

“Facilitating large energy user deployment of off-site renewable generation”

A UNSW-based project of the CRC for Low Carbon Living

Stakeholder Workshop #1

24th Nov 2016, Sydney

Transcribed and condensed participant comments in respect of workshop activities. Contents should be considered alongside workshop presentation slides.

Session 1 – BUSINESS STRUCTURES

How to structure the relationship between the end user, electricity retailer, and project developer given the need to satisfy end user needs while efficiently allocating various risks?

General Comments

- You need to consider everyone involved - can they all make money? Business structures need to work for all parties involved not simply end users. It is important to understand the business incentives across the full value chain.
- It's really a discussion on risk management and who's able to manage it or handle it to bear it. Sometimes the end user is best placed to handle risk (Business with commodity trading skills) but many will not be well placed to manage risks.
- In respect of pass through of generation values, retailers are a critical party to have on board. They are the experts at managing electricity market risks on behalf of end users. Successful business structures will rely on them having a commercial incentive to facilitate pass through.
- The type of end user is important. How long is the end user likely to be around? This is important in understanding the extent to which they can underpin new RE investment. Some project developers and retailers may not be around long term either. Issues of counterparty risk are important in this regard.
- End users are generally small and will not have the scale to underpin new developments on their own. How to effectively do aggregation in this context? You could aggregate on the buy side, or aggregate on the sell side - both are options.

Approach 1 – Electricity retailer as intermediary PPA counterparty

Electricity Retailer acts as PPA counterparty. Retailer has PPA agreement with RE project developer on behalf of the end user, who will have a retail contract of same length as PPA.

Pro	Con
<ul style="list-style-type: none"> • Effective way of unlocking funding for new developments • Risks are understood and placed with entities best placed to manage them • BAU approach, status quo which reduces the barriers associated with something new • Simplicity for end user, only one party to interface with • Approach which aligns with existing procurement practice • Aggregation is natural, a logical approach for achieving scale 	<ul style="list-style-type: none"> • More complex than LGC purchase • New retailers cannot access credit and therefore face a barrier to acting as PPAs without extra guarantees • Big 3 retailers face reduced margin, supporting projects may undermine value of gen portfolio • Who gets to select the project the end user or the retailer? Issues with agency. • Doesn't suit an end user who wants CAPEX • Inflexible, may lock an end user in to long term retail agreements which are unsuitable to their business circumstances • Market power issues to manage with respect to the retailer requiring a long term retail agreement could jack up price on black. • Complexity with respect to the pricing models to manage long term retail agreements

- Approach 1 was thought to be the simplest approach generally leading to the best price per kWh. The natural fit of this approach in enabling buy side aggregation would be the best way to overcome end user scale issues.
- The issue with retailer incentives was noted. Large incumbent retailers face commercial incentives to block the facilitation of such agreements. Smaller retailers were more favorable but face the challenge of not having the credit ratings required to act as PPA counterparties.
- The potential for losing the 'story' side of it was noted. The end user not being the counterparty was thought by some to increase the risk that the 'tangibility' of the generation would be lost for the end user.
- It was felt that approach 1 as presented was excessively restrictive and did not fully reflect the potential for flexibility in arrangements with respect to term. Contractual arrangements could be structured to prevent the need for a long term retail agreement. Small retailer credit issues could also be managed by looking through to the credit rating of the end user, a lot of corporates have better credit than even the big 3 retailers.

Approach 2: End user as counterparty – generation value pass through

End user holds the PPA as counterparty, electricity retailer acts to provide balancing services and facilitate pass through of generation value to end user.

Pro	Con
<ul style="list-style-type: none"> • Direct link with end user captures end user motivation for seeking direct procurement • Enables smaller retailers to provide services given counterparty risk is held by the end user • Flexible with respect to retailer, not locked into a long term retail agreement backing the term of the PPA • An approach which would suit end users which are large enough. • Market settlement risk is held by the retailer and managed for the end user, at a price. 	<ul style="list-style-type: none"> • More complex than LGCs and end user would need to manage two contracts rather than one • Might not allow matching of load of the end user potentially limited to a smaller fraction of end user load • Doesn't naturally lend itself to buy side aggregation • May lead to a higher overall cost • Unattractive for retailer to facilitate if it was covering a large % of end use load. • Transaction costs likely higher than option 1

- This approach is really great for telling the story, the direct contractual relationship between the end user and the project developer would be a more compelling link than option 1.
- While there would likely be more flexibility in retail contract term, there is still the challenge of finding a retailer who would be prepared to facilitate. Commercial incentives of retailers are still an issue, why would they want to facilitate if proportion of end user load covered by RE was significant.
- The challenge of the small electricity retailer credit rating was overcome through this option as the electricity retailer was not acting as the PPA counter party. This would enable small retailers to facilitate without additional credit support/guarantee structures.
- Option 2 was seen to be best for the large users, but would be difficult for smaller users to negotiate (smaller users will have less negotiating power).
- The difference between option 1 and 2 was thought by some to be overstated. In reality the differences are subtle than those implied.
- There are retail licensing issues associated with direct end user-project developer PPAs. There would need to be a license exemption granted depending on the jurisdiction. Victoria was noted as being particularly challenging in this regard. Further clarification and legal input on this issue was considered important.

Approach 3: End user as counterparty - self hedge

End user holds the PPA as counterparty, electricity retailer passes through spot exposure (perhaps according to a profile or time of day), end user then self-hedges spot exposure with a CFD or generation spot revenue.

Pro	Con
<ul style="list-style-type: none"> • Could be suitable for large end users with commodity trading skills • Can take advantage of average lower wholesale prices if appropriately hedged • Does not rely on retailer pass through, simple for a retailer to pass through spot • May potentially be simpler as settlement occurs between end user and project developer 	<ul style="list-style-type: none"> • Managing spot market risk not core business of most end users • Would most likely require additional risk management products to manage exposure to high price events • A radical departure from electricity procurement practices • Need a big balance sheet to make this one work.

- Approach #3 ... was not well received by most
- Only a very sophisticated end user with a big balance sheet, risk appetite, and
- The need for a very good temporal match between load and generation was noted as being critical in being able to manage market settlement risk.
- Caps or other hedging products would be needed to manage exposure to high price events. Could suitable counterparties be found for such products? Nature and liquidity in OTC markets for such products problematic for most end users.

LGC only

LGC purchase as offsets to electricity procured under standard arrangements.

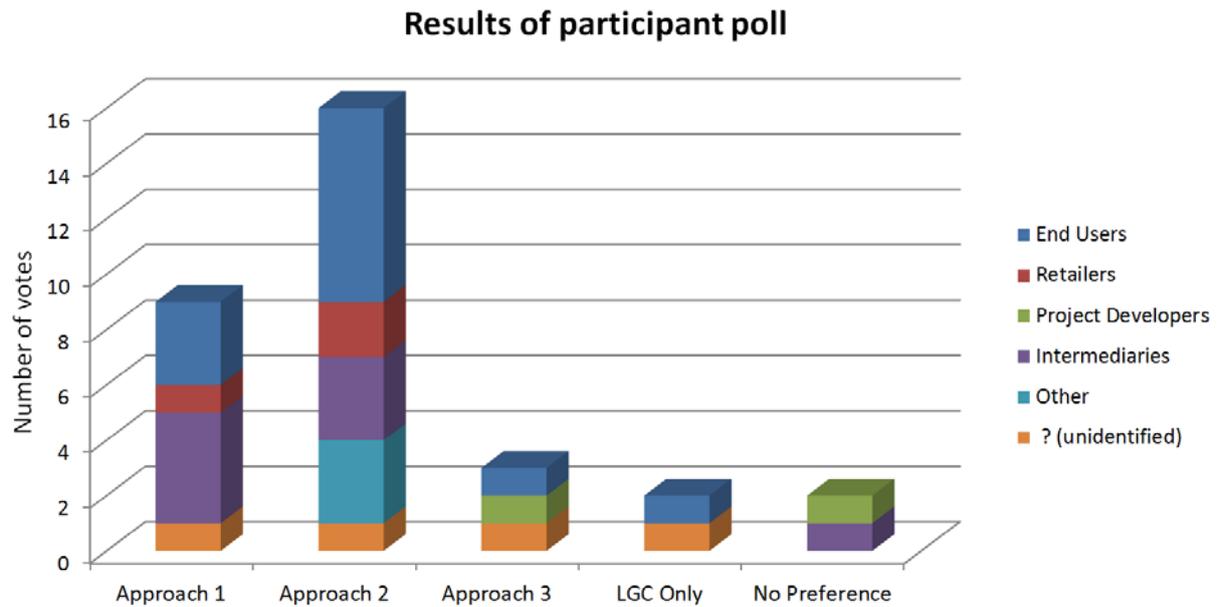
Pro	Con
<ul style="list-style-type: none"> • Simple • Flexible • Can aggregate simply 	<ul style="list-style-type: none"> • Is it real? • Story isn't as strong • Very expensive • There is an additional cost associated with offsets • Cannot capture generation value from the facility

* Specific comment was not sought on this option

Participant opinion poll – Preferred approach

Participants were asked to ‘vote’ on their preferred approach, from the perspective of their organization. Most importantly, participants were asked to explain the *reason* for their choice.

The voting slip presented a choice between approaches 1, 2 and 3 as described above, however some participants modified the slip to vote for the ‘LGC Only’ approach, or to remain deliberately agnostic. Note also that 6 participants selected both approach 1 and either approach 2 or 3, reasoning that different approaches suit different users or situations.



Choice	Reasons given
Approach 1	Simpler, suited for aggregation, better risk management, easier for the end user, no spot exposure, preferable for small/medium organisations, easy entry into market, economies of scale enabled by aggregation.
Approach 2	Gives the end user more control, better for branding/reputational value, no spot exposure, flexibility in retailer choice, better value for end users, lower risk, choice of project for end users, ability to manage residual load from retailer, for smaller scale PPAs or community demonstrations, most tangible, has been done before, greater number of retailer options (access to smaller retailers), shorter retail terms, ability to negotiate better LGC price, partnership opportunity, retailer manages hedging.
Approach 3	Flexible, looks better for project developers.
LGC Only	Contractual simplicity, not locked into a long term retail contract, retailer hedges black, LGCs to provide direct support.
No Preference	Specific customer requirements play a role, project developers are agnostic.

Session 2 – MARKET DEVELOPMENT AND STRUCTURE

Workshop participant views were sought as to the likely mode and development of the market for offsite renewable energy products and services

End User Perspective

- This is an area which is changing quickly; end user preferences and views are also evolving rapidly as they become aware of the option and start to hit constraints applying to behind the meter RE.
- There is a market for this. End users want it.
- LGC purchases will be an important part of the market moving forward but end users want to say “we built this”. Branding/reputation is a bigger driver as cost - wanting to be associated with a particular project (or at least green energy) had value.
- End user preferences will drive the development of this market, it is first necessary to understand what they want. End users want to ‘tell the story’ around procurement of RE but do they want to deal with the associated complexity.
- There is a deep gap between end user desires and end user knowledge levels. End user information and education is a key challenge.
- End users are not electricity retailers and they want BAU as much as possible. The retailer knows stuff they don't, and they can manage the risk. There is a need to minimize the extent to which the end user faces electricity market risk.
- There is cynicism around the effectiveness of Greenpower/LGC offsets and whether it actually works – there is a perception that they don't. Then there's the price matter – Greenpower/LGC offsets represent a premium price added to a homogenous product. RE is getting cheaper all the time. Why do the more expensive thing?
- Market research indicated it was easier to get finance for generation + LGCs (green + black contracts). There have been LGC contracts as well, but the thought is there is better value for money (and easier access to \$\$) when you have both.

Market Development

- There's a spectrum of things happening - but who's doing what and how do we facilitate the match between supply and demand? How do people find each other? There is a need for a more efficient process of market deal matching. Who is going to do this?
- Facilitation of sale is necessary, but we're not sure how that is going to work – government is probably not the best party to perform this role. Retailers could be good, but independence is a big question. And are we just adding more layers of complexity?
- Electricity retailers should be the interface with the customers as much as intermediaries. Retailer + project developer likely to give end user better price/product mix.
- The role of sophisticated energy brokers was considered to be important as they have incentives aligned with end users but the sophistication to facilitate deals.

- Facilitators could come from consultancies. There was a lot of brokerage in the US, but this is a function of the large market with a broad range of both suppliers and consumers. Probably in Australia, we won't see this because we don't have such a large market.
- There could be a role for NGOs in facilitating market matching as is the case in the US where the Rocky Mountains Institute runs the Business Renewables Centre.
- The international experience is that buying groups are quite common - 90% of RE deals in Mexico are for aggregated buyers who have individual contracts with a large project. When you have many, many parties, you need a more standardized contract. Scale influences things quite a bit. This is something that Australia might get to.
- You need a mutually beneficial exchange to make a market work - which requires efficient transaction costs, with clear and effective contracts, which all requires efficient dissemination of information to market participants. This requires market maturity and standardization of offerings.

Product vs Service

- Product approach supports aggregation. Running buying groups is very difficult in the absence of standardisation. How else to efficiently make decisions across a group unless the rules are clear upfront.
- A lot of it currently is solution led. A lot of the current investment in off-site RE at present is being led by end users, particularly public organisations, who will often have different agendas, and can prioritise things differently. (There is often a higher 'social responsibility' expected of such organisations, and they are often quite close to their 'customers')
- There aren't many products out there at present - it's very solution led at the moment (i.e. consumer demand) The supply side has not yet developed a suite of products for consumers.
- Product vs service - it's going to depend on end user capabilities. Sometimes the solutions lead the products. Solution led is interesting - sometimes consumers know what they want, and sometimes consumers just go for what's available.
- A chicken and egg problem exists. If there isn't a customer for it, it doesn't matter if you have a product. And you need to make sure that your product that fits the wants/needs of the customer. If you don't fit, they won't buy.
- Driven by the end user, products will develop with time. Models will be copied by other users. It is an iterative process, key players will move and others will follow.
- Transaction costs, transaction costs, transaction costs. Everything at the moment is a bespoke contract, which is expensive. So we'd like to develop some standardization, which should help to make things a lot more affordable.
- High transaction costs and risks associated with the solution led approach. Requires real size, sophistication, and organisational buy in to make work. Not going to be a practical option for the vast majority of even large end users.
- New product offerings become product differentiation from other retailers. There is a real opportunity for smaller retailers to develop standardized, yet flexible, product

offerings which will bring additional diversity into the electricity retail market more generally.

- Who will develop the 'products' it's a question of trust. You know the big guys will stick around. The role of brokers in this regard is interesting but the end user needs confidence that the product makers are trustworthy and will stick around long term.
- For a larger retailer any product development must "move the needle" to be attractive. If it's not going to have a big impact, it's not going to do much and hence there's not a lot of interest. Market needs to be big enough for products to become mainstream.

New vs Existing / Term

- Working with existing generation is more like business as usual and aligns with a standard procurement mindset.
- End users likely open to both new and existing generation, however those who really value additionality are likely to demand new generation.
- Existing vs new - existing is low risk, more appealing. But it's very short term. There are some great advantages for long term new build. "Easy small wins vs systemic change"
- Uncertainty about long term LGC and electricity price/performance. Long term contracts represent a shift in the BAU approach to energy procurement.
- Even 5 year PPAs are now in play, 7-10 years doable for end users. The key differentiator is price shorter term = higher price. There is a mentality around term which does not fully reflect current and future potential.
- Shorter PPAs are starting to happen, which challenges current assumptions. Intermediaries - but you need to understand how the risks will be managed.
- New generation does take time to build, which is an issue. (But less of an issue than you might think, particularly when compared with conventional generation, which can be up to 8 years – PV/Wind is often less than 12 months) But you can get projects that are contracted for a certain size, but you build a little extra capacity beyond the contracted amount, which you can on sell.
- It's cheaper than you think, and it takes far less time than you might think to construct net generation, particularly PV. Time lines for new build are less of an issue than people think.

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