

The Challenges in Setting up a Green Power Market in S. Africa
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A. Introduction

Green power technologies have long been overlooked by corporate energy buyers. Generally viewed as immature and costly, green power traditionally has been deemed unattractive for large-scale energy purchases by companies operating in competitive markets. But that perception is changing. In South Africa government wants to encourage the use of green power through legislation albeit currently on a “willing buyer willing seller basis”. Some major USA companies are paving the way for the creation of a cost-competitive market for green power by more aggressively pursuing renewable and clean power options. In South Africa the City of Cape Town has made a commitment to purchase wind generated green power from the Darling Wind Farm in the Western Cape. Currently there are pilot programmes conducted with the blessing of the Department of Minerals and Energy in some of the other major cities in the country with the participation of some of the metros/munics and Eskom. These pilot programmes are an attempt to establish a sustainable long term green power market that will be beneficial to all affected parties. Pursuant to achieving the latter goal a number of challenges present themselves and must be overcome.

Three main factors appear to underlie green power’s emergence as an increasingly attractive energy source for corporate users:

- Technological improvements in green power sources
- Rapidly changing energy markets
- Increasing corporate awareness and concern about environmental issues

When a company procures green power it buys more than just electrons. It secures a wide range of benefits that it otherwise might have to acquire through contractual means or tapping into other budgets within the corporation. In particular, green power can:

- Help stabilise corporate energy costs
- Provide a hedge against the uncertainty of future environmental regulations
- Provide the multiple benefits of on-site electricity generation
- Appeal to consumers
- Strengthen relations with local communities
- Facilitate relations with government and the NER
- Enhance relations with employees

B. The Challenges of Procuring Green Power

A number of internal challenges face companies as they delve into the green power market for the first time:

Corporate Challenges

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- Cost alone has been the conventional basis for deciding among electricity sources
- Few companies have established channels through which to articulate the non energy benefits of green power to appropriate audiences within the company
- Many companies are not willing or able to pay a price premium for electricity

Marketplace Challenges

- Existing green power pricing programs are not tailored to the needs of commercial and industrial users
- Companies may not be able to independently secure output from projects
- Certain technologies face inherent operating limitations
- Additional generation assets maybe required to offset such operating constraints
- Some green power options maybe handicapped by unfavourable locations and high delivery costs

Policy Challenges

- The current policy framework does not place monetary value on the superior environmental characteristics of clean and renewable power challenges
- Integrating renewable generated electricity into the conventional grid can pose challenges

C. Particular Challenges in Establishing a Viable Green Power Market in South Africa

1. Voluntary nature of the market

This is a market with willing buyers, willing sellers and with network owners providing voluntary access to its networks and customers. To find a supplier willing to sell its product at a higher price than offered by ESKOM (or a Municipality) is in theory not a problem but they are small in numbers and not easily convinced to participate in the voluntary market. See other points related.

The real challenge is to find a customer prepared to pay the premium. These are special customers, discerning in nature and with very special qualities. South Africa has a sophisticated industrial and commercial sector but sometimes lacks the compassion for global issues, as we are in some way protected against international pressure groups due to our “developing country” status. Finding customers prepared to pay a premium for Green Power simply on the merits of global imperatives is a real challenge.

South Africans are in general apathetic towards Climate Change notwithstanding the undertakings of the previous Minister of the DME at the WSSD of 2002. Our energy is the cheapest in the world, so why pay more for something that is clearly a government issue? See par 3

2. Monopoly in the electricity market

The electricity supply industry in South Africa is essentially monopolistic and is dominated by either ESKOM or licensed re-distributors. Customers are captive except for those consuming more than 100 GWh p.a. , the so-called contestible customers. In an industry

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that is protected by the country's constitution, such as in SA, anti-competitive behaviour can be expected from the incumbent licensees.

For a trader in a voluntary Green Power market it is extremely difficult to enter the monopolistic market as it is protected by law as well as by a tradition of vested interests. It is a known fact that municipalities derive much of its revenue from electricity users. It is therefore understandable that municipalities are reluctant to let go of this ill-needed source of revenue.

The question can also be asked: "Why would a monopoly deliberately invite competition?" The voluntary Green Power market, due to its size can never be a threat to its bigger brother, even if the sluice gates are thrown open, but it is still perceived as a threat. Unless free access is allowed, this will remain the biggest challenge to the voluntary market.

3. Awaiting government intervention

There is general belief that Climate Change is Governments problem. It is therefore supply of Green Power should be financed by Government.

As a result, and given current legislation affecting municipalities at the municipal level, resistance is experienced in allowing a Green Power trader access to networks and customers. Some customers are simply arguing that they'll wait for some Government intervention before a decision is made with respect to Green Power purchases. Concluding any agreements in the short term are therefore at risk.

4. The Renewable Energy industry history

The RE industry in South Africa is characterised by mixed performance results, some marginal successes and some large failures. The fact is that very few RE projects can really claim to be successful without subsidies, grants or any government interventions.

Furthermore some serious misconceptions exist about viable RE technologies, such as is the case with PV and wind . Economic models are mostly based on subsidies and other interventions. The effect of CDM revenues is also overemphasised in most cases. These technologies are regarded as glamorous but in reality they are not suitable to the current South African situation.

The voluntary Green Power market is sometimes judged against the bad experiences of the past and not really given a fair chance to prove that it can work.

5. Electricity licenses

Under the current dispensation, a number of legislative and regulatory obstacles makes entry into the voluntary Green Power market problematic. Unless stakeholders are willingly participating, very little can be done about network and customer access. The following list is by no means exhaustive but gives an indication of the exclusive nature of the industry:

- (i) The current Electricity Act and license conditions
- (ii) Captive markets within licensed areas of supply
- (iii) Impact on Municipality's revenue. Section 33 of the Municipal Finance Management Act (we are not sure what the real issue is)
- (iv) Smaller municipalities finding it difficult to enter into a trade agreement where it will lose revenue, albeit very small.

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The study performed by SADELEC, consultants to the DME on the obstacles facing the introduction of renewables in the SA industry gives a comprehensive list of perceived or real obstacles. Les Kugel, an Associate of SADELEC was one of the authors.

On the positive side, the restructuring of the EDI will probably resolve much of the obstacles in the way of the Green Power market. EDI holdings have declared that it is in favour of this initiative and will allow access to customers and networks.

The Regional Electricity Distributor of the Western Cape (RED1) has indicated its acceptance of the principles of Green Power trading but will first verify its position with the City of Cape Town. On the other hand, it has also agreed that it will honour any agreements that a municipality has entered into before the establishment of the RED as far as the trading of Green Power is concerned. Specific reference was made to the Darling project in this regard.

6. Definition of the Pilot Project

The Pilot Project conducted under the blessing of the DME by definition is restricted to a relatively small size. The size of the market is too small to make a major impact and therefore may not be taken seriously by all. Only 4 generators and 5 customers for a total of +- 40 000 000 kWh per annum is included in the project. Any expansion of the market in the next two years will be very difficult under these conditions.

Marketing to new customers is therefore a problem. We can't make promises and don't deliver. AGP expects to increase the sales volume in order to maintain business viability but may have difficulty in executing these sales.

Should new sales be allowed, the speed at which new transactions will be approved is going to be a problem. These transactions will be rigorously scrutinised and evaluated before it will be allowed to proceed.

One way of overcoming this problem is to possibly cap the amount of kWh sales in any given licensee's area of jurisdiction. A capping of 1% has been suggested.

7. Pioneering nature of the market

Because this has never been done before in South Africa, we are treading on unknown territory which obviously require much more caution than would otherwise be the case. Questions are asked for which no immediate answers are available. This is the main reason for the introduction of the Pilot Project, to allow for mistakes to be made, without setting any precedents.

The international Renewable Energy industry, as well as the watchdogs of Climate Change have taken notice of the South African developments and are now watching the progress made with the voluntary market very carefully. If successful, it may be replicated elsewhere in Africa.

Due to the local initiatives, South Africa is now a forerunner in the BRICS countries (Brazil, Russia, India, China and SA) on the introduction of mechanisms that does not require direct government interventions. Support is expected to come from EU countries eager to get the South African Renewable Energy Certificates (RECS) eligible for trade in these countries.

8. Growing the market

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The Green Power market has started with trading in exports from existing plant only. The power station owners contracted with Amatola Green Power to increase their exports based on the price offered. No new capital investment was required. However, there will soon come a time when the existing capacity will be exhausted and that new investments will be required.

Going from existing plant to new plant will obviously be a different situation as the incentive to invest in new plant will have to be so much greater. A Power Purchase Agreement (PPA) with a trader in the voluntary market is seen as a risk, unless it is backed with long term sales agreements with end user Green Power buyers.

Amatola Green Power prides ourselves in being able to identify the “low hanging fruit” of generation capacity in South Africa. We have gone to great lengths to secure future supplies from the most unlikely sources. Even with obvious economically viable projects, we have encountered resistance amongst project developers and proprietors as they view the Green Power trading market as at risk. Their main concern is the absence of long term PPA's with end users.

Should we be able to secure long term PPA's, even at marginal rates, will projects raise like mushrooms all over the country. AGP has been approached by dozens of project developers with viable business plans, just waiting to be implemented.

In order to address the concern of the present network owners, of a possible major impact of the Green Power market, a capping of new entrants by the NER or the DME could be implemented with possible great effect. See other related sections of this paper.

9. Funding of new projects

Financiers of projects in the power generation industry is reluctant to invest in a venture that does not have a secure market. A PPA with a trader in Green Power is obviously at risk if the trader doesn't have a back-to back supply contract with an end user customer. Project currently under consideration with financiers have all suffered the same fate, either shelved or postponed until the market can show stability of trade.

10. Revenue neutrality

Although there are differences of opinions on what revenue neutrality actually means, it remains a problem area for the Green Power market. In its most basic form, revenue neutrality simply means that the network owner will feel no financial impact on its bottom line as a result of any Green Power transaction. This implies that the Green Power supplier/trader has to price its product to the end user at a rate that will be at a premium sufficient to cover all expected revenues to ensure the trader/supplier's sustainability.

Due to the size of the market and its relatively early state of development, the premiums so far paid will not ensure economic viability in the short term, let alone on the long term.

11. Information systems

Due to the unconventional way that information is being transferred from origin to the Independent Market Operator (IMO) and back to billing agents, there is some scepticism about the integrity of data. This could obviously easily be addressed by proper procedures and systems.

12. Inappropriate tariffs

Current tariffs on which end user customers are billed are generally “bundled” and do not reflect the various components as envisaged by the NER for the restructured EDI. A typical example will be the two part tariff employed by many Municipalities. In order to determine the impact of the Green Power transaction on the normal electricity supply bill from either Eskom (to the Municipality) or from the Municipality to the end user, these tariffs need to be unbundled first. The wires and energy components need to be separated from the other.

13. Discrepancies in billing dates

The exercise of clearing the market by the IMO involves the “lining up” of the billing information between suppliers and end users. In practical terms it means that the start and end dates of billing data must correspond. Due to the various billing periods used by Eskom and municipalities, this is rarely achieved. Unless billing periods are standardised for all that participate in the voluntary market it will be a very difficult and laborious task to clear the market.

Systems are in place to make the task easier but it could be so much better if the billing dates are all corresponding.

14. Multiplicity and interdependency of contracts

For any one Green Power transaction to take place within a Municipal area of supply, contracts are required as follows: Between

- (i) The municipality/Eskom and the end user customer
- (ii) The end user customer and the trader
- (iii) The municipality and Eskom
- (iv) Eskom and the trader
- (v) All of the above with the Independent Market operator

The start dates and billing periods need to be co-ordinated as well

D. Going Forward

- Companies may find cost competitive green power opportunities by exploring non-traditional procurement opportunities
- Companies are considering green power not just for electricity but also as a direct fuel source
- Companies can consider value, not just cost, when assessing green power projects
- Energy managers can convey the non-energy benefits of green power to appropriate audiences within the company
- Companies can explore partnerships with other firms interested in procuring green power companies could signal to utilities and developers the type of green power products that would be attractive to the corporate sector

E. Conclusion

Green power, long overlooked by corporate energy managers, with the appropriate support of national government and other key stakeholders could become a mainstream component of corporate power procurement .

In South Africa the environment is currently “constipated” to establish a sustainable long term viable “non willing buyer and non willing supplier green power market”

F. References

- 1. Website of World Resources Institute, Washington, USA**
- 2. Information publication of the World resources Institute, Washington, USA**