Renewable energy auctions vs the RET – likely effectiveness and efficiency

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2018 Symposium: Energy Policies: Where is Australia Heading
Griffith Business School
Brisbane, 16 October 2018
The findings up front

- Auctions / tenders have proven capabilities to reduce renewables costs but don’t necessarily deliver the highest energy value renewables, unless you make them.

- The Renewable Energy Target’s ‘Certificate’ based approach exposes renewable project developers and operators to more NEM energy market signals…

- … but puts the power in the hands of large incumbents who can use tenders to get their own costs down, but appear able to pass on high wholesale market and REC ‘rents’ on to small energy users, with relatively low transparency.

- … so Auctions seem best way forward, certainly until NEM is fixed, rather than ‘fixed’, but potentially increasingly problematic if and as renewables begin to dominate gen. mix.
Our challenge – maximising the value of renewables; *lower costs, increase value*

...value more important as costs, fall, harder (system outcome)
Energy markets don’t capture key values – policy required? If yes, which mechanisms?

Conventional, OECD oriented, view on optimal policies, IEA 2008
Recent policy efforts increasingly auction/tender based (IRENA, 2017)
Recently

… however, note challenges in ‘price’ comparisons around financing, other costs, likelihood of progressing.

Egypt receives two bids under $0.03/kWh in 200 MW solar tender

The lowest bid was submitted by Spanish developer Fotowatio, which offered US$0.02791 per kWh. Slightly higher, at $0.02799 per kWh, was the offer of Saudi power company, ACWA.

AUGUST 7, 2018  EMILIANO BELLINI
Potential advantages over RET approach

Box 2.1  **Strengths of renewable energy auctions** *(IRENA, 2017)*

The growing interest in auctions reflects their ability to achieve deployment of renewable electricity in a well-planned, cost-efficient and transparent manner while also meeting other development objectives, such as job creation and domestic value creation and ownership. Specific features include the following:

- **Flexibility of design**, which makes it possible to combine and tailor different elements to meet deployment and development objectives and cater to a country’s economic situation, the structure of its energy sector, the maturity of its power market and its level of renewable energy deployment.

- **Certainty regarding prices and quantities**, which enables policy makers to control both the price (in the presence of a ceiling price) and quantity of renewable energy purchased by providing stable revenue guarantees for project developers (similar to the administratively set feed-in tariff) while also ensuring that the renewable generation target is met more precisely (as with quotas and tradable green certificates).

- **Degree of commitment and transparency**, reflecting the fact that auctions result in contracts that 1) clearly state the commitments and liabilities of each party, thus offering regulatory certainty to investors and minimising the likelihood that their remuneration will be challenged in the future if the market and policy landscapes change, and 2) specify clear penalties for underbuilding and delays, thus ensuring that projects are delivered as per the bid.

- **Potential for real price discovery**, reducing information asymmetry between project developers and the entity responsible for determining purchase prices and support levels (usually the regulator). This feature has been of particular relevance given recent market developments, such as the significant technology costs decreases, the development of local supply chains, and the maturity of the market.
Policy makers would seem to agree

(IRENA, 2018)

<table>
<thead>
<tr>
<th>Countries</th>
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<tbody>
<tr>
<td>2004</td>
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<td>2015</td>
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<td>2016</td>
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- **Feed-in tariffs/premiums**
- **Auctions**

Auctions/tenders vs the RET - costs vs value
Renewables costs

- The cost of most renewables is mostly the cost of *Capital*
- ..and the cost of Capital is mostly the cost of *Finance*
- ..and the cost of finance is mostly the cost of *Risk*

*Low cost renewables is low financial risk renewables*

... *but low risk to whom?*

*Are risks being reduced, or just transferred*
State RE targets in the NEM

**AUSTRALIA**
23.5% renewable energy by 2020 (33,000GWh of large-scale renewable energy)

**SA**
50% renewable energy by 2025
Net zero emissions by 2050

**VIC**
25% renewable energy by 2020
40% renewable energy by 2025
Net zero emissions by 2050

**NSW**
No renewable energy target
Net zero emissions by 2050

**WA**
No renewable energy target
No net zero emissions target

**NT**
50% renewable energy by 2030
No net zero emissions target

**QLD**
50% renewable energy by 2030
Net zero emissions by 2050

**ACT**
100% renewable energy by 2020
Net zero emissions by 2050

**TAS**
100% renewable energy by 2022
Net zero emissions by 2050

*Climate Council, 2017*
Corporate renewable PPAs also a driver

Online renewable marketplace aims to help business cut power bills

By Cole Latimer
16 October 2018 — 12:01am

Australia will look to replicate US success by creating an online marketplace for businesses to buy renewable energy, helping to them to reduce high power bills.

The Australian Renewable Energy Agency (ARENA) will help build the nation’s first Business Renewables Centre, designed to encourage corporations and councils to buy more sustainable energy.

Auctions/tenders vs the RET - costs vs value
Initial associated tenders

- **Falling costs, and these are bundled energy ‘black’ and REC ‘green’**
- **Reasonably high transparency**

<table>
<thead>
<tr>
<th>Project name</th>
<th>Size (MW)</th>
<th>Fixed feed-in tariff price for renewable electricity over 20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>20MW Solar Auction 2012</td>
<td></td>
<td></td>
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<tr>
<td>Royalla Solar Farm (Figure 8)</td>
<td>20</td>
<td>$186/MWh</td>
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<tr>
<td>20MW Solar Auction 2013</td>
<td></td>
<td></td>
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<tr>
<td>Mugga Lane Solar Farm</td>
<td>13</td>
<td>$178/MWh</td>
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<tr>
<td>Williamsdale Solar Farm</td>
<td>10</td>
<td>$186/MWh</td>
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<tr>
<td>200MW Wind Auction 2014</td>
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<td></td>
</tr>
<tr>
<td>Coonooer Bridge Wind Farm</td>
<td>19.4</td>
<td>$82/MWh</td>
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<td>Horndale Wind Farm (Stage 1)</td>
<td>100</td>
<td>$92/MWh</td>
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<tr>
<td>Ararat Wind Farm</td>
<td>80.5</td>
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<tr>
<td>200MW Wind Auction 2015</td>
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<td></td>
</tr>
<tr>
<td>Horndale Wind Farm (Stage 2)</td>
<td>100</td>
<td>$77/MWh</td>
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<tr>
<td>Sapphire Wind Farm</td>
<td>100</td>
<td>$89/MWh</td>
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<tr>
<td>Next generation solar and wind (plus storage) 2016</td>
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<tr>
<td>Horndale Wind Farm (Stage 3)</td>
<td>109</td>
<td>$73/MWh</td>
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<tr>
<td>Crookwell 2 Wind Farm</td>
<td>91</td>
<td>$87/MWh</td>
</tr>
</tbody>
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(Auctions/tenders vs the RET - costs vs value) (Climate Council, 2017)
And now Victoria

- Apparently far better ($50s), but less transparent, prices

Successful VRET Auction Projects

(Victorian Govt, 2018)
But in value, renewables “ain’t” renewables

*(data from OSDAN: Open-Source Data Access for the NEM, Nicholas Gorman)*
..with future price surprises likely - including summer daytime hours with growing PV penetration

**Auction** projects chasing MWh

**RET** projects chasing MWh (RECs) but also energy value

(data from OSDAN: Open-Source Data Access for the NEM, Nicholas Gorman; analysis provided by Sharon Young)
Might this be growing problem, particularly if and as RE penetrations grow?

- AEMO certainly seems to think so

4.1. AEMO’s preferred design

(AEMO, Submission to Vic. Govt Auction design, 2017)

As a general principle, AEMO encourages retention of spot market incentives upon generators, and therefore prefers certificate based schemes over CFD mechanisms. At the stakeholder forums, the government presented alternatives where a fixed “top-up” payment was made to the generator, either on a MW or MWh basis, meaning the generator retained exposure to the spot price. AEMO would similarly prefer this approach, which would be more compatible with the NEM and vest government and customers with a predictable cashflow.

The apparent attraction of the CFD scheme over these alternatives is that by immunising the generator from NEM signals it lowers risk to them enabling them to bid a lower price at auction. AEMO submits that this is a false economy: these risks will instead be borne by customers through CFD payments, and the risks that are transferred downstream from those generators are risks that are best left upstream with the generators.
And risks don’t just disappear

- Can contract some to project developers
  - Eg. negative prices
  - FCAS

Pool Price means the greater of the spot price (in $ per MWh) at the Reference Node set for a Trading Interval by AEMO and $0/MWh.

- But others?
  *(Vic. Govt, VRET support agreement, 2018)*

12.2 Market Disruption Event

If at any time there is a Market Disruption Event, the parties will consider and, in accordance with clause 12.4, negotiate in good faith the adjustment to the Contract Price and other amendments to this Agreement which will preserve:

(a) the intended operation and effect of this Agreement; and

(b) the relative position of the parties at the date of this Agreement.

12.3 Change in Law

(a) If at any time there is a Change in Law which increases or reduces the costs incurred or to be incurred by the Supplier in connection with the generation of electricity by the Facility [or the creation, supply, registration, approval or transfer of Green Products], then, subject to paragraph (c), the Supplier: (Note to Proponents: Words in square)

(i) will be entitled to pass through 50% of that proportion of the additional cost as determined in accordance with this clause 12.3; and

(ii) will be required to pass through 50% of that proportion of the reduced cost as determined in accordance with this clause 12.3.

12.4 Good faith negotiations

The parties will conduct good faith negotiations in respect of arrangements which are to apply following a Market Disruption Event or a Change in Law. If the parties cannot agree within 20 Business Days after one party notifies the other in writing that they wish to negotiate the relevant adjustment to the Contract Price or Base Amount, either party may refer the matter to an Expert for determination in accordance with Schedule 5.

12.5 NEM Design Change

Market Disruption Event means:

(a) a change in the location of the Reference Node; or

(b) the introduction of an alternative basis for the calculation of the Pool Price other than a change in the market price cap or the market floor price.

After the Effective Date, the National Electricity Market design changes in a manner affects the operation of this Agreement (NEM Design Change) and conduct good faith negotiations in accordance with clause 12.4 in respect of aspects which are to apply following the NEM Design Change.

Auctions/tenders vs the RET - costs vs value
.. However, what precisely has the NEM delivered?

Amongst the world’s most expensive, wholesale, retail and RE electricity, reliable but amongst the dirtiest as well

Figure 1.9: Comparison of residential electricity prices (before and after tax) (Australian cents per kWh) (May 2017 prices in Australia, 2015 prices in European countries)

(ACCC, 2017)

Auctions/tenders vs the RET - costs vs value
...although perhaps now improving
... but for small consumers?

(Leitch, Know your NEM, reneweconomy, 2018)

(Grattan Institute, 2018)
... and who owns it? – energy & RET

Figure 3.9: Retail Electricity Market Share (residential customers), March 2017*

(ACCC, 2017)
RET still involves tenders … just private ones

- Question is not just what they pay, but what they charge consumers for both ‘black’ and ‘green’

(reneweconomy, 2017)
Suggesting

- Auctions / tenders have proven capabilities to reduce renewables costs but don’t necessarily deliver the highest energy value renewables, unless you make them
- The Renewable Energy Target’s ‘Certificate’ based approach exposes renewable project developers and operators to NEM energy market signals…
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Where next?

"The best way to predict your future is to create it!"

Abraham Lincoln

“It depends…”