

Tuesday, 27 June 2023

Submission – Review of Queensland’s Electrical Safety Act 2002 – Discussion Paper

The Clean Energy Council (CEC) welcomes the opportunity to make a submission in response to the *Review of Queensland’s Electrical Safety Act (2002) – Discussion Paper* (the Paper).

The CEC is the peak body for the clean energy industry in Australia. We represent and work with more than 1,000 businesses operating in Australia across renewable energy, energy storage, and renewable hydrogen.

Queensland is to be commended for its bold commitments to decarbonising electricity generation and storage, with renewable energy targets of 50% by 2030, 70% by 2032, and 80% by 2035. As noted in the Paper, this requires a 2.7-fold increase in total installed generation and storage capacity to 2040. Solar photovoltaic (PV) is projected to increase by 12 GW over this period to meet domestic demand and accommodate aspirations of exporting green hydrogen to the world. The scale and pace of this deployment is unprecedented, and realising these ambitions will require sustained cooperation between industry, government, workers, unions, and communities.

Worker safety is paramount to the success of these aspirations, and the CEC advocates for changes wherever necessary to improve outcomes for workers.

The CEC agrees with the Review’s recommendation that extra-low voltage equipment designed to be connected into low voltage (LV) circuits be designated *electrical equipment* under Queensland’s Electrical Safety Act 2002 (the Act). This change clarifies that electrical supply connections of electrical equipment including PV modules and battery energy storage systems (BESS) into LV circuits is electrical work and must be carried out by licenced electrical workers. It will improve reporting of workplace incidents currently out of scope of the Act and increase regulatory reach. These changes will have a meaningful impact on the safety of electrical workers undergoing connection, inspection, and testing on LV arrays.

However, the recommendation that locating, mounting, and fixing of PV modules be considered electrical work is harmful to industry while offering workers no safety benefit. Implementing this recommendation would have consequences for the cost and timely

delivery of projects and their workforces. It will also create challenges for projects in achieving and maintaining social license. Queensland would be less attractive as a destination for solar PV investment which may jeopardise its decarbonisation aspirations.

Safety

Fundamentally, the locating, mounting, and fixing of PV modules carries low electrical safety risk. PV modules are subject to stringent manufacturing standards that ensure that they can be safely handled without electrical risk. The Paper provides no evidence to substantiate the suggestion that this work should be undertaken by or under the direct supervision of licensed workers. This is consistent with incident data: none of the nine serious electrical incidents at solar farms since 2015-16 cited in the Paper are known to have occurred when locating, mounting, or fixing modules. There is also no correlation between reported Serious Electrical Incidents, electrical fatalities, and the number of PV installations in Queensland.

The risks associated with this stage of installation are rather related to manual handling and incorrect tooling, as evidenced by risk assessments from developers. Electricians do not receive special training in handling, locating, mounting, and fixing solar PV panels as part of their electrical apprenticeship, and would need to receive the same training delivered to unlicensed workers who perform this work today. They are, however, highly trained individuals; all electricians consulted for this submission affirmed that this would be repetitive, labour-intensive work ill-suited to their qualification. Low workplace satisfaction and boredom risks lapses of concentration and could lead to more workplace incidents and injuries related to manual handling. As such, the proposed changes have no impact on electrical safety, but may increase manual handling risks, resulting in worse safety outcomes for licensed electrical workers.

Workforce planning

Requiring electricians to undertake or directly supervise locating, mounting, and fixing PV modules will have significant workforce planning consequences for developers. Trained electrical installers comprise roughly 25 per cent of the utility solar workforce, with the remaining 75 per cent being skilled builders, trained and untrained labourers. If locating, mounting, and fixing PV modules needed to be completed by licensed workers, this would require an additional 50 electricians for a 100 MW project. The 2022 Skills Priority List flagged a shortage of licenced electrical workers in Queensland and across the nation and forecast strong future demand. This is consistent with CEC research and member feedback that recruiting electricians for PV construction is increasingly

challenging. The labour market is currently extremely tight, with record low unemployment.

As mentioned, the demand for electrical workers is only set to grow, with increased numbers of projects in the pipeline. Research from [Net Zero Australia](#) has found that the energy workforce needs to double by 2030 and double again by 2035, with up to 75% of jobs in regional areas. The [Queensland energy and jobs plan](#) also anticipates 64,000 new jobs in clean energy infrastructure to 2040. Meeting this demand will place significant pressure on skilled migration and education and training capacity. The proposed changes will exacerbate this by increasing the number of electricians required on site.

Additional workforce pressures come from the increasing size and scale of solar PV projects. This is pushing siting to increasingly regional and rural areas. Some regions are currently experiencing functionally full employment, with shortages of both skills and workers to meet demand. PV modules are getting bigger and heavier, requiring more workers to lift them into place. Increasing the number of licensed electricians required for the construction and installation of a solar PV project will reduce opportunities for local workers, increase costs and reduce opportunities to establish and maintain social license.

Cost

Inflation in Australia is at its highest level in decades, with the cost of components, equipment, labour, and transport impacting renewable energy projects all over Queensland but particularly in the regional renewable energy zones (REZs). As noted, regional communities are experiencing worker and skill shortages and are unlikely to be able to accommodate an increase in demand for electricians. This shortfall will require elevated numbers of fly-in-fly-out (FIFO) workers and skilled migration, driving up labour costs. FIFO workers also have high indirect costs due to the need to pay for accommodation and living-away-from-home allowance. This creates additional pressures on short-term accommodation and local housing prices.

Analysis from 2019 found that replacing unlicensed labourers with licensed electricians for the locating, mounting, and fixing of solar panels on a large-scale utility solar project would increase direct labour costs by 89%. This figure likely underestimates costs in 2023 due to the tight labour market and excludes indirect costs. A doubling of labour costs will impact investment returns on projects that currently operate on thin margins. The availability of electricians in remote locations also creates a scheduling risk that impacts the bankability of projects. Feedback suggests the thin EPC market is looking closely at project costs in each jurisdiction to decide where to focus their efforts –

requiring electricians to supervise the location, mounting, and fixing of modules will drive investment and business away from Queensland.

Social license

Achieving and maintaining social license is critical for a project to receive approvals and undertake construction and installation according to schedule. One key opportunity to achieve social license is through local employment. As previously noted, the locating, mounting, and fixing of PV modules is performed by unlicensed labourers. Increasing the number of electricians on site and reliance on FIFO would reduce local jobs and run counter to industry's objective of maximising local participation. In addition to the pressures on local cost of living and house prices experienced by locals, consumers will also find it challenging and expensive to source an electrician for any domestic work.

A reduction in local employment opportunities also directly impacts on opportunities for First Nations communities. More lowly skilled roles are entry points for underrepresented labour groups in the clean energy workforce such as First Peoples, female trades and the long-term unemployed. For example, some solar EPCs are designing programs that engage women on solar farms to fix modules as an entry into a trade. A solar EPC in NSW also recently employed over 30 local First Peoples at a 240 MW solar farm. This has had a significant impact on the local community, producing 'generational change' through the provision of meaningful work. It has supported the social license for the project and delivered value for the community. If the work had required an electrical license, none of the Indigenous workers on site could have been employed. This outcome would run counter to [Queensland's 2021 Closing the gap implementation plan](#), which aims for 62% First Peoples employment by 2031.

Proposal: Q-CERT

The CEC has recently initiated a project in Victoria that seeks to harmonise the required training across employers in each renewable energy technology, including wind, solar and batteries. This project could also be delivered in Queensland to raise safety standards on solar installations.

A Q-CERT project – short for Queensland Clean Energy Required Training – would see clean energy developers in Queensland coming together to agree on a harmonised training matrix. This matrix would underpin a digital platform to track worker training and competencies. This project would deliver the following outcomes:

- Improved worker safety, by clarifying, harmonising, and tracking worker competencies and training. This could establish existing programs such as Solar Awareness for Tradespeople as mandatory and provide government with a digital platform to monitor compliance.
- Improved training participation, by clarifying demand to the TAFE and training sector and aligning delivery with industry requirements. It would also provide government with the evidence-base to make data-driven decisions regarding training investment.
- Improved productivity, by increasing efficiency for project owners and contractors in attracting and employing workers with the right skills from the outset, reducing time-to-competency.
- Improved regional community employment outcomes by clarifying renewable career pathways, enabling communities to mobilise more effectively and respond to employment opportunities as projects are announced. This would also assist workers from marginalised labour groups (e.g., First Peoples, the long-term unemployed, migrants, women). It would assist workers in regional communities to seamlessly move between renewable projects across REZs.

This program could be developed in partnership with the Office of Industrial Relations, the design informed through consultation with key stakeholders including industry, education and training providers, government, and unions. Energy Skills Queensland would also be involved in the design of the program, given their experience in supporting an energy workers skills pathway program for the gas industry.

Recommendations

The CEC recommends the Q-CERT proposal as the optimal pathway to both increase safety outcomes for workers while increasing the efficiency of solar farm project delivery for industry. This could be accompanied by a public awareness campaign to socialise the impacts of the proposed changes to the Act and existing training offerings available to ensure safe outcomes for workers on solar PV farms.

With these measures in place, the existing status quo arrangements should continue, with the locating, mounting, and fixing of PV modules not classified as licensed work. The current practice is not only safe, but it will also ensure Queensland can remain competitive as a site for renewable investment. It will ensure projects run according to budget and timeline and is consistent with Queensland's bold decarbonisation targets.

The energy transition will require a large licensed electrical workforce if we are to meet desired timeframes. This legislative change unnecessarily inflates that demand with direct impacts on achieving net zero.

The CEC would be happy to work with industry and government to further develop the Q-CERT proposal as well as suitable educational content to improve worker safety outcomes. MyCEC is the new technical support offering being delivered by the CEC to all workers in the solar industry, which was previously only available to accredited workers. Subscribers can access technical support and educational content which is updated regularly to achieve best practice safety outcomes.

Thank you for the opportunity to provide feedback on the Paper. We look forward to working with the Queensland government on approaches to achieving safety on solar PV farms that deliver optimal outcomes for workers and industry.

Sincerely,



Dr Anita Talberg
Director, Workforce Development

