

Flame out  
The future of natural gas  
Tony Wood and Guy Dundas



November 2020

GRATTAN  
Institute

## Flame out: a planned future for natural gas

Lighter footprints  
31 March, 2021

## **Simple, plausible, propositions can lead to uncomfortable consequences**

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**Two uncomfortable propositions:**

- **Australia must reduce emissions over time. The gas sector is no exception.**
- **The east coast will not go back to the good old days of low-priced gas.**

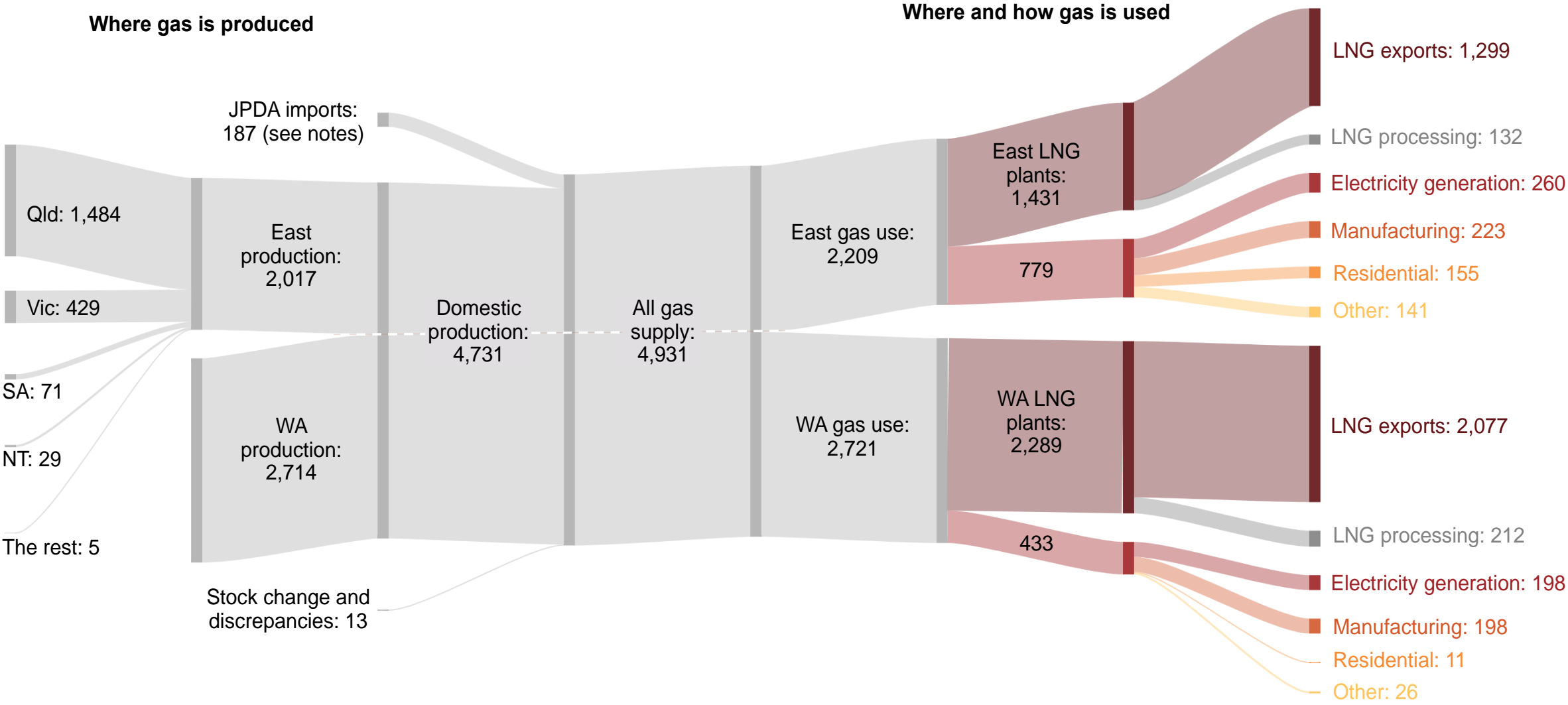
**The Commonwealth Government's hopes for a gas-fired recovery from the COVID recession appear misplaced.**

**The reality is that eastern Australia faces inexorably more expensive gas, and the impact will be felt by manufacturers and power generators, and by small businesses and households.**

- **In manufacturing, the best role for governments is to support the low-emission alternatives that can replace natural gas, such as renewables-based hydrogen and renewables-based electricity.**
- **At home, Australia must either replace natural gas with low-emissions substitutes such as biomethane or hydrogen or switch to electricity and take advantage of the decarbonising grid.**
- **In power generation, the large-scale use of gas as a 'transition fuel' – supplying 'baseload power' with lower emissions than coal – does not stack up economically or environmentally. Gas will play an important backstop role in power generation, but this role does not require large volumes of gas.**

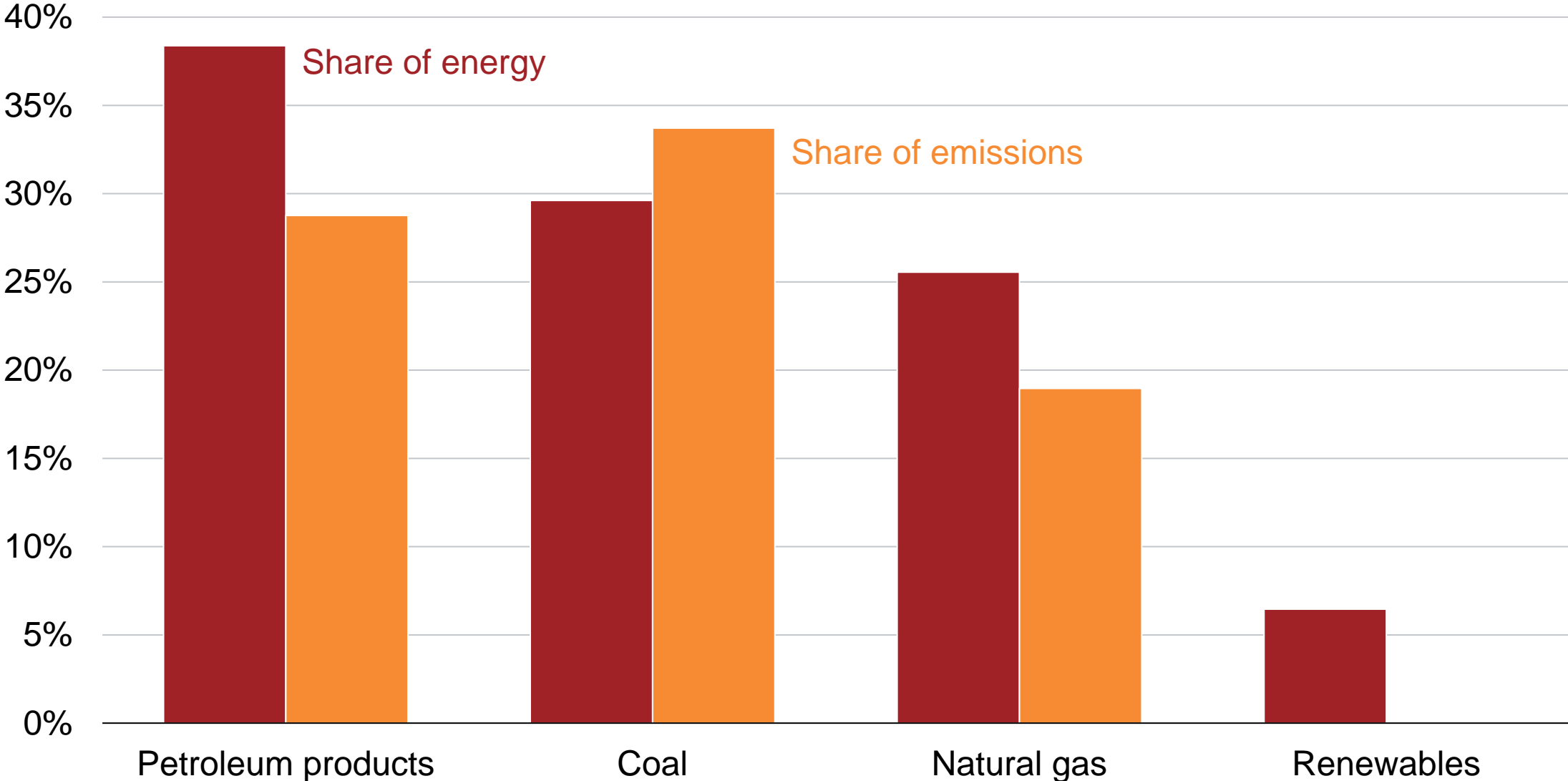
**Reality may be painful in the short term, but neither wishful thinking nor denial will serve.**

# Exports dominate the use of Australia's natural gas sector

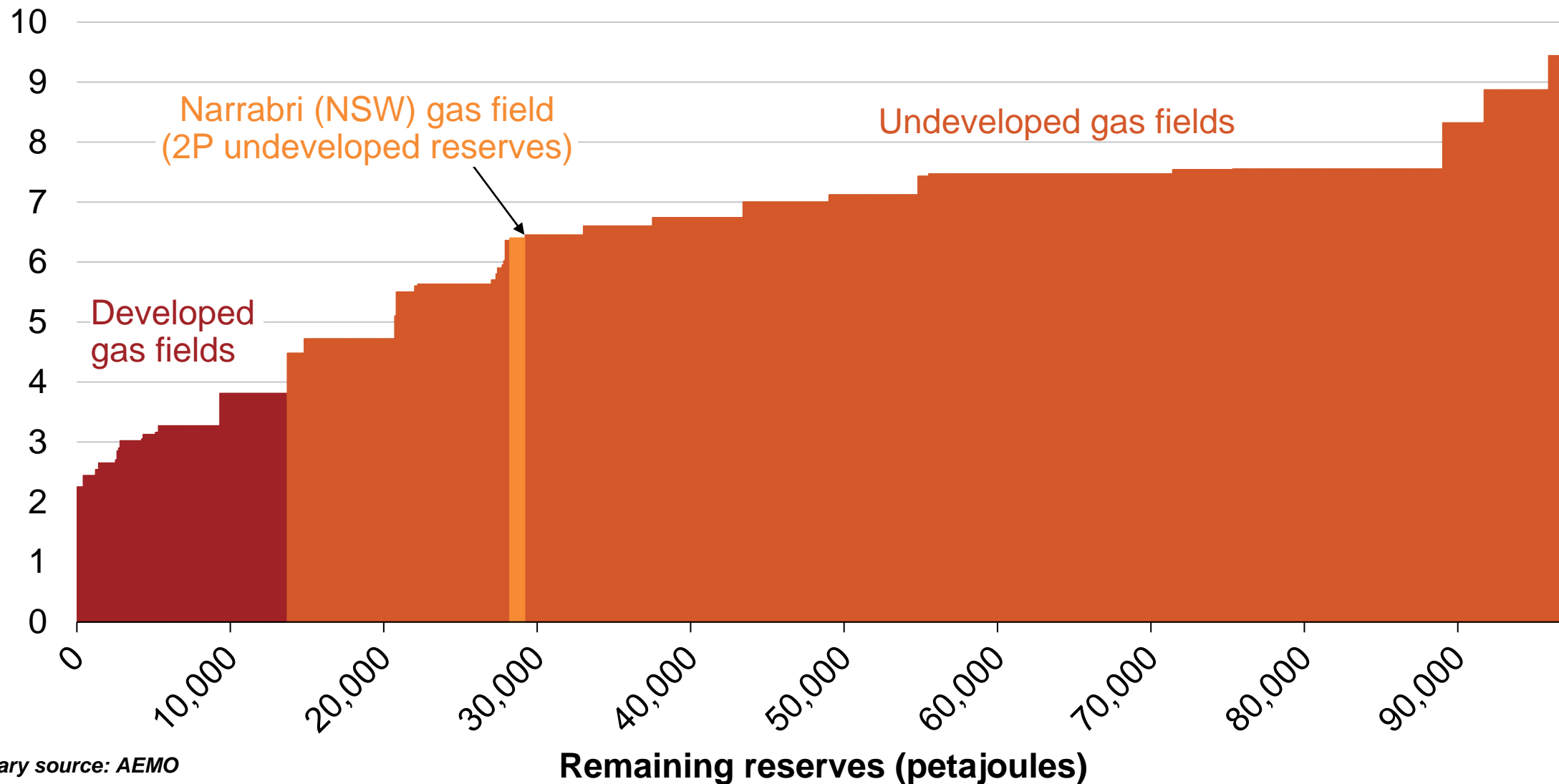


**Demand will derive from global and regional decisions**

# Domestically, natural gas is a significant contributor to emissions

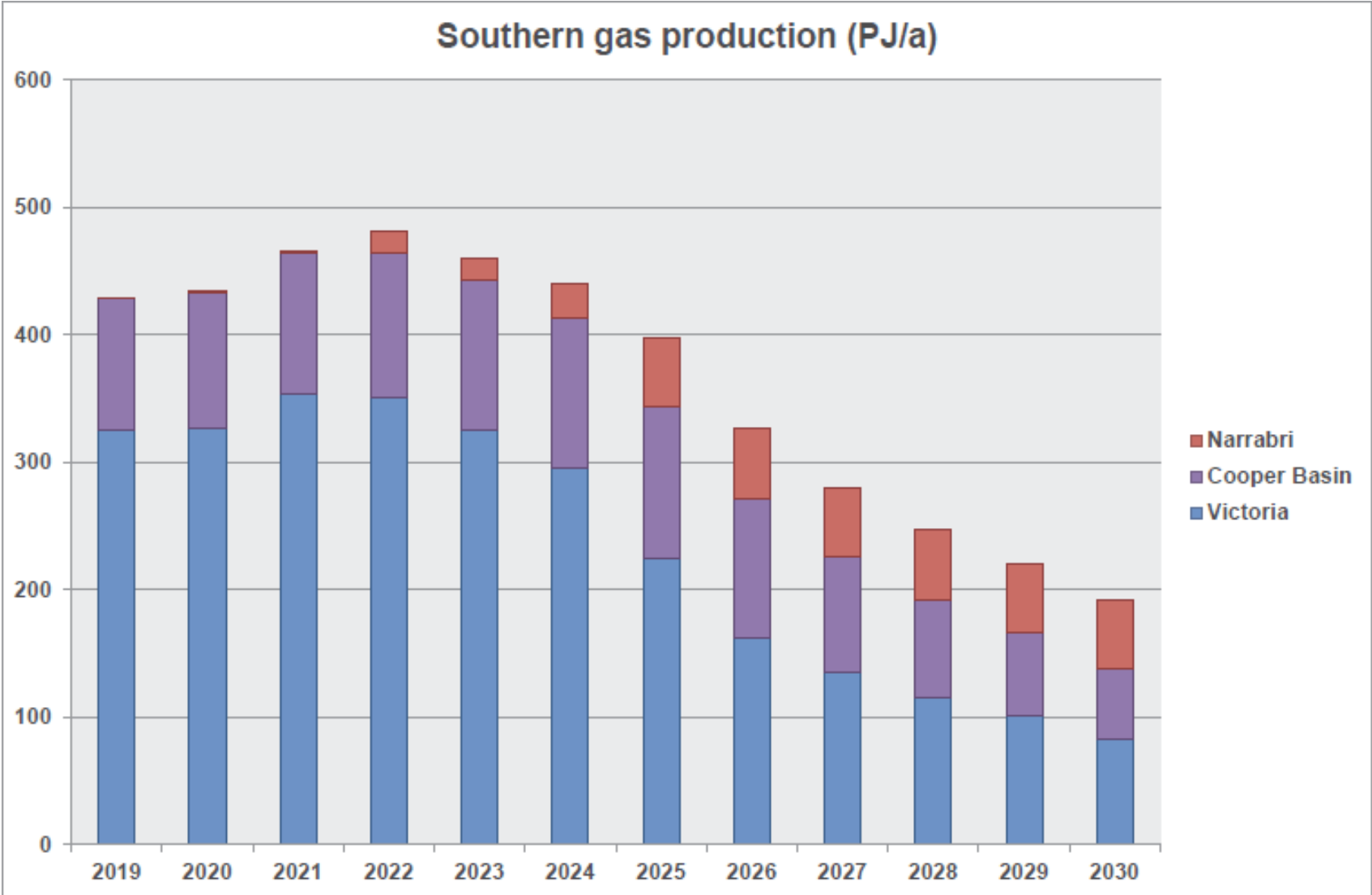


# Physical constraints tend to trump political desires



Primary source: AEMO

# The outlook for south east Australia gas supply is very tight



Source: Energy Quest

Import terminals seem the only viable option

## A gas-led manufacturing renaissance seems highly unlikely

Table 3.1: Only a handful of industry sub-sectors are gas-intensive

Industry	Key products	Gas as a share of input costs (per cent)	Gas use (peta-joules)	Direct employment	Share of manufacturing employment (per cent)	Share of manufacturing activity (per cent)	Share of national economy (per cent)
Polyethylene	Plastics	30.9	32	1,000			
Ammonia and related chemicals	Explosives and fertilisers (including urea)	19.6	78	1,900			
Alumina	Alumina	14.3	164	7,700			
<b>Highly gas-intensive industry</b>		<b>16.6</b>	<b>274</b>	<b>10,600</b>	<b>1.3</b>	<b>2.4</b>	<b>0.1</b>
Non-metallic mineral products	Glass, bricks, cement, plasterboard	2.1	46	42,400			
Pulp and paper	Wood pulp, paper products	1.6	16	15,300			
<b>Moderately gas-intensive industry</b>		<b>1.9</b>	<b>62</b>	<b>57,700</b>	<b>6.9</b>	<b>9.2</b>	<b>0.5</b>
Petroleum and coal products	Liquid fuels	1.1	16	4,900			
Iron and steel	Iron and steel	0.8	15	22,300			
Food, beverages, and tobacco	Food, beverages, and tobacco	0.5	38	246,800			
Primary metals (other than alumina and iron and steel)	Nickel, copper	0.4	16	9,900			
<b>Mildly gas-intensive industry</b>		<b>0.6</b>	<b>86</b>	<b>283,900</b>	<b>33.8</b>	<b>35.0</b>	<b>2.0</b>
All other manufacturing	Various products	0.2	23	488,000	58.1	53.5	3.1
<b>All manufacturing</b>	<b>Various products</b>	<b>1.0</b>	<b>445</b>	<b>840,100</b>	<b>100</b>	<b>100</b>	<b>5.8</b>

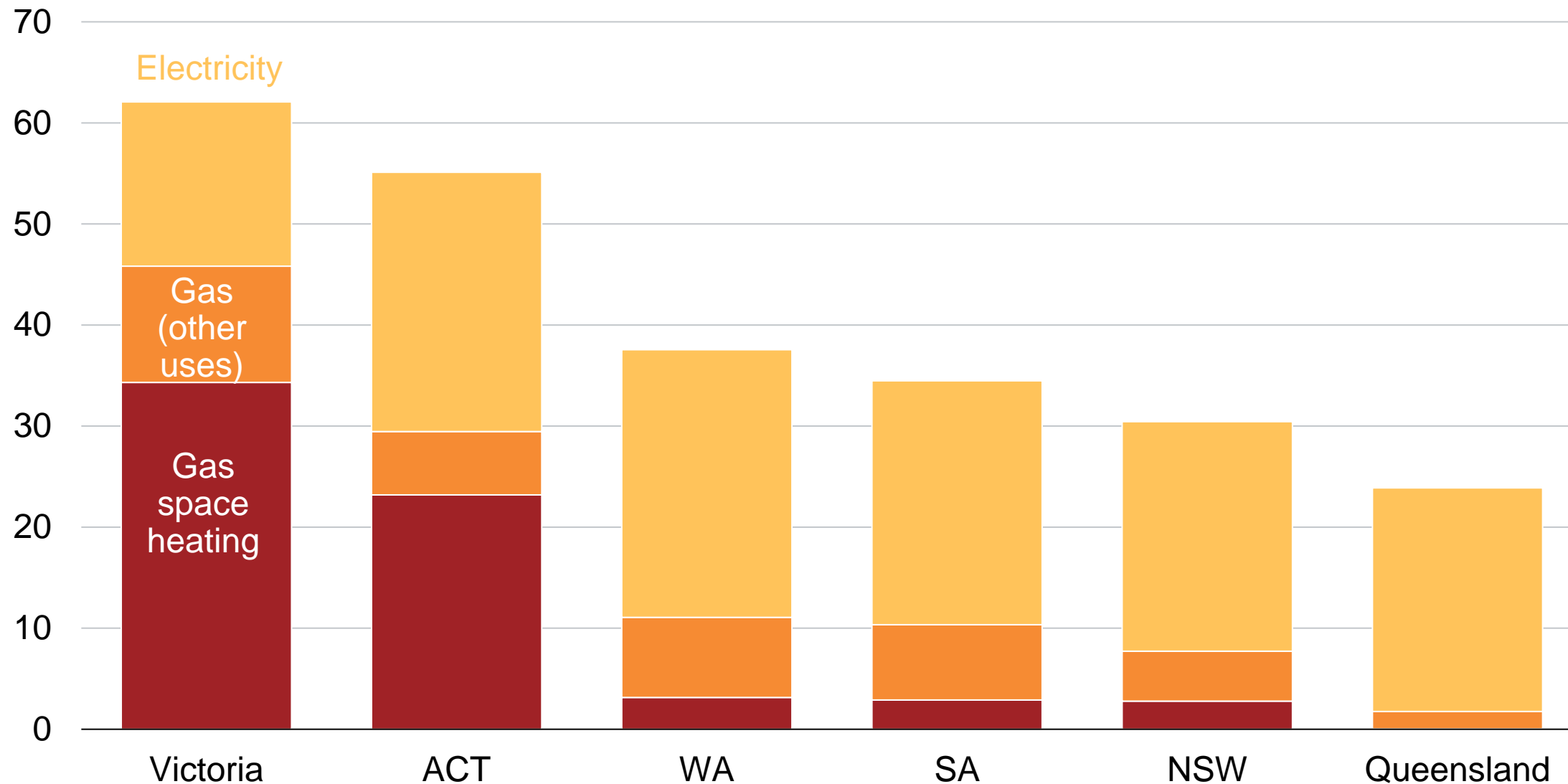
Notes: 2017-18 data. Gas use includes ethane use in polyethylene manufacturing, and so is higher than the manufacturing estimate in Figure 1.1. Column totals may not sum due to rounding. Data for highly-gas intensive sectors compiled from individual facility data set out in Appendix B. Data for all other sectors drawn from ABS (2019a), ABS (2019b) and ABS (2019c). Gas use by sector refined using AEMO (2020e), Gas Bulletin Board WA (2020) and ACIL Allen (2019, p. vii).

Sources: Grattan analysis of the sources cited above.

The consequences and choices vary considerably within manufacturing sub-sectors

# Household gas usage varies dramatically across Australia

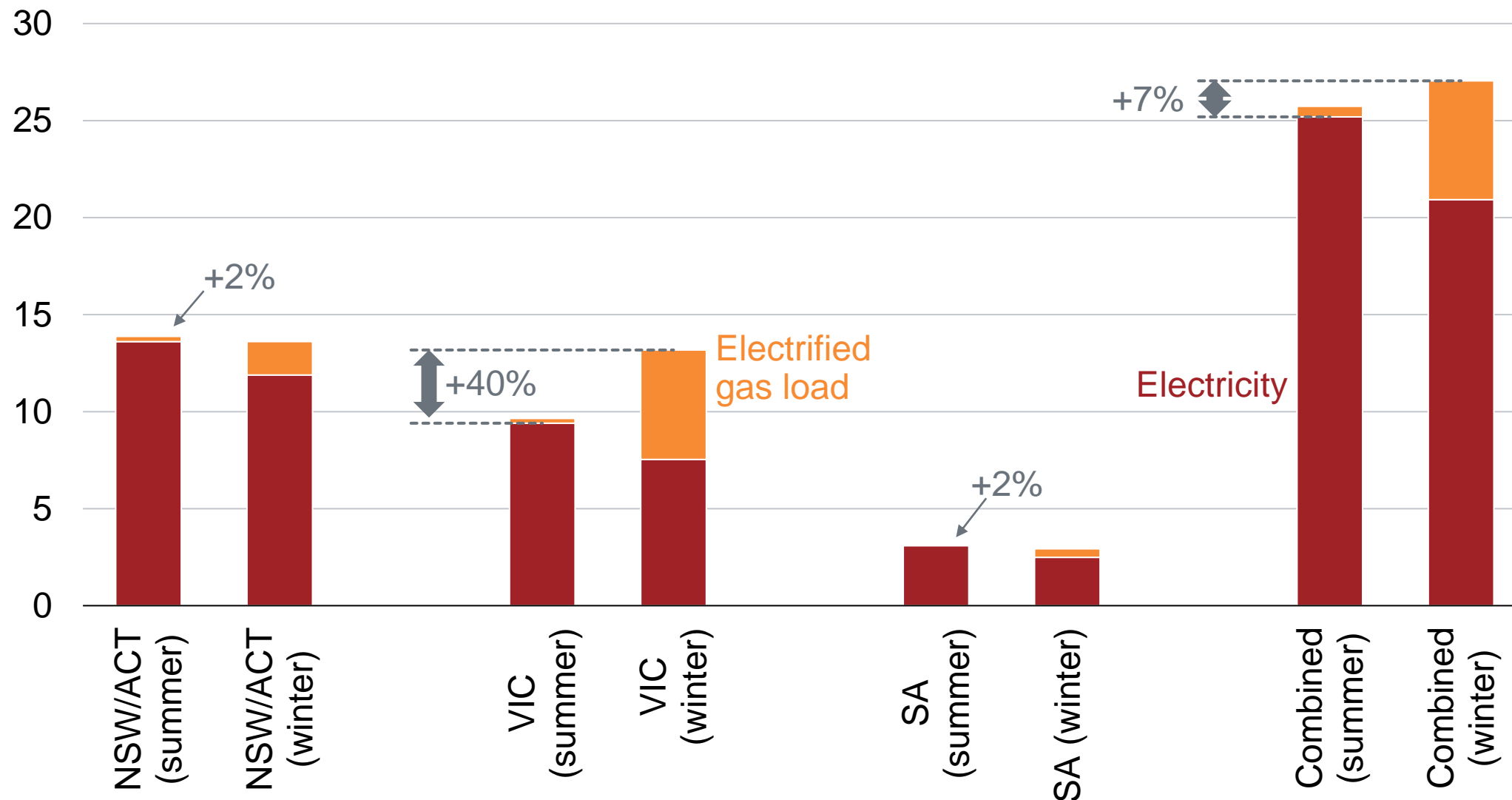
Energy use (GJ per household), 2017-18





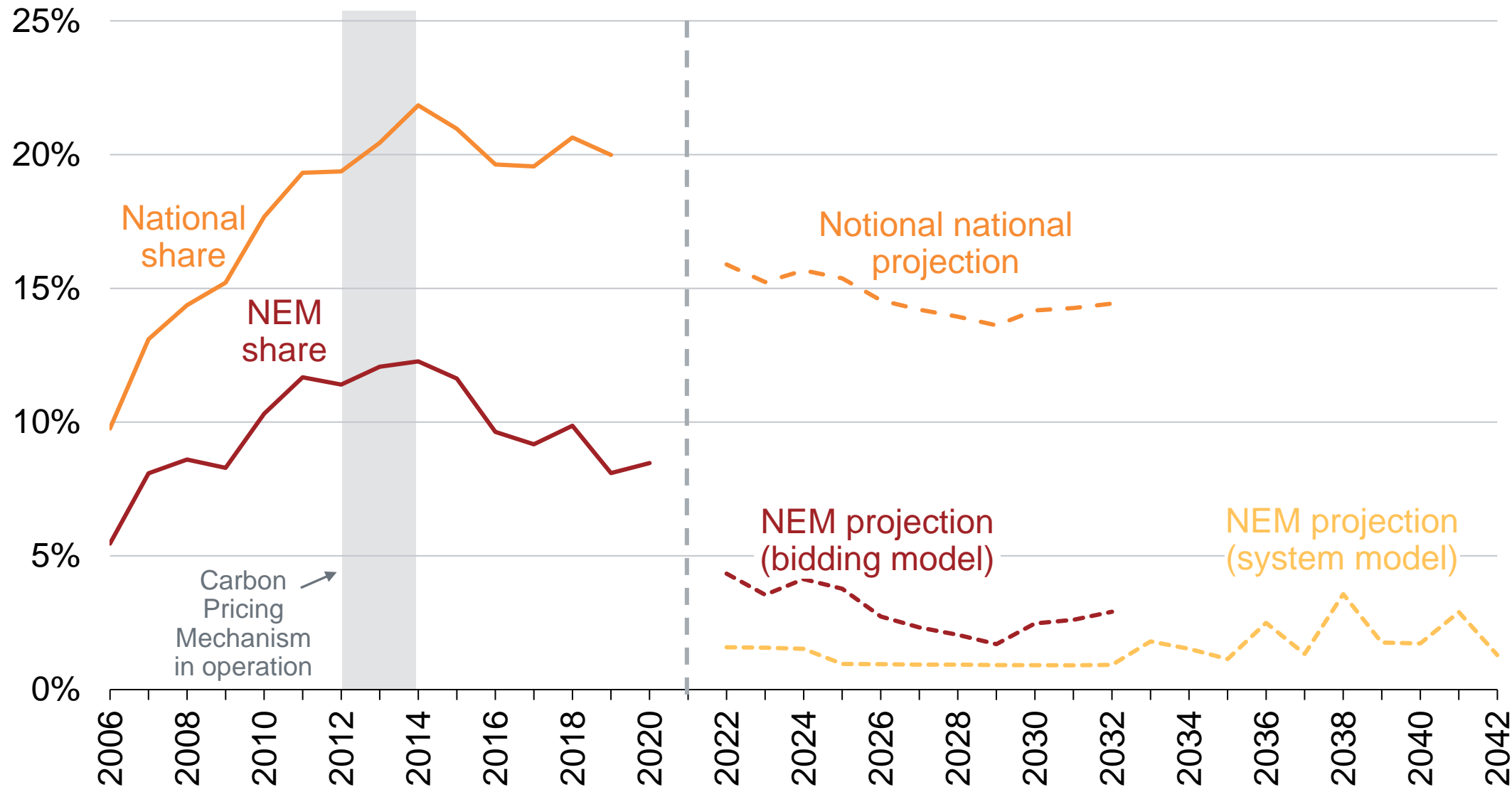
# Electrifying small gas loads is a big issue for Victoria

Peak demand by season (Gigawatts)



# The role of gas as a transition is now increasingly unlikely

Gas share of power generation



## The conclusions are confronting for the gas sector and its customers

Critical comment	Grattan perspective
The analysis undervalues the role of gas across manufacturing	For some businesses, the current gas supply position is an existential threat. It is unlikely to be an economy-wide crisis
Gas prices are coming down – Grattan just cut off the numbers at 2018	Gas prices have fallen recently, but that trend seems unlikely to continue.
International data (IEA) shows that the role of gas in our region will grow, not shrink	The role of gas in Asia is projected to grow for some time yet; good news for Australia’s LNG exports
Gas will be crucial to back up the rapidly increasing share of intermittent power generation.	Gas is likely to be a critical backstop to solar and wind until other credible alternatives emerge
A shift from coal to natural gas will lower electricity prices, boost manufacturing, and reduce emissions	The last of these will be true but only for a limited period.
Consumers are willing, and should be allowed, to pay more for gas and will do so for “green gas” in the future.	Green gas (renewable hydrogen or biomethane) is a possible alternative and the alternatives need urgent attention. We question the underlying premise.
The ACCC agrees with customers that the gas market is broken. The report underestimates how bad it is.	Government, and ACCC, actions to improve the transparency and liquidity of the wholesale market are working and should be sustained.

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