Report and Recommendation of the President to the Board of Directors

Project Number: 49043-002
August 2017

Proposed Policy-Based Loans for Subprogram 2 and Administration of Technical Assistance Grant Republic of Indonesia: Sustainable and Inclusive Energy Program

This is the version of the document approved by ADB's Board of Directors that excludes information that is subject to exceptions to disclosure set forth in ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 18 August 2017)

Currency unit	–	rupiah (Rp)
Rp1.00	=	$0.000075
$1.00	=	Rp13,355

ABBREVIATIONS

ADB	–	Asian Development Bank
AFD	–	Agence Française de Développement (French Development Agency)
ASEAN	–	Association of Southeast Asian Nations
BKPM	–	Badan Koordinasi Penanaman Modal (Indonesia Investment Coordinating Board)
CCS	–	carbon capture and storage
CCUS	–	carbon capture, utilization, and storage
CPS	–	country partnership strategy
ESCO	–	energy service company
GHG	–	greenhouse gas
MEMR	–	Ministry of Energy and Mineral Resources
PLN	–	Perusahaan Listrik Negara (State Electricity Corporation)
PSC	–	production sharing contract
RPJMN	–	Rencana Pembangunan Jangka Menengah Nasional (National Medium-Term Development Plan)
SOE	–	state-owned enterprise
TA	–	technical assistance

NOTE

In this report, "$" refers to United States dollars.

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PROGRAM AT A GLANCE

1. Basic Data — **Project Number:** 49043-002

Project Name	Sustainable and Inclusive Energy Program (Subprogram 2)	**Department /Division**	SERD/SEEN
Country	Indonesia	**Executing Agency**	Coordinating Ministry for Economic Affairs, Ministry of Energy and Mineral Resources
Borrower	Republic of Indonesia		

	2. Sector	**Subsector(s)**	**ADB Financing ($ million)**
✓	**Energy**	Energy sector development and institutional reform	400.00
		Total	**400.00**

3. Strategic Agenda	**Subcomponents**	**Climate Change Information**	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Mitigation ($ million)	230.00
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Low

4. Drivers of Change	**Components**	**Gender Equity and Mainstreaming**	
Governance and capacity development (GCD)	Institutional systems and political economy	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Knowledge sharing activities		
Partnerships (PAR)	International finance institutions (IFI) Official cofinancing		
Private sector development (PSD)	Conducive policy and institutional environment Promotion of private sector investment Public sector goods and services essential for private sector development		

5. Poverty and SDG Targeting		**Location Impact**	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG7		

6. Risk Categorization: Complex

7. Safeguard Categorization **Environment:** B **Involuntary Resettlement:** C **Indigenous Peoples:** C

8. Financing

Modality and Sources	**Amount ($ million)**
ADB	**400.00**
Sovereign Programmatic Approach Policy-Based Lending (Regular Loan): Ordinary capital resources	400.00
Cofinancing	**100.00**
ASEAN Infrastructure Fund - Loan	100.00
Counterpart	**0.00**
None	0.00
Total	**500.00**

Note: An attached technical assistance will be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility in the amount of $1,000,000.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed policy-based loan from the ordinary capital resources of the Asian Development Bank (ADB) (A loan), and (ii) a proposed loan funded through the Association of Southeast Asian Nations (ASEAN) Infrastructure Fund (B loan), both to the Republic of Indonesia for Subprogram 2 of the Sustainable and Inclusive Energy Program. The report also describes the proposed technical assistance (TA) to be provided by the Clean Energy Fund[1] under the Clean Energy Financing Partnership Facility for Scaling Up Energy Efficiency, and if the Board approves the proposed loans, I, acting under the authority delegated to me by the Board, approve the TA.[2]

2. Subprogram 2 supports the revival of Indonesia's underperforming energy sector through reforms initiated in 2014–2015, which aim to (i) improve fiscal sustainability and governance, (ii) expand private investment in the power and gas markets, and (iii) provide access to clean energy options for all Indonesians. The ADB program, which was approved in September 2015 along with subprogram 1,[3] supports the Government of Indonesia's reform priorities; aligns with ADB's country partnership strategy (CPS), 2016–2019;[4] and represents a sustained partnership between ADB, the government, and several development partners. Subprogram 2 deepens the reforms begun under subprogram 1 of the programmatic approach.

II. THE PROGRAM

A. Rationale

3. **The development problems.** The role of the energy sector as a key enabler of inclusive growth has become more important as the government is faced with the challenge of expanding its economy. The annual rate of growth declined from 6.4% in 2010 to 5.0% in 2016, and is expected to remain at 5.1% in 2017. The energy sector faces far-reaching, interrelated problems throughout the value chain, from the supply of primary energy to the delivery of electricity. Indonesia is currently transitioning from being a net energy exporter to an importer of increasing amounts of energy to meet its domestic needs. Oil production has declined steadily and the country lost its status as a net exporter in 2004. Similarly, without a significant increase in gas infrastructure investment, Indonesia is expected to become a net gas importer by 2019. The oil and gas sector's share of export earnings declined from an average of 23% in 2000–2005 to about 9% in 2016. For many years, energy subsidies led to underinvestment in the sector. Indonesia lags its ASEAN peers in the development of its abundant renewable energy resources: solar, wind, biomass, and geothermal. Thus, the electricity subsector is increasing its reliance on coal, which accounted for about 52% of the generation mix in 2015, with a concomitant increase in greenhouse gas (GHG) emissions. Overall, energy investment remains below what is needed, and new projects often face long delays in permitting, financing, and construction.

4. Meanwhile, in 2016, nearly 23 million people in the country lacked access to electricity, and the per capita electricity consumption of 950 kilowatt-hours was low relative to its regional peers. Poor access to reliable and affordable electricity ranks among the top constraints faced by

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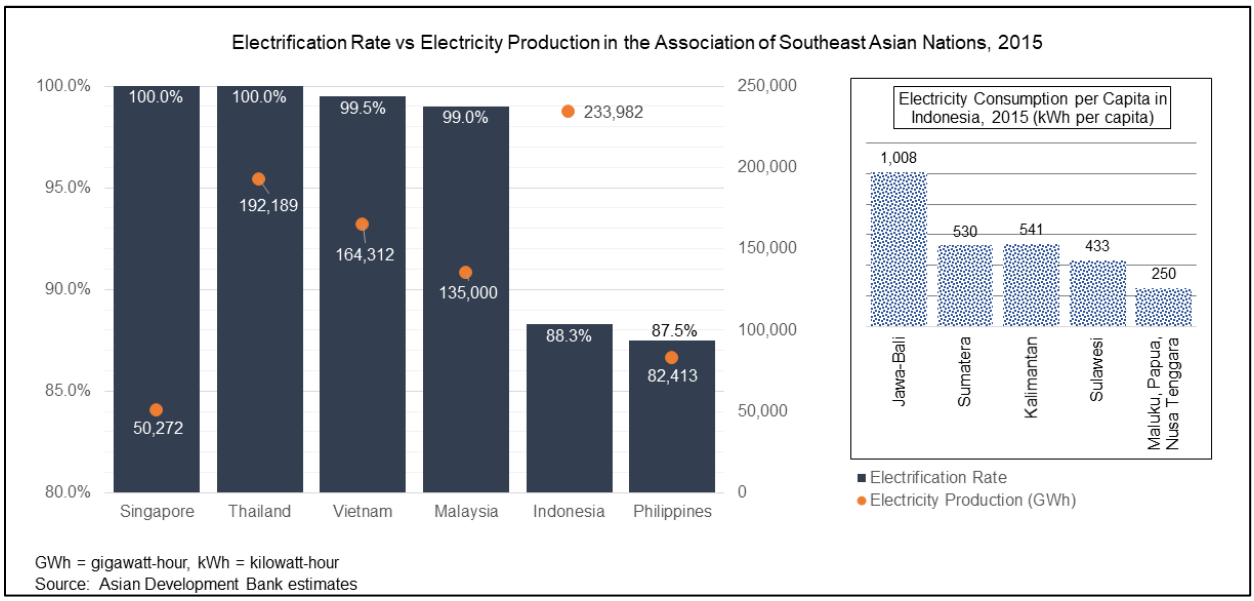
[1] Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom.
[2] The design and monitoring framework is in Appendix 1.
[3] ADB. 2015. *Report and Recommendation of the President to the Board of Directors: Proposed Programmatic Approach and Policy-Based Loans to the Republic of Indonesia for Subprogram 1 of the Sustainable and Inclusive Energy Program*. Manila.
[4] ADB. 2016. *Country Partnership Strategy: Indonesia, 2016–2019: Toward a Higher, More Inclusive, and Sustainable Growth Path*. Manila.

the manufacturing sector in urban areas. Improved access to affordable and sustainable forms of energy is critical to enhance competitiveness, not only in the country's manufacturing and commercial centers, but also in remote areas. Lack of access to energy (Figure) constrains efforts to transform the eastern part of Indonesia into a new growth engine with a focus on high-value agriculture, fisheries, small and medium-sized enterprises, and tourism, all of which rely on a stable energy supply.

5. **Binding constraints.** Key binding constraints to the development of the energy sector are: (i) poor fiscal sustainability and inadequate governance, (ii) an uncertain and high-cost regulatory environment that discourages private sector investment, and (iii) a regulatory environment that is not conducive to expanding access to clean energy options.[5]



GWh = gigawatt-hour, kWh = kilowatt-hour
Source: Asian Development Bank estimates

6. **Poor fiscal sustainability and inadequate governance.** Low, below-cost tariffs for fuel and electricity, supported by pervasive subsidies that peaked at $27 billion in 2014, have rendered the sector fiscally unsustainable.[6] These subsidies, which at their peak represented over 15% of government expenditure, have left little resources for infrastructure expansion. The government's plan to expand power generation capacity during 2016–2025 is estimated to cost $154 billion, including $78 billion from public sources, and securing financing poses a massive challenge. Further, the government has been regulating large state-owned enterprises (SOEs) in the energy sector lightly, whereby the government reimburses the State Electricity Corporation (PLN) for the difference between PLN's operational costs and the revenue generated from subsidized tariffs through a public service obligation payment. This does not encourage PLN to curb costs or improve service quality, and has led to PLN operating on short-term financial imperatives, rather than adopting longer-term energy planning that would help optimize costs and benefits. Market domination by monopolistic, subsidized SOEs across the energy supply chain has also led to a perception of high financial risk by the private sector.

7. **Uncertain and high-cost regulatory environment for private investment.** The issuance of laws and their requisite implementation guidelines is often delayed, causing

[5] Sector Assessment (Summary): Energy (accessible from the list of linked documents in Appendix 2).
[6] For example, the average cost of electricity in 2016 was Rp1,334 per kilowatt-hour while the average sale price was Rp1,003 per kilowatt-hour.

uncertainty for private investors. For example, the government is yet to issue implementation guidelines pertaining to certain aspects of the Electricity Law, 2009 and the Oil and Gas Law, 2001. Delays in renegotiating expiring gas production sharing contracts (PSCs) and a lack of clear renegotiation procedures have discouraged investment and led to a decrease in production.[7] Similarly, the private sector shows little interest in developing new gas resources, including from coal-bed methane, mainly because of the lack of clarity on the percentage of production paid to the government and the price of gas (domestic prices have risen but are lower than in export markets). As a result, Indonesia accounted for only $19.3 billion of the nearly $33.0 billion in regional oil and gas investment in 2014, a disproportionate share considering Indonesia's resource endowments.[8] Also, projects often encounter cumbersome licensing procedures and challenges in permitting, licensing, land acquisition, and environmental approvals, caused by overlapping jurisdictions among ministries, agencies, and different levels of government.[9]

8. **Unfavorable regulatory environment for expanding access to clean energy.** Low tariffs and a lack of incentives have stymied development of the country's vast renewable energy resources and curbed interest in energy efficiency measures. Meanwhile, non-stringent emission standards for fossil fuel power plants, a lack of GHG emission controls, and an abundance of low-cost coal have resulted in the expansion of coal-fired power. Several institutional factors impede clean energy planning and development. While the Energy Law, 2007 laid out a clear hierarchy of policy and planning requirements, implementation has been fragmented. Clean energy targets are not developed in a bottom-up manner and do not reflect financial and economic conditions. Similarly, in national electrification efforts, various entities have followed an ad hoc project- rather than a program-based approach focusing on sustainability and replicability. The results are uneven electrification with a heavy reliance on costly diesel fuel and unreliable supply.

9. **The government's reform agenda.** The National Medium-Term Development Plan (RPJMN), 2015–2019, charts an ambitious reform program where energy security is a key pillar.[10] Recognizing the importance of energy for sustainable and inclusive national economic development, the government has prioritized fuel and electricity subsidy reform; increased energy production from indigenous sources, particularly natural gas and renewable energy; expanded access for all Indonesians; and more efficient use of energy. The government also recognizes that a climate-friendly energy sector development path is a key factor for sustainable development. This priority is reflected in its ambitious GHG emission reduction goals included in its nationally determined contribution to the Paris Climate Agreement, which requires emissions to be reduced by 29% by 2030 in comparison to the business-as-usual scenario, and this reduction could reach 41% subject to available international support.[11] In addition, the government has set an ambitious target of 23% of renewable energy in its primary energy mix by 2025 in its National Energy Policy and National Energy Plan.[12]

10. **Subprogram 1.** The government initiated energy sector reforms in 2014–2015, many of which were included in subprogram 1 and are summarized below. To improve fiscal sustainability, the government removed subsidies for gasoline, established a fixed subsidy scheme of Rp1,000

[7] PSCs form the basis for sharing revenues between exploration and production companies and the government. Twenty-nine PSCs will expire by 2020.

[8] International Energy Agency. 2015. *Southeast Asia Energy Outlook, 2015*. Paris; and PwC Indonesia. 2016. *Oil and Gas in Indonesia: Investment and Taxation Guide*. 7th ed. Jakarta.

[9] Setting up a private power project has traditionally involved over 50 licenses and required over 3 years. PwC Indonesia. 2015. *Power in Indonesia: Investment and Taxation Guide*. 3rd ed. Jakarta.

[10] Badan Perencanaan dan Pembangunan Nasional (BAPPENAS). 2015. *Rencana Pembangunan Jangka Menengah Nasional, 2015–2019*. Jakarta.

[11] Government of Indonesia, 2016. First Nationally Determined Contribution. November 2016. Jakarta.

[12] Government regulation 79/2014 and Presidential regulation 22/2017.

per liter for diesel, and made retail fuel prices reflective of global fuel prices. For electricity, the government removed subsidies for industrial, commercial, and large residential consumers; and introduced a system of monthly automatic price adjustments. Total energy subsidies fell by 61% from $27 billion in 2014 to $10.5 billion in 2015, and power subsidies fell by 26% from $7.6 billion in 2014 to $5.6 billion in 2015.

11. The government took measures to improve private investment in electricity and gas. It streamlined the negotiation and re-issuance of PSCs for existing gas production concessions, and set market rules to use gas for transport. This helped boost investments amid low global energy prices. Total oil and gas investment in Indonesia rose by 15% from $19.3 billion in 2014 to $22.2 billion in 2015. The government streamlined and simplified the licensing process for new private power projects by delegating authority to a new one-stop shop set up by the Indonesia Investment Coordinating Board (BKPM). In line with requirements of the Electricity Law, the government established the legal basis for private access to PLN's transmission lines through power wheeling arrangements.[13]

12. The government expanded access to clean energy options through various incentives and programs. It revised the Geothermal Law, 2003 to be more investor-friendly and established price incentives for power from biomass, biogas, and mini-hydro projects. It established (i) energy efficiency standards for key household appliances (e.g., air conditioners), and (ii) the basis for accrediting green buildings. To curtail GHG emissions, the government initiated efforts to pilot carbon capture and storage (CCS); and carbon capture, utilization, and storage (CCUS). The electrification agenda was furthered through the addition of 3.7 million PLN customers, increasing the electrification ratio to 88% by 2015. Recognizing that a business-as-usual approach will not help provide access to the remaining population, the government, in its national electricity plan, 2015–2024, articulated a shift to prioritize renewable energy and integrate public and private investments across grid-based and off-grid approaches. ADB's assistance directly supported the design and implementation of these measures.[14]

13. **ADB's experience.** Including subprogram 1 of the Sustainable and Inclusive Energy Program, with $500 million approved in 2015, ADB has financed 23 projects and programs in the energy sector since 1970, totaling $3.91 billion in loans.[15] Since 2010, ADB has been actively supporting the government's energy reform efforts through TA activities focused on (i) the reduction of subsidies in favor of cost-recovery tariffs for fuel and electricity; (ii) price incentives for geothermal, wind, and solar energy; (iii) energy efficiency-related policies and programs, including support for energy service companies (ESCOs) and appliance standards; (iv) gas market reform; (v) least-cost electrification planning to support the government's national electrification program; and (vi) pilot-testing of CCS and/or CCUS. ADB contributed an energy sector white paper as input to the preparation of the RPJMN.[16] ADB assistance also draws on policy-based loans and TA provided to other sectors that have an impact on the energy sector.[17]

[13] PLN has a de facto monopoly on transmission and distribution, yet the Electricity Law allows private generators to access PLN's transmission infrastructure to provide power to end users (wheeling arrangement).

[14] Technical Assistance related to the Sustainable and Inclusive Energy Program, Subprogram 2 (accessible from the list of linked documents in Appendix 2).

[15] List of ADB Loans and Technical Assistance Programs Since 1999 (accessible from the linked documents in Appendix 2).

[16] ADB. 2014. *Energy Sector White Paper*. Consultant's Report. Jakarta (TA 8484-INO).

[17] ADB. 2014. *Report and Recommendation of the President to the Board of Directors: Proposed Programmatic Approach and Policy-Based Loan to the Republic of Indonesia for Subprogram 1 of the Stepping Up Investments for Growth Acceleration Program*. Manila; and ADB. 2016. *Technical Assistance to the Republic of Indonesia for the Sustainable Infrastructure Assistance Program (Subproject No. 9: Strengthening Fiscal Risk Management of Accelerated Infrastructure Delivery)*. Manila.

14. **Lessons.** The experience ADB gained from subprogram 1 and from implementing project investments shows that an enabling policy and implementation environment is a prerequisite for scaling up clean energy and inclusive energy access, and policy uncertainty can lead to delays or even project cancellation.[18] This lesson is highlighted by the geothermal subsector where, during 2010–2014, few projects were initiated despite the availability of concessional finance.[19] Similarly, prior ADB investments in energy efficiency were only moderately successful in the face of low tariffs and lack of incentives.[20] ADB's experience in rural electrification highlighted the need for a national program that integrates grid-based and off-grid approaches, and private and public investment.[21] Finally, experience with policy-based loans for infrastructure development in Indonesia has underlined the need for such operations to be anchored to the government's reform program, reflect an incremental approach to reform, and focus on translating high-level sector regulatory reform into sustainable subsector actions.

15. **ADB's value addition**. ADB has directly supported the completion of reforms under subprogram 2 (footnote 14). TA for the Sustainable and Inclusive Energy Program supported investment needs analysis and subsidy calculations to underpin the development of an improved regulatory approach for PLN based on performance, while ongoing results-based loans have identified aspects of PLN's operational practices that can be improved.[22] ADB also supported a framework for gas pricing and an updated gas infrastructure master plan; tariff schemes and incentives for renewables (including solar, geothermal, and wind); implementation regulations for the revised 2014 Geothermal Law; and the development of least-cost electrification plans in support of the national electrification program.[23] On energy efficiency, ADB helped prepare the regulation that established ESCOs and minimum energy performance standards for household appliances, and supported the development of a national pilot program on energy-efficient streetlights in 73 cities.[24] ADB also supported the preparation of a pilot CCS project and the establishment of a CCS and CCUS center of excellence in Indonesia, which will help catalyze national capacity for scaling up projects in the near term.[25]

16. The proposed program supports ADB's CPS 2016–2019 for Indonesia, which has a strong focus on improved infrastructure services, including energy infrastructure. Under its energy sector strategy for Indonesia, ADB through its sovereign operations, is: (i) undertaking sector policy reform to make access to energy sustainable and inclusive; (ii) strengthening the reach, reliability, and efficiency of the nation's electricity grid; and (iii) enabling greater use of clean energy, including gas-fired power generation. ADB's Private Sector Operations Department is supporting liquefied natural gas production in eastern Indonesia, de-risking of geothermal exploration and development, and gas-to-power projects. Given the synergies between sector policies and project outcomes, ADB's energy strategy as detailed in the CPS will be delivered through closely linked

[18] B. Mudiantoro and J. Galvez. 2015. Investing in Renewable Energy Generation and Power Transmission in Eastern Indonesia: Lessons Learned from ADB's Renewable Energy Development Sector Project and Power Transmission Improvement Sector Project. *ADB Papers on Indonesia*. No. 14. Manila: ADB.

[19] ADB. 2015. *Technical Assistance Completion Report: Geothermal Power Development in Indonesia*. Manila.

[20] ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Technical Assistance Grants to Indonesia Eximbank*. Manila.

[21] ADB. 2016. *Achieving Universal Electricity Access in Indonesia*. Manila.

[22] Performance-based regulation is an alternative approach to traditional cost-plus-margin utility regulation that emphasizes incentives for operational efficiency.

[23] ADB. 2014. *Technical Assistance to the Republic of Indonesia for the Sustainable and Inclusive Energy Program*. Manila.

[24] ADB. 2013. *Technical Assistance for Asia Energy Efficiency Accelerator.* Manila.

[25] ADB. 2016. *Technical Assistance Completion Report: Planning a Pilot Carbon Capture and Storage Activity in Indonesia*. Manila.

interventions that combine lending and nonlending modalities, and in cooperation with the Private Sector Operations Department and the Office of Public–Private Partnership.

17. **Development partner coordination.** Since the initiation of the program in late 2014, ADB has led the donor group directly financing the program, namely, the French Development Agency (AFD), German development cooperation through KfW, and the World Bank. Coordination is ensured through parallel cofinancing of TA activities and joint review missions. AFD provided $150 million, KfW $200 million, and the World Bank $500 million as parallel cofinancing for subprogram 1; and they plan to provide cofinancing for subprogram 2 as well. Likewise, there is close collaboration between ADB and the donors through cofinancing of energy sector projects. AFD is cofinancing two ADB loans and KfW is providing parallel cofinancing for another ADB loan. Alongside ADB's $600 million results-based loan for grid strengthening in Sumatra, the World Bank provided a $600 million program-for-results loan based on a similar set of disbursement-linked indicators.[26] ADB also closely coordinates energy sector policy dialogue with the Japan International Cooperation Agency, which has large ongoing investments in geothermal energy projects, coal-fired power plants, and high-voltage power interconnections, and with the governments of Australia, Denmark, Germany, New Zealand, Norway, the United Kingdom, and the United States.[27]

18. **The policy-based loan and budget support**. The government has persevered with sector reform even in an environment of low global energy prices, slow economic growth and fiscal constraints.[28] Given the medium-term horizon required for energy sector reforms and the government's demonstrated commitment, ADB's choice of a programmatic approach over 2015–2019, with three subprograms and a medium-term results framework through 2023, remains relevant. The third subprogram is planned for 2019.

19. At the inception of the programmatic approach in 2014, the government agreed to 22 indicative policy actions as a basis for subprogram 2. During processing of the second subprogram, at the government's request, ADB agreed to refine some actions to streamline the policy matrix.[29] Six actions were merged into three as they were related and complementary. Two important actions that were not originally in the policy matrix were added—(i) a comprehensive set of government guarantees for the electricity subsector, and (ii) technical specifications for off-grid energy projects—and two actions were postponed to subprogram 3—(i) guidelines for implementation of electricity wheeling, and (ii) a new gas supply chain management regulation. The revised subprogram 2 now contains 19 reform actions (9 disbursement triggers and 10 policy milestones), which the government completed from October 2015 to June 2017 (Appendix 4).[30] ADB will continue to support additional analysis and stakeholder consultations for ongoing actions during subprogram 3, which contains 21 policy actions (9 disbursement triggers and 12 policy milestones).

20. **Economic impact of the program.** The three outputs of the program described in paras. 22–27 are expected to increase public and private investment in the energy sector, enabling the government to continue the transition to a cleaner, sustainable, and more inclusive sector.

[26] Development Coordination (accessible from the list of linked documents in Appendix 2).
[27] The governments of Australia and the United Kingdom have provided grant financing for technical assistance activities that supported specific policy actions or analytical work. See footnotes 14 and 25.
[28] Government revenues have decreased by about $21 billion in 2016. As the law limits the annual national budget deficit to 3% of the gross domestic product, government spending plans for infrastructure will be constrained.
[29] Reconciliation of the Policy Matrix from the Original Subprogram 2 to the Revised Subprogram 2 (accessible from the list of linked documents in Appendix 2).
[30] Triggers are disbursement conditions, while policy milestones help strengthen the program.

Economic gains are expected through: (i) efficiency gains in the power sector that accrue through increased tariffs and better governance of public sector energy enterprises; (ii) gains from lower regulatory cost burdens, and a more streamlined context for facilitating increased private sector investment in energy markets; and (iii) economic growth resulting from an accelerated electrification program, and greater use of renewables and energy efficiency. The potential economic gains are described in para. 32.

B. Impact and Outcome

21. The impact will be increased domestic energy security and access to modern forms of energy, as reflected in the RPJMN. The outcome will be increased supply from sustainable and more accessible energy sources. The policy matrix includes a medium-term framework of expected results and anticipated achievements.

C. Outputs

22. **Output 1: Fiscal sustainability and sector governance improved.** This output aims to (i) continue the transition to cost-reflective tariffs for electricity, and (ii) further improve PLN's financial and service delivery performance. Alongside periodically adjusted power tariffs for large users, the government has phased out subsidies for the remaining household consumer categories, unless the household is classified as poor in the government's integrated social safety net database. This will lead to higher tariffs for 22 million out of the 45 million consumers in these categories, and reduce annual subsidy payments to PLN by at least $2.1 billion in 2017. The diesel subsidy was reduced from Rp1,000 to Rp500 per liter, which will save the government $2.5 billion in 2017. In preparation for full-fledged economic regulation for PLN, the government established reporting requirements for electricity business licensees, including PLN, on their operating assets, in addition to service quality standards.

23. For subprogram 3, the government will implement a new tariff framework, including rationalized tariffs for consolidated consumer categories that consider cost-recovery principles, and targeted support for the poor and vulnerable. It will also introduce a performance-based approach as the basis for any public service obligation payments to PLN, which balances financial sustainability with better practices and procedures. ADB's recent assessments of PLN's procurement and safeguard procedures have identified opportunities for improvement in procurement and safeguard practices, such as better waste management practices, which PLN will mainstream under subprogram 3.

24. **Output 2: Private participation in power and gas markets enabled.** Actions under this output deepen support for planning, financing, and delivering energy projects; and for promoting domestic gas production and supply into the domestic market. The Ministry of Energy and Mineral Resources (MEMR) and BKPM further simplified the licensing process for power plants, transmission line projects, and selected projects in oil and gas. To secure financing for power system expansion, the government increased its guarantee program by budgeting up to $27.4 billion to provide credit guarantees for PLN's engineering, procurement, and construction contracts, and extending investment guarantees for private power projects.[31] It expanded support for private investments in the upstream gas market by improving fiscal terms for the exploration of unconventional resources and introducing a process for the sale of flared gas for use in various power applications. It also took measures to increase the use of natural gas in the domestic

[31] Independent power producers are expected to provide most of the new capacity in the government's expansion plans, representing about $78 billion in investment.

market, including lowering the price of gas for certain industries that use gas as a raw material; introducing a new risk- and revenue-sharing model for new PSC blocks; and allowing large users like PLN to import liquefied natural gas for power plants. Also, the government established a mechanism to pre-finance activities in expiring PSCs by the incoming operator to prevent any production decrease during the transition, along with issuing a gas infrastructure master plan and an updated gas supply-and-demand balance. These reforms have helped increase investment in oil and gas by over 24% from 2014 to 2016 despite low global gas prices.

25. For subprogram 3, the government will implement private sector-led power wheeling arrangements and, in the gas market, establish a gas tolling structure and a national gas transmission network, introduce new fiscal incentives to encourage oil and gas exploration and production, and prepare policy papers in anticipation of the deliberations on the new draft oil and gas law in Parliament. This law is expected to expand the role of other SOEs and private sector participation in midstream and downstream gas markets.

26. **Output 3: Regulatory environment for increased access to clean energy options improved.** Actions under this output aim to (i) expand geothermal energy generation potential, (ii) increase support for other renewable energy sources, (iii) expand access to electricity, (iv) improve standards and policies for energy efficiency, and (v) minimize the energy sector's environmental impacts. Continuing its efforts under subprogram 1, the government has issued implementing regulations to the revised Geothermal Law that provide guidance on tendering of new concessions, sharing of revenue with local governments, and accessing forest land for geothermal power development. It also issued guidance for procurement of renewables-based electricity by PLN to support the first gigawatt of solar power and 280 megawatts of wind capacity in the country, and an additional 4 gigawatts of geothermal capacity by 2023, including stipulation of ceiling prices for each renewable energy technology.[32] The government has expanded its focus on electrification through efforts led by PLN and local governments, budgeted $38 million in 2017 in special allocation funds for local governments, and set technical standards for renewable energy power plants in off-grid and remote areas. In terms of energy efficiency, the government established the legal basis for ESCOs and prepared draft regulations to expand the number of appliances governed by efficiency standards and labels. It also launched a nationwide program for energy-efficient streetlights in 73 cities. To lower emissions from the electricity subsector, the government is supporting the deployment of waste-to-energy projects and the pilot-testing of CCS and/or CCUS technologies.

27. For subprogram 3, the government will update benchmark prices for renewable energy, put in place nontariff incentives to further spur its deployment, and prepare a road map for integrating a higher percentage of renewables into the country's generation mix. It will scale up the national electrification effort through public and private business models and initiate demonstration-scale CCS and/or CCUS projects. It will also develop a market for ESCOs and establish a national program of MEPS, labeling, and enforcement for appliances (see para. 31).[33]

D. Development Financing Needs

28. The government has requested (i) a regular loan of $400 million from ADB's ordinary capital resources (A loan), and (ii) a loan of $100 million funded through the participation of the

[32] The regulation stipulates that PLN must buy electricity from renewable energy sources to meet national targets, develop standardized procurement documents and power purchase agreements, and preferentially dispatch electricity from all renewable energy projects with a capacity below 10 megawatts when they are available. The government has also indicated that it will periodically review the stated ceiling prices and revise them if necessary.

[33] The development policy letter is in Appendix 3.

ASEAN Infrastructure Fund (B loan) to help finance subprogram 2.[34] The loans will have a 15-year term, including a grace period of 3 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year; and such other terms and conditions set forth in the draft loan agreement. Based on the straight-line method, the average loan maturity is 9.25 years, with no maturity premium payable to ADB. The proceeds of the loans will be disbursed following ADB's *Loan Disbursement Handbook* (2017, as amended from time to time). Financing will be disbursed on a pro rata basis of 80% for the A loan and 20% for the B loan.

29. The gross financing needs for 2017 are $48.7 billion, with an estimated budget deficit of 2.6%–2.9% of gross domestic product and development financing needs of $24.8 billion. To finance the deficit, the government plans to raise $44.9 billion from the issuance of securities and $3.8 billion from official foreign loans. The size of subprogram 2 primarily reflects the government's financing needs, the strength of the reform program, and its development expenditure, such as costs of electrification and support for renewable energy.[35] For subprogram 2, development partners have confirmed their contribution of the equivalent of about $320 million in collaborative parallel financing ($110 million equivalent from AFD and $210 million equivalent from KfW).

E. Implementation Arrangements

30. The Coordinating Ministry for Economic Affairs as the executing agency is responsible for overall program implementation and facilitates inter-ministerial cooperation on energy issues. It has established a policy coordination team to oversee overall program monitoring and reporting.[36] MEMR, the Ministry of Finance, the Ministry of Environment and Forestry, and BKPM are the implementing agencies. The implementation periods are October 2015–June 2017 for subprogram 2 and July 2017–September 2019 for subprogram 3.

III. TECHNICAL ASSISTANCE

31. The attached TA will support MEMR in scaling up energy efficiency programs in the country by (i) rolling out minimum efficiency performance standards and a labeling program for several household appliances; (ii) accrediting national testing laboratories for the identified appliances; (iii) establishing the regulatory basis for ESCOs to serve the needs of government entities; and (iv) improving capacity for energy savings performance contracting.[37] The TA is estimated to cost $1,100,000, of which $1,000,000 will be financed on a grant basis by the Clean Energy Fund[38] under the Clean Energy Financing Partnership Facility and administered by ADB.

IV. DUE DILIGENCE

A. Economic and Financial

32. The program delivers positive macroeconomic contributions, with economic benefits averaging $7.6 billion per year and readily exceeding economic costs of $5.7 billion per year

[34] Climate mitigation is estimated at $230 million. Climate finance represents 58% of ADB financing for the program.
[35] Program Impact Assessment (accessible from the list of linked documents in Appendix 2).
[36] The Coordinating Ministry for Economic Affairs' Ministerial Decree No. 72/2016 established a Sustainable Energy Management and Energy Access Program Policy Coordination Team.
[37] Attached Technical Assistance Report: Scaling Up Energy Efficiency (accessible from the list of linked documents in Appendix 2).
[38] Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom.

(footnote 35). Higher electricity tariffs will lead to (i) fiscal savings that can support infrastructure development and welfare programs, with related multiplier effects across the economy; (ii) stimulation of investment and capacity expansion in the electricity subsector, to boost gross domestic product; and (iii) the promotion of energy efficiency. Better sector governance will help lower borrowing costs and improve financial sustainability. Greater private investment in the energy sector will help increase domestic energy production and lead to economy-wide employment benefits. Increasing access to clean energy options will reduce the expansion in coal-fired power generation and related air pollution, while promoting economic growth in previously underserved areas. To the extent that clean energy will displace diesel generation, the program will also help save on oil imports and improve the country's balance of payments. Energy efficiency measures will reduce total added generation capacity needs.

B. Governance

33. The government has made considerable progress in improving the legal and regulatory framework for financial management. Since the enactment of laws on state finance, state treasury, and state audit in 2003–2004, most regulations underpinning these laws have been promulgated. In 2012, the number of government agencies that received an unqualified audit opinion from the external audit agency increased to 65% (from about 40% in 2009). ADB has reinforced this momentum with continuing support to improve state audit technical capacity. Also, the government continued to improve the regulatory framework governing procurement, including an emphasis on transparency in the tendering of energy projects. Standardized bidding and procurement documents also help strengthen governance in the sector. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government.

C. Poverty and Social

34. Reforms under the program will increase access to modern forms of energy, stimulate economic growth, and help create jobs—all key elements in reducing poverty. The program is classified *general intervention*, since its proposed outputs benefit all citizens, including the poor and vulnerable. Output 3 will positively impact the poor by increasing their access to energy and stimulating rural and peri-urban small businesses; add value to agriculture, fishing, and forestry; and reduce household exposure to indoor air pollution from burning biomass for heat and cooking. While subprogram 2 is classified *no gender elements*, women will benefit substantially from the program. Having a reliable and affordable electricity supply will reduce the time and energy that women spend gathering fuel. It will also enable women to run income-generating activities such as sewing and food processing from their own homes. Communities will be able to pump and store water, and having well-lit streets will deter crime and reduce incidences of violence against girls and women. [39]

D. Safeguards

35. Subprogram 2 is classified *category B* for the environment and *category C* for involuntary resettlement and indigenous people. The envisaged reforms will not entail direct environmental impacts, involuntary land acquisition, or activities in indigenous peoples' areas. Any potential indirect social and environmental impacts arising from increased investment in the energy sector will be evaluated on a project-by-project basis as required by Indonesia's environmental and land

[39] Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).

acquisition legislation and the requirements of lenders and project sponsors.[40] Mitigation measures for indirect impacts identified in subprogram 1 have been implemented or initiated. Two mitigation actions to counter any indirect environmental risks emanating from subprogram 2—(i) the development of guidelines and requirements to use certain types of forest areas for geothermal power development activity, and (ii) environmental permitting and impact assessment guidelines for CCS and CCUS—have been included as mitigation measures and will be accomplished under subprogram 3. The government continues to have the institutional capacity and commitment to manage any such risks.

E. Risks and Mitigating Measures

36. The main risks to the program's success arise from the potential for (i) macroeconomic instability, (ii) significant declines in oil and gas prices, (iii) resistance within the legislative process to increase private sector participation in the energy sector, and (iv) regulatory backsliding owing to changes in Parliament. These and other risks are classified *substantial* or *moderate*. The program's overall risk level is *moderate*, and its benefits outweigh its costs.[41]

V. ASSURANCES AND CONDITIONS

37. The government has assured ADB that implementation of subprogram 2 shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement, as described in detail in the loan agreement. No disbursement shall be made unless ADB is satisfied that the government has completed the policy actions specified in the policy matrix relating to the program.

VI. RECOMMENDATION

38. I am satisfied that the proposed policy-based loans would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

(i) the A loan of $400,000,000 to the Republic of Indonesia for Subprogram 2 of Sustainable and Inclusive Energy Program, from ADB's ordinary capital resources, in regular terms, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 15 years, including a grace period of 3 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board; and

(ii) the B loan not exceeding the equivalent of $100,000,000 to the Republic of Indonesia for the Sustainable and Inclusive Energy Program to be funded through the participation of the ASEAN Infrastructure Fund on terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board.

Takehiko Nakao
President

21 August 2017

[40] Environmental and Social Impact Assessment of the Policy Matrix (accessible from the list of linked documents in Appendix 2).
[41] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impact the Program is Aligned with Domestic energy security and access to modern forms of energy increased (National Medium-Term Development Plan, 2015–2019)[a]			
Results Chain	**Performance Indicators with Targets and Baselines**	**Data Sources and Reporting Mechanisms**	**Risks**
Outcome Supply from sustainable and more accessible energy options increased	By 2020: a. PLN's key financial performance measures within levels acceptable by international norms (2014 baseline: debt–equity ratio within acceptable levels) b. Number of large power projects led by independent power producers that reach financial closure increased to at least five per year (2014 baseline: two) c. Total sector investment in oil and gas increased to $23 billion (2014 baseline: $19.3 billion) d. Percentage of households connected to electricity increased to 96% (2014 baseline: 84%) e. Renewables account for 10% of the electricity generation mix (2014 baseline: 6%)	a. Bank of Indonesia annual reports, PLN annual reports b. Annual RUPTL,[b] MEMR annual report c. Central Bureau of Statistics website, development partner reports d. BKPM annual report	Macroeconomic instability could affect the government's budget for energy sector reforms. Declines in oil and gas prices could limit private sector interest in increased oil and gas exploration.
Outputs 1. Fiscal sustainability and sector governance improved	**Subprogram 2 (2017):** 1a. MEMR (i) implemented a multiyear tariff policy with automatic indexation of tariffs for industrial, business, and household consumers; (ii) established criteria by which the poor households can qualify for subsidy and, (iii) established a grievance redress mechanism (2015 baseline: not implemented) 1b. MEMR established reporting requirements for electricity business licensees, including PLN, on their operating assets (2015 baseline: not established) 1c. MEMR established new service standards for PLN regarding provision of household connections and reliability of service (2015 baseline: not established) **Subprogram 3 (2019):** 1a. MEMR established a new tariff framework, including rationalized tariffs for consolidated consumer categories that consider cost-recovery principles and targeted support to the poor and vulnerable (2017 baseline: cost-reflective tariff framework not established) 1b. Performance-based approach for PLN introduced (2017 baseline: not introduced)	1a. Directorate General of Electricity website 1b. RUPTL, MEMR annual reports 1c. MEMR annual reports 1a. Directorate General of Electricity website 1b. RUPTL, MEMR annual reports	Planned legislation may not be promulgated because the legislative process may be slowed by resistance from vested interests that favor an increased role for the public sector. Regulatory backsliding may occur because of changes in Parliament.
2. Private participation in power and gas markets enabled	**Subprogram 2 (2017):** 2a. Selected power plant, gas, and transmission line projects included in the 3-hour expedited licensing process (2015 baseline: not applicable) 2b. Availability of government guarantees for private power projects expanded and support for PLN increased to $27.4 billion (2015 baseline: $15.4 billion)	2a. BKPM website 2b. DJPPR, MOF websites	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	2c. At least two regulations promoting improved fiscal terms or other incentives for upstream gas activities, and an updated gas infrastructure master plan issued (2015 baseline: 0)	2c. Directorate General of Oil and Gas website, MEMR annual reports	
	Subprogram 3 (2019): 2a. Licensing requirements for energy projects harmonized between national and provincial one-stop shops (2017 baseline: not applicable)	2a. BKPM website	
	2b. At least two power wheeling agreements signed (2017 baseline: 0)	2b. PLN website, annual report	
	2c. At least two gas tolling arrangements signed (2017 baseline: 0)	2c–d. Directorate General of Oil and Gas website, MEMR annual reports	
	2d. At least two regulations revised to promote upstream activities and consolidate supply chain reform (2017 baseline: 0)		
3. Regulatory environment for increased access to clean energy options improved	**Subprogram 2 (2017):** 3a. Three implementing regulations required under the revised Geothermal Law issued (2015 baseline: 0)	3a–b. EBTKE website, MEMR annual reports, development partner reports	
	3b. MEMR required PLN to purchase power from a variety of renewable energy resources, including wind and solar, and provided guidelines on pricing and procurement strategies (2015 baseline: not established)		
	3c. The government improved the planning and delivery of its national rural electrification program by (i) requiring PLN to expand its rural electrification efforts during 2017–2019 through the Village Electricity Program and 2510 Villages Program, and (ii) establishing the basis for private sector entities to operate electricity supply businesses in underserved areas (2015 baseline: not established)	3c. EBTKE website, MEMR annual reports, RUPTL, PLN regional websites and/or reports	
	3d. MEMR established technical guidelines for small-scale energy projects to be implemented by local governments using fiscal transfer through the special allocation fund (2015 baseline: not established)	3d–e. EBTKE website, MEMR annual reports, development partner reports	
	3e. Funding for nationwide energy-efficient streetlights in 73 cities (pilot program) provided (2015 baseline: 0), and at least two new regulations promoting energy efficiency and conservation drafted (2015 baseline: 2)		
	3f. CCS and CCUS national center of excellence established (2015 baseline: not established)	3f. EBTKE website, MEMR annual reports, development partner reports, Directorate General of Oil and Gas website and/or reports	
	Subprogram 3 (2019): 3a. Pricing mechanism for tendering geothermal concessions revised (2017 baseline: not applicable); mechanism for de-risking greenfield geothermal projects, and guidelines and requirements to use certain types of forest areas for geothermal power development established (2017: not established)		

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	3b. Revised benchmark prices, procurement strategy, and region-specific quotas for various renewable energy sources established (2017 baseline: pricing mechanisms for renewable energy technologies established) and road map for integration of renewables into the national grid established (2017 baseline: not established) 3c. Nationwide electrification program with public and private initiatives established with increased funding of $1.5 billion (2017 baseline: $750 million) 3d. At least two new regulations and/or programs promoting energy efficiency and conservation enacted (2017 baseline: four regulations established) 3e. At least two demonstration projects for CCS and/or CCUS in gas processing plants implemented and the basis for environmental permitting and impact assessment guidelines of CCS and CCUS projects established (2017 baseline: CCS and CCUS center of excellence established) 3f. Emission standards for new and existing fossil fuel plants established (2017 baseline: not established)	3a. EBTKE website, MEMR annual reports, development partner reports 3b. EBTKE website, MEMR annual reports, development partner reports 3c. EBTKE website, MEMR annual reports, RUPTL; PLN regional websites/reports 3d–f. EBTKE website, MEMR annual reports, development partner reports	

Activities with Milestones
Refer to policy matrix

Inputs
Subprogram 2: $400 million (ADB's ordinary capital resources); $100 million (ASEAN Infrastructure Fund)
Subprogram 3: To be determined
ADB TA: $1,000,000 (grant)

Assumptions for Partner Financing
Agence Française de Développement (French Development Agency): $110 million equivalent
German development cooperation through KfW: $210 million equivalent
Note: Partner financing will be available as and when required by the program to finance the overall reform actions under subprogram 2.

ADB = Asian Development Bank; BKPM = Badan Koordinasi Penanaman Modal (Indonesia Investment Coordinating Board); CCS = carbon capture and storage; CCUS = carbon capture, utilization, and storage; DJPPR = Direktorat Jenderal Pengelolaan Pembiayaan dan Risiko (Directorate General of Budget Financing and Risk Management); EBTKE = Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi (Directorate General of New and Renewable Energy and Energy Conservation); MEMR = Ministry of Energy and Mineral Resources; MOF = Ministry of Finance; PLN = Perusahaan Listrik Negara (State Electricity Corporation); RUPTL = Rencana Usaha Penyediaan Tenaga Listrik (Electricity Power Supply Business Plan); TA = technical assistance.

[a] Government of Indonesia, Badan Perencanaan dan Pembangunan Nasional (BAPPENAS). 2015. *Rencana Pembangunan Jangka Menengah Nasional, 2015–2019*. Jakarta.

[b] Government of Indonesia, PLN. 2014. *Rencana Usaha Penyediaan Tenaga Listrik, 2015–2024*. Jakarta.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=49043-002-3

1. Loan Agreement
2. Sector Assessment (Summary): Energy
3. Contribution to the ADB Results Framework
4. Development Coordination
5. Attached Technical Assistance Report: Scaling Up Energy Efficiency
6. Country Economic Indicators
7. International Monetary Fund Assessment Letter
8. Summary Poverty Reduction and Social Strategy
9. Risk Assessment and Risk Management Plan
10. List of Ineligible Items

Supplementary Documents

11. List of ADB Loans and Technical Assistance Programs Since 1999
12. Technical Assistance related to the Sustainable and Inclusive Energy Program, Subprogram 2
13. Reconciliation of the Policy Matrix from the Original Subprogram 2 to the Revised Subprogram 2
14. Program Impact Assessment
15. Environmental and Social Impact Assessment of the Policy Matrix

MINISTER OF FINANCE
OF THE REPUBLIC OF INDONESIA

DEVELOPMENT POLICY LETTER

No.: S - 482 /MK.08/2017 Jakarta, 14 June 2017

Mr. Takehiko Nakao
President
Asian Development Bank
Manila, Philippines

Subject: Sustainable and Inclusive Energy Program – Subprogram 2

Dear Mr. Nakao,

1. Recognizing the crucial link between a robust energy sector and broader economic development, the government of Indonesia has continued to deepen and expand the energy sector reforms initiated in 2014-2015, and has managed to do so in the face of continued fiscal pressures and low global energy prices. This Development Policy Letter supplements the Development Policy Letter that was issued by the Ministry of Finance to the Asian Development Bank (ADB), Agence Francaise de Developpement (AFD), and KfW in August 2015. This letter highlights the Government's continued commitment to achieve sustainable and inclusive growth by strengthening the energy sector, and provides an update on the Government's recent progress towards implementing its reform program and its medium-term agenda.

2. On behalf of the government of Indonesia, we would like to express our appreciation for the support provided by development partners to energy sector reforms in Indonesia over the recent and longer term. We would also like to request the continued support of partners, including the Asian Development Bank (ADB), Agence Francaise de Developpement (AFD), the International Bank for Reconstruction/World Bank (IBRD/WB), and KfW, for our reforms in the energy sector. We propose ADB to provide policy-based loans in the form of the second policy based loan (second subprogram) within the Sustainable and Inclusive Energy Program in the amount of $500 million, which consists of $400 million from ADB's ordinary capital resources and $100 million from the ADB-administered ASEAN Infrastructure Fund.

Economic and Fiscal Situation

3. Indonesia's economic growth hovered around 4.9% to 5.0% between 2015 and 2016, and is expected to be slightly higher in 2017. Robust private consumption helped GDP growth last year, even as investment weakened. Risks to outlook are largely related to the external environment and tilted to the downside, with major factors associated with potential implications from rising protectionism for trade and investment, weak recovery amongst trading partners, and upwards adjustments in international interest rates. Domestic risks include slower than expected implementation of policy reforms and continuing low revenues.

4. Preliminary data from the Ministry of Finance show a deficit of 2.46% of GDP for 2016, exceeding the 2.35% target set in the revised budget, but lower than the 2015 deficit of 2.6% of GDP in 2015. The higher deficit was due to lower than anticipated revenue collection, despite the tax amnesty program that raised an additional $8.3 billion between 1 July and 31 December 2016 and expenditure cuts totaling $10.2 billion. Excluding revenues from the tax amnesty program, total revenue in 2016 decreased by 3.7% relative to 2015. Spending on goods and services grew by 11.18% in 2016, while capital expenditure declined by 29.4% despite a strong increase in the first half of 2016.

5. The 2017 budget reflects a deficit target of 2.41%. The revenue target is 2.0% lower than the revised 2016 budget target, but 12.5% higher than the preliminary realized revenue figures for 2016. It is anticipated that 2017 revenues will rise due to increases in the VAT, non-oil and gas income tax, and oil and gas revenues, and other tax reforms. As part of Indonesia's commitment to join the Automatic Exchange of Information in 2018, the government has drafted a regulation that will give our tax office access to the banking industry's data on savings accounts.

6. The 2017 expenditure plan is slightly lower than that of the 2016 revised budget. Spending focuses on education (20%), infrastructure (19%), health (5%), and food security (5%). The allocation for infrastructure was increased by 22% from the revised 2016 budget to $29 billion, and is expected to be equivalent to 2.8% of GDP in 2017. An earmarked program has been applied to the regional transfer, which requires 25% of the general allocation fund and revenue sharing be utilized for infrastructure investments.

7. The energy sector reflects many of the challenges facing the country's economy. The key factors that have traditionally constrained the sector include: (i) poor fiscal sustainability and inadequate governance, (ii) an uncertain investment environment that discourages private sector involvement in power and gas markets, and (iii) the lack of emphasis on expanding access to clean energy options. For many years, the subsidies provided for energy consumption have diverted funds away from much-needed investment in infrastructure, social welfare and education. This has adversely affected our country's ability to, among other things, provide access to electricity for some 23 million of our people who lacked access in 2016. In addition, the private sector often ranks the lack of access to reliable electricity and the resultant need to opt for expensive captive generation as a major impediment to expanding industrial activity in the country. Lack of access to energy particularly constrains efforts to transform regions in the eastern part of Indonesia into new growth engines with a focus on high-value agriculture, fisheries, small and medium enterprises, small and medium enterprises, and tourism, all of which rely on stable energy supply.

8. The direct contribution of the sector to GDP growth, exports and revenues has been declining in recent years. Oil production has declined steadily and the country lost its status as a net oil exporter in 2004. Indonesia is now expected to become one of the world's largest importers of gasoline by 2020. Similarly, without a significant increase in gas infrastructure investment, Indonesia is expected to become a net gas importer by 2019. The performance of the sector has not been contributing to its potential in supporting overall development of the country, whether energy is exported or consumed domestically. The oil and gas sector's share of export earnings declined from an average of 23 percent in 2000-2005 to 9 percent in 2016.

Government Response and Medium Term Agenda

9. The government's National Medium Term Development Plan (RPJMN), launched in 2015, outlines an ambitious reform program in which energy security is a key pillar. Recognizing the importance of energy for sustainable and inclusive national economic development – especially as the country is undergoing a shift from a net energy exporter to an importer of increasing amounts of energy to meet domestic needs-the government has called for increased energy production from indigenous sources, particularly natural gas and renewable energy resources; reform of fuel and electricity subsidies; expanded access for all Indonesians; and more efficient use of energy.

10. The government recognizes that a climate-friendly social and economic development path is a key factor for sustainable development. By setting ambitious greenhouse gas emissions reduction goals, as reflected in its Nationally Determined Contribution (NDC) to the Paris Climate Agreement of November 2016, the government has sent a strong signal for a climate friendly development policy. By 2030, emissions are to be reduced by 29% in comparison to the business-as-usual scenario, and this reduction could reach 41% subject to availability of international support. In addition, the government has set an ambitious target of 23% of renewable energy in its primary energy mix by 2025 in the 2014 National Energy Policy, a target which has been reaffirmed in the National Energy Plan signed by President Joko Widodo in January 2017. This target has been translated into increased renewable energy and gas fired power generation targets in the new Electricity Power Supply Business Plan (RUPTL) of 2017 – 2026.

11. The government initiated a series of energy sector reforms in 2014-2016 which will be accelerated during the 2017-2019 period. For example, transitioning energy pricing to reflect cost recovery considerations is the first step towards using it sustainably, and the government has already made some sweeping reforms in this regard. In late 2014 and early 2015, we took the decisive step of implementing a new fuel and electricity pricing system, and dramatically reduced energy subsidy costs that had ballooned to an annual level of nearly $30 billion in 2013. As a result, total energy subsidies were reduced to $6.99 billion in 2016 and are expected to be reduced further to $5.81 billion in 2017. Power subsidies accounted for $3.75 billion in 2016 and are expected to decrease to $3.38 billion in 2017. These reductions have allowed the government to shift spending from energy subsidies to economic development priorities, especially energy infrastructure development.

12. The government has also issued new policies and instruments aimed at improving the regulatory environment in the energy sector to encourage private sector investment in power and gas markets and expand access to clean energy options. Detailed reforms are outlined below. The government recognizes that without substantial private sector investment, the ambitious targets set for both energy production as well as for renewable energy will not be achievable.

Improved Sector Governance and Reducing the Fiscal Cost of Electricity

13. In January 2015, the government removed subsidies on gasoline and enacted a 30% increase in the price of diesel. Retail fuel prices are now adjusted periodically by the Ministry of Energy and Mineral Resources (MEMR) to reflect global prices of the fuel products. The diesel subsidy was further reduced by 50% in July 2016. In the case of electricity, the government first removed subsidies for industrial, commercial and large residential consumers in late 2014. In early 2015, the government established a system of monthly automatic tariff adjustments for

these consumers that accounts for the exchange rate, the Indonesian crude oil price, and inflation, and started phasing in these increases. We continued phasing out subsidies for medium-sized residential consumers in 2015-2016, and starting in January 2017, all consumer categories, except the poorest residential consumers, are being adjusted. Only residential consumers with 450 volt-ampere connections as well as 900 volt-ampere residential consumers that are classified as poor in the government's integrated social safety net database may continue to receive a subsidy. The immediate impacts of subsidy removal measures are: (i) increases in the average electricity tariff to support sector sustainability and improved quality and reliability of supply, (ii) reducing the fiscal cost of electricity provision (with savings reallocated to other government programs), (iii) dampened growth in electricity demand with attendant savings from the avoided economic and environmental costs of electricity supply; and (iv) strengthened incentives for efficient use of electricity across the economy.

14. The reduction of subsidies makes it possible for PLN to further reduce its reliance on government support and to focus on improving its efficiency and financial performance. Improvements in PLN's financial performance are in turn expected to improve PLN's borrowing capacity and its ability to support essential investment and development of power supply facilities, including new connections. We have taken steps to improve PLN's performance by putting in place service and quality standards for PLN and establishing reporting requirements for electricity business licensees, including PLN, on their operating assets.

Private Participation in Energy Sector Further Enabled to Enhance Economic Competitiveness

15. We have streamlined the licensing and permitting of private sector power projects by setting up a national one-stop shop for permitting and licensing at the national level, and then by simplifying some related regulations and empowering the one-stop shop to take decisions based on these simplified regulations. In 2016, MEMR, in collaboration with BKPM, further simplified the licensing process for power plants, transmission line projects, and selected oil and gas projects. Integration of licensing procedures and other requirements under a one-stop shop will enable a significant reduction in project preparatory activities with a corresponding reduction in developments costs.

16. In order to secure financing for power expansion projects, we increased our guarantee program by budgeting $27.4 billion to provide credit guarantee for PLN's engineering, procurement and constructions contracts, as well as extending investment guarantees for private power projects.

17. In the gas sector, the government is keen to reverse the plateauing trend in domestic gas production by increasing investments in exploration and production, and by paving the way for greater investment in pipelines, liquefied natural gas infrastructure an fuelling stations required for increased domestic use of gas. In May 2015, the government addressed the uncertainty surrounding the expiring of production sharing contracts (PCSs) by issuing a regulation that establishes a transparent and time-bound process for making decisions on expiring production sharing contracts. Additionally, in 2016, the government put in place a mechanism for pre-financing of activities in expiring PSCs by the incoming operator, in order to prevent any decrease in production during the transition. These reforms in part have spurred an increase in investment in the oil and gas sector by over 24% from 2014 to 2016 in a prevailing context of low global oil and gas prices.

18. The government is preparing a new oil and gas law for the legislature to review which will aim to assure reliable and sustainable supply of oil, gas and fuels to domestic end-users on the basis of private and public investment in upstream, mid-stream and downstream parts of the supply chain. The government recognizes that the law needs to strike a judicious balance between the need to incentivize investment and achieve secure and affordable domestic supply, and is conducting additional consultations to refine the draft Law. In the interim, in order to promote increased investments, the government has expanded support to private sector investments in the upstream gas sector by improving fiscal terms for exploration of unconventional sources, implemented a reference pricing mechanism for sales of new gas production, and developed a regulation for profit-sharing between the government and developer that also streamlines the procedures for exploration. The government will further adjust upstream fiscal terms in order to incentivize development of marginal fields and deep-water projects while preserving government revenue generation from successful, high-return projects.

Access to Modern and Clean Energy Increased

19. We are addressing a number of factors that have hampered geothermal development. The Geothermal Law 21 of 2014 has reclassified geothermal activity as a "non-mining" activity, and streamlines the majority of licensing and tendering procedures under the authority of the central government. In line with this law, we have issued implementing regulations that provide guidance on tendering or selection of new projects, sharing of revenue with local governments and accessing specific types of conservation forest land for geothermal power development.

20. In the face of rapidly declining prices of renewable energy sources, some countries are moving away from fixed-price feed in tariffs to reverse auctions. In recent months, these auctions have achieved very competitive prices for solar and wind energy in some markets, in combination with investment incentives. With the intention of incentivizing a similar trend in Indonesia, we have issued Minister of Energy and Mineral Resources Regulation No.12/2017, which establishes pricing and selection guidance for all forms of renewable energy (including solar photovoltaic, wind, hydropower, biomass, biogas, municipal waste, and geothermal). This regulation requires PLN to purchase electricity from renewable sources with reference to national targets, prioritize the dispatch of renewable-based generation projects below 10 megawatts (MW) as "must-run" plants, and issue standardized procurement documents and PPAs. It requires tendering of wind and solar projects in quotas no less than 15MW and provides a benchmark price for renewable generation technologies.

21. There is an inherent tension between affordable tariffs and government fiscal space to provide subsidies or renewable energy incentives, such as for tax credits, land, and financing. The issued regulation is our attempt to harness the global trend of falling renewable energy costs while maximizing affordability and access to electricity, particularly in eastern Indonesia. We have based these benchmark prices on local system generation costs to keep costs affordable for government, PLN and consumers, as well as encourage innovation.

22. We recognize that these prices may appear low for Indonesia's relatively new renewable energy market and may run counter to our ambitious objectives to increase the share of new and renewable energies in the energy mix to 23% by 2025. However, as global prices of renewable have come down, and deployment has expanded, we are keen to provide a competitive marketplace for all energy sources. We note that PLN has called for tender for procuring around 160MW of solar energy capacity in Sumatera. Simultaneously, we are

developing a comprehensive strategy to provide non-pricing incentives (for example, tax incentives, streamlined land acquisition and licensing, etc.) to renewable energy developers to help reduce upfront costs of development. We will be closely tracking the growth of renewable energy projects and the impacts of this regulation on private power project developers and PLN. We are open to receiving industry and stakeholder feedback on the regulation, and plan to conduct a regulatory impacts review within 12 months, in order to identify and adopt required amendments to strengthen the market for private sector-led renewable development.

23. The Government has also improved assessments of renewable energy resources availability by producing renewable energy resource maps for wind, solar, biomass, and micro hydro in order to further stimulate investors' involvement in the sector.

24. We are embarking on a comprehensive national electrification effort. The goal is for Indonesia to increase the electrification rate from 84% of households (at end 2014) to over 97.35% by 2019. In 2016, we reached 91.16%. We recognize that business-as-usual policies and projects will not help to provide access to the remaining, last-mile population, and understand our strategy must prioritize renewable energy and integrate public- and private-sector led investments across grid-based and off-grid approaches. We are creating provincial-level least cost electrification plans, which together will form a national least cost electrification roadmap that can guide this effort. In addition, we have set aside funds for small-scale energy projects through the special allocation funds for local governments ($38 million in 2017). We have also set technical standards for renewable energy power plants in off-grid and remote areas and established the basis for private sector entities to operate electricity supply businesses in unserved areas. In addition, the Government has recently launched a program to distribute solar home systems in more than 2,500 villages in Eastern Indonesia.

25. With the decrease in electricity subsidies, it is expected that there will be a resultant increase in demand for energy efficiency. We have prioritized energy efficiency as a cost-effective way to meet our energy related NDC targets, while avoiding generation investments and contributing to affordability. The government issued minimum efficiency performance standards (MEPS) for key household appliances (air conditioners and compact fluorescent lamps) in 2014-2015 and established a green building code that includes energy efficiency requirements in 2015. In 2017, MEPS for refrigerators and electric motors are under development. In addition, we have issued a regulation establishing the legal basis for the registration and operation of energy services companies (ESCOs) and launched a nation-wide pilot program for energy efficient street lighting in 73 cities with a budget of $11.3 million. We are now working on: (i) developing a national program for MEPS and labeling covering a number of appliances; (ii) accrediting national laboratories to test appliance for labeling; (iv) enabling a marketplace for ESCOs to serve the needs of public and private sector facilities; (v) building capacity in energy savings performance contracting among various stakeholders; and (vi) harmonizing existing regulations in order to facilitate the implementation of energy efficiency programs (such as street lighting retrofits) at the local government level, following the pilot programs implemented with several cities.

26. Besides the development of renewable energies, the government continues to explore additional ways to lower emissions from the energy sector through deployment of advanced technologies, such as waste-to-energy projects and Carbon Capture and Storage (CCS) technologies. In 2016-2017, the government issued an emissions target for waste-to-energy projects, and established a national CCS center of excellence (COE). The COE will provide valuable guidance to the government in order to establish the basis for environmental permitting

of CCS projects. The government plans to deploy its first pilot CCS project in Gundih, Central Java in the next year.

Conclusions

27. In summary, the government remains committed to expanding the energy sector in ways that are financially viable and environmentally sustainable, which in turn can help to reduce poverty and contribute to broad-based economic growth. The policies that we will continue to pursue during 2017-2019 under the "Sustainable and Inclusive Energy program" (SIEP), a framework established for this coordinated energy policy loan series, will help the country bolster the security and sustainability of the energy sector through expanded utilization of clean energy sources, improved energy efficiency and conservation measures, and increased access to electricity for all our citizens. We therefore request financial support from the development partners – ADB, AFD, and KfW – for our reforms in the energy sector.

28. Our Government greatly values the support provided by the development partners over the years to help finance Indonesia's energy sector and the provision of technical assistance that is helping us to identify issues and develop a comprehensive and well-coordinated reform program. In closing, we reiterate our Government's strong ownership of and commitment to the SIEP. We look forward to your continued engagement and support in the coming years.

Minister of Finance
Republic of Indonesia

Sri Mulyani Indrawati

Cc:
1. Coordinating Minister for Economic Affairs
2. Minister of Energy and Mineral Resources
3. Director General of Budget Financing and Risk Management, Ministry of Finance
4. Country Director of Agence Francaise de Developpement (AFD) Jakarta
5. Director of KfW Office Jakarta

POLICY MATRIX

Outputs	*Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)*	*Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)*	*Medium-term directions and expected results By 2023*
Pillar 1: Fiscal sustainability and sector governance improved.			
1.1. Adoption of cost-reflective tariffs for electricity • ADB TA 7834-REG: Economic Research Department TA program on impacts of fuel subsidies in three countries, including Indonesia, helped support a dialogue with MOF and MEMR. • ADB TA 8826-INO: Sustainable and Inclusive Energy, is supporting analyses on subsidy impacts of integrating renewables into the generation mix	The government continued the transition to cost-reflective tariffs for electricity. Accomplishments include: **1. MEMR (i) implemented a multi-year tariff policy with automatic indexation of tariffs for industrial, business, and household consumers in an effort to move towards cost recovery; (ii) established criteria by which the poor and vulnerable households can qualify for subsidy,[b] and (iii) established a grievance redress mechanism.**	The government implements cost-reflective tariffs. This will be achieved through: **1. MEMR implements a new tariff framework including rationalized tariffs for consolidated consumer categories that consider cost-recovery principles and targeted support to the poor and vulnerable.**	• Tariff increases will reduce the government subsidy to PLN from Rp73.15 trillion in 2015 to Rp44.98 trillion (budgeted) in 2017 and estimated to be less than Rp30 trillion in 2023.
1.2. Improved financial and service delivery performance by SOEs in the energy sector • ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable and Inclusive Energy Program, has provided MOF with analytical support for the performance-based regulation for PLN.	The government implemented measures to improve PLN's financial and service delivery performance. Accomplishments include: **2. MEMR established reporting requirements for electricity business licensees, including PLN, on their operating assets.** **3. MEMR established new service standards for PLN regarding provision of household connections and reliability of service.**	The government consolidates its reform of power sector SOEs. Measures will include: **2. MOF introduces a performance based approach as the basis for any PSO payments to PLN.** 3. The government improves performance efficiency of the SOEs in the energy sector.	• PLN will improve on its financial performance metrics and meet requirements for debt service coverage ratio, self-financing ratio, and debt equity ratio. • Overall, the energy sector SOEs will be better able to raise capital, manage their expansion activities and improve on their performance.

Outputs	***Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)***	***Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)***	***Medium-term directions and expected results By 2023***
Pillar 2: Private participation in power and gas markets enabled.			
2.1. Planning, financing, and the delivery of projects in the energy sector accelerated. ▪ ADB TA 8661-INO: Stepping Up Investments for Growth Acceleration Program is providing technical assistance to BKPM.	The government continued the streamlining of investments by the private sector. Accomplishments include: 4. The government expedited the licensing process by including selected electricity businesses, such as power plants, transmission projects and certain types of downstream oil and gas projects, in the 3-hour licensing process.	Completion of the streamlining effort across central and local governments. Measures will include: **4. The government harmonizes all licensing steps and requirements for electricity projects between the one-stop-shop at the national level and those at the provincial levels.**	• Integration under the one stop shop and simplification of regulations would result in a significant reduction in license processing time from the current 3 years to less than a year, with a corresponding reduction in development costs and greater certainty that new capacity will be commissioned as planned. • At least 35 GW of power generation capacity reach financial closure by 2019; and at least 75 GW of cumulative power generation capacity installed by 2023.
▪ ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable and Inclusive Energy Program, has been supporting MOF to review the performance of existing guarantees and develop alternate proposals.	**5. The government established an expanded financing guarantees program including (i) credit guarantees for PLN's EPC contracts, estimated at Rp350 trillion; and (ii) investment guarantees to private power projects.**	5. MEMR establishes detailed guidelines for implementation of electricity wheeling.	• 20 GW of capacity will be developed by the private sector, and increase private sector portion of installed capacity in the country from the current 24% to over 60% by 2023.
2.2. Increased domestic gas production and increased delivery of gas into the domestic market, including through greater private sector involvement, promoted. • ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable	The government improved fiscal terms for upstream activities and initiates efforts to create a more open market for mid-stream activities. Accomplishments include: 6. The government issued more flexible fiscal terms for gas exploration of unconventional	Consolidation of measures to support infrastructure to bring gas to markets. Measures will include: 6. MEMR establishes the basis for a gas tolling structure and road map for a national gas transmission network.	The increased availability of gas for domestic consumers facilitates development of additional gas-fired power generation capacity as well as consumer use of gas to displace other fuels, and plays a key role in the government's transition to greater use of clean fuels and renewable energy. Specifically:

Outputs	*Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)*	*Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)*	*Medium-term directions and expected results By 2023*
and Inclusive Energy Program, has been supporting MEMR by providing analysis and recommendations on the gas sector.	resources which allows contractors to choose between three types of production sharing contract modalities. **7. Following the establishment of procedures for determining the future ownership of expiring PSCs, MEMR allowed pre-financing of production activities by a new owner of a PSC during the transition process.** 8. MEMR issued an updated Gas Infrastructure Masterplan and an updated Gas Supply and Demand Balance.	**7. MEMR issues a new gas supply chain management regulation which will cover domestic gas pricing, increased allocation of gas for power generation, gas import licenses, and the acceleration of gas infrastructure development.** 8. The government revises the Government Regulation 79/2010, introducing new fiscal incentives to encourage oil and gas exploration and production. 9. The government prepares policy papers in anticipation of the deliberations of the draft Oil and Gas Law in the Parliament.	• Gas production increases from 1,224,000 BOE/day to 1,295,000 BOE/day in 2019 and 1,450,000 BOE/day in 2023 • Domestic share of gas use increases from 53% in 2015 to 64% in 2019 and 74% in 2023. • The length of gas pipelines increases from 11,960 km to 18,322 km in 2019 and 25,773 in 2023 • Expansion of CNG use in Java-Bali and concomitant reduction of imported oil consumption in the country
Pillar 3: Regulatory environment for increased access to clean energy options improved.			
3.1. The scale up of geothermal energy-based power generation enabled. • ADB TA 7583-INO: Geothermal Power Development Project, supported MEMR by providing analysis and recommendations that cover key issues of geothermal sector development. • ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable and Inclusive Energy Program,	MEMR completed measures envisaged under the revised Geothermal Law 21/2014. Accomplishments include: 9. MEMR (i) established a process for tendering of geothermal concessions, and (ii) included provisions for improvement of resource data in advance of tendering. 10. Government required private concessionaires to share a portion of their gross revenue from geothermal	Government consolidates reform in the sector. Measures will include: 10. MEMR periodically reviews and updates price ceilings for tendering of new geothermal locations. 11. MEMR establishes a mechanism for de-risking greenfield geothermal projects, including direct government exploration, concessional financing,	• These measures will lead to an additional 4,000 MW of geothermal power plant capacity by 2023, and ensure that renewable energy will contribute at least 16% to the electricity mix by 2023.

Outputs	*Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)*	*Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)*	*Medium-term directions and expected results By 2023*
has been supporting MEMR by providing analysis and recommendations on the geothermal sector.	projects to local governments in the form of production bonus. **11. MOEF established a process for geothermal projects to access select types of conservation forest areas, which are in line with existing environmental and forestry regulations.**	or insurance/risk mitigation for private sector developers 12. The government develops guidelines and requirements to use certain types of forest areas for geothermal power development activities.	
3.2. Support for renewable energy-based power generation sources expanded. • ADB TA 8484-INO: Sustainable Infrastructure Assistance Program provided support for the development of tariff incentives for wind and solar photovoltaic projects in Indonesia. • ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable and Inclusive Energy Program	The government introduced incentives for renewable energy resources, and revised existing schemes for promoting renewable energy wherever necessary. Accomplishments include: **12. MEMR required PLN to purchase power from a variety of renewable energy resources, including wind and solar, and provided guidelines on pricing, and procurement strategies.**	Government addresses larger power system-wide issues relating to renewable energy deployment. Measures include: 13. MEMR develops roadmap for large-scale integration of renewables into the national grid, including considerations for storage and smart grid systems. **14. Government revises benchmark prices, procurement strategy and region-specific quotas for various renewable energy sources.**	• In addition to these incentives, PLN issued power purchase agreements to buy power from the first three wind projects in the country • About 280 MW of wind capacity installed by 2023.b • Solar PV deployment will increase from modest levels to upwards of 1 GW by 2023. • Uptake of 1,400 MW of small (≤ 10 MW) hydro and 360 MW of small biomass/biogas by 2023.
3.3. Institutional, planning and budgeting framework for scaling up electricity access through increased use of renewable energy and mini-grid and off-grid approaches established.	The government rolled out an enhanced national electrification program. Accomplishments include: **13. The government improved the planning and delivery of its national rural electrification program (including expanding electrification in Eastern**	The government consolidates the national electrification effort. Measures include: **15. MEMR rolls out a nationwide program integrating grid-based and off-grid approaches and public and private sources of funding.**	• Indonesia achieves near-universal electricity access by 2021, up from 88% in 2015.

Outputs	*Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)*	*Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)*	*Medium-term directions and expected results By 2023*
• ADB TA 8287-INO: Scaling up renewable energy in Eastern Indonesia • ADB TA 8826-INO: Policy and Advisory Technical Assistance to Indonesia for the Sustainable and Inclusive Energy Program • ADB TA 0017-REG: Promoting Sustainable Energy for All in Asia and the Pacific • ADB TA 9082-INO: Eastern Indonesia Sustainable Energy Access Sector Project	**Indonesia) by: (i) requiring PLN to expand its rural electrification efforts during 2017–2019 through the *Program Listrik Desa* (Village Electricity Program) and 2510 Villages Program, and (ii) establishing the basis for private sector entities to operate electricity supply businesses in underserved areas.** 14. MEMR established technical guidelines for small scale energy projects to be implemented by local governments using fiscal transfer through DAK.		
3.4. Improved policies and standards for energy efficiency established. • ADB TA 8483-REG: Asia Energy Efficiency Accelerator, supported MEMR on demand-side energy efficiency investment	Government implemented additional energy efficiency measures. Accomplishments include: 15. MEMR prepared draft regulation on additional MEPS for at least 2 electric appliances. 16. MEMR implemented a nationwide energy efficient street lighting program covering 73 cities. **17. MEMR introduced the basis for establishment of *usaha jasa konservasi energi* - ESCOs - and use of energy savings performance contracts.**	Government scales-up energy efficiency efforts by including programs involving the utility (PLN) and local governments. Measures include: 16. Government establishes a nation-wide municipal energy efficiency program involving ESCOs. **17. Government launches a national labeling and enforcement program and tightens MEPS levels periodically.** 18. Government revises SNIs for building energy efficiency and establishes pilot green building programs in multiple cities.	• Energy efficiency of household appliances improved 20% by 2023. • At least 15 municipalities launch energy efficiency programs. • Energy efficient building codes lead to energy savings of between 11%–20% across hotels, hospitals, malls, private offices, and/or public offices.

Outputs	*Subprogram 2 Accomplishments October 2015–June 2017[a] (Policy triggers in bold)*	*Subprogram 3 July 2017–September 2019 (Policy triggers in bold) (Indicative)*	*Medium-term directions and expected results By 2023*
3.5 Environmental impacts of the energy sector minimized. • ADB TA 8407-INO and TA 8714-REG – Designing a pilot CCS program in Indonesia, and support for the CCS center of excellence.	The government establishes measures to lower emissions of air pollutants from energy sector operations. Accomplishments include: 18. MEMR established a CCS and CCUS national center of excellence. 19. MOEF established an emissions standard for WTE projects.	Government mandates GHG reductions from fossil fuel operations: Measures include: 19. MEMR launches at least 2 CCS and/or CCUS pilot projects in gas processing plants. 20. MEMR establishes the basis for environmental permitting and impact assessment guidelines of CCS and CCUS projects in Indonesia. **21. Government issues GHG emissions standards for new and existing fossil fuel plants.**	• At least 2 demonstration projects are initiated and increased funding and more market entrants are evident in the CCS and CCUS area. • The government mainstreams a comprehensive economy-wide decarbonization strategy with 5 year and 10 year targets, cost estimates, subsector level targets and actions.

ADB = Asian Development Bank, BOE = barrel of oil equivalent, BKPM = Badan Koordinasi Penanaman Modal (Indonesia Investment Coordinating Board), CCS = carbon capture and storage, CCUS = carbon capture utilization and storage, CNG = compressed natural gas, DAK = dana alokasi khusus (special allocation fund), EPC = engineering, procurement and construction, ESCO = energy services company, GHG = greenhouse gas, GW = gigawatt, km = kilometer, MEMR = Ministry of Energy and Mineral Resources, MEPS = minimum efficiency performance standard, MOEF = Ministry of Environment and Forestry, MOF = Ministry of Finance, MW = megawatt, PLN = Perusahaan Listrik Negara (State Electricity Corporation), PSC = production sharing contract, PSO = public service obligation, PV = photovoltaic, REG = regional, Rp = Indonesian rupiah, SNI = Standard Nasional Indonesia (national standard), SOE = state-owned enterprise, TA = technical assistance, WTE = waste-to-energy.

[a] Policy actions identified in bold font in the matrix are triggers for disbursement. Those shown in regular font represent non-disbursement milestones.

[b] The terms “poor” and “vulnerable” here are as defined by the National Poverty Database maintained by the National Team for the Acceleration of Poverty Reduction.