

ENERGY 2029

THE GREENS 2029 ENERGY PLAN

“100% Renewable Energy is within reach if we act with the urgency and ambition that the climate emergency demands. It’s time to step up”



THE NEXT GOLDEN OPPORTUNITY

The past fifteen years have seen a massive increase in renewable energy deployment around the world, driven by rising fossil fuel costs and the now unmistakable impacts of the changing climate.

Runaway advances in solar, wind and other clean energy technologies have caused costs to fall rapidly. The Greens believe Australia should invest in the next generation of clean, affordable energy infrastructure.

ENERGY 2029

The need to reduce our dependence on polluting fossil fuels has been established for decades, but very little work has been done in Western Australia to determine how to achieve this task in reality.

The Energy 2029 study puts forward credible scenarios for meeting Western Australia’s south-west grid electricity demand entirely through energy efficiency, fuel-switching, and a range of renewable energy technologies that exist today.

Rather than advancing a single way forward, we have proposed a number of scenarios to illustrate some of the options available to us. In this endeavor we are strongly indebted to the independent research and advocacy organisation ‘Sustainable Energy Now’ (SEN), whose engineering and programming expertise was invaluable.

The transition is urgent, but this study demonstrates that it is possible: the only barrier to a massive increase in clean energy here in Western Australia is political inertia.



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HOW DO WE PAY FOR IT?

The passage of the Clean Energy Act in 2011 has created a pool of funds to help build the next generation of large scale renewable power stations in Australia. From July 1, 2013, the Clean Energy Finance Corporation (CEFC) will have \$2 billion per year to invest in renewable energy projects, and we believe Western Australia can benefit if we move quickly.

In particular, the CEFC will be considering whether to invest in large-scale Concentrating Solar Thermal (CST) stations, which are able to store energy for night time dispatch and can operate around the clock. They have huge potential for the Goldfields, Wheatbelt and inland Pilbara.

WHAT IS THE PLAN?

Energy 2029 focuses on Western Australia's stationary energy use, and renewable energy scenarios are presented for the South-West Interconnected System (SWIS) which accounts for roughly half the State's electricity consumption.

The scenarios show that the overall cost of a planned transition to renewable energy is similar to the cost of continuing with business as usual. Capital costs for renewable scenarios are higher than business as usual, however the renewable systems become competitive over time because of the elimination of all future fuel costs (with the exception of biomass stations).

The debacle of the refurbishment of the obsolete Muja coal-fired power station demonstrates the underlying cost of business as usual, with Western Australians asked to spend a quarter of a billion dollars to upgrade a highly polluting coal fired power station.

“The fact that wind power is now cheaper than coal and gas in a country with some of the world's best fossil fuel resources shows that clean energy is a game changer which promises to turn the economics of power systems on its head”

MICHAEL LIEBREICH, CHIEF EXECUTIVE OFFICER OF BLOOMBERG NEW ENERGY FINANCE

Scenario 1: Solar

Takes advantage of proven technology deployed in Spain and the United States in which large-scale solar concentrator fields provide the bulk of the dispatchable electricity on the grid.

The balance of demand is provided by large-scale dispersed wind generators, solar PV and a smaller number of biomass, wave and geothermal generators.

Backup electricity in the event of several consecutive days of low wind and solar incidence would be provided by biomass co-firing at the solar plants, pumped hydro storage and a small number of mid-tier biomass plants.

Capital costs \$62.2b

Levelised Cost of Energy (LCOE), \$221/MWH

Scenario 2: Diverse

The strategy for proportioning the various renewable generation technologies is to maximise the use of the lowest-cost renewables, using a combination of biomass and pumped-hydro for backup. The scenario envisages a predominance of wind and solar PV providing the largest fraction of peak demand.

Capital costs \$56.9b

LCOE, \$208/MWH

Scenario 3: Business as usual

Business as usual without Carbon Capture and Storage or energy efficiency/waste reduction gains assumes that Western Australia develops a heavy reliance on on-shore gas and continues to build coal-fired power stations.

The estimated costs of this scenario do not include the necessary cost of duplicating the Dampier to Bunbury Natural Gas pipeline, maintenance of existing fossil assets, lost agricultural productivity due to unconventional gas fracking, or any of the associated costs of unmitigated climate change. Capital costs are lower than renewable scenarios, but Levelised Cost of Energy is similar to renewable scenarios owing to 16 years of fuel costs.

Capital costs \$20.6b

AVG. LCOE, \$203/MWH



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