AUSTRALIAN CONSERVATION FOUNDATION

RESEARCH BRIEF

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How short-sighted federal policy is stunting jobs growth in Queensland

Queensland has a natural solar advantage – the state has some of the world's best solar resources, particularly in areas that are close to existing network infrastructure.[1] The people of Queensland have embraced solar. Almost 30 per cent of households in Queensland now have rooftop PV installed (473,000 installations), the highest uptake of any state.[2]

Historically the Queensland government has not embraced solar in the same way, having installed just 540MW of large scale renewable energy systems. This meets only 4.4 per cent of the state's energy demands, the second lowest level of renewable energy supply amongst the states and lagging far behind South Australia's 40 per cent.[3] This is in spite of the fantastic solar resource available in the Sunshine State and its potential to create jobs.

Instead coal powered energy generation is still the main source of electricity in Queensland. In 2015 coal supplied around 73 per cent of Queensland's energy.[4] Australia will not be able to meet its Paris Agreement commitments without shifting away from coal.

The entrenched use of coal also means the jobs potential of solar is not being fully realised. Globally, the renewable energy industry generates up to eight times as many jobs per KWh as coal fired power generation.[5]

Across Australia the solar PV industry already employs more people than the rest of the electricity generation sector combined (13,300 people compared to coal and all other sources of energy generation at only 9,487).[6]

Realising the potential of large scale solar PV will be crucial at a time when the Federal government has acknowledged the economy is in transition, forecasting a 25.5 per cent decrease in mining investment from 2016-17 and recognising that the possibility of non-mining investment 'flatlining' is a critical risk.[7]

Queensland simply cannot afford to ignore the jobs and growth potential of solar.

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[1] Queensland Renewable Energy Expert Panel, Issues Paper, May 2016. p 12
[2] Queensland Renewable Energy Expert Panel, Issues Paper, May 2016. p 9
[3] Clean Energy Council, Clean Energy Australia Report 2015, June 2016, p.7
[4] Queensland Renewable Energy Expert Panel, Issues Paper, May 2016. pp. ii
[5] WWF, Busting the Myths: Debunking Myths About Renewable Energy, 2013, p 11
[6] Australia Institute, Will we Let the Sun Shine in?, July 2014
[7] Secretary of the Treasury, Pre-election Economic and Fiscal Outlook, May 2016, pp 13-14

Jobs potential of solar

- Every MWh of large scale solar PV capacity requires more than $2 million of investment.[8]
- Each $1 million of investment is estimated to create three construction and related service sector jobs.[9]
- For each of these direct jobs, some estimates have another 13 indirect jobs being created.[10]

Large scale solar projects on ARENA's shortlist (map courtesy ARENA)

A great opportunity: Clean energy driving jobs growth in regional Queensland

The Queensland government has started to explore this potential and has committed to a target to get 50 per cent of the state's energy from renewables by 2030. It has appointed an expert panel that is conducting a process of public consultation to see how this might best be achieved.[11]

This represents a fantastic opportunity for regional Queensland, as there are many projects ready to get off the ground, a perfect opportunity to offset the ongoing job losses across regional Queensland from the downturn in the coal mining sector.

A recent Australian Renewable Energy Agency (ARENA) tender for $100 million investment in large scale solar PV systems received 77 expressions of interest. ARENA has shortlisted 20 proposals, 10 of which are in Queensland (8 of those 10 are in Northern Queensland).[12]

If they receive funding these projects could create 2,695 direct jobs (see table 1, below). Using the same direct-indirect jobs multiplier employed by Adani in the cost-benefit analysis for its Carmichael coal project, these 10 solar projects could create 35,033 indirect jobs.

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[8] ARENA, Large-scale solar photovoltaics – competitive round, accessed July 2016, average value based on total project value of $1.6 billion with 757 MW capacity - $2,113,606 per MW

[9] Tim Buckley, IEEFA, July 2016, assumes $100,000 wage rate and 30% labour + services

[10] Tim Buckley, IEEFA, July 2016, referencing indirect jobs multiplier in Adani's Carmichael cost-benefit analysis.

[11] Queensland Department of Energy and Water Supply, May 2016

[12] Queensland Govt, Queensland solar projects jump one step closer to construction, January 2016

In contrast, Adani's Carmichael coal mine project is set to cost more than $10 billion and create an annual average of 1,464 jobs over the 30-year project, all the while making an enormous contribution to global CO_2 emissions[13] and threatening the 70,000 jobs that rely on a healthy Great Barrier Reef.

Project	Town	MW	Investment	Direct jobs
Darling Downs Solar Farm	Dalby	106.8	$225,733,157	677
Baralaba Solar Farm	Baralaba	50	$105,680,317	317
Kidston Solar Project	Kidston	50	$105,680,317	317
Kelsey Creek Solar Farm	Proserpine	50	$105,680,317	317
Collinsville Solar Power Station	Collinsville	42	$88,771,466	266
Oakey Solar Farm	Oakey	25	$52,840,159	159
Kennedy Energy Park	Hughenden	19.2	$40,581,242	122
Longreach Solar Farm	Longreach	15	$31,704,095	95
Hughenden Sun Farm	Hughenden	14.2	$30,013,210	90
Whitsunday Solar Farm	Collinsville	52.8	$111,598,415	335
	Total	**425**	**$898,282,695**	**2,695**

Table 1: Jobs and investment potential of 10 projects short-listed by ARENA for funding (based on information from ARENA[14] and jobs estimates from IEEFA)

The Queensland government has taken an encouraging step by committing to deliver 120MW of capacity (recently doubled from 60MW) through its policy and funding support.

This means 300MW of opportunities are left to explore. These projects could create 1,934 direct jobs, but the federal government's proposed cuts to ARENA funding mean the state government may not be able to get these projects built.

In addition, in 2015 the Clean Energy Finance Corporation (CEFC) ran a tender process for large scale solar PV investment. This received more than 980MW of proposals for Queensland, which could create 6,214 jobs if funded.[15]

Queensland's rich solar resource also makes it an ideal location for solar thermal projects, which have the potential to store energy. This technology stores solar-generated energy and releases it to the grid at times of peak demand, removing the need for the energy market to rely on expensive liquid natural gas stations to cover fluctuations in supply. The price of solar thermal with storage has come down significantly in the last two years. This technology now has huge potential to provide consistent and cheap renewable energy. An

[13] Sydney Morning Herald, Adani a $20bn project creating 10,000 jobs? The Abbott, Government's myths busted, August 2015

[14] ARENA, January 2016

[15] CEFC, November 2015, NB It is not known the extent to which these overlap with the ARENA proposals but even if all projects have been submitted to both bodies this still equates to 560MW in addition to table 1.

over-reliance on dramatically more expensive domestic gas was a major contributing factor in the recent, much-publicised energy price spikes in South Australia (as was the planned shutdown of the grid interconnector with Victoria in the middle of the predictable mid-winter peak demand event).[16]

Solar thermal storage would eliminate the need for peak demand gas station back-up and allows market operators to keep energy costs down. Along with pumped hydro storage, solar thermal is a logical second phase investment once solar's more variable contribution to the total state power supply becomes meaningful.

Already serious commercial ventures are developing large-scale battery storage in Queensland. In August 2016 the *Australian Financial Review* reported that Origin Energy has signed a power purchase agreement with solar firm Conergy to develop battery storage at the Lakeland solar project in north Queensland.[17]

In 2010, Beyond Zero Emissions and the Energy Research Institute launched a Zero Carbon Australia Stationary Energy Plan to which solar thermal is central. In their proposed plan, solar thermal supplies more than 60 per cent of Australia's energy.[18] This plan rates Queensland as the state with the most potential solar thermal facilities, listing four sites that could supply 3,500MW each (14,000MW in total).[19] If this plan was implemented this would create more than 21,000 jobs at peak installation and more than 9,000 ongoing jobs in operations and maintenance.[20]

Unfortunately, this potential is yet to be properly explored. One trial installation was proposed at Kogan Creek but the project was terminated in 2016.[21] It is unlikely there will be more projects in the near future unless the Federal government reverses proposed funding cuts to ARENA.

This contrasts with the enormous success of the ACT government's move towards 100 per cent renewable energy by 2020. The latest wind tenders have resulted in 20-year contracts for supply of wind energy at record low A$73-87 per megawatt hour prices, providing ACT electricity consumers with an excellent hedge against rapidly escalating wholesale electricity prices across the National Electricity Market.[22]

The state government's vision is being constrained by backwards federal policy

Despite campaigning strongly on jobs, innovation and growth during this year's federal election campaign, the Turnbull government has not yet shown it is markedly different from the Abbott government, which made life extremely difficult for the renewable energy sector.

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[16] The Conversation, South Australia's electricity price woes are more due to gas than wind, July 2016
[17] Australian Financial Review, Qld solar project to embrace battery storage, 23 August 2016
[18] BZE, Zero Carbon Australia Stationary Energy Plan, June 2010, p 45
[19] BZE, Zero Carbon Australia Stationary Energy Plan, June 2010, p 46
[20] BZE, Zero Carbon Australia Stationary Energy Plan, June 2010, pp 108-109, total figures divided by three to represent 4 of the 12 proposed plants being centred in Queensland.
[21] Renew Economy, CS Energy pulls plug on world's largest 'solar booster' project, March 2016
[22] Canberra Times, Wind farms in Crookwell, South Aust 'final piece' in ACT's renewable plan, 23 August 2016

In 2015 Australia became the first developed country in the world to reduce its national Renewable Energy Target – from 41,000GWh of large-scale renewable energy to 33,000GWh in 2020. As a result, far less renewable energy will be delivered in Australia in the next decade-and-a-half. This is likely to mean the emission of nearly 100 million additional tonnes of greenhouse pollution. During this period of policy fluctuation and uncertainty, investment in renewables fell to nearly half the annual average, with $5-6 billion of foregone investments in total.[23]

The Abbott government cut more than $435 million from ARENA's overall budget of $3.2 billion.[24]

Now the Turnbull government proposes to cut ARENA's budget further and remove the renewable energy body's grant making function, stifling innovative renewable energy projects and the jobs they bring.

During this year's federal election campaign the Coalition announced a new clean energy fund. On the face of it, this is welcome. But if this new fund is going to come from money reserved for the existing, successful Clean Energy Finance Corporation, and if ARENA's grant-making function is removed, there is no net gain for renewable energy in Australia.

Queensland job opportunities have also been jeopardised by the decisions of the previous Newman government. The decision to repeal the 44c per KWh feed in tariff for solar system excess in July 2012 saw the number of systems installed fall rapidly from more than 130,000 in 2012 to just over 40,000 in 2015.[25] In total the number of people employed in the solar PV industry contracted by 41 per cent from 2011-2015.[26]

Funds diverted to supporting a fossil fuel sector in structural decline

In contrast successive governments have continued to subsidise the fossil fuel and mining industry, spending more than $10 billion on the ailing mining sector from 2008 to 2014. The vast majority of this public money went to the coal transport sector (approximately $7.6 billion).[27]

Between the 2013 and 2016 federal elections the fossil fuel industry is believed to have donated more than $3.7 million to the major political parties. It is due to receive $7.7 billion of subsidies in 2016-17, equivalent to $2,000 of subsidies to every $1 of money donated.[28]

Federal MP Bob Katter and new Resources Minister Matt Canavan have both strongly advocated for the Federal government to contribute billions of dollars to build a coal

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[23] Climate Council, Game On: The Australian Renewable Energy Race Heats Up, May 2016, p 6
[24] Parliament of Australia, Clean Energy Legislation, Carbon Tax Repeal Bill 2014, explanatory notes http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22legislation%2Fems%2Fr5311_ems_144677a8-32fc-4fab-94b9-f5e90b54927f%22
[25] Clean Energy Council, Clean Energy Australia Report 2015, June 2016, p 39
[26] ABS, 4631.0 - Employment in Renewable Energy Activities Australia 2014-15, March 2016
[27] The Australia Institute, Mining the Age of Entitlement, June 2014, pp 4-5
[28] The Guardian, Fossil-fuel industry gets $2,000 in 'subsidies' for each $1 in party donations, February 2016

transport rail from the Galilee Basin to the coast, a project that would cost around $3 billion and would effectively subsidise and underwrite Adani's proposed Carmichael coal mine.[29]

There has been a large corporate focus on exploiting Queensland's considerable natural gas reserves, but export prices for liquid natural gas (LNG) have dropped by more than 75 per cent, with the LNG projects around Gladstone running under capacity and facing potential mothballing due to mounting operating and financial losses.[30]

This looks to be a long-term trend. Bloomberg recently reported that the coal and gas markets are in a state of structural decline due to China's contraction, India's determination to rely on domestic fuels (domestic coal, hydro, wind and solar) and international carbon commitments. This all indicates a significant, technology-driven move away from excessive reliance on coal and suggests that the promised golden age of gas will never materialise.[31]

Conclusion

The Queensland government is working to advance a range of prospective large scale solar PV projects and support the domestic solar PV industry. However, it is limited by the policies of a federal government that continues to cut funding to this crucial area. As a result, the opportunity to effectively manage an economy in transition is being undermined.

The consequences for Queensland are serious, with the possibility that the unemployment rate – which is already at 6.5 per cent, considerably higher than the national average of 5.7 per cent[32] – could rise further.

The federal government is not supporting the non-mining investment it has recognised as crucial to a successful transition. Instead the fossil fuel sector, which is in a state of structural decline, continues to receive wasteful subsidies while renewable energy is being defunded – in direct contradiction to the International Energy Agency's long-standing policy advice. The eggs are going in the wrong basket.

The wealth of potential large scale solar projects and the state government's commitment to achieving 50 per cent renewable energy are cause for hope for an accelerated transition to a zero carbon economy, but only if the federal government takes a leading role in managing the transition and sends a signal that Australia is open for renewable energy investment.

As things stand investors continue to be discouraged by policy instability and Queensland can only suffer as a result.

The federal government can support renewable energy and jobs in Queensland by reinstating funding and grant-making powers to ARENA and working with the state government to advance the 10 large-scale solar projects on ARENA's shortlist.

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[29] The Guardian, Bob Katter raises funding for Galilee basin railway in talks with Turnbull, July 2016
[30] ABC, LNG boom turns to bust as falling oil price hits exports, July 2016
[31] Bloomberg, New Energy Outlook 2016: Executive Summary, June 2016, pp 2-3
[32] Australia Institute, Unemployment by Electorate in Queensland, June 2016, p 1