Strengthening Cross-Border Collaboration: Electricity Trading and RE Supply Chain Development Potential

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Indonesia's Net Zero commitment requires significant decarbonization effort in power sector; renewable energy development plays a critical role

Indonesia set an ambitious target to reach net zero by 2060 and has embarked on the decarbonization efforts across multiple dimensions

Indonesia NZE 2060 commitment

Indonesia has set national target to achieve net zero carbon emission by 2060

Net Zero Emission Roadmap

KESDM has built a roadmap to reach NZE by fossil energy phase-out and RE push from the power sector

Just Energy Transition Partnership

GOI has developed just energy transition long-term plans to mobilize strategic funding to decarbonize ID energy sector

Accelerating renewable energy development is critical to reach Indonesia Net Zero target by 2060

Source: RUPTL (2021-2030); Just Energy Transition Roadmap; Press search; Team Analysis

Indonesia has significant renewable energy potential (3,686 GWp), which could help Indonesia claim its position as the global green economy powerhouse

Indonesia

"Leading the World Green Energy and Economy"

National and regional energy resilience through renewable energy

Untapped renewable energy potential[1], especially outside Java-Bali[2], with investment opportunities estimated at ~100 USD Bn by 2030, which could create ~2.5 Mn jobs[3]

Downstreamization of natural resources to become a major exporter of green products globally

Abundant natural resources vital for energy transition: the world's largest Nickel reserves, Tin (#2), Bauxite (#6), and Copper (#7)[4], potential to be leveraged to develop green product industries, e.g., battery manufacturing, electric vehicles, and solar panels

Carbon sequestration through biodiversity of forests, oceans, and geological formations

Potential of ~1,5 $GtCO_2$ carbon sequestration through natural solutions, with potential of carbon market value beyond IDR 3,000 Tn

Develop capable workforce and create green jobs by leveraging the demographic dividend (*bonus demografi*) that is spread across Indonesia

Ensure sustainable access to financing for the green economy (private and international) beyond national budget

Promote research and development in the green economy sector based on varying local wisdom across regions

Sumber: 1) Currently realized at ~0.3% of the potential 3,686 GW; 2) JETP Indonesia; 3) IRENA; 4) CNBC Indonesia

Rising energy consumption coupled with significant solar potential creates the opportunity for Indonesia's solar PV & BESS

Solar has significant potential in the future given Indonesia's decarbonization commitment …

- Indonesia NZE 2060 sets ambitious target to decarbonize power sector
- While Indonesia electricity consumption projected to grow ~7-10 % every year
- And less than 0.1% full solar potential utilized in Indonesia (only 0.2 out of 200-400 GWp potential utilized)

… leading to a vast opportunity for solar PV & BESS demand in the future

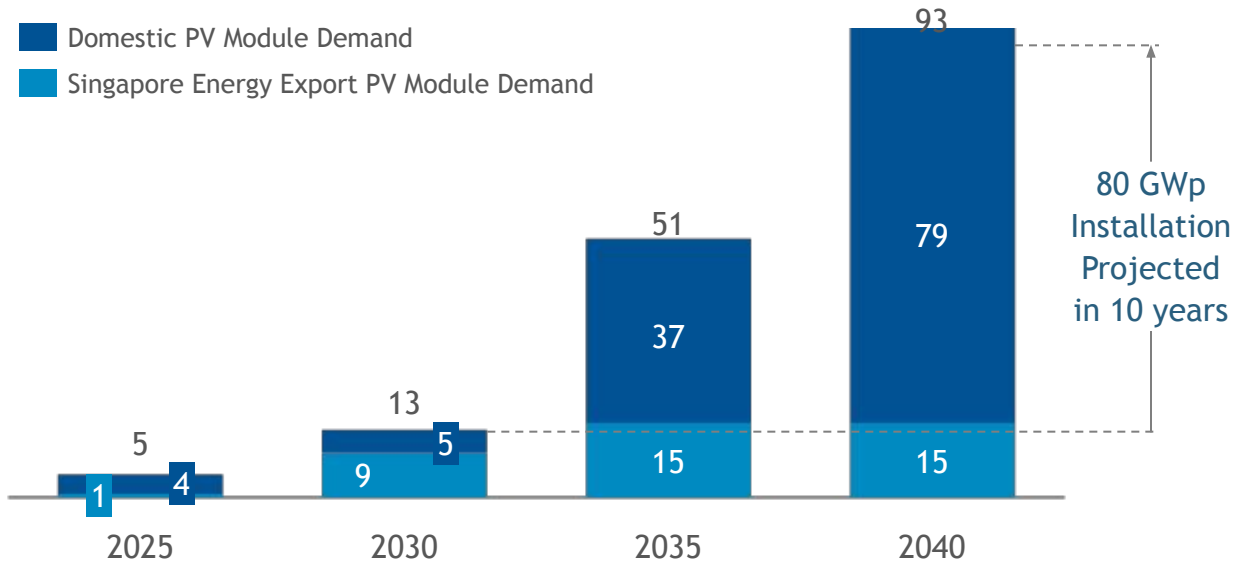
- Solar PV projected demand by 2040 with 8 GWp p.a growth starting 2030 — **100 GWp**
- BESS projected demand by 2040; driven by power export project in initial years — **40 GWh**

Huge potential for the solar PV & BESS industry to grow in line with Indonesia decarbonization efforts in power sector. Opportunity exists for Indonesia to be a global Solar PV manufacturing hub

Solar PV module demand will grow more than ~2.5X from 2025 to 2030 driving the needs for securing the local supply chain

~100 GWp solar PV installation forecasted by 2040 with **8 GWp p.a. demand** in Indonesia from 2030 onwards

Accumulated solar PV installation capacity projection, 2025-2040 (GWp)



Potential higher demand trajectory due to JETP program

- **8 GWp capacity p.a.** projected from 2030 onwards to stay on track of the Net Zero commitment
- **Energy export solar PV projects** as the initial traction force to compensate for low local demand
- **G2G agreement** between Indonesia and Singapore to kickstarted the renewable power export
- **5 developers** received Conditional Approval from EMA of 2 GW_{ac} equivalent to 10-15 GW_p PV & 15-25 GWh BESS
- **INSPIRA signed MoU with PLN** for developing PVs & subsea cable

Source: RUPTL (2021-2030); Just Energy transition roadmap; Press search; Team Analysis

Singapore renewable power export will unlock significant direct and indirect benefits for Indonesia

RE Power Export potential benefits for Indonesia

Potential export revenue from electricity sales

Foreign direct investments for Solar PV and BESS OEM localization (Up to USD 5 Bn by 2035)

Foreign direct investments from the power developers (Up to USD ~30 Bn by 2035)

Kick-start the domestic solar power industry

Create up to ~4-10K green jobs by 2035

Source: Team analysis

Government supports required to accelerate and unlock the potential of the renewable energy value chain expansion in Indonesia

Supportive regulatory and legal framework

- Streamline the permitting and licensing process for power export (e.g., clarity implementation of government regulation no.42: 2012, long term power export license, subsea cable development license)
- Supporting regulatory and legal framework for carbon attribute (e.g., REC and NDC)

Incentives and support for the RE value chain players

- Provide tax incentives and other subsidies (e.g., capex subsidy) for companies investing in the critical renewable energy value chain to build Indonesia capacity (TKDN >60%)
- Accelerate competitive Green/Renewable Funding

Infrastructure and ecosystem development

- Accelerate investments in the infrastructure and utility to enable efficient green industry development (e.g., basic infrastructure, availability of land for manufacturing facility, affordable utilities/electricity and water for industry, etc.)
- Ensure capability building and workforce development to support E2E Renewable Energy value chain

THANK YOU