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Synthesis Study on the Effectiveness of Energy Efficiency Financing Mechanism to Support the Energy Transition in Indonesia

Energy Efficiency Financing Mechanism:

Focus Group Discussion on Development of Innovative Mechanisms Based on Cross-Sector Conditions in Indonesia

06 May, 2024

on behalf of Clean, Affordable and Secure Energy (CASE) for Southeast Asia



Comparison RE vs. EE - why is EE not as „attractive“ as RE?



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Renewable Energy	Energy Efficiency
Projects are visible	Projects are normally not visible
Energy production can easily be documented	Savings are not easily to be documented
RE is cash generating – top line of the Financials	Savings are cost avoidance, bottom line impact
Few projects, few investors, “one” offtaker	Thousands, millions of projects, millions of investors or beneficiaries
Financing: few borrowers, large amounts	Thousands, millions of borrowers, often very small amounts
Instant impact when production starts	“creeping” success, no immediate impact visible
One “installation”	Multiple of measures add up to a project success, can be developed in stages, step by step
Few technologies such as SolarPV, Wind, Hydro, Geothermal, Biomass, Biogas	Thousands of manufacturers in thousands of applications...

Definition and Sectors



- Energy Efficiency in this study which is presently prepared for CASE is **solely focusing on the saving of Electricity**
- As the users of electricity are very different **there is no “one solution fits all”**, all sectors need different financing solutions and financing partners

The main sectors and users of electricity to look at are:

- Household appliances, consumer goods
- Buildings
- Industry
- eMobility

Summary

- The topic Energy Efficiency is very important to manage the raising energy demand in the country in the future to achieve GHG reduction targets and to avoid ever more investments in power generation
- The topic is too complex as there are many parties involved – so there needs to be one responsible government entity which is responsible and is also enabled to rule “across” sectors
- Awareness building is key that EE is not a CSR topic but essential for consumers, industry and the power generation and utilization strategy
- Banks have to be encouraged to look after specific sectors according to their business plans – specialize on the various mentioned sectors such as consumers, building, industries...
EE financing can be a profitable and attractive business model for banks if taken seriously

Government/private entities which should take the responsibilities to bolster growth of the EE market in Indonesia



What types of government/private entities that are best to take the responsibilities to bolster growth of the EE market in Indonesia? How should coordination/responsibility sharing be arranged?

Selected Stakeholders in EE issues as example how complex the topic is

Kemenko Perekonomian:
Kementerian Koordinator Bidang Perekonomian Republik Indonesia, Coordinating Ministry for Economic Affairs
Ministry of Energy and Mineral Resources (MEMR)
Coordinating Ministry of Maritime and Investment
Ministry of National Development Planning /National Development Planning Agency (BAPPENAS)
Ministry of Finance (MOF)
Ministry of Manpower
Ministry of Law and Human Right, especially BPHN (National Legal Development Agency)
Ministry of Home Affairs (MOHA)
Ministry of Industry (Mol)
Ministry of Transportation
Ministry of Trade
Ministry of Environment and Forestry (KLHK)
National Energy Council (DEN)

The Environmental Fund Management Agency (BPD LH)
National Research and Innovation Agency/BRIN (Badan Riset dan Inovasi Nasional)
National Standard Agency (BSN)
National Public Procurement Agency (LKPP)
OTHER EE STAKEHOLDERS:
PLN
Energy Saving Companies (ESCOs)
Energy Management System Certification Bodies
Universities
Central Bank/Financial Services Industry Regulator/Funders
Financial Services Authority (OJK)
Banks or Financial Institutions
Donors/International Agencies

What governments can do to promote EPC and ESCO development?



The following list is sorted by priority according to the opinion of the consultant:

- 1) **Mandate one government ministry/agency to be responsible for all aspects of EE and provide it the authority for implementation measures across ministries and agencies**
- 2) **Awareness raising and capacity building for all stakeholders** to show the benefits for the users and importance to the government
- 3) **Supportive financing tools, e.g. special bank or Credit Card loans**, guarantees and insurance products for EE projects
- 4) **Establish markets for EE projects and tenders and provide transparency of successful projects to build trust and track records**
- 5) Using EPCs (Energy Performance Contracts) in the energy efficiency renovation and retrofitting of public buildings and facilities (e.g. street lighting and water supply) to create a track record of successful projects
- 6) Training and accreditation of professionals, e.g. energy auditors and energy managers, and accreditation of ESCOs based on their qualifications and credit level
- 7) For ESCO models to support standardization of the relevant documentation (EPCs, energy supply contracts, and build-own-operate-transfer contracts)
- 8) Clear guidelines and standards on measurement and verification related to EPCs
- 9) Preferential tax and subsidies for EPC projects

Suggested Step 1: where implementation can be done without regulatory action



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The following suggested steps and actions can be done relatively quickly as no regulations and law changes are needed.

Sector	Action Points	Expected Outcome
Government Institutions, e.g. ESDM	Increase the visibility of EE on the government-related web pages and keep them up to date (many websites are outdated, no longer existing, or EE is not even mentioned)	EE is better recognised as an important factor for the government's Energy Transition and GHG reduction efforts
	Increase the importance and reach of PROPER (Program Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan)	An extended PROPER process can be a valuable tool for implementing and building awareness for EE in the industrial sector
ESCO association, APKENINDO	The current ESCO association, APKENINDO, has been dormant for nearly 10 years and needs to be reorganised with competent staff to become a platform for discussing and developing EEPs and ESCO policy in Indonesia. The support needed should also include establishing a certification program similar to the 2-step process in the Philippines, where ESCOs are first registered and then 'certified' after successfully implementing a few EEPs	The ESCO association can play a crucial role in creating market credibility by bridging collaboration between key stakeholders, including government, private companies, ESCOs, financial institutions, donor agencies, and academics, to encourage the improvement of implemented energy efficiency projects' portfolios under the ESCO scheme. This intervention should be able to be implemented with relative ease since it does not require any government intervention or support
Strengthen other associations related to Energy Efficiency.	Organisations such as MASKEEI, Green Building Council, and others will play a more prominent role in the practical implementation of EE promotions, programs, and initiatives. Updating and improving their websites and energy-saving topics also increased their presence on social media	Associations and Certification Companies can play a vital role in bringing relevant stakeholders together; the primary focus should be to link manufacturers and users of EE equipment. Young people are particularly concerned about the environment and must be reached and engaged via sustainable social media campaigns

Suggested Step 1: where implementation can be done without regulatory action

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Retrofitting of Government buildings with ESCO companies	Use for the retrofitting and renovation of ESCO structures to build a qualified ESCO pool of companies	ESCOs can build a track record and reference projects for other users in the public and private sectors (e.g. hospitals and schools)
Industry	Create a best practice website with examples and references from different industries, also naming manufacturers, the equipment, service providers and suppliers of EE equipment	Corporations like to follow successful examples within their industry. A public “register” with savings examples from successfully implemented projects can speed up the implementation of technologies and provide reference projects (voluntarily, perhaps linked with PROPER)
	Consider to establish also for equipment used in industrial processes, minimum energy performance standards (MEPS)	Increase awareness and trust for equipment which saves energy in industrial applications, e.g. automation and control technology, lighting, air conditioning and refrigeration technology, motors, and heat management

Suggested Step 1: where implementation can be done without regulatory action

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Consumer	<p>On 20 September 2022, the Indonesian government established three ministerial decisions stipulating the minimum energy performance standards (MEPS) and energy efficiency labels for refrigerators, ACs, fans, and rice cookers. On 3 October 2022, the Ministry of Energy and Mineral Resources of Indonesia notified WTO/TBT of draft decrees on the Minimum Energy Performance Standard (MEPS) for blenders, drinking water dispensers, electric stoves, washing machines, smoothing iron, television, electric motor and water pump. The list of such appliances has to be amended faster</p>	<p>The more appliances that carry the EE label, the more awareness consumers will have</p> <p>Given that ACs run often day and night, the focus has to be on the ever-increasing number of ACs in the country and using an environmentally friendly refrigerant</p> <p>There needs to be a website where consumers can calculate how much money they can save during the appliance's lifetime in relation to the higher investment cost. The label also has to be explained, and the cost savings for the consumer must be clearly visualised</p>
Banking	<p>Special Credit Card promotions to finance on attractive terms EE appliances which carry the highest MEPS standard</p> <p>Specifically, State-Owned Banks should cooperate with manufacturers and ESCO companies to promote the usage of ESCO financing schemes</p> <p>An example can be the UOB U-Energy product, Asia's first integrated financing platform for energy efficiency projects. U-Energy is designed to simplify the switch to energy-efficient appliances and fittings in residential and business premises</p>	<p>Consumers will consider buying a more efficient household appliance if they get more attractive financing terms than buying a less energy-efficient product</p> <p>If there is an established cooperation and process which includes EE manufacturers, ESCOs and bank's potential users will have more trust in the potential energy savings than 'only' relying on the promises of a manufacturer/supplier</p>

Why there is a need for Energy Saving



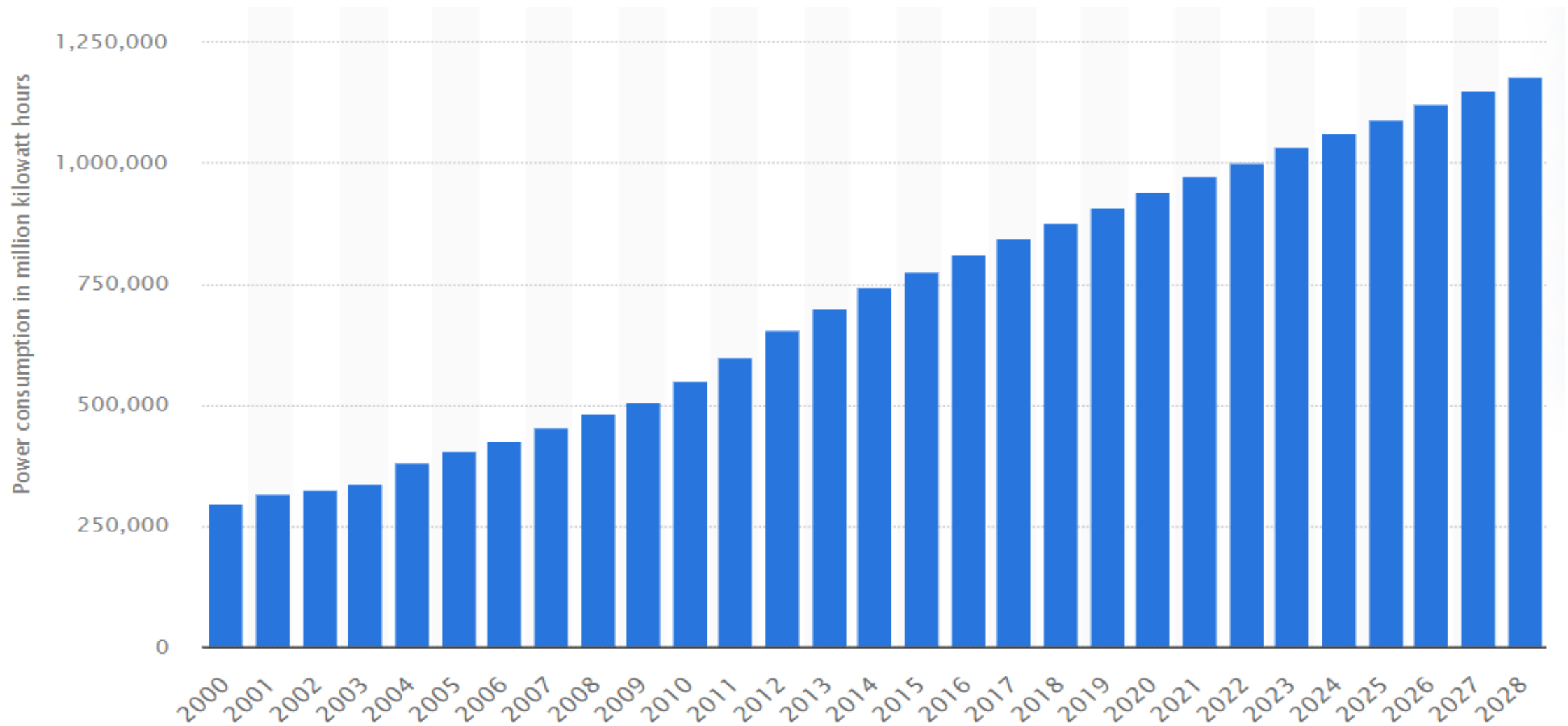
- As a developing country, **electricity demand in Indonesia is multiplying due to urbanization and industrialization**. The rise in electricity demand will require electricity energy supply to double by 2040.
- By implementing energy efficiency programs, **total required capacity may be reduced by 37 GW out of the planned 166 GW**, stated by the Minister of Energy and Mineral Resources (MEMR), thus saving a considerable amount of cost for building new power plants.
- The reduction would also be beneficial as the **government can save land use, water and air pollution and social impacts** related to new power plant projects (especially to low-income communities).
- An **EE program may also help the country to achieve its climate commitment**, which is to reduce total final energy consumption (TFEC) by 20% in 2035, reduce national CO2 emissions in 2035 by 3 million tons of CO2, and reduce energy intensity by 1% per year to promote energy saving.
- Indonesia has set its emission reduction target by 2030 at 31.89% (with self-effort) and 43.20% (with international support) compared to the previous policy (the Updated NDC, 2021) – 29% (with self-effort) and 41% (with international).

Introduction



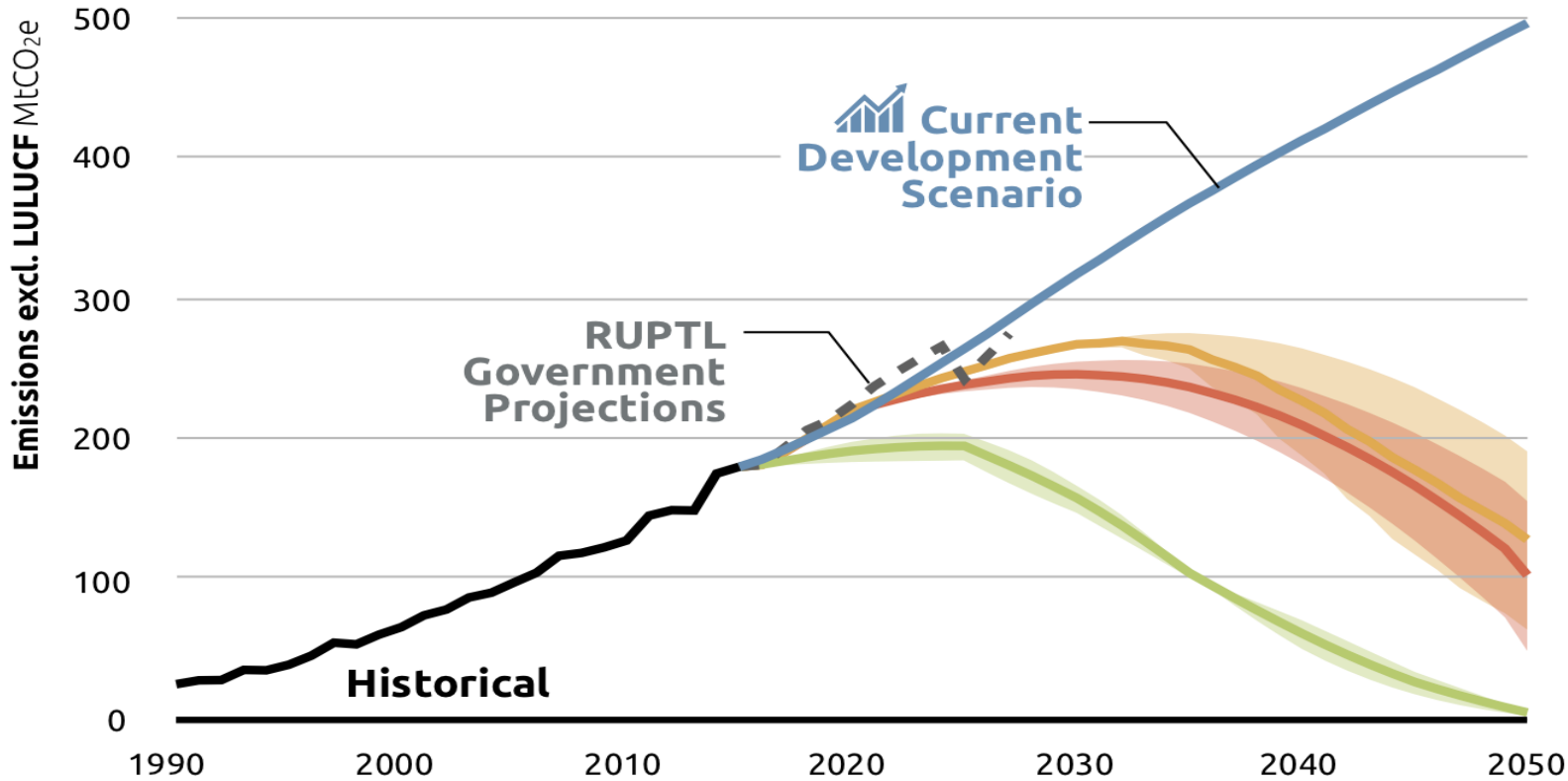
- **The National General Energy Plan mandates an energy efficiency targets of 1% reduction/year in energy intensity by 2025.** Furthermore, it also aims for a reduction of final energy consumption/energy conservation compared to Business-as-Usual scenario by 17.4% and 38.9% on 2025 and 2050, respectively
- **EE can avoid the construction of new power plants, specifically in rural areas** where there is a limited supply of electricity with an ever increasing electricity demand
- **EE is a key element of Indonesia's GHG reduction targets**
- **EE** is typically not visible hence **creates less attention** than to build new power production plants
- **EE** has to be acknowledged by decision makers as not being a CSR initiative but **a cost reduction instrument**
- Energy efficiency benchmarking on corporate level will increasingly be an **important factor selecting suppliers in the global supply chain** by multinationals
- Typically **higher upfront investment costs** “compete” against cost savings over time

Total consumption of electric power in Indonesia from 2000 to 2028 (in million kWh)

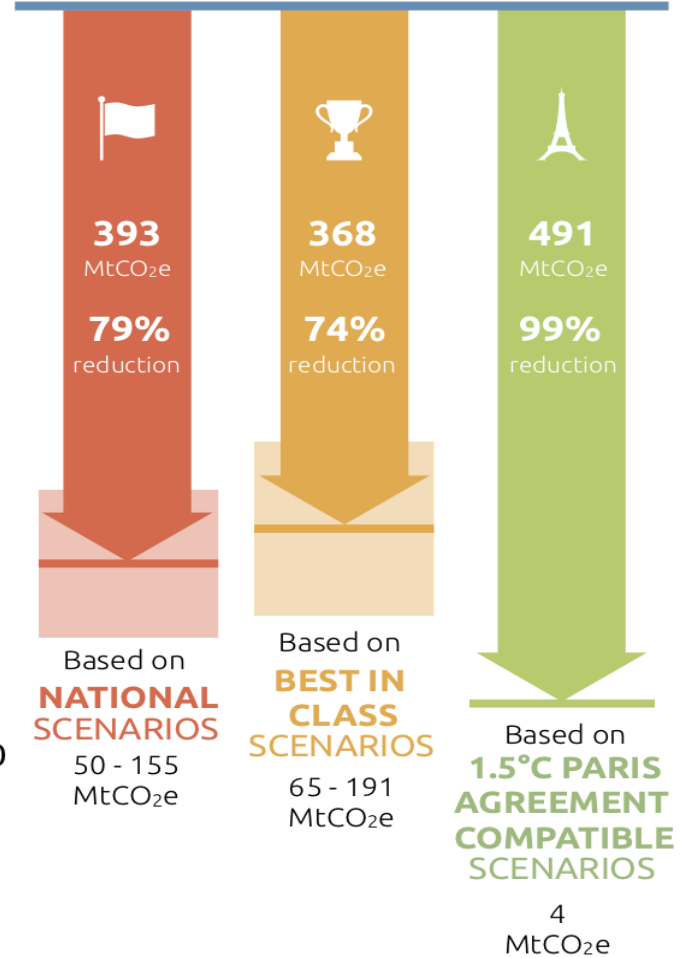




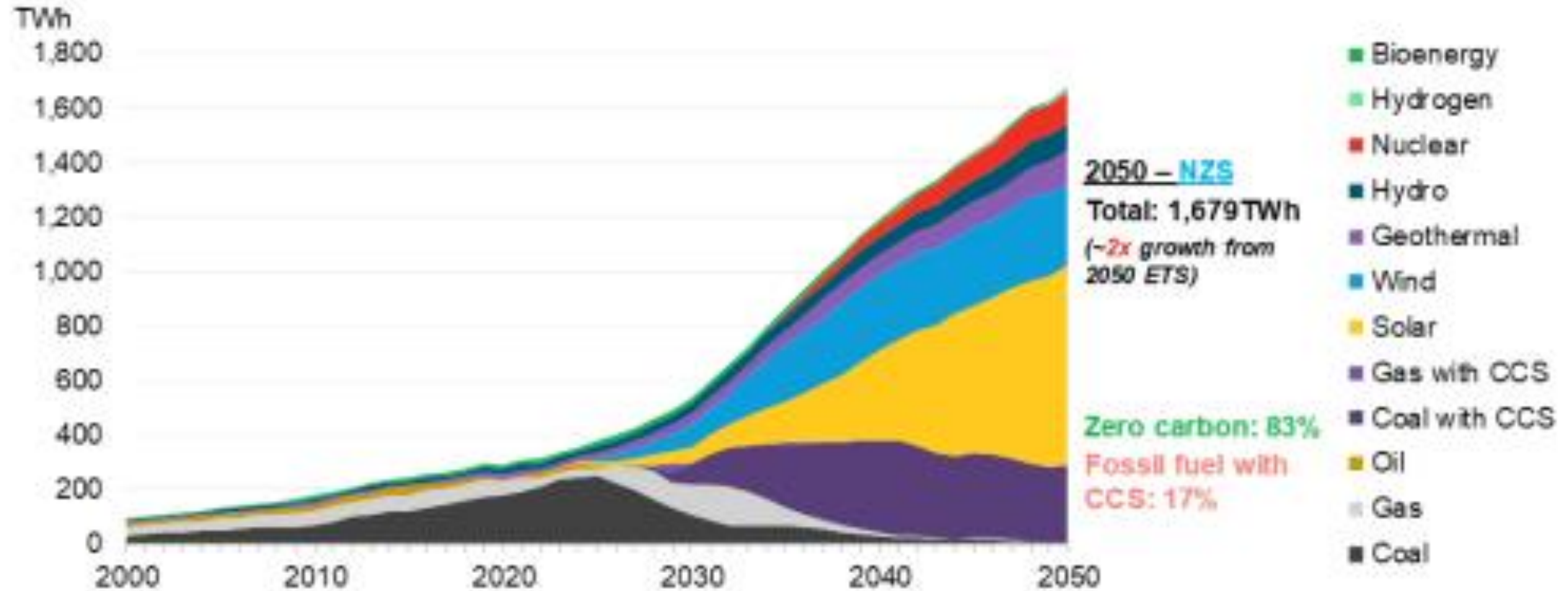
ELECTRICITY SECTOR POTENTIAL EMISSIONS REDUCTIONS BY 2050



TOTAL EMISSIONS REDUCTION IMPACT BY 2050



Indonesia's annual electricity generation, Net Zero Scenario



Source: BloombergNEF New Energy Outlook 2022

1. Prospects of the EE market in Indonesia

What are the prospects of the EE market in Indonesia? What is its prospects in terms of financing?

Expected strong growth due to higher income and wealth and availability of financing

Expected strong growth due to retrofit, population and income growth

Expected strong growth due to supply chain demands and cost pressure

Expected strong growth due to GHG reduction target

Expected strong growth due to higher income and product availability

Household appliances / Consumers



Consumer Finance Companies

Buildings



Commercial Banks, ESCOs

Industry/Commercial



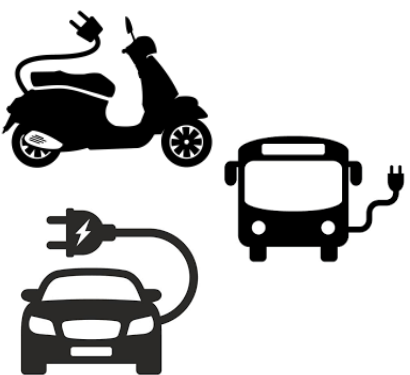
Commercial Banks, Leasing, Export Credit Finance, Development Banks, ESCOs

Street Lighting



BPDs, Development Banks, Multilaterals

eVehicles



Consumer Finance Companies, Leasing, Commercial Banks, Development Banks

2. Current main barriers that hinders EE growth in Indonesia



Barrier	Explanation
Awareness and commitment	Lack of knowledge and awareness of energy efficiency, skepticism and misunderstanding of benefits, conflicting priorities, and a lack of motivation across businesses stymie the potential demand. Linked to this is the lack of a convincing business case in contexts with cheap energy and absent regulation.
Technical solutions and expertise	Insufficient technical capacity and a lack of commonality on best practice and standardization of procedures and technologies, including difficulties in project assessment, monitoring, and verification, act as obstacles to the delivery of energy efficiency solutions that are trustworthy and minimize hassle.
Financial resources	Perceived high investment costs, coupled with prohibitive calculations of risk and return, limit the supply of affordable capital and the demand for such investments.
Low Energy Prices	If energy costs are not a real burden for the end user investments in EE are of low priority, specifically if there are long payback times (3+ years)

3. Policies needed to bolster EE market in Indonesia?

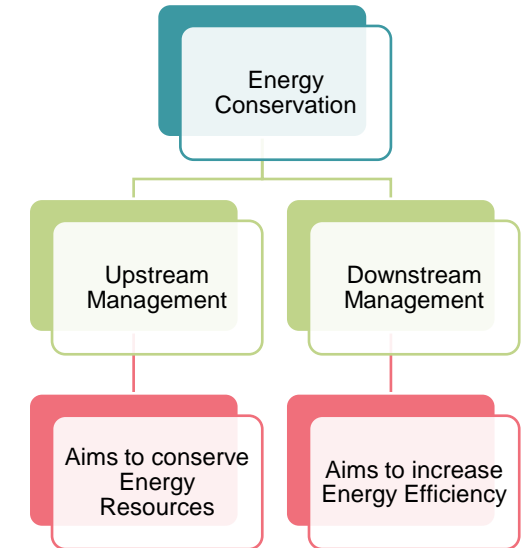
What policies are needed to bolster EE market in Indonesia? What are the approaches that should be the basis of such policies (i.e., ESCO development), and why?

Government Regulation no. 33 of 2023 from May 2023

In order to encourage the acceleration of energy conservation actions, the government just recently issued Government Regulation no. 33 of 2023 which regulates energy conservation in various sectors.

Comments towards new regulations in general:

- If policies are published then the regulation should be found easily on the internet
- Policies have to be explained and should be complete
- Policies should be easily understandable and transparent
- Awareness building of new regulations has to go hand in hand with the issuance of the policy
- GR33/2023 regulates also **Energy Conservation Financing** which can be sourced from (i) Energy Providers and Energy Resource Users and/or Energy Users; or (ii) other legal financing sources in accordance with the applicable regulations. This provision indicates that Energy Providers, Energy Resource Users and/or Energy Users can be a financing company..... **It is not clear what is meant with that and for which cases this applies.....such uncertainty has to be avoided**



3. Policies needed to bolster EE market?

Sector	Action Points	Expected Outcome
Procurement Guidelines	Government Agencies must NOT use 'lowest upfront cost' procurement method but the most energy efficient equipment and consider the Life-Time-Cost model	Larger market for EE equipment and appliances, building a track record for reference purposes, focus on EE and not upfront cost
New buildings	Mandatory building codes for all kind of new buildings	New buildings will be more energy efficient
Appliances	Phase out of old less efficient appliances e.g. old chillers	Immediate reduction in energy usage and energy efficiency
Government Building retrofits	Energy saving measures have top priority when buildings are being retrofitted.	Will increase the usage of state of the art EE technologies and make them more widely available and known
Building operation	Energy management is mandatory in all public and commercial buildings and the energy managers have received sufficient training to make energy renovation business cases and to implement suggested energy saving measures	Will increase the pool of energy managers which will have a spill-over effect to other sectors
Enforcement of Regulatory EE Mandates	There have to be consequences and sanctions if there is non-compliance with existing regulations	Targets can be met as there will be a high degree of compliance with existing regulations
EE Education	Development of revised SKKNI (National Personnel Competence Standard) for energy managers, energy auditors for Energy Efficiency, which linked to the Development of syllabus and curriculum for Energy Management	Sufficient trained staff to implement and monitor the EE regulations
EE Finance De-Risking Products:	Establish an Energy Savings Insurance (ESI) and Partial Credit Risk Guarantee (PCG) product	Overcoming the huge collateral and confidence barriers of financing EEPs by LFI, facility owners, ESCOs and other EEPs developers.

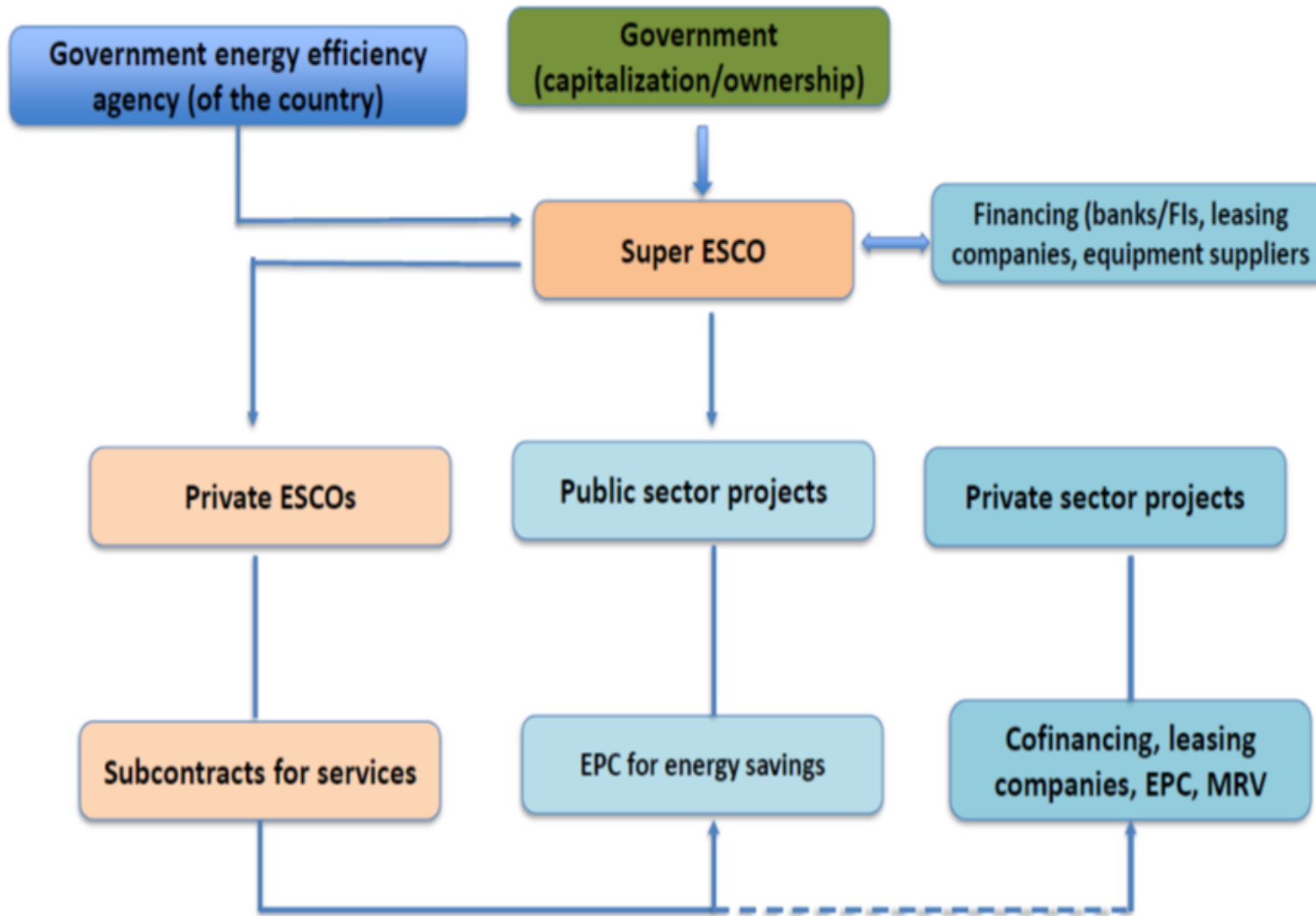
4. Promotion of EE via EPC and ESCO

What other aspects are required to be addressed in order to bolster EE market in Indonesia specifically through promotion of EPCs (Energy Performance Contract) and ESCOs (Energy Service Company)?

Creation of a SUPER ESCO

- A Super **Energy Service Company (ESCO)**, often referred to as a "**Super ESCO**," is an advanced and larger-scale version of a traditional ESCO.
- An **ESCO** is a company that provides energy efficiency services, including designing, financing, implementing, and maintaining energy efficiency projects for clients. The main goal of an ESCO is to help clients reduce energy consumption, lower energy costs, and improve overall energy efficiency.
- A **Super ESCO** takes this concept a step further by operating at a broader scale and often serving as a central entity to drive energy efficiency initiatives within a region or a country.

Government driven SUPER ESCO



A Government backed Super ESCO example is EESL (Energy Efficiency Service Limited) from India.

- EESL is promoted by the Ministry of Power of India as a Joint Venture of four reputed public-sector undertakings
- Its main business model is large-scale public purchase of efficient bulbs, air conditioners, water pumps, e-mobility, etc. and implementation of EE retrofitting projects
- Due to its government backing, EESL is able to get hundreds of millions of USD funding from ADB, KfW, AfD, and the World Bank for energy efficiency activities; it also gets substantial funding from the Indian government

5. Best practices of EE financing schemes



What are some of the best practices of EE financing and ESCO financing schemes that are available in Indonesia (e.g., UoB U-Energy) and internationally that are applicable to be scaled up or replicated in Indonesia?

- **Banks should focus on a specific customer segment and then team up with manufacturers and service providers of EE products with proven track record** to build confidence on customer and banks side that energy savings are really achieved and costs saved
- As ESCOs typically don't have sufficient equity and collateral to qualify for "normal" bank loans **specific loan programs have to be developed for ESCOs**
- **Broad awareness building** can be achieved when energy efficient home appliances are promoted and supported **with special borrowing terms (interest, tenor, repayment flexibility)**

Example UOB U-Energy Financing scheme (from UOB website)

UOB is the first bank in Asia to provide an integrated platform that simplifies the adoption of energy efficiency projects for building owners. With this platform, businesses can easily connect with U-Energy partners (energy service companies (ESCOs)) and finance their energy efficiency projects through the programme's different financing options.

U-Energy and its partners support air-conditioning, chiller, elevator, energy and power management system, façade, lighting control and solar projects across commercial, industrial and public buildings.



U-Energy Contracting Models

There are two contracting models available under the U-Energy programme.

Direct Purchase

- Own the energy efficient equipment or system
- Enjoy maximum financial benefits through realised tax benefits and greater savings on electricity utility cost
- See potential increase in market value of your building
- Finance your equipment or system through internal cash flow or through a UOB green loan

Energy-as-a-Service

- No upfront capital or financing required
- Enjoy savings on electricity utility cost under a guaranteed or shared savings scheme as part of your long-term energy performance contract with U-Energy's ESCO partner
- Equipment or system operations, maintenance and / or replacements over the lifetime of the equipment or system will be borne by U-Energy's ESCO partner
- Option to buy out the equipment or system during or after the contractual period

Example Deutsche Bank in Germany



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Media Release September 1, 2022

Deutsche Bank offers energy loans to help companies cope with rising energy cost

With its "Energy Loan", Deutsche Bank has launched a credit programme to help companies invest in their energy efficiency and cope with the sharp rise in energy costs.

The energy loan is aimed at small and medium-sized enterprises in Germany that want to become less dependent on fossil fuels. The Bank's loan helps companies, for example, to invest in equipment and machinery to increase energy efficiency, to convert a heating system or to build a photovoltaic or biomass system. Companies can also use the energy loan as an additional building block in their working capital financing.

"Especially now, when business models of many companies are under pressure due to the sharp rise in energy prices, we want to help companies cope with the inflation in energy costs," explains Hauke Burkhardt, head of lending at Deutsche Bank's Corporate Bank. "By investing in sustainable technologies and in higher energy efficiency, companies reduce their energy costs and can increase their financial leeway for the future."

The energy loan comprises up to 250,000 euros per company and runs for up to 180 months. Up to 24 months are repayment-free. Companies can apply for and take out this loan online - via the [information portal Energy Security](#).



A quote from 2004 by B.Broadman is still valid for many consumers and end users of electricity:

“The market rarely delivers energy efficiency improvements spontaneously, if there is no market push.

Consumers are not providing a pull towards energy efficiency, usually because they are ignorant of (or indifferent to) the range on the market or the implications of their purchase.”