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## WORKING TOWARDS A SUSTAINABLE AND SECURE POWER SECTOR

Partners in the Indonesian-Danish energy partnership are collaborating to achieve the Indonesian climate targets. The cooperation aspires to improve the security and affordability of clean energy production while mitigating negative climate impacts.

### Expanding the share of renewable energy

Indonesia is rich on renewable energy resources and with technology getting better and cheaper, renewable energy should provide a large part of its future energy demand. The challenge is to integrate the fluctuating renewable energy into the system without jeopardizing security of supply. Denmark has thorough experience with integration of renewable energy. More than 50 percent of the electricity consumed in Denmark is from fluctuating resources such as solar PV and wind. And the security of supply is among the highest in the world. Through the country cooperation, the Danish Energy Agency shares all institutional and technical lessons learned from the Danish transition with relevant Indonesian authorities.

The Ministry of Energy and Mineral Resources (MEMR) has stated plans to accelerate the expansion of renewable energy towards 2030. A national target of reaching a share of 23 percent renewable energy in the power sector by 2025 has set the bar for the development in the coming years. It is a parameter indicating the way the Indonesian power grid should develop in the short term.

The next chapter of integrating renewable energy and optimizing energy consumption requires new approaches compared to the existing technological landscape. Working on regulatory framework and technical analyses,

we aim to improve the utilization of efficient and renewable energy technologies.

Together, The Indonesian authorities and Danish Energy Agency facilitate the Indonesian-Danish Energy Partnership Programme. The two countries have different energy supplies but they also share some of the same obstacles in the green transition. The partnership has been in place since 2016 and is presently in its' third phase running past 2025. The programme is defined and assessed twice a year to keep track of the partnership's long-term targets. Our approach addresses an increase in the electrification rate and reduces the climate impact of energy in a cost-efficient manner. In cooperation with the Indonesian counterparts, The Danish Energy agency performs technical assessments within political framework development to optimise energy planning.

### 1) Energy modelling and scenarios

Data handling and analysis are valuable tools for enacting a green transition when planning energy development. In our modelling activities, we identify sustainable development pathways by creating and analysing long-term energy models. Modelling experts from the Danish Energy Agency contribute to specific energy planning outputs, for example, Indonesia Energy Outlook (IEO),

a 'Renewable Energy Pipeline', and regional energy outlooks, with input from the Danish embassy in Jakarta. The outlooks indicate how a future based on renewable energy sources and technologies can deliver stable energy in Indonesia which is cost efficient and with a high security of supply.

## 2) Renewable energy integration

Introducing renewable energy to an energy system is a matter of technical, economic and regulative setup. We work methodically to shed light on the many positive aspects of renewable energy and improve the approach to renewable energy integration. On the island of Lombok, our forecasting project helped the integration of variable renewable energy. Improved forecast accuracy has led to a better understanding of how to integrate electricity from solar PV in particular. In other projects, focusing on tender processes and risk assessments from developers and transmission operators, the goal is to attract investment in renewable energy through transparent frameworks.

## 3) Energy efficiency

Higher energy efficiency reduce the need for energy production and is referred to as "the first fuel" when developing the power sector. Policies, strategies, regulation, and economic incentives are all part of the Danish approach to increase energy efficiency in buildings, industries and power plants. Our partnership includes training of government officials in different provinces, with a focus on new energy standards and frameworks that can improve energy efficiency in power plants. Increased efficiency could help Indonesia postpone or even cancel investments in new power plants.

## FACTS

- The partnership includes cooperation with the Ministry of Energy and Mineral Resources (MEMR), National Energy Council (NEC) and PLN, the Indonesian electricity utility. This allows a horizontal approach to Indonesian energy planning.
- The partnership is financed through Strategic Sector Cooperation programmes and the Danish Climate Envelope (2020-2025) by the Danish Ministry of Foreign Affairs.
- The partnership was established in 2016 and its current focus should support the fulfilling Indonesia's NDC to the Paris Agreement and the UN's sustainable development goals within energy and climate.

## Island to island - sharing experience from Danish islands

The island initiative is a cooperation focusing on challenges related to energy and environmental planning on islands. It is managed by local authorities in cooperation with the Danish Energy Agency and the Danish Environmental Protection Agency. Focus areas in the partnership are solid waste management and waste to energy, and it aims to address both energy and environmental challenges on islands. Indonesia has approximately 6,000 inhabited islands – all of which need access to electricity and energy. In contrast, Denmark has just 78 inhabited islands. Despite the difference in size and numbers, the challenges between islands are similar in many areas and transferring Danish experience can benefit the Indonesian islands.



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