Comments on Review of Queensland Energy Legislation Issues Paper,
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by Trevor Berrill June 2018

Context of the Legislation
I don’t think the issues paper really explains the full context and extent of new technologies and their capabilities. It strongly promotes more coal seam gas (CSG), which is unsustainable in terms of greenhouse gas emission reductions (See Berrill, 2012). It doesn’t outline the negative impacts of fossil fuel use on the Queensland economy. This limits peoples’ ability to understand and comment on key issues to consider in revising current legislation. Page 5 covers some of the issues below but not in any detail.

My list of contextual issues include:

1. Rapidly changing nature of the electricity supply, transmission and distribution from a largely centralised generation system with a one way flow of power to a distributed one with bi-direction flows of power across parts of the network.
2. Continuing rapid take up of solar PV – large, medium and small scale.
3. Potential rapid take up of storage – large pumped hydro, medium and small battery.
4. Increasing ownership and control over energy supply and use by end-users.
5. Strong public support and preference for future energy supply to be from renewable energy (RE) and energy efficiency (EE).
6. Rapidly reducing costs of RE and EE making them cost competitive with fossil fuels and cheaper in many cases.
7. Digital communications, monitoring and control technology – allowing monitoring and control down to an individual appliance level, within homes and businesses. This allows both switching off to save on energy costs, and shifting power usage away from peak periods, to save on peak power half-hourly demand charges. While this has been done on hot water and pool pumps, it is now possible on many more appliances.
8. Increasing ability of renewable energy technologies to assist with network stability such as voltage and frequency control, and inertia. Technologies that can now do this include wind turbines and solar PV systems through inverters, and hydro pumped storage and on grid battery storage. See https://reneweconomy.com.au/whats-behind-scare-campaign-on-rooftop-solar-blackout-threat-78729/
9. Uptake of electric vehicles (EVs), creating more electricity demand, but allowing the possible use of EV on-board battery storage to be charged from solar during the day, and to discharge at peak times into the network in the evening or on hot days when air conditioning loads peak.
10. Innovative agreements being required for ownership/purchase/sale of distributed energy from, for example, community owner RE power stations or virtual power stations, PV arrays on rented/leased roof space or land.
11. Global scale impacts of fossil fuel use including climate change, and on-going market distortions in the energy sector including direct and indirect subsidies to the fossil fuel industry. As well there is the failure of current economic system to account better for the social and environment costs of fossil fuel energy use and to pass these costs on to end-users. These impacts, subsidies and external costs to Queensland have been reported by myself (Berrill, 2012 & 2016) and The Australia Institute (Peel, 2014), and internationally are well reported now by IMF reports (Coady, 2015) and International Energy Agency reports (2015). WHO reports (http://www.who.int/airpollution/en/) demonstrate the social cost through pre-mature deaths associated with air pollution from fossil fuel use (3 to 4 million annually) and other researchers have confirmed these costs (Landrigan et al.:2017; Perera: 2018).

12. Economic impacts on the Queensland economy of continued use of fossil fuels, including coal seam gas. This includes the decline in tourism as our world heritage areas are degraded, by the impacts of more severe cyclones such as Tasha (2010), Yasi (2011), Oswald (2013) and Maria (2015). (See Wikipedia for reports of impacts and costs).

Legislative Framework & Objectives
Energy policy and supporting legislation needs a framework to be built around. I put together set of principles to guide policy and hence legislation in past work. These are:

- Acceptance of global warming science and the need for action via targets and other initiatives, based on an allowable carbon budget approach.
- The need for very low or no polluting emissions from energy supply technologies to address all emissions/pollution and associated costs from fossil fuel use.
- The need for highly efficient energy conversion to minimise waste.
- Provision of a reliable and resilient energy supply.
- Maximise the safety of workers and the community.
- Provision of affordable energy cost to the end-user.
- Promotion of regional development through diversification of income streams.
- Users pay a fair share of their energy costs and impacts.
- Responsibility for the global commons.

These key principles are expanded upon in previous work by myself (See Berrill, 2012) and could be used to formulate the objectives of the legislation, one of which should be to transition rapidly to a low (preferably no) carbon energy system to avoid catastrophic impacts of global warming, and other pollution from fossil fuel use. This should be consistent and supported at both State and Federal energy legislation.

Comments on Specific Pages
Page 1 – The Forward: Actions lists the release over 450km² of land for CSG development to secure the Australian market for gas. This is a large area for expansion for an industry about which serious and ongoing environmental concerns have been raised. This has come about due to poor planning by both State and Federal Governments to secure gas supplies for Australian companies (or better
still transition them to renewable energy). It shows how government (both State and Federal) are still beholden to the fossil fuel industry, due partly to royalty payments. However, these payments increasingly fail to off-set the subsidies to the fossil fuel industry, and the environmental and social costs of coal, oil and gas (See Berrill, 2016 and Peel et al, 2014).

Page 4 – No mention of environmental and social costs of the current energy system or monitoring of emissions from fossil fuel generators and charges to reflect the costs associated with emissions. Emission monitoring and reporting is covered in Federal legislation.

Page 6 – Coal Seam Gas use is being strongly promoted throughout the paper. This is an unsustainable fuel source, marginally if at all better than coal, if fugitive emissions are tracked accurately. As well, we still have gas tariffs where the unit cost per megajoule decreases with increasing gas usage (called declining block tariffs). This is Neanderthal approach which encourages wasteful use of gas. The legislation needs to reverse or remove these declining block tariffs.

Large energy users (Smelters) and polluters in the past were given exemptions (in policy statements) from using gas rather than coal fired electricity. I haven’t looked at legislation to see if these polluters still get exemptions from cleaning up their electricity use. However, the legislation needs to include a requirement for these users to transition to renewable energy. South Australia is leading the way here with the proposal to solar power a steel mill in Whyalla (Parkinson, 2017). These exemptions are examined in my Energy Policy report (Berrill, 2012) - downloadable from my website www.trevolution.com.au. Any exemptions need to be removed if embedded in current electricity, gas or related legislation.

Page 9 – Appropriateness – mentions “to limit unacceptable hazards or risks”. The objective of the legislation should be to not just limit risks, but to remove or avoid risks, in particular from global warming – our biggest existential risk, or fossil fuel pollution that now kills millions of people, prematurely, around the world, each year.

Page 14 – Interaction with Other Laws - The document makes it hard to comment on this as it few examples with little detail or options to consider. It appears as if the document is written for the few people who have actually read and understand current energy related legislation. So it excludes the general public from commenting without undertaking a lot of research. For example, Questions 1.2 & 1.3 requires detailed knowledge of a range of laws.

However, there is a need for consistency and alignment of State and Federal legislation to support the transition to renewables and energy efficiency. Differences in legislation between levels of government represent a barrier to market development. Where Federal laws are lacking, or need strengthening, then clearly there may be a requirement for State based legislation to support the uptake of energy efficiency and demand management, and renewable energy. Inconsistency between State and Federal government is largely due to the political divide over suitable actions to respond to climate change. However, any proposed legislation needs to recognise the broader context of all the massive costs of continued use of fossil fuels, as mentioned above in IMF, WHO and IEA reports, not just climate change impacts.

In relation to Q.1.2, while COAG has agreed to a National Energy Productivity Plan (NEPP), this is still to delivery anywhere near its full potential (See Pears Reports: http://renew.org.au/category/pears-report/). So there is a need for strong State legislation to support this key area, which often brings fast economic returns to those who take energy efficiency seriously. As well, there is increasing divergence between Federal Legislation, to support renewable energy, such as the RE target, after 2020, and State government policy and targets. Furthermore, at a Federal level, Clean Energy
Finance Corporation has been forced to include carbon capture and storage within its port-folio of funded projects. This is a technology that has failed to date and imposes very high parasitic energy consumption to remove the CO2, negating much of the benefit of storing it. It also passes on an ethically unjustifiable legacy to future generations that the stored CO2 is stored indefinitely. See proposed new legislation at https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r5841. This may have an impact of the availability of funds within the State for renewable energy or energy storage projects.

Page 15 – Licensing – This mentions “special approvals and exemptions” but doesn’t mention the exemptions for large polluters such as smelters (Gladstone, Townsville, Mt Isa) if these still exist in policy and legislation.

With regard to licensing in renewables and in particular battery storage, there is no Australian Standard yet to cover the new battery technologies adequately and fairly. However the RE industry via the Clean Energy Council (CEC) and the Smart Energy Council (SEC) (formerly Australian Solar Council and the Energy Storage Council) have issued guidelines to battery system designers/installers and are running nationally approved courses (2 units of competency – 3 to 5 day course) to train practitioners. However, there needs to be a thorough auditing process of checking systems compliance with Standards. These Councils need to be consulted.

Page 17 – Price Control – the need for energy price caps demonstrates market failure. The electricity system has a history of market failure and manipulation since corporatisation and privatisation, particularly as large vertically integrated generator/retailer companies have sought to manipulate prices. Australian academic Sharon Beder has written extensively on this. Here’s a short article by her, http://theconversation.com/the-real-cause-of-electricity-price-rises-in-nsw-8955

Professor John Quiggin of UG has also written much on this. http://www.abc.net.au/news/2017-03-03/renationalising-electricity-grid-could-fix-failure-of-system/8320910

Page 19 – Emergency Powers – Q5.1 & 5.2 Micro-grids with RE generators and battery or other storage have the potential ability to separate themselves from the main grid in the event of emergencies and provide limited (controlled) amounts of power to communities they supply – to keep essential services in operation. Emergencies due to extreme weather events associated with global warming are already getting more frequent. The key elements of legislation should be around keeping these essential services going and the safety and health of the general community during these events.

Page 20 – Energy Efficiency and Demand Management (DM) – Q6.1 – This should be included in the legislation as historically support for this at both State and Federal government wavers as the political party in power changes, and because the NEPP is not yet achieving significant energy efficiency gains. Homes are companies are just putting in lots of solar PV rather than improving energy efficiency first and then put in a smaller solar PV to cover remaining consumption.

Q. 6.2 – I don’t know how this is currently covered in the Electricity Act but the DM programs by Energex and Ergon (now Energy Qld), set very low targets.

Page 21 – Technical Provisions – these requirements need to be discussed with the CEC and SEC.

Page 22 – Unsafe practices occur when there are inadequate Standards, training and lack of checking compliance of system designers / installers, particularly when the compliance checking is done in house by industry – the fox in charge of the hen house. I have seen many installations of
solar PV that are non-compliant with Standards. Industry training courses are too short and RTOs accredit electricians who then ask people like me for additional training help as they don’t think they can safely do an installation of a solar PV system. There are major problems with auditing of RTOs. See article https://theconversation.com/privatisation-of-vocational-education-isnt-working-37788

**Page 23 - Consumer Protections** – A distributed grid with lots of micro RE generators, and medium scale and large RE generators, with and battery banks or pumped storage systems, with bi-directional energy flows, will required monitoring and control systems to optimise the generation, transmission, use and storage of energy. This will be a far more complex system than the old centralised one way flow of energy from a few large generators to end users. This will require the collection of a lot of data. I don’t see how this is avoidable but I don’t see it as subversive. Does it matter if the “control system” can see when you turn on your electric stove? We already know when most people cook their meals.

**Page 24 – Differential Treatment of electricity and gas** – bring the acts together into a single energy act is sensible – it should simplify the legislation. But the focus should be on whole of community benefits, not just on the individual consumer driven focus of neo-liberal economics. Note however the emphasis again on pushing more gas in “recognise the potential for gas to supply a greater proportion of household energy needs”. Recent analysis by the Alternative Technology Association’s (ATA) recent report shows that using more gas in most States would increase household energy costs. See http://renew.org.au/articles/gas-versus-electricity-your-hip-pocket-guide/

The focus of new energy legislation should be on facilitating and enforcing the rapid transition from a fossil fuel based energy system to one based on renewable energy, energy storage and energy efficiency.

**References**


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Biography for Trevor Berrill
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Contact -

Trevor Berrill is an award winning, private consultant in sustainable energy (SE). He has worked in both renewable energy (RE) and energy efficiency (EE) for over 40 years, including:

- Solar and Wind Energy System design and installation,
- Energy Efficient Building design,
- Energy auditing
- RE Research and development at UQ, QUT and GU,
- RE Technical training,
- RE Public education and policy.

He is the author of “Solar Electricity Consumer Guide” and author/co-author to a range of RE technical training resource books.

Trevor was branch president of the Australian Solar Energy Society and a founding member in Queensland of the Alternative Technology and Wind Energy Associations. He is currently branch convenor for the Alternative Technology Association Brisbane branch.

Trevor is trained in mechanical engineering and energy auditing at QUT and has a Masters of Environmental Education degree from Griffith University.

He lives in a fully solar powered, energy efficient home which includes the first grid connected solar PV system in the Redlands. He windsurfs regularly at Wellington Point, just to test the power of the wind.