Senate Standing Committee on Environment and Communications
Legislation Committee
Answers to questions on notice
Environment and Energy portfolio

Question No: 228

Hearing: Supplementary Budget Estimates

Outcome: Outcome 2

Program: International Climate Change and Energy Innovation Division (ICCEID)

Topic: Hydro Renewable Investment

Hansard Page: n/a

Question Date: 24 October 2016

Question Type: Written

Senator Lambie, Jacqui asked:

Do you agree that investment in hydro renewable delivers energy, water and food security when the same investment in wind delivers expensive and unreliable energy?

Answer:

Hydroelectric generation can deliver energy water and food security as is seen in the Snowy Mountain Scheme which makes a major contribution to the agricultural sector while generating a significant proportion of renewable energy in the eastern mainland grid.[1] However, given the variability in rainfall, evaporation rates and temperatures, the scope for large scale hydro-electric systems to provide agricultural water in Australia is limited.[2]

The increasing share of intermittent renewables, such as wind and solar, mean that technical and operational changes will be made to the system over time as required to maintain system reliability and security. The COAG Energy Council has a full program of work to investigate effects on system security and implement solutions to allow the grid to adapt to enable higher proportions of renewable energy.

While wind energy is intermittent in nature, this intermittency is already accommodated into the national grid. The impact of intermittent sources is reduced through improved forecasting that ensures complementary generation such as peaking power plants can respond to changes in output quickly. The Australian Energy Market Operator has led this investment through the Australian Wind Energy Forecasting System.[3]

Bloomberg New Energy Finance estimates the levelised cost of energy for solar photovoltaic (tracking) is $83 per megawatt hour, large scale hydro electric power is $76 per megawatt hour and onshore wind is $68 per megawatt hour.[4] Note these are globally assessed cost estimates.

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[1] Snowy Hydro Limited, “Snowy Mountains Scheme”, Source: http://www.snowyhydro.com.au/energy/hydro/snowy-mountains-scheme/ [Accessed, 3 November 2016]
[2] Geoscience Australia and ABARE, “Australian Energy Resource Assessment”, 2010, Canberra, pg 225
[3] Australian Energy Market Operator, “Solar and Wind Energy Forecasting”. Source: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Solar-and-wind-energy-forecasting [Accessed, 11 November 2016]
[4] Bloomberg New Energy Finance, “H2 2016 Global LCOE Outlook”, October 2016. LCOE is represented a cost per megawatt hour and is defined by Bloomberg New Energy Finance as representing the minimum expected equity return required to allow the project to proceed.