OXFORD ECONOMICS AUSTRALIA

qldwater

THE FUTURE FOR INFRASTRUCTURE COSTS

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Adrian Hart
Director Construction & Infrastructure
ahart@oxfordeconomics.com
LinkedIn

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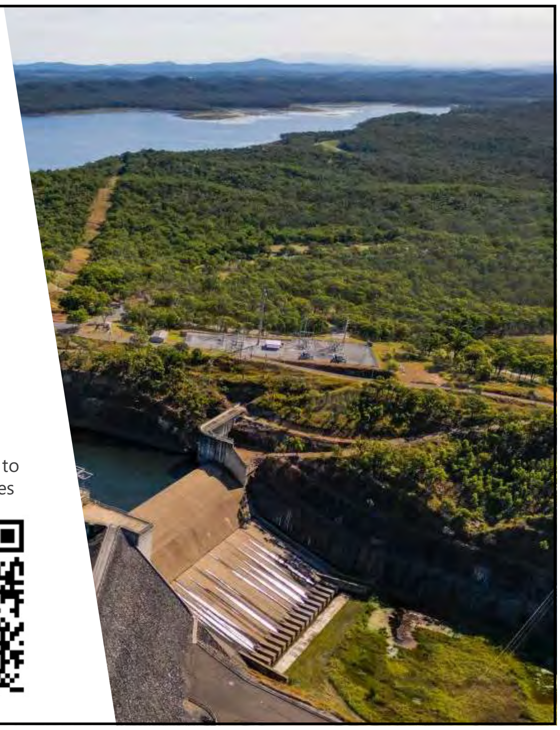

Introduction – Oxford Economic Australia

OEA is Australia's leading independent economic and industry forecaster which combines local expertise in construction and infrastructure analysis and forecasting with global economic knowledge

Industry Analysis, Forecasting, Strategy and Policy Reform such as Infrastructure Australia, Public Works NSW, Australian Construction Association, Australasian Railways Association, Ventia, Department of Resources, Concrete, Cement and Aggregates Australia (CCAA) and others

Cost Escalation including the Department of Regional Development, Manufacturing and Water, the Department of Infrastructure and Regional Development, Rio Tinto, Acciona, Infrastructure NSW, Main Roads Western Australia, Anglo American, TBH, BMD, SunWater, Icon Water, Australian Gas Networks, South Australian Power Networks, Endeavour Energy and many others

Industry Capacity and Capability such as Infrastructure Australia, Infrastructure NSW, Austroads, Australasian Railways Association, National Transport Commission, Consulting Surveyors National (CSN), Queensland Department of Education, Queensland Major Contractors Association, Queensland Department of Regional Development, Manufacturing and Water and others

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Introduction – Oxford Economic Australia (OEA)

In Australia, we have a deep and long history of working positively with the construction and infrastructure industry and government agencies in better understanding market challenges, risks and opportunities

Mega trends shaping Australia’s Construction outlook

Population Growth
Driving demand for more building and assets to maintain and provision of FM services

Infrastructure Catchup
Transition from transport investment to social building, utilities and resources

Climate Targets
Net Zero goals driving a surge in energy transition investment

Rising Costs
Cost escalation from tight infrastructure market capacity, but also broader public debt. cost of living and wages challenges

Regional Boom
Resources cycle and energy transition to drive demand for accommodation, amenities and regional development

Geopolitics and Defence
Geopolitical tension adds to supply chain risks as well as an evolving Defence posture and how it is funded and delivered

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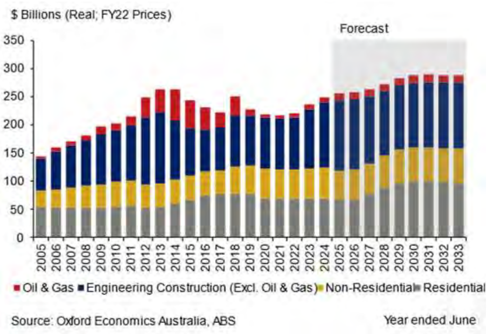
CONSTRUCTION OUTLOOK (DEMAND)

WHAT'S BEING BUILT? WHERE IS IT BEING BUILT?

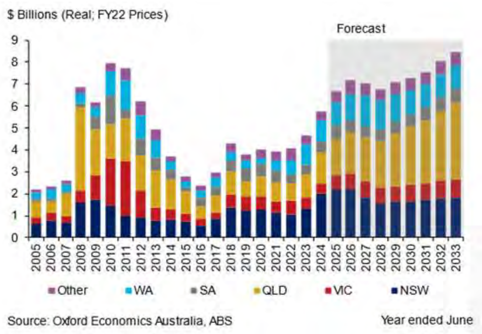
Construction Outlook - Australia

Construction demands to move higher over the second half of 2020s and into 2030s

Total Construction, Australia



Water Construction, Australia



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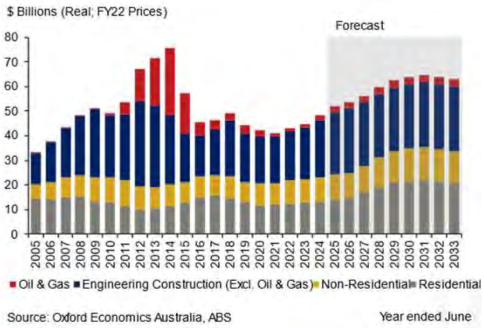
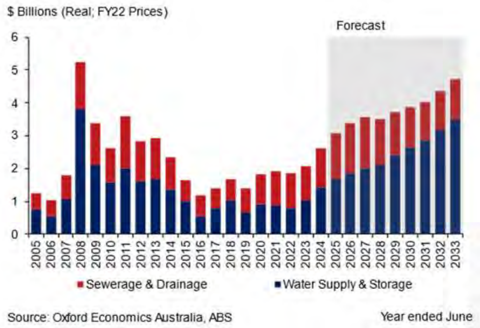
Construction Outlook - Queensland

Queensland will outperform the national increase in construction activity

Total Construction, Queensland



Water & Sewerage Construction, Queensland



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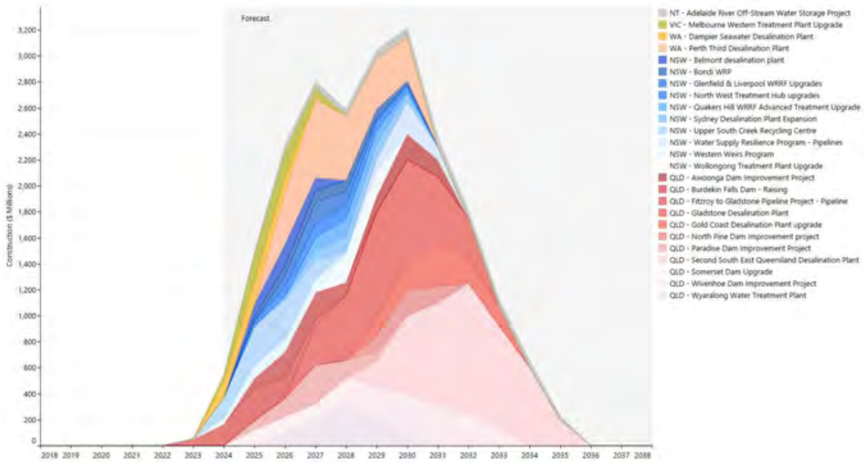
Major Water Project Construction - Australia

Major Water Projects in Queensland underpin a surge in national activity



Note: includes major projects with engineering construction value $350 million or greater, commencing after 2015

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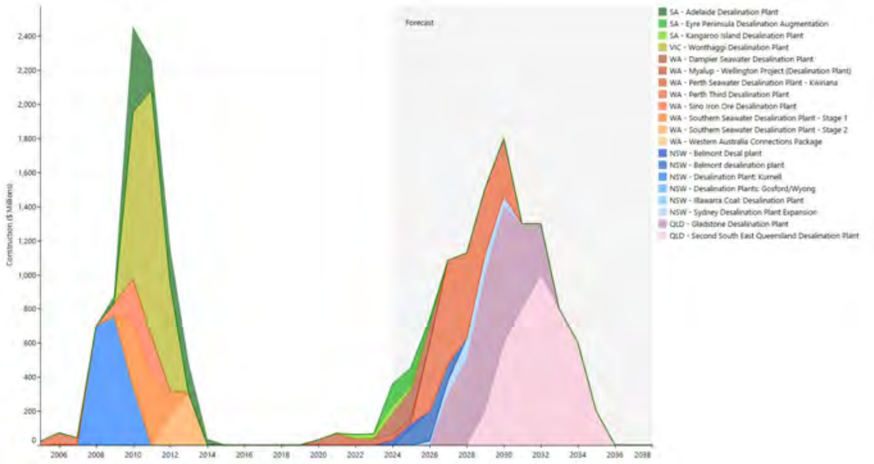
Desalination Plant Construction - Australia

Another wave of desalination work in the pipeline



Note: includes all major desalination projects

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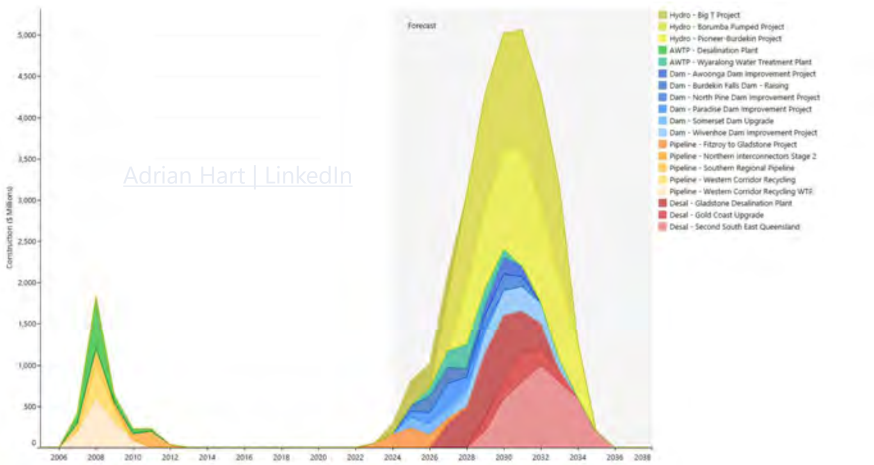
Other Major Water & Hydro Projects - Queensland

Pumped hydro supporting energy transition will add to demand



Note: includes all major water and hydro projects in QLD with engineering construction value $350 million and greater, commencing after 2005

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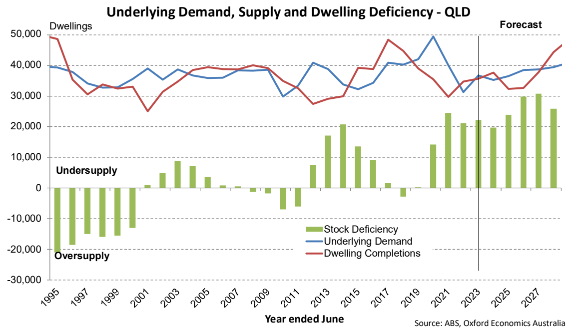
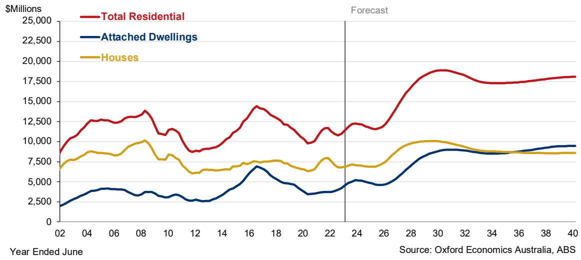
Queensland residential building will also drive water-related work

Strong upswing to come in dwelling construction

Queensland dwelling stock deficiency and underlying demand



Queensland residential building work done, by asset type



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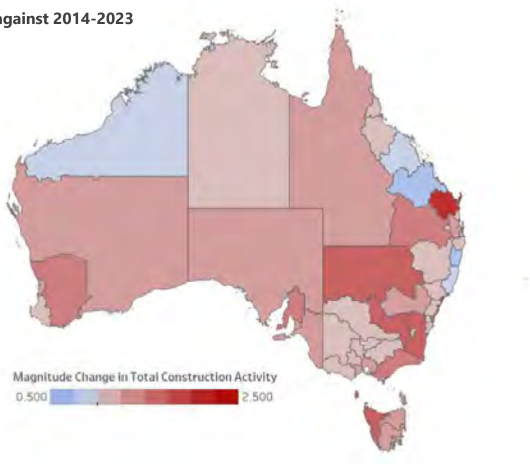
Regional 'heat' presents challenges and opportunities

Growth will be stronger in the regions, but metropolitan regions still see largest volumes

Magnitude of Construction Activity 2024-2033 against 2014-2023



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SUPPLY SIDE PRESSURES

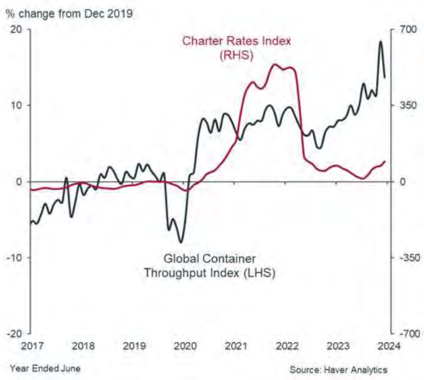
SHIFTING FROM GLOBAL TO LOCAL DRIVERS

We undertake supply chain analyses to identify cost risks

- ❑ 2024 Bulk Water Capacity Assessment – Qld DRDMW
- ❑ 2023 Market Capacity Report – Infrastructure Australia (as in 2021 and 2022)
- ❑ 2023 Regional Queensland Quarry Supply and Demand – Qld State Government / CCAA
- ❑ 2023 Australia and New Zealand Roads Workforce Capability – Austroads
- ❑ 2023 Rail Skills Capability Report – ARA and NTC
- ❑ 2023 Supply and Demand of Surveyors and Geospatial Professionals – CSN
- ❑ 2023 Nailing Construction Productivity *(Contribution)* – ACA
- ❑ Multiple cost escalation analyses and forecasts for specific projects or sectors

Industry soundings tell us local constraints have been trumping global challenges for market capacity and capability

Global Container Throughput Index and Freight Prices



US Supply Chain Stress Tracker

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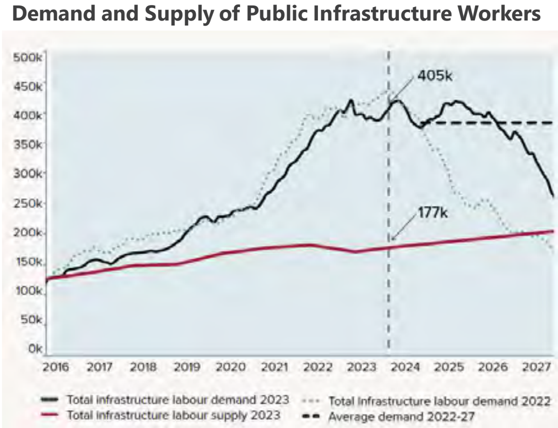
Labour Shortages

- October 2023: an estimated **shortfall of 229,000 full-time infrastructure workers** *(nationally)*
- For Queensland, with current ongoing demand and upcoming major projects, it is likely that the available talent pool will become scarcer which would result in high labour costs, **particularly for ICT occupations and engineers**.
- Industry action and longer-term workforce planning are required to address the range of barriers restricting the growth of workforce supply.
  - Long lead times into an infrastructure role
  - High attrition rates
  - A need to upskill the current workforce in emerging skills

Demand and Supply of Public Infrastructure Workers



Source: Infrastructure Australia Market Capacity Report (2023)

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Key Occupations in Shortages

Engineers, Scientists and Architects

- The occupation group with the deepest shortage is still engineers, scientists, and architects

Occupation	Roles with labour market indicators of shortage
Structural Engineers	Lead structural engineers Structural designers
Civil Engineers	Civil project managers Traffic and transport engineers
Land Surveyors	Surveyors Senior Surveyors
Geotech engineers	Geotech engineers
Other professionals	Senior engineers

Projected shortage in public infrastructure workforce

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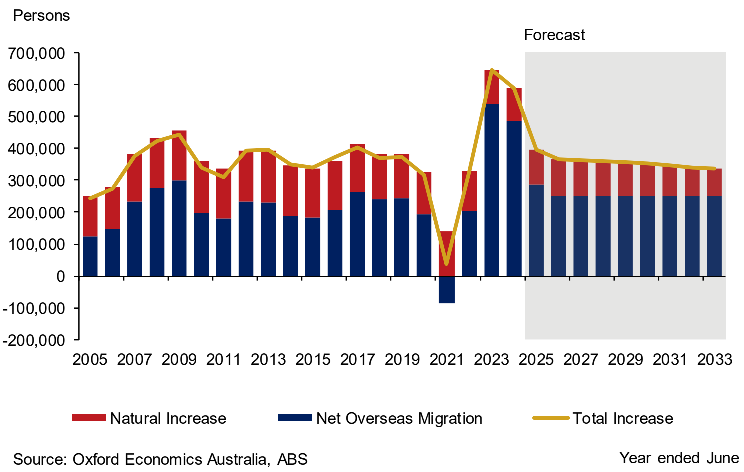
Access to skills is biggest issue: where do we get people?

Population Growth - Australia



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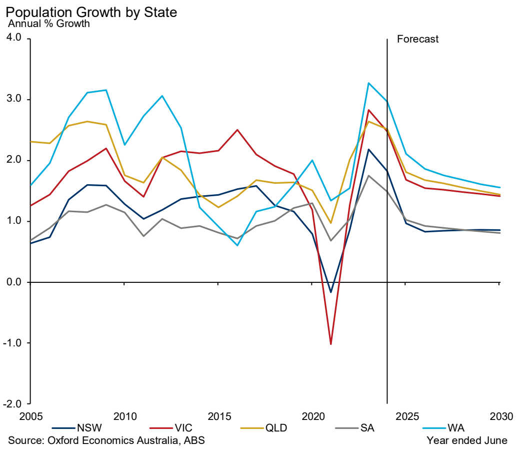
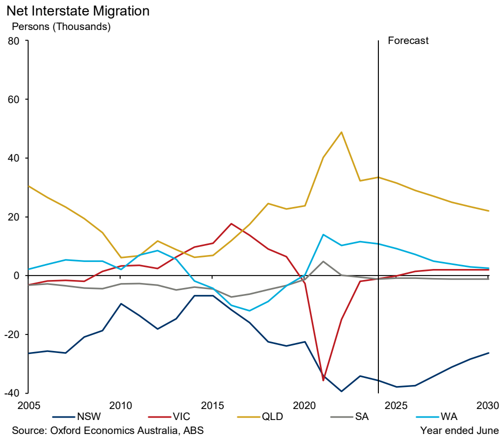
QLD leading interstate migration inflows





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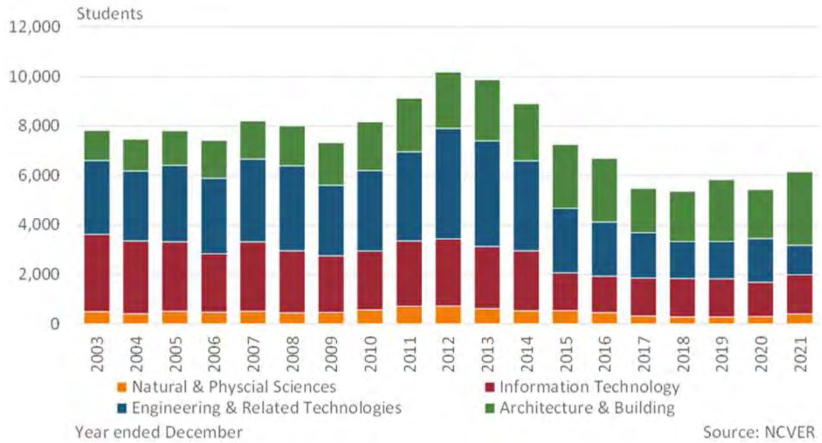
Where do we get the skills?

Vocational Education and Training (VET) Completions - Australia



Lowest number of Engineering and Related Technologies VET sector completions

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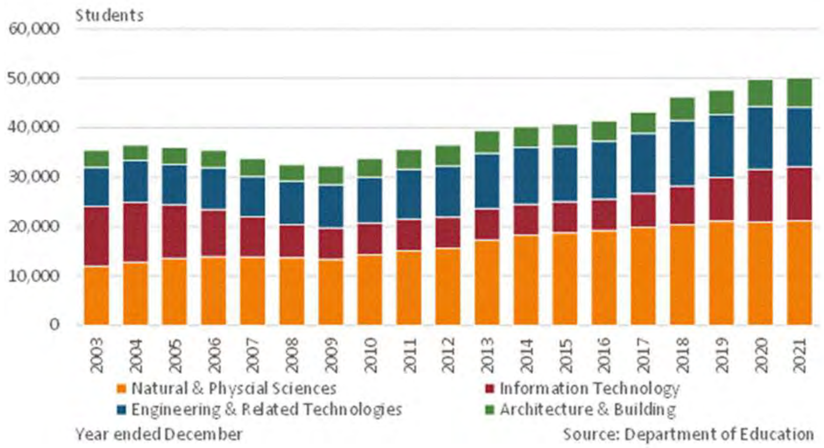
Where do we get the skills?

University Completions - Australia



Falling Engineering and Related Technologies university sector completions

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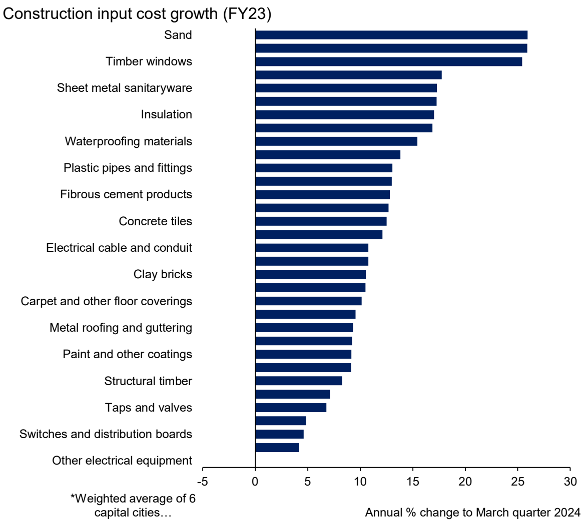
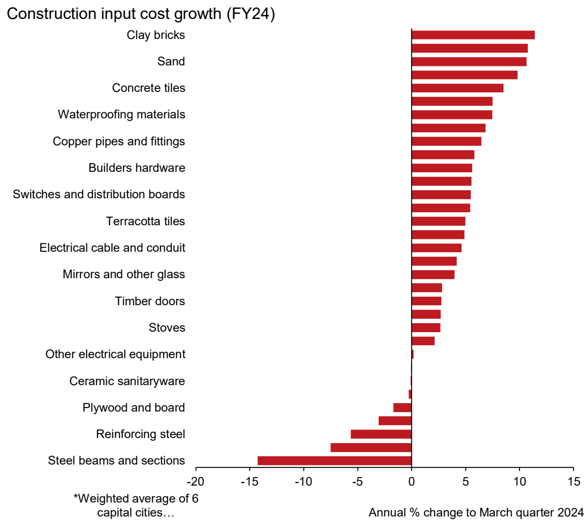
COST ESCALATION

PRICE GROWTH NORMALISING BUT NOT REVERSING WITH REACCELERATION LIKELY LATER THIS DECADE

Cost escalation for construction inputs is easing but risks remain





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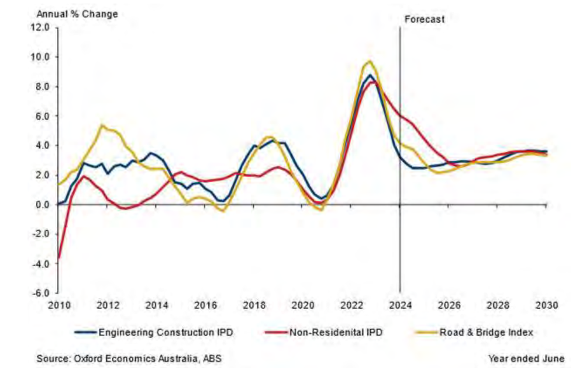
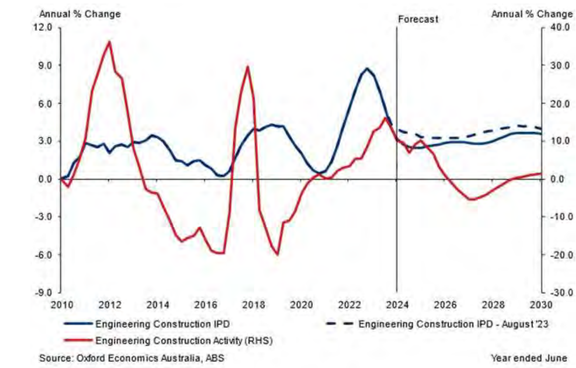
Construction Costs - Australia

Cost pressures remain prevalent despite some 'normalising' following COVID-19

Construction Price Index Growth, Australia



Engineering Construction Growth, Australia



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RECOMMENDATIONS

DEMAND, SUPPLY AND PRODUCTIVITY

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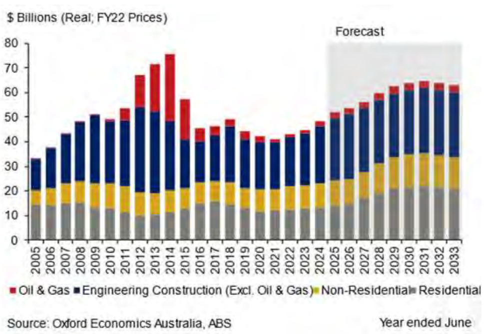
Managing Demand

Queensland construction activity will be amongst fastest growing of all states and territories

Total Construction, Queensland



Water & Sewerage Construction, Queensland

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Boosting Skills Supply

Developing skills and attracting skills from other sectors and internationally

Global messaging of long pipeline

Local training and skills development

Reduce insurance requirements for design and construction

Employment conditions / rostering / other benefits?

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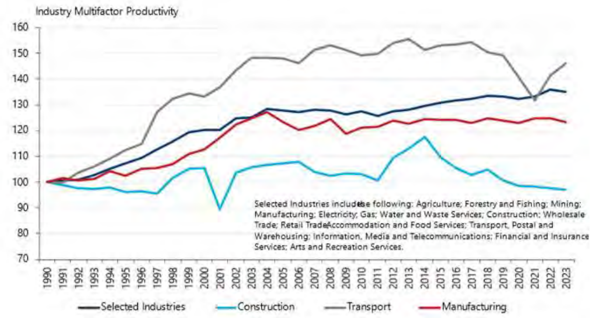
Boosting Productivity

Increasing construction industry’s ability to scale its workforce across major projects

- The link between improved productivity and industry sustainability is strong – **improvements to the industry’s productivity performance could save Australia $62 billion annually**.
- From the recent global survey, lack of productivity gains, along with risk management pressures, was identified as a leading challenge facing the Australian construction sector.
- Measures can be taken to improve productivity at all stages of project delivery:
  - Design, Planning and preconstruction
  - Procurement
  - Construction
  - Post-construction activity (inc maintenance)

Multifactor Productivity



Source: ABS, Oxford Economics Australia

Year ended June

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THANK YOU

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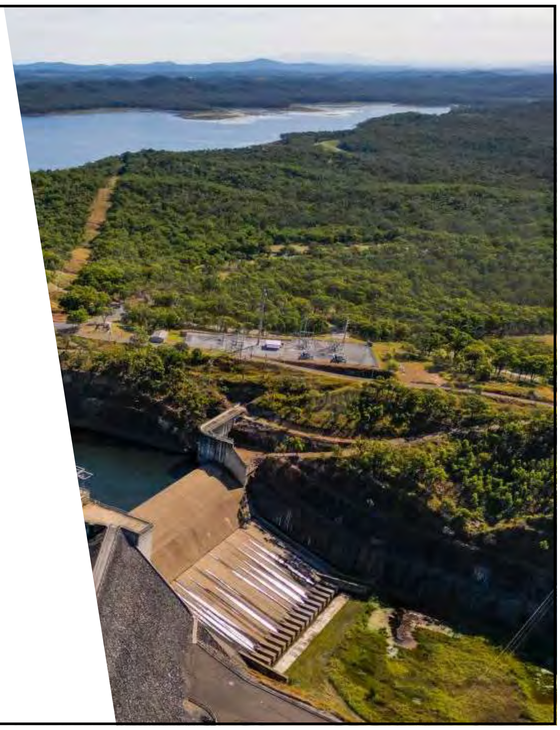

Contacts

ASIA PACIFIC

Sydney
Tel: +61 (0)2 8458 4200

Singapore
Tel: +65 6850 0110

Hong Kong
Tel: +852 3974 8842

Tokyo
Tel: +81-(0)3-4588-2798

EUROPE

Oxford (Headquarters)
Tel: +44 (0)1865 268 900

London
Tel: +44 (0)20 3910 8000

Belfast
Tel: + 44 2892 635400

Milan
Tel: +39 02 8295 2521

Frankfurt
Tel: +49 69 96 758 658

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

Stockholm
Tel: +46 (0) 8 446 887 65

AFRICA AND MIDDLE EAST

Cape Town
Tel: +27(0)21 863-6200

Dubai
Tel: +971 56 396 7998

AMERICAS

New York
Tel: +1 (646) 786 1879

Philadelphia
Tel: +1 (646) 786 1879

Mexico City
Tel: +52 155 5419-4173

Boston
Tel: +1 (617) 780 2265

Chicago
Tel: +1 (847) 993-3140

Los Angeles
Tel: +1 (424) 303 3449

Toronto
Tel: +1 (905) 361 6573

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