Asia Wind Energy Association

IN PARTNERSHIP WITH

BRYAN CAVE LEIGHTON PAISNER BCLP

MOTT MACDONALD

AWEA WEBINAR SERIES 2020 - MARKET SESSION

Indonesia's Renewable Energy Sector : Poised for Growth?

SPEAKER:

MARIUS TOIME
PARTNER, BCLP

ROBIN INGRAM
EAST ASIA WIND LEADER, MOTT MACDONALD

TUESDAY, 23 JUNE 2020 - 3 PM SGT

Asia Wind Energy Association

The Asia Wind Energy Association was established in December 2016 to become the leading trade association for the wind energy sector in Asia Pacific.

The association acts as the regional platform for all wind power industry stakeholders to collectively promote the best interests of the wind power sector.

The Asia Wind Energy Association is supported by a wide variety of stakeholders from the offshore and onshore wind industry.

Information

Asia Wind Energy Association

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Asia Wind Energy Association Silver Members

Asia Wind Energy Association Corporate Members

Marius Toime

Partner - Energy, Environment and Infrastructure
Bryan Cave Leighton Paisner

Marius Toime is an Energy, Environment and Infrastructure partner, and the leader of Bryan Cave Leighton Paisner's Indonesia practice. With over a decade of international experience in the Asia Pacific region, Marius has a proven track record representing clients on cross-border projects and financings in the power and renewables, mining and infrastructure sectors.

Marius has been recognised as a leading individual in Chambers Asia Pacific, Legal 500 Asia Pacific for Projects and Energy (Foreign Firms) and IFLR1000. He is currently the firm's resident partner in Indonesia, and is registered with the Indonesian bar association as a foreign legal consultant.

Indonesia's Renewable Energy Sector: Poised for Growth?

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AWEA Webinar Series 2020 – Market Session

Marius Toime, Partner
Jakarta

23 June 2020

BRYAN CAVE LEIGHTON PAISNER BCLP

About BCLP and our global offices

- Bryan Cave Leighton Paisner, formed by the combination of Bryan Cave and Berwin Leighton Paisner, is structured in a way few other law firms are – as a fully integrated international team that provides clients with clear, connected legal advice wherever and whenever they need it.
- Working as one team, we bring to our clients a range of integrated capabilities, including some of Asia's most active M&A, real estate, financial services, litigation, family asset protection and corporate risk practices.
- Bryan Cave Leighton Paisner brings enduring value to our client relationships and we're here to help you compete around the world, or just around the corner.

OUR GLOBAL FIRM

1400 lawyers in 31 offices advising businesses across North America, Europe, the Middle East and Asia.

$75bn cumulative deal value of real estate projects we've advised on in the last two years.

40% of the Fortune 500 rely on our firm to support their business goals and protect their interests.

4x winners for legal innovation since 2011

- Leader in Law Firm Innovation (Law.com)
- Number 1 Most Innovative Law Firm (Legal Business)
- 2 x 'World's Most Innovative Law Firm' (ILTA)

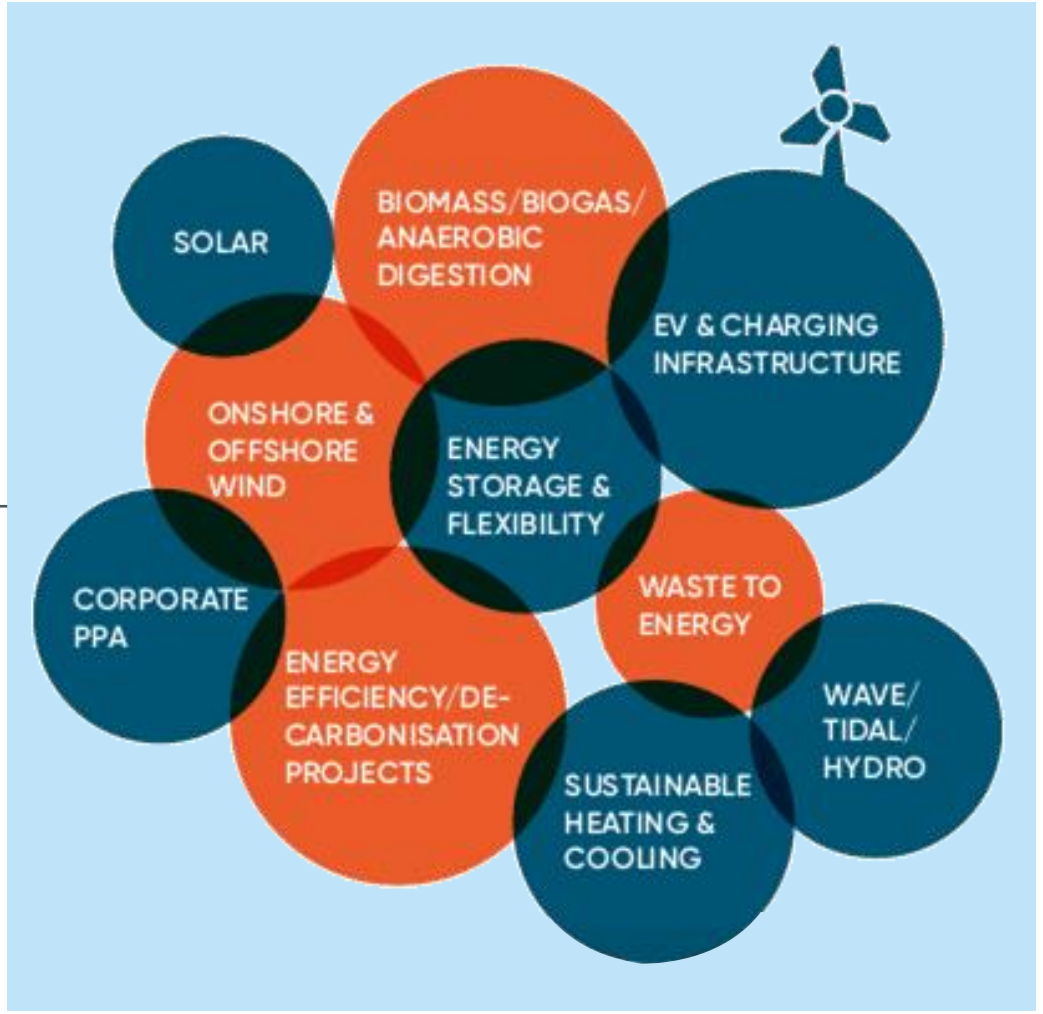
30 of the world's top 50 banks have relied on us.

8x winner of a Law Firm of the Year award in different markets since 2004.

Renewable and Clean Energy at BCLP

SECTORS AT BCLP

- Our clients in renewables, cover the full range of sector participants, from sponsors and financiers through to contractors and government agencies
- We have represented owners and developers of projects using a wide range of technologies including:



Our renewables experience

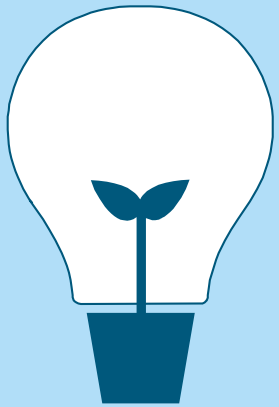
The Renewables team at BCLP provides advice across all areas of the low carbon economy. We have a particular focus on the development, financing and operation of renewable energy assets and related infrastructure. Key practice strengths:

Project Management and M&A	• Managing complex multi-disciplinary, cross-border M&A transactions is one of our core strengths. • We are used to coordinating input from numerous professional advisors and ensuring that all relevant matters are addressed in the documents we prepare. • We have extensive experience in coordinating and managing complex signings and completions.
Finance	• Our projects team advises on major project and corporate financings both in established and emerging markets. Our leading team ensures you are expertly advised and guided whether on market-leading project bond structures or plain vanilla lending.
Project Development	• Site identification and acquisition, planning permitting, connection to transmission or distribution networks, engineering procurement and construction, operation and maintenance, fuel or feedstock supply and offtake.
Fundraising	• Advising on all fundraising methods for renewables projects, including the formation of joint ventures and investment partnerships and the appropriate structure for the investment of development and mezzanine funding into projects

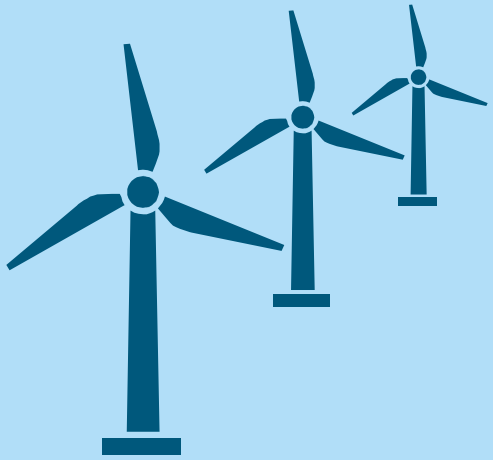
Renewables and Indonesia: Poised for Growth?

Unleashing Indonesia’s renewable potential

Ambitious 35-GW procurement acceleration project



Target of 23% renewables by 2025



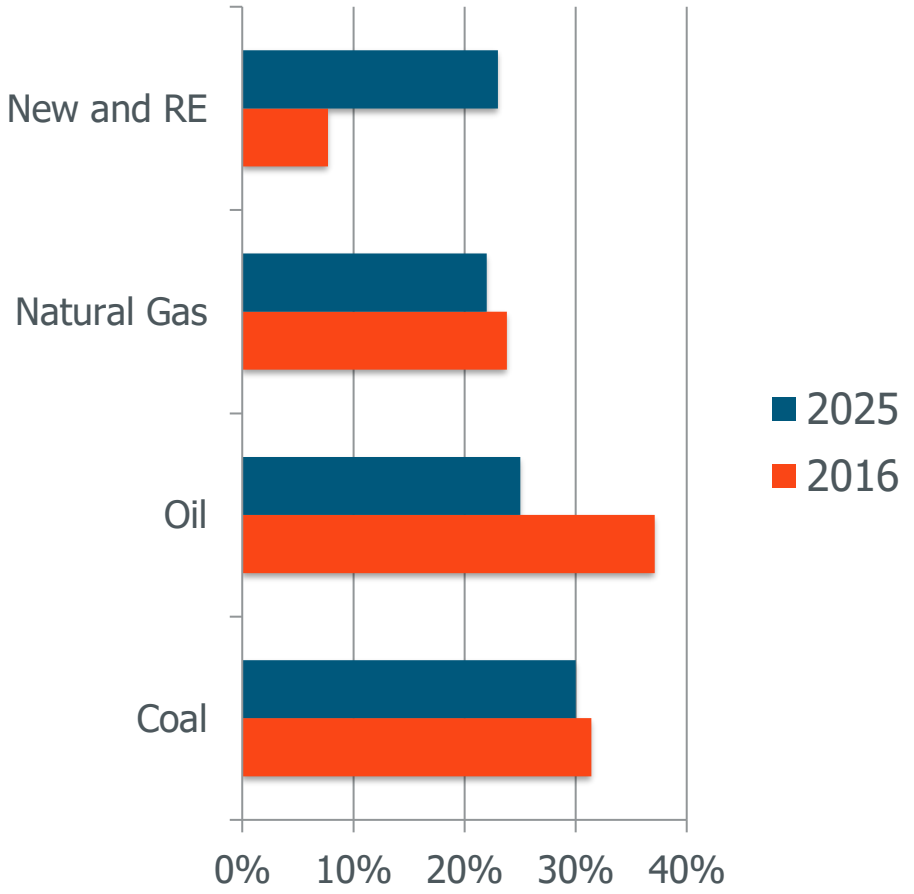
Significant potential for the development of renewables

Potential business opportunity

Market Opportunity

Type of Generation	Planned Generating Capacity Additions (2019-2025)	Market Opportunity (E) (2019 – 2025) USD
Utility-scale solar PV	903 MW	$ 680mn
Wind power	850 MW	$ 1.5bn
Small hydro	1,484 MW	$ 3.4bn
Hydro	5,984 MW	$ 9.5bn
Geothermal	4,362 MW	$ 20.8bn

Renewable Energy Target



Potential business opportunity – wind

Existing utility-scale wind power plants (both have proposed second phases)

- 75-MW Sidrap wind power project in South Sulawesi (COD July 2018)
- 70-MW Jeneponto wind power project

Unsolicited proposals include 250-MW in West Java and 90-MW in East Kalimantan

Role of battery energy storage systems for grid integration

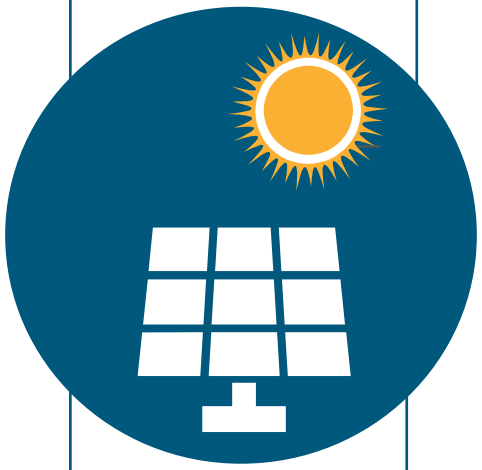
PLTB Timor Tengah Selatan – 20 MW in East Nusa Tenggara

Potential business opportunity – utility scale solar PV

Existing solar PV installed capacity small compared to regional peers

- 16-MW of installed capacity (2019)
- 45-MW of utility scale solar PV projects under construction (2019)

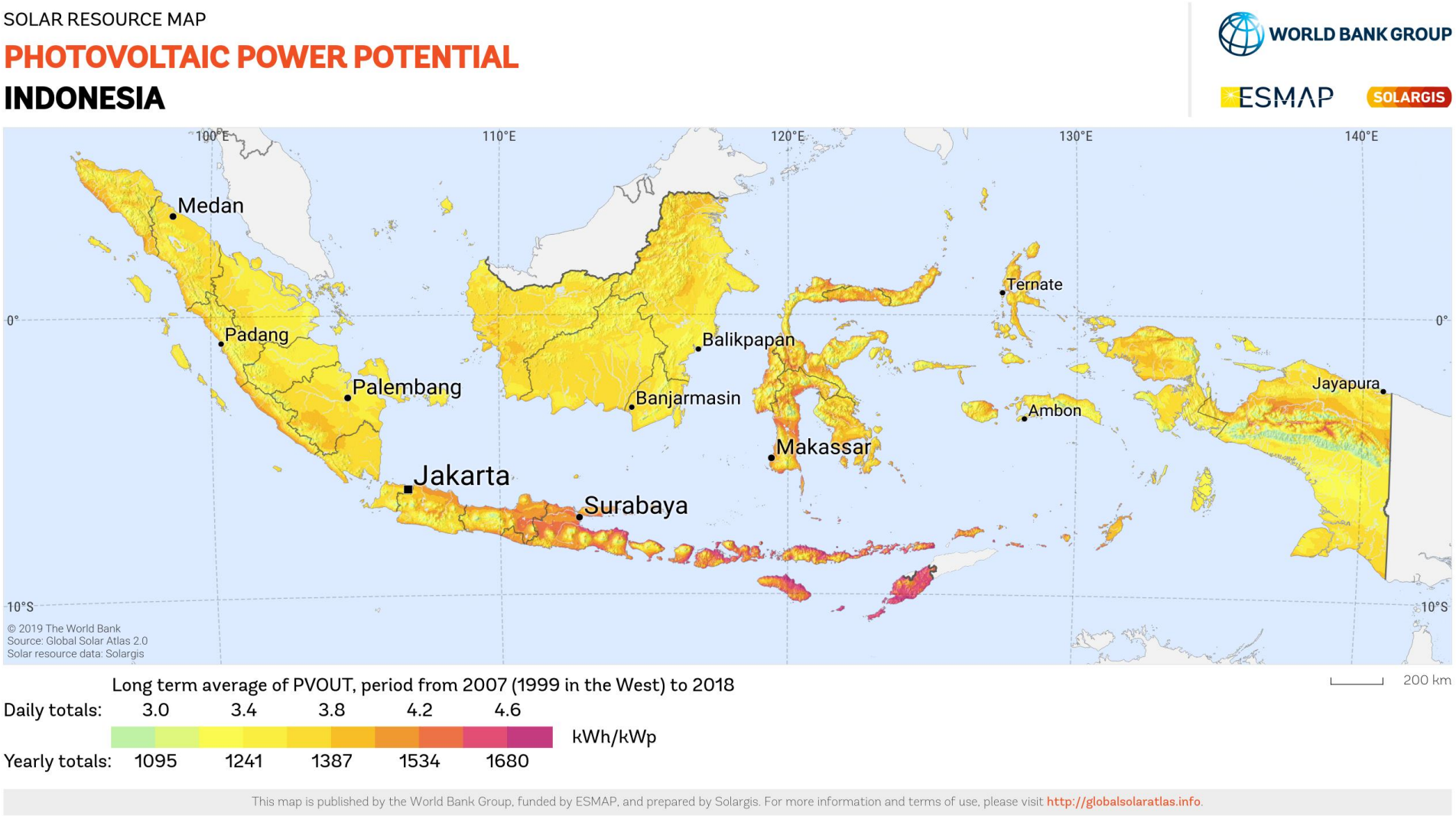
Example of early project includes 5 MWp located in Kupang, East Nusa Tenggara



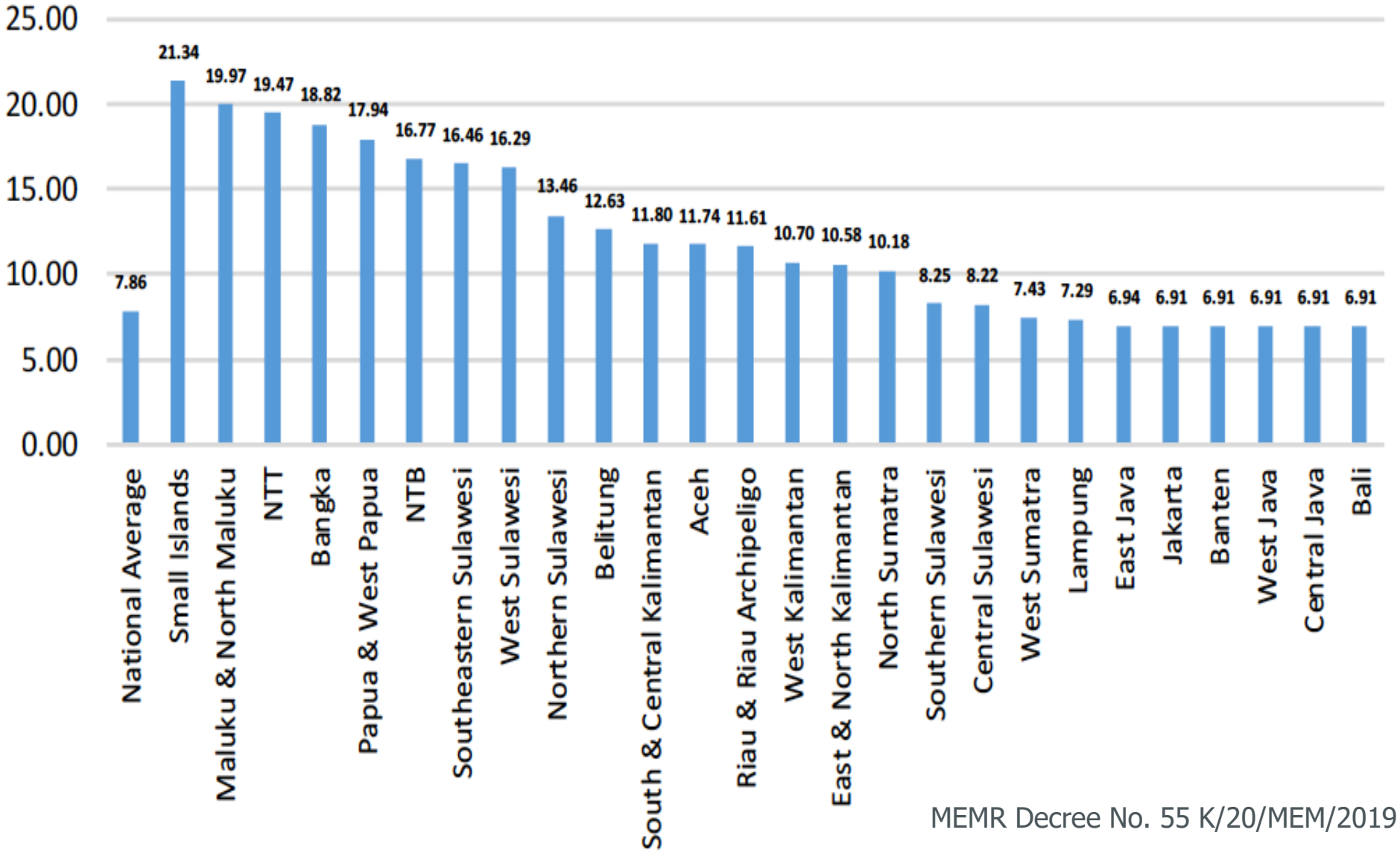
Recent proposal for 145-MW floating solar PV project in West Java

Prequalification for solar PV project developers and tender for Bali projects

Solar map of Indonesia



PLN Average Electricity Production Cost, 2018 (US cents/kWh)



MEMR Decree No. 55 K/20/MEM/2019

Procurement of renewable energy IPPs

- PQ process for eligibility for direct selection (with capacity quota for solar/wind)
- PLN's List of Selected Providers (DPT) – pre feasibility required?
- Individual assessment including technical and financial criteria
- Direct appointment in defined circumstances

Legal and regulatory framework – what are the key updates?

Regulatory framework

1945 Constitution
Provides for state control over vital and strategic sectors, such as the business of electricity

Foreign Investment Law

Energy Law Law No. 30 of 2007 on Energy

Electricity Law Law No. 4 of 2009 on Electricity

Government Regulation No. 79 of 2014 on National Energy Policy

Ministerial implementing regulations

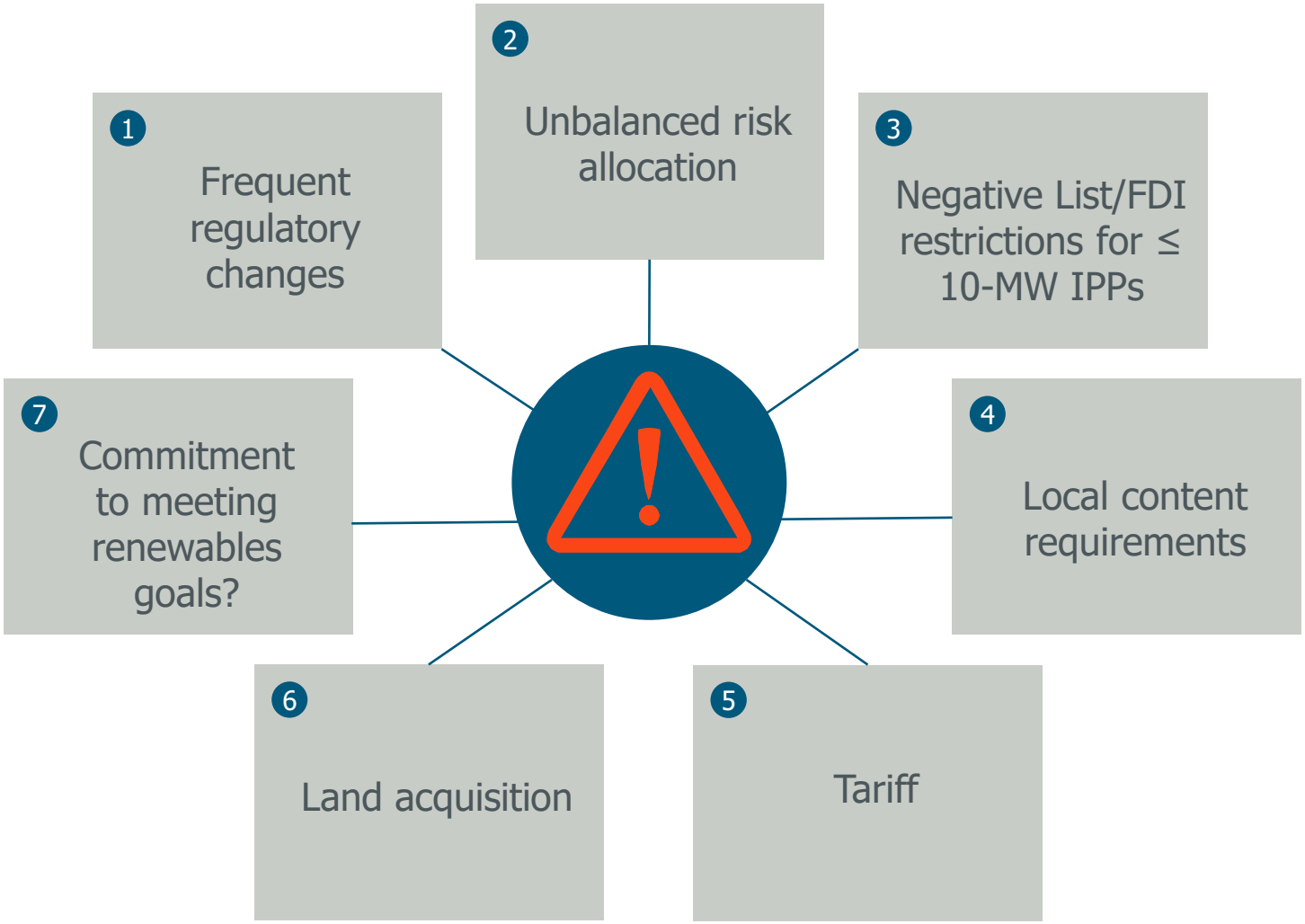
Key ministerial regulations

Notable trends

- Pilot Projects
- PLN’s Green Booster & Large Scale Renewable Energy Program
- Presidential Decree on Renewable Tariff

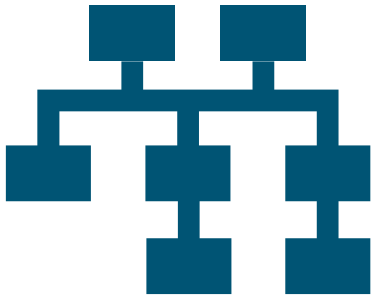
What are the challenges and risks?

Challenges and risks



JV/Investment Structures

Traditional JV with SOEs



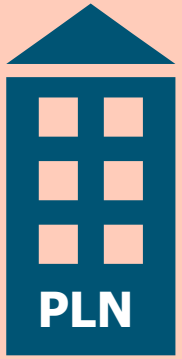
PE/VC structures

Mutual fund structures – RDPT/ DINFRA

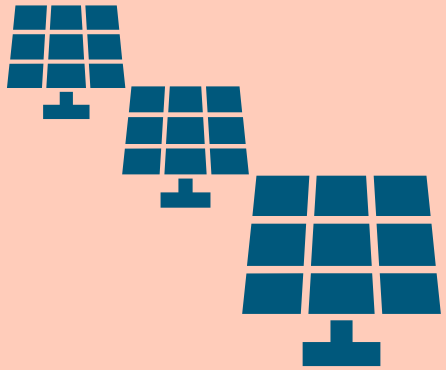
What are the challenges and risks raising renewables finance?

Financing considerations

Different approaches for raising finance



Impact of PLN shareholding in Indonesian projects



Dealing with scale for small renewables projects

Presentation to Asia Wind Energy Association

23 June 2020

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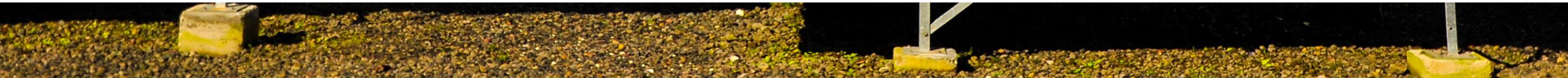

Robin Ingram

East Asia Wind Leader
Mott MacDonald

Based within East Asia since 2016, Robin has been supporting a range of leading wind developments in the East Asia region, including onshore, near-shore and offshore projects. With a lead role in Mott MacDonald's regional wind team, he has project managed technical advisory assignments for a total project value of USD 1 billion in onshore wind globally, combining both his engineering background and practical experience on wind project development. His experience includes lender's technical advisory roles for the first two commercial scale onshore wind projects in Indonesia, Sidrap and Tolo.

Indonesia's Renewable Energy Sector: Poised for Growth?

MOTT MACDONALD

AWEA webinar series 2020

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23 June 2020

Robin Ingram
Business Development Leader, Wind, East Asia

Mott MacDonald

Company Overview

We work in **160** countries

170 permanent offices in over 50 countries

16k staff

$2 billion turnover

Over **150** years' heritage

Consultants of the Decade

NCE AWARDS

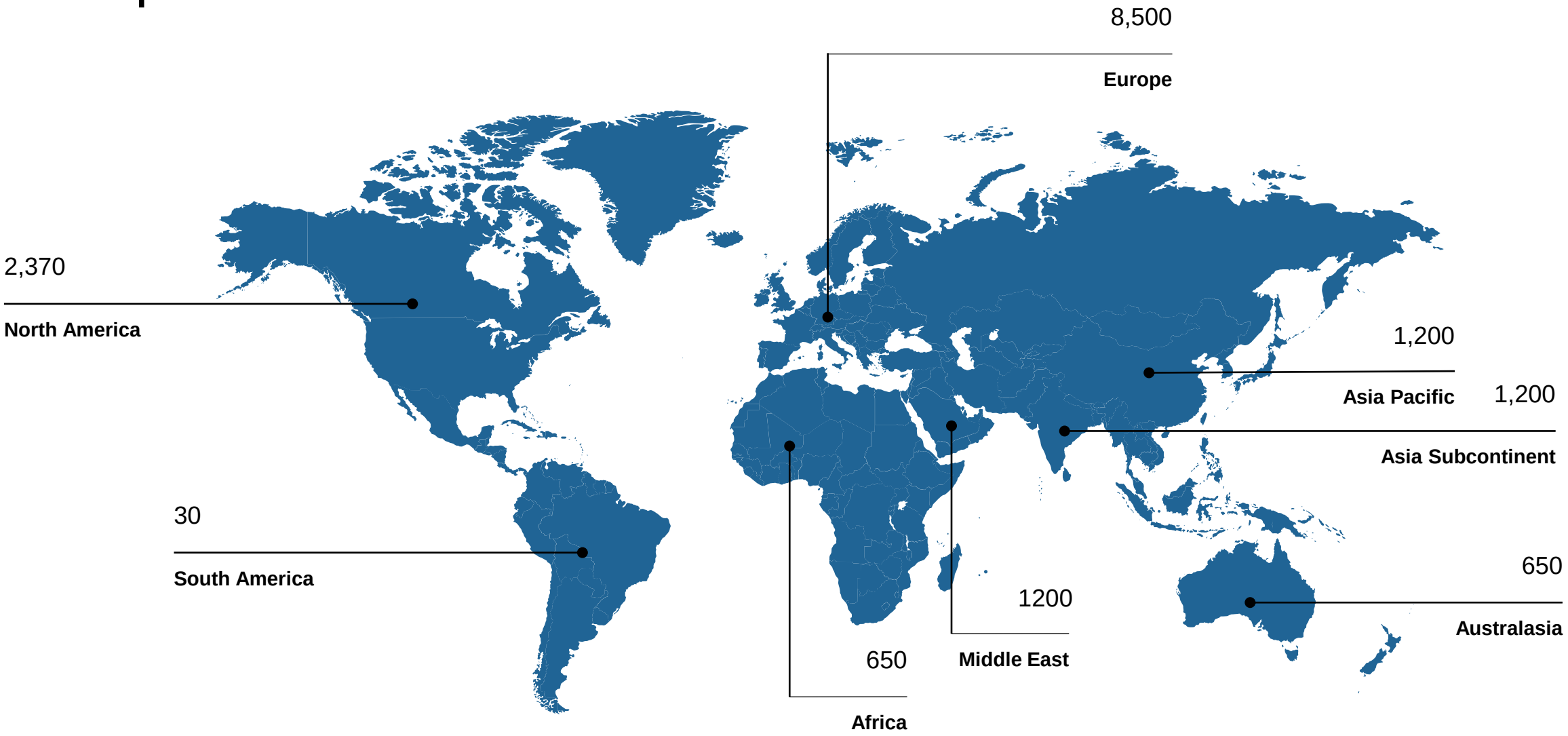
IJGlobal Awards 2016 WINNER Asia Pacific Technical Adviser of the Year Mott MacDonald

FIDIC

Partnerships Awards 2015 GOLD AWARD WINNER TECHNICAL ADVISER OF THE YEAR MOTT MACDONALD

FINANCE MONTHLY GLOBAL AWARDS 2017 WINNER

Principal offices and staff



Wind experience of over 90GW worldwide, in over 60 countries.

Key service areas

1

Independent Engineering

Supporting Project Finance activities, Buy-side, Sell-side mergers, acquisitions, appraisals and market analysis

2

Technical Advisor and Owner’s Engineering

Supporting project development activities, project management and construction management for developers

3

Design Consultancy

Supporting FEED, preliminary and detailed design and design for contractors / developers on Electrical and Structural elements of projects, including geotechnical

4

Specialist supporting services

Environmental and social; system analysis; offshore surveys; directional drilling, permit and cable routing analysis / support; ports and harbour analysis; associated infrastructure

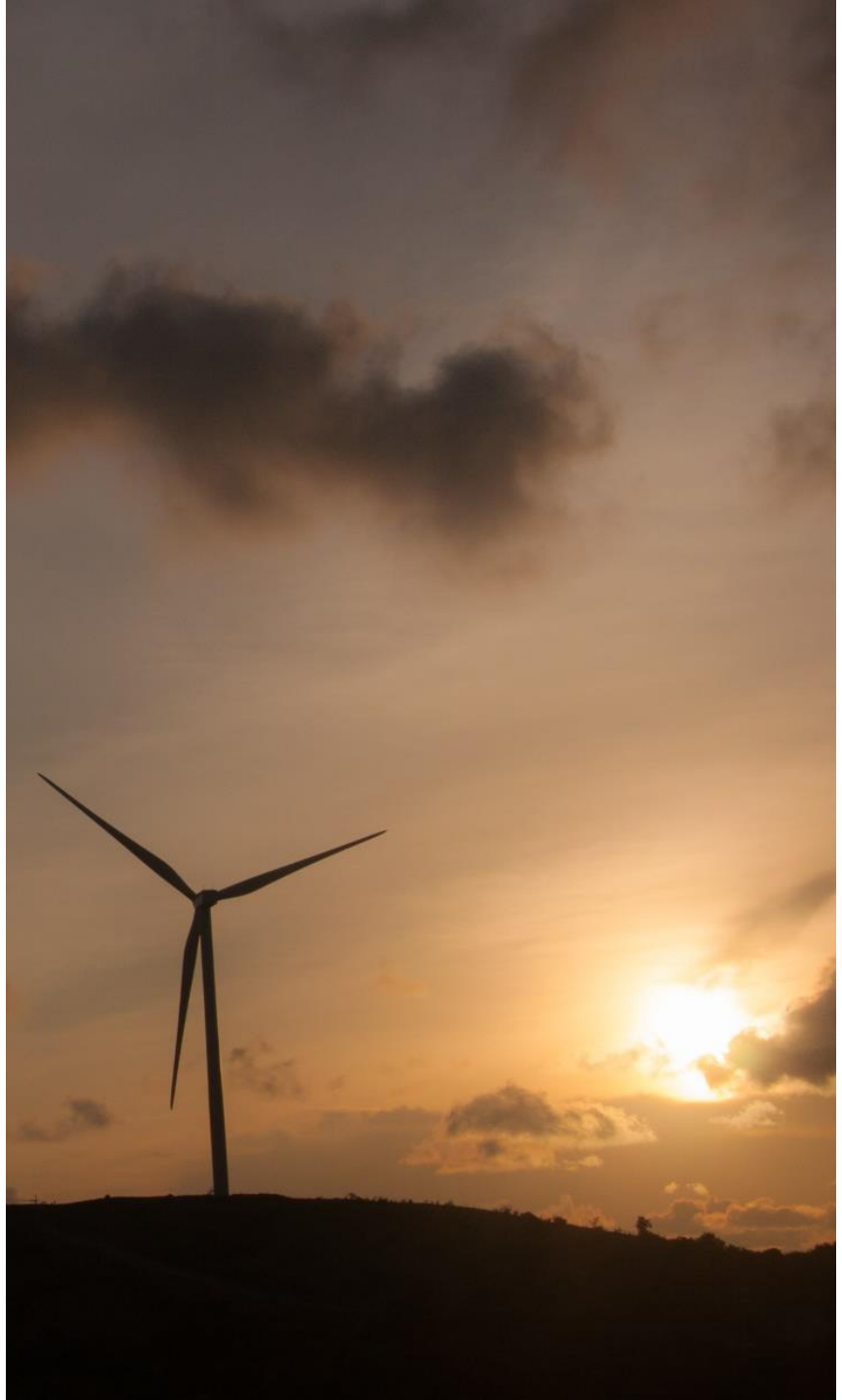
Renewables in Indonesia: What can work?

Indonesia: Key challenges

Fragmented grids, many with high generation costs

Long lead times for conventional plants

Accessibility of debt finance, in particular for coal



Why renewables?

Scalable solution, suitable for remote locations

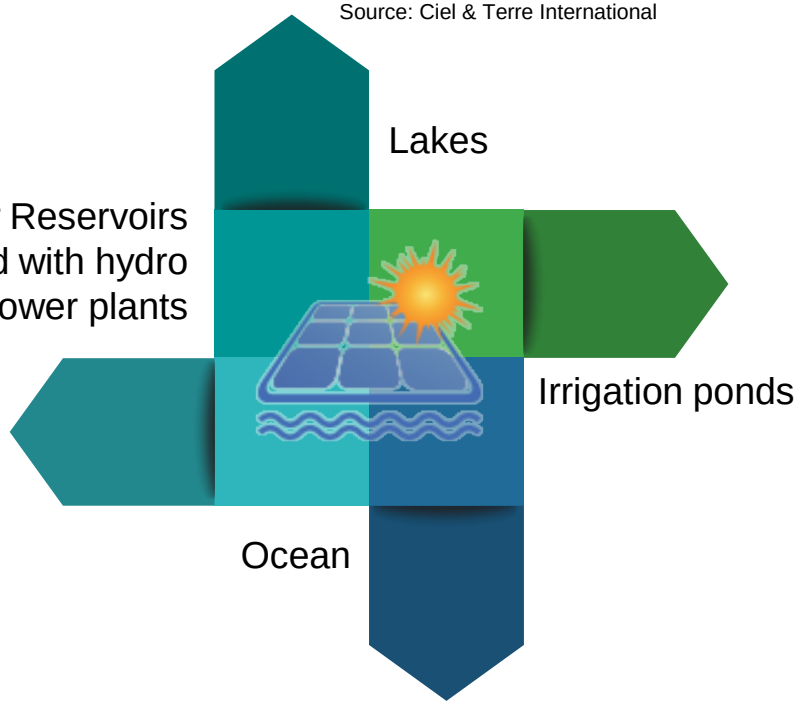
Fast deployment times / modular deployment

Strong interest from multilaterals for renewable energy financing

Floating solar

Source: Ciel & Terre International

Source: Mott MacDonald

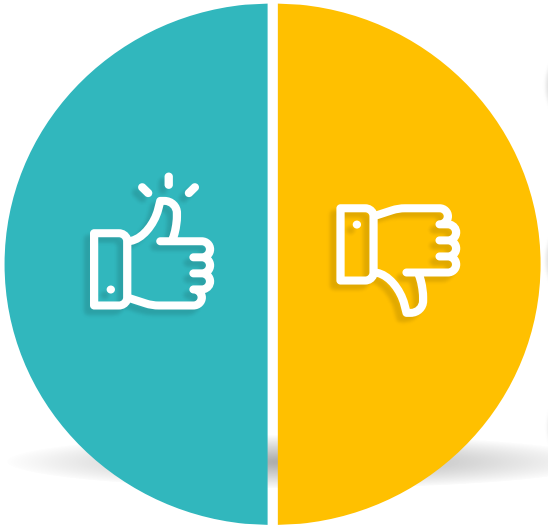


Source: SERIS

Source: SERIS

Floating solar: pros & cons

- ✓ Abundant inland water surfaces
- ✓ Saves land space and land costs
- ✓ Cooling effect of water; output gain
- ✓ Less shading by surroundings
- ✓ Less evaporation from waterbodies



- ✗ Lack of track record at scale
- ✗ Lack of supporting standards (eg HSE)
- ✗ Technically complex in key design areas
- ✗ Natural hazard risk
- ✗ Costs, including float transportation

First of A Kind Seawater Floating Solar

Project
Chenya Floating PV (FPV)

Client
DBS Taiwan (Lender)
Chenya Energy (Sponsors)

Location
Taiwan

Expertise
Lender's Technical Advisor

Mott MacDonald is supporting DBS (Taiwan) and Chenya Energy as a technical advisor for a 181MW floating solar project in an intertidal zone of Changhua Coastal Industry Park.

As technical advisor for the development of the first seawater floating solar in the country, and the world first utility-scale seawater floating solar, our services include technical and E&S due diligence to support project financing. Services also expanded to include supplier qualification assessment and assessment of detailed design aspects relevant to the complex, intertidal site environment. After financial close, the services continue for construction monitoring and operation monitoring.

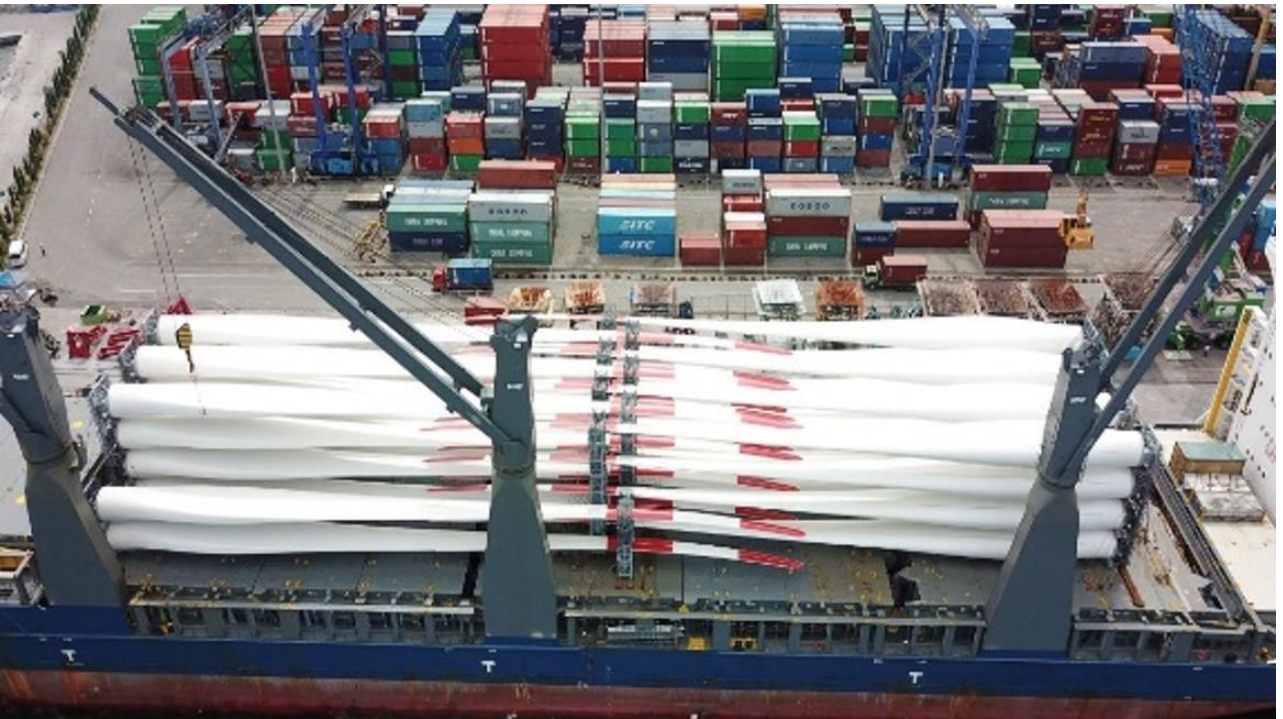
We are delivering this project through a combination of expertise across Mott MacDonald teams, including solar PV specialists, marine technology specialists, and E&S specialists.

The project has reached financial close in March 2020 and targets to start selling electricity to the grid in November 2020.

Wind in Indonesia: Will we see more?

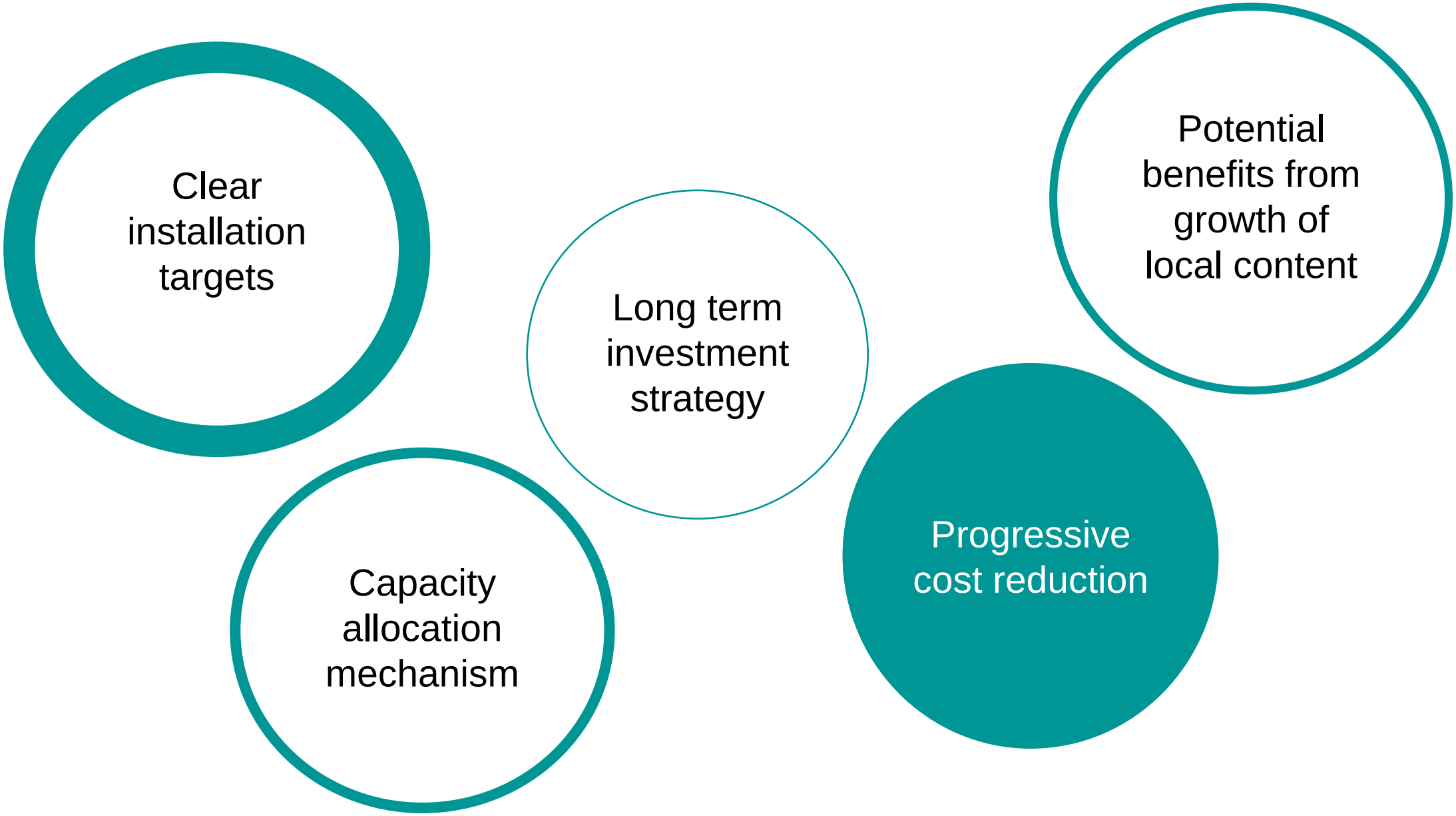
It’s been done before

Sidrap wind farm




Tolo wind farm

Lessons from other success stories – Policy framework



Some technical considerations

Capable contractors

Specialist skills

Contractor capability is crucial for design and construction.

Ability for similar works is good in Indonesia, but specialist requirements should not be underestimated.

Growing Supply Chain

The supply chain experience is growing with the first two wind farms in Indonesia, however the lack of continuity means early capability gains may have been diluted.

Logistics management

Planning

Planning is critical for transport of bulky turbine components.

Wind projects are often in remote locations, so early planning is critical to understand limitations and costs.

Local considerations

Concerns in Indonesia include power/phone line clearance, evaluation of bridge load bearing capacity and availability of local ports.

Need to understand local travel patterns and have appropriate social campaigns and police escorts.

Team on the ground!

Permits relationship team

- Permits for wind power projects may not be obvious to local authorities in this nascent industry.
- International players may underestimate the time required to get permits and take part in the Project.

Land acquisition relationship team

The land acquisition process can be complex:

- Difficult inheritance procedures that may not have already been followed.
- Grievances must be managed.

PLN relationship team

Difficult geography for grid integration:

- Perform a grid impact assessment and communicate with the grid operator to determine feasibility and costs.
- Note potential difficulties to access grid data and source the grid study for Indonesia.
- **Early experience with Sidrap and Tolo may help grid operators better understand the integration challenge for wind and support further development.**

Key contacts

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Thank you

A special thanks to the Tolo and Sidrap teams for providing photos of their projects.

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Closing

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Thank You