South African Wind Energy Programme

Final Report

Domain Protocol for the South African Voluntary Tradable Renewable Energy Certificates Market

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Abbreviations

ACM	Approved Consolidated Methodology
AIB	Association of Issuing Bodies
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CERC	Central Electricity Regulatory Commission (India)
DNA	Designated National Authority
DOE	Designated Operational Entity
EECS	European Energy Certificate System
MW	Megawatt
MWh	Megawatt hour
PDD	Project Design Document
PRO	Principles and Rules of operation of the EECS
REEEP	Renewable Energy & Energy Efficiency Partnership
SA-IB	South African Issuing Body
SACDMIA	South Africa CDM Industry Association
UNFCCC	United Nations Framework Convention on Climate Change

1 Executive Summary

1.1 Introduction

This report provides findings and recommendations, including a Domain Protocol, in line with the Principles and Rules of Operation (PRO) of the European Energy Certificates System (EECS) which can be used by a South African Tradable Renewable Energy Certificate Issuing Body and with the possibility and challenges to create internationally tradable renewable energy certificates. This Report builds upon the review of different documents from the Association of Issuing Bodies (AIB), the report from PDNA "Development of the Business Plan for the South African Renewable Energy Certificate Issuing Body" (2009), studies and articles about CDM/CERs, Carbon credits etc – and the feed-back received in the meeting with the Project Steering Committee (PSC) and the Project Advisory Committee (PAC) in Johannesburg the 14th of October 2009 and 16th of February 2010.

1.2 Challenges

1.2.1 Solar Water Heating

There are, insofar solar water heating, two main challenges for South Africa to make a Domain Protocol, incorporating solar water heating, in compliance with the European Energy Certificate System (EECS) of the Association of Issuing Bodies (AIB);

- The AIB do not have a scheme for solar water heating for the time being, and
- The amount of unmeasured solar water heating in South Africa.

All production of renewable energy has to be measured in accordance to the Principles and Rules of Operation (the PRO) of the AIB. Today between 80 and 90 % of the solar water heating utilized in South Africa are not measured. This will probably increase as solar water heating (SWH) is a prioritized area for South Africa: "Installation of one million solar water heaters" in the coming years (IRP1 plan[1]) The AIB has confirmed that they will look into certificates for heating and cooling, but a scheme for this will probably not be implemented before 2012 (at the earliest).

1.2.2 Membership of the Association of Issuing Bodies

It is important to ensure that the South African Domain Protocol (DP) is in line with the PRO and can be submitted for approval by the AIB if – and when – the decision is made to do so.

Two key considerations that need to be taken into account when deciding to apply for membership of the AIB:

- The costs for getting AIB approval is an obvious reason: the volumes of renewable electricity certificates in SA are still low; probably too low to justify an investment like this.

[1] Notice Electricity Regulation Act 2006, Determination regarding the Integrated Resource Plan and New Generation Capacity, No. 1243, DoE, Dec 2009

- As a member of the AIB, South Africa has to allow for import of other RECS certificates. This import can affect support of the local certificates and renewable energy market.

1.3 Discussion

1.3.1 Solar Water Heating

Installing meters is a possibility that could be looked into in the future when the EECS and the AIB is further developed and heating is included, probably from 2012. Still, this may be a costly option due to the cost of these meters. A more affordable option could be the Australian expanded Renewable Energy Target (RET) scheme which provide for SWH certificates without metering and which is based on a standardized list of SWH volumes and lifetime.

It is important for South Africa to have a Domain Protocol that is as much as possible in line with the Domain protocol template of the AIB and with a certificates framework for SWH, based on the Australian RET scheme (see chapter 8 and Annex 5), that could be considered in the South African National SWH framework and can form the basis for future possible inclusion of SWH by the South African Certificates Issuing Body (SA-IB), while supporting AIB efforts in accommodating heating in the EECS system.

1.3.2 Membership of the AIB

Membership in the AIB also opens up for import of certificates that can affect the local certificate market. This situation may arise because there is a lot of cheap certificates on the market, e.g. from old and large hydro power stations.

Applying for membership in the AIB is for the time being not recommended because current volume of around 520 GWh of renewable energy that are measured and in compliance with the EECS system, will result in considerable costs (member ship fee, system and software updates etc) and thereby low prices of TRECs certificates in Europe. It is probably necessary to issue around 1 TWh + of renewable energy certificates to justify investments like these.

There already exist an interim solution for issuing Tradable Renewable Energy certificates (TRECs) in South Africa; TRECSA is constituted as the interim Issuing Body (www.zarecs.co.za) set up by green certificate trading companies GreenX Energy and Amatola Green Power. The web site indicates low volumes for both issuing and redemption. The Domain protocol of TRECSA is based on the Domain Protocol template version 1 of the AIB. We recommend South Africa to consider still using TRECSA as an interim solution, and in the meantime look further into the costs for measured SWH and the development of new schemes in the AIB.

South Africa should also consider membership in RECS International and/or ask the AIB to be an observer in the General meetings of the AIB to participate in development of a heating scheme and see how SWH (measured and/or not measured) can be accommodated in the EECS.

1.3.3 TREC versus REFIT

The issuing of TRECs certificates for Production Devices that is participating in the REFIT mechanism was considered. Some members of the AIB allow certificates for Production Devices that is receiving feed-in support, some don't – depending on how the feed-in solution is accommodated in the different countries legislation. In South Africa it will be up to the Assessment Panel and the General Meeting of the AIB to accept to issue a certificate under an EECS scheme based on how the feed-in mechanism is accommodated in the legislation. At this stage it is recommended that South Africa do not allow issuing of renewable energy certificates for production devices participating in the REFIT scheme because of the following reasons:

- Where REFIT is financed by electricity customers, these customers are already contribution to the production of green electricity and should any "green" power value be contributed to them and not sold commercially.

- It is an increasing discussion in Europe about this topic, partly a moral discussion because – independent of how the legislation is formulated – it is a kind of double issuing of "greenness"; e.g. Denmark is still considering to stop issuing TRECs for their feed-in production

- Certificates that receive support through a feed-in mechanism have to be earmarked with "Public support", normally this earmark reduce the value of the certificate

- Green power production devices operating outside the REFIT system and generating certificates will have to include the certificates in the supply with the same volume as sold electricity. This is to avoid a situation of double selling and counting where certificates and electricity are sold as renewable energy.

There are some interactions between TRECs and CDM projects, and it may be possible to issue TRECs for production that receive CDM/CERs and vice versa, but the approval processes are quite different, because CERs are only given to projects that would not have happened without that incentive – but TRECs may be issued to all production that comply with the renewable energy definition. Whether receiving TRECs would prevent a project from being registered under the CDM – or vice versa – has to be handled case by case, and probably up to the UNFCCC to decide.

1.4 Conclusions and recommendations

The recommendation of the PDNA Business Plan that South Africa should take a staged approached for the further development of the Issuing Body (SA-IB) is supported by this study. We recommend the following stages (or steps):

- DoE to take note of public and private sector, such as TRECSA and City of Cape Town "certification/issuing" initiatives and encouraged these initiatives to operate in accordance with the Domain Protocol template (version 6) see Annex 7. These initiatives to keep and make available, on request to DoE, regular audited reports of its operations and transactions e.g. volume and prices of certificates issued, sold and redeemed.

- Consider applying for Association of Issuing Bodies (AIB) membership, based on certificates volume, transactions and cost, until such time that the RECs voluntary market has been stabilized with the introduction of REFIT and Government policy insofar import and expert of renewable energy certificates are clear.

- Analyze the Australian RET certificate scheme which covers both measured and unmeasured renewable production as an option for South Africa. The Australian scheme is a national scheme without internationally tradable certificates where suppliers of energy are obliged to buy certificates and surrender it to the ”Office of the Renewable Energy Regulator”

- The AIB will look into how to accommodate heating in the EECS system; this will take some time (at the earliest from 2012). In this period, South Africa should ask to be an observer of the AIB – to speed up the process for handling certificates for heating and cooling and also secures that the AIB takes into account the special challenges that may arise in developing countries.

- In this period, South Africa should also look further into the costs of measuring devices for solar water heating (SWH) systems.

- At this stage it is recommended that South Africa do not allow issuing of certificates for production devices participating in the REFIT scheme.

- Production devices operating outside the REFIT scheme will have, in order to avoid double counting, include the certificates for the same volume of electricity in the supply of electricity sold as renewable energy.

2 Background

Renewable energy electricity generators have three possible income streams for their production; selling electricity, certified emission reductions (CERs)[2] trading through the various international carbon markets and selling of Tradable Renewable Energy Certificates (TRECs). TRECs represent all of the benefits ("green" attributes, excluding carbon trading) associated with the generation of electricity from renewable energy resources. A major advantage, apart from the "extra" income stream, is that CERs and TRECs can be traded worldwide and separately from the electricity grid infrastructure (e.g. no Use of grid System charges or grid access problems). TRECs can be issued and traded for all types of renewable energy electricity generation. TRECs can aid the renewable energy sector in the following ways:

- Offering a chance to project developers to receive additional revenue;
- A system that can monitor and verify renewable energy power production;
- Purchase of green attributes separate from physical power trade and electrical transmission and distribution infrastructure;
- Administration and verification of the greening of events and products;

The Department of Minerals and Energy (DME) in South Africa, based on the Tradable Renewable Energy Certificates feasibility study (March 2007), is supporting a Voluntary Tradable Renewable Energy Certificate initiative for South Africa. The DME constituted the South African National Tradable Renewable Energy Certificates Team (SANTREC). SANTREC comprises government, SAWEP (SAWEP is funded by the Global Environmental Facility (GEF) with UNDP as the GEF Implementing Agency and the Department of Minerals and Energy as the Executing Agency), public and private sector participants and is tasked to undertake and coordinate the Voluntary Tradable Renewable Energy initiative.

The main objectives for this task, are to:

Develop a Domain Protocol (DP) for the South African REC Issuing Body (SA-IB) for international tradable renewable energy certificates;

Develop a comprehensive check list that will guide the implementation of the SA-IB Domain Protocol, indicating responsibilities, actions, etc;

Analyze how the certificates can be used for verification and monitoring of a regulated production subsidy;

[2] Although we use CERs here, because they are the highest value market for carbon credits, renewable energy generators may also apply for carbon credits in the voluntary carbon market (Voluntary Emissions Reductions – VERs) or in other national and international carbon trading systems.

Analyze the status of renewable energy certificates in other developing countries, including solar water heating, biomass (biofuels) and possible CDM CER tradeoffs;

Investigate and advise on any potential tax implications and financial intelligence issues for trading renewable energy certificates and how these should be accommodated in the SA-IB Domain Protocol.

Investigate and advice on security of access and transactions on the web based trading interface and how it should be accommodated in the SA-IB Domain Protocol.

3 Development of a Domain Protocol

The main steps for setting up an AIB infrastructure and Issuing Body are as follow:

- Appoint an Issuing Body and, if required, appoint agents to support the activities
- Draft a Domain Protocol, setting out how the market will operate
- Select, implement and test registry software or services
- Gain the approval of the Association of Issuing Bodies (AIB)

3.1 Appointment of Issuing Body and agents

The normal procedure is that the government appoints an Issuing Body for obligatory schemes. While private organisations often do this for voluntary schemes, like ObervER in France, the government can also appoint the Issuing Body for a voluntary scheme in cooperation with the industry. As mentioned above, there is already an interim Issuing Body in RSA; the TRECSA set up by private organisations.

The Issuing Body must be financially independent of market participants, may not profit from trade in certificates, and must undertake to ensure that it operates according to the rules of the European Energy Certificate System (EECS) of the AIB. Because it is required that the IB shall be financially independent, the IB is very often either a part of the TSO or the national Regulator. The Issuing Body is responsible for inspecting and approving all Production Devices (generators), issuing, transferring and redeeming of certificates and record all in an electronic registry.

To fulfil these responsibilities, e.g. approval of Production Devices, it is necessary to have a solution for verifying, inspection and auditing. This can be handled by the IB itself or the IB can appoint agents (e.g. Production Registrar and Auditing Body) to do it. This can be solved in different ways; it is important to find the solution that fits South Africa best.

The Production Devices also have to be equipped with meters that comply with the relevant regulation, and an important task for the Assessment Panel of the AIB is to check whether the regulation for metering in South Africa is in compliance with the requirements in the PRO, how Data Provision is organized and how the Measuring Body (Bodies) are organized.

3.1.1 Appointment of Issuing Body

As suggested in the Business Plan (BP), we agree it makes sense to establish the SA-IB in at least two stages. Whether it is necessary to establish the SA-IB in three stages or more should be considered at a later stage depending on the development in the AIB and the markets.

From our point of view, it will be possible to use the existing temporary issuing body (TRECSA) as the issuing body in stage one and develop it further as described in the BP, but to increase the legitimacy of the issuing body. We recommend RSA to give the

issuing body governmental support through Ministry appointment of the issuing body. Normally the Ministry can choose between the following bodies:

- The regulator (NERSA)
- The TSO or the ISO (to be legislative established in RSA)

Both solutions are in use in Europe, but we will recommend RSA to appoint the ISO to be the issuing body in the South African market, because it is important that the issuing body is under the supervision of the regulator.

3.1.2 Appointment of agents (Production registrars (PR), Auditing Body (AB) and the Central Monitoring Office (CMO)

In the PDNA Business Plan (BP) two alternatives are discussed for appointment (or outsourcing) of these functions, where SA-IB both outsource the CMO and perform the PR and AB, or where SA-IB outsource all these three key functions.

From our point of view, an issuing body cannot outsource the CMO; this is the main function of an issuing body, but outsourcing the operation of the CMO to a competent vendor may make sense (like in Norway where the TSO *is* the CMO, but the operations are handled by Grexel in Finland).

The key functions of PR and AB can be handled by SA-IB or be outsourced. The main tasks of PR and AB are to verify and audit that the REC power stations are eligible for renewable certificates in line with the DP. This is more or less the same functions as the Renewable Energy Purchasing Agency (REPA) has under the REFIT scheme (Renewable Energy Feed-in Tariff mechanism), where REPA has the right and obligation to inspect renewable energy generators (as described in the BP page 48), and we would recommend SA-IB (or the PSC/PAC) to consider using REPA as PR and AB at least for stage 1 (we define stage 1 as the stage without membership of the AIB (national scheme)) for renewable energy generators. If RSA decide to implement a solar water heating certificate, the PR and AB for these functions may be carried out by some other companies (there is nothing in the PRO that hinder SA-IB using more than one PR/AB).

3.2 Draft a Domain Protocol, setting out how the market will operate

The Domain Protocol – including the Standard Terms of Conditions (STC) – sets out the rules on how the market will operate in the country/Domain. To understand how a market like this will operate, it is important that users and potential members have a common understanding of how a certificate market is functioning, i.e. the “Life cycle” and regulation of the certificate and certificate Market.

3.2.1 The definitions and legislation

The AIB have – for the time being – organized the PRO in five different schemes; GO RES-E (Renewable) certificates, RECS certificates, Disclosure certificates, CHP-GO (Combined Heat and Power) certificates and GoO RES-E including domains with multiple certificates. All the GO chapters – including the Disclosure chapter – are based on different EU Directives, and are for Member States of the European Union/the EEA

area only. Countries outside the Union can only join the RECS scheme (annex 3), see below:

RECS QUALIFICATION CRITERIA

The criteria for Production Devices to qualify for registration for the purposes of RECS (the "RECS Qualification Criteria") are:

(a) That the Production Device is capable of generating RES-E;

(b) That the owner of Production Device will not during the period of its registration for the purposes of RECS and for the same unit of electrical energy receive tradable evidence such as Certificates which represent the benefit of renewable electricity generation from both RECS and another similar system that similarly certifies the origin or represents the benefits of the associated renewable electricity and can be exchanged for financial support; and

(c) That the owner of the Production Device agrees that information recorded with respect to the Production Device on the EECS Registration Database may be made available in printed or electronic form to any EECS Participant.

(d) The metering arrangements for the electrical inputs and outputs of the Production Device (including electrical energy consumed in pumping water for use by that Production Device) satisfy the legislative and administrative requirements applicable in the relevant Domain (including the requirements of the Domain Protocol).

The definition of a renewable certificate in the RECS scheme is more or less the same definition as the definition in GO RES-E scheme, and the use is also more or less identical for a RECS certificate and a GO certificate. The definitions in the RSA legislation have to be in compliance with the definitions in the RECS scheme.

Issuing of a GO in Europe is linked to the new Renewable Directive for energy and the definition of what renewable energy sources are and defined in the GO RES-E scheme. Use of the certificate is partly regulated in the Renewable Directive and the Directive for the internal electricity Market, where a GO is only for use by end consumers; as stated in Article 15 of the Directive: "For the purposes of proving to final customers the share or quantity from renewable sources in an energy suppliers energy mix in accordance with Article 3(6) of Directive 2003/54EC…".

3.2.2 The Life cycle

When renewable electricity (green electricity) is produced – and the Production Device is approved in a certificate scheme in the EECS – the owner can choose to issue an EECS certificate. The certificate then contains all the information about when, where and from what Production Device this energy comes from. When the certificate is produced, the greenness is taken out of the electricity. Or expressed in another way: the green electricity that was produced, is "grey" when it is delivered into the physical electricity market. If the customer wants to buy renewable (green) electricity, the customer has to buy a certificate in addition to the physical electricity. This is shown in the figure below.

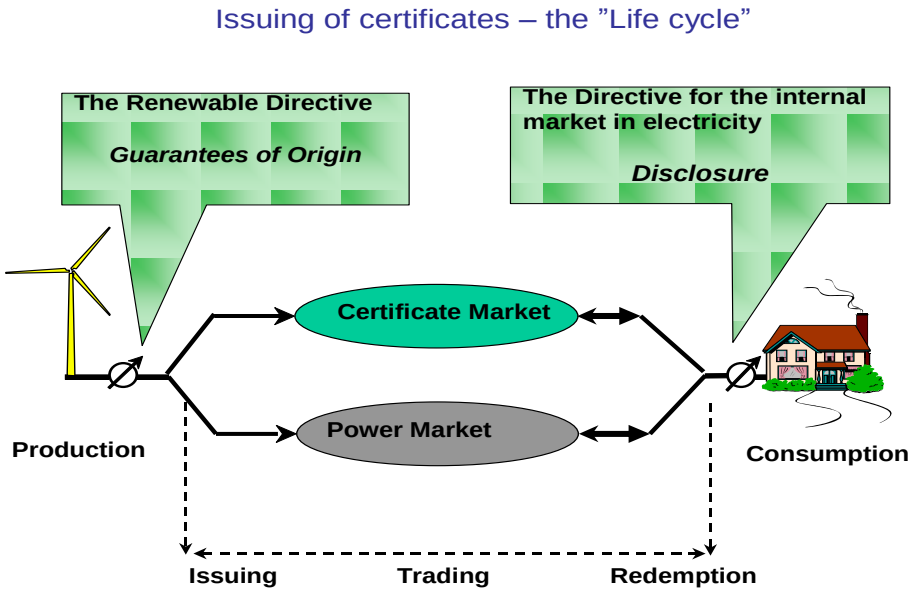

Figure 1: The Life cycle of a certificate

The certificate has no value when it is issued; it only contains information. The only reason why the certificate has a value in the market is that consumers are willing to pay for a certificate that “proves” they are using renewable energy.

3.2.3 Setting out how the market will operate

The European Energy Certificate System (EECS) is a framework for issuing, holding, transferring and otherwise processing electronic certificates and certifying attributes of the energy source and the method and quality for the production of the energy. There are many roles involved in a Certificate Market, and a generic Role Model is shown in annex 2. The Role Model is complex and shows all the different roles and functions that have to be carried out, but not who are executing the different functions.

The electricity is produced and fed into the physical Power Market like shown in the figure above. The electricity is then consumed. If the electricity comes from a Production Device that is approved for issuing of certificates, there are two main ways to collect data for issuing:

- Electronically, where production data is collected from electronic meters and certificates are issued for the whole production, or
- The owner of the Production Device registers a Production/Consumption Declaration when he wants to issue certificates

This is mostly a cost issue, where countries with low production of renewable energy normally choose to ask members to fill in a declaration and fax or mail it to the IB.

The ownership of the certificate – when it is issued – belongs to the owner of the Production Device. The owner may have his own account in the Registry, or he can choose to use an account holder to do trading or Redemption on his behalf. The certificate can also be transferred to another account holder (buyer) or exported to a buyer or account holder abroad.

3.3 Select, implement and test registry software or services

If the Domain Protocol is to be in line (or in compliance) with the regulation of the AIB, the Registry software has to be in line with chapter F "Processing of EECS certificates" and M "General", M5 "System tests" in the PRO and the Subsidiary Documents "Standards and Security for EECS Databases", AIB Transfer Interface Specification" and "EECS Registration Databases".

This is probably the main challenge for this project - to be "in line with the PRO and be able to apply for membership and approval of the AIB at some point in the future". Our experience is that the costs for registry and software are very often the main costs for being a member of the AIB. The development of registry software has to be in line with the stages of development described in the PDNA Business Plan.

Nevertheless, it is of course possible to discuss the alternatives and do some planning in order to be ready as soon as possible when the decision is made. There are two possible solutions to meet the demands in the PRO:

1. Buy a Registry or the Registry Services in the market, like Norway

2. Be a "co-user" of an existing Registry (like Slovenia using the Norwegian-Danish RECSCMO solution; https://www.recscmo.org/)

It is obvious that alternative two is the cheapest one, and a solution that quickly can be up and running after the decision of apply for membership has been taken (stage two or three).

3.4 Gain the approval of the Association of Issuing Bodies

As stated in the meeting, it is important for PSC and PAC to ensure that the SA DP is in line with the PRO and can be submitted for approval by the AIB if – and when – the decision is made to do so. Our understanding is that for the time being there are two main reasons why it is difficult to decide whether to apply for membership in the AIB:

- The costs for getting AIB approval is an obvious reason: the volumes of renewable electricity certificates in SA are still low; probably too low to justify an investment like this

- As a member of the AIB, SA has to allow for import of other RECS certificates. This import can affect support of local certificates (see 3.5)

The normal procedure is – when the draft DP and STC is finalised – to ask for membership and approval of the DP/STC. The AIB will then appoint two other IBs to

be in the assessment panel to review the drafts. On the reviewer's request, the applicant must explain any provisions that seems unclear and may be required to amend its DP/STC.

3.5 How a membership in the RECS chapter will enable trades through the EECS system; the costs, the value and possible income of this trade

Once membership for South Africa in the RECS chapter is approved, members of the CMO in SA can trade with members in all European countries that are members of the RECS chapter, like France, Austria, The Netherlands, Sweden and Norway.

The direct costs of membership in the AIB is not very high for the time being; small members, like SA, pay €5,000 per year for one scheme (the RECS chapter) plus 1 eurocent per MWh issued. The cost drivers for an Issuing Body are day-to-day operations (man-years) and Registry/software costs.

The main arguments for membership in the AIB are:

- A possibility for producers to earn extra money on renewable production,
- An opportunity for consumers to "clean" up their consumption and buy certificates from the cheapest supplier. An increasing number of European states are net importers of certificates, giving their consumers a possibility to reduce their "Carbon Footprint" by disclosing certificates from renewable energy sources. Use of certificates is normally much cheaper than CO_2 quotas, and can be used for the total electricity consumption, and e.g. the buyer can state in the annual report that the company is 100 % renewable.

The import of certificates can also affect support of local issued certificate, and the situation may arise where all potential buyers of certificates in SA choose to buy cheap certificates abroad, e.g. from old, big hydro power stations – and nobody buys RSA certificates. On the other hand, certificates not recognized in Europe can hinder exporting industries from using them; if the mother company or the buyer asks for renewable documentation that is recognized in Europe for the production and products, they will probably have to buy CO_2 quotas.

The European market is evolving, e.g. 90 million certificates have been issued in Europe so far this year – and 91 million are redeemed. In many countries there has been an interesting product development, where traders offer portfolio management, like preparing portfolios consisting of certificates from big hydro, new small-scale hydro (after 2007) and wind- and solar. A RSA membership may open up for a development where wind certificates from SA are sold for a "good" price to Europe and SA consumers can buy cheap certificates from Europe for to reduce their Carbon Footprint, because the value of certificates from wind and small-scale hydro is normally much higher than big hydro. There is of course also a risk that it will be difficult to sell RSA certificates in Europe.

Membership from SA - or being an observer – may not only speed up the process for handling certificates for heating and cooling, but also secures that the AIB takes into account the special challenges that may arise in developing countries. As an alternative

to membership, SA can ask to be represented on the GMs for a period of time, but the main work changing the PRO will probably take place in the working groups – where SA won't be allowed to participate without membership.

3.6 Certificates which are issued in SA and not redeemed could be accommodated under the SA-IB DP

Normal procedure in the AIB is that certificates issued before a Domain becomes a member of the organization and a scheme, will not be accepted as an EECS certificate. It is possible to ask for an exemption, but most likely the AIB will not accommodate certificates that are issued before the DP is approved, and the certificates issued must be handled by the issuing body that issued the certificate[3].

3.7 Analyze how the certificates can be used for verification and monitoring of a regulated production subsidy

The EECS certificate are uniquely identifiable and contain standard information like a unique certificate number, the Production Device identity, issuer and time of issue, type of technology, period of production and indication of whether public support has been received. This uniqueness is one of the reasons why a lot of European countries are using the EECS; it is a standardized and harmonized tradable certificate, but at the same time with a unique number so it is possible to track the certificate worldwide, so it can be used for monitoring of renewable production.

Figure 2 shows the multiple use of one MWh, which has been discussed in the AIB for some time. Some countries only use the certificate for Customer Rights (Disclosure), some use it both for Customer Rights and for monitoring Production Support – and some countries are also looking into the possibility for using the Certificate for Target counting (the 20-20-20 Target of the European Union).

[3] Norway experienced the same, when the renewable Directive was notified and a part of the Norwegian legislation in 2006. The certificates was not recognized as guarantees of origin before the formal notification process between EU and Norway ended.

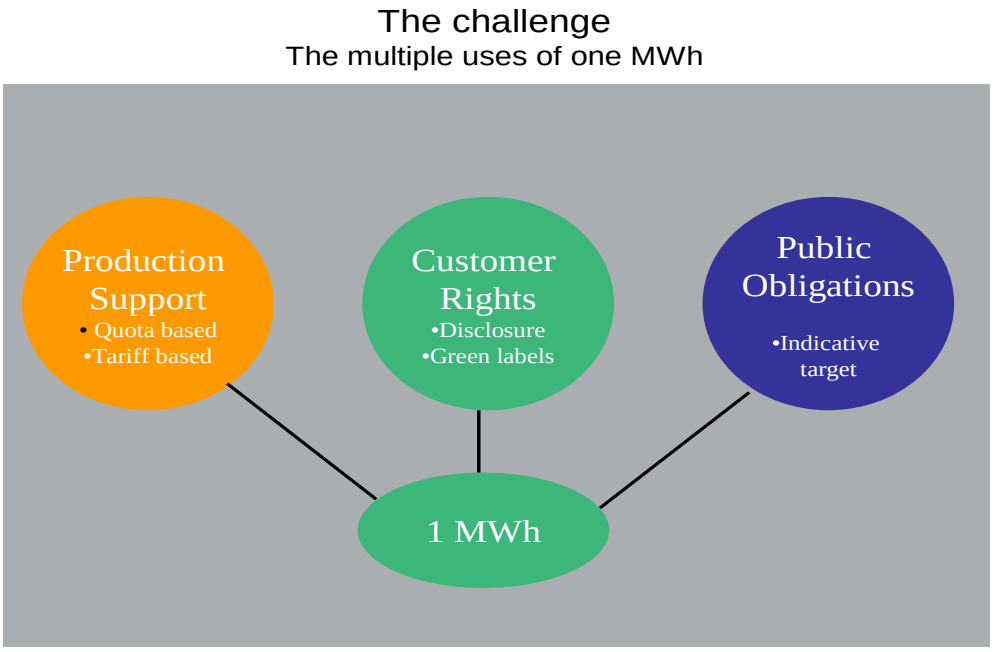

Figure 2: The multiple use of one MWh

This challenge may be solved in different ways, either by making two or three certificates for the same MWh for different purposes – or having only one certificate with the same information and use it for different purposes.

3.8 Investigate and advise (volume and price) which potential countries could buy South African RECS certificates in the EECS scheme.

All European countries that has a RECS scheme, could buy South African RECS certificates. That means countries like Austria, Norway, Sweden, Denmark, Finland, Germany, France, Ireland, Italy, The Netherlands, Portugal, Luxembourg, Spain, Slovenia and Switzerland.

The volumes in some of this countries are huge, both talking about import and export. This numbers can be found on the AIB web-site[4].

On this web-site http://www.icapenergy.com/US/emissions/Default.aspx listed prices for both RECS certificates and guarantees of origin are posted by the broker ICAP:

Statistical information on RECs transactions can be found on this web site: https://www.recscmo.org/public/statistics/statistics.asp

[4] http://www.aib-net.org/portal/page/portal/AIB_HOME/

Green certificates (RECS and GOs):

Product	Bid	Ask	Last
Hydro-08	-	0.04	0.02
Hydro-09	0.02	0.04	0.03
Hydro-10	0.09	0.12	0.12
Hydro-11	0.18	0.22	0.24
Hydro-12	0.27	0.32	0.30
Hydro-13	0.38	0.43	0.52
Wind-08		0.50	0.65
Wind-09	-	0.60	0.60
Wind-10		0.85	0.85
Wind-11		1.10	1.08
Wind-12		1.25	

*All prices € per MWh

Table 3-1 Certificate prices in the "ICAP market"

It is also said in the market that Belpex, a Belgian Green Exchange, are considering offering a market place also for RECS – but this in not confirmed yet[5].

3.9 Investigate and advice on security of access and transactions on the web based trading interface and how it should be accommodated in the SA-IB Domain Protocol.

As mentioned above, at least one broker offer a Bulletin Board for prices of RECS and GOs. But there is still not an exchange or trading platform to be used by traders in Europe.

Both sellers and buyers have to find each other bilaterally, and when a sale is completed (e.g. by fax), the seller has to transfer the certificates to the buyers through the CMO of his country to the CMO in the buyers country and to the buyers account – via the AIB HUB. The HUB provide a single point of access for members' registries; so facilitating testing and the transfer of certificate information between AIB members across Europe.

Both the sellers and buyers are connected to the CMOs of their Domains, and the different CMOs have different rules for security of access, e.g. in Norway the customers still use only a username and password, but other use different kind of security codes.

How this is arranged is not a part of the PRO, neither a part of the different Domain Protocols – but a question about level of security handled by the IB when buying registry software.

[5] http://www.belpexgce.be/Public/Content.aspx

4 RECS versus REFIT

RSA has established a Renewable Energy feed-in tariff mechanism (REFIT) to support the production of electricity from renewable production devices, REFIT. In the REFIT guidelines, it is stated that the Renewable Energy Purchasing Agency (REPA) is obliged to buy this electricity. As described in chapter 10 of the guidelines: "REPA shall be obliged to record the total annual cost of power purchased under REFIT including Wheeling Charges, calculate the difference with the cost of the same quantity of power produced at Avoided Cost, and to pass on this cost to consumers using existing 'pass through' arrangements."

The PRO of the AIB opens up for issuing certificates for renewable energy that also receive support, but do not accept any kind of double counting. This is described in Chapter A: Uniqueness: "The arrangements for issuing, transferring and Redeeming EECS Certificates should be such as to eliminate the possibility of more than one EECS Certificate being issued, registered or Redeemed in respect of the same megawatt hour of energy. The arrangements for issuing EECS Certificates should be such as to eliminate the possibility of EECS Certificates being Issued in respect of the same energy and attributes for which other tradable Certificates (other than EECS Certificates of a different type where specifically permitted by the PRO) have or will be issued."

Our understanding of the REFIT guidelines is that energy bought by REPA – where the costs are passed to the consumers through existing arrangements, is in compliance with the PRO. The certificates can in theory be issued and earmarked "Production support" and sold. But since REFIT is financed by electricity customers, these customers contribute to the production of green electricity, supported by REFIT, could be defined as double counting. We will therefore, at the time being, recommend not issuing certificates for production under the REFIT scheme.

But our understanding is also that IPPs producing renewable energy can sell directly to customers; this is described in more details in the PDNA Business Plan chapter 9.4.1: "All RE generators will require a generation license issued by NERSA in terms of the Electricity Regulation Act (Act No. 4 of 2006). Provided that this license has been issued, NERSA will permit IPPs to sell power directly to entities willing to buy renewable energy outside REFIT." This opens up for double selling and counting if it is possible to issue certificates and also sell the electricity as renewable energy.

This has to be changed. The easiest solution is not to allow IPPs to sell renewable electricity directly to end consumers, or – if they are allowed to do so – they have to include REC certificates in the supply with the same volume as sold electricity.

5 Interaction between TRECs and CDM projects

There are several key issues in the relationship between TRECs and the CDM. These stem from the ambiguity in the definition of TRECs in different systems, as well as conceptual and practical differences between TRECs and carbon offset credits. This chapter first explores whether TRECs are equivalent to CERs or other carbon offset credits. The later sections then examine the following questions:

- Whether the TREC issuance process can be used for monitoring and verification of CDM projects
- Whether purchasers of TRECs will buy from projects that are also receiving CERs
- Whether receiving TRECs would prevent these projects from being registered under the CDM
- Whether a renewable energy project in South Africa can receive both TRECs and CERs through the CDM

5.1 Why TRECs and carbon offset credits are not the same commodity

In the last decade, there has been growing confusion, particularly in North America, about the potential overlap between TREC (or RECs in some markets) and carbon offset projects (IEA 2004; Tyler 2007; Gillenwater 2008a; Offset Quality Initiative 2009). While the focus of this chapter is on TRECs and the CDM, the Certified Emissions Reductions (CERs) under the UNFCCC's Kyoto Protocol are a subset of a broader category of market mechanisms for environmental regulation called carbon offsets or carbon credits (Capoor & Ambrosi 2009). While the CDM is entirely governed under the UNFCCC system and has extensive rules and procedures, other parts of the global carbon market are less integrated, unregulated and may even have rules that are not equivalent (Hamilton et al. 2008). This has been particularly challenging in the retail segment, where companies providing carbon offsets to individuals and businesses often use their own certification system.

The confusion over TRECs and carbon offset credits goes back to the definitions of these environmental commodities. As Gillenwater discusses (2008a), TRECs were originally proposed in the USA in the mid-1990s as a tradable environmental commodity and accounting tool for renewable energy policies. One TREC unit was defined as one MWh of renewable electricity production, and did not include any other attributes or benefits of that electricity. TRECs were a "quota instrument" which could be used by utilities with a renewable energy purchase obligation to meet those requirements through an environmental commodity market.

Over time, the definitions of TRECs were widened to include other impacts or attributes of renewable power. TREC definitions are not consistent across many markets, but they often include other environmental "attributes" and some purport to "include all" of the environmental attributes. These attributes are usually not defined in detail, nor do they

distinguish between the direct impacts of the power generation (i.e. emissions from the renewable power plant) versus the indirect impacts (i.e. impact on emissions from other grid connected power plants). These REC systems, however, have not been able to provide that they convey legal rights to emissions allowances or reductions in emissions from regulated fossil fuel plants (Gillenwater 2008b).

There are three fundamental differences between TRECs and carbon offset credits (where CERs are one example of the latter): **additionality**, **ownership** and **quantification**. **Additionality** is essentially the argument that the project, and resulting emissions reductions, would not have happened without the incentive provided by the market mechanism (e.g. the revenue from TRECs or CERs) (Shrestha & Timilsina 2002). Additionality is fundamental to the CDM market and all other carbon offset markets, because without a stringent additionality test, the carbon credits used to offset emissions by the purchaser of the credits do not represent real reductions from "business as usual" (see, for example, Tanwar 2007). CDM projects can only be registered with the UNFCCC if they can demonstrate additionality via a number of tests, and this is verified by an independent auditor. In contrast, TRECs do not have any additionality tests. There is no requirement to prove that the revenue from the sale of TRECs was required to make the investment in renewable power. TRECs are awarded to any renewable power production, regardless of how this effects the economics and whether the plant would have been able to operate without this revenue (Offset Quality Initiative 2009). In practice, given the uncertain nature of prices and lack of long term contracts in the voluntary TREC markets, it is very unlikely that an investment decision for renewable power would be contingent upon the sale of TRECs. In this sense, voluntary TRECs represent something closer to a production subsidy for renewable power generators by consumers, rather than an offset mechanism or tradable commodity (Gillenwater 2008a).

In terms of **ownership**, TRECs also differ fundamentally from carbon offset credits such as CERs. TRECs could be defined to include a variety of direct impacts from renewable energy production, but this is different from indirect impacts on generation outside the generator site (Gillenwater 2008a). In other words, there is no legal framework in place in most countries that would allow a TREC owner to claim responsibility for impacts outside the site of the renewable power plant, nor would this be logical since these impacts are not under direct control of the owner (Offset Quality Initiative 2009). Under the CDM, the national government must not only approve a project application, but it must authorise the project owner to be able to receive the carbon credits – in this way the government allows the project owner in this case to claim credits for activities outside of their project site.

The final issue is the **quantification** of carbon benefits from TREC and CDM projects. Assessing the impact of a new renewable power plant on the operation and construction of other grid connected power plants is complex, because of how grid power systems are dispatched, monitored and planned (Bosi & Laurence 2002; Sathaye et al. 2004; Shrestha & Shrestha 2004). The development of the CDM rules on accounting for displaced power was the product of extensive research and debate about accurate, transparent, and feasible methodologies for assessing these impacts (Kartha et al. 2004; Shrestha & Shrestha 2004; Biewald 2005; Sharma & Shrestha 2006)[6]. The tools

[6] See ""Tool to calculate the emission factor for an electricity system" http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.pdf

approved within the CDM provide detailed steps for calculating emissions reductions from renewable power, in addition to the assessment of additionality, and monitoring the actual emissions reductions. There are no such procedures in TREC systems, and since the unit measurement is MWh and not tCO_2 reduced, equating TRECs with carbon offset credits quantitatively would be problematic.

In summary, TRECs are not functionally equivalent to carbon offset credits, so it is important that the definition of a TREC within the South African system does not include reference to emissions impacts or indirect emissions reductions. Such a broad scope of definition would only be appropriate if the TREC issuing process included additionality tests, provisions for transfer of ownership rights, and tools for calculating emissions reductions from renewable power.

5.2 Using TRECs for monitoring and verification of CDM projects

According to the modalities and procedures for the CDM under the Kyoto Protocol, all CDM projects must submit a monitoring report for each monitoring period (usually annually) to an external auditor (the Designated Operational Entity - DOE) for third-party verification. The details of what parameters must be monitored, the frequency of monitoring, instrumentation to be used and quality control, are specified first in the approved Baseline & Monitoring Methodology used for the project and then in more detail in the Project Design Document (PDD) (Spalding-Fecher 2002). The monitoring plan presented in the PDD is also audited by a DOE prior to the commencement of the project, to ensure that it meets all of the specifications of the selected approved methodology and the CDM rules (Kamel 2005).

Different energy technologies will in some cases use different approved baseline and monitoring methodologies. For grid-connected renewable energy generation from wind, solar, geothermal, tidal, wave and run-of-river hydropower, these would all use the same methodology ("ACM2 Consolidated baseline methodology for grid-connected electricity generation from renewable sources"[7]). Biomass residue power plants would use one of two main methodologies, and biomass power plants fed by dedicated energy crops would use still another. For each of these technologies, there are also simplified methodologies for small scale projects (i.e. less than 15MW)[8].

Each of these methodologies has very specific monitoring requirements, including metering instrumentation and monitoring intervals. While these monitoring procedures may be the same as what is required for the project owner to receive TRECs, the CDM Executive Board will not accept TRECs in the place of the monitoring report described above, nor would TRECs be evidence of generation without the inclusion of the underlying monitoring data being in the monitoring report submitted to the DOE (Grugni 2009). In other words, there will be some synergies in terms of time, expertise, collection and storage of data, but these processes must operate in parallel rather than one providing the basis for the other.

[7] http://cdm.unfccc.int/UserManagement/FileStorage/NF9EDAOV5K382HW0JR14GS7XYQUMCP

[8] See http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

5.3 Impact of TRECs on registration under the CDM

The CDM rules and procedures do not have any guidance on how TRECs should be considered specifically, but there are guidelines on how national policies for low emissions technologies should be incorporated into the approval process. The key issue here is not whether the project has received TRECs, but whether the revenues from TRECs might disqualify the project from the CDM.

One of the most important criteria for CDM project approval is that the project is "additional" to what would have without the CDM. In other words, the project is only made possible through the benefits of the CDM and would not happen anyway as part of "business as usual" activity (Shrestha & Timilsina 2002). The most common way to justify this is to present a financial analysis that shows that the project is not financially viable without the revenue from the sale of CERs (Greiner & Michaelowa 2001). The financial analysis generally must include all government incentives as well as private costs and revenues, so would be expected to include revenue from the sale of TRECs (Grugni 2009). If the sale of TRECs meant the project is financially viable without CER revenue, then the project could no longer qualify for CDM.

The CDM Executive Board has ruled, however, the national policies that give comparative advantage to low emission technologies and that were enacted after 11 November 2001 (i.e. the date when the CDM modalities and procedures were agreed internationally) do not need to be considered when formulating the baseline. In this case, the project could be evaluated using a hypothetical situation where the incentive was not in place. The reason for this is to prevent a "perverse incentive" for countries to not implement sustainable development policies for fear that they would lose CDM opportunities (Bode & Michaelowa 2003; Winkler 2004). For a policy to not be considered, it must fall under the definition, "National and/or sectored policies or regulations that give comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies." The question, therefore, is whether the TREC system is a "national and/or sectored policy", since it clearly gives advantage to low emissions technologies. This depends on how the TREC system is implemented. If it is a system that falls under government as a national policy, then it could potentially meet these criteria, and the revenue from TREC sales could be excluded from the financial analysis proving additionality. But if the programme sits outside government and it not clearly a national government policy, it would probably not meet this criteria, so all TREC revenue would need to be included in the additionality assessment.

In practice, the impact of revenue from TRECs is likely to be much less than the feed-in tariff incentives from REFIT, for the technologies that qualify. In addition, because renewable power project developers are unlikely to be able to secure a long term contracts for sale of TRECs, their financial models are unlikely to include TREC revenue in any case (Gillenwater 2008a).

The study team for this project also interviewed officials from the South Africa Designated National Authority (DNA) to confirm that there were no conflicts between the South African CDM rules and procedures and the proposed TREC system. The South Africa regulations for the DNA do not mention any links to TRECs or other support mechanisms (DEAT 2005). The South African DNA officials also stated that there are no rules against TREC projects applying for CDM, nor are there any restrictions on the use of various renewable energy support mechanisms for CDM projects (Mukwevho 2009).

5.4 Impacts of CDM registration on sales of TRECs

While South Africa is developing its TREC system to be broadly compatible with other trading systems, the reality is that the experience in international trade in RECs and TRECs is very limited (Kaufman 2005; Tyler 2007). There are only a handful of examples, so most of the demand for South African TRECs is likely to come from South African buyers. Given the differences in these mechanisms discussed earlier in this chapter, this should be allowed in the TREC system, and this can be done by add CDM on the list of different supports.

In terms of international buyers, unlike the CDM, where all of the rules come from a single international body, the voluntary renewable energy certificate markets take different approaches to how carbon credit earning projects are addressed. One of the domains in Belgium does not allow the purchase of TRECs from generators that are also receiving carbon credits. Many of the European domains, however, do not have this restriction. In addition, REC marketers in Europe typically do not claim that they are transferring ownership or rights to claim emission reductions or refer to those attributes (P Niermeijer, Secretary General RECS International quoted in Gillenwater 2008b). The Chicago Climate Exchange requires that project owners retire any RECs before they can receive carbon credits within the CCX system (Tyler 2007). Most of the USA state programmes do not make any reference to carbon credits. In summary, whether there are restrictions on purchasing TRECs from carbon credit projects will depend on the Domain and perhaps even the policies of individual buyers.

5.5 Marketing both TRECs and CERs from renewable energy projects in South Africa

The question from the point of view of the project owner is whether they can potentially benefit from two additional streams of revenue based on the environmental benefits of renewable power implemented in a predominantly fossil fuel powered electricity system. The conceptual issue of whether TRECs and carbon credits (e.g. CERs) represent different environmental qualities of renewable power has been discussed in detail in section 5.1. The conclusion from that analysis was that TRECs and CERs represent conceptually different attributes of renewable power, because of issues of additionality, ownership and quantification.

The practical issues are different, however, and basically come down to whether the Domain Protocol for South Africa allows the issuance of TRECs to projects earning carbon credits (which is up to the individual Domain) and whether buyers have any restrictions on buying TRECs from carbon credit-generating projects. As discussed in section 5.3, there is no barrier to projects that receive TRECs also applying for CERs, as long as the benefits of TREC sales are appropriately included in the CDM application. Then as discussed in section 5.4, whether a CDM project can also receive TRECs depends on the rules in the South African Domain Protocol. Whether an international buyer would have reservations about purchasing TRECs from a registered CDM project is largely based on the preferences of the buyer, unless that particularly domain has restrictions.

6 Investigate and advise on potential tax implications

The two relevant taxation issues are (1) whether the TREC itself attracts any type of tax and (2) how the revenue from the sale of a TREC is taxed. On the first question, normally a RECS (or TREC) certificate in Europe is seen as "informational" certificate without any value (i.e. not as a tradable security), so would not attract tax from VAT or other sources.

The revenue from the sales of TRECs is another question. Without special dispensation from SARS, this income would be taxed as normal company income in terms of Company Tax regulations. However, it is possible that TRECs might get the favourable tax treatment that has been granted to CERs. In 2009, the Finance Minister announced, as part of a series of tax proposals aimed at introducing certain environmental fiscal reforms, favourable tax treatment for revenue from CERs. Effective from February 2009, the Income Tax Act (1962) was amended to provide for tax exemption for income from the sales of CERs (National Treasury 2009). The same 2009 tax amendment act also provides for special treatment of "energy efficiency certificates", but this is different from the treatment of CERs. Businesses are allowed to claim a tax deduction against their income equal to half the monetary value of the energy savings they achieve under a certificate programme.

This favourable tax treatment for CERs was partly the result of sustained interaction between local carbon market experts and industry players with National Treasury. The South African CDM Industry Association (SACDMIA), for example, played a major role in working with National Treasury to implement this incentive to support the industry (Gilder 2009). A similar effort by stakeholders in the TREC market in South Africa could potentially also lead to a similar treatment for TRECs.

7 Investigate what other developing countries are doing and describe potential tradeoffs between CDM CERs and TRECs

The tradeoffs between CERs and TRECs have largely been addressed in chapter 5, but it is useful to look at experiences in other developing countries. This trade off discussion is relatively recent because TRECs are only emerging in developing countries very recently. No developing countries have Domain Protocols that have been accepted by the AIB – so South Africa is potentially the first.

The leading countries for the sale of CERs are China, India, and Brazil with shares of expected CERs up to 2012 of 59%, 12%, and 6%, respectively[9]. The rules of procedures for CDM project approval for these three countries do not mention TRECs or any similar instrument, so there is no interaction from the side of local CDM regulation[10].

For **China**, the RE Law Assist Programme prepared an analysis of the Chinese Renewable Energy Law in June 2007 (Baker & McKenzie et al. 2007). This analysis covered all of the provisions of this law, and did not identify any content related to TRECs. The authors did, however, note that a TREC system would be helpful to supporting the implementation of utility level renewable energy targets.

Brazil investigated TRECs as part of the Renewable Energy and Energy Efficiency Partnership (REEEP) (do Valle & La Rovere 2004). The TREC programme was dropped, however, after a series of market reforms and major changes in regulations in the Brazilian power market in the last several years (La Rovere 2009).

India has been developing a REC system for several years, with many proposals from experts in the field on how this system should be implemented (See, for example, Goyal & Jha 2008; Singh 2009). The Central Electricity Regulatory Commission promulgated the regulations for the REC system on 14 January 2010 (CERC 2010b). The primary objective of RECs in India is to implement interstate renewable energy transactions and simplify the compliance of individual states in renewable energy purchase obligations (RPO). The regulations do not refer to any carbon markets or regulation of those markets. In fact, in the supporting document to the regulations on "Statement of Objects and Reasons", two stakeholders asked about the relationship between RECs and CDM. The reply from CERC was that, "REC and CDM are different mechanisms. CDM is beyond the scope of this regulation." In response to a query about whether RECs and CDM could use a similar accreditation and certification process, the CERC replied that this was, "not envisaged in the regulation and is aimed for meeting RPO compliance only though RECs" (CERC 2010a).

[9] http://cdm.unfccc.int/Statistics/Registration/AmountOfReductRegisteredProjPieChart.html

[10] See China http://cdm.ccchina.gov.cn/english/NewsInfo.asp?NewsId=905, Brazil http://www.mct.gov.br/index.php/content/view/37146.html, and India http://www.cdmindia.nic.in/host_approval_criteria.htm

8 Solar Water Heating (SWH)

8.1 Solar water heaters in different countries

Direct grants and subsidies are the most prevalent schemes to promote installation and use of SWHs. Accelerated depreciation schemes for commercial and public applications are also other schemes used in few of the countries. A general overview of some of the schemes implemented is presented below[11]:

- In Florida (USA), under the 'Solar Weatherization Programme', low income households were given free SWHs to replace electrical water heaters so as to lower the share of the energy cost in their budget;

- Australia has policies to promote the use of SWH to reduce the electrical load under the Renewable Portfolio Standard, under which, all SWHs replacing electrical water heaters are allowed to obtain green certificates, which are marketable;

- New constructions of government-owned housing in Namibia are not allowed to install water heaters other than SWHs;

- In Mexico, rather than giving direct financial incentives, the policy is targeted towards creating an enabling environment with roundtable talks between the sellers and potential users and developing a virtual marketplace;

- SWHs in Barbados are supported through different mechanisms. The Fiscal Incentive Act of 1974, which made provisions for import preferences and tax holidays, 30% consumption tax on electric water heaters are some of the mechanisms that helped to make SWH competitive.

8.1.1 Australia

Renewable Energy Certificates (RECs) were introduced by the Australian Federal Government as an incentive to switch to renewable energy sources to ensure Australia meets its international commitments in reducing greenhouse gas emissions.

The installation of a solar water heater may be eligible for the creation of RECs if it is accredited by the Office of Renewable Energy Regulator (ORER) and results in a positive greenhouse gas benefit. Once created RECs can be traded, purchased or sold, thereby making a solar water heater installation cheaper for the owner. Electricity suppliers are obliged to purchase a certain share of electricity from renewable energy sources and they can buy these green certificates to meet their obligation. Typically, a SWH will receive between 10 and 35 certificates with an electricity equivalent of 1 MWh over its lifetime.

The value of RECs is not fixed, and the financial benefits of RECs varies depending on the model and climate zone but could be worth over AUS$1000 on the most popular

[11] UNEP, http://ekh.unep.org/files/GP-7.pdf

models. In addition to the RECs, The Australian Federal Government is providing rebates of $1600 in eligible circumstances to install solar and heat pump hot water systems to replace electric storage hot water systems in existing privately owned homes. The rebate is offered for systems installed on, or after 3rd February 2009 until March 2012, subject to the availability of funds. To be eligible for the rebate, a hot water system must:

- replace an electric storage hot water system;
- be purchased and installed on, or after 3 February 2009;
- be a solar or heat pump hot water system that is eligible for at least 20 RECs at the time and place of installation;
- be installed by a suitably qualified person (for example an electrician or plumber);

In addition the dwelling where the hot water system is installed must be a principal place of residence, and the household must not have already accessed the Insulating Australian Households Rebate.

In addition to the Federal rebates, a number of States and local governments also provide rebates on purchase and installation of SWH systems, which vary according to size/type of system or amount of greenhouse gas emissions saved, determined by the eligibility of the system for Renewable Energy Certificates (RECs).

When added together, these various financial incentives and rebates become very significant. Table 8-1 below summarizes the total rebate available for a typical household who replaces their electric storage water heater with an electric boosted SWH model with a 260 litre capacity[12].

Table 8-1 Total rebate available for a typical SWH installation

	State							
	NSW	**QLD**	**SA**	**VIC**	**WA**	**TAS**	**NT**	**ACT**
RECs Value*	$1020	$1020	$1020	$884	$1020	$884	$1140	$1216
Federal Rebate	$1600	$1600	$1600	--	$1600	$1600	$1600	$1600
State Rebate	$800	--	$500	$2300	--	--	--	--
Total rebates	$3420	$2620	$2620	$3184	$2620	$2484	$2740	$2816

** RECs Value as at 7 July 2009*

[12] http://www.solahart.com.au

8.1.2 United States

According to a recent survey of solar market developments undertaken for the Interstate Renewable Energy Council (IREC)[13], various state programmes to promote adoption of SWHs, coupled with Federal and state incentives, have had a big impact on the solar water heating market in the past few years.

The main Federal incentive to promote installation of SWHs is the tax credit which is available at 30% of the cost, with no upper limit through to 2016. Related to this, in 2009, Energy Star began to include water-heating equipment in its line of branded products. The tax credit is only available to homeowners who meet specific criteria, which include:

- At least half of the energy generated by the "qualifying property" must come from the sun.
- Homeowners may only claim spending on the solar water heating system property, not the entire water heating system of the household.
- The credit is not available for expenses for swimming pools or hot tubs.
- The water must be used in the dwelling.
- The system must be certified by the Solar Rating and Certification Corporation (SRCC).

In addition to the tax incentive, a new information service from U.S. Department of Energy and new programme planning tools from National Rural Electric Cooperative Association's (NRECA) and other sources support rising utility interest in solar water heating options.

State programmes for promotion of SWHs have focused on dissemination of information on the technology. Focus has also been given on providing general information and tools which can be used by numerous utilities. For example, NRECA's Cooperative Research Network (CRN) released a study on *Solar Water Heating Best Practices and Economics for Electric Cooperatives*, which gives practical tips for local utilities facing challenges to SWH installation. It also includes a spreadsheet-based economic assessment tool. In Colorado, public power utilities may benefit from similar tools, sponsored by the Colorado Governor's Energy Office, with outreach support from the Colorado Solar Energy Industries Association.

Another resource is the U.S. DOE Utility Solar Water Heating programme, (USH2O). This programme supports networking among utilities, trade allies and stakeholders who are interested in solar water heating. Sixty utilities, including co-ops and public power systems, are active in USH2O. They come from Sunbelt utilities, like Salt River Project and Silicon Valley Power, and also from northern locations, like Eugene, Ore., and Ontario, Canada. They share technical and marketing expertise and follow important policy development through the Web site and through free monthly conference calls.

[13] Larry Sherwood, "U.S. Solar Market Trends 2007", IREC, August 2008

The outcome of the above Federal and local incentives and programmes is that Solar water heating nationwide in the US grew by 240 percent in 2006, when the Federal tax credit became available. In 2009 the cost-cap for the 30-percent Federal tax credit for solar water heating was removed, enlarging the total incentive for most customers, and the market is growing faster than ever. In 2008, Colorado saw more new solar water heating systems than California did, suggesting the combined strength of the Federal tax credits along with strong state-based promotion.

8.1.3 Greece

For many years Greece had the highest per capita-collector area within Europe, although currently, it currently occupies third place behind Austria and Cyprus with an area of 263.9 m^2 per 1,000 inhabitants (equals 184.7 kWth/1,000 inhabitants). The market for SWHs has reached a critical size and is now self-supporting, and currently there is no governmental promotion of solar water heaters on household-level. For this reason, the programme for tax deduction of investment costs is analyzed, which was in place until the end of 2002.

In Greece, a variety of factors are considered to have contributed to the success of solar water heaters. Of crucial importance was the promotion of SWHs through tax credits from the end of the 1970's (Law 814/1978, Law 1473/1984) until 1991. By off-setting investment costs (maximum 40,000 drachms, or approx. € 120) against his taxable income, the customer could reduce investment costs for a system by up to 40 %. As between 1991 and 1993 a clear decline in sales was observed, the Greek Ministry for Development introduced another programme for the period from 1995 to 2002. The programme was open to all SWHs for private households which served hot water generation on household level.

In parallel with the introduction of the tax credit, campaigns and information dissemination strategies were also adopted. The Greek solar industry association *EBHE*, established shortly before the programme was launched, arranged intensive publicity and information campaigns. With governmental support *EBHE* broadcasted commercials in 1984 and 1986 and started collaborating with "Public Power Corporation (*PPC*)", a large utility, in 1994/1995 in order to push the distribution of solar water heaters. Posters and leaflets in the branches of *PPC* as well as material attached to the power bill promoted SWHs. The information work was not limited to households, but also informed the construction industry and their relevant players.

Although research and technical advances of systems played a minor role, a variety of national quality standards were defined at the end of the 1980's and continuously adjusted. Nowadays, almost all products fulfil these standards which in fact are not binding. When implementation of the promotion started, there were almost no qualified personnel which could guarantee a professional installation. Therefore, large producers decided to establish shops where they offered not only their systems but also installation, maintenance and required repair of their products.

Incentivized by the possibilities of tax deduction, the Greek market for SWHs experienced a growth from 1.7 million m^2 installed collector area in 1990 to 2.8 million m^2 in 2004. Therefore, about 25 percent of all households dispose of a solar water heater which covers more or less 80% to 90% of total hot water consumption. Accumulated energy generation with solar water heaters amounts to 4.32 PJ, which is equal to an annual saving of 280 GWh (substitute electricity/sun).

Although the Greek market currently receives no financial support in terms of a governmental promotion anymore, the second biggest market in Europe did not experience a slump with regard to newly installed collector area.

8.2 Compliance with the EECS and the PRO

In the rules of the AIB (the PRO), solar is recognized as renewable in the form of photovoltaic and thermal for electricity production. Solar water heating is for the time being not a part of the PRO. There is a huge push for solar water heating (SWH) in South Africa. The Integrated Resource Plan 1 (IRP1) gives effect to the following policy objectives: "Installation of 1 million solar water heaters in selected areas and in accordance with the Solar Water Heating Framework".

Reliability, trust and confidence is a cornerstone in the EECS and the PRO; as stated in the PRO[14]: "Certification of the quality and method of energy output provides an efficient mechanism for accounting for: the quality of energy supplied to consumers and its method of production; the progress made towards targets for the use of sustainable energy technologies; and the production and consumption of energy for the purposes of stimulating investment in sustainable energy plant. Moreover, certification enables a value to be accorded to specific types of energy output and traded separately from the energy itself.

For a system of energy certification to discharge these functions effectively, users of the Certificates – producers, traders, suppliers, consumers, NGOs and governments – must be satisfied that the Certificates provide reliable evidence of the qualities to which they relate. The EECS framework functions to ensure that all such users have confidence in the Certificates issued and processed by AIB Members under EECS."

How to secure the certificate as reliable evidence is stated in the Domain Protocol template, chapter F, Production Data: "Only Production Devices that are equipped with metering equipment that complies with the relevant regulations for the trading of generation energy shall be registered. The metering equipment may measure on a scalar basis (meter advance only) or on a period basis (energy measured in units of time) according to the regulations." This is also a part of the RECS chapter; see 3.2.1: RECS qualification criteria. For the time being the AIB will not accept certificates from SWH, due to the lack of appropriate metering.

The General Secretary of the AIB has confirmed that they have started the work on changing the PRO, as a first step to change the chapters to refer to electricity; biogas etc instead of RES GO, CHP GO etc., but also indicating where there is a linkage to legislation. He has also confirmed that, since the new renewable Directive introduces GO for heating and cooling, the AIB will look into certificates for heating and cooling in 2010/11. Nevertheless, based on the aim of the use of certificate, there is no reason to believe that the AIB will accept certificates from hot water production that is not metered (more or less all hot water production (e.g. District heating) in Europe is metered).

[14] The Basic Commitment; the PRO, page 13 (Preface)

8.3 Consequences for the South Africa voluntary market

RSA have then the following possibilities:

- Install meters on all the SWHs;
- Make a DP including SWH
- Make a DP in line with the EECS system of the AIB for hydro, wind etc, and in addition make a national scheme/solution/DP for SWH (like Australia) and other potential sources not covered by the EECS, or include SWH in the REFIT mechanism

Installing meters on all SWHs is probably not a good idea because of the costs involved; we believe that a lot of these SWHs are rather small.

Making a DP that includes SWH may give RSA a Domain Protocol which is not in compliance with the EECS/the PRO, depending how SWH is accommodated in the DP. Since it is not recommended that South Africa is now applying for membership in the AIB, for the time being, it will not be possible to participate in international trade. It may give RSA extra costs for making the certificate scheme (e.g. software and systems), and give RSA additional costs for preparing the DP in compliance with the EECS at a later stage[15].

The third alternative is to make a DP in compliance with the EECS system, handling renewable energy production that is measured, and look into the possibility of establishing a national scheme for SWH and other products that are not metered.

Annex 5 gives a description how Australia has made their renewable scheme. The Renewable Energy Certificate scheme of Australia both covers measured renewable electricity from photovoltaic systems, wind systems and hydro systems, but also certificates from unmeasured SWHs where the devices receives a pre-defined numbers of certificates based on the size and lifetime of the SWH. Australia has made the scheme as a quota scheme, where suppliers of electricity are obliged to buy certificates.

Australia seems to have chosen alternative two above, and made one Scheme (or Domain protocol) covering both measured and unmeasured renewable production – where the scheme is a national scheme where the certificates are not internationally tradable. The solution is supported by the Government, and controlled and supervised by the Renewable Energy Regulator. This may also be a solution also for South Africa.

[15] The consultants experience with the AIB, after having been a Board member in the organization, is that if the AIB develop a solution for un-measured production of renewable in the future, it will be a new scheme outside the EECS, probably with a Domain Protocol designed for these products.

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Annex 1: Check list for setting up a Certificate market

When setting up a certificate scheme in accordance with the rules of the AIB (EECS), most of activities are given by the Domain Protocol template (DP) and the Standard terms of conditions (STC). Below the most important tasks are set in a check list to guide the responsible persons through the process:

Setting up a Certificate market:

- Put together a project team and form a tentative Issuing Body:
    - One responsible for software and registry
    - One responsible for DP/STC
    - One responsible for Agreements (PR, AB and MB) and data collection (metering data)
    - One responsible for recruiting members; both producers and buyers – including fees and rules for invoicing
- Go through the scheme definition (chapter D), and check that the definition in the chapter is in accordance with the national legislation
- Decide if the CMO, Production Registrar(s) and Auditing Body (Bodies) should be a part of the IB or outsourced
    - If one or more are outsourced, prepare the necessary agreements (the IB is still responsible for how the functions are performed)
- Decide/choose the Measurement Bodies (normally the grid operators)
    - Make sure that metering regulation (metering codes) are updated in chapter F
    - Decide how often metering values should be reported and how (depending on rules about how often to issue)
- Elaborate the Production Declaration; special rules for reporting, how often should it be declared etc., including processes and procedures to declare support
- Elaborate rules for scheme participation; e.g. fee for membership, fee and rules for export, transfers etc (how to notify, need of documentation etc)
- Elaborate rules for registration of Production Devices; what information do the IB need from the owner of the Device, contact persons, address, site visit etc
- Decide how and what to report in the market;
    - establish a web based solution for information,

- how to contact the IB, press releases,
- elaborate market reports to members
- solution for electronic registration of new members and production devices
- Bulletin Board where prices can be listed

When draft of DP and STC are finalized: Start the approval process of the AIB:

- Contact the General Secretary of the AIB; the GM of the AIB will select an assessment panel consisting of two members of the AIB
- Elaborate the final DP/STC together with the assessment panel; when finalized the DP/STC has to be approved by the GM
- Start testing software against the AIB HUB

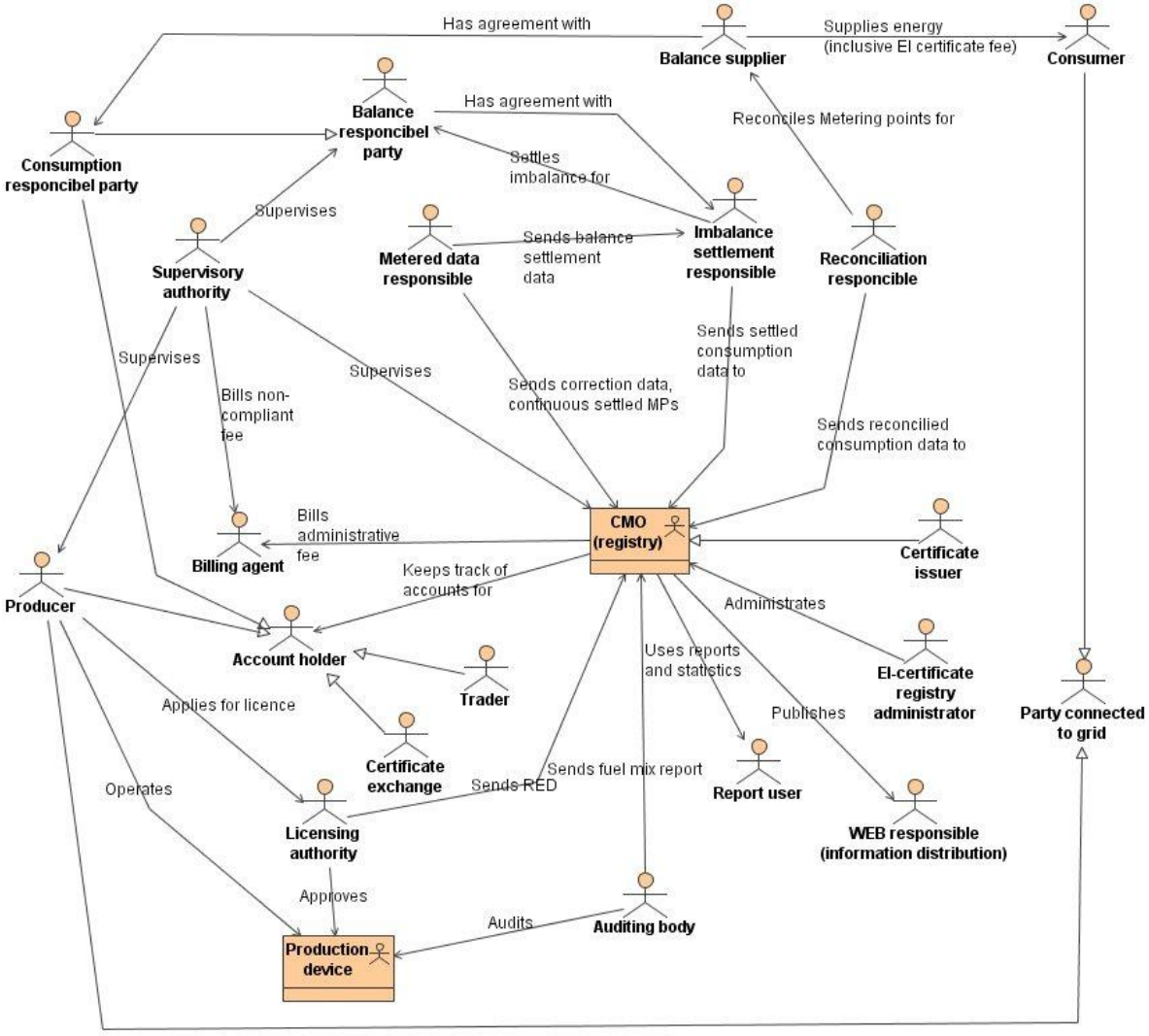
This process takes normally between 6 and 9 month

Membership of the AIB:

- Sign agreement, chose representative(s) for GM meetings
- Membership fee (2010):
  - 5000 € (small customers)
  - 1 eurocent per MWh issued
- Participate in GMs/conferences to meet potential buyers
- Participate in AIB working groups

Annex 2: Role model for El-certificates

There are many roles involved in the El-certificates business process area. Below is shown a class diagram where the main relations (responsibilities) for the roles involved are shown. The diagram is based on the ebIX Modelling methodology and the ebIX, ETSO and EFET Harmonised role model.



UseCase diagram – Role model for El-certificates

The role model as shown in the pictorial diagram makes use of essentially four symbols:

1. A stickman symbol to indicate roles which are assumed by market participants;
2. A rectangle symbol to indicate roles which are related to physical or structural breakdowns
3. An arrow symbol with a light arrowhead to indicate the principal relationships (responsibilities) between the different objects. The arrow generally only shows one aspect of the relationship, which is that of the object at the tail of the arrow to the object at the head of the arrow.
4. An arrow symbol with a thick arrowhead to indicate that the object at the tail of the arrow is a specific type of the object at the head of the arrow.

Annex 3: Chapter 2 of the PRO: RECS Certificates

1. INTRODUCTION

1.1 RECS is hereby established as an EECS Scheme.

2. DEFINITIONS

2.1 In this Chapter, unless the context otherwise requires or there is express provision to the contrary, terms shall have the meanings respectively ascribed to them below:

TERM	DEFINITION
Consumption Declaration	a declaration with respect to the fuel sources of a Production Device (including the electrical energy used in pumping water to be used by the Production Device);
Nett Electrical Energy Generation	the gross electricity production of a Production Device as evidenced by measured values collected and determined by an Authorized Body (or where appropriate an Approved Measurement Body) with reference to its Import and Export Meters (adjusted by meter amendments and the outcome of any disputes) minus the demand of any generating auxiliaries and minus losses in the main generator transformers on the site of the Production Device;
Production Declaration	a request to a Scheme Member for the Issue of RECS Certificates in respect of a particular Production Device and period of time;
RECS	the RECS Scheme established under this Chapter 2 together with the Domain Schemes in respect of the Domains of RECS Members;
RECS Certificate	an EECS Certificate Issued under a RECS Domain Scheme;
RECS Domain Scheme	The Domain Scheme establishing RECS in a Domain;
RECS Member	a Member which is for the time being a Scheme Member of RECS;
RECS Participant	a Domain Scheme Participant with respect to RECS
RECS-I	an Association constituted in accordance with the Belgian law of 27 June 1921 (as amended) under the name of "RECS International" with a company number of 6120/2003;
RECS Qualification Criteria	The criteria set out at section 4; and Redemption Statement A non-transferable electronic or printed receipt for providing evidence to non-Domain Scheme Participants of RECS Certificates acquired by a Domain Scheme Participant in support of a label or branding exercise.
Renewable Source Factor	in relation to any Production Device and period of time the proportion expressed as a factor of less than one of the Nett Electrical Energy Generation of that

Production Device which is RES-E, as specified (consistently with the terms of the relevant Domain Scheme) in the Production Declaration for that Production Device with respect to the period over which the electricity was generated.

3. APPOINTMENT TO CONDUCT RECS REGISTRATION FUNCTIONS

3.1.1 The Appointment Criteria with respect to the proposed Domain of a prospective RECS Member are that the AIB is notified by RECS-I that it (on behalf of relevant members of RECS-I) approves of the assumption by the relevant Member of responsibilities under the PRO as the RECS Member with respect to that Domain.

3.1.2 The Scheme Members of RECS and their respective RECS Domains are set out in the PRO Fact Sheet "RECS Members"

4. RECS QUALIFICATION CRITERIA

4.1. The criteria for Production Devices to qualify for registration for the purposes of RECS (the "RECS Qualification Criteria") are:

(a) that the Production Device is capable of generating RES-E;

(b) that the owner of Production Device will not during the period of its registration for the purposes of RECS and for the same unit of electrical energy receive tradable evidence such as Certificates which represent the benefit of renewable electricity generation from both RECS and another similar system that similarly certifies the origin or represents the benefits of the associated renewable electricity and can be exchanged for financial support; and

(c) that the owner of the Production Device agrees that information recorded with respect to the Production Device on the EECS Registration Database may be made available in printed or electronic form to any EECS Participant.

(d) the metering arrangements for the electrical inputs and outputs of the Production Device (including electrical energy consumed in pumping water for use by that Production Device) satisfy the legislative and administrative requirements applicable in the relevant Domain (including the requirements of the Domain Protocol).

5. PRODUCTION DEVICE REGISTRATION

5.1 The procedures of a RECS Domain Scheme for the registration of Production Devices for the purposes of RECS shall be such that a person applying to register a Production Device in an EECS Registration Database for the purposes of RECS is obliged to provide the following information to the Scheme Member and to guarantee its accuracy:

(a) details of any Public Support has been, or is due to be received by any person in relation to the Production Device; and

(b) details of any prior infringements by itself or any Affiliate of the terms of any Domain Scheme with respect to RECS.

5.2 A RECS Domain Scheme's procedures for the registration of Production Devices for the purposes of RECS shall be such that a person applying to register a Production Device in an EECS Registration Database for the purposes of RECS is obliged to guarantee that the owner of the Production Device will

not during the period of its registration for the purposes of RECS and for the same unit of electrical energy receive tradable evidence such as Certificates which represent the benefit of RES-E generation from both RECS and another similar system that similarly certifies the origin or represents the benefits of the associated renewable electricity and can be exchanged for financial support.

5.3 A RECS Domain Scheme's provisions with respect to the maintenance of the EECS Registration Database shall be such that the Registrant of a Production Device for the purposes of RECS shall be obliged to re-apply for registration for the Production Device on each occasion that it notifies the Scheme Member of changes that have occurred, or are planned, with respect to that Production Device, which as the case may be, have resulted in, or will result in, the information recorded in the EECS Registration Database with respect to that Production Device becoming inaccurate.

5.4 A RECS Domain Scheme's provisions with respect to the maintenance of the EECS Registration Database shall be such that a Production Device shall cease to be registered for the purposes of RECS where a Registrant fails to re-apply for registration in the circumstances referred to in section E2.3 or fails to comply with requirements of the Domain Scheme consistent with section 5.5.

5.5 A RECS Domain Scheme shall provide that the Scheme Member shall conduct a Production Audit in relation to each Production Device in that Domain which is Registered for the purposes of RECS:

(a) no less than once every five years; and
(b) where such Production Device is fuelled in whole or in part by biomass, to less than once a year.

5.6 A RECS Domain Scheme's provisions with respect to the maintenance of the relevant EECS Registration Database shall be such that RECS Participants are provided with access to information held on Production Devices registered for the purposes of RECS.

6 RECS CERTIFICATES

6.1 The provisions of a RECS Domain Scheme shall be such that no RECS Certificate shall be issued in respect of:

(a) any electricity which has been found not to be RES-E; or
(b) any Production Device which is not registered for the purposes of RECS in the EECS Registration Database for the relevant Domain.

6.2 The provisions of each RECS Domain Scheme shall be such that each RECS Certificate Issued hereunder indicates:

(a) that the Domain Scheme under which the RECS Certificate was Issued requires the Registrant of the Originating Production Device to notify the Scheme Member of any Public Support with respect to the Originating Production Device;
(b) in the manner specified in section E3.1.1(k), whether, and if so what type of, Public Support has been received by the Originating Production Device;
(c) indicate, the Nominated Capacity, in kilowatts, of the Originating Production Device;

6.3 The provisions of each RECS Domain Scheme shall be such that where the preconditions of that Domain Scheme with respect to the Issue of RECS certificates have been met, RECS Certificates shall be Issued in respect of the RES-E (in whole MWh) specified by the Registrant of the Production Device, or an Account Holder duly authorized on its behalf, in a Production Declaration (with respect to the relevant Production Device and period), in accordance with provisions consistent with sections 6.4 and 6.5.

6.4 The provisions of each RECS Domain Scheme shall be such that RECS Certificates shall not be Issued in respect of any RES-E specified in a Production Declaration where the Scheme Member is not in receipt of measured values of RES-E production, collected and determined by an Authorized Body (or, where appropriate, an Approved Measurement Body) which, having regard to the relevant Consumption Declaration where relevant, corroborate the amount so specified.

6.5 The provisions of each RECS Domain Scheme shall be such each RECS Certificate Issued hereunder has a Face Value of:
(a) 1 MWh;

6.6 The provisions of each RECS Domain Scheme shall be such that:

(a) where the Production Device only produces RES-E, the amount of RES-E determined for the purposes of RECS as having been produced by a Production Device shall be the amount of Nett Electrical Energy Generation produced by that Production Device;

(b) where the Production Device produces RES-E and electricity which is not RES-E, the amount of RES-E determined for the purposes of RECS as having been produced by a Production Device shall be the amount of Nett Electrical Energy Generation produced by that Production Device multiplied by the Renewable Source Factor;

(c) a person submitting a Production Declaration in relation to a Production Device for which one of the sources of energy is pumped water shall be obliged to submit (in respect of the same period as that to which the Production Declaration relates) a Consumption Declaration and to specify therein, the amount of electrical energy consumed in pumping water for use by that Production Device in that period;

(d) a person submitting a Production Declaration in relation to a Production Device for which one of the sources of energy is biomass shall be obliged to submit (in respect of the same period as that to which the Production Declaration relates) a Consumption Declaration and to specify therein:

(i) the values of M^i and C^i for each fuel type ‘i’; and

(ii) as the Energy Source Factor for that period, a factor no greater than L,

Where:

$$L^i = \frac{\sum_{i}^{j} M^i x C^i}{\sum_{i}^{n} M^i x C^i}$$

And

M^i is the mass of each fuel type 'i' for that Production Device during the relevant period.

C^i is the average calorific value of each fuel type 'i' for that Production Device during the relevant period.

i to j are qualifying energy sources for that Production Device during the relevant period.

j to n are not qualifying energy sources for that Production Device during the relevant period**.**

6.7 The provisions of a RECS Domain Scheme need not be such that RECS Certificates must be issued in respect of the entirety of the RES-E output of a Production Device in any period.

7 REDEMPTION STATEMENTS

7.1 A request made by an Account Holder to a Member for the production of a Redemption Statement in relation to RECS Certificates that have been redeemed from the Transferable Account of that Account Holder in accordance with section F4 must identify, in addition to the information listed in section F4.1.1, the purpose of the Redemption Statement.

7.2 Where a RECS Scheme Member has been asked to produce a Redemption Statement in accordance with section 7.1, then it shall use the Redemption Statement format identified in the relevant Domain Scheme Protocol of that Member.

7.3 The provisions of each Domain Scheme must be such that in addition to the items listed in section 7.1 each Redemption Statement must display:

(a) A statement that it relates to the redemption of RECS Certificates;
(b) The account number, name and address of the Account Holder that made the request;
(c) The identity of each RECS Scheme Certificate that is associated with this Redemption Statement; and
(d) The date of producing the Redemption Statement.

7.4 When producing a Redemption Statement, a RECS Scheme Member shall record in the EECS Scheme Database the RECS Scheme Certificates that are included in that Redemption Statement, ensuring that each RECS Scheme Certificate is included in no more than one Redemption Statement

Annex: 4 Definitions:

Account:	Transferable Account or a Redemption Account;
Account Holder:	person in respect of whom an Account is maintained on an EECS Registration Database;
AIB:	the international scientific association constituted in accordance with the Belgian law of 25 October 1919 (as amended) under the name of "Association of Issuing Bodies" with a company number of 0.864.645.330;
Appointment Criteria:	in relation to an EECS Scheme, the criteria designated as such in the Chapter establishing that EECS Scheme;
Assessment Panel:	a panel of Members' Representatives convened for the purposes of assessing: (a) An application made by a Member; or (b) A Member's compliance with the terms of the PRO, a Domain Scheme, or a Rectification Order;
Authorized Body:	in relation to any Domain Scheme, a person who is authorized or appointed by the Competent Authority for the relevant Domain to collect and determine measured energy values for use in connection with charging for use of (as is appropriate in connection with the relevant Production Device) a distribution or transmission system;
Basic Commitment:	this document, issued pursuant to the Articles of Association and as amended from time to time, referred to herein as the PRO;
Certificate:	a certificate, record or guarantee (in any form including an electronic form) in relation to: (a) The energy source from which a quantity of energy output is produced, and/or (b) Attributes of the method and quality of the production of a quantity of energy output;
Certification Scheme:	a legislative, administrative and/or contractual framework establishing a system of Certificates;
CMO:	in relation to any Domain Scheme either: (a) The Scheme Member with respect to the relevant Domain (and EECS Scheme); or (b) Where such appointment has been made, the person appointed by such Scheme Member to administer the operation of the EECS Registration Database for the purposes of that Domain Scheme and the relevant Domain;
Competent Authority:	in relation to the exercise or discharge of any legislative, governmental, regulatory or administrative function with respect to any Domain, the body duly authorised under the laws and regulations of the state (and, as the case may be, region) in which such Domain is situated to exercise or discharge that function;
Domain:	in relation to an EECS Scheme, an area containing production Devices with respect to which a Scheme

	Member (the Originating Member) is responsible for issuing EECS Certificates under that EECS Scheme;
Domain Scheme:	in relation to any EECS Scheme and Domain the legislative, regulatory, administrative and contractual framework (including the relevant Domain Protocol and Standard Terms and Conditions) establishing that EECS Scheme in that Domain;
EECS:	the integrated European framework for the issuing, registration, transfer, Redemption and other processing of Certificates arising as a consequence of the implementation of the provisions of the PRO;
EECS Certificate:	a unique electronic Certificate specifying and representing the quality and method of production of a specific quantity of energy output, which is maintained on a EECS Registration Database, and Issued in accordance with the provisions of a Domain Scheme;
EECS Registration Database:	a database operated by a Member, or operated CMO on behalf of a Member, for the purposes of EECS, comprising: (a) Transferable and Redemption Accounts and the EECS Certificates in those Accounts; (b) Details of Production Devices and information provided to the Member or its CMO in connection with the registration of those Production Devices with that Member or CMO; and (c) Details of EECS Certificates which have been transferred out of that EECS Registration Database;
EECS Scheme:	a Certification Scheme established by a Chapter of the PRO, together with the Domain Schemes in respect of the Domains of Scheme Members for the purposes of such EECS Scheme;
EECS Transfer System:	the communication links and procedures for the transfer of EECS Certificates established by Members pursuant to the PRO;
Export Meter:	a device, or collection of devices, and supporting arrangements for determining (in whole or in part) the quantity of electrical energy flowing from a Production Device to a distribution or transmission system and, where permitted by national practice, including the electrical energy flowing from that Production Device to satisfy onsite demand;
Face Value:	the amount, in MWh, of energy output to which an EECS Certificates relates;
General Meeting:	a general meeting of the Members of the AIB, convened in accordance with the Articles of Association;
Hub:	The AIB communications Hub is an electronic system which is responsible for distribution of messages and acknowledgements between registries
Import Meter:	a device or collection of devices, and supporting arrangements for determining the quantity of electricity

	input into a Production Device (including electrical energy input from a distribution or transmission system or, where enabled by the location of the Export Meter, onsite generation);
Issue:	the process of creating (as an EECS Certificate) a record in a Transferable Account in an EECS Registration Database;
Issuing Frequency:	The frequency with which EECS Certificates are issued;
Legislative Certification Scheme:	a Certification Scheme implemented pursuant to the law of the European Community, the European Economic Area or the laws of any two or more European states acting in conjunction with each other;
Measurement Body:	a person responsible for collecting and determining (on behalf of the Registrant) measured energy values of the energy output of a Production Device;
Measurement Frequency:	The frequency with which the energy output of a Production Device is measured;
Member:	a member of the AIB from time to time (as determined in accordance with the provisions of the Articles of Association and the law of Belgium);
MWh:	megawatt hour;
National Certification Scheme:	in relation to a Domain for an EECS Scheme, the legislative, administrative and/or contractual framework establishing the Legislative Certification Scheme on which that EECS Scheme is based in the state or region in which that Domain is situated;
Originating Member:	with respect to an EECS Certificate, the Member which Issued that EECS Certificate;
Originating Production Device:	in relation to an EECS Certificate, the Production Device which produced the energy output to which that EECS Certificate relates;
PRO:	the document (being the Basic Commitment issued pursuant to the Articles of Association of the AIB and the Principles and Rules of Operation of Members for EECS) as amended from time to time;
Production Audit:	in relation to any Production Device, the independent examination by a Production Auditor of relevant records and, where appropriate plant and equipment to confirm the accuracy of Production and (where appropriate) Consumption Declarations in relation to that Production Device;
Production Auditor:	in relation to any Domain Scheme, such Approved Body as the relevant Scheme Member appoints to audit information provided by Registrants in Production Declarations by reference to the records of, or made available by, the Registrant (or, if different, the owner or

	operator of the relevant Production Device) and, where appropriate, by inspecting the relevant Production Device;
Production Declaration:	in relation to any EECS Scheme shall have the meaning ascribed to that expression in the Chapter establishing that EECS Scheme;
Production Device:	a separately metered device or group of devices that produces an energy output;
Production Registrar:	in relation to any Domain Scheme, the relevant Scheme Member or such other person as the Domain Scheme provides is responsible for assessing applications to register Production Devices for the purposes of the relevant EECS Scheme;
Public Support:	any direct or indirect financial support (other than through the sale or Redemption of EECS Certificates) that has been or is currently being received for investment in Production Devices that produce RES-E or for the current (ongoing) production of RES-E. Public Support includes: (a) Financial support given to RES-E Production Devices; (b) Financial support which is higher for RES-E Production Devices or their energy output than it is for non-RES-E Production Devices or, as the case may be, their energy output; and (c) Premium prices paid in for the supply of energy in recognition of its particular method or quality of production;
Qualification Criteria:	in relation to an EECS Scheme, the criteria for Production Devices to qualify for registration the purposes of that EECS Scheme set out in the Chapter establishing that EECS Scheme;
Redeem:	to remove an EECS Certificate from a Transferable account at the request of an Account Holder for the purposes of enabling the Account Holder (whether on its own behalf or on behalf of another person): (a) To realize such real or intangible benefits as may be accorded to it; and/or (b) To comply with a legal obligation; (and Redemption shall be construed accordingly);
Redeeming Body:	a body, which may or may not be an Account Holder, which: (a) Provides real or intangible benefits in connection with the Redemption of EECS Certificates; and/or (b) imposes a legal obligation that may be satisfied by the Redemption of EECS Certificates;
Redemption Account:	a record on an EECS Registration Database relating to a particular person incorporating EECS Certificates which have been redeemed by that person, or which have been transferred to that person in connection with their Redemption by another Account Holder;
Registrant:	a person in whose name a Production Device is registered from time to time in an EECS Registration Database for the purposes of an EECS Scheme;

Registration Functions:	the registration of Production Devices and the issuing and registration of Certificates in respect of their output, and the maintenance of records regarding such processes;
Registration Period:	The length of the period following the successful registration of a Production Device in an EECS Registration Database at the end of which such registration lapses;
Renewable Energy Directive:	Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable sources in the internal electricity market;
Renewable Energy Sources:	the meaning given to that expression by the Renewable Energy Directive;
RES-E:	the meaning attributed to the expression "electricity produced from renewable energy sources" by the Renewable Energy Directive;
RES-E Production Device:	a Production Device used to generate RES-E;
Scheme Certificate:	in relation to any EECS Scheme, an EECS Certificate Issued by a Scheme Member in respect of a Production Device in accordance with the Domain Scheme establishing that EECS Scheme in the Domain in which that Production Device is situated;
Scheme Member:	in relation to any EECS Scheme or Scheme Certificate, a Member which is for the time being admitted to the relevant EECS Scheme in accordance with section D3.4.1 of the PRO;
Standard Terms and Conditions:	in relation to a Domain Scheme, the terms and conditions upon which the Scheme Member is prepared to provide services, as contemplated by the PRO, to Domain Scheme Participants;

Annex: 5 Renewable Energy Certificates in Australia[16]

What are Renewable Energy Certificates?

Renewable Energy Certificates (RECs):

- Are an electronic form of currency initiated by the *Renewable Energy (Electricity) Act 2000;*
- May be created, on the internet based registry system (known as the REC Registry), by eligible parties for each megawatt-hour of eligible renewable electricity generated or deemed to have been generated;
- Are created by registered persons;
- are validated by the Office of the Renewable Energy Regulator;
- Are registered;
- Are traded between registered persons or traded separately from the physical electricity market via the REC Registry; and
- Are eventually surrendered to demonstrate liability compliance against the requirements of the Australian Government's mandatory renewable energy target or voluntary surrender.

Each REC:

- Must have its own unique code;
- Must be registered by the Renewable Energy Regulator before they are considered valid; and
- Remains valid until surrendered against a liability or until voluntary surrendered. For more information on Voluntary Surrender.

Each unique REC code is to contain, in order:

- The registration number of the person who created the REC;
- The accreditation code of the:
    - power station that generated the electricity; or
    - solar water heater installation; or
    - small generation unit installation;
- The year in which the electricity generation or installation took place; and

[16] Information from the Australian web-site: http://www.orer.gov.au/recs/

- A number, in an unbroken annual sequence starting at one, which represents the eligible megawatt hour of electricity generated or displaced.

Who is eligible for Renewable Energy Certificates?

Owners or operators of eligible renewable power stations are eligible for RECs provided the appropriate application forms are completed and the Renewable Energy Regulator accredits the renewable energy power station. For more information you can visit the power stations page of the ORER web site.

Owners of eligible solar water heater installations are eligible for RECs. However, owners of eligible solar water heater installations have the option to claim RECs themselves by completing the appropriate application forms or assign their right to claim RECs to an agent. For more information you can visit the Householders – solar water heater page of the ORER web site.

Owners of eligible small generation unit installations are eligible for RECs. Small generation unit installations include the following technologies:

- Photovoltaic systems;
- Wind systems;
- Small hydro electric systems.

Owners of eligible small generation unit installations also have the option to claim RECs themselves by completing the appropriate application forms or assign their right to claim RECs to an agent. For more information you can visit the Householders – small generation unit page of the ORER web site.

Claiming Renewable Energy Certificates?

To claim RECs you must be:

- eligible for RECs from an eligible fuel source. Only accredited renewable energy power stations, eligible solar water heater installations or small generation unit installations are eligible to claim RECs; and
- a registered person, as required under the *Renewable Energy (Electricity) Act 2000*, or have assigned your right to claim RECs to an agent. Registered persons are individuals or companies that have access to the REC Registry to create, transfer and surrender RECs. Once registered you will be given a username and password to access your REC Registry account.

Renewable Energy Certificate prices

Whether you claim RECs electronically in the REC Registry or assign your right to create RECs to an agent, you are responsible for negotiating a price for those RECs as the Office of the Renewable Energy Regulator is not responsible for monitoring or setting REC prices.

You should contact several companies who trade in RECs before agreeing to a price for your RECs. The Office of the Renewable Energy Regulator has a list of agents that trade in solar water heater and small generation unit RECs. However, the Office of the Renewable Energy Regulator does not recommend anyone listed on this list.

Alternatively you can visit the REC Registry and search for all registered persons, as these registered persons may trade in RECs.

Creating Renewable Energy Certificates

If you are a registered person and are eligible to claim RECs you will need access to your REC Registry account, using your username and password, to create your REC claim in the REC Registry.

Before finalizing your electronic request to create RECs for eligible renewable electricity generation or installations of solar water heaters or small generation units, you will be asked to confirm and declare that all of the details for the REC creation request are correct.

Once the REC creation request has been made, the REC Registry will perform a number of automatic checks. The Office of the Renewable Energy Regulator will then conduct manual checks, or desk audits, of the REC creation information.

If the Office of the Renewable Energy Regulator is satisfied that the RECs have been created correctly, the RECs will be validated.

If the Office of the Renewable Energy Regulator discovers fraudulent REC creation behavior, the Office of the Renewable Energy Regulator can seek to prosecute the registered person concerned or apply financial penalties to parties that accidentally or deliberately create invalid RECs.

Registered persons should note that the Office of the Renewable Energy Regulator can and does conduct physical audits of registered persons to establish whether RECs have been created in accordance with the *Renewable Energy (Electricity) Act 2000*.

Registering Renewable Energy Certificates

If the Office of the Renewable Energy Regulator is satisfied that the RECs have been created correctly and the RECs are validated you will need to register the RECs that have been created and validated. To register RECs you need to pay an 8 cent registration fee, as required under section 26 of the *Renewable Energy (Electricity) Act 2000* (the Act). The 8 cent registration fee is a cost recovery mechanism for providing the REC Registry service and also helps to provide improvements to the current service. To pay the registration fee you will need to log into the REC Registry, using your username and password, and render the registration fee item to an invoice and pay the invoice through the REC Registry. Information on invoice payment methods and processes are available through the REC Registry help pages or by contacting the REC Registry helpdesk on 1800 159 724. Once the payment has been received and the invoice settled your RECs will be registered. Once registered RECs can be traded or surrender to the Office of the Renewable Energy Regulator to discharge a liability under the Act.

Transferring Renewable Energy Certificates

RECs can only be traded if they are registered. RECs can only be traded in the REC Registry. REC prices and contracts are maintained outside of the REC Registry as the REC Registry is not a trading floor for RECs. However, as required under the

Renewable Energy (Electricity) Act 2000 the Renewable Energy Regulator must be informed each time a REC has been traded.

Surrendering Renewable Energy Certificates

On 14 February each year, liable parties are required to surrender a number of registered RECs equal to their liability for the previous calendar year. Liable parties surrender RECs in the REC Registry between 1 January and 14 February each year.

When the Office of the Renewable Energy Regulator accepts the RECs for surrender the:

RECs are marked as invalid due to surrender and are no longer available for anyone to reuse during the life of the mandatory renewable energy target; and Liable parties are required to pay an 8 cent surrender fee, as required under section 44 of the *Renewable Energy (Electricity) Act 2000* (the Act). The 8 cent surrender fee is a cost recovery mechanism for providing the REC Registry service and also helps to provide improvements to the current service. To pay the surrender fee you will need to log into the REC Registry, using your username and password, and render the surrender fee item to an invoice and pay the invoice through the REC Registry. Information on invoice payment methods and processes are available through the REC Registry help pages or by contacting the REC Registry helpdesk on 1800 159 724.

Voluntary surrender of Renewable Energy Certificates

The *Renewable Energy (Electricity) Act 2000* (the Act) allows registered owners of renewable energy certificates (RECs) to voluntarily surrender RECs. All registered owners of RECs can choose to voluntarily surrender RECs for any reason, for example:

- to encourage additional generation of electricity from renewable sources; or
- to demonstrate their use of additional renewable electricity from a particular renewable energy fuel source accredited under the mandatory renewable energy target.

RECs accepted for voluntary surrender are permanently removed from the REC market and cannot be transferred to another party or be used to discharge a mandatory liability under the Act. However, the RECs will still be seen on the REC Registry but will be marked 'Invalid due to voluntary surrender'.

How to voluntary surrender Renewable Energy Certificates?

The online voluntary surrender functionality in the REC Registry was launched in September 2007. REC Registry account users with appropriate permissions are now able to offer RECs for voluntary surrender all year around. Any individual or company is able to voluntarily surrender RECs. In order to make a voluntary surrender REC offer individuals or companies will need:

- an account in the REC Registry. Individuals or companies that do not have an account will need to visit the REC Registry and 'Apply for an Account'. All REC Registry account users receive a username and password to access their account; and
- RECs in their account. Individuals or companies can purchase RECs and have them transferred into their REC Registry account.

After these steps account users are able to make online voluntary surrender offers. After an account user offers one or more RECs for voluntary surrender the status of the RECs will change to 'Pending voluntary surrender'. The RECs are then placed in a queue pending acceptance by the Office of the Renewable Energy Regulator. The account user may choose to cancel the offer before the Office of the Renewable Energy Regulator accepts the voluntary surrender offer in which case the RECs are returned to the account as registered RECs that can be used for future transactions.

Accepting Renewable Energy Certificates offered for voluntary surrender

The Office of the Renewable Energy Regulator will aim to accept 'Pending voluntary surrender' RECs within 4 weeks of the offer. RECs that are accepted for voluntary surrender are permanently removed from the REC market and have a REC status of 'Invalid due to voluntary surrender'. RECs accepted for voluntary surrender by the Office of the Renewable Energy Regulator cannot be returned to the account for future transactions.

Options for gaining financial benefits from your RECs

The expanded Renewable Energy Target (RET) scheme does not provide a rebate. The purchase of a solar water heater (SWH) or air-sourced heat pump water heaters may entitle you to renewable energy certificates (RECs) if your SWH is eligible. These certificates are then sold and transferred to liable parties on a market based online system called the REC registry.

For more information about RET visit - RET - explained

You must be the owner of the system at the time it is installed to be entitled to assign or create RECs. In some circumstances where the SWHs are installed in new buildings, this can be the builder or property developer.

There are two options for reimbursement of your RECs under the RET scheme:

Option 1 - Agent Assisted

Find an agent and assign your RECs to the agent in exchange for a financial benefit which could be in the form of a delayed cash payment or upfront discount on your SWH. A majority of owners take this option.

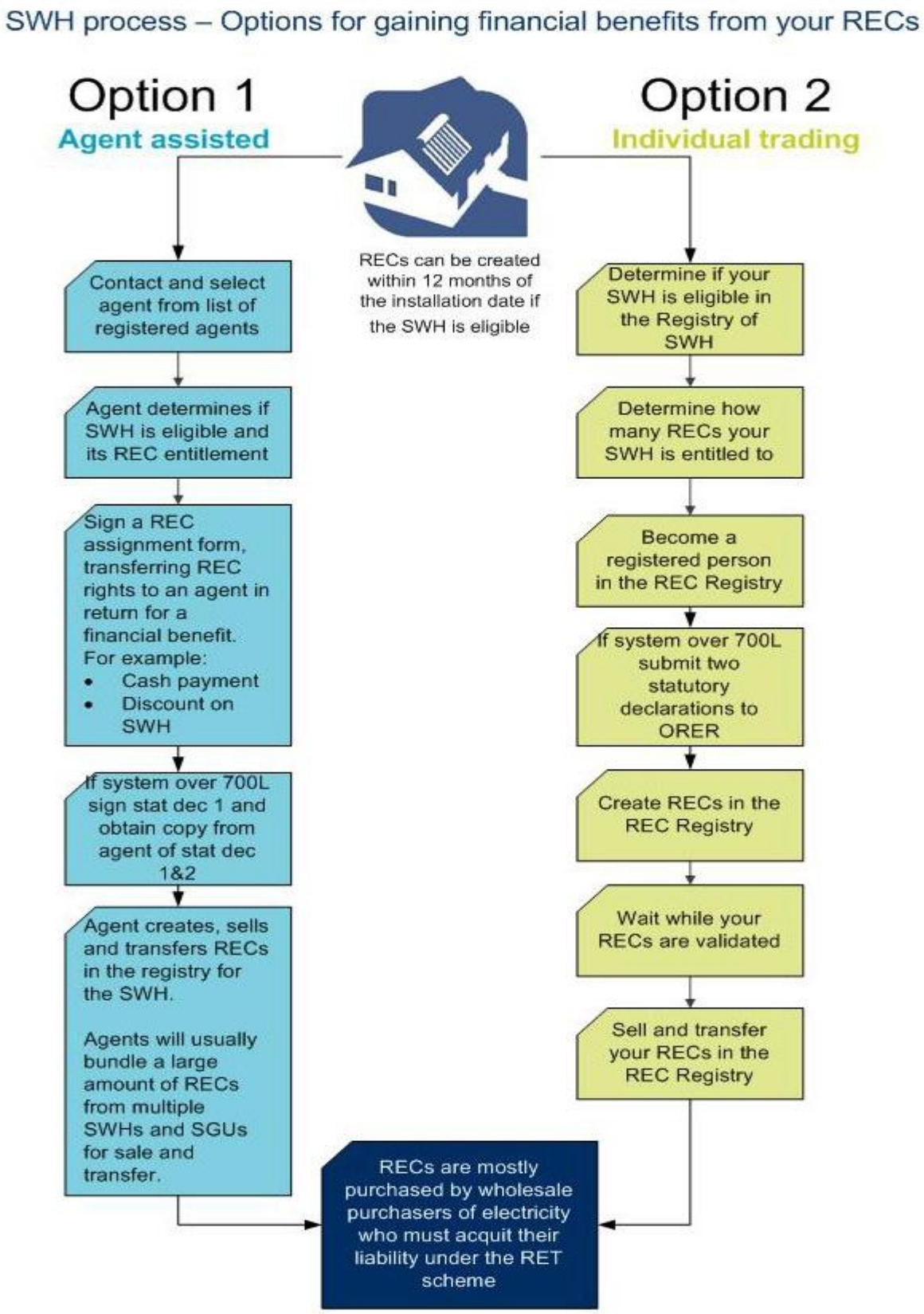
Option 2 - Individual Trading

Create the RECs yourself. Find a buyer, sell and transfer the RECs in the REC Registry.

RECs defined

A renewable energy certificate (REC) is a commodity in the REC market. RECs are created by eligible parties and sold to liable parties via the REC Registry to meet their liability under the RET.

SWH Process - Options for gaining financial benefits from your RECs



Option 1 - Agent Assisted

A majority of owners of solar hot water heaters find it convenient to assign their rights to create RECs at the point of purchase to a registered agent. A registered agent will:

- Determine whether your SWH is eligible for RECs under the RET
- Determine for you how many RECs you are entitled to under the RET
- Offer a financial benefit to you. This may be in the form of a cash payment or discount on your SWH.

It is important to note that agents list different prices and payment processes for RECs. After buying the RECs from you the agent will register your RECs and usually bundle them with other SGU and SWH RECs for sale and transfer in the REC Registry. If you would like to determine the approximate number of RECs that your system could receive under the RET the REC Registry contains a Solar Water Heater REC Calculator.

The ORER recommends contacting a range of agents before entering into any contractual agreement.

Before entering into any contractual arrangement to assign your right to create RECs:

- Make sure you are satisfied with the financial benefit and date of payment the agent is offering for your RECs.
- Check that details are recorded in writing through a REC assignment form that should be provided by your agent.

If you experience a delay in receiving payment for your RECs or your right to create RECs please contact the agent you have agreed to sell them to. If you are installing a system with a capacity greater than 700 litres **on or after 9 September 2009** you are required to sign a statutory declaration stating that you intend for the system to remain installed in its original configuration and location for the life of the system. The agent should also provide you with a second statutory declaration stating:

- the model of the solar water heater
- the volumetric storage capacity of the heater
- the premises at which the heater is to be installed and used
- the purposes for which the heater, and the hot water produced by the heater, are to be used
- that the volumetric storage capacity of the heater is appropriate for the premises at which the heater is to be installed and the purposes for which the heater, and the hot water produced by the heater, are to be used
- the expertise or experience of the person signing the declaration in relation to a heater of the kind covered by the declaration (in most cases this will be the installer/supplier).

Both statutory declarations must be witnessed by a person who is licensed or registered by law to witness a statutory declaration.

To view example statutory declaration templates visit – SWH statutory declaration examples

You must keep copies of the statutory declarations as they may be requested at anytime by ORER for the purposes of auditing.

Solar Water Heater REC Calculator

Increasing Australia's renewable electricity generation

Disclaimer

The Solar Water Heater Calculator and the Small Generation Unit Calculator (the Calculators) are designed to assist members of the public to determine the approximate amount of Renewable Energy Certificates (RECs) that may be received under the Renewable Energy Target Scheme for an installation. The Calculators are designed as an approximate guide only, and do not provide an accurate assessment of the RECs for an installation.

To the extent permitted by law, the Commonwealth of Australia gives no warranty and makes no representation as to the accuracy, currency, completeness or reliability of any data obtained from using the Calculators. In particular, you should be aware that:

- the Calculators do not take into account all of the variables which may affect the calculation of the RECs for an installation; and
- the Calculators are based on data which may be updated from time to time and therefore results using the Calculators may vary over time.

You should not use the Calculators as the basis for making any decision or embarking on any course of action. In order to calculate an accurate REC for an installation, you will need to register an installation in the REC Registry.

Specify Installation Details

* System Brand: Brand not listed?

* System Model: Model not listed?

* What is the postcode of the installation address?

* Have you read and understood the Disclaimer?

* Required Field

Calculate RECs

Annex: 6 STANDARD TERMS AND CONDITIONS

BETWEEN

SA-IB

AND

[The MARKET PARTICIPANT]

Parties

This document is a Contract (hereinafter called “the Contract”) between SATIB and [The Market Participant].

Purpose

This Contract sets out the terms and conditions upon which the SATIB is prepared to provide services as contemplated by the Basic Commitment (being the Principles and Rules of Operation; the PRO) to [The Market Participant].

Compliance with the Domain Protocol

Registrants of Production Devices become eligible to receive EECS Certificates under a specific EECS Scheme by contractually committing themselves with the Member responsible for the relevant Domain (under that Member’s Standard Terms and Conditions) to comply with the Domain Protocol. The Registrant will also be subject to applicable legislation. In case of conflict between the Domain Protocol and the terms and conditions the former shall prevail.

Obligation to inform

Each party shall contribute to the implementation of this Contract, to the extent that both parties shall provide each other without delay all necessary information required by the application of this Contract. If the operation of a production device of [The Market Participant] no longer conforms to the reported information, [The Market Participant] shall inform SATIB immediately about the change.

Information systems

SATIB issues EECS-Certificates by using an electronic registry.

[The Market Participant] shall arrange, at his own cost, the necessary information technology architecture and interfaces which [The Market Participant] needs in order to use the EECS Registration Database. [The Market Participant] shall be responsible for sufficient data security relating to the use of the EECS Registration Database.

SATIB has the right to change the IT prerequisites for the use of the EECS Registration Database. SATIB shall inform [The Market Participant] in writing at least 30 calendar days prior to the implementation of material changes. In urgent cases changes can be made without prior notice. SATIB shall then inform [the Market Participant] in writing as soon as possible after the change has been made.

SATIB shall inform [The Market Participant] 3 days in advance of planned unavailability of the EECS Registration Database. [The Market Participant] shall be informed of other unavailability preventing the use of EECS Registration Database as soon as possible.

SATIB has the right to prevent or restrict the use of the EECS Registration Database service by [The Market Participant] if there is misuse of the system or if [The Market Participant] has not fulfilled its contractual obligations.

Liability

[The Market Participant] shall at all time act in accordance with the provisions of the Domain Scheme of the relevant domain.

A Scheme Member is not liable for losses incurred by [The Market Participant], unless the Scheme Member has acted negligently.

If [The Market Participant] suffers a loss due to a negligent action of a Scheme Member, [The Market Participant] must direct the claim for compensation against the negligent Scheme Member only. The AIB, other Members of AIB or their representatives are not liable for the actions of the negligent Scheme Member.

[The Market Participant] has a duty to do everything possible to limit the extent of the damage. If [The Market Participant] does not implement adequate measures to limit the extent of the damage, compensation may be reduced.

Any damage, loss, cost or expense incurred by [The Market Participant] shall be limited to ten thousand (10,000) Euros per incident.

Errors in Issuing

If SATIB or [The Market Participant] discovers an error in issuing, redeeming or processing of an EECS Certificate, the other party shall be informed as soon as possible.

If there is an error in the course of issuing, redeeming or processing of an EECS Certificate or an error due to any unauthorized access to or malfunction of an EECS Registration Database, the Scheme Member and [The Market Participant] shall co-operate and use all reasonable endeavors to ensure that no unjust enrichment occurs as a result of the error. If there is an error, the EECS Certificates held in [The Market Participant]'s account may be withdrawn or amended by the Scheme Member. If not enough certificates have been issued, the IB will issue the certificates as soon as it receives the correct information.

If it transpires that the data in any Scheme Certificates is inaccurate (whether or not through an act or omission of the Registrant of the Originating Production Device), the Scheme Member is entitled to – provided that such Scheme Certificates are, at the time of such withdrawal, in the "Transferable Account" of that Registrant – withdraw those Scheme Certificates, and other Scheme Certificates of the same type.

Expiry from Scheme Membership

If SATIB's right to serve as the Scheme Member for an EECS Scheme in the related Domain expires SATIB has the right to transfer the Contract to a new Scheme Member. If there is no new Scheme Member, SATIB has the right to terminate the Contract. [The Market Participant] has no right to receive any refund of the paid contractual fees.

If the SATIB stops serving as Scheme Member for an EECS Scheme [The Market Participant] has the right to retrieve its data.

Fees

[Individual regulation]

Breach of the Contract

If [The Market Participant] is in breach of the Contract, including his obligation to pay the fees to the SATIB, the SATIB is entitled to stop issuing, redeeming or otherwise processing certificates.

Force majeure

In the case of force majeure, the parties have the right to restrict the services given to each other. Cases of force majeure are deemed to cover any events which the parties could not have prevented through reasonable caution and which make the services impossible or impair them

essentially or make them financially or otherwise unreasonable. The parties shall inform each other of the occurrence of force majeure as well as of its end without delay.

Amendment of the Contract

If the Basic Commitment being the Principles and Rules of Operation requires that the Domain Protocol [of the relevant country] be amended, the parties agree to make all the required changes to this Contract in order to it coherent with the Domain Protocol.

Confidentiality

Information of commercial or sensitive nature shall be treated as confidential information by both parties. Disclosure of such information requires prior written consent.

Assignment and Termination of the Contract

Each party may assign this contract only with the written consent of the other party. Such consent cannot be withheld with undue reason. Each party may, however, without consent at any time assign this contract to an affiliated company. Each party can terminate this contract with one month's written notice.

Dispute resolution

Disputes arising out of this Contract shall be settled according to national law, national jurisdiction and national courts.

Date:	Date:
…….	……
Scheme Member	Market Participant

Annex 7: Domain Protocol SA-IB

RECS

Domain Protocol

For

Republic of South Africa

Prepared by SA-IB

CONTENTS

INTRODUCTION AND PURPOSE

A1 Introduction

A1.1 Certification of the quality and method of energy output provides an efficient mechanism for accounting for: the quality of energy supplied to consumers and its method of production; the progress made towards targets for the use of sustainable energy technologies; and the production and consumption of energy for the purposes of stimulating investment in sustainable energy plant. Moreover, certification enables a value to be accorded to specific types of energy output and traded separately from the energy itself.

A1.2 For a system of energy certification to discharge these functions effectively, users of the Certificates – producers, traders, suppliers, consumers, NGO's and governments – must be satisfied that the Certificates provide reliable evidence of the qualities to which they relate. The European Energy Certification System (EECS) framework is designed to give all such users confidence in the Certificates issued and processed under EECS.

A1.3 The life cycle of a RECS (TREC) Certificate encompasses three phases: issuance, transfer and redemption:

(a) Electronic Certificates are issued on registries in respect the energy output of Production Devices registered specifically for the purposes of RECS.

(b) These Certificates may be transferred from the account of the producer to that of a trader, and so on; either within the country of origin or to other registries in the EECS network across Europe.

(c) Redemption is the mechanism whereby the Certificate is removed from circulation. Redemption occurs at the point at which the value of the Certificate is realised. Examples of circumstances in which the Redemption of a Certificate may occur include: in connection with payment from a consumer in recognition of the qualities it represents; in connection with the award by government of a financial incentive, such as a tax rebate; or by way of discharge of a contractual or legal obligation.

A1.4 Together with the Standard Terms and Conditions, this Domain Protocol establishes the EECS Scheme for the Domain defined in B1.2 below.

A2 Purpose

A2.1 This Domain Protocol sets out the procedures, rights and obligations for RECS as used within this Domain.

A2.2 This Domain Protocol is made binding between the Scheme Participant and SA-IB by agreement in the form of the Standard Terms and Conditions. The duties under this Domain Protocol are owed specifically between SA-IB and the Scheme Participant.

A2.3 The objective is to ensure quality in the robustness and transparency in facilitating RECS for all Scheme Participants.

A2.4 This document also contains explanatory text to help Scheme Participants. This text is for information only and is identified by having a shaded background.

A2.5 Important contact information is provided in Annex 1.

B SCOPE AND RESPONSIBILITY

B1 This Domain Protocol

B1.1 This Domain Protocol specifies the procedures for the issue, and use as evidence of transfer of ownership and eventually removal of RECS Certificates held within the EECS Registration Database of SA-IB and may only be amended or added to by SA-IB in accordance with section J below.

B1.2 This Domain Protocol for South Africa applies to Republic of South Africa, in conjunction with RECS Certificates held within the EECS Registration Database.

B2 Responsibility

B2.1 South Africa is responsible for the operation of the RECS system for this Domain.

B2.2 Some of the functions facilitating system operation may be contracted out to approved agents of South Africa.

B2.3 The Central Monitoring Office (CMO) is the primary role in the operation of an EECS Scheme in a Domain. The function of the CMO is to administer and maintain the database of qualifying Production Devices and RECS Certificates for that Domain. In South Africa this function is performed by SA-IB CMO. The charges for accounts and transactions are shown on the website www.SA-IB.ca

B2.4 The CMO is not responsible for the authorisation of Certificates, although it is responsible for 'issuing'; the creation of Certificate records within its registry**.**

C Definitions

C1 This document

C1.1 Unless the context otherwise requires or there is express provision to the contrary, all terms in this Domain Protocol shall have the meanings ascribed to them in section B of the Principles and Rules of Operation of the Association of Issuing Bodies (AIB) for The European Energy Certification System, which can be found at http://www.aib-net.org

TERM	MEANING
CMO	SA-IB CMO being the person appointed by SA-IB to administer the operation of the EECS Registration Database for the purposes of RECS within South Africa;
Competent Authority	in relation to the exercise or discharge of any legislative, governmental, regulatory or administrative function, the body duly authorised under the laws and regulations of South Africa] to exercise or discharge that function;
Scheme Participant	an Account Holder or a Registrant of a Production Device on the EECS Registration Database for the purposes of RECS within South Africa;
Net Electrical Energy Generation	the gross electricity production of a Production Device as evidenced by measured values collected and determined by an Authorised Body (or where appropriate an Approved Measurement Body) with reference to its Import and Export Meters (adjusted by meter amendments and the outcome of any disputes) minus the demand of any generating auxiliaries and minus losses in the main generator transformers on the site of the Production Device;

D Renewable Energy Certificate System (RECS)

D1 Scheme Definition

D1.1 The 'Renewable Energy Certificate System' (RECS) enables international trade in the renewable attribute of energy generation by uncoupling environmental value from the associated physical energy. It is a voluntary system whose trading is governed by RECS International.

D2 Supplementary Definitions for RECS

Renewable Source Factor	in relation to any Production Device and period of time the proportion expressed as a factor of less than one of the Net Electrical Energy Generation of that Production Device which is RES-E in accordance with the qualifying criteria set out in D3 below, as specified in the Production Declaration for that Production Device with respect to the period over which the electricity was generated.

D3 Qualifying Criteria

D3.1 The criteria for Production Devices to qualify for registration for the purposes of RECS are:

(a) That the Production Device is capable of generating RES-E (being Electricity produced from Renewable Energy which has the meaning assigned to it by the Directive 2001/77/EC); and

(b) that the owner of Production Device will not during the period of its registration for the purposes of RECS and for the same unit of electrical energy receive tradable evidence such as Certificates which represent the benefit of renewable electricity generation from both RECS and another similar system that similarly certifies the origin or represents the benefits of the associated renewable electricity and can be exchanged for financial support.

D3.2 Qualifying energy must be RES-E (being Electricity produced from Renewable Energy which has the meaning assigned to it by the Directive 2001-77-EC).

D3.3 To ensure maintenance of the Qualifying Criteria, a Production Audit will be conducted in relation to each Production Device in South Africa which is registered for the purposes of RECS:

(a) Not less than once every five years; and

(b) Where such Production Device is fuelled in whole or in part by biomass, not less than once a year.

D4 Support Schemes

D4.1 Support schemes that are relevant to the operation of the RECS scheme are listed in AIB PRO Fact Sheet 3 – Types of Public Support. This document

can be viewed at www.aib-net.org under the section: Association – Documents – Regulation – PRO.

D4.2 The Registrant of a Production Device must guarantee that the owner of the Production Device, or his agent, will not during the period of its registration for the purposes of RECS and for the same unit of electrical energy receive tradable evidence such as Certificates which represent the benefit of RES-E generation from both RECS and another similar system that similarly certifies the origin or represents the benefits of the associated renewable electricity and can be exchanged for financial support.

D4.3 The Registrant of a Production Device must notify SA-IB whether, and if so what type of, Public Support has been, or is due to be, received by the Production Device.

D4.4 The Registrant of a Production Device must provide details of any prior infringements by itself or any affiliate of the terms of any Domain Scheme with respect to RECS to SA-IB on application for registration.

D5 Certificate Face Values

D5.1 RECS Certificates can be issued with the following Face Values:

(a) 1MWh

D6 Issuing of RECS Certificates

D6.1 This section is supplemental to the provisions of section G below.

D6.2 Where a Production Device only produces RES-E in accordance with the qualifying criteria set out in D3, the amount of RES-E determined for the purposes of RECS as having been produced by a Production Device shall be the amount of Net Electrical Energy Generation produced by that Production Device.

D6.3 Where a Production Device produces RES-E in accordance with the qualifying criteria set out in D3 and electricity which is not in accordance with the qualifying criteria set out in D3, the amount of RES-E determined for the purposes of RECS as having been produced by a Production Device shall be the amount of Net Electrical Energy Generation produced by that Production Device multiplied by the Renewable Source Factor.

D6.4 RECS Certificates can be issued in respect of output up to the entirety of the RES-E output of a Production Device in accordance with the qualifying criteria set out in D3 in any period.

D6.5 Irrespective of the actual date on which a RECS Certificate is issued, the date of Issue of a RECS Certificate is the last day on which the energy output to which the RECS Certificate relates was generated.

D6.6 A RECS Certificate must indicate:

(a) Whether Public Support is associated with the Originating Production Device; and

(i) The nominated capacity (in kW) of the Originating Production Device.

E PARTICIPATION AND REGISTRATION

E1 Scheme Participation

E1.1 Any legal person who is not a member of the Association of Issuing Bodies or such member's affiliate or agent can be a RECS Scheme Participant.

E1.2 The application form to open an Account can be found in Annex 5 and on the website www.sa-ib.ca.

E1.3 The RECS Scheme Participant must contract with South Africa under the Standard Terms and Conditions.

E1.4 SA-IB will issue each authorised user with an identification and password to enable secure communications. It is the responsibility of the Scheme Participant to keep such identification secret.

E1.5 In very limited circumstances, including recovery of undisputed debt from a Scheme Participant in default and purchases for its own use, SA-IB can buy and sell certificates. Such activities are reported to the Association of Issuing Bodies.

E1.6 [insert other account administration and security details here]

E2 Registration of a Production Device

E2.1 Only the owner of a Production Device, or a Registrant duly authorised by the owner, may register a Production Device, which is located in South Africa in the EECS Registration Database.

E2.2 The Registrant of the Production Device must provide evidence to the satisfaction of SA-IB that it has the appropriate authority to register the Production Device and that it can comply with the requirements of the RECS Scheme and this Domain Protocol with respect to the imposition of duties on the owner and/or operator of the Production Device. Such evidence is a power of Attorney.

E2.3 An applicant registering a Production Device must provide the following information:

(a) The applicant's name and address and additional contact details, including the name of the individual responsible for the application, phone number, fax number and e-mail address;

(b) The names of persons authorised to act for the Registrant;

(c) The EECS Scheme or Schemes with respect to which it is applying for registration;

(d) The Transferable Account into which Scheme Certificates in respect of that Production Device are to be Issued;

(e) The location of that Production Device, its name and address;

(f) Details of the Export Meter(s) for that Production Device;

(g) Details of any generating auxiliaries associated with that Production Device;

(h) Where there are generating auxiliaries associated with that Production Device and the consumption of these auxiliaries is not determined by an Export **Meter,** details of Import Meter(s) which determine the electricity consumption by the Production Device;

(i) (irrespective of whether or not there is any intention to use such sources of energy in connection with the Production Device) all sources of energy that may be converted into energy outputs by that Production Device by reference to the source types set out in Annex 3;

(j) The nature of that Production Device, in terms of technology by reference to the types set out in Annex 3;

(k) The Nominal Capacity of that Production Device;

(l) Where at the time of such application it has been commissioned, the date on which that Production Device was commissioned;

(m) the identity of the Authorised Body or, where appropriate, Approved Measurement Body responsible for collecting and determining the measured values of the energy outputs of that Production Device and providing such measured values to SA-IB;

(n) a diagram of that Production Device, including details the location of:

(i) The Export Meter(s) for the Production Device;

(ii) Any transformer substations at the site of the Production Device;

(iii) Any generating auxiliaries for the Production Device; and

(iv) Any Import Meters for the Production Device.

(o) a description of how the amount of Net Electrical Energy Generation produced by that Production Device shall be calculated from the meter readings to be provided.

E2.4 The registration form containing all the items listed in E2.3 above can be found in Annex 2 to this Domain Protocol.

E2.5 The Qualifying Criteria for a Production Device within the RECS scheme are given in **Error! Reference source not found.**.

E2.6 The Registrant must warrant that the information provided to SA-IB in connection with its application is complete and accurate and that the Production Device meets the qualification criteria for RECS.

E2.7 The Registrant must also provide details of any payments (other than payments arising from the sale of RECS Certificates) which have been received by, or are due to accrue to, any person in relation to the Production Device under any of the Public Support schemes identified in **Error! Reference source not found.**.

E2.8 The CMO, SA-IB, will respond to the application within 10 working days from its receipt.

E2.9 The Registrant must have the information in the registration form verified by a Production Registrar (see I2.1 below) as part of the approval process.

E2.10 Where the Production Device is already accredited to another EECS Scheme or legislative support scheme, the CMO, SA-IB may determine that part or all of the verification of this application is not required.

E2.11 An application for the registration of a Production Device for the purposes of RECS will be rejected if:

(a) In relation to that application, the applicant has failed to comply with any requirements of this Domain Protocol or the Standard Terms and Conditions;

(b) The Qualification Criteria are not satisfied in respect to that Production Device;

(c) There are one or more generating auxiliaries for that Production Device the consumption of which are not determined by an Export Meter, and it is not fitted with Import Meters; or

(d) The Production Registrar is prevented from satisfactorily verifying the application by the applicant or the owner or operator of the relevant Production Device.

E2.12 On successful completion of the registration process, SA-IB will assign a unique identifier to each registered Production Device, if one has not already been assigned in that EECS Registration Database under another EECS Scheme.

The identifier consists of a number with 18 numeric characters that also identifies the Domain of origin. EAN/GSRN (Global Service Relational Number) coding is used.

E2.13 The Registrant consents to the publication by SA-IB or its CMO of data provided in the course of its application for registration in relation to each of its Production Device registered on the database on its web page www.sa-ib.ca with the exception of:

(a) Detailed descriptions of plant and equipment;

(b) Graphical representations of the Production Device and its location, including diagrams and photographs; and

(c) Details of:

(i) The person responsible for the application; and

(ii) Where the Registrant of the Production Device is not its owner, the Production Device's owner.

E3 Changes in Registered Details

E3.1 The Registrant of a Production Device must notify SA-IB of any planned changes due to come into effect that will result, or unplanned changes that have resulted, in:

(a) The information recorded in the EECS Registration Database in relation to the Production Device becoming inaccurate; or

(b) The Qualification Criteria for RECS ceasing to be satisfied with respect to that Production Device.

E3.2 On receipt of a change of details notification (following an inspection or otherwise), SA-IB will evaluate the impact of the changes on the Qualifying Criteria and respond to the Registrant within 10 working days specifying the decision taken.

E3.3 Where SA-IB becomes aware that a Production Device no longer fulfils, or will no longer fulfil, the Qualification Criteria, the EECS Registration Database record for that Production Device will be updated to shown that the Production Device no longer qualifies for RECS Certificates with effect from:

(a) (In relation to planned changes notified in advance) the date on which such planned changes are due to come into effect; or

(b) (In relation to other changes) as soon as reasonably practicable after becoming so aware.

E4 Withdrawing from the Scheme - Closing an Account

E4.1 The Account Holder must notify SA-IB of an intent to close his account using the form shown in Annex 5. The effective date of closure must not be less than10 working days from the date of receipt by SA-IB.

E4.2 SA-IB will amend the EECS Registration Database to seal that Account as of the effective date on the request or 30 working days from the date of receipt by SA-IB whichever is the later.

E4.3 [Insert commercial provisions here]

E5 Withdrawing from the Scheme - Deregistering a Production Device

E5.1 The Registrant must notify SA-IB of an intent to deregister his Production Device in writing.

E5.2 [Insert commercial provisions here]

E6 Withdrawing from the Scheme - Registration Expiry

D1.1 Unless otherwise directed by legislation identified in **Error! Reference source not found.**, the registration of a Production Device as qualifying for RECS in the EECS Registration Database will expire after five (5) years. SA-IB will amend with immediate effect the relevant records in the EECS Registration Database to indicate that the Production Device no longer qualifies for RECS.

E6.1 The Registrant may avoid expiry by successfully completing re-registration of the relevant Production Device as set out in section E2 above. Following

expiry, the Registrant may apply for re-registration of the relevant Production Device.

F PRODUCTION DATA

F1 Metering

F1.1 Only Production Devices that are equipped with metering equipment that complies with the relevant regulations for the trading of generation energy shall be registered. The metering equipment may measure on a scalar basis (meter advance only) or on a period basis (energy measured in units of time) according to the regulations.

F1.2 For the avoidance of doubt, the relevant regulations are the versions of the following agreements and codes presently in force at the time:

(a) [list of trading and settlement codes]

F1.3 Unless determined under the regulations listed in F1.2 above, the metering Measurement Frequency shall be no more than twelve-monthly.

F2 Data Provision

F2.1 If the Registrant wishes to receive RECS Certificates for his Production Device in an issuing period, he must submit a Production Declaration to SA-IB.

(a) If the Production Device has a single energy source (i.e. excluding biomass and pumped storage hydro), the Registrant must submit a Production Declaration for that Production Device at least once in any 12 month period.

(b) If the Production Device has multiple energy sources (i.e. including all biomass, CHP, and pumped storage hydro), the Registrant must submit a Production Declaration for that Production Device for every issuing period as defined in G1.2 below.

The Production Declaration form can be found in Annex 4 to this Domain Protocol.

F2.2 The Registrant is responsible for the timely delivery of accurate metering data for his Production Device, although metered energy values must be provided, or verified, by a Measurement Body (see I3 below).

F2.3 Production Declarations are subject to verification by a Production Auditor (see I1 below) on a random and periodic basis.

F2.4 In the event that it transpires that the data in any Scheme Certificate is inaccurate (whether or not through an act or omission of the Registrant of the Originating Production Device):

(a) SA-IB shall (provided that such RECS Certificates are, at the time of such Withdrawal, in the Transferable Account of that Registrant) Withdraw those Certificates; and

(b) the Registrant shall pay SA-IB the cost of securing the agreement of another Account Holder to the Withdrawal of RECS Certificates of the same type from that other Account Holder's Transferable Account,

So that, as far as reasonably practicable, RECS Certificates are withdrawn with a Face Value and a financial value which make good the discrepancy.

F2.5 The Registrant must provide metering data for his Production Device for the entire duration of registration of that Production Device (regardless of whether the generation is eligible or certificates are required).

F2.6 A person submitting a Production Declaration (See Annex 4) in accordance with F2.1 above shall be obliged to specify therein:

(a) The values of M^i and C^i for each fuel type 'i'; and

(b) As the Energy Source Factor for that period, a factor no greater than L,

Where:

$$L^i = \frac{\sum_{i}^{j} M^i x C^i}{\sum_{i}^{n} M^i x C^i}$$

And

M^i is the mass of each fuel type 'i' for that Production Device during the relevant period.

C^i is the average calorific value of each fuel type 'i' for that Production Device during the relevant period.

i to j are qualifying energy sources for that Production Device during the relevant period.

j to n are not qualifying energy sources for that Production Device during the relevant period.

F2.7 In some cases, additional information is required by the issuer to ensure the number of Certificates issued correctly represents the qualifying energy that was metered. These cases, and the additional information required is set out below:

(a) [x]

F2.8 [insert here the exact timing, format and addressing of data provision here]

G PROCESSING OF CERTIFICATES

G1 Issuing for Transfer

G1.1 RECS Certificates are only issued under this Domain Protocol:

(a) in respect of a Production Device which is, at the time of Issue:

(i) Situated in South Africa;

(ii) Registered in the EECS Registration Database of SA-IB as qualifying for RECS Certificates; and

(iii) The Registrant of which does not have any outstanding fees payable to Sa-IB or its agents in conjunction with RECS Certificates;

(b) in respect of the qualifying energy output of such a Production Device during any period in which it was registered in an EECS Registration Database for the purposes of the RECS scheme, provided the last day on which the measured energy output was generated is not more than:

(i) Thirteen (13) calendar months after the first day on which the measured energy output was generated; and

(ii) Twelve (12) calendar months before the date of issue of any related EECS certificates; and

(c) To an Account Holder who does not have any outstanding fees payable to SA-IB or its agents in conjunction with RECS Certificates; and

(d) Energy output in respect of which (save to the extent permitted under sections G4 to G6 below) no other Certificate, of any variety, has been, or is being, issued.

G1.2 Subject to G1.1 above RECS Certificates are issued against energy data submitted in accordance with F2.2 above.

G1.3 Where the Measurement Frequency is not more than monthly, the Issuing Frequency shall be at least monthly; and where the Measurement Frequency is more than monthly, then the Issuing Frequency shall be the same as the Measurement Frequency.

G1.4 Where the Measurement Frequency is more than monthly, then the number of RECS Certificates issued to a Production Device for each month must either be equal, or as directed by an officially approved production profile.

G1.5 Only persons duly authorised by the Registrant may request the issue of RECS Certificates in relation to the output of that Production Device.

G1.6 The CMO will check the Production Declaration against the metered data provided for the Production Device for the period to which the Production Declaration relates. The EECS Registration Database will also be checked to ensure that no more than one RECS Certificate is Issued in respect of the same qualifying energy output.

G1.7 One RECS Certificate will be issued for each whole one MWh of qualifying energy output of the Production Device. Any identifiable residual kWh will be carried forward to the next issuing period.

G1.8 The CMO will deposit the Certificates in the Transferable Account nominated by the Registrant within the EECS Registration Database no later than 10 working days after the receipt of a valid Production Declaration at the end of every issuing period and the Account Holder will be notified accordingly.

G1.9 The RECS Certificates shall be issued in such format as may be determined by AIB from time to time.

G1.10 A RECS Certificate identifies the entitlement of the Account Holder of the Transferable Account in which it is held to the attributes of:

(a) The energy source for the quantity of energy output to which it relates; and/or

(b) The method and quality of the production of such energy output;

So as to enable the Account Holder to realise such real and intangible benefits as may be accorded to such entitlement. These entitlements are dependent on the laws of the country in which the Originating Production Device is situated and the laws applicable in any Domain to which they may be transferred for realisation on Redemption.

G2 Transfer

G2.1 A RECS Account Holder can hold RECS Certificates in an account within the EECS Registration Database for South Africa.

On request the CMO will open an account within 10 working days. The account will be uniquely identified by a number and a name.

G2.2 The Account Holder can get secure access to the Account to make transfers of Certificates to another Account in the same EECS Registration Database or to another EECS Registration Database for RECS Certificates in another Domain through the website www.sa-ib.ca.

G2.3 Only persons duly authorised by the Account Holder may request the transfer of RECS Certificates out of that Account Holder's Transferable Account. Authorised persons must be identified on the account application form (see Annex 5).

G2.4 Where a Transfer Request is received with respect to one or more Scheme Certificates held in a Transferable Account on its EECS Registration Database, SA-IB will, having confirmed that the Transfer Request is valid:

(a) Remove from that Transferable Account the details of the RECS Certificate(s) specified in the Transfer Request;

(b) Where the Transferee's Transferable Account specified in the Transfer Request is in the same EECS Registration Database:

(i) Include the full details of the RECS Certificate(s) referred to in (a) above in the Transferee's Transferable Account;

(ii) Confirm, to the Transferor, the identity of the RECS Certificates so transferred and any RECS Certificate split in connection with such transfer by reference to their unique identifying number(s) and Face Values; and

(iii) Confirm, to the Transferee, the identity of the Transferor and of the RECS Certificates so transferred by reference to their unique identifying number and Face Values; and

(c) Where the Transferee's Transferables Account specified in the Transfer Request is on a different EECS Registration Database:

(i) Notify the operator of that other EECS Registration Database of that Transfer Request;

(ii) Subject to G2.7 below, send the full details of the RECS Certificates referred to at (a) above to the operator of that other EECS Registration Database;

(iii) Record on its own EECS Registration Database, the export of such RECS Certificates, and, where appropriate as a result of the operation of G2.7, the cancellation of their status as Scheme Certificates under any EECS Scheme;

(iv) On receipt of confirmation from the operator of that other EECS Registration Database that the transfer has been completed, confirm to the Transferor the identity of the operator of that other EECS Registration Database and of the RECS Certificates so transferred and of any split in connection with such transfer by reference to their unique identifying numbers and Face Values.

G2.5 Where SA-IB is notified by another EECS Registration Database operator of a Transfer Request including details of a RECS Certificate which are consistent with the Transfer Criteria for RECS Certificates together with the account number for a Transferable Account on its own EECS Registration Database, it will:

(a) Insert the full details of that RECS Certificate in that Account Holder's Transferable Account;

(b) Confirm to the EECS Registration Database operator that notified it of such Transfer Request that the transfer of that RECS Certificate has been completed; and

(c) Confirm, to the Transferee, that such EECS Certificate has been transferred by reference to its unique identifying number and Face Value.

G2.6 Where SA-IB is notified by another EECS Registration Database operator of a Transfer Request involving a Scheme Certificate which does not satisfy the Transfer Criteria for such RECS Certificates and/or receives an account number which does not correspond with an account number for a Transferable Account on its own EECS Registration Database, SA-IB will

use reasonable endeavours to exchange information such that the RECS Certificate can be rendered compliant with the RECS for South Africa or the correct account number identified (as the case may be), failing which:

(a) The full details of the RECS Certificate shall be re-entered into the Transferor's Transferable Account on the relevant EECS Registration Database and that EECS Registration Database shall be amended so that the RECS Certificate is no longer recorded as having been exported; and

(b) All details of the RECS Certificate shall be removed from the other EECS Registration Database.

G2.7 Where:

(a) SA-IB receives a Transfer Request in respect of a RECS Certificate which is a Scheme Certificate under more than one EECS Scheme; and

(b) The Transferee's Transferable Account specified in the Transfer Request is on a registry that is not part of RECS,

The details of the RECS Certificate referred to in G2.4(c)(ii) above will be amended to remove any identifier indicating that the certificate is a RECS Certificate.

G2.8 The CMO will process a transfer request within the following deadlines:

(a) A request for transferral of RECS Certificates to an account in the same EECS Registration Database will be executed within 5 working days.

(b) On a request for transferral of RECS Certificates to an account in a different EECS Registration Database, the export message will be sent to the receiving CMO within 1 working days.

(c) On receiving an export message, the CMO will execute that message within 1 working day.

(d) A request for transferral of RECS Certificates to an account in a Registration Database that is outside the EECS network will be executed within 3 working days.

In many cases these processes are fully automated and will occur according to the operational timescales of the Transfer Link which may be significantly ahead of these processing deadlines.

G2.9 The Account Holder is required to retain all records to which he has had access relating to RECS Certificates for a period not less than 10 years.

G3 Redemption

G3.1 Redemption is the removal of a Certificate from circulation and is the point at which it ceases to be tradable. Once in a Redemption Account, a RECS Certificate cannot be moved to any other account.

G3.2 Only persons duly authorised by the Account Holder may request the redemption of RECS Certificates out of that Account Holder's Transferables

Account and into its Redemption Account. The request is given electronically through the web site wwwSA-IB.ca.

G3.3 A redemption request can be made by a person duly authorised by the Account Holder to transfer RECS Certificates out of that Account Holder's Transferable Account and into the Redemption Account of a Redeeming Body. The request must include:

(a) The name of the Account Holder;

(b) The relevant Production Device id(s);

(c) The relevant number of RECS Certificates associated with each Production Device listed in (b) to be redeemed;

(d) The relevant production period(s); and

(e) The usage into which this redemption falls, where this is one of:

(i) Support, where the certificate is being redeemed in order to receive financial support;

(ii) Disclosure, where the certificate is being redeemed under a green labelling scheme or as proof of supply to consumers or for own use, and has not been used in order to receive financial support;

(iii) Error, where the certificate being redeemed was issued by SA-IB and the redemption is due to its being issued in error; or

(iv) Other, for any other purpose.

G3.4 On receipt of valid redemption request, SA-IB will:

(a) Remove the details of that RECS Certificate from that Transferable Account;

(b) Insert the details of that RECS Certificate in the Redemption Account of the Redemption Body which made, or is specified, in that request; provide the Account Holder with access to the full details of that RECS Certificate certifying that it has been Redeemed; and

(c) Provide details of the Redeemed RECS Certificate to the Redeeming Body and its auditors where requested to do so.

G3.5 A request for redemption of a RECS Certificate will be executed within 3 working day(s).

G3.6 On request from an Account Holder, the CMO will produce a standard format, non-transferable, redemption statement within 3 working day(s). The request should include the following details:

(a) The RECS Certificates to be redeemed.

(b) The recipient of the Certificates, if not the Account Holder.

(c) Any other information to be included on the statement

(d) The production/issuing date, if not sufficiently identified in (a) above.

G3.7 According to the request, the statement will include some or all of the Certificates held in that Account Holder's Redemption Account that have not previously been included on such a statement.

The format of the redemption statement is shown in Annex 6 to this document.

G4 Splitting

G4.1 An RECS Certificate may be split into Certificates of lower Face Values if directly requested by the Account Holder or implied by the volume in a Transfer Request. This is achieved by deleting it and replacing it with RECS Certificates identical with that RECS Certificate in every respect save as to their denominations in MWh and any unique identification numbers. The aggregated Face Values of the replacement RECS Certificates will be the same as the Face Value of the original RECS Certificate.

G4.2 Where a split of a Certificate is implied by a Transfer Request, the Transfer Request will be deemed to apply to all the replacement Certificates up to the volume implied by that Transfer Request.

G5 Withdrawals

G5.1 SA-IB may withdraw a RECS Certificate held in a Transferable Account on its EECS Registration Database at the request of the Account Holder of that Account, or otherwise in accordance with the provisions of the RECS scheme, thereby cancelling it.

G6 Errors

G6.1 Where an error is introduced (subsequent to its Issue) into, or with respect to, a RECS Certificate held in the Account Holder's Transferable Account in the EECS Registration Database:

(a) In the course of its Transfer into that Account; or

(b) During such time as it is in such Account,

SA-IB will correct the error in or with respect to that RECS Certificate and any errors replicated in RECS Certificates split from it, provided that such RECS Certificate(s) have not been transferred out of that Transferable Account.

G6.2 SA-IB may Withdraw or alter a RECS Certificate held in its EECS Registration Database to give effect to an agreement reached with the Account Holder under provisions of the Standard Terms and Conditions.

G6.3 SA-IB may alter a RECS Certificate held in its EECS Registration Database so as to rectify an error which occurred prior to its transfer into the Account in which it is held at such time, provided:

(a) The Account Holder has agreed to such alteration;

(b) It is reasonably satisfied that any unjust enrichment of a RECS Scheme Participant as a consequence of such error has, to the extent reasonably practicable, been nullified;

(c) It is reasonably satisfied that the alteration itself does not give rise to undue enrichment of the Account Holder.

H MONITORING AND REPORTING

H1 Monitoring

H1.1 The Registrant, on behalf of the owner and operator, of a Production Device must permit SA-IB, or its agent, to access the Production Device or records associated with it, its energy output and sources of energy when conducting inspections in accordance with this section H1, including, if so required, without prior notice. Refusal to permit such access may be considered a breach of the Standard Terms and Conditions.

H1.2 SA-IB, or its agent, will periodically conduct inspections of a Production Device registered on its EECS Registration Database and any associated Import and Export Meters to confirm that:

(a) The information recorded in relation thereto on the EECS Registration Database is accurate;

(b) The Registrant and, where applicable, the owner and/or operator of the Production Device, is complying with all relevant obligations under the relevant EECS Schemes; and

(c) Such Production Device continues to meet the Qualification Criteria for the EECS Schemes in relation to which it is registered.

H1.3 The period between inspections of a Production Device under H1.2 above will not exceed 5 years. SA-IB will request the Registrant of a Production Device to produce a report from its nominated Production Auditor stating that the registration continues to satisfy the criteria in H1.2 above. See also I1.6 below.

H1.4 SA-IB, or its agent, may conduct ad-hoc inspections of records associated with relevant Public Support in relation to Production Devices registered on its EECS Registration Database for the purposes of EECS Schemes.

H2 Activity Reporting

H2.1 In order to maintain an open and orderly market, SA-IB has a duty to publish information in relation to the activities of that market.

H2.2 Each Production Auditor will report to SA-IB every 6 months specifying the auditing measures it has carried out in the preceding 6 months.

H2.3 SA-IB will publish an activity report no less than once every three months on the number of RECS Certificates which, within the preceding three calendar months:

(a) It has issued;

(b) (Where relevant) have been transferred within its EECS Registration Database from Accounts associated with one Domain to Accounts associated with another Domain held on the same EECS Registration Database;

(c) Have been transferred into its EECS Registration Database from EECS Registration Databases of other EECS Scheme registry operators;

(d) Have been transferred from its EECS Registration Database to EECS Registration Databases of other EECS Scheme registry operators;

(e) It has transferred from Transferable Accounts to Redemption Accounts.

H2.4 The AIB will publish in respect of each calendar year an annual report within six months of the end of that calendar year on the functioning and efficiency of the market in Scheme Certificates Issued or transferred to accounts in its members' EECS Registration Databases.

H2.5 The annual report referred to H2.4 above shall specify any institutional, structural, and legal impediments to the efficient functioning of the RECS scheme within South Africa.

H3 Exception Reporting

H3.1 Where as a consequence of an inspection conducted pursuant to H1 above, SA-IB determines that the Scheme Participant is in breach of this Domain Protocol or the Standard Terms and Conditions, or determines that a Production Device is in breach of the Qualifying Criteria for an EECS Scheme in relation to which it is registered, SA-IB will:

(a) Take such action as is necessary to secure that RECS Certificates are correctly being issued, such action to include, in a case of material non-compliance with the this Domain Protocol or the Standard Terms and Conditions by the Registrant, the withdrawal of registration of the relevant Production Device for the purposes of the EECS Scheme; and

(b) Notify the AIB of such breach where SA-IB is of the reasonable opinion that such breach could affect the transfer of EECS Certificates out of its EECS Registration Database into another EECS Registration Database.

H3.2 SA-IB will report any failures by the Scheme Participant to comply with the provisions of this Domain Protocol or the Standard Terms and Conditions to the Competent Authorities in relation to such matters. Such failures shall include behaviour by the Scheme Participant of which SA-IB is aware and which, in its reasonable opinion, amounts to a breach of Competition Law, or applicable law governing the conduct of financial markets.

H3.3 SA-IB will also notify the AIB of any report made by it under H3.1 above providing as much information in relation to such a report as is consistent with any duty of confidentiality it may have to the Scheme Participant.

I AGENTS AND MEASUREMENT BODIES

I1 Production Auditor

I1.1 The role of the Production Auditor is to verify Production Declarations and (where appropriate) Consumption Declarations made by Registrants of Production Devices to the CMO for the purposes of Certificate issuing. This is to ensure the continued fulfilment of the conditions of registration.

I1.2 The Production Auditor is an agent of SA-IB. The full list of approved Production Auditors is given in Annex 1 to this document and on the website www.sa-ib.ca.

I1.3 To be a Production Auditor, the company must gain approval from SA-IB. The operation of the Production Auditor is under the control of SA-IB and the Association of Issuing Bodies.

I1.4 The Registrant of the Production Device may nominate a Production Auditor from the list in Annex 1. Such a Production Auditor must be independent of the owner or the Registrant of the Production Device.

I1.5 The Production Auditor will receive information about the issued RECS Certificates from SA-IB and the registered information relating to the Production Device for the period being reviewed. The Production Auditor will compare generation capacity with the issued number of Certificates and other relevant data e.g. wind speeds, to identify any potential abnormalities.

I1.6 The Production Auditor will report any discrepancies from the registered information to SA-IB as soon as possible.

I1.7 A Production Auditor may also perform the role of Production Registrar.

I2 Production Registrar

I2.1 As part of the registration process for the Production Device, it is necessary for the information provided by the applicant to be independently verified. This is normally achieved through a site inspection.SA-IB must verify the application, but can delegate the activity to a Production Registrar as his agent.

I2.2 The full list of authorised Production Registrars is given in Annex 1 to this document and on the website www.sa-ib.ca.

I2.3 The structure of charges to the applicant for this service and verification timings for each Production Registrar are shown on the website www.sa-ib.ca.

I2.4 The Registrant, on behalf of the owner and operator, of a Production Device must permit SA-IB, or a Production Registrar as its agent, to access the Production Device or records associated with it, its energy output and sources of energy when conducting inspections in accordance with section I2.1 above.

I2.5 A Production Registrar may also perform the role of Production Auditor.

I3 Measurement Body

I3.1 A Measurement Body is an organisation responsible for the collection of metering data relating to the output of the Production Device.

I3.2 The full list of Measurement Bodies, approved to provide data for RECS in South Africa is given in Annex 1 to this document and on the website www.sa-ib.ca.

J MODIFICATIONS

J1 Modifications to this Domain Protocol

J1.1 The Scheme Participant may propose a modification to this Domain Protocol;

J1.2 Such a proposal will include a detailed description, including an exact specification of any proposed modification of this Domain Protocol and be passed in writing to SA-IB.

J1.3 On receipt of such a request, SA-IB will:

(a) Respond to the request within 10 working days, describing the procedures to be followed, and estimating when a reply can be expected;

(b) Consult with the other RECS Scheme Participants within South Africa;

(c) Decide whether the request and its consequences are in its opinion reasonable;

(d) Inform the RECS Scheme Participants within South Africa the outcome of this decision.

J1.4 SA-IB may make such modifications to this Domain Protocol as are in its opinion necessary to the effective and efficient operation of the market.

J1.5 Any modifications to this Domain Protocol are subject to approval by the AIB that such changes do not conflict with the Principles and Rules of Operation of the Association of Issuing Bodies (AIB) for The European Energy Certification System.

J1.6 Implementation of modifications will be notified by email to the Scheme Participant and will take effect on publication of the documentation on the website www.sa-ib.ca.

K ASSOCIATION OF ISSUING BODIES

K1 Membership

K1.1	SA-IB is a member of the Association of Issuing Bodies (AIB) and is bound by the quality standards of that Association for the international transfer of certificates. Continued membership is essential to facilitate international transfers of RECS Certificates.
K1.2	In order to maintain the quality standard across the entire EECS network, all AIB members are subject to audit and periodic peer review.
K1.3	In the event of SA-IB or one of its agents failing to maintain the quality standard, there may be a suspension of RECS Certificate issuing and/or international transfers into or out of South Africa.
K1.4	Should SA-IB decide to withdraw from AIB membership in respect of RECS in South Africa, it will give notice in writing to the Scheme Participant in accordance with the Standard Terms and Conditions.

Annex 1 of DP – Contacts List

Central Monitoring Office

Company	
Contact Person	
Address	
Country	
Phone number	
Email address	

Certificate Authority (*if different from the CMO)*

Company	
Contact Person	
Address	
Country	
Phone number	
Email address	

Production Registrars

Company	
Contact Person	
Address	
Country	
Phone number	
Email address	

Production Auditors

Company	
Contact Person	
Address	
Country	
Phone number	
Email address	

Measurement Bodies

Company	
Contact Person	
Address	
Country	
Phone number	
Email address	

Annex 2 of DP – Registration Form

Registrant of Production Device

Applicant status:	Owner/Registrant only (delete as appropriate)	Declaration of changes[1]	❑
Name:		Contact person:	
Street:			
City:		Postal code:	
Country:		Phone #:	
e-mail:		Fax #:	
Issuing Body:		ERD[2] account #:	

Production Device

Device name and street:	
City:	Postal code:
Country:	EAN code (if applicable)
Grid reference:	ID for meter readings:
Production Device is connected directly to the grid: Yes/No	Connection Voltage (kVA)
If the Production Device is *not* connected directly to the grid, specify the circumstances, and additional relevant meter registration numbers:	
Installed capacity, MWe:	Date of commissioning:
Heat category [3]	Predominant use of heat [3]

Energy sources

List all possible energy sources and codes for the production device from the list in Annex 3

Energy source	**Code**	**Energy source**	**Code**

Public Support schemes

List all Public Support schemes associated with the production device (see AIB PRO Fact Sheet 3 – Types of Public Support), including CDM

[1] Highlight changed data on declaration of changes. [2] ERD = EECS Registration Database. Only for changes. [3] CHP devices only

Place	**Date**	**Verified by**

Signature Registrant Production Registrar

Authorised personnel	

By undersigning this registration form the Registrant also reaffirms the relevant requirements of the Domain Protocol:

- The Registrant is authorised by the owner of the Production Device, which is the object of this registration form to so register that Production Device for RECS in South Africa.
- The electrical energy produced by the Production Device is produced according to the Qualifying Criteria set out in D3 of the Domain Protocol for RECS in South Africa and will in addition be supported by such other criteria as may be from time to time prescribed by the scheme authority or CMO responsible for the Domain within which the Production Device lies.
- The information given in this registration form is truthful and exhaustive.
- Any planned changes concerning the information given in this registration form will be announced in advance to the Production Registrar and the CMO. Any unplanned changes will be announced to the Production Registrar and the CMO at the first possible occasion.
- The owner of the production device and the Registrant as his agent accept the possibility of unannounced control and auditing visits to their own premises and/or the premises of the production device, as prescribed in the Domain Protocol for RECS in South Africa.

Annex 3 of DP – Energy Source Types and Technology Types

Reference should be made to AIB PRO Fact Sheet 5 on the website www.aib-net.org for the latest version of these tables.

Renewable Source Electricity (*Schemes: RECS and EECS-GoO*)

Source	Technology	Type	Combustible?	CO_2[17] (kg/GJ)	Code
Wind	*Wind turbine*	Onshore	No	0.0	01
		Offshore	No	0.0	02
Solar	*Photovoltaic*		No	0.0	03
	Thermal		No	0.0	04
Energy from water (excluding electricity used for pumping hydro)	*Hydro power*		No	0.0	05
	Tidal energy	Onshore	No	0.0	06
		Offshore	No	0.0	07
	Wave energy	Onshore	No	0.0	08
		Offshore	No	0.0	09
Geothermal			No	0.0	10
Biomass, using gasification and non-gasification technologies [18]	*Energy crops*		Yes	0.0	11
	Forestry and agricultural by-products and waste		Yes	0.0	12
	Biogas	Landfill gas	Yes	0.0	13
		Sewage gas	Yes	0.0	14
		Other	Yes	0.0	15
	Energy from by-products and waste (with varying levels of filtration) [19]	Municipal solid waste	Yes	0.0	16
		Industrial by-products & commercial waste	Yes	0.0	17

[17] This reflects the IPCC statistics where available, and otherwise the Dutch table of standard CO_2 emission factors for energy production

[18] As variously defined in the Renewable Energy, Large Combustion Plants and Waste Combustion Plants Directives

[19] Note that RES certificates will only be issued for the estimated non-fossil proportion (i.e. excluding plastics) of Energy from By-Products and Waste

Cogeneration (*Scheme: CHP-GO*)

Source	Technology	Type		Combustible?	CO_2[20] (kg/GJ)	Code
Biomass, using gasification and non-gasification technologies [21]	*Wood fuels* [22]			Yes	0.0	30
	Solid (biodegradable) waste & agricultural biomass [23]			Yes	0.0	31
	Liquid biodegradable waste (black liquor etc)			Yes	0.0	32
	Liquid biofuels (Vegetable oils, biodiesel, bio-ethanol, bio-crude-oil etc)			Yes	0.0	33
	Biogas			Yes	0.0	34
Fossil	*Solid fuel*	Hard coal / coke	Anthracite	Yes	98.3	50
		Oil shale		Yes	106.7	58
		Lignite / lignite brickettes		Yes	101.2	59
		Peat / peat brickettes		Yes	106.0	60
	Gases	Natural gas		Yes	56.1	61
		Refinery gas, hydrogen		Yes	0.0	64
		Coke oven gas, blast furnace gas + other waste gases (including recovered waste heat)	Coke oven gas	Yes	41.2	68
	Liquid Fuel	Gas/diesel oil		Yes	74.3	70

[20] This reflects the IPCC statistics where available, and otherwise the Dutch table of standard CO2 emission factors for energy production

[21] As defined in the Guidelines to the CHP Directive

[22] Wood fuels: Firewood, wood chips, bark , wood pellets, briquettes, sawdust, shavings, chips, purpose grown crops like willow, industrial wood waste, demolition wood

[23] Agricultural biomass: solid agricultural crops (perennial and annual herbaceous crops), residues and waste (straw, rice husks, nut shells, poultry litter, crushed grape dregs etc)

Disclosure *(Scheme: EECS-Disclosure)*

Source	Technology	Type		Combustible ?	CO_2[24] (kg/GJ)	Code
Wind	*Wind turbine*	Onshore		No	0.0	01
		Offshore		No	0.0	02
Solar	*Photovoltaic*			No	0.0	03
	Thermal			No	0.0	04
Energy from water (excluding electricity used for pumping hydro)	*Hydro power*			No	0.0	05
	Tidal energy	Onshore		No	0.0	06
		Offshore		No	0.0	07
	Wave energy	Onshore		No	0.0	08
		Offshore		No	0.0	09
Geothermal				No	0.0	10
Biomass, using gasification and non-gasification technologies [25]	Non-CHP plant	*Energy crops*		Yes	0.0	11
		Forestry and agricultural by-products and waste		Yes	0.0	12
		Biogas	Landfill gas	Yes	0.0	13
			Sewage gas	Yes	0.0	14
			Other	Yes	0.0	15
		Energy from by-products and waste (with varying levels of filtration) [26]	Municipal solid waste	Yes	0.0	16
			Industrial by-products & commercial waste	Yes	0.0	17
	CHP Plant	*Wood fuels*[27]		Yes	0.0	30
		Solid (biodegradable) waste & agricultural biomass[28]		Yes	0.0	31
		Liquid biodegradable waste (black liquor etc)		Yes	0.0	32
		Liquid biofuels (Vegetable oils, biodiesel, bio-ethanol, bio-crude-oil etc)		Yes	0.0	33
		Biogas		Yes	0.0	34
Fossil	*Solid fuel*	Hard coal / coke	Anthracite	Yes	98.3	50
			Coking coal	Yes	94.0	51
			Coking coal (used in coke oven)	Yes	95.4	52
			Coking coal (used in blast furnace)	Yes	89.8	53
			Other bituminous coal	Yes	94.7	54

[24] This reflects the IPCC statistics where available, and otherwise the Dutch table of standard CO2 emission factors for energy production

[25] As variously defined in the Renewable Energy, Large Combustion Plants and Waste Combustion Plants Directives; and the Guidelines to the CHP Directive. In general, plant operators are likely to use RES terms for non-CHP plant, and CHP terms for CHP plant; however, this is not mandatory

[26] Note that RES certificates will only be issued for the estimated non-fossil proportion (i.e. excluding plastics) of energy from by-products and waste

[27] Wood fuels: Firewood, wood chips, bark , wood pellets, briquettes, sawdust, shavings, chips, purpose grown crops like willow, industrial wood waste, demolition wood

[28] Agricultural biomass: solid agricultural crops (perennial and annual herbaceous crops), residues and waste (straw, rice husks, nut shells, poultry litter, crushed grape dregs etc)

Source	Technology	Type		Combustible ?	CO_2[24] (kg/GJ)	Code
			Sub-bituminous coal	Yes	96.1	55
		BKB and Patent Fuel		Yes	94.6	56
		Coke Oven / Gas Coke		Yes	111.9	57
		Oil shale		Yes	106.7	58
		Lignite / lignite briquettes		Yes	101.2	59
		Peat / peat briquettes		Yes	106.0	60
	Gases	Natural gas		Yes	56.1	61
		Carbon monoxide		Yes	155.2	62
		Methane		Yes	54.9	63
		Hydrogen		Yes	0.0	64
		Phosphor gas		Yes	149.5	65
		Oxy gas		Yes	191.9	66
		Blast furnace gas		Yes	247.4	67
		Coke oven gas		Yes	41.2	68
	Liquid fuel	Oil	Gas/diesel oil	Yes	74.3	70
			Residual fuel oil	Yes	77.4	71
			LPG	Yes	66.7	72
		Other oils	Crude oil	Yes	73.3	73
			Orimulsion	Yes	80.7	74
			Natural gas liquids	Yes	63.1	75
			Gasoline	Yes	72.0	76
			Jet kerosene	Yes	71.5	77
			Other kerosene	Yes	71.9	78
			Shale oil	Yes	73.3	79
			Ethane	Yes	61.6	80
			Naphtha	Yes	73.3	81
			Bitumen	Yes	80.7	82
			Lubricants	Yes	73.3	83
			Petroleum coke	Yes	100.8	84
			Refinery feedstocks	Yes	73.3	85
			Refinery gas	Yes	66.7	86
			Chemical waste gas	Yes	66.7	87
			Other oil	Yes	73.3	88
		Non-renewable proportion of waste		Yes	73.6	89
Nuclear				No	0.0	90
Other				Yes[29]	User specified	95

[29] Other might include both combustible and non-combustible energy sources, but defaults to "combustible" to provide necessary safeguards

Annex 4 of DP – Production/Consumption Declaration

General

This Production Declaration states the proportion of the actual equivalent electricity production that qualifies for RECS Certificates within this time period. An approved independent Production Auditor must verify sections II to IV of this Production Declaration.

I. Owner of Production Device/Generator

1. Name of Owner	
2. Name of Registrant, if different	
3. Contact person	

II. Production Device

1. PRODUCTION DEVICE REFERENCE NUMBER	
2. DATE OF LAST REGISTRATION FORM	
3. THE PERIOD OF PRODUCTION	

III. The percentage share of the total electricity produced during the associated period of production that is based on each fuel source (electricity from biomass and multiple fuel source Production Devices only)

The share of electricity from each fuel source shall be verified based on information submitted to the administrator of a Public Support scheme, or by a review of documents showing changes in stock and purchased fuels.

It is assumed that the efficiency factor is independent of fuel type. The generator is free to make a separate verification of the efficiency factor.

			Fuels in stock, at the beginning of	**Purchased fuels during the period**	**Fuels in stock, at the end of the**	**Consumption during the period**	**Average Net (lower) Calorific**	**Energy Source**
Period start date						**M^i**	**C^i**	**L^i**
Period end								

date								
Energy source	***Code***							
		kg						
		kg						
		kg						
		kg						
Total Biomass		kg						
Total Non Biomass		kg						
Energy Source Factor (in accordance with F2.6)		$L^i = \frac{\sum_i^j M^i x C^i}{\sum_i^n M^i x C^i}$						

IV. The percentage share of the total electricity produced during the associated period of production that is based on the renewable energy sources (electricity from pumped storage hydro only)

a. Total electricity generated this period (GWh) _____

b. Total electricity consumed this period (GWh) _____

c. Total potential energy resulting from previous period pumping (GWh) _____

d. Overall efficiency of pumping/generating (%) _____

Total natural inflow derived energy (= a - b/d – c) _____GWh

V. Declaration of CHP Attributes (CHP Devices only)

a. Gross electricity production _____ MWh

b. Electricity exported to grid _____ MWh

c. Mechanical energy production _____ MWh thermal

d. Total useful heat production _____ GJ

e. Non-CHP useful heat production _____ GJ

VI. Verification of the Production Declaration

The undersigned Production Auditor has reviewed the Production Declaration and has no material reason to doubt the correctness of the data under II-V.

Name……..…….

On behalf of …… Production Auditor

VI. Number of Certificates

Proportion of eligible MWh for which certificates are being applied is: _____% / _____MWh (complete as applicable). Note: energy sold under a labelling system may not qualify for RECS Certificates. Please check with the issuer or scheme authority.

VII. Signature for the Registrant

Name ……..…….

On behalf of ……

Date …….

Annex 5 of DP – Account Application/Amendment Form

Application for account opening/amendment in South Africa for RECS Certificates.

Applicant/Account Holder Name:	
Account Number (if existing):	
Address:	
Primary contact details:	
Name:	
Telephone:	
Email:	
Effective date:	
Authorised personnel	

The applicant/Account Holder requests:

Open new Transferables Account

Open new Redemption Account

Amend authorised personnel on this account to only those shown above

Amend Account Holder contact details

Close account

The applicant agrees to abide by the regulations governing RECS including the provisions and requirements the Domain Protocol for South Africa and the Standard Terms and Conditions of participation.

Signed ……

In the position of ……

Date ……

Annex 6 of DP – RECS Redemption Statement

This Redemption Statement acts as a receipt for the RECS Certificates listed below and for the purpose shown.

Account Holder	<Electrabel>	**Account Number**	<04X00000B1>
Address of Account Holder	<Regentlaan 8> <B-1000 Brussels> <Belgium>	**Registry Redeemed from**	<Country Code> <IB Code> <IB name>
Total of Redeemed Certificates	<60 000>	**Total number of MWh represented**	<60 000>
Redemption Date	<2003-09-12>	**Redemption category**	<Disclosure>
		Redemption purpose	<support of eco-label on behalf of customer in x Domain in year Z>

Production Device ID	**Energy Source**	**Domain of Origin**	**Public Support**	**Additional Remarks by the Issuing Body**
70705230001000XXXX	<onshore wind>	<Norway>	<tax exemption>	<Free text>

From Certificate ID	**To Certificate ID**	**Certificates**	**MWh**	**Production Period from / to**	**Issue Date**
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd

Production Device ID	**Energy Source**	**Domain of Origin**	**Public Support**	**Additional Remarks by the Issuing Body**
707052300012000XXXX	<biomass>	<Austria>	<none>	<Free text>

From Certificate ID	**To Certificate ID**	**Certificates**	**MWh**	**Production Period from / to**	**Issue Date**
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd
64206164132250081000XXXXXXXXXX	64206164132250081000XXXXXXXXXX	10 000	10 000	yyyy-mm-dd - yyyy-mm-dd	yyyy-mm-dd