

Queensland's Renewable Future 2050

Investment, jobs and skills



Construction Skills Queensland's report - Queensland's Renewable Future - applies exclusive CSIRO modelling to estimate the impacts of the renewable energy transition on construction activity and employment in Queensland.

The report estimates what's needed for domestic net zero by 2050 and a thriving hydrogen sector in Queensland, including:

- likely mix of installed renewables - solar, wind, hydrogen
- annual capital expenditures (construction activity)
- number of construction jobs, and
- locations for the investment and jobs.

The estimates are provided across three scenarios. Each scenario includes the renewables needed for net zero by 2050 in Queensland - but then varies the role green hydrogen may play:

Scenario 1 **Export + Domestic**

Queensland becomes a major hydrogen exporter and sees strong domestic uptake.



Scenario 2 **Export-led**

Queensland becomes a major exporter, but hydrogen does not become an important part of the local energy market.



Scenario 3 **Domestic-led**

Queensland fails to capture the hydrogen export market but sees significant penetration of the domestic market.



Key findings

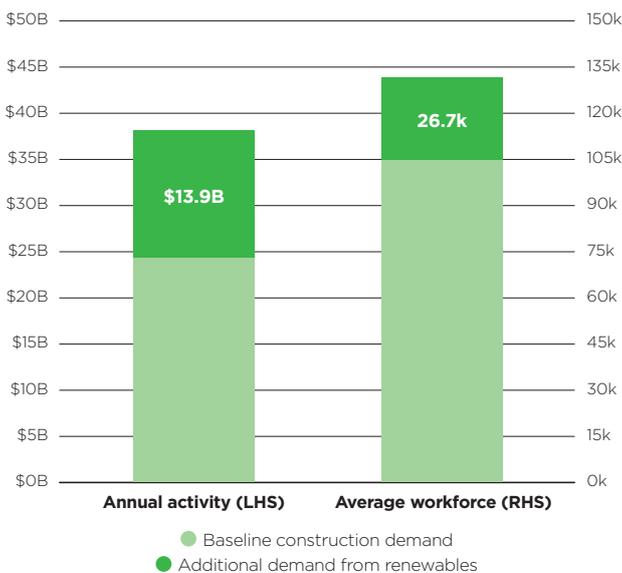
Massive acceleration is predicted

- Hydrogen is the hinge of the renewable transition. While electricity assets (solar and wind) will attract most of Queensland's renewables investment, the role of green hydrogen in the economy will determine the scale of this investment.
- Installed renewable energy capacity will expand dramatically – **Queensland will install between 105GW and 192GW of additional renewables by 2050.** Current installed capacity is only 3.8GW.
- This will trigger a step-change in construction activity in Queensland. **Renewables will require average annual capital expenditures of between \$6.7B and \$13.9B to 2050.** This amounts to adding 30-55% to Queensland's baseline level of engineering construction demand.
- Although the build-out is already well underway - the heavy lifting has only just begun. Renewables now account for around 20% of the state's major project pipeline (up from 5% in 2019). Around \$21B of renewable projects are likely to be delivered by 2025 in Queensland.

The renewables workforce

- Projected demand will drive a parallel step-change in construction labour – **an estimated 14,500 to 26,700 new construction jobs will be directly created** by Queensland's renewables build-out to 2050.
- Renewable construction jobs will be concentrated in a relatively small number of occupations. Three-quarters of these jobs are trade roles. The industry will need to mobilise an ongoing additional 15-25% of workers in these occupations to deliver renewables.

Impacts of Queensland's renewable transition to 2050



Note: Estimates based on Export + Domestic scenario. Baseline activity is forecast annual average engineering construction activity, 2021-50. Baseline workforce is forecast average employment (2021-50) for a group of occupations widely employed in the construction of renewable projects.

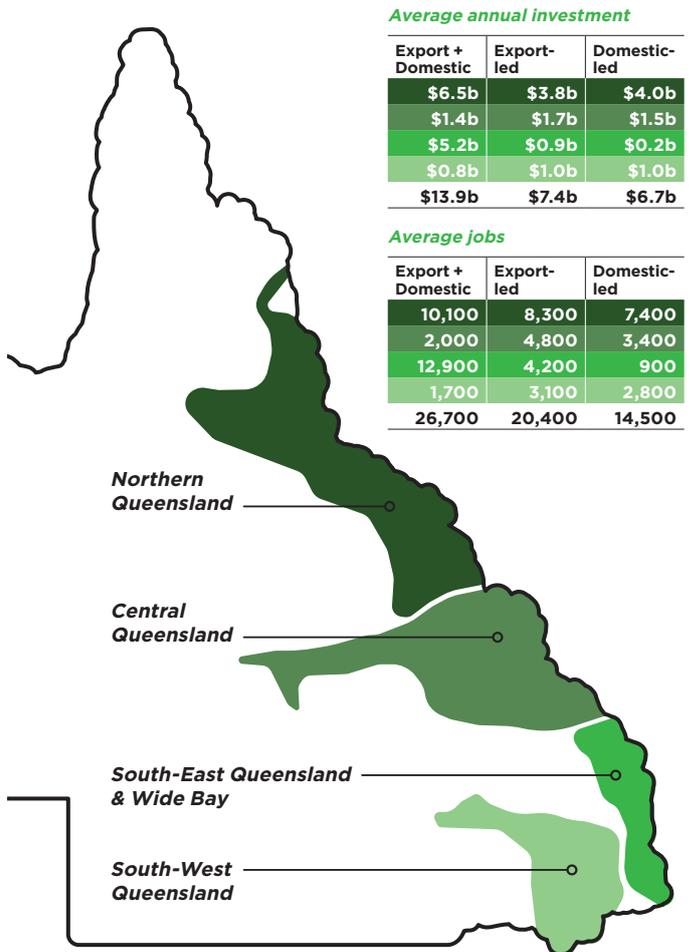
Top 15 renewables construction jobs

1. Construction & related labourers
2. Concreters
3. Truck drivers
4. Electricians
5. Earthmoving plant operators
6. Structural steel construction workers
7. Engineers (electrical, civil, industrial, mechanical & production)
8. Crane, hoist & lift operators
9. Electrical distribution trades workers
10. Construction managers
11. Plumbers
12. Surveyors & spatial scientists
13. Metal fitters & machinists
14. Electronics trades workers
15. Mechanical engineering draftspersons & technicians

Renewables epicentres

- **Most renewables projects will be built in regional Queensland.** Between 62% and 96% of investment will be spread across three areas – Northern, Central and South-West Queensland.
- Similarly, between 52% and 94% of Queensland's renewables construction jobs will be in regional Queensland.

Renewables-related annual CAPEX and jobs, Qld, 2021-2050



To read the full report and find out more about CSQ's work in this space, visit csq.org.au/renewables