

The Outlook for Retail Electricity Prices

Presentation to
Power Australia Conference 2011

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Port Jackson Partners

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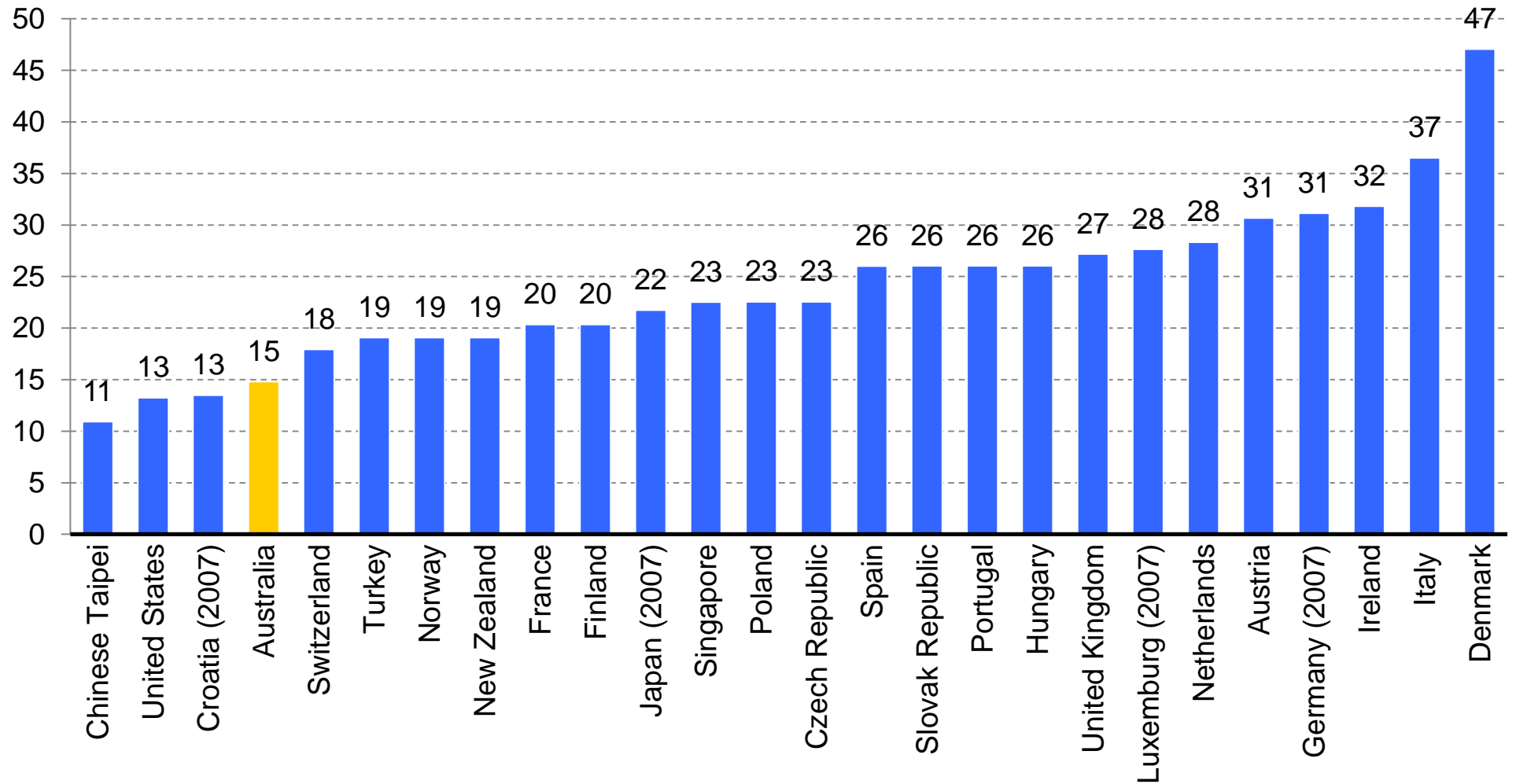
Australia's future retail electricity price environment

- § Australian retail electricity prices have risen by over 35% in the past four years in real terms
- § Many factors will continue to drive retail electricity prices to almost double in the next six years
- § While many cost increases are unavoidable and should be properly reflected in consumer prices, we need to ensure they do not increase more than is necessary

Australian electricity prices have been relatively competitive compared with most OECD countries

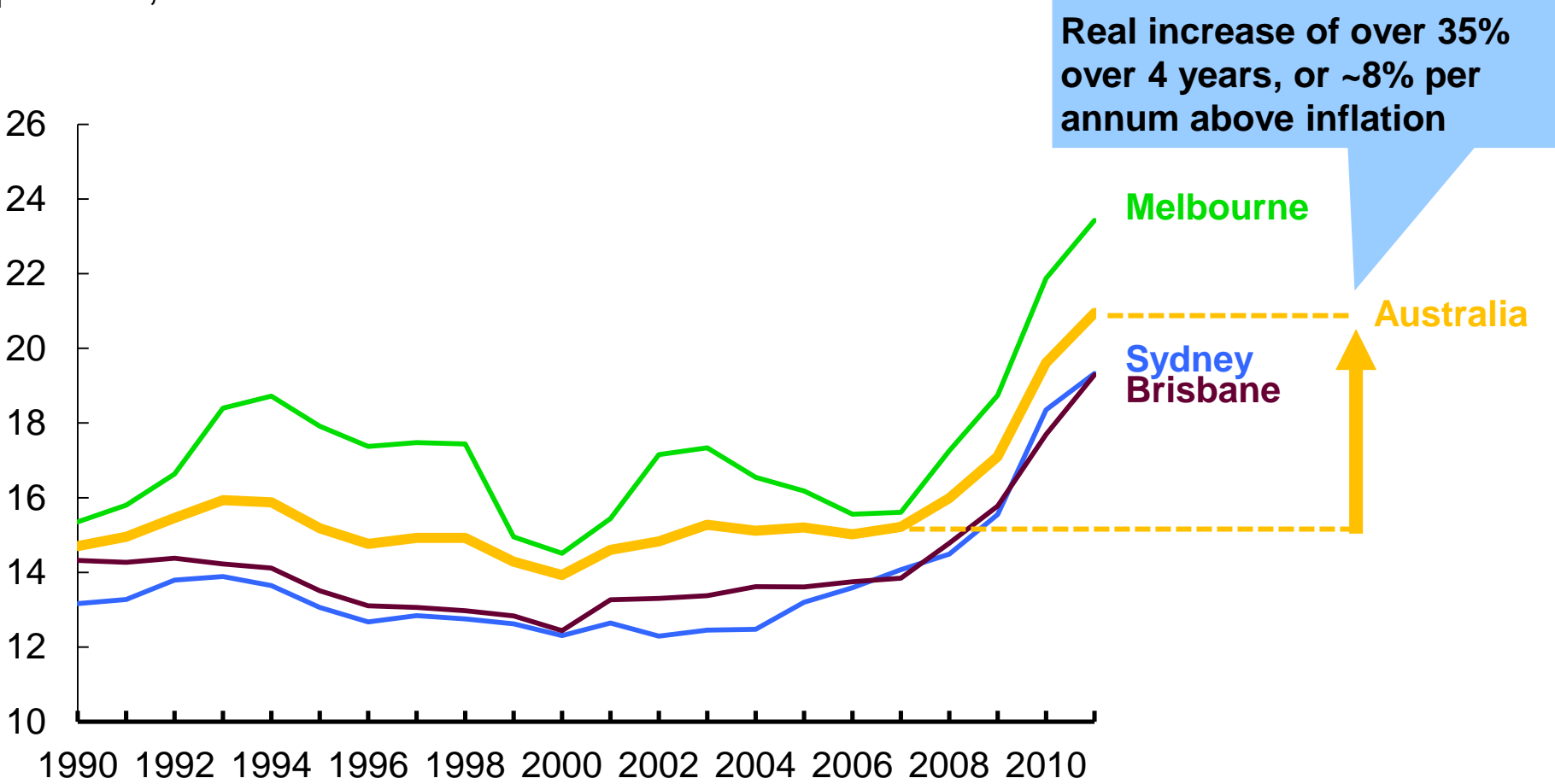
World residential electricity prices, 2008

Cents per kWh, 2008 dollars



Electricity prices in Australia have risen by over 35% over 4 years

Estimated real electricity prices
Cents per kWh, real 2011 dollars

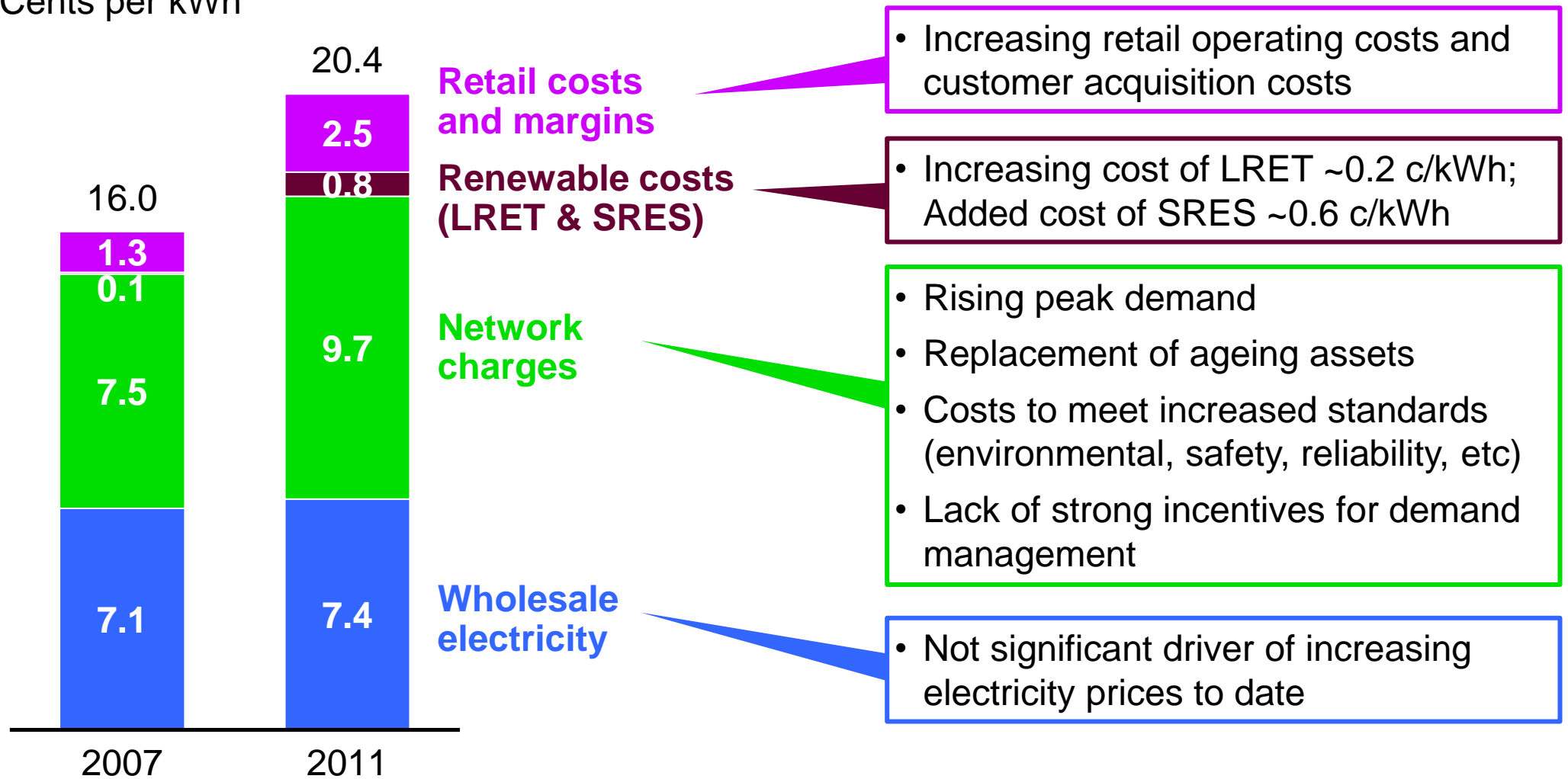


Source: Australian Energy Regulator, ABS 6401.0

Rising network costs have largely driven the increase in electricity prices to date

Increase in residential electricity prices (NSW example)

Cents per kWh



Australia's future retail electricity price environment

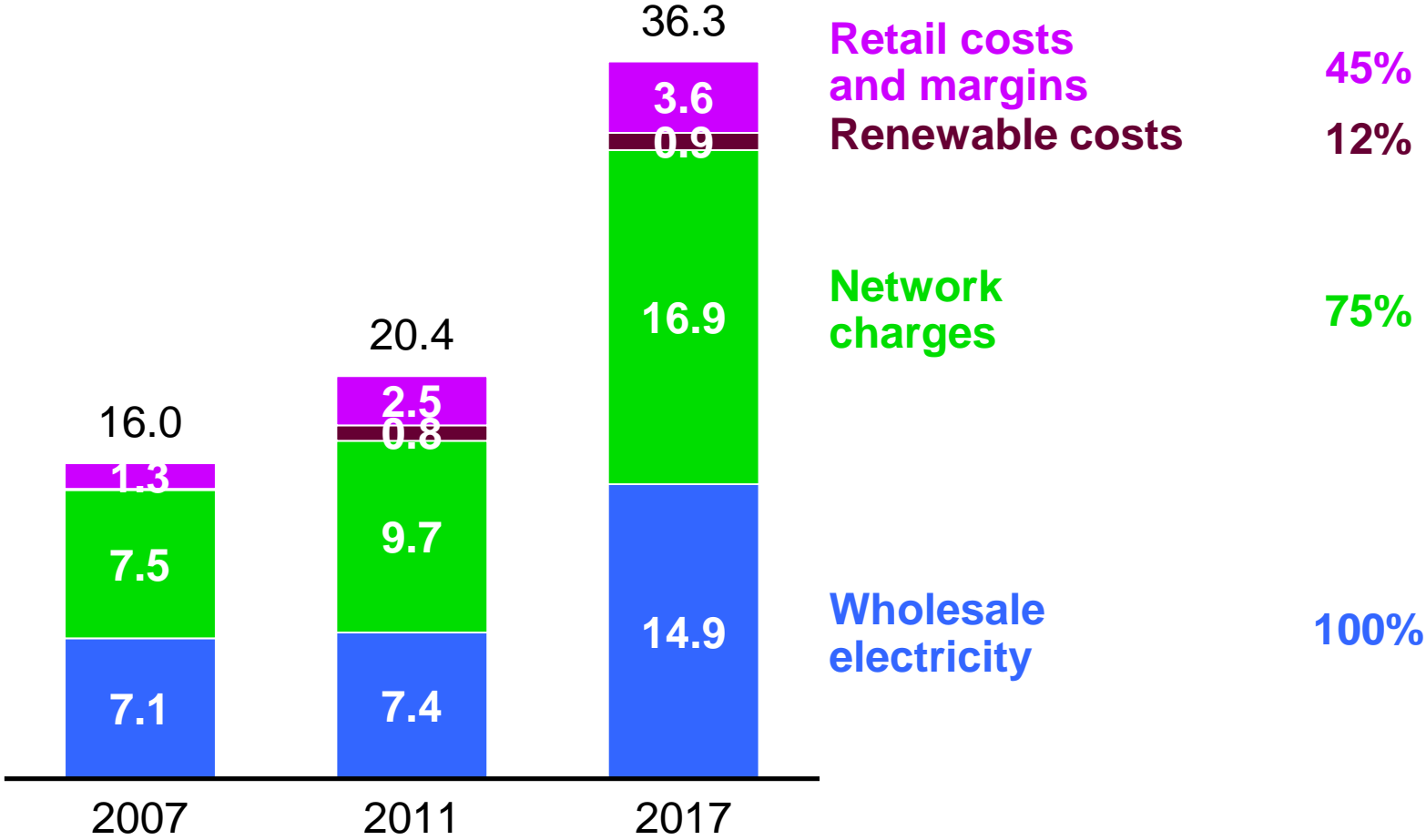
- § Australian retail electricity prices have risen by over 35% in the past four years in real terms
- § Many factors will continue to drive retail electricity prices to almost double in the next six years**
- § While many cost increases are unavoidable and should be properly reflected in consumer prices, we need to ensure they do not increase more than is necessary

Many factors will continue to drive electricity prices to almost double in the next six years

Increase in residential electricity prices

Cents per kWh

Increase
2011 to ~2017

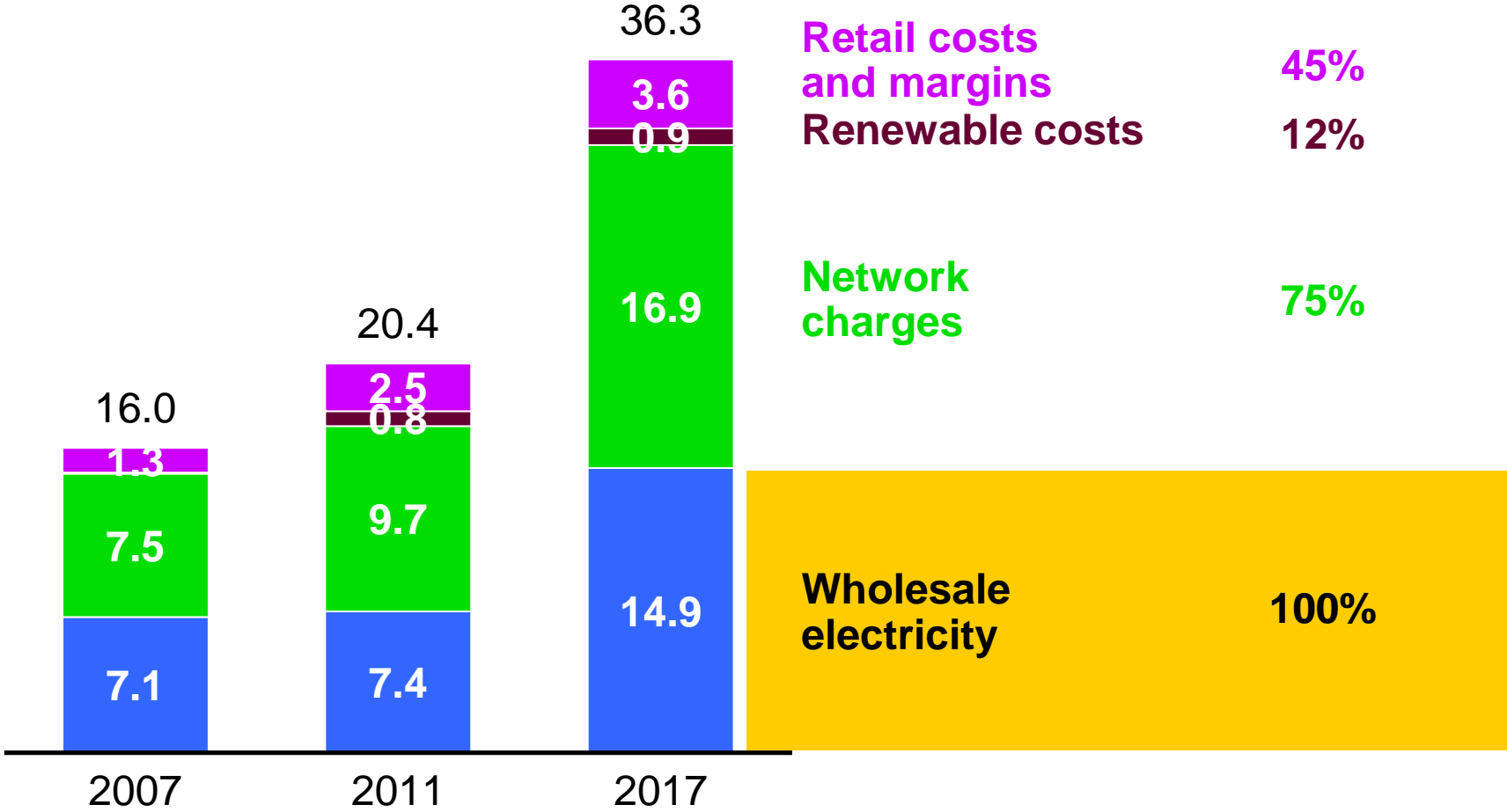


Source: PJPL modelling

Many factors will continue to drive electricity prices to almost double in the next six years

Increase in residential electricity prices
Cents per kWh

Increase
2011 to ~2017



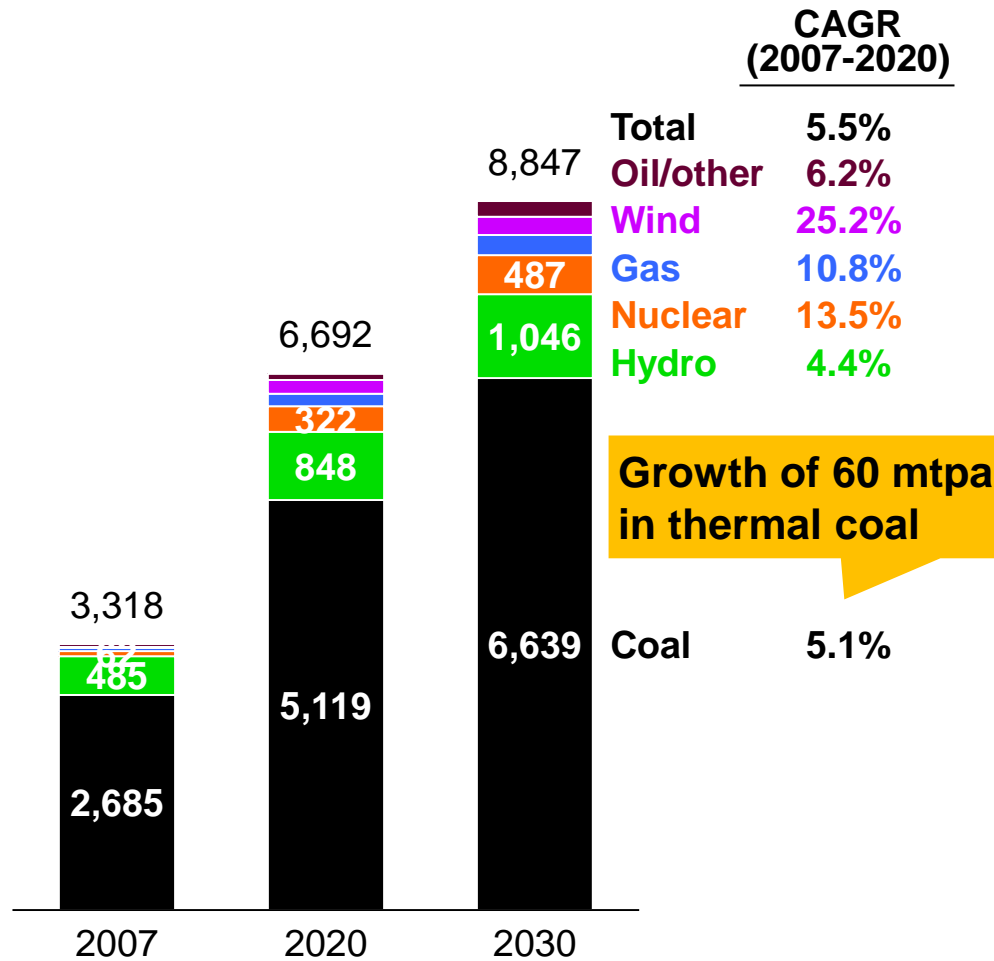
Source: PJPL modelling

Wholesale electricity prices will potentially double over the medium-term

- § Increasing coal prices as coal suppliers gain an export option and as coal contracts come up for renewal
- § Increasing gas prices as the east coast gas market also gains export options
- § Impact of a carbon price on coal and gas generation
- § Capital construction costs will be higher than they have been in the past
- § High price volatility with increasing intermittent generation and potential increase in market price cap to \$16,000/MWh
- § Wholesale electricity prices converging to long-run costs (currently below)

Coal will remain the predominant energy source for power generation in China

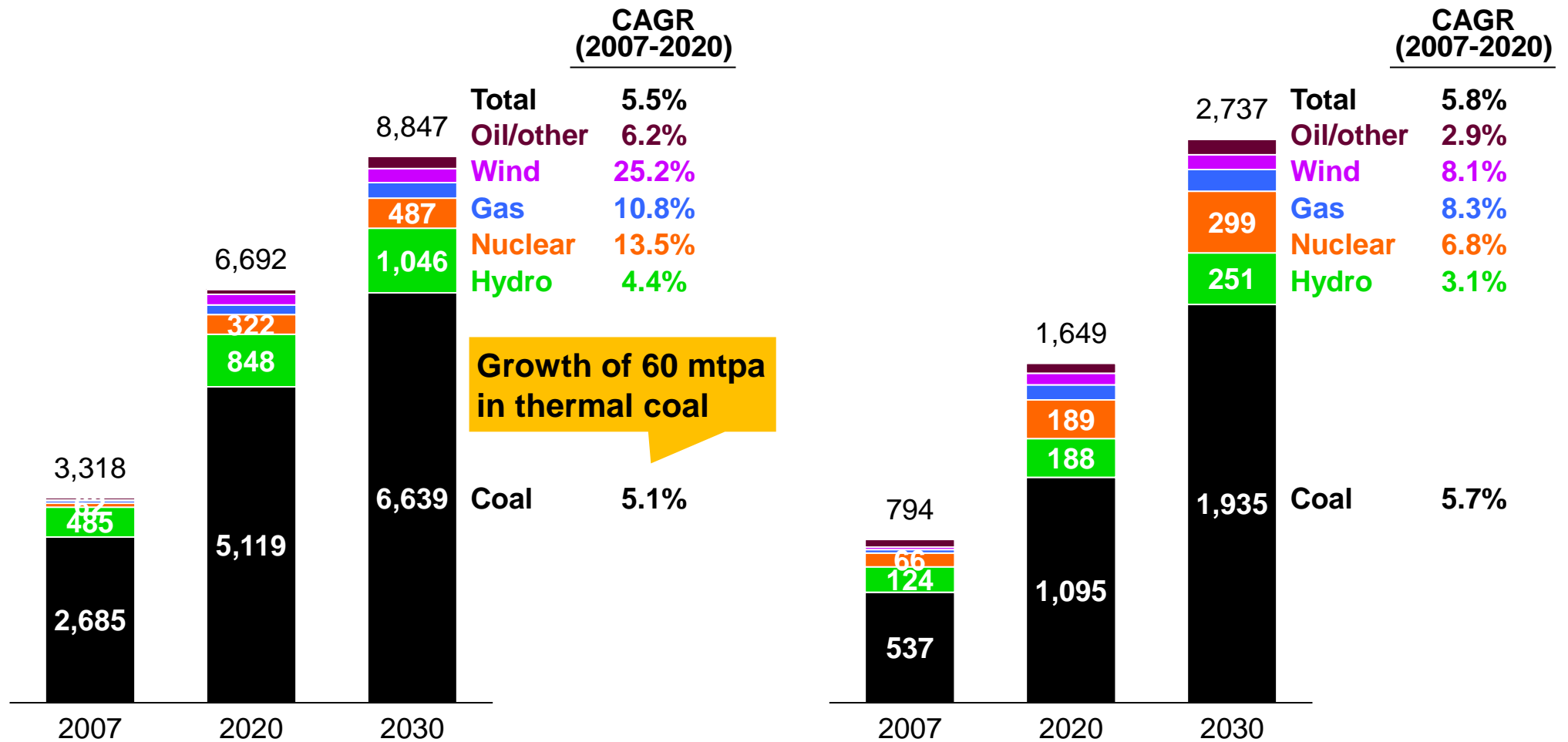
Forecast of China's power generation TWh



Coal will similarly remain the predominant energy source for power generation in India

Forecast of China's power generation
TWh

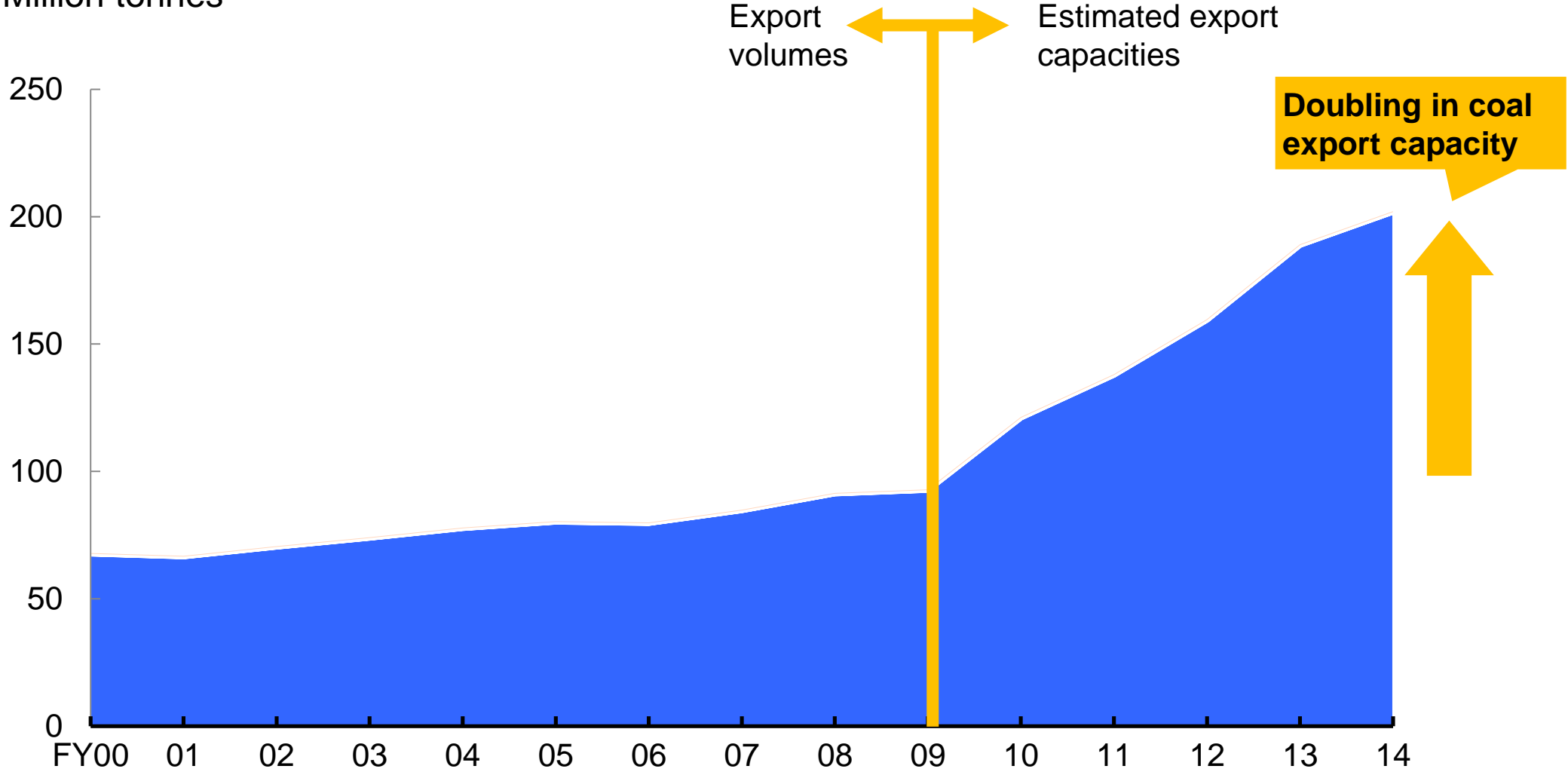
Forecast of India's power generation
TWh



Source: IEA World Energy Outlook, 2009; Reference case

Planned increases in Australian port capacity will potentially lead to a significant increase in coal exports

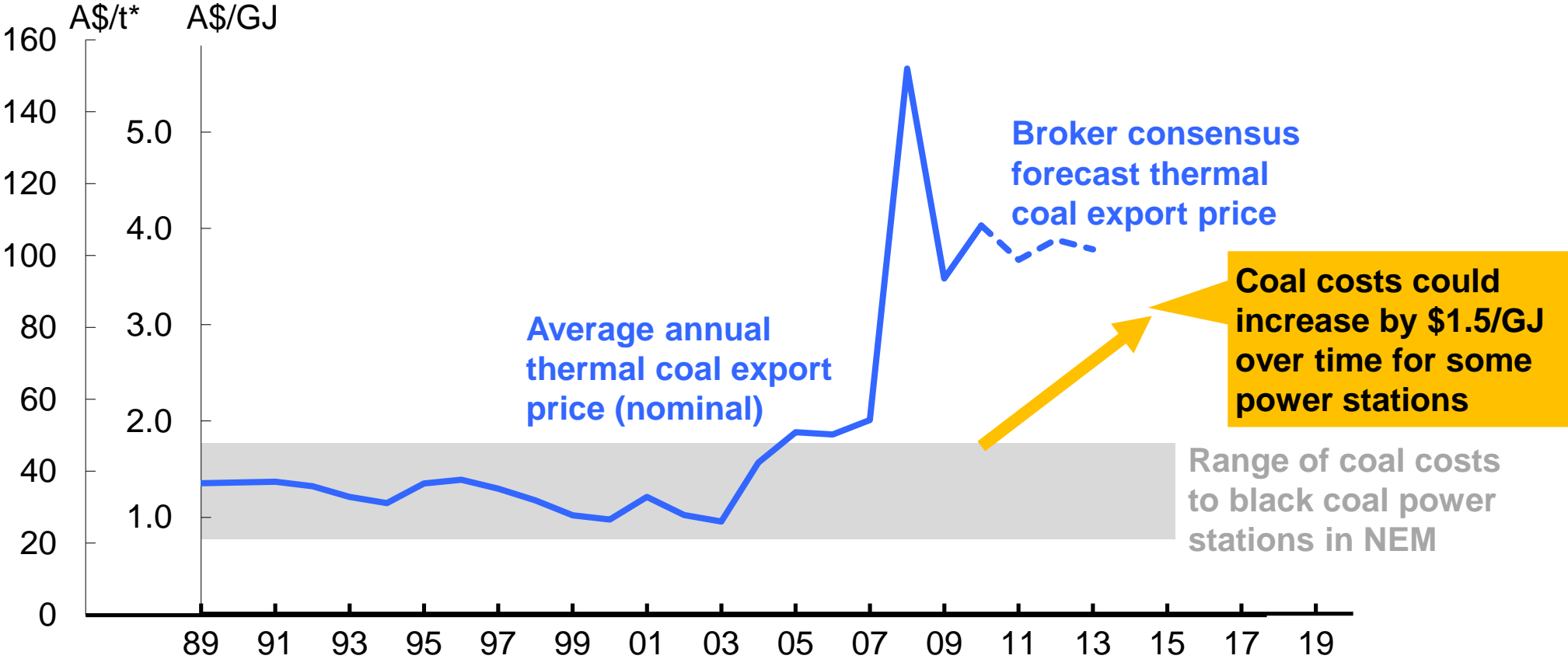
Newcastle coal port capacity
Million tonnes



Source: HVCCC Presentation, 2010

Coal costs will likely rise over time, potentially by up to \$1.5/GJ

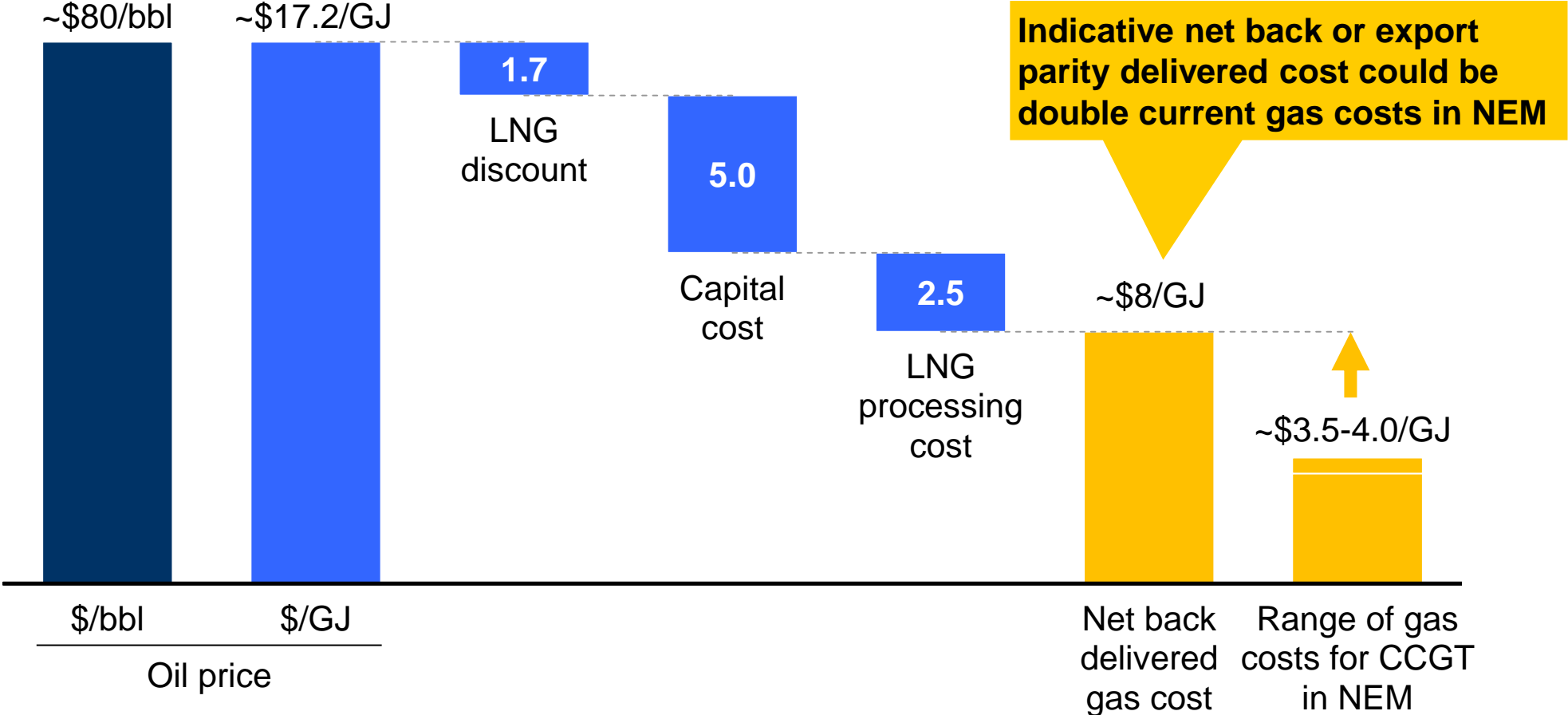
Historical and long-term thermal coal contract prices



* Assumed energy density of 27.0 GJ/t (ABARE) for export coal; energy density of coal used by NEM stations is ~23.4 GJ/t (ABARE)
 Source: Broker reports, ACIL Tasman, PJPL analysis

Gas costs will likely rise over time, potentially by at least \$4/GJ

Gas netback costs \$/GJ

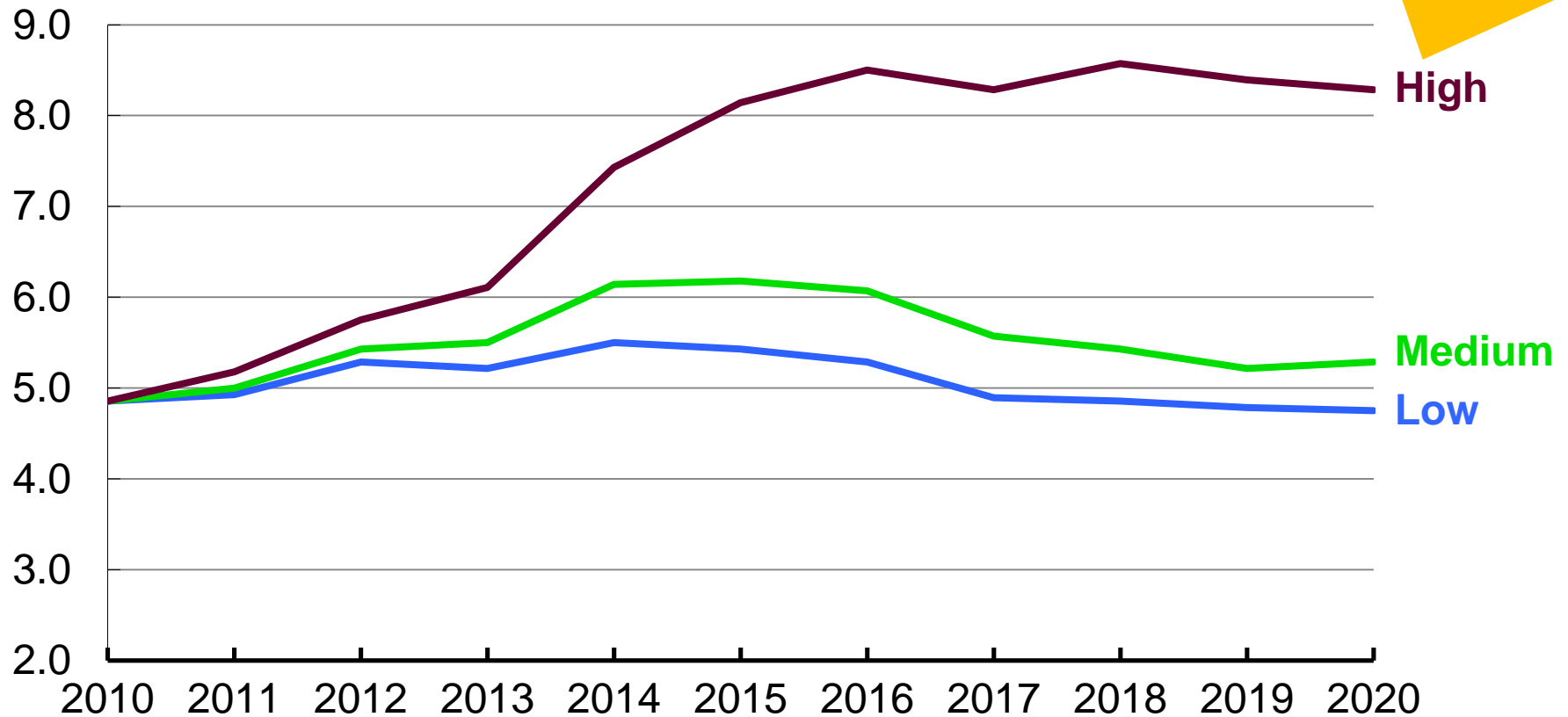


Source: PJPL modelling, Credit Suisse, Wilson HTM

Domestic gas costs are expected to rise to over \$8/GJ

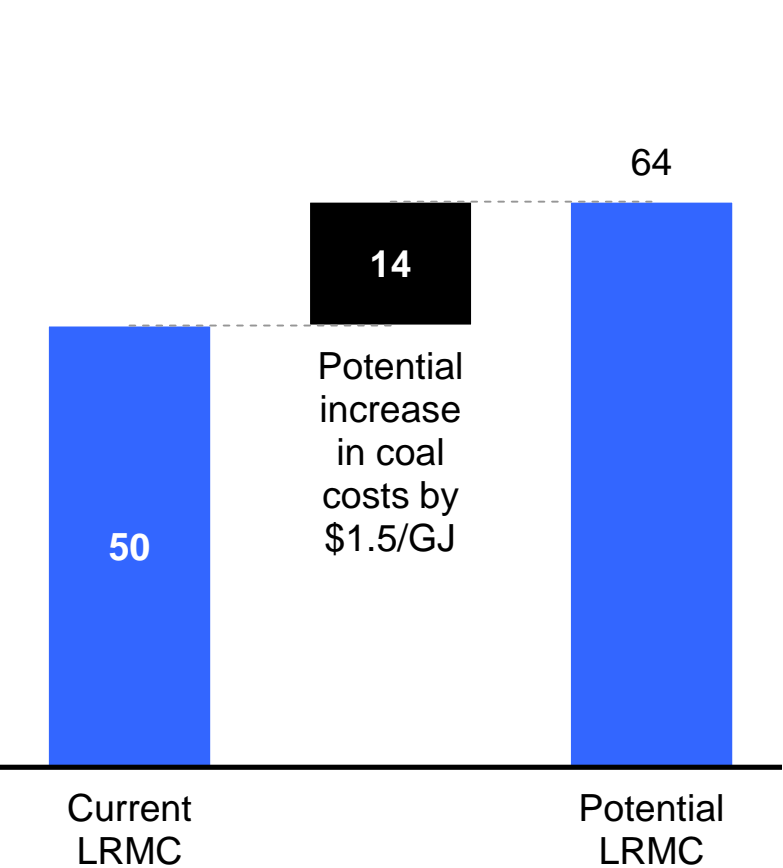
Forecast Queensland domestic gas prices

A\$/GJ
(\$2011 real)

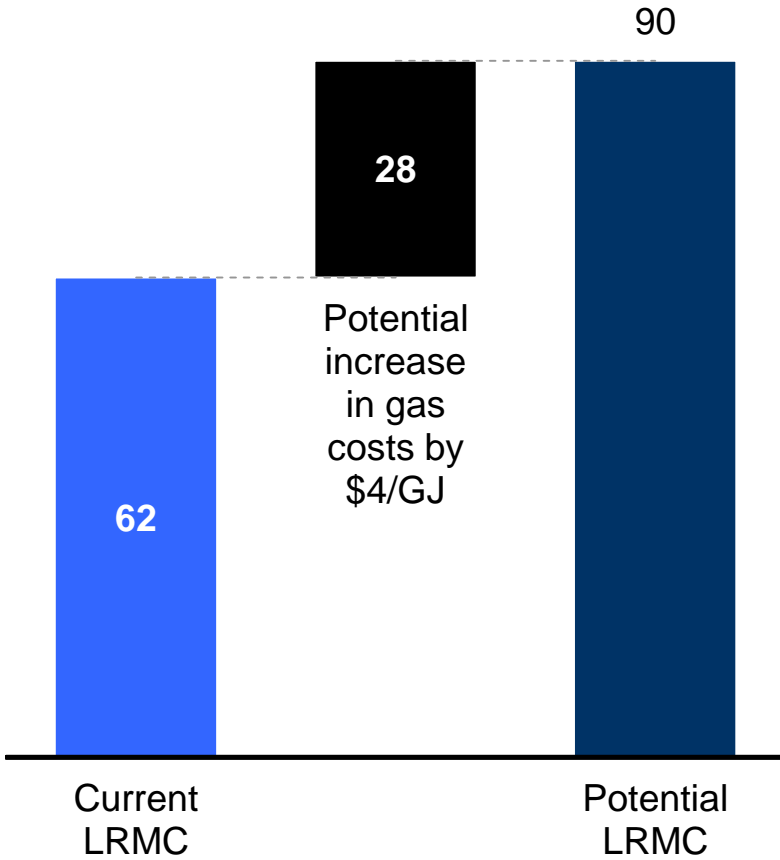


Increases in fuel costs could lead to generation costs rising by up to 45%

Increase in coal generation costs \$/MWh



Increase in gas generation costs \$/MWh

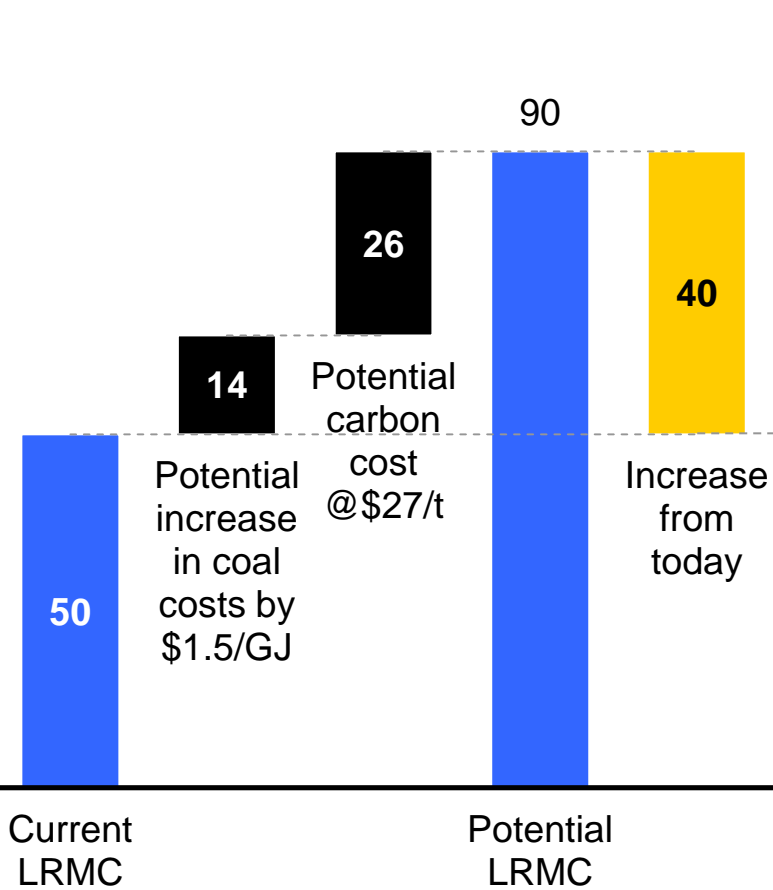


* Assuming Coal cost increase of \$1.5/GJ, coal heat rate of ~9.5 GJ/MWh, coal emissions at 0.95t/MWh;
Gas cost increase of \$4/GJ, gas heat rate of ~7GJ/MWh, gas emissions at 0.5t/MWh

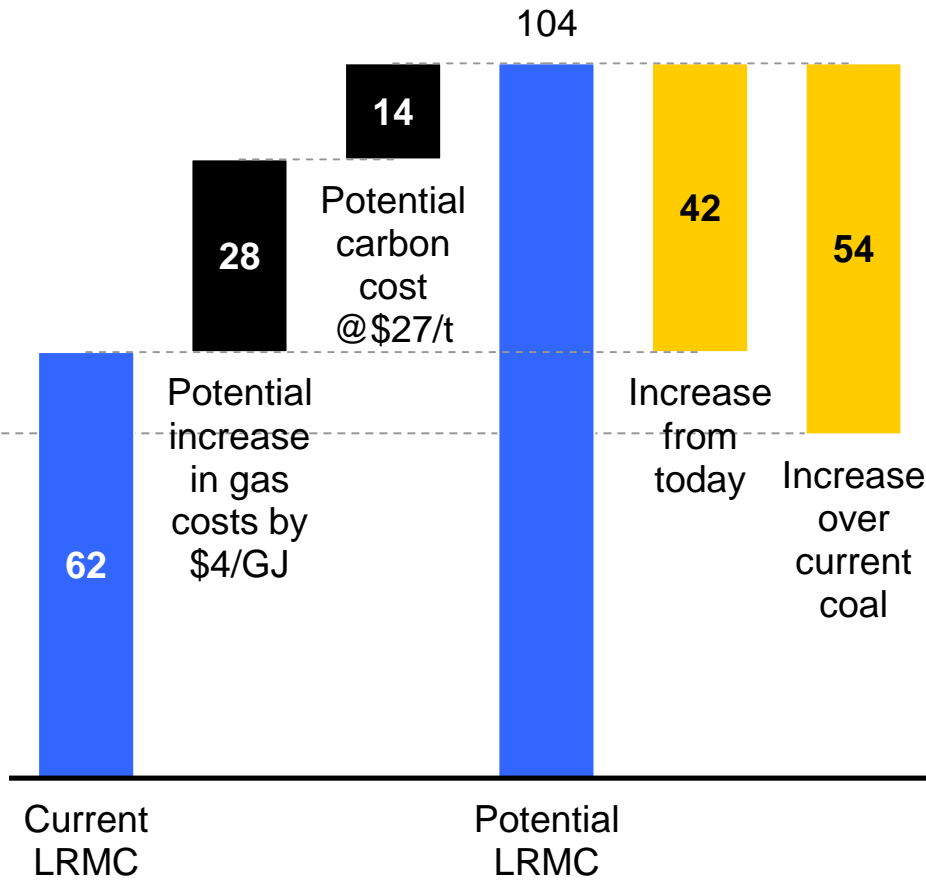
Source: PJPL modelling

Increases in fuel costs and the impact of a carbon price could lead to a 100%+ increase in generation costs

Increase in coal generation costs
\$/MWh



Increase in gas generation costs
\$/MWh



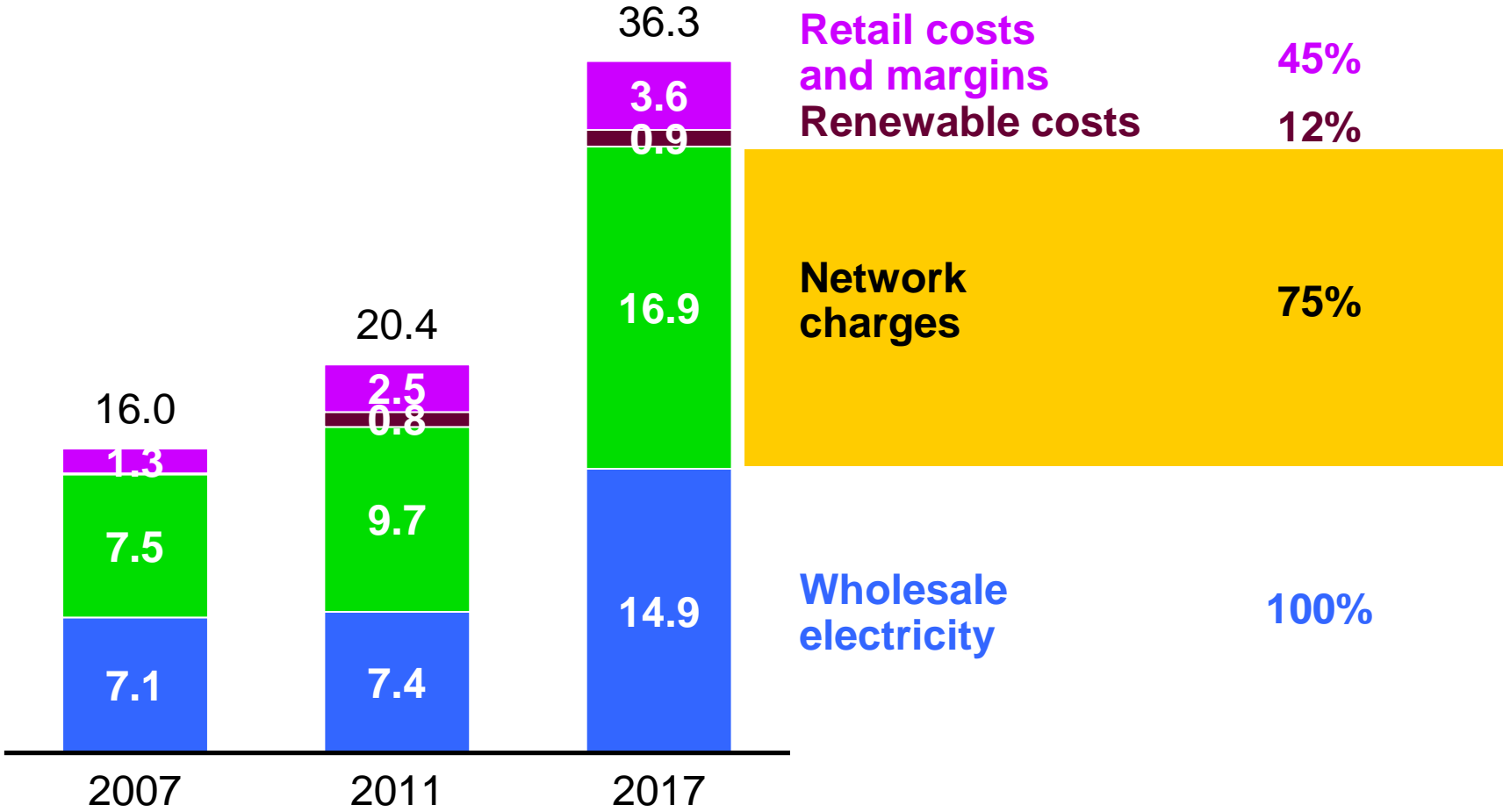
* Assuming carbon price of \$27.4/t CO₂-e (\$20/t CO₂-e escalating at 4% real over 5 years)
 Coal cost increase of \$1.5/GJ, coal heat rate of ~9.5 GJ/MWh, coal emissions at 0.95t/MWh;
 Gas cost increase of \$4/GJ, gas heat rate of ~7GJ/MWh, gas emissions at 0.5t/MWh

Source: PJPL modelling

Many factors will continue to drive electricity prices to almost double in the next six years

Increase in residential electricity prices
Cents per kWh

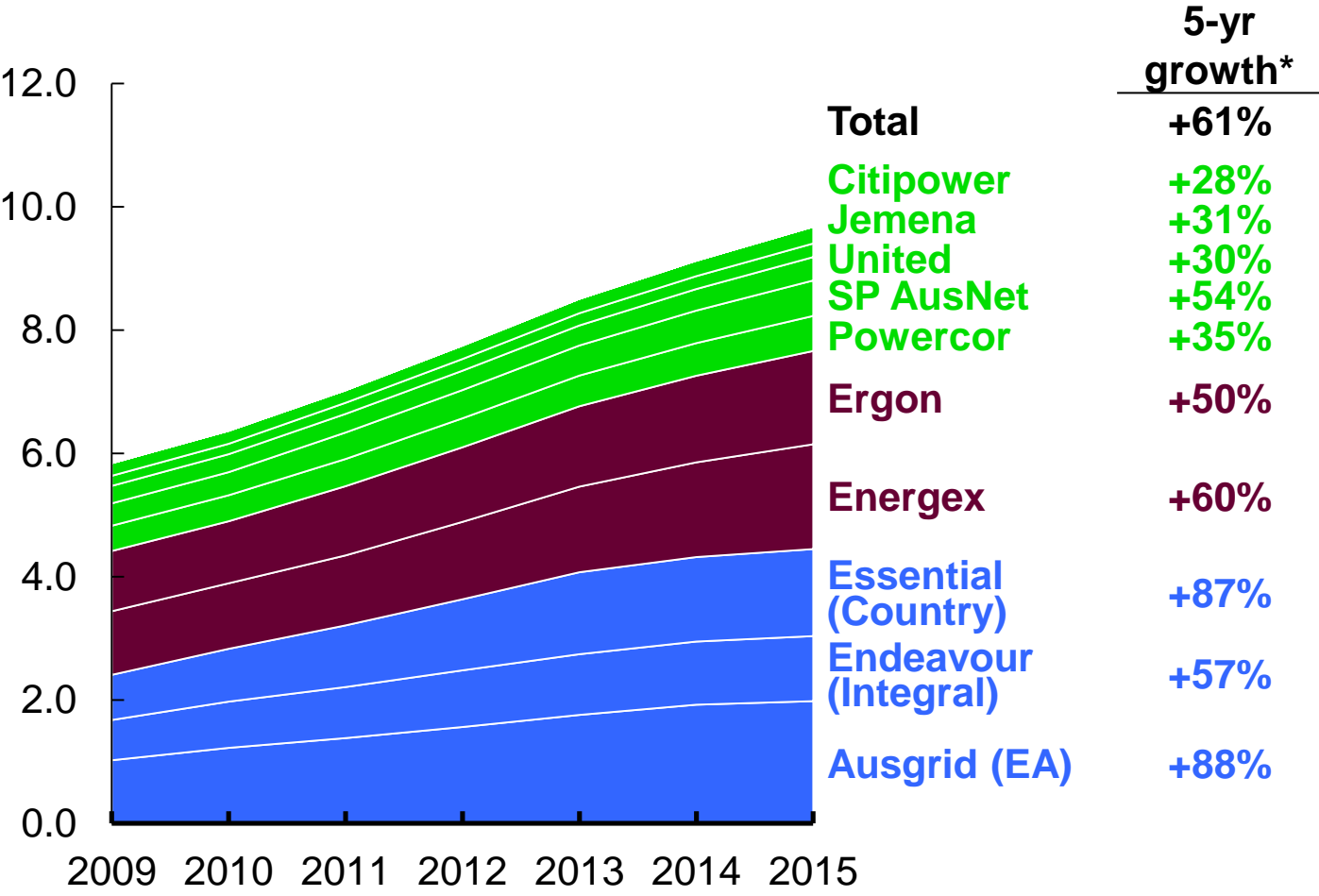
**Increase
2011 to ~2017**



Source: PJPL modelling

Recent regulatory determinations have approved significant increases in distribution network costs

Distribution network annual revenues in NSW, Queensland and Victoria
 \$ Millions, financial years



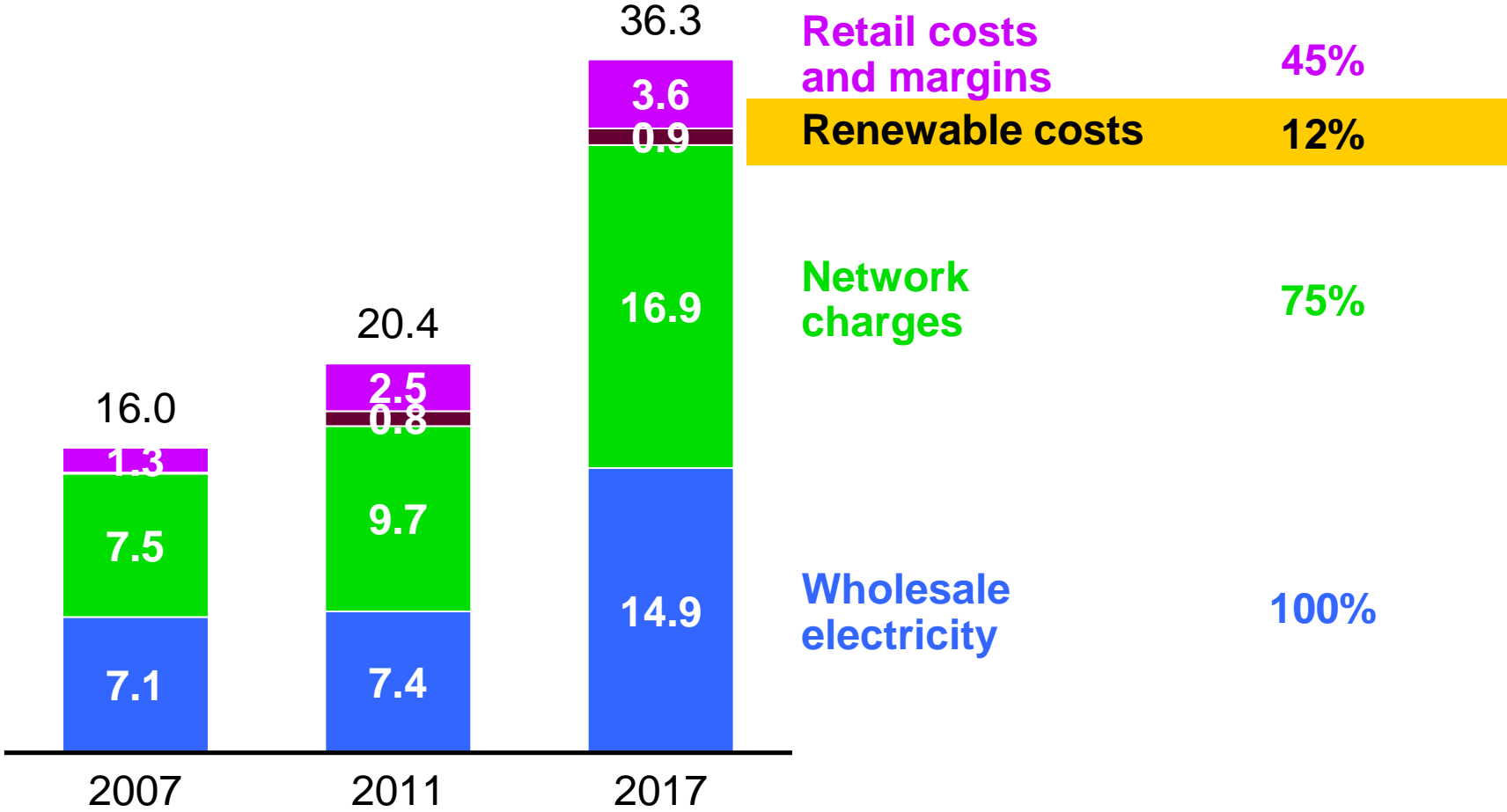
* 5-year growth over each jurisdiction's respective regulatory period (2009-2014 for NSW, 2010-2015 for Qld, 2011-2015 for Vic).
 Overall growth over 6 year period assumed to be 85%

Source: Australian Energy Regulator

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Increase in residential electricity prices
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Increase
2011 to ~2017



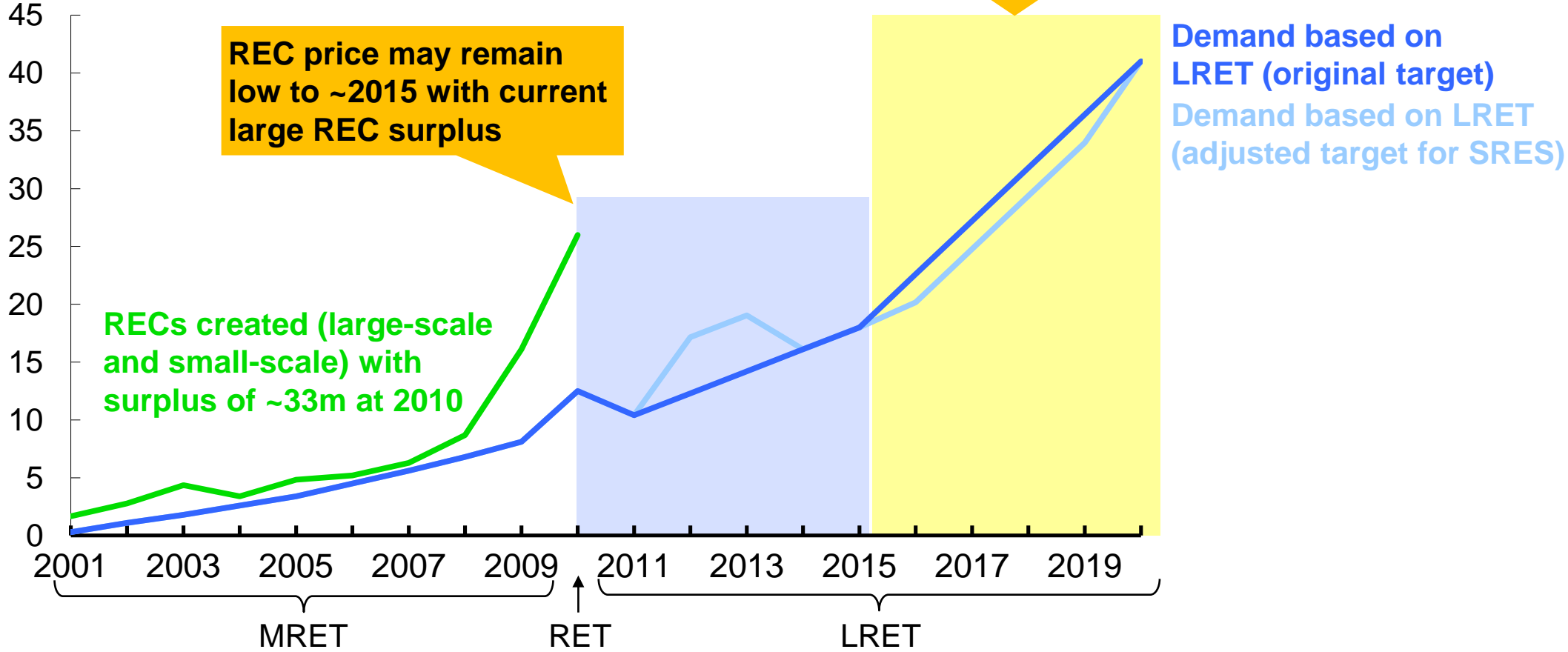
Source: PJPL modelling

LGC prices are likely to increase significantly in the medium-term as the target increases rapidly

LRET target
Million LGCs

Beyond around 2015, LGC prices will likely increase:

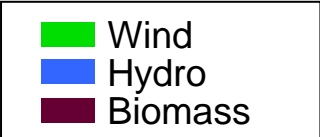
- Target increases rapidly to 41,000 GWh
- Projects not being developed with current low REC price



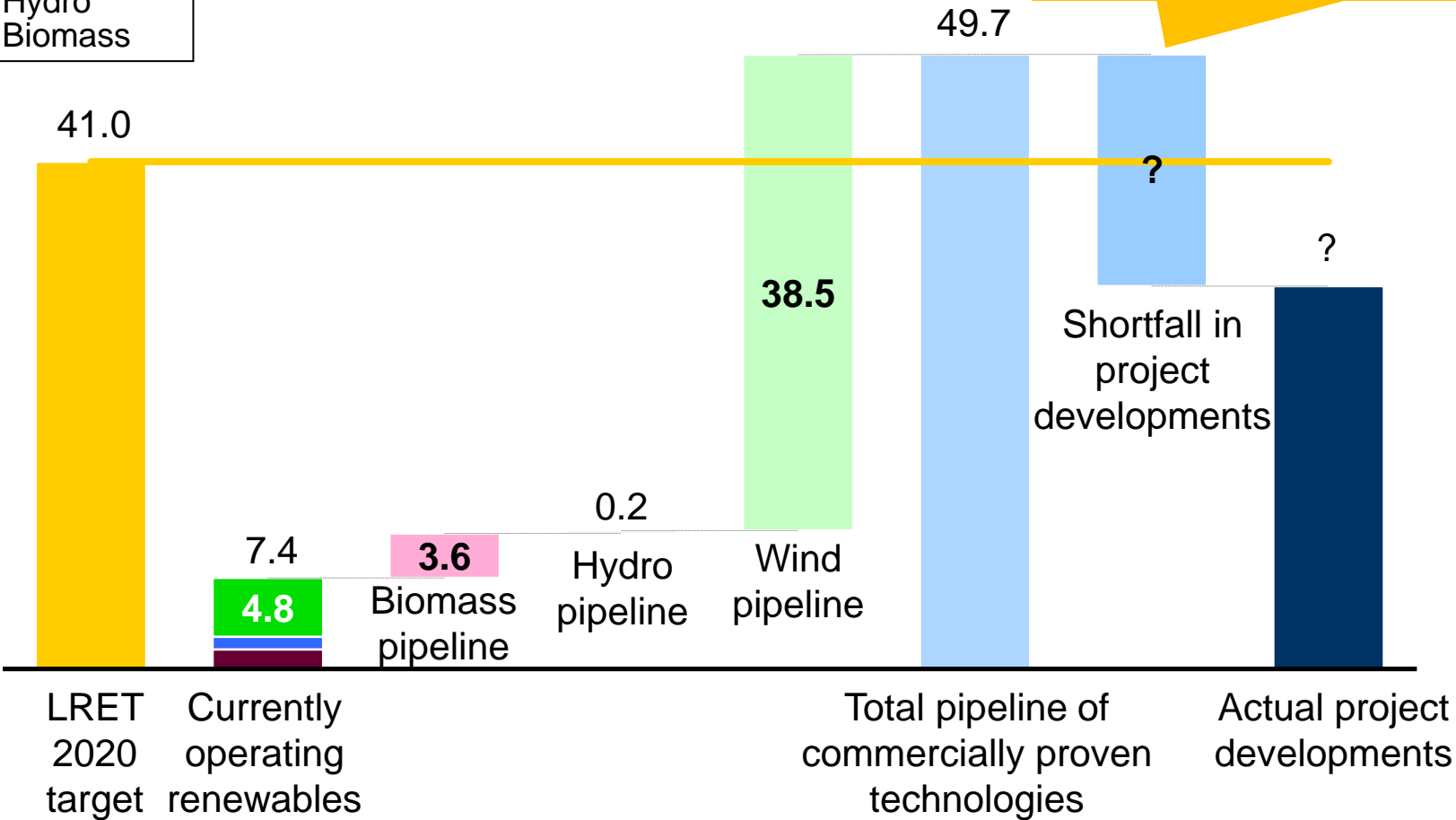
Source: PJPL modelling; REC Quarterly Review, Aug 2010; ROAM, Mar 2010; MMA, May 2010

There will likely be a shortfall in meeting the LRET target

Pipeline of proven technologies to meet the LRET
TWh generation per annum



Even though the publicised pipeline of wind projects is sufficient to meet the LRET, there are many reasons why it will be difficult to meet the target



Source: CEC Aug 2010; MMA; Discussions with industry experts

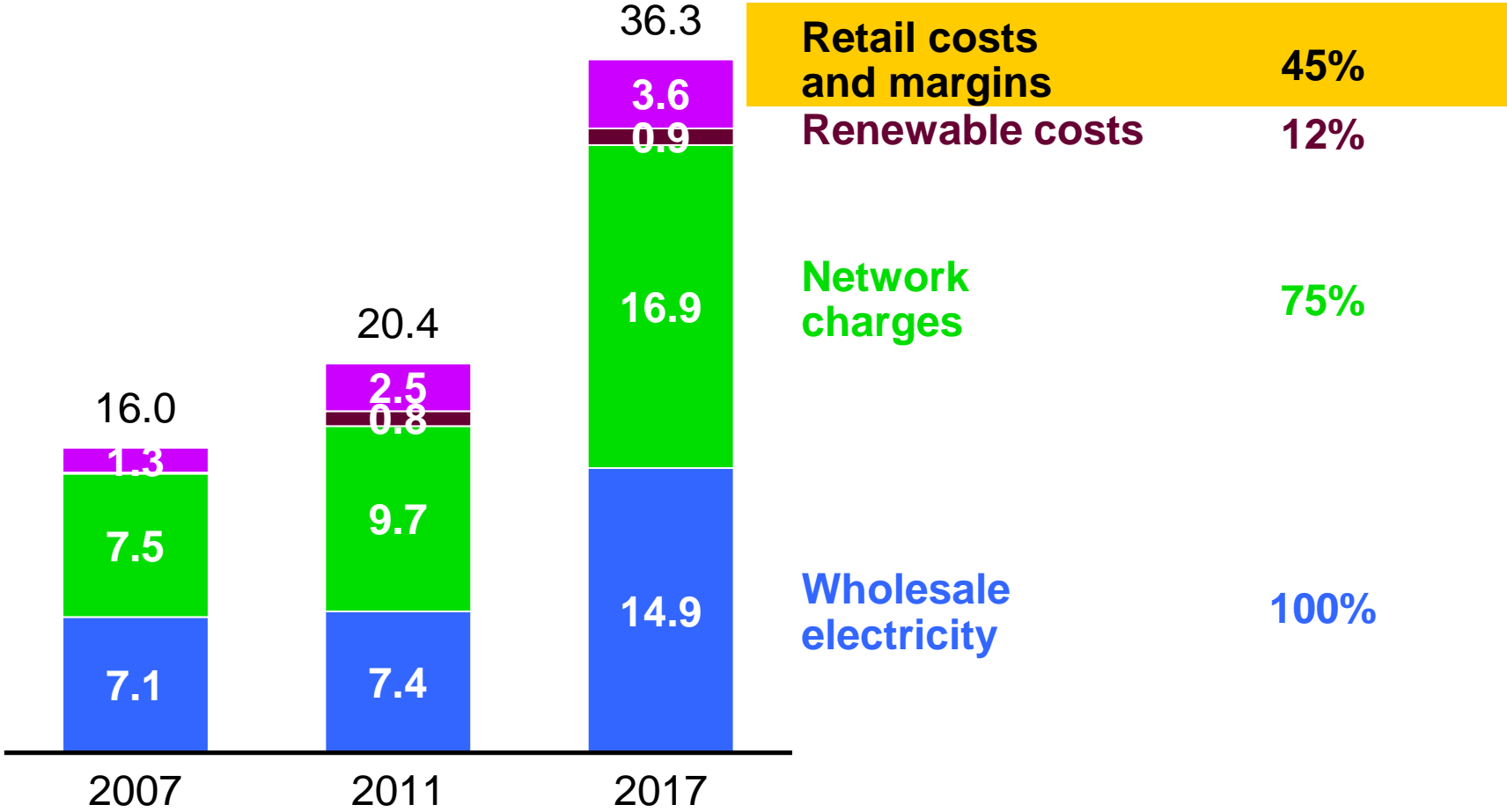
Many factors will make it difficult to meet the large LRET target

- § Approval timeframes (environmental, land, etc)
- § Addressing community concerns (noise, visual pollution)
- § Transmission limitations (particularly for remote renewables)
- § Impact of increasing intermittent generation
- § Shortage of development skills and resources
- § Revenue uncertainties (low REC price and difficulty in securing PPAs from major offtakers)
- § Funding constraints given investment levels required

Many factors will continue to drive electricity prices to almost double in the next six years

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Cents per kWh

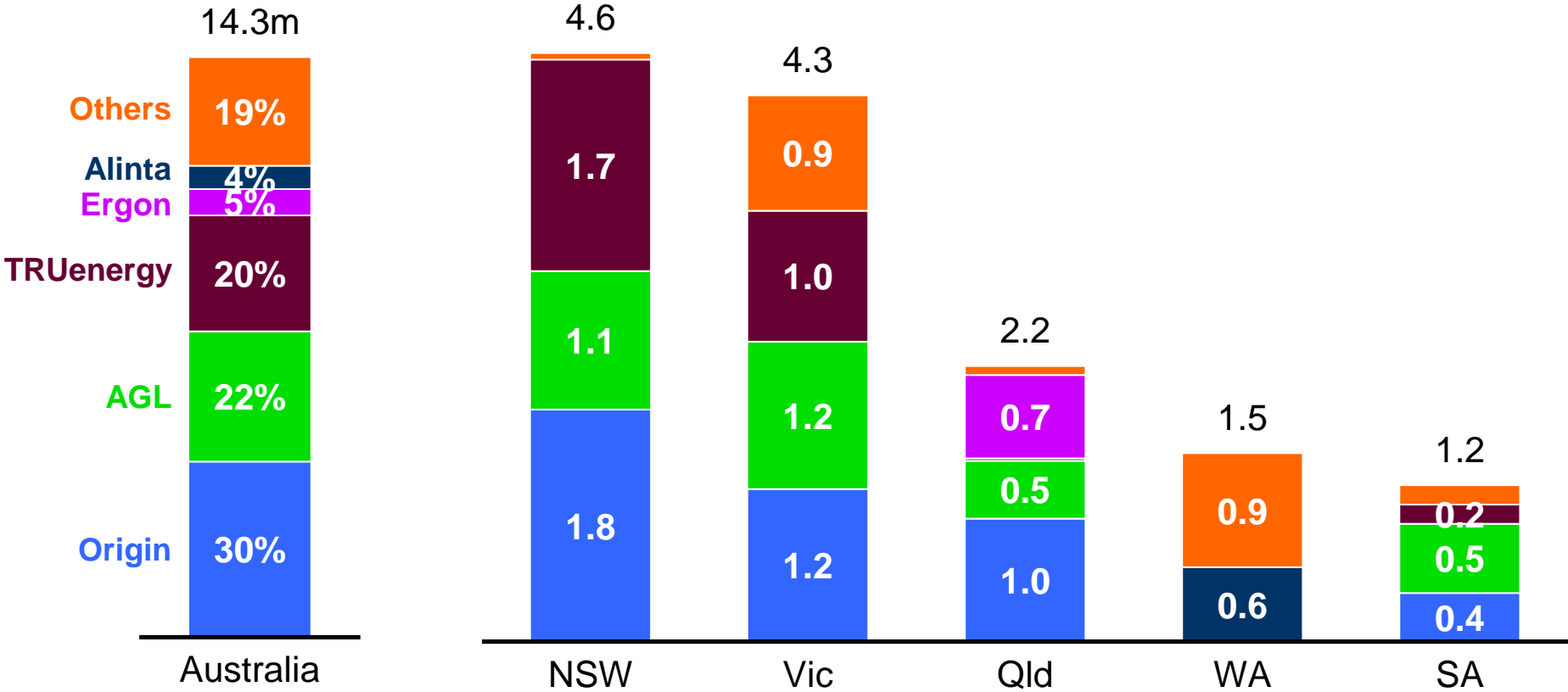
Increase
2011 to ~2017



Source: PJPL modelling

The retail industry remains relatively competitive with small margins

Electricity and gas retail market shares
Millions of customers



Source: UBS, "Australian utilities structure 2009"

Australia's future retail electricity price environment

- § Australian retail electricity prices have risen by over 35% in the past four years in real terms
- § Many factors will continue to drive retail electricity prices to almost double in the next six years
- § **While many cost increases are unavoidable and should be properly reflected in consumer prices, we need to ensure they do not increase more than is necessary**

Ensure retail electricity prices do not increase more than is necessary

§ Stem future increases in network costs:

- Review energy market frameworks, e.g.:
 - Burden of proof to reject or amend network spend proposals
 - Unbalanced appeals process
- Ensure standards for network reliability align with customers' willingness to pay
- ... But current network regulatory determinations are in place until 2014 in NSW and 2015 in other major states

§ Demand side management opportunities:

- Smart meters, in-home real-time information for consumers, time-of-use pricing or dynamic pricing, etc
- Driven by either distributors or retailers
- Ensure proper cost-benefit analyses

§ Arm customers with information and tools

Australia's future retail electricity price environment

- § Australian retail electricity prices have risen by over 35% in the past four years in real terms, largely driven by network costs
- § Electricity prices will continue to increase, potentially doubling from 2011 to 2017:
 - Network costs with determinations through to 2014 and 2015
 - Energy costs with increasing coal costs, gas costs and carbon costs
- § Increased costs should be properly reflected in consumer prices
- § While many increases unavoidable, need to ensure they do not increase more than is necessary