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PRIVATE GAIN, PUBLIC RISK:
GUARANTEES AND CREDIT ENHANCEMENT FOR COAL-FIRED POWER PLANTS IN INDONESIA

EXECUTIVE SUMMARY

- **Risk guarantee and credit enhancement programs that subsidize coal-fired power plants could cost the Government of Indonesia and Indonesian ratepayers as much as tens of trillions of rupiah – many billions of U.S. dollars – over the coming decade.**

- **A multitude of guarantees, credit enhancement programs, and policies that transfer risk from project developers to the government are currently benefiting coal-fired power plants, while increasing the risk borne by the Government of Indonesia, Indonesian ratepayers, and the Indonesian public. This analysis considers loan guarantees, business viability guarantees, and foreign exchange (or currency risk). Additional guarantee mechanisms – including those provided by dedicated guarantee funds such as the Indonesian Infrastructure Guarantee Funds – are also benefiting coal projects and increasing public risk.**

- For coal projects, loan guarantees provided through 2017 alone could easily cost $2.1 billion (using moderate risk assumptions) and could cost twice as much – $4 billion – under high risk assumptions. These numbers would rise as the volume of loan guarantees rise beyond 2017. It is also likely that billions of dollars of additional risk is created from the business viability guarantees and foreign exchange guarantees.

- **Multiple scenarios could result in large numbers of guarantees for coal-fired power plants in particular being called in a short period of time – from lack of freshwater causing coal-fired power plants to close, to climate change or air pollution policies limiting the ability of coal plants to operate, to regional oversupply of electricity resulting in payments for electricity that is never used. If many gigawatts of coal-fired generating capacity are underpinned by government guarantees, any one of these scenarios could put Indonesia's finances under great stress.**

- **In weighing whether guarantees for electricity producers serve the public interest, the government can consider whether coal – with its attendant risks and high externality costs – is worthy of support and subsidy, or whether subsidies and support should be concentrated at energy solutions that provide the highest net public benefit and cause the least harm.**

Above: Coal-fired power plant in operation. ©Rich.
Source: https://www.flickr.com/photos/isnapshot/12793650333/

BACKGROUND ON GUARANTEES, RISK TRANSFERS, AND CREDIT ENHANCEMENT BENEFITING COAL-FIRED POWER PRODUCTION AND PROJECTS IN INDONESIA

Recently, the Government of Indonesia has made several moves to provide guarantees and similar policies that transfer risk from developers of coal-fired power plants to the government. These transfers of risk could result in very large subsidies to these projects, putting Indonesian taxpayers and ratepayers on the hook for substantial costs if economic or policy conditions change. These subsidies could add up to billions of dollars per year if applied across the government's full 35 GW electricity generation expansion plan. This is significant considering Indonesia's tax revenues are roughly $25 billion a year.

There are many different types of guarantees and risk-transferring policies. This briefing explores three types of guarantees the Government of Indonesia is using to promote coal-fired power production, including loan guarantees, business viability guarantees, and foreign exchange (or currency risk) being borne by Perusahaan Listrik Negara (PLN – Indonesia's state-owned electricity company) rather than project developers. These are not the only guarantees provided to coal-fired power plants: for example, the Government of Indonesia is also bearing part of the risk of the Indonesia Infrastructure Guarantee Facility. This guarantee is not included in this analysis, but is described in more detail in a previous Oil Change International briefing on World Bank Group involvement in the coal sector in Indonesia.[1]

1.1 LOAN GUARANTEES

Loan guarantees do not actually reduce credit risks overall. Rather they are intended to reduce or eliminate the risk of default *to lenders* by shifting that risk to the government. This makes interest rates for a loan more favorable, and, in some cases, enables financing for projects that might otherwise have been deemed too risky. There are three subsidy elements associated with loan guarantee programs: (i) the administrative cost of the guarantee program; (ii) access to lower-interest financing benefiting a particular industry or project; (iii) defaults. Each of these have different levels of benefit to project developers and cost to government. For example, project developers gaining access to lower-interest financing as a result of loan guarantees may not incur a real cost to government but might simply privilege one industry or project over another. However, defaults on guaranteed loans and the costs of administering a loan guarantee program are hard costs to government borne by the tax base.

In Indonesia, the government issued a new regulation that would see PLN's electricity projects under the 35 GW expansion scheme fully guaranteed by the government.[2] This means that the government will provide loan guarantees to financial institutions that provide financing to the state-owned PLN. While governments will often book guarantees as zero-cost, the value of loan guarantees is substantial. History shows that even well-managed loan guarantee programs do experience defaults, and the eventual cost of guarantees can spiral out of control in environments where policy risk, counterparty risk (in this case, off-taker risk – the risk that the initial buyer of the electricity, such as PLN, is unable to pay the previously agreed price), and other risk result in a risk of governments having to pay out a high number of guarantees over a short period of time

1.2 BUSINESS VIABILITY GUARANTEES

Another type of guarantee sometimes offered by governments is a guarantee against changes to the fundamental conditions that enable a business to make a profit. For example, business viability guarantees might offer to protect project developers from certain types of policy risk. In the case of Indonesia, the government has agreed to bear the off-taker risk through power purchase agreement (PPA) guarantees in independent power producer (IPP) projects.[3] Specifically, the government guarantees the ability of PLN to fulfill payment obligations under PPAs.

Because PLN is a state-owned enterprise, the government is effectively taking on this risk: even if PLN becomes insolvent or cannot pay for electricity, the Indonesian government is still obligated to pay for electricity under PLN's PPAs as a result of the guarantees. Credit rating agencies equalize their rating of PLN with their rating of the Republic of Indonesia, demonstrating that PLN is seen as having the full backing of the Government of Indonesia.[4]

1 Oil Change International, "World Bank Accelerating Coal Development in Indonesia," September 2013. http://priceofoil.org/2013/09/25/world-bank-accelerating-coal-development-indonesia/
2 Prima Wirayani and Fedina S. Sundaryani, "Govt comes to PLN rescue with new rule," The Jakarta Post, September 7, 2016. http://www.thejakartapost.com/news/2016/09/07/govt-comes-to-pln-rescue-with-new-rule.html
3 ibid
4 Press Release: Fitch Ratings Co., "Fitch Revises Outlook on PLN to Positive; Affirms at 'BBB-,'" December 22, 2016. https://www.fitchratings.com/site/pr/1016932

The business viability guarantees represent a significant subsidy to IPPs including coal-fired power plants, as they are able to fully discount off-taker risk as a result of this guarantee. The value of this subsidy is not easy to quantify: estimating the level of off-taker risk is dependent on the characteristics of the PPA, the financial health of the off-taker (in this case, PLN), and assumptions about future demand, generation, electricity, prices, and policies (including carbon constraints as a result of climate change-related regulation).

1.3 FOREIGN EXCHANGE (CURRENCY RISK) BORNE BY GOVERNMENT

When governments agree to take on foreign exchange (or currency) risk, this represents another transfer of risk from project developers to government. Project developers may take on debt in currencies that are different from the currency of the revenue streams they expect to result from the project. When the exchange rate fluctuates between the currency of revenue (in Indonesia's case, Rupiah) and the currency of debt (in this case, the currency of debt raised by the project sponsors – for example, Japanese Yen or U.S. dollars), the cost of debt can increase dramatically. This adds an additional layer of uncertainty as to whether project developers will be able to service their debt, especially if the value of the currency in which they receive revenue suddenly drops relative to the currency in which their debt is denominated.

The Government of Indonesia has agreed to take on the foreign exchange risk for certain IPPs. For example, trade journals have reported that the government agreed to absorb the foreign exchange risk in the Central Java IPP (also referred to as the Batang coal-fired power plant).[5] The problem lies in the fact that the Rupiah is Asia's most volatile currency. As a result, the value of hedging currency risk for Rupiah is very high. This means that if PLN assumes all of the currency risk in electricity payments to developers of the Central Java IPP, and possibly other coal-fired power plants, the potential cost to PLN (and thus to Indonesian electricity consumers) could be significant. By assuming this currency risk, the government shifts all of the risk onto the shoulders of taxpayers rather than splitting the risk or offloading the risk onto project developers.

Coal mining operation in East Kalimantan. ©Alex Doukas

Quantifying the potential costs of this risk to Indonesia's electricity consumers is difficult given uncertainty in exchange rates over time. For utility-scale renewable electricity projects in India, the value of government assuming currency risk is estimated to significantly reduce the net cost of debt to a project developer relative to market-based currency hedging – by as much as 7 percent, assuming the government runs a well-designed exchange rate hedging facility.[6] (Note that this is the case in India, and this may not be directly comparable with the situation in Indonesia). In Indonesia's case, recent hedging costs have been high enough to add as much as 9 percent to the cost of debt.[7] This translates to an even higher risk premium borne by electricity consumers. Depending on how PLN handles the currency risk (for example, whether PLN makes use of hedges), the real cost to consumers of assuming currency risk in power projects could be significantly higher based on how the value of the Rupiah fluctuates over time.

Ultimately, the government assuming all currency risk (via PLN) for the Batang coal power project sets a risky precedent for the development of new power plant development in Indonesia - not just Batang. This approach exposes ratepayers to significant risk, increasing the cost of electricity and loading the balance sheets of PLN with dangerous levels of liability.

In the 1990s, during the Asian financial crisis, the volatility of the Rupiah had devastating consequences for PLN, which had agreed in its PPAs to purchase electricity from generators in U.S. dollars while its revenues (from Indonesian customers purchasing electricity) remained in Rupiah. This led to a hiatus of the IPP program, with many projects terminated and delayed.[8] If PLN bears the foreign exchange risk for coal projects, there is significant risk of a similar outcome in the case of economic turmoil.

5 Project Finance International, "AP: Indonesia – PLN to take forex risk in CJIPP," May 25, 2016. http://www.pfie.com/ap-indonesia-pln-to-take-forex-risk-in-cjipp/21248911.article
6 Arsalan Farooque and Dr. Gireesh Shirmali, "Reaching India's Renewable Energy Targets Cost-Effectively: A Foreign Exchange Hedging Facility," Climate Policy Initiative, June 2015. https://climatepolicyinitiative.org/publication/reaching-indias-renewable-energy-targets-cost-effectively-a-foreign-exchange-hedging-facility/
7 Satria Sambijantoro, "Rupiah to remain volatile until Fed hikes interest rate," The Jakarta Post, April 23, 2015. http://www.thejakartapost.com/news/2015/04/23/rupiah-remain-volatile-until-fed-hikes-interest-rate.html
8 PwC, "Power in Indonesia: Investment and Taxation Guide 2013, 2nd Edition," April 2013. http://www.pwc.com/id/en/publications/assets/electricity-guide-2013.pdf

RISKS POSED BY GUARANTEES FOR COAL-FIRED POWER PLANTS

Several different methodologies exist to estimate the value of loan guarantees.[9] Even without precise information about the nature of financial arrangements in the case of the guarantees, it may be possible to develop a range of estimates of the risk being borne by the government in offering these guarantees, and thus an estimate of the value of the subsidy provided by these guarantees.

2.1 QUANTIFYING SUBSIDY VALUE, OR RISK OF LOSSES FROM LOAN GUARANTEES

As described in section 1.1, there are three ways in which loan guarantees benefit project developers, or incur losses to government. We focus here on the losses to government rather than the total benefit to project developers. This means leaving out consideration of the reduced interest rates that loan guarantees can provide to project developers, and focusing on losses due to defaults, as well as administrative costs to run the guarantee program.

There are a range of estimates used to assess the risk of default for loan guarantee programs. The Organization of Economic Cooperation and Development (OECD) has previously used a 1 percent default rate assumption as a rule of thumb for loan guarantees. Academics looking at a range of real-world guarantee programs across developed and developing economies have found a range of 0 to 15 percent loss.

In Indonesia, the actual experience with the Fast Track Program 1 (FTP-1) loan guarantees to date (which are exclusively for coal-fired power) show nearly a 7.7 percent overall loss rate. The overall loss rate is likely to grow since many of the guarantees offered under the FTP-1 program are only a few years old. These losses come from the FTP-1 program's total of 36 guarantee letters – 11 guarantee letters in USD and 25 in IDR – covering a total of $6.7 billion (IDR 87 trillion). Between 2018 and 2016, IDR 6.7 trillion was allocated to the state budget as guarantee liabilities for the FTP-1 program, compared to 87.2 trillion in total guarantees under that program, according to reporting from the Ministry of Finance.[10] This represents 7.7 percent of the guarantee volume. These are only the losses to date; any losses incurred in the future will add to this total.

There is also a wide range of administrative cost estimates associated with loan guarantee programs. In Asia, experience has shown that administrative costs can reach several percent of the guarantee fund assets. In Japan, administrative costs have been reported as 3.5 percent per year. In Korea, that figure is even higher at 7 percent of total guarantee amount. However, these costs may be partially or fully recovered through guarantee fees (charged both up-front and annually) by the government. Because the guarantee fees charged by the Government of Indonesia are not clear through publicly available documents, administrative fees are not included in this analysis of the potential cost of the loan guarantee program, though in many cases guarantee fees are not sufficient to cover administrative costs, resulting in significant additional cost to government.

As of 2017, the Government of Indonesia has indicated it may provide up to $26.7 billion (IDR 357.4 trillion) in guarantees for power projects, mostly for coal-fired power projects. While it is impossible to completely and accurately gauge the risks of Indonesia's guarantee programs for electricity generation, which benefit primarily coal-fired power plants, it is possible to develop a range of possible risk by using scenarios based on the above precedents in Indonesia and around the world. Table 1 provides a low, medium, and high estimate of potential losses – or subsidies – for the loan guarantees on offer for electricity projects through 2017. A significant majority of these projects (and the guarantee funds) are for coal-fired power plants.

Table 1: Estimate of prospective losses from loan guarantees for power projects (for maximum guarantee level of $26.7 billion through 2017)

	Low	Medium	High
Default rate (%)	1%	7.7%	15%
Total expected losses for loan guarantees offered through 2017 ($)	$267,000,000	$2,047,367,642	$4,005,000,000

9 For example: Ashoka Mody and Dilip Patro, "Methods of Loan Guarantee Valuation and Accounting," World Bank Group, November 1996. http://siteresources.worldbank.org/INTGUARANTEES/Resources/Methods_of_Loan_Guarantee_Valuationand_Accounting.pdf US Congressional Budget Office, "Estimating the Value of Subsidies for Federal Loans and Loan Guarantees," August 2004. https://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/57xx/doc5751/08-19-creditsubsidies.pdf Gary Schurman, "Valuing Loan Guarantees," The Value Examiner, November 2010. http://www.appliedbusinesseconomics.com/files%5C2010-NovDec-Schurman.pdf

10 Ministry of Finance Indonesia, "Contingent Liabilities Management Developments In Third Quarter 2016," 2016. http://www.djppr.kemenkeu.go.id/page/loadViewer?idViewer=6668&action=download

2.2 QUANTIFYING FOREIGN EXCHANGE RISK BORNE BY GOVERNMENT

Given the sophistication of hedging markets, the costs of currency hedges are likely the most accurate available proxy for the cost of guaranteeing against foreign exchange risk. In Indonesia's case, the cost of hedging has risen to over 13 percent of the cost of debt at times in the past two years,[11] and has hovered around 9 percent of the cost of debt in recent years (with significant fluctuations).

PLN has agreed to cover the foreign exchange risk of the 2,000 MW Batang coal-fired power plant, which has a debt component of $3.4 billion. As PLN is a government-owned enterprise, this effectively means that the government now carries the currency risk, because the government stands behind PLN in the case of non-payment. Assessing a 9 percent hedging cost to the current market rates for large-scale project debt in Indonesia would result in additional costs of as much as hundreds of millions of dollars over the lifetime of loans for a project with a $3.4 billion debt component, such as the Batang plant.

In many other countries, currency risk is shared across developers and off-takers of electricity (for example, half of the tariff might be paid in USD and the other half in local currency).

Instead of making developers take on that risk and attendant cost, PLN's arrangement has put that burden on the shoulders of the Indonesian people.

The risk is not contained to the Batang coal-fired power plant. PLN has indicated it may be willing to take on the same kind of risks for other foreign-funded coal projects. Providing this kind of guarantee for multiple coal-fired power plants will increase the level of subsidy, and create much greater potential downside risk in the case of larger-than-usual currency fluctuations.

2.3 QUANTIFYING BUSINESS VIABILITY, OR OFF-TAKER GUARANTEE

The best way to quantify the prospective costs of business viability guarantees is to look at their past performance in Indonesia and other jurisdictions. Losses resulting from such guarantees can be very large, especially if government decides it is in the public interest to reduce the negative effects of coal-fired power projects, or if there is too much capacity developed (or even a lag between capacity and load in a given region). Some of the scenarios in which business viability, or off-taker guarantees could cause significant concern are unique to coal while others are not. A few of the scenarios of highest concern include:

Oversupply resulting in calling of guarantees

Even modest oversupply relative to demand can result in large expenditures, as PLN's PPA models to date have guaranteed minimum availability payments (or "take-or-pay" commitments). If PLN signs too many PPAs, and too many projects are built in one region, PLN will still have to pay generators according to the terms of the PPA regardless of how much electricity they are able to sell. As a result of the business viability guarantees, this risk does not stop with PLN, but cascades to the government. This risk is amplified by the fact that electricity interconnections across the archipelago are very limited, increasing the likelihood of regional surpluses of electricity even while other parts of the country have an electricity deficit. In fact, PLN has recently estimated that Java faces overcapacity of 5,000 MW by 2022, demonstrating that this is a very real and present risk.

New regulation on power producers resulting in calling of guarantees

Another scenario in which business viability guarantees might be called in large numbers is if the government makes new decisions about regulating power production in the future – for example, to control air pollution or fresh water use in water-scarce areas, as has happened in China and increasingly in India, resulting in idle plants.[12] Such generous guarantees risk tying the hands of future governments to make regulatory determinations in the public interest.

New, cheaper, more efficient supply with low-or-no fuel cost pushing older generators out of service

Another possibility is that more efficient and cost-effective generators come online in future years, pushing out the generation of more costly and less-efficient plants. In this case, the government will continue to bear the costs of the less-efficient and more costly plants as a result of the guarantee. Given that PLN's PPAs often include take-or-pay agreements for long time periods, PLN or (in case of default) the government could be required to make payments for electricity that is not even needed. Given the rapidly decreasing costs of renewable energy technologies, this is an important consideration given that many PLN PPAs may include take-or-pay agreements of 15 years or more.

Assuming 21 GW of new coal-fired power production comes online under the 35 GW plan, and assuming 5 percent of the electricity payments PLN or the government makes to producers result from guaranteed minimum payments and *not* from electricity purchased to meet actual demand, this could result in extra costs to ratepayers of $700 million per year.[13] Potential losses could climb much higher if there are systemic causes for widespread idling of generation capacity.

11 Yudith Ho and Fathiya Dahrul, "Currency Hedge Catch-22 Confounds Indonesia as Rupiah Swings," Bloomberg, April 27, 2015. https://www.bloomberg.com/news/articles/2015-04-28/currency-hedge-catch-22-confounds-indonesia-as-rupiah-swings

12 Victor Mallet, "India's power stations are hit as big dams run dry," Financial Times, May 5, 2016. https://www.ft.com/content/0c30a958-12d6-11e6-91da-096d89bd2173

13 These figures assume a 75% capacity factor for these coal-fired power plants and an average PPA price of $0.10/kWh (or, roughly based on current costs of production in Indonesia, which fluctuate from year to year. The resulting calculation is as follows: Projected new coal-fired power generation capacity * capacity factor * hours per year * electricity price * rate of guaranteed electricity payments made to producers. With the corresponding numbers, the calculation is as follows: 21 GW of new coal capacity * 0.75 capacity factor * 8,760 hours per year = 137,970 GWh of electricity from new coal capacity per year. 137,970 GWh = * 0.05 guaranteed payment rate is 6898.5 GWh. 6898.5 GWh * $0.10/kWh production cost (or $100,000/GWh) = $689,800,000

CONCLUSION

All of the guarantee and credit enhancement programs presented above provide a substantial subsidy to the coal projects they cover, while shifting the financial risks to the guarantor. These risks are ultimately borne by the Indonesian government, taxpayer, and ratepayer.

As described in this analysis, the risk of providing guarantees is amplified when there are many overlapping guarantees, as there are for coal-fired power plants. A coal-fired power project might be covered by business viability guarantees and loan guarantees, and the government might also bear 100 percent of the currency risk at the same time. If the project fails, the loan guarantee is lost. Even if the project succeeds, it may still be extremely costly if foreign exchange guarantees and business viability guarantees are triggered.

Coal loaded on a barge in East Kalimantan. ©Alex Doukas

The Government of Indonesia should be aware of the degree to which its guarantees and credit enhancement for coal-fired power plants are exposing Indonesian taxpayers and ratepayers to significant risk, primarily for the benefit of developers of coal-fired power projects. Guarantees and subsidies are not inherently bad. Indeed, they can be extremely useful tools in catalyzing infrastructure development and the provision of essential services. But it only makes sense to provide incentives for those activities that create a public good *without* creating a significant public cost or liability. Coal-fired power plants produce electricity, but they also produce substantial amounts of local air pollution which damages health; they use large volumes of fresh water; and they pump massive amounts of carbon dioxide (CO_2) into the atmosphere.

In weighing whether guarantees for electricity producers serve the public interest, the government can consider whether coal – with its attendant risks and high externality costs – is worthy of support and subsidy, or whether subsidies and support should be concentrated at energy solutions that provide the highest net public benefit and cause the least harm.

OILCHANGE INTERNATIONAL

Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy.
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Auriga is an Indonesian non-governmental organization that engages in an effort to conserve Indonesian natural resources and the environment to improve the quality of life of humankind.