

Environmental Infrastructure: Important Sector, Policy, Country and Region  
Formulate Policy and Law which are based on JCM Project examples, Each Country and Region

Indonesia

|   |  |
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| Submitted the INDC in 2016                  |  |
| Contribution to the GHG emission mitigation |  |
| Sector                                      | Energy, Waste, IPPU, Agriculture and Forestry        |
| Period                                      | to 2030  |
| BAU Scenario                                | BAU scenarios of emission projection started in 2010 |
| Unconditional Contribution                  | To reduce 26% by 2020 and 29% by 2030                |
| Conditional Contribution                    | To reduce 41% by 2030                                |

References:  
 • Republic of Indonesia, 2016, "First Nationally Determined Contribution"  
 • Republic of Indonesia, 2015, "Indonesia First Biennial Update Report (BUR)"  
 • World Resources Institute, 2016, Indonesia Climate Policy and Data in Calt: Indonesia Climate Data Explorer (PINDAI)  
 • Presidential Decree No 61/2011 on the National Action Plan to reduce GHG Emissions (RAN-GRK)  
 • National Mid-term Development Plan (RPJMN) 2015-2019  
 • Center of Assessment for Process and Energy Industry, Indonesia Energy Outlook 2018  
 • Umwelt Bundesamt, 2017, Implementation of Nationally Determined Contributions: Indonesia Country Report"

| Sector   | NDC/Other Mitigation Actions (tCO2e)   | Representative JCM Projects (Expected GHG Emission Reductions) (registered projects and financed projects)   | Representative JCM Projects in other countries (registered projects and financed projects)  | Relevant Law and Policy  | Relevant Ministry | Others (expected improvement policy/ representative Thaiandese association)            |
|--|--|--|---|--|-------------------|--|
| <b>Power Generation Infrastructures</b>                      |  |  |   |  |                   |  |
| <b>Renewable energy: PV, Wind, Hydro, Biomass and others</b> |  |  |   |  |                   |  |
| Solar PV   | <Energy Sector><br>4. Development and Management of New-Renewable Energy (NRE) and energy Conservation<br>2015-2020: 224.68MW Solar PV<br>Establish 450 energy self-sufficient village (DME)   | Introduction of 0.5MW solar Power system to Aroma and Food Ingredients Factory (Expected GHG Emission Reductions: 400tCO2/year)<br>1.6MW Solar PV Power Plant Project in Jakabaring Sport City (Expected GHG Emission Reductions: 1.271tCO2/year)  | Introduction of Solar PV System at Shopping Mall in Ho Chi Minh; Viet Nam<br>Introduction of Solar PV System on Factory Rooftop; Thailand<br>Introduction of 0.8MW solar Power System and High Efficiency Refrigerator to Food Factory; Thailand<br>Introduction of 3.4 MW rooftop Solar Power System in Technical Center and Office Buildings; Thailand<br>25 MW Rooftop and Floating solar Power Project in Industrial Park; Thailand<br>Introduction of 27 MW Rooftop Solar Power System to Large Supermarkets; Thailand<br>Introduction of 5MW Floating Solar Power system on Industrial Water Reservoir; Thailand<br>Introduction of 2MW Rooftop Solar Power System for Power Supply in Factory; Thailand<br>Introduction of 3.4 MW Rooftop Solar Power System to Air-conditioning parts Factories; Thailand<br>Introduction of 20 MW Solar Power System in Darkhan City; Mongolia<br>Installation of 2.1 MW solar power Plant for Power Supply in Ulaanbaatar Suburb; Mongolia<br>Introduction of Ultra-lightweight Solar Panels for Power Generation at International School; Cambodia<br>Upscaling Renewable Energy Sector Project (JFJCM); Mongolia and others | Energy Act No.30/2007 (2007)<br>FIT (2009)<br>Ministrial Regulation of MEMR No.10/2012 concerning development of renewable energy project (2012)<br>Electricity Procurement Business (RUPTL) 2018-2027<br>No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Renewable Energy Purchase Policy 2017 (2017)   | MEMR              | PLN  |
| Solar PV and Storage Battery                                 |  | Installation of Solar Power System and Storage Battery to Commercial Facility (Expected GHG Emission Reductions: 549tCO2/year)   | Smart Micro-Grid system for Preparing Outer Islands for Sustainable Energy Development Project in Addu atoll; Maldives  | No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Electricity Procurement Business (RUPTL) 2018-2027   | MEMR              | PLN  |
| Wind Power   |  |  | Los Altos II Wind Farm Project; Mexico  | No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Renewable Energy Purchase Policy 2017 (2017)<br>Electricity Procurement Business (RUPTL) 2018-2027   | MEMR              |  |
| Hydro Power  | <Energy Sector><br>4. Development and Management of New-Renewable Energy (NRE) and energy Conservation<br>2015-2020: 82.23MW micro-hydro, 510MW mini-hydro<br>Establish 450 energy self-sufficient village (DME)   | Rehabilitation Project of Power Generation System at Karai 7 Mini Power Plant (Expected GHG Emission Reductions: 1.133tCO2/year)<br>10 MW Mini Hydro Power Plant Project in Loe Ord River in North Sumatera (Expected GHG Emission Reductions: 37.699tCO2/year)<br>10 MW Mini Hydro Power Plant Project in North Sumatra (Expected GHG Emission Reductions: 42.711tCO2/year) | 4 MW Mini Hydro Power Plant Project in Taguibo River in Mindanao; Philippines<br>15 MW Mini Hydro Power Plant Project in Sigul River in Mindanao; Philippines<br>0.16 MW Micro hydro Power System in Taguibo Water Supply Facility, Mindanao; Philippines   | Energy Act No.30/2007 (2007)<br>FIT (2009)<br>Ministrial Regulation of MEMR No.10/2012 concerning development of renewable energy project (2012)<br>No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Renewable Energy Purchase Policy 2017 (2017)<br>Electricity Procurement Business (RUPTL) 2018-2027   | MEMR              |  |
| Biomass Power  | <Energy Sector><br>4. Development and Management of New-Renewable Energy (NRE) and energy Conservation<br>2015-2020: 16.5MW Biomass PP<br>Establish 450 energy self-sufficient village (DME)   | 12 MW Biomass Power Plant Project in Aceh Province, Sumatera (Expected GHG Emission Reductions: 31.322tCO2/year)   | Introduction of Biomass Boiler to Cooking Oil Factory; Thailand<br>Introduction of Biomass Co-Generation System to Food Factory; Thailand<br>Introduction of Biomass CHP Plant in Flooring Factory; Ethiopia  | Energy Act No.30/2007 (2007)<br>FIT (2009)<br>Ministrial Regulation of MEMR No.10/2012 concerning development of renewable energy project (2012)<br>No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Renewable Energy Purchase Policy 2017 (2017)<br>Electricity Procurement Business (RUPTL) 2018-2027   | MEMR              |  |
| Biogas Power   | <Energy Sector><br>5. Biogas Utilization<br>2015-2020: 21.400 units<br><br><Agriculture Sector><br>4. BATAMAS (Utilization of mature/urine of cattle and agricultural wastes for biogas)<br>National action to promote Cattle-based Biogas (BATAMAS) in rural area with high population of cattle  |  | Introduction of Biogas boiler and Waste Heat Recovery System to Beer Factory; Myanmar   | Energy Act No.30/2007 (2007)<br>FIT (2009)<br>Ministrial Regulation of MEMR No.10/2012 concerning development of renewable energy project (2012)<br>No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>Electricity Procurement Business (RUPTL) 2018-2027   | MEMR              |  |
| Transmission   | <Other mitigation actions><br>11. Construction and operational Hydro Power in medium and large scale to interconnection electricity grid (Grid interconnection PLN)<br>Mandatory to build renewable energy and alternate energy for environment friendly in Electricity sector or mandatory to build renewable and alternate Power Plant into electricity interconnection grid (Grid interconnection PLN)<br><br><Other mitigation actions><br>12. Construction and operation of Coal Bed Methane Generation into interconnection electricity grid (Grid interconnection PLN)<br>Mandatory to build clean energy for fossil fuel Power Plant to obtain the environment friendly in Electricity sector or mandatory to build renewable and alternate Power Plant into electricity interconnection grid (Grid interconnection PLN)<br><br><Other mitigation actions><br>13. Construction and operational of Photovoltaic Power Plant into interconnection electricity grid (Grid interconnection PLN)<br>Mandatory to build clean energy to obtain the environment friendly in Electricity sector or mandatory to build renewable and alternate Power Plant into electricity interconnection grid (Grid interconnection PLN) |  | Project for a High Efficiency and Low Loss power transmission and Distribution system; Mongolia<br>Introduction of High Efficiency Transmission Line in south-West area (between Barisal and Gopalganj);JFJCM); Bangladesh  | Act No.30 Year 2009 about Electricity, and Government Regulation No.14 Year 2014 concern Electricity Supply Business, Ministry of Energy and Mineral Resources Decrees No.2026/K/20/MEM/2010 Year 2010, and Ministry of Energy and Mineral Resources Regulation No.21 Year 2013 concern electricity supply Business Plan (Rencana Usaha Penyediaan Tenaga Listrik-RUPTL)<br><br>Act No.30 Year 2009 about Electricity, and Government Regulation No.14 Year 2014 concern Electricity Supply Business, Ministry of Energy and Mineral Resources Decrees No.2026/K/20/MEM/2010 Year 2010, and Ministry of Energy and Mineral Resources Regulation No.21 Year 2013 concern electricity supply Business Plan (Rencana Usaha Penyediaan Tenaga Listrik-RUPTL)<br><br>Act No.30 Year 2009 about Electricity, and Government Regulation No.14 Year 2014 concern Electricity Supply Business, Ministry of Energy and Mineral Resources Decrees No.2026/K/20/MEM/2010 Year 2010, and Ministry of Energy and Mineral Resources Regulation No.21 Year 2013 concern electricity supply Business Plan (Rencana Usaha Penyediaan Tenaga Listrik-RUPTL) | MEMR              | PLN  |
| Transformer  |  |  | Introduction of Amorphous High Efficiency Transformers in Southern Power Distribution Systems; Viet Nam<br>Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids; Viet Nam   |  |                   |  |
| Hydrogen System  |  |  |   |  |                   | Japanese case: Hydrogen town in Kita-kyusyu city<br>Hydrogen Strategy in Kawasaki city |
| GCS  |  |  |   |  |                   |  |

| Urban Infrastructures   |  |   |  |  |  |
|---|--|---|--|--|--|
| Waste Power   |  |   | Introduction of Waste to Energy Plant in Yangon City; Myanmar  | FIT (2009)   | Spec-in environmental standards<br>PLN                               |
| Energy Saving Water Supply and Waste Treatment Site                                     | <Waste Sector><br>2. Construction of Integrated MSW treatment in SWDS/landfill with 3R<br>Quantitative goals (2010-2020)<br>a. Improvement of MSW treatment at SWDS in 210 locations<br>b. Integrated SWDS and 3R in 250 locations   |   | Introduction of High Efficiency Water Pumps in Da Nang City; Viet Nam<br>Energy Saving by Introduction of Inverters for Raw Water Intake Pumps; Viet Nam<br>Energy Saving Wastewater Treatment Plant in Battambang; Cambodia (JFJCM) | a. Waste Management Act No.18/2008<br>b. Govt. Regulation No.81/2012 Domestic Waste Management<br>c. Ministry of Public Works Regulation 03/PRT/M/2013 Infrastructure for Domestic Waste Management<br>d. MoE Regulation No.13/2012 on Guideline for implementation 3R through waste bank  | a.Ministry of Public Works and Housing<br>b.Local Governments        |
| Energy Management   |  |   |  |  |  |
| LED Street Lighting   | <Other mitigation actions><br>21. NAMA-SSLJ (Smart Street Lighting Initiative)<br>Demonstration projects on street lighting through promoting energy efficient lighting technology   | Energy Saving for Industrial Park with Smart LED Street Lighting System<br>(Expected GHG Emission Reductions: 1,016tCO2/year) |  | MEMR Regulation No.13/2012 on Electricity Saving   | MEMR   |
| Communication and Data Center   |  |   |  |  |  |
| Smart-City, IoT and AI Technology   |  |   |  |  | Japanese Case:<br>BEMS, CEMS, HEMS in<br>Minato-Mirai, Yokohama city |
| Solid Waste Recycle   |  |   |  |  |  |
| Transport Infrastructures   |  |   |  |  |  |
| Public Transport Fuel conversion and Electric Vehicles                                  | <Energy Sector><br>6. Use of natural gas as city public transportation fuel<br>Initial target in 2015-2020 are 628.5 MMSCFD of natural gas is used as fuel by city public transportation in 6 cities and 10.58 ton/day of LGV is used as city public transportation fuel, particularly in Balikpapan<br><Other mitigation actions><br>9. Mandatory of Biodiesel Utilization<br>Mandatory of Biodiesel Utilization in power plant, industry, and transport sectors  |   |  | Energy Act No.30/2007 (2007)<br>Presidential Decree No.5/2006 concerning Energy Policy (2006)<br>No.79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)<br>MEMR Regulation No.25/2013 Mandatory of Biofuels (biodiesel, bio-ethanol, and biogas) Utilization (replacement of MEMR regulation no.32/2008)<br>MEMR Regulation No. 25/2017 on the Acceleration of Gas Fuel Utilization for Road Transportation<br>MEMR Regulation No. 12/2015 on Biofuel Supply, Utilization and Trading as An Alternative Fuels  | MEMR   |
| CNG   | <Transport Sector><br>7. Installation of converter Kit (public transport gasification)<br>Initial target in 2010-2020 is installation of converter kit on 1,000 units of gasoline-fuelled taxi and public transportation per year in 9 cities is performed   | Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang<br>(Expected GHG Emission Reductions: 1,870tCO2/year)   |  | MEMR Regulation No. 25/2017 on the Acceleration of Gas Fuel Utilization for Road Transportation  | MOT<br>MEMR  |
| Electric Vehicles and Motorcycles   | <Transport Sector><br>8. Smart driving (eco-driving) training and socialization<br>Initial target in 2010-2020 is 50,000 person/year from 12 cities are joined the training<br><Transport Sector><br>9. Building of non-motorized transport (pedestrian and bicycle lines)<br>Initial target in 2010-2020 is NMT built in 12 cities  |   |  | Act Number 22/2009 concerning inland transport traffic (2009)<br>Emission Limits for New Vehicle (2009)<br>PPnBM on LCGC(2013)<br>PPnBM Scheme(2013)   | MOT  |
| Renewable Energy /Energy Efficiency Port (Shore Power Supply, Automatic RTG etc...)     |  |   | Introduction of Energy Efficient Equipment to Bangkok Port; Thailand   |  |  |
| Renewable Energy /Energy Efficiency Airport (Shore Power Supply, Airconditioner etc...) | <Transport Sector><br>15. Construction of Soekarno-Hatta Airport railway track<br>Initial target in 2010-2020 is the construction of soekarno-Hatta airport railway track of 33 km is performed<br><Other mitigation actions><br>15. Renewal air transport<br>Implementation of Ministry Transportation Regulation No.5/2006, about Rejuvenation of passenger aircraft<br><Other mitigation actions><br>16. Completion of systems and procedures for the operation and maintenance of passenger aircraft<br>Adopting of improvements system, tingprocedures and maintenance of passengers aircraft for fuel saving and spare parts saving<br><Other mitigation actions><br>17. Create and implement of direct flight (Direct Routes, RNAV 5, RNP 10)<br>Flight with RNP-10 method<br>Flight with RNP-5 method<br><Other mitigation actions><br>18. Making Navigation Procedure Continuous Climb and Descent Operations (STAR-SID-RNAV1)<br>PBN-SID/STAR<br><Other mitigation actions><br>19. Making RNP Procedure approach (RNP 0.3, RNP0.1)<br>Flight with PBN method |   |  | MEMR Regulation No.13/2011 on Energy and water saving<br>MEMR Regulation No.13/2012 on Electricity saving<br>MEMR Regulation No.14/2012 on Energy management<br>MEMR Regulation No.7/2015 on appying minimum energy performance standard for EE labeling for air conditioner<br>Act No.1/2009 concerning flight (2009)<br>Minister Decree No.201/2013 for action plan GHG (2013)<br>Act No.1/2009 concerning flight (2009)<br>Minister Decree No.201/2013 for action plan GHG (2013)<br>Act No.1/2009 concerning flight (2009)<br>Minister Decree No.201/2013 for action plan GHG (2013)<br>Act No.1/2009 concerning flight (2009)<br>Minister Decree No.201/2013 for action plan GHG (2013) | MOT<br>MEMR<br>MOT<br>MOT<br>MOT<br>MOT                              |
| Substitution of Ethanol for Gasoline in Transport                                       |  |   |  |  |  |
| Freight Transport Switch from Road  |  |   | Modal Shift from Truck to Cargo Ship with Freshness Preservation Reefer Container; Viet Nam  |  |  |
|   |  |   |  |  |  |

| Industrial Infrastructures   |  |  |  |  |                   |   |
|--|--|--|--|--|-------------------|---|
| Steel, Aluminum and Cement   | <Industrial Sector><br>1. Application of Process and Technology Modification<br>Development of guidelines for biomass utilization and other technologies in cement industry as blended cement (AFR)                        | Power generation by Waste Heat Recovery in the Tuban Plant of PT Semen Indonesia<br>(Expected GHG Emission Reductions: 149,063tCO2/year)   | Introduction of 12 MW Power Generation system by Waste Heat Recovery for Cement Plant: Thailand  | Mol Regulation No12/2012 concerning Roadmap of CO2 emission reduction in Cement Industry in Indonesia  | PPIHLH<br>MOI     | Indonesian Iron & Steel Industry Association(IISIA)<br>Indonesia Cement Association (ICA)   |
|  | <Industrial Sector><br>2. Energy conservation and audit<br>2015-2020: Establishment of energy management system in glass and ceramic, fertilizer, petrochemical, food and beverage, textile, and basic chemical industries |  |  | Energy Act 30/2007 (2007)<br>Industry Act 3/2014 (2014)<br>Govt. Regulation No.70/2009: Energy conservation (2009)<br>President Reg. No.14/2012: Energy Management (2012)<br>Presidential Instruction No.13/2011: water & energy saving (2011)<br>Presidential decree No.5/2006: National energy policy (2006)<br>MEMR Regulation No.13/2012: Energy Management (2012)<br>MEMR Regulation No.13 & 14/2010: Competency standard of energy manager in building & industry (2010)<br>No 79/2014 on National Energy Policy (KEN) and No.22/2017 National Energy Plan(RUEN)                   | MOI<br>MEMR       |   |
| Chemical and Pulpe   |  | Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory<br>(Expected GHG Emission Reductions: 19,011tCO2/year)  | Introduction of High Efficiency Ion Exchange Membrane Electrolyzer in Caustic Soda Production Plant: Thailand  | Energy Act 30/2007 (2007)<br>Industry Act 3/2014 (2014)<br>President Reg. No.14/2012: Energy Management (2012)<br>Presidential Instruction No.13/2011: water & energy saving (2011)  |                   |   |
| Factory Co-Generation<br>Factory Energy Efficiency<br>(Chiller, Refrigerator, Pump, Process etc)   |  | <Factory Co-Generation><br>Introduction of Gas Co-generation System and Absorption Chiller to Motor Parts Factory<br>(Expected GHG Emission Reductions: 4,828tCO2/year)<br>Installation of Gas Co-generation System for Automobile Manufacturing Plant<br>(Expected GHG Emission Reductions: 20,310tCO2/year)<br><Factory Energy Efficiency><br>Introduction of High Efficiency Injection Molding Machine to Plastic Parts Factory<br>(Expected GHG Emission Reductions: 4,380tCO2/year)<br>Energy Saving by Introduction High Efficiency Autoclave to Infusion Manufacturing Factory<br>(Expected GHG Emission Reductions: 1,950tCO2e/year)<br>Introduction of Absorption Chiller to Chemical Factory<br>(Expected GHG Emission Reductions: 917tCO2/year)<br>Energy Saving for Air-conditioning and Process Cooling at Textile Factory<br>(Expected GHG Emission Reductions: 387tCO2/year)<br>Energy Saving in Industrial Wastewater Treatment System for Rubber Industry<br>(Expected GHG Emission Reductions: 1,317tCO2/year)<br>Introduction High Efficiency Looms in Weaving Mill<br>(Expected GHG Emission Reductions: 329tCO2/year)<br>Introduction of High Efficiency Once-through Boiler in Golf Ball Factory<br>(Expected GHG Emission Reductions: 567tCO2/year)<br>Reducing GHG Emission at Textile Factories By Upgrading to Air-saving Room<br>(Expected GHG Emission Reductions: 857tCO2/year)<br>Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer<br>(Expected GHG Emission Reductions: 120tCO2/year)<br>Energy Efficient Refrigerants to Cold Chain Industry<br>(Expected GHG Emission Reductions: 205tCO2/year)<br>Energy Saving for Textile Factory Facility Cooling by High-efficiency Centrifugal Chiller<br>(Expected GHG Emission Reductions: 175tCO2/year)<br>Energy Saving by Installation of Double Bundle-type Heat Pump<br>(Expected GHG Emission Reductions: site1:117tCO2e/year site2:152tCO2/year) | <Factory Co- Generation><br>Introduction of Co-generation System to Motor Parts Factory: Thailand<br>Installation of Co-generation Plant for On-Site Energy Supply in Motorcycle Factory: Thailand<br>Introduction of Gas Co-generation System and Absorption Chiller to Fiber Factory: Thailand<br>< Factory Energy Efficiency><br>Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller: Thailand<br>Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory: Thailand<br>Energy Saving by Air-Conditioning control System in Precision Parts Factories: Thailand<br>Introduction of High-efficiency Boiler System to Rubber Belt Plant: Thailand<br>Introduction of Heat Recovery Heat Pumps to Food Processing Factory: Thailand<br>Introduction of Energy Efficient Refrigeration system in Industrial Cold Storage: Thailand<br>Introduction of Energy Saving Refrigerator and Evaporator with Mechanical VaporRecompression in Amino Acid Producing Plant: Thailand<br>Introduction of High Efficiency Chilled Water Supply System in Milk Factory: Thailand<br>Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor: Thailand<br>Reducing GHG emission at Textile Factory by Upgrading to Air-saving Loom(Samutprakarn): Thailand<br>Introduction of High Efficiency Centrifugal Chiller to Rubber Products Factory: Viet Nam<br>Introduction of Energy Saving Equipment to Brewery: Viet Nam<br>Introduction of Energy-Efficient Air Conditioners in a Lens Factory: Viet Nam<br>Installation of High Efficiency Kiln in Sanitary Ware Manufacturing Factory: Viet Nam<br>Energy Saving in Acid Lead Battery Factory with Container Formation Facility: Viet Nam<br>Introduction of Energy Saving Equipment to Automotive Wire Production Factory: Viet Nam<br>Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory: Bangladesh | Energy Conservation (Government Regulation No.70/2009)<br>Presidential Instruction on Water and Energy Savings (10/2005; 2/2008; 13/2011)<br>President Reg. No.14/2012: Energy Management (2012)<br>SNI 8476-2018 on Performance Testing and Evaluation Method for Chillers using Steam Vapor Compression System   | MEMR              | Formulate energy management system (≥6,000 toe) and energy saving program, implemente regular energy saving diagnosis (energy audit) and follow up results of energy saving diagnosis<br><br>Interest subsidy on energy saving investment<br><br>Indonesia Chamber of Commerce and Industry |
| Brick-Making   |  |  |  |  |                   |   |
| Oil Refinery   |  | The Optimum Load Allocation for Utility Equipment; Boiler, Steam Turbines<br>(Expected GHG Emission Reductions: 20,000tCO2/year)   |  |  |                   |   |
| Commercial Infrastructures   |  |  |  |  |                   |   |
| Renewable energy/Energy Efficiency<br>Shopping Mall and Office   | <Other mitigation actions><br>8. Green Building<br>Promote the development of Green Building to reduce GHG emissions in building sector (commercial and offices)   | Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller<br>(Expected GHG Emission Reductions: 996tCO2/year)<br>Installation of Solar Power System and Storage Battery to Commercial Facility<br>(Expected GHG Emission Reductions: 549tCO2/year)<br>Introduction of LED Lighting to Sales Stores<br>(Expected GHG Emission Reductions: 2,143tCO2/year)<br>Installation of Inverter-type air Conditioning System, LED Lighting and Separate Type Frigde Freezer Showcase to Grocery Store in Indonesia<br>(Expected GHG Emission Reductions:806 tCO2/year)   | Introduction of 30 MW Rooftop Solar Power system to Large Supermarkets: Thailand<br>Introduction of LED Lighting to Sales Stores: Thailand<br>Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase: Thailand<br>Introduction of Solar PV System at Shopping Mall in Ho Chi Minh: Viet Nam<br>Low Carbon Hotel Project in Vietnam; Improving the Energy Efficiency of Commercial Buildings by Utilization of High Efficiency Equipment: Viet Nam<br>Promotion of Green Hospitals by Improving Efficiency/Environment in National Hospitals in Vietnam: Viet Nam  | MoE regulation Number08/2010 concerning criteria/certification of Green Building, Regulation of Governor of DKI Jakarta No.38/2012 concerning the obligation to apply Green Building standard<br>MEMR Regulation Number.13/2012 concerning efficiency standard for electricity consumption in office building<br><br>MOPWPH Decree No.02/2015 on Green Building  | MOE<br><br>MOPWPH | Increase energy management system business company, decrease annual energy consumption from 6,000toe to 700toe<br><br>Ranking ESCO business companies by financial organization<br><br>Green Building Council Indonesia (GBCI)<br>Floor area ratio bonus on                                 |
| Residential Infrastructures  |  |  |  |  |                   |   |
| Renewable Energy/Energy Efficiency Smart Meter and Home System   |  |  |  |  |                   |   |
| High Efficiency Residential Air Conditioning<br>High Efficiency Residential Refrigerator<br>High Efficiency Residential Lighting<br>Solar Water Heater |  |  |  | Energy efficiency labeling Program (2013)<br>No. 7/2015 on Applying the Minimum Energy Performance Standards (MEPS/SKEM) and Energy Efficiency Labelling for Air Conditioning<br>Presidential Instruction on Water and Energy Savings (10/2005; 2/2008; 13/2011)<br>Procedure if Energy Efficiency Implementation<br>SNI ISO.817-2018 on Refrigerant: Names and Safety Classifications<br>SNI 6500-2018 on Fixed Installation Refrigeration System: Safety and Environmental Requirement<br>No 18/2014 on EE Label for Compact Fluorescent Light (CFL)<br>(replacing MEMR Reg.no 8/2011) | MEMR              | Improve and revise the standard of MEPS and energy efficiency labeling program  |
| Agricultural Infrastructures   |  |  |  |  |                   |   |
| Rice Cultivation System<br>(Waste Water and Pump)<br>Aquaculture   |  |  |  |  |                   |   |
| Technical Improvement<br>(Improvement Quality and Power Generation)  |  |  | Energy Saving and Work Efficiency Improvement by Introducing a New Chip-On-Board LED System in Vietnam: Viet Nam   |  |                   |   |
| F-gas  |  |  |  |  |                   |   |
| Destruction of F-gas   |  |  | Project on Introduction of Scheme for Fluorocarbons Recovery and Destruction with Utilization of Existing Waste Incineration Plant: Thailand<br>Development of collection Scheme and Introduction of Dedicated System for Destruction of Used Fluorocarbons: Viet Nam  |  |                   | Formulate mandatory and system on F-gas destruction and collection  |
| Alternative Device with Low GWP  |  |  |  |  |                   | Formulate alternative device with low GWP   |