BIS OXFORD ECONOMICS

LONG TERM MACROECONOMIC FORECASTS

FOR AUSTRALIAN ENERGY MARKET OPERATOR

Presented by Sarah Hunter, Chief Australia Economist

29th March 2021

BIS OXFORD ECONOMICS

OUTLINE

- **Forecast Assumptions**
- **Modelling methodology**
- **Short Run & COVID-19 assumptions**
- **Central case results: Short to medium term outlook**
- **Alternative case results: Short to medium term outlook**

INTRODUCTION

- BIS Oxford Economics has been re-engaged by AEMO to produce the macroeconomic forecasts that are used as input into AEMO's FY22 suite of gas and electricity forecasting and planning publications.
- The core indicators produced by BIS Oxford Economics are:
  - *Population forecasts*
  - *Gross State Product & Gross Domestic Product*
  - *State Final Demand*
  - *Household Disposable Income*
  - *Consumer Price Inflation (Australia only)*
  - *USD/AUD*
  - *Industrial Sector forecasts (at ANZSIC Division level by state)*
  - *New Dwelling Forecasts by dwelling type*

This slide deck has been developed to provide further context on the key trends in the forecasts. This deck focusses on key changes to our past projections, where applicable.

MOTIVATION

- Of particular relevance, the forecast is to be used to support the 2021 WEM ESOO and includes three scenarios as per WEM Rules:
- AEMO must use the information assembled to assess the extent to which the anticipated installed generation capacity is capable of satisfying the Planning Criterion, identifying any capacity shortfalls in each Relevant year in the Long Term PASA Study Horizon, for each of the following scenarios:
  - Median peak demand assuming low demand growth, expected demand growth and high demand growth
  - One in ten year peak demand assuming low demand growth, expected demand growth and high demand growth

Where the low, expected, and high demand growth cases reflect demand changes stemming from different levels of economic growth

MOTIVATION

- The scenario mapping from this presentation and the BIS Oxford Economics report that will be provided subsequently is as follows:

2021 WEM ESOO scenario	BISOE scenario
Low demand growth	Slow Growth
Expected demand growth	Central
High demand growth	High Growth

- Any questions can be directed to energy.forecasting@aemo.com.au

BIS OXFORD ECONOMICS

KEY CASE ASSUMPTIONS

- BIS OE have produced forecasts for the three core cases: Central, Slow Growth and High Growth (similar to last year). The key assumptions underpinning the three core cases are as follows:

Cases	High Growth	Central	Slow Growth
Population Growth	Higher than Central: Apply ABS Series A NOM dispersion to BIS OE central	BISE OE baseline	Lower than Central: Apply ABS Series C NOM dispersion to BIS OE central
Investment	Higher than baseline	BIS OE Baseline	Lower than baseline
Global Demand	Higher demand than central	BISE OE Baseline	Lower demand than central
Climate Warming settings	~1.8°C by 2050 from pre-industrial levels	~2.6°C by 2050 from pre-industrial levels	~4°C by 2050 from pre-industrial levels
Resource Productivity Gains	Higher than central	BIS OE baseline	Lower than central
Commodity Intensity Improvements	Lower than central	BIS OE baseline	Higher than central
COVID-19 Recovery	Faster pace of recovery and international border re-opening is fast-tracked	BIS OE baseline	Slower pace of recovery and international border reopening is delayed

METHODOLOGY

- The forecasts are produced using our proprietary *Global Economic Model* and *Global Industry Model* which covers 80 countries. At the country level, the model's structure is Keynesian in the short run, with output driven by shifts in demand, but in the long run the model is neoclassical, and GDP is determined by the economy's supply side potential.
- **Climate Change enhancements:** We have recently enhanced our models to accommodate the economic impact of climate change. This is done through three main channels:
  - Global Temperature impact on **depreciation of capital stock** and productive potential;
  - Degree of **investment in energy efficiency** improvements leading to productivity gains; and
  - The impact of increased renewable penetration and pace of electrification on global demand for traditional emissions intensive materials (coal, gas and oil) and the flow on impact on trade.

For more information on our previous work for AEMO and modelling details please see: https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2020/bis-oxford-economics-macroeconomic-projections.pdf?la=en

SHORT RUN ASSUMPTIONS – COVID-19

- Near term assumptions remain underpinned by COVID-19 recovery.
- Vaccine roll out offers some certainty to the recovery outlook, supporting investor and consumer confidence, while new and more virulent strains of the virus present downside risk.
- With restrictions on domestic activity largely unwound nationally (notwithstanding the third VIC lockdown), further economic gains from *domestic activity* is limited in the very near term.
- We are not assuming that the vaccine roll out will automatically enable the re-opening of the international border. This will require a reduction in COVID cases globally and clear evidence that the vaccines reduce transmission as well as hospitalisations and deaths. We expect the border to re-open gradually, through travel bubbles and other reductions in restrictions, in 2022.

BIS OXFORD ECONOMICS

SHORT RUN ASSUMPTIONS

Health Outcomes

- **High Growth:** Globally cases are brought under control; vaccine is available and mass administered quicker than baseline.
- **Slow Growth:** Globally cases continue to rise; domestically cases re-erupt and managed through repeated partial lockdowns.

Policy Response

- **High Growth:** Faster unwinding of state and international borders restrictions.
- **Slow Growth:** Delayed unwinding of state and international border restrictions.

Demographic Shock

- **High Growth:** Faster rebound in net overseas migration and normalisation of interstate migration patterns. Higher levels of permanent overseas migration.
- **Slow Growth:** Slower normalisation of migration patterns. Lower levels of permanent overseas migration

Economics Outcomes

- **High Growth:** Higher population growth and limited hysteresis effects drive higher output and higher income growth than baseline.
- **Slow Growth:** Lower population growth and more profound and longer lasting hysteresis effects driver lower output and income growth than baseline.

BIS OXFORD ECONOMICS

CENTRAL FORECASTS

CENTRAL CASE: DEMOGRAPHICS

Fig 1. Population Change, Australia (FY01-51)

Source: BIS Oxford Economics/ ABS

CENTRAL CASE: SHORT RUN

Fig 2. AUS - YoY% Change in GDP

Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: INDUSTRIAL BREAKDOWN

Fig 3. Industrial Sector Contribution to YoY% change in Gross Output, Australia

Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: STATE BREAKDOWN

Fig 4. State Contribution to YoY% change in Gross Domestic Product

Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: LONG RUN

Table 1. Gross Domestic Product & Gross State Product, Compounded Annual Growth Rate (CAGR)

	FY21-26		FY26-51	
	Sep-20	Feb-21	Sep-20	Feb-21
AUS	3.2%	2.9%	2.2%	2.1%
NSW	2.8%	2.4%	2.1%	1.7%
VIC	4.2%	3.4%	2.3%	1.9%
QLD	3.0%	2.9%	2.3%	2.1%
WA	3.3%	3.7%	2.2%	3.0%
SA	2.0%	2.1%	1.7%	1.8%
TAS	2.7%	2.3%	1.5%	2.4%
ACT	2.6%	0.3%	2.6%	0.9%

Fig 5. State Breakdown of GDP: FY21 vs. FY51

GDP in FY21: $2.0 trillion
GDP by FY51: $3.8 trillion

CENTRAL CASE: DEMOGRAPHICS

Fig 6. Population Level – WA

Source: BIS Oxford Economics/ ABS

CENTRAL CASE: SHORT RUN

Fig 7. WA - YoY% Change in GSP

Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: WA

Fig 8. Gross State Product, WA, FY01-31

Source: BIS Oxford Economics/ Haver Analytics

- The change in the level of GVA from the September 2020 update to now is due to a change in base year in the national accounts.
- The base year for the national accounts is defined by the average final producer price in each sector. For the mining sector in particular, it is defined by the market price of key commodities; iron ore, natural gas and coal.
- Between FY18 and FY19, commodity prices rose significantly, which raised the value of mining sector output. As a result, WA's GSP has also increased in level terms.
- The change in base year does not reflect a change in the volume of output. To capture this the *growth rate* of GSP should be used.

BIS OXFORD ECONOMICS

ALTERNATIVE CASE FORECASTS

ALTERNATIVE CASES: DEMOGRAPHICS

Fig 9. Natural Increase, Australia – core cases

Fig 10. Net Overseas Migration, Australia – core cases

Source: BIS Oxford Economics/ ABS

ALTERNATIVE CASES: SHORT RUN

Fig 11. YoY% Change in GDP by case (FY18-31)

Source: BIS Oxford Economics/ Haver Analytics

ALTERNATIVE CASES: LONG RUN

Fig 12. GDP projections by case (FY01-31)

Source: BIS Oxford Economics/ Haver Analytics

Table 2. Cumulative GDP from FY21: Sep-20 vs. Feb-21

		FY21 $'M	FY26 $'M	FY51 $'M
Sep-20	Central	1,948,726	12,699,707	90,719,204
	Slow Change	1,846,703	12,144,179	85,201,099
	Step Change	1,994,033	13,066,953	96,290,540
Feb-21	Central	1,995,343	12,881,836	90,616,236
	Slow Change	1,985,719	12,149,104	83,535,374
	High Growth	1,999,037	13,332,060	95,713,162

ALTERNATIVE CASES: INDUSTRY COMPOSITION

Fig 13. Industrial Composition of GDP by Case – core cases (FY31)

ALTERNATIVE CASES: WA

Fig 14. Gross State Product, WA, FY15-31

Source: BIS Oxford Economics/ Haver Analytics

Questions

OXFORD ECONOMICS

BIS OXFORD ECONOMICS

Global headquarters
Oxford Economics Ltd
Abbey House
121 St Aldates
Oxford, OX1 1HB
UK
Tel: +44 (0)1865 268900

London
Broadwall House
21 Broadwall
London, SE1 9PL
UK
Tel: +44 (0)203 910 8000

New York
5 Hanover Square, 8th Floor
New York, NY 10004
USA
Tel: +1 (646) 786 1879

Sydney
Level 8, 99 Walker Street
North Sydney NSW 2060
Australia
Tel: +61 2 8458 4200

Belfast
Tel: + 44 (0)2892 635400

Paarl
Tel: +27(0)21 863-6200

Frankfurt
Tel: +49 69 95 925 280

Paris
Tel: +33 (0)1 78 91 50 52

Milan
Tel: +39 02 9406 1054

Dubai
Tel: +971 56 396 7998

Philadelphia
Tel: +1 (610) 995 9600

Mexico City
Tel: +52 (55) 52503252

Boston
Tel: +1 (617) 206 6112

Chicago
Tel: +1 (773) 372-5762

Los Angeles
Tel: +1 (424) 238-4331

Florida
Tel: +1 (954) 916 5373

Toronto
Tel: +1 (905) 361 6573

Hong Kong
Tel: +852 3103 1096

Tokyo
Tel: +81 3 6870 7175

Singapore
Tel: +65 6850 0110

Melbourne
Tel: +61 (0)3 8679 7300

Email:
mailbox@oxfordeconomics.com

Website:
www.oxfordeconomics.com

Email:
info@bisoxfordeconomics.com.au

Website:
www.bisoxfordeconomics.com.au