specified data tables
   Save output files in CSV format

![Diagram of NEMOSIS window for accessing AEMO data table]
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values

Save output files in CSV format
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values
4. Merge specified data tables

Save output files in CSV format

![Diagram of AEMO data access process]
Accessing an AEMO data table

1. Download and cache raw data from AEMO
2. Filter using time window provided by user
3. Optionally filter using data values
4. Merge specified data tables
5. Save output files in CSV format
AEMO table: dispatch SCADA for Renewable generators
AEMO table: dispatch SCADA for Renewable generators

<table>
<thead>
<tr>
<th>Unit SCADA</th>
<th>Visualisation tool</th>
<th>Unit Fuel Type</th>
<th>Merge data</th>
</tr>
</thead>
</table>

### Unit SCADA
- **Query name**: unit_dispatch_data
- **Start time**: (YYYY/MM/DD HH:MM:SS)
- **End time**: (YYYY/MM/DD HH:MM:SS)

### Unit Fuel Type
- **Query name**: unit_fuel_types
- **Start time**: (YYYY/MM/DD HH:MM:SS)
- **End time**: (YYYY/MM/DD HH:MM:SS)

### Merge data
- **Merge name**: dispatch_and_fuel_types
- **Left table**: unit_dispatch_scada
- **Right table**: unit_fuel_types

#### Visualisation tool
- **Graph**: SCADA Value (MW) vs. Datetime
- **Data**: Solar, Wind, Hydro
AEMO table: dispatch SCADA for Renewable generators

<table>
<thead>
<tr>
<th>Unit SCADA</th>
<th>Visualisation tool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Query name</strong></td>
<td><strong>Select table</strong></td>
</tr>
<tr>
<td>unit_dispatch_data</td>
<td>dispatch_load</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Fuel Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Query name</strong></td>
</tr>
<tr>
<td>unit_fuel_types</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Merge data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select join type</strong></td>
</tr>
<tr>
<td>dispatch_and_fuel_types</td>
</tr>
</tbody>
</table>

---

Centre for Energy and Environmental Markets
Custom table: Plant Stats
Custom table: Plant Stats
What other data is in the tool?

- Dispatch targets
- FCAS enablement values
- Interconnector flows
- Energy and FCAS prices
- More generator information
- Regional demand and generation summaries
- Four second FCAS SCADA data
- Generator and Load bidding data
- FCAS trapezium constraints
Use the source code

```
from nemosis import data_fetch_methods

start_time = '2017/01/01 00:00:00'
end_time = '2017/01/01 00:05:00'
table = 'DISPATCHPRICE'
raw_data_cache = 'C:/Users/your_data_storage'

price_data = data_fetch_methods.dynamic_data_compiler(start_time, end_time, table, raw_data_cache)
```
More info:

- Download the tool: https://github.com/UNSW-CEEM/NEMOSIS/releases
- Read the conference paper
- Checkout the Wiki: https://github.com/UNSW-CEEM/NEMOSIS/wiki
- Ask questions and get updates, join the forum group: https://groups.google.com/forum/#!forum/nemosis-discuss
AEMO table: dispatch SCADA for Renewable generators

<table>
<thead>
<tr>
<th>Unit SCADA</th>
<th>Visualisation tool</th>
<th>Unit Fuel Type</th>
<th>Merge data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Query name</strong></td>
<td><strong>Select table</strong></td>
<td><strong>Select columns</strong></td>
<td><strong>Select DUID</strong></td>
</tr>
<tr>
<td>unit_dispatch_data</td>
<td>dispatch_load, detail_summary</td>
<td>SETTLEMENTDATE</td>
<td>DUID</td>
</tr>
<tr>
<td>Start time: YYYY/MM/DD HH:MM:SS</td>
<td>start_time</td>
<td>Dispatch equilibrium, region, connection</td>
<td></td>
</tr>
<tr>
<td>End time: YYYY/MM/DD HH:MM:SS</td>
<td>end_time</td>
<td>Dispatch equilibrium, region, connection</td>
<td></td>
</tr>
<tr>
<td><strong>Unit Fuel Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Query name</strong></td>
<td><strong>Select table</strong></td>
<td><strong>Select columns</strong></td>
<td><strong>Select DUID</strong></td>
</tr>
<tr>
<td>unit_fuel_types</td>
<td></td>
<td>Dispatch equilibrium, region, connection, fuel</td>
<td></td>
</tr>
<tr>
<td>Start time: YYYY/MM/DD HH:MM:SS</td>
<td>start_time</td>
<td>Dispatch equilibrium, region, connection, fuel</td>
<td></td>
</tr>
<tr>
<td>End time: YYYY/MM/DD HH:MM:SS</td>
<td>end_time</td>
<td>Dispatch equilibrium, region, connection, fuel</td>
<td></td>
</tr>
<tr>
<td><strong>Merge data</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merge name</td>
<td><strong>Select join type</strong></td>
<td><strong>Left keys</strong></td>
<td><strong>Right keys</strong></td>
</tr>
<tr>
<td>dispatch_and_fuel_types</td>
<td></td>
<td>DUID</td>
<td>DUID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unit Fuel Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>