

SUNTECH POWER AUSTRALIA

Submission to the Independent Pricing and
Regulatory Tribunal (IPART)

Inquiry into fair and reasonable value for
electricity from small-scale solar PV

September 2011

Contact:

Jenny Lu
Regional Manager

Phone: 02 9648 5600

Fax 02 9648 5605

Email: jenny.lu@suntech-power.com.au

12 September 2011

The Secretariat
Solar feed-in tariffs
Independent Pricing and Regulatory Tribunal NSW
PO Box Q290
QVB Post Office NSW 1230

via email: ipart@ipart.nsw.gov.au

Dear Secretariat

RE: IPART Energy Issues Paper, August 2011 – Solar feed-in tariffs

Suntech Power Australia (Suntech) would like to submit the following for consideration by the Independent Pricing and Regulatory Tribunal NSW (IPART) as it inquires into a fair and reasonable value for electricity generated from small-scale solar photovoltaic (PV) systems. We appreciate the opportunity to provide input into this process of inquiry.

Suntech appreciates the opportunity to comment on the Issues Paper (*Energy – Issues Paper, August 2011 – Solar feed-in tariffs*) as IPART inquires into setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW. Suntech has a strong interest in the continuing development of policies and programs that will lower the carbon-intensity of the NSW economy and ensure the ongoing development of a sustainable and viable solar PV industry.

Suntech is a manufacturer of solar cells, panels, and building-integrated solar solutions. Our products service the residential, commercial, and utility-scale markets. The development and implementation of state and territory feed-in tariffs (FiTs) have had a direct, positive impact on Suntech's Australian business and the development of the NSW solar PV industry.

We also acknowledge that financial assistance to the NSW solar PV industry has so far lacked a consistent and sustainable footing. Effective FiT schemes should be underpinned by stability, transparency and, where possible, a nationally-consistent approach that will help support the development of the industry in the long-term. Unfortunately, the nature of the *Solar Bonus Scheme's* conclusion in NSW has had a sharp adverse impact across the NSW solar PV industry.

In this submission, Suntech highlights the factors that we feel need to be considered in developing a fair and reasonable value for energy generated by small-scale (rooftop) solar systems. Suntech believes that a net one-for-one FiT is a "fair and reasonable price" for solar PV energy, which will not result in **any** increase in general electricity prices, while still being able to increase the share of renewable energy generation and provide a long-term, stable market for rooftop PV in NSW.

We look forward to further consultation with IPART regarding this process.

Sincerely,

Jenny Lu
Regional Manager
Suntech Power Australia

Who is Suntech?

Suntech Power (Suntech) is a world leader in small scale solar photovoltaic ("solar PV") systems. Suntech designs, develops, manufactures and markets a variety of high quality, cost effective and environmentally friendly photovoltaic (PV) cells and modules for electric power applications in the residential, commercial, industrial and public utility sectors.

The company was delighted to open its first office in Australia in December 2007. Headquartered in Sydney, Suntech Australia has quickly grown to become one of Australia's pre-eminent suppliers of high-quality and cutting-edge solar PV modules.

Even prior to the establishment of our Sydney office, Suntech has had a long-standing affinity with Australia. The company's founder and global CEO, Dr. Shi Zhengrong, is an Australian citizen and developed many of his world-leading solar power technologies during his time working at the University of New South Wales.

Suntech is keen to work with policymakers in NSW, and across Australia, to develop a robust policy setting that will ensure that solar PV will play a key role in the further development of a strong, viable and sustainable renewable energy industry.

Suntech looks forward to further strengthening its operations in Australia and helping to further develop Australia's fledgling solar power industry, and helping combat the effects of climate change. Below is a brief outline of Suntech's first ten years – since our establishment in 2001:

History

- **January 2001:** Established Wuxi Suntech Power Co., Ltd. and commenced business operations in May 2002.
- **August 2005:** Suntech Power Holdings Co., Ltd., or Suntech, was incorporated.
- **December 2005:** Listed on New York Stock Exchange (NYSE), at \$15 per share.
- **July 2006:** Signed a 10-year material contract with MEMC worth \$6 billion USD - ensures Suntech's material supply for the next 10 years.
- **August 2006:** Announced agreement to acquire MSK Corporation, a leading PV module manufacturer and Building-Integrated PV (BIPV) company in Japan.
- **August 2006:** Establishment of Suntech America Inc. and Suntech Shanghai Branch.
- **January 2007:** Suntech Europe established to expand customer base in EMIA regions.
- **May / June 2007:** Announces plans to construct a thin film R&D and manufacturing facility in Shanghai and signature of 10-year polysilicon supply contract with Hoku Materials.
- **February 2008:** Suntech becomes largest producer of PV modules worldwide and third largest producer of PV cells.
- **February 2008:** Opens sales offices in Germany, Spain and South Korea.
- **March 2008:** Suntech invests \$100 million in Nitel Solar to strengthen partnership and support polysilicon plant development.
- **April 2009:** Swinburne University of Technology teams up with Suntech to create next generation of solar PV modules.
- **November 2010:** Suntech acquires 375 MW of Wafer Capacity from a subsidiary of Galaxy Technology investments.
- **February 2011:** Suntech, in partnership to Zachary Holding, to construct 150MW (AC) Solar Farm in Arizona, USA.

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1 Introduction

Suntech welcomes the opportunity to make a formal response to this Issues Paper as IPART investigates setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW. Unfortunately, recent policies to assist the development of small-scale PV in NSW have failed to deliver stability and certainty to energy consumers and the solar PV industry alike. The rapid take-up of the *Solar Bonus Scheme*, and the unilateral nature in which the original scheme was discontinued, have resulted in a 'boom / bust' cycle for the small-scale PV industry.

Broadly speaking, governments across Australia should be commended for rolling out assistance measures to help stimulate investment by household consumers into solar PV technology. Rooftop PV is unique in that it encourages citizens to directly invest in solar PV technology.

Suntech recognises the ground-work laid by state and territory governments in developing solar feed-in tariff (FiT) regimes in Australia. Whilst these schemes have been beneficial in aiding the development of Australia's solar PV industry, some policy settings – in particular in NSW – have failed to ensure the development of a sustainable and reliable small-scale solar industry. In its September 2008 submission to the Senate's Inquiry into the development of a national FiT scheme, Suntech argued that:

"Based on experience around the world, there are two key risks to take into consideration when establishing a FiT policy. These risks are:

- 1. not setting the value high enough; and*
- 2. setting the FiT value too high, such that it overwhelms budgets and leads to an unsustainable policy program.*

*Essentially, it is critical that the tariff rate is finely balanced to ensure that the scheme is both **successful and sustainable**."*¹

Unfortunately the recent 'boom / bust' nature of the solar PV industry demonstrates that not enough consideration has been taken of these risks so far. Suntech welcomes the opportunity to work with the NSW Government to develop a sustainable renewable energy policy framework. We advocate an effective platform of government assistance to ensure the ongoing development of solar PV in NSW, whilst establishing a policy framework that will enable the industry to 'stand on its own two feet'.

Suntech submits that the IPART review process should highlight the need for solar PV policy in NSW to be underpinned by three key themes:

- building the stability of the solar PV industry;
- building the sustainability of the solar PV industry; and
- ensuring policy consistency that can create certainty for future investment into the industry.

These three policy themes will help government and industry to get back onto a realistic growth trajectory and to ensure that the continuing growth of household PV in NSW does not put an unnecessary strain on the state's finances. A one-for-one net FiT scheme will require **no** state expenditure or direct support, with the market driving prices to an equivalent equilibrium through the 'Merit Order Effect' (see section 4.3 of this report).

A net one-for-one scheme will create a "fair and reasonable price" for solar PV energy, which will not result in **any** increase in general electricity prices, while still being able to increase the share of renewable energy generation and provide a long-term, stable market for rooftop PV in NSW.

¹ Suntech 2008, Submission to the Senate Environment, Communications and the Arts Committee Inquiry into the Renewable Energy (Feed-in-Tariff) Amendment Bill 2008

2 Renewable energy policy in Australia

2.1 A historical reliance on affordable energy

Historically, Australia's way of life has largely been dependent on access to abundant and affordable sources of primary fossil-fuels – in particular black coal (in NSW and Queensland) and brown coal (in Victoria).

In the July 2008 Draft Report of his initial Climate Change Review, Professor Ross Garnaut stated:

“Australia has been able to source its energy from an abundance of domestic primary fuels. This has resulted in a domestic energy price that has been very low on a global basis”²

To help stimulate the development of renewable energy in Australia, state and federal governments have developed and implemented a range of policy measures, including:

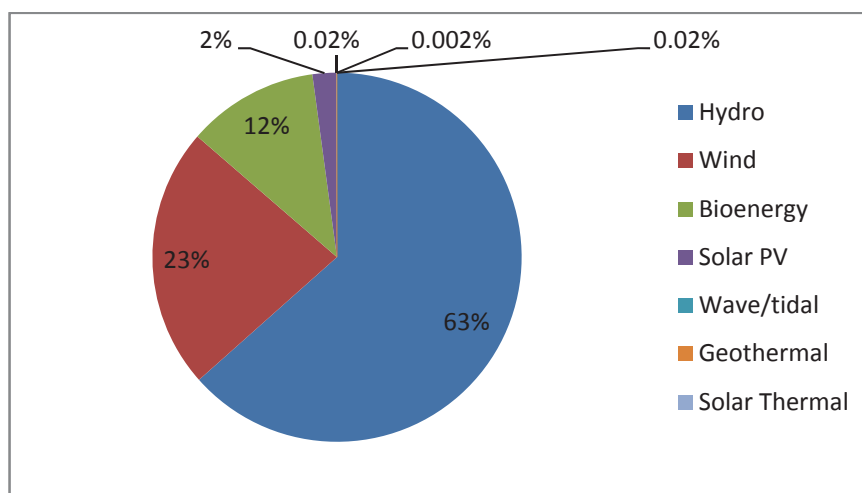
- Renewable Energy Targets (RET) – State and Federal Governments
- Renewable Energy Certificates (REC) – Federal Government
- Direct rebates for the installation of solar PV systems – Federal Government
- Solar feed-in tariffs (FiTs) – State Governments.

State and Territory governments have rolled out solar FiTs over the last three years, and these have been a key pillar in state-based assistance to stimulate renewable energy investment.

2.2 Overview of renewable energy in NSW and across Australia

The renewable energy industry has grown rapidly in recent years, albeit off a low base. Australia's renewable energy mix has historically been dominated by hydro-electricity. However, the development of newer commercial technologies, such as solar PV, has resulted in considerable growth.

Graphic 1: Renewable energy market share by technology – Australia-wide³



Source: Clean Energy Council Energy Database, ABARE 2010, REC Registry, AEMO, IMO

² Garnaut Climate Change Review, July 2008, p.483

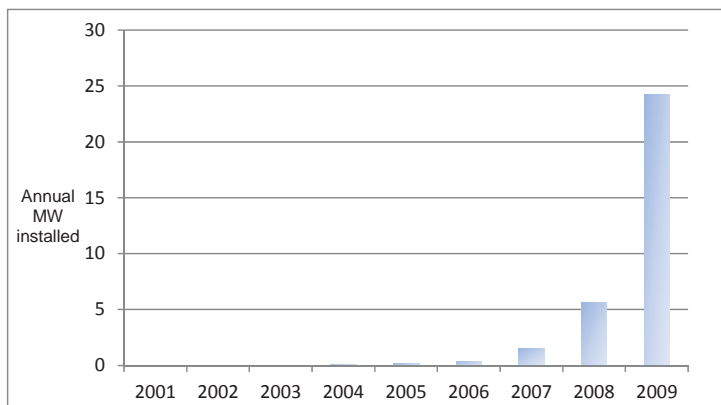
³ Clean Energy Council, 2010, *Clean Energy Australia 2010*, p. 5.

Collectively, renewable energy in Australia represents **8.67 per cent** of total electricity generation. This is a significant increase from previous years, which is predominantly due to increased hydro electricity generation, as a result of increased rainfall in hydro generation catchments.⁴

Whilst solar power (predominantly solar PV) still represents a relatively small proportion of Australia's total renewable energy mix (2 per cent), the technology witnessed a rapid uptake in 2009 and 2010. This was due to government assistance measures spurring considerable additional demand in the market, and the rapid fall in the price of PV systems.

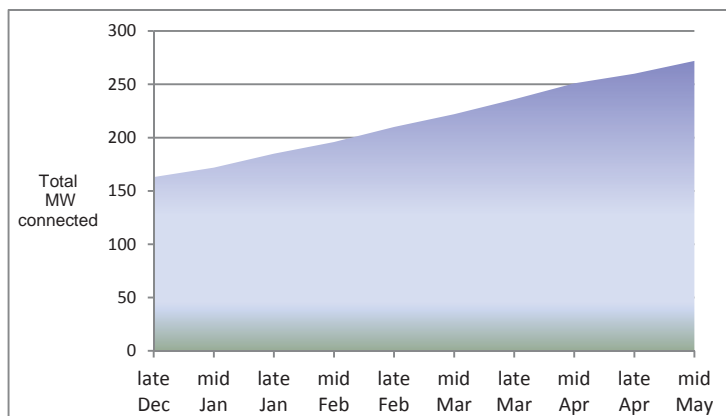
Graphics 2 and 3 below demonstrates the pace of growth in the volume of solar PV in NSW from 2009 through until mid 2011. Graphic 2 depicts total MW installed in NSW per calendar year from 2001 to 2009, whilst Graphic 3 depicts the total MW of solar PV installed in the NSW market as at 2011.

*Graphic 2: Solar PV capacity installed annually in New South Wales (2001 – 2009)*⁵



Source: SunWiz 2010

Graphic 3: Total solar PV connected to the NSW market: trend through first half of 2011



Source: Department of Trade and Investment, NSW, 2011

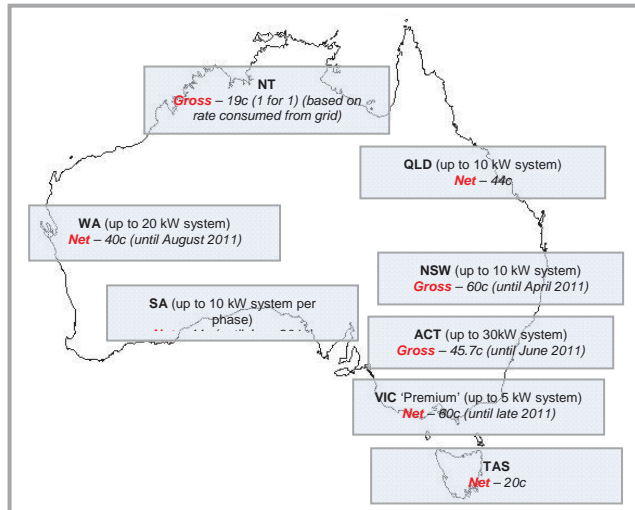
Graphics 2 and 3 demonstrate the rapid growth in total solar installations in the NSW market, with the uplift commencing in 2009 and expanding considerably through 2010 and the first half of 2011. According to Department of Trade and Investment figures, at 6 May 2011 the total capacity of applications to connect to the network was 364 MW, of which 272 MW had been connected to the network (as evidenced in graphic 3).

⁴ Ibid, p. 5.

⁵ Ibid, p. 35.

The dramatic uptake in small-scale solar power in NSW has been broadly reflected across the country, with state and territory governments introducing solar FiT schemes over the last three-four years, as demonstrated in the graphic 4:

Graphic 4: State and territory household Feed-in tariff schemes– at their highest rates⁶



State and territory governments across Australia have begun to scale back their solar FiT schemes as programs meet their statutory cap and due to government concerns regarding the cost of FiT schemes to state budgets, given high take-up rates.

As states and territories wind back their direct financial incentives to encourage solar PV uptake in the community, an initial move has been to reduce the FiT rate offered to new solar PV customers prior to a complete cessation of programs. These reduced rates have included⁷:

- **NSW** – initial reduction in gross FiT rate from 60 c per kW hour to 20 c per kW hour for new installations post April 2011;
- **Victoria** – transitional net FiT rate of 25c per kW hour for new installations after 1 January 2012;
- **WA** – initial reduction in net FiT rate from 40 c per kW hour to 20 c per kW hour for new installations post May 2011;
- **SA** – new installations from October 2011 will receive a reduced net FiT rate of 16c per kW hour, down from the initial rate of 44c per kW hour. Customers can also receive an energy retailer contribution of 6c per kW hour.

Suntech acknowledges that Australia's various FiT schemes were intended to assist in the initial up-take of solar PV technology, which has a far higher cost base than traditional fossil fuel-fired base-load electricity. A particular cost impediment to the uptake of solar PV has been the production and installation cost of solar PV systems.

Governments across Australia, and indeed across the world, have used FiTs as a way to 'kick start' the take-up of roof-top solar PV. State Governments in Australia have generally taken a cautious approach in developing and implementing their FiT schemes. Most states have introduced net schemes that only pay consumers for the power fed from their PV system into the electricity grid, and governments have included a statutory 'cap' on the overall size of the assistance scheme.

⁶ Parliamentary Library, EnergyMatters, AustWide Solar.

⁷ EnergyMatters, sourced September 2011 at <http://www.energymatters.com.au/government-rebates/feedintariff.php#fit-table>

Suntech acknowledges that whilst these FiT schemes have greatly aided the up-take of solar PV technology, their ad-hoc and short-term nature have contributed to a boom-bust cycle in the solar PV market and fuelled considerable instability across the solar PV market in Australia.

This has been particularly profound in NSW, where the generous nature of the Solar Bonus Scheme and its sudden discontinuation have created huge uncertainty in the rooftop solar PV industry.

For Australia's PV industry to remain strong into the future, policy makers at a state and federal government level need to develop a policy environment that results in certainty and stability, and enables the industry to stand on its own two feet.

3 Determining a fair and reasonable value for energy generated by small-scale solar PV units

3.1 Estimating the market value of electricity produced by rooftop solar PV

Suntech welcomes the NSW Government's commitment to there being a fair and reasonable value for energy generated from small-scale solar PV following the closure of the Solar Bonus Scheme. An inherent weakness in Australia's FiT schemes to date is that they have lacked consistency and a genuine linkage to the commercial reality of electricity markets.

To date, the underlying policy rationale behind the *Solar Bonus Scheme* has primarily focussed on the environmental benefits of an increased uptake in solar PV. These incentives greatly expand NSW's rooftop PV market. Whilst the sudden uptake in rooftop PV has been beneficial to PV producers such as Suntech, and the PV retail and installation industry, the pace of growth has not led to a sustainable and viable long-term PV industry in NSW.

Suntech submits that future NSW policy assistance towards rooftop PV in NSW should enshrine principle number one of the Commonwealth of Australian Governments (COAG) *National Principles for Feed-in Tariff Schemes*, as released on 29 November 2008:

*"That Governments agree that residential and small business consumers with small renewable (small renewable consumers) should have the right to export energy to the electricity grid and require market participants to provide payment for that export which is at least equal to the value of that energy in the relevant electricity market and the relevant network it feeds in to, taking into account the time of day which energy is exported"*⁸

This COAG principal underpins one-for-one net FiT rates, as outlined below.

3.2 The benefits of a 'one for one' approach to setting a FiT rate

A one-for-one FiT (also known as 'market rate net-metering') ensures that solar PV energy outflows from the residence into the grid are deducted from energy inflows from the grid, allowing a consumer to receive a credit for the electricity they export. Although there are different methods for calculating the credit, it is usually paid at the retail electricity rates (inclusive of distribution, transmission and energy costs).

By pinning FiT rates to the market rate for grid-sourced electricity, one-for-one FiTs peg the price paid by electricity retailers to solar PV households to electricity market forces. One-for-one tariffs give consumers an undistorted market price for the electricity they generate, allow consumers to use their systems to hedge against the rising costs of electricity and do not require governments to pay costly subsidies.⁹

A key advantage of a one-for-one tariffs system is that it only requires one meter, whilst a gross-metered tariff requires a second meter to calculate the amount of electricity actually generated. The savings from a single meter are substantial.¹⁰ One-for-one FiT arrangements have already been introduced in Australia, as demonstrated through the following examples:

The Victorian example:

In particular, Victoria has offered a 'standard feed-in tariff' in addition to its 'premium feed-in tariff' scheme. This standard scheme is available to individuals and organisations with a generation

⁸ COAG *National Principles for Feed-in Tariff Schemes*, 29 November 2008

⁹ Moreland Energy Foundation, sourced September 2011 at <http://www.mefl.com.au/blog/item/771-industry-chaos-prompts-push-for-one-for-one-tariff.html>

¹⁰ Energy Matters – "FeedInTariff.com", sourced September 2011 at <http://www.feedintariff.com.au/tariff-faq.php>

capacity of up to 100 kW. The scheme provides consumers with a “fair and reasonable” rate for excess electricity fed into the grid.¹¹

The criteria for “fair and reasonable” stipulates that a retailer must pay a customer a rate not less than the rate the customer pays to obtain the electricity from the retailer. Any government charges or service-to-property charges are not to be included in the calculation.¹²

The Northern Territory example:

In addition to Victoria’s standard FiT scheme, the Northern Territory’s FiT scheme is underpinned by the one-to one principle, with consumers being paid the rate per kW hour of their standard consumption from the NT Power and Water Corporation’s grid. This is known as the *NT Grid Buy Back Rate*, however it does differ from the Victorian standard FiT scheme in that it is a gross-metered scheme.

3.3 Sharing the benefits of solar PV peak power generation

The peaking benefit of solar PV reduces wholesale pricing, which in turn reduces energy prices for consumers. In addition, peak energy production reduces peak capacity demand on distribution networks. This either eliminates or reduces the need for system augmentation.

Clearly these two benefits need to be translated into an effective price signal, which encourages the widespread deployment of solar PV through NSW.

A one-to-one FiT provides an effective method to encourage this uptake. Suntech submits that with the right FiT policy setting, a reasonable market penetration of 5 – 15 GW is achievable without any grid augmentation.

3.4 The need for further economic analysis on the true cost of solar PV

As governments at a state, territory and federal level adjust their solar PV policies, some policy makers and commentators have quoted figures on the current and future costs of solar PV-generated power, utilising the 2010 dataset used by the Australian Energy Market Operator (AEMO). The AEMO figures have created concern across the solar PV industry, with a finding that this data has higher starting costs for solar PV compared with other international studies.¹³ This was particularly evident when AEMO figures were quoted at the *NSW Solar and Renewable Energy Summit* which was held in Newcastle on 1 July 2011.

Suntech calls on IPART to conduct a review of available data regarding the current and future costs of solar PV-generated power, to ensure that an accurate cost-base is used to determine ongoing solar PV policy in NSW.

¹¹ Victorian Department of Primary Industries (DPI), sourced September 2001 at <http://www.new.dpi.vic.gov.au/energy/sustainable-energy/solar-energy/solar-energy-for-consumers/feed-in-tariffs/standard-feed-in-tariff>

¹² Source: Victorian DPI http://new.dpi.vic.gov.au/_data/assets/pdf_file/0010/27694/fair-and-reasonable.pdf

¹³ Melbourne Energy Institute, March 2011, Renewable Technology Cost Review. P.2

4 The true costs and benefits of the Solar Bonus Scheme

4.1 Implications in setting a feed-in tariff rate – *too high or too low*

Renewable energy systems often involve large up-front costs and are a serious long-term investment for households. Higher tariffs together with policies that provide certainty over the long-term are a good hedge against rising electricity prices and are a strong incentive for the uptake of renewable technology. Renewable energy also provides many benefits to society that may not be directly felt by consumers and may not form part of their decision making process. These include lower greenhouse gas emission and a reduction in grid load.

A feed-in tariff must capture all of these external benefits to ensure that there is not an under-provision of renewable energy by households. For this reason it is argued that a feed-in tariff should initially be higher than the retail market rate (which is largely determined by current fossil-fuel generation) to stimulate renewable energy uptake to an adequate level.

Compared with traditional fossil-fuel based generation, the renewable energy industry is still in its infancy. While a consistently high tariff provides room for the industry to grow, it does not place any competitive pressure on the industry to increase production efficiency. A feed-in tariff needs to reflect this and adjust as the industry grows. For example, in Germany the FiT for solar PV reduces by an average of 5% annually to ensure that the industry retains exposure to the competitive nature of the broader energy market, and encourages continuing innovation.¹⁴

As FiTs often constitute a government subsidy, a rate that is too high will impose a higher cost on the economy and will deliver higher than justified profits to producers, unfairly prejudicing the non-renewables industry.

With rates typically determined by government agencies, they are necessarily fixed in the short term and fail to adjust to new information, production costs and alternative technologies. With the introduction of renewable energy certificates and the proposed Federal Government's carbon price a market rate tariff is increasingly able to capture the full costs and benefits of renewable generation.

Ideally, the FiT should be viewed as an interim pricing-mechanism that allows renewable technologies to be placed on an equal footing with fossil-fuel generation.

Suntech submits that as technologies develop, a gradual transition to retail pricing (or one-to-one metering) will provide the most efficient and appropriate solution.

4.2 Regulatory structure and feed-in tariff arrangements

An effective regulatory structure is important in creating a business environment that encourages investment, whilst creating certainty and efficiency in the market. Government intervention into the energy market is required to address, or prevent, market failure occurring. However, excessive or overly-generous government intervention can result in a market where industry is not responsive to market developments, such as the emergence of new technology and the reducing cost-base of existing technologies.

Suntech believes that the Australian solar PV market is only 2 – 3 years away from reaching 'grid parity', where the full delivered energy price from solar PV is commercially competitive with conventional electricity generation.¹⁵

¹⁴ 'German Energy', sourced September 2011 at http://www.germanenergyblog.de/?page_id=965

¹⁵ 'Grid parity for photovoltaic energy', The Global Community for Sustainable Energy Professionals, sourced September 2011 at <http://www.leonardo-energy.org/drupal/node/2828>

One of the reasons behind the 'boom-bust' nature of solar PV in Australia in recent years is the mandated nature of FiT rates and statutory caps in place to limit the total supply of solar PV in the market. Governments across Australia have under-estimated the demand within the Australian community for solar PV technology, which has fuelled the rapid take up of solar PV – in particular over the 12 to 18 months up to September 2011.

Combined with generous government assistance packages, statutory caps help to create a 'rush' on last-minute solar PV orders to avoid missing out on short-term government subsidies. This rush has been evident on several occasions, in particular:

- the removal of the Federal Government's \$8,000 Solar Panel rebate in June 2009, which resulted in a sudden surge of orders before the final closure of the scheme; and
- the announcement of the discontinuation of the 60c gross FiT rate in the NSW Solar Bonus Scheme in April 2011

Suntech submits that ongoing renewable energy policy should focus on industry sustainability, rather than enhancing short-term uptake. It is critically-important that in the solar PV industry in NSW is able to stand on its own two feet in the mid-long term, as the broader implications of rising base-load electricity prices and the introduction of a federally-mandated price on carbon dioxide emissions create a more-level playing field for renewable energy sources.

Suntech does not advocate a specific regulatory framework to oversee the introduction of a one-for-one FiT in NSW, however it is important that any framework:

- minimises the regulatory burden on the Industry and, where possible, does not include a statutory cap to regulate overall supply of new PV installations in the NSW market; and
- creates an environment where energy retailers are free to openly and voluntarily offer an overall FiT rate that is above and beyond the base one-for-one rate.

A stable and competitive solar FiT market will help ensure that solar PV consumers continue to install larger rooftop systems that generate excess power supply for consumers to feed back into the grid. This will help to realise solar PV to unlock the potential of the sector to mitigate carbon emissions, and provide additional power generation capacity for the grid in periods of peak demand.

Voluntary arrangements

As the IPART Issues Paper argues, some retailers in Australia are voluntarily offering FiTs of 6 to 8c / kw hour to PV customers that are not participants in the NSW Solar Bonus Scheme. In addition to these voluntary FiT rates, paid on top of the statutory FiT, there are also other examples of voluntary FiTs in other overseas markets – including:

- **Indiana (USA)¹⁶:** Voluntary FiT for solar systems with minimum of 20kW and maximum of 10MW, approved by Indiana Utility Regulatory Commission. All renewable energy production must be separately metered. The FiT rate not fixed and may change as costs change (unless entered into purchase agreement of up to 10 years). Negotiated rate modifications are permitted. Current advertised rate amounts are:
 - Small solar facilities (20kW – 100kW): USD 0.24/kWh
 - Large Solar Facilities: (100kW to 10mW): USD 0.20/kWh

¹⁶ United States Department of Energy, sourced September 2011 at <http://energy.gov/savings/indianapolis-power-light-co-rate-rep-renewable-energy-production> ;
<http://www.ipower.com/ipi/index?page=IPLGeneral&Menu=01000000&DocID=020391af33d6012801538fc10057cb>

- **London (UK)**¹⁷: Smartest Energy is a voluntary feed-in tariff provider and negotiates power purchasing agreements of up to 10 years.

4.3 Rethinking the cost elements of renewable energy – the ‘Merit Order Effect and PV’

Some renewable energy experts and energy market scholars argue that many policy makers are too linear in their interpretation of the cost impost of renewable energy technology. This is due to the fact that regulators and policy makers do not take into account additional cost benefits associated with adding renewable energy sources to the broader energy grid. In a yet-to-be released paper, the Melbourne Energy Institute at the University of Melbourne has found that there is a much larger reduction in electricity prices from the installation of solar PV than wind and other sources. This is because peak solar generation coincides with high electricity demand in the middle of the day.¹⁸

The Melbourne Energy Institute Paper assesses the ‘Merit Order Effect’, which is a method for ranking sources of energy generation in ascending order of their short-run production costs. When there is demand for energy, sources with the lowest costs are brought online first. In effect, this stipulates that renewable energy sources, which (once installed) have very low costs of generation, are used first to satisfy energy demands and this reduces demand for traditional, higher-cost energy sources. This results in a decrease of the average costs of electricity.¹⁹

In other markets around the world, the Merit Order Effect is often used as an argument for the need to remunerate PV system owners. For example, by Germany in 2006 the Merit Order Effect had resulted in savings of €5 billion to consumers. After accounting for money spent on FiTs by the government, consumers had a net profit of €1.79 billion.²⁰

The Melbourne Energy Institute study conclusion adds value to the proposition that payments should be made to consumers to incentivise the installation of PV systems. As long as the payments are less than the avoided wholesale electricity payments, consumers will gain.

Suntech recommends that IPART further consider alternative interpretations of cost impost of solar PV technology (such as the ‘Merit Order Effect’), to ensure that broader savings opportunities to the electricity network are not overlooked in the process of addressing the impact of the former Solar Bonus Scheme to the NSW budget.

¹⁷ Source: <http://www.smartestenergy.com/Power-Purchase/Products/Feed-in-Tariffs/Feed-in-Tariffs.aspx>

¹⁸ McConnell, D., Hearps, P., Dunn, R. & Bateman, L., *Retrospective modelling of the merit-order effect on wholesale electricity prices from distributed photovoltaic generation in the Australian National Energy Market*, Melbourne Energy Institute, September 2011 (yet-to-be-published paper – not for public distribution)

¹⁹ Sensfuss, F., Ragwitz, M. and Genoese, M., *The Merit-order effect: A detailed analysis of the price of renewable electricity generation on spot market prices in Germany*, Fraunhofer, Karlsruhe, 2007

²⁰ Ibid

5 Broader policy issues for renewable energy in NSW

Suntech acknowledges that there are several policy challenges for the renewable energy industry in NSW in the short-term, mid-term and long-term periods ahead. NSW's ongoing policy framework for small-scale (rooftop) solar PV will need to take into account the following broader policy issues:

- **Federal Government 'Clean Energy Future' (Carbon Price) Package**

Suntech acknowledges the Federal Government's Clean Energy Future package, developed in conjunction with minority government partners the Australian Greens Party and NSW federal independent Members of Parliament Mr Tony Windsor and Mr Rob Oakeshott.

Centrepiece features of this package are:

- The Clean Energy Finance Corporation (CFEC), which will be established to invest in the commercialisation and deployment of renewable energy and enabling technologies, energy efficiency and low-emissions technologies. CFEC will administer \$10 billion of funding over five years, commencing 2013-14
- The Australian Renewable Energy Agency (ARENA), which will be a new statutory authority to provide funding for projects through a range of competitive grants programs. ARENA will administer \$3.2 billion of funding, commencing 2011-12.

The Federal Government's Clean Energy Future package is subject to considerable political debate, with the Coalition Opposition pledging to abolish the package if elected. With the Federal Election due by mid 2013, there is considerable uncertainty regarding the mid-long term future of this policy reform.

Federally-funding initiatives such as CFEC and ARENA are important in lowering the barriers to entry for commercial large-scale renewable energy projects – including solar PV.

- **Wind Power – NSW Government Planning issues**

Suntech acknowledges that the Wind Power sector faces additional uncertainty at a NSW Government level with regard to planning issues. Community opposition to new Wind Farm developments creates an additional barrier to entry for new commercial Wind Power operations.

The Victorian Government recently announced heightened restrictions for new Wind Farms in close proximity to existing residential sights and in Tourism areas. Similar planning restrictions may be introduced in NSW, which will limit the further penetration of Wind as a commercial renewable energy source.

Suntech recommends that, given considerable policy uncertainty in the broader renewable energy marketplace, a stable, sustainable and consistent policy framework for small-scale solar is important to maintain the commercial viability of the rooftop PV industry.

Rooftop PV remains the most accessible form of solar PV power generation, and continuing demand in this sector will help maintain R&D investment towards further utility and commercial-scale solar PV projects as the commercial viability of these projects improves.

Given the broader uncertainty over the development and implementation of a price on carbon dioxide emissions, complimentary measures remain vital towards maintaining investment and growth in solar PV technology to help NSW and Australia meet the 2020 Renewable Energy Target.

6 Recommendations & Conclusion

6.1 Recommendations

- 1 **It is recommended that the provision of a FiT becomes a mandatory obligation for all energy retailers at least through to a neutral bill where the amount generated from the Solar PV System is equal to that consumed. Beyond a neutral bill energy retailers should have discretion as to what rates they want to pay for excess energy exported into the grid. The adoption of this recommendation will result in no State revenue required to fund future FIT initiatives.**
- 2 **Suntech recommends creating closer collaboration, transparency and reporting between retailers, distributors and the State Government to monitor the uptake and impact of Solar PV throughout the State. This will assist in ensuring that future planning of PV is no longer an ad-hoc process and will be based on considered and quantifiable information.**
- 3 **Suntech recommends that IPART further consider alternative interpretations of cost impost of solar PV technology (such as the 'Merit Order Effect'), to ensure that broader savings opportunities to the electricity network are not overlooked in the process of addressing the impact of the former Solar Bonus Scheme to the NSW budget.**
- 4 **Suntech recommends that, given considerable policy uncertainty in the broader renewable energy marketplace, a stable, sustainable and consistent policy framework for small-scale solar is important to maintain the commercial viability of the rooftop PV industry.**

6.2 Conclusion

Suntech submits that whilst these FiT schemes have greatly aided the up-take of solar PV technology, their ad-hoc and short-term nature have contributed to a boom-bust cycle in the solar PV market and fuelled considerable instability across the solar PV market in Australia.

This has been particularly profound in NSW, where the generous nature of the Solar Bonus Scheme and its sudden discontinuation have created huge uncertainty in the rooftop solar PV industry.

For Australia's PV industry to remain strong into the future, policy makers at a state and federal government level need to develop a policy environment that results in certainty and stability, and enables the industry to stand on its own two feet.

Rooftop PV remains the most accessible form of solar PV power generation, and continuing demand in this sector will help maintain R&D investment towards further utility and commercial-scale solar PV projects as the commercial viability of these projects improves.

Given the broader uncertainty over the development and implementation of a price on carbon dioxide emissions, complimentary measures remain vital towards maintaining investment and growth in solar PV technology to help NSW and Australia meet the 2020 Renewable Energy Target.



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