

## **ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT OF THE POLICY MATRIX**

### **A. Introduction**

1. The proposed Sustainable and Inclusive Energy Program aims to support the Government of Indonesia to pivot towards a more rational energy sector through the ushering of long-overdue reform measures. The outcome will be increased supply from sustainable and more accessible energy options. The structure of the program is closely aligned with the government's National Medium-Term Development Plan for 2015–2019, the goals of which include: (i) expanding electricity access to 96% of Indonesians, and increasing per capita consumption from 843 kilowatt hour to 1200 kilowatt hour as key goals; (ii) bolstering domestic energy security through expanded production of gas, improved security for downstream oil and oil products, and increased utilization of renewable energy; and (iii) scaling up energy efficiency.
2. The program is also designed to support the State Electricity Corporation's recently released Electricity Power Supply Business Plan (RUPTL), 2014–2024. To achieve the ambitious electrification targets in the RUPTL and to address the funding gap that is identified in the RUPTL, there is a need for policy intervention as well as support in the implementation arrangements.
3. The program assistance to be provided through the agreed policy matrix has been categorized as “B” for environmental safeguards and “C” for involuntary resettlement and indigenous people (IP) safeguard.
4. The program is divided into 3 subprograms. The implementation period is June 2013–September 2015 for subprogram 1; October 2015–September 2017 for subprogram 2; and October 2017–September 2019 for subprogram 3. The Environmental and Social Assessment Policy Matrix covers policy actions in subprogram 1. Separate environmental and social assessment will be conducted for subprograms 2 and 3 as policy actions may be modified according to the results from subprogram 1 and in keeping with a flexible and programmatic approach to be implemented over a 5-year period.

### **B. Description of Policy Interventions**

5. The policy matrix of the proposed program is divided into three reform areas as below. The objectives of each area are described below:
6. **Pillar 1: Sector governance improved.** The activities of this output support government efforts to (i) adopt economic tariffs for fuels and electricity, and (ii) improve the performance of public sector enterprises in the energy sector.
7. **Pillar 2: Markets for private participation enabled.** The activities of this output support for government efforts to (i) increase private sector participation in the electricity business by streamlining the licensing and permitting of private power projects and enabling greater private sector participation in the electricity transmission and generation business; and (ii) promote domestic gas production and an increase in the delivery of gas into the domestic market, in part through greater private sector involvement.
8. **Pillar 3: Regulatory environment for increased access to clean energy and energy efficiency improved.** Activities under Output 3 aim to help the government (i) expand generation from indigenous forms of renewable energy that can offset fossil-fired generation

and imports of oil, (ii) improve standards and policies for energy efficiency, (iii) expand access to electricity, and (iv) minimize the environmental impacts from the use of fossil fuels.

### **C. Environmental Assessment of Policy Intervention**

9. The program aims to put in place a series of policy reforms that will increase the supply of cleaner energy options (e.g. natural gas and renewable energy sources) within the Indonesian economy, increase efficiency of energy use in the country, and increase access to sustainable sources of energy among the country's poor and vulnerable who currently use traditional forms of energy that are more environmentally polluting and cause related health impacts. For example, the program will support Indonesia's efforts in reducing greenhouse gas emissions. Indonesia's emissions from the power sector are expected to grow 4.5-fold from 227 metric tonne carbon dioxide equivalent (Mt-CO<sub>2</sub>e) in 2010 to 1,011 Mt-CO<sub>2</sub>e in 2030 due to strong demand growth and an increasing dependence on coal. However, there are several opportunities to abate as much as 350 Mt-CO<sub>2</sub>e in 2030 through increased penetration of clean and renewable energy sources, along with staying the course on clean coal technologies. An additional reduction in emissions from the power sector can be attributed to reduced demand for electricity from other sectors.<sup>1</sup> The program will directly and indirectly contribute to the above mentioned abatement opportunities. As such, overall, the program is expected to have positive environmental impacts.

10. The policy actions of the program do not support any infrastructure projects. However, some of the policy actions may have negative impact on environment, though they are indirect. The anticipated impacts and their mitigation measures are summarized in the table.

### **D. Social Assessment of Policy Intervention**

11. The policy actions of the program support reform country-wide measures and there is no direct financing for projects or any types of civil works and therefore will not involve any involuntary land acquisition. IPs are neither targeted nor excluded from the program, and positive and negative impacts on IPs are not significant. The program neither affects the dignity, human rights, livelihood systems, or culture of IPs nor affects the territories or natural or cultural resources that IPs own, use, occupy, or claim as an ancestral domain or asset.

12. The program's impact will be a more sustainable and inclusive energy sector in Indonesia. The outcome will be increased supply from sustainable and more accessible energy options. Households will benefit from the program in that improved access to energy sources including electricity will improved health, education and overall economic situation of households. The policy reform will not have direct impact on vulnerable groups. However, the result of the policy reform may benefit vulnerable groups in that they will have access to cleaner and more affordable energy sources.

### **E. Environmental and Social Management**

13. The program supports regulation aimed at increasing investment in the energy sector. Over time, this will lead to the development of infrastructure projects (e.g. power plants, electricity and gas transmission and distribution infrastructure), many of which may result in direct, indirect, cumulative and induced adverse environmental impacts, involuntary resettlement impact, and/or impact on IPs. Since any resulting impacts are specific, project-level

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<sup>1</sup> JICA, *Updating Indonesia's Greenhouse Gas Abatement Cost Curve*, September 2014.

impacts, these would be evaluated during feasibility studies. Any subsequent Asian Development Bank financing for project investments would be dealt with separately, and subject to all of Asian Development Bank's requirements, particularly with regard to environmental and social safeguards.

14. The table provides detailed assessment of the environmental and social impact of each of the program's policy actions for subprogram 1, as well as suggested mitigation measures for any negative environmental and/or social impacts.

## **F. Conclusion**

15. In general, the program's policy intervention will bring about changes that will have a positive impact on the environment and no negative impact on involuntary settlement and indigenous people. However, the screening process carried out in this assessment has identified some potential environmental impacts, although they are indirect. Therefore mitigation measures are recommended for policy actions 9 and 17 listed in the table. These measures as specified below have been incorporated in the policy matrix as policy actions under Subprogram 2 as the following:

- (i) Government establishes a process for accessing conservation forest areas for geothermal activity, and detailed requirements therein, which is in line with existing environmental and forestry regulation (for policy action 13).
- (ii) MEMR establishes a carbon capture and storage national center of excellence and establishes the basis for environmental permitting of carbon capture and storage projects in Indonesia (for policy action 21).

### Environmental and Social Assessment of Policy Matrix

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
<b><i>Pillar 1: Improved sector governance</i></b>				
(1.1) Adoption of economic tariffs for electricity	1. The Ministry of Energy and Mineral Resources (MEMR) phased out the subsidy for industrial, business and large residential consumers. (Ministerial Regulation of MEMR, Permen ESDM, 19/2014)	This policy action is not related to the environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.	The policy action does not involve any types of civil works. Indigenous peoples (IPs) are neither targeted nor excluded from the program. Therefore no social impact is anticipated.	NA
	2. MEMR established automatic indexation of tariff to ensure continued full cost recovery for industrial/business and large residential consumers. (Permen ESDM 31/2014 and 9/2015)	Same as above.	Same as above.	NA
(1.2) Improve financial and service delivery of state-owned enterprises in the energy sector	3. MEMR required PLN to (i) improve metrics relating to its electricity distribution performance; and (ii) regularly report performance against those standards. (Permen ESDM 33/2014)	Same as above.	Same as above.	NA

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
<b><i>Pillar 2: Markets for private participation enabled</i></b>				
(2.1) Facilitating planning, financing, and the delivery of projects in the energy sector	4. MEMR delegated 10 electricity project licensing activities to the Indonesia Investment Coordinating Board (BKPM) as the national one-stop shop (Permen ESDM 35/2014)	The policy action will reduce steps and time required to obtain licenses for electricity projects, however the screening standards and environmental and social due-diligence standards (e.g Environmental Impact Assessment, EIA, requirements) that are in place continue to apply.	The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.	NA
	5. Ministry of Transport reduced the steps and time required to obtain licenses that are relevant for setting up independent power producers (IPP) projects. (Ministerial Regulation of the Ministry of Transportation, Permen Perhub, 73/2014)	The policy actions will reduce steps and time required to obtain licenses for setting up IPPs, however the screening standards and conditions remain the same and the time allowed remains adequate to ensure that environment safeguards are thoroughly addressed. Therefore no incremental direct environmental impact is anticipated.	Same as above.	NA
	6. MEMR permitted electricity wheeling and power trade activities as required under the Electricity Law 2009. (Permen ESDM 1/2015)	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.	Same as above.	NA

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
<p>(2.2) Promoting domestic gas production and increased delivery of gas into the domestic market, including through greater private sector involvement</p>	<p>7. MEMR stipulated a systematic and time-bound process for managing expiring production sharing contracts. (Permen ESDM 15/2015)</p>	<p>This related to extension of currently operating blocks. Therefore no incremental direct environmental impact is anticipated as a result of this action.</p>	<p>The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.</p>	<p>NA</p>
	<p>8. MEMR established market rules for utilization of compressed natural gas for land transport. (Permen ESDM 8/2014)</p>	<p>This policy may lead to gas displacing diesel in the transport sector and will therefore have a positive environmental impact. Any transport infrastructure that will have to be built will follow project-specific due-diligence requirements under the government's regulations.</p>	<p>Same as above.</p>	<p>NA</p>

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
<b><i>Pillar 3: Regulatory Environment for Increased Access to Clean Energy and Energy Efficiency Improved</i></b>				
<p>(3.1) Enable the scale up of geothermal energy-based power generation</p>	<p>9. Government issued new Geothermal Law that streamlines licensing and tendering of geothermal projects. (Geothermal Law 21/2014)<sup>a</sup></p>	<p>Geothermal power generation is clean in terms of air, water and greenhouse gas emissions; relative to traditional fossil-fueled power plants that it replaces.</p> <p>Under existing laws of the Government of Indonesia (GOI) and regulations, EIA has to be conducted for any geothermal project in conservation forest and appropriate mitigation measures shall be proposed and implemented according to the results of the EIA. In case EIA indicates that the proposed activity interferes with the environmental function of any protected area, the development of the activity shall be prohibited.</p> <p>In the event that activities are pursued in conservation forest, the revised law stipulates that; (i) an environmental services utilization permit must be obtained from the Minister of Forestry and Environment; and (ii) the primary objective of sustainable forest (conservation forest) management must be observed.</p>	<p>The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.</p>	<p>The environmental impact triggered by the policy action will be properly mitigated or managed by following the existing GOI laws and regulations.</p> <p>An implementing regulation that stipulates the process and criteria for issuing an environmental services utilization permit, which will be required for geothermal development in conservation forests, would need to be prepared and this will be done in 2016. Ministry of Forestry and Environment will undertake meaningful consultations with other line ministries and stakeholders on the draft regulation prior to its finalization.</p> <p>The Asian Development Bank (ADB) will work closely with the government to support the development of the regulation and its implementing guidelines to minimize environmental impacts of geothermal activity in forested areas, and impacts on indigenous peoples.</p>

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
	10. MEMR established a new geothermal pricing regime using bidding under a regional ceiling price, and stipulates that PLN shall (i) purchase the power from those plants and (ii) build the transmission required for geothermal power plants. (Permen ESDM 17/2014)	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.	The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.	NA
(3.2) Expand other renewable energy-based power generation	11. MEMR established a feed-in tariff for biomass and biogas projects ≤ 10 megawatts (MW) and requires PLN to purchase this power. (Permen ESDM 27/2014)	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.  Either EIA or the Environmental Management and Monitoring Effort document (UKL/UPL) (depending on the location of the project and the scale of its related component) is required for all biomass and biogas projects under existing GOI laws and regulations. Assessment of project-level impacts and mitigation measures will be carried out as per the laws and regulations.	Same as above.	NA
	12. MEMR established a feed-in tariff for hydro projects ≤ 10 MW and requires PLN to purchase this power. (Permen	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct	Same as above.	NA

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	ESDM 12/2014 and Permen ESDM 22/2014)	environmental impact is anticipated. Either EIA or UKL/UPL (depending on location of the project and the scale of its related component) is required for all hydro projects under existing GOI laws and regulations. Assessment of project-level impacts and mitigation measures will be carried out as per the laws and regulations.		
(3.3) Establish institutional, planning and budgeting framework for scaling up electricity access	13. Government submitted to Parliament the draft national electricity plan (RUKN 2015-2034) that provides policy direction for expanding access and securing supply of electricity through public and private initiatives. (Government letter to Parliament and draft national electricity plan)	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.	The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.	NA
	14. MEMR launched a pilot electricity access program in Sumba Island. (Ministerial Decree of MEMR, Kepmen ESDM, 3051 k/30/MEM/2015)	Same as above.	Same as above.	NA

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
(3.4) Improved policies and standards for energy efficiency	15. MEMR adopted minimum efficiency performance standards for at least two household appliances along with related appliance labeling protocols. (Permen ESDM 18/2014 for Compact Fluorescent Lamps and Permen ESDM 7/2015 for Air Conditioners).	The policy action will result in reduction of carbon dioxide (CO <sub>2</sub> ) emission, which is a positive impact on the environment.	Same as above.	NA
	16. Ministry of Public Works and Housing established definitions, standards and a certification program for green buildings in the country, including required energy efficiency measures. (Ministerial Regulation of the Ministry of Public Works and Housing, 02/2015)	The policy action is not related to environment and does not involve any types of civil works. Therefore no direct environmental impact is anticipated.	The policy action does not involve any types of civil works. IPs are neither targeted nor excluded from the program. Therefore no social impact is anticipated.	NA
(3.5) Cleaner fossil fuel technologies and improved environmental standards implemented	17. MEMR assigned Pertamina to pilot carbon capture and storage (CCS) activities as a way to lower greenhouse gas emissions. (Letter of assignment to Pertamina issued by MEMR in March 2015).	CCS will avoid GHG emissions generated from gas processing sector from being discharged to the atmosphere. On the other hand, CCS may have adverse impact on surrounding (health, safety and livelihoods) and environment (biodiversity and natural resources including degradation of soil, air and water resources, physical cultural resources) if inappropriately located, designed, constructed, operated or decommissioned.	Depending on the location of CCS facilities, there may be some impact on resettlements and/or IPs.	The government needs to amend the laws, regulations and/or guidelines in a timely manner such that environmental and social impacts triggered by CCS will be addressed appropriately. ADB will support the government to make these amendments. The requisite environmental and social due-diligence and the related permits will have to be secured by project hosts before they

Policy outcomes	Policy Actions (Subprogram 1)	Environmental Impact	Social impact (Involuntary Resettlement / Indigenous People)	Mitigation Measures
				can construct and operate CCS activities.

ADB = Asian Development Bank, BKPM = Indonesia Investment Coordinating Board, CCS = carbon capture and storage, CO<sub>2</sub> = carbon dioxide, EIA = Environmental Impact Assessment, GHG = Greenhouse Gas, GOI = Government of Indonesia, IP = indigenous people, IPP = independent power producer, Kepmen ESDM = Ministerial Decree of MEMR, MEMR = the Ministry of Energy and Mineral Resources, MW = megawatt, NA = Not applicable, Permen ESDM = Ministerial Regulation of the Ministry of Energy and Mineral Resources, PLN = State Electricity Corporation, Pertamina = State Oil and Natural Gas Mining Company, RUKN = National Energy Plan, UKL/UPL = Environmental Management and Monitoring Effort.

<sup>a</sup> Art 38 of Law 41/1999 on Forestry, as amended by Law 19/2004, prohibits non-forestry activities (including underground “mining”) in conservation forests which have been earmarked specifically for the protection of ecosystems including their biological diversity. The previous geothermal law (Law 27/2003) referred to geothermal activities as “mining”, hence geothermal development was prohibited in conservation forests. However, Law 21/2014 on Geothermal (the new geothermal law) no longer refers to geothermal as “mining” thus geothermal development may be possible within conservation forests, subject to the issuances of an environmental services utilization permit by the Minister of Forestry and Environment.