

# ADB Support for Demand-Side Energy Efficiency Reform in Indonesia

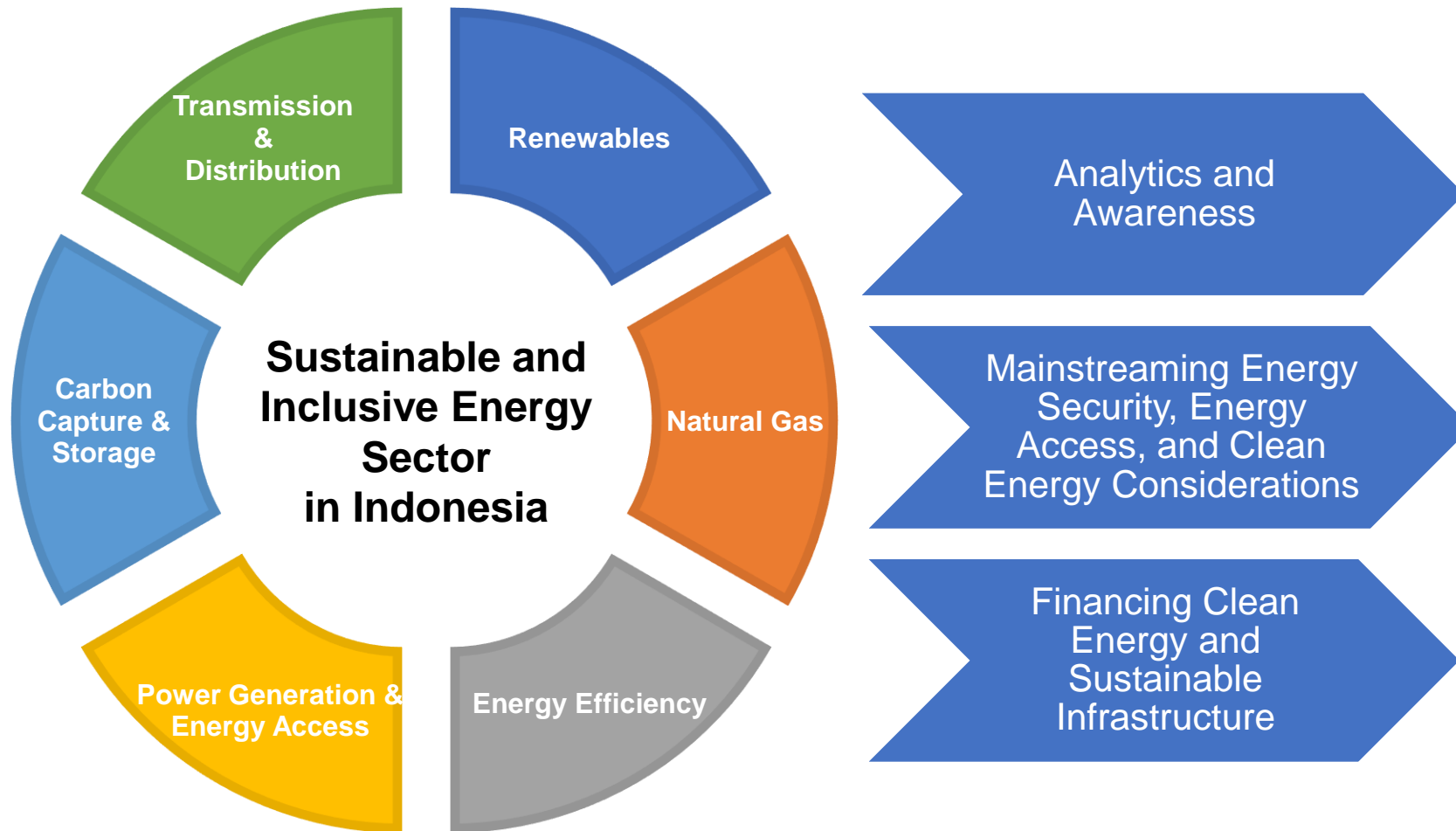
## IEA Training Workshop

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# ADB Energy Sector Support to Indonesia



ADB's Lending Pipeline in Indonesia for 2019-2021 to support over USD 4 billion in financing

# Energy Efficiency (EE) Status in Indonesia

## Huge EE market potential:

- \$18 Billion in energy savings can be achieved per year by 2025 according to government's target of 17%.
- In the National Energy plan, the government identifies a potential energy efficiency savings of 50.9 Mtoe in 2025, and 395.6 Mtoe in 2050.
- Target to reduce CO<sub>2</sub> Emissions by 30 million tons by 2020.

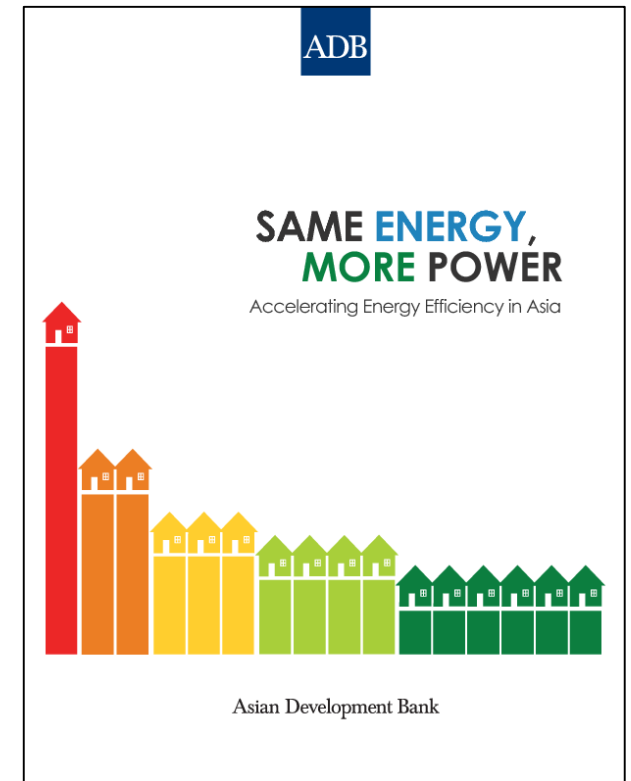
Sector	Energy Consumption by Sector Year 2013*) (Miliion BOE)	Energy Saving Potential	Energy Saving Target by Sector (2025)
Industry	355 (42%)	10 – 30%	17%
Transportation	324 (39%)	15 – 35%	20%
Household	100 (12%)	15 – 30%	15%
Comercial Building	36 (4%)	10 – 30%	15%
Other	23 (3%)	25%	-



Source: Directorate General of New Renewable Energy and Energy Conservation

# Barriers causing low market penetration of EE

- No Reliable Baseline for end-use energy consumption
- Knowledge and Capacity Gaps for implementing/financing
- No available (attractive) Project-based financing
- Inexperienced Energy Conservation Service Companies (ESCO)



# ADB Support for EE in Indonesia

2012	2013	2014	2015	2016	2017	2018	2019	2020
EE Project-Based Bank Lending Program								
			Investment Grade Audit Capacity Building					
		Municipal LED Street Light Retrofit/Finance						
		ESCO Market Development						
			MEPS and Labeling					
							2020–24 National Development Plan	

# Eximbank (EIB) project-based lending, 2012-14



## 1. Developed Finance Products:

- EE Project Loan Product Manual (approved by EIB)
- EE Project-Based Loan Documents (applied by EIB)
- EE Savings Guarantee (designed for future application)

## 2. Developed and Financed EE Projects:

- 12 Industrial Investment Grade Audits (IGAs) completed
- 4 Pilot EE Project Loans closed ~US\$ 8 million

## 3. Delivered EE Capacity Building in IEB:

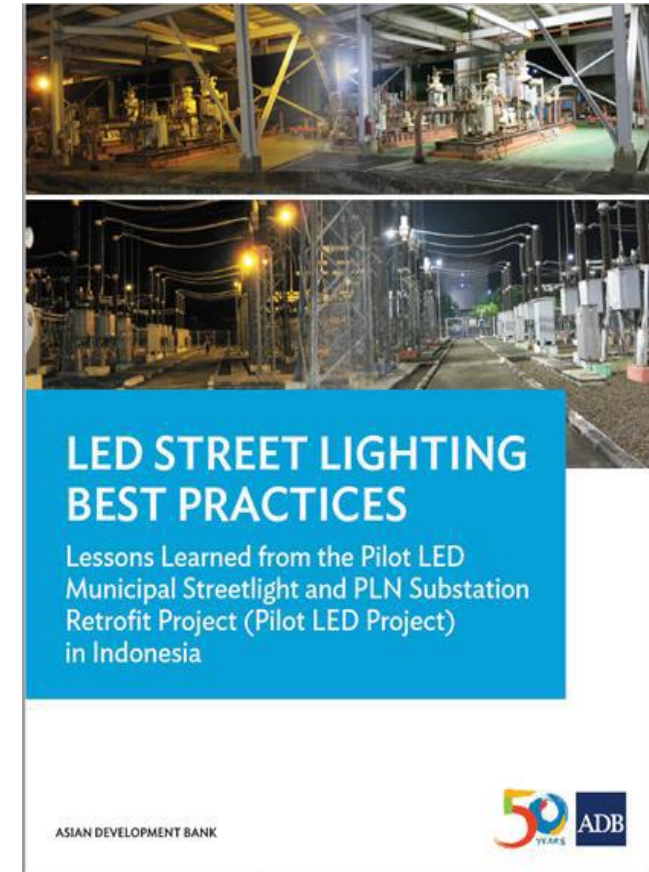
- Development of 'EE Product' and Standardized Tools

# IGA Capacity Building, 2015-17

- Evaluated and provided hands-on training to local consultants on 21 IGAs.
- Revised Ministry of Energy and Mineral Resources (MEMR) Current IGA TOR.
- Revised 7 IGAs and developed template RFPs.
- Created Case Study IGA for access on MEMR website.
- Developed capacity for MEMR to evaluate its future funded IGAs.
- **Major IGA Deficiencies noted:** 1) More of a preliminary audit versus ready-to-implement measures 2) Estimated Savings not correct, not based on actual facility 'baseline' data and not supported by sufficient calculations; 3) Estimated CAPEX cost understated and not supported by contractor quotes; 4) No proposed Savings M&V or Financing options

# Municipal LED Street Lighting

- 50%+ savings realized on 516 LED lamps retrofitted at Batang and Semarang.
- Not all savings were realized by municipalities as PLN did not invoice based on actual electrical consumption.
- LED EE Standards were developed, some of which were incorporated into MOT's new Street Lighting PM 27/2018 regulation.
- **Recommendations for future include** 1) PLN installing 'open access' smart meters to demonstrate measurement/billing of actual kWh consumption. 2) Establishing a national Municipal Street Lighting Expert Team to assist municipalities in developing and financing LED retrofits.





# Financial Barriers for Municipal LED Scale-Up

- Banks require collateral - municipalities not able to provide.
- PT SMI could be an ideal financier but approval of municipal law meeting SMI's debt repayment requirement takes 2+ years
- ESCOs are good solution – municipalities cannot make long-term savings-based payments.



# 2014-17 ESCO Industry Development

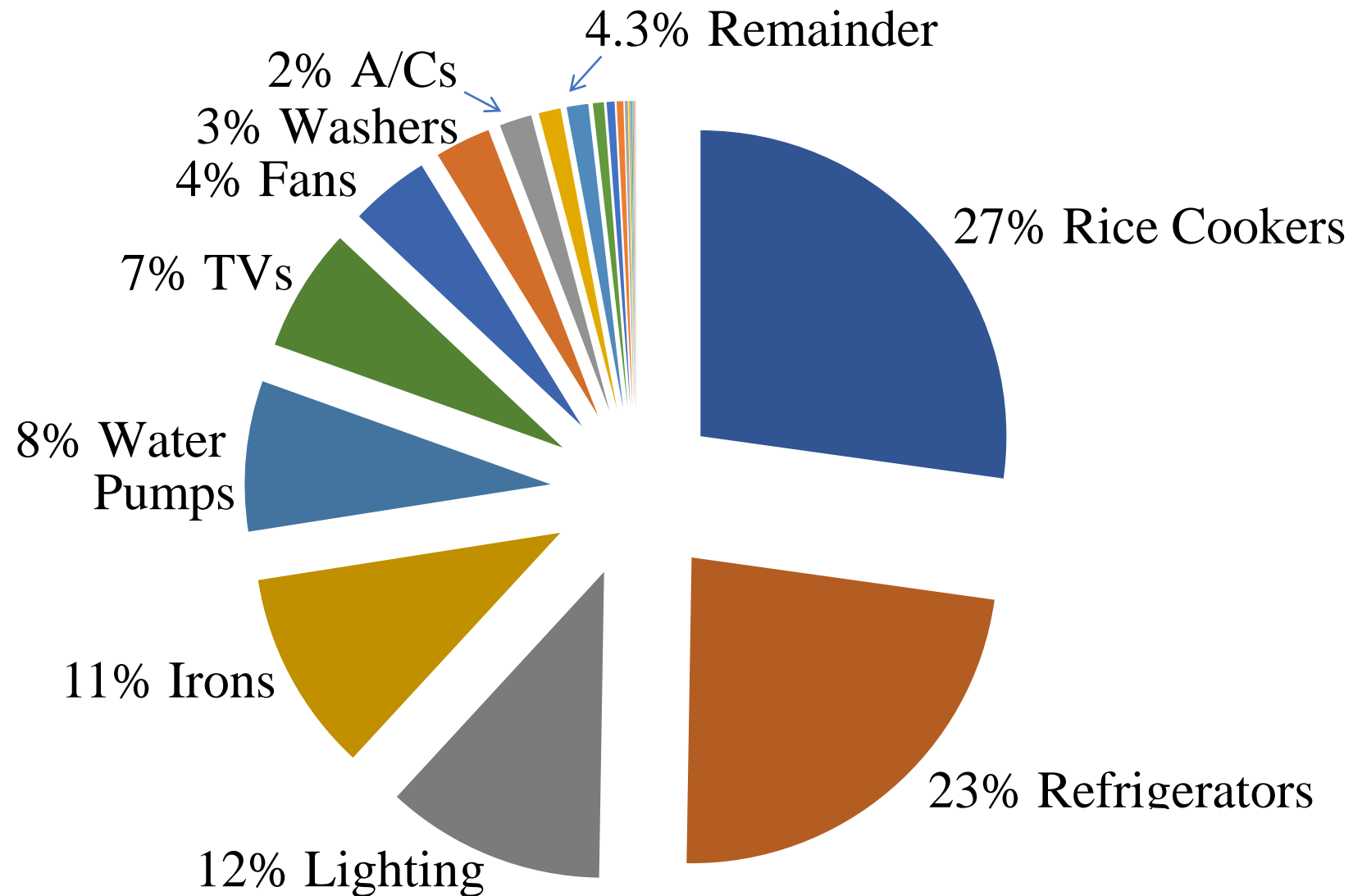
- Facilitated development and passing of the 2016 ESCO Regulation (*ESDM No.14/2016*), terminated in 2018.
- Developed a Regulatory Roadmap and framework for ESCOs to be able to apply PPP scheme in implementing EE Projects in government facilities on an Energy Performance Contract (ESPC) basis.
- Conducted ESCO Pre-IGA Training Workshop



# Government ESCO Development (2018-20)

- ESDM ESCO/PPP Synchronization Guidelines in draft PP 70/2009 would address three barriers:
  - 1) Multi-Year Savings Payments
  - 2) Procurement Procedures (Highest NPV vs. Lowest Cost)
  - 3) Retention of Savings in Budget
- Establish ESPC Advisory Team (Unit) to assist in contracting / procurement under new '*ESCO-Synchronized*' PPP Regulation
- Support the development / implementation of three EE demonstration Projects by ESCOs under PPP.

# Indonesia Baseline Residential Energy Use



Source: SUCOFINDO: Survey dan Penyusunan Database Penggunaan Energi Pada Peralatan di Sektor Rumah Tangga Tahun 2015

# MEPS and Labeling Effort

## 2015-17

- Identified major energy-using household appliances and energy savings potential based on 2015 Sucofindo Survey.
- Drafted 2 Minimum Energy Performance Standards(MEPS) for refrigerators & electric Motors.
- Proposed new rice-warming methodology to test rice cooker
- Provided Capacity Building to MEMR Staff on Data Collection and Analysis methods.
- Provided seed waterpump test method for next MEPS.

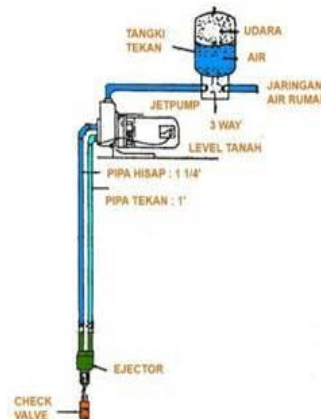


## 2018-20

- Facilitate development of 4 Residential Appliances MEPS
- Create a new EE module in MEMR's current Website, to include new MEPS data base

# Black: ESDM's Draft New MEPS Regulation, Green: coming up, Blue: Not considered

1. Rice cookers
2. Fans
3. Refrigerators
4. Air Conditioners (In Place)
5. CFL Lamps (Outdated)
6. Electric Motors
7. Washing machines
8. Water pumps
9. Irons
10. TVs/Monitors



*Not considered*



# Medium-Term 2020–24 National Development Plan (2019) for BAPPENAS

- Energy efficiency measures that can limit energy consumption and emission increases
- Savings potential of energy efficiency actions over the medium-term;
- Policies and regulations with immediate impact on energy consumption;
- Financing, regulatory bottlenecks & solutions;
- Sub-national actions in municipalities and new industrial zones



# Terima Kasih

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