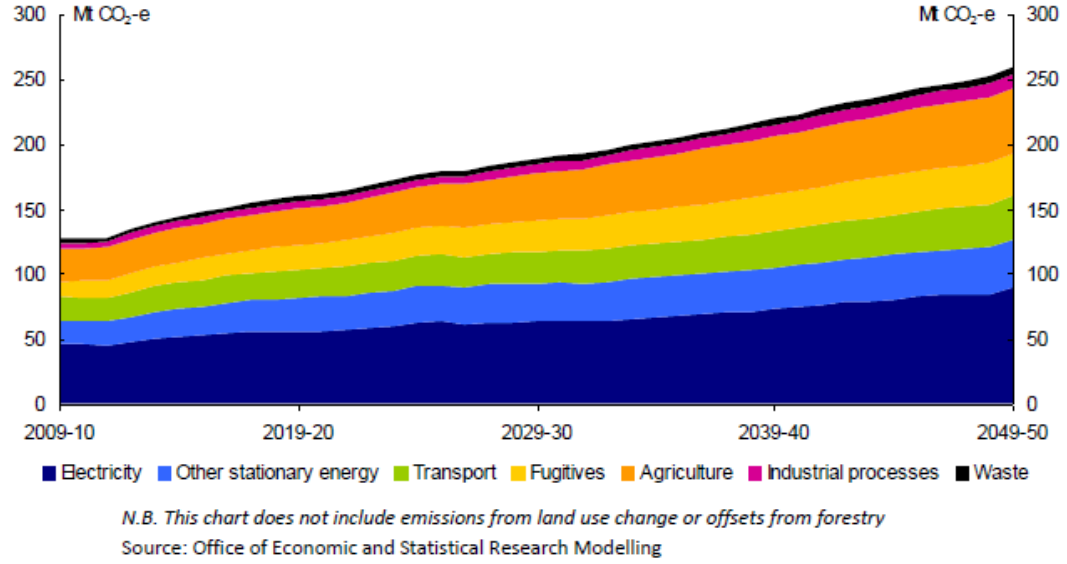
QUEENSLAND OVERVIEW

Emissions intensity of Queensland's electricity generation sector

Queensland's emissions per capita are among the highest worldwide yet its environment, communities and industries are likely to be among the most vulnerable to climate change impacts and associated extreme weather events. Based on current trends, Queensland's greenhouse gas (GHG) emissions are projected to more than double by 2050.

Figure 2: Queensland Emissions by sector



N.B. This chart does not include emissions from land use change or offsets from forestry

Source: Office of Economic and Statistical Research Modelling

Source: Queensland Treasury 2011, Carbon price impacts for Queensland

With its population and industry profile, Queensland has a significant role to play in meeting national emissions reduction targets. To contribute its proportional share to the Australian 2020 emissions reduction target of 5 per cent below 2000 levels, Queensland would be required to limit its total emissions at 2020 to 111.2 million tonnes of carbon dioxide equivalent (MtCO2e). This compares with BAU estimates of around 160MtCO2e by 2020. The electricity generation sector contributes substantially to this growth profile.

Decarbonising this sector creates an opportunity to achieve substantial reductions in Queensland's emissions. Renewable energy will play a pivotal role in stabilising and then reducing GHG emissions in line with future targets. Along with energy efficiency and demand management measures under the Queensland Energy Management Plan, renewable energy is a crucial element in the policy mix to ensure that Queensland's economy, and particularly its significant export base, remains globally competitive in a carbon constrained world.

Energy demand growth

The 2011 Electricity Statement of Opportunities (ESOO) forecasts that Queensland requires 341MW of new capacity by 2013 under a medium growth scenario and 779MW under a high growth scenario. AEMO advises that, on that basis, new investment decisions (projects moving from proposed to committed status) would be required in the next 6 to 18 months to ensure reliability of supply.

AEMO advises that Queensland will experience strong ongoing demand and consumption growth out to 2020-21. Energy demand out to 2020 is estimated at around 16,000MW under a medium growth scenario. The key factor driving this growth is the addition of mining and liquefied natural gas (LNG) loads out to 2016-17. Queensland's average annual increase in

peak demand is expected to be 500MW over the next decade. In contrast, the combined annual growth of the rest of the NEM is expected to be 610MW.

In Queensland, significant new demand growth is anticipated in off-grid locations in the mining and gas sectors. Isolated and off-grid (including mine site) options for clean energy alternatives exist. The cost comparator is not Levelised Cost of Energy but the generation (diesel costs in the order of $350+/MWh) or supply (grid connection and maintenance costs) cost at the site. The application of renewable energy in Queensland's remote locations provides a unique and exportable value proposition which is yet to be demonstrated for end users.

Queensland Government support for renewable energy

Since the launch of the Queensland Renewable Energy Plan (QREP) in June 2009, 428MW of renewable energy generation capacity has been installed, bring the total installed capacity in Queensland to 1,204 MW at 31 October 2011. This equates to approximately 8 per cent of Queensland's total generation capacity and approximately 9.4 per cent of Australia's total renewable energy capacity. Despite strong Queensland Government support and intervention, renewable energy generation in Queensland remains below the state's per capita share of national renewable generation, reflecting in part Queensland's renewable resource strengths in less mature technologies and location of the state's highest quality resources in remote areas.

Early Government efforts have focussed on solar technologies to complement existing hydro and bagasse generation. Substantial Queensland Government funding to drive small scale solar uptake has laid the foundations for future industry growth through a strong local solar sector and community support for renewable energy. Geothermal and battery storage research and development has also received strong Government support.

The future of renewable energy in Queensland

Queensland's renewable energy future will differ from southern states in terms of the pathway taken and timeframes required for development. The Queensland Renewable Energy Plan (QREP) is seeking cost effective ways to broaden the state's renewable generation portfolio, including by exploring hybrid fossil fuel / renewable and commercial and industrial applications, and through the piloting and demonstration of less mature but important baseload technologies such as geothermal and enabling technologies, in order to bring forward deployment. Queensland's policy focus will also aim to leverage partnerships and links with domestic and global expertise and investment to transition from small to medium and large scale renewable energy projects. Achieving both of these aims will provide a pathway to developing an alternative low carbon energy system longer term.

The Queensland Government and its agencies have developed international alliances to enhance the State's investments in research and innovation. Examples include (but are not limited to) alliances with the US, UK, Germany, India and China. Many of these countries are highly active in the clean energy sector and important trading partners to Queensland. Existing relationships could be expanded to facilitate renewable energy technology transfer, attract expertise and build local capacity. Targeted engagement of strategic trading partners (such as Japan, Korea, China) can also assist in taking advantage of R&D investment abroad strategies. There is an opportunity for global proponents to demonstrate their technology in Queensland and initiate a subsequent pipeline of global projects. Areas of engagement include attracting expertise, supporting niche R&D, and facilitating technology transfer and early technology adoption.

QUEENSLAND'S VIEW ON THE DEVELOPMENT AND DELIVERY OF THE CLEAN ENERGY FUTURE PACKAGE

Queensland would like to partner with the Commonwealth to develop and deliver the clean energy package. To maximise the value of Commonwealth's package, Queensland proposes the following principles for the development and delivery of the Clean Energy Future Package.

Scope of the CEFC

1. *How do you expect the CEFC to facilitate investment?*

    - Queensland considers that it is important that the CEFC builds momentum by delivering projects that are able to commence quickly but also transition the economy along a decarbonised pathway. Early successes are critical to support more competitive bidding for funds and to build support from within the industry sectors. The Commonwealth should work with state governments and industry proponents regarding specific markets where the cost of supplying electricity is or is approaching commerciality, comparable with clean energy such as isolated and off grid (mine sites, large industrial loads).

    - Consideration should also be given to supporting the provision of critical infrastructure which will allow renewable resources to be able to be accessed. This could take the form of build, own and operate or through providing funding for such nation building projects. Creating the right mix of infrastructure in order to access renewable energy resources will assist in the transition to a clean energy future.

2. *Are there principles beyond financial viability that could be used to prioritise investment, such as emissions impact or demonstration affect?*

    - Support for demonstration and commercialisation of renewable technologies should focus on technologies with significant potential in Australia but are not yet commercial, for example solar thermal, geothermal, and enabling technologies such as storage. The Commonwealth will need to strike a balance in its support for projects that are commercial or close to commercial under existing policy arrangements (for example the carbon price and the Renewable Energy Target), and those technologies and projects that still have a cost gap, but have strong potential to come down the cost curve markedly in the period to 2020 via large scale demonstration to highlight the associated benefits nationally and for export markets.

    - Projects utilising hybrid generation technology such as gas and solar should be eligible for support under the CEFC. These technologies are important in demonstrating pre-commercial technologies such as large-scale solar thermal, and provide lower carbon alternatives in remote locations reliant on diesel generation. This in turn reduces the carbon intensity of key Australian export sectors. In addition, supporting hybrid generation would offer opportunities for black coal-fired generators to diversify their portfolios and mitigate risk.

    - In addition, enabling projects such as network infrastructure in key areas of renewable energy resources could be prioritised to remove barriers for a range of otherwise financially viable renewable energy projects.

3. *What are the opportunities for the CEFC to partner with other organisations to deliver its objectives?*

    - States and the Commonwealth must work together with project proponents to overcome existing barriers and deliver projects. Queensland is in a position to suggest several projects that are currently in the development stage.

- The CEFC should look to leverage the existing research base and extend local expertise in emerging technologies. Queensland is undertaking coastal geothermal drilling, has passed supporting geothermal production legislation and has established a Geothermal Centre of Excellence to conduct critical research in proving this prospective baseload technology. The Queensland Government is keen to partner with the Commonwealth to build on these early initiatives.

- The CEFC should consider models to build on existing Australian investment infrastructure through funding for commercial and industrial (C&I) renewable energy projects via concessional loans managed by banks. Queensland has undertaken significant work on opportunities in the C&I sector and would be happy to assist with the design of this part of the program.

- There is an opportunity for the CEFC to explore any assistance it could offer in addressing the key risk of a firm off-take agreement. Currently there is difficulty in the market in securing a Power Purchase Agreement of required size and term and there is a possibility for the CEFC to work closely with off-takers to ensure the CEFC functions in a complementary way to any developments in the off-take market.

- In discussions with industry, Queensland has become aware that the delay in decisions around the CEFC scope and priorities (CEFC to formally commence in July 2013) is causing uncertainty for industry and delays to critical projects. It is recommended that the CEFC provide certainty in approach and priorities as soon as possible so it can be taken into consideration as part of renewable energy project investigations.

The market gap and overcoming it

4. *How could the CEFC catalyse the flow of funds from financial institutions?*

    - By being transparent and open to innovation of all technologies, the CEFC will be able to act as a catalyst across different sectors and scales. Making findings available, providing data from projects once they start generating, and releasing details where possible of the business models used in delivering projects are all ways in which the CEFC can support further projects in the renewable energy industry.

    - It will be important to mitigate against the risk of crowding out which could be detrimental to the financial sector in the long run. It would also be important for the CEFC to be mindful of the potential of becoming the lender of last resort and how it might mitigate against the risk of this happening.

5. *What experiences have firms in the clean energy sector had with trying to obtain finance, have term, cost or availability of funds been the inhibitor?*

    - There appears to be difficulty with obtaining finance and also through negotiating an off-take agreement. Renewable energy projects do provide the advantage of being long-term, stable and relatively predictable assets. However given the lack of projects in the market there is still a significant risk premium attached to projects and this is adversely affecting their viability. By deploying projects and generating appropriate data, financial institutions will gain comfort in the delivery of renewable assets which will ultimately reduce any risk premium associated with projects. Large vertically integrated energy companies have an advantage of being able to explore options of funding projects from their balance sheet. In the mining industry and various others, renewable energy is competing against other key infrastructure projects including rail, port and capital equipment upgrades.

6. *What non-financial factors inhibit clean energy projects?*

- Technological barriers. Within the current Australian NEM system, intermittency is thought to pose a number of barriers for the integration of renewable technologies such as wind, solar and wave generation. Voltage and phase imbalances due to the intermittent energy supply may impact stability for the electricity grid and may increase costs due to irregular supply and the need for back up generation.

- Community acceptance. Community acceptance of large-scale projects remains a barrier for certain technologies such as wind and potentially hot rock geothermal.

- Global market place. The Australian market is relatively small compared to established markets in the USA and Europe and rapidly developing markets in Asia and South America. Therefore, a global focus is required rather than an expectation that the State's small market will attract large-scale development of a renewable energy industry.

- Market information and co-ordination. Stakeholders seek comfort in project delivery and there is a vital role for an intermediary to play in bringing all the components of a project together allowing it to progress to financial close. With the renewable source being the revenue stream underwriting the viability of projects it is important that data is available to quantify resource availability and ultimately validate this revenue stream.

- Policy certainty. It is a very dynamic market within which proponents are trying to build large long life assets. It is important that clear and consistent signals are given to the market in order for there to be better certainty in investment decisions.

- It should be noted there are a range of non-financial factors that are conducive to clean energy projects and these should be leveraged as best as possible where possible. International companies see Australia as a destination which has strong intellectual property laws, world class renewable resources, stable government and close proximity to Asian markets.

7. *Are there special factors that inhibit energy efficiency projects?*

- There are a variety of barriers inhibiting energy efficiency projects, including information asymmetries, split incentives, and bounded rationality, in addition to a lack of access to capital. Combined with a price on carbon, the CEFC could work with the states and within existing national energy efficiency policy frameworks to address these barriers.

Other issues

8. *How do you see the CEFC fitting with other government initiatives on clean energy?*

- The Commonwealth should build on existing successful programs where synergies exist. For example Queensland has expertise in delivering a range of renewable energy and energy efficiency programs for homes and businesses in remote and isolated communities, such as renewable energy options for isolated networks, and the *powersavvy* program promoting energy efficiency. This is particularly relevant for the delivery of the Remote Indigenous Energy Program (RIEP). Queensland is critical to success of the RIEP with large number of remote indigenous communities, and a proven track record of delivering programs together with industry.

- Queensland is involved in deploying a range of solar projects including the University of Queensland, Cloncurry and Hervey Bay. These projects have provided valuable lessons which can be used for assessing future project proposals. Work has also been undertaken on wind, geothermal and biomass projects.

- It is important where possible that programs and policy objectives complement one another at a state and federal level. This will ensure duplication and conflicts are avoided and that resources are used in the most efficient and productive way possible to maximise the delivery of a range of renewable projects delivering the best possible outcome.

- If a national Energy Savings Initiative (ESI) is put in place, the CEFC should avoid funding projects already eligible for the ESI or are otherwise not additional. Consultations on the design are ongoing now. Queensland will submit a response to a Commonwealth Issues Paper in February 2012. Until a decision is made on the ESI, the CEFC could support the installation of measures recommended under the Energy Efficiency Opportunities program.