



POLICY BRIEF

Indonesia's Coal Price Cap: A barrier to renewable energy deployment

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Introduction

Through the domestic market obligation, the Indonesian government requires coal mining companies to supply part of their coal production to the domestic market, with much of this coal eventually delivered to coal-fired power plants. The current market obligation includes a cap on the prices that coal suppliers can charge, reducing the cost of coal for coal-fired power stations. It is estimated that electricity producers saved more than USD 1 billion per year from this measure in 2018.

In 2018, the Ministry of Energy and Mineral Resources issued two new decrees capping the maximum price for coal sold to power plants at USD 70 per tonne and obliging local coal mining companies to allocate 25 per cent of their production volume domestically for the years 2018 and 2019. Indonesia's regulations are designed to keep electricity prices stable as well as protect the finances of government-owned electricity distribution company Perusahaan Listrik Negara (PLN) from sudden hikes in coal prices. This policy brief finds that this glut of cheap coal-powered electricity effectively locks out renewable energy projects in Indonesia.

This policy brief reviews the impacts of the coal price cap on renewable energy deployment and discusses whether it is possible to sustain PLN's finances without adversely affecting the integration of renewables into the power system.

What Is the Coal Price Cap and Why Was It Introduced?

The domestic market obligation (DMO) determines a minimum of all coal sold by local coal mining companies to the Indonesian market. The DMO for 2018 is set at 25 per cent of the total production volume by coal mining companies. Around 114 million tonnes were consumed by the domestic market, including coal for coal-fired power plants. Coal accounts for more than half of all fossil fuels used by PLN and independent power producers (IPPs) for their power plants.

Under normal conditions the price of coal sold under the DMO is linked to international price benchmarks. However, the Ministry of Energy and Mineral Resources (MoEMR) issued a decree in March 2018 that capped the price of coal sold to power plants at a maximum USD 70 per tonne for coal with a calorific value of more than 6,000 kilocalories (kcal)/kg gross as received (GAR) and the price cap is scaled according to a formula for lower



grades of coal. As most of the coal consumed by PLN and coal-fired IPPs has a calorific value between 4,200 and 4,500 kcal/kg GAR, they effectively pay USD 37 per tonne (Asmarini & Jensen, 2018). Because coal purchases by PLN and IPPs in 2017 were slightly below 100 million tonnes, the cap will apply to nearly all of the coal sales agreements in 2018 and 2019 (PWC, 2018).

Generally, the coal price cap regulation applies only when the Indonesian coal reference price (HBA) surpasses USD 70 per tonne. Otherwise, the HBA will remain the reference price for coal sales agreements (PWC, 2018). The HBA is a monthly average price determined by the MoEMR and calculated according to average coal prices in local and international market indexes (Kannan, 2018).

According to calculations done by IISD, it is expected that the coal price cap will result in savings of around USD 1.3 billion for PLN, effectively a subsidy paid for coal-fired power plants by the coal mining industry, if the 2018 HBA average stays above USD 100 per tonne. Since fuel accounts for 60-70 per cent of the operating cost of coal-fired power plants, a 20 per cent reduction in fuel prices, which is the approximate impact of the cap, would create a 13 per cent reduction in operational costs and a corresponding increase in PLN's profitability (Author's calculations, based on Nalbandian-sugden, 2016). Capping the coal price effectively reduces the cost of coal bought by PLN and the profitability of mining companies. This type of intervention is known as market price support (see Box 1).

The Government of Indonesia (GoI) has made a commitment to keep fuel and electricity tariffs at current levels until the end of 2019 (Sheany, 2018). With revenues from electricity sales static, PLN could face mounting deficits. The cap on the price of coal is an attempt to keep generation costs down to avoid these deficits without additional costs to the public budget.

Box 1. Is the Indonesian cap on coal prices considered a subsidy?

The GoI uses the term subsidy mainly referring to support provided directly to the people of Indonesia or lowering the price of a commodity, such as gasoline or diesel. Supports to industry for energy production are not considered subsidies, which refer only to the support provided to energy consumers.

However, under internationally agreed definitions (i.e., the definition according to World Trade Organization's Agreement on Subsidies and Countervailing Measures), a subsidy exists where governments:

1. Provide a direct transfer of funds or liabilities
2. Forego or otherwise fail to collect revenue
3. Provide goods or services below market rates or purchase goods above market rates
4. Provide income or price support

(Source: Beaton et al., 2013)

In this policy brief this international definition of subsidy has been applied. With that in mind, all references to the term subsidy in this report refer to the international definition of the term (Attwood et al., 2017).

Market price support and price ceilings don't necessarily have a direct cost to the government. Price support subsidies occur when governments regulate the prices of commodities. In this case Indonesia's government regulates the domestic price of coal by setting a maximum price cap. In general, when prices are set lower than market prices, consumers tend to consume more of the commodity and are deemed to have received a subsidy equivalent to the difference between market prices and the price they pay (OECD, 2016). The cost of the subsidy in this case falls not on the Indonesian government, but on the coalmine owners, who are required to sell their goods below market price.

In addition to the subsidy to consumers, market price support creates further costs to the system as a whole, due to the economic inefficiency caused by moving away from the supply and demand equilibrium. Economists call this inefficiency "deadweight loss."

How Important Is the Coal Price Cap?

As of the end of 2018, the coal price cap is the largest subsidy to the power industry in Indonesia and is fundamentally changing the economics of coal electricity production. Analysis from GSI concludes that the policy reduces the average cost of one tonne of coal bought by PLN by USD 21.06 per tonne in 2018, and USD 17.94 per tonne in 2019. Given that PLN will consume around 93.2 million tonnes of coal in 2018 and a maximum of 100 million tonnes in 2019, the total value of the policy to PLN will be USD 1.27 billion in 2018 and USD 1.79 billion in 2019.¹ In addition to the estimate produced by the IISD/GSI there are a number of other estimates of the costs saved by PLN as a consequence of the price cap policy for coal. These estimates are shown in Figure 1:

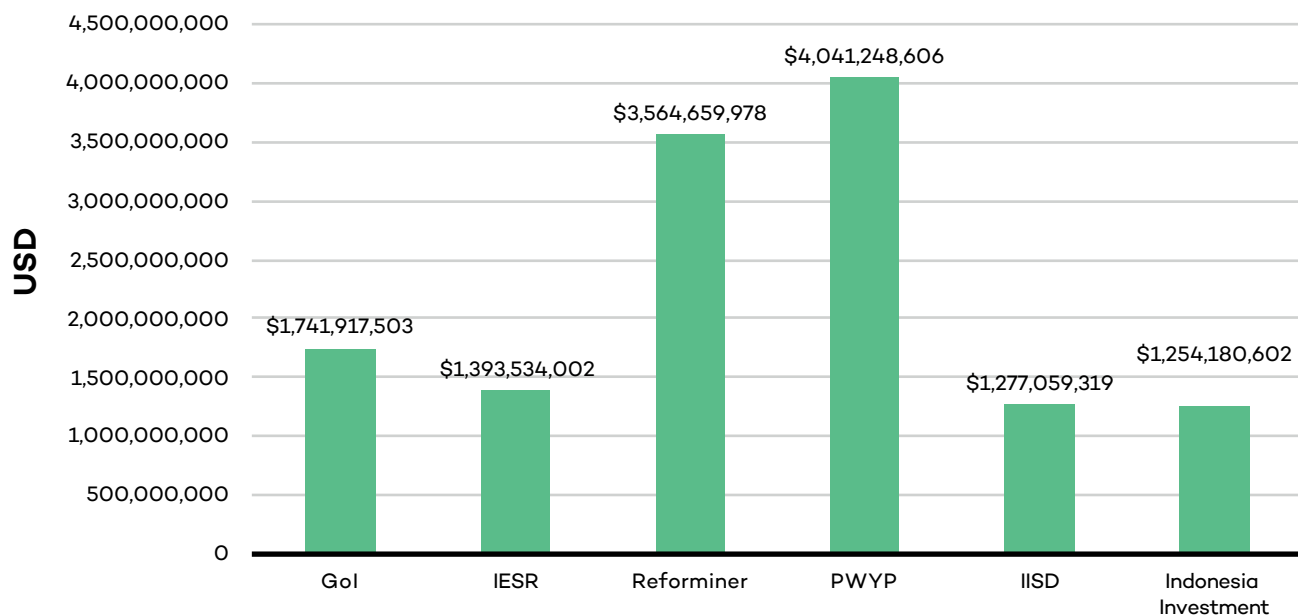


Figure 1. Estimates for total value of coal cap policy to PLN in 2018

Source: Author diagram based on data from Aditya, 2018; Angriani, 2018; Meilanova, 2018c; Notonegoro, 2018; Syahni, 2018.

As shown in Figure 1, IISD’s estimate is at the lower end of the potential cost savings or value to PLN found in other studies. As mentioned, fuel costs account for a 60-70 per cent of operating cost for coal-fired generation. Based on this assumption, PWYP calculate a USD 4.4-5.1 billion savings potential in operational costs for PLN. Similarly, PLN’s Managing Director Sofyan Basir said that the removal of the DMO and the cap on coal prices would cause an increase of IDR 30 trillion (USD 2.1 billion) in PLN’s plant operating expenses. (Gumelar, 2018). Figure 2 shows the potential operational cost savings in 2018 with the DMO regulation in place.

¹ To arrive at the estimate above it was assumed that the DMO coal cap policy will be in place from March 2018 to December 2019; that PLN’s total coal consumption in 2018 is 93.2 million tonnes, of which 32.6 million tonnes have been consumed in the period of January-April 2018, before the DMO policy took effect (CNN Indonesia, 2018); Assuming that PLN’s total coal consumption for 2019 will be 100 million tons (CNN Indonesia, 2018); that USD-IDR exchange rate for 2018 is USD 1 = IDR 14,362, and USD 1 = IDR 15,000 for 2019, which is the rate used in the 2019 state budget (Aditya Putra, 2018); the The HBA used for coal type >6000 kcal/kg GAR is the average HBA between March-November 2018, which is USD 100.1/tonne. The pricing for coal with lower calorific values is scaled down based on the MoEMR official price ratio and formula released in 2014 (Dirjen MINERBA, 2014); The PLN coal consumption ratio is based on an interview with PLN employee. (Meilanova, 2018b)

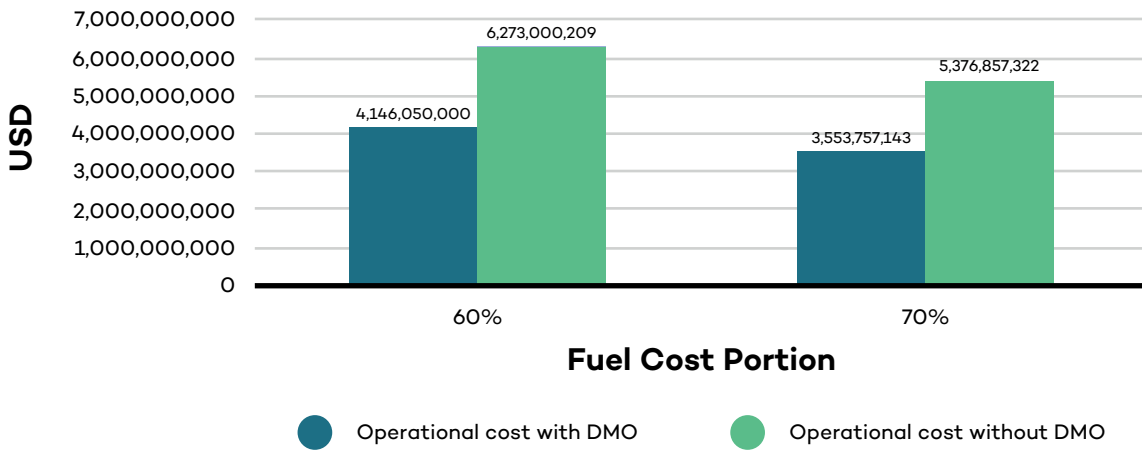


Figure 2. Estimated operational costs for PLN with and without the DMO coal price cap policy in place

Source: Authors' calculations.

Figure 3 shows the effect of the coal cap policy on prices by month since March 2018. The difference between the USD 70 per tonne cap and the HBA price is the effective subsidy. PLN reportedly claims that the DMO policy allows it to reduce electricity production costs from coal to around IDR 300/kWh. PLN's Strategic Procurement Director Supangkat Iwan Santoso said that if the coal price was raised to USD 90 per tonne, it would increase electricity production cost by around IDR 100-IDR 150 / kWh (Meilanova, 2018a).

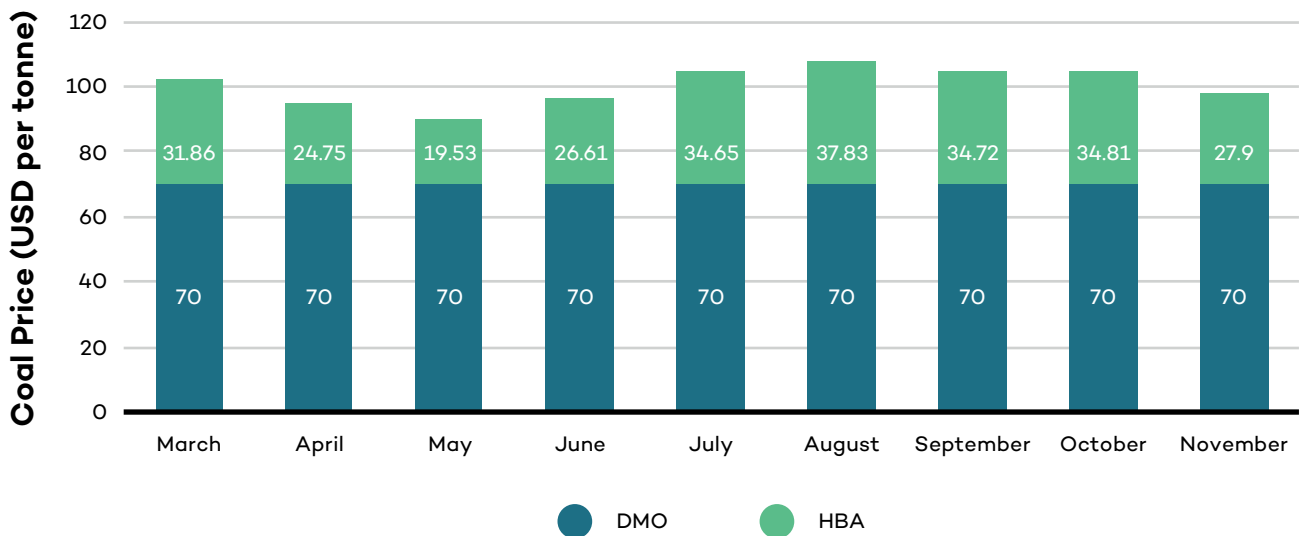


Figure 3. The price difference between the HBA and DMO in 2018

Source: KataData, 2018.

What Does This Mean for Renewables?

As outlined in previous sections, capping the price of coal reduces the price of electricity generated by coal-fired power plants and improves PLN's finances. So how does this affect other generators who do not benefit from the availability of subsidized coal?

The price paid to generators is regulated in Indonesia. The maximum amount that can be paid to generators is capped relative to the BPP, a price index based on PLN's average electricity generation cost. Since the cost of electricity production differs in each region, the BPP rate itself also differs per region. The GoI applies different



rules for maximum electricity purchase price from renewable energy sources and from coal. The current national BPP is IDR 1.025 (USD 0.0766/kWh). This rate will be valid from April 2018 up to March 2019 (Rezki Amelia, 2018).

The maximum purchase price available for generators depends on the generator type, and whether the region in which the generator is located has a regional BPP above the national BPP. Details are presented in Box 2.

Box 2. Determining power purchase rates from electricity generators

PerMen ESDM No 50/2017—which regulates maximum electricity purchase price from renewable energy sources—states that:

1. For electricity purchased from solar, wind, and ocean-hydro power plants (RE1): if the local BPP is equal to or below the national BPP, the electricity purchase price will be decided on a business-to-business basis. In the event the local BPP is above the national BPP, the maximum electricity purchase price is 85 per cent of the local BPP.
2. For electricity purchased from geothermal, hydro, and waste power plants (RE2): for power plants located in Sumatra, Java and Bali, all electricity purchase price will be decided on a business-to-business basis, while the maximum electricity purchase price for the rest of Indonesia is 100 per cent of the local BPP for the rest of Indonesia.

The Electricity purchase price for coal generation is regulated under PerMen ESDM No 19/2017, which states that:

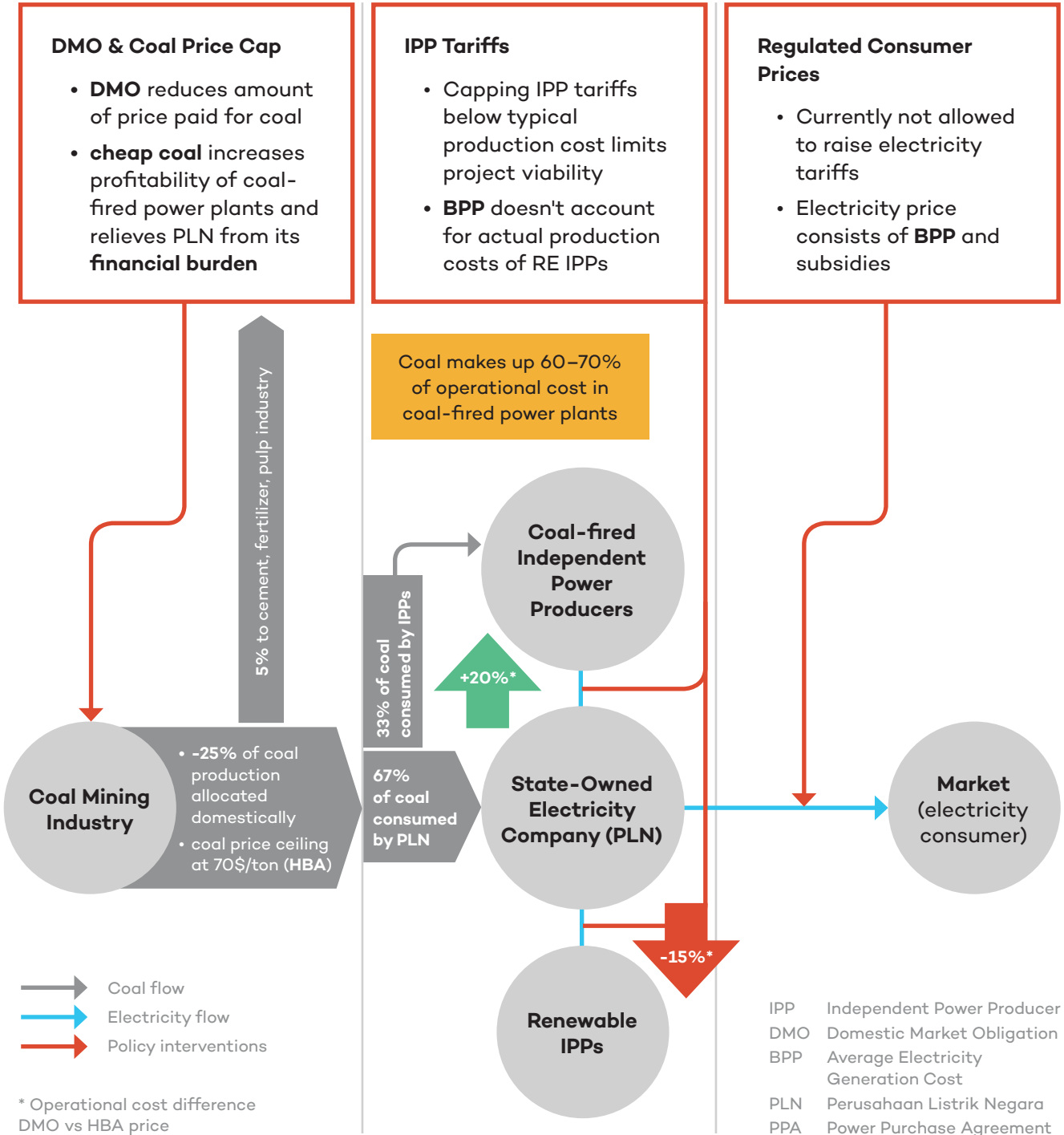
1. For mine-mouth coal: If the local BPP is higher than national BPP, the maximum electricity purchase price is 75 per cent of national BPP. In the event the local BPP is lower than or the same as national BPP, the maximum electricity purchase price is 75 per cent of the local BPP.
2. For non-mine-mouth coal:
 - For power plants with a capacity of 100 MW and above: If the local BPP is higher than national BPP, the maximum electricity purchase price is 100 per cent of national BPP. In the event the local BPP is lower than or the same as national BPP, the maximum electricity purchase price is 100 per cent of local BPP.
 - For power plants with capacity below 100 MW: If the local BPP is higher than national BPP, the electricity purchase price will be decided on a business-to-business basis. In the event the local BPP is lower than or the same as national BPP, the maximum electricity purchase price is 100 per cent of local BPP.

Despite the complexity of determining applicable power purchase rates, it is observed that in areas with high power prices (above the national average) wind and solar are capped at 85 per cent of the regional rate but large coal plants can receive up to 100 per cent of the national rate. This means that in many areas coal would actually receive a higher tariff than wind and solar energy. Even for areas with low local BPP, the fact that there is no price guidance for renewable energy-sourced electricity, prices are negotiated on an ad hoc basis, implying a lengthy and complicated negotiation process.

What is clear is that the pricing system for generation does not particularly favour renewable generators. The combination of capping the price of renewable energy at levels often lower than those paid to coal generators, while simultaneously reducing the fuel costs of coal generators through the provision of subsidized coal, has created a significant competitive disadvantage for renewable energy generators compared to those that use coal. The key message of these policies is that coal generation receives special support, in the form of capped fuel prices, while in most cases renewable power purchase prices receive no recognition for the reduction in externalities associated with their use. Under these conditions it is clear why PLN continues to pursue large-scale deployment of coal generation and only relatively small-scale deployment of renewable generation. Figure 4 summarizes the effects of both the DMO and the caps on tariffs for independent power producers.

Locking out RE integration in Indonesia with DMO, Coal Price Cap & IPP tariffs

Ministry of Energy and Mineral Resources



coal assets remain viable; Few new market entrants left possible

Figure 4. Impact of coal price caps and regulated IPP tariffs on renewable energy

How to Shore up PLN’s Finances Without Locking in Coal

This policy brief has shown that concerns around PLN’s financial viability have led the government to introduce a range of measures that reduce the cost of coal to generators and reduces the price paid to independent power producers, including renewable generators. Both of these policies have succeeded to some extent in reducing deficits at PLN. However, they have also had unintended negative consequences for the financial viability of many renewable energy projects.

In light of these impacts it is reasonable to question whether these policies could be reformed to continue to meet the primary objective of avoiding incurring further costs for PLN without disadvantaging renewable energy. Table 1 presents a brief summary and pros and cons of five possible policies that could meet this objective.

Table 1. Pros and cons of policy options

Pros	Cons
Policy 1: Increase electricity tariffs across the board while removing coal price cap	
Across-the-board price increases would increase PLN’s revenues and reduce deficits. The reduction in deficits would create more fiscal space that could support the delivery of renewable energy targets.	The government has made a commitment to maintain electricity prices until 2019. Price rises could also risk increasing energy poverty.
Policy 2: Reduce the numbers of consumers able to access discounted tariffs (better targeting)	
There is a precedent. The government has removed subsidy for household customers with installed capacity >900 VA since January 2017. This policy is said to have reduced subsidy from IDR 57 trillion in 2016 to IDR 51 trillion in 2017.	The removal of the household subsidy was not without controversy. Further reduction in eligibility for subsidies will likely face similar opposition.
Policy 3: Replace coal cap with an equivalent charge on the sale of coal and a technology-neutral payment to PLN	
The replacement of the coal price cap with an equivalent windfall tax on coal companies could allow the same revenue to be collected but it could then be distributed as a payment to PLN that was not tied to a particular generation source.	The key barrier is administrative complexity. This would requires the design and implementation of a new tax. An export tax scheme of USD 3/tonne was discussed to replace the DMO cap. However, this would be far less than the value of the current subsidy to PLN from the coal cap.
Policy 4: Remove the link between average generation cost (BPP) and procurement of new renewable generators. Set a target for procuring generation and allow the market to drive down prices	
In other markets economies of scale have quickly reduced renewable energy project costs. Renewable deployment at scale could allow renewables to rapidly become competitive.	In the short-term, increase in renewable energy procurement would increase PLN’s deficits, longer term savings from developing a renewable energy sector are less certain.
Policy 5: Implement the “polluter pays” principle. Increase taxes and charges on environmentally harmful activities and use the revenues to fund PLN in a technologically neutral way	
Environmental taxes and charges on emissions that cause air pollution from generators or consumption of fuels that are associated with environmental impacts could create new revenue streams to fund an energy transition and create a price signal that reduces pollution.	Price increases caused by taxing polluting activities could further exacerbate PLN’s deficits, especially since most of the generation procured comes from coal. Recycling of revenues from pollution taxes back to PLN could help to mitigate this.



Conclusions

- The coal price cap policy was created to reduce pressure on PLN's finances by restricting the impact of rising international coal prices. It provided a reduction in PLN's costs. The cost of the policy was largely borne by the mining industry. The policy was an understandable reaction to a period of rising coal prices and static electricity tariffs.
- However, a key unintended consequence of the policy was that by subsidizing and financially supporting the electricity sector, the government was artificially decreasing the average generation cost of coal-fired electricity. This meant that other generators, in particular renewable generators, were increasingly competing against subsidized coal generation.
- There is a need to review the coal price cap and to seek ways to reform the system without creating a negative impact on renewables. There are a number of potential options that could maintain support to the electricity sector without disadvantaging renewables as the current policy does. These include: increasing taxes on coal production combined with technology-neutral payments to the electricity sector; better targeting of electricity subsidies by reducing eligibility to reduced tariffs; and a general shift toward taxing environmentally harmful activities and reallocating this toward cleaner technologies.



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