

AUSTRALIA'S RENEWABLE ENERGY CERTIFICATE SYSTEM

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Energy Efficiency Certificate Trading

Milano, Italie

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OVERVIEW

- I Outline of Renewable Energy (Electricity) Act 2000 and Objectives
- II Legal Framework
- III Tradeable Certificates
- IV First Year's Experience
- V Discussion– baselines, investment trading
- VII Conclusions

I – OUTLINE AND OBJECTIVES

OUTLINE OF RE(E) ACT

- **What** – Increase renewable energy in electricity
- **Who** – Obliges wholesale buyers of electricity to increase RE in electricity
- **How** – Demonstrated by surrendering renewable energy certificates to Regulator
- **Where** – RECs come from eligible generators of electricity
- **Why** – Reduce greenhouse gas emissions and stimulate new industry

OBJECTIVES OF ACT

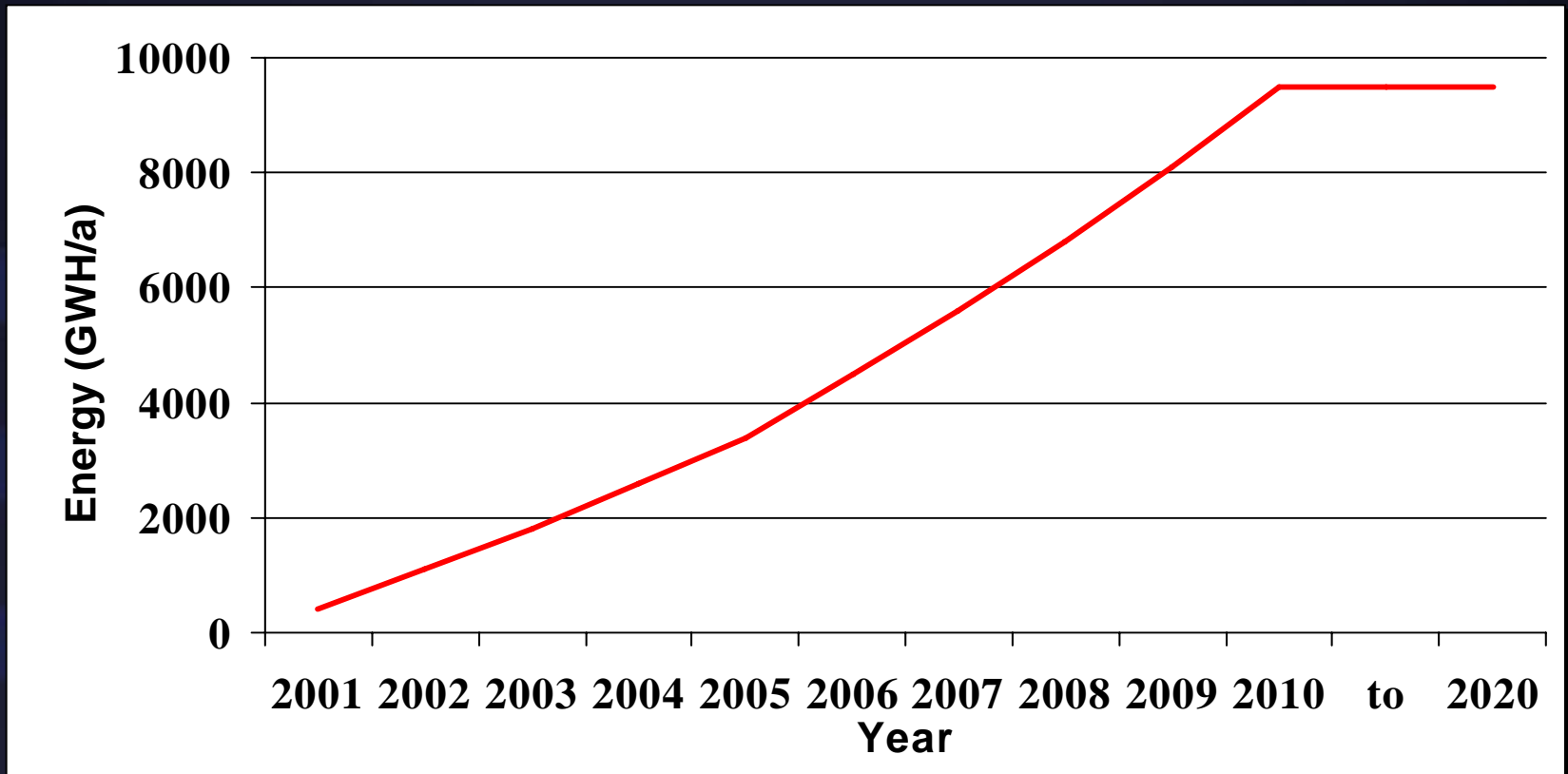
- Encourage the additional generation of electricity from renewable energy sources
- reduce greenhouse gas emissions
- energy sources are ecologically sustainable



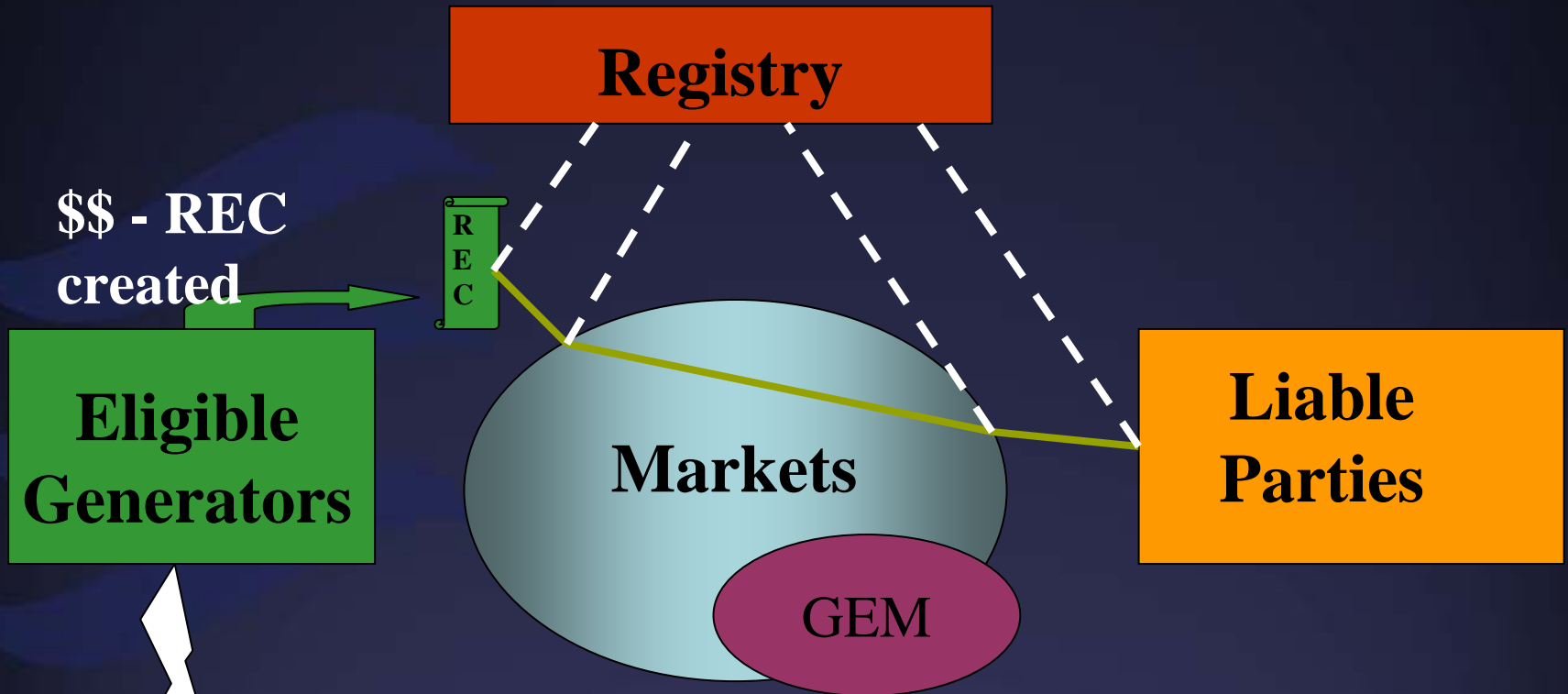
GENERAL PRINCIPLES

- Liable entities (wholesale Buyers) legally responsible for meeting obligations
- Market-based tradeable Renewable Energy Certificates (RECs) used to demonstrate compliance
- Liability discharged by surrendering RECs to Regulator

GENERAL PRINCIPLES – TARGET



MARKET FORM



\$\$ - Electricity dispatched and sold as normal

II – LEGAL FRAMEWORK

LEGISLATIVE FRAMEWORK

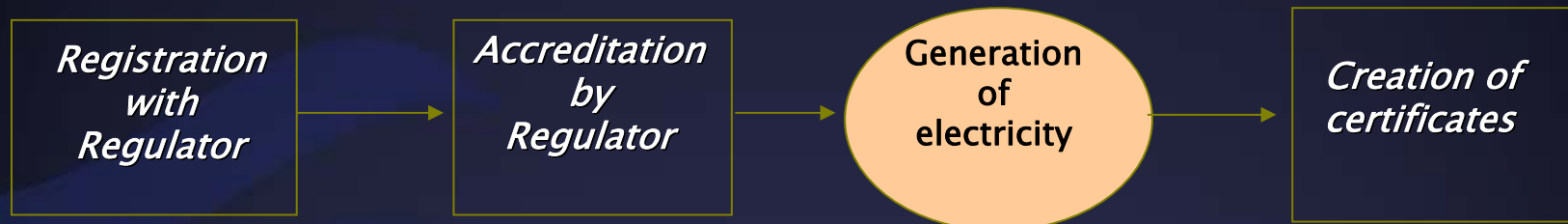
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- *Renewable Energy (Electricity) Act 2000*
- *Renewable Energy (Electricity) (Charge) Act 2000*
- Regulations

III – TRADEABLE CERTIFICATES

RENEWABLE ENERGY CERTIFICATES

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Any person
Regulator allocates
registration number

Any registered person
who owns a power station
which produces some
electricity from eligible
renewable energy sources
may apply if successful
Regulator allocates
accreditation number.
Accreditation is not
retrospective.

Certificates can only be
created after electricity has
been generated. Certificate is
not valid until fee (8 cents)
has been paid and the
Regulator has determined it is
eligible for registration.
Internet based registry.
One REC = One MWh of
renewable electricity.

REC – REGISTRY

- REC registry is located at www.rec-registry.com
- Certificates can be traded independently of Regulator, but all trades must be recorded in REC registry
- Public, members and administration areas
- Public part of the registry shows: *REC id number; year of creation; name of creator; name of current owner and previous owners; and renewable energy source.*

REC REGISTRY

The screenshot shows a Netscape browser window with the title "Registry For Renewable Energy Certificates > Homepage - Netscape". The address bar contains "http://www.rec-registry.com/". The main content area features the ORER logo and the heading "Registry For Renewable Energy Certificates". The page text includes a welcome message, a description of the registry's purpose, and instructions for users. A sidebar on the right contains navigation links for "BROWSE", "LOGON", and "Not a member?".

ORER
OFFICE OF THE RENEWABLE ENERGY REGULATOR

Registry For Renewable Energy Certificates

Welcome to the public registry of information relating to the creation and exchange of Renewable Energy Certificates.

The registry allows you to search for individual certificates, registered persons, accredited power stations, and power station accreditation applications.

A valid username and password are required to view your own certificates or invoices, create certificates or transfer certificates.

BROWSE

Public Registers

[Browse or search](#) for public information

LOGON

Members Please Logon

Lost your password?
[Contact our helpdesk](#)

Not a member?

Document: Done

REC REGISTRY

Tuesday 17th July, 2001

User: Public User

OFFICE OF THE RENEWABLE
ENERGY REGULATOR

Home

Certificates

Persons

Power Stations

Power Station Applications

RENEWABLE ENERGY CERTIFICATE SEARCH

REC ID Code	Person Number	Station Code	Year	Serial Number
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Fuel Source	<input type="text" value="Solar Water Heater (Deemed)"/>			
State	<input type="text" value="SA"/>			
Status	<input type="text" value="Valid"/>			
	<input type="button" value="Search"/> <input type="button" value="Reset"/>			

There were 200 rows returned. This is page of 4.

Certificate Number	Fuel Source	State	Status
000030-SW000133-2001-000030	Solar Water Heater (Deemed)	SA	Valid
000030-SW000133-2001-000029	Solar Water Heater (Deemed)	SA	Valid
000030-SW000133-2001-000028	Solar Water Heater (Deemed)	SA	Valid



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Location: <http://www.rec-registry.com/public/stations.main>

What's Related

Search Reset

There were 11 rows returned. This is page 1 of 1.

Accreditation Code	Registered Name	Station	Fuel Source	State	Accreditation Date
BEBGWA01	Landfill Gas and Power Pty Ltd	Red Hill Power Station	Landfill Gas	WA	23/04/2001
BEBGWA02	Landfill Gas and Power Pty Ltd	Kalamunda Power Station	Landfill Gas	WA	23/04/2001
BEBGWA03	Landfill Gas and Power Pty Ltd	Brockway	Landfill Gas	WA	25/06/2001
BEBGWA04	Landfill Gas and Power Pty Ltd	Canningvale	Landfill Gas	WA	25/06/2001
BEBLWA01	ANDREW GRAHAM	Rufftuff	Food And Agricultural Wet Waste	WA	28/09/2001
HYMIWA01	Western Power	Wellington	Hydro	WA	01/04/2001
SRPWA01	Jonathan Thwaites	Rooftop PV	Photovoltaic	WA	27/04/2001
SRPWA02	Angus King	Rooftop PV	Photovoltaic	WA	01/04/2001
SRPWA03	Noranda Primary School	Noranda Primary School	Photovoltaic	WA	24/09/2001
WD00WA01	Western Power	Denham	Wind	WA	01/04/2001
WD00WA02	Western Power	Albany	Wind	WA	01/04/2001

IV – FIRST YEAR’S EXPERIENCE

- Registered Persons
- Applications for Accreditation and Accreditations
- Small Generators and Solar Water Heaters
- RECs
- Acquisitions and Returns for 2001

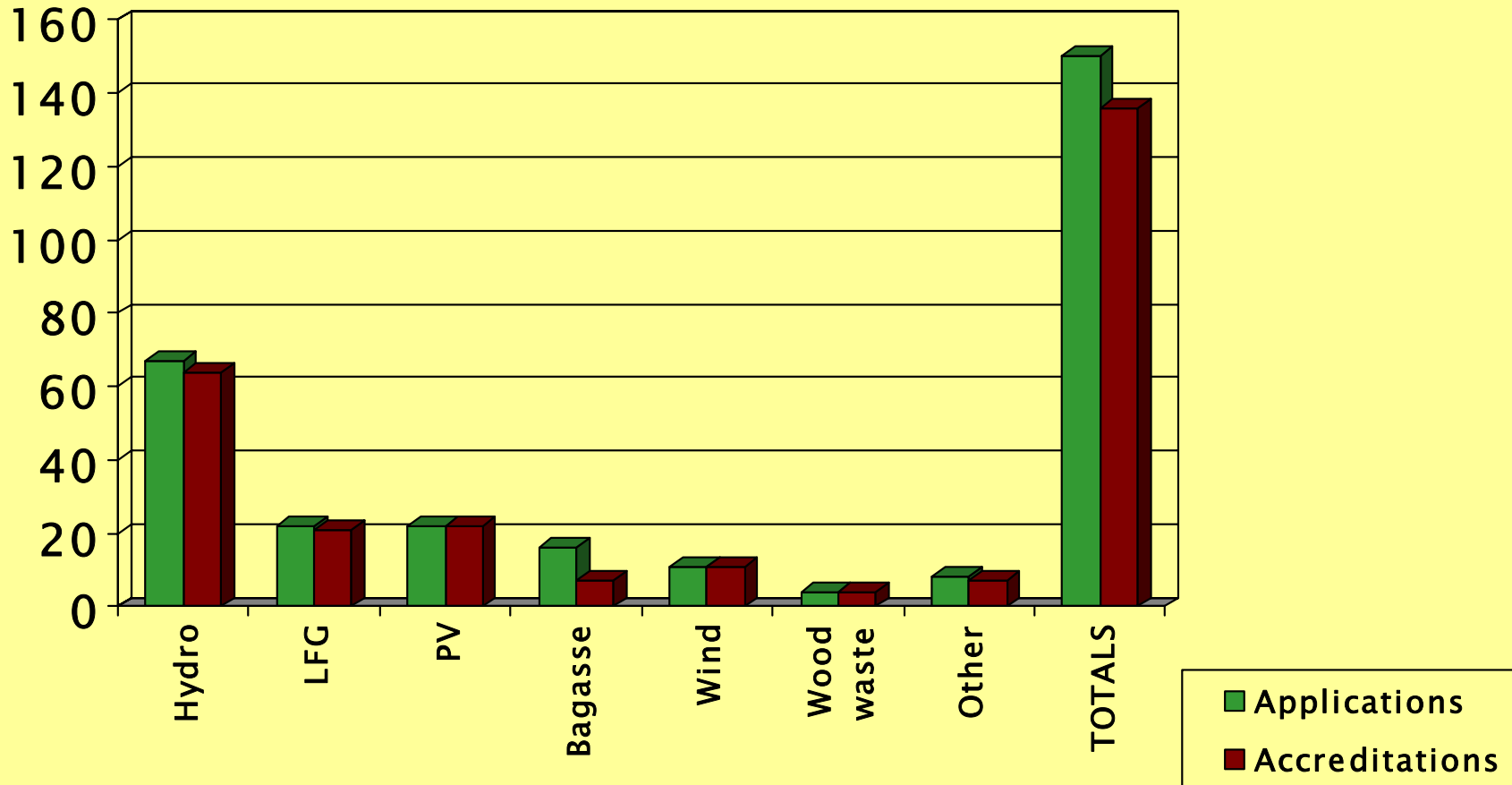
ACCREDITATIONS

Eligible Renewable Energy Source	Applications	Accredited
Hydro	67	64
Landfill Gas*	22	21
PV	22	22
Bagasse	16	7
Wind	11	11
Wood waste	4	4
Other	8	7
TOTALS	150	136

* Other includes 5 sewage gas, 1 black liquor, 1 MSW, 1 Food and ag wet waste

* Note under Landfill Gas 6 applications were combined into 3 accreditations

ACCREDITATIONS



CREATING RECs

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- All RECs are created in the REC registry
- RECs can only be created by a registered person under the Act
- There are three ways of establishing number of RECs and creating them as either:
 - an **Accredited Power Station**; or
 - as a **Solar Water Heater**; or
 - as a **Small Generation Unit**

CREATING RECs

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For an **ACCREDITED POWER STATION** need to:

- register under Act
- apply for accreditation
- be accredited (setting a baseline for 1997)
- calculate number of RECs by using the general formula under Regulation 14
- enter REC registry and create RECs once energy is generated
- Regulator then validates RECs

CREATING RECs

2
2

For a **SOLAR WATER HEATER** need to:

- meet specified criteria ie installed after 1 April 2001, built to AS 2712, model is listed in Regulations, claim within 12 months
- register under Act or owner assigns rights to an agent
- calculate number of lifetime RECs by using Schedule 7 in the Regulations
- enter REC registry and create RECs once only
- Regulator then validates RECs



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CREATING RECs

2
3

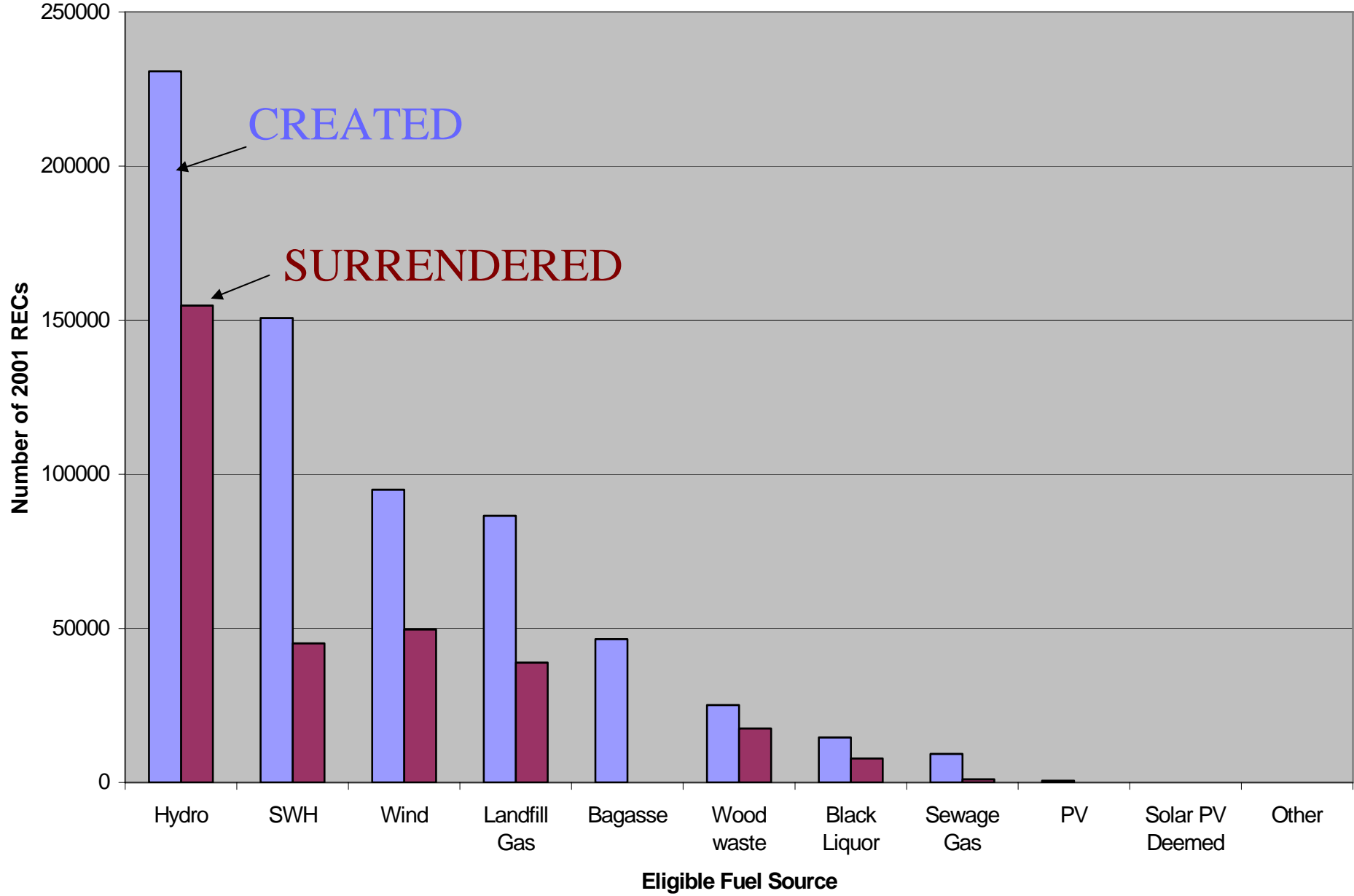
For a **SMALL GENERATION UNIT** need to:

- meet specified criteria ie installed after 1 April 2001, under 10kW, up to 25MWh generation, be hydro, solar or wind
- register under Act or owner assigns rights to an agent
- calculate number of RECs by using Schedules 4, 5 or 6 in the Regulations
- enter REC registry and create RECs either annually or in five yearly batches
- Regulator then validates RECs

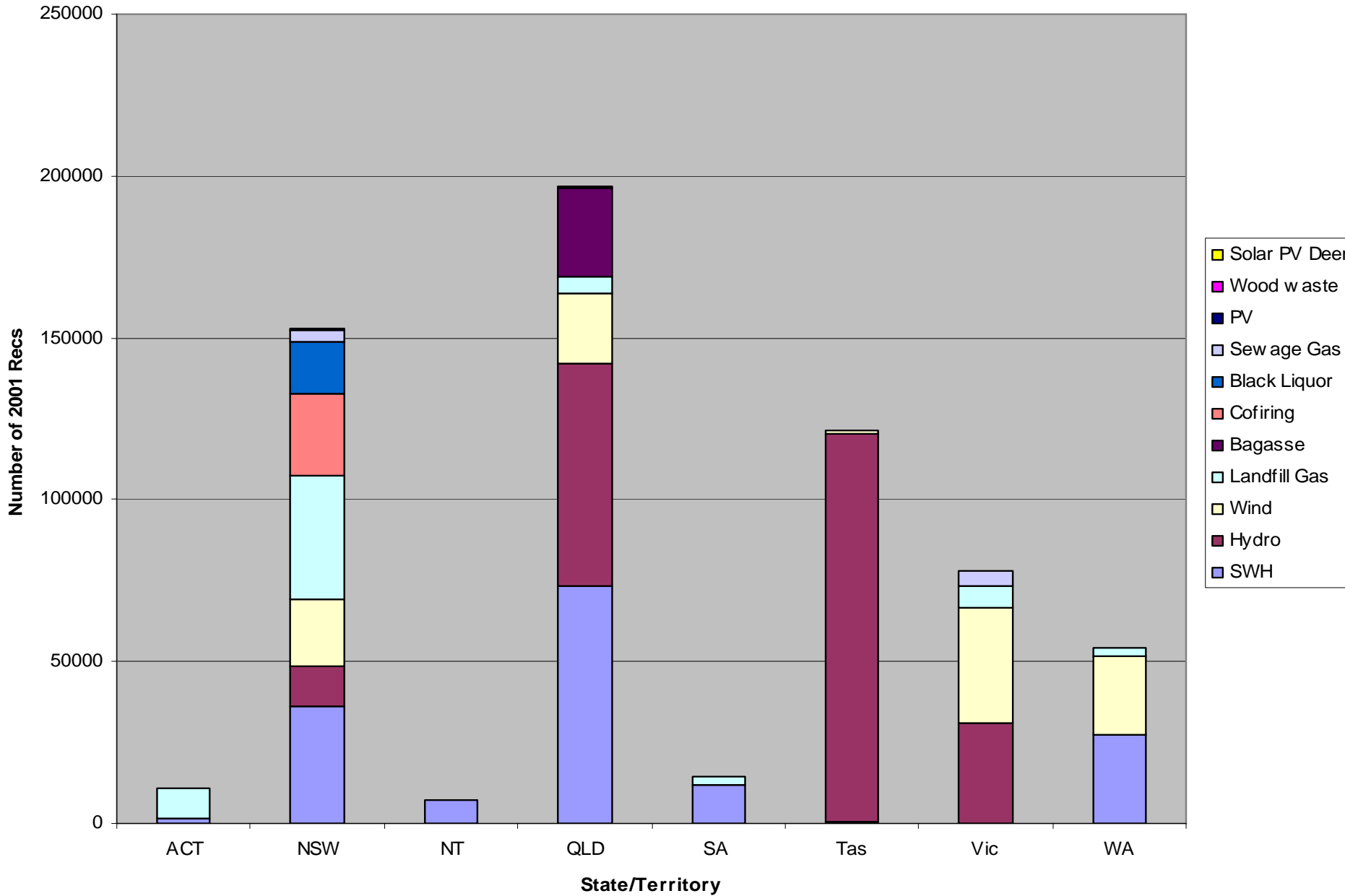
REC STATUS

- . To date (18 Feb 2002) 659,085 RECs have been created from 2001 generation
- . Sufficient RECs created to meet 2001 target (300,000) (by factor of 2.2)
- . Excess to 2002 target (1,100,000 RECs)

RECs Created and Surrendered



RECs created by State/Territory



COMPLIANCE

2
7

On 14 February 2002:

- Electricity Generation Returns were due from eligible parties; and,
- Annual Energy Acquisition Statements and Shortfall Statements were due from liable parties.

PERFORMANCE

2
8

Preliminary analysis indicates:

- over 650,000 RECs were created for 2001;
- 314,856 RECs were surrendered to the Regulator for 2001 liabilities;
- while further detailed auditing and analysis will be needed before final figures are settled for 2001;
- the Act appears to be meeting its intent.

V – DISCUSSION

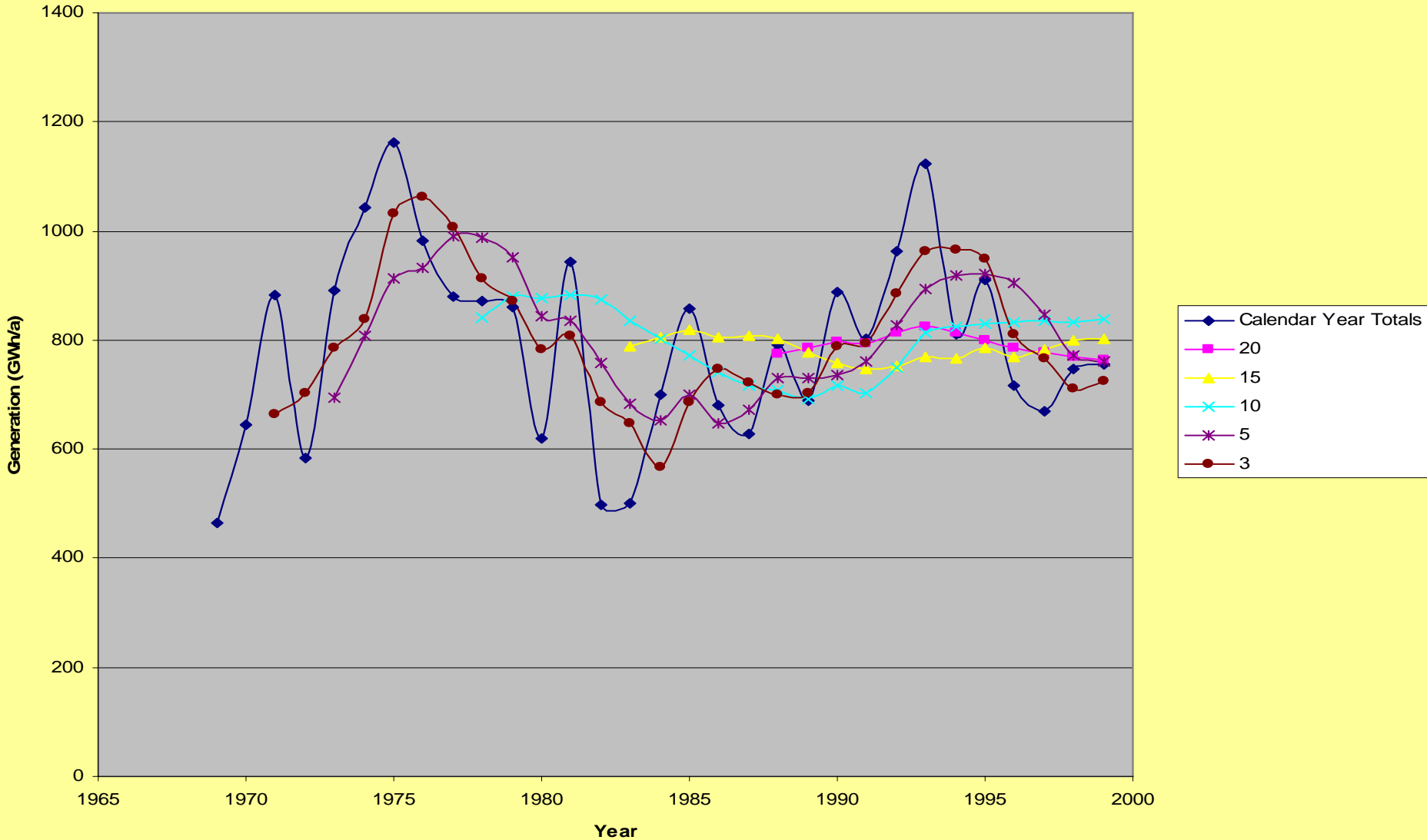
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- . Baselines
- . Investment
- . Trading
- . Applicability to Energy Efficiency

WHAT IS A BASELINE ?

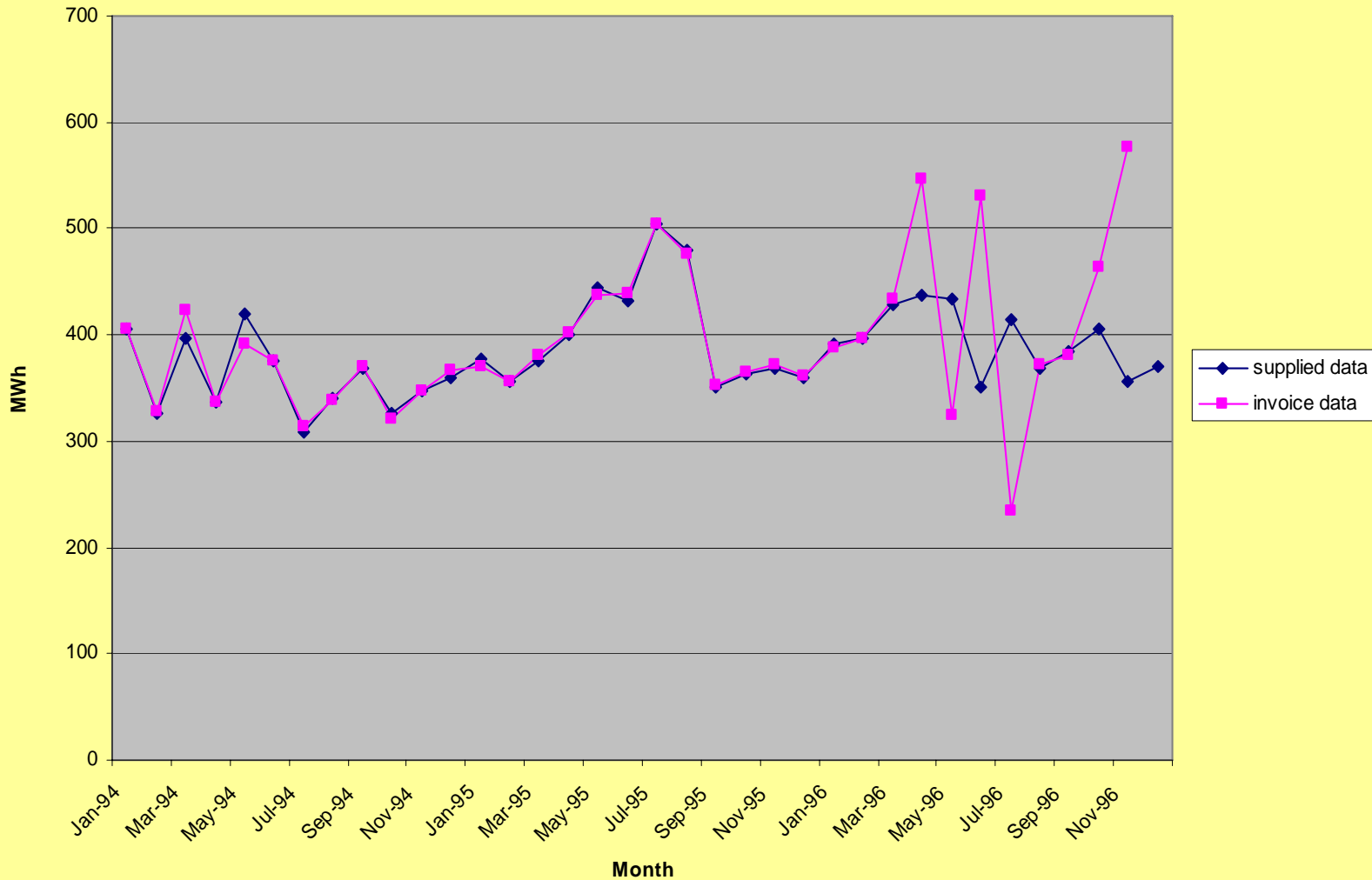
- Baseline is what would have been generated in a typical 1997
- With the power plant as it was configured on 1 Jan 1997
- 1997 Baseline sets level above which generation is additional

BASELINES: HYDRO



BASELINES: LANDFILL GAS

Supplied data v invoice data



EXPECTATIONS

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- . Additional \$2B in investment
- . Switching of about \$4B from other forms of energy (non-renewables)
- . Total investment \$6B
- . MRET lasts to 2020 investment expected in first five years
- . Variety of lead times wind short (one year) to bagasse (three or more years)

INVESTMENT TO DATE

34

- . Only 1 / 450 of total RECs surrendered to date – early days
- . Hard to estimate as investment is made for multiple reasons
- . So far estimated at \$200M spent
- . About \$600M committed or close to committed
- . Many more projects mooted

CERTIFICATE PRICES

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- . Not direct issue for ORER quantity only
- . Recently published papers (AEA conference) indicate spot prices in range \$32 to \$37 per MWh
- . But only small activity in spot trades many forward sale contracts anecdotally at lower prices about \$25 per MWh
- . Prices could be volatile
- . Differentiation depending on fuel source

CONCLUSIONS

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- . RE(E) Act operating
- . New way of encouraging renewable energy
- . Many projects being accredited
- . Appears to be meeting targets
- . Markets becoming established

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