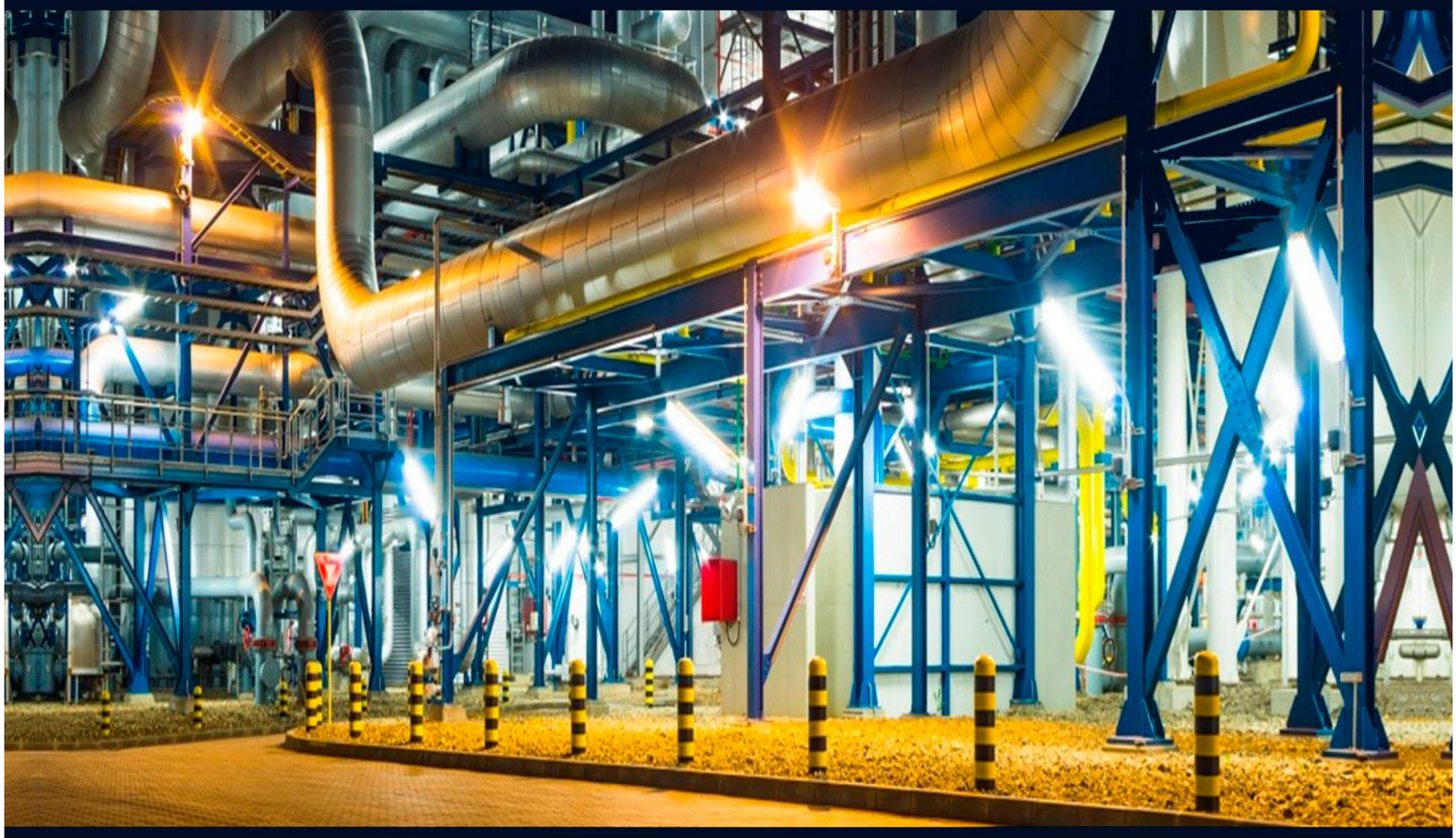

# Preliminary Design of an Energy Efficiency Financing Scheme

## Final Discussion Paper

**March, 2015**

**Low Carbon Support Programme to Miinistry of Finance, Indonesia**

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# Table of Contents

# List of Figures

# Preface

This Final Discussion Paper has been prepared by Volker Brommund of Prime Consulting PT. It was managed within the United Kingdom Low Carbon Support Programme to the Ministry of Finance Indonesia by Bp Paul Butarbutar. Work occurred in close collaboration with the Centre for Climate Change and Multilateral Financing Policy (PKPPIM) in the Fiscal Policy Agency (BKF) Ministry of Finance Indonesia under the leadership of its Director Dr. Syurkani Ishak Kasim (initially under the previous Director Bp Irf Ampri) with management supervision by the Deputy PKPPIM Director Dr. Syaifullah (initially under the previous Deputy Director Bp Harisman Ramadhan). The lead counterparts in PKPPIM were initially Dr. Joko Tri Haryanto and Bp Dhani Setyawan while more recently this work was led by Bp. Hageng Nugroho in PKPPIM.

Proposed refinancing rates and spreads for the Handling Institutions (HI) were initially given by MoF based on their experience in similar projects. The work and coordination already done by PKPPIM in close consultation with other parts of MOF and the Ministry of Energy and Mineral Resources ( MEMR) and PIP allowed the consultant to fine tune details and provide suggestions for changes and amendments to the original design concepts as set out in this Final Discussion Paper. This Final Discussion Paper benefited from a number of discussions with PKPPIM, BKF, PIP and MEMR as well as informal discussins with Banks during the course of preparation and the assistance of these agencies and the many officials consulted is gratefully acknowledged.

## Disclaimer

This Discussion Paper has been prepared through the Low Carbon Support Programme to the Ministry of Finance Indonesia for purposes of policy development and discussion. The views expressed in the Issues Paper are those of the sub-contracted authors alone and in no way should be construed as reflecting the views of the Ministry of Finance or the Government of Indonesia.

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# Executive Summary

Energy in Indonesia is highly subsidized and burdens the state budget. With the fast growing economy and new middle class the demand on energy supply is steadily rising which adds additional constraints to the budget where subsidies could be used for other purposes in support of Indonesia's development goals: Pro Growth, Pro Jobs, Pro Poor; and Pro Environment.

In order to meet its future energy demands Indonesia needs to add every year 4,000MW of new power supply which stretches the financial capabilities of PLN and ultimately the government.

The investment in new power plants is according to various studies roughly 3 times more expensive than investments in energy saving technology. So rather than build more and more power plants, investments in energy saving programs have become part of the government strategy to balance future supply and demand in the energy sector. By slowing new demand and reducing the existing consumption Indonesia can save subsidies which come with every kw/h of newly produced energy and free up funds for other necessary investments.

Investments in Energy Efficiency can be realized in a timeframe of 6-12 month whereas the planning and construction of new power plants will take 5 years or more until they go into operation. Support of energy efficiency investments will hence not only be cheaper but also will be much faster. It will also make the economy more cost competitive and position Indonesia internationally as being a greener and more sustainable economy.

There are two broad approaches to tackle investments in Energy Efficiency:

a) Establish Compliance by Law; and
b) Remove Barriers.

The most notable difference is in financing energy efficiency. *Establishing Compliance by Law* does not assume financing to be an issue, while *Removing Barriers* finds financing as a major barrier to greater energy efficiency.

An Energy Efficiency Revolving Fund would help to remove one of the most notable barriers identified: gaps in the financing of energy efficiency.

Various studies and practical measures such as energy audits supported by MEMR have already shown the huge potential in cost and energy savings which can be derived from energy efficiency investments. But between identification and implementation there is a huge gap as there are various bottlenecks which prevent such investments.

Key bottlenecks identified are:

- Lack of funding as banks don't have the capabilities and knowledge to assess the risk involved with such investments;

- Banks still perceive investments in energy efficiency and renewable energy as more risky than conventional investments;

- Energy is still relatively cheap and interest rates are high – the payback period in energy saving is still perceived as too long as to take the risk to do the investment;

- Public awareness of energy saving technologies is still low, lack of promotion of a green and sustainable behavior at consumer and corporate levels is still underdeveloped; and

- The Government with its Government Institutions (which includes also State Owned Banks) does not play a role model to promotes and demonstrates the benefits of investments in energy efficiency.

The Financial Sector must therefore be encouraged to play a critical role in removing some of the obstacles and barriers. But they will not go ahead without the support and encouragement of the government. The government, through MoF and MEMR has recognized the need to increase efforts to promote a financing program for energy efficiency and conservation projects in the Industrial, commercial and other key sectors.

Some examples of financial incentives for energy efficiency projects that are available in several APEC economies include:

- Reduced income tax rates;
- Accelerated depreciation;
- Exemptions from sales tax, value added tax or import tax; and
- Low interest loans.

The EEFS could accompany other financial incentives in place or planned and would complete the incentive mix for energy efficiency projects in Indonesia.

A well designed Energy Efficiency Revolving Fund will not only provide cheaper funding for projects through the banking sector but will also increase awareness, education and training for the public sector as well as within the banks, which hopefully will kick start banking initiatives and financial services products without the need for significant longer term government support.

The EEFS as a Government – Private Sector Partnership Program on Energy Conservation will encourage the industry and commercial sectors to identify energy saving potential and to implement efficiency reforms to the broader benefit of the Indonesian economy.

# 1. Introduction

The Centre for Climate Change Financing and Multilateral Policy (PKPPIM) in the Fiscal Policy Agency of the Ministry of Finance (MoF) is currently developing an Energy Efficiency Revolving Fund (EEFS – Dana Bergulir Efisiensi Energi) in cooperation with the Indonesian Investment Agency (Pusat Investasi Pemerintah – PIP) and the Ministry of Energy and Mineral Resources (MEMR) in Indonesia. A key objective of PKPPIM is to support the design and implementation of effective low carbon policies by the Government of Indonesia.

The EEFS will be developed to encourage energy efficiency financing by Local Financing Institutions (LFI's) so as to support the implementation of Energy Efficiency investments in Indonesia.

Various studies have pointed out that Banks are reluctant to finance projects in Energy Efficiency as they do not yet understand the concept that energy savings will lead to energy cost reductions which will pay for the investment and the financing cost – hence that the investment will pay for itself and can have a positive impact on the cash flow of the company right away. Thus for such investments additional credit facilities should be provided and should not be deducted from existing corporate credit lines.

Another aspect relates to high interest rate levels in Indonesia and the relatively low (because subsidized) energy costs which means investments in energy efficiency often do not appear attractive enough. In order to support investments in energy efficiency the government has to provide seed support to initially make lending more attractive and available – something that can be achieved by an Energy Efficiency Financing Scheme with low refinancing rates for the participating Banks and through socialization/training given to them and businesses to better understand the concepts.

Based on the above the basic concept of the EEFS is as follows: MoF via PIP will invite Handling Institutions to participate in the program. Under the program banks can refinance themselves from PIP on attractive terms (suggested BI rate minus 3% p.a.) and will be allowed to take a margin of 5-5.5% to provide to the end user longer term funds at an end user rate of BI rate plus 2% to 2.5%% p.a. The benchmark will be the prevailing BI rate at the time the loan is made. The government will also provide training and technical assistance to socialize the banks and clients with the program and to promote the EEFS and energy efficiency. With that concept the EEFS will be able to offer below market rates for energy efficiency investments and to educate and socialize banks and clients in order to make energy efficiency investments happen.

Ultimately the aim of the program is that through initial seed support the Indonesian Banking Industry will identify that the promotion of investments in energy efficiency will create additional demand for credit and hence boost their lending business further besides having the effect that the government will save subsidies as the consumption of energy will be reduced.

Going forward Banks should support such investments and use their own funds and ideas to create and promote energy efficiency investments without government help. In order to kick start that process an initial successful and attractive government program is necessary.

In the past a number of energy efficiency lending programs have been offered with limited success as the requirements for energy saving documentation on the clients' side and administrative requirements for the handling banks have been too restrictive. As a

consequence of these facts this program is by purpose designed to not be too bureaucratic and to be easily understood and implemented.

The Handling Institutions will take the full credit risk of the borrower and have therefore to be prudent on their lending policy. As lending towards “Green Finance” is still perceived by the local banking industry as being more risky than “normal” lending special efforts will have to go into training of the credit departments and credit officers of the Handling Institutions, so that not only the underlying risk is fully understood, but also of the opportunities and advantages it has when borrowers get more energy efficient, thus saving ongoing costs and being better prepared for increasing energy prices over time.

Another potential tool to increase investments into energy efficiency is the provision of loan Guarantees by the government. However, recent surveys in Indonesia have shown that the majority of companies which intend to invest in energy efficiency prefer cheaper financing over obtaining guarantees with the main reason being that guarantee schemes are typically much more bureaucratic and most of the companies say they have sufficient collateral to obtain a loan. Feasibility of the project is mainly driven by borrowing costs rather than on the questions of whether sufficient collateral is available or whether sufficient credit facilities in place. To kick start “Green Lending” it is recommended to follow what potential investors demand first (attractive borrowing rates) and which is easy to be set up and implemented. As another step after implementation of the EEFS a guarantee scheme could still be considered as part of broadened facilities to encourage energy efficiency.

Funding for the EEFS is expected to be received in from the 2015 national budget.

The remainder of this report is set out as follows:

- Chapter 2 provides the rationale and justification for funding the EEFS;
- Chapter 3 defines the goals of the Scheme;
- Chapter 4 defines key terms and concepts set out in the report;
- Chapters 5 to 14 represent the main body of the report setting out the proposed design and operational features of the EEFS;
- Annexes 1 and 2 provide summary features of the EEFS for inclusion in the two principal MOF Regulations that will be required;
- Annex 3 provides additional information on possible design features for a credit guarantee scheme to be possibly introduced at a later stage;
- Annex 4 provides results of a survey of businesses undertaken;
- Annex 5 discusses interest rate arrangements in Indonesia; and
- Annex 6 sets out abbreviations used in the report.

# 2. Rationale and Justification for an EE Financing Scheme

## *2.1. Background – High Scope Exists for Enhanced EE in Indonesia*

Enhanced EE is internationally recognized as providing low cost, win / win opportunities on one hand for the economy and budget and on the other hand for the environment and climate change. Despite challenging national targets in Indonesia for improving EE, there has been only slow recent progress with Indonesia's EE indicators lagging well behind international and regional performance and national targets. Without bolder policy measures performance will continue to lag. Recent indicators of EE performance include:

- Energy accounts for around 8% of household expenditures[1] so efficiencies could significantly benefit poor and other households and the macro-economy;

- At international fuel prices, energy accounts for 12% of industry value added in Indonesia compared to much lower regional levels (Philippines – 4%; Thailand 7%; China 10%),[2] so efficiencies could greatly enhance profitability and competitiveness;

- Indonesia's energy intensity is well above regional benchmarks, e.g. in iron and steel (by 17%); ceramics (29%); tires (14%); and textiles (196%)[3]. Reducing energy intensity and fuel / energy subsidies go hand in hand; with improved productivity also enhancing national growth;

- Fuel efficiency of Indonesia's light vehicles is well below (30%) benchmarks (e.g. 6.5 litres of gasoline per 100 kms. compared to 5.0 litres for most European countries)[4];

- Indonesia's power distribution losses are high at around 9% of output (compared to around 5% losses in Singapore)[5];

- There is excellent scope for efficiency gains of at least 10% to 15% in PLN power plants and Pertamina refineries;[6] and

- EE audits of 481 medium sized enterprises in 2010 – 2012 showed scope for mean savings of 9,300 MWh per enterprise (around 10% of current usage levels)[7].

## *2.2. Indonesia's Policy Framework for Enhancing Energy Efficiency*

Indonesia has very challenging formal targets for reducing energy intensity and enhancing EE. The Vision 25:25 for energy targets EE gains of 15.6% by 2025 compared to business as usual (BAU) estimates. The Draft National Energy Conservation Plan (RIKEN) targets annual reductions in energy intensity of 1% p.a. with reductions of 19.6% by 2025 compared to BAU. These targets will be very difficult to achieve without bolder policy measures.

The policy framework for enhanced EE is in GR 70 of 2009 and is elaborated in MEMR Regulation 14 of 2012. Policies are directed heavily at industrial entities consuming more

[1] Susenas Indonesia. 2011
[2] UNIDO. 2011. *Energy Use in Industry Value Added – International Comparisons*
[3] IEA. 2008. *Energy Policy Review of Indonesia*
[4] Vivid Economics. 2014. (*Forthcoming) Fiscal Policy Framework for EE in Indonesia*
[5] *Ibid 2014*
[6] IEA. 2011. *25 Energy Efficiency Policy Recommendations – 2011 Update*
[7] MEMR, 2013. *Energy Efficiency Audit Report 2010 – 2012* (based on enterprises with estimated required investments of between 1 and 50 billion IDR and excluding power suppliers)

than 6,000 tonnes of oil equivalent energy which must conduct and implement findings of EE audits (within 5 years for medium to larger investments). The Regulations foreshadow use of soft loans to support reforms. Other broad provisions (regulation of standards and physical controls) relate to buildings; appliances; transport (including eliminating import duties for green cars); the public sector; and energy producers.

RAN-GRK which pursues climate change mitigation measures also targets significant emissions reductions through a range of EE related activities to be pursued (the current program seeks reductions of 27 MTCO2 through EE measures mainly in the energy and transport sectors with provision envisaged for support through credit assistance schemes).

### *2.3. There are Very High Potential Economic Gains from Enhanced EE*

There is considerable international and Indonesian analysis and empirical data indicating very high potential for economic gains from enhanced EE and that in most cases such gains can be achieved at quite limited cost to the public purse. Analytical studies on potential economic gains for Indonesia suggest:

- Attainment of targeted EE gains (15% to 20%) could through improved productivity in the private; public; and household sectors add US$ 5 billion (IDR 60 trillion) to the economy with a related increase in jobs[8];

- Improving EE and reductions in fuel and energy subsidies go directly hand in hand so savings of 15% to 20% in total energy costs (as per Vision 25:25 and RIKEN) could generate near equivalent savings in fuel / energy subsidies[9];

- Ryan and Campbell using a CGE model estimated that reductions in energy demand of between 8% to 15% would increase GDP by between 0.8% to 1.3%[10];

- Vivid Economics has estimated that for every 1% increase in energy efficiency there will be a 0.1% increase in the rate of growth of GDP (i.e. 15% to 20% gains in energy efficiency could add 1.5% to 2.0% to the growth rate[11];

- DNPI marginal abatement cost curves indicate that EE improvements would generate emissions reductions of 190MTCO2 at low to negative cost to the public purse (24.5% from demand side measures; 39.0% from the transport sector; 25.0% from buildings; and 11,5% from the petroleum / gas sector)[12];

- An ADB study indicates that retrofit investments of US$ 4 billion to US$ 6 billion (in electronic equipment; coal and diesel power plants; and commercial buildings) would lead to energy savings of 15% to 30% p.a. with similar reductions in energy subsidies[13];

- Rex Capital Asia modeling suggests that investments of US$ 1.4 billion in industry and commercial buildings could make large energy savings (6% to 10%) with very high rates of internal returns (25% to 100%) and very short investment payback periods of 1 to 3 years[14];

[8] Climate Investment Funds. 2010. *Clean Technology Fund Investment Plan for Indonesia.*
[9] Vivid Economics. 2014. Ibid
[10] Ryan, L and Campbell. 2012. *Spreading the Net. The Multiple Benefits of EE Improvements.* IEA Insights
[11] Vivid Economics. 2014. Ibid
[12] DNPI. 2014. *Indonesia's Greenhouse Gas Abatement Cost Curve.*
[13] ADB. 2013. *Indonesia Energy Efficiency Report*
[14] Rex Capital Asia. 2011. *South East Asia Energy Efficiency Market Report.*

- A review of MEMR energy audits conducted in 481 companies indicated: (i) potential total energy savings of 4.5 million MWh per year or 9,306 MWh per year per firm studied; (ii) a subset of 75 companies requiring EE investments of between 1 to 50 Billion IDR demonstrated average energy savings of 10.1% on BAU with high economic returns to EE investments ranging from 23.2% to 149.7% (average of 136.1%) and low investment payback periods of from 0.6 to 2.8 years (average of 0.72 years); (iii) CO2 reductions of 10% to 27% were also found to be achievable for this sub-set of 75 companies; and (iv) investments of 91% of all 481 companies surveyed were found to be economically viable with IRRs exceeding 15%[15];

- The forthcoming PKPPIM (MOF) Green Planning and Budgeting Strategy Document indicates very high ratios of NPV of financial and economic benefits to NPV of financial and economic costs of around 6:1 for key EE investments. Around 83% of net benefits are derived from efficiency and production gains to the economy with the remaining 17% deriving from broader gains to the environment and climate change related benefits of mitigation and adaptation[16]; and

- Beyond Indonesia considerable international work has confirmed the high rates of investment returns and low investment payback periods for EE projects. For example the World Bank and UNEP estimate economic IRRs of 20% to 100% and payback periods of 1 to 4 years for Brazil, China, India and other countries)[17]. The IEA estimates that internationally 66% of energy related GHG emissions will need to come from EE initiatives with high win / win opportunities for enterprises, investors and the society; and while most investments make financial sense for the private sector without subsidies; some forms of public supported education and promotion and seeding of activities will be needed to remove investor and financier bottlenecks and inertia[18].

All of the above results indicate the strong potential for quite high returns to EE investments with low public funding support - providing there is adequate investor knowledge and good access to financial and technical resources to allow investments to be designed and implemented. Indonesia has lagged behind regional and international performance in energy efficiency in part because of institutional and credit market constraints holding back potentially high return investments.

### *2.4. Policy Options for Enhancing EE*

For most countries credit support schemes represent only one element of a package of public policy initiatives needed to stimulate more investment in EE – though albeit support to stimulate credit growth has been a very important part of packages of measures for many countries. A recent comprehensive review undertaken jointly in Indonesia by MOF and MEMR[19] indicates a broad range of public sector measures will be needed to stimulate the significant further amount of investment needed to achieve EE targets. The broad based menu of measures recommended included:

- Reductions in energy and fuel subsidies which send the wrong signals on efficiency;

- Credit support, initially through an interest subsidy revolving fund but perhaps over time including access to credit guarantees;

[15] MEMR. 2013. *Energy Audit Report, 2010 - 2012*
[16] PKPPIM (Forthcoming). 2014. *Green Planning and Budgeting Strategy*
[17] World Bank and UNEP. 2012. *Financing Energy Efficiency – Lessons from Brazil, China, India and Beyond*
[18] IEA. 2011. Ibid.
[19] PKPPIM (MOF) Forthcoming. 2014. *A Coherent Fiscal Policy Framework for Energy Efficiency in Indonesia.*

- Public and business awareness campaigns including enhanced information at points of sale;
- Strategic fiscal / tax incentives to stimulate business investments in EE;
- Tighter regulation, labelling and standards for EE;
- Introduction of an appliances rebate system for EE appliances;
- Public procurement policies to target more EE public investments and practices;
- Improved demand side management by PLN and IPPs;
- Compulsory national green building codes;
- Expansion of the MEMR EE audits linked to the EE Revolving Fund;
- Introduction of vehicle efficiency standards linked to fiscal incentives / sanctions to stimulate efficient vehicle usage;
- Enhancing investments in public transport infrastructure; and
- Introducing sanctions / incentives in PLN and Pertamina to force improvements on the energy supply side.

Measures to enhance access to credit are an important part of the overall package of measures needed to stimulate greater EE in Indonesia. While they will not do the job alone they warrant close consideration in the overall package of policy options, especially given current constraints to financing investments and the high importance of leveraging greater private / financial sector support for EE investment growth over time.

## *2.5. Credit Support Options for Promoting EE – Subsidies Versus Guarantees*

Credit support programmes have been an important (and at times controversial) element of development financing for more than eighty years, being used mainly to stimulate financing in agriculture and industry though more recently much attention has turned to the financing needs of EE linked investment.

The economic case for credit support was some time ago made by Stiglitz and Weiss[20] with support warranted by the fact that credit markets are typified by market failures due to information asymmetry and weaknesses, often creating the need for public policy interventions to ensure that credit allocation is effective and not limited to a narrow range of activities and customers.

Minelli and Medica have demonstrated that public support to credit stimulation (both interest rate subsidies and loan guarantees) can represent optimal policies from the point of view of budget costs being cheaper than investment subsidies or the direct provision of collateral[21]. Recent work in Indonesia suggests the potential for high financial leveraging in the EE field with a leverage rate of 3.9 for private sector investment for every Rupiah of investment stimulated by a public sector credit scheme.[22]

[20] Stiglitz, J.E. and Weiss, A. 1981. *Credit Rationing in Markets with Imperfect Information.* AER, 71
[21] Minelli, E and Modica S. 2006. *Credit Market Failures and Policy. University Di Brescia Discussion Paper 0607*
[22] PKPPIM (MOF) Forthcoming. 2014. Ibid

Credit support schemes are consistent with the approach of the Draft National Energy Conservation Plan and GR 70 of 2009 which emphasize the need to pursue measures that encourage private investment in EE. The US$ 5 to US$ 6 billion of investment estimated to be needed to support the EE targets is not likely to be achieved under current financing arrangements and without stimulation of significant additional credit to the private sector. Due to market and institutional failures small and medium sized firms have great difficulty accessing finance in Indonesia for EE, as commercial banks and other financiers have limited financing tools, knowledge and understanding of EE opportunities and tend to impose very high interest rates and collateral needs on potential borrowers.

Internationally credit support schemes have been very influential in leveraging private sector investment for EE. One of the largest and best known of these schemes has been the German energy efficiency credit subsidy scheme under the Energy Conservation Act which has disbursed Euro 37 billion for EE investments particularly in housing and commercial buildings related areas. A recent review of this scheme indicated that ……. "Improving access to financing is the most significant initiative to improve EE in buildings … with lower interest and grants resulting in a greater likelihood of investors taking up EE measures".[23]

The State of California in the USA provides a further example of successes in the public stimulation of private sector investment in EE measures through the provision of grants and low interest loans. A recent review suggests that…… "despite potentially high financial and economic returns to investment in EE, such investments can be complex and capital costly upfront with risks to lenders and borrowers creating a need for public support to educate and transition credit markets by stimulating both supply and demand sides through improving access to information, in part by providing initial seed funding as a way of leveraging later broader support from borrowers and financiers"[24].

Central problems that credit support schemes typically must address are perceived high risks by both EE investors and financiers and also high technical and financial transactions costs. Such problems often make other investments targeted at expansion of production capacity sound more attractive than EE investments. In these circumstances public policy support to address structural rigidities in financial markets can be beneficial, typically involving a mix of both technical and financial support to lending institutions.

Once the broad case for a credit assistance program has been made there is still a need to decide between the main forms of possible support often expressed in terms of support for credit subsidy schemes versus support for credit guarantee schemes.

Janda has demonstrated that the costs and benefits of credit guarantee and interest rate subsidy schemes respectively will vary widely depending on the circumstances in which they are applied.[25] Guarantees can be cheaper where the risks of loss are low due to the availability of high quality borrowers with high alternative forms of collateral and with strong credit screening mechanisms applied by Banks. However, where such conditions do not exist and where guarantee ratios are high, then moral hazards frequently come into play with low incentives for borrowers or lenders to pursue repayments, resulting in high losses to the guarantor. Indonesia's experience with both explicit and implicit credit guarantees and political interference in the provision of such guarantees has not been a favorable one, especially in the lead up and aftermath of the 1997 / 1998 financial crisis.

Janda also demonstrates that in most circumstances it will be less expensive to the public purse and provide greater economic returns and greater sustainability for ongoing continuation of support programs to pursue interest subsidy support programmes, including through use of revolving funds. Cheaper outcomes will generally occur where the amount of

[23] Vivid Economics. 2014. *Ibid (based on a 2011 KfW Report).*
[24] CPUC. 2011. *Energy Efficiency Financing in California – Needs and Gaps – Preliminary Assessment*
[25] Janda, K. 2011. *Credit Guarantees and Subsidies when Lenders Have Market Power.* IES Working Paper 18/2011, Charles University Prague

interest subsidy is finely balanced so as to allow both borrowers and lenders to participate in the scheme without excessive profits and where by contrast a significant number of credit guarantees are called in to make the guarantee approach impractical due to high risk borrowers.

There are strong arguments for not using a credit guarantee scheme in Indonesia at this point of time. These include:

- A survey of potential EE borrowers undertaken for this Report (of those undertaking EE audits 2010 – 2012) indicated that they have greater preference (and likelihood of usage) of interest subsidy support schemes at this time rather than guarantees (see Annex 4);

- Guarantees typically do not work well where there is low liquidity in the banking system or where banks have an adequate supply of well collateralized borrowers to lend to already and require other motivations than collateral to lend (i.e. enhanced profit margins). Liquidity (which is currently tight for EE borrowers in Indonesia) can be enhanced by participation in interest subsidy arrangements, particularly if longer tenors can be provided to supplement the current emphasis on short term funding;

- The risks of a guarantee system either fall back on the Government (where they directly provide the guarantee) or can be high if Guarantee Agencies are used (possibly 3% - 5% of debt outstanding for partial guarantees in Indonesia at present);

- Assessments of risks are difficult to undertake and guarantee processing will be very time consuming, with high transactions costs, if PIP / Government is to be the direct guarantor – especially where PIP is very risk averse and seemingly unable to enter into any transaction where significant risks are discerned. In the case of a revolving interest subsidy scheme it will be possible to shift all credit repayment risks to participant banks;

- Guarantee schemes are very open to “moral hazard” type abuses, particularly when high guarantee ratios apply thus providing strong incentives for both borrowers and lenders not to assess credit risks properly or to be poorly motivated to repay debts; and

- While some external guarantee providers do exist in Indonesia (Askrindo; Asei; Jamkrindo) these institutions have been slow to develop new schemes and most Banks are not willing to use them due to questionable payout records.

Revolving credit subsidy schemes are not a panacea and for effectiveness need to be well designed, managed and monitored. They also need to continually ensure that scheme targets and objectives are being pursued by participating banks. However, such revolving credit subsidy schemes can provide important advantages in the current financial climate in Indonesia including the following:

- They are generally easier to design and manage than less complex credit guarantee schemes, particularly in situations where the Government has to design and manage the credit guarantee scheme;

- They can provide some additionality of funding sources for the Banks (particularly in tight financial market conditions as currently exist) over reasonably long tenor periods;

- Revolving subsidy schemes can generally be sustained for a longer period of time and leverage higher amounts of EE investment. Financial modeling of the two options currently under consideration in Indonesia is quite sensitive to the extent of guarantees eventually called in for failed loans, but base case[26] model results indicate that over 15 years an IDR 500 billion revolving interest subsidy fund would support 475 borrowers / investments with loan disbursements of IDR 1.9 trillion and total investments of around IDR 2.4 trillion. Initial capital of IDR 500 billion would remain in place at the end of the 15 year programme. In contrast to this over 15 years a IDR 500 billion credit guarantee fund would only support around 153 borrowers / investments with loan disbursements of only around IDR 614 billion and total investments of only around 766 billion. The initial capital investment would decline to negligible levels by year 15 (IDR 60 billion);

- While Banks are still likely to seek out strong collateral arrangements under interest subsidy schemes they are typically willing to take on some level of additional risk if the interest subsidy scheme offers reasonable profit margins;

- Typically medium to larger corporate borrowers in Indonesia (to whom the scheme is targeted) can meet collateral requirements and are more interested in cost savings through below market interest rates. This has been confirmed by recent survey results commissioned by this Report – 86% of respondents indicated they had sufficient collateral to raise loans; while some 62% of respondents indicated that access to low cost financing (interest rates below 10%) would be a motivating factor for them to seek out financing for EE investments; and

- Revolving funds tend to be popular with the international community and providing they are well designed and operating effectively can be attractive for grant financiers in the international development community to provide additional capital funding.

### *2.6. Conclusions and Recommendations*

The main conclusions and recommendations from this chapter are:

1. There is enormous scope for EE improvements to be made in Indonesia and quite limited amounts of Government support can help Indonesia to move closer to regional and international benchmarks for EE.

2. Challenging medium term policy targets have been set by the Government for improving EE in Indonesia, with the policy framework explicitly recognizing the need for support to enhance credit availability for private sector EE investment.

3. There are very high net financial and economic benefits to be had from pursuit of EE improvements, including benefits for the budget, the macro-economy; and for contributions to addressing climate change issues.

4. While credit support schemes alone are not a panacea, they have become a very important policy instrument in many other parts of the World for leading efforts at implementation of EE reforms.

[26] Base case assumptions: (i) programme life of 15 years; (ii) total initial funding of IDR 500 billion; (ii) capital repayments / guarantee fees are revolved; (iii) averaged sized investments of IDR 5 billion; (iv) average sized loans of IDR 4 billion; (v) average loan tenors of 5 years; (vi) a direct guarantee fee of 3% pa on outstanding debt (debt levels not to exceed size of the Fund); and (vii) default rates on outstanding guaranteed loans of 15% p.a. after year 2.

5. There are sound arguments in the Indonesian environment for initial credit support policy reforms to focus on a revolving interest subsidy scheme. Addition of a credit guarantee component could be considered at a later stage, if found after startup of the Revolving Fund to be needed, but it would not be advisable to commence purely with a high cost and high risk guarantee scheme initially.

6. Most of the remainder of this Report focuses on the design of a revolving fund based around interest subsidies which is the preferred policy option. As requested by PKPPIM Annex 3 does include further information on how a credit guarantee scheme might be structured eventually, but this is not the preferred policy option at this time.

# 3. Goals of the EEFS

By establishing an Energy Efficiency Financing Scheme the GOI would like to achieve the following goals:

- Encourage the usage of energy efficient technologies;
- Reduce energy subsidies;
- Stimulate involvement of the Financial Sector to support the governments energy efficiency programmes;
- Reduce greenhouse gas emissions in line with the government policy direction in the RAN-GRK programme; and
- To thereby implement efficiencies in energy utilization in all sectors of energy usage.

# 4. Definitions of Energy Efficiency

## *4.1. General Definition*

"Green Finance" normally includes the following 3 main components:

- **Energy efficiency (EE)**
  EE includes technologies that reduce the amount of energy required to provide goods and services: (i) **in the electricity sector** the scope is for improving efficiency in power generation (moving from sub to super-critical coal for example) and transmission and distribution (using more efficient grids and smart grid technology); (ii) **in transport** there is also potential for efficiency gains, including the utilization of more fuel-efficient cars (like Hybrids) and improved mass transit; (iii) **in industrial equipment**, efficiency gains can be achieved through energy-saving appliances and improved waste management; and (iv) **in construction** energy efficiency can be enhanced through improved insulation and cooling systems;

- **Low-emission energy supply**
  The idea is to shift energy supply from fossil fuels to less polluting alternatives, either for electricity generation (hydropower, wind, solar,…) or as direct source of energy (biofuels for example); and

- **Agriculture / land Use:**
  Halting ongoing deforestation, reforesting and sequestering more carbon in soils through new agricultural practices are also important tools to reduce carbon emissions. As the main mitigation strategies in these areas rely on labour / management, rather than physical capital (e.g. changes in crop and soil management practices), it is suggested to exclude agriculture from this EE definition.

## *4.2. Definition of Energy Efficiency*

As the EEFS will focus on Energy Efficiency Financing it is suggested to use the following definition:

"Investments which are necessary to reduce energy consumption, in order to reduce greenhouse gas and air pollutant emissions, without reducing the production and consumption of non-energy goods."

## *4.3. Targeted users*

The government would like to include in the programme a broad band of energy users such as:

- Industry;
- Commercial;
- Transport;
- Households; and
- Public institutions.

# 5. EEFS Scheme

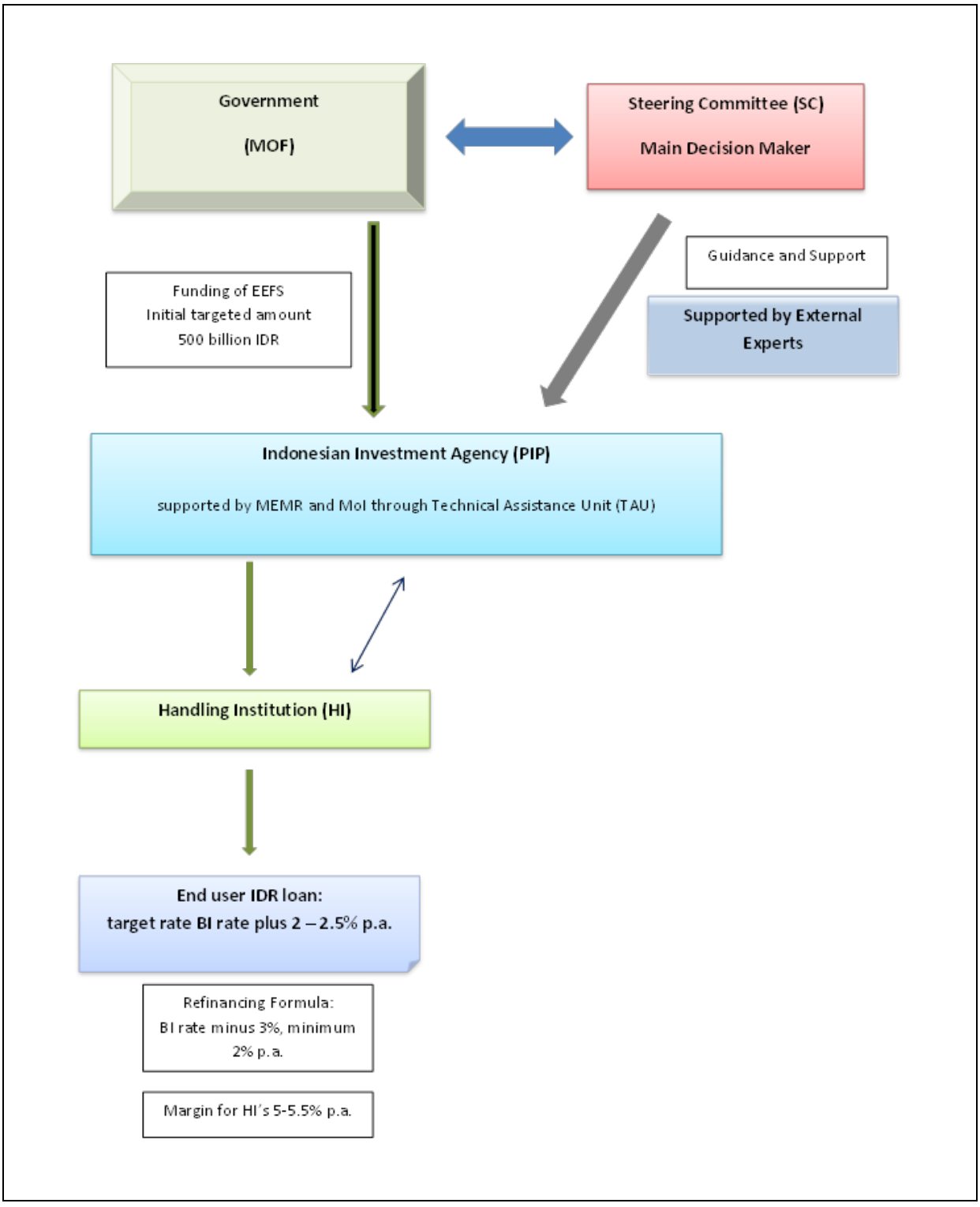



**Figure 1: Overview of the EEFS Scheme**

### *5.1. Tenor of the Program*

The government has to set a minimum tenor for the EEFS programme. As an average tenor for individual investments can be assumed to be 5 years and the programme should be available for the HI's for a longer period in order to be effective and attractive; it is suggested that an initial minimum period of 10 years be targeted as the period for the funds to be committed and available for the HI's.

### *5.2. Refinancing Rate of MoF*

MoF will use the Bank Indonesia (BI) rate as the benchmark for the programme. Refinancing will be provided at BI rate minus 3% p.a. Presently the BI rate is at 7.5% p.a. – so minus 3% would mean refinancing for the participating banks at 4.5% p.a. at the present level.

The subsidy level for the GoI would be at present levels roughly 3% p.a. as the GOI funding level for a 10 year bond is at roughly 7.5% - which would translate in a maximum of 15 billion IDR p.a. for a fund amount of 500bn IDR.

**The Minimum Refinancing Rate will be set at: 2% p.a.**
In order to ensure the funding for the cost of the programme a minimum rate of 2% p.a. will be charged to the HI's. For the case that the BI rate falls below 5% p.a. the Formula: BI rate minus 3% does not apply any longer and the refinancing rate will remain at 2%.

### *5.3. Suggested Client Rate*

The target end user rate is proposed to be limited to BI rate plus 2% to 2.5%. Thus banks would receive a margin of 5 to 5.5%. This margin is in line with the average spread that Indonesian Banks are enjoying at the moment.

All participating banks have different calculation models for the credit risk premium, their administration costs and their targeted profit margin. The below model shows the general calculation method for arriving at the end user rate:

| **Calculation of end user rate:** |
|---|
| Cost of funds BI rate 7.5% (presently) minus 3% |
| 1. + Credit risk premium |
| 2. + Overhead/admin coast |
| 3. + Profit Margin |
| Target rate: BI rate (7.5%) plus 2 – 2.5% = presently 9.5% - 10%% |

The end user rate (hence the spread for the participating banks) should follow a formula which reflects the risk premium and admin cost for the banks. The following suggested pricing grid should be discussed with the participating banks.

| Loan amount | Target investments | Maximum Spread allowed: | End user rate (BI 7.5% - 3% = 4.5 refinancing rate) |
|---|---|---|---|
| > 5 bn IDR | Larger investments, also for RE investments | 5 % | 9.5 % p.a. |
| < 5bn IDR | Medium to small sized investments | 5.5% | 10.0 % p.a. |

The overhead/admin cost and the credit risk premium can vary significantly. The smaller the loan size and the riskier the client (e.g. SME's) the higher these components will become. For banks catering to the SME group a target rate of 10 % might not be sufficient to service this sector. It is suggested that the Steering Committee should be empowered to approve a higher target rate provided the HI has disclosed their calculation basis and has justified the demand for a higher end user rate (which would still be lower than their normal sector rate).

# 6. Roles of the Parties Involved

## *6.1. Ministry of Finance (MoF)*

- Allocate funds;
- Create regulatory guidelines;
- Be Chairman of the Steering Committee;
- To decide which HI's can participate in the program; and
- To handle and resolve any severe issues between PIP and HI's.

## *6.2. Indonesian Investment Agency PIP*

PIP will be the Executing Agency for the EEFS and be responsible for administration. PIP will act on behalf of the Steering Committee and monitor the execution of their decisions and guidelines. PIP will create within PIP a support team called the Technical Assistance Unit (TAU) which will be supported by MEMR and the MOI.

PIP will undertake purely administrative tasks to handle the participating banks and to administer the funds. The main roles of PIP will be:

- Administer the funds on behalf of MoF;
- Handle all costs related to the EERF out of EERF funds (inclusive interest earned)
- Administer the fund flow to and from the HI's;
- Collect from the HI's the interest to be paid;
- Monitor the financial performance of the HI's;
- Invite the SC for half yearly progress report meetings and document the meetings and its findings;
- Create the new support team TAU; and
- Administer the budget of the TAU; and

## *6.3.* The ***Technical Assistance Unit (TAU)***

The TAU will be formed within PIP but under the responsibility and support ***of MEMR and MoI: The main t***ask***s*** of the TAU will be: marketing and pr***omotion of the EEFS, monitoring; and*** documentation and reporting of the energy savings. Also transfer of knowledge to the Handling Institutions, the Financial Services Industry and cooperation with other stakeholders such as ***the*** OJK. In case required ***the TAU will*** handle external service providers such as e.g. consultants.

The main roles of the TAU will be:

- Be the main contact for participating banks/ Handling Institutions (HI's);
- Capacity building for the HI's;
- Marketing and promotion of the program in cooperation with the HI's;
- Monitor the loans given by the HI's, specifically their purpose, effectiveness and implementation based on reports submitted by the HI's;
- Create in cooperation with the Handling Institutions/Banks the reporting and documentation forms/reports and provide guidelines how to fill them out;
- Report to the SC about the usage of the program and the energy savings achieved;
- Direct/supervise the external experts to provide technical assistance and guidance to the HI's;
- Document the effectiveness of the EEFS by evaluating and summarizing the reports the HI's provide according to the requirements of PIP and MoF;

- Give recommendations to the SC on necessary adjustments or focus for the programme for maximum effectiveness;
- Give recommendations to the SC on fund allocations to the HI's in case there is more demand than available funds; in order to achieve maximum effectiveness of usage of the funds;
- Feedback and evaluation about the HI's performance to allocate/re-allocate and disburse the EEFS funds;
- Decide on assistance to be given to banks and borrowers;
- Make suggestions on marketing and promotion of the EEFS program and recommend to the SC a budget for that;
- Decide on inclusion of projects in the programme if the HI's ask for a clarification or refer them to the SC;
- Amend the Positive Checklist from time to time;
- Propose a budget for the annual activities; and
- Decide which tasks have to be outsourced to external experts / consultants.

### *6.4. Steering Committee (SC)*

The SC is the body where all Government stakeholders should be represented. It is the main decision maker on all issues related to the policy and execution of the EEFS programme as well as to determine what energy efficiency investments are covered under the program.

The SC should be chaired by the Director of PKPPIM in MoF.. The Ministry of Energy and Mineral Resources; the Ministry of Industry; and the Ministry of Environment should all have appointments as permanent delegates / members of the SC. These 4 members should have equal voting rights, with decisions having to be made with a majority vote involving all 4 members. Voting rights cannot be delegated to other Ministries / Agencies but permanent delegates of a Ministry may nominate in writing an alternate delegate to cover for them at meetings they are not available to attend.

It still has to be decided if PIP as the Project Implementing Agency will also be a member of the SC as this has both pros and cons.

The SC will have to meet at least once at the beginning of each half calendar year. The SC will be responsible for guidelines, monitoring and supervision of the EEFS programme and will directly guide and support PIP as the Executing Agency.

The SC will allocate funds to the HI's based on their submitted business plans/pipeline list. The SC will also decide on the end user rate and hence credit margins for each participating HI.

A detailed Standard Operating Procedures (SOP) with task list for the SC will need to be drafted by PIP and approved by the SC at latest by the 2nd meeting after establishment of the SC.

### *6.5. Handling Institutions (HI's)*

In order to protect the assets of the State and minimize counterparty risks mainly majority owned State Owned Banks or Government Organizations will be eligible to be mandated as Handling Institutions. They will have to submit a business plan/deal pipeline list based on which funds will be allocated by the SC once the HI is included in the programme and a Credit Agreement between PIP and the HI has been signed. The SC will decide on the submitted applications.

Initially it is intended to invite Bank Mandiri, Bank BRI and Indonesia Exim-bank to act as HI. While final negotiations will be necessary after commencement of the EEFS; all three have expressed some interest in participating at this time.

Roles and responsibilities of the HI's will be:

- HI's grant investment loans under the EEFS scheme to their clients on their own risk and under their own behalf. The credit risk is solely with the HI;
- HI's can decide by themselves if a loan application of a client is eligible under the EEFS program or not – the TAU will monitor the performance of the HI's and can give recommendations for adjustments for future cases;
- HI's will during the tenor of the programme make available the allocated funds to clients and "recycle" paid back funds to new loans eligible under the programme so that a maximum usage of the allocated funds at all times is the target;
- Funds obtained by the HI from PIP have to be repaid according to the loan agreement with PIP and in line with the procedures of the EEFS;
- HI's have to pay the agreed interest for the funds obtained quarterly to PIP;
- HI's have to document and report loans given under the EEFS scheme to the TAU based on the agreed SOP;
- HI's have to submit deal pipeline reports and detailed reports on the outstanding loans to the TAU on a quarterly basis;
- In case the HI does not disburse the loans according to the submitted plans PIP has the right to ask for repayment of the funds given in order to allocate and redirect to other participating HI's;
- HI's have the responsibility to attend meetings when invited by PIP or the SC;
- HI's can discuss the proposed end user interest rate (hence their credit margin) with the SC on a semi-annual basis in case there is a need to seek adjustment;
- HI's will have to include all requirements the end user has to fulfil in their loan agreement/loan documentation and monitor them (e.g. confirmation on implementation of the energy efficiency investments according to loan application and documentation, approval to provide loan details to 3rd parties involved in the program such as the TAU, MoF etc.);
- Promotion and marketing of the program; and
- Participation in staff capacity building related to the EEFS.

**Participating Handling Institutions:**

General considerations for the selection of banks which should initially participate:

1. **Indonesia Eximbank:**

The bank with the most experience with Energy Efficiency programmes. Presently they promote the ADB programme – difference of the ADB to the EEFS scheme would be:

- that ADB funds are in US$ and EEFS refinancing would be provided in IDR;
- ADB puts restrictions on EXIM as to what collateral they can ask for – which the EEFS will not do; and
- expansion projects even if very energy efficient compared with the BAU line (Business As Usual) are not included in the scheme.

**2. Bank Mandiri**

Focus is in the Large to Medium corporate client segment where the highest impact on energy saving can be achieved and where the project size will ensure significant draw downs by amounts.

**3. BRI**

Serves the SME market which is very important for the GoI. Nationwide branch network.

**Note**:

In the event that private commercial banks are also included in EEFS the government will take the credit risk of these banks and risks the loss of the funds in case the bank goes bankrupt. In case MoF is willing to take that risk and include private commercial banks into the program criteria will have to be developed of the acceptable risk profile which these banks have to fulfil

# 7. Funds Flow

## *7.1. Funds Allocation and Disbursement*

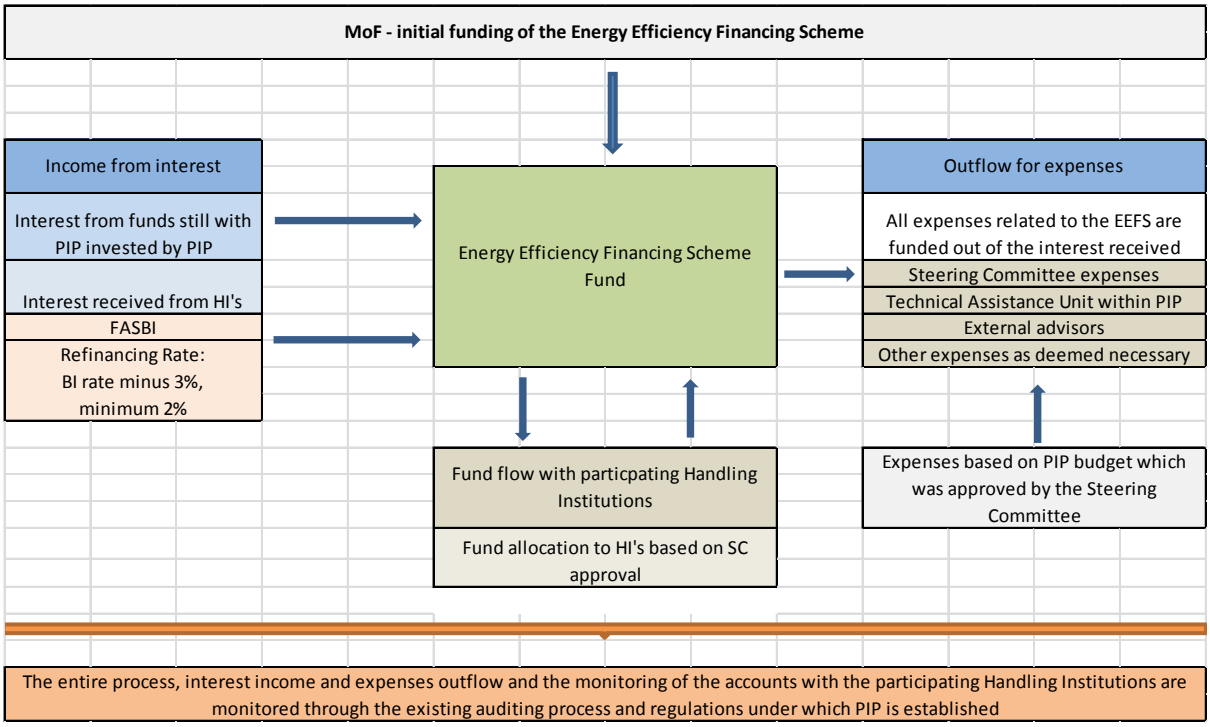



**Figure 2 EEFS Income Flow**

Guiding Principles on the EEFS - Fund:

- Once PIP has received the funds from MoF it's under the obligation of PIP to handle the funds according to their existing guidelines and mandate
- Interest earned on various levels (when funds are still with PIP or in a PIP EERF disposition account with the Handling Institutions stay with the EEFS and are not routed back to MoF
- PIP will pay all expenses related to the EERF out of the fund and the interest earned, that includes also the expenses for the TAU unit and if required external support
- For PIP ther are various Audit procedures/regulations already in place which will also cover the monitoring and auditing of the EERF, no special process to be established

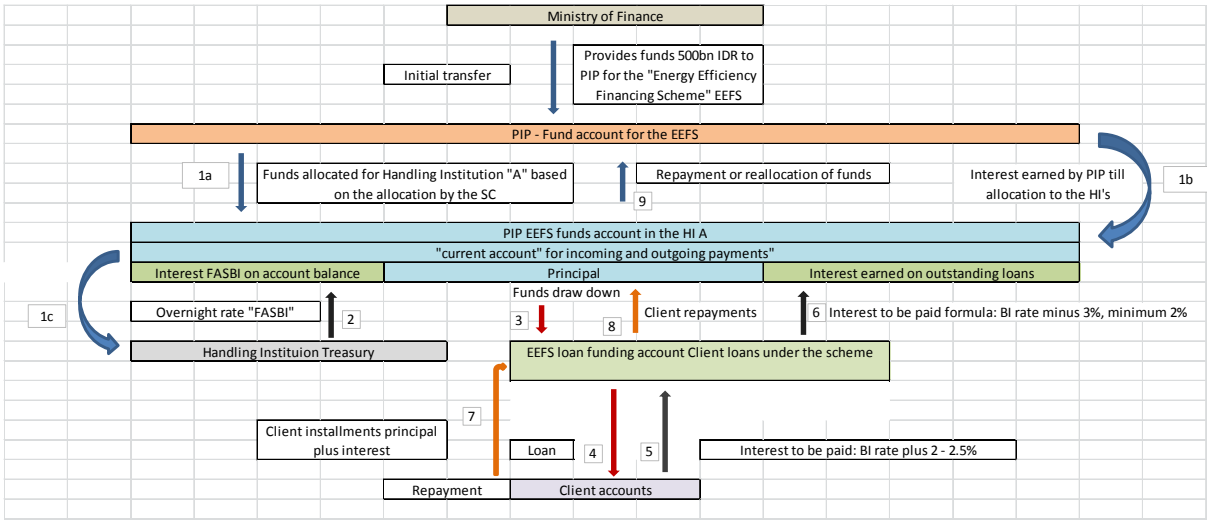



**Figure 3 Fundsflow of Handling Institutions**

1a) After the Steering Committee (SC) has approved the pipeline deal list of the HI funds will be allocated and transferred to the respective HI into the PIP EEFS disposition account - this means that PIP keeps the funds from the time received by MoF until the SC has decided on the fund allocation.

1b) Interest earned by PIP during the time the funds are within PIP belong to the EEFS and will increase the available amount for allocation or will be used for the expenses related to the EEFS.

1c) NOTE: This is a current account, the HI's Treasury can use the funds as long as it makes sure that loans under the scheme will be funded out of that balance.

2) The HI has to pay the FASBI rate for the balance which is in the PIP EEFS fund account, the interest earned belong to the EEFS and will increase the available amount for allocation or will be used by PIP for the expenses related to the EEFS.

3) Refinancing for loans which are eligible under the scheme will be drawn from the account.

4) Loan will be paid out to the client.

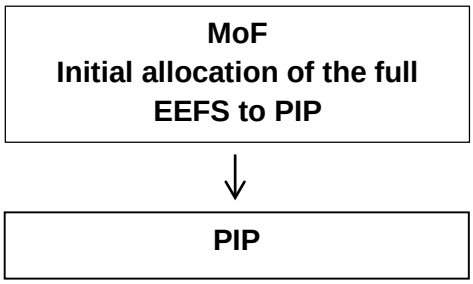
5) Interest the client has to pay: BI rate plus 2% - 2.5%.

6) Interest the HI has to pay for the funding is the BI rate minus 3%, interest belongs to the EEFS and will increase the available amount for allocation or will be used by PIP for the expenses related to the EEFS.

7) Repayments of the clients will be booked in the DBEE loan funding account as pass through to the PIP EEFS fund account.

8) Repayments will be passed through from the DBEE loan funding account to the PIP EEFS fund account - from here the HI can recycle the funds into new loans.

9) In case the HI cannot recycle the loans and maintains a high balance the SC can decide on re-allocation of the funds to PIP for distribution to other participating HI's.




Funds are limited and have to be spread out to initially 3 participating HI's. There are in general three models as to how initially funds could be distributed by PIP to the HI:

1. Upfront disbursement of the funds from PIP to the HI's based on a business plan submitted by the HI's (with funds held in a PIP EEFS disposition account which attracts the overnight BI rate (FASBI) with interest income accruing to PIP);

2. Disbursement of funds from PIP to the HI after each loan is approved and the credit agreement has been signed; and

3. Reimbursement to the HI after each loan is granted to the client and own funds of the bank have been used first to pay out the loan.

Following discussions with MOF / PIP regarding these three options the preferred model was determined to be Option 1 above.

<table>
<tr><td colspan="2">Preferred Approach - Upfront payment from PIP to the Handling Institutions<br>Here the HI would submit to PIP a list with potential clients and their requirements. Based on that the HI would receive the funds from PIP upfront with the aim of disbursing the funds within the next 6 months. If the HI cannot disburse the funds within that timeframe it then has to be decided if they return the funds to PIP or if an extension can be granted based on a new potential client list.</td></tr>
<tr><td>Pros:<ul><li>Attractive for the HI as they have the funds already in their Treasury and don't have to wait for disbursements from PIP once the loan to the client is granted;</li><li>Will reduce the transactions and administration between PIP and the HI's to a minimum;</li><li>Avoids potential conflicts and discussions on the reimbursement process and its speed; and</li><li>PIP can "push" the Banks to follow up with their submitted plans and identified clients to grant the loans as they have already received funds from PIP.</li></ul></td><td>Cons:<ul><li>Banks might slow down efforts to disburse loans under the program as they have funds in the PIP EEFS; disposition account and have to pay for them BI overnight rates (FASBI);</li><li>Banks might submit over-ambitious plans in order to receive funds from PIP;</li><li>Various banks might chase after the same client/project with the result that one potential deal will appear in various plans and PIP will "allocate" the amount for the same project to more than one bank; and</li><li>In case the submitted plans exceed the available funds PIP might have to ask banks to return undisbursed funds in order to accommodate real</li></ul></td></tr>
</table>

| | |
|---|---|
| | deals in other institutions. |

**Recommendation:**

In order to attract Banks to participate in the program an upfront allocation system is recommended using a PIP EEFS disposition account model. Fine tuning of the fund allocations and upfront disbursements based on the submitted plans can be done once experiences have occurred with the planning accuracy of the participating banks.

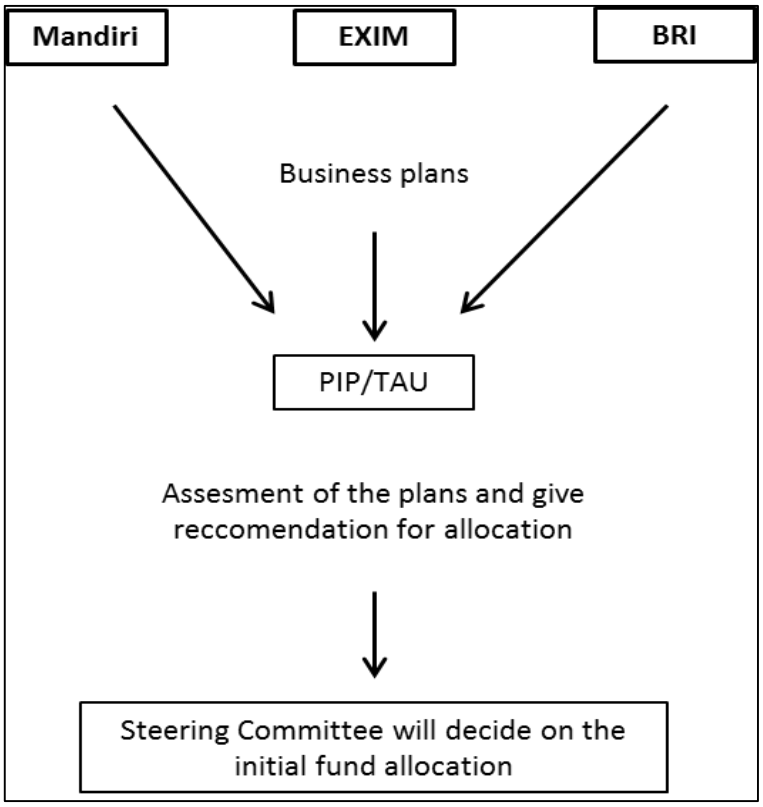



**Figure 4: Steering Committee as the Main Decision Maker**

### *7.2. From PIP to HI's*

After PIP has obtained the initial business plans from all participating HI's and has assessed them the Steering Committee will do the initial allocation of the funds. In case the business plans show less demand than funds are available then these funds stay within PIP for future allocations on demand.

### *7.3. From HI's to PIP*

Funds flow from HI to PIP – repayments of granted loans (instalments):

The HI will receive instalments from various clients every month. These instalments can either stay with the HI and can be used for newly granted loans which are in the pipeline of the HI or are directed back to PIP. A mechanism is needed which from the administration

point of view is efficient while encouraging the HI's to "recycle" the funds quickly into new loans or to send the funds back to PIP in order to be available for other HI's which might need them for their clients.

**Preferred Approach – Allow Funds to be Recycled within His Initially**

There has to be a mechanism which will make sure that HI's don't "sit" on funds which flow back from clients but are recycled quickly into new projects. The administration of this process should not be a burden and banks should be encouraged to make use of these funds by themselves, rather than to send them back to PIP. It will be an incentive for Banks to join the programme as they can be relatively sure that they have a certain level of funds available so that they can make ongoing plans with that pool of funds. Only if there is no pipeline of potential deals for which the funds can be recycled that the HI has to return the funds to PIP.

| **Pros:** | **Cons:** |
|---|---|
| • Provides the HI with comfort that they have ongoing a certain level of funds available so that they can promote the program and don't run the risk that they identify new potential deals but no funds are available under the program;<br>• During the time funds sit with the HI the HI will enjoy a windfall profit which makes the program commercially more interesting to join right from the beginning;<br>• Minimal administration burden on the side of the HI and PIP as transfers of funds will be rare; and<br>• Puts pressure on the HI to constantly look for new deals in order to keep the funds in their pool. | • Funds might sit with one bank whereas other HI's might have potential transactions but have no funds under the program available; and<br>• HI's might try to delay new disbursements in order to enjoy the benefit of having additional funds in their treasury at low cost. |

**Recommendation:**

Allocate funds on the initial deal pipeline list and "commit" them for the respective HI as long as they can prove that they can recycle the funds into new loans and are serious in their efforts to continue with the program. The HI's should be given sufficient time to recycle the funds into new programs. It is recommended to set the benchmark at 50% of the funds allocated should be disbursed to clients. In case the HI sits on more than 50% of the funds for a period of longer than 6 month PIP has the right to ask for repayment in order to allocate the funds to other HI's.

### *7.4. Interest Earned by PIP*

It is suggested to use a PIP EEFS disposition account model with each Handling Institution:

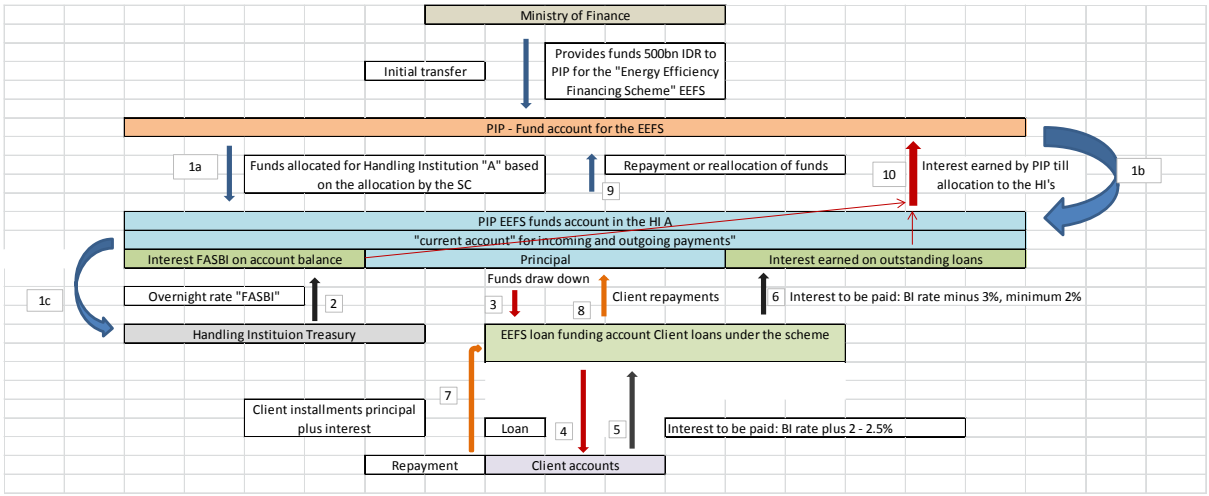



**Figure 5 Income Flows**

### Interest earned

Interest earned is comprised of 3 components:

a) Interest earned from the time MoF disburses the funds to PIP and until PIP disburses them to the EEFS disposition account fund account within the HI's. PIP investment guidelines will be applied in which instrument the funds can be invested until disbursement.

b) Interest earned from the funds which are in the EEFS disposition accounts until they are disbursed. Benchmark interest rate for interest to be paid in the EEFS disposition accounts is the prevailing Bank Indonesia Overnight rate (FASBI).

c) The refinancing rate BI minus 3%) which is charged to HI's for loans given under the EEFS scheme and disbursed to clients of the HI's.

## *7.5. Usage of the interest earned by PIP*

All interest earned (refinancing rate – BI rate minus 3%, plus interest earned on FASBI) in the PIP EEFS disposition account with the HI's have to be remitted back quarterly to PIP.

See step number 10 in Figure 5: the HI's have to remit all interest earned quarterly back to PIP.

With that it is ensured that PIP is able to pay the expenses and all costs related to the EEFS – see chapter 7.1.

# 8. Loan Details

## *8.1. Eligible Borrower*

There is no restriction on company size, industry or any other criteria. All potential borrowers which invest in Energy Efficiency and which are acceptable for the participating Handling Institutions are in general eligible.

## *8.2. Eligible Investments*

Eligible Investment Costs:

1. Equipment and Installation costs;
2. Consulting Costs – design, control, supervision, guarantee fees;
3. Civil works, piping, or necessary components specifically and necessary for the project; and
4. Associated costs necessary – removal of existing equipment, transportation, taxes, VATs.

Not Eligible: costs not directly related to the energy efficiency measure are excluded and have to be funded outside of the EEFS (examples: land costs, land improvement costs and not direct related civil works)

**Preferred Approach to Eligible Investments**

Target of the Program is to focus on Energy Efficiency. Projects in the sectors of low-emission energy supply and agriculture might be included if approved by the SC.

The definition of Investments in Energy Efficiency should be as broad as possible in order to:

- create awareness in Energy Efficiency;
- secure draw down of the funds; and
- allow all targeted segments (SME's, Corporates and Government bodies) to participate in the program.

Working capital:
The purpose of the programme is to promote investments in energy efficiency and reduction in the use of energy and not to expand the business of the client. For that reason Working Capital is excluded from the programme and should be provided by own funds of the participating banks.

| **Pros:** | **Cons:** |
|---|---|
| • As potential Handling Institutions have different target client groups the program will be attractive for a number of participating banks; There will be no frustration on the client side that investments in | • It will be difficult to measure the effect on GHG emission reductions;<br>• Investments might be supported which the client would do anyhow out of different motivation and energy reduction might only be one of the |

| | |
|---|---|
| Energy Saving is promoted but their investment is not eligible; and<br>• Banks will like the program as it can be applied to a broad client base and will add an interesting product into their offerings. | factors; and<br>• It will take away the pressure to create an energy efficiency labelling system as it will be not required to have a label under the program |
| **Proposed Broad Definition of Eligible Investments:**<br>• It is proposed to use the following broad definition:<br>"Investments which help to reduce energy consumption in order to reduce greenhouse gas and air pollutant emissions without reducing the production and consumption of non-energy goods in all sectors: Industry, Commercial, Transport, Household and Public institutions" | |

### *8.3. Loan Size*

MoF has identified that loans will be given most probably in the range between IDR 1 billion to 20 billion for financing of small and medium-scale investments as commercial banks find that loan size most attractive.

There are specialized banks in the market which also target the client segment with a smaller loan size which can be included in the EEFS scheme – but the monitoring and evaluation of such loans will most probably be a challenge.

The following chart is an extraction of an investment analysis done by the governernt related to 481 Energy Audits undertaken by MEMR and demonstrates significant demand below IDR 20 billion per project.

| No. | Classification of Implementation Cost | Buildings | Industry | Total |
|---|---|---|---|---|
| 1 | < 1 Billion IDR | 169 | 221 | **390** |
| 2 | 1 - < 10 Billion IDR | 13 | 59 | **72** |
| 3 | 10 - < 20 Billion IDR | 1 | 10 | **11** |
| 4 | 20 - ≤ 50 Billion IDR | 0 | 5 | **5** |
| 5 | > 50 Billion IDR | 0 | 3 | **3** |
| **Total** | | **183** | **298** | **481** |

### *8.4. Funds disbursement simulation*

Below is a disbursement simulation assuming that initially the following 3 Banks participate: Bank Mandiri, BRI and Indonesia Eximbank.

Volker Bromund December 2014

## EEFS Client Disbursement assumption

| Participating Bank | Intitial Fund allocation | | 1) Assumed larger loan amounts / 2) Assumed smaller loan amounts | | Number of new clients Q2 2015 | Disbursed loan amount 30.06.2015 | Number of new clients Q3 2015 | Disbursed loan amount total 30.09.2015 | Number of new clients Q 4 2015 | Disbursed loan amount total 31.12.2015 |
|---|---|---|---|---|---|---|---|---|---|---|
| Bank Mandiri | 200,000,000,000 | 1) | 10,000,000,000 | | 1 | 10,000,000,000 | 5 | 60,000,000,000 | 4 | 100,000,000,000 |
| | | 2) | 2,000,000,000 | | 5 | 10,000,000,000 | 25 | 60,000,000,000 | 20 | 100,000,000,000 |
| | | | | | | - | | - | | - |
| | | | | | | - | | - | | - |
| Bank BRI | 100,000,000,000 | 1) | 500,000,000 | | 10 | 5,000,000,000 | 25 | 17,500,000,000 | 50 | 42,500,000,000 |
| | | 2) | 250,000,000 | | 25 | 6,250,000,000 | 50 | 18,750,000,000 | 100 | 43,750,000,000 |
| | | | | | | - | | - | | - |
| | | | | | | - | | - | | - |
| Indonesia Eximbank | 200,000,000,000 | 1) | 50,000,000,000 | | 1 | 50,000,000,000 | 1 | 100,000,000,000 | 1 | 150,000,000,000 |
| | | 2) | 10,000,000,000 | | 1 | 10,000,000,000 | 2 | 30,000,000,000 | 2 | 50,000,000,000 |
| | | | **Total** | | **43** | **91,250,000,000** | **108** | **286,250,000,000** | **177** | **486,250,000,000** |

| | | | |
|---|---|---|---|
| **Total number of clients till 31.12.2015:** | | | **328** |
| Thereof: | | | |
| 1) | For larger loan amount: | 98 | |
| 2) | For smaller loan amount | 230 | |
| | | **328** | |

**Assuming a tenor of 10 years and an average loan lifetime of 3 years roughly 1,000 companies can enjoy the EEFS scheme with majority provided for smaller loan amounts**

## *8.5. Collateral*

As the participating banks will take the credit risk of the borrower it will be on the discretion of each HI to follow their credit guidelines and their risk appetite model. MoF can encourage the banks to take into consideration the energy savings the client will achieve with the investment – hence his cost will go down instantly and he will be more profitable and competitive in the future, and for that reason the question for collateral can be different from other investment cases (specifically as the investment in energy consumption reductions will "pay for itself" in a short period of time). It cannot be assumed that the higher the loan amount the higher the requirement on collateral the banks might have.

**Preferred Approach on Collateral:**

It has to be discussed with each Handling Institutions if they will "ease" their collateral requirements and guidelines for that programme as the risk will stay with the banks. The program might allow a higher credit spread for cases where the bank eases their collateral requirement in order to compensate for the higher risk and potential losses.

| **Pros:** | **Cons:** |
|---|---|
| • With reduced collateral requirements clients might be able to invest in energy efficiency as their ability to provide collateral is often limited or exhausted; and<br>• Higher interest rates for the clients might be acceptable as the saving in energy cost might compensate for that. | • Bank Indonesia might not like to see NPL's (non-performing loans) going up and banks taking higher risk due to the programme. A strong banking sector with a low NPL ratio is a key target for the banking industry; and<br>• NPL's might be higher than the expected rates and the HI might lose interest to promote the program. |

**Recommendation on Collateral:**

Leave this decision with each HI but allow flexibility in the end client interest rate – meaning that if the bank can justify that they take a higher risk than normal then they could on application be allowed to take a higher price for the risk of lower collateral

## *8.6. Interest Rates*

The interest rate the banks normally charge comprises of the following factors:

- Cost of funds;
- Credit risk premium (normally derived from the credit rating the bank assigns to the client);
- Overhead Cost/Admin Cost; and
- Profit Margin.

For all banks participating in the EE program the cost of funds will be the same, but all banks will have different calculation models on the credit risk premium, their administration costs and the targeted profit margin.

It will also make a huge difference if the loan size is relatively small and hence the administrative cost to grant and monitor the loan exposure is high – or if the loan amount is

high and will be given to a client who is relatively cost efficient to be monitored (e.g. listed companies etc.).

It can also be considered/discussed that participating banks focus on different client groups, e.g. LPEI on Exporters, Mandiri on Corporates; and BRI on SME's.

**Note:**
The NIM (Net Interest Margin) for Commercial Banks in Indonesia was 5.49% in 2012 according to Bank Indonesia data and was around 6% in average over the last few years (more than double compared with the profitability of banks in other SEA countries or China).

### *8.7. Fixed/Floating rate*

It is very important for corporate clients to have a good calculation basis on the investment cost for the tenor of the loan. As the refinancing rate by MoF is fixed the banks should also offer only a fixed rate to their clients. It protects the clients from the interest rate risk.

### 8.8. Tenor

The tenor should exceed the payback period of the investment and include a grace period of 6-12 months in order to create a positive cash flow from the investment right from the beginning (savings of energy cost will exceed the Instalments plus interest payments). So some investments might have a shorter tenor of 2-3 years like investments in new lighting, but others might have a longer tenor such as new machinery and equipment. The average tenor can be expected to be around 5 years.

Early repayment of the loan: Banks should not charge a penalty fee/cost for cases where the client repays the loan early for whatever reason. If a client repays early the HI should have to inform PIP but could keep the funds in their pool and use them for new loans – thus early repayments are treated same as Instalments.

**Note:**
Indonesian banks are very risk averse and are reluctant to extend long-term credit to clients as one of the lessons learned during the Asian Financial Crisis. Another point is that their deposit base as the main source of refinancing is only very short term. The EEFS will provide the banks with the necessary long term refinancing – but the program will most likely still face the reluctance to offer long term credit facilities – specifically to SME's.

### *8.9. Loan to Equity Ratio*

It is at the discretion of the banks to determine the loan to equity ratio for this kind of investment loan. A typical requirement is 30% equity funding. As the banks take the client/credit risk they have to decide on the loan capacity and equity requirements of the clients.

As investments in energy efficiency should lead to instant cost reductions for energy (and often have a positive cash flow impact right from the beginning) banks should consider if such investments increase the loan capacity of the client and these loans can be granted additionally to the traditional debt capacity calculation.

**Preferred Approach to Flexible Loan / Interest Rate Structuring:**

Administration Costs, Risk Premium and expected Profit Margins vary in Indonesia

| | |
|---|---|
| significantly from Bank to Bank. A scheme with various Handling Institutions has to be flexible in order to attract a broader base of Handling Institutions but on the other side force them to offer attractive client rates so that the programme will be a success from an end user point of view and not only be attractive for the banks. Based on the data of each bank the programme will allow the bank to charge a certain client rate which can be adjusted from time to time | |
| **Pros:**<br>• Scheme can be applied for various client segments with different risk profiles and credit risk premium requirements; and<br>• It will attract competition amongst the banks to offer the best rate for the scheme to their clients. | **Cons:**<br>• There is no "one rate fits all" solution where a price for the programme can be promoted in general;<br>• For each bank a formula has to be agreed on;<br>• The adjustments have to be announced, tracked and discussed; and<br>• Banks might not be willing to share such sensitive internal data. |
| **Recommendation on Flexible Loan / Interest Rate Structuring:**<br>Flexible and participating banks should have to "disclose" to PIP their end client calculation. It is recommended to allow for different loan sizes and client segments with different pricing models which result in different end user rates. | |

### *8.10. Covenants*

Negative covenants: One issue is whether covenants should have to be included in credit agreements and monitored by the Bank. It will increase the administrative burden on the bank. The question will also be what is the consequence if borrowers breach the covenants – will the loan be cancelled and the client have to repay early or what will be the consequence of the breach? Clients will most probably not accept such a clause as other lenders have cross default clauses in their agreement – meaning that if one loan is cancelled due to breaches of covenants all other loans will also fall immediately due.

| | |
|---|---|
| **Preferred Approach on Covenants:**<br>Both points (including and enforcing covenants) will require additional workload to implement and monitor on the HI side. The benefit of having them into the program is questionable and should be at the discretion of the participating banks | |
| **Pros:**<br>• Can help to direct the client in a certain positive behaviour;<br>• Can push the implementation of existing rules and guidelines; and<br>• Can create awareness of other existing guidelines. | **Cons:**<br>• Very work intensive to monitor and administer;<br>• Clients might not be able to accept; and<br>• Can trigger cross default clauses and push the client into insolvency. |

**Recommendation on Use of Covenants:**

The simpler the program the more acceptability it will find amongst potential borrowers and the handling institutions. It is recommended not to enforce use of negative covenants and restrict a negative list to very important few points.

## *8.11. Negative List*

In order to support the implementation of other existing regulations such as:

- Having a valid AMDAL; and
- No PROPER rating of red or black.

it should be pre-condition that these requirements are included into the program for clients to be eligible for the EEFS program.

**PROPER**

PROPER is an assessment certification by the Ministry of Environment where roughly 2,000 companies in Indonesia are rated and monitored. There is no clear guidance which company has to have a PROPER rating – it's more of a top down approach by the government which company they identify who has to come under the scheme. Companies can also apply to have a PROPER rating but might have to wait to be included in the scheme as the Ministry has capacity issues to take on further companies.

In general "high impact" companies are reported by the regional governments to KLH in order to be included in the monitoring system. Also heavy polluters where the regional government has limited authorities to stop the pollution and shifts the authority to KLH which can via the PROPER certification act (can lead even to revoking of the business license) if the companies do not achieve the minimum standard of a "Blue" certification. [27]

| Compliance Level | Performer | Five Color Coded Rating | Compliance Mechanism Improvement | |
|---|---|---|---|---|
| | | | Stakeholder reactions | Impact |
| Beyond Compliance | Good | Gold | **Appreciation** from workers, shareholders, investors, customers, and public | Reputation Incentive |
| | | Green | | |
| Comply | Sufficient | Blue | | Neutral |
| Non Compliance | Bad | Red | **Pressure from** workers, shareholders, investors, customers, and public | Disincentive Reputation |
| | | Black | | |

## *8.12. Energy Efficiency Documentation*

The HI has to document the energy efficiency savings / benefits according to the SOP's the TAU will establish.

[27] For details see: http://proper.menlh.go.id/proper%20baru/Eng-Index.html

## *8.13. Blending of Funds*

As investments come typically not only for one purpose, namely energy efficiency, but are combined with other investments like quality improvements, efficiency improvements, technical upgrades etc. it will sometimes be difficult to draw a line as to what falls under the programme. It is recommended to allow participating banks to combine / blend the use of their own funds with the Energy Efficiency program. As the clients will not easily accept different interest rates for the same project the bank has to blend the funds and provide to the client a blended rate for the entire investment. This calculation has to be documented so that it is clear for the evaluation phase what has been achieved with the subsidized portion of the loan.

**Preferred Approach on Positive Lists and Blending:**

A positive list or a list of examples which investments fall under the scheme is helpful for HI's and for clients. As the field of energy efficiency and conservation is very wide it will not be possible to capture all cases and situations in a pre-defined list. It will be important to communicate the spirit and framework of the programme without the fear that somebody can decide something is "wrong". That freedom given to the HI's has to be more closely monitored at the beginning of the programme until the HI's have gained experience and trust of the TAU that they are approving loans under the scheme according to the guidelines given.

| **Pros:** | **Cons:** |
|---|---|
| • A list of examples (Positive Checklist) will give the HI and potential clients a feeling what kind of investments are covered by the scheme and which are not;<br>• Bureaucratic processes can be avoided on all sides;<br>• The HI can decide fast and independent; and<br>• Mixed investments in energy efficiency and for other purposes can be handled. | • Banks might be too generous and use the funds for investments which are not within the spirit of the scheme; and<br>• It might be difficult to revise approval trends and spot "misappropriation" of funds. |

**Recommendation on Positive Lists and Blending:**

Training materials such as real examples, positive checklists and training have to accompany the programme both on Handling Institution side and on potential client side. The TAU will not be involved in the loan approval process but will assist in technical questions, promotion materials, training, assessment and monitoring of the measures. The loan application process should be as simple as possible.

## *8.14. Bankruptcy of the Client*

As the banks take the full credit risk of the client the bank is responsible for the repayment of the allocated funds from PIP. As soon as the bank declares the client in default the full outstanding amount under the EEFS has to be "repaid" by the HI into their PIP EEFS disposition account in order to be recycled into new loans or given back to PIP.

## *8.15. Bankruptcy of the Handling Institution/Bank*

PIP will receive from the HI quarterly the agreed interest payment based on the outstanding amount. In case the HI cannot pay the interest or is declared to be in default the total outstanding amount to PIP comes due and the HI is excluded from future schemes. The loss will be born by the EEFS fund and will be deducted from the principal PIP has to pay back to MoF at the end of the EEFS scheme. So in the unlikely case a State Owned Bank defaults the loss will be taken by MoF and not by PIP.

# 9. Monitoring and Evaluation Mechanism

## *9.1. Energy Efficiency Documentation*

In order to make sure that only investments in energy savings are supported by the scheme, there have to be guidelines issued and examples given which will educate clients and the bank officers in charge as to what is the intention of the government. The programme will give the participating banks the authority to approve what falls under the programme and will not require approval by the TAU.

The TAU will monitor and evaluate the success of the programme and adjust and fine tune their recommendations to the participating handling institutions if they see that the targets of the program are not met.

The TAU will not be involved in the loan approval process itself but can give recommendations as to which measures are supported in case the banks have doubts and ask for clarifications.

The spirit of the programme should be that the application procedures are as simple as possible and government involvement should be kept to a minimum.

## *9.2. Energy Efficiency Evaluation*

Evaluation will depend very much on the client and investment itself. It can be expected that most of the companies, not only the very big ones, have data on hand about the energy consumption of their machinery, appliances or systems. They will know the monthly energy bill but typically not much more. For that reason it will be difficult to have a precise picture how much energy saving is achieved with the investment. Most probably the client and the HI will be dependent on the assumed data the manufacturer provides.

In order to make best use of the funds energy savings of 15% per investment should be targeted. The applicant has to submit with his loan application a brief summary of his investment and how his energy saving is/was calculated. In case the savings come from the use of electric power the client has to provide samples of his energy bills before and after the investment was done. After the investment he also has to submit a simple declaration that the funds have been used according to the loan application.

The spirit of the programme should keep requirements to document the energy saving to a minimum – for both: the bank and the end borrower.

## *9.3. Energy Audits*

With the support of the Government of Indonesia and other institutions more than 500 companies have already conducted an Energy Audit. The EEFS program should make use of these audits without restricting the participants to conduct a new Energy Audit or have an Audit on hand in order to be eligible.

**Preferred Approach on Monitoring and Evaluation:**

Monitoring and Evaluation and Verification that the investment has achieved reductions in energy consumption is important to justify the subsidy. The administrative burden on clients and HI side has to be held to a minimum in order to make the programme a success. Fine tuning of the programme on that topic can be done after the programme has been successfully initiated and the demand is so big that a selection of projects towards best efficiency and best practice can be done. The requirement for a general Energy Audit in a 2nd stage of the program should be considered.

| **Pros:** | **Cons:** |
|---|---|
| • When clients submit their loan application a decision on financing will not be delayed by a complicated and time consuming process to prove the efficiency of the investment;<br>• By not having the requirement of an Energy Audit the programme is less bureaucratic and more attractive for HI's and clients; and<br>• The more clients use the programme and the more successful the programme is from the beginning then the better is the effect to promote investments in energy efficiency and demand and awareness will increase. | • A detailed report on the situation before and after the investment would help the documentation on actual energy saving achievements by the program; and<br>• Less efficient investments with the focus not on energy efficiency but e.g. productivity achievements for the company could be supported. |

**Recommendation on Monitoring and Evaluation:**

The target of the programme is to raise awareness to invest in energy efficiency and to save energy. This target should overrule concerns on documentation and effectiveness and should lead to the most simple and customer friendly program to be able to tell a success story. Fine tuning of the program can be done in a 2nd phase when the demand for funds exceeds the availability.

# 10. Funding of the TAU and SC

All cost related to the EERF will be funded out of the interest earned from the EERF or out of the EERF fund itself. PIP will be accountable and responsible and will be required to develop procedures and guidelines as part of their mandate for TAU and SC funding and expenditure and will be audited accordingly. See also Chapter 7.

## *10.1. TAU*

The TAU will need permanent staff as well as a budget for marketing and capacity building. The budget will be determined by PIP and approved within the PIP guidelines and SOP's as PIP is responsible for the EERF funds.

## *10.2. Steering Committee*

The SC will need funding for its activities such as meetings, external advice and support. All costs will be born by the EEFS and will go through the normal PIP budget approval processes.

# 11. Staffing of the SC and TAU

## *11.1. Steering Committee (SC)*

The Ministry of Finance will issue a Ministerial Decree regarding the establishment of a Steering Committee for the EEFS. This decree will lay out details regarding members, tasks and roles and responsibilities.

## *11.2. Technical Assistance Unit (TAU)*

PIP will establish a permanent team specifically assigned for the EEFS, call TAU. As the tasks of the TAU are of a very broad range it can be supported by external experts.

PIP will decide within their guidelines and budget plans which tasks can be done in-house and what should be outsourced.

# 12. Processes on How Other HI's can Join - Applications to MoF

In case other banks/institutions would like to join the programme they should have to send a formal application with an attached business plan to PIP. PIP will then evaluate if PIP can take the risk and if they can handle this new candidate and give a recommendation to MoF through the SC. In preparation of a decision this recommendation by PIP should be communicated and discussed during a SC meeting. MoF will then decide if the applicant can join the programme based on recommendations of the SC.

# 13. Capacity Building / Socialization of HI's

## *13.1. Risk Perception Towards Green Investments*

Indonesian Banks perceive green investments as riskier and with higher risks compared to other investments. It is not certain what are the exact arguments but following factors appear to play a role and will have to be addressed by the TAU and the capacity building program (also via successful examples and the Positive Checklist):

- Investments in new and unproven technology which might fail or not work properly in Indonesia (due to existing climate conditions for example);
- Promised performance improvements and energy reduction targets will not be achieved – hence higher cost burden to the company instead of lower cost;
- Inexperienced staff which cannot handle new technologies;
- Local contractors cannot do proper installations, necessary staff from overseas will make the investment not profitable;
- Spare parts supply and maintenance problems;
- Interruptions in the production process and product quality might affect the profitability of the company; and
- Uncertainty in local regulations related to the new technology (e.g. permits).

## *13.2. Training/Socialization/Marketing*

Training of staff (marketing and credit risk departments) is frequently demanded by the Handling Institutions as a key success factor for implementing such programmes. Marketing and socialization of the program with multipliers such as industry associations, banking associations, media and manufacturers of energy saving equipment are also important to ensure demand for the service and produce "pressure" to the banking system to pro-actively offer the targeted loan programme.

# 14. Positive List

## *14.1. Purpose of a Positive List*

It is recommended that the TAU issue a "Positive List" for the participating banks and as information to potential clients which investments will automatically be eligible under the EEFS. The purpose is to educate all parties involved and give a guideline on hand what kind of investments can be in general financed under the EEFS scheme. This list is not final and will be amended and fine-tuned from time to time. As the banks will not have to ask the TAU for approval for each loan they give under the EEFS program (if it falls under the EEFS or not) they need a guide on hand to be able to decide most of the cases by themselves and get a feeling of the spirit of the program. The following sections provide some ideas with regard to what to focus on. It is recommended to closely work with other institutions and government departments on details and further inputs and to include previous case studies.[28]

## *14.2. Industrial Manufacturing Sectors*

Key opportunities for improved environmental performance with respect to energy usage in industrial manufacturing sectors shall include:

- **Cleaner fuels.** Current fuel sources could be replaced with alternate fuels that have lower carbon and/or CAP emissions per unit of energy;

- **Combined heat and power (CHP).** A form of distributed generation also referred to as "cogeneration," a CHP system increases energy efficiency through onsite production of thermal energy (typically steam) and electricity from a single fuel source;

- **Equipment retrofit / replacement.** Energy efficiency can be improved by retrofitting or replacing existing equipment used for onsite heat or power generation and distribution, manufacturing processes, or meeting facility requirements such as lighting and heating, ventilating, and air conditioning (HVAC);

- **Process improvement.** Process improvement or optimization refers to either a wholesale process change that requires less energy for a similar level of manufacturing output or an adjustment to the manufacturing process that increases energy efficiency. The process improvement category also includes implementation of best practices in energy management; and

- **Research and development (R&D).** R&D could focus on developing new energy-efficient or clean energy technologies and processes that could be commercialized within the next one to two decades.

[28] Buku Profil Investasi Efisiensi Energi 2013 Penerbit : Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi Kementerian Energi dan Sumber Daya Mineral 2014
"Energy Management and Greenhouse Gas Emission Reduction in the Apparel and Footwear Industry Best Practices as a Contribution to Climate Change Mitigation" Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH -German International Cooperation- c/o Kementerian Lingkungan Hidup 2013

### *14.3. Building Technology*

- Chillers;
- Cooling system improvements;
- Lighting (LED, Ballast improvements);
- Shading;
- Ventilating;
- Double glassed windows;
- Insulation; and
- Solar heaters.

### *14.4. Machinery*

- Variable Speed drives;
- Automated motors;
- Heat recovery systems;
- Insulation (heating/cooling);
- Energy usage monitoring systems;
- Waste reduction;
- Emission capturing systems such as filters or catalytic convertors;
- Energy efficient cooling facilities;
- Investments in gas engines or gas turbines; and
- Boilers.

### *14.5. Transport*

- Usage of LNG/CNG;
- Electric cars;
- Hybrid cars;
- Public transport systems;
- Investment in railway systems; and
- Smart grid investments.

### *14.6. Examples of Focus Sectors*

Buildings with old chillers (installed before 2004) have been identified as ideal target to significantly reduce energy consumption. It can be assumed that energy savings >30% p.a. are achieved when such old chillers are replaced by modern new chillers and similarly with cooling systems. KLH has a list of 160 buildings with old chillers which have been identified in the past. These chillers are mainly in:

- Hotels;
- Malls;
- Hospitals; and
- Public Buildings.

The **Textile Industry** is also identified as an important industry for Indonesia where the companies have underinvested in modern equipment and technology in the past and where significant energy saving potential exists e.g. in heat recovery systems, lighting, variable speed drives and automated motors.

**Steel related industries** have also huge energy potential in heat recovery, automated motors, variable speed drives and insulation technology. Set out below are some specific examples based on industries:

| No | EE Equipment |
|---|---|
| | **Auto Components & Forgings** |
| 1 | Medium Frequency Heating - End-Bar Heater ( Forging) & Heat Treatment |
| 2 | Micro-Wave Drying (Paints) |
| 3 | Efficient Rectifier Unit for Electroplating Baths |
| 4 | Hydraulic Forging Hammer |
| 5 | Pneumatic Double Acting Hammer |
| 6 | Friction Drop Hammer |
| 7 | Rubber Oil Seal Vulcanization Molding Machine with PLC Control |
| | **Brick** |
| 8 | Vertical Shaft Brick Kiln /Zig Zag firing in Brick Kilns |
| | **Buildings** |
| 9 | BEE 5 Star Rated Air Conditioner |
| 10 | BEE 5 Star Refrigerators & Energy Efficient Chillers |
| 11 | Energy Recovery Equipment Ventilation/Air Conditioning System |
| 12 | Outdoor Intake Control/ Variable Air Volume / Heat Exchanger |
| | **Ceramics** |
| 13 | Tunnel Kiln with Recycling of Waste Heat through Recuperators or otherwise with Parallel Provision to switch over to Gas Firing partly or fully (Dual Process) with Instrumentation & Controls |
| 14 | Insulation for Kiln, Top Chamber & Furnace |
| 15 | Low Thermal-Mass Cars |
| 16 | Continuous Tunnel Dryer with Indirect Hot Air Generator |
| 17 | Gas / Oil Fired Roller Hearth Kiln (Firing Section) |
| 18 | GT Cogeneration with Waste Heat meeting Dryers Energy Requirement |
| 19 | Solar Dryer to Pre-Heat Input to Spray Dryer |
| 20 | Variable Frequency Drives for Circulation, Air Fans in Vertical Sryer |
| 21 | Alumina Brick Insulation for Electric Arc Furnace |
| | **Cold Storages & Ice Plants** |
| 22 | Tube Ice Plant |
| | **Dairy** |
| 23 | Methane Recovery from Effluents for Process Heating |
| | **Electrical – General** |
| 24 | Automatic Temperature Controller |
| 25 | High Frequency Melting Furnace |
| 26 | Microwave Heating / Infrared Heating |
| 27 | Gasifier Power Plants using Gas from Biomass Gasifiers |
| 28 | Vapor Absorption Chillers on Waste Heat |
| 29 | Screw Compressor with Built-in VFD |
| 30 | Amorphous Core Transformers |
| 31 | T5 Fluorescent Tube Lights with Electronic Ballast |
| 32 | Compact Fluorescent Lamps |
| 33 | Metal Halide Lamps |
| 34 | High/Low Pressure Sodium Vapor Lamps |
| 35 | Electronic Ballast |
| 36 | Soft Starter for Motors |
| 37 | Automatic Temperature Controller |
| | **Engineering** |
| 38 | Fuel Switching in Heat Treatment Furnaces - Biomass Gasifiers |
| 39 | Fluidized Bed Heat Treatment Line with Controlled Atmosphere & Recuperators |

| | |
|---|---|
| 40 | Bell Type (Roller Hearth) Annealing Furnace |
| 41 | Electric Tools substituting Pneumatic tools |
| 42 | Inverter Based Welding Machines |
| 43 | Induction Hardening Equipment with Computer Compatible Temperature Controller |
| 44 | Heat of Compression Air Dryers (replacing Desiccant Air Dryer) |
| 45 | Variable Frequency Drive for Oil Pump in Hydraulic Power Packs |
| 46 | Variable Frequency Drive for Hot Air Circulation Fan for Preheating Furnace |
| 47 | Ceramic Fiber Insulation for Batch Furnaces |
| 48 | Turning Machine with Variable Frequency Drive with Regenerative Braking System |
| 49 | Electro Discharge Machine (Tool Room) |
| 50 | Graphite Beneficiation Plant - Reaction Kettle Assembly, Double Toggle Jaw Crushers. Energy Saving Bearing Suspended Ball Mills. Bag Lift Four Point Top Discharge Centrifuge |
| | **Food Processing** |
| 51 | Improved Oven with Heat Recovery Equipment |
| 52 | Oil Fired Oven; Biomass Fueled Multipurpose Drier; Energy Efficient Wood Fired Low Cost Bakery Oven (Bakery Products Manufacturing) |
| 53 | Energy Efficient Boiler with Heat Recovery (Cashew Processing) |
| 54 | Energy Efficient Boiler with Heat Recovery (Parboiled Rice Mill) |
| 55 | Biomass Gasifier Based Furnace (Namkeen Making) |
| 56 | Air Dryer – Refrigerated Air Compressor |
| 57 | Heat Recovery System for Air Condenser |
| 58 | Improved Oil Burners (Biscuit Plant) |
| 59 | CO2 Plant Based on Recovery from Flue Gas System |
| 60 | Spice Grinding (Cryogenic Grinding, Automatic FFS Packaging) |
| | **Foundry** |
| 61 | Medium Frequency Induction Furnace with Accessories – Transformer, Water Treatment, Cooling Tower (replacing Cupola) |
| 62 | Continuous Casting Line replacing Gravity Casting System |
| 63 | Pressure Die-casting (non-ferrous) in place of Low Pressure Casting |
| 64 | Rotary Melting Furnace (non-ferrous) to replace Pit Furnaces |
| 65 | Metal Refiner Converter (Special Steels) |
| 66 | Energy Efficient Reheating Furnaces |
| 67 | Medium Frequency Induction Furnace (non-ferrous Casting) in place of Pit (Coke Fired) Furnace |
| 68 | kWh Indicator for Induction Furnace |
| 69 | Oil Fired Core Drying Oven |
| 70 | Gas Fired Aluminum Melting Furnace |
| 71 | Induction Ladle Refining Furnace |
| 72 | Intensive Mixers (Molding/Core) |
| 73 | Induction Hardening Equipment (100kW, 500 Hz to 3kHz) |
| 74 | Removable Hearth Type Chamber (with Computer Compatible Temperature Controller) |
| 75 | Variable Speed Sand Mixer |
| 76 | Computer Controlled Sand Cooler-Mixer |
| 77 | Hydraulic Hot Chamber Die Casting |
| | **Glass** |
| 78 | Waste Heat Recovery from Regenerative/Recuperative Furnace |
| 79 | Improved Insulation for Furnace |
| 80 | Mechanical Conveyor for Soda Ash & other materials |
| 81 | Horizontal Flat and Bent Glass Electric Furnace for Tempering with Automatic Controller and Recorders substituting Fuel Fired Glass Tank Furnace |
| 82 | Continuous Tunnel Dryer with Indirect Fired Hot Air Generator for Sheet Glass Drying Section |
| 83 | Natural Gas Fired Pot Furnace with Recuperator replacing Coal Fired Pot Furnace |
| 84 | Natural Gas Fired Muffle Furnace |
| 85 | Thermal Gasifier (Biomass/Coal as Fuel) |
| 86 | Automatic Controllers & Recorders for Furnace Temperature /On-line Oxygen Analyzer |

| | |
|---|---|
| **Leather** | |
| 87 | Steam /Thermic Fluid Heating (replace Electrical Heating ) |
| **Manufacturing of Electrical Goods** | |
| 88 | Temperature Control Drying Oven |
| 89 | Natural Gas Based Oven |
| 90 | Microprocessor Based Electric Furnace |
| **Packaging** | |
| 91 | Thermic Fluid Boiler or Steam Boiler using Agri-Residue |
| 92 | Fingerless Corrugation Box Plant |
| **Pharmaceuticals & Bulk Drugs** | |
| 93 | Flash Dryers or Rotary Vacuum Dryers in place of Spray/Tray Dryers |
| 94 | Use of Biomass Gasifier with Slurry Economizer in Incineration |
| **Plastics & Rubber Molding** | |
| 95 | Fully Automatic Micro Processor Controlled Plastic / Rubber Moulding Machines |
| 96 | Thermoforming Machine with Infrared Heaters (using Variable Frequency Drive) |
| 97 | All Electric Injection Molding Machine |
| 98 | Infrared Heaters / Oven |
| 99 | Extruder with Temperature Control, Pre-heating, Speed Control |
| 100 | Calendering Line (PVC) |
| 101 | PLC Controlled Mated Production Line for Manufacturing of Laminated Panels |
| **Paper** | |
| 102 | Addition of at least two effects to Free Flow Falling Film Evaporator |
| 103 | High Concentration Size Press |
| 104 | Thermal /Steam Recompression Heat Pump |
| 105 | Pressurized Head Box (Paper Machine) |
| 106 | Cantilever Stationery Siphon (Paper Dryer) |
| 107 | High Consistency Pulping Machine |
| 108 | Variable Frequency Drive in Washer Drum Drives |
| 109 | Boiler firing with Paper Sludge & other Solid Waste replacing Coal Fired Boiler |
| 110 | Conversion to Fluidized Bed Combustion Boiler from Stoker Boiler |
| 111 | Heat Recovery Boilers for Waste Combustion |
| 112 | High Concentration Size Press |
| 113 | Dryer with Dryer Bars installed inside for Paper Making Machine |
| 114 | Integration of Punched Metal Screen, Slit Screen and Maceration Machine for processing Waste Paper |
| 115 | Automatic Board Plant |

| | |
|---|---|
| **Rice Mills** | |
| 116 | Co-generation in modern Rice Mills; Boilers, Steam Turbines, Gasifiers, Generators, Accessories |
| 117 | Solar Air Water Dryer System |
| **Secondary Steel ( Re-rolling & Sponge Iron)** | |
| 118 | Pusher Type Reheating Furnace with Suspended Roof, Multi Fuel Capacity and Automated Temperature Controls |
| 119 | Fuel Economizer in Sponge Iron Plants for Pre-heating of Raw Material using Flue Gases |
| 120 | Power Generation from Waste Heat Recovery System ( Sponge Iron Plant) |
| 121 | Semi-Automatic High Speed Rolling Stands with Electronic Drives |
| 122 | Provision of IR Sensors for Material Movement |
| 123 | AC and DC Drives for Control of Fuel and Air |
| 124 | Liquid and Gaseous Fuel Ratio Controllers (RATIOTROLS) |
| 125 | High Efficiency Burners with Multi-fuel Capacity |
| 126 | Continuous Casting of Billets without Re-heating Furnace |
| **Textile** | |
| 127 | Radio Frequency / Infrared Radiant Gas Fired / Microwave / Loop / Relax Dryer (Finishing) |
| 128 | Thermo Pac (Heating System) replacing Steam Heating |
| 129 | Co-generation, Back Pressure Turbine, Micro-turbines, Gasturbine (Waste Heat Boilers) |
| 130 | High Efficiency Atomizers in Humidification Plant |
| 131 | Variable Frequenzy Drive for Humidification Fan |
| 132 | Synthetic Flat Belt Drives (replace V-belts) |
| 133 | Variable Frequency Drive for Auto core Suction Motor |
| 134 | Variable Frequency Drive for Water Circulating Pump |
| 135 | Trans vector Nozzle for Cleaning Application |
| 136 | Fluidized Bed Combustion Boiler (replacing Stoker Boiler / Smoke Tube Boilers) |
| 137 | Modern Industrial Humidification System (for Controlling Relative Humidity & Temperature) |
| 138 | Heat Recovery System for Stenter Machines |
| 139 | Air Jet Looms |
| **Thermal – General** | |
| 140 | FBC Coal Fired Boiler in place of Manual / Stoker Fired Boiler |
| 141 | Replacing existing Boiler with Energy Efficient Boiler (Oil, Coal, Gas with Oxygen Trim ) |
| 142 | Recuperators |
| 143 | Regenerative Burners for Furnace |
| 144 | Fuel Switching from Fossil Fuels (Boilers) to Biomass |
| 145 | Fuel Switching from Fossil Fuels (Furnaces ) to Biomass |
| 146 | Fuel Switching (Fired Heaters & Hot Air Generators ) to Biomass |
| 147 | Fuel Switching (Kilns ) to Biomass |
| 148 | Biomass Gasifiers for Thermal Applications |
| 149 | Solar Water Heaters Applications switching Fossil Fuel Heating in Process Industry such as Dairy, Food processing, Textiles, Chemicals, Hotels & Offices. |
| 150 | Biomass Gasifier Based Hot Water Generator |
| 151 | Tri-generation in Industries & Commercial Establishments |
| 152 | Micro Turbines for Energy Recovery in Process Industries |
| 153 | Infrared Heaters in Dryers & Ovens |
| 154 | AFBC Boiler/ Biomass Fired Boiler replacing Coal Fired Smoke Tube Boiler |
| 155 | Automatic Combustion Control for Boilers/ Furnaces |
| 156 | Replacing Conventional Oil Polishing Machine with "Skid Mounted Oil Polishing System" |
| 157 | Molecular Sieve Based Dryer on Absorption Method in place of existing Azeotropic Distillation |
| **Bundled Projects in Medium Industries** | |
| 158 | Variable Frequency Drives for Retrofitting existing Motive Applications |
| 159 | Condensate Recovery Projects (Fossil Fuel Based Installations) |
| 160 | Projects for Insulation & Sealing in Buildings & Industrial Plants - Roof, Envelope & Hot and Cold Pipelines, Air Sealing Support Material, Low Emissivity Glass (Windows) |
| 161 | Replacing existing Pumping / Fan Systems with Efficient Piping, Motor Drives, Controls, Accessories |

# Annex 1 – Input to MOF Regulations

**Introduction**

**Purpose of the EEFS**

MoF will establish an Energy Efficiency Financing Scheme with PIP as Project Executing Agency to encourage investments in energy efficiency through financing below market interest rates through an On-Lending scheme where PIP lends EEFS funds on a concessional rate through participating Handling Insitutions that channel these lower funds towards the specific sectors which are outlined under the EEFS programme.

By establishing an Energy Efficiency Financing Scheme the GOI would like to achieve the following goals: (i) encourage the usage of energy efficient technologies; (ii) reduce energy subsidies; (iii) stimulate the involvement of the Financial Sector to support the government's energy efficiency programmes; (iv) reduce greenhouse gas emissions in line with the government policy directions In the RAN-GRK programme; and (v) to thereby implement efficiencies in energy utilization in all sectors of energy usage.

## 1 Parties involved

### 1.1 Ministry of Finance

MoF will allocate funds from the central government budget in the amount of initially IDR 500,000,000,000 and will channel these funds into the EEFS for an initial period of 15 years. The funds will be administered and managed by PIP being the Project Executing Agency.

Act No 1/2004 on State Treasury (Article 41): provides the legal basis for MoF to manage investments, loans, and grant, including appointing other institutions (e.g. PIP) to implement them. Under this law the Government is not obliged to get parliamentary approval when making investments.

MoF will via the Steering Committee review the success of the EEFS periodically and will suggest necessary adjustments if necessary. The fund is open for other sponsors which would like to join the programme.

All essential decisions related to the EEFS have to be approved by MoF.

### 1.2 Indonesia Investment Agency (PIP)

PIP would be the Project Executing Agency for the EEFS which would administer the funds and On-Lend them to participating Handling Institutions (under PMK 52/2007 on-lending to SOE's is possible – means the participating Handling Institutions have to be SOE's).

Government Regulation 23/2005 on Fiscal Management of a Public Service Agency (PSA): PIP is categorized as Public Service Unit (BLU) and is therefore mandated not to seek profit, but to focus on social/economic benefits. PSA's are given flexibility in terms of budgeting, however they are also considered inseparable from the government, which requires all of its revenues to be reported and consolidated within the state budget, and limits the ability to take risk.

PIP falls directly under the supervision of the Secretary General of the Ministry of Finance, and is directed by the Head of PIP.

The EEFS would fall under Divisi Portfolio Investasi II which focuses on regular lending also to State Owned Enterprises.

PIP is accountable for the funds provided by MoF and its usage according to this regulation. PIP will keep and administer the funds until the EEFS is closed. PIP will also be responsible for the administration of the interest earned under the programme and will handle any allocated budgets for the EEFS administration. Unless otherwise agreed PIP will at the end of the program return the funds to MoF.

Law 52/PMK.01/2007 on Organisation and Working Procedures of PIP applies also for the EEFS. This law sets the positions, duties, and function of PIP and its divisions to ensure the implementation of operational authority in the management investment that is efficient, effective, and accountable.

Law No.10/2010 on State Budget Allocation for 2011/2012/2013/2014 etc. provides the legal basis for BLU budgeting in each year (including PIP).

PIP will sign a Credit Agreement with each of the participating Handling Institutions outlining the Terms & Conditions under which PIP provides the funds to the HI.

PIP will have to monitor the participating Handling Institutions Financial Performance (Financial Oversight) to ensure that the risk for PIP remains acceptable during the tenor of the program and the On-Lending period.

## 1.3 Handling Institutions

MoF will select and approve the participating Handling Institutions in close coordination with PIP.

As mentioned Government Regulation 23/2005 on Fiscal Management of a Public Service Agency (PSA) applies for PIP and limits the risk PIP can take. Therefore HI's should be State Owned Enterprises where there is no doubt that PIP is allowed to on lend to them.

HI's will sign a Credit Agreement with PIP outlining the Terms & Conditions under which PIP provides the funds to the HI.

The program is open for all Institutions which are acceptable to MoF as borrowers and are deemed suitable to promote the programme and channel funds to projects and borrowers eligible under the programme. Funds will be channelled as loans from the EEFS via PIP (being the lender) to the Handling Institutions (being the borrower). The Handling Institutions are obliged to repay the loans and pay interest according to the loan contracts signed between PIP and the HI's. Further details see section 2.3 below.

# 2 Roles and responsibilities

## 2.1 Steering Committee (SC)

The SC is the body where all key Government stakeholders are represented. It is the main decision maker on all issues related to the policy and execution of the EEFS program as well as to determine what energy efficiency investments are covered under the program.

The Ministry of Finance will issue a separate Ministerial Decree which stipulates the SC and its roles and responsibilities.

The SC has to meet at least once at the beginning of each half calendar year (minimum of two meetings per year).

The SC is responsible for approving guidelines and operating procedures, and provides monitoring and supervision of the EEFS program and directly supports PIP as the Project Executing Agency.

The SC will allocate funds to the HI's based on their submitted business plans/pipeline list.

The SC will also decide on the end user interest rate, hence credit margin for each participating HI.

A detailed SOP with task list for the SC has to be drafted by PIP under supervision of the Vice Chairman and approved latest by the 2nd meeting of the SC after establishment.

## 2.2 Technical Assistance Unit (TAU)

The TAU is a permanent support team to be established within PIP. The TAU shall report to the SC. The TAU will be responsible for the following:

- Be the main contact for participating banks/ Handling Institutions (HI's);
- Capacity building for the HI's;
- Marketing and promotion of the programme in cooperation with the HI's;
- Monitor the loans given by the HI's, specifically their purpose, effectiveness and implementation based on the reports submitted by the HI's;
- Create in cooperation with the Handling Institutions/Banks the reporting and documentation forms/reports and provide guidelines on how to fill them out;
- Provide technical assistance and guidance to the HI's on their request;
- Document the effectiveness of the EEFS by evaluating and summarizing the reports the HI's provide according to the requirements of PIP and MoF;
- Give recommendations to the SC on necessary adjustments or focus for the program for maximum effectiveness;
- Give recommendations to the SC on fund allocations to the HI's in case there is more demand than available funds in order to achieve maximum effectiveness of usage of the funds;
- Feedback and evaluation about the HI's performance to allocate and disburse the EEFS funds;
- Decide on Technical Assistance to be given to banks and borrowers;
- Make suggestions on marketing and promotion of the EEFS program and recommend to the SC a budget for that;
- Decide on inclusion of projects in the program if the HI's ask for a clarification or refer them to the SC;
- Recommend to the SC amendments to the Positive Checklist for project examples from time to time; and
- Propose a budget for the annual activities of the TAU for consideration of the SC and / or MOF.

## 2.3 Handling Institutions

Participating HI's have to submit to PIP a business plan and deal pipeline list based on which funds will be allocated by the SC. A Credit Agreement between PIP and the HI has to be signed. The SC will decide on the submitted application.

Roles and responsibilities shall be:

- Market the initiative and identify potential clients/proposals;
- HI's grant investment loans under the EEFS scheme to their clients on their own risk and under their own behalf. The credit risk is solely with the HI;
- The HI will perform their standard lending process including Financial assessment and project due diligence inclusive of Risk Management;
- HI's can decide by themselves if a loan application of a client is eligible under the EEFS program or not – the Technical Assistance Unit will monitor the performance of the HI's and can give recommendations for adjustments for future cases;
- Funds obtained by the HI from PIP have to be repaid according to the loan agreement with PIP and in line with the procedures of the EEFS;
- HI's have to pay the agreed interest for the funds obtained quarterly to PIP as Executing Agency;
- HI's have to document and report on loans given under the EEFS scheme to PIP and the Technical Committee based on the agreed SOP;
- HI's have to submit deal pipeline reports and detailed reports on the outstanding loans to PIP on a quarterly basis;
- In case the HI does not disburse the loans according to the submitted plans PIP has the right to ask for repayment of the funds given in order to allocate and redirect to other participating HI's;
- HI's have the responsibility to attend meetings when invited by SC;
- HI's can discuss the agreed end user interest rate (hence their credit margin) with the SC on a semi-annual basis in case there is a need to be adjusted;
- HI's will have to include all requirements the end user has to fulfil in their loan agreement/loan documentation and monitor them (e.g. confirmation on implementation of the energy efficiency investments according to loan application and documentation, approval to provide loan details to the parties involved in the programme such as the Technical Committee, MoF etc.);
- Promotion and marketing of the program; and
- Participation in staff capacity building related to the EEFS.

# 3 Loan Details between PIP and the Handling Institutions

## 3.1 Refinancing rate

PIP will provide the funds to the HI's at the BI rate minus 3% p.a. with the refinancing rate not to fall below 2% p.a. The SC can adjust that rate when market conditions make that necessary to achieve the target that the EEFS funds channelled to clients have to be below the market rate.

## 3.2 Target client rate

A target end user rate will be below the market rate. The Steering Committee has the authority to negotiate with the participating Handling Institutions the offered target client rate which can differ dependent on loan size, risk profile and other criteria. The target client rate will be agreed on in the loan agreement between PIP and the HI. MoF has set a target

margin for the HI's of 500-550bp, which would result in an end client rates of 9.5%-10% p.a. at present BI benchmark rates.

# 4 Eligible Projects

## 4.1 Eligible borrower

There is no restriction on company size, industry or loan size. All potential borrowers which invest in Energy Efficiency and which are acceptable for the participating Handling Institutions as borrowers are in general eligible.

## 4.2 Eligible projects

Investments which help to reduce energy consumption in order to reduce greenhouse gas and air/water pollutant emissions without reducing the production and consumption of non-energy goods in all sectors: Industry, Commercial, Transport, Household and Public institutions. Guidelines will be developed by the Steering Committee with the support of the TAU to further define eligible projects.

# 5 Funding and interest earned

## 5.1 Funding of the principal

EEFS funds will be allocated by the state budget and transferred to the Project Executing Agency PIP at the beginning of the programme.

PIP will then allocate the funds to the HI's as loans and the HI's will keep them in an EEFS disposition account until they are channelled to eligible borrowers. Repayments of the borrowers will have to be directed back into the PIP EEFS disposition account of the respective bank.

## 5.2 Interest earned

Interest earned is comprised of 3 components:

a) Interest earned from the time MoF disburses the funds to PIP and until PIP disburses them to the EEFS disposition account fund account within the HI's. PIP investment guidelines will be applied in which instrument the funds can be invested until disbursement.

b) Interest earned from the funds which are in the EEFS disposition accounts until they are disbursed. Benchmark interest rate for interest to be paid in the EEFS disposition accounts is the prevailing Bank Indonesia Overnight rate (FASBI).

c) The refinancing rate which is charged to HI's for loans given under the EEFS scheme and disbursed to clients of the HI's.

The interest will be used to fund all expenses to administer and promote the EEFS scheme. The SC will have the right to approve a budget and allocate funds out of the interest for that. MoF can allocate additional funds out of the annual budget as deemed appropriate.

# 6 Others

## 6.1 Monitoring, Reporting, Verification

The Steering Committee will set the MRV details in an SOP and the TAU will summarize and evaluate the reports provided by the HI's and advise the SC on them. The reporting, documentation and verification should be as simple as possible and should not create unnecessary bureaucratic burden on the HI and client side.

## 6.2 Auditing of the EEFS funds

PIP as Executing Agency has the obligation to allow audits by MoF or other government auditing authorities and in particular the National Audit Authority, BKF related to the handling and administration of the EEFS fund activities.

# Annex 2 – Input to Ministerial Decree - Establishment of the EEFS Steering Committee[29]

## Introduction

## Purpose of the EEFS Steering Committee (SC)

MoF will establish an Energy Efficiency Financing Scheme with PIP as Project Executing Agency to encourage investments in energy efficiency through providing of below market interest rates.

As the topic GHG saving and energy efficiency involves various ministries it is decided that through a Steering Committee the interests of and existing experience in the various ministries and government organizations should be utilized to make the EEFS successful and that the scheme is in line with the various activities within the GOI.
The Steering Committee will be the main decision making body which represents the interest of the GOI and which provides the platform for all ministries to provide input and guidance to steer the EEFS in the desired direction.

### 1 Members of the Steering Committee

The Steering Committee will comprise of members from the following Ministries: MoF, PIP, KLH, MEMR and MoI.

### 1.1 Ministry of Finance

The Minister of Finance will mandate the representative of MoF for the Steering Committee. The representative of MoF will be the Chairman of the Steering Committee.

### 1.2 Indonesia Investment Agency (PIP)

It has to be decided if PIP will be member of the Steering Committee.

### 1.3 Other Ministries

The Minister of Finance will in writing invite the MEMR, KLH and MoI to appoint a representative for the EERF Steering Committee. The respective ministries will inform the Chairman and the Vice Chairman of the Steering Committee about their nominations.

### 2 Roles and responsibilities

### 2.1 Steering Committee (SC)

The SC is the main decision maker on all issues related to the policy and execution of the EEFS program as well as to determine what energy efficiency investments are covered under the program.

The SC has to meet at least once at the beginning of each half calendar year.

[29] Annex 2 provides input to development of a MOF Regulation on Establishing the Steering Committee for the EEFS. Pending agreement on structuring of the EEFS a full draft regulation has not been prepared

The SC is responsible for guidelines, Standard Operating Procedures, and monitoring and supervision of the EEFS programme and directly supports PIP as Executing Agency.

The SC will allocate funds to the HI's based on their submitted business plans/pipeline list.

The SC will also decide on the end user rate, hence credit margins for each participating HI.

A detailed SOP with task list for the SC shall be drafted by PIP under supervision of the Vice Chairman and approved latest by the 2nd meeting of the SC after establishment.

The SC will approve the budget for expenses related to the administration and promotion of the EEFS. The funding of all activities (including but not limited to expenses which are related to the TAU and SC) will come from interest earned by the EEFS funds which comprise of:

a) EEFS Funds invested by PIP;
b) PIP EEFS funds in the disposition account with the HI's; and
c) Refinancing rate earned for funds disbursed to clients under the EEFS scheme.

## 2.2 Technical Assistance Unit (TAU)

The TAU is a permanent support team to be established within PIP. The TAU reports to the representative of PIP in the Steering Committee. The TAU shall support the decision making of the SC and administer the EEFS funds. A detailed TAU SOP task list shall be drafted by PIP and approved by the SC at latest by the 2nd SC meeting after its establishment.

The TAU will be responsible for:

- Be the main contact for participating banks/ Handling Institutions (HI's);
- Capacity building for the HI's;
- Marketing and promotion of the programme in cooperation with the HI's;
- Monitor the loans given by the HI's, specifically their purpose, effectiveness and implementation based on the reports submitted by the HI's;
- Create in cooperation with the Handling Institutions/Banks the reporting and documentation forms/reports and provide guidelines how to fill them out;
- Provide technical assistance and guidance to the HI's on their request;
- Document and advise the SC on the effectiveness of the EEFS by evaluating and summarizing the reports the HI's provide according to the requirements of PIP and MoF;
- Give recommendations to the SC on necessary adjustments or focus for the program for maximum effectiveness;
- Give recommendations to the SC on fund allocations to the HI's in case there is more demand than available funds in order to achieve maximum effectiveness of usage of the funds;
- Feedback and evaluation about the HI's performance to allow the SC to allocate and disburse the EEFS funds;
- Decide on Technical Assistance to be given to banks and borrowers;
- Make suggestions on marketing and promotion of the EEFS program and recommend to the SC a budget for that;
- Decide on inclusion of projects in the programme if the HI's ask for a clarification or refer them to the SC;
- Recommend to the SC amendments to the Positive Checklist for project examples from time to time; and

- Propose a budget for the annual activities.

## 3 EEFS Monitoring, Reporting, Verification

The Steering Committee will set the MRV details in an SOP (prepared and suggested by the TAU) and the TAU will summarize and evaluate the reports provided by the HI's.
The reporting, documentation and verification should be as simple as possible and should not create unnecessary bureaucratic burden on the HI and client side. The TAU will develop and publish a "Positive Checklist" for energy efficiency investments which will fall automatically under the EERF scheme in order to give assistance and guidance to the Handling Institutions and potential clients.

There is no Energy Audit required to verify the energy reductions as long as the client has other suitable documents on hand which show the potential energy savings.
In general an Energy Saving potential of at least 15% should be the target of all funded projects. Exceptions can be approved by the SC.

# Annex 3 – Credit Guarantee Schemes

There have been ongoing discussions as to whether the Government should support investments in Energy Efficiency via a subsidized loan scheme or via a guarantee scheme.

Various surveys and studies have shown that corporates prefer subsidized loan schemes over guarantee schemes where they have a choice and that existing guarantee schemes in Indonesia are not much in demand. The main reason is that clients which are bankable normally have sufficient collateral to obtain a loan and it's more a question of cost for the investment (where the loan interest rate plays a big role) than to provide additional collateral. Another reason is that obtaining a guarantee is perceived to be cumbersome/bureaucratic.

For clients which are not bankable the provision of a guarantee as collateral for a loan will either be also very difficult to obtain (as Guarantee Providers will also try to minimize their risk) or will be priced very high to cover potential losses. Credit Guarantee Schemes often bear the risk of moral hazard. Borrowers might not have an incentive to repay the loan if a guarantor insures the debt. Similarly, lenders might approve loans with higher risks of defaulting since they are insured.

If Lenders (Banks) will share the risk with the provider of the guarantee then the process will be very difficult and lengthy as both have to evaluate, accept and price the credit risk and come to a common conclusion. Credit Guarantee Schemes all over the world are therefore not wide spread and / or successful.

Another important argument for the Government is that the investment in a revolving fund will be recovered as the loans are typically 100% repaid – whereas insurance premium paid to the providers of the guarantee represent cost and cash outflow – the government money is spent on the insurance premium and cannot be recovered. Thus fewer investments will typically be generated under a guarantee scheme.

A questionnaire was sent to more than 500 companies in Indonesia (who had all undergone energy efficiency audits). Some 55 replies were received. Major findings have been:

- Question: "Does your company plan to do energy efficiency investments within the next 12 months?" 45 answered Yes and 9 No. Main reason given for investing was with 37 answers "Energy cost reductions".

- Question "Does your company have enough collateral to obtain bank loans" 18 companies replied Yes and only 3 replied No. A clear indication that the demand for a guarantee scheme is limited.

- Question "Does your company need financing for the investment": 22 have replied with Yes and only 16 with No. A clear demand for financing of energy efficiency investments is documented.

- Question: "In case there was a program offering loans with a subsidized interest rate of below 10% per year, would this accelerate or help with your decision for the investment?" Here 24 companies answered with Yes and 15 with No. It shows clearly that the access to cheap financing would accelerate investments and would positively impact the investment decision.

Detailed arguments in favor of developing an interest subsidy scheme over a credit guarantee scheme at this point of time have been set out in chapter 2 and are not repeated here. Nevertheless, while current circumstances are best suited to a credit subsidy scheme

there may still be scope for longer term consideration of guarantees being part of the long term EEFS tool kit of options. Accordingly the remainder of this appendix sets out further information on Guarantee instruments that might be considered over time but are not immediately recommended for implementation.

## Guarantee schemes

## Loan Guarantee Schemes

A credit guarantee scheme can be an alternative for providing a subsidized loan scheme as it can help corporates:

- to obtain loans from the bank as the bank obtains a guarantee which takes away/reduces credit risk; and
- to reduce the interest rate they have to pay by providing higher quality collateral for the loan.

Experience all over the world has shown that Guarantee Schemes are only successful if their scope is very targeted (such as private housing guarantee schemes, ESCO support schemes, renewable energy schemes) and the projects are clearly defined. In order to avoid moral hazard the guarantee should not take away all risk from the lender and ensure a prudent lending approach.[30]

If a Guarantee Scheme is considered the following decision has to be made:

- will the guarantee scheme be provided by a third party which takes the default risk (e.g. Credit Insurance company)? or
- is the default risk carried by the fund/government itself?

<table>
<tr><td colspan="2">Assessment of risks to be taken by third parties (e.g. ASKRINDO; ASEI)<br>The guarantee scheme can be structured in various ways:<br><br>a) the Government injects equity into the third party allowing them to expand their business and provide the desired guarantees; and<br>b) the Government subsidizes fees to be paid for the insurance premium.</td></tr>
<tr><td>Pros:<br>• Expertise and professional handling of the underlying default risk;<br>• Existing organization which can implement the scheme asap;<br>• Clear picture about the cost involved;<br>• No exposure to unforeseen credit risk during the time of repayment;<br>• The available funds will be leveraged through the 3rd party;</td><td>Cons:<br>• The fees directly subsidized for the insurance coverage are cash outflow, cost (not an investment) – means expenditure and cash outflow;<br>• The 3rd party might be too restrictive on their risk taking so that the support for the target group is limited and the program not be as successful as planned;</td></tr>
</table>

[30] Navajas, A.R. 2001. "Credit guarantee schemes: Conceptual frame." Financial System Development Project, GTZ/FONDESIF.
http://studenttheses.cbs.dk/bitstream/handle/10417/737/mikael_jonsson.pdf?sequence=1
http://siteresources.worldbank.org/INTFR/Resources/Beck-Klapper-Mendoza.pdf

| | |
|---|---|
| • Supports mainly smaller projects with SME type of clients; and<br>• If the government supports the insurance company with an equity injection the funds can be treated as an investment. | • The overall cost might be higher as the insurance will include their profit margin and calculate all their overhead costs;<br>• Typically does not support bigger projects; and<br>• Banks also have a ceiling on the amount of guarantees they will accept as collateral from the guarantor (counterparty risk of the insurance company). |

**Recommendation on Guarantees by Third Parties:**

A guarantee scheme should only be considered with an existing professional service provider such as a Credit Insurance company. It would take too much effort, cost and risk to try to do it alone and develop the expertise (e.g. by PIP) – even if it is limited to guaranteeing the energy savings hence repayment ability for the energy efficiency investment. Credit insurance companies will also have an existing cost/risk calculation model which will allow various coverage schemes which can be offered to the banks.

The government would pay for the insurance premium which will act as subsidy. The client has then the chance to obtain the loan at reasonable pricing as the bank will have collateral and reduced credit risk. However, for the reasons stated above there are disadvantages of pursuing such a third party approach and it is not recommended for immediate implementation

There are various types of guarantee schemes:

1. **Individual Guarantee Scheme:**
   Here the guarantor is directly involved in each individual transaction, appraising the eligibility of the applicant/borrower for the guarantee additionally/in parallel with the lender's due diligence to provide the loan

2. **Portfolio Guarantee**:
   It guarantees all loans of a lender to a portfolio of borrowers (e.g. the whole Energy Efficiency Portfolio).

It has to be determined how much of the risk is taken by the guarantee scheme. If 100% of the credit risk is taken from the lender then the risk of moral hazard is high as all potential losses are by the guarantor and not the lender (example: failed Subprime Mortgage Schemes in the US). Partial Credit Guarantees can be structured in various ways, e.g. 80% on a pari-passu basis with the bank or 50% on a first loss basis.

The intention of the Credit Insurance Scheme is to increase lending for Energy Efficiency Investments and increase the borrowing capacity of the lender. Therefore a guarantee under the scheme should only be provided to the lender if:

- The loan is granted to a new client who has given his assets to his existing lenders and cannot provide the required collateral to the new lender; and

- The loan is granted to an existing client if his credit limit is increased by his bank and additional loans are granted for that investment purpose.

## Energy Saving Guarantee Scheme

An energy saving guarantee scheme guarantees the targeted cost reductions through energy savings. These guarantees can be issued by:

- ESCO companies which provide the service; and
- Manufacturers of equipment which guarantee the energy savings under agreed conditions.

## The Broad Concept of an Energy Services Company (ESCO)

Some characteristics which are common to all these companies:

- ESCOs provide various services to their customers with the aim of enhancing their energy efficiency. An ESCO's remuneration for these services is calculated by reference to the level of savings that it achieves;
- an ESCO will provide a guarantee to its customers in respect of the service levels to be applied or the cost savings which the ESCO project will achieve; and
- a project structured using the ESCO model is capable of being financed by third party funders.

ESCOs therefore provide an efficient, flexible and bankable method for customers to leverage the technical and performance management skills of energy specialists in order to enhance their energy efficiency.

Examples of what ESCO schemes might include:

- providing analysis and audits of a client's energy use and requirements and implementation of any associated recommendations;
- the design and implementation of energy infrastructure;
- efficient energy metering; and
- property and facilities management.

## Investors

Investors can be a company which enters into a service agreement with an ESCO or the ESCO itself (also via a SPV).The investor will take a loan to pay for the investment and the guarantee of the energy saving will function as collateral for the bank to mitigate the credit risk. As banks cannot attach any value to a performance guarantee issued by an ESCO or any manufacturer, an appropriately structured government scheme could make them acceptable as collateral for banks.

**Assessment of Support to ESCOs**

Guarantee schemes can be very helpful for the development of ESCO's and ESCO services which can play a significant role to increase investments in energy efficiency.

| **Pros:** | **Cons:** |
|---|---|
| • Can act as collateral for investment loans in energy efficiency;<br>• Will enable models where ESCO's do the necessary investment and can provide a collateral for the banks to fund these investments which are typically based on cost saving models;<br>• Can help to develop the ESCO idea and industry; and<br>• Can leverage experience and knowledge in energy efficiency investments. | • Technical details have to be worked out; and<br>• Monitoring and evaluation of the energy savings under the guarantee might not be clear and easy. |

**Recommendation on Guarantee Support to Energy Savings Schemes:**

In case a guarantee scheme is developed and introduced both models, the loan guarantee scheme and the energy saving scheme, should be included as both cater for different needs and have a role to play.

**Note**:
**There is an SME CREDIT GUARANTEE SYSTEM in INDONESIA,** provided at National level by ASKRINDO and JAMKRINDO and on Provincial/regional level by e.g. Jamkrida Jatim, Jamkrida Bali (Credit Guarantee Corporations CGC's).

## Procedures for Approving and Settling Guarantees

A. Conditional Automatic Cover (CAC), usually for small amount / credit works as follows:

- The CGC and the Bank/Creditor make a Guaranty Agreement that includes terms and conditions of the guarantee;
- The bank provides credit to SMEs and it is automatically guaranteed by CGC as long as the guarantee fee has been paid, and then followed by issuing the Guarantee's Certificate by CGC;
- The bank is responsible to analyze the proposed credit, and storing all credit documents, that will be submitted to CGC for claim when the credit is in default; and
- The CGC will pay the proposed claim, as long as the terms and conditions of the Guaranty Agreement have been fulfilled.

B. Case by Case:

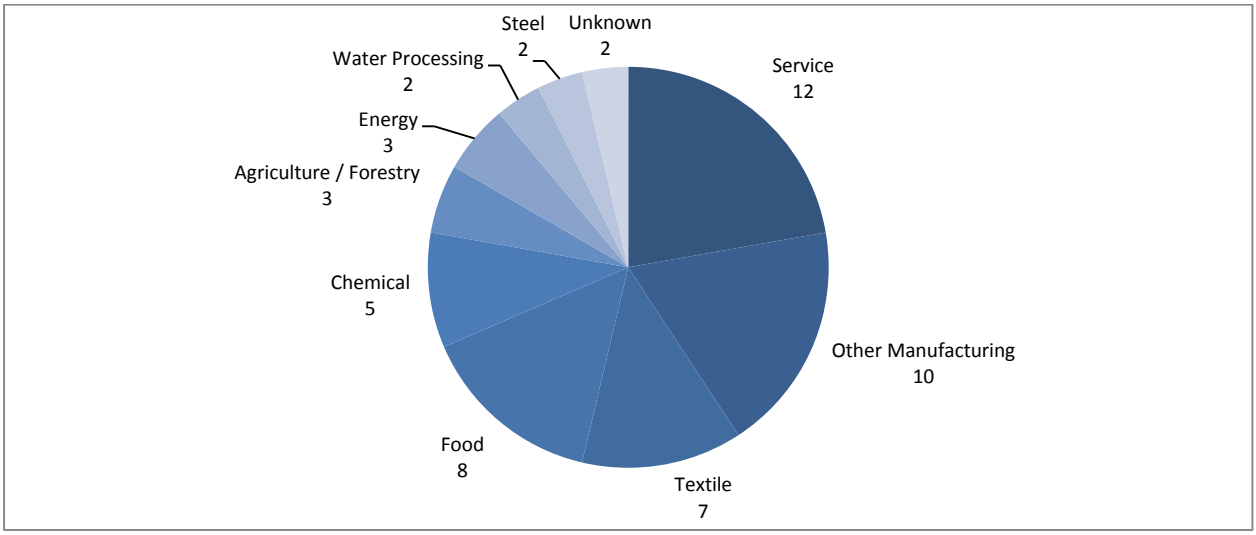
- SMEs apply for credit from the bank;
- The bank may request a guarantee from CGC;
- The CGC will analyze the feasibility of the project; and
- If it is agreed, then the CGC issues a Guarantee Certificate.

Guarantee's are provided for SMEs mainly for the following purposes:

- Bank loans (both cash and non cash loans);
- Leasing, factoring, and profit sharing based loans; and
- Purchasing of goods on an instalment basis.

# Annex 4 - Summary of a Questionnaire Related to the EEFS Programme

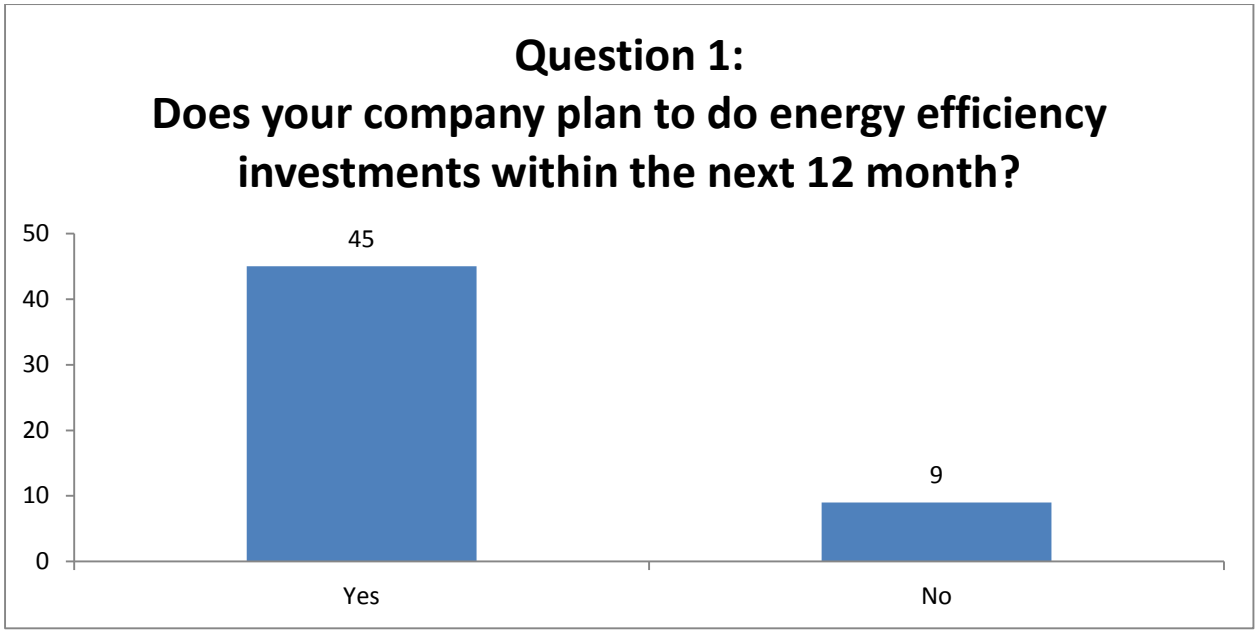
On behalf of the Ministry of Finance and the Ministry of Energy and Mineral Resources, PT PRIME Consultancy has contacted roughly 500 companies out of which 55 have replied. Additionally the Ministry of Finance has also asked Kadin to distribute the questionnaire to their members. The 55 companies which replied are of the following sectors:

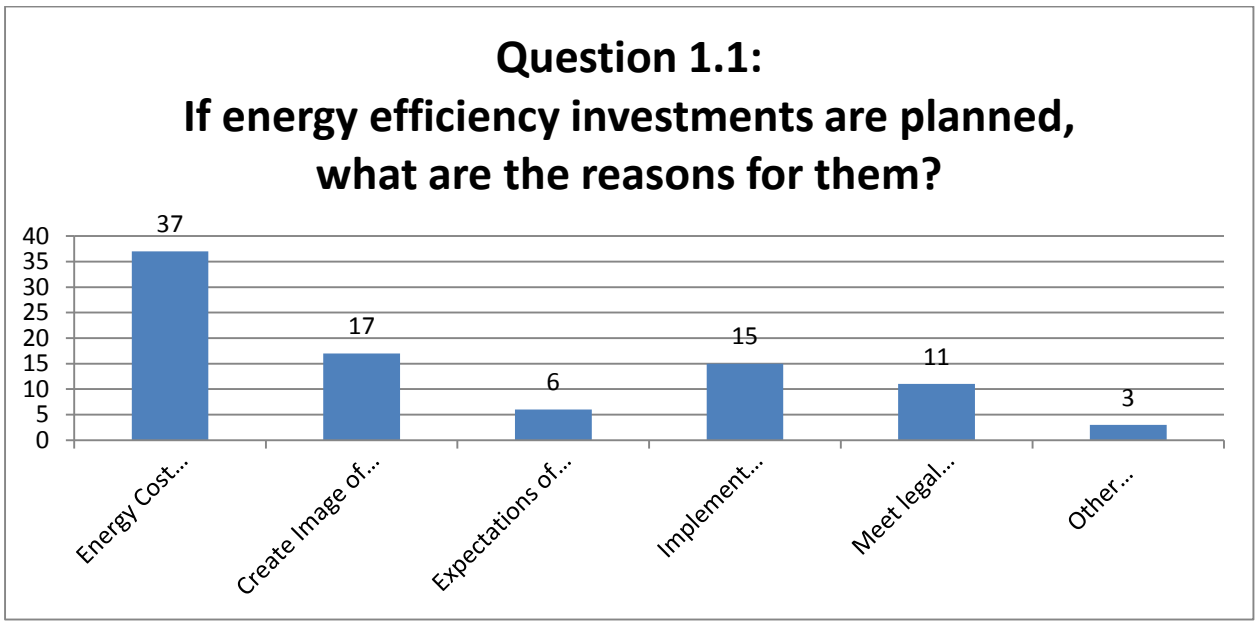


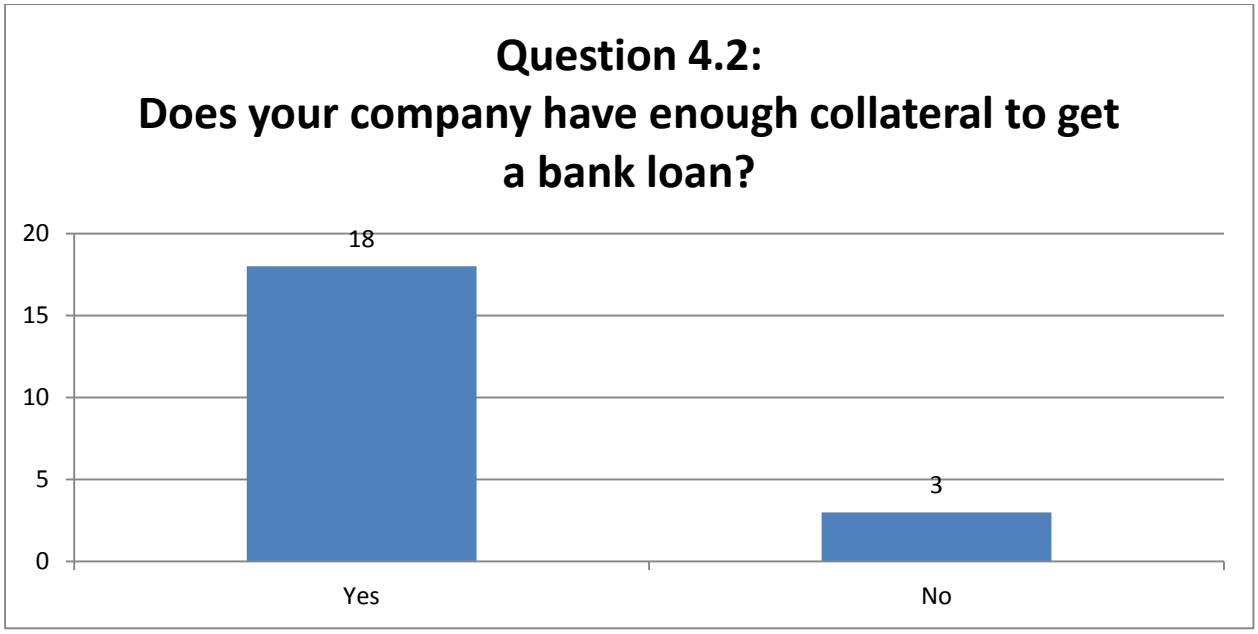

**These are the key findings:**

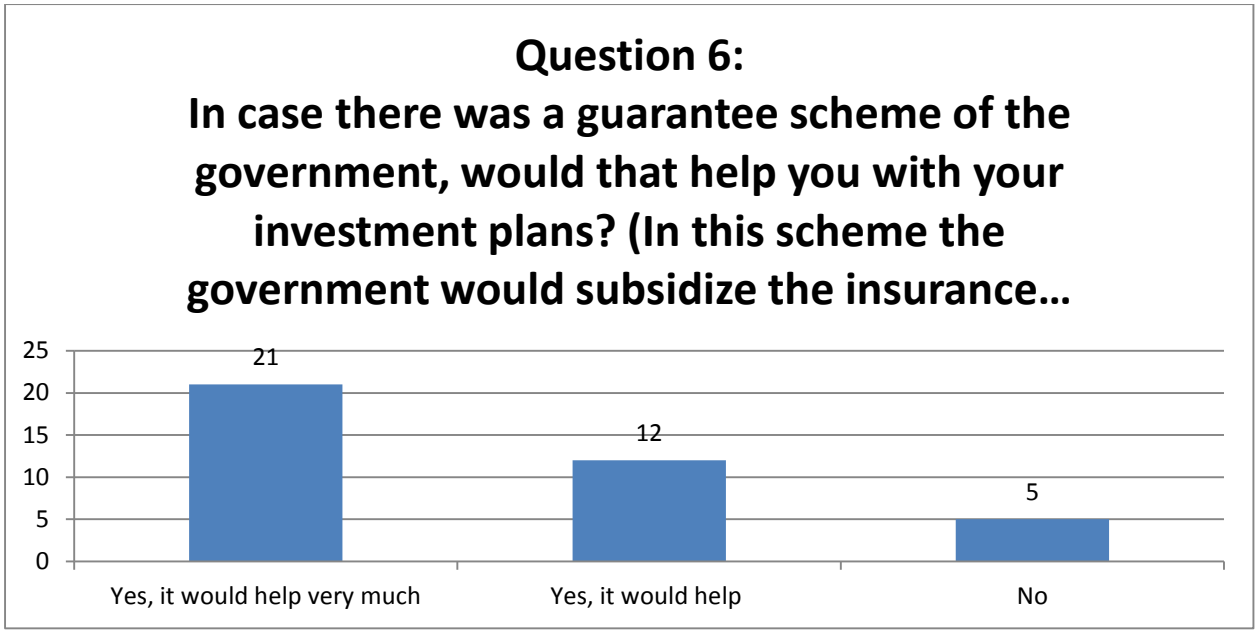
- Many companies are planning to do energy efficiency investments;
- The most important driving force for conducting energy efficiency investments is the assumed cost reduction;
- About half of the companies planning energy efficiency investments need external finance; more than half of this group states, that it is not easy to get financing;
- Government support in the form of subsidized interest rates or a guarantee scheme are both perceived as helpful by a majority of companies; and
- More companies would rather prefer a system of subsidized interest rates than a guarantee scheme.

The following figures set out the key questions and their answers:


Question 1:
Does your company plan to do energy efficiency investments within the next 12 month?
50
40
30
20
10
0
45
9
Yes
No


Question 1.1:
If energy efficiency investments are planned, what are the reasons for them?
40
35
30
25
20
15
10
5
0
37
17
6
15
11
3
Energy Cost...
Create Image of...
Expectations of...
Implement...
Meet legal...
Other...


Question 4.2:
Does your company have enough collateral to get a bank loan?
20
15
10
5
0
18
3
Yes
No


Question 6:
In case there was a guarantee scheme of the government, would that help you with your investment plans? (In this scheme the government would subsidize the insurance…
25
20
15
10
5
0
21
12
5
Yes, it would help very much
Yes, it would help
No

# Annex 5 – Interest Rates in Indonesia

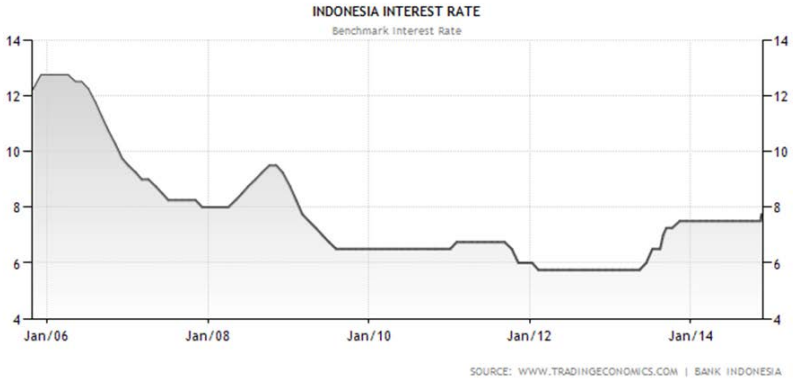
## 1) General remarks on IDR loans

- Indonesian Banks lack long term funding to provide longer term loans for their clients. Their ability to raise long term refinancing at attractive rates is limited and does typically do not go beyond 1 year;
- In general Indonesian Banks enjoy huge margins on loans they provide. In average a spread of 5-6% for corporate loans can be assumed;
- There is a wide variation of end user rates based on the client rating, segment and loan amount; and
- End users perceive interest rates below 10% in general as being attractive.

## 2) Benchmark rates

### 2.1) BI rate

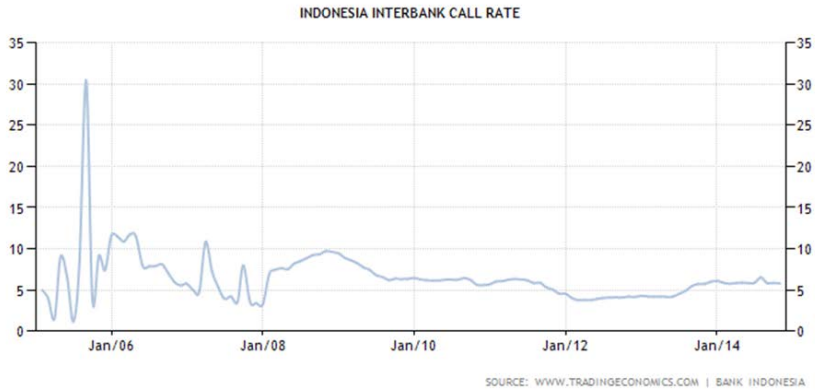
The most widely known and accepted benchmark rate is the BI rate. Lending and deposit rates do not directly correlate with the BI rate but follow in general the trend.




In Indonesia the interest rate decisions are taken by The Central Bank of Republic of Indonesia.

### 2.2) Indonesia Interbank Call Rate

In Indonesia, the interbank rate is the rate of interest charged on short-term loans made between banks.




In Indonesia, the interbank rate is the rate of interest charged on short-term loans made between banks. Content for - Indonesia Interbank Call Rate - Friday, November 28, 2014.

### 2.3) JIBOR

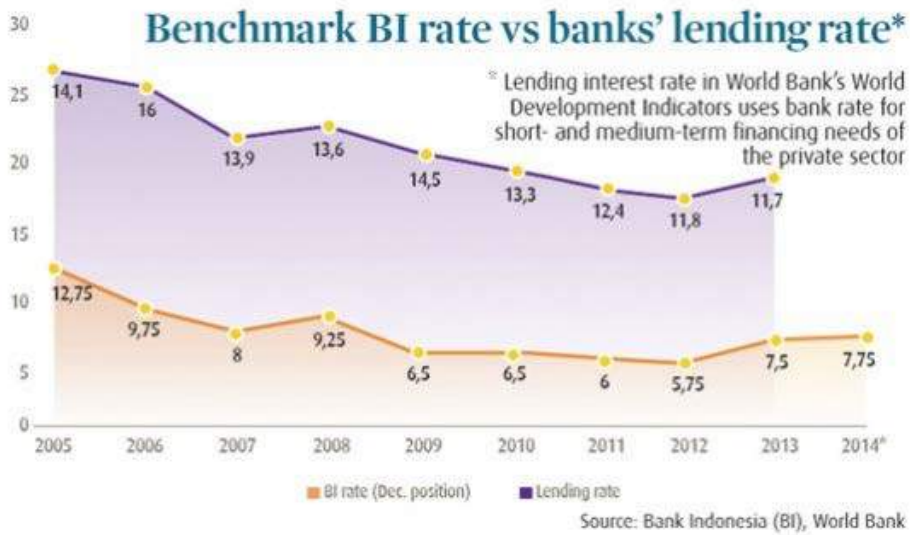
The Jakarta Inter Bank Offered Rate (JIBOR) is not yet a reliable index but gives some guidance on what rates banks lend to each other. The maximum tenor for JIBOR is 1 year. The JIBOR is an indicative rate used for money market transactions. This indicative rate refers to unsecured loan transaction in money market, which reflects interest rate that banks charge each other for taking and offering loans. This rate is then published and served as the benchmark for market transactions.

**JIBOR IDR,** Date : 28 November 2014

| | Overnight (%) | 1 Week (%) | 1 Month (%) | 3 Months (%) | 6 Months (%) | 12 Months (%) |
|---|---|---|---|---|---|---|
| Min | 5.80000 | 5.90000 | 6.65000 | 7.20000 | 8.00000 | 8.15000 |
| Max | 5.80000 | 5.90000 | 6.70000 | 7.30000 | 8.10000 | 8.25000 |
| Avg | 5.80000 | | 6.68813 | 7.23875 | 8.05938 | 8.20375 |

### 3.2) Lending Rates to Micro Small Medium

The below chart provides a good indication how the lending rate tends to closely follow the BI rate.




http://www.thejakartapost.com/news/2014/11/20/limited-impact-expected-after-bi-rate-hike.html

As it can be seen the spreads vary significantly but are typically around 5-6%.

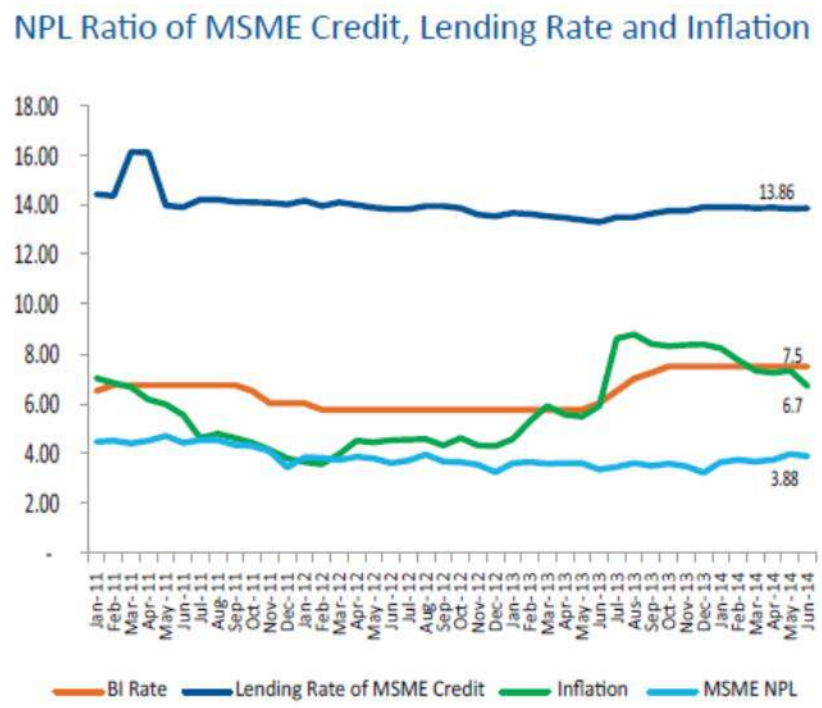
The following chart provides an actual picture of 1H 2014, since then a slight increase in the lending rate can be assumed.

| Interest Rate of Investment Credit (%) | Smt I 2010 | Smt II 2010 | Smt I 2011 | Smt II 2011 | Smt I 2012 | Smt II 2012 | Smt I 2013 | Smt II 2013 | Smt I 2014 |
|---|---|---|---|---|---|---|---|---|---|
| BUKU 1 | 13.38 | 13.28 | 13.80 | 14.84 | 14.99 | 14.73 | 14.36 | 14.69 | 15.26 |
| BUKU 2 | 12.88 | 12.64 | 12.46 | 13.15 | 11.86 | 11.70 | 11.55 | 12.06 | 12.76 |
| BUKU 3 | 14.25 | 14.20 | 13.69 | 13.39 | 13.03 | 12.56 | 12.34 | 13.22 | 13.44 |
| BUKU 4 | 10.97 | 10.49 | 10.40 | 10.08 | 9.61 | 9.65 | 9.93 | 10.61 | 11.03 |
| **INDUSTRY** | **12.55** | **12.24** | **12.13** | **12.04** | **11.46** | **11.27** | **11.14** | **11.83** | **12.24** |

**BUKU:** is a classification of commercial banks based on business activity. BUKU is a grouping of commercial banks by their business activities according to their licenses. BUKU 4 banks are licensed to operate the most activities within the banking business, while BUKU 1 banks are licensed to operate the least activities. In BUKU 2 most of the foreign banks are grouped which are not so sensitive to deposit rate changes.

Source: BI Financial Stability Report Nov 2014, Table 4.12

### 3.2) Lending Rates to Micro Small Medium Enterprises (MSME)




Source: Bank Indonesia

### 3.3) Overview of Indonesia's Banking Industry NIM for 2013 and 2014

Average NIM reached 4.5 percent in 2013. By the end of June 2014 it stayed at 5.4 percent.

**BRI**
BRI booked 8.5 percent net interest margin in 2013.
By the end of June 2014 its NIM stayed at 8.9 percent.

**Bank Mandiri**
Mandiri posted a 5.6 percent interest margin in 2013.
By the end of June 2014 it stood at 5.7 percent.

**Indonesia Eximbank:** LPEI NIM for 2013 was 3,39%.

**Bank BNI:** BNI's booked in 2013 6.1 percent NIM for 2013 and unchanged per June 2014.

**Bank BCA:** BCA has a NIM of 6.5%.

**CIMB Niaga:** CIMB Niaga 2013 NIM was 5.3 percent.

### 4) Refinancing costs for the banks for longer terms

### 4.1) Refinancing via bonds

Refinancing in IDR via bonds longer term is still very expensive for Indonesian Banks.
Below are some recent examples:

**Indonesia Eximbank:**
JAKARTA -- Lembaga Pembiayaan Ekspor Indonesia (Indonesia Eximbank) issued Rp500 bond on July 18, 2014, the second phase in its shelf registration total Rp24 trillion for supporting credit expansion for export funding.

The 3-year bond has coupon of 9.25% per annum and has received idAAA stable outlook from rating agency Pefindo. The financial institution has appointed PT Bahana Securities as the underwriter for the issuance. The issuance has received effective notice from OJK on May 23, 2014.

**CIMB Niaga**
In 2013 PT Bank CIMB Niaga Tbk (BNGA) issued a sustainable bond phase two worth Rp 1.45 trillion to support the company's loan expansion. Rudy Hutagalung, Corporate Secretary of CIMB Niaga, said the bond consisted of three series.

The Rp 1.45 trillion debt papers are divided into three series, which are A series amounting to Rp 285billion — set to mature in **two years**, B series worth Rp 315 billion — set to mature in **three years** and C series amounting to Rp 850 billion with a **five year** tenor. CIMB Niaga offers **8.75 percent, 9.15 percent and 9.75 percent in coupon rate for the A, B and C series, respectively**.
http://en.ift.co.id/posts/bank-mandiri-mulls-rp-5-t-bond-issuance
http://www.thejakartapost.com/news/2013/11/07/cimb-niaga-kicks-rp-145t-bonds-after-delay.html-0

**4.2 Refinancing via deposits**
Besides issuing bonds banks rely heavily on deposits – disadvantage is that deposits have typically very short tenors and go normally to a maximum of 1 year. An overview of actual deposit rates are shown in Annex I.

**5) Refinancing costs for the Government of Indonesia**
The benchmark refinancing rate for the GOI is the 10 Year Government Bond.

**Overview Indonesia Government Bonds 10Y from 2003-2014**
The Indonesia Government Bond 10Y decreased to 7.69 percent in November from 8.04 percent in October of 2014. The Indonesia Government Bond 10Y averaged 9.78 from 2003 until 2014, reaching an all time high of 20.76 in October of 2008 and a record low of 4.99 in February of 2012.

| Actual | Previous | Highest | Lowest | Dates | Unit | Frequency |
|---|---|---|---|---|---|---|
| 7.69 | 8.04 | 20.76 | 4.99 | 2003 - 2014 | percent | Daily |

Generally, a government bond is issued by a national government and is denominated in the country`s own currency. The yield required by investors to loan funds to governments reflects inflation expectations and the likelihood that the debt will be repaid.
Data per November 28, 2014.

**6) Conclusions**

- Indonesia is a high interest rate country and clients are used to pay double digit lending rates;
- Rates are typically floating and adjusted from time to time by the banks during the tenor the loan exists;
- Clients are used to credit margins of 5-6% charged by banks over the respective BI rate, everything below would be perceived as “attractive”. A psychological barrier is the 10% mark as single digit loan rates are rare and therefore always perceived to be attractive; and
- The GOI 10years bond refinancing rate is not linked or directly related to the BI rate.

**7) Recommendations**

Based on the previous chapters I would give the following recommendation to MoF how to determine the refinancing rate for participating banks and the allowed credit margin they could charge to their clients:

**7.1) Refinancing benchmark rate**

- Change in interest rates are visible and reflected in the BI rate. Even if the BI rate is not directly linked to any borrowing rate it is widely accepted by borrowers and lenders as a kind of reference rate; and
- Therefore the basis for the formula should be the BI rate.

**7.2) Credit Margin allowed for the participating banks**

- The Government has to make sure that the banks do not enrich themselves by this scheme but provide an attractive end user rate for investors in energy saving measures;
- A margin below 5% will be historically of little to no interest for commercial banks;
- A margin of higher of 5% might not be necessary to be offered as the participating banks have guaranteed funding for the scheme at a fixed rate and do not run a funding risk;
- Recommendation: 5% Margin for the participating banks.

**7.3) Refinancing rate**

If the Margin should be 5% for the banks and the end user rate is BI rate plus 2 – 2.5% subsequently the **refinancing rate has to be BI rate minus 3%.**

For the existing situation that would mean MoF provides the refinancing to the banks at 4.5% p.a.

This refinancing rate should be attractive for the participating banks as:

- it is a fixed rate;
- secures long term refinancing and supports therefore long term lending; and
- secures funding on an attractive level as other longer term funding >1 year is much more expensive and difficult to source.

**Minimum refinancing rate:**

In case BI rates will go down again the **minimum refinancing rate will be set at 2% p.a.** – that means in case the BI rate goes below 5% p.a. the above formula will not apply any longer and ensure PIP a minimum income of 2% to cover the cost for the EEFS expenses

### 7.4) End user rate

- Clients would perceive a rate based on BI plus 2% attractive as below normal market rate; and
- At the present level that would translate into an end user rate of 7.75% + 2% = **9.75% p.a.**

It could be considered and discussed with the participating banks to apply an interest rate matrix according to the loan size as it can be assumed that loans with smaller amounts imply higher costs and higher risks for the banks. Such a pricing grid could be as follows:

| Loan amount | Target investments | Maximum Spread allowed: | End user rate (BI 7.5% + 2 – 2.5% refinancing rate) |
|---|---|---|---|
| > 5 bn IDR | Larger investments | 5 % | 9.5 % p.a. |
| < 5 bn IDR | Medium to Small investments | 5.5 % | 10.00% |

### 7.5) Subsidy level

As the GoI refinances itself at around 7.5% p.a. for 10 years the subsidy component would be around 3% p.a. – means for a EEFS initial amount of 500bn IDR the subsidy would be around 15bn IDR only to have an initial scheme in place.

### 7.6) Expense coverage for PIP

With income of BI rate minus 3% for funds disbursed to end users PIP should be able, even in a declining interest rate scenario, to fund the expenses to handle the EEFS and its related cost. Therefore the minimum rate to be charged will be 2% p.a.

**Explanation of the BI Rate**

**Source: BI Web Page:**

### Definition

The BI Rate is the policy rate reflecting the monetary policy stance adopted by Bank Indonesia and announced to the public.

### Function

The BI Rate is announced by the Board of Governors of Bank Indonesia in each monthly Board of Governors Meeting. It is implemented in the Bank Indonesia monetary operations conducted by means of liquidity management on the money market to achieve the monetary policy operational target.

The monetary policy operational target is reflected in movement in the Interbank Overnight (O/N) Rate. It is then expected that bank deposit rates will track the movement in interbank rates, with bank lending rates following suit.

While other factors in the economy are also taken into account, Bank Indonesia will normally raise the BI Rate if future inflation is forecasted ahead of the established inflation target. Conversely, Bank Indonesia will lower the BI Rate if future inflation is predicted below the inflation target.

### Some statistical data on lending in Indonesia

**BI: Financial Stability Review** , No.23, September 2014
Important industry sectors – also for EE investments - in which banks are lending. NPL: Non Performing Loans: are important as they will be calculated in the margin.

Table 3.7.
Credit to Leading Export Commodities

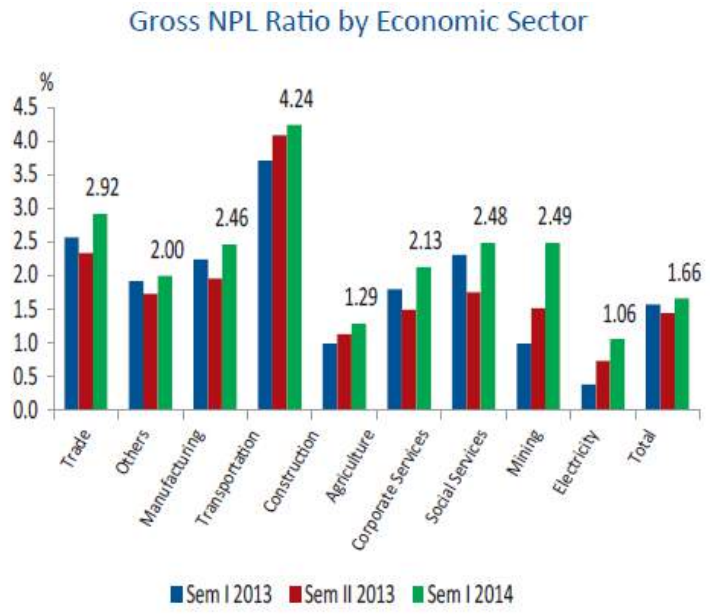
| Commodity | Outstanding credit as of June 2014 (trillions of Rp) | Share of Total Credit | | Growth | | | Gross NPL Ratio | |
|---|---|---|---|---|---|---|---|---|
| | | Jun-13 | Jun-14 | Jun-13 (yoy) | sem I 2014 (ytd) | Jun-14 (yoy) | Jun-13 | Jun-14 |
| Crude Palm Oil | 177,87 | 4,58% | 5,10% | 26,26% | 11,4% | 31,3% | 1,11% | 1,51% |
| Rubber | 25,60 | 0,79% | 0,73% | 6,70% | -0,1% | 9,0% | 1,08% | 2,00% |
| Coal | 41,19 | 1,41% | 1,18% | 16,37% | -5,4% | -1,3% | 0,72% | 2,23% |
| Textiles | 114,04 | 3,13% | 3,27% | 19,28% | 7,4% | 23,1% | 2,29% | 2.20% |

Source: Bank Indonesia

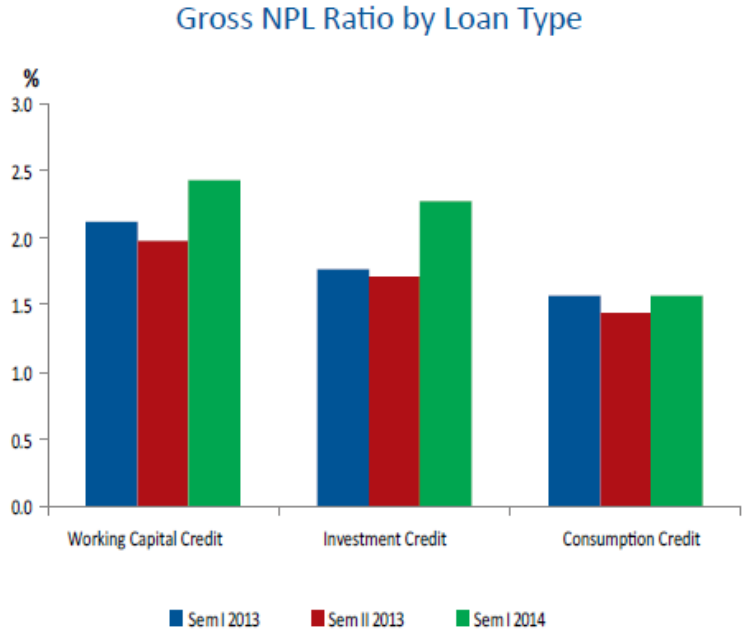
Corporate Credit by Economic Sector

| Economic Sector | Outstanding credit as of June 2014 (trillions of Rp) | Share of Total Credit | Growth in June 2014 (ytd) | Growth in June 2014 (yoy) | Gross NPL in June 2013 | Gross NPL in June 2014 |
|---|---|---|---|---|---|---|
| Agriculture | 129.93 | 7.36% | 6.62% | 24.05% | 0.68% | 1.24% |
| Mining | 109.28 | 6.19% | -8.13% | 5.32% | 0.86% | 2.47% |
| Manufacturing | 527.76 | 29.88% | -1.91% | 27.47% | 1.79% | 1.88% |
| Utilities (electricity. gas and sanitary water) | 79.01 | 4.47% | 4.86% | 19.53% | 0.35% | 1.05% |
| Construction | 99.90 | 5.66% | 10.92% | 17.27% | 3.71% | 4.22% |
| Trade. Hotels and Restaurants (THR) | 356.81 | 20.20% | -3.89% | 23.35% | 1.65% | 2.12% |
| Transportation. Storage and Communications | 156.76 | 8.88% | 11.02% | 29.20% | 2.23% | 2.11% |
| Corporate Services | 268.14 | 15.18% | 1.59% | 12.13% | 0.56% | 0.69% |
| Social/Public Services | 22.79 | 1.29% | 4.58% | 8.17% | 2.45% | 2.92% |
| Others | 15.81 | 0.90% | 65.30% | 36.80% | 0.52% | 2.18% |
| Total | 1.766.19 | 100.00% | 0.81% | 21.29% | 1.50% | 1.87% |

Source: Bank Indonesia




Source: Bank Indonesia




Source: Bank Indonesia

Overview of present deposit rates by commercial banks as source of refinancing:

## Deposit Rates November 2014

| Deposit Account Type | Term | APY | Account Details |
|---|---|---|---|
| Mandiri 3 Month Time Deposit | 3 month | 7.50% | The indicated IDR deposit interest rate is applicable for a fixed 3 month/90 day tenor with a dep - IDR - Nov, 2014 |
| HSBC Indonesia 1 Year Time Deposit | 1 year | 7.50% | Rates for indonesian Rupiah for 12 months/1 year will vary by amount including:< 50,000 - IDR - Nov, 2014 |
| BNI 1 Year Term Deposit | 1 year | 6.50% | Rate applies for a 12 months IDR deposit from BNI Bank Negara Indonesia relating to the following - IDR - Nov, 2014 |
| Mandiri 6 Month Time Deposit | 6 month | 6.00% | The time deposit for the 6 month/180 day tenor requires a deposit balance >= 10M IDR. - IDR - Nov, 2014 |
| Mandiri 1 Year Time Deposit | 1 year | 5.25% | Rate applies for 12 months for a Mandiri Rupiah deposit is greater than >= 10M - IDR - Nov, 2014 |
| Mandiri 1 Month Time Deposit | 1 month | 4.50% | The indicated deposit interest rate is applicable for a fixed 1 month term with the deposit great - IDR - Nov, 2014 |
| Citibank Indonesia 1 Year Time Deposit | 1 year | 4.50% | The interest for this time deposit is for a 1 year / 12 month term with interest is paid maturity - IDR - Nov, 2014 |

Source: http://indonesia.deposits.org/

# Annex 5 - Abbreviations

| | |
|---|---|
| ADB | Asian Development Bank |
| AMDAL | Environmental Impact Assessment |
| ASEI | Asuransi Ekspor Indonesia |
| ASKRINDO | Asuransi Kredit Indonesia |
| BAPPENAS | Ministry of National Development Planning / National Development Planning Agenc |
| BAU | Business as usual |
| BLU | Public Service Agency |
| BRI | Bank Rakyat Indonesia |
| CAC | Conditional Automatic Cover |
| CHP | Combined Heat & Power |
| CGC | Creditor Guarantee Corporation |
| CGE | Computable general equilibrium |
| CoF | Cost of Funds |
| DNPI | Dewan Nasional Perubahan Iklim (National Council on Climate Change) |
| EEFS | Dana Bergulir Efisiensi Energi |
| EE | Energy Efficiency |
| ESCO | Energy Service Company |
| ESCROW | Special Purpose Bank Account |
| EXIM | Indonesia Eximbank |
| GDP | Gross domestic product |
| GHG | Greenhouse Gas Emissions |
| GOI | Government of Indonesia |
| GR | Government Regulation |
| HI | Handling Institution |
| HVAC | Airconditioning |
| IDR | Indonesian Rupiah |
| IEA | International Energy Agency |
| IRR | Internal rate of return |
| FASBI | Bank Indonesia Overnight Deposit Rate |
| KADIN | Indonesian Chamber of Commerce |
| KLH | Ministry of Environment |
| LFI's | Local Financial Institutions |
| Mandiri | Bank Mandiri |
| MEMR | Ministry of Energy and Mineral Resources |
| MoF | Ministry of Finance |
| MoI | Ministry of Industry |
| MtCO2 | Metric tonne of carbon dioxide |
| MWh | Megawatt per hour |
| MRV | Measurement, Reporting and Verification |
| NIM | Net Interest Margin |
| NPL | Non performing loans |
| PIP | Indonesia Investment Agency |
| PKPPIM | Centre for Climate Change Financing and Multilateral Policy in the Fiscal Policy Ag |
| PLN | Perusahaan Listrik Negara |
| PROPER | Environmental Performance Rating Program by Ministry of Environment |

| | |
|---|---|
| R&D | Research and Development |
| RAN-GRK | Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca |
| RE | Renewable Energy |
| RIKEN | Draft National Energy Conservation Plan |
| SC | Steering Committee |
| SOP | Standard Operating Procedure |
| SPV | Special Purpose Vehicle |
| TAU | Technical Assistance Unit |
| UNEP | United Nations Enviroment Programme |
| US$ | United States Dollar |

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Republic of Indonesia
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