ELECTRICITY GENERATION LICENCE APPLICATION

Public Consultation

October 2017

Merredin Solar Farm

Merredin Solar Farm Nominee Pty Limited

CONTENTS

GLOSSARY

AC	Alternating Current
CB	Circuit Breaker
CAPEX	Capital Expenditure (Project Cost)
CEFC	Clean Energy Finance Council
CT/VT	Current Transformer/Voltage Transformer
DA	Developmental Approval
DC	Direct Current
DSOC	Declared sent out Capacity
EBITDA	Earnings Before Interest Tax Depreciation and Amortisation
EPC	Engineering, Procurement and Construction Contractor
ETAC	Electricity Transfer Access Contract
IASL	Ingenious Australian Solar Ltd
IEP	Ingenious Estate Planning
IWC	Interconnection Works Contract
kV	kilo volts
kVA	kilo volt ampere
LGC	Large Generation Certificates
MSF	Merredin Solar Farm
MSFN	Merredin Solar Farm Nominee Pty Ltd
Muick	Muick Pty Ltd
MW	mega watt
Nord	Nord LB
NRE	Nomad Renewable Energy Ltd
PPA	Power Purchase Agreement
PoC	Point of Connection
PV	Photovoltaic
RET	Renewable Energy Target
Stellata	Stellata ManagementCo Pty Ltd
SWIS	South West Interconnected System
WEM	Wholesale Electricity Market
WP	Western Power

1. APPLICATION SUMMARY

1.1 Introduction

Merredin Solar Farm – Phase 1 ('MSF') is a proposed development for a 100MWac solar PV farm, connected into WA's South West Interconnected System (SWIS), located south of Merredin, approximately 260kms East of Perth, Western Australia. The site is situated in the wheatbelt on a farm with a General Farming zone with the proposed land use approved for the needs of a solar farm. Rights to develop the site for a solar farm have been secured with Options to Lease over Lot 194 and Lot 19444 having been secured in favour of the proponent.

Merredin Solar Farm Nominee Pty Limited ('MSFN') is applying for a generator licence for the Merredin Solar Farm and will be the owner and operator of the solar farm. MSFN intends to develop, finance, own and operate the proposed solar farm.

MSFN is applying for a generation licence for the 100MWac solar farm and intends to only operate as a generator.

1.2 Project Overview

The MSF site has been selected due to its proximity to the network Point of Connection (POC) at Merredin Terminal Substation and does not require 3rd party wayleaves/easements to connect to the SWIS. The existing Western Power substation is located North-West of the site, allowing for a direct and dedicated connection onto the transmission network at a connection voltage of 220kV. The site is relatively flat, rural land and receives strong consistent solar irradiance, making it an ideal location. The project has a minimum life of 25 years; however, an Option/Lease Agreement has been entered into for 30 years.

The MSF will consist of approximately 406,000 solar PV modules (325Wp polysilicon) covering an area of 360 hectares, with an expected output of approximately 278GWh of electricity per annum.

The overall capital expenditure includes both the work to build and commission the solar farm governed by the EPC contract, and the grid connection works governed under the ETAC/IWC contract with Western Power. The total expected capital expenditure is circa $160m.

Planning permission for the project was granted in June 2017 with the ETAC/IWC anticipated to be signed during the course of Q4 2017. MSFN will appoint an EPC Contractor to carry out the construction works. Currently an ECI contract is in place with RCR O'Donnell Griffin to support the design of the solar farm and the connection to the SWIS. Construction is forecast to commence on site in June 2018 and is anticipated to take 9 months. MSF is intended to be operational by the end of March 2019.

MSF will be a renewable electricity generator in the Wholesale Electricity Market (WEM) supplying electricity under a combination of commercial Power Purchase Agreements (PPA) with Western Australian electricity suppliers and if required dispatch power into the WEM balancing market.

2. CORPORATE INFORMATION

The licence applicant for MSF is Merredin Solar Farm Nominee Pty Limited (MSFN) (ACN 618 527 432, ABN 69 618 527 432) incorporated in 2017. MSFN is owned 50% by Ingenious Australian Solar Ltd (IASL), 25% by Muick Pty Ltd atf Santen Family Trust (Muick) and 25% by Nomad Renewable Energy Ltd (NRE).

- **Ingenious Australian Solar Ltd** (IASL) (UK company number 10712137) is a UK limited company wholly owned by Ingenious Capital Management Holdings Ltd ('Ingenious') which is a UK limited company based in London. The infrastructure division of Ingenious invests capital into renewable projects and has invested over £500m since 2011 (solar PV, onshore wind and anaerobic digestion) globally.
- **Muick Pty Ltd** (ACN: 137 460 916) atf Santen Family Trust is an Australian company of which Troy Santen is the sole Director.
- **Nomad Renewable Energy Ltd** (UK company number 9842866) is a UK limited company of which Guy Beesley is the sole Director.

- **Stellata Management Co Pty Ltd (Stellata)** are a Western Australian based company who specialise in developing utility scale renewable energy projects. Stellata's shareholding is identical to that of MSFN. Our team have successfully developed over 530MW of solar parks and commercial roofs across Europe and have managed the construction and energisation of over 600MW of solar PV worldwide.

  Stellata is providing development services to MSFN. Stellata's Board consists of two directors from IASL and one each from Muick and NRE.

MSFN's core activity is to develop, finance, own and operate the proposed solar farm. MSFN is applying for a generation licence for the 100MWac solar farm and intends that the electricity output shall be sold under a combination of commercial Power Purchase Agreements (PPAs) with Western Australian electricity suppliers and dispatch power in the WEM balancing market.

The MSFN board is made up of four directors, two from IASL, and one each from Muick and NRE none of whom have been or would have been disqualified from managing corporations under the Corporations Act 2001.

The board consists of Sebastian Speight and Baiju Devani (IASL Directors), Guy Beesley (Nomad Renewable Energy Director) and Troy Santen (Muick Director).

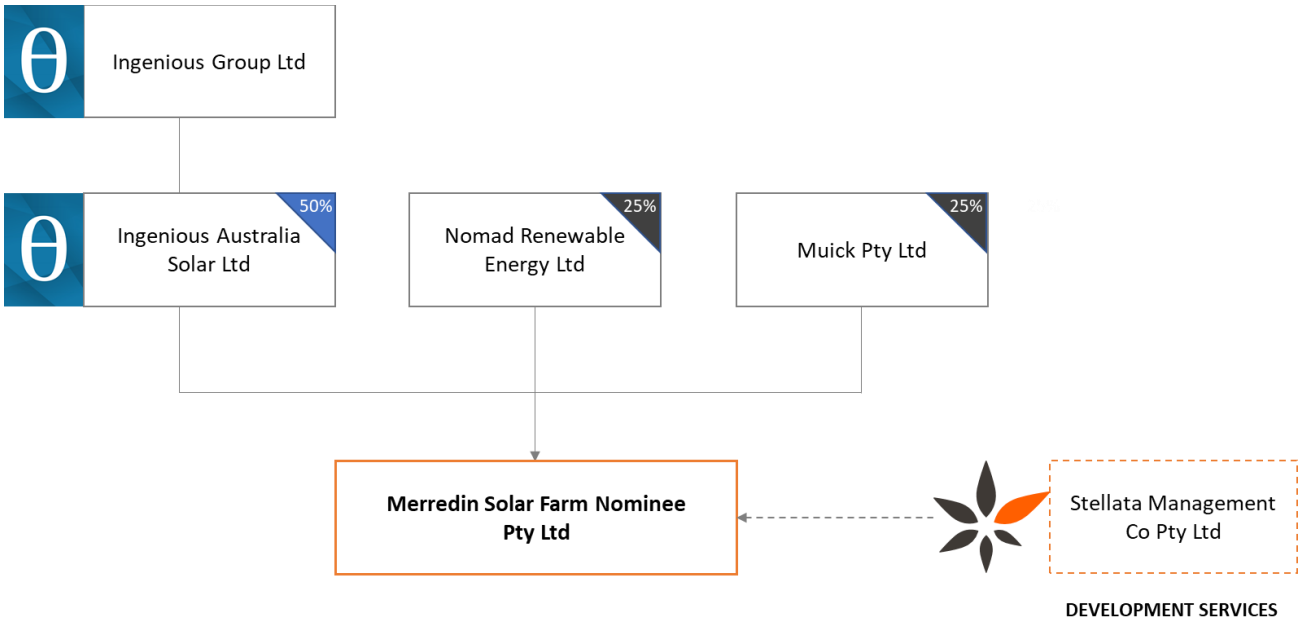


Figure 1: Merredin Solar Farm Corporate Structure

3. FINANCIAL INFORMATION

MSFN is classified as a small proprietary company under the Corporations Act 2001 (Cwlth), there is no statutory obligation to prepare and lodge financial reports with ASIC.

MSFN intends to finance its activity through a combination of debt and equity. The total expected capital expenditure of the project is $160m.

It is anticipated that 75% of the project CAPEX will be provided by way of debt (project finance). The company has been in discussions with a range of European and Australian Banks. Nord LB has already financed a number of renewable projects in Australia including Lakeland (15MW solar + storage) in QLD, Wirsol/Edify's 198MW solar portfolio, 113MW Bodangora Wind Farm NSW, and the 13MW Mugga Lane solar farm ACT.

The equity for the construction will be provided by IASL and Ingenious Estate Planning (IEP) by way of a revolving credit facility.

MSFN is a recently incorporated company established for the purpose of constructing the project and as such has limited financial obligations at this time. To date MSFN has been solely funded through loans from its shareholders. MSFN has provided security to one of its shareholders, IASL, in respect of monies lent under a loan agreement.

IASL has also lent monies to Stellata, a sister company of MSFN. MSFN has provided IASL with a guarantee in respect of the monies borrowed by Stellata.

As IASL is a 50% shareholder of MSFN we do not consider this a significant risk to the current financial position of the company.

MSFN is a special purpose vehicle and its core business activity relates to the generation and sale of electricity, LGCs and capacity credits. The Company will enter into a number of contracts prior to financial close in June 2018 in order to achieve this.

a) Power Purchase Agreements

The Company aims to sell electricity, LGCs and capacity credits to a number of energy retailers active in the WEM. The Company is currently in term sheet discussions with these retailers in order to finalise the off-take agreements.

b) O&M Agreement

The Company will enter into an Operations and Maintenance Contract (O&M contract) with a contractor that can carry out the required operation and maintenance of MSF. For the first 2 years (as a minimum), the O&M services will be provided by the same company that provides the EPC services.

4. TECHNICAL INFORMATION

MSF will have an operational capacity of 100MWac at its POC (metering point) consisting of approximately 406,000 solar PV modules (325Wp polysilicon) covering an area of 360 hectares, with an expected output of 278GWh of electricity per annum.

The solar farm will comprise of solar PV modules installed on aluminium frames, utilising a single-axis tracker system aligned North-South. The tracker system will be supported by driven steel piles and will follow the sun from East to West during a day and will return to a stowage condition after dusk and during high wind conditions.

Electricity generated by the PV modules will be fed via string cabling to combiner boxes and then through to central inverters located within medium voltage (MV) substations. Each MV substation will contain 5MVa of inverters (2 x 2.5MVa SMA sunny central units) which convert direct current (DC) into alternating current (AC). AC electricity is then passed through a transformer which steps up the voltage to 33kV.

Once at 33kV, power is transmitted back to the Customer Substation / Switchroom before stepping up to 220kV and connecting to the SWIS at Western Power's Merredin Terminal.

The solar farm will be comprised of 22 x 5MWac arrays, a customer substation, on site switchyard and associated Western Power connection assets.

It is anticipated that the metering will be done at 220kV at the common point of coupling with Western Power's transmission network. Western Power will install a metering breaker along with associated CT/VTs for the purpose of metering the output of the solar farm.

The forecast annual generation for the project is 278GWh in year 1, 276GWh in year 2, 275GWh in year 3, 274GWh in year 4 and 273GWh in year 5.

Western Power (WP) will be the meter operator for the connection.

5. OTHER REGULATORY APPROVALS

The project has received full Developmental Approval (DA) from the Wheatbelt Development Assessment Panel (DAP) on 15 June 2017, subject to a number of conditions.

The Western Power ETAC and IWC are being prepared and are expected to be executed during Q4 2017. The application process involves a number of steps. The early phases are complete and the network studies and scoping phase contract with Western Power was signed on 26 July 2017. The contract target duration is noted as 8 weeks and these works are currently ongoing.

MSFN is in the process of registering with the following organisations:

- **Australian Energy Market Operator (AEMO):** Registration is sought as a Market Participant with intermittent non-scheduled generators.
- **Clean Energy Regulator:** Registration will be sought as an accredited power station able to create Renewable Energy Certificates (RECs). The RECs shall be classified as Large-scale Generation Certificates (LGCs).

6. PUBLIC INTEREST INFORMATION

MSFN is committed to engaging with the community and other stakeholders on all of its projects, from inception through to operation. The MSF project has been warmly welcomed by the local landowners, and the Merredin Shire Council were very supportive throughout the Development Application process where no public complaints or objections were raised.

As part of the planning approvals process, a feasibility study was completed to assess the environmental impacts on the surrounding area. The outcomes of the environmental impact assessment determining that there are no significant environmental impacts as a result of the proposed development. Planning Approval for the project was obtained from the DAP on 15 June 2017.

MSFN has engaged with the Merredin Volunteer Fire and Rescue Service and will be discussing the farm layout to ensure that local members concerns are addressed in addition to the regulatory requirements for a Solar Farm in a rural setting.

During construction and O&M, the MSF project will provide local employment opportunities and stimulus to local businesses. We expect a peak of approximately 200 people to be working on site during the construction period, with 2 or 3 permanent staff plus further temporary staff during ongoing operations and maintenance.

MSFN supports initiatives that strengthen the local community and intend to contribute to focus areas that maximise benefits for the Merredin region and surrounding areas.

MSF will add competition to the WEM and increase renewable energy generation within Western Australia as well as contributing to meeting the federal Renewable Energy Target.

7. LICENCE SUPPLY AND OPERATING AREA

MSF is located south of Merredin, on Lot 194 and Lot 19444, approximately 260kms East of Perth, Western Australia. The leased area covers the entirety of lot 194 and covers approximately 168ha of the 238ha of lot 19444. The license area map is attached .

PRELIMINARY
FOR TENDER PURPOSES ONLY

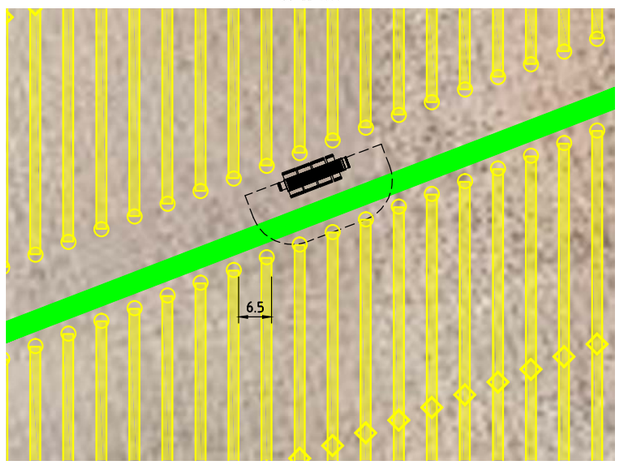
NOTE 1

PROVISION FOR FUTURE BATTERY STORAGE:
LAYOUT INCLUDES A PROVISION FOR BATTERY STORAGE THAT MAY BE INSTALLED AT A LATER STAGE. THE BATTERY STORAGE WILL CONSIST OF UP TO 50 NO. 40FOOT SHIPPING CONTAINERS.
IT IS ANTICIPATED THAT THE LAYOUT COULD ACCOMMODATE UP TO 50MWH SUBJECT TO PROJECT FUNDING AND APPROVAL

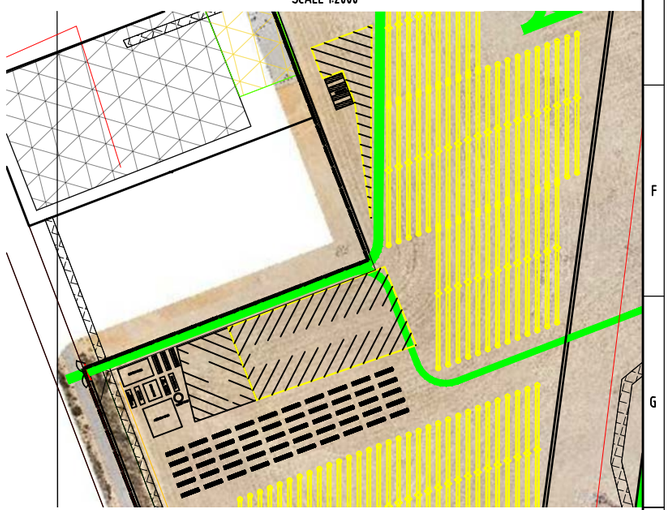
SYSTEM SPECIFICATIONS		
EFFECTIVE AC CAPACITY @ 25°C	100	MW
DC CAPACITY @ STC	131.87	MW
MODULE CAPACITY	325	W
EFFECTIVE INVERTER CAPACITY	2.27	MW
PCS EFFECTIVE CAPACITY	4.55	MW
DC/AC RATIO	1.32	
ROW SPACING	6.5	m
TILT ANGLE	±60°	
TOTAL MODULES	405,768	
MODULES PER STRING	29	
NUMBER OF STRINGS	13,992	
NUMBER OF INVERTERS	44	
TOTAL OF PCS	22	
NUMBER OF MODULES PER TRACKER	87	
NUMBER OF STRINGS PER TRACKER	3	
NUMBER OF TRACKERS	4,664	

PLAN VIEW SITE
SCALE 1:7500

POWER CONVERTER STATION
SCALE 1:600



CONSTRUCTION COMPOUND
SCALE 1:2000



PRELIMINARY - Not For Construction

REFERENCE DRAWINGS

REFERENCE DRAWING No.	REFERENCE DRAWING TITLE
A.....	GENERAL

REVISIONS

REV	DRN	DATE	DETAILS OF REVISION	CHK	APP
8	AG	12.09.17	DESIGN UPDATED	JB	EH
7	AG	05.09.17	DESIGN UPDATED	JB	EH
6	AG	30.08.17	PANELS MOVED	JB	EH
5	AG	28.08.17	DC/AC RATIO & ROW SPACING UPDATED	JB	EH
4	AG	18.08.17	SUBSTATION MOVED	JB	EH
3	MW	02.08.17	MODULES MOVED	JB	EH
2	MW	25.07.17	INVERTERS ADDED	JB	EH
1	MW	24.07.17	PRELIMINARY DESIGN	JB	EH

SCALE: NTS (WHEN PRINTED A1 SIZE) — 3rd ANGLE PROJECTION (uno)

	SIGNATURE	DATE
DRAWN	AG	24.07.17
CHECKED	JB	24.07.17
APPROVED	EH	24.07.17
DESIGN ENG	AG	24.07.17

RCR

CLIENT: STELLATA

TITLE: MERREDIN SOLAR FARM
PROPOSED TRACKER ARRANGEMENT
SITE LAYOUT

DRAWING No.: A006577-001
ALT DRAWING No.:
SHEET No.: SHEET 1 OF 1
REVISION: 8

PROJ No. A006577 | DRAWING STATUS: PRELIMINARY | A1