

The Senate

Standing Committee on
Environment, Communications
and the Arts

Renewable Energy (Electricity) Amendment
(Feed-in-Tariff) Bill 2008

November 2008

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Recommendations

Recommendation 1

2.40 Noting strong industry, consumer and government support for FIT schemes, the committee recommends that the Commonwealth government, through COAG, work as quickly as practicable to implement a FIT framework that is as far as possible nationally uniform and consistent.

Recommendation 2

3.18 The committee recommends that all governments consider carefully the evidence received by this Senate inquiry regarding metering, as well as the track record of existing FIT schemes overseas, in designing a nationally consistent FIT framework for Australia.

Recommendation 3

3.55 The committee recommends that a more regular system of payments to generators be considered than the annual payments in the proposed bill.

Recommendation 4

3.78 The committee recommends that tariff degression rates form part of the nationally consistent FIT framework, but that there also be capacity for degression rate 'pauses' to be instituted following a rate review procedure.

Recommendation 5

3.79 The committee recommends that tariff degression rates be technology-specific.

Recommendation 6

3.87 While strongly supporting a nationally consistent feed-in tariff framework, the committee recommends the current bill not proceed.

Abbreviations

ACTCOSS	ACT Council of Social Services
AIG	Australian Industry Group
ANEDO	Australian Network of Environmental Defender's Offices
ATA	Alternative Technology Association
COAG	Council of Australian Governments
CPRS	Carbon Pollution Reduction Scheme
ETS	Emission Trading Scheme / System
FIT	Feed-in-tariff
kVA	Kilovolt amps
kWh	Kilowatt hours
MRET	Mandatory Renewable Energy Target
MW	Megawatts
PV	Photovoltaic
REC	Renewable Energy Certificate
RET	Renewable Energy Target
SOS	Save Our Solar (Solar Rebate Protection) Bill 2008

Chapter 1

Introduction

Referral to the Committee

1.1 On 16 June 2008, the Senate referred the Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008 (hereafter 'the bill') to the Senate Environment, Communications and the Arts Committee for inquiry and report by 14 October 2008. On 25 September 2008 the Senate granted an extension of time to report until 10 November 2008.

1.2 The committee advertised the inquiry in the *Australian* newspaper. Details of the inquiry were placed on the committee's website and the committee also wrote to a number of organisations and stakeholder groups inviting written submissions by 15 August 2008.

1.3 The committee received submissions from 129 individuals and organisations, as listed at Appendix 1. The committee also held public hearings in Sydney on Monday 8 September, in Melbourne on Tuesday 9 September and in Canberra on Thursday, 16 October 2008. A list of those who gave evidence at this hearing is at Appendix 2. The broad majority of submissions were supportive of feed-in tariffs, as discussed in chapter 3. The committee thanks all those who assisted with its inquiry.

What is a Feed-in Tariff?

1.4 Most electricity is generated by a small number of large power stations. Their energy is distributed, through the electricity grid, to many consumers. However, it is possible for electricity to be produced by small dispersed generating units, which are often based on renewable energy technologies such as wind or photovoltaic cells.

1.5 A feed-in tariff (FIT) is a policy mechanism used to encourage the use of both small dispersed generating capacity and large 'utility-scale' generators. A FIT is a rate, usually set by a regulator or government, which electricity retailers or a regulator are required to pay to particular electricity generators who want to feed power into the electricity grid. A FIT will:

put a legal obligation on utility companies to buy electricity from renewable energy producers at a premium rate, usually over a guaranteed period, making the installation of renewable energy systems a worthwhile and secure investment for the producer. The extra cost is shared among all energy users, thereby reducing it to a barely noticeable level.¹

1 World Future Council, *Feed-In Tariffs – A guide to one of the world's best environmental policies*, World Future Council, Hamburg – *Submission 30*, Attachment 1, p. 6.

1.6 There are at least two main reasons why a FIT may be set.² It may be intended to correct a market failure, such as a lack of a price signal reflecting the environmental harm caused by greenhouse gas emissions. It may also be used to stimulate the development of particular electricity generating technologies, such as photovoltaic cells. Often these two reasons are closely related, and the objectives of a FIT are discussed further in chapter 2.

The bill

1.7 The bill seeks to amend the *Renewable Energy (Electricity) Act 2000* (hereafter 'the Act') to establish a national FIT law. The object of the bill is to support the greater commercialisation of renewable energy technologies by:

- (a) providing specifically tailored support for a range of renewable energy technologies that are currently not adequately assisted by the mandatory renewable energy target;
- (b) requiring electricity retailers to permit owners of qualifying generators to supply the electricity grid with electricity generated from selected renewable energy sources;
- (c) providing a payment to owners of qualifying generators for the renewable electricity which they produce from renewable energy sources installed after the commencement of this Act;
- (d) establishing an effective monitoring regime to monitor the extent of production of renewable electricity by owners of qualifying generators.³

Issues to be considered

1.8 FITs are complex policy instruments that are challenging to successfully design and implement.⁴ The many issues that must be carefully addressed include:

- Whether to adopt gross or net metering as the basis for paying a premium tariff;
- Whether existing renewable energy generators should be eligible for the new tariff;
- What renewable energy sources should qualify, and what premium tariffs each should receive;
- How and when tariff moneys should be collected and distributed;
- What size of renewable energy generator should be eligible under the scheme, and whether the tariff should vary according to generating capacity;

2 See, eg, Professor Andrew Blakers, *Submission 1*.

3 Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008, p. 2.

4 Mr Hans-Josef Fell, Member of the German Bundestag, *Proof Committee Hansard*, 16 October 2008.

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- Who or what pays any costs associated with grid connection or grid upgrading if it is required;
 - How, and by how much, any premium tariff should decrease over time; and
 - For how long a scheme should operate.

1.9 In addition, any national approach to FITs must address the range of existing state and territory FIT schemes. Any FIT scheme must also be tailored to interact effectively with other climate change and energy policy instruments, such as an emissions trading scheme and renewable energy targets.

Existing FITs

1.10 There are FIT schemes already operating in some Australian states and territories. The committee notes that FIT policies are under discussion by the Council of Australian Governments (COAG). At its meeting of March 2008, COAG agreed 'to consider options for a harmonised approach to renewable energy feed in tariffs in October 2008'.⁵ The committee understands this consideration is ongoing.

1.11 Currently, there is some form of FIT in the Australian Capital Territory, Queensland, South Australia and Victoria. A FIT has also been piloted in the Alice Springs Solar Cities program. The schemes vary significantly in their design.⁶ Some of these FIT schemes are restricted to new installations, others are not. Some offer a FIT for all electricity generated, others for only the electricity that is surplus to the users' needs. Some have set limits for the scheme (such as a target number of megawatts of electricity generation), others have not. These differences in FIT schemes mean there is no consistent national approach. All these design choices raise significant policy questions, discussed in the next two chapters.

1.12 In addition, the existing Australian state and territory schemes have various eligibility restrictions. In Victoria, the scheme is limited to installed units of up to two kilowatt hours (kWh) generating capacity, and the scheme as a whole is capped at 100 megawatts (MW) of generating capacity.⁷

1.13 South Australia also limits the size of customers and systems eligible to participate. Its eligibility criteria are that the system must:

- be operated by a small customer (ie a customer who fits in to the 'small customer' category, defined as consuming less than 160 mega watt-hours of electricity per annum)

5 Council of Australian Governments, *Communique*, 26 March 2008, p. 6.

6 Department of Climate Change, *Submission* 124.

7 Minister for Energy and Resources, 'Premium rate to Victorian solar-powered households', Media Release, 7 May 2008, http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/8fc6e140ef55837cca256c8c00183cdc/43fb9ccd3361fe7cca2574440007d1ff!OpenDocument (accessed 18 August 2008).

- be grid-connected to a distribution network which supplies electricity to 10,000 or more domestic customers (eg ETSA Utilities)
- be connected to the grid via a 'bi-directional' or 'import/export' meter
- fit the definition of a small (PV generator meaning a PV system with capacity up to 10kVA [kilovolt amps] for a single phase connection and up to 30kVA for a three phase connection*
- comply with Australian Standard—AS 4777.⁸

1.14 Queensland has a scheme similar to that in South Australia. The conditions of eligibility in Queensland are that customers must:

- consume no more than 100 megawatt hours (MWh) of electricity a year (the average household uses 10 MWh a year)
- purchase and install a new solar power (photovoltaic) system (not solar hot water system) or operate an existing system that is connected to the Queensland electricity grid
- generate surplus electricity that is fed into the Queensland electricity grid
- have an agreement in place with their electricity distributor (Ergon Energy or Energex) and have appropriate metering installed
- have solar PV systems with a capacity of up to 10kVA for single phase power and 30kVA for three-phase power
- hold an electricity account with an electricity retailer.⁹

1.15 Customers must also meet the costs of installation of new electricity meters. The Queensland scheme is subject to review once a level of 8MW of capacity is installed state-wide.¹⁰

1.16 The Australian Capital Territory's scheme in contrast has very few eligibility limits. While large generators receive a less generous feed-in tariff than household-sized installations, there is no size limit on individual generators (unlike Queensland, Victoria and South Australia) and no upper limit on the number of participants or number of MW that can be eligible for the feed-in tariff (in contrast to limits or reviews in Victoria and Queensland).¹¹

8 South Australian Department of the Premier and Cabinet, Feed-in mechanism, Frequently Asked Questions, http://www.climatechange.sa.gov.au/news/news_5_2.htm#4 (accessed 18 August 2008).

9 Queensland Department of Mines and Energy, Solar Bonus Scheme, http://www.dme.qld.gov.au/Energy/solar_feed_in_tariff.cfm (accessed 18 August 2008).

10 Queensland Department of Mines and Energy, Solar Bonus Scheme, http://www.dme.qld.gov.au/Energy/solar_feed_in_tariff.cfm (accessed 18 August 2008).

11 Electricity Feed-in (Renewable Energy Premium) Act 2008 [Australian Capital Territory], <http://www.legislation.act.gov.au/a/2008-21/current/pdf/2008-21.pdf> (accessed 18 August 2008).

1.17 The table below summarises some key features of current Australian FIT schemes.

Location	Size limits to individual installations	Limits or caps to scheme	Net or gross	New or existing	Value of FIT	Eligible sources
South Australia ¹²	<10kVA single phase / <30kVA three phase	Review at 2.5 years or when 10MW installed	Net	Both	44 c / kWh (minimum)	PV only
Victoria ¹³	2kW	Limit of 100MW	Net	Both	60 c / kWh (approx 4 times retail)	PV only
Queensland ¹⁴	<10kVA single phase / <30kVA three phase	Review at 8MW installed	Net	Both	44 c / kWh	PV only
ACT ¹⁵	None, but tariff reduces for large installations	None	Gross	Both	3.88 * retail tariff	Solar and wind
Alice Springs Solar Cities ¹⁶	Not known	Limit of 225 installations	Gross	New only	45 c / kWh	PV only

12 South Australian Department of the Premier and Cabinet, July 2008, *Fact Sheet: South Australia's Feed-In Scheme for Small-Scale Solar Photovoltaic (PV) Installations*, http://www.climatechange.sa.gov.au/uploads/pdf/feed-in_fact_sheet.pdf (accessed 14 October 2008).

13 Minister for Energy and Resources, 'Premium rate to Victorian solar-powered households', Media Release, 7 May 2008, http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/8fc6e140ef55837cca256c8c00183cdc/43fb9ccd3361fe7cca2574440007d1ff!OpenDocument (accessed 18 August 2008); Victorian Department of Primary Industries, 2008, *Victoria's Premium Rate for Solar Power Fact Sheet*, [http://www.dpi.vic.gov.au/dpi/dpinenergy.nsf/LinkView/490170EA6AD2DBEACA257456000E547F4CAC723B1D538D66CA25740C000D2004/\\$file/FiT%20Fact%20Sheet-2jun08.pdf](http://www.dpi.vic.gov.au/dpi/dpinenergy.nsf/LinkView/490170EA6AD2DBEACA257456000E547F4CAC723B1D538D66CA25740C000D2004/$file/FiT%20Fact%20Sheet-2jun08.pdf) (accessed 14 October 2008).

14 Queensland Department of Mines and Energy, Solar Bonus Scheme, http://www.dme.qld.gov.au/Energy/solar_feed_in_tariff.cfm (accessed 18 August 2008).

15 Electricity Feed-in (Renewable Energy Premium) Act 2008 [Australian Capital Territory], <http://www.legislation.act.gov.au/a/2008-21/current/pdf/2008-21.pdf> (accessed 18 August 2008).

16 Alice Solar City, Fact Sheet – Photovoltaic Solar Power, <http://www.alicesolarcity.com.au/sites/default/files/factsheet-pv.pdf> (accessed 14 October 2008).

Policy issues that arise in the design of a FIT scheme are discussed in the following chapters.

Chapter 2

Feed-in tariffs and energy policy issues

Why have feed-in tariffs?

2.1 During its inquiry into the Save Our Solar (Solar Rebate Protection) Bill 2008 (the SOS inquiry), the committee heard a lot of evidence supporting the adoption of feed-in tariffs (FITs).¹ They were supported by industry manufacturers, retailers and installers, customers, NGOs and governments.² Although virtually all stakeholders participating in both that inquiry and the present one supported a FIT, they often put forward different reasons in support of this type of policy measure.

2.2 Some submitters argued for a FIT because it reflects the full costs and benefits of producing energy. They argued that current energy pricing mechanisms omit benefits such as reduced atmospheric pollution, increased employment and avoided network infrastructure costs.³ Current prices also do not accurately value solar power in particular, which can provide generation capacity at times of peak demand. Existing energy retail customers generally pay a flat retail tariff for power, however 'a flat averaged retail tariff does not reflect the value of supplying energy in the middle of the afternoon when it is at its highest demand'.⁴

1 See Senate Environment, Communications and the Arts Committee, *Save Our Solar (Solar Rebate Protection) Bill 2008 Report*, 25 August 2008.

2 Glen McCarrick, *SOS inquiry submission 57*; Solar Sales (now SunPower Corporation Australia), *SOS inquiry submission 69*; Stuart Watson & Associates, *SOS inquiry submission 75*; Autonomous Energy, *SOS inquiry submission 81*; Beyond Building Energy, *SOS inquiry submission 88*; EcoTasmania, *SOS inquiry submission 137*; Mr Andrew McCarthy, Project Manager, Environment Shop, *SOS inquiry Proof Committee Hansard*, 28 July 2008, p. 15; Mr Peter Bone, Director, Bone Electrical, *SOS inquiry Proof Committee Hansard*, 28 July 2008, p. 83; Mr Troy Ryan, Director, Adelaide Hills Solar and Solar Depot, *SOS inquiry Proof Committee Hansard*, 6 August 2008, p. 2; Mr Brian Jones, Manager, Switched On Solar, *SOS inquiry Proof Committee Hansard*, 7 August 2008, p. 1; Conergy, *Submission 98*, p. 6; Alternative Technology Association, *SOS inquiry submission 52*; ACF, *SOS inquiry submission 82*; Darebin City Council, *SOS inquiry submission 90*; Mr Jon Stanhope MLA, Chief Minister, ACT, *SOS inquiry submission 126*; Professor Michael Christie, *SOS inquiry submission 68*; Professor Andrew Blakers, *SOS inquiry Proof Committee Hansard*, 25 July 2008, p. 12.

3 Electric Biz, *Submission 46*; ATA, *Submission 75*, attachment 2; BP Solar, *Submission 116*, pp 12–13.

4 BP Solar, *Submission 116*, p. 13.

2.3 In addition to correcting market failure, it was argued that a FIT could in fact reduce energy costs to consumers, through 'reduced wholesale electricity prices [and] avoided network augmentation' costs.⁵

2.4 Many submitters argued that a FIT would ensure the growth of Australia's renewable energy generation capacity generally, and photovoltaic capacity in particular. This was often linked to a desire to see greenhouse gas emissions reduced.⁶ The World Future Council described FITs as 'the most effective tool for accelerating the rapid, low-cost, technologically-diverse deployment of renewable energy'.⁷

2.5 Some saw the role of the feed-in tariff as supporting renewable energy industry maturation. SunPower Corporation Australia for example suggested:

It is clear that the lack of a national feed in tariff (net or gross metered) is the key impediment to the development of a large scale renewable energy industry, particularly one using solar photovoltaic technology.⁸

2.6 BP Solar, one of Australia (and the world's) largest solar energy companies, made the argument well:

BP Solar recognises that if least cost carbon saving is the only objective, then Governments would never adopt or introduce renewable energy policies, but rather simply rely on achieving carbon reduction through Emission Trading Schemes.

However, if the objective is to create innovation to overcome the market failure that prevents long term carbon saving potential like solar from developing, then there is a justification for targeted intervention to differentiate between technologies – otherwise the cheapest, wind, will predominate.

...

This [is] not about “picking winners” but recognising in the case of solar PV there is a market failure that needs to be overcome with explicit price support which creates growth opportunities and in tandem proves up the technology, drives down costs, diffuses the technology and makes it accepted.⁹

2.7 Dr Prest drew on international experience to suggest that bringing renewable energy technologies to market maturity was an important role for FIT policies:

Australia should have a look at some of the niches that might exist in terms of what a feed-in tariff can do for a whole range of different technologies,

5 Australian Sustainable Built Environment Council, *Submission 97*.

6 Greenpeace Australia Pacific, *Submission 98*.

7 World Future Council, *Submission 30*.

8 SunPower Corporation Australia, *Submission 49*.

9 BP Solar, *Submission 116*, pp 15–16.

and scientists have a lot of interesting ideas that they have been working on. These measures can assist to bring the further-from-market technologies closer to the picture in order to become cost competitive especially under an ETS.¹⁰

2.8 The committee also noted that Garnaut's Climate Change Review was supportive of FITs to counteract market failure in the energy supply and distribution sectors,¹¹ while researcher Miguel Mendonca also identified market failure issues as reasons to introduce FITs.¹²

2.9 While FITs can have a role in counteracting market failures, their primary purpose is as a temporary mechanism (with a duration typically of around two decades) to facilitate the maturation of leading edge renewable energy technologies, assisting their transition to being competitive energy technologies.¹³

Economic efficiency

2.10 While there is widespread support within the renewable energy sector for FITs, some concerns about these policy instruments have also been raised. EnergyAustralia queried how a FIT would interact with other renewable energy policies, particularly the Mandatory Renewable Energy Target (MRET) and an emissions trading scheme. While it emphasised that it supported policies to increase the use of renewable energy, EnergyAustralia suggested that a FIT may be an inefficient means of securing greenhouse gas emissions reductions:

In contrast, under the proposed feed in tariff scheme, a price is set for renewable generation without taking into account the relative cost effectiveness of the technology. Under these circumstances, low cost renewable generators would not be able to gain a competitive advantage over more expensive renewable generation. This would result in a market distortion and higher average prices for consumers, relative to the MRET, for the same level of greenhouse gas reductions. In addition, by setting the price for a period of 20 years, the scheme would lock in this market distortion and would not provide ongoing incentives to reduce the costs of producing renewable energy.¹⁴

2.11 The committee recognises EnergyAustralia's concerns. However, FITs would not normally be set 'without taking into account the relative cost effectiveness of the

10 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 2.

11 Garnaut Climate Change Review, *Final Report*, October 2008, p.452.

12 Miguel Mendonca, 2007, *Feed-in Tariffs: Accelerating the Deployment of Renewable Energy*, Earthscan Publishing.

13 European Photovoltaic Industry Association, *Supporting Solar Photovoltaic Electricity: An Argument for Feed-in Tariffs*, http://www.epia.org/fileadmin/EPIA_docs/publications/epia/An_Argument_for_Feed-in_Tariffs.pdf (accessed 17 October 2008).

14 EnergyAustralia, *Submission 117*, p .2.

technology'. On the contrary, the committee believes that international experience shows that tariffs have been set, and varied, in order to respond to technology costs, deliberately to try and enhance their cost effectiveness.¹⁵ The committee believes the need to carefully set tariffs is the reason for the bill's proposed new sections 34(D)(4) and 34(D)(13), which would facilitate setting tariffs so as to avoid the problems foreshadowed by EnergyAustralia. This is discussed further in chapter 3.

2.12 The committee acknowledges that some of the technologies that would be eligible for a FIT are not the cheapest renewable energy generation options at present. This is agreed by many of the businesses that are developing and selling these technologies.¹⁶ The argument is that this is the very purpose of FITs: to assist in bringing the most advanced renewable energy technologies to a cost-competitive position in energy markets a decade or more from today.

Economic equity

2.13 During development of the ACT's feed-in tariff, the ACT Council of Social Services (ACTCOSS) pointed out that feed-in tariffs have the potential to be socially regressive because:

low-income households spend a higher proportion of their income on energy, meaning that even a proportionate increase in the price of energy will disproportionately disadvantage low income households. We also agree with the statement that low-income households have less capacity to respond to price signals, as their household use of energy is often dictated by the energy efficiency of their home, which are more likely to be rental accommodation, including both private rental and public housing.¹⁷

2.14 When a FIT was introduced in Victoria, the St Vincent de Paul Society expressed concern about the economically regressive nature of the policy. The Society argued that it was regressive in two ways: home renters would be subsidising home owners, and the asset poor would be subsidising the asset rich. In addition, the extent of the subsidisation will increase as carbon pricing raises the cost of power consumed by those without the resources to install renewable energy generating systems in their homes.

2.15 St Vincent de Paul made another point of concern to supporters of renewable energy:

15 See for example Conergy, *Submission* 126, p. 6.

16 Mr Bob Matthews, CEO, Ausra, *Proof Committee Hansard*, 9 September 2008, pp 3–4; BP Solar, *Submission* 116.

17 ACTCOSS, *Comment on the Feed-in Tariff Discussion Paper and the Electricity Feed-in (Solar Tariff) Bill 2007*, February 2008, http://www.actcoss.org.au/publications/Publications_2008/0208CMT-Feed-inTariff.pdf (accessed 25 August 2008).

In addition to introducing a socially regressive tax, the proposed feed-in tariff effectively double-charges those who are already purchasing green-energy products.

This double-charging occurs because the increased energy charges required to fund the tariff will also apply to those households already paying a premium; households that have purchased green energy, such as energy from wind turbines, through their energy retailer.

In effect, the feed-in tariff double-charges this group for green energy.

Not only is there an argument that there is double-charging to this group, there is the potential for this to result in a decline in the take-up of market-initiated green energy. Fewer households may sign up to green products, believing they are already purchasing some form of green product through the feed-in tariff levy.¹⁸

2.16 Advocates of FITs have pointed out that even the world's most extensive FIT program in Germany, which has resulted in the installation of thousands of Megawatts of installed photovoltaic capacity, has resulted in only a small increase in general household power bills of around 2.2 Euros per month.¹⁹ This represents around 3 per cent of household energy bills, and this proportion is falling.²⁰

Feed-in tariffs, energy policy and climate change policy

2.17 Australian governments are taking a range of actions aimed at supporting renewable energy, reducing greenhouse gas emissions, and regulating the energy sector. FITs would sit alongside these policies. The relationship between FITs and other renewable energy and greenhouse emission reduction policies is an important one.

2.18 The committee recognises that it is desirable that the range of policies is coordinated and ensures harmonised action in support of policy objectives. There are several policies that will support the transition to a low-carbon economy. These include: the introduction of an emissions trading system; the maintenance and expansion of a Mandatory Renewable Energy Target; the implementation of measures designed to 'assist Australian households in the transition to the Carbon Pollution

18 St Vincent de Paul Society, *Submission 17*; see also Gavin Duffy, 'Green energy push transforms to tax poorer households', *The Age*, 14 May 2008, <http://business.theage.com.au/business/green-energy-push-transforms-to-tax-poorer-households-20080513-2dtz.html> (accessed 25 August 2008).

19 German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *EEG – The Renewable Energy Sources Act: The Success Story of Sustainable Policies for Germany*, July 2007, *Submission 41* Attachment 4, p. 24.

20 Jeffrey Michel, *Submission 29*, Attachment 2.

Reduction Scheme'; and grants and rebates directly supporting the installation of renewable energy sources.²¹

2.19 The Carbon Pollution Reduction Scheme (CPRS) or emissions trading system, has the aim of reducing harmful carbon emissions through introducing a cap on carbon pollution and requiring industries to gain a permit for each tonne of greenhouse gas that they emit. There will be an annual cap on permits each year. At the same time, these permits may be traded, encouraging industry to either pay a high price for a permit or reduce their emissions.²²

Because the carbon pollution reduction scheme will concentrate on the biggest polluters, it will place obligations on around 1000 Australian companies in total – those that produce more than 25000 tonnes of carbon pollution each year.²³

2.20 The term CPRS has been used interchangeably with Emissions Trading Scheme or system (ETS) by participants in this inquiry.

2.21 In 2001, a Mandatory Renewable Energy Target (MRET) scheme was introduced. Its current target is to ensure that 20 per cent of Australia's electricity supply comes from renewable energy sources by 2020. The MRET underpins a market in Renewable Energy Certificates (RECs), which are a form of electronic currency established under the *Renewable Energy (Electricity) Act 2000*. These are currently available to owners or operators of eligible renewable power stations and owners of eligible small generation unit installations. Small generation unit installations include the following technologies:

- photovoltaic systems;
- wind systems;
- small hydro electric systems.²⁴

2.22 RECs play almost no role in the development of photovoltaic or solar thermal power: in 2006 only 0.04 per cent of RECs were for solar electricity, with the majority being issued for wind energy, solar water heaters and landfill gas generation.²⁵ The

21 The Hon Peter Garrett AM, Minister for the Environment, Heritage and the Arts, speech to Appropriate Technology Retailers Association of Australia conference, 2 August 2008, <http://www.petergarrett.com.au/597.aspx> (accessed 15 October 2008).

22 Department of Climate Change, *Carbon Pollution Reduction Scheme – Overview*, <http://www.climatechange.gov.au/greenpaper/factsheets/fs1.html> (accessed 19 September 2008).

23 Department of Climate Change, July 2008, *Carbon Pollution Reduction Scheme Green Paper*, p. iv, <http://www.climatechange.gov.au/greenpaper/report/pubs/greenpaper.pdf> (accessed 15 October 2008).

24 Office of the Renewable Energy Regulator, *Renewable Energy Certificates (RECs)*, <http://www.orer.gov.au/recs/index.html> (accessed 18 September 2008).

25 McLennan Magasanik Associates for the Office of the Renewable Energy Regulator, *Review of REC Markets*, October 2007, p. 17.

Council of Australian Governments (COAG) is currently working towards implementing a renewable energy target (RET), that 'will bring the MRET and existing and proposed state and territory targets into a single national RET scheme'.²⁶ A discussion paper has been released on design of the RET.²⁷ The RET effectively comes under the umbrella of the CPRS.

2.23 The Australian Government currently offers up to an \$8,000 rebate to households with a taxable income under \$100,000 for the installation of a solar photovoltaic system under its Solar Homes and Communities Plan²⁸. A rebate for the installation of solar PV has been available to households since 2000, although the rebate has varied in amount over the period.

2.24 In addition to these measures some state and territory governments have policies and programs that are directed toward reducing greenhouse gas emissions and encouraging renewable energy generation. Most relevant to this inquiry are existing feed-in tariff regimes in the Australian Capital Territory, Queensland, South Australia and Victoria. These were briefly outlined in chapter 1.

2.25 Energy utilities may also have commercial programs to encourage customers to use renewable energy. These programs may or may not rely to some extent on government support for renewable energy. EnergyAustralia for example indicated that it was:

- ...the first utility in the world to mandate interval metering and Time of Use tariffs for all new and replacement meters.
- We have been on the forefront of demand management initiatives, implementing more demand management projects than any other Australian distributor.²⁹

2.26 Considering the diversity of renewable energy policy instruments already in place, there was remarkably little doubt amongst stakeholders that FIT schemes are a valuable addition to the policy mix.

2.27 The Australian Industry Group (AIG) has argued that, with the decision to implement an emissions trading scheme, other renewable energy policy measures should be phased out, not expanded.

26 Department of Climate Change, *Australia's Renewable Energy Target*, <http://www.climatechange.gov.au/renewabletarget/index.html> (accessed 19 September 2008).

27 COAG Working Group on Climate Change and Water, 2008, *Design Options for the Expanded National Renewable Energy Target Scheme*, <http://www.climatechange.gov.au/renewabletarget/consultation/pubs/ret-designoptions.pdf> (accessed 15 October 2008).

28 Department of the Environment, Water, Heritage and the Arts, *Solar Homes and Communities Plan*, <http://www.environment.gov.au/settlements/renewable/pv/index.html> (accessed 18 September 2008).

29 EnergyAustralia, *Submission 117*, p. 1.

Ai Group maintains that the Carbon Pollution Reduction Scheme (CPRS) should be designed to meet Australia's emission reduction target. A CPRS that does this will generate incentives that will favour low-emissions energy at the expense of other energy sources... In the context of Australia's overall direction on climate change policy... it would appear that [the] better national approach for the Commonwealth to take would ensure that existing renewable energy initiatives were wound back rather than extended.³⁰

Aside from AIG's reservations, however, the committee's evidence strongly favoured the adoption of a FIT, either to complement other existing policies, or as a more efficient substitute for other policy mechanisms, such as rebates.

2.28 The committee heard expert evidence that a CPRS, while desirable, is not sufficient to meet the need for policies that will create a successful response to the challenge of climate change:

In terms of policies, there are no likely magic technology bullets or some sort of thing that is going to solve all our problems. There are no magic bullets in policy either, and that includes emissions trading. Why would we expect that a price signal on emissions would be able to achieve all the changes in transformation that we need to see in order to address climate change? We do not have the expectation in any other really serious area of policy development that a single price signal can do it.³¹

2.29 A number of submitters argued that existing policy mechanisms are not adequate. The Alternative Technology Association (ATA) argued that MRET and other schemes do not adequately value photovoltaic systems and the energy they produce, and that a FIT was necessary to fill the policy gap left by other government programs.³² Dr Prest argued that ideally a FIT would replace tradeable certificates that result from the MRET, but that a hybrid of the two would also work.³³

2.30 Experts, NGOs and industry representatives all drew on international experience to indicate that policies other than feed-in tariffs would not, on their own, be sufficient. Researcher Dr Iain McGill commented:

With the expanded MRET here, we now have a serious target, and we should not underestimate the challenges for MRET to actually deliver on that target given that we also see changes in the circumstances; our electricity industry infrastructure looks to be getting increasingly stressed

30 Australian Industry Group, 'Ai Group Submission on the National Renewable Energy Target Scheme', Media Release, 18 August 2008, <http://www.aigroup.asn.au/scripts/cgiip.exe/WService=aigroup/ccms.r?pageid=4413> (accessed 26 August 2008).

31 Dr Iain McGill, Joint Director, Centre for Energy and Environmental Markets, *Proof Committee Hansard*, 8 September 2008, p. 18.

32 ATA, *Submission* 100.

33 Dr James Prest, *Submission* 123, p. 31.

and the structure of the players within it is also changing. So the feed-in tariff experience with different feed-in tariffs in Europe for wind—onshore wind and offshore wind—and so on has to be seen in that light. The Europeans have looked at green certificate schemes and they have a lot of questions about them.³⁴

2.31 Greenpeace International's campaign director on renewables, Mr Teske, made a related point:

In the past 10 years, emissions trading did not contribute at all to the acceleration of renewable energy within the EU for two reasons. First, an emissions trading scheme fluctuates, which means that there is no reliable payment for producers of renewable energy. That means that it is a very insecure mechanism and therefore nobody will invest for such a short-term profit—not even a profit. Secondly, the amount of money per tonne is just not high enough to make it interesting for investors. That might change at the time when the industry is competitive, but I would say that for the next 10 years feed-in tariffs are still needed.³⁵

2.32 Representatives of renewable energy producer BP Solar reached similar conclusions using different evidence:

Mr Jackman—A trading system such as the CPRS will support lowest cost technologies. Because of the market failure that exists at the moment for solar PV, the CPRS will not of itself overcome that. I will quote from the Stern report, which is included on page 17 of our submission. Stern actually says:

Comparisons between deployment support through tradable quotas and feed-in tariff price support suggest feed-in mechanisms achieve larger deployment at lower costs.

He goes on to say:

Central to this is the assurance of long-term guarantees.

That is a useful summary from Stern.

Mr Vigneswaran—We certainly think that in the early years of an emissions trading or carbon pollution reduction scheme that carbon prices will not be high enough to drive the investment required for solar at the large scale that is required to reduce the cost and to build the level that is required in the industry.³⁶

34 Dr Iain MacGill, Joint Director, Centre for Energy and Environmental Markets, *Committee Hansard*, 8 September 2008, p. 23.

35 Mr Sven Teske, Director, Renewable Energy Campaign, Greenpeace International, *Committee Hansard*, 8 September 2008, p. 39.

36 Mr Gavin Jackman, Director Government Affairs and Mr Chandran Vigneswaran, Media Manager, BP Solar Australia Pty Ltd, *Committee Hansard*, 9 September 2008, p. 33.

2.33 Moreland Energy Foundation argued that a FIT would help rather than hinder other policies, again through the targeting of particular sectors:

by creating an incentive for households, small-medium businesses and community enterprises to participate in the shift to a decentralised, low carbon energy network.³⁷

2.34 The committee is aware of a range of views about the cost, and cost-effectiveness, of different policies targeted at carbon emissions reduction and renewable energy generation. EnergyAustralia thought that a FIT would not be cost effective.³⁸

2.35 Other recent studies however suggest that FITs can be cost effective compared to tradable permits or certificates. A recent analysis comparing German and UK renewable energy support mechanisms suggested that Germany's feed-in tariff was delivering renewable energy at a lower cost per kilowatt-hour than the UK's tradeable certificates.³⁹

2.36 Professor Blakers argued that FITs are better than capital subsidies (such as rebates):

A FiT is a far better method of supporting the PV industry than a capital subsidy such as [Photovoltaic Rebate Programme] PVRP.

Large capital subsidies for PV fail to discourage the use of cheap, short-lived PV modules. Such modules could out-compete more reputable brands if there was a capital subsidy, but would fail to develop an improved PV industry.

Large capital subsidies for PV fail to discourage poor installation (eg partially shaded) by shonky installers

In contrast, a FiT provides a strong incentive for households to purchase and maintain quality systems in order to reap on-going financial benefits from a long-lived system.⁴⁰

Committee view

2.37 The committee believes that the evidence internationally indicates that FITs can be an effective means of driving industry cost reduction and increasing installed renewable energy generation capacity, through offsetting of installation costs of renewable energy generators. It did not receive evidence that FITs cause significant regressive effects through higher energy costs: even large-scale FIT schemes appear to have minimal price effects on all consumers' energy bills.

37 Moreland Energy Foundation, *Submission 99*, p. 3.

38 EnergyAustralia, *Submission 117*.

39 Ernst & Young, *Report to DEFRA / BERR – Renewable Heat Support Mechanisms*, October 2007, <http://www.berr.gov.uk/files/file42043.pdf>, retrieved October 2008, p. 15.

40 Professor Andrew Blakers, *Submission 1*.

2.38 However, while there was wide support for FITs in general, there are a number of issues, outlined in chapter 1, that have to be addressed if a FIT scheme is to be effective. This is particularly important to achieving national consistency, given that some states and territories already have schemes in place.

2.39 Given the complexities involved, the committee believes that the current process of negotiation through COAG to achieve a nationally consistent FIT framework is the appropriate one.

Recommendation 1

2.40 Noting strong industry, consumer and government support for FIT schemes, the committee recommends that the Commonwealth government, through COAG, work as quickly as practicable to implement a FIT framework that is as far as possible nationally uniform and consistent.

Chapter 3

Issues with the bill

3.1 The previous chapter discussed broad policy questions that arise when considering FITs as a renewable energy policy option. This chapter looks at some specific issues raised in the context of the bill currently before the committee.

Gross or net metering?

3.2 The issue most discussed in submissions to the committee's inquiry was the basis on which electricity should be metered and a premium tariff paid to householders generating power from renewable energy sources.

3.3 There are two metering options: **net metering** (also referred to as net export, or import/export metering), and **gross metering**. Dr Prest outlined the differences between the two, when discussing the different FIT schemes currently in place:

The [South Australian FIT] law only offers its incentive on a “net export” basis, that is, on the net quantity of electricity exported to the grid after accounting for in-home consumption. In other words, Net Export = Gross Production – Household Load. The liability for domestic consumption is reduced by the output of the PV system.

Under a gross metering system (as in the ACT and Germany), PV owners receive the premium tariff for all electricity produced by their systems (whether consumed at home or exported). They pay full retail price for all of their household consumption. Gross production metering offers higher returns than under the ‘net export’ system.¹

3.4 As the committee noted in its report on the Save Our Solar (Solar Rebate Protection) Bill 2008, submissions to that inquiry commented extensively on this issue in support of a gross feed-in tariff, and that preference was also prevalent in submissions to the current inquiry.

3.5 A gross FIT produces higher returns to the installer of a renewable energy generator, making investment in renewable energy more attractive, compared to a net FIT.

3.6 Individuals considering whether to invest in a renewable energy system find it difficult to estimate the economic benefits of their investment under a net FIT. A gross

1 Dr James Prest, *Submission 123*, p. 36.

FIT allows investment decisions to be made with more certainty.² Mr Shone described the situation when an installer is setting out the benefits to a household:

When selling a system I can say, 'If you install this you will generate around \$1,000 or \$1,500 a year. There you go.' That is impossible with net metering because it depends on the household behaviour of a person. As I said before, circumstances change. People retire or they have children, and all of a sudden they are using electricity during the day when they were not and they are not getting the returns. There is no guaranteed certainty; therefore we believe there will be a far lower uptake than there would be under gross metering.³

3.7 This may be critical if the investor is seeking a loan to assist with the capital costs of the investment. As Mr Shone pointed out, 'under net metering financial institutions will not lend you money because they do not know what you are going to do in your home'.⁴

3.8 The ATA commented that the choice of a net FIT, made by some Australian states, was out of step with prevailing practice:

Of the 45+ international examples of feed-in tariff, Australia appears to be unique in adopting this form of metering for feed-in tariffs. International examples almost universally value all of the electricity generated from renewable energy, and pay the generator via 'gross metering'.⁵

3.9 Some submitters argued that net metering was a poor approach because small installations would export little if any energy after meeting their own needs:

It is likely that in the majority of cases, at least in residential homes, there may be little if any excess electricity generated. Consequently, many residential users would get little or no benefit from a net export model.⁶

3.10 Data from the South Australian government suggests that even modest size systems can export significant proportion of their output. Their study of over 1500 photovoltaic systems that had import/export metering (ie. net metering) indicated that they were on average exporting half their output, even though the mean system size was 1.5kWh.⁷

2 Sunpower, *Submission 49*, p. 1.

3 Mr Bradley Shone, Energy Policy manager, Alternative Technology Association, *Proof Committee Hansard*, 9 September 2008, p. 13.

4 Mr Bradley Shone, Energy Policy manager, Alternative Technology Association, *Proof Committee Hansard*, 9 September 2008, p. 13.

5 ATA, *Submission 100*.

6 Australian Network of Environmental Defender's Offices, *Submission 34*, p. 6.

7 South Australian Department of Premier and Cabinet, *Submission 68*, Attachment A..

3.11 It has been argued that net is preferable because it encourages home owners to reduce energy use.⁸ However, energy conservation still benefits the home owner under a gross FIT. Under a gross FIT, the householder has to buy the electricity they use at the regular tariff, so they make savings through energy conservation. Furthermore, the committee notes that net metering can have a significant drawback when it comes to energy conservation. A household using net metering cannot actually determine its own energy consumption, and therefore cannot use the meter to guide energy saving measures:

...one of the big problems with net metering—we have seen this in South Australia and in Queensland and it is proposed for Victoria—is that it is impossible to see, first, the amount of electricity that has been generated by the renewable energy generator on the roof or in the backyard and, second, the total in-home consumption. With the net meter you get two figures: you get the amount that is exported, which is the generation minus what is being used in the home at the time, and you also get a second figure which is the amount that is imported, which is the household use minus what is being generated and used. It is not possible to know how much electricity has been consumed by that home.⁹

3.12 The Garnaut Climate Change Review also directly addressed the question of whether FITs should be based on gross or net metering:

Some argue that a gross-metered feed-in tariff is undesirable because, from a sustainability perspective, it does not encourage embedded generators to consume less electricity, whereas under a net-metered scheme profits can only be made by exporting more to the grid. This reasoning is erroneous because the incentives to consume should come through the retail tariff paid for electricity, not through the feed-in tariff system.¹⁰

3.13 The South Australian government also argued that net metering had the advantage of utilising existing household electricity meters, reducing implementation costs.¹¹ While this is the case, metering replacement costs are an insignificant proportion of the total investment involved.¹²

3.14 Net metering was also opposed on equity grounds:

The problem with net metering as opposed to gross metering is that it discriminates against people who are at home during the day, such as the

8 South Australian Department of Premier and Cabinet, *Submission 68*.

9 Mr Bradley Shone, Energy Policy Manager, ATA, *Proof Committee Hansard*, 9 September 2008, p. 12.

10 Garnaut Climate Change Review, *Final Report*, October 2008, p.464.

11 South Australian Department of Premier and Cabinet, *Submission 68*.

12 A new or replacement meter would cost around \$200 (See Mr Bradley Shone, Energy Policy Manager, ATA, *Proof Committee Hansard*, 9 September 2008, p. 12), while the total installation cost is likely to be upward of \$8000.

elderly, pensioners, retirees, single parents, and people with smaller systems who cannot afford the larger systems. Proportionately they are exporting less of their electricity to the grid, whereas with gross metering you are valuing the entire electricity that is generated. That figure of 50 per cent might be the average across the state but it might be made up largely of people with double incomes and no kids, people with large systems, or people with holiday homes down at the coast who are running a system.¹³

3.15 The committee notes the strong preference of stakeholders for a gross metering approach to FITs. It also notes that this is the prevailing practice outside Australia, and is the basis for the world's largest FIT schemes, such as in Germany and Spain. It recognises that gross metering has the advantages of being more attractive to customers and more certainty when it comes to investment planning.

3.16 The committee notes that there are a range of schemes in place around Australia. Net metering has been used in some jurisdictions. There has been mixed evidence received by the committee about whether the net metering approach has benefits in terms of installation costs for meters, or in encouraging energy conservation. The view of most experts appears to be that these benefits are either limited or nonexistent.

3.17 Information about FITs provided to the public by those jurisdictions with net metering schemes draws attention to the federal Solar Homes and Communities Program¹⁴ and in one case indicates that the net metering approach has been designed to work in tandem with the federal rebate.¹⁵ The committee does not wish to pre-empt discussions about a nationally consistent approach to FITs in COAG that are currently taking place, but recommends that governments consider carefully the evidence received by this Senate inquiry, as well as the track record of existing FIT schemes overseas, in designing a FIT framework for Australia.

Recommendation 2

3.18 The committee recommends that all governments consider carefully the evidence received by this Senate inquiry regarding metering, as well as the track

13 Mr Bradley Shone, Energy Policy Manager, ATA, *Proof Committee Hansard*, 9 September 2008, p. 10.

14 South Australian Department of the Premier and Cabinet, July 2008, *Fact Sheet: South Australia's Feed-In Scheme for Small-Scale Solar Photovoltaic (PV) Installations*, http://www.climatechange.sa.gov.au/uploads/pdf/feed-in_fact_sheet.pdf (accessed 14 October 2008); Queensland Department of Mines and Energy, Solar Bonus Scheme, http://www.dme.qld.gov.au/Energy/solar_feed_in_tariff.cfm (accessed 18 August 2008).

15 Victorian Department of Primary Industries, 2008, *Victoria's Premium Rate for Solar Power Fact Sheet*, [http://www.dpi.vic.gov.au/dpi/dpinenergy.nsf/LinkView/490170EA6AD2DBEACA257456000E547F4CAC723B1D538D66CA25740C000D2004/\\$file/FiT%20Fact%20Sheet-2jun08.pdf](http://www.dpi.vic.gov.au/dpi/dpinenergy.nsf/LinkView/490170EA6AD2DBEACA257456000E547F4CAC723B1D538D66CA25740C000D2004/$file/FiT%20Fact%20Sheet-2jun08.pdf) (accessed 14 October 2008).

record of existing FIT schemes overseas, in designing a nationally consistent FIT framework for Australia.

'Qualifying generator'

3.19 Schedule 1, section 5 defines terms to be used in the Act that are relevant to a FIT scheme as described by the bill. 'Qualifying generator' is defined in the bill as a renewable energy electricity generator that:

- (a) is installed after the commencement of the Renewable Energy (Electricity) Amendment (Feed in Tariff) Act 2008; and
- (b) complies with the relevant Australian Standard; and
- (c) is connected to an electricity distribution network in a manner that allows electricity generated by the renewable energy electricity generator to be fed into the electricity distribution network, other than where the electricity distribution network is an excluded network; and
- (d) generates electricity from a source listed in section 17 as an eligible renewable energy source; and
- (e) forgoes participation in the mandatory renewable energy target scheme.¹⁶

3.20 The committee received no comments from submitters relating to points (b) and (c) above, indicating to the committee that their inclusion in the definition is uncontroversial. Discussion of point (e) indicated support for the approach in the bill.¹⁷

3.21 Points (a) and (d) of the definition were the subject of concern to inquiry participants.

Existing versus new generators

3.22 Point (a) of the definition of 'qualifying generator' indicates that people with existing renewable energy generators will not be eligible to be included in the FIT scheme proposed in the bill; and that only people who install such a system after the Act is introduced will have access to the scheme. Inquiry submissions were divided on this issue. In support for the bill, some submitters claimed that this would prevent 'double dipping'.¹⁸

3.23 Dr James Prest explained his support for point (a) of the definition:

16 Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008, Schedule 1, s. 5.

17 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 9; Dr Muriel Watt, Chair, Australian PV Association, *Proof Committee Hansard*, 8 September 2008, p. 18; Mr Bradley Shone, Energy Policy Manager, Alternative Technology Association, *Proof Committee Hansard*, 9 September 2008, p. 13.

18 Australian PV Association, *Submission 78*.

I guess the argument would be that it would be a windfall gain paid for by the community going to those early movers, and perhaps there would be a double-dipping principle that these people should not get multiple forms of incentive at the same time.¹⁹

3.24 However, Dr Prest and other submitters provided solutions to the issue of double dipping so that those who received a rebate and RECs could also choose to operate under a FIT scheme:

My view would be that people would have to elect to choose whether they wanted the RECs or they wanted the feed-in tariff.²⁰

It would be easy enough to accommodate whatever previous subsidies they may have received, and they would be on a different tariff rate or a different cut-off point. I think that would be more appropriate, because I do not see any reason to punish those who have actually bitten the bullet themselves and gone ahead.²¹

3.25 Other participants were unhappy with the drafting of this definition. They indicated concern that it would unfairly penalise 'early adopters' of renewable energy technology who had installed the technology out of genuine environmental concern²². These submitters supported retrospectivity, to send a signal to 'early adopters' that taking initiative will be rewarded, thus making future 'early adoption' by those same market players more likely.²³

3.26 BP Solar, which objected to point (a) of the definition, believed that a system of various tariffs depending on the age of the installation would not work on practical grounds, because '(r)etailers will find it expensive and problematic to manage separate systems for old and new installations and therefore pay different rates'.²⁴

3.27 The committee also heard that point (a) of the definition was considered by some to be problematic because it is 'unclear as to how to pay owners that upgrade their systems'.²⁵ It was not clear whether and how owners who had installed a renewable energy generator prior to the introduction of the national FIT envisaged by the proposed bill, but then increased its capacity after the introduction, would be eligible for a FIT.

3.28 The Australian Network of Environmental Defender's Offices (ANEDO) raised two important concerns with an approach that allowed only new generators to

19 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 8.

20 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 8.

21 Mr Peter Davies, *Proof Committee Hansard*, 8 September 2008, p. 17.

22 See, for example, Ethical Energy, *Submission 90*, p. 1.

23 Conergy, *Submission 126*, p. 10; Clean Energy Council, *Submission 125*, p. 10.

24 BP Solar, *Submission 116*, p. 26.

25 BP Solar, *Submission 116*, p. 26.

be eligible for a FIT.²⁶ If national FIT legislation were to supersede existing state and territory laws, then persons who had installed a system after commencement of a state scheme, but before the commonwealth scheme took effect, might find themselves at a disadvantage compared to new installers.

3.29 ANEDO was also concerned that 'limiting the scheme to those systems installed after the Bill's commencement date could delay a person's decision to install renewable energy generators'.²⁷

3.30 The committee believes both these concerns could be surmounted, either by making renewable energy generators eligible for a FIT regardless of the date of their installation, or through other careful design of legislation. It notes, however that any disruption to the industry would be highly undesirable, and that the design of the legislation should be undertaken with the stability and sustainability of the industry in mind. This particular issue serves to underline the care that will need to be taken in moving to a nationally consistent FIT framework given the presence of pre-existing state and territory policies. The committee does note that the bill would allow the Minister to vary the FIT by location so that the rate can allow for pre-existing state or city (eg. Alice Springs) policies.²⁸

What energy sources should qualify for a feed-in tariff?

3.31 Point (d) of the definition of 'qualifying generator' in the bill defines the range of energy sources that qualify for a FIT. This is achieved by reference to the definition of renewable energy sources under the *Renewable Energy (Electricity) Act 2000*. That definition includes the following sources:

- (a) hydro;
- (b) wave;
- (c) tide;
- (d) ocean;
- (e) wind;
- (f) solar;
- (g) geothermal aquifer;
- (h) hot dry rock;
- (i) energy crops;
- (j) wood waste;
- (k) agricultural waste;
- (l) waste from processing of agricultural products;

26 ANEDO, *Submission 34*, pp 6–7.

27 ANEDO, *Submission 34*, p. 7.

28 Proposed new section 34D(4).

- (m) food waste;
- (n) food processing waste;
- (o) bagasse;
- (p) black liquor;
- (q) biomass based components of municipal solid waste;
- (r) landfill gas;
- (s) sewage gas and biomass based components of sewage;
- (t) any other energy source prescribed by the regulations.²⁹

3.32 This definition is this far broader than that in any of the existing state and territory FIT schemes. This broadly inclusive approach has the advantage that governments and utilities do not try to 'pick winners' amongst renewable energy technologies. It also allows investors to choose the best technology for their situation.

3.33 However, different renewable energy technologies are at different stages of development, and can have very different costs of electricity generation (and different costs of greenhouse gas emissions abatement). One 2003 study compared electricity generating costs in developed countries, in terms of cents per kilowatt hour of generation. For coal, this cost was around 4.9 c/kWh, whereas for wind, the range was 3 to 8 c/kWh, for biomass 2.8 to 7.6 c/kWh, and for solar 8.7 to 40 c/kWh.³⁰

3.34 Applying the same feed-in tariff to all these technologies could give the most cost-effective an unfair market advantage, while failing to encourage support of others that need financial incentives if they are to undergo a successful transition to being a mature renewable energy technology.³¹

3.35 EnergyAustralia objected to the approach for this reason.

Under the proposed feed in tariff scheme, a price is set for renewable generation without taking into account the relative cost effectiveness of the technology. Under these circumstances, low cost renewable generators would not be able to gain a competitive advantage over more expensive renewable generation... In addition, by setting the price for a period of 20 years, the scheme would lock in this market distortion and would not provide ongoing incentives to reduce the costs of producing renewable energy.³²

29 *Renewable Energy (Electricity) Act 2000*, s. 17(1).

30 Ralph E. H. Sims, Hans-Holger Rogner and Ken Gregory, 2003, 'Carbon emission and mitigation cost comparisons between fossil fuel, nuclear and renewable energy resources for electricity generation', *Energy Policy*, Vol. 31, No. 13, pp 1315–1326.

31 BP Solar, *Submission 116*, p. 17.

32 EnergyAustralia, *Submission 117*.

3.36 EnergyAustralia's remarks also highlight the need for clarity about the goals of a FIT scheme. EnergyAustralia's comments contain three suggestions:

- That the proposed legislation sets prices without regard to relative cost effectiveness of the technology;
- That the policy would prevent low cost renewable generators from gaining a competitive advantage over more expensive technologies; and
- Setting a price for 20 years would not provide ongoing incentives to reduce the costs of renewable energy.

3.37 The committee will deal with each in turn. First, the committee notes proposed new section 34D(4) in the bill. This would allow different FIT rates to be set for different technologies, and thus would in fact allow the relative cost effectiveness to be taken into account.

3.38 Second, EnergyAustralia's concern about the effect of the policy on generators with different costs highlights the range of views, and confusion, about the purpose of a FIT. EnergyAustralia is correct to note that, under a FIT, low cost renewable generators may have a disadvantage. However, this is essentially the *point* of a FIT. As BP Solar, the industry associations and others have pointed out, a FIT is a transitional policy designed to assist leading edge renewable energy technologies through a transition to commercialisation and cost-competitiveness. If it did not advantage high-cost technologies, then it would probably be ineffective in achieving this aim. BP Solar illustrated this in its submission:

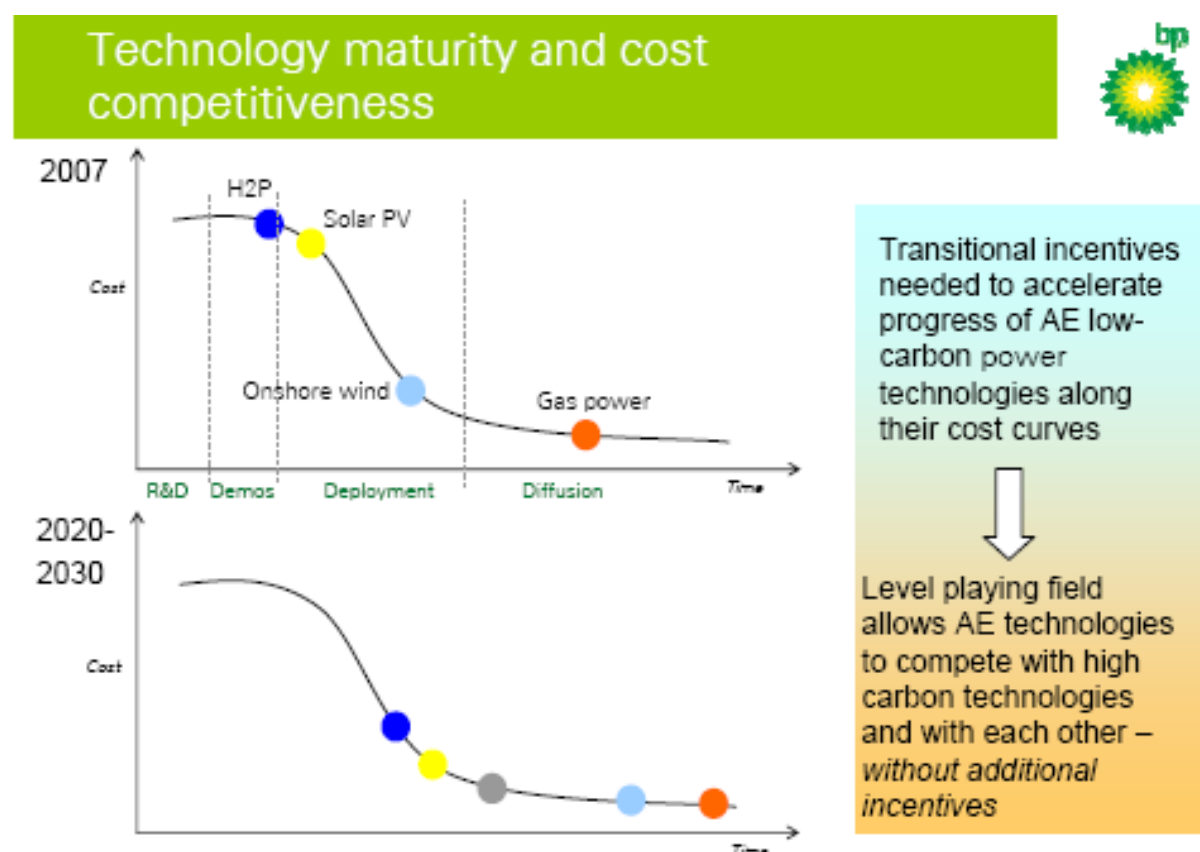


Figure 3.1 Maturation of technology leads to cost competitiveness

Source: BP Solar, *Submission 116*, p. 17.

3.39 Third, the FIT tariff is not set for 20 years: it is set for *each generator* for 20 years. However the rate available each year to new generators falls, a process often referred to as degression that is discussed later in the chapter. This process is designed *exactly* to do what EnergyAustralia is concerned about: to 'provide ongoing incentives to reduce the costs of producing renewable energy'.³³

3.40 There were other concerns about the range of technologies covered by the definition in the Renewable Energy (Electricity) Act (and adopted by the bill). Environment Victoria objected to the inclusion of 'wood waste' on the list for renewable energies qualifying under a FIT scheme because:

In some situations, whole forests can be cut down and are then found to be 100% waste and burnt to generate 'green power'. We do not want the waste 'tail' wagging the forest products 'dog'.³⁴

3.41 The Wollongong Climate Action Network informed the committee that:

We do not think a feed-in tariff should automatically apply to biomass. An evaluation process should be developed which considers criteria such as the total GHG balance of the particular case, water use, impact on the soil and impact of foregone food production.³⁵

3.42 ANEDO objected to the inclusion of wood waste and all hydro sources in the bill's scope:

ANEDO does not support the inclusion of wood waste and all hydro as an eligible renewable energy source. ANEDO has previously outlined its concerns regarding the inclusion of wood waste as an eligible source of renewable energy in the MRET scheme because of the significant environmental impacts of logging activities on our forests and biodiversity. ANEDO has also raised concerns about the inclusion of all hydro schemes as renewable energy sources in the MRET scheme because of the significant detrimental environmental impacts that new hydro electric power stations can have.³⁶

3.43 The committee also notes that some of these energy sources are likely, if harnessed, to be the subject of very large-scale generation technology. Indeed, Ausra, in their evidence to the committee, discussed a proposal for a solar thermal plant that could power a city the size of Canberra.³⁷

33 EnergyAustralia, *Submission 117*.

34 Environment Victoria, *Submission 94*, p. 6.

35 Wollongong Climate Action Network (W-CAN), *Submission 113*, p. 1.

36 ANEDO, *Submission 34*, p. 7.

37 Mr Bob Matthews, CEO, Ausra, *Proof Committee Hansard*, 9 September 2008, p. 2.

3.44 Some submitters brought to the attention of the committee that an advantage of the bill in its current form is that it does not 'pick winners', with each different renewable energy source to receive a different FIT rate.³⁸ However, in light of the arguments put forward by participants, there may be a case for providing a separate definition of 'renewable energy source'³⁹ specifically for technologies to qualify for a FIT. Such a definition would need to be derived from a study of the impact, both financially and environmentally, of supporting a renewable energy technology through a FIT scheme.

3.45 The committee is concerned that the broad range of energy sources listed in the Renewable Energy (Electricity) Act is not necessarily appropriate to FIT schemes. There are two reasons to consider restricting the range of technologies eligible for FITs. First, it is important that the range of renewable energy policy instruments complement each other and not compete (or duplicate) efforts. A very broad FIT, such as that proposed in the bill, could potentially overlap too extensively with the MRET. It may not represent an efficient use of government resources in facilitating the installation of greater renewable electricity generation capacity.

3.46 Second, if FITs are to assist in the development and maturation of leading edge renewable energy technologies, they should be targeted at those technologies. One of the successes of the German FIT scheme is that it has seen a steady decline in the cost of installing PV systems. This is regarded as a key purpose of FIT schemes generally – which is why most FIT schemes steadily reduce the value of the FIT over time. This benefit can only be achieved if they are targeted at emerging technologies, and not at mature renewable energy technologies such as hydro. As Dr Prest put it, renewable energy policies:

will be most successful if designed so that the MRET provisions apply for the end of the renewable energy and technology market closest to price-competitiveness and FIT provisions are applicable to the further-from market technologies.⁴⁰

3.47 Nonetheless, the committee notes that the Bill allows the Minister to set a FIT rate of zero for any technology. This may be expected for large scale wind for example, since that technology clearly benefits from the MRET.

Connection to the grid

3.48 The committee heard from witnesses about potential barriers that would affect the success of the FIT bill in its current form, particularly in respect to connecting renewable energy sources to the grid. Section 34A of the bill requires electricity

38 See, for example, Mr Bob Matthews, Chief Executive Officer, Ausra Pty Ltd, *Proof Committee Hansard*, 9 September 2008, p. 8.

39 This term currently defines the range of renewable energy technologies to which the *Renewable Energy (Electricity) Act 2000* applies. See s.17 of that Act.

40 Dr James Prest, *Submission 123*, p. 31.

retailers to 'permit an owner of a qualifying generator to feed into the grid electricity generated by the qualifying generator'⁴¹. Witnesses, however, suggest that this inclusion does not go far enough:

However, to ensure a connection to the grid, an obligation to connect must precede feed-in. For example, the German law states that grid system operators shall immediately and as a priority connect plants generating electricity from renewable energy sources or from mined gas to their systems.⁴²

3.49 Given the acknowledged success of the German model for a FIT, the requirement to connect to the grid may be strengthened by following the German example.

3.50 While not pursued as an issue of concern by a majority of witnesses, Dr Prest stated that the bill in its current form does not address the issue of the cost of connection to the grid, an issue that is addressed in overseas feed-in legislation.⁴³ As a result, there is scope for electricity retailers to allow owners of qualifying generators to connect to the grid, as required, but potentially charge them a great deal of money for doing so.

3.51 According to witnesses, the success a FIT in Australia may cause further difficulties with regard to grid connection should the grid not prove adequate to handling an influx of renewable energy generators. The bill is silent on who should bear any costs involved with upgrading or reinforcing the grid to ensure that it is adequate to meet demands. These costs again have the potential to provide a barrier to renewable energy generators. Dr Prest stated that:

One of the points about feed-in laws is that there is an obligation to connect and then typically, overseas, there is a statement that the renewable generator should not be responsible for the cost of any grid strengthening, grid reinforcement or network reinforcement, so that extra cost is shared across the community rather than representing a barrier to investment.⁴⁴

Annual payment of tariff

3.52 The bill provides for owners of a qualifying generator to receive payment for all of the renewable energy that they generate. Section 34G of the bill states that:

The owner of a qualifying generator must lodge with the Regulator within 30 days of each anniversary of the registration of the qualifying generator

41 Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008, Schedule 1, Part 3A s. 34A.

42 Ms Keely Boom, Legal Officer, Australian Climate Justice Program, *Proof Committee Hansard*, 8 September 2008, p. 10.

43 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 8.

44 Dr James Prest, *Proof Committee Hansard*, 8 September 2008, p. 8.

an annual return in the prescribed form indicating the metered energy produced by the qualifying generator.⁴⁵

3.53 The proposal for an annual payment for electricity generated may not be a practical system for small renewable electricity producers who had taken out loans to buy their generators and who, consequentially, had repayments to make on their investment:

Senator WILLIAMS—Wouldn't it also be advantageous to those people, if they were to borrow money to put in their PV system or whatever, to have a quarterly payment where they can then meet their commitments to the financial institution instead of waiting for once a year?

Dr Watt—Yes.

Senator WILLIAMS—If they are going to go and put in a system of 2½ kilowatts, which might be up to \$30,000 or so, they will want a cash flow to help pay for that—if they want an incentive to do it, of course.

Dr Watt—Yes. It is more likely that that cash flow outwards for them is going to be every month rather than even every quarter if they have added it on to their mortgage or so on, so yes. But it depends on the collection method and whether the revenue is there to pay back to the customer, so how that happens will determine it to an extent.

Dr MacGill—A key part of it is that it has just been a historical thing that meters involved people having to walk around and read them, and it worked to do it every three months. The only thing on the meter was a single number, so you could subtract away and work out consumption. With the technologies emerging, it does not need to be that way, and time is money—absolutely. So we should be looking for more flexible and more real-time methods for payments.⁴⁶

3.54 Dr MacGill's comments indicate that the issue may not be clear-cut, given that the frequency of payment may depend on how up-to-date the technology on each meter is.

Recommendation 3

3.55 The committee recommends that a more regular system of payments to generators be considered than the annual payments in the proposed bill.

Metering

3.56 Metering was addressed by a number of submitters. The committee recognises that the installation of meters and the capabilities of those meters is the responsibility of state governments. The Government of South Australia, which has adopted a net FIT scheme, informed the committee that the cost of replacing meters in order to

45 Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008, s. 34G.

46 *Committee Hansard*, 8 September 2008, p. 26.

undertake a gross FIT scheme was a factor in their decision of which FIT scheme to undertake:

Those meters were already out there, already being read, already going through the billing systems of the distributor and the retailer, and tariffs were being attached and what have you. If we made the decision to move a gross metering scheme, in our minds we would have had to rewire a lot of people's households.

Some people would have just said, 'It is too difficult' because their solar system was way down one end of the yard and their meter was up the other end. It would have meant extra wires that they did not need. For some people the change would have been relatively simple. We would have changed the metering arrangement at everyone's output to the grid. It would not necessarily have changed the billing systems and stuff like that, but that would have been a significant change.⁴⁷

3.57 Dr Muriel Watt rejected this argument by the South Australian Government as being a valid reason for adopting a net FIT scheme over a gross FIT scheme, but she and Dr Ian MacGill both agreed that the lack of consistency in metering was problematic for a national FIT scheme. Dr MacGill added that:

[W]e need a smarter interface between end users and the industry for a whole range of reasons, as Muriel has noted. Consistency is important there, but there is also a fairly high level of specification. Once you put these meters out there, they hang around. There are lots of 40-, 50- and 60-year-old meters out there, so there are good reasons to specify high, particularly with electronic meters, because it is not a whole lot more money to add additional capability.

3.58 The committee noted good arguments for more modern metering of electricity for homes. This has benefits beyond just the administration of FIT schemes.

Size of eligible installations

3.59 In chapter 1, FIT schemes across Australia were outlined. With the exception of the ACT legislation, each existing FIT scheme was capped in some way, often with more than one limit. The Victorian scheme for example limits both the size of individual installations, and the total generating capacity of all installations that will be eligible for the scheme. The ACT scheme, though not capped, reduces the FIT for large generators. The ACT legislation discounts the FIT rate to 80% of the full rate for generators between 10kWh and 30kWh in size, and 75% of the full rate for generators larger than this.⁴⁸ These levels may be further reduced by regulation.

47 Ms Heather Smith, Principal Adviser, Sustainability and Climate Change Division, Department of Premier and Cabinet, Government of South Australia, *Committee Hansard*, 9 September 2008, p. 18.

48 Electricity Feed-in (Renewable Energy Premium) Act 2008 [Australian Capital Territory], <http://www.legislation.act.gov.au/a/2008-21/current/pdf/2008-21.pdf> (accessed 18 August 2008).

3.60 Concerns were expressed that restrictions on installation sizes would affect the sorts of installations that were supported, and this would determine whether the FIT would support development of the renewable energy industry:

...just putting in one-kilowatt systems does not allow you that economy of scale that the 100 to 200 system would provide to bring the costs down in Australia. So that is a really important market for us to be looking at. There is also a whole new set of customers there in small industry, commercial, local government and that kind of size of customer that at the moment we are not even allowing to participate at all in the renewable energy market. They can really drive all sorts of different things that we have not even seen happen so far, so it is an important market to try and pick up.⁴⁹

3.61 Ausra commented:

South Australia, Victoria and Queensland all have feed-in tariffs that are strictly limited to residential photovoltaic applications and do not encourage the deployment of large scale solar thermal plants...

Ausra supports the view of the Federal Government that there should be a consistent national approach to feed-in tariffs. This would provide greater certainty for business and greater clarity in operating across State and Territory boundaries.

A national approach should not, however, be a lowest common denominator approach. It must build on the ACT approach and ensure that appropriate incentives are provided for the development of commercial solar operations.⁵⁰

3.62 Dr Prest noted that the ACT approach, using discounted rates but covering all sizes of installation, is that adopted in most international schemes:

This approach is consistent with international practice in Austria, Germany, Italy, Luxemburg, Portugal, Slovenia and Spain where different tariff levels are applied according to the plant capacity, with larger capacity plants (in MW) being paid a lower tariff.⁵¹

3.63 The committee found that the bill does not specify the scale of the renewable energy generation that it supports. However the committee acknowledges that the intent behind the bill is to support utility-scale production of renewable energy electricity, the cost of which would be shared by all electricity customers.

3.64 The committee has one concern about the effects of allowing large-scale generation capacity to be eligible for a FIT. A FIT effectively works as a system of cross-subsidy, in which all energy consumers subsidise the energy price received by

49 Dr Muriel Watt, Chair, Australian PV Association, *Committee Hansard*, 8 September 2008, p. 23.

50 Ausra, *Submission 122*, pp 2–3.

51 Dr James Prest, *Submission 123*, p. 38.

renewable energy generators who are eligible for a FIT. One of the reasons that a FIT is economically advantageous is that the additional costs levied on consumers are relatively small, but can generate significant industry stimulation. However the effect on consumers' energy costs would be more noticeable if a FIT-eligible generator was providing power to, say, half of all consumers in a city or region.

3.65 The bill addresses this issue by providing for the Minister to vary the FIT according to the size of the installation. Larger generators can generally produce electricity at a lower cost and therefore require lower FIT rates to become viable. This effect is recognised in the ACT law, which lowers the FIT as the size of the generator gets larger. The Bill also allows the Minister to set targets for the installed capacity of each technology. If the predetermined target is achieved, that Minister has the flexibility to reduce the FIT rate as deemed appropriate. That is, the degression rate is not limited to 10 per cent per year (discussed below). An alternative way of achieving this is exemplified by the Californian scheme, which has a sliding scale that reduces the FIT benefit as the amount of generating capacity installed grows.

3.66 Another approach to limiting the costs of a FIT, reflected in current Australian state FIT schemes, is to limit which technologies are eligible for the FIT, and deliberately exclude technologies that are likely to be large scale. Each of these approaches has strengths and weaknesses, some of which were not discussed by witnesses before the committee.

3.67 In designing FITs, the committee considers it important to keep sight of the key objective, which is to assist the development and commercialisation of leading edge renewable energy technologies, rather than merely to provide a subsidy for renewable power generation. This objective will affect how installation size will affect eligibility for a FIT, as different technologies tend to operate in different size ranges.

Changes in FIT payments over time

3.68 In the previous chapter the committee pointed out that a downward trend in the value of FIT payments is necessary to achieve FIT scheme objectives of driving down the costs of emerging renewable energy technologies. However, there are many factors to consider in setting both tariffs and their variation over time, and many ways of structuring them to achieve this goal.

3.69 The different ways in which the value of a FIT can be varied over time include that it can be:

- Reduced over time for new installations, a process often referred to as **degression**, or as a depreciating tariff;⁵²
- Indexed or unindexed;

52 Jeffrey Michel, 2008, 'The Case for Renewable Feed-in Tariffs', *Journal of EUEC*, Vol. 1, paper 1, http://www.euec.com/journal/documents/pdf/Paper_1.pdf (accessed 17 October 2008).

- Set as a dollar value, or set in relation to an existing energy tariff,⁵³
- Available for varying periods of time,⁵⁴
- Reduced over time as generation targets are met;⁵⁵ and/or
- Subject to periodic review⁵⁶ or review following achievement of targets.⁵⁷

Decisions on all of these points are crucial in designing FITs, but the most significant is degression.

Degression of FIT payments

3.70 Dr Prest concisely summarised how degression works and its importance to FIT legislation. He explained that degression:

refers to legislative provisions which reduce annually the amount of premium tariff payable by a specified percentage. For example in Germany in relation to Geothermal plants, the tariff payable is reduced annually by 1%. Tariff degression encourages early investment and speedy completion of projects. The measure is also designed to take account [of] technological innovation and learning by doing benefits, and to discourage investors from delaying the commencement of projects in the hope of reduced future costs.

Tariff degression provides additional incentives for technology improvements and cost reductions. It serves to reduce risks of rent seeking and over-payment of feed-in premiums to those installations in later years which are more financially viable due to ongoing cost reductions. Ideally, rates of degression applied are derived from empirical observation of cost reductions for ... each band of renewable energy technology.⁵⁸

3.71 Conergy and others emphasised that the setting of the rate was critical:

The reduction rate is crucial - and a very sensitive factor: if too low it will lead to less demand; if too high the market will not be able to handle the demand... A digression rate of 7% is recommended on the guaranteed FIT rate and every year, the tariff offered to newly connected systems is lowered by the rate.⁵⁹

53 Dr Muriel Watt, Chair, Australian PV Association, *Proof Committee Hansard*, 8 September 2008, pp 19–20.

54 Dr James Prest, *Submission* 123, p. 35.

55 See, for example, the Californian Solar Initiative: California Public Utilities Commission, *California Solar Initiative Program Handbook*, January 2008, http://www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF (accessed 18 August 2008).

56 See, for example, the existing Australian Capital Territory scheme – see chapter 1 for detail.

57 See, for example, existing South Australia and Queensland schemes – see chapter 1 for detail.

58 Dr James Prest, *Submission* 123, pp 41–42.

59 Conergy, *Submission* 126, p. 3.

3.72 BP Solar thought that the maximum degression allowed by the bill was, at ten per cent, too high and should be limited to seven per cent.⁶⁰ The Alternative Technology Association thought the rate should be five per cent,⁶¹ which is the rate for photovoltaics under the German scheme.⁶²

3.73 Most Australian discussion of a FIT scheme focuses on the stimulation of photovoltaic generation. This may be in part because, with the exception of the new Australian Capital Territory legislation, all Australian schemes to date have been confined to photovoltaic units. However, there is a range of renewable energy technologies being developed around the world, including solar thermal, different wind technologies, and many others as well. These technologies are at different stages of development and facing different likely rates of reduction in generation costs.⁶³ The logical consequence is that they should face different degression rates, if FITs are going to have the desired impact of stimulating innovation and improvement in those technologies. This is reflected in the degression rates of FITs in the German scheme:

Renewable energy generation technology	Annual degression rate
Wind	2 per cent
Photovoltaics	5 per cent
Geothermal	Zero at present, then 1 per cent commencing 2010
Biomass	1.5 per cent

Source: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *EEG – The Renewable Energy Sources Act: The Success Story of Sustainable Policies for Germany*, July 2007, *Submission 41 Attachment 4*, p. 7.

3.74 While there is widespread agreement on the need for degression, the committee received almost no evidence explaining *why* particular rates should be adopted. Suntech declined to nominate a particular figure, instead focussing on the process by which a rate should be developed and implemented:

60 BP Solar, *Submission 116*, p. 26.

61 Alternative Technology Association, *The Design of a Feed-in Tariff for Australia*, *Submission 75*, attachment 1, p. 2.

62 German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *EEG – The Renewable Energy Sources Act: The Success Story of Sustainable Policies for Germany*, July 2007, *Submission 41 Attachment 4*, p. 7.

63 BP Solar, *Submission 116*.

The Government should consult widely to carefully design the value of the tariff and then undertake regular, publicly-reviewed modifications. Australia should consider pricing reductions via either an annual downward adjustment or an annual review based on review of current market prices, market impacts of new climate policy regulations, electric tariff reform, incentive program modifications, or other factors. Reducing the value over time should help build a self-sufficient industry.⁶⁴

3.75 Fixing depression rates has the advantage of increasing transparency and certainty for investors, and setting production goals for manufacturers and installers. However, unpredicted factors that impact on production costs can make depression rates challenging to meet. In a previous inquiry, the committee heard about the significant impact on the renewable energy industry of major price rises for silicon, a major component of photovoltaic cells.⁶⁵ These price rises may have made meeting depression rate targets temporarily unachievable for the sector, which could have caused significant disruption to industry development. A 'pause' in the operation of depression rates would be necessary to overcome such disruption.

3.76 The committee recognises that the setting of the right depression rates is crucial to the success of a FIT, and should be addressed in a national FIT framework. While there needs to be flexibility in the setting of rates and they cannot be the same for every renewable energy technology, there also needs to be stability and predictability, so that research and development in the sector has targets at which to aim.

3.77 The bill aims to address depression rates by providing for a maximum rate of depression. It does not require a pre-determined rate of depression, but allows for the possibility of an increase of the FIT in the future. This approach also has the advantage of allowing depression rates to be revised in light of lessons learned in the early years of the scheme.

Recommendation 4

3.78 The committee recommends that tariff depression rates form part of the nationally consistent FIT framework, but that there also be capacity for depression rate 'pauses' to be instituted following a rate review procedure.

Recommendation 5

3.79 The committee recommends that tariff depression rates be technology-specific.

64 Suntech Power Australia, *Submission 127*, p. 18.

65 Mr Robert Blakiston, Managing Director Australia, SunPower Corporation Australia, *Save our Solar (Solar Rebate Protection) Bill 2008 [No. 2] Inquiry Proof Committee Hansard*, 7 August 2008, p. 27; Senate Standing Committee on Environment, Communications and the Arts, *Save our Solar (Solar Rebate Protection) Bill 2008 [No. 2] Inquiry Report*, August 2008, pp 14–15.

Other evidence on the variation of FITs over time

3.80 In the bill's current form, witnesses noted the absence of indication of whether the FIT would be indexed to inflation. BP Solar (in a statement supported the Clean Energy Council)⁶⁶ believed that 'the FIT should be paid on all electricity generated by the system and should move in line with inflation CPI'.⁶⁷

3.81 A FIT may be set as a price on top of whatever the standard retail tariff for electricity might be.⁶⁸ This was explained by Dr Watt:

the feed-in tariff would best be placed as a premium on top of existing tariffs so your competitive market continues to operate and your retailers can offer you whatever tariff they wish and try and attract you as a customer, but the feed-in tariff stays on top of that. So if you are now paying, say, 16c a kilowatt hour then you would add your feed-in tariff on top of, say, another 30c or whatever it is, and you do not destroy the competitiveness of the market. I think that is a key point and a difference in how we will need to implement such a scheme in Australia compared to Germany. It also means that, as electricity prices go up—as we know, in all our states now we have quite high trajectories of electricity price increases regardless of anything to do with renewables—you are not eroding the feed-in tariff. If you have a fixed feed-in tariff that is inclusive of your retail tariff, as the retail tariff goes up the amount that you are being paid for your renewable electricity is going to go down unless it is kept as a separate item on top of your bill.⁶⁹

3.82 The committee was unclear about whether setting FITs as premiums above energy prices, regardless of how those energy prices varied, was necessary in order to provide investment certainty. If investors are assessing the net present value of an investment or loan, then knowing the absolute value of their return would seem to be sufficient information on which to base a decision. It is not clear whether it is desirable to ensure that a FIT rate for current investors should stay above prevailing energy prices no matter how high those prices go. The rate should be high enough to attract investment and stimulate innovation; however it would be undesirable to impose greater costs on all energy consumers beyond those needed to secure that investment and innovation.

3.83 The committee heard numerous suggestions that FITs should last for 20 years, which is the period set in the German scheme, as well as many others.⁷⁰ The

66 Clean Energy Council, *Submission 125*, p. 9.

67 BP Solar, *Submission 116*, p. 20.

68 BP Solar, *Submission 116*, p. 20.

69 Dr Muriel Watt, Chair, Australian PV Association, *Proof Committee Hansard*, 8 September 2008, pp 19–20.

70 Dr James Prest, *Submission 123*, p. 35.

Alternative Technology Association has suggested 15 years.⁷¹ The committee did not receive sufficient evidence to comment on this point, but acknowledges that it is one of the many details that must be carefully designed as part of an effective FIT framework. The period should not necessarily be the same for every technology, a fact reflected in schemes such as that in France, which sets different periods for each renewable energy technology.⁷²

Conclusion

3.84 The committee was fortunate in having the opportunity to take evidence directly from Mr Hans-Josef Fell, member of the German Bundestag, and one of the architects of Germany's feed-in tariff law. He was emphatic that the details of a FIT framework require very careful design if it is to succeed. The committee recognises that any FIT scheme will require detailed consideration of:

- Coordinated action in light of pre-existing state and territory schemes;
- The eligibility of different renewable energy sources;
- Tariff values available for different sizes of generator;
- The parameters within which FIT payments will decrease over time (degression);
- Whether and how FIT payments will be indexed; and
- Information management for the administration of the scheme.

3.85 The committee also had its attention drawn to some other design issues that, in the committee's view, seemed to be important matters, but were the subject of very little evidence given during the inquiry. These include in particular:

- The administrative design of the scheme, involving reporting by individual generators, payments by a regulator to generators and collection of a levy to fund the payments: a model criticised as unnecessarily complex,⁷³ and not supported by some key witnesses;⁷⁴ and
- Questions about the interaction between FIT eligibility and energy efficiency measures.⁷⁵

3.86 In light of these issues, and given current inter-governmental discussions around a national approach to FITs, the committee recommends that the current bill

71 Alternative Technology Association, *The Design of a Feed-in Tariff for Australia*, Submission 75, attachment 1.

72 Dr James Prest, *Submission 123*, p. 35.

73 BP Solar, *Submission 116*, pp 26–27; Dr James Prest, *Submission 123*, p. 39.

74 Conergy, *Submission 126*, p. 2; Mr Hans-Josef Fell, Member of the German Bundestag, *Proof Committee Hansard*, 16 October 2008.

75 Professor Andrew Blakers, *Submission 1*.

not proceed. The committee notes that the bill has been a useful mechanism to examine in detail the desirability, viability and practical issues surrounding FIT schemes in the Australian context.

Recommendation 6

3.87 While strongly supporting a nationally consistent feed-in tariff framework, the committee recommends the current bill not proceed.

**Senator Anne McEwen
Chair**

Coalition Senators additional comments

The Coalition believes renewable energy is a vital component of a sustainable future for Australia. We broadly support the analysis and recommendations of the majority report in regard to the specifics of this Bill and a feed-in tariff regime.

However, Coalition Senators are dismayed at the lack of certainty being provided to the renewable energy sector, especially the solar industry, by the Rudd Government at present.

The Rudd Government's first budget contained the surprise introduction of a means test to the renamed Solar Homes and Communities Plan (SHCP), making the photovoltaic rebate available to fewer homes in fewer communities. Effective immediately following the 13 May budget, only households with an annual taxable income of less than \$100,000 are now eligible for a rebate.

As a direct result of the loss of certainty within the solar industry, long-term planning to build capacity or develop business models, including investment to train and educate installers and other investment necessary for industry growth, have stalled. Withdrawal of interest of potential customers no longer qualifying for the rebate due to the means test was a significant disruption in the shorter term.

Under questioning in recent Senate Supplementary Budget Estimates, the Rudd Government confirmed applications had been received at a rate greatly exceeding that for which it had budgeted – a spike Coalition Senators believe has been prompted by the ongoing uncertainty – yet dodged questions about its commitment to the rebate program's future and refused even to commit to it still being available in the new year.

The strongest statement in this regard came from a departmental official:

"Future support for the solar industry would be considered in the context of the national energy efficiency strategy, and the government's response to the (emissions trading) green paper."

A failure to commit more funding means the program is surviving only on a week-by-week basis.

Coalition Senators recommend the Rudd Government abolish its means test and guarantee the future of the solar rebate program.

The Coalition recognises the potential of feed-in-tariffs to provide a medium term payback period that encourages private sector investment in photovoltaic (PV) systems and, therefore, longer term certainty for the solar industry.

The Coalition is committed to ensuring the growth of Australia's solar industry and believes that a national feed-in tariff regime is the logical next step in supporting the advancement and development of this important industry.

However, there can and should be no 'gap' period in support for the solar industry. Rebates may even be complementary to a feed-in tariff scheme given the high up-front costs of solar installation.

Coalition Senators recommend rebates to support the upfront cost of PV systems be either maintained in some form that is complementary to feed-in tariffs or that any transition from rebates to feed-in tariffs is undertaken in a smooth and well planned manner following consultation with industry and stakeholders.

Coalition Senators note that State and Territory Governments are currently pursuing their own feed-in tariff models with varying payback formulas and rates.

The Coalition believes it would be desirable to have a uniform national position on feed-in tariffs.

Coalition Senators are therefore dismayed that the Council of Australian Governments (COAG) has again deferred any decision in relation to this matter.

The COAG Communiqué of 26 March 2008 stated:

“COAG agreed to consider options for a harmonised approach to renewable energy ‘feed in tariffs’ in October 2008.”

Yet the COAG Communiqué of 2 October 2008 made no reference whatsoever to feed-in tariffs, agreeing only to:

“develop a National Strategy for Energy Efficiency, to accelerate energy efficiency efforts across all governments and to help households and businesses prepare for the introduction of the Commonwealth Government's Carbon Pollution Reduction Scheme.”

Coalition Senators believe there is an urgent need to advance issues relating to a harmonised approach to renewable energy feed-in tariffs. The urgency is heightened by the uncertainty surrounding solar rebates.

These issues include the nature of the scheme (gross or net), the rate of tariff applied to different renewable energy sources, necessary variations between states (including transition from existing state-based models) and the indexation and/or degression formulas applied.

Any feed-in tariff scheme's interaction with other government interventions to encourage uptake of renewable energy must also be considered. This would include rebates, as well as the proposed emissions trading scheme (ETS)/Carbon Pollution Reduction Scheme (CPRS) and the Mandatory Renewable Energy Target (MRET).

Coalition Senators note the recent analysis by Ernst & Young, highlighted in the majority report, suggesting Germany's feed-in tariff was delivering renewable energy at a lower cost per kilowatt-hour than the UK's tradeable certificates.

It is imperative that we get these details right and Coalition Senators believe the Government should utilise the skills of the Productivity Commission as its principal advisory body on all aspects of microeconomic reform, covering all sectors of the economy.

Coalition Senators recommend the Rudd Government request the Productivity Commission report as soon as practicable on appropriate support for renewable energy, including the most effective means to implement a nationally consistent feed-in tariff model.

Senator Simon Birmingham
Deputy Chair, LP, South Australia

Senator the Hon. Ron Boswell
NATS, Queensland

Senator Stephen Parry
LP, Tasmania

Australian Greens dissenting report

As the author of the Renewable Energy (Electricity) Amendment (Feed-in-Tariff) Bill 2008, the Greens are pleased that the committee report is reasonably accurate in its summation of the evidence presented in submissions and hearings during the inquiry and that both the Government and the Opposition members are persuaded that a nationally coordinated approach to the introduction of a 'gross' renewable energy feed-in tariff scheme is needed in Australia.

However, the report recommendations do not reflect the overwhelming body of evidence and the discussion in the body of the report. In particular, the Greens disagree with the primary recommendation that that the introduction of feed-in laws should be delegated to COAG. If Australia is to have an effective, coordinated and nationally consistent FiT scheme within a reasonable timeframe then it should be managed by the federal government, as are similar policies such as the Mandatory Renewable Energy Target and the Carbon Pollution Reduction Scheme.

There is overwhelming public and industry support for this legislation. No one believes that the COAG process will deliver a gross feed in tariff in the foreseeable future. Since several States have recently introduced and are now defending poorly designed FiT schemes, it is unrealistic to expect the States to now amend and coordinate these laws. A new national FiT scheme managed by the Commonwealth Government can easily accommodate and eventually replace these existing State schemes.

The decision to leave it to COAG is a decision to delay indefinitely a mechanism that is the proven driver of the deployment of renewable energy. This was acknowledged most recently in the United Kingdom where FiT legislation was foreshadowed, heralding a significant shift away from their existing renewable energy target approach. With the shift towards FiTs the United Kingdom will be adopting a policy that is proving remarkably successful throughout most of Europe. Rejection or delay of this legislation is a blow to the development of the green technologies at the forefront of the Green energy revolution that is imminent globally, and will leave Australia behind both in green collar jobs and industry innovation. Leaving the deployment of renewable energy to rebates and low interest loans is a recipe for piecemeal and minimal deployment.

Areas of disagreement are detailed below.

1. Paragraph 2.39 states that "Given the complexities involved, the committee believes that the current process of negotiation through COAG to achieve a nationally consistent FIT framework is the appropriate one." The Greens would change recommendation 1 to:

Greens Recommendation 1

Noting strong industry, consumer and government support for FIT schemes, the committee recommends that the Commonwealth government introduce a gross national FIT scheme as quickly as possible.

2. Paragraphs 3.70 to 3.77 discuss degeneration of FiT payments (that is, a predetermined annual reduction in FiT rates for new projects). While the Greens agree that a predictable degeneration of FiT rates usefully provides an incentive for early investment and encourages ongoing innovation to reduce costs, it is also important is that the Minister has the option to increase FiT rates if it is determined that a technology uptake rate is too low. This approach also has the advantage of allowing the Government to take a 'learning by doing' approach since during the early years of the scheme in particular there will need to be a period of 'price discovery'. The Greens therefore disagree with Recommendation 5 which says that pre-determined tariff degeneration rates should form part of a national FiT scheme.
3. In its conclusion the committee report lists a number of matters requiring more detailed consideration. These include:
 - i. Coordinated action in light of pre-existing state and territory schemes;

The Greens view is that federal government should take charge of renewable energy development policy, just as it is doing with the Carbon Pollution Reduction Scheme, which allows the NSW Greenhouse Gas Abatement Scheme to become redundant. This Bill provides the flexibility for the Minister to make allowances for existing State schemes.
 - ii. The eligibility of different renewable energy sources;

The Greens believe that all renewable energy sources should be eligible but that the Minister should determine the FiT rate. By this mechanism the pricing will determine the attractiveness of the scheme for each technology type. It may be, for example, that wind energy receives a FIT of zero if it is judged to be adequately supported by the Mandatory Renewable Energy Target. The Greens also acknowledge the number of submissions rejecting wood waste as renewable given the controversy

surrounding its sustainability in some circumstances. We agree that these concerns are valid and must be taken into account.

iii. Tariff values available for different sizes of generator;

The Bill clearly delegates this decision to the responsible Minister.

iv. The parameters within which FIT payments will decrease over time (degression);

The Greens view, as discussed above, is that pre-set degression rates are not the best approach and that in this regard to Bill should proceed as drafted.

v. Whether and how FIT payments will be indexed;

The Greens view is that indexation is not essential, however if other parties felt it was we are willing to consider amendments to the Bill.

vi. Information management for the administration of the scheme.

The Bill clearly set out the information management requirements of the responsible Minister and the regulator.

In summary the Greens believe that the Bill should proceed, albeit with a range of sensible amendments based on information gratefully received in submissions and hearings. Finalisation of the underpinning regulations is a complex policy area which would obviously require the analytical resources of Departments including Treasury, Climate Change and the Environment, and so the Greens would welcome the earliest possible engagement of the Government on this critical and urgent policy issue.

Senator Christine Milne
Australian Greens, Tasmania

Senator Scott Ludlam
Australian Greens, Western Australia

Appendix 1

Submissions

1	Professor Andrew Blakers
2	Springers Low Voltage Specialists
3	Pyramid Power Company
4	Ms Jennifer Fordyce
5	Mr Mark Rickards
6	EcoTasmania Inc
7	Mr David Bond
8	Ms Sarah Moles
9	Mr Peter Meloy
10	Mr Gary Holt
11	Mr John Cooke, Independent Power Systems Pty Ltd
12	Mr Angelo Artuso, Solar Inception Pty Ltd
13	Mr Rod Menzies, Renewable Resources Workshop
14	Mr Phil Gower, Remote Area Power Pumping & Solar Systems
15	Mr David Bartley, Soma Power Pty Ltd t/as Sunrise Solar
16	Mr Laurence Port, Residential Solar Systems Pty Ltd
17	St Vincent de Paul Society
18	Mr Brian Jones, Switched-On Electrical/Solar
19	Mr Gavin Street
20	Mr Austin Vaughan, Laser Electrical - Moorabbin
21	Mr Peter Bone, Bone Electrical Pty Ltd
22	Mr Paul Cole, PBC SolarPower
23	Mr Nick Lake, Nickel Pty Ltd
24	Ergon Energy
25	Mr Zelko Persic
26	Mr Philip Wong
27	Mr Russell French, Sun Empire Solar Systems
28	Mr Mike and Ms Cathy Gorman, Kangaroo Valley Solar
29	Mr Jeffrey Michel
30	World Future Council
31	Professor Peter Droege
32	Mr Mark Landmann (PDF 5KB)
33	Mr Kelvin T Jones
34	Environmental Defender's Office (ACT) Inc
35	Mr Glen Holland, Sun Wise Electrics
36	Mr Christopher Sanderson, Transocean Investments Pty Ltd
37	Mr Ian J Dawson, ECS Perth
38	Dr Bill Parker, Proteomics International Pty Ltd

- 39 Mr Geoff Bragg, New England Solar Power
- 40 Mr Robbert Veerman
- 41 Mr Hans-Josef Fell MdB, Member of German Parliament
- 42 Mr Rob Lee Tet, SolarCo Canberra
- 43 Mr Michael N Nugent
- 44 Ms Melva Truchanas
- 45 Ms Patricia Scott
- 46 Mr Mark England, Electric Biz Pty Ltd
- 47 Mr Wayne Kaufling
- 48 Dr Gideon Polya
- 49 SunPower Corporation Australia
- 50 Ms Helen Nicholls
- 51 Australsun Pty Ltd
- 52 Ms Sandra Hunter
- 53 Professor Michael Christie
- 54 Ms Jackie Graham and Mr Steve Lord
- 55 Dr Peter Burchett and Mr Andrew Sumner
- 56 WWF-Australia
- 58 Mr David Sydney-Smith, EarthRise Renewables Pty Ltd
- 59 Ms Naomi Aitchison, Ms Jackie Hartnell, Ms Stephanie and Mr David Mann, Ms Juliette Rennie and Mr Mark Farnell, Ms Samantha Rennie and Ms Kate Ansett and Mr Steve Fisher
- 60 Ms Wendy Suiter
- 61 Mr Ian Hall, SolarXpress
- 62 European Photovoltaic Industry Association
- 63 Ms Judith Bailey
- 64 Locals Into Victoria's Environment (LIVE)
- 65 Lighter Footprints
- 66 Storm Sustainability Ltd
- 67 Ms Rebecca Horridge
- 68 Department of Premier and Cabinet, Government of South Australia
- 69 Mr Kevin Hicks
- 70 Mr Michael Croft
- 71 Mount Alexander Sustainability Group, Tarrangower Branch
- 72 Solartec Renewables Pty Ltd
- 73 Mr Nigel and Ms Nikki Waters
- 74 Mr Geoff Thomas, Advanced Wind Technologies
- 75 Mr John Sheehan
- 76 Mr Steve Gates, Sustainable Energy Now Inc
- 77 Ms Prue Acton
- 78 Dr Muriel Watt, Australian PV Association
- 79 c4 Healesville
- 80 Nature Conservation Council of NSW
- 81 Mr Steve Burns
- 82 Friends of the Earth Australia
- 83 BREAZE

84	Mr Michael Tibbs, Rock Innovations
85	Mr Robert A Redmond
86	Mr Peter and Ms Kerry Davies
86A	Mr Peter and Ms Kerry Davies (Supplementary Submission)
87	The Australian Climate Justice Program
87A	The Australian Climate Justice Program (Supplementary Submission)
88	Australian Conservation Foundation
89	City of Greater Bendigo
90	Mr David Phillips, Ethical Energy
91	The Conservation Council
92	Mr Trevor Robotham, Sun Wind and Power (SWAP)
93	Rainbow Power Company
94	Environment Victoria
95	GetUp
96	Mr Bill Scott
97	Australian Sustainable Built Environment Council
98	Greenpeace Australia Pacific
99	Moreland Energy Foundation Limited
100	ATA - Alternative Technology Association
101	Environment Tasmania
102	Mr Clement Clarke
103	Beyond Zero Emissions
104	Solar Shop Australia Pty Ltd
105	Ms Liz Denborough
106	Ms Miwa Tominaga
107	Beyond Building Energy
108	Ms Maria Romiti
109	Healesville Environment Watch Inc
110	Local Power
110A	Local Power (Supplementary Submission)
111	Phoenix Solar Pty Ltd
112	Mrs Louise Broadbent and Ms Susan Plowright
113	W-Can - Wollongong Climate Action Network
114	Electrical Trades Union of Australia - Southern States Branch
115	Sustainable Energy Policy Queensland
116	BP Solar
117	Energy Australia
118	Hush Wind Power Limited
119	Mr Martin Hogan
120	Dr Max Whisson
121	Woolworths Limited
122	Ausra Pty Limited
123	Dr James Prest
124	Department of Climate Change
125	Clean Energy Council
126	Conergy

- 127** Suntech Power Australia
- 128** Mr Dieter Liebrich - Solectrics
- 129** Dr Christina Kirsch - Northern Beaches Greens

Appendix 2

Public Hearings

Monday, 8 September 2008 – Sydney

Dr James Prest (Private Capacity)

Australian Climate Justice Program

Ms Keely Boom, Legal Officer

Mr Peter Davies (Private Capacity)

Centre for Energy and Environmental Markets

Dr Iain MacGill, Joint Director

Australian PV Association

Dr Muriel Watt, Chair

EnergyAustralia

Mr Trevor Armstrong, Executive General Manager, System Planning and Regulation

Mr Greg Foy, Manager, Climate Change and Environmental Products

Mr Neil Gordon, Manager, Demand Management

Greenpeace International

Mr Sven Teske, Director Renewable Energy Campaign

Mr Julien Vincent, Climate and Energy Campaigner

Mr Hans-Josef Fell, Member, German Bundestag (Private Capacity)

Tuesday, 9 September 2008 – Melbourne

Ausra Pty Ltd

Mr Bob Matthews, Chief Executive Officer

Mr Wayne Smith, Manager Government Relations

Alternative Technology Association

Mr Brad Shone, Energy Policy Manager

Department of Premier and Cabinet, Government of South Australia

Mr Tim O'Loughlin, Chief Executive Officer, Sustainability and Workforce Management

Ms Heather Smith, Principal Adviser, Sustainability and Climate Change Division

Clean Energy Council

Ms Andrea Gaffney, National Government Relations Manager

BP Australia Pty Ltd

Mr Gavin Jackman, Director Government Affairs, BP Australia Pty Ltd

Mr Victor De Sousa, Regional Manager, BP Solar Australia

Mr Chandran Vigneswaran, Media Manager, BP Australia Pty Ltd

Thursday, 16 October 2008 – Canberra

Mr Hans-Josef Fell, Member, German Bundestag (Private Capacity)