2021 Large Industrial Load Forecasting Process

5 May 2021 FRG Meeting

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Background and Purpose

- The purpose of today's presentation is to discuss the Large Industrial Load (LIL) forecasting methodology
- Today's agenda includes:
  - Recap on methodology (survey & interview)
  - Closures and Expansions
  - Discussion

Timing	LIL Forecasts	Responsible
March 2020	Last time this topic was discussed	AEMO
March 2021	Start of LIL surveys	LIL
Today	**Discussion on 2021 forecast approach**	**AEMO**
May 2021	Complete surveys and interviews	LIL
May 2021	Finalisation of LIL forecasts	LIL
May 2021	Draft Consumption Forecasts Presented at FRG	AEMO

Note: This survey process does not include any hydrogen or electrification forecasts, except for existing facilities or those looking to connect in the short-term

Large Industrial Load methodology captures industry activity through direct surveys

Collect Data

Pool of all Industrial customers

Apply selection criteria
(Slide 4)

Survey questions gauge:
- Future Intentions
- Changes since last year
- Explain past actuals

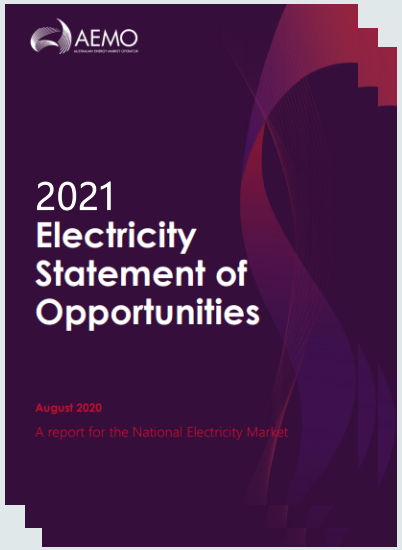
(Slide 5-6)

Process

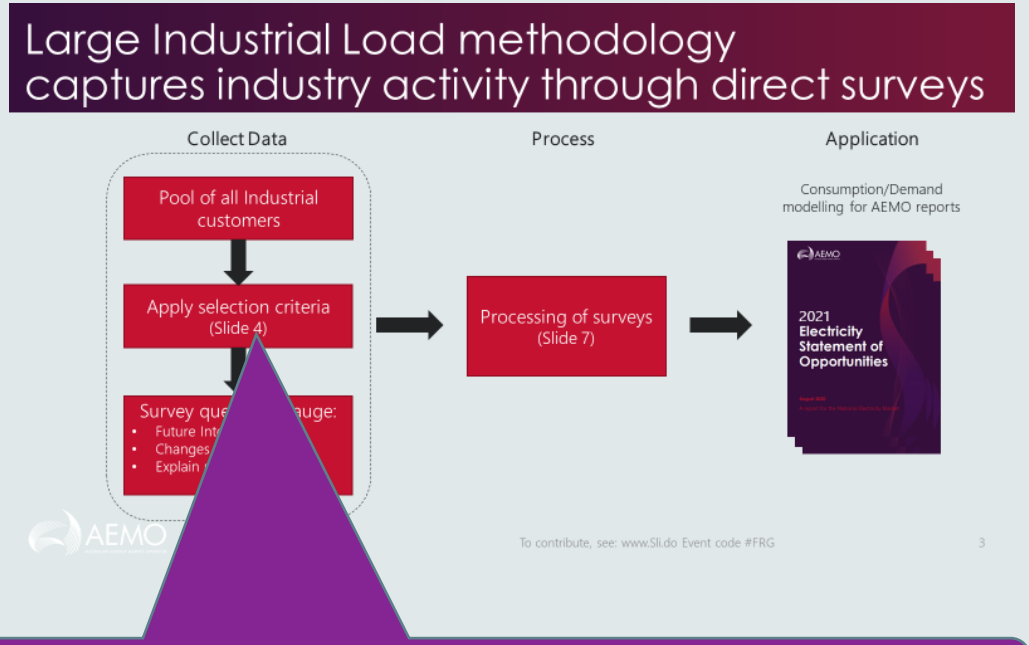
Processing of surveys
(Slide 7)

Application

Consumption/Demand modelling for AEMO reports



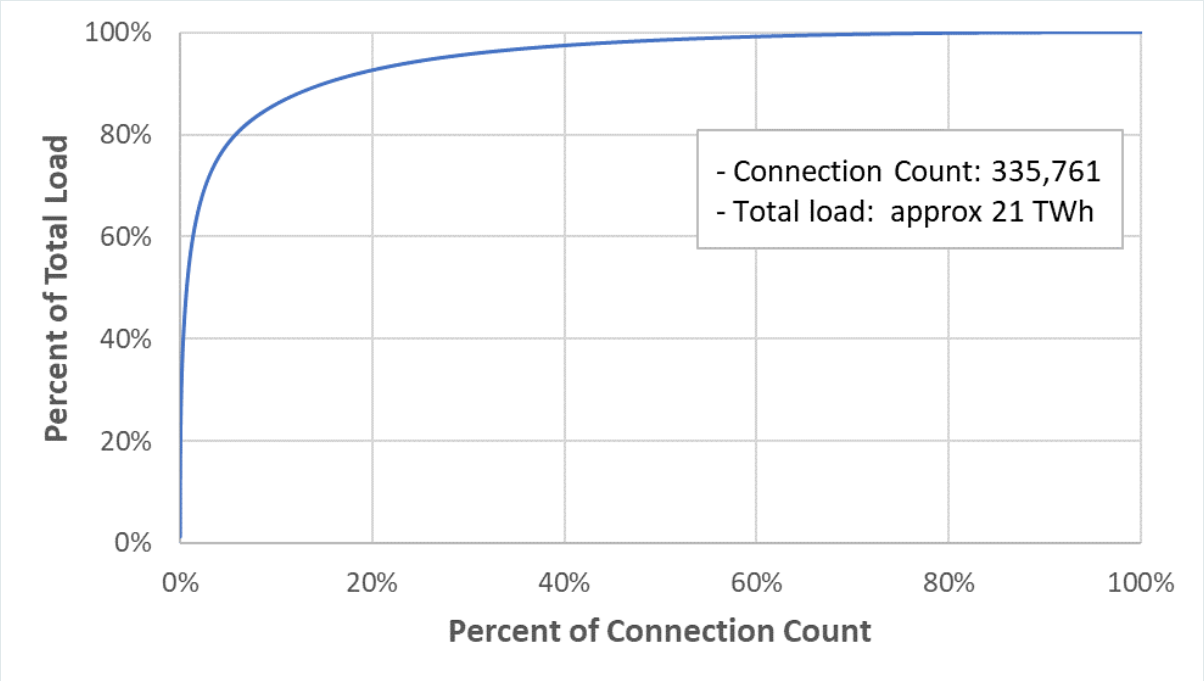
Forecasting cost efficiency drives the selection of LIL customer surveys



Q. Why do we only survey these customers?

A. Bang per buck forecast accuracy improvement

Cumulative total of business metered load (Victoria)



The above Victorian Business load vs Business Connections graph shows that a small proportion of businesses account for the majority of the business energy consumption.

The top 100 connections consume 17% and the top 5.5% connections consume 80% of the Victorian business energy respectively.

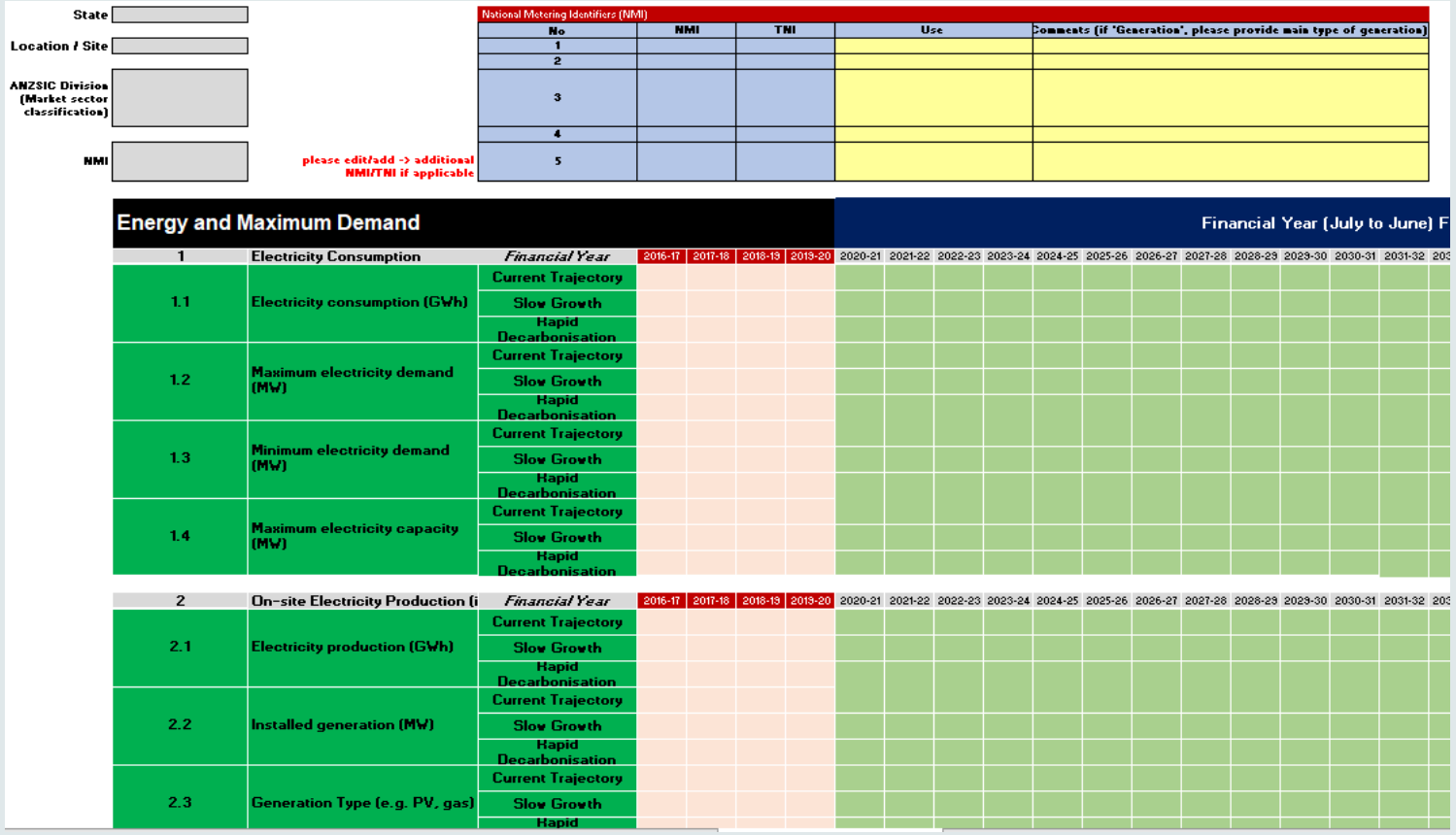
Selection criteria: Only loads >10MW for >10% of the year are surveyed.

Survey questions aim to capture all relevant data – past and future

Survey questions gauge:
- Future Intentions
- Changes since last year
- Explain past actuals

- The survey questions comprise of quantitative and qualitative questions, including:
  - Rationale behind any load increases/decreases.
  - Impact of any energy efficiency schemes, fuel switching programmes, decarbonisation options, electricity price sensitivity, and commodity price changes. (See slide 6)
  - Any on-site generation or involvement with demand side participation (DSP) schemes.

Example of the 2021 template used to capture the surveyed forecasts



State

Location / Site

ANZSIC Division (Market sector classification)

NMI

National Metering Identifiers (NMI)

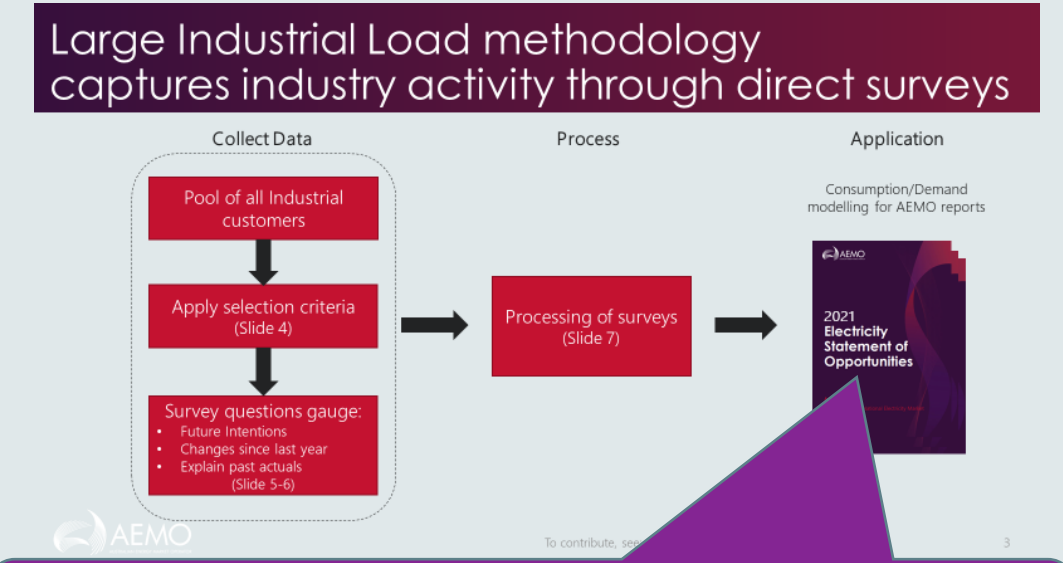
No	NMI	TNI	Use	Comments (if 'Generation', please provide main type of generation)
1				
2				
3				
4				
5				

please edit/add -> additional NMI/TNI if applicable

Energy and Maximum Demand — Financial Year (July to June) F

		Financial Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	203
1	Electricity Consumption																		
1.1	Electricity consumption (GWh)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
1.2	Maximum electricity demand (MW)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
1.3	Minimum electricity demand (MW)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
1.4	Maximum electricity capacity (MW)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
2	On-site Electricity Production (i																		
2.1	Electricity production (GWh)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
2.2	Installed generation (MW)	Current Trajectory																	
		Slow Growth																	
		Hapid Decarbonisation																	
2.3	Generation Type (e.g. PV, gas)	Current Trajectory																	
		Slow Growth																	
		Hapid																	

Incorporating business conditions



Q. How do the forecasts reflect LIL sensitivity to business conditions?

The survey probes for LIL production sensitivities to business conditions (economic factors). AEMO weighs up responses when considering how to apply the forecasts to its scenarios.

Question Two

How influential do you think each of the following drivers is on determining your business performance?
Please indicate a grade from 0 (not influential) to 10 (very influential) for each driver in each scenario.

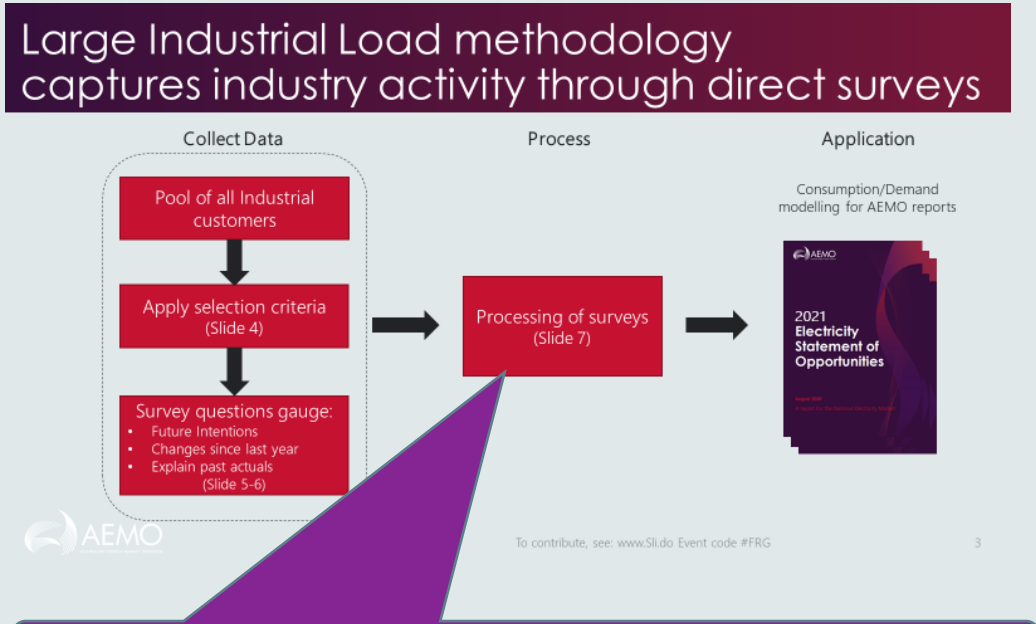
	Score (from 0 to 10)	Comment (Optior
Wholesale Electricity Prices		
Wholesale Gas Prices		
Economic growth		
Exchange rate (AUD vs major trading partners)		
International commodity prices		
Energy efficiency (policy schemes, star ratings, performance standards)		
Decarbonisation commitments or customer request to lower carbon footprint products		
Others (please specify)		

Question Three

If wholesale electricicty price plays a significant role in your production costs, please indicate a price threshold which might trigger your company to change production volume.

(2021 real $/MWh)	< 30	30 - 40	40 - 60	60 - 80	80 - 100	> 100
Production increase / expansion						
Production decrease						
Production stop						

Growth related survey responses are validated to scenarios through applying tests



Q. Can the responses be relied upon?

A. AEMO validates results by applying tests: e.g., Most likely scenario requires financial approval, environment approval and active network connection.

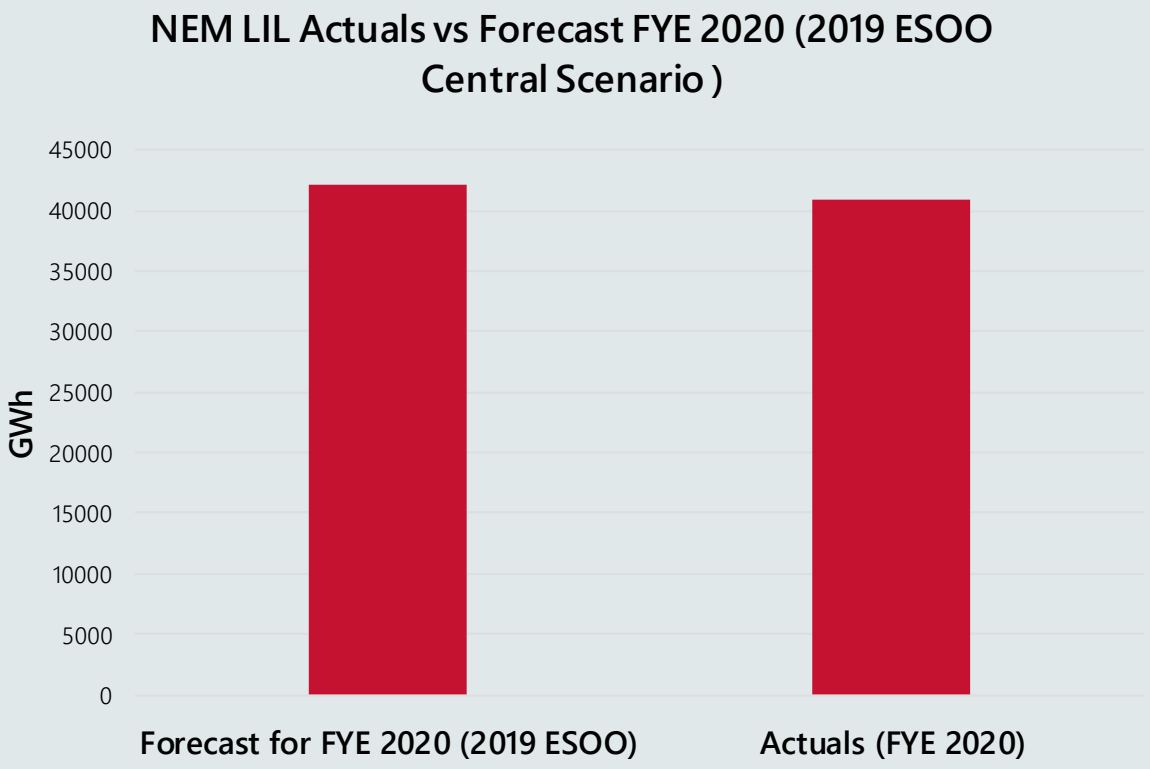
Example: ISP Commitment Criteria

Committed project	Committed project means a project that meets the following criteria: • the proponent has obtained all required planning consents, construction approvals and licenses, including completion and acceptance of any necessary environmental impact statement; • construction has either commenced or a firm commencement date has been set; • the proponent has purchased/settled/acquired land (or commenced legal proceedings to acquire land) for the purposes of construction; • contracts for supply and construction of the major components of the necessary plant and equipment (such as generators, turbines, boilers, transmission towers, conductors, terminal station equipment) have been finalised and executed, including any provisions for cancellation payments; and • the necessary financing arrangements, including any debt plans, have been finalised and contracts executed.

LIL survey approach supported by historical forecast accuracy

- ESOO2019 forecast accuracy for Large Industrial Loads was within 3%.

- Forecast accuracy is usually affected by:
  - Unplanned outages.
  - Installed on-site generation not known about or not able to be modelled accurately at the time.
  - Uncertainty in site operations (Scenarios usually capture some of this volatility).
  - Compliance – the survey is voluntary, and completion may not be achieved.



Current status – conducting interviews

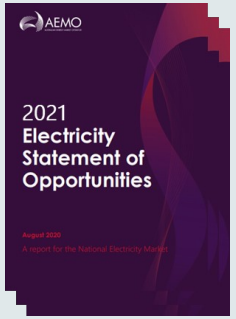
Pool of all Industrial customers

Apply selection criteria

Survey questions gauge:

- Future Intentions
- Changes since last year
- Explain past actuals

Processing of surveys



Prepare & Send Surveys → Conduct interviews → Compile surveys & interviews → Modelling → Results: Draft 2021 ESOO forecasts

March | April | May | June | July

We are here

Stakeholder discussion

Are there gaps in the approach?

Are there any others material risks for the LIL survey that we have not taken into consideration?

What other considerations should we include in the future?