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(Prepared by Parliamentary Counsel's Office)

Electricity Feed-in (Large-scale Renewable Energy Generation) Bill 2011

Contents

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Electricity Feed-in (Large-scale Renewable Energy Generation) Bill 2011

A Bill for

An Act about the large-scale generation of electricity from renewable energy sources, and for other purposes

The Legislative Assembly for the Australian Capital Territory enacts as follows:

Part 1 Preliminary

1 Name of Act

This Act is the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011*.

2 Commencement

This Act commences on the day after its notification day.

Note The naming and commencement provisions automatically commence on the notification day (see Legislation Act, s 75 (1)).

3 Dictionary

The dictionary at the end of this Act is part of this Act.

Note 1 The dictionary at the end of this Act defines certain terms used in this Act, and includes references (***signpost definitions***) to other terms defined elsewhere.

For example, the signpost definition '***electricity distributor***—see the *Utilities Act 2000*, dictionary.' means that the term 'electricity distributor' is defined in that dictionary and the definition applies to this Act.

Note 2 A definition in the dictionary (including a signpost definition) applies to the entire Act unless the definition, or another provision of the Act, provides otherwise or the contrary intention otherwise appears (see Legislation Act, s 155 and s 156 (1)).

4 Notes

A note included in this Act is explanatory and is not part of this Act.

Note See the Legislation Act, s 127 (1), (4) and (5) for the legal status of notes.

Part 2 Objects and important concepts

5 Objects of Act

The objects of this Act are to—

(a) promote the establishment of large-scale facilities for the generation of electricity from a range of renewable energy sources in and around the ACT; and

(b) promote the development of the renewable energy generation industry in the ACT and Australia consistent with the development of a national electricity market; and

(c) reduce the ACT's contribution to greenhouse gas emissions and help achieve targets to reduce the ACT's greenhouse gas emissions; and

(d) address the need for urgent action to be taken to reduce reliance on non-renewable energy sources while minimising the cost to electricity consumers.

6 Meaning of *large renewable energy generator* and *renewable energy source*

(1) In this Act:

large renewable energy generator means a generating system that—

(a) generates electricity using a renewable energy source; and

(b) has a capacity of more than 2MW.

renewable energy source means any of the following energy sources:

(a) solar;

(b) wind;

(c) another energy source declared by the Minister under subsection (2).

(2) The Minister may declare an energy source to be a renewable energy source.

(3) A declaration is a disallowable instrument.

Note A disallowable instrument must be notified, and presented to the Legislative Assembly, under the Legislation Act.

7 Meaning of *capacity*

(1) For this Act, the ***capacity***, of a generating system, is the nameplate rating of the generating unit that makes up, or the total of the nameplate ratings of the units that make up—

(a) for a system that generates electricity using a renewable energy source only—the system; or

(b) for a system that generates electricity using a renewable energy source and a non-renewable energy source—the part of the system that generates electricity using the renewable energy source only.

(2) However, if the Minister makes a determination under subsection (3), the ***capacity*** of the system is the capacity worked out in accordance with the determined method.

(3) The Minister may determine a method for measuring the capacity of a system that generates electricity using a renewable energy source.

(4) Also, for a system that generates electricity using a renewable energy source and a non-renewable energy source, the Minister may determine a method for working out the part of the system that generates electricity using a renewable energy source.

(5) A determination is a disallowable instrument.

Note A disallowable instrument must be notified, and presented to the Legislative Assembly, under the Legislation Act.

(6) In this section:

nameplate rating, of a generating unit, means the maximum continuous output, expressed in megawatts, of the unit as specified by the manufacturer, or as subsequently modified.

Part 3 FiT entitlements

Division 3.1 Preliminary

8 Meaning of *FiT entitlement*

In this Act:

FiT entitlement means a right for the holder of a FiT entitlement to receive FiT support payments under part 4 for the holder's eligible electricity.

9 FiT capacity

The total capacity of the generating systems of large renewable energy generators in relation to which FiT entitlements may be held under this Act (the ***FiT capacity***) is 210MW.

Division 3.2 Releasing FiT capacity

10 FiT capacity release

(1) The Minister may determine that a stated part of the FiT capacity (a ***FiT capacity release***) is to be made available for the grant of FiT entitlements.

(2) The determination must state—

(a) whether the FiT capacity release will be made available by a competitive process or by direct grant to any person the Minister considers appropriate; and

(b) the following in relation to any FiT entitlement that may be granted under the release:

(i) the term (not longer than 20 years) of the entitlement;

(ii) the kind of renewable energy source that must be used;

(iii) whether a large renewable energy generator must be located in the ACT; and

(c) for a release to be made available by direct grant—any criteria a person, or a person's proposal, must meet to be eligible for a direct grant.

(3) In deciding whether to make a FiT entitlement available by direct grant, the Minister must have regard to—

(a) the advantages and disadvantages to the Territory of not undertaking a competitive process; and

(b) the objects of the Act.

(4) A determination is a disallowable instrument.

Note A disallowable instrument must be notified, and presented to the Legislative Assembly, under the Legislation Act.

11 FiT entitlement—grant

(1) The Minister may grant a person a FiT entitlement in relation to a large renewable energy generator under a FiT capacity release.

(2) However, the Minister must not grant a person a FiT entitlement if the grant would cause the FiT capacity release to be exceeded.

(3) In granting a FiT entitlement, the Minister must have regard to the following:

(a) probity and ethical behaviour;

(b) management of risk to the Territory;

(c) the objects of this Act;

(d) if the entitlement is granted under a FiT capacity release made available by a competitive process—open and effective competition.

(4) The grant of a FiT entitlement must state the following:

(a) the name of the holder of the entitlement;

(b) the term (not longer than 20 years) of the entitlement;

(c) when the term of the entitlement starts;

(d) the amount of the feed-in tariff;

(e) the requirements for the large renewable generator, including—

(i) the kind of renewable energy source that must be used; and

(ii) the capacity of the generator's generating system;

(f) a description of the generator;

Example

the generator's plant specification

Note An example is part of the Act, is not exhaustive and may extend, but does not limit, the meaning of the provision in which it appears (see Legislation Act, s 126 and s 132).

(g) whether large-scale generation certificates for eligible electricity generated by the large renewable energy generator must be transferred to the Territory under the *Renewable Energy (Electricity) Act 2000* (Cwlth).

(5) The grant of a FiT entitlement is a notifiable instrument.

Note A notifiable instrument must be notified under the Legislation Act.

12 FiT entitlement—conditions

(1) A FiT entitlement is subject to the following conditions:

(a) that the large renewable energy generator complies with—

(i) the requirements for the generator stated in the grant under section 11 (4) (e); and

(ii) the description of the generator stated in the grant under section 11 (4) (f);

(b) that the holder of the FiT entitlement complies with—

(i) any requirement in relation to renewable energy certificates stated in the grant under section 11 (4) (g); and

(ii) all laws relating to the construction, connection or operation of the large renewable energy generator; and

(iii) any written agreement the Minister requires the holder to enter into under subsection (3);

(c) any other condition imposed by the Minister that the Minister considers appropriate to protect the interests of the Territory or promote the objects of the Act.

(2) The conditions imposed under subsection (1) (c) may include conditions about any of the following:

(a) establishing a schedule for construction of the large renewable energy generator and meeting stated deadlines in relation to its construction;

(b) complying with a stated law in relation to the construction, connection or operation of the large renewable energy generator within a stated time;

(c) establishing and meeting stated deadlines in relation to financing arrangements necessary for the construction, connection or operation of the large renewable energy generator;

(d) entering into an agreement with an electricity distributor to connect the large renewable energy generator to the distributor's electricity network within a stated time;

(e) connecting the large renewable energy generator to an electricity network and supplying electricity to the network within a stated time;

(f) where a large renewable energy generator must be located and connected to an electricity network;

(g) the kind of generating system that must be used;

(h) the minimum quantity of eligible electricity that must be generated by the large renewable energy generator in a stated time;

(i) the maximum quantity of eligible electricity, in a financial year, in relation to which the holder is entitled to be paid a FiT support payment;

(j) allowing reasonable access to the premises of the holder of a FiT entitlement and where the large renewable energy generator is located to check the holder's compliance with the conditions of the FiT entitlement;

(k) amending a FiT entitlement, including imposing a new condition or amending an existing condition.

(3) The Minister may require the holder of a FiT entitlement to enter into a written agreement (however described) with the Territory, on terms approved by the Minister, in relation to the entitlement.

Division 3.3 Dealing with FiT entitlements

13 FiT entitlement—cancellation

(1) The Minister may, by written notice (a ***cancellation notice***) given to the holder of a FiT entitlement, cancel the entitlement if the Minister believes on reasonable grounds that a condition of the entitlement has been breached, whether by the holder or otherwise.

(2) However, the Minister must not cancel a FiT entitlement unless the Minister—

(a) gives the holder of the entitlement written notice (an ***intended cancellation notice***) of the Minister's intention to cancel the entitlement; and

(b) takes into consideration any response received from the holder in accordance with the notice.

(3) An intended cancellation notice must—

(a) state that the Minister intends to cancel the FiT entitlement; and

(b) explain why the Minister intends to cancel the FiT entitlement; and

(c) state that the holder of the entitlement may, within 28 days after the day the holder is given the notice, give a written response to the Minister about the matters in the notice.

Note For how documents may be served, see the Legislation Act, pt 19.5.

(4) Cancellation of a FiT entitlement under this section takes effect on the day and at the time stated in the cancellation notice.

14 FiT entitlement—surrender

(1) The holder of a FiT entitlement may surrender the entitlement by giving written notice of the surrender to the Minister.

(2) On receipt of a notice under subsection (1), the Minister must confirm the surrender, by written notice (a ***surrender notice***) given to the holder of the FiT entitlement.

(3) Surrender of a FiT entitlement under this section takes effect on the day and at the time stated in the surrender notice.

15 FiT entitlement—transfer

(1) The holder of a FiT entitlement (the ***transferor***) may apply, in writing, to the Minister to transfer the entitlement to another person (the ***transferee***).

(2) The Minister may, by written notice to the transferor and transferee (a ***transfer notice***), transfer the FiT entitlement to the transferee.

(3) In considering whether to transfer the FiT entitlement to the transferee, the Minister must have regard to—

(a) the matters mentioned in section 11 (3) (a) to (c) (FiT entitlement—grant); and

(b) whether the transferee can comply with the conditions of the FiT entitlement.

(4) The Minister may impose additional conditions on a FiT entitlement transferred under this section.

Note The conditions of a FiT entitlement are set out under s 12.

(5) The transfer of a FiT entitlement takes effect on the day and at the time stated in the surrender notice.

16 Public notice of FIT entitlement matters

(1) The Minister must prepare a notice of each of the following after it happens:

(a) cancellation of a FiT entitlement under section 13;

(b) surrender of a FiT entitlement under section 14;

(c) transfer of a FiT entitlement under section 15.

(2) The notice must state—

(a) for a cancellation or surrender of a FiT entitlement—the name of the holder of the FiT entitlement; and

(b) for a transfer of a FiT entitlement—the names of the person transferring the entitlement and the person to whom the entitlement is transferred; and

(c) a description and the location of the large renewable energy generator under the FiT entitlement; and

(d) when the cancellation, surrender or transfer took effect.

(3) A notice is a notifiable instrument.

Note A notifiable instrument must be notified under the Legislation Act.

Part 4 Support payments for FiT entitlements

17 Meaning of *eligible electricity*

In this Act:

eligible electricity means electricity—

(a) generated by a large renewable energy generator connected to an electricity network; and

Note The National Electricity (ACT) Law and national electricity rules govern the process by which a person may apply for connection to an electricity network.

(b) for which large-scale generation certificates have been registered under the *Renewable Energy (Electricity) Act 2000* (Cwlth); and

(c) generated using a renewable energy source; and

(d) supplied to the electricity network; and

(e) sold through the national electricity market or directly to a market participant.

18 FiT support payment—distributor to pay

(1) This section applies to an electricity distributor if a large renewable energy generator in relation to which a FiT entitlement is granted is connected to its electricity network.

(2) The distributor must pay the holder of the FiT entitlement an amount (the ***FiT support payment***) worked out under section 19, for the holder's eligible electricity.

(3) However, if it is a condition of a holder's FiT entitlement that there is a maximum quantity of a holder's eligible electricity, in a financial year, in relation to which the holder is entitled to be paid a FiT support payment, the distributor need not pay the holder an amount in relation to electricity generated in excess of the maximum quantity in a financial year.

(4) The FiT support payment is payable—

(a) in arrears; and

(b) within 30 days after the later of—

(i) the day the holder gives the distributor written notice that the large-scale generation certificates for the holder's eligible electricity, worked out under the *Renewable Energy (Electricity) Act 2000* (Cwlth), section 18 (3), have been registered under that Act, section 26; and

(ii) the day the holder gives the distributor any other information reasonably required by the distributor to work out the FiT support payment; and

(c) in relation to eligible electricity generated during the period the holder of the FiT entitlement holds the entitlement; and

(d) otherwise in accordance with any guidelines for paying a FiT support payment made by the Minister under section 20.

Note An amount owing under a law may be recovered as a debt in a court of competent jurisdiction or the ACAT (see Legislation Act, s 177).

19 FiT support payment—working out

(1) A FiT support payment for the holder of a FiT entitlement for a period is the multiple of—

(a) the amount that is the holder's feed-in tariff, stated in the grant, less the spot price value of the eligible electricity during the period; and

(b) the quantity of the holder's eligible electricity during the period.

(2) If the amount of a FiT support payment worked out under this section is a negative amount, the electricity distributor may—

(a) offset the amount against any subsequent FiT support payment payable to the holder of the FiT entitlement; or

(b) require the holder of the FiT entitlement, by written notice, to pay the distributor the amount within 30 days after the distributor gives the notice.

(3) In this section:

AEMO—see the national electricity rules, chapter 10 (Glossary).

spot market—see the national electricity rules, chapter 10 (Glossary).

spot price value, of the eligible electricity of the holder of a FiT entitlement, means the amount that would have been paid to the holder for the electricity by the AEMO if the electricity had been sold on the spot market.

20 FiT support payment—guidelines

(1) The Minister may issue guidelines about—

(a) working out a FiT support payment under section 19 (1); or

(b) paying a FiT support payment.

Example

how often the FiT support payment is payable to the holder of a FiT entitlement

Note An example is part of the Act, is not exhaustive and may extend, but does not limit, the meaning of the provision in which it appears (see Legislation Act, s 126 and s 132).

(2) A guideline is a notifiable instrument.

Note A notifiable instrument must be notified under the Legislation Act.

Part 5 Reporting

21 Quarterly reports by distributors

(1) For each quarter that 1 or more large renewable energy generators are connected to an electricity network, the electricity distributor for the network must report to the Minister about the following in relation to each connected generator:

(a) if the generator was first connected to the electricity network during the quarter—the cost of connecting the generator to the network, including any network augmentation that was required to facilitate the connection;

(b) the cost of maintaining the connection of the generator to the network and maintaining any network augmentation required to facilitate the connection;

(c) the quantity of eligible electricity supplied by the generator to the electricity network in a trading interval, and the spot price value for electricity in each interval;

(d) the FiT support payment paid by the distributor, during the quarter, to the holder of the FiT entitlement in relation to the generator.

(2) The electricity distributor must give the Minister the report for a quarter before the end of the next quarter.

(3) In this section:

spot price value, of the eligible electricity of the holder of a FiT entitlement—see section 19 (3).

trading interval—see the national electricity rules, chapter 10 (Glossary).

Part 6 Miscellaneous

22 Review of Act

(1) The Minister must review a FiT capacity release within 6 months after the last FiT entitlement under the release is granted.

(2) A review under subsection (1) must include—

(a) an evaluation of the outcomes in relation to achieving value for money; and

(b) in relation to a competitive process for a FiT capacity release—an evaluation of the process, including the administration of the process and its effectiveness in generating competition.

(3) The Minister must review the operation of this Act after the end of its 5th year of operation, and at least once every subsequent 5 years of its operation.

(4) A review under subsection (3) must include—

(a) an evaluation of the progress of construction of large renewable energy generators; and

(b) a consideration of the effectiveness of the operation of this Act in achieving the objects of this Act; and

(c) a consideration of the impact of costs under this Act on electricity consumers.

(5) The Minister must present a copy of a report of a review to the Legislative Assembly not later than 6 months after the end of the period for undertaking the review.

23 Determination of fees

(1) The Minister may determine fees for this Act.

Note The Legislation Act contains provisions about the making of determinations and regulations relating to fees (see pt 6.3)

(2) A determination is a disallowable instrument.

Note A disallowable instrument must be notified, and presented to the Legislative Assembly, under the Legislation Act.

24 Approved forms

(1) The Minister may approve forms for this Act.

(2) If the Minister approves a form for a particular purpose, the approved form must be used for the purpose.

Note For other provisions about forms, see the Legislation Act, s 255.

(3) An approved form is a notifiable instrument.

Note A notifiable instrument must be notified under the Legislation Act.

25 Regulation-making power

(1) The Executive may make regulations for this Act.

Note Regulations must be notified, and presented to the Legislative Assembly, under the Legislation Act.

(2) A regulation may create offences and fix maximum penalties of not more than 10 penalty units for the offences.

Dictionary

(see s 3)

Note 1 The Legislation Act contains definitions and other provisions relevant to this Act.

Note 2 For example, the Legislation Act, dict, pt 1, defines the following terms:

- Act
- ACT
- Commonwealth
- disallowable instrument (see s 9)
- Executive
- in relation to
- may (see s 146)
- Minister (see s 162)
- month
- must (see s 146)
- notifiable instrument (see s 10)
- person (see s 160)
- quarter
- regulation
- territory law
- the Territory
- under
- writing.

capacity, of a generating system—see section 7.

electricity distributor—see the *Utilities Act 2000*, dictionary.

electricity network—see the *Utilities Act 2000*, section 7.

eligible electricity—see section 17.

FiT capacity—see section 9.

FiT capacity release—see section 10 (1).

FiT entitlement—see section 8.

FiT support payment—see section 18 (2).

generating system—see the national electricity rules, chapter 10 (Glossary).

generating unit—see the national electricity rules, chapter 10 (Glossary).

large renewable energy generator—see section 6.

large-scale generation certificate—see the *Renewable Energy (Electricity) Act 2000* (Cwlth), section 5.

market participant—see the national electricity rules, chapter 10 (Glossary).

National Electricity (ACT) Law means the provisions applying in the ACT because of the *Electricity (National Scheme) Act 1997*, section 5.

national electricity market—see the national electricity rules, chapter 10 (Glossary).

national electricity rules means the national electricity rules under the National Electricity (ACT) Law.

renewable energy source—see section 6.

Endnotes

1 Presentation speech

Presentation speech made in the Legislative Assembly on 2011.

2 Notification

Notified under the Legislation Act on 2011.

3 Republications of amended laws

For the latest republication of amended laws, see www.legislation.act.gov.au.

ACT Government
Environment and Sustainable Development

Australian Capital Territory Large-scale Solar Auction

Request for Proposals

This Request for Proposals is issued in relation to the competitive process determined in *Electricity Feed-in (Large-scale Renewable Energy Generation) FiT Capacity Release Determination 2011 (No 1)* (*the Determination*).

It is the responsibility of all proponents to register by email to this address in accordance with the requirements set out in section 9 of this document.

Section 5 of this RFP outlines the process for the evaluation of proposals. This section should be read in conjunction with the comprehensive forms provided at Attachment A and Attachment B to the RFP.

All communication with the ACT Government regarding participation in the Large-scale Solar Auction must be made in writing to SolarAuction@act.gov.au.

Addenda and other critical information will only be supplied to registered proponents.

Table of Contents

1. Attachments to this Request for Proposals

Proponents must complete and submit the following forms by specific dates to have their proposals considered:

- *Attachment 1 – Pre-qualification Form* (including declarations)
- *Attachment 2 – Final Proposal Form* (including declarations)

The following are provided for proponent's references purposes (they do not need to be submitted):

- *Attachment 3 – Deed of entitlement*
- This *Request for Proposals* document.

2. Preliminary

Background

2.1. The ACT Government is committed to encouraging the generation and use of renewable energy in the Territory and to making Canberra Australia's 'solar capital'.

2.2. To this end the ACT Government established the Large-scale Feed-in Tariff Scheme (scheme) by the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the **Act**). The Act provides the Minister with the power to grant FiT entitlements for up to 210MW of generation capacity and requires the local distributor to pay FiT support payments to holders of FiT entitlements.

2.3. Pursuant to the Act, on [date to be provided] the Minister determined that an initial 40MW of the scheme capacity would be made available for large-scale solar generation capacity located in the ACT through a competitive process (the **Determination**).

2.4. The Determination established that for this 40MW scheme capacity release:

- the grant of FiT entitlements will be by a competitive process (referred to in this document as the 'auction');
- the term of FiT entitlements is 20 years;
- to be eligible, a generator must be located wholly in the ACT;
- to be eligible, the minimum capacity of a large renewable energy generator's generating system must be 2MW.

2.5. The auction will be undertaken in accordance with this Request for Proposal (**RFP**).

2.6. Prospective generators are invited to participate in this competitive process. The primary outcome of the auction is to ensure that solar energy generation capacity is delivered to the Territory by the most capable providers and at the lowest possible cost.

Purpose of this RFP

2.7. This RFP:

- outlines and explains the requirements for the competitive process (auction);
- establishes further terms and conditions for participation in the auction; and
- calls for proposals for the construction and operation of large-scale solar generation facilities in the ACT by eligible entities to be granted FiT entitlements under the Act.

2.8. This Request for Proposals may be revised and re-issued at the Minister's discretion.

Intended outcome

2.9. The intended outcome of the auction is that the Minister will, subject to this Request for Proposals, grant FiT entitlements for 40MW of solar generation capacity to proponents who submit the highest quality proposals and demonstrate the highest level of capability to deliver on those proposals, when assessed against the criteria set out in the guidelines

Disclaimer

2.10. While this Request for Proposals and any information supplied by the Territory or Minister as part of this auction has been prepared with care, the Territory does not warrant or represent that the information is free from inaccuracy, error or omission. Neither the Territory nor any of its officers or agents shall be liable to any person with respect to statements made or information given in or under this RFP, or for delay in providing any information, including liability whatsoever for any costs or loss or damage which any person claims, incurs or suffers as a result of relying on the contents of the RFP.

2.11. The RFT is not intended to contain all information relevant to a respondent preparing a proposal. Proponents are required to undertake their own enquiries and assessment of any information provided which they may choose to rely on in preparation and submission of their proposals.

2.12. In preparing and submitting a proposal, proponents acknowledge that they:

- have made and relied on their own enquiries and obtained independent advice regarding any information provided to them affecting their proposal; and
- are satisfied for their own purposes as to the correctness and sufficiency of the information provided (including to the extent necessary to address the criteria) based on the independent advice sought and their own enquiries and assessment.

2.13. Proponents may be required to seek information from third parties, including Commonwealth and ACT Government owned or operated bodies and authorities. The Territory accepts no responsibility, and proponents will have no claim in relation to, the accuracy or completeness of any information provided, or for any delay in being provided with such information, by any third parties. It is the sole responsibility of a proponent to ensure that any information or assistance required is obtained within time to allow submission of a proposal by the relevant closing date.

Further terms and conditions for participation in the auction

2.14. The Minister, or delegate, may determine that such further terms and conditions will apply to the auction established by these guidelines as considered convenient or appropriate for the fair and equitable conduct of the auction and for the protection of the interests of the Territory and successful achievement of the objects of the Act (see further below in section 8 regarding Addenda).

3. The Auction

Key elements of this auction

Renewable energy source

3.1. This auction seeks proposals for the commissioning of solar power generation facilities wholly in the ACT.

Amount of generation capacity (maximum and minimum)

3.2. The total maximum generation capacity in respect of which entitlements may be granted by the Minister in this auction is 40MW.

3.3. The maximum generation capacity for which entitlements will be granted to a successful proponent (including all related entities of the successful proponent) in this auction is 20MW. No individual person (including all related entities of the person) is eligible to receive FiT entitlements for generation capacity that exceeds 20MW.

3.4. The minimum capacity of a large renewable energy generator's generating system must be 2MW or more.

- If the generating system is comprised of one generating unit, then the generating unit must have a minimum capacity of 2MW.
- If the generating system is comprised of multiple generating units, the combined capacity of the units at a common connection point must be a minimum of 2MW.
- Capacity will be determined by what is being proposed to be fed back into the grid at the connection point

Large-scale Generation certificates

3.5. In this auction it will be a condition of a successful proponent's entitlement to receive FiT support payments that the proponent create and assign to the Territory large-scale generation certificates under the *Renewable Energy (Electricity) Act 2000* (Cth) for *eligible electricity* generated by the generating system in respect of which the FiT entitlement is held.

Term of entitlement on offer

3.6. The period for which a successful proponent will be entitled to receive FiT support payments (term of entitlement) granted pursuant to this auction is 20 years. The term of entitlement will commence on the Completion Date specified by a proponent in its final proposal as the date by which a proponent proposes that both the construction of its generating system will be completed and the system is supplying eligible electricity to the electricity network.

Grant of FiT entitlements

3.7. The Minister may decide not to grant any FiT entitlements if no proposals are assessed as satisfactory by the Minister when assessed against the criteria. Section 5 provides that the Minister will grant FiT entitlements to at least two proponents subject to certain conditions being met.

Terms and conditions of participation

3.8. All persons wishing to receive a FiT entitlement must submit proposals which satisfy the eligibility criteria set out in section 6 of this RFP. Proposals which meet the eligibility criteria will be assessed against the evaluation criteria.

3.9. It is a condition of participating in this auction that proponents comply with all of the requirements set out in this RFP, including the general terms and conditions of participation set out under section 8 of this RFP.

Conditions of a FiT entitlement

3.10. The Act provides for the Minister to impose conditions on FiT entitlements. Without limitation, the Minister will impose conditions on FiT entitlements which require successful proponents to implement their proposals and achieve key milestones in accordance with the timelines indicated in their proposals.

3.11. It will be a condition of a FiT entitlement that a generating system is connected to the local electricity network (including indirectly) and supplying a minimum specified quantity of eligible electricity to the network within a period of 12 months commencing on the Completion Date for a FiT entitlement.

3.12. The minimum specified quantity of eligible electricity to be generated during the 12 months from the Completion Date will be determined by the Minister and will be a proportion of the total eligible electricity anticipated to be produced by a fully functioning generating system operating at the capacity of the proponent's proposed system.

3.13. A successful proponent's FiT entitlement will be subject to the proponent entering into a deed of entitlement with the Territory on terms and conditions approved by the Minister. The deed will be in substantially the form of the deed of entitlement at Attachment 3 to this RFP.

Network connection

3.14. Proponents are required to arrange their own electricity network connections through the relevant distribution network service provider and take account of the potential associated costs in the value of the FiT being sought.

3.15. The Territory does not have access to, and is unable to provide information regarding the available capacity of the electricity network within the ACT.

3.16. Proponents are required to provide in their proposals the details, including costs, of network connection works required to be undertaken to facilitate connection of their proposed generator to the electricity network. This information should be provided as set as required by the *Pre-qualification Form* and *Final Proposal Form*.

3.17. The Territory accepts no responsibility for the correctness or completeness, or for any delay in the provision of information by a distribution network service provider or any other network service provider.

3.18. A successful proponent bears all connection costs. Conditions of a FiT entitlement will not be varied to enable a proponent to be reimbursed such costs.

Access to and use of land in the ACT

3.19. Proponents are required to arrange their own acquisition and/or access to land (in accordance with the Territory's leasing planning and development laws and policies) required for the site of their generating system and associated plant and equipment, including any assets required to facilitate connection to the local electricity network.

3.20. Proponents are required to obtain any necessary authorisations or approvals required to implement the proposal at the proposed site in accordance laws and policies that apply in the ACT.

Leased land

3.21. The Territory has made no arrangements with holders of leased land in the ACT for the purposes of this auction.

3.22. Proponents are free to make their own arrangements with holders of leased land. Any such arrangements, their suitability or impact on other regulatory processes relevant to a proponents' proposal remaining the sole responsibility of the proponent.

Land Release

3.23. Indicative Land Release Programs setting out the Government's intended Program of residential, commercial, industrial and community and non-urban land releases are available for review on the Economics Development Directorate (EDD) website (http://www.economicdevelopment.act.gov.au/land_release). EDD manages the ACT land release program and can be contacted through the web form located here: http://www.economicdevelopment.act.gov.au/land_release/Contact_Land_Release.

3.24. The Programs are indicative and are subject to change as market conditions alter or as Government priorities are adjusted. Information on how to participate in such programs can be found on that website.

Potential Land Sale

3.25. Direct sale is a method of land release permitted by the *Planning and Development Act 2007*, by which the ACT Government can grant a crown lease of unleased Territory to an eligible applicant instead of by auction, tender or ballot. There are eligibility criteria depending on the type of land being made available for sale.

3.26. The Territory has not set aside any parcel of land within the ACT for direct sale in relation to the RFP.

3.27. There is no guarantee that a direct sale application will succeed, and proponents who choose to rely on securing unleased land for their projects do so at their own risk.

3.28. Proponents found eligible for the direct sale of a lease are not guaranteed an offer of lease over land. This is subject to the availability of a site.

3.29. As a direct sales application can take some time to resolve, a proponent that has not otherwise successfully applied to be eligible for a direct sale at the time of the auction commenced (i.e. the date of the FiT capacity release), but wishes to secure land through the direct sales process will not be able to be participate in the fast track stream of the auction (see further below for an explanation of what is meant by fast track).

3.30. Further, in order to streamline the direct sale application process, in light of the potential volume of applications the Territory will only consider direct sale applications from those proponents wishing to pursue this avenue, who have been prequalified in this auction. Further information is available from http://www.economicdevelopment.act.gov.au/land_release/direct_sales.

4MW EIS threshold

3.31. Schedule 4 of the *Planning and Development Act 2007* identifies processes and activities that require an Environmental Impact Statement (EIS). Item 2 of Part 4.2 of that Schedule relates to electricity generation and transmission lines. The item includes renewable energy generation, and provides that unless a regulation specifies a different amount, then an electricity generating station capable of supplying 4MW of electrical power requires an EIS.

3.32. The Territory is currently reviewing this requirement with a view to increasing this threshold. Any change to this regulation will be subject to usual legislative processes.

General

Compliance with laws & codes

3.33. Proponents are responsible for ensuring that their proposals, if implemented, will comply with all laws, regulations and codes that apply in the ACT, including the National Electricity Law and Rules and any instruments provided for under that Law or the Rules and any requirements of AEMO or the AER.

Reporting

3.34. The Minister intends, as a condition of granting a FiT entitlement, to require that a successful proponent provide progress reports on the implementation of a proposal. In that event successful proponents will be required to provide whatever information the Minister reasonably requires in order to establish the extent of progress made by a successful proponent in implementing their proposal and complying with the conditions of their FiT entitlement.

Transfer of FiT entitlement prior to commissioning of generating system

3.35. An entitlement to FiT support payments may not be transferred, assigned, or otherwise dealt with by a successful proponent, prior to completion of the commissioning and operation of the generating system without the prior written consent of the Minister, which the Minister may, at his discretion, withhold.

3.36. Matters related to the transfer of a FiT entitlement are addressed in *the Act*.

Closing dates for submission of proposals

3.37. All proposals, including all supporting documentation, must be submitted by the relevant closing dates, summarised in Table 1.

Table 1: Summary of timelines for stage 1

Stage within Auction	Date
RFP Release Date	12 January 2012
Pre-qualification proposals - Regular - Closing Date	5 April 2012
Pre-qualification proposals - Fast-track - Closing Date (indicative)	5 April 2012
Pre-qualification Proposals assessed	18 May 2012
Proponents notified whether they have been successful in prequalification stage	5 June 2012
Final Proposals - Fast-track – Closing Date	21 June 2012
Successful proponent (if any) within fast track stream announced	3 Aug 2012

JS note: James and Richard to confirm final dates – i think these are final.

3.38. Specific closing dates for final proposals at stage 2 will be subject to the completion of the stage 1 evaluation process. This will depend on a number of factors including the number of stage 1 proposals received. Proponents that are successful at stage 1 will be notified of the specific closing dates for submission of final proposals at stage 2.

3.39. It is anticipated that the announcement of successful pre-qualification proposals at stage 1 will be made within approximately 8 weeks of the closing date for stage 1 proposals.

Table 2: Summary indicative timelines for stage 2 final proposals

Proposal	Closing date
Final Proposals - Fast-track	No less than 2 weeks after completion of fast-track stream stage 1 evaluations.
Final Proposals – Regular stream	No less than 9 months after completion of regular stream stage 1 evaluations.

4. Summary of criteria

Stage 1 criteria

4.1. Table 3 provides a summary of the criteria for the auction established by the guidelines. These are discussed further in section 6.

Table 3: Stage 1 (pre-qualification) criteria

Proponent eligibility criteria (PREL)	
PREL 1	A proponent must be a non-tax exempt Australian company incorporated under the Corporations Act 2001 or a wholly or majority owned Commonwealth or Australian state or territory government body.
PREL 2	Pre-qualification proposals will only be accepted from a single legal entity.
PREL 3	A proponent must not be, or become bankrupt, insolvent, or be in, or enter into administration, receivership or liquidation, or take advantage of any statute for the relief of insolvent debtors at any time during the auction process.
PREL 4	A proponent must not have had a judicial decision relating to employee entitlements made against it (not including decisions under appeal) and have not paid the claim.
PREL 5	A proponent must not have been in breach of the Equal Opportunity for Women in the Workplace Act 1999 (Cth).
Stage 1 proposal eligibility criteria (PQEL)	
PQEL 1	A proponent must submit a completed Pre-qualification Form, including specified attachments, by the specified stage 1 closing date.
PQEL 2	Proposals will only be considered for generating systems that use solar energy to produce and export electricity into the national electricity market. The eligible solar technologies for this auction are solar thermal and photovoltaic.
PQEL 3	Proposals must be for the establishment of one or more single generating systems that each has no less than 2MW and no more than ***20MW generating capacity as determined at their point of connection to an electricity network.***
PQEL 4	Pre-qualification proposals must provide an overview of the type of technology to be used for the proposed generating system, and set out the quantity of electricity and eligible electricity forecast to be generated by the system per annum over the term of the entitlement.
PQEL 5	A generating system and all generating units making up a generating system must be wholly located in the Australian Capital ***Territory.***
PQEL 6	Generating systems must be connected to an electricity distribution or transmission network.
PQEL 7	Pre-qualification proposals must identify the proposed location for the generating system and the proposed connection point or points to the electricity network.
PQEL 8	Without declaring the value of the proposed feed-in tariff being sought, pre-

	qualification proposals must include an indicative expenditure budget for the proposal, and indicate the sources, or likely sources of funding to meet the anticipated expenditure.
PQEL 9	Pre-qualification proposals should explain the structure of the vehicle (corporate or otherwise) that is intended to be used by the proponent in relation to financing, construction, ownership and operation of the generating system and holding of the FiT entitlement.
PQEL 10	Where a proponent intends to rely on the expertise or capabilities of its owners or other specific persons to any extent, whether contractors or personnel engaged as, or to be engaged as employees, details of those persons, their experience and capability, and the roles they will play in implementing the proposal must be specified in a proposal.
PQEL 11	Pre-qualification proposals must include an indicative timeline schedule for completion of a range of milestones as set out in the Pre-qualification form.
Stage 1 evaluation criteria (PQEV)	
PQEV 1	Proponent's capability and experience.
PQEV 2	Access to funds/ability to raise funds and a reasonable expenditure forecast.
PQEV 3	Technology or other risks to timely implementation

Stage 2 criteria

4.2. Table 4 provides a summary of the criteria for the auction established by the guidelines. These are discussed further in section 6.

Table 4: Stage 2 (final proposal) criteria

Final proposal eligibility criteria (FPEL)	
FPEL 1	Pre-qualification.
FPEL 2	Required documentation submitted on time.
FPEL 3	Confirmation of details of pre-qualification proposal.
FPEL 4	Budget, sources of funding & FiT to be specified.
FPEL 5	Corporate structure provided
FPEL 6	Capability of owners, personnel, suppliers and contractors provided.
FPEL 7	Details of plant and equipment.
FPEL 8	Commitment to achieving key milestones within specified timeframes.
Stage 2 evaluation criteria (FPEV)	
FPEV 1	Demonstrated understanding of legal and regulatory environment that will impact project completion.
FPEV 2	Access to funds and commercial viability of the proponent and the proposal
FPEV 3	Capacity to maximise NEM sales earnings
FPEV 4	Realistic and timely implementation schedule

5. Proposal and evaluation process

Submission and evaluation of proposals

5.1. Evaluation of proposals will be undertaken in two stages. There will be a pre-qualification stage (stage 1) and a final proposal stage (stage 2). Only those proponents whose proposals are successful at stage 1 will be invited to submit final detailed proposals at the stage 2.

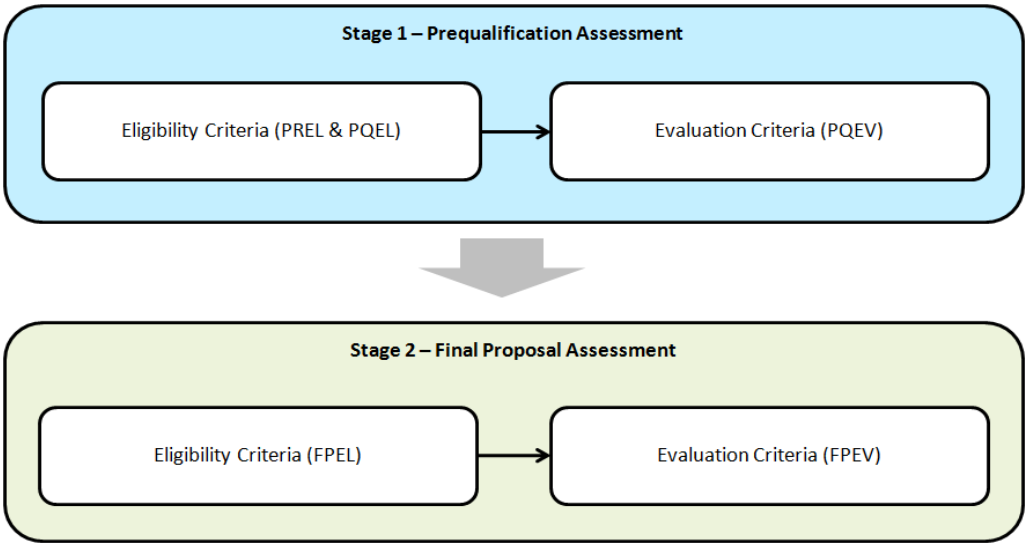
5.2. A guide to the criteria and preparation of proposals is provided in section 6.

5.3. *Attachment 1 – Pre-qualification Form* provides a comprehensive template for the construction of stage 1 proposals.

5.4. *Attachment 2 – Final Proposal Form* provides a comprehensive template for the construction of stage 2 proposals.

5.5. Figure 1 provides a summary of the stages of evaluation and where the criteria fit into each stage of evaluation.

Figure 1: Summary of auction evaluation criteria and assessment processes



5.6. All persons wishing to receive a FiT entitlement must submit proposals which meet the eligibility criteria both in the *pre-qualification and final proposal* stages. As illustrated in Figure 1, proposals which meet the eligibility criteria in each of these stages will then be assessed against the evaluation criteria relevant to each stage.

5.7. It is the responsibility of a proponent to ensure that their proposal addresses all of the relevant criteria, including both the eligibility and evaluation criteria that apply at each stage of the auction process.

5.8. Pre-qualification does not guarantee that a proposal will be successful at stage 2.

5.9. The value of a proposed feed-in tariff will not be considered as part of the evaluation of proposals at stage 1. It will be a key consideration as part of stage 2.

Fast-track stream and regular stream

5.10. There are two separate evaluation streams – a *fast-track stream* and a *regular stream*. Proponents who elect to participate in the fast-track stream must be ready to submit a final proposal at stage 2 (final proposal stage) within approximately two weeks after completion of stage 1 (pre-qualification).

5.11. Proponents who require more time and elect to participate in the regular stream will be given approximately 9 months after completion of stage 1 to prepare and submit final proposals at stage 2.

5.12. Both the fast-track and regular streams will commence at the same time pursuant to the issue of the Request for Proposals.

5.13. Proponents must indicate in their stage 1 proposal whether they elect to participate in the fast-track or regular stream.

5.14. In the fast track stream 20MW of generation capacity will be made available for the grant of entitlements. 20MW will be reserved for allocation in the regular stream. Generation capacity not allocated in the fast-track stream, if any, will be made available in the regular stream.

Changing between streams

5.15. A proponent that participates in the fast-track stream and achieves pre-qualification at stage 1 in the fast-track stream, but is not successful at stage 2 in the fast-track stream, may elect to have their proposal considered in the regular stream. A proponent who elects to do this may revise their final proposal, including the value of their proposed FiT, provided that no changes are made to a proposal which may affect the basis on which the proposal was pre-qualified at stage 1.

Revising proposals between pre-qualification and final proposal stage

5.16. If a proposal is amended between stage 1 and stage 2 (whether in the fast-track or regular stream or in changing between the two) in such a way as to, in the opinion of the Solar Auction Advisory Panel, affect the basis on which a proposal was successful at stage 1, then the Minister may require the proposal to be re-assessed against the stage 1 criteria, or the Minister may exclude the proposal from further consideration in the auction.

Solar Auction Advisory Panel

5.17. The Minister will appoint a Solar Auction Advisory Panel (the Panel) to assess proposals at each stage and to provide advice to the Minister in relation to the award of FiT entitlements.

5.18. The Panel will, having regard to any expert or technical advice that it obtains for the purpose, assess proposals in accordance with the guidelines and provide its assessment to the Minister.

Panel to make recommendations to Minister

5.19. On the basis of its assessment of proposals at stage 1 the Solar Auction Advisory Panel may recommend to the Minister a short-list of proponents which the Panel considers should be invited to submit final detailed proposals at stage 2.

5.20. Proponents will be advised in writing whether they are invited to participate in stage 2.

5.21. The Advisory Panel will take into account the results of its assessment against both stage 1 and stage 2 evaluation criteria when recommending a proponent and a proposal for the grant of an entitlement.

Decision by Minister

5.22. The Minister will, in accordance with this RFP and having regard to the recommendations of the Panel and the objects of the Act, make the final decision regarding the short-listing of proposals at stage 1.

5.23. The Minister will, in accordance with this RFP and having regard to the recommendations of the Panel and the objects of the Act, make the final decision regarding the grant of FiT entitlements at stage 2.

Request further information

5.24. The Minister or the Panel may seek further information about a proposal at any stage of the evaluation process.

5.25. If a proposal, the Minister's opinion, satisfies all of the stage 1 and stage 2 eligibility criteria, the Minister may seek to negotiate with a proponent about any aspect of the proponent's proposal.

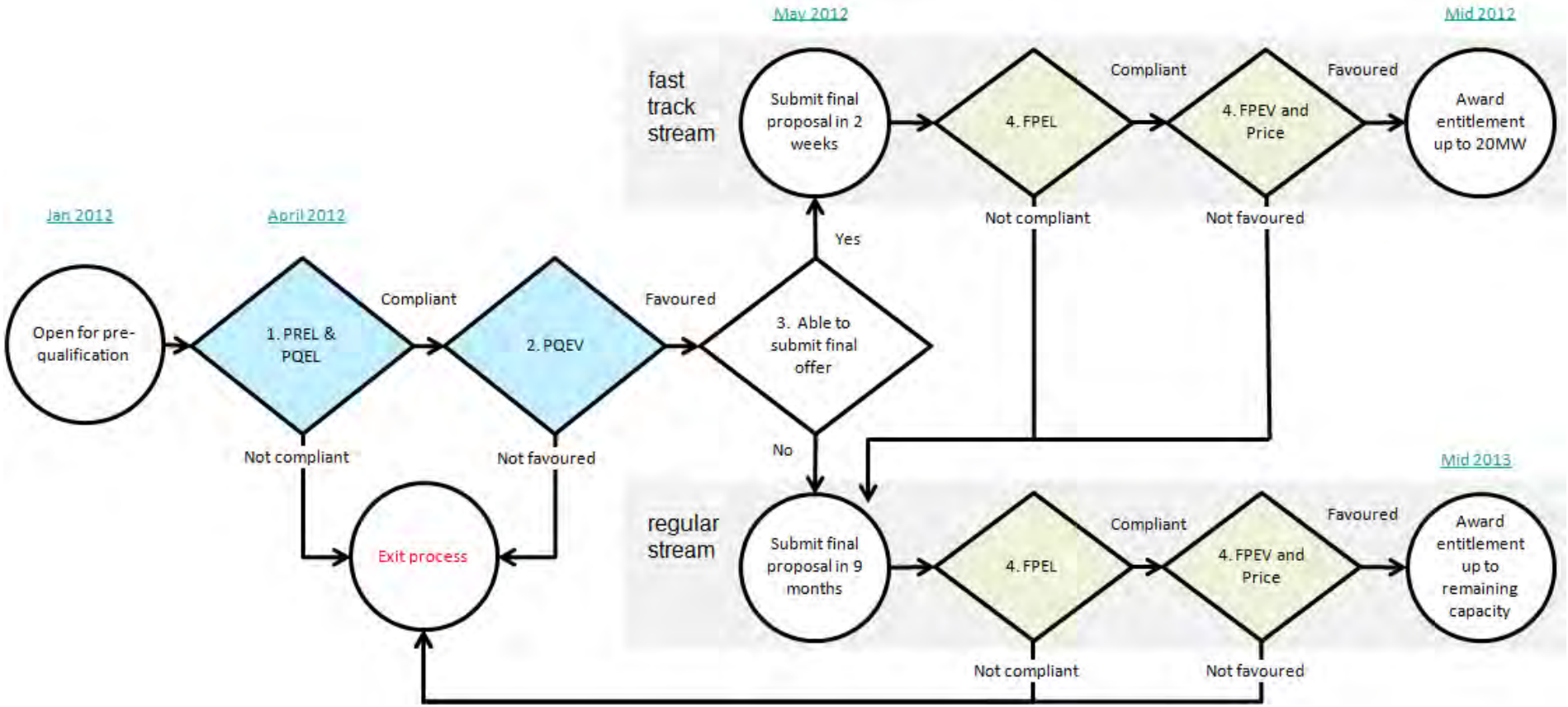
Grant of FiT entitlement to at least 2 proponents subject to certain conditions being met

5.26. Provided there is sufficient competition between proponents at stage 2 in the regular stream, the Minister will grant FiT entitlements to at least two proponents in total, and to at least one proponent in the regular stream. Sufficient competition will be established if at least 5 proponents, that are not related entities, submit final stage proposals at stage 2 that meet the stage 2 proposal eligibility criteria.

5.27. The Minister does not guarantee that any FiT entitlements will be granted in the fast-track stream.

5.28. A proponent that is granted a FiT entitlement in the fast-track stream is not eligible to submit a proposal in the regular stream.

Figure 2: Summary of overall auction processes including fast-track and regular streams*



* **PREL** = proponent evaluation criteria, **PQEL** = proposal eligibility criteria, **PQEV** = Prequalification evaluation criteria, **FPEL** = final proposal eligibility criteria, **FPEV** = final proposal evaluation criteria

6. Stage 1 – Pre-qualification – Guide to the criteria and preparation of proposals

Stage 1 proponent eligibility criteria (PREL)

PREL 1 ***A proponent must be a non-tax exempt Australian company incorporated under the Corporations Act 2001 or a wholly or majority owned Commonwealth or Australian state or territory government body.***

PREL 2 ***Pre-qualification proposals will only be accepted from a single legal entity.***

PREL 3 ***A proponent must not be, or become bankrupt, insolvent, or be in, or enter into administration, receivership or liquidation, or take advantage of any statute for the relief of insolvent debtors at any time during the auction process.***

PREL 4 ***A proponent must not have had a judicial decision relating to employee entitlements made against it (not including decisions under appeal) and have not paid the claim.***

PREL 5 ***A proponent must not have been in breach of the Equal Opportunity for Women in the Workplace Act 1999 (Cth).***

Discussion of PREL1 to PREL5

6.1. Proponents will complete and submit a complete Pre-qualification Form to demonstrate compliance with the above proponent eligibility criteria.

6.2. In relation to PREL 2, this legal entity, if successful, will be the subject of the Minister's grant of a FiT entitlement and will be the entity responsible for fulfilment of any conditions that apply to the entitlement. Unincorporated joint venture or consortium proposals involving several entities will not be accepted. No related entity or other legal entity will be granted a FiT entitlement that is not the proponent in response to this RFP.

Stage 1 proposal eligibility criteria (PQEL)

PQEL 1 ***A proponent must submit a completed Pre-qualification Form, including specified attachments, by the specified stage 1 closing date.***

Discussion of PQEL1

6.3. It is the responsibility of a proponent to ensure that their proposal addresses all of the relevant criteria, including the eligibility and evaluation criteria.

6.4. A proponent must submit a completed Pre-qualification Form, including originals of all signed declarations included in the Form, with their proposal.

6.5. Proponents should include as part of their proposal any other documentation that they consider will support the claims made in a proposal.

6.6. All documents making up a proposal, including a completed Pre-qualification Form and the required signed declarations, must be submitted in accordance with this Request for Proposals by the relevant closing date.

PQEL 2 ***Proposals will only be considered for generating systems that use solar energy to produce and export electricity into the national electricity market. The eligible solar technologies for this auction are solar thermal and photovoltaic.***

PQEL 3 ***Proposals must be for the establishment of one or more single generating systems that each has no less than 2MW and no more than 20MW generating capacity as determined at their point of connection to an electricity network.***

Discussion of PQEL2 and PQEL3

6.7. Proponents will demonstrate compliance with these criteria by completing a Pre-qualification Form.

6.8. Should multiple generating systems be proposed in a single proposal, the total generating capacity for the proposal must not exceed 20MW.

PQEL 4 ***Pre-qualification proposals must provide an overview of the type of technology to be used for the proposed generating system, and set out the quantity of electricity and eligible electricity forecast to be generated by the system per annum over the term of the entitlement.***

Discussion of PQEL4

6.9. In addition to indicating the capacity of a proposed system and whether a proposal involves solar thermal or photovoltaic technology, proposals at stage 1 should provide specifications for a proposed generating system which would enable an effective assessment to be made by the Minister of the proven nature of the technology and the likely costs of connecting and constructing the system and operating the system over the 20 year term of a FiT entitlement. A grant of a FiT entitlement to a successful proponent will attach, in accordance with the Act, to a particular generating system at a particular location.

6.10. Proposals must:

a) also indicate the extent to which a proposed generating system will use electricity or energy from sources other than solar energy as an input into the system, for example solar thermal systems that use natural gas as an input;

b) include an explanation of the basis on which a proponent has measured the capacity of the proposed generating system;

c) provide the anticipated electricity output from the system on an annual basis including the quantity of eligible electricity that it is anticipated will be generated by the system, as defined by *the Act*; and

d) identify any network assets required to facilitate connection of the generating system to the network.

PQEL 5 ***A generating system and all generating units making up a generating system must be wholly located in the Australian Capital Territory.***

PQEL 6 ***Generating systems must be connected to an electricity distribution or transmission network.***

PQEL 7 ***Pre-qualification proposals must identify the proposed location for the generating system and the proposed connection point or points to the electricity network.***

Discussion of PQEL5 to PQEL7

6.11. A generating system may be comprised of more than one generating unit at different locations with more than one connection point to the electricity network, so long as the generating system has no less than 2MW capacity at any single connection point.

6.12. A proposal must provide full details of the location of a proposed generating system and including a map of the existing electricity network showing the location of all relevant network assets, including lines and substations, required to facilitate a connection.

6.13. Proposals should state why a particular location is considered suitable for the proposed facility, including in respect of any planning regulations and policies that apply to the location and any advantages that the location might provide in relation to connecting to the existing electricity network.

6.14. Proponents should state what proprietary interest they have in the land, or intend to obtain, if granted a FiT entitlement. Where an interest is not yet held in the land at the stated location the proposal should state what steps have been taken to obtain the required interest.

PQEL 8 ***Without declaring the value of the proposed feed-in tariff being sought, pre-qualification proposals must include an indicative expenditure budget for the proposal, and indicate the sources, or likely sources of funding to meet the anticipated expenditure.***

Discussion of PQEL8

6.15. At stage 1 the value of a sought after FiT will not form part of the assessment of proposals, even if a FiT value is stated in stage 1 proposal.

6.16. A proponent's ability to obtain the required funds within the stated time and a proponent's demonstrated ability to raise funds will be assessed.

6.17. Proponents should provide sufficient details in their expenditure budget to demonstrate that they have appropriately accounted for all likely costs of implementing their proposals.

6.18. Budgets submitted at stage 1 should separately identify those items set out in the Pre-qualification Form.

6.19. In order to verify that costs of a proposal associated with connection of a generating system to the electricity network have all been identified and are appropriate, proponents should provide with their proposals, documentary evidence from the Distribution Network Service Provider , for example by providing a copy of any quote or preliminary quote received from the Distribution Network Service Provider.

6.20. Proponents should indicate the likely source or sources of their funding and provide evidence, where available, of the support they have for their proposals from financial institutions and/or investors. Proponents that do not have, or only have limited commitments or limited evidence of support from financial institutions or investors should also provide evidence of a proven ability to raise funds for infrastructure projects of a value similar to their proposal.

PQEL 9 ***Pre-qualification proposals should explain the structure of the vehicle (corporate or otherwise) that is intended to be used by the proponent in relation to financing, construction, ownership and operation of the generating system and holding of the FiT entitlement.***

PQEL 10 ***Where a proponent intends to rely on the expertise or capabilities of its owners or other specific persons to any extent, whether contractors or personnel engaged as, or to be engaged as employees, details of those persons, their experience and capability, and the roles they will play in implementing the proposal must be specified in a proposal.***

Discussion of PQEL9 and PQEL10

6.21. In relation to PQEL 9 and 10, this should include an explanation of which entities will play which roles, their relationship to each other, and the details of and extent to which the proponent intends to engage contractors to implement the various aspects of its proposal. Proposals should also identify the ultimate holding company of a proponent, if a proponent is a wholly owned subsidiary company.

6.22. Providing the information required by these stage 1 proposal eligibility criteria provides proponents with the opportunity to demonstrate the various sources of the financial, technical and organisational management capability and experience that they will have access to in implementing their proposal.

6.23. This is particularly important where a proposal is submitted by an entity which represents a joint undertaking by multiple persons, because the assessment of the technical, financial and organisational management capability and experience of the proponent may take into account the technical, financial and management capability and experience of the owners of the corporation, and other persons committed to, or prepared to commit to the project.

6.24. Full details of the technical, financial and organisational management capability and experience of such third parties should be included in the proposal.

6.25. Proponents should provide evidence of the basis on which third parties, including owners, employees and contractors will be involved in implementing a proposal if the proponent is granted a FiT entitlement.

PQEL 11 Pre-qualification proposals must include an indicative timeline schedule for completion of a range of milestones as set out in the Pre-qualification form.

Discussion of PQEL11

6.26. Timelines submitted at stage 1 are indicative only however in submitting indicative timelines at stage 1, proponents should be aware that a final proposal submitted at stage 2, may be excluded from further consideration if a proposal is amended in such a way between stage 1 and stage 2 as to affect the basis upon which a proposal was successful at stage 1.

6.27. Including this information in a proposal at stage 1 will enable an assessment to be made of the risk that a proponent may not be able to gain access to the required funds within the time stated in a proposal. This information will also go to an assessment generally of the capability of a proponent demonstrated by its capacity to perform timely implementation of a proposal while at the same time estimating realistic time frames for implementation.

6.28. Proponents are required to specify dates for achieving these milestones in the space provided in the Pre-qualification Form.

Stage 1 evaluation criteria (PQEV)

6.29. Stage 1 proposals which meet the stage 1 eligibility criteria will be assessed against the following evaluation criteria. Stage 1 proposals which do not satisfy the stage 1 proposal eligibility criteria may be excluded from further consideration in the auction.

PQEV 1 Proponent's capability and experience.

Discussion of PQEV1

6.30. Proponents must be able to demonstrate that they have the necessary capability and experience in successfully conducting infrastructure projects of a similar size, complexity and nature to their proposal. This includes demonstration of relevant and adequate technical, organisational and financial management capability and experience.

6.31. An assessment will be undertaken of these relevant aspects of capability and experience to determine the degree of risk that the proposal may not be successfully implemented or within time. Proponents that are assessed as being a *relatively* high risk against this criterion may not be short-listed at Stage 1.

6.32. Where a proposal is submitted by an incorporated entity which represents a joint undertaking by multiple persons, such as a consortium of corporations, the assessment of the technical, financial and management capability of the proposal and the proponent will take into account the technical, financial and management capability of the owners of the corporation and other personnel committed to the project. This is provided that the Minister is satisfied that such capability of the owners and other personnel will be made available to the proponent on appropriate terms. Proponents should provide documentary evidence where available of the terms on which such capability is to be provided to the proponent.

6.33. It is important that a proponent is able to demonstrate a high level of relevant capability and experience in order to be granted a FiT entitlement. This auction is aimed at attracting proponents that have a high level of expertise and experience in relevant fields to minimise as far as possible the risk that a proposal may not be implemented successfully. Proponents that are inexperienced or new start-up enterprises, or proposing novel technologies are unlikely to be pre-qualified.

6.34. Proposals should demonstrate that a proponent has the relevant experience and expertise in each of the relevant areas, namely relevant technical, financial and organisation management experience and expertise. Evidence should be provided to support any claims made, including references and evidence of examples of similar infrastructure projects undertaken in the past.

PQEV 2 Access to funds/ability to raise funds and a reasonable expenditure forecast.

Discussion of PQEV2

6.35. Without declaring the value of the proposed feed-in tariff being sought for a proposal, proponents must demonstrate that they have, or will be able to obtain, the funds required to implement the proposal in accordance with their indicative budget and timeline schedule. Proponent's expenditure budget should demonstrate, in sufficient detail, that a proponent has accounted reasonably for all likely costs of implementing their proposal.

6.36. Financial risk assessments will be undertaken to evaluate the likelihood that a proponent will not be able to successfully implement the proposal, or on time, because of a failure to obtain the required funds. An assessment will also be undertaken of the risk that a proponent's forecast of expenditure has not sufficiently accounted for the likely costs of implementing the proposal.

6.37. Reliance will be placed on the documentary evidence provided by a proponent from the relevant network service provider as to whether the costs relating to network connection identified in a proposal are comprehensive, reasonable and appropriate.

6.38. It is acknowledged that there may be some variation in electricity network connection costs depending on which proponents are ultimately granted FiT entitlements in this auction and depending on the size and location of the generating systems of those successful proponents. This arises due to the prospects for cost sharing, but also due to the potential for increased burden on the network, or parts of the network as a result of the addition of significant embedded generation capacity.

6.39. Due to probity reasons, and because the Territory is unable to provide detailed information about electricity networks to proponents it is a feature of this auction that proponents are required to take on this risk and build into their proposal (and the value of their sought after FiT) the potential for these costs to vary.

6.40. At stage 1, proponents should provide whatever evidence available to demonstrate financial support for their proposals, even if no legal commitments have been obtained from investors or financial institutions at this stage. Where a proponent does not have, or has limited commitments from investors or financial institutions and seeks to rely on past experience and capability in raising the required funds, examples and evidence of the proponent's success in past projects should be provided. Where past experience is relied on, proponents should state strategies that will be employed to secure finance reflecting current financial market conditions.

PQEV 3 Technology or other risks to timely implementation.

Discussion of PQEV3

6.41. Proponents must demonstrate that they have, or will have access to proven solar generation technology which is to be used for the proposed generating system, including any necessary intellectual property rights associated with the technology. An assessment will be undertaken of the likelihood of the risk arising that a proponent will not be able to secure access to the intellectual property rights required in respect of the solar generation plant and equipment.

6.42. Proponents must be able to demonstrate that the technology they intend to use in their proposed generating system has been successfully demonstrated at a comparable scale to that proposed in a proponent's proposal.

6.43. An assessment will be undertaken of the implementation risks associated with the ability of the proposed generating system technology to operate in accordance with its intended specifications over the term of the FiT entitlement.

6.44. An assessment will also be made of the risk that a proponent will not be able to obtain the funds required because investors or financial institutions might consider technology that is not sufficiently proven at the proposed scale to be too high a risk.

6.45. A broad assessment will also be undertaken of other risks to implementation such as the approach taken to obtain regulatory approvals or to secure access to land or any other matters that are determined to put at risk the success of the project.

7. Stage 2 – Guide to the criteria and preparation of proposals

7.1. Final proposals submitted at stage 2 that do not satisfy the stage 2 proposal eligibility criteria will be excluded from further consideration in the auction.

7.2. At stage 2 proponents must submit comprehensive and detailed proposals that address each of the stage 2 evaluation criteria. Final proposals submitted at stage 2 will be assessed against the stage 2 evaluation criteria. It is the responsibility of a proponent to ensure that their proposal adequately addresses each of the relevant eligibility and evaluation criteria.

7.3. Proponents will note that some of the information required to be included in a proposal at stage 2 will replicate information that was provided in a proposal at stage 1. Proponents should note that final stage proposals are expected to confirm pre-qualification proposals. Where a proposal eligibility criteria for stage 1 is repeated at stage 2, proponents should address this proposal eligibility criteria again in their stage 2 proposal.

7.4. Evidence to support claims made in a proposal at stage 2 is expected to be more specific, more detailed and give greater credibility to the claims made, than the evidence that is expected to be produced at stage 1.

7.5. Details of proposals submitted at stage 2 will be made into conditions of a FiT entitlement for successful proponents. Any commitments made by proponents in a stage to proposal, including pricing offers, therefore need to be clear and unconditional. It is anticipated that, in most cases, the stage 2 evaluation process will be concluded without further negotiation with proponents.

7.6. Proposals that are overly conditional or unclear in their commitments may be deemed not eligible for further consideration.

7.7. In submitting a final proposal proponents should be aware of the consequences of amending a proposal between stage 1 and stage 2 so as to affect the basis upon which a proposal was successful at stage 1.

7.8. In such circumstances, in accordance with principles of fairness and probity, and the terms and conditions for participation in this auction, the Minister may, on the basis of a re-assessment of a final proposal against the stage 1 criteria, revoke a proposal's prequalification status and exclude it from further consideration in the auction.

Final proposal eligibility criteria (FPEL)

FPEL 1 Pre-qualification.

Discussion of FPEL 1

7.9. Only proponents that are successful are prequalified as a result of the stage 1 evaluation process will be eligible to have their proposal considered at stage 2.

7.10. As stated above, proponents successful at stage 1 will be advised in writing and invited to submit final proposals at stage 2 following the conclusion of the stage 1 evaluation process.

FPEL 2 Required documentation submitted on time.

Discussion of FPEL2

7.11. A proponent must submit a completed Final Proposal Form and any other documentation requested in that form by the stage 2 closing date.

7.12. It is the responsibility of a proponent to ensure that their proposal addresses all of the relevant criteria, including the eligibility and evaluation criteria.

7.13. A proponent must submit a completed Final Proposal Form including originals of all signed declarations included in the Form, with their proposal. Proponents are required to re-make these declarations at stage 2 which were made previously at stage 1.

7.14. Proponents should include as part of their proposal any other documentation that they consider will support the claims made in a proposal in accordance with Part D of the Final Proposal Form.

7.15. Proponents who are prequalified through stage 1 will be notified in writing of the stage 2 closing date following the completion of the stage 1 evaluation process.

FPEL 3 Confirmation of details of pre-qualification proposal.

Discussion of FPEL3

7.16. A proponent must confirm in its final stage proposal that the details of its pre-qualification proposal remain consistent with its final stage proposal, or else indicate the extent to which any details of the proposal have been amended or no longer apply.

7.17. Substantial changes to the proposal between stage 1 and stage 2 assessments may trigger a re-appraisal of a proponent's prequalification status as per paragraphs 7.7 and 7.8 of this RFP.

7.18. Proponents must either confirm all details of their pre-qualification proposal or else identify clearly where any such amendments to their stage 1 proposal have been made. Where amendments are made proponents should explain the basis for the amendments and outline why they consider that such amendments should not affect the basis on which they were successful at pre-qualification. This information can be reported in the Final Proposal Form.

7.19. To ensure that the principles of probity and fairness are complied with in the auction, proponents should be aware that they do not have an unlimited capacity to amend their proposals between stages. Where the Minister considers that any such amendments could potentially give rise to any unfairness, or a perception of unfairness for other proponents, for example where substantial aspects of a stage 1 proposal were relied upon by the Minister in making a decision to short-list the proponent at stage 1 but these were not followed through with at stage 2, then such proposals may be excluded from further participation in the auction.

FPEL 4 Budget, sources of funding & FiT to be specified.

Discussion of FPEL4

7.20. A final stage proposal must include a budget for the proposal as per the Final Proposal Form template and must specify the value of the FiT sought. Proposals must indicate the sources of funding that will be relied upon to meet the anticipated expenditure.

7.21. The Final Proposal Form allows proponents to attach a more detailed project budget. This budget must provide sufficient detail to enable an effective assessment to be made of a proposal against the relevant final proposal evaluation criteria. The degree of detail included in the final budget is a matter for proponents however proposals that include a high degree of credible detail and analysis in their budget relevant to the evaluation criteria will be assessed more favourably.

7.22. Information provided in a proposal in response to this criteria will be used to verify that the proponent properly understands the requirement to own and operate the facility, and to fund the cost of capital from revenue received from FiT support payments and electricity sales. Details of the type and source of debt, equity and hybrid finance should be provided, as well as evidence of assurances from sources of finance that the finance will be forthcoming, and any conditions placed on the supply of finance from supporting financial institutions.

7.23. Budgets at final stage proposal should include a comprehensive and detailed breakdown of the costs expected to arise due to establishing and maintaining connection of the generating system to the electricity network, including any network augmentation or extension works required to facilitate a connection.

7.24. Proponents must set out a clear and unconditional FiT pricing offer on a fixed, flat, dollar per megawatt hour basis. This pricing offer should be exclusive of GST.

7.25. A FiT pricing offer that is not clear, or that is conditional in any way, will not be accepted and the proposal be deemed ineligible for further consideration.

FPEL 5 Corporate structure provided.

FPEL 6 Capability of owners, personnel, suppliers and contractors provided.

Discussion of FPEL 5 and FPEL 6

7.26. Pre-qualification proposals should explain the corporate structure that is intended to be used by the proponent in relation to financing, construction, ownership and operation of the generating system and holding of the FiT entitlement. This should include an explanation of which entities will play which roles, their relationship to each other, and the details of and extent to which the proponent intends to engage contractors to implement the various aspects of its proposal. Proposals should also identify the ultimate holding company of a proponent, if a proponent is a wholly owned subsidiary company.

7.27. Where a proponent intends to rely on the expertise or capabilities of its owners or other specific persons to any extent, whether contractors or personnel engaged as, or to be engaged as employees, details of those persons, their experience and capability, and the roles they will play in implementing the proposal must be specified in the Final Proposal Form.

7.28. These criteria replicate the criteria for stage 1 proposals. Proponents should confirm the details of their stage 1 proposals (including by reference to the earlier proposal if convenient) in relation to these criteria and add any further details which they consider will support their proposals when assessed against the stage 2 evaluation criteria.

FPEL 7 Details of plant and equipment.

Discussion of FPEL7

7.29. Final proposals must include detailed explanations of the plant and equipment that will be used in the generating system, including any generation or distribution/transmission assets that are required to facilitate the connection of the system to the electricity network.

7.30. Details must also be provided of any works that will be required to be undertaken in relation to the existing electricity network to facilitate the connection.

7.31. This information replicates some of the information sought at stage 1 however it is expected that a greater degree of detail and certainty is expected to be committed to in final proposals submitted at stage 2.

7.32. Proponents are expected to have undertaken detailed investigations into the process of obtaining planning and environmental approvals and establishing electricity network connections and be at an advanced stage of resolving these matters.

7.33. Commitments and claims made in a final stage proposal will form the basis of conditions that will apply to the grant of a FiT entitlement to successful proponents. It is therefore essential that the plant and equipment details provided are final and not subject to the resolution of significant technology, regulatory, environmental or other matters.

FPEL 8 Commitment to achieving key milestones within specified timeframes.

Discussion of FPEL8

7.34. A proposal at final proposal stage must provide a schedule for, and a commitment to achieving each of the milestones within a specified timeframe as set out in the Final Proposal Form.

7.35. Dates for milestones set out in the Final Proposal Form must be specific, representing a commitment to completion by that date. Proponents should note that it will be made a condition of a FiT entitlement that a proponent meets the timeframes specified in their proposals, subject external factors that could not be reasonably anticipated such as extreme environmental events.

7.36. It is mandatory for all proponents to specify a Completion Date for a proposal. This is the date by which the construction of the proponent's proposed generating system is proposed to be completed and the system supplying eligible electricity to the electricity network. The 20 year term of a successful proponent's FiT entitlement will commence on the proponent's Completion Date.

Final proposal evaluation criteria (FPEV)

FPEV 1 Demonstrated understanding of legal and regulatory environment that will impact project completion.

Discussion of FPEV1

7.37. Proponents must demonstrate that they have access to professional resources to facilitate compliance with the National Electricity Law and National Electricity Rules, and an appreciation of the extent to which they apply to their proposal, as well as local and national planning and development laws relevant to their proposal.

7.38. An evaluation will be undertaken of a proposal to determine the extent of the risk that a proposal fails to take account of the complex legal and regulatory framework in which the proposal will be implemented. Proposals which indicate an appreciation of the national and ACT legal and regulatory environment and which take account of this in their timelines, and which provide sufficiently in their budgets for obtaining the professional assistance required in this regard, will be assessed as lower risk.

7.39. Proponents should provide details of their arrangements for selling electricity. Evidence of the proponent's prior participation in the electricity market or of the advice that the proponent has taken from electricity market experts should be provided. If the proponent intends to sell electricity to a market participant then the proponent should provide details and evidence of these arrangements including any pricing agreements. Proponents should note, as appropriate, that regardless of any commercial arrangements entered into for the sale of electricity, the Act requires that the value of electricity sales will be determined with reference to the National Electricity (spot) Market.

7.40. Proponents should provide evidence of their investigations and applications for all development approvals and environmental impact statements as required by Territory and Commonwealth regulatory authorities and set out any matters that have been or will be the subject of any further investigation or mitigation. Proponents will be expected to have these investigations and approvals at an advanced stage and not have any significant matters, such that may impact achieving development approval in a timely manner, unresolved.

FPEV 2 Access to funds and commercial viability of the proponent and the proposal.

Discussion of FPEV2

7.41. Proponents must be able to demonstrate that they have, or will have the funds to implement the proposal in accordance with their implementation timelines, and that the proposal will be commercially viable. Evidence that a proponent has access to, or will have access to, the funds required to implement the proposal will be required. Financial risk assessments may be undertaken to evaluate the likelihood that a proposal will not be successfully implemented, or on time, because of a failure to obtain the required funds or because a proponent's budget has not reasonably demonstrated that the proposal can be implemented within the range of costs and revenues forecast by the proponent.

7.42. It is acknowledged that a high degree of commercial judgement is required to establish an appropriate budget for a large solar generation project and the Minister expects that capable and experienced proponents, and their financiers, will be in the best position to make those commercial judgements. Proponents are required to demonstrate that they have undertaken comprehensive financial planning in respect of a proposal so as to limit the likelihood that a proposal will not be successfully implemented. An assessment may be undertaken of a proponent's financial analysis and budget in order to establish the extent to which such analysis may be flawed or unreasonable.

7.43. Proposals which demonstrate that highly detailed and credible financial planning has been undertaken by a proponent which is not unreasonable in its projections and assumptions, which takes account of all likely costs and makes contingencies for relevant risks will be assessed favourably.

7.44. Proposals which evidence a high degree of support and/or commitment from financial institutions and financially viable investors will be assessed favourably.

7.45. Proponents should outline their response to the evaluation criteria in the Final Proposal Form and provide as attachments documents that provide evidence of their claims.

FPEV 3 Capacity to maximise NEM sales earnings.

Discussion of FPEV3

7.46. Successful proponents will be awarded a FiT on the basis of a value of money assessment by the Minister and with regard to advice provided by the Solar Auction Advisory Panel. This will include a consideration of both the FiT price offer, and the proposals performance against eligibility and evaluation criteria. This means that successful proposals may not be the lowest priced. It also means that price will be a key consideration in the evaluation process.

7.47. The structure of the proposed FiT arrangements under the Act provide benefits for the Territory in relation to the extent to which electricity produced by the generator is sent out at peak times and therefore attracts the highest prices in the NEM. Proposals that actively seek to optimize the volume of electricity dispatched at peak times will be considered favourably.

7.48. All proponents must address the extent to which their proposal seeks to optimise the NEM sales value of electricity sent out in the Final Proposal Form.

FPEV 4 Realistic and timely implementation schedule.

Discussion of FPEV4

7.49. Proponents must demonstrate that their implementation schedule is reasonable and realistic in light of the nature, size and complexity of the proposal. Proposals will be assessed favourably that involve timely implementation of a proposal provided that the timeline schedule is not considered by the Minister to be unrealistic.

7.50. Proponents should carefully consider their proposed implementation schedule. Execution of the project in accordance with the schedule will be a condition of the FiT entitlement. Failure to complete a project by the specified Completion Date could result in cancellation of an entitlement. The proposed schedule should be realistic and achievable. Justification of the time proposed to achieve each milestone should be provided.

7.51. Projects that are able to demonstrate a realistic implementation schedule will be considered more favourably.

7.52. The Territory has a strong interest in the timely completion of projects. Projects that do not have substantial delays to commencement will be considered favourably.

8. General terms and conditions for participation in the auction

8.1. The following further terms and conditions for participation apply to proponents and proposals in addition to any terms and conditions provided for in the guidelines, or elsewhere in this Request for Proposal.

Obtaining approvals

8.2. In order to implement proposals, proponents will be required to obtain approvals, licences and authorisations from a range of Commonwealth and Territory government agencies.

8.3. It is a strict condition of participation in the auction that proponents take full responsibility for ensuring that their proposals, including proposed timelines, take account of the potential delays that may occur in obtaining such approvals, licences and authorisations.

8.4. Obligations to comply with conditions of a FiT entitlement are strict obligations. Failure to comply with a condition may result in termination of a FiT entitlement regardless of whether such failure was caused by the proponent or was due to the act, omission or fault of another person, including such government agencies.

No warranties or representations arise from evaluation of a proposal

8.5. In making a favourable assessment of a proposal, the Minister makes no warranty or representation about the prospects of successful implementation of a proposal.

Clarifications and requests for further information

8.6. Despite any other requirement or condition in the guidelines or this Request for Proposals, a proponent may be required to submit additional information to clarify its proposal and enable proper consideration of the proposal.

8.7. The Minister and the Advisory Panel are under no obligation to seek clarifying or other information from a proponent. If a proponent fails to submit information as part of its proposal, or fails to respond to a request to provide further clarifying information within the time stipulated in a request, including this Request for Proposals, then the Minister may evaluate that proposal in the absence of such information, taking into account the risks that arise in respect of the proposal without having such information.

Late submission of proposals

8.8. Proposals submitted after the relevant closing date may be admitted to evaluation at the sole discretion of the Advisory Panel. In deciding whether to admit the late submission of a proposal the Panel may take account of matters including but not limited to:

- whether the proponent is likely to have obtained some unfair advantage by the late submission;
- how late the submission is and the reason for its lateness;
- whether the proposal documentation was mishandled by the Territory or by an official postal service or reputable delivery agent; and
- evidence of unfair practices.

8.9. The Advisory Panel may reject any additional information supplied in respect of a proposal after the closing date which in the Panel's opinion provides more than mere clarification of the proposal and which would give the proponent an unfair advantage were the additional information to be admitted.

Authority to seek further information

8.10. By submitting a proposal a proponent:

- authorises the Territory and its authorised agents to seek further information about and enquire into the proponent's (or its owners) financial position and any claims made in a proposal regarding its or its owners', employees', or contractors', capability and experience; and
- acknowledges that the provision and receipt of information by the Territory to or from any other Territory, State or Commonwealth government agency for the purpose stated above is a communication in circumstances of qualified privilege and the proponent shall have no claim against the Territory in defamation or otherwise in respect of any matter arising out of the provision or receipt of such information.

Ineligible proposals

8.11. A proposal that is at variance with or does not respond to or does not fully comply with any requirement of the guidelines or this Request for Proposals, including the stage 1 or stage 2 proposal eligibility criteria, or which is incomplete or illegible, may be deemed to be ineligible.

8.12. The Minister, may in the Minister's absolute discretion, in respect of a proposal that is ineligible or which has been deemed to be ineligible:

- reject and not consider the proposal further;
- ignore any aspect of the proposal which makes it ineligible and proceed to evaluate the proposal against the further applicable criteria; or
- if it is possible to correct the ineligible aspect of the proposal without affecting the probity of the auction, permit the proponent to do so.

Addenda

8.13. Addenda to the Request for Proposals may be issued with the Minister's approval prior to the closing date for the purposes of clarifying the meaning of documents or requirements or to notify proponents of any amendments to the Request for Proposals.

8.14. This Request for Proposals may be revised and re-issued at the Minister's discretion in which case a revised version will be made available to registered auction participants by email. Information on how to register is set out in section 9 of this document.

8.15. Proponents are responsible for ensuring that any addenda are taken into account in their proposals.

Ownership of proposal documents

8.16. All proposals, including all copies submitted in accordance with the Request for Proposals and any attachments, become the property of the Territory, which may use them for assessment purposes. The Territory will not return proposals or the media on which they are contained (nor copies) to proponents.

8.17. As between the Territory and Proponents, Proponents will retain ownership of all intellectual property rights in their proposals (subject to any other person's rights).

8.18. Proponents authorise the Territory and its agents to reproduce, use and supply the proposals for any purpose relating to the assessment of proposals. This includes the authority to provide copies of proposals to third parties engaged by the Territory to provide advice and assistance in relation to the assessment of proposals and to permit those persons to make such copies as are reasonably necessary for such purpose.

8.19. Proponents must ensure that they have obtained the necessary permissions to grant the above authority to the Territory, including from any persons who may have moral rights in respect of a proposal.

Price basis, English language and metric units

8.20. All costs and prices stated in a proposal (including the sought after FiT) must be in Australian dollars and exclude GST, where applicable. The Territory will not accept proposals which contain costs and prices that are subject to variation due to fluctuations in currency exchange rates. Proponents are required to accept the risk of fluctuations in currency exchange rates.

8.21. Proposals and all communications with the Territory must be in English.

8.22. All dimensions and units on plans and drawings and all references to measurements must be in metric units.

Confidentiality

8.23. Proponents must specify in writing any information they believe is confidential in relation to their proposal or which they may wish to be treated as confidential and must specify the basis on which such confidential treatment is requested.

8.24. Proponents should be aware that:

- the Territory may be required to disclose information, either under the *Freedom of Information Act 1989* , by the Minister in the Legislative Assembly or its committees or to the ombudsman or for a purpose in relation to the protection of public revenue;
- Information in Parts A of both the Pre-qualification and Final Proposal Forms may, at the Minister's discretion, be disclosed, for reporting or other purposes.

Costs of preparing and submitting proposals

8.25. The Territory will make no payment to a proponent, or any other person:

- for any costs, losses or expenses incurred by a proponent in preparing its proposal or in participating in this auction; or
- in respect of any discussions, negotiations, enquires or requests for details or information made by or on behalf of the Territory after the submission of proposals; or
- for any work undertaken by any proponent after its proposal is submitted including work requested by the Territory.

Conflicts of interest or collusion

8.26. A proponent with a conflict of interest or potential conflict of interest must disclose the conflict of interest to the Territory at the time of submission of a proposal or if the conflict of interest or a risk of a conflict of interest arises after submission of a proposal and prior to the completion of the auction process, immediately disclose that conflict of interest to the Territory.

8.27. If the Advisory Panel or the Minister, upon becoming aware of a conflict of interest, or a potential conflict of interest arising in respect of a proposal, consider that such conflict is likely to give rise to an unfair advantage to a proponent, or a reasonable perception of an unfair advantage, then the Advisory Panel or the Minister as the case may be, may direct a proponent to take such action as it considers appropriate to address the conflict.

8.28. If in the Minister's opinion, there is no practical means by which the conflict or perceived conflict can be adequately addressed, the Minister may exclude such proposal from further consideration.

8.29. In submitting a proposal, a proponent represents and warrants that:

- the proponent has no knowledge of the Feed-in Tariff being proposed by any other proponent, nor any knowledge of the costs or prices making up the basis for such proponent's proposal;
- except as disclosed in its proposal, the proposal has not been prepared with any consultation, communication, contract, arrangement or understanding with any other person intending to submit a proposal;
- the proponent has not otherwise engaged in any collusion, anti-competitive conduct or any other similar conduct in relation to the preparation of its proposal which may potentially impact on effective competition being in place between each and every proponent in this auction; and
- the proponent is not a related entity of any other proponent.

8.30. The Advisory Panel or the Minister may, if satisfied that there has been a contravention of this section by a proponent, exclude such proponent's proposal from further consideration in the auction.

Insurance

8.31. In addition to insurance which a proponent may be required by law to have in effect (for example workers' compensation), a successful proponent will be required to take out and maintain for the term of entitlement public liability insurance (and/or other insurances as may be required) in an amount satisfactory to the Minister to reflect the nature and the size of the risks applicable to a proposal.

8.32. Proponents must provide the Minister with evidence of such insurance upon request by the Minister made at any time during the term of the FiT entitlement.

9. Registering and Lodging a proposal

Registration

9.1. A proponent will be required to register to participate in the auction prior to lodging a proposal. On registration a proponent will be provided with this (and associated) auction documents including addenda.

9.2. To be registered, proponents must send an email to SolarAuction@act.gov.act detailing the name of the proponent and at least 2 contract names, as well as phone, email and mailing address contact details.

Proposal documentation

9.3. At pre-qualification stage, proponents are required to submit a Pre-qualification Form, including attachments specified in that form, which addresses the pre-qualification eligibility and evaluation criteria.

9.4. At final proposal stage, proponents are required to submit a Final Proposal Form, including attachments specified in that form, which addresses the final proposal eligibility and evaluation criteria.

Lodging a proposal

9.5. Proponents should submit one signed original hard copy of their proposal and a complete electronic version of their proposal on CD/DVD in a PDF format. In the event of any discrepancy between any copy and the original, the original of the relevant proposal takes precedence.

9.6. The electronic version must contain all proposal documents including attachments. Failure to provide a complete electronic copy of the proposal may render the proposal invalid.

9.7. Pre-qualification and final proposals are to be in plain envelopes, wrapping or package and be clearly marked on the outside with the RFP description and the date and time for closing of proposals.

9.8. Prequalification proposals should be lodged before 4:30 pm on Thursday 5 April 2012.

9.9. The date for lodgement of fast track and regular track final proposals will be confirmed when prequalified proponents are requested to submit final proposals. Indicative timeframes for submissions are provided in Table 2 on page 13

9.10. Tenders must be either posted or hand delivered by the closing time and date to:

The Tender Box
Ground Floor North Building
Dame Pattie Menzies House
16 Challis Street
DICKSON ACT 2602

9.11. Confirmation of receipt a proposals will be issued by email within 20 working days of the closing date for that proposal.

9.12. Proposals lodged after the relevant closing time and date will be opened and registered separately and may be admitted to evaluation at the absolute discretion of the Panel and in accordance with section 8.8 above.

9.13. All enquiries in relation to this RFT must be directed in writing to the following email address:

SolarAuction@act.gov.act

9.14. Below is a list of actions and/or information that Tenderers should review prior to submitting their Tender.

- ☐ Signed original submitted including all required documents and attachments
- ☐ CD or DVD submitted with pdf copies of all documents including attachments
- ☐ Completed and signed Statutory Declaration
- ☐ Package has been correctly labelling

10. Definitions

10.1. Terms used in this Request for Proposals have the same meaning as in *the Act* unless the context provides otherwise.

10.2. In this Request for Proposals:

Act means the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011*.

ActewAGL Distribution means the joint venture between ACTEW Distribution Limited ACN 073 025 224 and Jemena Networks (ACT) Pty Ltd providing electricity distribution services in relation to the electricity network in the ACT.

AEMO means Australian Energy Market Operator Limited (ACN 072 010 327).

AER means the Australian Energy Regulator which is established under section 44AE of the *Competition and Consumer Act 2010 (Cth)*.

Auction means the competitive process established by the guidelines under the Act.

Criteria means the *evaluation criteria* and the *eligibility criteria*[1].

Completion Date means the date by which the construction of a FiT holder's generating system will be completed and the system supplying eligible electricity to the electricity network.

Deed of entitlement means the Deed with the Territory which successful proponents will be required to enter into as a condition of receiving FiT Support Payments.

Determination means the *FiT Capacity Release Determination* made by the Minister dated [ ] in respect of which FiT entitlements are made available in this auction.

DNSP or *Distribution Network Service Provider* has the same meaning as that in the *National Electricity Rules.*

Eligibility criteria means the *proponent eligibility criteria*, the *stage 1 proposal eligibility criteria* and the *stage 2 proposal eligibility criteria.*

Eligible electricity has the same meaning as in the Act.

ESD Director-General means the Director-General of the Environment and Sustainable Development Directorate, or their delegate.

[1] For an overview see the Summary of Criteria at section 4.

ESD Large-scale Auction Secretariat means the administrative support team within ESDD which has responsibility for administration of the auction.

ESDD means the Environment and Sustainable Development Directorate of the ACT Government

Evaluation criteria means the *stage 1 evaluation criteria* and the *stage 2 evaluation criteria*.

FiT or *Feed-in tariff* has the same meaning as in the Act.

FiT capacity release means the making available of 40MW of the *FiT scheme capacity* for this auction under the Determination.

FiT entitlement has the same meaning as in the Act.

FiT scheme capacity has the same meaning as in the Act.

FiT support payment has the same meaning as in the Act.

Generating system has the same meaning as in the Act.

Generating unit has the same meaning as in the Act.

ICRC means the ACT Independent Competition and Regulatory Commission which is established under section 5 of the *Independent Competition and Regulatory Commission Act 1997*.

Large-scale Solar Auction Advisory Panel means an advisory panel established to advise and make recommendations to the Minister in respect of the grant of FiT entitlements pursuant to the auction established by these guidelines.

Large-scale Solar Scheme means the scheme established under the Act.

Large Renewable Energy Generator has the same meaning as in the Act.

LGC or *large-scale generation certificate* means a large scale generation certificate created under the *Renewable Energy (Electricity) Act 2000* (Cth).

LRET Scheme or *Large-scale Renewable Energy Target Scheme* means the scheme of this name established under the *Renewable Energy (Electricity) Act 2000* (Cth)

MW means one megawatt, the unit of electrical power.

MWh means one megawatt hour of electricity, the unit of electrical energy.

NEM or *National Electricity Market* means the National Electricity Market established under the National Electricity Law.

National Electricity Law means the National Electricity Law set out in the schedule to the *National Electricity (South Australia) Act 1996 (SA)* and applied as a law of the Australian Capital Territory by the *Electricity (National Scheme) Act 1997.*

National Electricity Rules means the national electricity rules established under the *National Electricity Law.*

Proponent means a person who has submitted a proposal, or intends to submit a proposal, to receive FiT support payments in the auction established under the guidelines.

Proponent eligibility criteria means the criteria which a proponent must meet in order to be eligible to be considered for the grant of a FiT entitlement.

Proposal means a proposal submitted in the auction to receive FiT support payments, and where the context admits, includes all matters relating to the proponent relevant to criteria. This may mean both a prequalification and final proposal, unless otherwise specified.

Person means a legal person, and includes a company.

Related entity of another entity (the "primary entity") means an entity that is, in the Minister's opinion, an entity that is controlled by, or capable of being controlled by the primary entity, or by the same person or persons that control the primary entity.

Request for Proposals or RFP means this document, including all attachments and amendments.

Stage 1 evaluation criteria means the evaluation criteria against which proposals will be assessed at stage 1.

Stage 1 proposal eligibility criteria means the criteria that a stage 1 proposal must satisfy at stage 1 in order to be eligible to be considered for pre-qualification.

Stage 2 proposal eligibility criteria means the criteria which a proposal must meet at stage 2 in order to be eligible to be considered against the stage 2 evaluation criteria and for the grant of a FiT entitlement.

Stage 2 evaluation criteria means the criteria against which the merit of a proposal will be assessed at stage 2.

Successful proponent means a proponent the subject of a grant of a FiT entitlement by the Minister pursuant to the auction.

Terms and conditions of participation means the terms and conditions of the guidelines and the Request for Proposals which govern the auction process and which all proponents must agree to and comply with as a condition of participating in the auction.

ACT or *Australian Capital Territory* means the region of the Australian Capital Territory in a geographical sense.

Government means the Government of the ACT.

Minister means the Minister for Environment and Sustainable Development, or their delegate.

Territory means the body politic established by section 7 of the *Australian Capital Territory (Self-Government) Act 1988* (Cth).

ACT Solar Auction Review

SUMMARY REPORT

ACT Government, Environment and Sustainable Development Directorate | October 2013





SINCLAIR KNIGHT MERZ

SKM

ACT Solar Auction Review – Summary Report

Document title:	ACT Solar Auction Review - Summary Report
Version:	Final
Date:	October 2013
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LIMITATION STATEMENT

The sole purpose of this report and the associated services performed by Sinclair Knight Merz ("SKM") is to undertake a review of the ACT Solar Auction in accordance with the scope of services set out in the contract between SKM and the ACT Government. That scope of services, as described in this report, was developed with the ACT Government.

In preparing this report, SKM has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the ACT Government and/or from other sources. Except as otherwise stated in the report, SKM has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

SKM derived the data in this report from information sourced from the ACT Government (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. SKM has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by SKM for use of any part of this report in any other context.

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Contents

Introduction

The *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the Electricity Feed-in Act) was passed on 8 December 2011, enabling the Minister to grant Feed-in-Tariffs (FiT) to large-scale renewable energy generators for up to 210MW of generation capacity. On 6 January 2012, the Minister made 40MW of capacity available by competitive process, giving rise to the ACT Large-scale Solar Auction (Solar Auction) and a Request for Proposals (RFP) was issued. The Solar Auction Secretariat (the Secretariat) was established within the Environment and Sustainable Development Directorate (ESDD) to manage the Solar Auction process.

The Solar Auction process is now complete, with three proposals being granted a FiT entitlement:

- Fotowatio Renewable Ventures' (FRV) 20MW Royalla Solar Farm
- Zhenfa's 13MW Mugga Lane Solar Park
- Elementus Energy Pty Limited's 7MW OneSun Capital Solar Farm

The Secretariat engaged Sinclair Knight Merz (SKM) to conduct a Review of the Solar Auction to assess its efficiency and effectiveness in achieving value-for-money outcomes, and the potential for the process to be scaled up and / or applied to other types of renewable energy generators. This report provides a summary of the findings of the Review. A more detailed technical companion report (confidential) was also prepared for the ACT Government.

Review methodology

The approach to Review was consistent with the requirements of the Electricity Feed-in Act, Terms of Reference set by the Government, and the *ACT Government Evaluation Policy and Guidelines*. The program evaluation framework is provided in Figure 1.

The Review was informed by:

- Desktop research
- Online survey developed and distributed to all Solar Auction proponents (ten proponents completed the survey)
- Interviews (in person and via phone) with representatives of: four industry proponents; five of the expert technical and financial consultants responsible for reviewing proposals; Land Development Agency, Economic Development Directorate (EDD); ACT Planning and Land Authority (ACTPLA); Chief Minister and Treasury and Directorate; Secretariat; ActewAGL Distribution; and the Minister for the Environment and Sustainable Development

A comparison was also conducted with other schemes in Australia (Solar Flagships Program, Regional Australia's Renewables-Industry Program, and Sunshine Coast Council Solar Farm) and overseas schemes (Californian Renewable Auction Mechanism in the USA, Non Fossil Fuel Obligation in the UK, and Stromeinspeisungsgesetz in Germany).

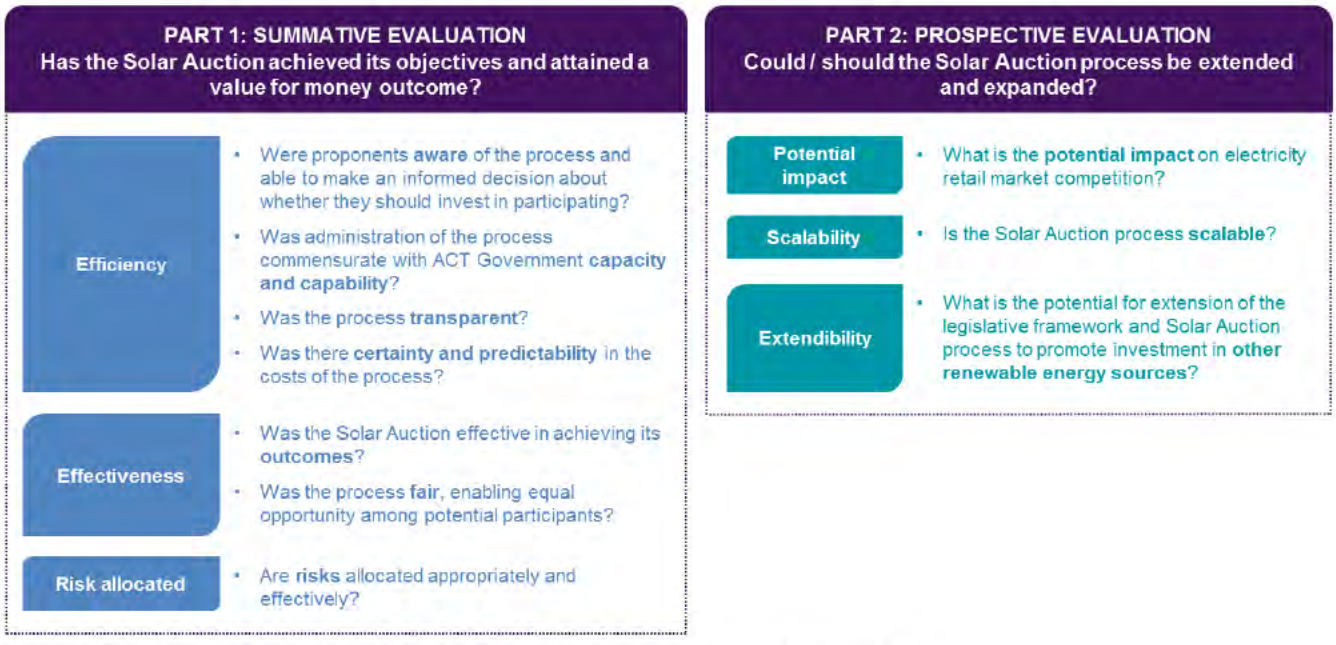

Figure 1: Solar Auction evaluation framework

Description of the Solar Auction

The Solar Auction supports the implementation of Climate Change Action Plan 2 (AP2)[1] – the ACT's climate change strategy – and the achievement of its legislated greenhouse gas (GHG) reduction targets as illustrated in **Error! Reference source not ound.**.

The Solar Auction process was managed by the Secretariat, with an Advisory Panel of independent industry advisors established to assess and recommend proposals to the Minister. Technical and financial consultants were engaged to assist the Advisory Panel to review, verify, and analyse information provided by proponents. Other key stakeholders critical to the success of the Solar Auction process included ACTPLA, EDD, and ActewAGL Distribution.

The Solar Auction process comprised three key stages:

- **Stage 1 prequalification:** proponents had approximately two months to prepare their prequalification proposals and the assessment was focused on proposal eligibility and risk, and proponent capability and experience. FiT prices were not considered at this stage.
- **Stage 2 fast-track stream:** proponents could self-nominate for the fast-track stream, which required them to submit their final proposal within four weeks after completion of Stage 1.
- **Stage 2 regular stream:** all prequalified proponents could submit a proposal in regular stream (including those who were unsuccessfully in fast-track), which required proposals to be submitted within eleven months after completion of Stage 1. Additional criteria to discourage requests for financial guarantees were introduced in regular stream.

At each stage, proposals were to be developed in accordance with the requirements of the RFP and templates / forms provided by the ACT Government. Proposals were reviewed against eligibility criteria by the Secretariat, and against evaluation criteria by contracted consultants. Following these reviews, the Advisory Panel assessed the proposals and gave them a weighted score against each of the evaluation criteria, and compared these scores (in Stage 2) to the proposed FiT rates. Based on this assessment, they then recommended proposals for further consideration and / or grant of FiT entitlement by the Minister.

ACT Climate Change and Greenhouse Gas Emission Framework

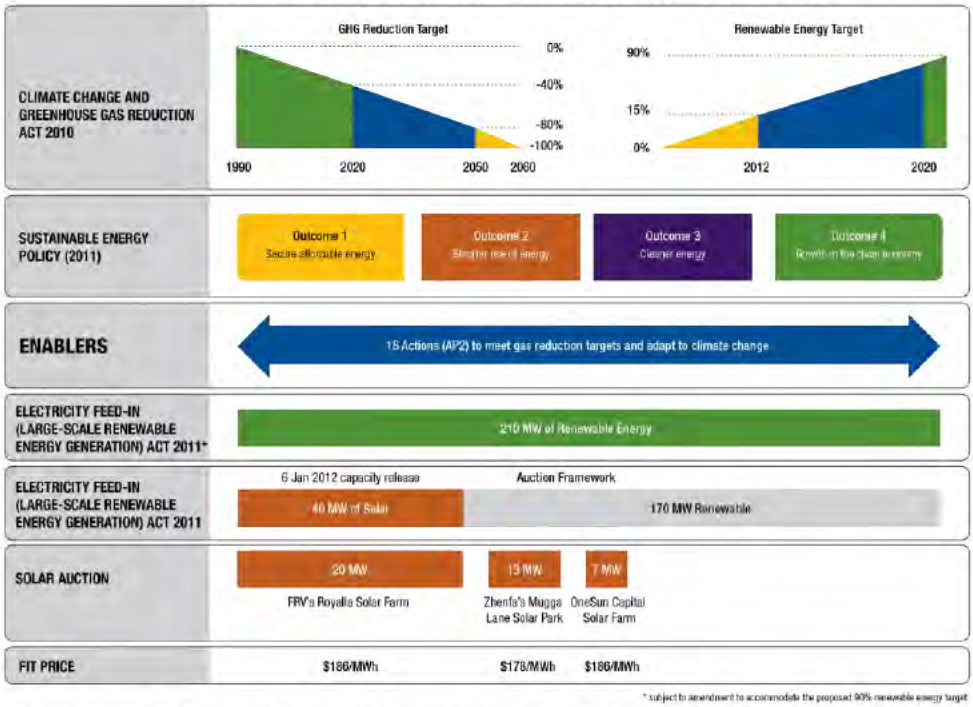

Figure 2: ACT Climate Change and Greenhouse Gas Reduction Legislative Framework

[1] Australian Capital Territory (2012), *AP2: a new climate change strategy and action plan for the Australian Capital Territory,* Environment and Sustainable Development Directorate, Canberra.

Summative evaluation

The purpose of the summative evaluation is to assess the impacts and achievements of the Solar Auction process and to determine whether a value for money outcome has been attained (ie a retrospective review of the process).

Efficiency

Were proponents aware of the process and able to make an informed decision about whether they should invest in participating?

Overall, proponents had a high level of awareness of the process, commenting that it was well promoted and that sufficient information was available and accessible in order to make their investment decision.

Most efficient

The Solar Auction was well promoted, which was reflected in feedback from the proponent survey and interview results. Proponents stated that they had a high level of awareness of the process leading up to its announcement and that they perceived strong government commitment to the process and associated legislation. Some proponents had even invested in preliminary work in anticipation of the capacity release.

Least efficient

Communicating the extent and type of information required of proponents to demonstrate appropriate compliance with eligibility and evaluation criteria was a challenge for the Solar Auction process. Some proponents also had difficulty in understanding the process for engaging with other stakeholders involved in the Solar Auction (eg ActewAGL Distribution, ACTPLA).

Overall, the quality of proposals was considered to be high, representing considerable investment by proponents in the process. However Advisory Panel members and consultants also commented that the quality and extent of information provided by proponents varied greatly in some instances. Common areas of variance or errors were:

- No consideration of de-rating (AC-DC conversion) in proposal calculations
- Not including appropriate due diligence reports in order to demonstrate project feasibility
- Poor consideration of local requirements, particularly in relation to cost estimates
- High level budgets that did not enable thorough interrogation of the cost estimates
- Little explanation on the arrangements for raising capital at the proposed rates of return

Was administration of the process commensurate with ACT Government capacity and capability?

Administration of the process was commensurate with ACT Government capacity and capability, with the Secretariat engaging consultants and independent advisors (Advisory Panel) to fill any potential capability gaps. However administration could be further improved by closer engagement and planning with the agencies / organisations responsible for administering the land and network connection arrangements.

Most efficient

Proponent feedback on the Solar Secretariat's administration of the process was unanimously positive, with many proponents commenting on the high quality of documentation provided and minimal variance from the original timelines. The Secretariat's capacity and capability was further supported and complemented by the establishment of the Advisory Panel and appointment of technical and financial consultants.

Least efficient

The most critical gap in capacity related to government agencies and organisations indirectly involved in the process, particularly with regards to administering the land and network connection arrangements. The demand upon their services and resources resulting from the Solar Auction exceeded expectations and appropriate arrangements were not implemented in some cases. Consequently, some proponents perceived processes regarding these two aspects of the Solar Auction as difficult, complex, and costly.

Earlier involvement of the financial advisor would have also benefited the process, particularly in setting more specific financial criteria and identifying the type and format of information to be requested (eg pro forma excel spreadsheet, sensitivity analyses etc).

Was the process transparent?

The process was conducted in a transparent way, with no undue advantage provided to any proponents. Greater transparency could be achieved by making the weightings placed upon each evaluation criterion public with the release of the RFP.

Most efficient

Information provided to proponents was consistent and did not provide undue advantage to any proponents. Strict probity requirements were enforced throughout the process, with the Solar Secretariat coordinating and communicating with each of the relevant parties in accordance with the established protocols throughout the RFP process. Feedback provided by proponents agreed the combination of RFP documents and industry briefing provided detailed and clear information on the process.

Least efficient

Proponents and consultants both stated that the lack of information about the weighting placed upon each evaluation criterion was a significant problem. It meant that they were unclear where to focus their efforts (in preparing and evaluating proposals), and caused some proponents to question the transparency of the process.

Some concern was also expressed regarding the introduction of the financial guarantee mechanism after the completion of Stage 2 fast-track stream, as there was a perception that this may have altered the approach proponents took in preparing their proposals.

Was there certainty and predictability in the costs of the process?

The ACT Government and proponents bared the major costs involved in implementing the process, and these costs generally met budget and investment planning expectations. However organisations indirectly involved in the process (through their role in supporting land and network connection arrangements) were relatively unprepared for the impact on their resources.

Most efficient

Indicative costs of the process show that the Secretariat and proponent costs were reasonably certain and predictable, particularly in the cases where proponents had strong local knowledge (proponent views on the cost to participate varied greatly, with 50% stating that the costs were similar or better than other schemes, and 40% stating that they were worse or much worse). The requirement for proponents to invest significantly in bid preparation was implemented to ensure only strong and committed proponents came forward.

Least efficient

There were significant costs involved in the process for ActewAGL Distribution and LDA, placing additional burden upon their resources which had not been appropriately forecast. The additional risks and costs associated with this may have been avoided with greater engagement, collaboration, and planning.

Effectiveness

Was the Solar Auction effective in achieving its outcomes?

The Solar Auction effectively achieved all of its outcomes, resulting in a competitive process that provided the ACT Government with a number of high quality proposals to select from that offered relatively low FiT rates (thus providing value for money).

Most effective

A summary of SKM's analysis of performance against expected outcomes [2] is outlined below, reporting that the Solar Auction has achieved its outcomes:

- **Up to 40MW of large-scale solar energy generating capacity within the ACT – *achieved.*** Projects representing a total of 40MW of generating capacity have been granted entitlements through the Solar Auction.
- **At least 2 winning proposals – *achieved.*** There were 3 winning proposals – 20MW Royalla Solar Farm, 13MW Mugga Lane Solar Park, and 7MW OneSun Capital Solar Farm.
- **Best value for money for the Territory – *achieved.*** FiT rates proposed ranged from $178/MWh to $325/MWh, with the weighted average FiT rate dropping from $252/MWh in the fast-track stream to $203/MWh in the regular stream. The three proposals selected

[2] As defined in the Industry Briefing (10 February 2012)

had relatively low FiT rates ($178/MWh, $186/MWh, $186/MWh) and relatively high weighted scores when assessed against the evaluation criteria.

There were also other proposals that offered value for money for the Territory (but had slightly higher FiT rates or slightly lower weighted scores), which indicates that the process resulted in strong competition.

- **Revenue certainty for bidders with strong incentive to build to proposed project timelines – *achieved.*** Proponents interviewed and surveyed perceived a strong government commitment to the scheme. Major risks (eg financial) associated with not building to proposed project timelines will fall on the proponent, so they have a strong incentive to meet their timelines. Government mostly faces political risk (ie reputational damage) if timelines are not met. Also, volume (level of production) and technical risks are borne by the proponent (and not the government as in other subsidy based schemes) under the FiT arrangement, so they have an incentive to appropriately manage the technical risks.
- **Approximately 2% of total ACT electricity consumption – *achieved.*** The proposed solar energy generation capacity is capable of producing approximately 60 GWh per annum. Based on 2013 consumption value of 2,900 GWh[3] this reflects 2.1% of ACT electricity consumption.
- **Around 14% of minimum ACT electricity demand – *likely to be achieved based on average demand data.*** Based on average ACT MW demand, the 40MW of capacity would contribute approximately 12% of average demand. As minimum demand would be lower than the average, it is likely that the percentage contribution would exceed 14%.

Much of the Solar Auction's success in achieving its outcomes was due to its effectiveness in:

- Generating strong competition among proponents and resulting in highly competitive FiT rates
- Applying and weighting evaluation criteria focused on feasible and realistic project development
- Utilising the Advisory Panel, which had members with experience and expertise highly relevant to the critical aspects of proposal evaluation

Feedback from proponents, Advisory Panel members, and consultants indicated that the Solar Auction resulted in a very competitive process. Analysis of the proponents identified a mixture of strong local and international companies bidding, and an overall generally high quality of proposals to select from. Subsequent to announcement of the fast-track stream, the quality and financial competitiveness of proposals increased again, with lower FiT rates being offered. The signalling to the market from the fast-track appears to have contributed to the delivery of more consistent and more competitive bidding by the proponents.

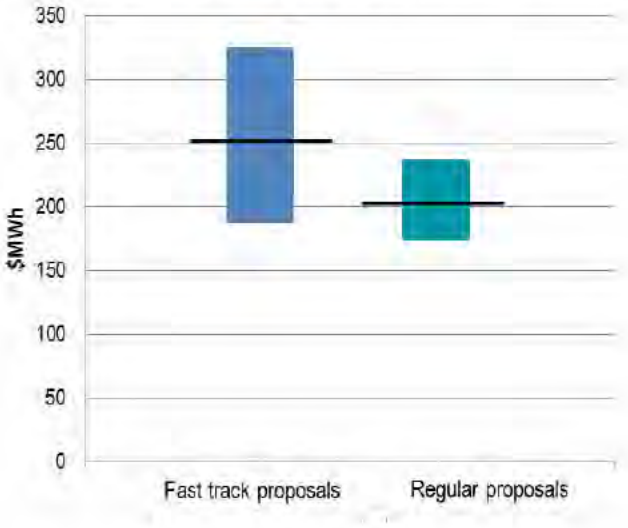

Figure 3: Range and average FiT rates proposed in Stage 2

Least effective

As FiT payments are only given for actual performance, there is a strong incentive to obtain an understanding of the legal and regulatory requirements – however, subsequent to the granting of the successful bids, there have been some issues arising from development approvals at sites due to local opposition.

Most of the consultants involved with reviewing proposals stated that their ability to inform the Advisory Panel would have been improved if they had more engagement with the Secretariat, Advisory Panel, and each other. However, of the assessments reviewed, the ratings reported by the Advisory Panel appear to have been generally consistent with the advice provided by consultants.

[3] ActewAGL; AER

Was the process fair, enabling equal opportunity among potential participants?

The process enabled equal opportunity among potential proponents, noting that its requirements (demonstrated through the evaluation and eligibility criteria) were high due to the relatively large scale and long timeframe associated with the potential developments.

Most effective

The process attracted a strong response from industry, with 49 proposals being submitted by 27 proponents at Stage 1. Twenty-seven proposals prequalified to apply for Stage 2 (fast-track and / or regular streams), with three proposals proving successful in receiving the FiT entitlement.

While most stakeholders stated that a fast-track and regular stream were not necessary for future auction processes, they did comment that it was important for the "pilot" process as it enabled proponents to refine their market understanding of competition, understand what was expected by the ACT Government, and then reapply accordingly in the regular stream if they were unsuccessful in the fast-track stream.

Least effective

The requirements of the bid process may have deterred smaller entities from incurring the cost of putting in a bid. The cost of preparing a legitimate bid is likely to be high and affect the financial viability of smaller companies if their bids did not succeed.

Were risks appropriately allocated among the parties involved?

Risks have been appropriately allocated among the parties involved, with the ACT Government's key risks limited to those that are political / reputational in nature, and the proponent bearing greater risks associated with delays or failures in delivery the project.

The risk allocation was reviewed against standard industry practice (based upon power purchase agreement models) for completeness. The formal risk allocation between the parties is documented in the Deeds between the successful proponents and the ACT Government[4], the Electricity Feed-in Act, and in the payment agreements with ActewAGL Distribution.

Most effective

The risk allocations proposed by the ACT Government were in line with general industry practice and mitigated risks to the ACT Government associated with delivery of the project as proposed by the proponents. Furthermore, the obligations on the developer were not considered excessively onerous or detrimental to the competitiveness of the Solar Auction.

Least effective

Based on the review of documents against standard industry practice, SKM identified four key commercial risks:

- **Project development** – As the counter-party with the revenue payment obligation, the distributor may have a disincentive to cooperate with and connect the generator ahead of its other uses of resources. This is a risk to project development and the auction process which has not been adequately addressed. Some protection is provided by the obligations placed on the distributor by regulatory codes governing network service operators. But ensuring adequate connection agreements are entered into which encourages the distributor to maintain connection could become an evaluation criterion (say by aligning payments to performance), although possibly at the expense of reducing the number of bids.
- **Revenue security** – There is a lack of clarity in payment details, which reduces the generator's security of revenue This could be addressed through the development of guidelines as provided for under the Electricity Feed-in Act, however there is uncertainty for proponents regarding the details of the potential guidelines (refer Act ss18-20).
- **Force majeure** – The limited scope of the force majeure clause may restrict its operation as it is not clearly open to events other than those listed, even in cases where the events are outside a proponent's reasonable control (refer Draft Deed ss17.13(a) and 17.14).
- **Change in law** – Change in law is only available as relief similar to force majeure. It is not available in the usual manner to pass-through a change in cost structure due to a change in law (refer Draft Deed s17.13(b)).

[4] SKM reviewed the Draft Deed of Entitlement

Conclusion – has the Solar Auction achieved its objectives and attained a value for money outcome?

Alignment with the objectives of the Act

A summary of the Solar Auction's contribution to and alignment with the objectives of the Electricity Feed-in Act is provided as follows:

- **Promote the establishment of large-scale facilities for the generation of electricity from a range of renewable energy sources in the Australian capital region – *partially achieved.*** As the first release of capacity under the Act, the Solar Auction has focused solely on the establishment of solar energy generation. Thus, while it has made a substantial and significant contribution to this objective, it has not delivered generation from "a range" of renewable energy sources.
- **Promote the development of the renewable energy generation industry in the ACT and Australia consistent with the development of a national electricity market – *achieved.*** Has brought new players to the ACT and Australia, with industry stating confidence in the ACT Government's renewable energy commitment and policy.

  It may be possible to generate additional benefits through future capacity releases through greater engagement with the Business Development agency and by seeking clearer information from proponents about the proportion, volume, and scale of worked to be carried out locally.
- **Reduce the ACT's contribution to greenhouse gas emissions and help achieve targets to reduce the ACT's greenhouse gas emissions – *achieved.*** LGCs to be transferred (voluntarily surrendered) to the ACT as part of the FiT entitlement conditions. Around 1.2 million tonnes of GHG abatement could be achieved over 20 years from the 40MW of generation capacity developed under the Solar Auction, especially if the solar generation displaces coal-fired generation.[5]
- **Address the need for urgent action to be taken to reduce reliance on non-renewable energy sources while minimising the cost to electricity consumers – *achieved.*** The proposed projects offer the ability to displace non-renewable energy and the cost to consumers has been minimised through a competitive process which resulted in relatively low FiT rates. Impact of the costs upon consumers is minimised due to the long timeframe of the FiT entitlement (20 years).

Value for money evaluation

The value for money evaluation completed by the Advisory Panel was based on: (a) the proposed FiT rate; and (b) the ability of the proponents to successfully deliver and operate the projects. Criteria used to assess the ability of proponents to deliver the project are:

- FPEV 1 – Demonstrate understanding of legal and regulatory environment that will impact the successful implementation of the proposal;
- FPEV 2 – Access to funds and commercial viability of the proponent and the proposal
- FPEV 3 – Capacity to maximise National Electricity Market (NEM) sales
- FPEV 4 – Realistic and timely implementation schedule
- FPEV 5 – Proposal financial guarantee (only applicable in the regular stream)

These criteria were given a score out of 10 and then weighted to provide a final value, which was compared with the proposed FiT rate. The Advisory Panel's weightings for the evaluation criteria are provided in the table below.

Table 1: Weighting for evaluation criteria

	FPEV 1	FPEV 2	FPEV 3	FPEV 4	FPEV 5
Fast-track	30%	50%	10%	10%	NA
Regular stream	27%	45%	9%	9%	10 %

These weightings align with the critical aspects of development, allocating 80% of the weighting to regulatory (FPEV 1) and funding/commercial capability (FPEV 2) in the fast-track stream, and 72% in the regular stream. Good capability and management of these two criteria will also assist with achieving FPEV 3 and FPEV 4. Although it should be noted if the weightings were equal the relative outcomes/scores for the successful proposals would still be similar.

[5] ACT Government. This assumes an average emission intensity of grid supplied electricity of around 1.0 t/MWh. The level of abatement may be lower if the displaced emission intensity is lower

While the above criteria were important, strong consideration was also given to the FiT value. This was demonstrated by proposals offering the lowest FiT rates being among the successful proposals in the fast-track and regular streams, even though other proposals had similar or slightly higher evaluation criteria scores.

The other aspect of value for money is how the FiT achieved in the Solar Auction compares with other solar projects announced in Australia. Two benchmarks were examined, and based on standard equity/debt parameters and capacity, energy and cost information released to the public, their equivalent FiT or levelised cost of energy (LCOE) would be in the order of:

- Greenough Solar Farm (10 MW) ,WA – LCOE – $240/MWh
- AGL Nyngan/Broken Hill Solar farm[6] (153 MW), NSW – LCOE – $180/MWh[7]

In comparison to these two projects, the FiT achieved in the Solar Auction process is very competitive and represents the lower end of current expected costs within Australia.

From the information presented it would appear that value for money has been obtained. This is based on three considerations:

- Low FiT offers were selected
- Successful projects had high scores against each of the evaluation criteria
- The FiT values obtained are likely to be lower than external benchmarks from other solar projects recently built or that have been announced.

While the long term value for money cannot be clearly evaluated as none of the projects have yet been completed and operated successfully in the NEM, the criteria included in the assessment (that try to capture long term viability as well as constructability of the project) coupled with the FiT, is likely to see the Solar Auction process deliver good value for money for the ACT Government from solar PV generation.

[6] This project has received significant Government funding from the Office of Energy, Royalties for Regions Program through the WA Department of Regional Development and Lands, and Mid West Regional Development Commission

[7] The scale of these projects would help with economies of scale and hence lower costs/MWh

Prospective evaluation

The purpose of the prospective evaluation is to assess the Solar Auction's expected impact and its potential to be scaled up and / or extended to other types of renewable energy generation.

What is the potential impact on electricity market competition?

The scheme could impact on two electricity markets, being the wholesale and retail markets.

Wholesale market

The most relevant wholesale market would be the NSW wholesale market of the NEM. At the sizes being considered, and even if the scheme expands to the existing 210 MW FiT capacity in the legislation[8], it is expected to have no to minimal impact on competition. This is largely due to the scale of the NSW wholesale market, which is in the order of 14,000 MW peak generation and 8,000 MW average generation.

Retail market

In terms of retail competition, the structure of the FiT, and the allocation of the liable party being ActewAGL Distribution, the scheme should not impact on retail contestability. The FiT cost should be passed onto all customers by ActewAGL Distribution, in a similar way to a network tariff. It is estimated that with the current three projects the increase in residential bills may be in the order of 1 %[9] to cover the cost of the FiT and may increase to 5-6[10] % by 2020 under a hypothetical scenario of 210 MW of predominantly solar capacity being developed.[11]

No retailer is disadvantaged from offering in a project / proposal to the process and there would appear to be no advantage gained in the current projects by any retailer.

[8] Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011

[9] Assumes 7750 kWh per household, annual ACT demand of 3000 GWh in 2013/2014 ActewAGL retail prices, wholesale price of electricity $50/MWh

[10] Assumes flat growth to 2020 in demand, lower carbon price, wholesale price of electricity of $50/MWh

[11] AP2 estimates a total retail price increase of 16% to achieve 690 MW of large-scale renewables based on a blend of solar, wind and biomass energy generation.

Is the Solar Auction process scalable?

The general Solar Auction framework is open to expanding to other technologies. However the existing Act has a 210 MW limit of which 40 MW has already been allocated, so this would need to be significantly increased to allow for 90% renewable energy as foreshadowed in AP2. Furthermore, distributors would need to be more engaged in any scaling up of the Solar Auction, particularly where outcomes may be impacted by network capacity constraints in the ACT or Australian Capital Region. Opening the process to developments being located in the Australian Capital Region (rather than only within the ACT as was the case for the Solar Auction) will also be important to address land availability issues, particularly for larger scale developments like wind energy.

There is some advantage to spread the future auctions over time to capture potential cost de-escalations of technologies, although this needs to be balanced by short term market opportunities as they emerge.[12] In the case of solar, capital cost reductions are likely to continue[13] and hence a delay in implementation may see further reduction in costs and lower FiT outcomes (ie lower cost to ACT electricity customers).

Alignment with policy and legislation

The Solar Auction appears to be complementary to other greenhouse or renewable deployment policies. There is some uncertainty over whether future project proponents could also obtain funding under the Coalition's proposed Emission Reduction Fund, although the intent of this fund is to support additional abatement opportunities (that is, abatement that would not have occurred in absence of the fund) so we would expect minimal double dipping would be allowed.

Use of financial guarantees

Industry and investor confidence in renewable energy project development in Australia has been somewhat weakened by the "start-stop" nature of a number of government schemes. Longevity of the reverse auction process is likely to improve this, and many proponents stated that the outcomes of the Solar Auction so far have significantly improved negative perceptions of Australia's renewable energy market.

The use of financial guarantees or other loan measures to support greater and faster private sector investment in clean energy is not uncommon. For instance, the US Department of Energy has established the Loan Programs Office to administer loans which help proponents and lenders mitigate the financing risks associated with clean energy projects.[14] These programs have received mixed reviews due to a number of failed projects, particularly associated with clean energy start-ups and less established technologies, and the US Department of Energy now has a $34 billion portfolio of loan guarantees to renewable and nuclear energy, with about 2% of the portfolio representing losses.

However the Financial Guarantee offered by the ACT applies only to a change in law and there is no liability for the ACT Government associated with failure of proponents to successfully implement a project.

While the use of financial guarantees appears an important factor in proponents' considerations at this point in time to enable them to gain investor confidence, this may change once projects are built and operating, and much larger proponents potentially purchase and aggregate projects to reduce risk and increase diversity across their renewable energy portfolio.

What is the potential for extension of the legislative framework and Solar Auction process to promote investment in other renewable energy sources?

Expansion to other technologies should be possible, although it would be beneficial to explore the potential of each technology type prior to expanding the auction to any specific technology. This is to avoid the potential of an ineffective process costing time, money and damaging confidence. The framework should enable expanding of the auction, particularly to wind[15] and solar, which are supported by relatively established technology.

However, it should be noted that this type of auction lends itself to already developed technologies with minimal technical risks. This is because financiers

[12] For example, recently costs of wind turbines have been subdued due to high exchange rates and depressed markets for turbine manufacturers

[13] Modelling indicates a 2% reduction per annum in solar capital cost could be expected and if the remainder of the capacity was spread over the period to 2020 would reflect a FiT in the order of $160/MWh

[14] US Department of Energy, "About the Loan Programs Office (LPO)", http://lpo.energy.gov/about/

[15] It is understood that an analysis of wind potential in the Australian capital region has been performed.

supporting renewable energy projects face two sorts of risks:

- **Capital cost risk** – in developing a project based on novel technologies. This can be covered under the FiT arrangements if proponents were able to grant other sources of concessional funding (say through government grants) to cover upfront costs.
- **Volume risk** – the FiT locks in the price paid for the output but does not lock in the volume of generation. For new technologies, the volume of generation may not be as high as anticipated and this poses a significant risk to the anticipated revenue streams.

Wind

While there is no doubt that including wind farms into the mix will reduce the FiT cost, the available wind resource, connection issues, and land availability / visual amenity impacts may limit the size and number of wind farms. A typical large scale wind farm (ie 100-200 MW) is likely to have an LCOE less than $100/MWh. Smaller scale wind projects impacted by poor economies of scale and added cost such that their LCOE may exceed $100/MWh, is still likely to be less than solar projects at least in the short term (ie next 5 years).

Key considerations in regard to wind projects include:

- Adjusting the evaluation criteria (eg capacity to maximise NEM sales will be limited based on site layout and design, legal and regulatory requirements may become more important due to greater environmental and community requirements)
- Larger scale of projects may require proponents to access the financial guarantee (eg 100-200MW project may require up to $400m in capital)
- Synchrony of wind and solar project outputs, as this may reduce the variability of overall renewable generation

Other

Capacity would need to be set aside for less established technologies like biomass (based on pyrolysis or fluidised bed technologies), solar thermal, and geothermal, as they are unlikely to be able to compete with more established technologies due to the associated costs and risks. This also means it is likely to be more difficult to obtain finance for these projects. To mitigate some of this risk, the evaluation criteria would need to include a greater focus on technical due diligence and project plans should incorporate technology-focused milestones. But the nature of FiT payments means that projects with significant technical risks would be unlikely to participate in the auctions without supplementary financial support (potentially through existing Commonwealth funding opportunities).

Biomass (energy-from-waste) is seen as relatively feasible, particularly if it is large scale (as this will improve pricing) and the location / source of fuel is known, although there are still some technical risks associated with new generation technologies such as gasification.

Recommendations

Recommendation 1: Amend the Territory Plan to consider renewable energy developments in accordance with future releases of capacity

Although the definition of development for Power Generation Station was recently changed to allow for renewable energy generation, the Territory Plan has not specifically been updated to consider renewable energy developments within zone development tables, development codes and precinct plans and codes, so should be reviewed to enable more certainty around land use and availability for proponents and potentially affected communities. This review may result in a draft plan variation to amend the Territory Plan.

The type of variation required will depend on the specifications of the future capacity releases (ie type and location of development). A draft plan variation is prepared by ESDD and published for public comment. It can take 12 to 18 months to complete and requires Legislative Assembly approval.

Recommendation 2: More broadly communicate the separation between the grant of FiT entitlement and project development approval stages

Communication regarding the phases involved in a proponent developing renewable energy generation capacity in the ACT should be clarified to improve the public's understanding of the whole process (from competing for the grant of FiT entitlement to building and operating the developments). This is also important to communicate to proponents so that they are fully aware of the potential risk of their project not proceeding if it cannot obtain development approval. The process should be presented as comprising two stages:

- **Grant of FiT entitlement** – is the proposal constructible, economic and feasible, and does it offer value for money?
- **Development approval process** – is the site suitable for the proposed development?

These two stages are clearly presented as separate in the RFP and Deed of Entitlement documents, but this could be more broadly and openly communicated.

Recommendation 3: Undertake a more collaborative planning phase prior to future releases of capacity

All affected stakeholders could be more engaged in the planning phase for future releases of capacity. Strong engagement with these stakeholders will help to better prepare for and address any implications, risks, and challenges involved in developing renewable energy generation capacity in the ACT. It will also assist them to gain a clearer understanding of the likely budget and resource impact that implementation of future processes may have on their respective organisations.

The mechanism to undertake collaborative planning should be the establishment of an Advisory Working Group that works with the Solar Secretariat to provide advice (no decision making power) regarding issues like land and network planning, financial guarantees etc. The Advisory Working Group should include representatives from EDD, ACTPLA, ActewAGL Distribution, and the Chief Minister's and Treasury Directorate

Recommendation 4: Incorporate lessons from the Solar Auction into future evaluation design

There are a number of lessons from the Solar Auction which should be incorporated into evaluation design to improve its clarity and robustness. These include:

- Share the weightings assigned to each evaluation criterion with proponents and consultants
- Provide more detail on what evidence is required to demonstrate fulfilment of each evaluation criterion to improve the overall quality of proposals and help proponents make a more informed decision about investing in the process
- Greater guidance and coordination given to the consultants to increase the effectiveness, transparency, and consistency of proposal evaluation

Recommendation 5: Strengthen program design to support the ACT and Australia renewable energy industry development objective

While many of the proponents (including the successful proponents) have partnering strategies that include large numbers of local firms and staff, future program design should seek to require proponents to demonstrate the proportion, volume, and scale of work to be carried out locally and advantage proposals that deliver greater local economic development benefits.

Recommendation 6: Clarify payment agreement details to provide more confidence for proponents

Payment agreement details are to be negotiated between the generator and distributor. There is little detail provided on how these will work, which means that proponents take on more commercial risk when compared to other schemes and initiatives.

If not already specified, we recommend that the following be specified for payments by the distributor, to reduce ambiguity and potential for the distributor to dispute the payment:

- Acceptable methods for giving the notice for payment
- Addressee for the notice for payment
- Information required to be included with the notice (refer to technical report for details)
- Above numerical information be provided in a Microsoft Excel 2010 file

Concerning matters of payment, we recommend a prompt and binding dispute resolution process be implemented rather than the court system. For example, the Australian Energy Regulator's wholesale electricity market dispute resolution advisor could be used.

Recommendation 7: Refine *Force Majeure and Change of Law* clause in the Deed of Entitlement

In the Draft Deed of Entitlement, the *Force Majeure and Change of Law* clause (ss17.3 and 17.14) is unreasonably limited, which could make project financing unnecessarily difficult for proponents or deter them from bidding.

The clause should be better structured to capture a reasonable exemption for the generator from performing its obligations under conditions of force majeure. We recommend seeking legal advice to draft improved clauses incorporating solutions to the issues raised in the risk allocation section.

BRIEF

ACT Government
Environment and Sustainable Development

UNCLASSIFIED

Objective File No 13/21758
Rec'd Minister's Office 28 OCT 2013

To:	Minister for the Environment and Sustainable Development
From:	Director-General 25/10/13. Deputy Director-General, Planning Executive Director, Policy 23.10.13
Subject:	Solar Auction Review and Renewable Energy Local Investment Framework

Recommendation

That you:

- **Note** the outcomes of the *ACT Solar Auction Review* (Attachments A and B) and ESDD's suggested actions in relation to the Review's recommendations (Attachment C);
- **Agree** to ESDD having minor amendments to the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the Act) at Attachment D drafted for Cabinet consideration;
- **Agree** that the *Renewable Energy Local Investment Framework* (Attachment E) be taken to Cabinet as part of your proposal for future capacity releases under the Act; and
- **Agree** to amendments to the Act (Option A in Attachment F) that would allow generators outside of the Australian Capital Region (ACR) to receive FiT support under exceptional circumstances.

Critical Date:

1 November 2013 – for Cabinet consideration of future renewable energy capacity releases in February 2014.

Background

You have previously indicated your intention to advise Cabinet of the outcomes of the review of the Solar Auction and seek agreement to further renewable energy capacity releases (Brief 13/18202). That brief seeks to confirm aspects of that Submission which is currently under development.

Issues

Solar Auction Review

The Review of the Solar Auction has been completed by Sinclair Knight Mertz (SKM), culminating in two reports:

- *ACT Solar Auction Review Summary Report* – Intended for public release following Cabinet Consideration (Attachment A)
- *ACT Solar Auction Review Technical Companion Report* – Intended for Cabinet Consideration but not for public release (Attachment B)

The review concludes that the Solar Auction process has been generally efficient and effective in achieving the objects of the Act and this is reflected in positive industry feedback. The review

Performance Assessment

DUE DATE: ...../...../..... **DATE RECEIVED:**...../...../.....

SATISFACTORY ☐ **UNSATISFACTORY** ☐

According to criteria specified in *ACT Government Policy Performance Measures*

Signature .... / ..../....

concluded that the Solar Auction generated strong competition and that demonstrated value for money was achieved.

Recommendations made by SKM focus on refining and clarifying processes around proposal assessment, land access and development approvals. The review reaffirms the need to offer Treasury Financial Guarantees to proponents to mitigate perceived sovereign risk issues, but notes that this need may be reduced over time as banks gain more confidence in the scheme. The Review also recommended further work on local content provisions, to enhance local benefits arising from large-scale renewable energy investments. Attachment C provides comments and suggested actions by ESDD against each of the recommendations.

Legislative Amendments

AP2 and item 3.1 of the Labor-Greens Parliamentary Agreement requires that the Act be amended to ensure the total scheme capacity facilitates the 90% Renewable Energy Target by 2020. You have separately been briefed (13/17001) as to a methodological approach whereby the total scheme capacity would be increased from 210MW to 550MW. Attachment D sets out proposed amendments to the Act to give effect to this while also addressing outcomes of the Review and other matters arising through the Auction process.

Renewable Energy Local Investment Framework

A significant outcome of the Solar Auction is the decision by Zhenfa to locate a 15 person (as currently proposed) project design and administration office in the ACT. This has highlighted the potential for the ACT to leverage its proposed renewable energy investments, to position itself as a national hub for renewable energy innovation and investment. This links to the ACT Business Development Strategy which promotes the diversification of the ACT economy.

ESDD facilitated a workshop with staff from Economic Development Directorate and Regional Development Australia (through SERREE, South East Region of Renewable Energy Excellence) to develop a framework for promoting economic development in the ACT through further capacity releases. The outcome of this process is the *Renewable Energy Local Investment Framework* (Attachment E) which has been developed on the basis of the following agreed principles:

- The framework should align with the underlying strengths of the ACT as an investment destination. Primarily these are our highly skilled work-force, our strong research institutions and our proximity to renewable energy generation reference sites (wind, solar and potentially biomass);
- A flexible outcomes-focussed framework would allow for businesses to invest in a way that aligns with their strategic interests, thereby reducing costs and enhancing the prospects for investment to be sustained over time; and
- The framework should be explicitly referenced by proposal evaluation criteria set out in future capacity releases. This will ensure proponents actively engage with the framework and contribute to targeted local investment outcomes.

Eligibility of Generators outside of the ACR

You have requested advice on options to allow for the potential grant of a FiT entitlement to a generator located outside of the ACR, where significant direct benefits to the ACT could be demonstrated. An example of this may include the Coonooer Bridge Wind Farm project located North West of Bendigo, Victoria, which is jointly owned by Windlab Systems (a Canberra-based

company) and landholders neighbouring the project. Other examples may include developments relying on ACT-originated technology whose successful demonstration may have long-term employment benefits in the Territory.

Attachment F provides a summary of two options to address this issue. On balance ESDD sees risks with any such change with regard to adding administrative complexity and community acceptance. However, it may be appropriate to provide some flexibility under the Act for exceptional circumstances. ESDD recommends an approach (Option A of Attachment F) whereby the legislation is amended to allow you to grant an entitlement to a generator outside the ACR where exceptional circumstances existed. Based on this approach, a proposal would need to effectively outrank its competition on value for money *and* have significant local development benefits in order to be eligible. The approach would be outcomes-based and therefore provide some flexibility in its application.

Financial Implications
The Review was delivered on budget at a cost of $65,500.00.

Internal Consultation
Planning areas of ESDD, Chief Minister and Treasury Directorate and the Land Development Agency have been consulted through the Review. The Legislation Unit of ESDD and the Government Solicitors Office have been consulted on the proposed legislation amendments. Economic Development Directorate (InvestACT and Business Development Branch) and Commerce and Works (the Brand Canberra unit) were consulted on the development of the *Renewable Energy Local Investment Framework.*

External Consultation
Regional Development Australia (through SERREE) was consulted on the development of the *Renewable Energy Local Investment Framework.* ActewAGL Distribution participated in the Review.

Benefits/Sensitivities
The Review points to communication issues in relation to the announcement of the Solar Auction outcome, which have also been raised by Uriarra residents.

Media Implications
A communications strategy for the announcement of outcomes of the Review, legislation amendments and the Renewable Energy Local Investment Framework will be presented to Cabinet in conjunction with your Submission for the Review outcome and future capacity releases.

Jon Sibley
Senior Manager
Climate Change, Energy and Sustainability Policy
21 October 2013

Action Officer: Richard Bourne, Ext: 50828

AGREED/NOT AGREED/NOTED/DISCUSS

1 11 13

Simon Corbell MLA..... ..../..../....

Solar Auction Review

Consultant Terms of Reference

Environment and Sustainable Development Directorate

17 May 2013

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1. Background

1.1 Climate Change and Greenhouse Gas Reduction Act 2010

Through the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report in 2007, the international scientific community reported that in order to avoid the most catastrophic effects of climate change, the increase in average global temperature must not exceed 2°C. To achieve this, global greenhouse gas emissions must be reduced by at least 80% below 1990 levels by 2050. For industrialised economies, the main producers of greenhouse gas emissions, the proposed target is a 40% reduction by 2020.

Consistent with this finding, in November 2010 the ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* (GHGR Act), which established ACT emissions reduction targets of:

- Peaking per person greenhouse gas emissions by 2013;
- 40% below 1990 levels by 2020;
- 80% below 1990 levels by 2050; and
- Zero net greenhouse gas emissions by 2060

Under the GHGR Act, the Minister responsible for climate change must also:

- establish renewable energy targets for 2012 and 2020; and
- appoint a Climate Change Council to provide advice to the Minister on climate change matters

In 2011 the ACT established targets for the use of renewable energy of:

- at least 15 per cent by 2012; and
- at least 25 per cent by 2020.

When setting these targets, it was noted that the further development of the Government's climate change strategy would provide an opportunity for further consultation with the community on the potential to expand upon these targets.

1.2 The ACT Sustainable Energy Policy

In September 2011, the ACT Government released its first Sustainable Energy Policy. The purpose of the Policy was to establish an integrated policy framework for managing the social, economic and environment challenges faced by the Territory to 2020, as they relate to energy production and use.

The framework consists of four key targeted outcomes:

- Outcome one: secure and affordable energy
- Outcome two: smarter use of energy
- Outcome three: cleaner energy
- Outcome four: growth in the clean economy

Related to each outcome is a series of measures which underpin the Government's energy policy work program. These actions are generally framed at a strategic level rather than detailing specific program measures. Further details of specific measures, as they relate to greenhouse gas emissions abatement, were proposed and were to be progressed through the development of the ACT's climate change strategy.

1.3 Action Plan 2

Action Plan 2 (AP2), released in October 2012, sets out a strategic pathway to guide the Territory's strategy to meet our 2020 greenhouse gas reduction targets and adapt to climatic changes. It includes 18 Actions to progress AP2 to its first review point in 2015.

Community consultation undertaken for AP2 showed strong community support for increasing renewable energy consumption in the Territory. This was reinforced by modelling which showed that in order to meet a 40% GHG reduction target, the Territory would need to move to around 90% renewable energy by 2020. With the release of AP2, the Government committed to notifying a new renewable electricity consumption target of 90% renewables by 2020 (under the GHGR Act) and in 2013 to publish a methodology for accounting for renewable energy consumption and reporting against this target.

1.4 The framework of the ACT Solar Auction

In parallel to the development of AP2, the ACT Government progressed policies to promote investment in large-scale renewable energy generation.

In December 2011, the ACT Legislative Assembly passed the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the Act). The legislation provides for the development of up to 210 megawatts of large-scale (over 200kW) renewable energy generation capacity in the Australian Capital Region. Investment is stimulated through the grant of Feed-in Tariff (FiT) Entitlements to successful proponents. The FiT is paid by ActewAGL Distribution, which is then entitled to recover costs through their periodic distribution price determinations.

The Objects of the Act are:

A. promotion of the establishment of large-scale facilities for the generation of electricity from a range of renewable energy sources in the Australian Capital Region.
B. promotion of the development of the renewable energy industry in the ACT and Australia consistent with the development of a national electricity market.
C. reduction of the ACT contribution to greenhouse gas emissions and help achieve its greenhouse gas reduction targets.
D. addressing the need for urgent action to be taken to reduce reliance on non-renewable energy sources while minimising the cost to electricity consumers.

In order for the Minister to grant a FiT Entitlement, the Minister must first notify a *capacity release* under section 10 of the Act and in doing so establish conditions for the release. This notification is a Disallowable Instrument and can be disallowed by the Legislative Assembly.

In January 2012 the Minister notified the *Electricity Feed-in (Large-scale Renewable Energy Generation) FiT Capacity Release Determination 2012 (No 1)*. It was determined that:

- 40MW of the FiT capacity provided for under the Act be made available for the grant of FiT entitlements, by competitive process ('Solar Auction');
- any FiT entitlement that may be granted under this release will be for:
  a) a term of 20 years;
  b) solar energy generation; and
  c) large renewable energy generators located wholly within the Australian Capital Territory; and
- the minimum capacity of a large renewable energy generator's generating system in relation to which a FiT entitlement may be granted under this release being 2MW.

The Minister also released a Request for Proposals (RFP) in January 2012 to:

- outline and explain the requirements for the Solar Auction;
- establish further terms and conditions for participation in the Auction; and
- call for proposals for the construction and operation of large-scale solar generation facilities in the ACT by eligible entities seeking to be granted FiT entitlements under the Act.

Under the RFP, the evaluation of proposals was undertaken in two stages – a Prequalification stage (stage 1) and a Final Proposal stage (stage 2). Only those proponents whose proposals were successful at stage 1 were eligible to be invited to submit final detailed proposals at stage 2.

The RFP also established two separate evaluation streams – a *fast-track stream* and a *regular stream*. Proponents who elected to participate in the fast-track stream were expected to submit a Final Proposal at stage 2 within approximately two weeks after the completion of stage 1 (Prequalification). Proponents who required more time and elected to participate in the regular stream were given approximately 9 months after the completion of stage 1 to prepare and submit

Final Proposals at stage 2. Both the fast-track and regular streams commenced at the same time and went through the same stage 1 Prequalification assessment process. Proponents indicated in their stage 1 proposal whether they wished to participate in the fast-track or regular stream.

In the fast-track stream, up to 20MW of generation capacity was on offer for the grant of entitlements to successful proponents. 20MW was reserved for allocation in the regular stream, together with any remaining capacity not granted in the fast-track stream.

The design of the Auction also ensured that while a proponent could submit more than one proposal, no proponent could submit, nor be awarded, a total capacity greater than 20MW.

The RFP could be revised and re-issued at the Minister's discretion and a number of refinements were made at regular intervals as the Auction process progressed.

1.5 The outcomes of the ACT Solar Auction

The RFP attracted significant industry interest with around 150 people attending an industry briefing in February 2012. Forty nine prequalification proposals were received in April 2012 and 22 of these were prequalified. Of these, 10 proposals were subsequently submitted in the fast-track stream in June 2012.

On 5 September 2012 the Minister announced that FRV Royalla Solar Farm Pty Limited was the sole successful proponent in the fast-track stream for a 20MW proposal in the Royalla district in the south of Canberra. FRV's FiT price was $186/MWh.

On 16 April 2013 15 proposals were submitted for the regular stream and are currently being evaluated for the Minister's later consideration.

1.6 The requirement to review the Solar Auction

Subsection 22(1) of the Act requires that the Minister must review the Solar Auction FiT capacity release within 6 months after the last FiT Entitlement under the release is granted (Solar Auction Review). A further 6 months is allowed to table the review in the Legislative Assembly (Subsection 22(5)). Despite these timelines and subject to the timing of the last Grant of FiT Entitlement relating to the Auction, it is presently intended that the review be completed and available for tabling in December 2013 in order to expedite and inform policy development and the consideration of future capacity releases under the Act.

Subsection 22(2) of the Act establishes the following minimum matters to be considered in the Solar Auction Review:

a) Value-for-money outcomes; and
b) Evaluation of the process, including the administration of the process and its effectiveness in generating competition.

In addition to these matters, these Terms of Reference set out additional requirements for the Review, to inform future renewable energy policy development in the Territory.

A further review of the operation of the Act is required after 5 years to consider the continuing operation and implementation of renewable energy generation proposals and the cost impact on electricity consumers.

2. Objectives of the Solar Auction Review

The objectives of the Review are to:

1) Establish whether a value for money outcome has been attained
2) Evaluate the efficiency and effectiveness of the Solar Auction process, including (but not limited to):
    a. The effectiveness of the Solar Auction design in terms of:
        i. Stimulating industry participation
        ii. Stimulating quality proposals
        iii. Providing certainty to participants
    b. The efficiency and effectiveness of administrative processes.
    c. The effectiveness of a competitive process.
3) Evaluate the scalability of the Solar Auction process, including consideration of (but not limited to):
    a. The use of financial guarantees
    b. Impacts on the distributor (ActewAGL Distribution)
    c. Impacts on administration resources
4) Evaluate the potential for extension of the legislative framework and Solar Auction process to promote investment in other renewable energy sources, including hybrid fossil-renewable generation systems and wind energy generators.
5) Evaluate the appropriateness and effectiveness of risk assignment outcomes between proponents and the Territory.
6) Investigate the alignment of the process with the Objectives of the Act.
7) Assess any potential impacts on electricity retail market competition.
8) Provide recommendations as to the efficiency and effectiveness of future auction processes under the Act, including through process or legislative amendments.
9) Provide information that may be of future use to industry and policy makers in the ACT, nationally and internationally.
10) Examine how proponents gained access to government land through an auction process and opportunities to improve these arrangements in future auction processes.

3. Scope of the Review

The Review is expected to be informed by interviews with and feedback from relevant stakeholders. These include (but are not limited to):

- The Solar Auction Secretariat;
- ACT Government Directorates, in particular:
    - Environment and Sustainable Development Directorate;
    - Economic Development Directorate;
    - Chief Minister and Treasury Directorate;
- Solar Auction participants, including a representative sample of those who registered interest but did not lodge a proposal (protecting proponent confidentiality as appropriate);

- Solar Auction Advisory Panel members;
- Technical Consultancy Panel members;
- National and local energy market regulatory bodies (AER, AEMO and ICRC);
- ActewAGL Distribution;
- The Clean Energy Council; and
- The Minister for the Environment and Sustainable Development.

This qualitative research may be complemented by quantitative analysis of cost, competition and pricing outcomes. It is noted that paragraphs 8.24 to 8.26 of the RFP allow for the publication of an analysis of limited aspects of proposals, both successful and unsuccessful.

It is expected that the successful consultant will produce a comprehensive report framed in relation to the Objectives of the Solar Auction Review set out above. Depending on the scope and nature of material presented in the review, including confidentiality considerations, a Summary Report may be prepared (of no more than 40 pages) that the Minister may table in the Assembly to fulfil obligations under the Act. The substantive findings of the full Review and Summary Report must be the same.

The consultant must submit a project plan and consultation plan to ESDD for approval. The project plan will present how each of the Objectives of the Review will be achieved.

4. Project milestones

The following milestones have been determined, assuming a project commencement date of 1 August 2013. Any movement to this date will flow through to all Milestones.

Deliverable	Timing
Commence project	1 August 2013 approx
Submit final project plan and consultation plan (one week)	8 August 2013
Complete consultation (three weeks)	29 August 2013
Submit draft report (three weeks)	19 September 2013
Submit final report, as well as summary report if required (two weeks)	3 October 2013

AECOM

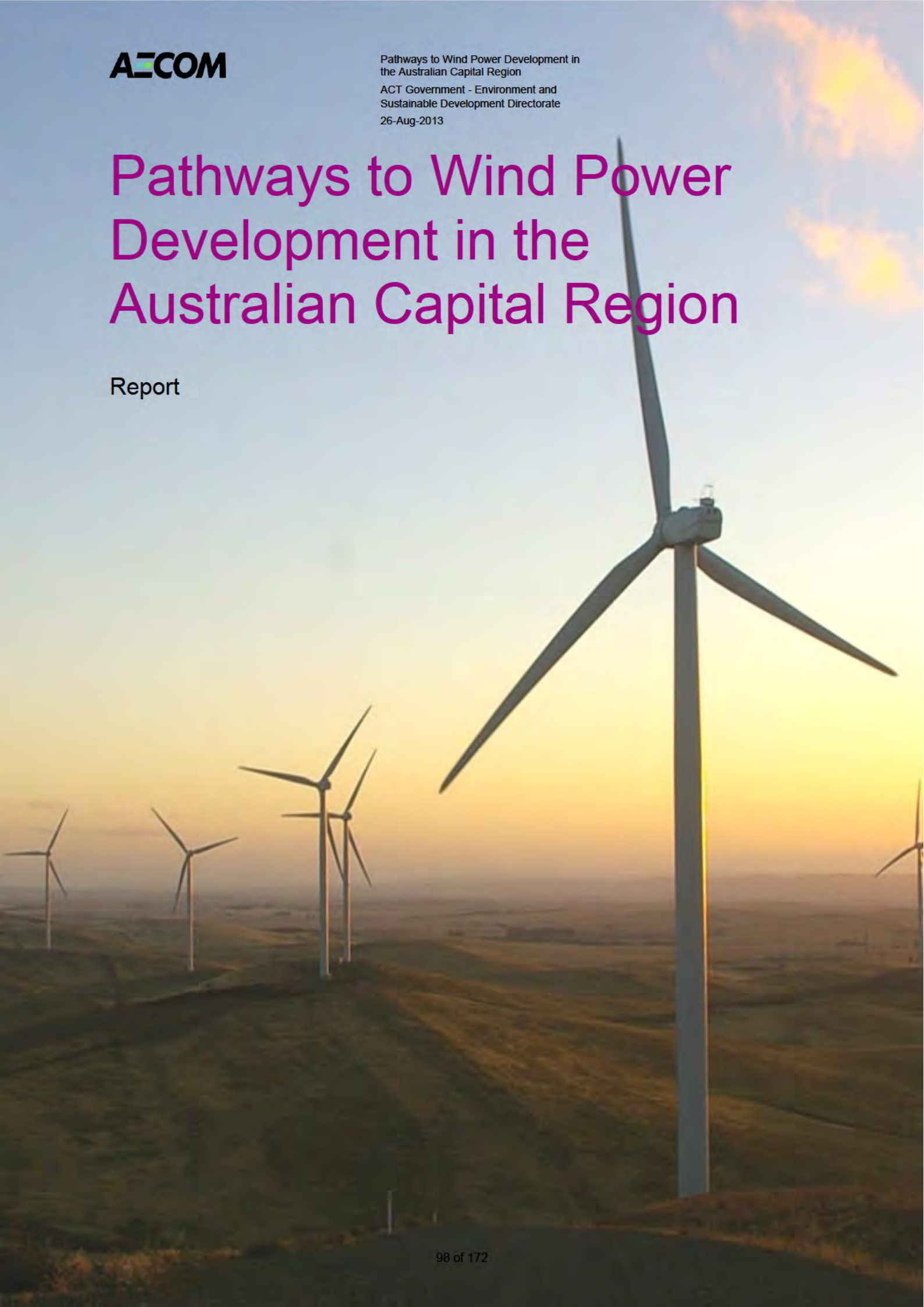
Pathways to Wind Power Development in the Australian Capital Region

ACT Government - Environment and Sustainable Development Directorate

26-Aug-2013

Pathways to Wind Power Development in the Australian Capital Region

Report



Pathways to Wind Power Development in the Australian Capital Region

Report

Client: ACT Government - Environment and Sustainable Development Directorate

Prepared by

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26-Aug-2013

Job No.: 60299897

AECOM in Australia and New Zealand is certified to the latest version of ISO9001, ISO14001, AS/NZS4801 and OHSAS18001.

Quality Information

Document Pathways to Wind Power Development in the Australian Capital Region

Ref 60299897

Date 26-Aug-2013

Prepared by Megan Aspinall

Reviewed by Don Webb, Guillaume Prudent-Richard

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	24-Jun-2013	DRAFT – for client review and comment	David Millar Technical Director	
1	9-Aug-2013	Final Report Issued to Client	David Millar Technical Director	
2	26-Aug-2013	Final Report – Amended	David Millar Technical Director	

Table of Contents

List of Acronyms

Acronym	Description
ACR	Australian Capital Region
ACT	Australian Capital Territory
AEMC	Australian Energy Market Commission
AP2	Action Plan 2
BoP	Balance of Plant
BREE	Australian Government Bureau of Resources and Energy Efficiency
CCA	Climate Change Authority
CPI	Consumer Price Index
DA	Development Approval
DECCW	New South Wales Department of Environment, Climate Change and Water
ESDD	ACT Environment and Sustainable Development Directorate
FRV	Fotowatio Renewable Ventures
FTE	Full Time Equivalent
GIS	Geographic Information System
LCOE	Levelised Cost of Energy
LGC	Large-scale Generation Certificates
LRET	Large-scale Renewable Energy Target
NDRC	The National Development and Reform Commission of China
NEM	National Energy Market
NFFO	Britain's Non-fossil Fuel Orders
NHMRC	The National Health and Medical Research Council
PPA	Power Purchase Agreement
PROINFA	Brazil's Programme of Incentives for Alternative Electricity Sources
PV	Photovoltaic
RET	Renewable Energy Target
RFP	Request for Proposal
RO	Renewable Obligation
SRES	Small-scale Renewable Energy Scheme
SSD	State Significant Development

Executive Summary

AECOM has been engaged by the ACT Government Environment and Sustainable Development Directorate (ESDD) to carry out an investigation into 'Pathways for the Development of Wind Energy in the Australian Capital Region'. This work is a part of the ACT Government's AP2 program that aims to reduce greenhouse gas emissions by 40% by 2020 and 80% 2050 in line with recommendations from the international scientific community. Energy generation is one of the key sectors targeted by the AP2 program and wind energy development is one of the most cost effective methods of reducing energy sector emissions. The ACT Government tabled the Electricity Feed-in (Large-scale Renewable Energy Generation) Act in 2011 with the aim of promoting large-scale renewable energy development in the ACR, and realising the renewable energy installation targets set out in the AP2 program. The AP2 program specifies a target of 583 MW of new wind energy generation to be developed in the Australian Capital Region (ACR) by 2020. This study will inform the ACT Government of the economic potential for wind energy in the ACR, highlight key risks and opportunities and advise of the suitability of a reverse auction Feed in Tariff (FIT) to encourage development.

AECOM undertook a high-level GIS analysis to estimate the quantity of commercially viable wind energy development in the ACR. The commercial viability of a wind energy development is dependent on a number of factors that have been incorporated as different layers in the analysis. The results of each layer were combined to identify what AECOM has termed Tier One and Tier Two regions for wind energy development in the ACR. From the analysis, it was estimated that an area of 3,376 km^2 in the ACR is suitable for Tier One wind farms, which is primarily located in the Upper Lachlan Shire and Goulburn Mulwaree Shire. AECOM has estimated the Tier One resource to be approximately 2,046 MW. It was also estimated than an area of 18,297 km^2 in the ACR is suitable for Tier Two wind farms. AECOM has estimated the Tier Two resource to be approximately 11,089 MW. Therefore, the total estimated wind energy capacity for Tier One sites and Tier Two sites is approximately 13,135 MW. Realisation of this wind energy potential is heavily dependent on network capacity, which is known to be an issue in the region. The key 330 kV connections between Yass and Lower Tumut/Upper Tumut, and Yass and Bannaby/Marulan have known capacity constraints. The 132 kV sub-transmission or distribution network is expected to have available capacity for the connection of generation facilities; however, connecting to this network is typically limited to medium and small scale wind farms. It is expected that with the existing grid infrastructure, the estimated wind energy capacity of 13,135 MW (Tier One and Tier Two) would not be fully achievable however an amount of approximately 2,200 MW should be achievable (between the transmission and distribution network) depending on the specific wind farm's characteristics such as capacity and grid connection location.

The Levelised Cost of Energy (LCOE) range for Tier One and Tier Two wind energy sites in the ACR was estimated during the analysis. The LCOE is expected to range from $74/MWh at the best Tier One sites down to around $98/MWh for the poorest Tier Two sites. There are a number of factors that influence LCOE estimates between projects. These estimates are in-line with recent wind energy generation off-take agreement prices, taking into account profit margin and risk allowances.

A market analysis was undertaken to estimate the quantity and size current operational wind farms in the ACR and wind farms in developments. It was found that:

- 5 wind farms are currently in operation in the ACR, amounting to approximately 270 MW
- 3 wind farms have received Development Approval and have previously secured a Power Purchase Agreement (PPA), amounting to approximately 550 MW
- 3 wind farms have received Development Approval and have not secured a Power Purchase Agreement (PPA), amounting to approximately 220 MW
- 8 wind farms are in active development, amounting to approximately 1500 MW

AECOM completed a review of international wind energy incentive mechanisms and consulted with industry participants to comment on the suitability of a reverse auction FIT for wind energy in the ACR. It was found that the key risks with employing a wind energy reserve auction FIT are the underbidding of proponents and projects not being delivered as promised. Industry participants emphasised to AECOM the importance to carefully structure the mechanism ensuring proponents and their projects are adequately reviewed prior to shortlisting and that adequate time is provided to allow proponents to submit quality bids. This will increase the chances of successfully delivered, value for money projects for the ACT Government.

Each stage of project development and execution was reviewed to estimate the lead time associated with wind energy developments. The key phases considered include resource assessment, Development Approval,

landowner negotiations, grid connection enquiries, financial negotiations, contracting, construction and commissioning. It was estimated that the complete process typically takes 6 years in Australia. Key factors that tend to vary considerably in time between projects include landowner negotiations, lengthy duration of the planning and approvals processes and grid connection easement negotiations.

AECOM undertook a review of the issues that may affect the ACT Government in securing cost effective outcomes with wind developments. The key issues include planning approval barriers and community acceptance in the ACR. A study commissioned in 2010 by the former DECCW, surveyed residents and businesses across NSW and found that wind power was seen as a clean energy source and widely regarded as acceptable for power generation by 81% of the population surveyed across the precincts. Research indicated that there was substantial support and backing for wind farms in NSW. However, the NSW Government cites the potential impact of wind farms on birds, bats and ridge top grasslands and woodlands in the ACR as issues of major concern in relation to wind farm development.

AECOM undertook an assessment of the likely variables that will impact on the optimal timing for investment between 2014 and 2020. For the ACT Government to obtain value for money investments, the optimum timing of a FIT within the ACR is dependent on a number of conflicting factors.

It is expected that upwards price pressure in the next few years may result from increased development under the RET; however, some policy uncertainty exists. Specific aspects include:

- potential reduction in available Tier One sites within the ACR from 2015 if they are constructed under the RET
- generally decreasing competitive tension during increased construction volumes under the RET, which may lead to higher prices

It is expected that downward price pressure may result from:

- improvements in turbine technology and energy yield
- industry developments
- new construction companies attracted into a more active market improving competition

The development of wind farms will have a direct impact on local employment. According to a Clean Energy Council report[1], it is estimated that during construction a 50MW wind farm project directly creates 48 local positions, and indirectly creates a further 112. A smaller number of jobs are created during operation. If 583 MW of new wind energy were constructed in the ACR, it is estimated that during construction approximately 550 local positions would be required, with another 1,300 indirectly. During operation, the above Clean Energy Council reports states that local/regional employment rates can be expected to be around 5 direct jobs and a total of 12 jobs for each 50 MW, totalling 140 positions for the planned 583 MW of new wind energy generation targeted to be developed in the Australian Capital Region (ACR) by 2020.

In summary, the analysis indicates that a reverse auction FIT mechanism for wind energy would result in a cost effective way to achieve the 583 MW wind energy target by 2020. Advice received from industry representatives confirms this finding. A reverse auction FIT held by mid-2014 for project(s) amounting to between 150 MW and 300 MW would most likely yield competitive FIT prices. This is due to the competitive wind energy market that currently exists. Considering the ACT Government's likely preference to spread the cost of the program over the period from 2014 to 2020, a multistage process with two or three streams is recommended.

The development of wind energy can bring significant benefits to the Australian Capital Region. The most significant benefits are environmental, due to the large offset of greenhouse gases emissions, and economic, due to the large investment and job creation in the area.

[1] Clean Energy Council – Benefits of Wind Energy in Australia 2012 www.cleanenergycouncil.org.au [viewed 17/06/2013]

1.0 Introduction

1.1 Project background

AECOM has been engaged by the ACT Government Environment and Sustainable Development Directorate (ESDD) to carry out an investigation into 'Pathways for the Development of Wind Energy in the Australian Capital Region'. This work is part of the ACT Government's AP2 program that aims to reduce greenhouse gas emissions by 40% by 2020 and 80% 2050 in line with recommendations from the international scientific community. Energy generation is one of the key sectors targeted by the AP2 program and wind energy development is one of the most cost effective methods of reducing energy sector emissions. The ACT Government tabled the Electricity Feed-in (Large-scale Renewable Energy Generation) Act in 2011 with the aim of promoting large-scale renewable energy development in the ACR and of realising the targets set out in the AP2 program.

In January 2012, the ACT Government issued a Request for Proposal (RFP) to support the development of up to 40 MW of large-scale solar generation in the ACT, under the Electricity Feed-in (Large-scale Renewable Energy Generation) Act. The ACT Government selected an auction scheme, whereby proponents bid for the Feed in Tariff (FIT) required to support their large-scale solar PV system. The ACT Government has awarded a 20 MW FIT to the fast track winner Fotowatio Renewable Ventures (FRV) for the Royalla project in the District of Tuggeranong. The winner(s) for the remaining 20 MW are expected to be announced in July 2013.

The AP2 program includes up to 583 MW of new wind energy generation to be developed in the Australian Capital Region (ACR) by 2020. This study aims to inform the ACT Government of the economic potential for wind energy in the ACR, highlight key risks and opportunities and advise of the suitability of a reverse auction FIT to encourage development. Figure 1 illustrates the boundaries of the ACR.

Refer to the Glossary and acronyms list for further definitions and explanations throughout the report.

1.2 Project scope

AECOM's study has focused on:

- Estimating the quantity of economic wind energy sites in each district of the ACR through a GIS mapping analysis
- Identifying operational wind farm sites in the ACR and wind farms currently under development
- Assessing the suitability of a reverse auction FIT to support large-scale wind energy development in the ACR, using the structure of the current Solar Auction as a benchmark
- Estimating the Levelised Cost of Electricity (LCOE) for wind farms in the ACR
- Providing guidance on expected lead times for wind energy developments in Australia
- Identifying planning, health and community processes that may impact on wind energy project development in the ACR
- Commenting on the optimal timing for wind farm investment between now and 2020
- Identifying economic development opportunities for the local businesses and the ACT as a product of the wind farm development in the ACR

The analysis undertaken throughout applies AECOM's industry experience, advice from wind energy industry representatives during the consultation process and publically available information.

1.3 Consultation with industry representatives

In undertaking the study, AECOM consulted with wind energy industry representatives to gain insight on a range of topics, including:

- Perceived wind resource and the status of current wind energy developments in the ACR
- Suitability of wind energy incentive mechanisms, particularly a reverse auction FIT
- Anticipated trends of wind energy project costs

AECOM consulted with members from the following companies and organisations:

- Infigen Energy
- Epuron
- Goldwind Australia
- REpower Australia
- ACCIONA Australia
- Wind Prospect
- Ratch Australia
- Clean Energy Council
- National Australia Bank

Common industry views have been incorporated in relevant sections throughout the report.

1.4 Limitations

The analysis completed is suitable for a high-level feasibility assessment. Key limitations include:

- The GIS mapping analysis is based on limited criteria and high level wind resource data and it should not be used as the basis for project site identification. The study does not incorporate wind farm site resource and energy analysis that is used by developers for investment decisions.
- The status of wind energy developments is based on publically available information only.
- LCOE values vary between projects and are highly dependent on project timing, future technology developments, market conditions, wind resources and the cost of finance. The estimates provided are indicative and should not be utilised for financial analysis.
- Expected lead times for projects vary considerably. Estimates provided are based on industry averages.
- The optimal timing for investment depends on a number of conflicting factors. Guidance provided is based on industry commentary.

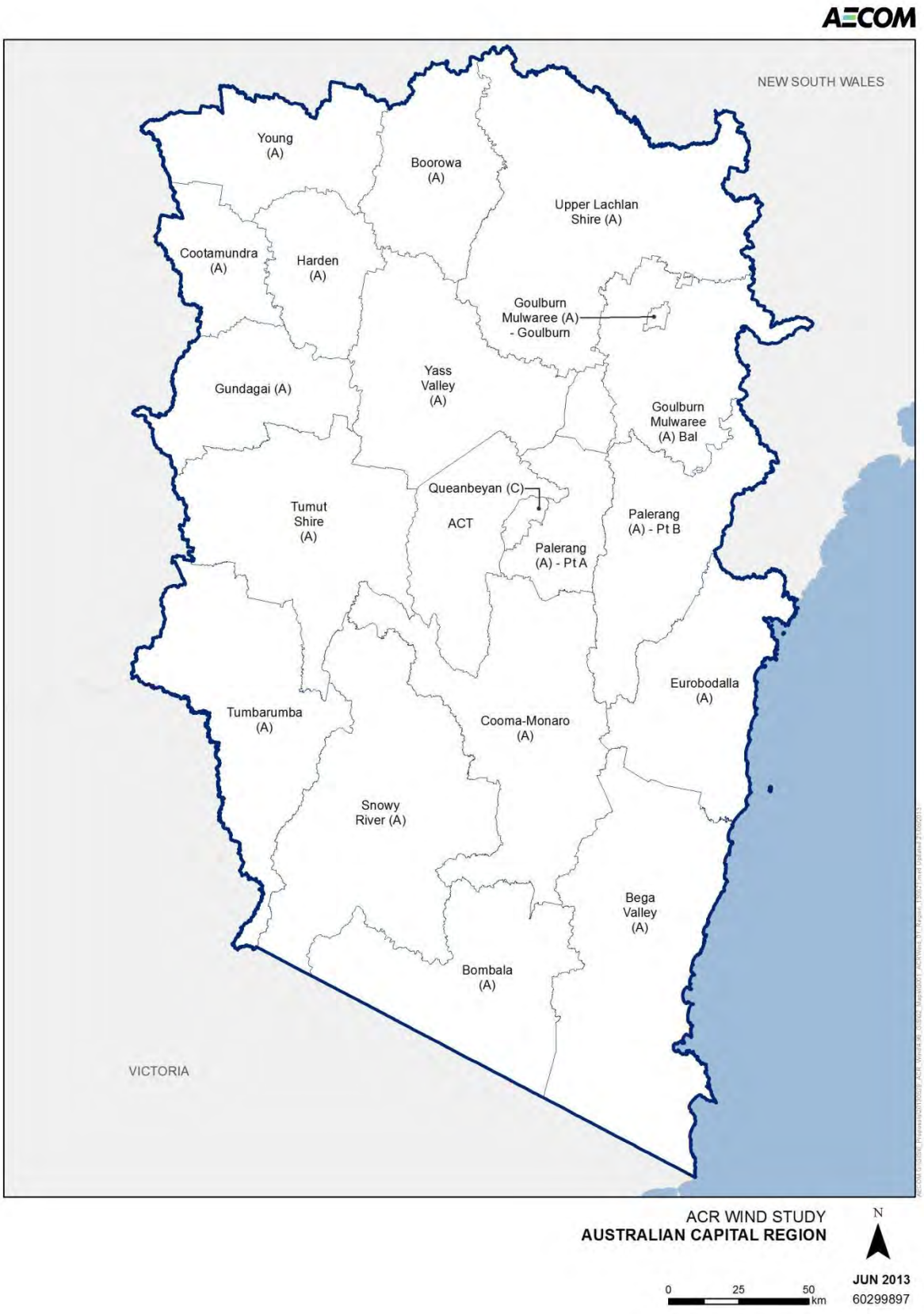

Figure 1 - Australian Capital Region

2.0 Extent of economic wind resources in the Australian Capital Region

AECOM has undertaken a high-level GIS analysis to estimate the quantity of commercially viable wind energy development in the ACR. From industry consultations, it is clear that developers see the ACR as a region with highly attractive wind energy sites. The commercial viability of a wind energy development is dependent on a number of factors that have been incorporated as different GIS layers in the analysis. These layers include:

- Wind resource
- Proximity to the electricity grid
- Proximity to populated areas
- Areas prohibited or considered unviable for development (e.g. national parks and forested areas)

The ACT area was removed from the GIS analysis due to the stringent requirements regarding land use on hills, ridges and buffer areas[2].

The GIS analysis undertaken is appropriate for a pre-feasibility assessment. Local topographic features such as land gradient and ridge lines have not been incorporated in the analysis and would likely impact the usable area for development.

Refer to Appendix A for detailed on the GIS criteria adopted and Appendix B for the layered GIS results.

The results of each layer were combined to identify what AECOM has termed Tier One and Tier Two regions for wind energy development in the ACR. Tier One regions represent areas likely to be cost competitive with wind energy developments currently under development in Australia. Tier Two regions represent areas with a higher Levelised Cost of Energy (LCOE) than the Tier One areas, but may still be considered economical under certain circumstances and market conditions. Further details on the definition of Tier One and Tier Two classification are included in Appendix A. The resulting Tier One and Tier Two regions are shown in Figure 2, alongside the location of operating wind farms and wind farms in development in the region. Details of these wind farms are outlined in Section 3.0. Refer to Appendix B for results separated into small sized wind farms, medium sized wind farms and large sized wind farms.

[2] Territory Plan Part B12: Hills, Ridges and Buffer Areas Land Use Policy http://apps.actpla.act.gov.au/tplan/B/B12.pdf [viewed 24/6/2013].

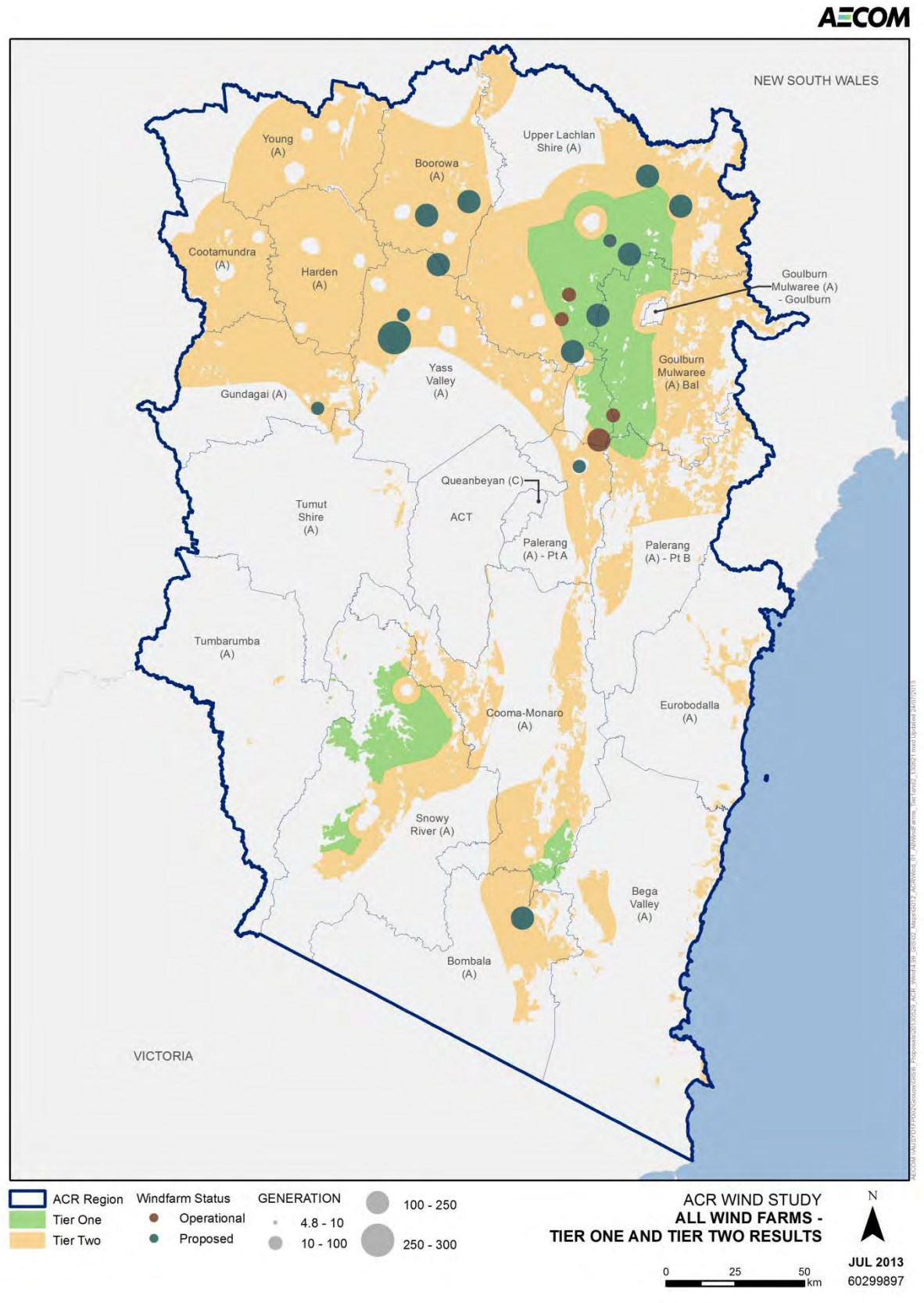

Figure 2 - Wind farm location overlayed on Tier One and Tier Two results

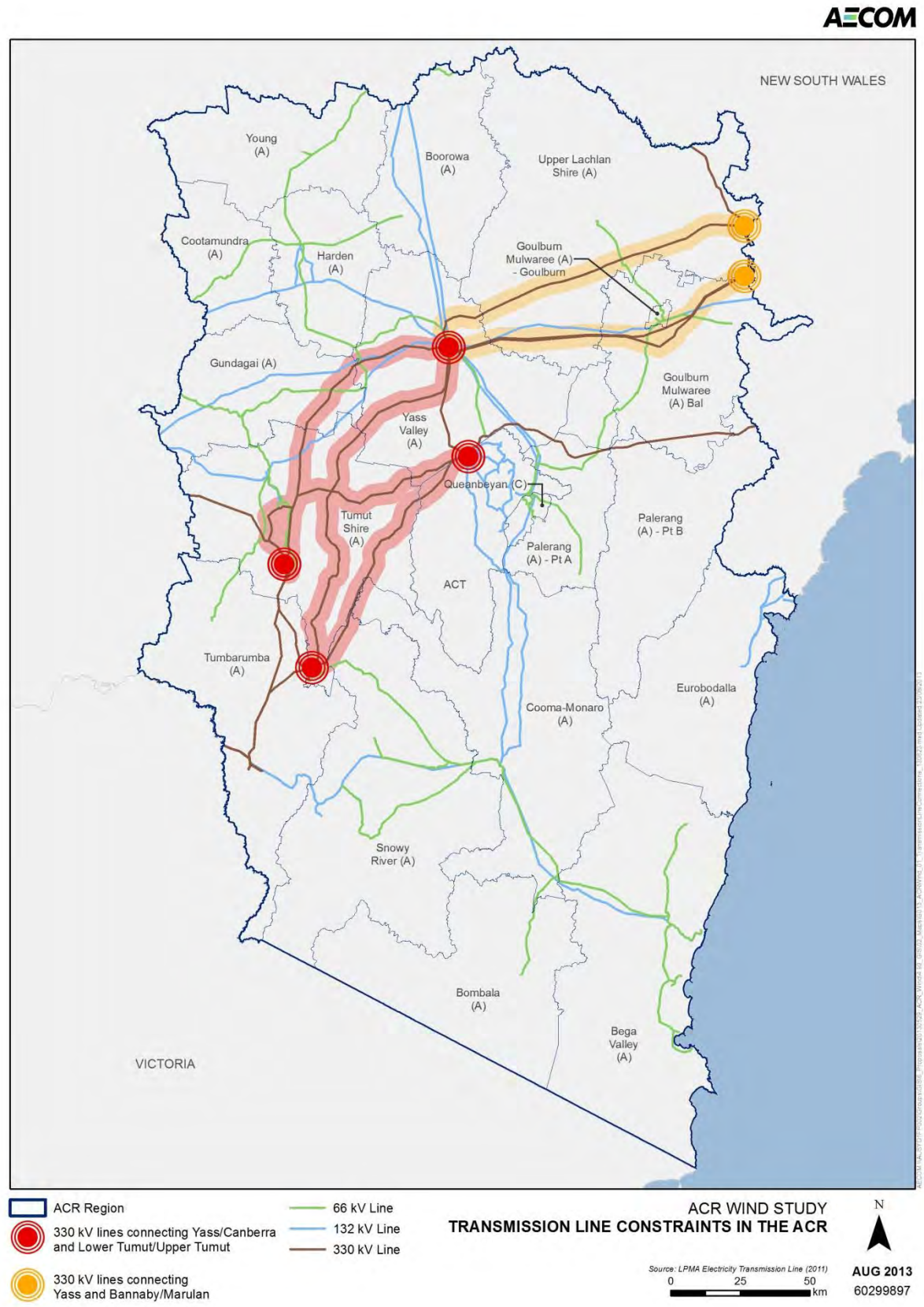

Figure 3 - Constrained transmission lines in the ACR

AECOM utilised industry knowledge and information from operating wind farms to estimate the Tier One and Tier Two wind energy capacity in each region of the ACR. The wind energy capacity has been calculated based on three factors:

- Wind turbine density within a wind farm site
- Wind farm density within a region

Refer to Appendix C for further detail on the wind energy capacity calculation.

As discussed there is significant potential wind farm capacity in the ACR; however a key factor influencing the realisation of this estimated wind energy potential is network capacity. There are two levels of network available in the ACR for connection of wind farms.

The 330 kV terminal stations servicing the ACR are located in Yass, Canberra, Lower Tumut, Upper Tumut, Wagga, Bannaby, Marulan and Murray. According to the TransGrid Annual Planning Report 2012[3], the key 330 kV connections between Yass and Lower Tumut/Upper Tumut, and Yass and Bannaby/Marulan have known capacity constraints (location illustrated in Figure 3). The existing transmission corridor between Yass and Lower Tumut/Upper Tumut can be loaded to its maximum capacity at times of high NSW loads. Various upgrades to the region have been planned and may increase the capacity on these lines. These capacity constraints will reduce the amount of generation that is able to be transmitted outside the distribution network. However given the number and type of transmission lines in the area, AECOM estimates that a total of approximately 1,500 MW could possibly be transferred into the market through the transmission network. This estimate uses a 35% capacity factor for each wind farm and a 30% penetration into the likely line capacities as its basis.

The 132 kV sub-transmission or distribution network is expected to also have available capacity for the connection of generation; however, connecting to this network is typically limited to medium and small scale wind farms. AECOM's estimate of the available capacity for generation in the distribution network is approximately 700 MW. This estimate uses a 35% capacity factor for each wind farm and a 30% penetration into the network winter demand as its basis.

Therefore, it is expected that with the existing grid infrastructure, the total wind energy capacity shown would not be fully achievable; however an amount of approximately 2,200 MW should be achievable (between the transmission and distribution network) depending on the specific wind farm's characteristics such as capacity and grid connection location.

Refer to Table 1 for details on the size of Tier One and Tier Two areas in each region of the ACR and the corresponding estimate of wind energy capacity.

Table 1- Tier One and Tier Two GIS analysis results per region (aggregate of small, medium and large scale wind farm sizes)

Tier	Region	Area (km^2)	Estimated Wind Energy Capacity (MW)
Tier One	Bega Valley	4	3
Tier One	Cooma-Monaro	80	48
Tier One	Goulburn Mulwaree	887	538
Tier One	Palerang - Pt B	260	158
Tier One	Snowy River	670	406
Tier One	Tumbarumba	1	0
Tier One	Upper Lachlan Shire	1,473	893
	Total	**3,376**	**2,046**
Tier Two	Bega Valley	268	162
Tier Two	Bombala	750	454

[3] TransGrid Annual Planning Report 2012
http://203.32.247.90/network/np/Documents/TRAN_219219_Annual_Planning_Report_2012_FA_web.pdf [viewed 21/6/2013]

Tier	Region	Area (km^2)	Estimated Wind Energy Capacity (MW)
Tier Two	Boorowa	1,809	1,096
Tier Two	Cooma-Monaro	1,339	812
Tier Two	Cootamundra	1,136	689
Tier Two	Eurobodalla	119	72
Tier Two	Goulburn Mulwaree - Goulburn	2	1
Tier Two	Goulburn Mulwaree Bal	1,219	739
Tier Two	Gundagai	1,206	731
Tier Two	Harden	1,732	1,050
Tier Two	Palerang - Pt A	465	282
Tier Two	Palerang - Pt B	808	490
Tier Two	Snowy River	945	573
Tier Two	Tumbarumba	5	3
Tier Two	Tumut Shire	45	27
Tier Two	Upper Lachlan Shire	3,147	1,907
Tier Two	Yass Valley	1,706	1,034
Tier Two	Young	1,596	967
	Total	**18,297**	**11,089**

3.0 Status of prospective wind developments in the Australian Capital Region

Table 2, Table 3 and Table 4 list the known operating wind farms, active wind farm developments and inactive wind farm developments in the ACR respectively. As outlined, approximately 269 MW of wind energy capacity has already been developed in the ACR and over 2.3 GW is actively in development. AECOM has classified a project as inactive if delays have been announced or if no public updates have been made by the developer for a number of years. Of the projects considered to be active, a number are in early stages of planning and may not progress further. Of the active projects that have obtained Government approval, obstacles may still prevent the projects progressing into construction. Key obstacles include changes in Government regulations, community support, securing a power purchase agreement (PPA) and finalising grid connection approvals.

Figure 4 illustrated the location of these developments within the ACR. Refer to Appendix B for a map of wind farm developments overlayed on the Tier One and Tier Two results.

Table 2 - Operating wind farms in the ACR

Project	Operating Companies	Proponent / Owner Type	Location	Commenced Operation	Capacity (MW)
Capital Wind Farm	Infigen Energy	Independent Power Producer / Developer	Bungendore, NSW	2009	140
Crookwell Wind Farm	Eraring Energy	Generator only	10 km south of Crookwell, NSW	1998	5
Cullerin Range Wind Farm	Origin Energy	Generator / Retailer	12 km east of Gunning, NSW	2009	30
Gunning Wind Farm	Acciona Energy	Turbine supplier/ wind farm developer	15 km north-east of Gunning, NSW	2011	46
Woodlawn Wind Farm	Infigen Energy	Independent Power Producer / Developer	Bungendore, NSW	2011	48
Total Capacity of Operating Projects					**269**

Table 3 - Active wind farm developments in the ACR

Project	Project Status	Developer	Proponent Type	Location	Capacity (MW)
Projects with Development Approval and a Power Purchase Agreement[4]					
Boco Rock Wind Farm	Government Approval Received	Wind Prospect	Independent Power Producer / Developer	10 km south-west of Nimmitabel, NSW	200
Taralga Wind Farm	Government Approval Received	CBD Energy	Independent Power Producer / Developer	3 km east of Taralga, NSW	186

[4] It is standard industry practice for a PPA to include both the sale of energy and renewable energy certificates (LGCs). This has been assumed throughout.

Project	Project Status	Developer	Proponent Type	Location	Capacity (MW)
Gullen Range Wind Farm	Under Construction	Epuron (1), Goldwind Australia (2)	Independent Power Producer / Developer (1), Turbine supplier/ wind farm developer (2)	20 km west of Goulburn, NSW	165
Total capacity of projects with Development Approval and a Power Purchase Agreement					**551**
Projects with Development Approval and without a Power Purchase Agreement					
Capital 2 Wind Farm	Government Approval Received	Infigen Energy	Independent Power Producer / Developer	Bungendore, NSW	100
Conroy's Gap Wind Farm	Government Approval Received	Epuron	Independent Power Producer / Developer	17 km west of Yass, NSW	30
Crookwell 2 Wind Farm	Preliminary Construction Commenced	Union Fenosa Wind Australia	Independent Power Producer / Developer	14 km south-east of Crookwell, NSW	92
Total Capacity of projects with Development Approval and without a Power Purchase Agreement					**222**
Projects without Development Approval and without a Power Purchase Agreement					
Adjungbilly Wind Farm	Planning Approval Underway	CBD Energy	Independent Power Producer / Developer	22 km north-east of Gundagai, NSW	40
Bango Wind Farm	Environmental Approval Underway	Wind Prospect	Independent Power Producer / Developer	20 km north of Yass, NSW	200
Collector Wind Farm	Feasibility Study Underway	Ratch Australia, Transfield Services	Independent Power Producer / Developer	5 km north-west of Collector	200
Crookwell 3 Wind Farm	Environmental Assessments Submitted	Union Fenosa Wind Australia	Independent Power Producer / Developer	17 km southeast of the Crookwell, NSW	102
Golspie Wind Farm	Environmental Approval Underway	Wind Prospect	Independent Power Producer / Developer	Golspie, north of Crookwell, NSW	250
Rugby Wind Farm	Environmental Approval Submitted	REpower Australia	Turbine supplier/ wind farm developer	Between Rugby and Boorowa, NSW	170
Rye Park Wind Farm	Planning Approval Underway	Epuron	Independent Power Producer / Developer	North of Yass and east of Boorowa, NSW	250
Yass Valley Wind Farm	Government Approval Underway	Epuron	Independent Power Producer / Developer	20km west of Yass, NSW	300
Total Capacity of Projects in Development without Development Approval					**1512**

Table 4 - Inactive wind farm developments in the ACR

Project	Project Status	Developers		Location	Capacity (MW)
Carroll's Ridge Wind Farm	Planning Approval Underway	Epuron	Independent Power Producer / Developer	50 km north-west of Canberra, NSW	Unknown
Birrema Wind Farm	Planning Approval Underway	Epuron	Independent Power Producer / Developer	30 km west of Yass, NSW	200
Cooma Wind Farm	Feasibility Study Underway	Pacific Hydro	Independent Power Producer / Developer	Cooma, NSW	100
Evandale Wind Farm	On Hold	Epuron	Independent Power Producer / Developer	Goulburn, NSW	30
Goulburn District Wind Farm	Feasibility Study Completed	Actew-AGL	Generator / Retailer	Goulburn, NSW	10
Molonglo Wind Farm	On Hold	Acciona Energy	Turbine supplier/ wind farm developer	Canberra, NSW	120
Mount Spring Wind Farm	Feasibility Study Completed	Actew-AGL	Generator / Retailer	20 km north of Canberra, NSW	10
Shannon's Flat Wind Farm	Feasibility Study Completed	CBD Energy Ltd	Independent Power Producer / Developer	Shannon's Flat, 70 km south of Canberra, NSW	50
Snowy Plains Wind Farm (AKA Berridale Wind Farm)	On Hold	Origin Energy	Generator / Retailer	400 km south-west of Sydney, NSW	32
Total Capacity of Inactive Wind Farm Developments					**552**

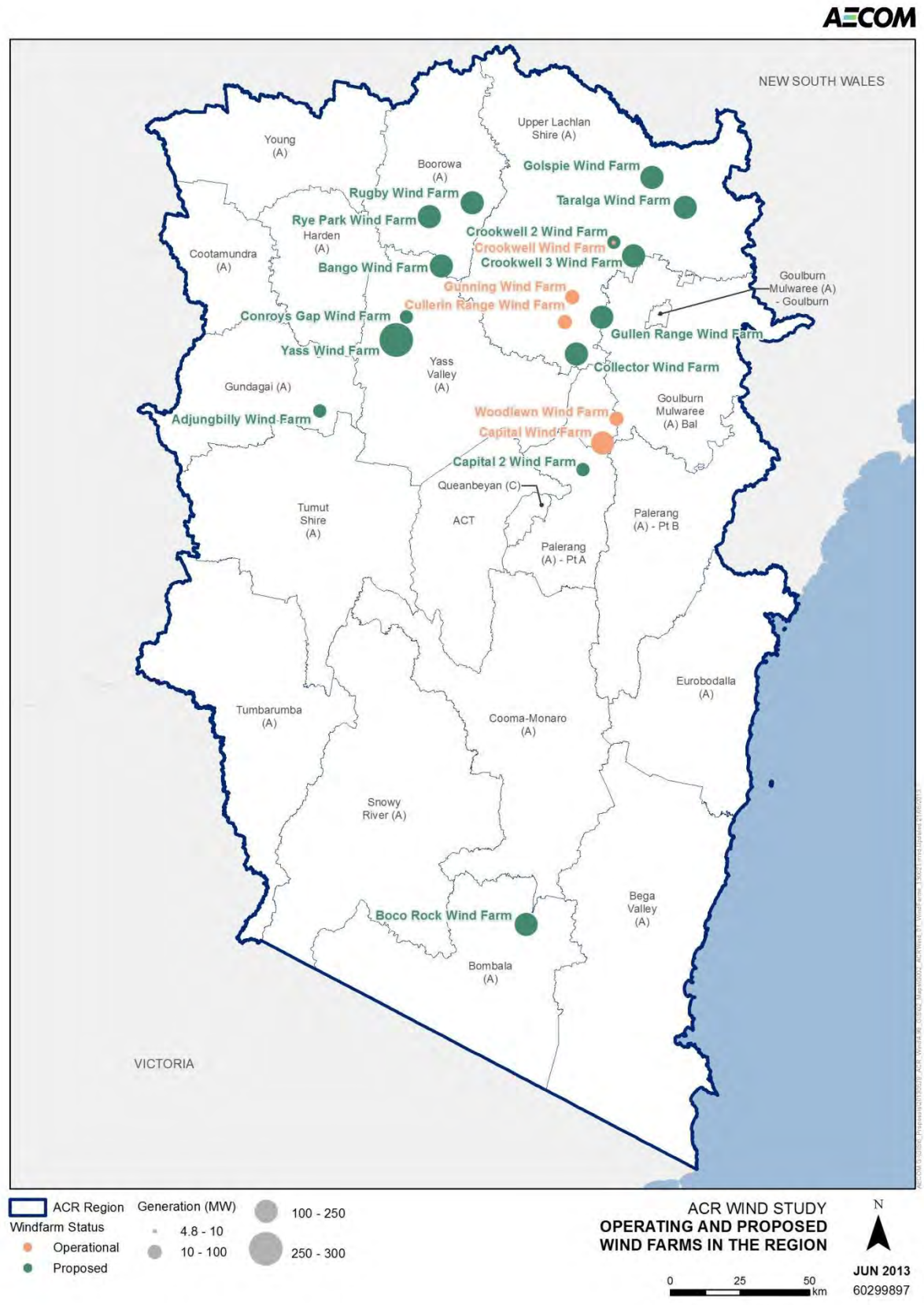

Figure 4 - Operating wind farms and proposed wind farm location in ACR

4.0 Large scale Feed in Tariff (FIT) suitability for stimulating wind developments

4.1 ACT Renewable Energy Objectives

The ACT Government developed an action plan (AP2) to meet 2020 greenhouse gas reduction targets and promote sustainable living[5]. The plan aims to reduce greenhouse gas emissions by 40% by 2020 and 80% 2050 in line with recommendations from the international scientific community. Energy generation is one of the key sectors targeted by the AP2 program and wind energy development is one of the most cost effective methods of reducing energy sector emissions. The ACT Government tabled the Electricity Feed-in (Large-scale Renewable Energy Generation) Act in 2011 with the aim of promoting large-scale renewable energy development in the ACR and of realising the targets set out in the AP2 program[6].

4.2 ACT Solar Auction

On 27 January 2012, the ACT Government ESDD issued a Request for Proposal (RFP) to support the development of up to 40 MW of large-scale solar generation in the ACT. The ACT Government selected an auction scheme, whereby proponents bid for the FIT required to support their large-scale solar system. The successful proponents will be awarded a Grant of Entitlement by the ACT Government, which secures a specified FIT value for a 20 year period. The FIT provides a fixed revenue to the generator based on energy produced (AUD/MWh), less the NEM spot market price. The Grant of Entitlement by the ACT Government contains a firm start date and end date for the FIT period. All LGCs produced are registered and transferred to the ACT. The FIT price is paid monthly by ACT electricity distributor, ActewAGL Distribution, after LGCs have been registered and surrendered. Proponents will be responsible for financing, constructing, owning and operating the proposed solar installation. The ACT Government will be responsible for legislative arrangements to facilitate the purchasing of energy.

Key information to be submitted by proponents:

- Demonstration of bidder's capability to execute the project. The ACT Government is seeking a competent engineering, planning or construction organisation with demonstrated experience in projects of this size.
- Description of the proposed location. Proponents are responsible for obtaining legal, regulatory and other approvals required to use land. Proponents are able to nominate leased or unleased land.
- Details of the proposed connection point to the ACT electricity distribution network. Proponents are required to make their own connection enquiries and ensure necessary requirements are met.
- A schedule outlining milestones and project completion.
- Details of the FIT required to support the project.

Stages of the auction process:

- Stage 1 - Pre-qualification – Proponents capability and likelihood of project execution are assessed.
- Stage 2 - Final proposals:
    - Fast track stream – for proponents ready to submit final proposal approximately two weeks after completing the pre-qualification stage.
    - Regular stream – for proponents requiring more time to develop their project. Final proposals to be submitted approximately nine months after completing the pre-qualification stage.

The ACT Government announced that 49 proposals were submitted for Stage 1 - Pre-qualification and 22 of those were shortlisted to complete Stage 2. It was revealed in September 2012 that Fotowatio Renewable Ventures (FRV) was the successful bidder for the fast track stream with the 20 MW Royalla project in the District of

[5] ACT Government, Environment and Sustainable Development Directorate, AP2 http://www.environment.act.gov.au/climate_change/ap2 [viewed 24/6/2013]
[6] Australian Capital Territory, Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011 http://www.legislation.act.gov.au/a/2011-56/current/pdf/2011-56.pdf [viewed 7/6/2013]

Tuggeranong. The successful FIT bid was $186 /MWh[7]. 15 proposals have been submitted for the regular stream, which is expected to be announced in July 2013.

Comments from the industry have generally been positive regarding the ACT solar auction process to date. The Grattan Institute says that the reverse auction will "help to drive down the cost of renewable technologies, while providing long-term certainty to the companies trying to deploy them"[8].

4.3 Current incentive mechanisms for wind energy investment in Australia

The Australian Government has developed the Renewable Energy Target (RET) as part of a comprehensive plan to move to a clean energy future[9], which is the key driver in Australia for large-scale renewable energy developments. The Enhanced RET scheme, which was developed in January 2011, is separated into the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES). The Enhanced RET scheme requires the production of 60 TWh/annum of renewable energy to be supplied by 2020, of which 15 TWh/annum is attributed to existing renewables (primarily hydropower) and 45 TWh/annum will be additional.[10] The LRET covers large-scale renewable energy projects such as wind farms, commercial solar (PV and thermal), wave and tidal energy, agricultural waste and geothermal. This component of the scheme is aimed to deliver the majority of the 2020 target; approximately 41 TWh/annum of the additional 45 TWh/annum. The SRES has no specified target; however it is expected to deliver the remaining 4 TWh/annum of the additional 45 TWh/annum target[10].

The Renewable Energy Certificates (RECs) sourced from large scale generation are known as Large-scale Generation Certificates (LGCs) and their price is determined by the open LGC market. The amount of LGCs retailers are required to obtain (their liability) is determined by the Renewable Power Percentage (RPP).

There are no active state based wind energy incentive mechanisms currently in operation.

4.4 International incentive mechanisms for wind energy [11]

4.4.1 Britain

Between 1990 and 1998, Britain developed an auction mechanism for the sale of renewable energy. These auctions were known as Non-fossil Fuel Obligation (NFFO). Similarly to the reverse auction process undertaken for the ACT Solar Auction, bids were solicited and the lowest priced bids were awarded. Auctions occurred only within specific technology bands. The Regional Electricity Companies were only required to purchase the energy at the Pool Selling Price and the Non-fossil Purchasing Agency provided the difference between the Pool Selling Price and the agreed premium price, with funds collected from the Fossil Fuel Levy. In the later years of the mechanism, contracts were awarded with a 15 year operational term, after a 4-5 year allowable development time period. The NFFO mechanism was seen to produce highly competitive prices; however it was seen to deliver insufficient project deployment rates.

With a change of Government in 1997, the Department of Trade and Industry replaced the NFFO scheme with the Renewables Obligation (RO). The RO operated in a similar way to the Australian RET, where utilities were required to purchase a certain increasing percentage of electricity from renewable energy. Utilities are required to provide Ofgem, the utility regulator, with RO certificates. In early years of the RO, the price of renewable energy generation did not decrease.

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[7] ACT Government – ACT Labor Government delivers big solar for Canberra http://www.cmd.act.gov.au/open_government/inform/act_government_media_releases/corbell/2012/act_labor_government_delivers_big_solar_for_canberra2 [viewed 12/16/2013]
$186 /MWh represents a fixed price for the 20 year term (does not allow inflation to be added)
[8] http://www.abc.net.au/worldtoday/content/2012/s3546558.htm
[9] Australian Government, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education – Renewable energy Target http://www.climatechange.gov.au/reducing-carbon/renewable-energy/renewable-energy-target [viewed 12/6/2013]
[10] Clean Energy Council policy paper: Industry response to calls for changes to the RET based on reduced electricity demand projections – 22 October 2012.
[11] The Centre for International Environment and Resource Policy - Assessing Reverse Auctions as a Policy Tool for Renewable Energy Deployment http://fletcher.tufts.edu/CIERP/Publications/more/~/media/Fletcher/Microsites/CIERP/Publications/2012/May12CozziReverseAuctions.pdf [viewed 12/06/2013]

4.4.2 China

Between 2003 and 2009, China developed a Tariff Reform Program, known as the Wind Concession Program, which aims to promote large scale wind energy development. The National Development and Reform Commission (NDRC) conducted five auctions between 2003 and 2007 for 18 projects. The Wind Concession Program differs from the ACT reverse solar auction as proponents did not identify development sites in their bids; instead the geographic areas were provided to them. The developers were responsible for construction, operation and maintenance of the project, while the Government was responsible for land rental and environmental permitting. Initially the auctions were awarded to the lowest bidding project; however it became evident that proponents were underbidding. In 2007, the policy was adjusted to award the average bidding price. Contracts were awarded with 25 year operational terms and companies were expected to begin operation within three years of contract award date. Between 2003 and 2009, wind energy capacity in China grew from under 1 GW to above 25 GW. The Wind Concession Program was credited for developing a strong domestic wind energy manufacturing industry.

In 2009, the NDRC adopted a FIT mechanism for wind energy generation, ending the Wind Concession Program. The FIT has predetermined pricing levels for four geographic areas within China. Through a standard pricing mechanism, China is seeking to address the underbidding issue observed with the Wind Concession Program.

The Clean Energy Development Mechanism developed under the Kyoto Protocol has also played a key role in the development of wind energy in China.

4.4.3 Brazil

In 2002, Brazil's Programme of Incentives for Alternative Electricity Sources (PROINFA) scheme began, with a goal of diversifying the current hydropower dominated generation mix in Brazil. The scheme developed over the coming years, and in 2009 the first energy auction was hosted by ANEEL, Brazil's electricity regulatory agency. To participate in the auctions, environmental permits and grid access approval needed to be obtained. This ensures that only serious bidders are involved. The key differences with the energy auction process in Brazil to the schemes discussed above are the penalties imposed for breach of contract (including failure to produce agreed annual energy production) and deposits required to guarantee project completion. The energy auctions in Brazil have only been in effect for a small number of years; however the process has shown promising price reductions for renewable energy generation.

4.5 Suitability of reverse auction FIT for wind energy in Australia, particularly the ACR

A reverse auction FIT mechanism, particularly if it's commenced in the near future, would likely provide competitive, value for money wind energy projects for the ACT Government to support.

As highlighted in the comparison of international support mechanisms in Section 4.4, the two key issues that can be encountered with a wind energy FIT reserve auction appear to be underbidding by proponents and the lack of on time project delivery. To minimise the likelihood of these issues occurring, it is important to carefully construct the mechanism to ensure that only proponents who have the resources and experience to deliver a wind farm project are short-listed to participate in the reverse auction. This has been performed successfully globally and in the recent ACT solar auction program typically via a pre-qualification process for proponents.

Considering the relative inactivity of the current wind energy market, the ACT Government would likely receive highly competitive bids if a reverse auction FIT mechanism for wind energy development in the ACR was adopted in the near future. An ACT reverse auction FIT for wind energy could act to valuably complement the RET. Refer to Section 9.0 for more details on optimum timing of investment.

It is AECOM's understanding that the ACT Government would not arrange an off-take agreement for the awarded generator. It would be the responsibility of the generator to register with the NEM and operate independently.

AECOM discussed the suitability of a reverse auction FIT for wind energy in the ACR with industry representatives. Industry members were of the opinion that an ACT Government sponsored FIT would improve the bankability of projects and would result in reduced financing costs primarily due to the ACT Government's strong credit rating. Industry members were generally of the opinion that a reverse auction FIT would be a positive and encouraging initiative for the Australian wind energy industry. A number of specific comments were provided:

- A comprehensive pre-qualification stage is considered to be vital in ensuring only serious and capable proponents are involved and unrealistic bidding does not occur. The prequalification criteria should assess

as a minimum, the proponent's financial strength and their proven track record for wind farm delivery in Australia.

- It is considered fundamental to have clear and detailed selection criteria, including any preferences that might be given to projects with Development Approval or with a portion of locally manufactured content. If the criteria is transparent and detailed, proponents will feel more comfortable investing time and resources into delivering a quality and firm bid.
- It is recommended that at least three months be provided for firm bid submissions to ensure that enough time is provided to seek pricing from sub-contractors and for comprehensive bid preparation.
- To increase the likelihood of successful delivery of projects, a number of industry members were of the opinion that final stage bids should only be considered for projects with Development Approval. AECOM's research indicates that there are a number of projects that have already obtained Development Approval in the ACR, and there are also a number of projects part way through the process of obtaining Development Approval.
- A number of industry members believe that it would be beneficial for the ACT Government not to limit the size of project being considered for FIT support. The benefit of a large project (e.g. >150 MW) is that it may deliver economies of scale and most likely a lower FIT. However, relying on a single large project to achieve the nominated stream target increases the impact of a single project delay or setback. Alternatively, a community wind farm (e.g. <10 MW) may require lower return on investment by the participants and therefore may provide a competitive FIT along with the support of the local community.
- In order to develop a project to maturity and produce firm pricing for a large-scale wind farm, developers would be expected to bear significant costs. Based on input from industry participants, AECOM does not believe that this will be a barrier to receiving quality bids, as unsuccessful proponents still have the option of seeking a PPA from the market. If the cost becomes a barrier for proponents, it may be beneficial to allow non-binding prices to be submitted initially and allowing shortlisted proponents the opportunity to confirm their prices prior to selection. Some industry members indicated that a cost of approximately $0.5 million is required to produce a firm FIT submission.
- The FIT term will play a significant role in the final FIT pricing offered. Based on feedback from industry, a 15 year term would be the minimum recommended length and 20 years would be optimum to coincide with typical minimum project operational life. Industry representatives indicated that because the RET scheme ceases on December 31, 2030, if a FIT term expires prior to this date, significant risk is introduced into the electricity price forecasting. This uncertainty will need to be accounted for in the project financial model and would most likely lead to the increase in the FIT prices submitted.
- Industry representatives asked whether uncontracted operational wind farms in the ACR could apply for a FIT under an ACT Government program. This option may provide cost effective renewable energy for the ACT and would provide low risk, short term results. The downside is the lack of new economic benefits that would be created with a wind farm project.
- It is important to consult with financiers and lenders prior to the awarding of the FIT to proponents. This is particularly important with respect to the proposed FIT contracts so as to minimise the likelihood of issues relating to project financing.

In summary, the analysis indicates that a reverse auction FIT mechanism for wind energy would result in a cost effective way to achieve the 583 MW wind energy target by 2020. As highlighted by industry representatives and international case studies, the key risks with employing a wind energy reserve auction FIT are the underbidding of proponents and projects not being delivered as promised. Industry participants emphasised to AECOM the importance to carefully structure the mechanism ensuring proponents and their projects are adequately reviewed prior to shortlisting and that adequate time is provided to allow proponents to submit quality bids. This will increase the chances of successfully delivered, value for money projects for the ACT Government.

5.0 Anticipated Levelised Cost of Energy (LCOE) Range and Energy Off-Take Prices for wind developments in the Australian Capital Region

5.1 LCOE estimates for proposed sites in the ACR

There are a number of factors that influence LCOE estimates between projects. These include:

- Wind farm size
- Wind resource and technology used (capacity factor)
- Development costs
- Capital cost and foreign exchange rate
- Operations and maintenance costs
- Labour rates
- Financing costs and cost repayment profile
- Assumptions made on CPI and discount rates
- Assumed plant life

AECOM has estimated LCOE ranges for Tier One and Tier Two sites in the ACR, as identified in Section 2.0. The results are illustrated in Figure 5. The key difference between the Tier One and Tier Two LCOE calculations is the assumed capacity factor in each case. The capacity factor was selected as a single parameter to simplify modelling of the difference between Tier One and Tier Two sites. In reality however, the difference in LCOE between the sites would likely result from a varying combination of factors including not only capacity factor but grid connection costs or other factors. It should be noted for example, that some Tier Two sites could actually be developed with a capacity factor similar to a Tier One site, however the capital costs could be higher due to the use of specialised low wind turbines. For calculation purposes, we have assumed capacity factors ranging from 35% to 40% for Tier One sites and 30% to 35% for Tier Two sites. The LCOE is expected to range from $74/MWh at the best Tier One sites, up to around $98/MWh for the poorest Tier Two sites. These results have been developed for indicative purposes only. Refer to Appendix D for a detailed list of the calculation method and assumptions used.

The LCOE calculation does not include the generator profit margin or a risk allowance. Typically these values are added to the LCOE to make-up the Feed in Tariff (FIT) price, as discussed in Section 5.2.

Figure 5 - Estimated LCOE ranges for Tier One and Tier Two wind energy sites

In the Australian Government Bureau of Resources and Energy Efficiency (BREE) produced a report in 2012 forecasting the LCOE for energy projects in Australia in the coming years[12]. As shown in Figure 6, BREE estimated the LCOE for wind energy in New South Wales to gradually reduce in the coming years, from approximately $118/MWh in 2012 to $90/MWh 2020. As LCOE forecasts are dependent on a number of factors, AECOM would expect the forecast to be different if modelling was updated based on 2013 parameters.

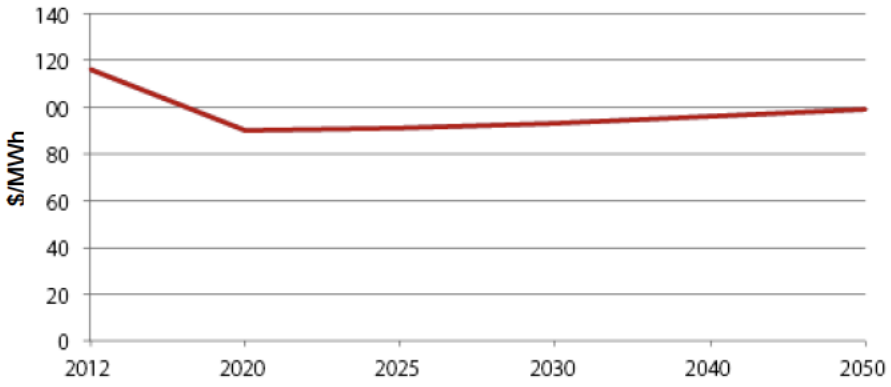

Figure 6 - On-shore wind energy LCOE forecasts for a 100 MW plant in New South Wales[13]

5.2 Wind auction Feed in Tariff prices

It is expected that the FIT prices offered by the proponents will be above the LCOE to account for profits and risk. In consultations with industry representatives, AECOM received advice that non-escalated FIT pricing, for an award prior to mid-2014, would be expected to range from $85/MWh to around $100/MWh[14]. Industry members advised AECOM that the key influencing factors for them would include:

- wind resource
- foreign exchange rate
- network connection costs
- FIT term
- competitive market pressure from the RET
- number and quality of proponents participating in the FIT process
- land costs
- permitting costs

Figure 7 illustrates recent publically announced Power Purchasing Agreement (PPA) prices for Australian wind farms. These prices range from $90/MWh to $115/MWh. It is expected that these values will be indexed each year and that they include LGCs (bundled price).

It is our understanding that the ACT Government would not arrange an off-take agreement for the awarded generator. It would be the responsibility of the generator to register with the NEM and operate independently.

[12] Australian Government Bureau of Resources and Energy Efficiency, Australian Energy Technology Assessment 2012 http://www.bree.gov.au/publications/aeta.html [viewed 17/6/2013]
[13] Australian Government Bureau of Resources and Energy Efficiency, Australian Energy Technology Assessment 2012 http://www.bree.gov.au/publications/aeta.html [viewed 17/6/2013]
[14] The FIT prices indicated differ from those shown in the Solar Auction, as they have not been increased to account for future inflation.

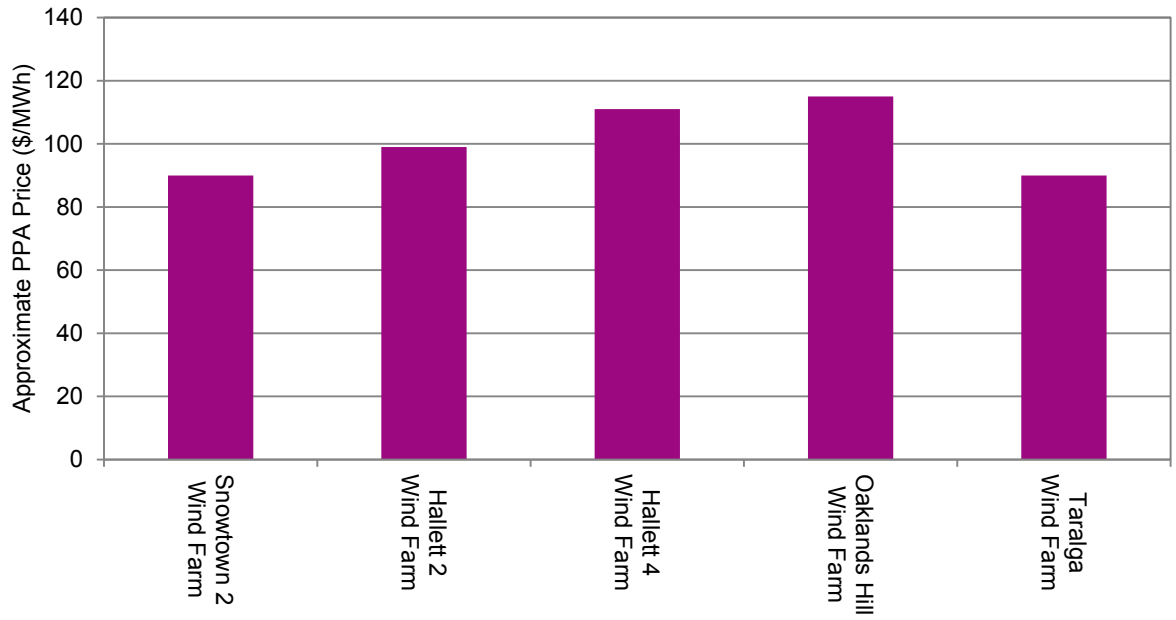

Figure 7- Recent public PPA prices in Australia[15]

[15] Snowtown 2 Wind Farm: http://reneweconomy.com.au/2012/snowtown-project-shows-wind-costs-below-80mwh-17727
Hallett 2 Wind Farm: http://www.agl.com.au/about/ASXReleases/Pages/AGLearns$59milliondevelopmentprofit.aspx
Hallett 4 Wind Farm:
http://www.agl.com.au/about/media/Pages/AGLtoearn$88millionindevelopmentfeesfromthesaleofHallett4WindFarm.aspx
Oaklands Hill Wind Farm: http://www.agl.com.au/Downloads/ASX%20-%20Oaklands%20Hill%20Sale%20final%20270611.pdf
Taralga Wind Farm: http://www.businessspectator.com.au/article/2011/10/4/smart-energy/qa-gerry-mcgowan

6.0 Lead Times for Wind Farm Project Development

In practice, the time for a wind farm development to proceed from site identification to being operational varies significantly. The high-level stages of a typical development process are listed below with approximate associated lead times and some influencing factors.

Resource assessment

The timeframes listed below are based for a new and previously unidentified site. The first stage of monitoring is typically with low cost, low height monitoring wind masts (approximately 50 m high). Alternatively, if confidence in the site is high, the developer may choose to install hub height masts (masts with the primary wind speed measurement equipment a similar height to the centre of a typical turbine rotor) in the first instance (typically 80 m).

Met mast design and planning

Firstly, a developer must make decisions such as what type of masts to install, how many to install and where to install them.

Time Allowance ~ 1 month

Secondly, a planning permit needs to be obtained from the local council to install the masts. Interpretation of planning laws and previous familiarity with temporary Met masts as well as the local community and council's attitude towards wind farm developments could influence the process for obtaining a permit. In some cases it may be possible to install temporary structures without a planning permit.

Time Allowance ~ 2 months

Met mast procurement and Installation

If the wind monitoring industry is busy there may be extended lead times for manufacturing and installation.

Time Allowance ~ 3 months

Resource Monitoring and Analysis

Monitoring can be continued in parallel with other project development processes with energy production estimates updated later in the process. The most significant milestone for resource monitoring and the commonly accepted minimum timeframe for data collection is 12 months. This allows for Bureau of Meteorology station correlation for all seasons. Additional time needs to be allowed for potential equipment failures, and then development of the energy and resource assessment report. Larger projects typically install a larger number of masts and often monitor wind resource for longer periods of time, to provide more investment certainty.

Time Allowance ~ 15 months

Community Consultation

Community consultation is generally carried out in parallel with other development activities. The draft *NSW Planning Guidelines: Wind Farms* (Department of Planning and Infrastructure (DP&I), December 2011) strongly encourage developers to consult with neighbours and others likely to be directly affected by the development early in the site selection and preliminary design phases. In the ACT, new pre-development application consultation requirements for large scale developments came into effect in December 2012. Prescribed development proposals, now require consultation with the community to be undertaken prior to lodging a Development Application.

Landowner negotiations and agreements

The draft *NSW Planning Guidelines: Wind Farms* introduces a requirement for developers to obtain written consent to place turbines within a two kilometre radius of existing residences from all affected landowners, or to obtain a Site Compatibility Certificate through an additional Gateway assessment process. These agreements are required prior to lodging a Development Application. Negotiation with landowners is likely to be required to formulate agreements in relation to noise and visual impacts and associated mitigation or compensation measures, for example. This process may be carried out to a large extent in parallel with other processes however as it includes a high level of uncertainty with the potential for objection from key landowners, some

additional allowance is appropriate. The timeframe depends largely on the number of landholders that require agreements.

Time Allowance ~ 3 months (total period ~ 12 months +)

Development application and approval

The development application and approval process requires consideration of New South Wales requirements, ACT requirements and Australian Commonwealth requirements.

New South Wales

If a wind farm project is greater than $30 million in value it would meet the threshold of a 'State Significant Development' in NSW and require the preparation of an Environmental Impact Statement (EIS) to the DP&I. The Minister for Planning and Infrastructure (or their delegate) would be the approval authority for the project under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The key steps in the planning process include preparing and undertaking assessments, preparing submission and participation in the review and determination process. Refer to Appendix E for further details.

ACT

In the ACT, a proposal for an electricity generating station capable of providing greater than 20MW of electricity requires the preparation of an EIS, following the Impact Assessment Track of the *Planning and Development Act 2007*. The development application would need to be lodged with and approved by ACTPLA. Refer to Appendix E for further details.

Australian Commonwealth

A bilateral agreement is in place which allows the Commonwealth to 'accredit' the ACT assessment process, which in effect, allows the Commonwealth to delegate to the ACT Government the responsibility for conducting environmental assessments for developments which also require approval under the *Environment Protection and Biodiversity Conservation Act 1999*. In NSW, the assessment bilateral agreement with the Commonwealth is currently suspended, though the Federal Minister may accredit State assessment processes on a case-by-case basis in response to an application made on an individual project under the EPBC Act.

Although an assessment process may be accredited, a separate Development Approval is nonetheless still required from the Commonwealth under the EPBC Act for such projects.

Time ~ 2-3 years

Grid connection enquiries

Gaining approval to connect to the local network is a long process with a number of steps. Some of these steps such as consultation with the network service provider (NSP) and preliminary modelling may be undertaken early to minimise the risk of prohibitive issues becoming evident after significant investments are made. This process would likely be carried out in parallel with other processes however it's considered prudent to make an allowance for additional time. It is important to know the connection arrangement prior to obtaining Development Approval, to ensure the land for the connection assets has been accounted for in the application. The grid connection approval process includes many stages and would likely be occurring throughout the development process and generally in parallel with other items. A small additional time allowance is considered appropriate.

Time Allowance ~ 2 months (total period 12-24 months+)

Preliminary pricing investigations

In order to allow greater certainty in assessing the financial viability of a site prior to negotiating off-take agreements, some preliminary pricing may be undertaken. This process may include some preliminary design exercises, particularly with regard to grid connection options, and indicative pricing from contractors.

Time Allowance ~ 4 months

Off-take negotiations

Securing an off-take agreement is a common cause for lengthy delays in project development, particularly in recent times when very few off-take agreements are being signed. In the case of AP2, a FIT auction process may replace this step. In any case a minimum allowance has been made.

Time Allowance ~ 3 months

Contract specification and tendering

Developing contracts, finalising key design elements, undertaking a tender process and negotiations with potential construction companies can take a significant period of time. The below is considered a minimum period for a medium sized project.

Time Allowance ~ 6 months

Obtaining finances

Many Australian wind farm projects obtain a large percentage of required debt capital from financial institutions. The process of dealing with a number of banks (sometimes International banks), taking them through the required due diligence process (legal, financial, technical) and obtaining their credit approvals can take a significant amount of time.

Time Allowance ~ 6 months

Construction and commissioning

Construction periods vary with project size, terrain complexity, poor weather and the amount of wind farm construction in the industry at the time, which can impact availability of resources and lead times for components. The below is considered a minimum for a medium sized project from notice to proceed to 'Practical Completion' when a wind farm officially enters the operational phase.

Time Allowance ~ 24 months

The estimated time periods for each element identified above are summarised in Table 5.

Table 5 - Estimated wind farm development timeframe

Phase	Estimated Time Allowance (months)
Resource Assessment	21
Landowner Negotiations	3
Development Application and Approval	24
Grid Connection Enquires	2
Preliminary Pricing	4
Off-take and financial negotiations	3
Contract Specification and tendering	6
Project financing	6
Construction and commissioning	24
TOTAL	**Approximately 6 years**

The above timescales are broad estimates for what AECOM sees as the typical main processes in the life of a wind farm development. In practice the total time can vary significantly, up to 2 years less than specified and any amount of variation upwards. The above summary also approximates that the listed activities are carried out in series, when in practice a significant amount of overlap may occur. We believe however that the overall timing estimate is appropriate.

Key factors that tend to vary considerably in time between projects include:

- Landowner negotiations and obtaining consent
- Lengthy duration of the planning and approvals process
- Grid connection easement negotiations

In the context of AP2 and the time taken for projects to enter construction phase, it must be noted that there are a number of developments which are well progressed and would have already completed a number of preliminary

stages, meaning that the remaining time to see operating assets under a FiT auction process could be in less than 3 years' time.

7.0 Characterisation of Prospective Investments by Proponent Type

There are a number of different proponent types operating within the Australian wind energy industry. Table 6 provides a list of the main proponent types, a description of each type, some examples of companies by proponent type and the likely involvement of that proponent type in a proposed ACT wind auction.

Table 6 - Prospective proponent types

Proponent type	Description	Examples	Likely involvement in an ACT wind auction
Generator/Retailer	Vertically integrated companies where a generator owns a retail arm. They are commonly described as 'Gentailers'.	AGL, Energy Australia, Origin Energy and Hydro Tasmania	Expected to focus entirely on their obligations under the LRET legislation. Unlikely to participate as a proponent in any ACT Government Large Scale FIT programs.
Generator only	Generation companies that are Government Owned Corporations (GOC) and do not directly own retail arms.	Eraring Energy and Verve Energy	These companies are largely focused on their existing generation assets in their home state. Therefore involvement in an ACT wind auction is not expected.
Independent Power Producer /Developer	Typically privately owned companies that specialise in developing power projects.	Epuron, Wind Prospect, Ratch Australia, Pacific Hydro, Infigen Energy, Union Fenosa, Meridian Energy, NP Power, TrustPower, CBD Energy, Mitsui & Co. (Australia), WindLab, GDF Suez, RES Australia, Marubeni Australia, GHG & GREP, Eurus Energy, Wind Farm Developments.	Expected to be significantly interested in the ACT wind auction particularly if they already have wind developments in the ACR. The ACT wind auction would provide an additional market to the LRET market for LGC's.
Turbine supplier/ wind farm developer	Companies whose core business is to supply wind turbines, who have developed expertise in constructing wind farm projects and in order to provide a market for their equipment, have developed and/or are developing their own wind farm projects	Goldwind Australia, REpower Australia, Acciona Energy Oceania	These companies will be interested in the ACT wind auction both as Proponents (if they have active developments) and Turbine suppliers and contractors.
Investor, Investment banks and funds	Companies that invest in wind farm projects typically at financial close stage or when asset is operating.	ANZ Infrastructure Services, UBS, REST, Palisade, Northleaf, Shenhua Clean Energy Holdings Pty Ltd (SCE), Energy Infrastructure Trust (EIT),	Not expected to be major equity players in a wind auction but may provide equity once construction risk has reduced.

Proponent type	Description	Examples	Likely involvement in an ACT wind auction
Community wind farm developers	Locally owned by farmers, investors, businesses etc. Key feature is direct financial stake in the project. Projects may be used for on-site power or to generate wholesale power for sale, usually on a commercial-scale greater than 100 kW	Hepburn Wind Project	There may be some interest in developing small community projects. Would only be a minor component of an ACT wind auction program.

8.0 Issues that may affect the ACT Government's Ability to Secure Cost Effective Outcomes with Wind Developments

This section provides a summary of key issues relating to current project approval processes for large scale wind farms in NSW and the ACT, community acceptance and an overview of the current sentiment and research into the perceived human health implications of wind farms.

Findings have been based on AECOM industry knowledge and experience, the outcomes of consultation with industry participants, and the review of publically available information, including:

- The results of the Legislative Council Inquiry into *Rural Wind Farms* (December 2009);
- The results of the Senate Inquiry into *The Social and Economic Impact of Rural Wind Farms* (June 2011);
- The former NSW Department of Environment, Climate Change and Water (now Office of Environment and Heritage) commissioned study *Community Attitudes to Wind Farms in NSW* (AMR Interactive, 2010);
- The National Health and Medical Research Council's (NHMRC) *Wind Turbines and Public Health Public Statement* (July 2010);
- The NSW Government's Planning System *White Paper* and *Draft Amendment Bill* (2013);
- Recent DP&I assessment reports, planning approvals and related DGRs and consent conditions for wind farm developments in NSW; and
- DP&I's *Draft NSW Planning Guidelines: Wind Farms* (December 2011).

8.1 Planning approval limitations

8.1.1 Commonwealth

On 27 October 2010, the Senate commissioned an inquiry into the social and economic impacts of rural wind farms. The terms of reference included adverse health effects, concerns over excessive noise and vibration, property values, interface between Commonwealth, state and local planning laws and any other relevant matters. Over 1000 submissions were received and the results of the Inquiry were released in June 2011 which made seven recommendations. The Commonwealth Government responded in a report dated June 2012 and delegated many of these recommendations to state and territory governments, local authorities and professional bodies. While a draft set of National Wind Farm Development Guidelines was previously developed in July 2010, further development was not progressed given that state and territory assessment and approval processes were also in development. Wind farm proposals that may impact matters of National environmental significance are assessed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

8.1.2 New South Wales

In recent years, the planning pathway for large scale wind farm developments in NSW has changed, and developments that were once declared to be 'critical infrastructure' under Part 3A are now assessed as SSD under Part 4, Division 4.1 of the EP&A Act. This change has introduced a lengthening of the assessment and exhibition process and the introduction of merit appeal rights for the proponent or third party (e.g. objector), increasing uncertainty regarding project outcomes and, as noted by one industry participant, potentially delaying the start of construction of a project by months, if not years. The consistent feedback received from industry participants interviewed by AECOM with regards to the planning assessment and approval process for wind farms related to the currently lengthy duration of this process in NSW, which was commonly stated as being costly and time consuming and in most cases continued for greater than two years.

The draft *NSW Planning Guidelines: Wind Farms* were released in December 2011 following the release of the 2011 Senate Inquiry Report in June. The Guidelines introduce a requirement for developers to obtain written consent to place turbines within a two kilometre radius of existing residences from all affected landowners, or to obtain a SCC through an additional Gateway assessment process, prior to progressing further in the assessment process. This requirement to obtain landowner's consent or an SCC before a DA is lodged may have introduced additional complexity and significant upfront timeframe requirements to prospective wind farm projects in NSW. In addition to the Gateway process for residences within 2 kilometres of a wind farm, the draft Guidelines also introduced strict noise standards for wind farms, the application of which was cited by one industry participant as

having resulted in a reduced number of turbines able to be proposed for a wind farm already under development and undergoing the assessment process.

The lengthy duration of the planning approval process experienced by the industry participants surveyed for this report has been shown to introduce risks relating to regulatory and legislative changes during the assessment of a proposal, which poses risk and uncertainty to developers and confusion for stakeholders. There is also the potential for policy changes and the influence of political cycles to come into play when extended assessment timeframes are experienced for projects, adding to this uncertainty and potential risk to the feasibility of a proposal. One industry participant noted that the change from Labor to Liberal governance in 2011 resulted in the repeal of Part 3A and an increasing hard-line stance towards wind farms. This resulted in the removal of a negotiated reduction in the planning fee for each wind farm project, requiring the proponent to pay the full planning fee at exhibition. This participant also noted that exhibition times also increased from 30 days to up to three months.

The currently proposed reforms to the NSW planning system introduced by the State government are open for comment from the public and the associated restructuring and staffing changes may again pose delays and uncertainty for existing and future wind farm proposals in NSW. Although the reforms, as currently proposed, do not indicate significant alterations to the planning pathway for large scale SSD wind farm developments, there are a number of initiatives which could pose additional economic risks. These initiatives relate to changes to developer (and in particular, infrastructure) contributions for proposals and offsetting requirements for ecological impacts, and coincide with the National Environment Law reforms relating to the Commonwealth EPBC Act which are being rolled out in relation to strategic assessments, bilateral agreements with the states and territories, and standardised offsetting policies for environmental impacts.

With regards to those developments requiring approval at the Commonwealth level, some industry participants have noted that the bilateral agreement between NSW and the Commonwealth has not been particularly effective, requiring independent negotiations with both bodies to ensure environmental requirements have been met.

8.1.3 ACT

In November 2010 the *Climate Change and Greenhouse Gas Reduction Act 2010* (ACT Environment and Sustainable Development Directorate) came into effect, establishing ACT emissions reduction targets of zero net greenhouse gas (GHG) emissions by 2060. The Draft *Weathering the Change Action Plan 2* (Draft Action Plan 2) sought feedback on five possible pathways to meet this goal. Pathway 1 involves the use of renewable energy for the ACT electricity supply and Strategy 4 of the Draft Action Plan 2 relates to securing renewable energy electricity generation for the ACT. In Pathway 1, the government identifies that 1,066 MW of wind capacity and a capital investment of around $2.7 billion is required to switch the ACT's electricity supply from fossil fuel to renewable energy. This Pathway notes that the renewable energy does not necessarily have to be acquired from one large wind farm and that options are available to work with preapproved contractors to purchase wind power from a number of sites. This will be examined pending the outcomes of the consultation process.

It is noted that no large scale wind farms have been proposed, approved or developed within the ACT to date. Although statutory plans in the ACT broadly allow for the development of renewable energy sources including wind power, the focus to date has been at the localised, community-scale level. This is in large part due to the 'Hills, Ridges and Buffer Areas Land Use Policies' developed by the ACT Planning and Land Authority as part of the ACT Territory Plan 2008. This Policy protects hills, ridges and buffer areas from "*all forms of development, which would interfere with the backdrop to Canberra"*. 'Major Utility Installations' are identified as purposes for which land within these areas may be used, however individual projects would be subject to assessment and would be likely be required to be consistent with the Policy's intention to "*prevent development from intruding into the skyline*". As such, this Policy is likely to prevent access to the wind resource found in these areas and contribute to the restrictions to development of a commercial wind industry in the ACT (refer to Section 2.0). As such, to date, wind farm specific policies and guidelines for assessment and approval have not been developed for the ACT.

8.2 Community acceptance of wind farms

The 2009 Legislative Council Inquiry notes that wind farms have an important role in Australia's 2020 Renewable Energy Target, though reported significant community angst and concern about the establishment, project design and monitoring of rural wind farms, and opposition from local communities towards individual developments. This community concern was later reiterated in the findings of the Commonwealth's 2011 Senate Inquiry; however the 2011 Inquiry also placed greater emphasis on health and noise effects.

A study commissioned in 2010 by the former DECCW surveyed residents and businesses within the six Renewable Energy Precincts established across NSW, including the NSW/ACT Border Region, South Coast and Cooma-Monaro which are located within the ACR. The study investigated the attitude of communities to wind farms and renewable energy across the precincts, and showed that wind power was seen as a clean energy source and widely regarded as acceptable for power generation by 81% of the population surveyed across the precincts. Research indicated that there was substantial support and backing for wind farms in NSW, in the local region (of those surveyed) and up to 10 kilometres from the place of residence. Support reduced when those surveyed considered wind farms closer to home, although the majority (60%) still supported wind farms at a distance of 1-2 kilometres from their residence. Residents that opposed wind farms within 1-2 kilometres rated perceived noise impacts as a strong concern, though notably, over two thirds (68%) of those residents still saw an overall benefit of wind farms to the local region. Residents in the precincts who opposed to wind farms in NSW and the region (13%) were less likely to consider wind power as an acceptable energy source due to efficiency/reliability concerns and were much less positive about the potential impacts and benefits of wind farms. It was noted that 32% of residents opposing wind farms were aged 65 years and over. While overall acceptability of wind power was shown to be high, a significant number of residents within the Precincts (30-40%) had concerns about:

- noise
- negative visual impact
- negative impact on property prices
- safety concerns
- heritage values

With regards to businesses within the Precincts, it was shown that farming businesses were more concerned about the location of wind farms and noise, though nonetheless over half (57%) of farming businesses stated they would consider wind farms on their property.

During the 2008 local government elections, the Upper Lachlan Shire Council ran a poll on planning and development to gauge the community's view on particular issues, which included the question “Do you support the continuing development and construction of wind farm turbines in the Upper Lachlan Council area?” In response to this question, 70.04% of electors voted ‘Yes’ and 29.96% of electors voted ‘No’. While voting in a poll is not compulsory voter participation was calculated to be 88.19%.

Supporting this result, industry participants contacted as part of the current report noted that the majority of people are in favour of wind farms, with typically only a vocal minority accounting for a small percentage of the overall population surrounding a project raising objections. Participants noted that typical concerns of objectors relate to the impact of noise, visual intrusion, shadow flicker, impact on local roads, bushfire risk, ecological impacts and the belief that wind farms affect health.

The areas of concern raised in the DECCCW study are similar to the common themes and areas of opposition cited in the 2009 Inquiry and by industry, and include:

- loss of land value
- loss of visual aesthetics
- concerns for adverse health consequences including noise
- concern for bird life

While the 2011 Senate Inquiry also addressed these issues to varying extents, the recommendations made in relation to noise and community consultation were directed back to the State and Territories for consideration. Matters relating to health impacts, however, which were not strictly discussed in the 2009 enquiry, were addressed by the Commonwealth (refer Section 8.3).

In addition to these social and economic areas of concern, the NSW Government cites the potential impact of wind farms on birds, bats and ridge top grasslands and woodlands in the ACR as issues of major concern in relation to wind farm development. Clearance of ridge top grasslands and woodlands in the ACR can have direct impacts to foraging habitat and to those species that utilise it, including species of bird and bats. Birds and bats can be affected by construction-related impacts including the aforementioned habitat clearance, and operational-related impacts including direct mortality from rotor/turbine strike and barotrauma (which affects only bats). The

impact of wind farms on birds and bats can vary depending on a number of factors, including the abundance and type of bird species present near the turbines (e.g. birds with lower manoeuvrability are more at risk), the number of turbines, and the location of the wind farm with respect to major migratory routes and local weather conditions (such as fog prone areas). Several Australian studies have concluded that where wind farms are sited appropriately with the above considerations in mind, the likelihood of bird and bat strike is considered low to negligible[16].

Nonetheless, the *Draft NSW Planning Guidelines: Wind Farms* have responded to social, economic and environmental areas of concern and provide guidance on the way in which these and other matters are to be considered in the assessment and determination of wind farm proposals in NSW. For example, the draft guidelines identify the need for assessment of potential impacts of wind farms on birds and bats, preparation of a Bird and Bat Adaptive Management Plan prior to construction, and include requirements for bird and bat monitoring during operation. With respect to social and community areas of concern raised by DECCW, the draft guidelines also provide noise criteria for wind farm receivers, clear processes for community consultation for wind farm developments and require developers to demonstrate the greenhouse gas benefits of their proposals.

This guidance is in line with the findings and recommendations made by the previous 2009 Inquiry, which noted that at that time, there was:

- an absence of noise guidelines for wind farms in NSW
- a significant degree of confusion and misinformation about the ability of wind farms to reduce greenhouse gas emissions
- a considerable level of concern existed regarding community consultation practices for wind farms

The 2009 Inquiry findings observed that many participants felt disempowered by the wind farm consultation undertaken at that time, while the methods of some wind farm representatives in gaining landowner consent and agreements at the lease signing stage were seen as unethical, divisive and utilising inappropriate conduct in a number of cases, which was purported to lead to social disruption and division within communities. The National and NSW State assessment guidelines both highlight the need for early, effective and ongoing consultation with stakeholders including the community and potentially affected landowners. This is mirrored in the feedback received by AECOM from industry participants, some of whom have stressed the need for proactive consultation.

The draft NSW guidelines state that where a turbine is proposed within 2 km of a neighbour's house, developers should consult with affected neighbours on issues including landscape and visual amenity issues, noise, health, property values, blade glint and shadow flicker (refer to the following section relating to human health). The draft NSW guidelines now also require the establishment of a community consultative committee for all SSD wind farm applications during the assessment and operational phase of a project, which further responds to the need for clarity and consistency around community consultation.

Although these requirements seek to ensure opportunities for stakeholder input and to ameliorate potential concerns earlier in the project's design, industry participants noted however, that there is a small, yet vocal minority of community opposition to wind farms in areas of the ACR that have been unwilling to negotiate and sought to place unreasonable demands on proposed developments. In such cases, proponents may view such steps as increasing the lead times for the development of wind farms in the ACR with little tangible benefit to project outcomes.

8.3 Current standing on perceived human health implications

The DECCW community attitude study (2010) found that at that time, approximately two thirds (69%) of residents within the Renewable Energy Precincts did not perceive any health concerns with the establishment of wind farms. One industry participant interviewed by AECOM for the current report noted that recently, health concerns

[16] Sharp, A. (2010). Briefing note on the effects of wind farms on bird and bat populations. Lower North Natural Resource Management Group. Prepared for Government of South Australia Department for Environment and Heritage.
Smales, I. (2005). Risk level to select species listed under the EPBC Act of collision at wind farms in Gippsland, Victoria. Prepared for Commonwealth Department of Environment and Heritage.
Smales, I. (2006). Impacts of avian collisions with wind power turbines: an overview of the modelling of cumulative risks posed by multiple wind farms. Prepared for Commonwealth Department of Environment and Heritage.

have been raised much less frequently by community opponents to wind farm proposals than in the previous year or two.

Historically, concerns regarding the perceived human health effects of wind farms have included local communities citing various impacts from turbine operation, blade malfunction and noise levels, low frequency noise, and sound character produced by wind turbines. In 2009 the Legislative Council Inquiry noted that the health effects associated with wind farm noise were the most common concern from Inquiry participants, and that some health impacts such as the effects of noise annoyance were supported by scientific research. The Inquiry also noted, however, that perceived impacts such as Vibroacoustic Disease, wind turbine safety, shadow flicker and 'Wind Turbine Syndrome' are not supported by evidence and have created little more than unfounded fear in local communities. The 2011 Senate Inquiry recommended that further studies be initiated on possible human health impacts of wind farms. As a result health studies, originally conducted by the National Health and Medical Research Council (NHMRC) in 2009, have continued into 2013. The 2011 Senate Inquiry also recommended that discussion of human health be included in a redraft of the National Wind Farm Development Guidelines (2010). However, this recommendation was not accepted in light of the development of State-based assessment.

A public statement released by NHMRC in July 2010 noted that while a range of effects such as annoyance, anxiety, hearing loss, and interference with sleep, speech and learning have been reported anecdotally, there had been no published scientific evidence to support adverse effects of wind turbines on health. Reported health concerns primarily relate to infrasound (sound that is generally inaudible to the human ear) generated by wind turbines. The NHMRC notes that the World Health Organisation states that "There is no reliable evidence that sounds below the hearing threshold produce physiological or psychological effects". Rather the principal human response to perceived infrasound is annoyance.

In January 2013, the South Australian Environment Protection Agency (EPA) released a study undertaken into the level of infrasound within typical environments in South Australia, with a particular focus on comparing wind farm environments to urban and rural environments away from wind farms. One of the findings of the study indicated that infrasound levels measured at houses adjacent to wind farms were no higher than those at houses located a considerable distance from wind farms. The study concluded that the level of infrasound at houses near the wind turbines assessed is no greater than that experienced in other urban and rural environments, and that the contribution of wind turbines to the measured infrasound levels is insignificant in comparison with the background level of infrasound in the environment.

Similarly, the Inquiry notes that some research had concluded that annoyance is considered to be an adverse health effect of wind turbine noise and visibility (causing negative emotions and sleep disturbance), and that certain factors were reported to increase the chance of being annoyed by wind turbines: visibility of wind turbines, living in a rural area that has subjectively low background noise levels, and having a negative attitude towards wind turbines in general.

The NHMRC public statement also stated that the perception of the noise is influenced by the bearer towards the sound source. Further, it noted the argument that if people are worried about their health they may become anxious, causing stress related illnesses which were genuine health effects arising from their worry, but not from the wind turbine itself. It also cites research findings which have shown that people who benefit economically from wind turbines were less likely to report annoyance, despite exposure to similar sound levels as people who were not economically benefitting.

Other reported health concerns from wind farms relate to shadow flicker, blade glint, and electromagnetic radiation. The NHMRC has advised that evidence on shadow flicker does not support a health concern, while the risk of blade glint (light reflection) from modern wind turbines is considered to be very low. Electromagnetic radiation from turbines has been shown to be countered by associated cabling and shielding from the turbine materials.

The NHMRC notes that while there is currently no evidence linking these specific phenomena with adverse health effects, the evidence is limited, and therefore recommends that a precautionary approach is taken. In the same way, the *Draft NSW Planning Guidelines: Wind Farms* adopt a precautionary approach and require developers to explicitly consider health issues in the assessment of proposed wind farms, and note that applications may still be referred to the Department of Health as part of the assessment.

9.0 Optimal timing for investments between 2014 and 2020

AECOM has undertaken an assessment of the likely variables that will impact on the optimal timing for investment between 2014 and 2020. The variables discussed below include wind turbine pricing, balance of plant pricing, wind energy technology developments, Tier One site availability and market competition. AECOM has sought advice from industry participants on the anticipated trends of likely variables, which has been incorporated in the analysis discussion.

9.1 Wind turbine pricing

Figure 8 indicates how wind turbine prices have varied between 1997 and 2011. This chart indicates that pricing variations are related to demand for turbines at the time.

During consultations with industry representatives, there was common opinion that wind turbine pricing will likely remain stable in the short term.

While wind turbine pricing is naturally an important input, there are some key reasons why wind turbine pricing may not translate directly to wind energy pricing. It is important to also consider that increases in wind turbine prices may be the result of technology improvements that in-turn reduces balance of plant and operating costs. Additionally, the energy production efficiency of wind turbines has been improving rapidly over recent years, with significantly more yield per installed MW expected on sites commissioned today.

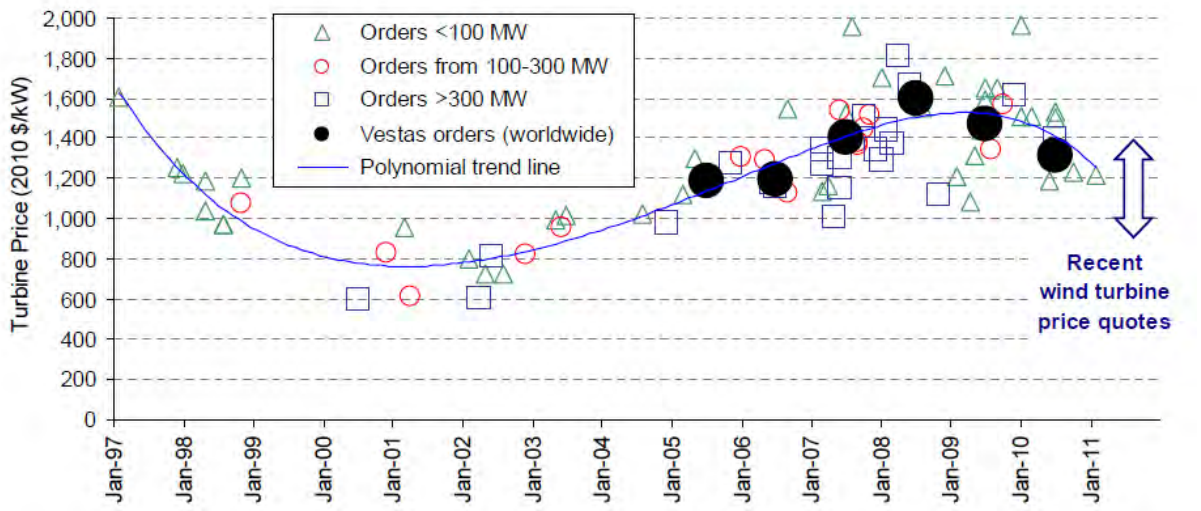

Figure 8 - Wind turbine pricing trends in the United States of America between 1997 and 2011 [Source: Berkeley Lab, Vestas & Bloomberg NEF]

9.2 Balance of Plant (BoP) pricing

Very little data is available on the public domain on the pricing for the main civil/structural and electrical balance of plant contracts for Australian wind farms. AECOM's wind industry observation is that there has been a general downward trend of balance of plant pricing on a per MW basis. Key influences to the expected modest downward trend in pricing include:

- Improved industry experience with wind farm construction resulting in better understanding of risks
- Improved engineering experience resulting in more efficient designs of both foundations, roads and electrical power systems
- Larger wind farms producing economies of scale with regard to design, construction and procurement of plant and materials
- The anticipated modest downward trend in pricing could be affected by market conditions if there is a rapid increase in industry activity under the RET.

9.3 Wind energy technology developments

The rapid growth of the wind energy industry has been coupled with continued improvements in technology. A useful measure that indicates the improvements in performance of wind farms is the capacity factor[17]. Wind farm capacity factors have increased on average from approximately 30% in 2005, to almost 40% in 2012. As installations increase over the coming years another step change in capacity factor will likely emerge with capacity factors above 40% becoming more common. Some industry commentary also reflects this expectation.[18]

There are two key forms of technology development in recent years:

1) New wind turbine models have been designed to take advantage of sites with medium scale wind speeds, typically characterised by larger rotors relative to generation (power) capacity.

2) Better understanding of loads experienced by wind turbines has allowed placement of turbines in wind regimes with higher overall loading conditions while maintaining design life expectations.

The Australian wind energy industry has experienced a lull in activity in recent years. In AECOM's view, this is primarily due initially to an oversupply of RECs in the market caused by a combination of point of sale deeming of solar PV and solar hot water certificates as well as generous state based feed in tariffs. In later years and in particular at the time of writing, the expected rise in activity in the market has been delayed by significant policy uncertainty and the resulting reluctance of electricity retailers to enter into long term power purchase agreements for renewable energy.

With regard to wind turbine technology, this lull has meant that a number of more improved and efficient wind turbine models that have recently entered the global market are yet to be installed in Australia. A factor that may reduce the positive impact of these new efficient turbine models in early years however is their minimal track record. The maturity of technology deployed affects confidence in future reliability and therefore can flow through to higher financing costs.

9.4 Site availability in the ACR

There is potential for the LCOE of wind developments in the ACR to be influenced by the broader level of activity in the market driven by the RET. AECOM estimates the quantity of wind energy which will be installed between 2013 and ~2021 under the current RET of 41,000 GWh/annum to be around 8,000 to 10,000 MW. However, there is a possibility that the RET will be revised downwards to a target of around 26,000 GWh/annum to reflect decreases in demand and we believe that the quantity of wind energy to be installed under this scenario will be around 4000 to 5000 MW.

There is potential that the more competitive wind sites in the ACR will begin to be developed under the RET, reducing the availability of sites to be developed under an AP2 FiT and may lead to an increase in the FiT price being offered by proponents. This is highly dependent on the timing of a FiT executed by the ACT Government and the commencement of the beginning of the major ramp up of project installation relating to the release of the RET review findings that are due to be completed in mid-2014.

9.5 Market competition

The level of market activity plays a large role in wind farm development pricing. As outlined in Table 7, at the end of 2012 around 2500 MW of wind energy was installed in Australia, with around 2100 MW of that installed since 2004. The peak year for installations in Australia was 2009 with 662 MW. The 2008 to 2011 average annual installation amount was just over 400 MW.

[17] The capacity factor is equal to the annualised average generation divided by the capacity of the generating unit.
[18] Clean Technica, Wind Turbine New Capacity Factor 50% the New Normal? http://cleantechnica.com/2012/07/27/wind-turbine-net-capacity-factor-50-the-new-normal/ [viewed 26/8/2013]

Table 7 - Australian Wind Energy Installations by State and Year[19]

Cumulative Installations per Australian State	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
New South Wales	17	17	17	17	17	17	187	187	187	276	276
Queensland	12	12	12	12	12	12	12	12	12	12	12
South Australia	0	35	35	388	388	388	742	909	1020	1073	1073
Tasmania	0	0	0	0	0	140	140	140	140	140	140
Victoria	39	92	92	104	104	104	104	428	428	434	521
Western Australia	24	27	27	29	200	201	202	202	202	541	555
Cumulative Total	**92**	**183**	**183**	**549**	**720**	**861**	**1217**	**1879**	**1990**	**2476**	**2576**
Annual Installations		**91**	**0**	**366**	**171**	**141**	**356**	**662**	**111**	**486**	**100**

As outlined in Section 9.4, there is a significant amount of activity expected in the wind industry under the RET; however the exact amount is uncertain. If the RET is to be fulfilled to the current target, the annual installations will need to average around 1300 MW per year to meet the 2020 target, twice the previous peak and three times the average during recent more active years. Under the revised RET (26,000 GWh/annum), the installations would be expected to average around half this level. While it is expected that the industry could quickly increase capacity to meet this demand, it is reasonable to expect that high volumes could put some upward pressure on pricing. The level of activity in the Australian wind industry will have an impact on competition between suppliers and contractors and availability of key resources including skilled labour and equipment such as large cranes for installation. On the other hand, an increased volume would be expected to increase local learning rates and entice more competition into the market, which may serve to keep pricing competitive.

During consultations with industry members, similar opinions were shared. It was thought that considering the relative inactivity of the current wind market, the ACT Government would likely receive highly competitive bids in the next 12 months. It is possible, that towards the end of 2014, increased pressure from the RET requirements could result in less competitive bids in a reverse auction FIT process than would be offered in the near term. Movements in the price of LGCs have been forecast by the Climate Change Authority for both the existing fixed 20% target referred to in Figure 9 as ‘Reference Case 1’ and a potential reduced RET (26,000 GWh/annum) modified for lower than expected demand growth referred to in Figure 9 as the ‘Updated 20% Target’.

Both scenarios suggest an increasing LGC price through the period up to 2020 when the RET is being fulfilled then rapid decreases.

[19]Wind in the Bush http://ramblingsdc.net/Australia/WindPower.html [viewed 21/6/2013]

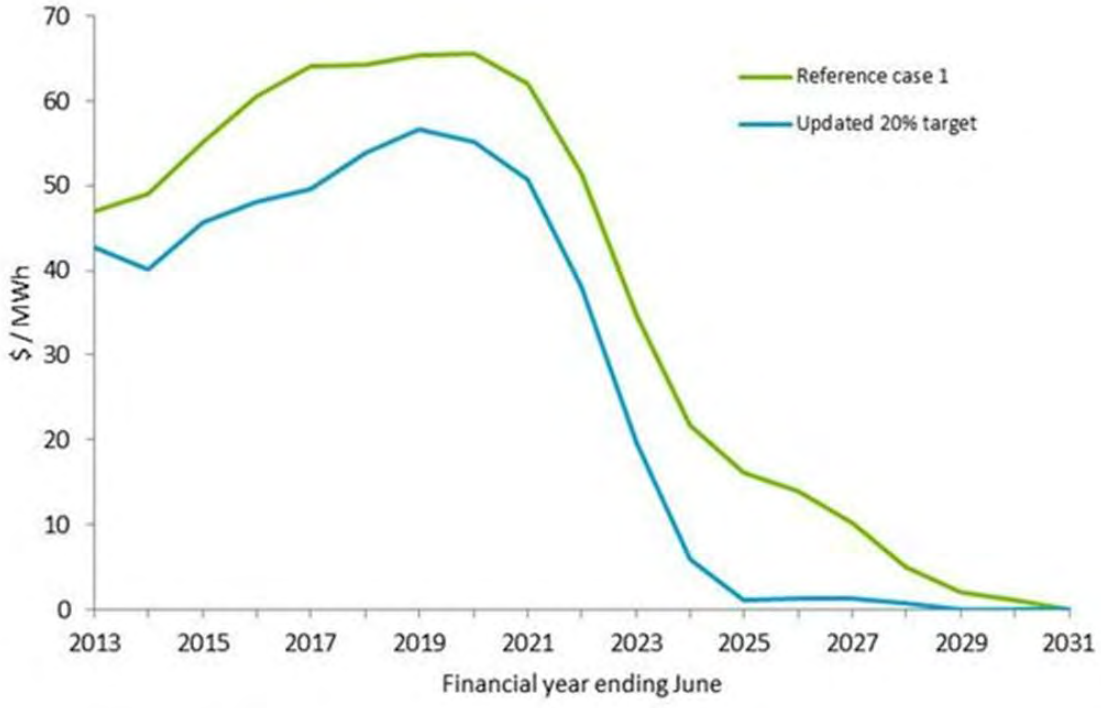

Figure 9 - LGC Price Forecast (Climate Change Authority)[20]

9.6 Wholesale Electricity Market

The Renewable Energy Target will be the key driver for market activity going forward. The cost of energy produced under the RET relative to wholesale prices may impact future reviews of the target. The recent reduction of wholesale energy prices in a market with decreasing demand as well as the increasing generation from renewables is increasing pressure for the Renewable Energy Target to be reduced or even scrapped according to some prominent retailers and generators. Therefore the potential impact of depressed NEM prices on a FiT, while not having an impact on the direct cost of wind energy, could have a secondary impact of downward price pressure if low NEM prices encourage a reduced RET and increased competition..

Another factor which should be considered in this context due to its impact on wholesale electricity prices is the carbon tax or emissions trading scheme. Economically, a carbon price has the impact of reducing the difference between NEM prices and renewable energy, reducing the relative costing of policies such as the RET and potentially making higher renewable energy targets 'cheaper' while also bringing forward the point in time when renewable energy may be cost competitive without support. From this perspective it could be said that removal or reduction of the carbon price would have a long term negative impact on the level of renewable energy development. Politically however, the reduction or removal of the carbon price may improve the political resilience of the RET as a key remaining policy to meet Australia's emission reduction targets, effectively supporting the near term renewable energy market.

The incremental difference between renewable energy costs and average wholesale prices may also impact the financial models of projects expected to be generating beyond the current expiry of the RET in 2030.

As part of an investigation into changes to the RET, the CCA provided the below information on forecast NEM prices though to 2031. It can be seen below in Figure 10 that according to that study, wholesale prices are expected to remain moderate through to around 2020. The subsequent increase is, as described by the CCA, the result of an assumption of significant increase in carbon price at that time: "*The substantial upward shift in prices from 2021-22 to 2022-23 ($58 per MWh to $88 per MWh) is, however, the result of the step change in carbon prices that is assumed to occur at that time." (see footnote 20).*

[20] Australian Government Climate Change Authority http://climatechangeauthority.gov.au/ret/final-report/modelling-summary [viewed 8/8/2013]

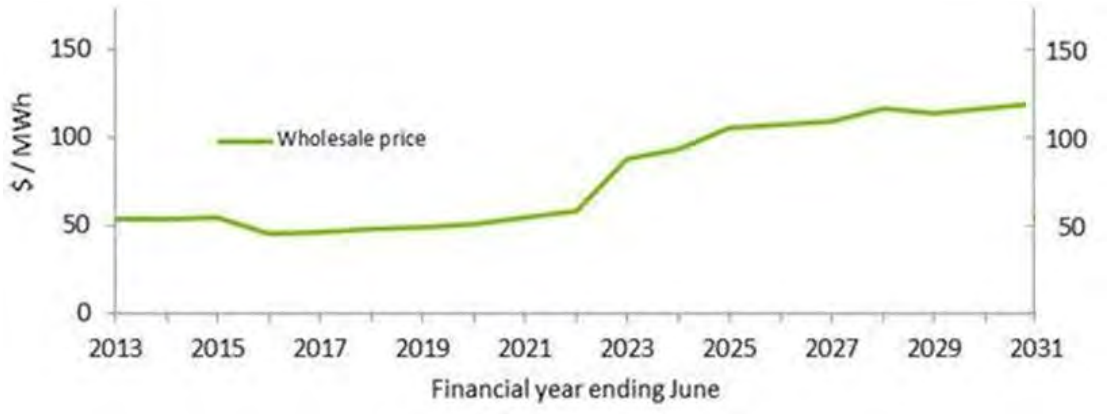

Figure 10 - NEM Price Forecast[21]

9.7 Currency Markets

The cost of wind turbines, all of which are imported, makes up around 50% of wind farm capital costs. Therefore the cost of wind energy is significantly impacted by the strength of the Australian dollar.

Forecasting of currency movements is beyond the scope of this investigation however it is noted that the recent downturn in the Australian dollar can be expected to put some upward pressure on wind turbine prices. AECOM notes that while market forecasts vary, many commentators are forecasting increasing downward pressure on the Australian dollar.

It is not possible to know what currency value assumptions have been included in the prices recently seen in the market however we believe is it likely that some upwards pressure is being placed on wind turbine prices for Australian projects as a result of currency movements.

9.8 Summary of factors influencing optimal investment timing

For the ACT Government to receive value for money investment, the optimum timing of a FIT within the ACR is dependent on a number of conflicting factors. Importantly, one variable that could have a significant impact on Australian wind energy pricing has not been discussed above which is the impact of global movements in demand for wind turbines. Along with currency movements, these two issues are key sources of uncertainty in forecasting local wind energy costs.

It is expected that upwards price pressure in the next few years may result from increased development under the RET; however, some policy uncertainty exists. Specific aspects include:

- potential reduction in available Tier One sites within the ACR from 2015 if they are constructed under the RET
- generally decreasing competitive tension during increased construction volumes under the RET, which may lead to higher prices

Some upwards pressure on wind farm capital costs could also be expected from recent as well as any future downwards movements of the Australian Dollar due to the impact this has on local wind turbine prices.

It is expected that downward price pressure may result from:

- improvements in turbine technology and energy yield
- increased local learning with expected increase in construction under the RET
- new construction companies attracted into a more active market improving competition

[21] Australian Government Climate Change Authority http://climatechangeauthority.gov.au/ret/final-report/modelling-summary [viewed 8/8/2013]

9.9 Recommendations for FIT staging and timing

As discussed in Section 9.8, there are some competing factors which may influence pricing. While there appears to be more factors which point to a general decrease in wind energy costs, changing market conditions and advice from industry participants suggest that an early FiT auction might yield the lowest prices. Considering the above and the ACT Government's likely preference to spread the cost of the program over the period from 2014 to 2020, a multistage process with two or three streams would be appropriate. Staging the 583 MW award over a few years would:

- allow for a range of projects to be considered
- spread the ACT Government's financial commitment
- spread the risk/opportunities with pricing movements
- give the ACT Government the opportunity to alter the mechanism based on lessons learnt from previous stages

AECOM's recommends the following arrangement be considered:

1) Stage One – Pre-qualification

   As was undertaken for the ACT solar auction, we recommend a comprehensive pre-qualification stage be performed. Its aim is to ensure that only serious and capable proponents are involved and that unrealistic bidding does not occur.

2) Stage Two – Final Submission

Table 8 - Recommended award timing

Stream	Year of Award	Suggested Capacity Range	Considerations	Anticipated project completion date
One	2014	150 MW to 300 MW	AECOM is of the opinion that the ACT Government would obtain highly competitive bids in the next 6-12 months. This was confirmed by the consulted industry representatives. Assuming the RET is retained, towards the end of 2014 and into 2015, it is possible that RET requirements could result in less competitive bids. If only projects with Development Approval are being considered for the first stream, it would be recommended to limit the first stage to ensure competitive pricing, due to the number of projects that would be expected to be eligible. As shown in Table 3, wind energy projects amounting to over 700 MW have received Development Approval in the region; however, a limited number would eligible for participation, as three have already secured a PPA[22]. More projects would be eligible if the process was open to projects in the process of obtaining Development Approval.	2017
Two	2015	150 MW to 250 MW	It is recommended to consider awarding a second stream 12-18 months after Stream One, aimed at projects that are currently midway through obtaining Development Approval.	2018
Three	2016	150 MW to 250 MW	It would be recommended to consider awarding a third stream approximately 12-18 months after Stream Two, aimed at projects that are currently not in active development.	2019

[22] It is standard industry practice for a PPA to include both the sale of energy and renewable energy certificates (LGCs). This has been assumed throughout.

10.0 Business development opportunities for the ACT

The development of wind energy can bring significant benefits to the Australian Capital Region. The most significant benefits are environmental and economic, due to the large offset of greenhouse gases emissions and the large investment and job creation in the area. Table 9 describes some of the benefits that the ACT Government can expect to see from construction wind farms in the ACR.

Project Example

The expected community economic benefits of wind farms projects have been estimated by Union Fenosa in the planning for Crookwell 3 Wind Farm[23]. The proposed project, with a capital investment of approximately $90M to $110M, will create up to 40 Full Time Equivalent (FTE) jobs during the construction phase and up to 6 FTE jobs during the operation phase. The construction and operation phases of the project will stimulate the economy in the Upper Lachlan Shire as a result of job creation, and result in an increase of disposable income in the region. These economic benefits are enhanced by the developer's commitment to contribute an annual contribution of almost $50,000 to the local community, as part of Upper Lachlan's Community Enhancement Fund.

Table 9 - Overview of the benefits that may be observed due to construction of wind farms in the ACR

Benefits	Description
Regional development	
Employment[24]	The development of wind farms will have a direct impact on local employment. It is estimated that during construction a 50MW wind farm project directly creates 48 local positions, and indirectly creates a further 112. A smaller number of jobs are created during operation. If 583 MW of new wind energy were constructed in the ACR, it is estimated that during construction approximately 550 local positions would be required, with another 1300 indirectly. During operation, the Clean Energy Council reports states that local/regional employment rates can be expected to be around 5 direct jobs and a total of 12 jobs for each 50 MW, totalling 140 positions for the planned 583 MW. A number of roles during construction are likely to be sourced locally. These may include: – Civil Supervisors – Electrical Supervisors – Safety Officers – QA Officers – Administrative Support – Commissioning Engineers – Crane Drivers – Machinery Operators – Riggers – Steelworkers (for foundation steelwork) – Electricians – Fitters – Labourers – Trades Assistants Workers required during the wind farm's operating life include: – Service Technicians – mix of electrical/mechanical – Storeman – Administrative Support Furthermore, both construction and operation phases create jobs indirectly for trades, consultants and services.

[23] Union Fenosa Wind Australia – Crookwell 3 Wind Farm http://www.unionfenosa.com.au/f/faq/16-Crookwell-3-Newsletter-December-2012.pdf [viewed 17/6/2013]
[24] Clean Energy Council – Benefits of Wind Energy in Australia 2012 www.cleanenergycouncil.org.au [viewed 17/06/2013]

Benefits	Description
Local Investment[25]	The local capital expenditure for top tier utility wind farms in Australia is approximately $1 million/MW. In addition, it is estimated that construction workers and operation and maintenance staff would contribute local personal expenditure during the construction period and beyond. Furthermore, wind developers would typically make $5,000/MW in payments to farmers for use of their land as well as making use of local suppliers where possible. This would include plant hire and materials (e.g. rock, cement, sand and gravel).
Skills	Developing wind energy in the region will provide significant skills and expertise in the construction and operation of utility wind farms. This is an opportunity to diversify the region's economy while becoming a leader in wind development in Australia. As the regional industry continues to climb up the learning curve, the costs are expected to reduce. This will thereby enable the region to develop wind energy more cost efficiently in the medium term.
Tourism	The transformation of the ACR as a wind region can bring some indirect economic benefits such as tourism benefits. Tours and museums could be developed to support the development of "wind tourism". Woakwine Range Wind Farm Tourist Drive is an example of a wind development that brought tourism opportunity to South Australia[26]. Furthermore, Woodlawn Wind Farm hosted the inaugural "Run with the Wind" fun run event in November 2012. This event gave interested people the opportunity to see the impressive wind turbine structure up close during a family friendly fun run[27]. Such attractions and events can help build the ACR brand as a progressive community and renewable energy hotspot. This brand can be leveraged as a tourist attraction.
Research Benefits	
Collection of generation data and generation forecasting leads to improved integration of renewable energy into the electricity network	Local universities and organisations such as the CSIRO have a strong interest in renewable energy technologies. The presence of new wind farms in the ACR could present good opportunities for collaboration in a number of areas. This could include: – Generation forecasting techniques – Wind resource model verifications – System performance
Complementary research opportunities	The presence of new wind farms in the ACR could present interesting opportunities for research into complementary technologies. This could include: – Opportunities to integrate storage technologies, including testing new storage technologies – Researching smart-grid integration
Environmental Benefits	
Carbon emissions	Assuming that wind generation under this program is additional to the requirements of the Large-scale Renewable Energy Target, each MWh of power produced will offset

[25] Clean Energy Council – Wind Farm Investment, Employment and Carbon Abatement in Australia www.cleanenergycouncil.org.au [viewed 17/06/2013]
[26] South Australia – Woakwine Range Wind Farm Tourist Drive http://www.southaustralia.com/info.aspx?id=9004640 [viewed 17/6/2013]
[27] Run with the Wind, Woodlawn Wind Farm http://runwiththewind.com.au [viewed 17/6/2013]

Benefits	Description
	approximately 1MWh of power produced by other generators (most likely coal or gas). NSW currently has an emissions intensity of 0.88 t_{CO2}/MWh[28]. This means that a 50MW wind farm with a 35% capacity factor would offset over 130,000 tonnes of carbon emissions each year.

[28] Australian Government, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, National Green Accounts Factors http://www.climatechange.gov.au/climate-change/greenhouse-gas-measurement-and-reporting/tracking-australias-greenhouse-gas-emissions/national-greenhouse-accounts-factors%E2%80%94july-2012 [viewed 17/6/2013]

Conclusion

AECOM has been engaged by the ACT Government ESDD to carry out an investigation into 'Pathways for the Development of Wind Energy in the Australian Capital Region'. This study aimed to inform the ACT Government of the economic potential for wind energy in the ACR, highlight key risks and opportunities and advise of the suitability of a reverse auction Feed in Tariff (FIT) to encourage development.

Key findings:

- AECOM undertook a high-level GIS analysis to estimate the quantity of commercially viable wind energy development in the ACR. From the analysis, it was estimated that an area of 3,376 km^2 in the ACR is suitable for Tier One wind farms, which is primarily located in the Upper Lachlan Shire and Goulburn Mulwaree Shire. AECOM has estimated the Tier One resource to be approximately 2,046 MW. It was also estimated than an area of 18,297 km^2 in the ACR is suitable for Tier Two wind farms. AECOM has estimated the Tier Two resource to be approximately 11,089 MW. Realisation of this wind energy potential is heavily dependent on network capacity, which is known to be an issue in the region.
- The range of LCOE for Tier One and Tier Two wind energy sites in the ACR was estimated. The LCOE is expected to range from $74/MWh at the best Tier One sites down to around $98/MWh for the poorest Tier Two sites.
- A market analysis was undertaken to estimate the quantity and size current operational wind farms in the ACR and wind farms in developments. It was found that:
    - 5 wind farms are currently in operation in the ACR, amounting to approximately 270 MW
    - 3 wind farms have received Development Approval and have previously secured a Power Purchase Agreement (PPA), amounting to approximately 550 MW
    - 3 wind farms have received Development Approval and have not secured a Power Purchase Agreement (PPA), amounting to approximately 220 MW
    - 8 wind farms are in active development, amounting to approximately 1500 MW
- AECOM completed a review of international wind energy incentive mechanisms and consulted with industry participants to comment on the suitability of a reverse auction FIT for wind energy in the ACR. It was found that the key risks with employing a wind energy reserve auction FIT are the underbidding of proponents and projects not being delivered as promised. Industry participants emphasised to AECOM the importance to carefully structure the mechanism ensuring proponents and their projects are adequately reviewed prior to shortlisting and that adequate time is provided to allow proponents to submit quality bids.
- Each stage of project development and execution was reviewed to estimate the lead time associated with wind energy developments. The key phases considered include resource assessment, Development Approval, landowner negotiations, grid connection enquiries, financial negotiations, contracting, construction and commissioning. It was estimated that the complete process typically takes 6 years in Australia.
- AECOM undertook an assessment of the likely variables that will impact on the optimal timing for investment between 2014 and 2020. For the ACT Government to obtain value for money investments, the optimum timing of a FIT within the ACR is dependent on a number of conflicting factors. It is expected that upwards price pressure in the next few years may result from increased development under the RET; however, some policy uncertainty exists. It is expected that downward price pressure may result from improvements in turbine technology, increased local learning with expected increase in construction under the RET and new construction companies attracted into a more active market improving competition.

In summary, the analysis indicates that a reverse auction FIT mechanism for wind energy would result in a cost effective way to achieve the 583 MW wind energy target by 2020. Advice received from industry representatives confirms this finding. A reverse auction FIT held by mid-2014 for project(s) amounting to between 150 MW and 300 MW would most likely yield very competitive FIT prices. This is due to the competitive wind energy market that currently exists. Considering the ACT Government's likely preference to spread the cost of the program over the period from 2014 to 2020, a multistage process with two or three streams would be appropriate.

The development of wind energy can bring significant benefits to the Australian Capital Region. The most significant benefits are environmental, due to the large offset of greenhouse gases emissions, and economic, due to the large investment and job creation in the area.

Glossary

Term	Description
Balance of Plant (BoP)	The BoP works cover all civil and electrical works required for a wind farm that are not included in the turbine supply contract.
Commissioning	Project commissioning is the process of assuring that equipment is designed, installed and tested according to the operational requirements.
Economies of scale	“Economies of scale” refers to the cost advantages that are obtained due to project size.
Feed in Tariff (FIT)	A FIT is a premium rate paid to producers of renewable energy.
Gentailer	Vertically integrated companies where a generator owns a retail arm.
Incentive mechanism	An incentive mechanism refers to a Government policy that is designed to incentivise a desired action.
Levelised Cost of Energy (LCOE)	LCOE is a key metric for the comparing the cost of electricity produced by a generator. It is calculated by discounting the all project costs and expected energy production. Refer to Appendix D for further details.
Met mast	A meteorological mast (met mast) is a wind measurement instrument suspended on a tower on the proposed wind farm site.
Network capacity	Network capacity refers to the maximum power transmission capacity of a local grid.
Off-take agreement	An off-take agreement refers to an agreement entered into between an electricity producer and purchaser for a certain amount of future production.
Power Purchase Agreement (PPA)	A PPA is an agreement between a generator and purchaser (i.e. retailer or wholesaler) to purchase electricity at a fixed rate for a specified period of time.
Renewable Energy Target (RET)	The RET is set by the Australian Government and outlines a plan to generate a certain portion of renewable energy by specified dates.
Reverse auction	A reverse auction is a type of auction whereby the roles of a typical buyer and seller are reversed. In a reverse auction, the sellers compete to obtain business from the buyer.
Small, medium and large scale wind farms	Small Wind Farm (< 100 MW), Medium Wind Farm (100 - 250 MW), Large Wind Farm (> 250 MW)
Tier One and Tier Two wind energy regions	Tier One regions represent areas likely to be cost competitive with wind energy developments currently under development in Australia. Tier Two regions represent areas with a higher LCOE than the Tier One areas, but may still be considered economical under certain circumstances and market conditions. Refer to Appendix A for further details.
Wind energy capacity (wind turbine density, wind farm density)	AECOM has included a wind energy capacity factor to estimate the wind energy potential of a geographic area. The wind energy capacity factor is calculated by combining a wind turbine density factor and wind farm density factor. Refer to Appendix C for further details.
Wind turbine capacity factor	The wind turbine capacity factor is a measure of the average generation, as a percentage of the maximum generation capacity.
Wind resource, resource assessment	Wind resource refers to the magnitude and quality of wind on a particular site. A wind resource assessment is the process where a developer estimates the future energy yield of a potential wind farm.

Appendix A – GIS Analysis Criteria

Table 10 - Constraint matrix for GIS site selection analysis

No.	Criteria	Green Ideal	Orange Marginal	Red Unsuitable	Data source
1	Wind resource	Average wind speed > 7.0 m/s	Average wind speed 7.0 - 6.4 m/s	Average wind speed < 6.4 m/s	Map from the Government of South Australia Renewable SA (Predicted wind speed at 80 meters above ground level. 1995-2005).
2*	Topography - Feature	Ridges	flat terrain (not ridge nor valley)	Valleys	LPMA 2011 - 25m NSW DEM, AECOM GIS topography analysis tool to identify ridges / valley's etc.
3*	Topography - Slope+	< 7 %	7 - 10%	> 10%	
4	Land use 1	Rural / Farmland outside of 5km urban/town buffer	Rural / Farmland outside of 2km urban/town buffer	Urban / town areas + 2km buffer	LPMA 2011 – General Cultural Areas layer
5	Land use 2	All other areas	-	Conservation areas (including national parks) and Forested / vegetated areas ACT	OEH 2007 – Land Use Mapping New South Wales
6	Transmission suitable for **Small** Wind Farm (< 100 MW)	< 10 km from 66 kV or 132 kV transmission line	10 - 20km from 66 kV or 132 kV transmission line	> 20km from 66 kV or 132 kV transmission line	LPMA 2011 – Electricity Transmission Line layer
7	Transmission suitable for **Medium** Wind Farm (100 - 250 MW)	< 15 km from 132, 220, or 330 kV transmission line	15-25 km from 132, 220, or 330 kV transmission line	< 25 km from 132, 220, or 330 kV transmission line	LPMA 2011 – Electricity Transmission Line layer
8	Transmission suitable for **Large** Wind Farm (> 250 MW)	< 20 km from 220, 330 or 500 kV transmission line	20-30 km from 220, 330 or 500 kV transmission line	< 30 km from 220, 330 or 500 kV transmission line	LPMA 2011 – Electricity Transmission Line layer

* *Topography Feature and Slope layers will not be used as criteria in determining Tier One and Tier Two areas*

For each of the criteria (1-8) a 2 GIS layers will be created one for each of the condition levels: Green and Orange (no layer needed for Red, as this will simply be all other areas). With these layers we can do various GIS analyses to identify the Tier One and Tier Two sites. Example may be:

- **Tier One Small Wind Farm Areas** = Green condition for criteria 1, 4, 5 and 6
- **Tier Two Small Wind Farm Areas** = Green or Orange condition for criteria 1, 4, 5 and 6
- **Tier One Medium Wind Farm Areas** = Green condition for criteria 1, 4, 5 and 7
- **Tier Two Medium Wind Farm Areas** = Green or Orange condition for criteria 1, 4, 5 and 7
- **Tier One Large Wind Farm Areas** = Green condition for criteria 1, 4, 5 and 8
- **Tier Two large Wind Farm Areas** = Green or Orange condition for criteria 1, 4, 5 and 8

Appendix B – GIS Analysis Mapping Results

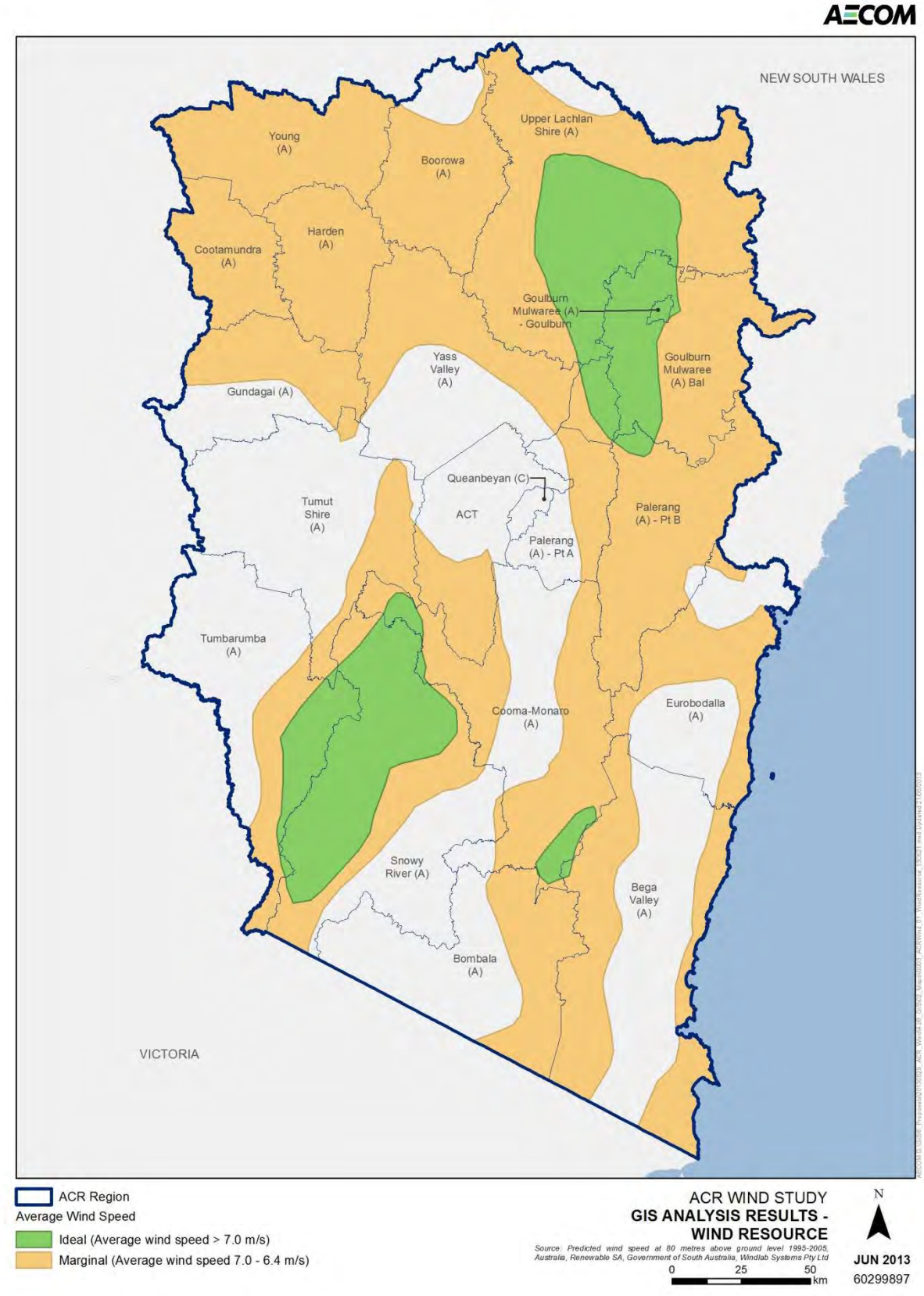

Figure 11 - GIS Analysis Results - Wind Resource

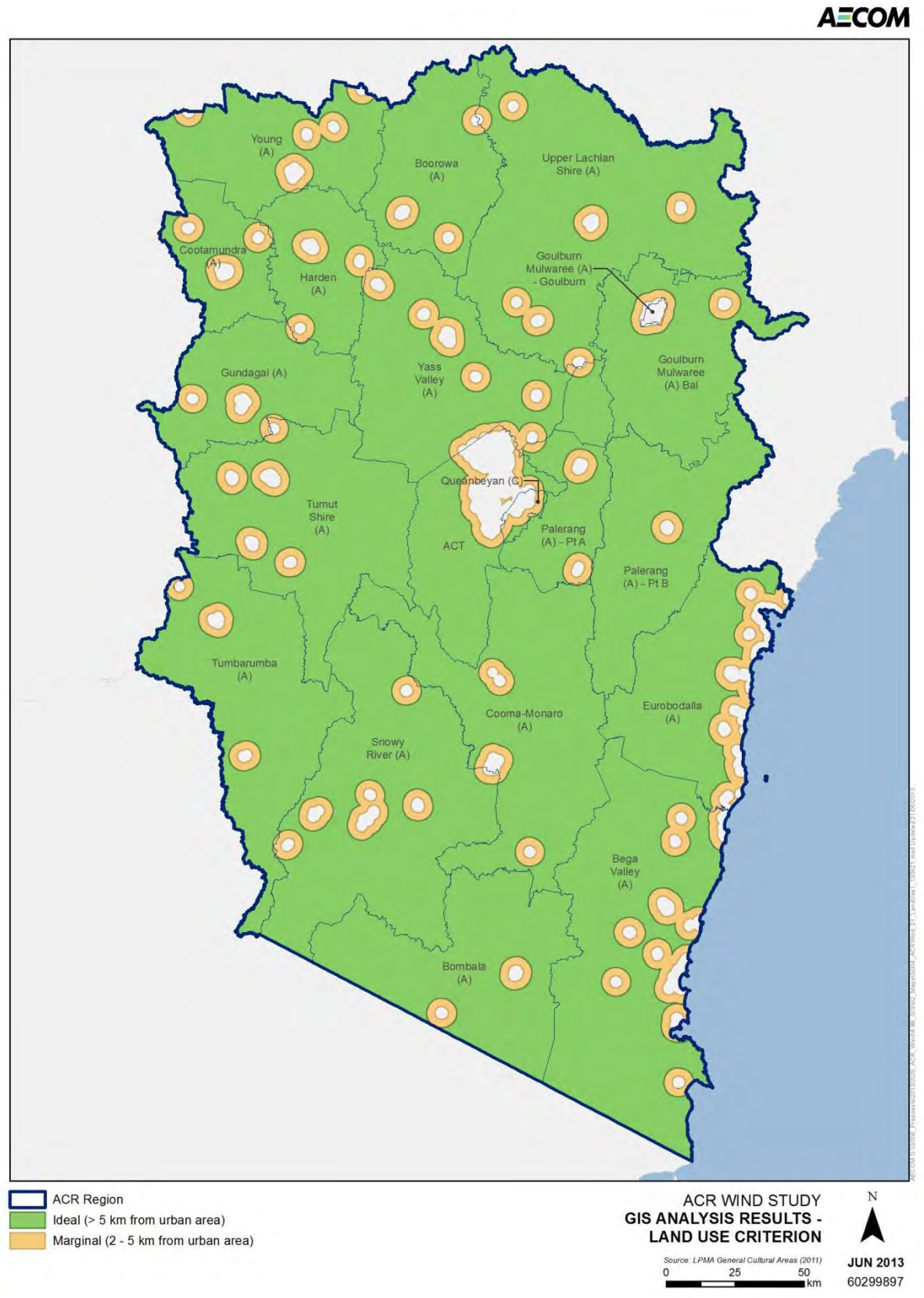

Figure 12 - GIS Analysis Results - land use 1 criterion

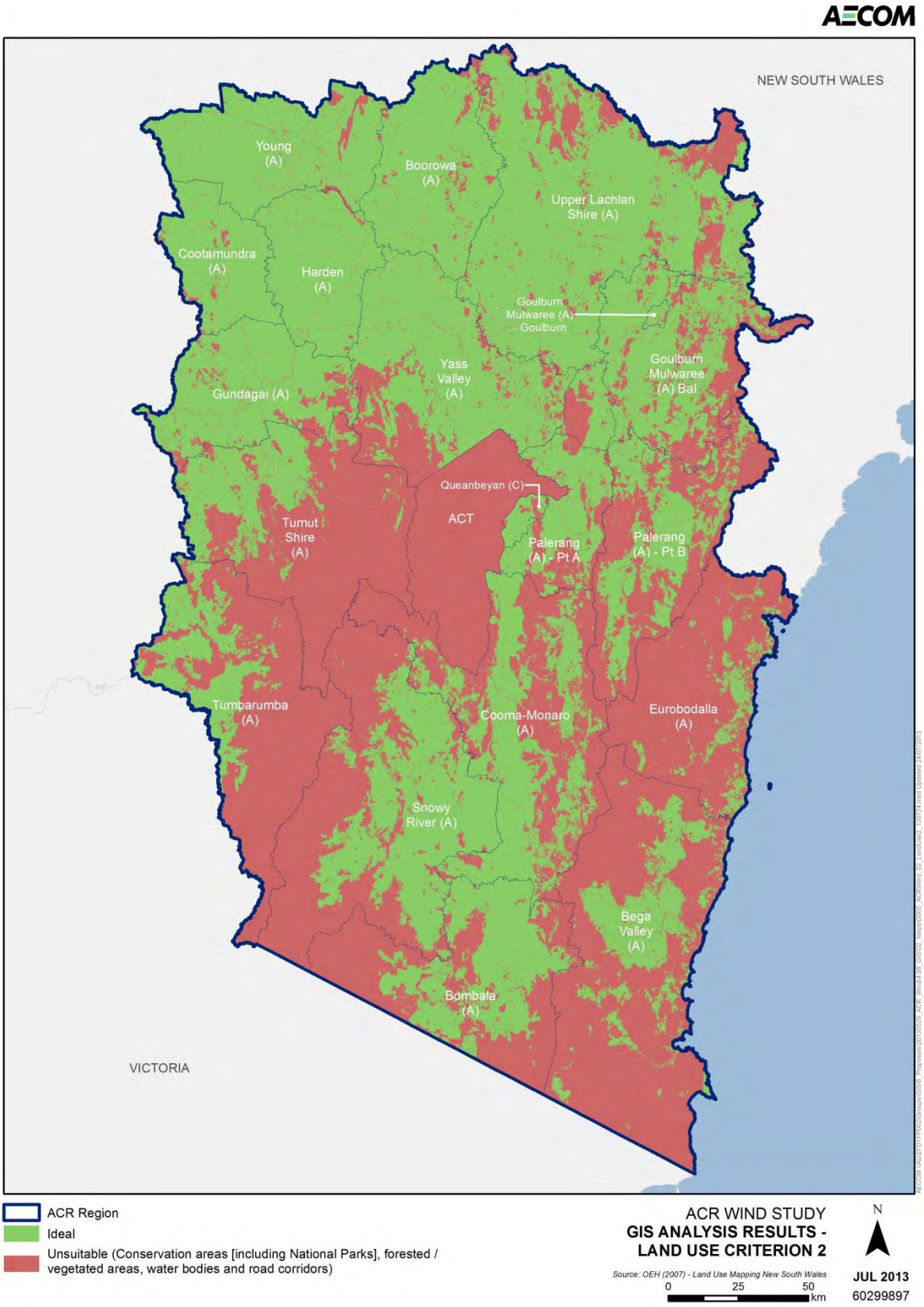

Figure 13 - GIS analysis results - land use criterion 2

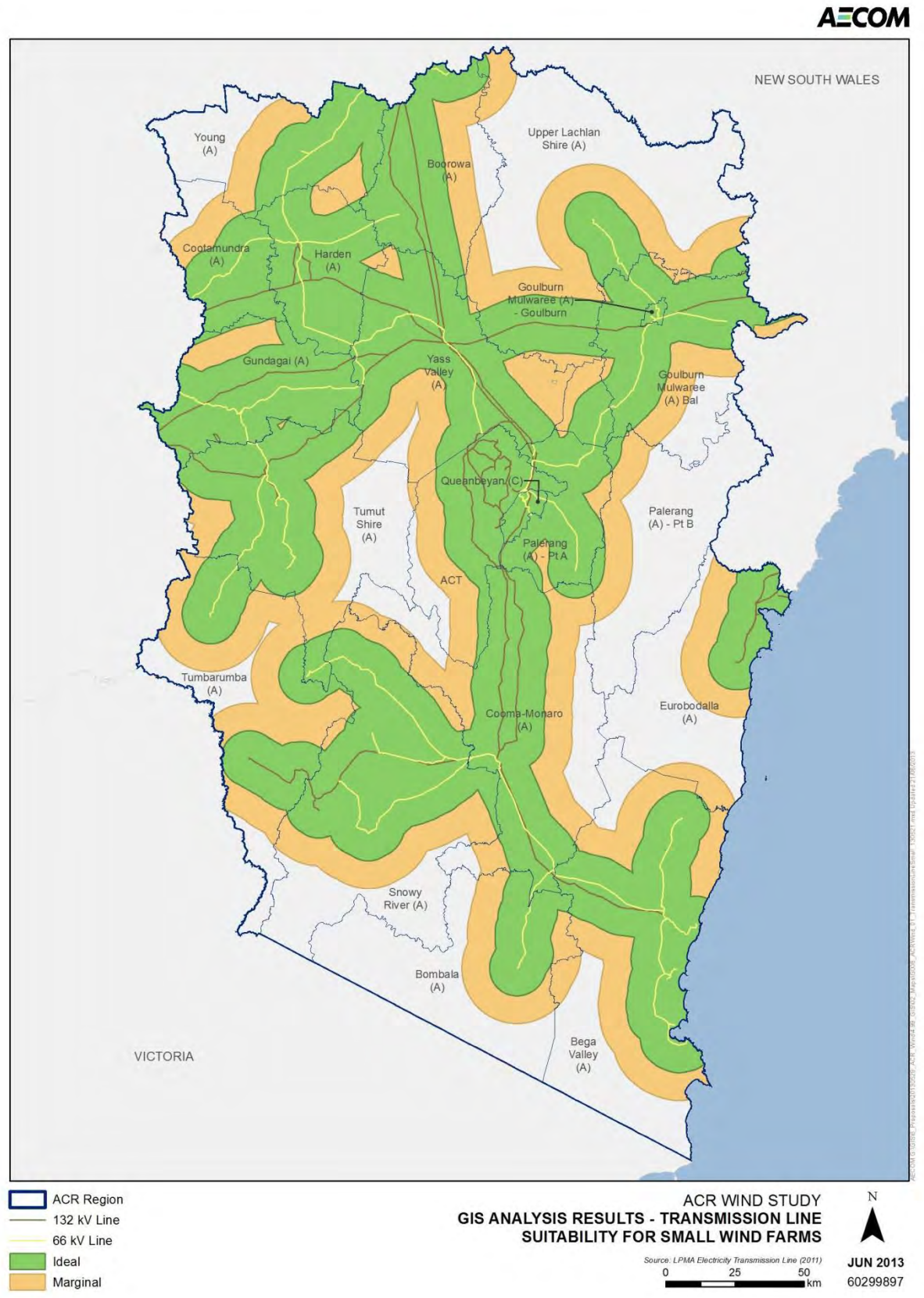

Figure 14 - GIS analysis results - transmission line suitability for small wind farms

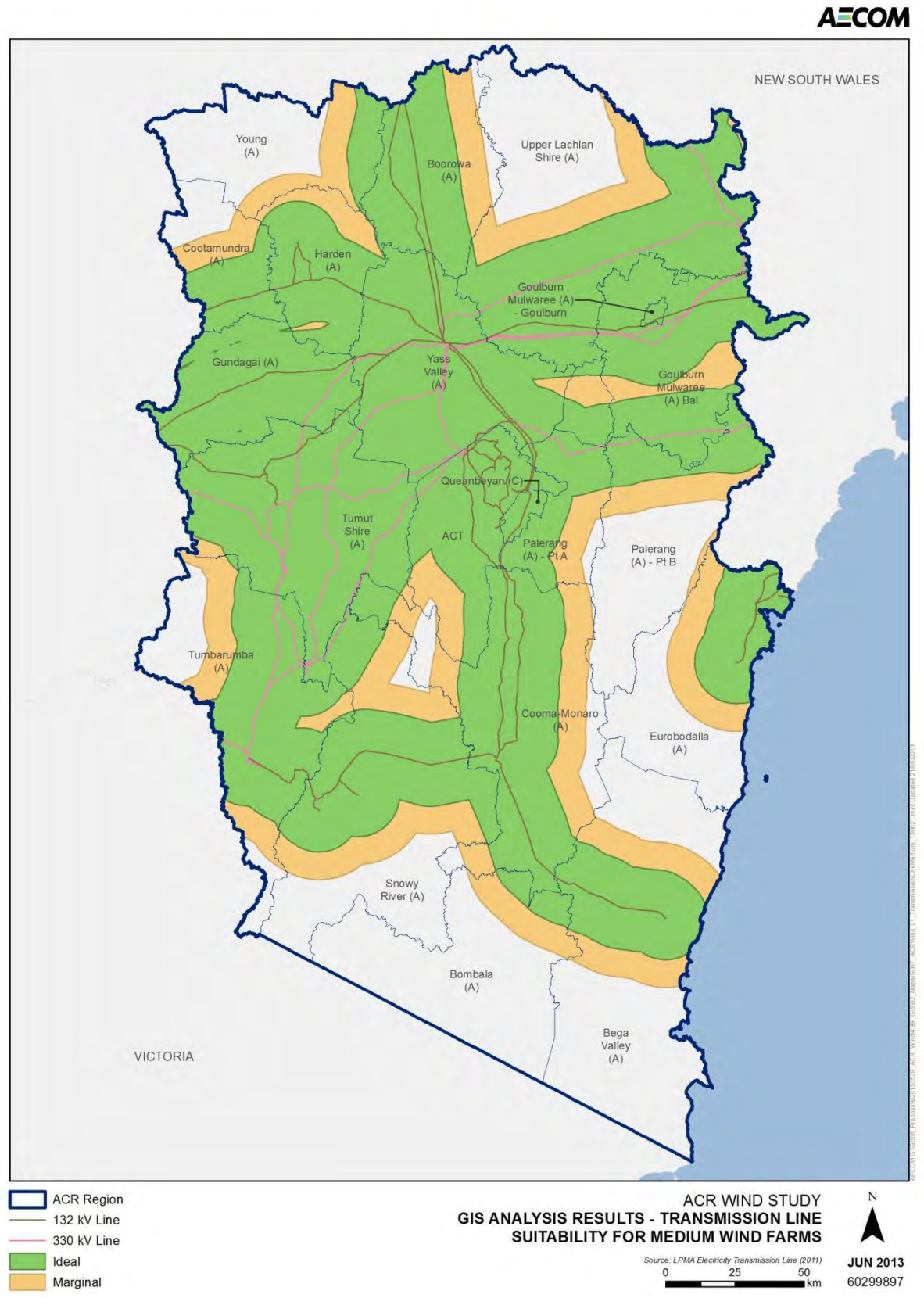

Figure 15 - GIS analysis results - transmission line suitability for medium wind farms

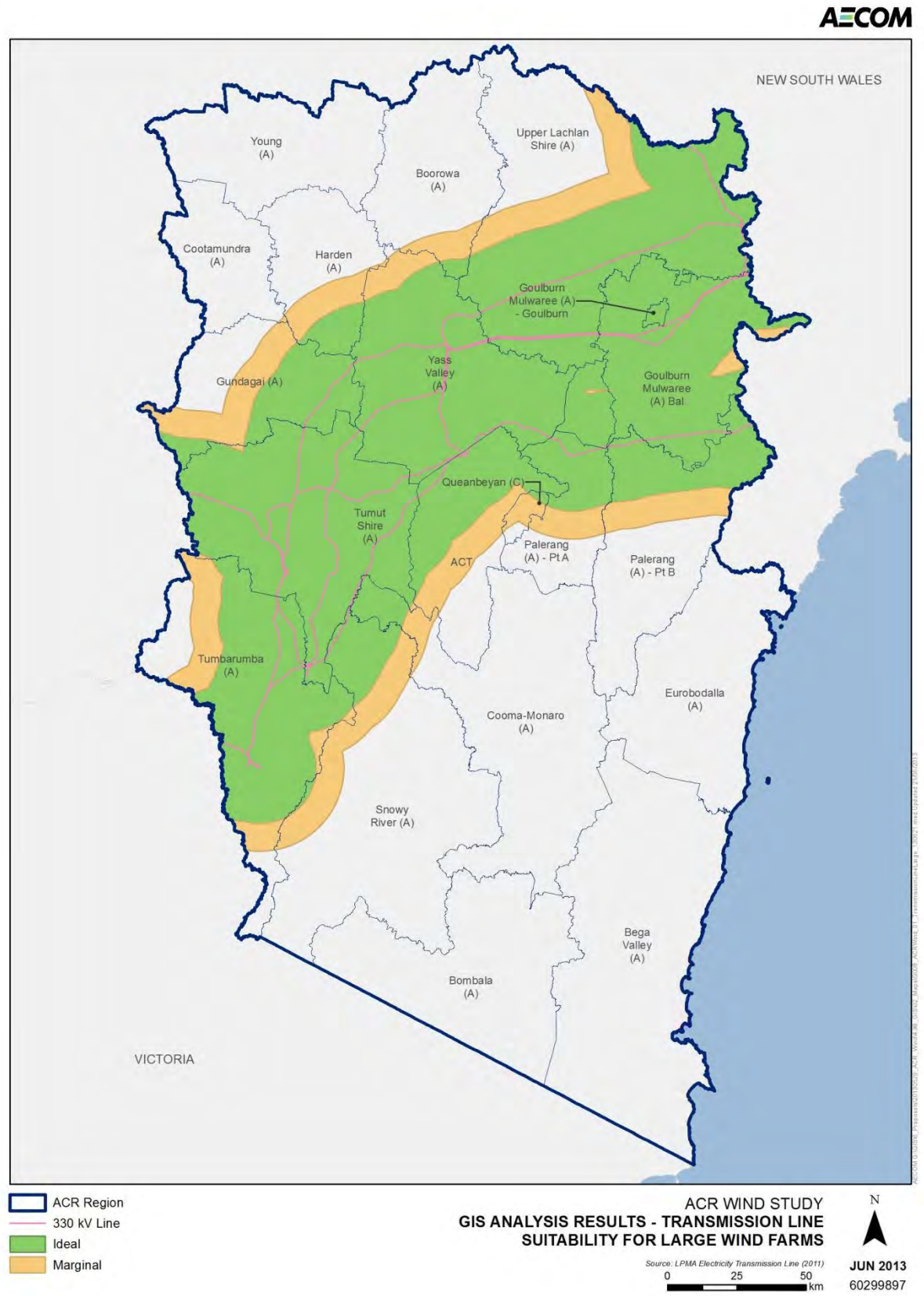

Figure 16 - GIS analysis results - transmission line suitability for large wind farms

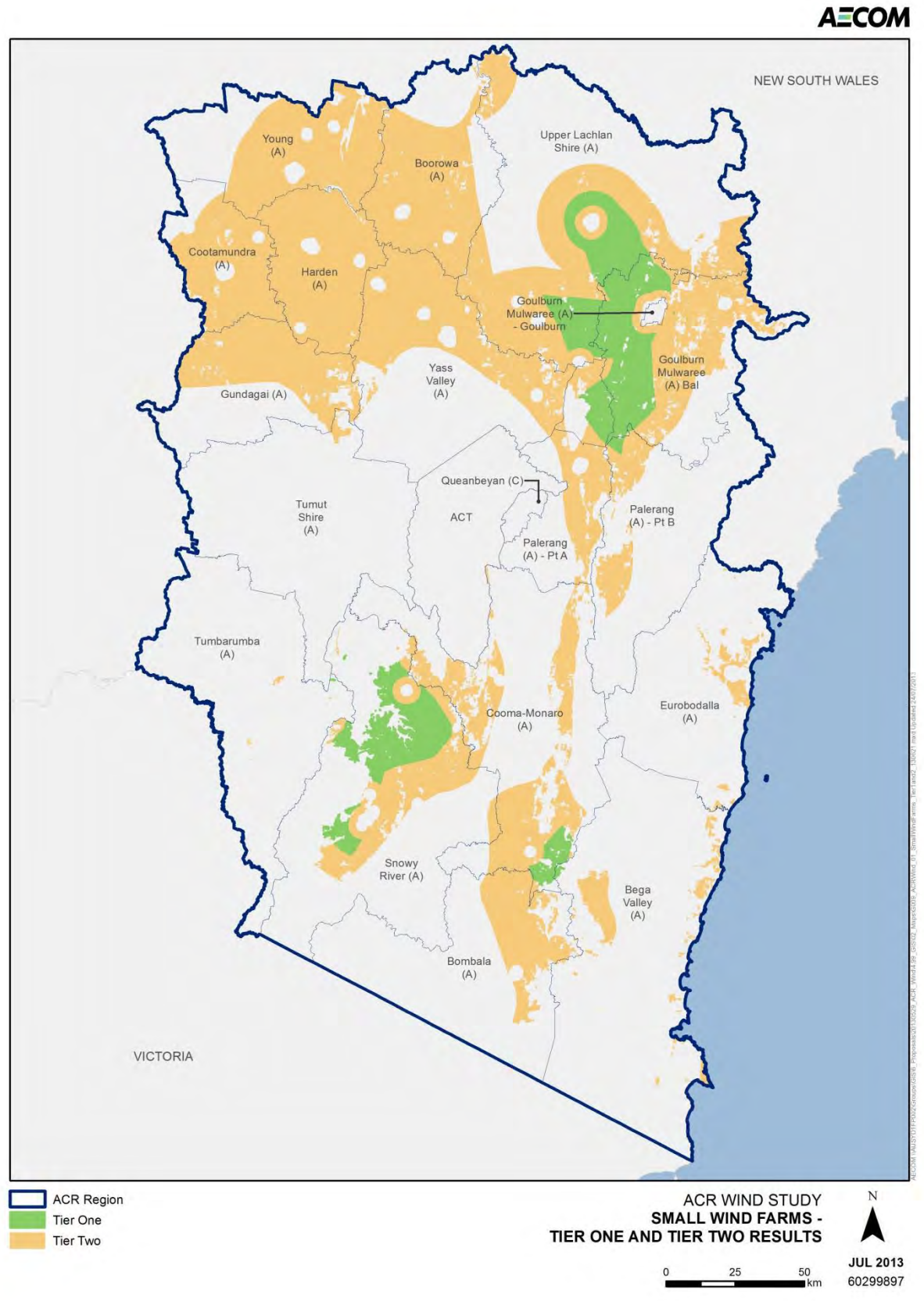

Figure 17 - Small wind farm Tier One and Tier Two results

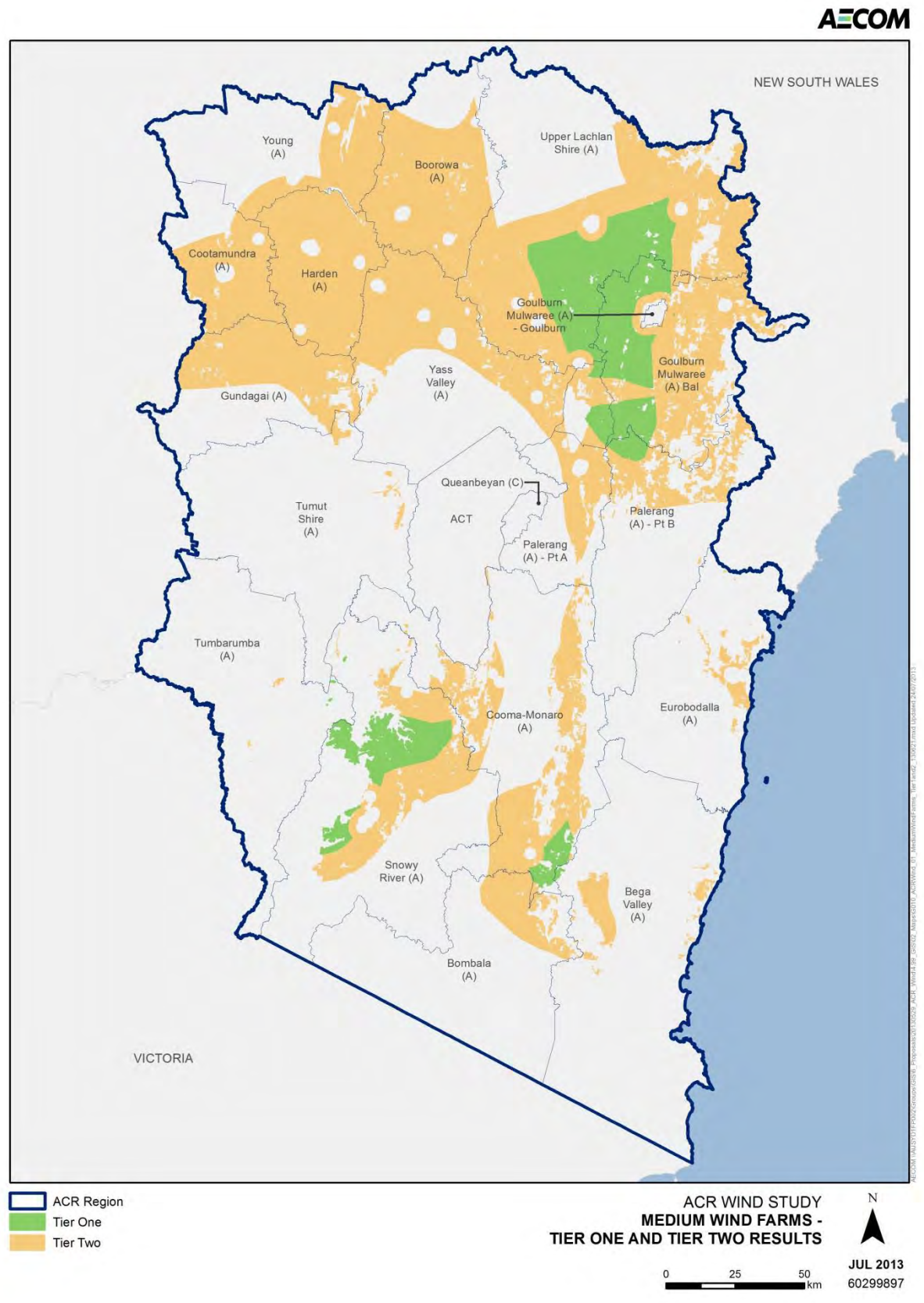

Figure 18 - Medium sized wind farm Tier One and Tier Two results

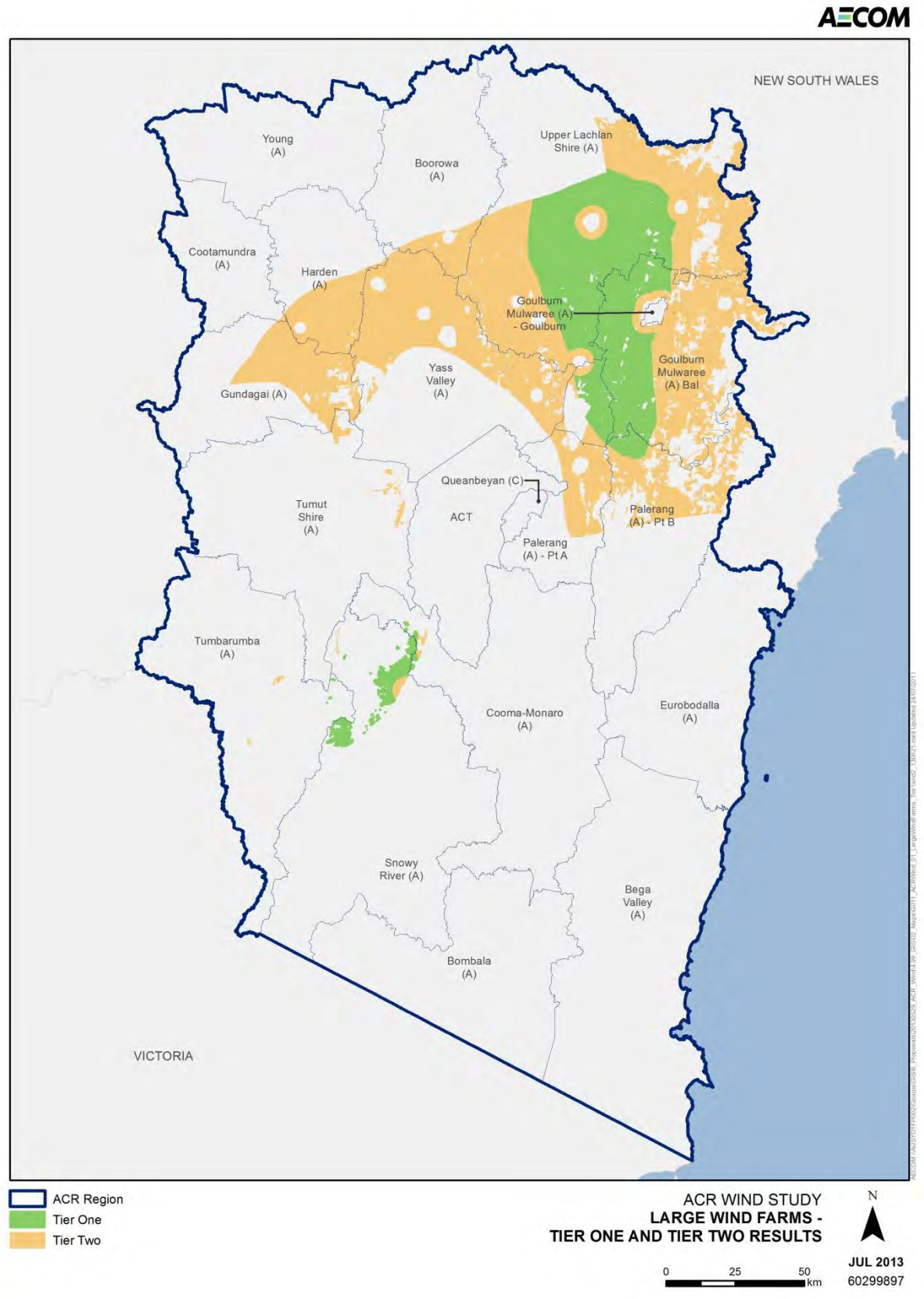

Figure 19 - Large wind farm Tier One and Tier Two results

Appendix C – Tier One and Tier Two Wind Energy Capacity Calculations

AECOM utilised two factors in calculating the wind energy capacity (MW) from the resulting GIS Tier One and Tier Two areas (km^2), including:

- **Turbine density factor** – representing the common density of turbines (MW) within a wind farm site.

  Assume a 100 MW wind farm with 3 MW turbines (33 turbines), over an area of 2km by 16.5km, the turbine density factor would be 3 MW/km^2. This is consistent with current operating wind farm maps.

- **Wind farm density factor** – representing the likely dispersion of wind farms within a local region.

  AECOM has assumed a 20% wind farm density factor.

Resulting calculation:

$$Tier\ One\ wind\ farm\ capacity\ within\ a\ region = Tier\ One\ area\ in\ region \times turbine\ density\ factor\ \times wind\ farm\ density\ factor$$

$$Tier\ One\ wind\ farm\ capacity\ within\ a\ region\ (MW) = Tier\ One\ area\ in\ region(km^2) \times 3(\frac{MW}{km^2}) \times 0.2$$

Appendix D – LCOE Calculation Assumptions

Key assumptions used for the LCOE calculation are listed in Table 11. These estimates have been produced for indicative purposes only and should not be used for financial analysis.

The difference between LCOE of a Tier One and Tier Two project could vary in a number of ways. If the wind resource is the same, but the distance from the grid is greater, the Tier Two project would have a similar capacity factor and a higher capital cost estimate. We have decided to assume that the given Tier Two project has the same capital cost estimate, but has a slightly lower wind resource, meaning a lower capacity factor.

Calculation method:

$$LCOE = \frac{\sum_{n=0}^{N} \frac{C_n}{(1+d)^n}}{\sum_{n=0}^{N} \frac{E_n}{(1+d)^n}}$$

$C_n = Yearly\ costs\ (CAPEX\ and\ OPEX)$

$E_n = Yearly\ energy\ output$

$d = discount\ rate$

This method is also used by the National Renewable Energy Laboratory (NREL)[29].

Table 11 - LCOE calculation assumptions

Parameter	Tier One Sites	Tier Two Sites	Notes
Wind Farm Capacity	100 MW	100 MW	100 MW is considered a reasonable 'nominal' wind farm size, modest reduction in LCOE would be expected for larger projects.
Plant Life	20 years	20 years	Assuming a 20 year wind farm life may be conservative. Turbines are also often certified for a 25 year life. Some developers are investigating longer project operational lives of 30 years or more.
Capacity Factor	35% - 40% (range)	30% - 35% (range)	These are considered reasonable ranges, note however that capacity factors above 40% are becoming more common, as discussion in Section 9.3.
Development Cost	$10 million	$10 million	Development costs vary considerably with site and market conditions and may be low of the developer takes the project through to construction. This is considered a prudent allowance.
Capital Costs	$2.2 million per MW capacity	$2.2 million per MW capacity	Capital costs can vary significantly and in some cases would be expected to be below $2 million per MW while significantly higher at other sites where large grid connection costs for example could

[29] NREL – System Advisor Model, LCOE https://www.nrel.gov/analysis/sam/help/html-php/index.html?mtf_lcoe.htm [viewed 17/6/2013]

Parameter	Tier One Sites	Tier Two Sites	Notes
			be justified by excellent wind resource and a high capacity factor.
Operations and Maintenance Costs (turbine and BoP)	$50k per MW capacity per year	$50k per MW capacity per year	This is a broad assumption, taking account of some increase in maintenance costs over time with some major plant failures. The rapid development of the wind industry however means that very little data is available for modern turbine long term maintenance costs so significant uncertainty exists with this item.
Operational Overheads (land rent, insurance, etc.)	$10k per MW capacity per year	$10k per MW capacity per year	This is a broad estimate to include all items not covered by the above maintenance costs, significant inclusions are landowner rent payments and insurances. Finance is not included.
Discount Rate	8%	8%	In a capital intensive generator such as wind farm interest rates have a significant bearing on the LCOE, market conditions and technology maturity are two key driving factors for this input.
Timeframes	Construction year 1 and year 2 Generation year 3 onwards	Construction year 1 and year 2 Generation year 3 onwards	
Wind turbine class	The same class of wind turbine has been assumed.		

Appendix E – Detail on Development Approval Lead Times

New South Wales

The key steps in the planning process and timing associated with a SSD application are identified in Table 12.

Table 12 Indicative NSW Development Assessment and Approval Timeframes

Activity	Indicative Month (cumulative timeframe)
Prepare Preliminary Environmental Assessment and seek Director-General's Environmental Assessment Requirements (DGRs)	1-2
Planning Focus Meeting (PFM) held with government agencies and Director-General issues DGRs	3-4
Undertake environmental, social and economic assessment (specialist studies and EIS)	4-12
Department review and exhibition of EIS (60 days) (note: The exhibition period would be extended during school holidays and the Christmas period)	13-16
Preparation of Submissions Report	17-19
Department review and assessment of application	20-22
Determination by the approval authority or delegate	23-25

The activities and indicative timeframes shown, however, are based on current applicable legislation. The applicable legislation in NSW (the EP&A Act) is currently under review and the new legislation is currently on exhibition. New provisions could apply which could change the applicable planning framework, however it is noted that the current classes and approval pathways for SSD will remain similar to existing.

Key variables that could impact on NSW timeframe:

- DP&I holding a PFM at DGRs stage.
- EIS preparation: timeframe for seasonal flora and fauna surveys and Aboriginal stakeholder consultation and the level of assessment required by the DGRs.
- EIS review comments from DP&I and other agencies requiring extensive update of EIS prior to acceptance for exhibition.
- EIS exhibition period if it coincides with school holidays or the Christmas period.
- Submissions report: number of submissions received and nature of issues raised.
- Submissions report review comments from DP&I and other agencies requiring extensive update of submissions report prior to its acceptance.
- DP&I assessment time and delegated authority approval timeframes.
- The requirement to secure other NSW planning approvals, licences and permits.

ACT

In the ACT, a proposal for 'an electricity generating station…including wind' capable of providing greater than 20MW of electricity requires the preparation of an EIS, following the Impact Assessment Track of the *Planning and Development Act 2007*. The development application would need to be lodged with and approved by ACTPLA. A summary of the key steps and estimated duration is provided in Table 13.

Table 13 Indicative ACT Development Assessment and Approval Timeframes

Activity	Indicative Month (cumulative timeframe)
Consultation with the Environment and Sustainable Development Directorate (ESDD) for pre-application advice	1
Request scoping document and written notice of the	1

Activity	Indicative Month (cumulative timeframe)
terms of reference for the EIS from ACTPLA	
Draft EIS is prepared and submitted to ACTPLA	2-9
ACTPLA publicly notifies EIS (20 working days)	10
Revision of draft EIS	11-12
ACTPLA review of EIS	13-14
ACTPLA requests developer to address issues that have not been addressed adequately (s.224 notice) (minimum 20 days to respond)	15
Developer provides response document to ACTPLA for consideration	16
ACTPLA accepts EIS	17-18
ACTPLA refers EIS to Minister for Planning and may establish a panel to conduct an inquiry	19
Panel reports to Minister, Minister may present to Legislative Assembly	20-22
Minister approval. EIS Completed	23-24
Development Application (DA) lodged	25
DA on public display	26
Determination of DA by ACTPLA	27-28

Australian Commonwealth

A bilateral agreement is in place which allows the Commonwealth to 'accredit' the ACT assessment process, which in effect, allows the Commonwealth to delegate to the ACT Government the responsibility for conducting environmental assessments for developments which also require approval under the *Environment Protection and Biodiversity Conservation Act 1999*. Enacting the bilateral agreement can reduce duplication in reporting as the Commonwealth can rely on the ACT assessment process (and documentation such as an EIS) for the purpose of complying with the requirements of the EPBC Act.

In NSW, the assessment bilateral agreement with the Commonwealth is currently suspended, though the Federal Minister may accredit State assessment processes on a case-by-case basis in response to an application made on an individual project under the EPBC Act.

Although an assessment process may be accredited, a separate Development Approval is nonetheless still required from the Commonwealth under the EPBC Act for such projects.

ESDD preliminary response to solar auction review recommendations

#	Recommendation	Preliminary response
1	Amend the Territory Plan to consider renewable energy developments in accordance with future releases of capacity	**Agreed in part.** The Territory Plan should be reviewed to consider the inclusion of renewable energy developments. The review could potentially lead to a Territory Plan variation.
2	More broadly communicate the separation between the grant of FiT entitlement and project development approval stages	**Agreed.** While the Solar Auction framework makes clear that all proposals will be subject to independent Development Approval processes, this could be more strongly emphasised in public communications. This was explicitly identified as a 'key message' in communications strategy for the regular stream announcement however (for example) it was not mentioned in the Solar Capital brochure released with the regular stream announcement.
3	Undertake a more collaborative planning phase prior to future releases of capacity	**Noted.** Extensive communication was undertaken with stakeholders through the development of the Solar Auction to inform auction design and advise stakeholders of potential impacts on their operations. This included ACTPLA, Land Development Agency, Utilities Technical Regulator and ActewAGL Distribution. It is agreed that a comparable or greater level of collaboration should be pursued in the future with relevant stakeholders.
4	Incorporate lessons from the Solar Auction into future evaluation design	**Agreed.** In future additional transparency and detail can be provided regarding proposal evaluation processes with regarding to the weighting of assessment criteria and proposal requirements. Due-diligence consultants can be provided with a joint briefing at project commencement to encourage greater uniformity of assessments and with an opportunity to present assessments to the Advisory Panel.
5	Strengthen program design to support the ACT and Australian renewable energy industry development objective	**Agreed.** Now that the overarching policy framework has been positively demonstrated it is appropriate to include provisions to maximise the extent of local investment under future capacity releases. A proposal for achieving this will be developed as part of the Minister's submission to Cabinet.
6	Clarify payment agreement details to provide more confidence for proponents	**Agreed.** ESDD understands that ActewAGL and FRV are developing a payment arrangement that can be applied as a 'standard process' to proponents in the future. An amendment to *the Electricity Feed-in (Large-scale Renewable Energy) Act 2011* is proposed to provide for the Minister to order resolution of outstanding payments by parties with civil penalties for non-compliance. It is noted that payments would be publically reported and not 'confidential' as suggested by SKM.
7	Refine *Force Majeure and Change of Law* clause in the Deed of Entitlement	**Agreed.** Further clarification can be provided in the Deed regarding the circumstances that may be considered a Force Majeure or Change of Law event.

AUSTRALIAN CAPITAL TERRITORY

RENEWABLE ENERGY LOCAL INVESTMENT FRAMEWORK

Vision

The ACT has a vision of becoming a globally recognised centre for renewable energy innovation and investment.

Investment proposition

The Australian Capital Territory is a dynamic, knowledge-based economy situated in the heart of one of Australia's fastest growing regions for renewable energy investment – the Australian Capital Region. The ACT has set a 90% renewable energy target to be achieved by 2020 through targeted investments in solar, wind and biomass. The ACT is also home to Tertiary institutions with world-class research capabilities and experience in energy technology, economics and policy.

In pursuit of the ACT's renewable energy target, the ACT Government has developed a legislated feed-in tariff mechanism and reverse auction process that provides a high degree of investment certainty for project developers and financiers. Already, 40MW of projects have been successful in being awarded feed-in tariffs, including Australia's largest (20MW) photovoltaic generating facility, to be completed by mid 2014. Around an additional 500 megawatts are expected to be awarded before 2020.

A renewable energy business situated in the ACT has access to:

- One of Australia's fastest growing renewable energy investment regions
- A supportive policy/investment environment
- A highly skilled labour force and strong local business capability
- Australian Government funding bodies and contracts
- Strong and experienced research and development institutions
- An established network of renewable energy stakeholders
- Strong community support for environmental initiatives

Investment priorities

The ACT Government has identified the following four priority areas for renewable energy business development and investment attraction to stimulate sustained job creation in the Territory. Renewable energy companies seeking support under the ACT's large-scale feed-in tariff legislation will be required to demonstrate how their proposals and businesses contribute to these priorities.

1. Deliver enduring benefits to local businesses through the inclusion of regional contractors and labour force
2. Build Canberra's capacity as a national tertiary education and trades' skills hub
3. Stimulate productive research partnerships that will develop the capacity and global recognition of our tertiary institutions
4. Grow the local corporate footprint of national and international businesses

POLICY BACKGROUND

ACT Business Development Strategy

In April 2012 the ACT Government released *Growth, Diversification and Jobs - A Business Development Strategy for the ACT*. The Strategy defines the opportunity for the ACT to build and sustain knowledge-intensive businesses that produce the innovation that is being sought from a broad range of purchasers locally, nationally and internationally.

http://www.business.act.gov.au/resources_and_networks/business_development_strategy

InvestACT

InvestACT is responsible for investment promotion by the ACT Government. InvestACT coordinates investor facilitation across Government to provide a case-managed service for major investors. InvestACT can connect investors to an extensive network of contacts for investment opportunities.

URL: http://www.business.act.gov.au/grants-and-assistance/advice_and_support/trade_and_export_development/investact

AP2

In November 2010, the Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* which established ACT emissions reduction targets including:

- 40% below 1990 levels by 2020,
- 80% below 1990 levels by 2050, and
- zero net greenhouse gas emissions by 2060

In October 2012, the ACT Government released AP2 which sets out a framework to achieve these emissions targets, including a target of 90% renewable energy by 2020. Between $1-2 billion in renewable energy investments in the ACT and region will be required to achieve this target.

http://www.environment.act.gov.au/climate_change/ap2

Large-scale Feed-in Tariff legislation

The *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* provides a mechanism to stimulate investment in large-scale renewable energy in the Australian Capital Region. This has been successfully demonstrated through the Solar Auction process and is intended to be the primary policy tool for attracting investment towards meeting the 90% target. Future capacity releases under the legislation will seek specific economic development outcomes consistent with the scope and priorities of this Framework.

http://www.environment.act.gov.au/energy/solar_auction

BRIEF

ACT Government
Environment and Sustainable Development

UNCLASSIFIED

Objective File No 13/21758
Rec'd Minister's Office 28 OCT 2013

To:	Minister for the Environment and Sustainable Development
From:	Director-General 25/10/13. Deputy Director-General, Planning Executive Director, Policy 23.10.13
Subject:	Solar Auction Review and Renewable Energy Local Investment Framework

Recommendation

That you:

- **Note** the outcomes of the *ACT Solar Auction Review* (Attachments A and B) and ESDD's suggested actions in relation to the Review's recommendations (Attachment C);
- **Agree** to ESDD having minor amendments to the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the Act) at Attachment D drafted for Cabinet consideration;
- **Agree** that the *Renewable Energy Local Investment Framework* (Attachment E) be taken to Cabinet as part of your proposal for future capacity releases under the Act; and
- **Agree** to amendments to the Act (Option A in Attachment F) that would allow generators outside of the Australian Capital Region (ACR) to receive FiT support under exceptional circumstances.

Critical Date:

1 November 2013 – for Cabinet consideration of future renewable energy capacity releases in February 2014.

Background

You have previously indicated your intention to advise Cabinet of the outcomes of the review of the Solar Auction and seek agreement to further renewable energy capacity releases (Brief 13/18202). That brief seeks to confirm aspects of that Submission which is currently under development.

Issues

Solar Auction Review

The Review of the Solar Auction has been completed by Sinclair Knight Mertz (SKM), culminating in two reports:

- *ACT Solar Auction Review Summary Report* – Intended for public release following Cabinet Consideration (Attachment A)
- *ACT Solar Auction Review Technical Companion Report* – Intended for Cabinet Consideration but not for public release (Attachment B)

The review concludes that the Solar Auction process has been generally efficient and effective in achieving the objects of the Act and this is reflected in positive industry feedback. The review

Performance Assessment

DUE DATE: ...../...../..... **DATE RECEIVED:**...../...../.....

SATISFACTORY ☐ **UNSATISFACTORY** ☐

According to criteria specified in *ACT Government Policy Performance Measures*

Signature .... / ..../....

concluded that the Solar Auction generated strong competition and that demonstrated value for money was achieved.

Recommendations made by SKM focus on refining and clarifying processes around proposal assessment, land access and development approvals. The review reaffirms the need to offer Treasury Financial Guarantees to proponents to mitigate perceived sovereign risk issues, but notes that this need may be reduced over time as banks gain more confidence in the scheme. The Review also recommended further work on local content provisions, to enhance local benefits arising from large-scale renewable energy investments. Attachment C provides comments and suggested actions by ESDD against each of the recommendations.

Legislative Amendments

AP2 and item 3.1 of the Labor-Greens Parliamentary Agreement requires that the Act be amended to ensure the total scheme capacity facilitates the 90% Renewable Energy Target by 2020. You have separately been briefed (13/17001) as to a methodological approach whereby the total scheme capacity would be increased from 210MW to 550MW. Attachment D sets out proposed amendments to the Act to give effect to this while also addressing outcomes of the Review and other matters arising through the Auction process.

Renewable Energy Local Investment Framework

A significant outcome of the Solar Auction is the decision by Zhenfa to locate a 15 person (as currently proposed) project design and administration office in the ACT. This has highlighted the potential for the ACT to leverage its proposed renewable energy investments, to position itself as a national hub for renewable energy innovation and investment. This links to the ACT Business Development Strategy which promotes the diversification of the ACT economy.

ESDD facilitated a workshop with staff from Economic Development Directorate and Regional Development Australia (through SERREE, South East Region of Renewable Energy Excellence) to develop a framework for promoting economic development in the ACT through further capacity releases. The outcome of this process is the *Renewable Energy Local Investment Framework* (Attachment E) which has been developed on the basis of the following agreed principles:

- The framework should align with the underlying strengths of the ACT as an investment destination. Primarily these are our highly skilled work-force, our strong research institutions and our proximity to renewable energy generation reference sites (wind, solar and potentially biomass);
- A flexible outcomes-focussed framework would allow for businesses to invest in a way that aligns with their strategic interests, thereby reducing costs and enhancing the prospects for investment to be sustained over time; and
- The framework should be explicitly referenced by proposal evaluation criteria set out in future capacity releases. This will ensure proponents actively engage with the framework and contribute to targeted local investment outcomes.

Eligibility of Generators outside of the ACR

You have requested advice on options to allow for the potential grant of a FiT entitlement to a generator located outside of the ACR, where significant direct benefits to the ACT could be demonstrated. An example of this may include the Coonooer Bridge Wind Farm project located North West of Bendigo, Victoria, which is jointly owned by Windlab Systems (a Canberra-based

company) and landholders neighbouring the project. Other examples may include developments relying on ACT-originated technology whose successful demonstration may have long-term employment benefits in the Territory.

Attachment F provides a summary of two options to address this issue. On balance ESDD sees risks with any such change with regard to adding administrative complexity and community acceptance. However, it may be appropriate to provide some flexibility under the Act for exceptional circumstances. ESDD recommends an approach (Option A of Attachment F) whereby the legislation is amended to allow you to grant an entitlement to a generator outside the ACR where exceptional circumstances existed. Based on this approach, a proposal would need to effectively outrank its competition on value for money *and* have significant local development benefits in order to be eligible. The approach would be outcomes-based and therefore provide some flexibility in its application.

Financial Implications
The Review was delivered on budget at a cost of $65,500.00.

Internal Consultation
Planning areas of ESDD, Chief Minister and Treasury Directorate and the Land Development Agency have been consulted through the Review. The Legislation Unit of ESDD and the Government Solicitors Office have been consulted on the proposed legislation amendments. Economic Development Directorate (InvestACT and Business Development Branch) and Commerce and Works (the Brand Canberra unit) were consulted on the development of the *Renewable Energy Local Investment Framework.*

External Consultation
Regional Development Australia (through SERREE) was consulted on the development of the *Renewable Energy Local Investment Framework.* ActewAGL Distribution participated in the Review.

Benefits/Sensitivities
The Review points to communication issues in relation to the announcement of the Solar Auction outcome, which have also been raised by Uriarra residents.

Media Implications
A communications strategy for the announcement of outcomes of the Review, legislation amendments and the Renewable Energy Local Investment Framework will be presented to Cabinet in conjunction with your Submission for the Review outcome and future capacity releases.

Jon Sibley
Senior Manager
Climate Change, Energy and Sustainability Policy
21 October 2013

Action Officer: Richard Bourne, Ext: 50828

AGREED/NOT AGREED/NOTED/DISCUSS

1 11 13

Simon Corbell MLA..... ..../..../....

Solar Auction Review

Consultant Terms of Reference

Environment and Sustainable Development Directorate

17 May 2013

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1. Background

1.1 Climate Change and Greenhouse Gas Reduction Act 2010

Through the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report in 2007, the international scientific community reported that in order to avoid the most catastrophic effects of climate change, the increase in average global temperature must not exceed 2°C. To achieve this, global greenhouse gas emissions must be reduced by at least 80% below 1990 levels by 2050. For industrialised economies, the main producers of greenhouse gas emissions, the proposed target is a 40% reduction by 2020.

Consistent with this finding, in November 2010 the ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* (GHGR Act), which established ACT emissions reduction targets of:

- Peaking per person greenhouse gas emissions by 2013;
- 40% below 1990 levels by 2020;
- 80% below 1990 levels by 2050; and
- Zero net greenhouse gas emissions by 2060

Under the GHGR Act, the Minister responsible for climate change must also:

- establish renewable energy targets for 2012 and 2020; and
- appoint a Climate Change Council to provide advice to the Minister on climate change matters

In 2011 the ACT established targets for the use of renewable energy of:

- at least 15 per cent by 2012; and
- at least 25 per cent by 2020.

When setting these targets, it was noted that the further development of the Government's climate change strategy would provide an opportunity for further consultation with the community on the potential to expand upon these targets.

1.2 The ACT Sustainable Energy Policy

In September 2011, the ACT Government released its first Sustainable Energy Policy. The purpose of the Policy was to establish an integrated policy framework for managing the social, economic and environment challenges faced by the Territory to 2020, as they relate to energy production and use.

The framework consists of four key targeted outcomes:

- Outcome one: secure and affordable energy
- Outcome two: smarter use of energy
- Outcome three: cleaner energy
- Outcome four: growth in the clean economy

Related to each outcome is a series of measures which underpin the Government's energy policy work program. These actions are generally framed at a strategic level rather than detailing specific program measures. Further details of specific measures, as they relate to greenhouse gas emissions abatement, were proposed and were to be progressed through the development of the ACT's climate change strategy.

1.3 Action Plan 2

Action Plan 2 (AP2), released in October 2012, sets out a strategic pathway to guide the Territory's strategy to meet our 2020 greenhouse gas reduction targets and adapt to climatic changes. It includes 18 Actions to progress AP2 to its first review point in 2015.

Community consultation undertaken for AP2 showed strong community support for increasing renewable energy consumption in the Territory. This was reinforced by modelling which showed that in order to meet a 40% GHG reduction target, the Territory would need to move to around 90% renewable energy by 2020. With the release of AP2, the Government committed to notifying a new renewable electricity consumption target of 90% renewables by 2020 (under the GHGR Act) and in 2013 to publish a methodology for accounting for renewable energy consumption and reporting against this target.

1.4 The framework of the ACT Solar Auction

In parallel to the development of AP2, the ACT Government progressed policies to promote investment in large-scale renewable energy generation.

In December 2011, the ACT Legislative Assembly passed the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (the Act). The legislation provides for the development of up to 210 megawatts of large-scale (over 200kW) renewable energy generation capacity in the Australian Capital Region. Investment is stimulated through the grant of Feed-in Tariff (FiT) Entitlements to successful proponents. The FiT is paid by ActewAGL Distribution, which is then entitled to recover costs through their periodic distribution price determinations.

The Objects of the Act are:

A. promotion of the establishment of large-scale facilities for the generation of electricity from a range of renewable energy sources in the Australian Capital Region.
B. promotion of the development of the renewable energy industry in the ACT and Australia consistent with the development of a national electricity market.
C. reduction of the ACT contribution to greenhouse gas emissions and help achieve its greenhouse gas reduction targets.
D. addressing the need for urgent action to be taken to reduce reliance on non-renewable energy sources while minimising the cost to electricity consumers.

In order for the Minister to grant a FiT Entitlement, the Minister must first notify a *capacity release* under section 10 of the Act and in doing so establish conditions for the release. This notification is a Disallowable Instrument and can be disallowed by the Legislative Assembly.

In January 2012 the Minister notified the *Electricity Feed-in (Large-scale Renewable Energy Generation) FiT Capacity Release Determination 2012 (No 1)*. It was determined that:

- 40MW of the FiT capacity provided for under the Act be made available for the grant of FiT entitlements, by competitive process ('Solar Auction');
- any FiT entitlement that may be granted under this release will be for:
  a) a term of 20 years;
  b) solar energy generation; and
  c) large renewable energy generators located wholly within the Australian Capital Territory; and
- the minimum capacity of a large renewable energy generator's generating system in relation to which a FiT entitlement may be granted under this release being 2MW.

The Minister also released a Request for Proposals (RFP) in January 2012 to:

- outline and explain the requirements for the Solar Auction;
- establish further terms and conditions for participation in the Auction; and
- call for proposals for the construction and operation of large-scale solar generation facilities in the ACT by eligible entities seeking to be granted FiT entitlements under the Act.

Under the RFP, the evaluation of proposals was undertaken in two stages – a Prequalification stage (stage 1) and a Final Proposal stage (stage 2). Only those proponents whose proposals were successful at stage 1 were eligible to be invited to submit final detailed proposals at stage 2.

The RFP also established two separate evaluation streams – a *fast-track stream* and a *regular stream*. Proponents who elected to participate in the fast-track stream were expected to submit a Final Proposal at stage 2 within approximately two weeks after the completion of stage 1 (Prequalification). Proponents who required more time and elected to participate in the regular stream were given approximately 9 months after the completion of stage 1 to prepare and submit

Final Proposals at stage 2. Both the fast-track and regular streams commenced at the same time and went through the same stage 1 Prequalification assessment process. Proponents indicated in their stage 1 proposal whether they wished to participate in the fast-track or regular stream.

In the fast-track stream, up to 20MW of generation capacity was on offer for the grant of entitlements to successful proponents. 20MW was reserved for allocation in the regular stream, together with any remaining capacity not granted in the fast-track stream.

The design of the Auction also ensured that while a proponent could submit more than one proposal, no proponent could submit, nor be awarded, a total capacity greater than 20MW.

The RFP could be revised and re-issued at the Minister's discretion and a number of refinements were made at regular intervals as the Auction process progressed.

1.5 The outcomes of the ACT Solar Auction

The RFP attracted significant industry interest with around 150 people attending an industry briefing in February 2012. Forty nine prequalification proposals were received in April 2012 and 22 of these were prequalified. Of these, 10 proposals were subsequently submitted in the fast-track stream in June 2012.

On 5 September 2012 the Minister announced that FRV Royalla Solar Farm Pty Limited was the sole successful proponent in the fast-track stream for a 20MW proposal in the Royalla district in the south of Canberra. FRV's FiT price was $186/MWh.

On 16 April 2013 15 proposals were submitted for the regular stream and are currently being evaluated for the Minister's later consideration.

1.6 The requirement to review the Solar Auction

Subsection 22(1) of the Act requires that the Minister must review the Solar Auction FiT capacity release within 6 months after the last FiT Entitlement under the release is granted (Solar Auction Review). A further 6 months is allowed to table the review in the Legislative Assembly (Subsection 22(5)). Despite these timelines and subject to the timing of the last Grant of FiT Entitlement relating to the Auction, it is presently intended that the review be completed and available for tabling in December 2013 in order to expedite and inform policy development and the consideration of future capacity releases under the Act.

Subsection 22(2) of the Act establishes the following minimum matters to be considered in the Solar Auction Review:

a) Value-for-money outcomes; and
b) Evaluation of the process, including the administration of the process and its effectiveness in generating competition.

In addition to these matters, these Terms of Reference set out additional requirements for the Review, to inform future renewable energy policy development in the Territory.

A further review of the operation of the Act is required after 5 years to consider the continuing operation and implementation of renewable energy generation proposals and the cost impact on electricity consumers.

2. Objectives of the Solar Auction Review

The objectives of the Review are to:

1) Establish whether a value for money outcome has been attained
2) Evaluate the efficiency and effectiveness of the Solar Auction process, including (but not limited to):
    a. The effectiveness of the Solar Auction design in terms of:
        i. Stimulating industry participation
        ii. Stimulating quality proposals
        iii. Providing certainty to participants
    b. The efficiency and effectiveness of administrative processes.
    c. The effectiveness of a competitive process.
3) Evaluate the scalability of the Solar Auction process, including consideration of (but not limited to):
    a. The use of financial guarantees
    b. Impacts on the distributor (ActewAGL Distribution)
    c. Impacts on administration resources
4) Evaluate the potential for extension of the legislative framework and Solar Auction process to promote investment in other renewable energy sources, including hybrid fossil-renewable generation systems and wind energy generators.
5) Evaluate the appropriateness and effectiveness of risk assignment outcomes between proponents and the Territory.
6) Investigate the alignment of the process with the Objectives of the Act.
7) Assess any potential impacts on electricity retail market competition.
8) Provide recommendations as to the efficiency and effectiveness of future auction processes under the Act, including through process or legislative amendments.
9) Provide information that may be of future use to industry and policy makers in the ACT, nationally and internationally.
10) Examine how proponents gained access to government land through an auction process and opportunities to improve these arrangements in future auction processes.

3. Scope of the Review

The Review is expected to be informed by interviews with and feedback from relevant stakeholders. These include (but are not limited to):

- The Solar Auction Secretariat;
- ACT Government Directorates, in particular:
    - Environment and Sustainable Development Directorate;
    - Economic Development Directorate;
    - Chief Minister and Treasury Directorate;
- Solar Auction participants, including a representative sample of those who registered interest but did not lodge a proposal (protecting proponent confidentiality as appropriate);

- Solar Auction Advisory Panel members;
- Technical Consultancy Panel members;
- National and local energy market regulatory bodies (AER, AEMO and ICRC);
- ActewAGL Distribution;
- The Clean Energy Council; and
- The Minister for the Environment and Sustainable Development.

This qualitative research may be complemented by quantitative analysis of cost, competition and pricing outcomes. It is noted that paragraphs 8.24 to 8.26 of the RFP allow for the publication of an analysis of limited aspects of proposals, both successful and unsuccessful.

It is expected that the successful consultant will produce a comprehensive report framed in relation to the Objectives of the Solar Auction Review set out above. Depending on the scope and nature of material presented in the review, including confidentiality considerations, a Summary Report may be prepared (of no more than 40 pages) that the Minister may table in the Assembly to fulfil obligations under the Act. The substantive findings of the full Review and Summary Report must be the same.

The consultant must submit a project plan and consultation plan to ESDD for approval. The project plan will present how each of the Objectives of the Review will be achieved.

4. Project milestones

The following milestones have been determined, assuming a project commencement date of 1 August 2013. Any movement to this date will flow through to all Milestones.

Deliverable	Timing
Commence project	1 August 2013 approx
Submit final project plan and consultation plan (one week)	8 August 2013
Complete consultation (three weeks)	29 August 2013
Submit draft report (three weeks)	19 September 2013
Submit final report, as well as summary report if required (two weeks)	3 October 2013