Victorian Renewable Energy Auction Scheme Modelling

Securing Victoria's renewable energy future

Introduction to the modelling

1. The Victorian Government commissioned EY to undertake this modelling to inform the Victorian Government's development of the Victorian renewable energy target (VRET) scheme.

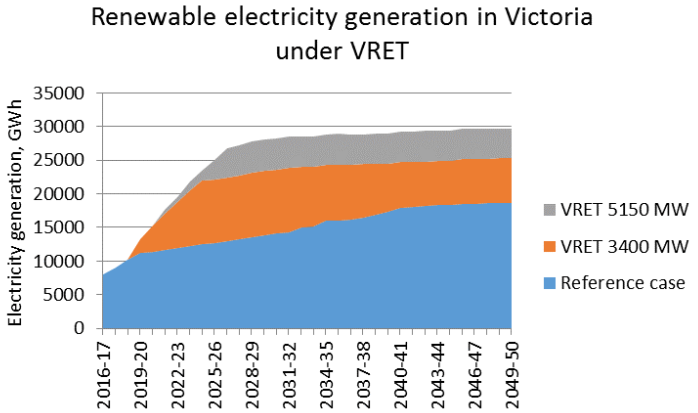
2. This summary presents the modelling outcomes of two scenarios chosen by Victorian Government to analyse the impact of VRET targets in comparison with a reference case:

   - Reference case: Forecasts Victorian and national electricity market outcomes under a continuation of existing and announced policy settings but without a VRET policy;
   - VRET 3400 MW**:** Victoria introduces around 3,400 MW of renewable energy generation capacity by 2025 through private investment, public investment, and support from the Victorian Renewable Auction Scheme; and
   - VRET 5150 MW**:** Victoria introduces around 5,150 MW of renewable energy generation capacity by 2027.

3. This modelling is based on several input assumptions relating to future conditions, which may not necessarily represent actual or most likely future conditions. All modelled scenarios and assumptions underpinning those scenarios were chosen by the Victorian Government. Modelling inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between forecasts and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. EY's role was limited to modelling those assumptions under different scenarios and has acted on the instructions of Victorian Government. Aspects not mentioned were not considered, including the impact of the VRET on transmission and distribution network investment. EY understands that the Victorian Government has discussed those issues with AEMO. All dollars presented are July 2016 (real). The material contained below is the summary prepared by Victorian Government. The contents are for general informational purposes only.

Electricity generation

4. The chart below shows the Victorian expected renewable generation in each scenario in gigawatt hour of electricity generation, including rooftop solar generation. Under the reference case, renewable electricity generation in Victoria increases up to 25% of total generation by 2020, driven mainly by the Federal Renewable Energy Target (RET). After the Federal RET reaches its maximum in 2020, Victoria's renewable generation grows more slowly, which is primarily due to the expected uptake of rooftop solar systems. Under the VRET 3400 MW scenario, Victoria is forecast to achieve 25 per cent renewable generation during 2019 and 40 per cent by 2025. Under the VRET 5,150 MW scenario, Victoria also achieves 25 per cent target during 2019 but 40 per cent is reached one year earlier in 2024.



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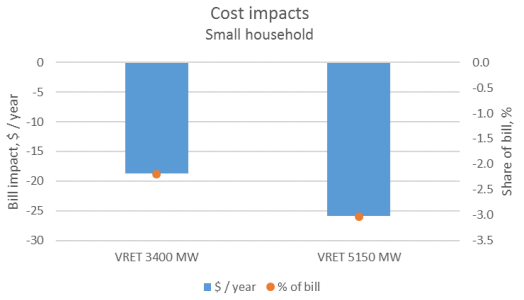
Wholesale electricity prices

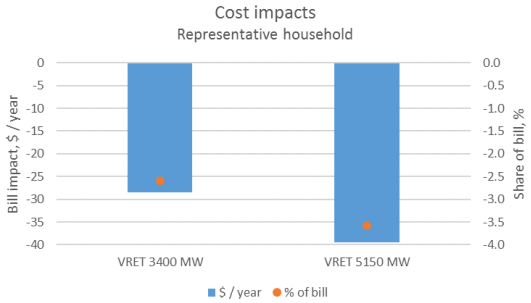
5. Prices are forecast to fall up to 2020 in all three scenarios as renewable capacity is installed to meet the RET. After 2020, Victorian prices are forecast to increase in all scenarios, but in the VRET scenarios this increase is dampened by around $4 per megawatt hour (MWh) in 2019-20, and by around $10 per MWh in 2020-21. Lower wholesale prices are projected to occur with higher renewable generation capacity because this capacity supplies electricity to the wholesale market at a very low marginal cost, displacing generation with a higher marginal cost. These forecast price scenarios are specific to the assumptions chosen by the Victorian Government across the scenarios. While there is inherent uncertainty in forecasting wholesale market prices, the relativity between the scenarios is considered to be more robust than actual values.

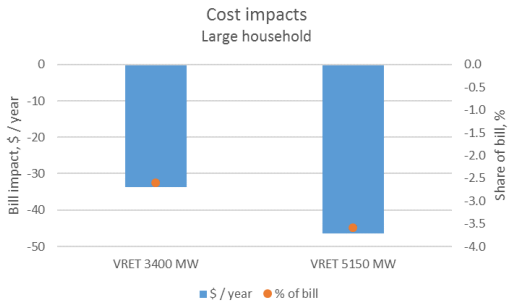
Consumer impacts

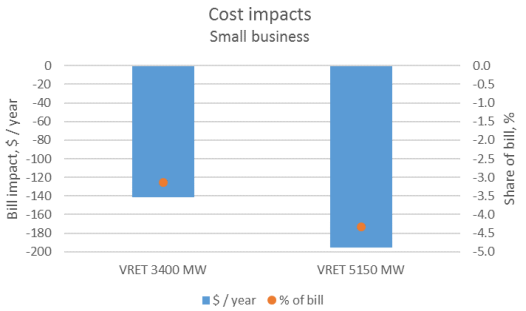
6. In each scenario, EY has forecast the two primary components of the impact of the VRET on electricity bills for consumers in Victoria. These are the costs associated with payments to electricity generators under the scheme, and savings from reduction in wholesale market prices. In the scenarios modelled and the assumptions chosen, overall wholesale market price savings are estimated to exceed the costs of payments.

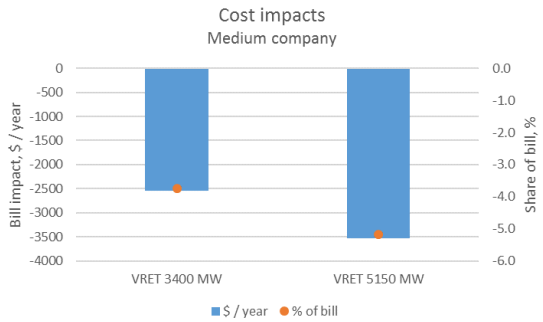
7. Lower wholesale prices under the VRET 3400 MW scenario are estimated to reduce the wholesale component of a typical Victorian household electricity bill by around $29 a year on average over the life of the scheme. A typical small business is projected to save around $140 a year in the wholesale component on average over this period, which for a large company with 20 GWh of annual consumption is equivalent to $140,000 a year.

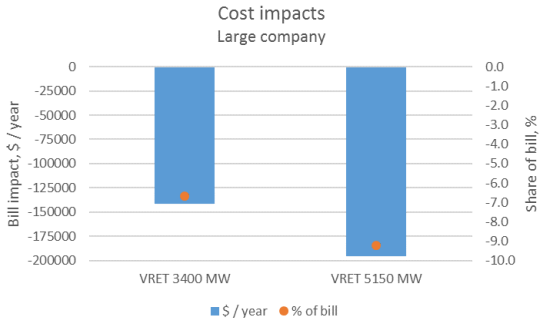






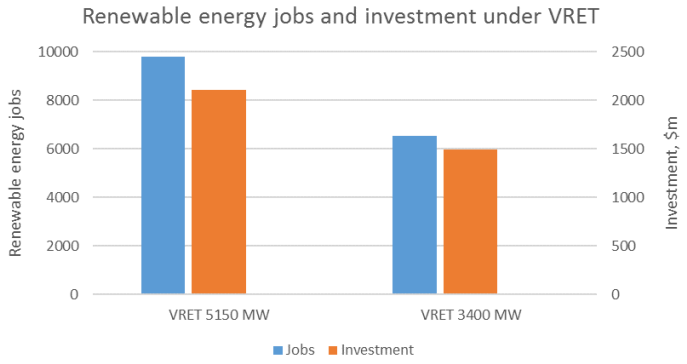






Jobs and investment

8. Based on the assumptions and methodology chosen, it is forecast that the VRET 3400 MW scenario would result in around $1.5 billion of additional economic activity in Victoria's renewable energy sector (out of capital expenditure of around $5 billion), around 6,000 new 2-year construction jobs and around 500 ongoing jobs in the renewable energy sector. Under the VRET 5,150 MW scenario, the forecast is $2.1 billion of additional economic activity in Victoria's renewable energy sector (from capital expenditure of about $7 billion), around 9,000 2-year construction jobs and about 750 ongoing operational jobs. The jobs outcomes presented did not take into account any increases in Victoria's share of the (national and international) renewable energy supply chain (manufacturing, design, etc.) as a result of the VRET.



Emissions

9. The VRET is likely to lead to significant reductions in Australia's greenhouse gas emissions from electricity generation. Over the period to 2049-50, the cumulative electricity sector emissions under the VRET 3400 MW scenario are forecast to be around 140 Mt of CO_2-e lower than under the reference case. This is roughly equivalent to 10 months of emissions from the national electricity market today. Larger emissions reductions are forecast under the 5,150 MW VRET scenario as shown in the chart below.