

# *Greenhouse Confusion 2008*

## *Renewable Energy, Smoke and Mirrors*

Taking a look at double counting, confusion and misleading frameworks in greenhouse and renewable energy accounting in Australia.

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# Purpose

- To encourage support clear rules and guidelines that provide assurance for those trading and using renewable energy and low emissions technology .
- To describe pitfalls that cause renewable energy to be claimed more than once.
- To describe how State electricity emission factors double count renewables, posing risks for businesses

## Personal view

It is important to ensure that greenhouse accounting methodologies are robust and consistent in the same way that society demands that financial accounting systems must meet the highest scrutiny.

If the accounting frameworks are not sound, voluntary action cannot be justified.

# Accounting Frameworks

- Mandatory Renewable Energy Target
  - Administered by the Renewable Energy Regulator
  - Keeps a Register of **Renewable Energy Certificates (RECs)**
- Department of Climate Change,
  - National Greenhouse Accounts (NGA) Factors  
(Includes definitions of Scope 2 and 3 aggregated state electricity emission factors)
  - Greenhouse Friendly Accreditation (offset products)
- GreenPower State based accreditation Scheme
- New South Wales Greenhouse Gas Abatement Scheme

# Key Problem – Legal ownership of Scope 2 emissions benefits from renewable and lower emissions electricity use.

- The legal ownership of lower electricity greenhouse gas emissions or benefits *has never been defined* at the Scope 2 level.
- Greenhouse benefits are assigned to all standard electricity users and claimed by other users.
- RECs and GreenPower market frameworks have not been transparent.
- The proposed Regulations Policy under the National Energy and Greenhouse Reporting Act 2007 proposes to exclude any greenhouse benefits to renewable buyers to offset Scope 2 emissions.
- Running a desalination plant on accredited renewable energy (for example) would do nothing to avoid or reduce greenhouse emissions of a water utility.

# The many faces of Renewable Energy Certificates (RECs)

The Office of the Renewable Energy Regulator (ORER)

*“Each REC represents the equivalent of one megawatt hour (MWh) of generated electricity from an accredited renewable energy source”.*

REC Detail Increasing Australia's renewable electricity generation

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REC Details

Certificate Number : 000265-WD00TA03-2007-000001

**Certificate Details**

Creator (Registered Person Code) : 265

Accreditation Code : WD00TA03

Generation Year : 2007

Serial Number : 1

Certificate Creation Date : 15/06/2007

Fuel Source : Wind

Created By : Peter N Magill

Current Owner : Australian Antarctic Division

Current REC Status : Registered

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Transfer History

Date Of Transfer	Buyer	Seller
No Results Found		

Close

RECs to a householder looking to install a solar hot water or PV system,

**“What is the REC's **rebate**?”**

REC's stands for Renewable Energy Certificates. You earn one of these for every tonne of greenhouse gas your solar energy system saves. ----- sells the certificates generated by your system in fifteen years to a market trading system”.

*Dozens of companies describe RECs as a rebate for householders*

# Office of the Renewable Energy Regulator (ORER) and voluntary surrender of RECs

“The Renewable Energy (Electricity) Act 2000 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;

- to reduce greenhouse gas emissions; or**

- to demonstrate their use of additional renewable electricity from a particular renewable energy fuel source accredited under the mandatory renewable energy target”.



# Greenhouse Challenge members buying RECs

Greenhouse Challenge Reporting Guidelines (2007) - Current

“Purchased offsets must be recorded against the relevant area of the member’s inventory.

... RECs must be converted to the equivalent CO<sub>2</sub> emission using the relevant States’ emission factor for electricity before being deducted from the member’s inventory.”

# RECs in GreenPower

GreenPower accredited products cover  
1 REC + 1 GreenPower Right.

“GreenPower Providers are required to surrender (or invalidate) ‘eligible’ RECs.”

A GreenPower Right is defined as the right to claim any eligible GreenPower generation (or a portion of generation) from a GreenPower Generator that may be bought by or transferred to a GreenPower Provider for use in respect of a GreenPower Product

RECs as described by REC traders in the market.

## “About RECs

Renewable Energy Certificates (RECs) can be created by owners of small generating units such as solar panel (Photovoltaic) systems, solar water heater or heat pump systems and small wind systems.

.... and provides an added incentive for customers installing a renewable energy system”.

# What is missing in all REC descriptions?

Critical components of what a REC may actually represent such as:

- Use of renewable energy.
- Reduced emissions associated with the use of renewable energy compared with standard electricity.
- Embodiment of the green-ness and renewable-ness of renewable electricity.

RECs are under-defined

# TRAPS

The following traps are describe on the basis that when a customer buys renewable energy which includes accredited RECS, that this embodies reduced emissions, green-ness and renewable-ness.

“GreenPower helps make it easy for you to significantly reduce your impact on climate change.”

“Purchasing GreenPower reduces your personal greenhouse emissions and, by using and investing in new sources of renewable energy, helps reduce our reliance on the earth’s limited fossil fuel resources”.

# Australian Greenhouse Office Greenhouse Challenge Public Progress Statement 2003-2004.

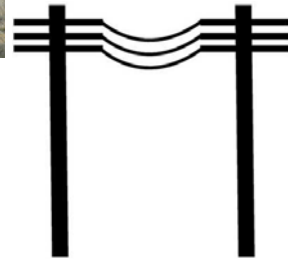
<b>EMISSIONS SOURCE</b>	<b>CONSUMPTION (UNITS)</b>	<b>CONVERSION FACTOR</b>	<b>CO2-e</b>
Electricity	43,948 kWh	1.012 (NSW/ACT)	44.48 t
Greenpower	228,325 kWh	0	0 t
Petrol - unleaded	15.518 kL	2.5	38.80 t
<b>NET EMISSIONS</b>			<b>82.28t</b>

# Trap 1 - Using *electricity from a renewable source* versus using *renewable electricity*.

- There is a difference!
- Large customers are being caught up by the lack of guidance
- claims can be unsustainable and investment decisions wrong if the cost of purchasing the RECs is not included



# Trap 1 - Using *electricity from a renewable source* versus using *renewable electricity*



REC Detail Increasing Australia's renewable electricity generation

REC Details

Certificate Number: 000713-140000403-2006-000001

Certificate Details

Creator (Registered Person Code): 711  
Accreditation Code: 140000403  
Generation Year: 2006  
Serial Number: 1  
Certificate Creation Date: 30/03/2006  
Plant Source: Wind  
Created By: Anne L. Casamento  
Current Owner: AGL South Australia Pty Limited  
Current REC Status: Invald due to surrender

Transfer History

Date Of Transfer	From	To
24/02/2006 08:31:05	AGL South Australia Pty Limited	Cananda Power Pty Ltd
24/02/2006 12:05:04	AGL South Australia Pty Limited	Cananda Power Pty Ltd

**Renewable Energy Certificates (RECs) as a minimum**

Meets Accreditation Standards

Included in GreenPower products

**FIRST COUNT**

RECS certificates surrendered to the Office of the Renewable Energy Regulator.

Enables legitimate claim of use

Hard Wiring and movement of electrons  
or

Buying electricity from a renewable generator, but without the RECs

**DOUBLE COUNT**

A claim that the electricity comes from a renewable source

**Once the renewable component is sold to another party as a REC, the remaining electricity is no longer renewable, and does not reduce greenhouse gas emissions.**

# Trap 2 – Aggregated State Emissions Factors (EFs)

- Designed for the National Greenhouse Gas Inventory (NGGI), as a descriptor of Scope 1 greenhouse intensity
- Used in the (NGA) Factors workbook for Scope 2 emissions
- Proposed for National Energy and Greenhouse Reporting.
- Whilst not being a legal mechanism (yet) the Factors assign the benefits of renewables and low emissions electricity to standard electricity users.
- Convert the kWh to equivalent kilograms carbon dioxide greenhouse gas emissions (CO<sub>2</sub>-e)
- The factors are used in standard electricity billing information and by Greenhouse Challenge Members.

# Trap 2 – How State Efs are calculated



The sum of emissions from

**Mandatory renewables,  
voluntary renewables and  
low emission products**

+

**Standard Fossil  
Fuels**

**(Tonnes  
CO<sub>2</sub>-e)**

*EFG Scope 2 =*

The sum of electricity consumed in the state  
(including electricity from renewables and low  
emission sources)

**(MWh)**

- Every MWh of renewable electricity sold interstate as RECs, and every MWh of renewable electricity sold to a renewable energy customer, is still included in the State emissions factors and assigned to standard electricity users – CAUSING DOUBLE ACCOUNTING

- If a standard electricity factor was corrected for sales to GreenPower customers and interstate trades it would become increasingly different.

### **Note for life cycle assessments**

*Scope 3 and full fuel cycle electricity emission factors do not include emissions for constructing generation plants or transmission grids.*

# Trap 3 –State Reporting Frameworks

The Office of the Renewable Energy Regulator does not report on interstate flows of RECs

One State may claim all of the renewables generated in state borders as used within the state.

Another State may be developing a state scheme that allows the counting of imported Renewable Energy Certificates as use (NSW proposal).

Taking this to the extreme, one state could produce 20% renewables, another could consume those renewables as RECs and both could claim 20% use.

All states are now likely to merge MRET schemes but it is not clear whether they will keep State *use* targets

# Trap 4 - Hot Water System RECs and Transaction Disclosures



REC Detail Increasing Australia's renewable electricity generation

REC Details

Certificate Number: 000713-H0000409-2006-000001

Certificate Details

Creator (Registered Person Code): 711

Accreditation Code: H0000409

Generation Year: 2006

Serial Number: 1

Certificate Creation Date: 24/02/2006

Host Source: Wind

Created By: Anne L. Casamento

Current Owner: AGL South Australia Pty Limited

Current REC Status: Invalid due to surrender

Transfer History

Date Of Transfer	Buyer	Seller
24/02/2006 08:31:05	AGL South Australia Pty Limited	Cananda Power Pty Ltd
24/02/2006 12:05:34	AGL South Australia Pty Limited	Cananda Power Pty Ltd

Close

Renewable Energy Certificates (RECs) as a minimum

Meets Accreditation Standards

Based on displacement of standard electricity MWh from a renewable energy source

**FIRST COUNT**  
RECS certificates surrendered to the Office of the Renewable Energy Regulator.

Enables legitimate claim of use



Physical piping of hot water

**DOUBLE COUNT**  
A claim that the hot water comes from a renewable source

# Trap 4 - Hot Water System RECs and Transaction Disclosures

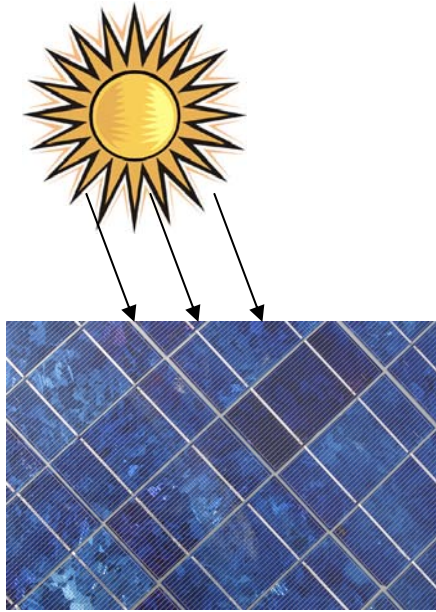
- Over 177,000 individual SWHs have now been installed and RECs claimed against them.
- RECs from SWHs currently contribute around 20% of the total RECs registered since the beginning of the MRET Act.
- Of the 5600 GWh required from MRET in 2007, approximately 1120 GWh was achieved from solar hot water systems
- a large proportion of **mandatory** renewable energy was replaced by the **voluntary** action of householders

## Trap 4 - Consequences

- More cost effective projects are displaced
- 1120 GWh equates to around 170 wind turbines or several medium-large solar thermal towers
- Lack of disclosure to householders on what it means to sell the RECs has caused systemic double counting of the benefits
- No net gain



# Trap 5 – Residential-Photo Voltaic System RECs



Renewable Energy Certificates (RECs) as a minimum

Meets Accreditation Standards

Based on generation of renewable energy (MWh)

**FIRST COUNT**  
RECS certificates surrendered to the Office of the Renewable Energy Regulator.

Enables legitimate claim of renewable energy use and reduced emissions



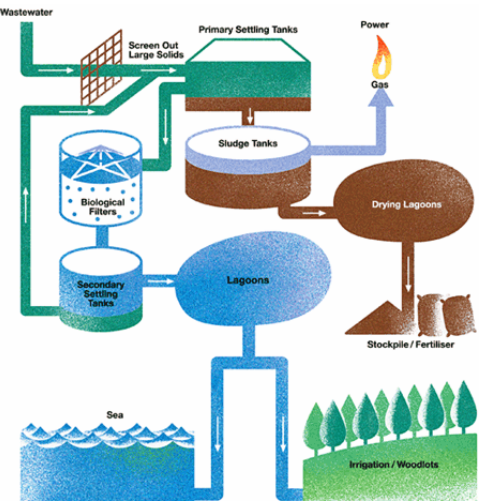
Physical wiring to the household and grid connection

**DOUBLE COUNT**  
Belief of household use of renewable energy and reduced greenhouse emissions

## **Trap 5 – Residential-Photo Voltaic System RECs**

- Over 4,600 individual Small Scale Generation Units (SGUs) have now been installed and RECs claimed against them (ORER 2006/7 Financial Annual Report).
- Householders are largely unaware of what it means when they sign across their deemed renewable energy certificates.
- RECs transaction documents and guidelines do not make it clear that signing over RECs means another party has the legitimate right to claim use of the renewable energy.

# Trap 7 - Industry User-Generators.



## REC



Sale of RECs across site boundary to a third party

Meets Accreditation Standards

Based on generation of renewable energy (MWh)

**FIRST COUNT**  
RECS certificates

Surrendered to the Office of the Renewable Energy Regulator.

Enables another user legitimate claim of renewable energy use and reduced emissions

Physical wiring within the site boundary

**DOUBLE COUNT**  
Claim of renewable energy use and reduced greenhouse emissions

## **Trap 7 - Industry User-Generators.**

- Businesses and industries are exploring and developing opportunities for on-site renewable power generation systems including wind, solar, mini hydro, biogas, hot rocks etc.
- RECs guidelines and transaction documents and Department of Climate Change guidelines do not provide sufficient advice to caution user-generators against claiming to reduce their greenhouse emissions at the same time selling their RECs.

# GreenPower - Trap Fixed in 2006



Creation and sale of  
RECs in isolation

Meets Accreditation  
Standards

Based on generation of  
renewable energy  
(MWh)

**FIRST COUNT**  
RECS certificates

Surrendered to the Office  
of the Renewable Energy  
Regulator.

Enables another user  
(liable party or voluntary  
consumer) a legitimate  
claim of renewable energy  
use and reduced emissions

Or

**GreenPower**

Requires  
1 REC +  
1 GreenPower Right  
(GPR)



GreenPower Rights  
sold outside the  
GreenPower Program

**DOUBLE COUNT**  
When GPRs used  
inappropriately

Stopped with improved  
GreenPower  
Guidelines in late 2006

# Recommendations

1. Legally assign the greenhouse benefit of renewable energy *preferably* with the buyer of a REC, or to standard electricity users BUT NOT TO BOTH.
2. Improve disclosure and guidelines in relation to Solar hot water and small scale generation units
3. Establish alternative incentives for hot water systems
4. ORER to improve website and guidelines to caution industry user-generators against claiming site use of renewable energy or reduced greenhouse gas emissions where the RECs are sold to other parties

## Recommendations continued

5. ORER to establish a pre-condition for selling RECs that there be no parallel claim for the use of the same renewable electricity by *inference or belief*.
  
6. The Department of Climate Change to provide clear direction that ‘Play on Word claims’ that are misleading to stakeholders will not be tolerated and will result in a legal consequence.

For example, ‘buying electricity from a renewable energy resource’ without the RECs, is not the same as ‘buying renewable electricity’ in an accredited product that includes the RECs.

## Recommendations continued

7. Develop state *Standard Electricity Emissions* factors that adjust for:
  - lower emissions electricity sold as specific products
  - renewable energy sold voluntarily in accredited products
  - RECs sold across state borders.

This would require a small change to the RECs Register for voluntary and interstate RECs sales to be included in the methodology, using existing GreenPower data, and creating and using a register of other low emission energy trades.



# Conclusions

1. There is a great deal of good intention amongst Government, businesses and communities to tackle climate change.
2. Significant traps remain causing uncertainty and mistakes.
3. Leadership is required to get the rules right so that Governments, businesses and individuals can play a part in reducing emissions whilst preventing double counting.
4. Water utilities cannot build a case to buy and use GreenPower if there is no greenhouse benefit for their business.