

INVESTING IN RENEWABLE ENERGY IN AUSTRALIA

Prague, 6 April 2017

MATERIAL 200
THINFILM
INSPECTION 1000
TOLERANCE NORM ISO 8015: ISO P
PRECISION ISO. YES
CONCEPT
DESIGN

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EXAMINED
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NAME

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INTRODUCTION

RENEWABLES
IN AUSTRALIA

AUSTRALIAN
SOLAR MARKET

OUR PROJECTS



PHOTON ENERGY GROUP

A global solar power solutions and services company






- **Wide ranging expertise** covering the entire lifecycle of solar power systems.
- Extensive track record and know-how in the **development, planning and construction** of solar power plants, as well as **operations and maintenance, insurance, investment management and protection.**
- Founded in Prague in **2008**, headquartered in the **Netherlands & 61** professionals in 5 offices worldwide.
- O&M services supplied for **200+ MWp.**
- **Own portfolio of power plants** of 26 MWp in Europe and Australia

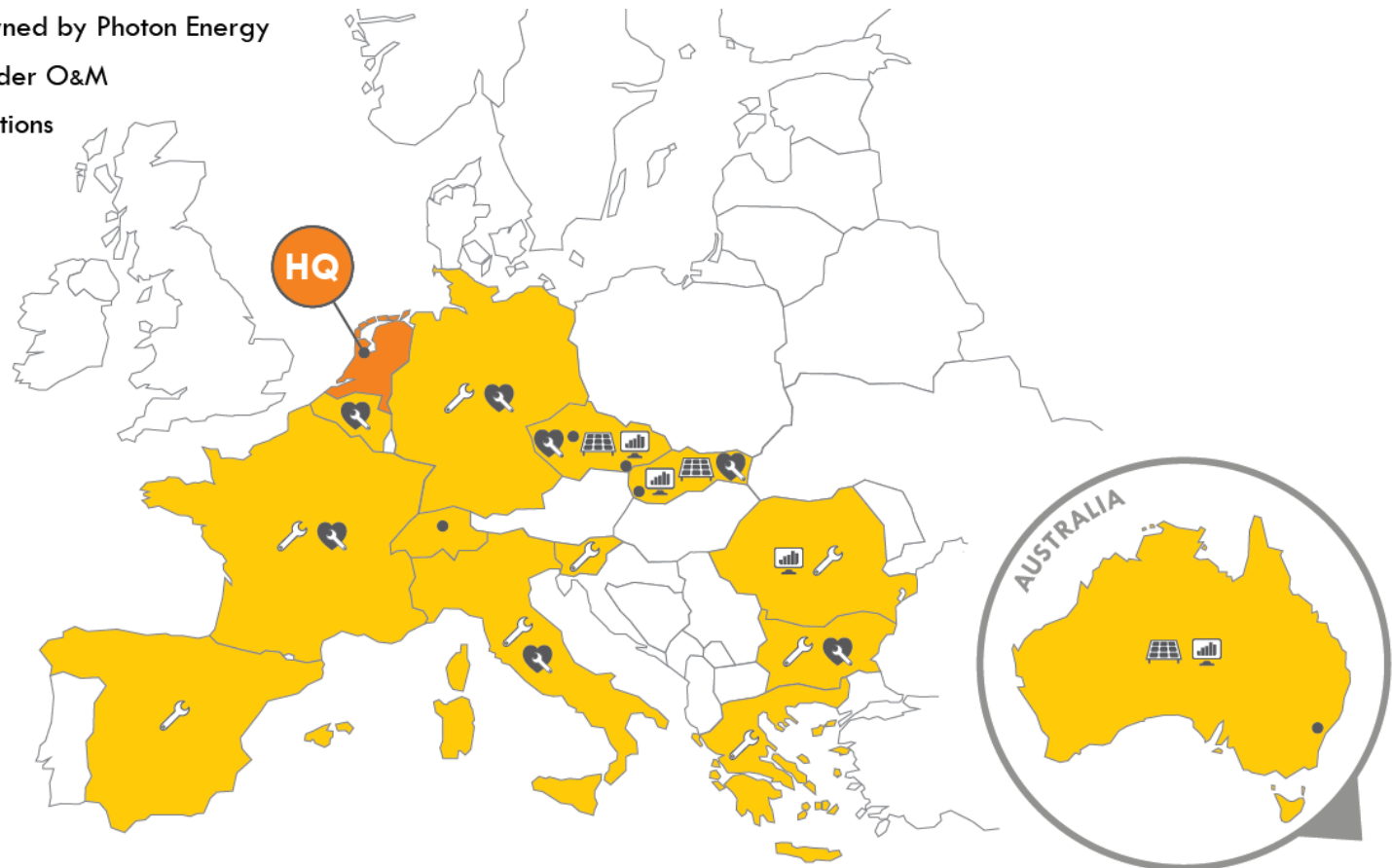


- **Publicly listed company** in Warsaw and Prague (ISIN NL0010391108).
- **Publicly traded bonds** on Stock Exchanges in Germany and Austria (ISIN DE000A1HELE2) and Prague (ISIN CZ0000000815).

GLOBAL PRESENCE

Active on two continents

-  Power plants owned by Photon Energy
-  Power plants under O&M
-  Service interventions
-  Inverter Cardio
-  Offices



PHOTON ENERGY IN EUROPE

Solar power solutions

- Approx. 50 MWp
- Rooftop / Ground-mounted
- E.g. Brno-Turany
- Czech Rep, Slovakia, Germany, Italy



PHOTON ENERGY IN EUROPE

Proprietary portfolio

- 
- A photograph of a large-scale solar farm. The solar panels are arranged in neat rows on a grassy field under a clear blue sky. The panels are tilted at an angle to capture sunlight. The image is partially overlaid with a semi-transparent white box containing text and a list of statistics.
- ▶ 26 MWp in total
 - ▶ 15 MWp in Czechia, 11 in Slovakia
 - ▶ Energy for approx. 10,000 households
 - ▶ Recurring revenues

ZDICE, ČESKÁ REPUBLIKA
3 MWp, 2010

PHOTON ENERGY IN EUROPE

Operations and maintenance of PV power plants

- ▶ 111 MWp in Czechia
- ▶ 200,5 MWp worldwide
- ▶ Full O&M and specialised services
- ▶ Service interventions across Europe
- ▶ For Czech investors in Slovakia, Romania

A photograph showing a technician in a dark grey uniform working on a large, open central inverter cabinet. The cabinet is filled with complex electronic components, including circuit boards and capacitors. A blue power drill is resting on top of the cabinet. The technician is seen from the back, focused on the internal wiring and components.

CENTRAL INVERTER SERVICE FOR SATCON
Germany

PHOTON ENERGY

Photon Energy Command (PECOM)



- ▶ Monitoring and diagnostics tool
- ▶ Intuitive web-based application
- ▶ Analysis for electrical parameters and trends
- ▶ Discover faults
- ▶ Automatic document validity control
- ▶ Warehouse management
- ▶ Intelligent alarm system

GLOBAL PRESENCE

Photon Energy in Australia

- **2012:** Photon Energy expands to Australia
- Australian HQ and team of 6 people in Sydney with full local design, engineering and operation capability
- Focus on
 - Large commercial behind the meter solar power
 - Large on and off-grid power storage projects
 - Large-scale solar farm development, design & construction and operation
- Over 1 MWp of solar roofs completed and large pipeline



- Ground breaking and Award-winning Energy storage project for bai
- Long term repeat customers: bai, Buildcorp, Sarris Properties and Australia Post

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**RENEWABLES
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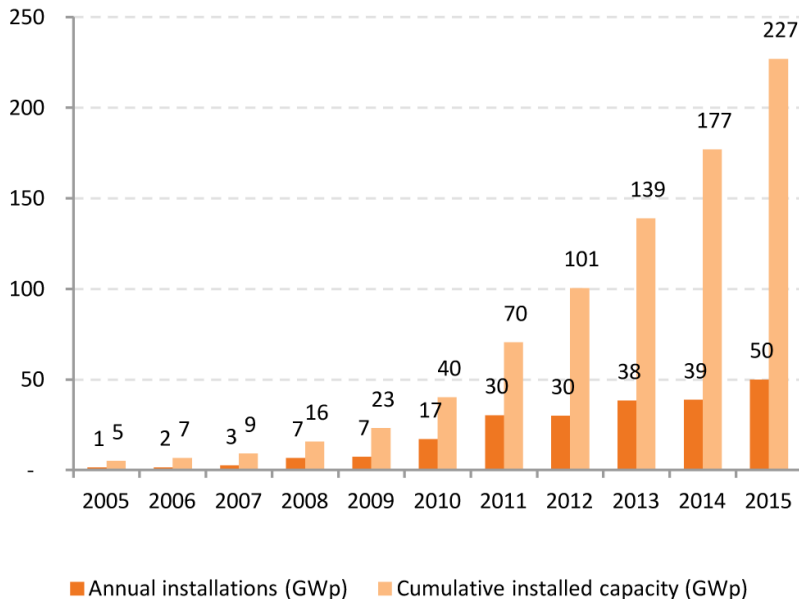


SOLAR IN AUSTRALIA

Australia within the global solar market

- The global PV market grew **28–34%** in 2015
- Almost **50 GWp** of new PV systems installed globally
- Global cumulative capacity in 2015 was **227 GWp**

Evolution of global annual and cumulative installed capacity 2005–2015 (GWp)



FOCUS: AUSTRALIA

- Eight largest market in the world (2015)
- Highest penetration of residential rooftop solar in the world (2015)
- Almost 1 GWp installed in (2015)
- 5+ GWp total installed capacity (2015)



RENEWABLES IN AUSTRALIA

Renewable Energy Target

- **Renewable Energy Target (RET)** federal policy for Renewables in Australia
 - Large scale generation target of about 33,000 GWh in 2020
 - Double the amount of large-scale renewable energy compared to current levels
 - 23.5% of electricity generation in 2020
- **Investment Incentive:** Renewable Energy Certificates (STC or LGC) are created by renewable energy generators and must be purchased at market price and surrendered by Liable Entities (Energy Generators) out at 2030.
- **LGC Market** price driven by supply from Renewable Energy Generators and demand from Liable Entity demand which mirrors the RET.



- Not uncontroversial, Subject to attacks from coal and gas lobby and conservative media
- Current RET has bipartisan support in parliament

RENEWABLES IN AUSTRALIA

Other support mechanisms

■ States

- Some have implemented their own policies over and above the RET, providing PPA and LGC **reverse auctions**
- **ACT**: 100% renewable by 2020

■ Clean Energy Finance Corporation

- operates like a traditional financier
- co-finances and invests, directly and indirectly, in clean energy projects

■ ARENA

- Australian Renewable Energy Agency
- \$2.5 billion to fund RE projects and R&D

■ Emissions Reduction Fund

■ Environment Upgrade Agreements (EUA):

EUA enables to finance solar, power storage and other equipment through an increase in council rate payments.



RENEWABLES IN AUSTRALIA

Overall characteristics

Smart support schemes

Incentives rather than hand-outs

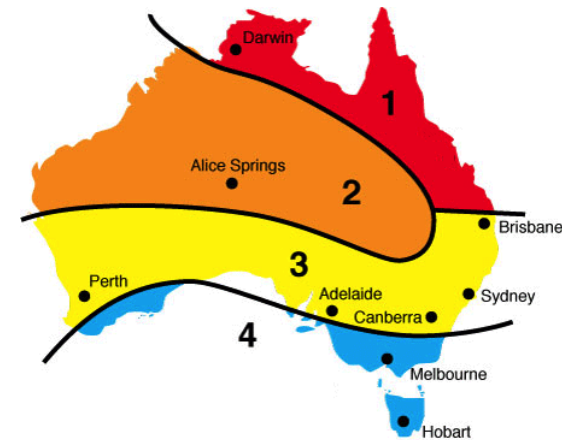
A diagram with two grey boxes at the top, each containing text. Two dotted orange arrows point from the bottom of each box towards a central orange box at the bottom. The central box contains the text 'RE companies need to be innovative and competitive'.

**RE companies need to be
innovative and competitive**

RENEWABLE ENERGY TARGET

Certificates

- Large-scale power stations and the owners of small-scale systems **create certificates for every MWh** they generate
- Existing market which **provides financial incentives**



LGCs

- Large-Scale Generation Certificates
- >100 kW
- Traded on market
- Current market value: 80-90 AUS\$

STCs

- Small-scale Technology Certificates
- <100 kW
- Market price capped at \$40
- Calculated for 14 years (reduces by one year each year to 2030)
- Paid up-front (investment incentive)

RENEWABLE ENERGY TARGET

Example of STC project: Leeton 99 kWp

- ▀ 99 kWp solar power plant provides a large proportion of the power for a sewerage treatment plant in Leeton, NSW
- ▀ Supplies 162 MWh , helping Leeton Shire Council reduce their carbon footprint and energy bills
- ▀ Expected CO₂ emissions savings:
145 ton/year



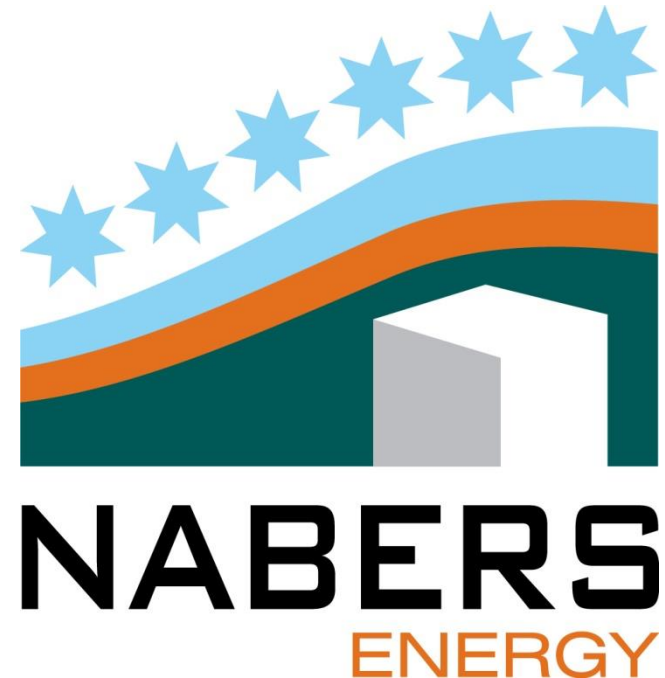
LEETON, AUSTRALIA
99 kWp, 2016

OTHER SUPPORT MECHANISMS

NABERS and Green Star

- Rating systems for real estate energy efficiency

- **NABERS**
 - National Australian Built Environment Rating System
 - Star rating 1-6
 - Rates actual operational performance, using 12 months of measured performance information
 - 6 star rating demonstrates market-leading performance for buildings that maximise energy efficiency with on-site renewable generation.
 - Public institutions must aim for 6 stars
 - Solar cheapest way of adding stars



OTHER SUPPORT MECHANISMS

Example of NABERS project: Australia Post Headquarters Sydney

- ▶ Australia post redeveloped NSW Headquarters
- ▶ Integrate solar into building's energy system
- ▶ Reduces energy costs by AUD 65,000/year
- ▶ Expected production: 371 MWh/year
- ▶ Expected CO2 emissions savings: 325 ton/year



OTHER SUPPORT MECHANISMS

Combination of NABERS / STCs: 1THD, Sydney

- ▀ 99 kWp project
- ▀ During refurbishment of office building
- ▀ Creates storage space thanks to raised structure
- ▀ Expected production: 132 MWh/year
- ▀ Expected CO₂ emissions savings: 119 ton/year



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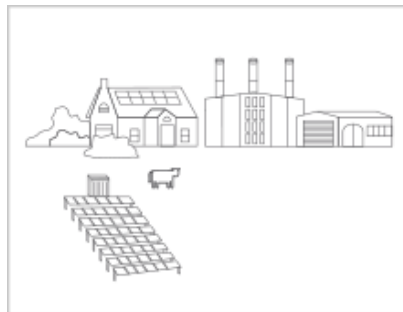
OUR PROJECTS



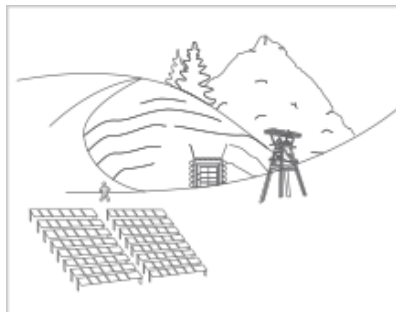
AUSTRALIAN SOLAR MARKET

Room for growth on the world's sunniest continent

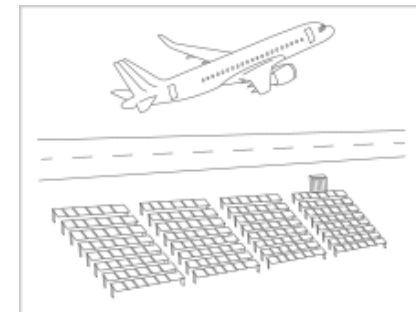
- Unlike Europe, no need to fight for territory with old energy
- **Wider range** of potential applications than Europe
- **On-grid** as well as **off-grid**



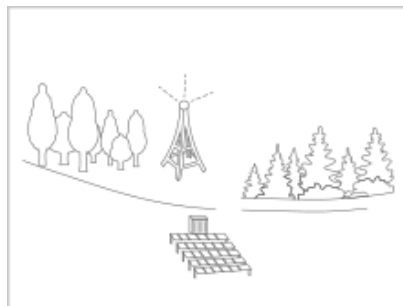
Agriculture & Industry



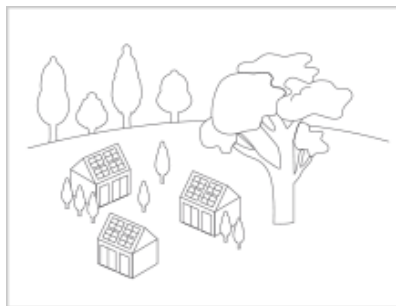
Mining: diesel replacement



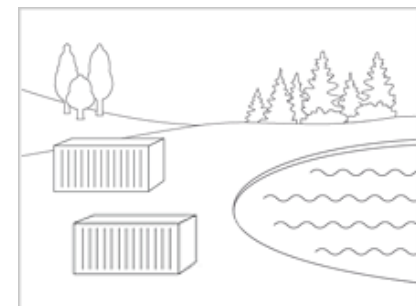
Remote airports



Telecommunications infrastructure



Remote communities



Water remediation

AUSTRALIAN SOLAR MARKET

Example Off-Grid telecom



- ▶ Solar storage project for BAI Communications
- ▶ Muswellbrook transmission site in NSW, Australia
- ▶ Demonstrates reliability of solar
- ▶ Site provides broadcasting, radio, and critical emergency services for over 50,000 end users within a 500 km radius

“This successful trial has given BAI Communications the confidence to further pursue its quest to become a carbon neutral organization, and a leader in delivering energy efficient services within the broadcasting industry: just the right credentials to win the award for excellence in sustainability.”
John Ive, BAI Communications




**IABM International
Award for Excellence
in Sustainability 2016**



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OUR PROJECTS

Riverina 20 MWp solar park



- Business model: Power Purchase Agreement / Merchant + Large-Scale Generation Certificates (LGCs)

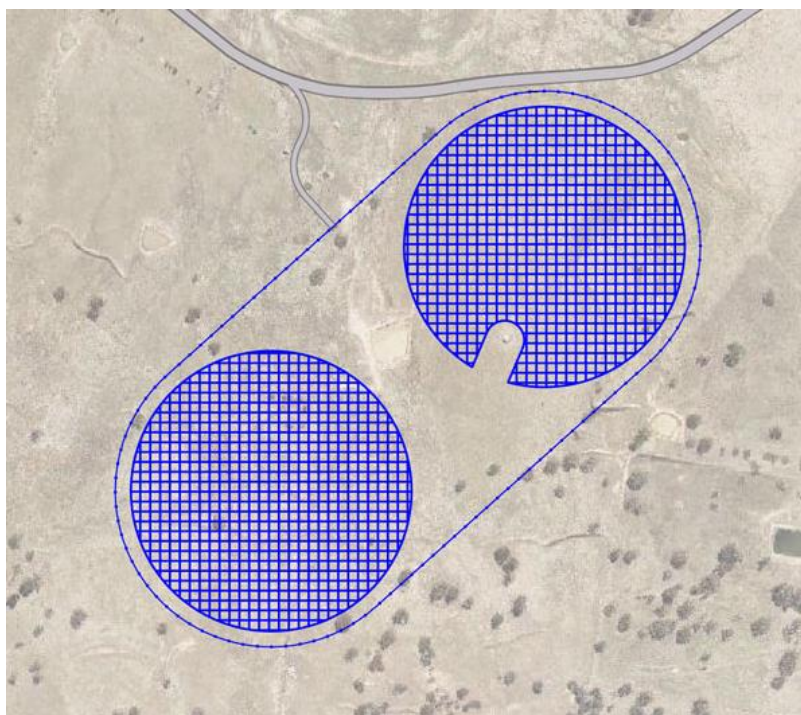
Project status (1 March 2017)

- Land secured
- Development Application in progress
- Securing of off-take agreements (PPA)
- Electrical connection enquiry completed and network study in progress.

Planned capacity:	20 MWp	Area size:	36 ha
Annual production:	32.70 GWh	Power Output:	1,635 kWh/kWp**
Households supplied:	5 621*	Total investment:	AUS\$ 28.4 Mio (CZK 538.0 Mio)
CO₂ saved:	29 430 t annually	Expected IRR:	8.6%
Construction start:	Planned 08/2017	Final Commissioning:	Planned 05/2018

OUR PROJECTS

Environa 14 MWp solar park



- Business model: Power Purchase Agreement / Merchant + Large-Scale Generation Certificates (LGCs)

Project status (1 March 2017)

- Land secured
- Development Application in progress
- Securing of off-take agreements (PPA)
- Electrical connection enquiry completed and network study in progress.

Planned capacity:	14 MWp	Area size:	30 ha
Annual production:	22.61 GWh	Power Output:	1,615 kWh/kWp**
Households supplied:	3 886*	Total investment:	AUS\$ 19,9 Mio (CZK 376,9 Mio)
CO₂ saved:	20 340 t annually	Expected IRR:	8.2%
Construction start:	Planned 06/2017	Final Commissioning:	Planned 03/2018

PHOTON ENERGY CZK BOND

Profit from the Australian solar boom!

6% p.a.

Monthly coupon

Daily liquidity*

* Bonds traded on the Prague Stock Exchange and the RM system

Issuer	Photon Energy N.V.
Planned issue volume	1.050 Mio. CZK
Coupon / payment period	6% p.a. / monthly payment
Subscription period / initial offering	Subscription period: 24. 11. 2016 – 11. 12. 2016 / initial offering (planned): 12. 12. 2016
Placement / segment	Public Placement in the Czech Republic / Secondary market: Multilateral trading facility of the Prague Stock Exchange, RM system
Covenants	<ul style="list-style-type: none"> ▸ Pari passu – Equal seniority of existing and future unsecured claims ▸ Cross default ▸ Negative pledge ▸ Change-of-Control clause
Denomination	30,000 CZK / 100%
Term / Redemption	7 years / 12. 12. 2023 at par
WKN / ISIN	CZ0000000815
Use of proceeds	Proceeds of the issue will be invested with focus on Australia. Remaining proceeds may be used for repayment of outstanding bond (ISIN DE000A1HELE2).

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EXPERTS FOR
THE SOLAR AGE.

PHOTON ENERGY

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