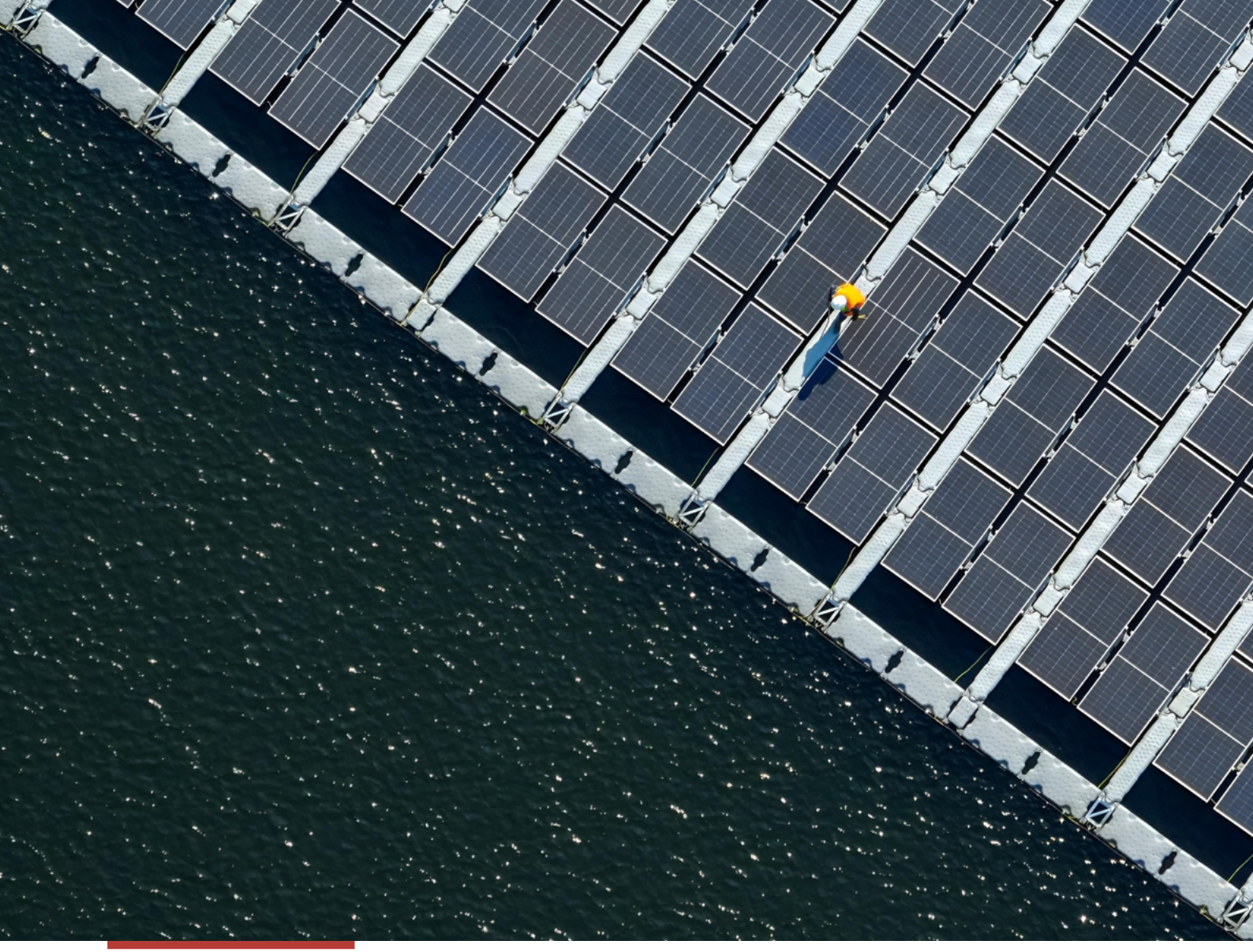

Investment Needs Of Indonesia's Just Energy Transition: A Framework

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CLIMATE POLICY INITIATIVE

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AUTHORS

Albertus Prabu Siagian and Berliana Yusuf

CONTACT

Berliana Yusuf
Berliana.yusuf@cpiglobal.org

MEDIA CONTACT

Rindo Saio
Rindo.saio@cpiglobal.org

ABOUT CLIMATE POLICY INITIATIVE

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has offices in Brazil, India, Indonesia, South Africa, the United Kingdom, and the United States.

CONTENTS

1. INTRODUCTION

Indonesia's current transition from fossil-based energy to renewable sources requires strategic considerations of how its investment needs and impacts should be equitably distributed among all stakeholders. With an ambitious target to generate 61% renewable energy (RE) in the Electricity Supply Business Plan (RUPTL) 2025-2034 and President Prabowo's bold remark on achieving 100% RE by 2035, a **rigorous assessment of transition costs and benefits is instrumental in ensuring that Indonesia's energy transition is not only successful but its outcome truly just and sustainable**.

1.1 URGENCY AND MULTIFACETED IMPACTS OF ENERGY TRANSITION

Clean energy transition is driven by a need to reduce global emissions to **avoid the catastrophic effects of climate change** and ensure environmental sustainability. At the same time, it is also **essential for economic competitiveness and efficiency** as the costs of low-carbon technologies have been steadily declining while price volatility for coal, oil, and gas poses the risk of increasing state-subsidized energy spending.

For the energy transition to be just, it should consider all socioeconomic risks and opportunities and address them for affected stakeholders. Concerns over this stem from two main factors: (1) **uneven socioeconomic implications of retiring coal power plants,** and (2) **inequitable distribution of benefits from adopting low-carbon technologies** (Wang and Lo 2021).

As with any sunset industry, **workers and communities dependent on revenues that fossil fuel plants generate will require support to shift to new livelihoods**. Renewable energy facilities can accommodate this shift by replacing the plants as employers and/or by powering other forms of economic activity. GGGI (2020) has estimated that between **2.1 million and 3.7 million new direct jobs** can be created in renewables in Indonesia by 2030. Recent analysis from CPI (2024) also highlights cases where **community-based renewables have fostered local livelihoods** in various villages in Eastern Indonesia.

The flexibility of RE projects in terms of size and location, as well as their generally **low maintenance costs, can further deliver benefits related to equity**. Solar, wind, hydro, and geothermal technologies can be used in either small- or large-scale installations, **reducing market entry barriers**. They can also be installed in a decentralized manner, either on- or off-grid, **enabling use in remote areas**. While upfront investment requirements can be relatively high, maintenance costs and total costs of ownership are low, **reducing the need for subsidies** often required to sustain fossil fuel energy generation.

However, **it is not a given that the benefits of shifting to renewable energy will be equitably distributed**. If not managed well, the introduction of low-carbon technologies risks having minimal benefits for marginalized groups, deepening existing inequalities that have long characterized the fossil fuel industry, or even creating new ones (Welton and Eisen 2019).

1.2 THE CENTRAL ROLE OF FINANCE

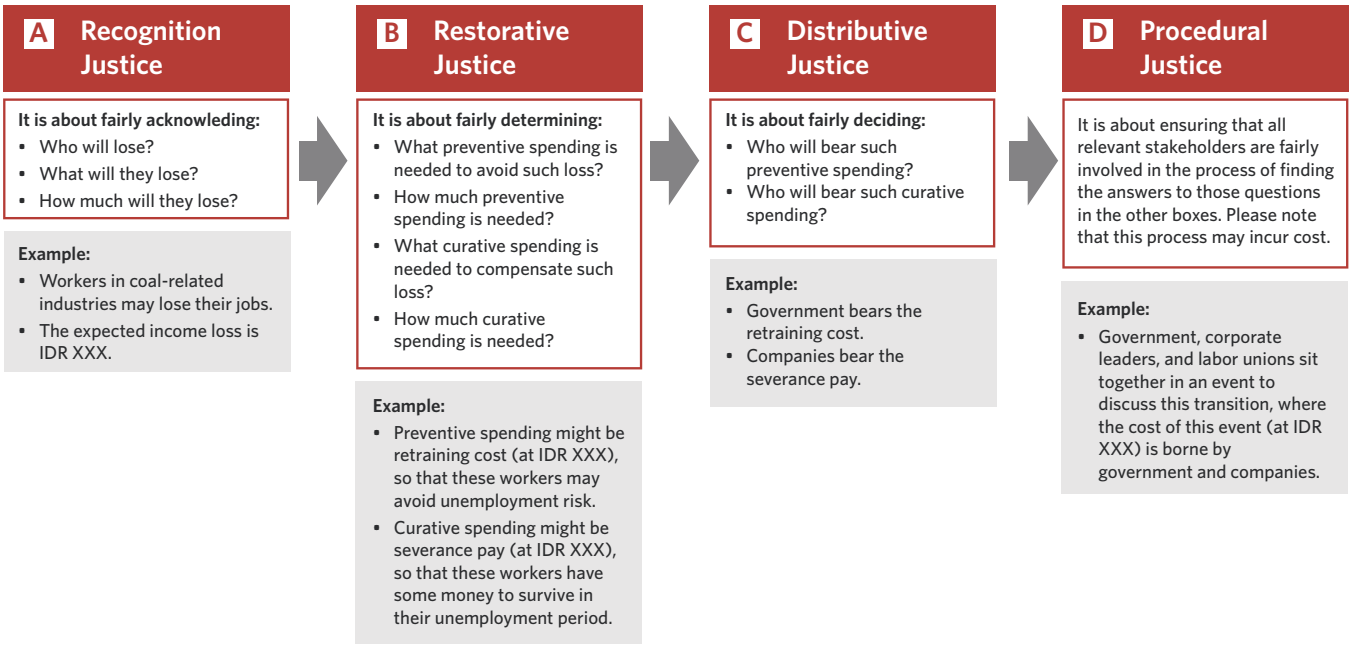
Finance is crucial in delivering energy transition benefits equitably and creating broader economic opportunities. In developed countries, existing efforts to mitigate transition risks include the EU Just Transition Mechanism with funding of EUR 55 billion (around USD 57 billion, including USD 19.6 billion in grants to support the transition of coal- producing areas) from 2021 to 2027 and Germany's EUR 2.5 billion (around USD 2.6 billion) to transition four of its coal-producing regions (Bhushan 2025). Such efforts are **also required across emerging markets and developing economies** (EMDEs). For example, South Africa's Just Energy Transition Investment Plan, launched at COP 27, states that USD 98 billion of financing is required over five years to begin its 20-year energy transition. **In Indonesia, around USD 97 billion is needed to achieve its 2030 climate targets**, as estimated in the Comprehensive Investment and Policy Plan (CIPP) of its Just Energy Transition Partnership (JETP).

Rooted in the principal justice aspects of an energy transition (recognition justice, restorative justice, distributive justice, and procedural justice), this report lays out **a framework for quantifying the investment needs that ensure a truly equitable outcome tailored specifically to Indonesia's energy transition context**, with the planned early retirement of Cirebon 1 coal-fired power plant (CFPP) as a case study.

1.3 PRINCIPAL JUSTICE ASPECTS OF ENERGY TRANSITION

As outlined below, a just energy transition should start with recognitional justice by identifying all potential losses incurred. Considerations then move to restorative justice to understand how to prevent and/or compensate for those losses. Distributional justice determines how to share the cost burden of such prevention and compensation. Lastly, procedural justice should ensure that all relevant stakeholders are fairly involved in these processes.

Figure 1: Four types of justice for the energy transition



Source: *CPI analysis, based on Dijkshoorn et al., 2022*

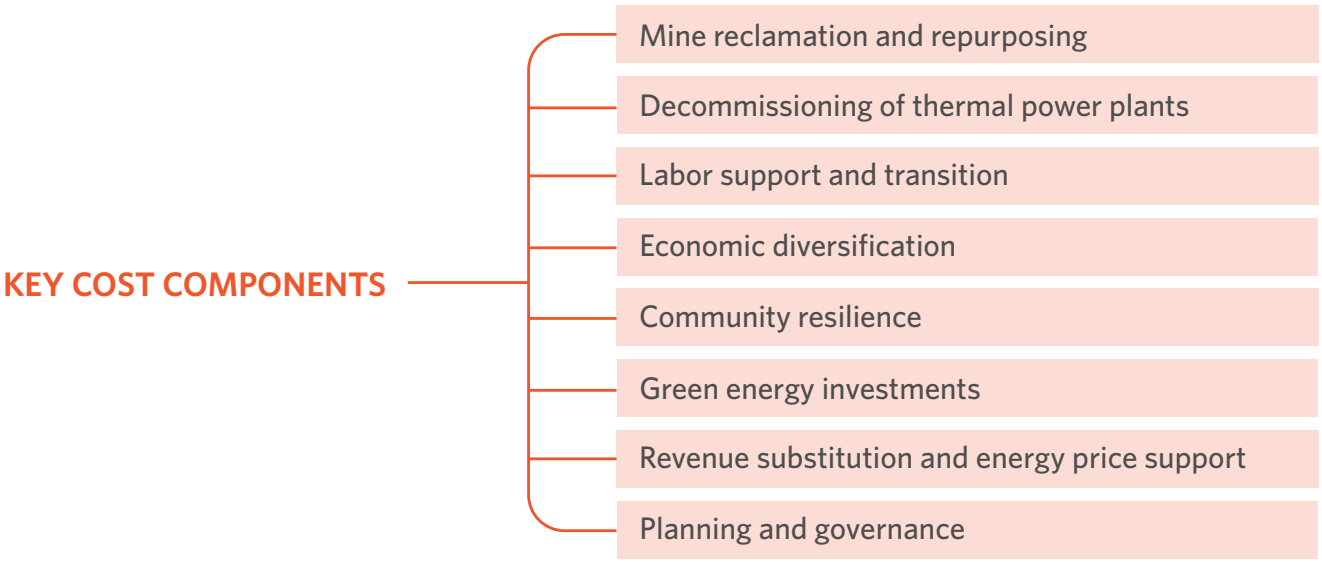
2. ASSESSMENT OF EXISTING APPROACHES

In recommending a viable framework to comprehensively assess case-specific investment needs for a just energy transition in Indonesia, this report examines two primary approaches often referenced in analysing the economic implications of an energy transition and identifies some limitations that then need to be addressed.

2.1 COST COMPONENT APPROACH

Developed by the International Forum for Environment, Sustainability & Technology (iFOREST), this approach prescribes the following cost components to capture all four types of justice in energy transition planning.

Figure 2: Key cost components of a just energy transition



Source: *iFOREST assessment*

The iFOREST approach divides the component costs of a just energy transition by theme. For example, while some labor-related costs may be incurred under the "decommissioning thermal power plants" component, all labor costs are calculated separately under the "labor support and transition" component. This facilitates a comprehensive calculation of each cost component across all transition activities, enabling policymakers to more accurately estimate the overall cost of transition.

The unit cost (or "cost factor") of each component is calculated by dividing the investment requirements by a relevant denominator. For example, for the decommissioning of thermal power plants, the cost factor is the total cost of decommissioning divided by the plant capacity,

usually in megawatts (MW). The total investment needs of a just transition can be calculated by multiplying each component by each cost factor. An excerpt of iFOREST's presentation of other cost factors is shown in Table 1.

Table 1: Examples of cost factors for just energy transition

Cost component	Denominator for the cost factor	Units	Justification for the denominator
Coal mine reclamation and repurposing	Capacity of the mine(s) to be decommissioned during the just transition period	Million tonnes per annum (MTPA)	Cost of asset closure, reclamation, and repurposing typically depends on the size of mining operations, which is linked to its lease area.
	Lease area of mine(s) to close during the just transition plan period	Hectares (ha)	Asset closure, reclamation, and repurposing will be done on the land used for mining operations and will depend on its land footprint.
Decommissioning of thermal power plants (TPPs)	Installed power generation capacity to be decommissioned during the just transition plan period	Megawatts (MW)	Cost of decommissioning will largely depend on TPPs' capacity, though other factors, such as the size of units and plant area, could also have an impact.
Economic Diversification	Capacity of the mine(s) to be decommissioned during the just transition period	MTPA	The size of coal mining/TPP operations reflects the extent of economic dependence on these assets. Thus, the reduction in the quantum of coal production / installed capacity impacts the extent of investments required for economic diversification.
	Installed power generation capacity to be decommissioned during the just transition plan period	MW	
	Number of people affected by the transition	Affected population	Just transition plans are developed for a specific region and its affected population. Therefore, the size of the affected population is crucial in determining investment needs for economic diversification.

Source: *iFOREST Assessment*

LIMITATIONS OF CURRENT PRACTICE

The method described above prescribes the common cost components (e.g., land) and cost factors (e.g., cost/ha) for many projects, with the only difference per project being the magnitude (e.g., land area). This approach is most useful for estimating the cost of just transition at an aggregate level, based on sample data.

While this top-down method is simple to implement, it assumes that all cases have similar cost components and costs per unit, without variation across place and time. Therefore, the results would only be valid if the conditions were the same for all transition projects and if the samples used had applied the principle of justice in quantifying the costs. However, the cost per MW of decommissioning a plant in Java may differ from the costs for the same activity in Kalimantan or even for other locations in Java.

Moreover, such assumptions partly stem from **failing to consider various aspects**, including the interests of marginalized groups, promotion of welfare, producer-consumer relationships, stakeholder participation, intergenerational impacts, and other **key considerations under the four types of justice** (Sovacool et al. 2017). Applying these assumptions to EMDEs **lacks an understanding of socio-spatial factors that shape communities' energy needs** (Broto et al. 2018), entailing the importance of energy sovereignty and the right to access energy within ecological limits. In the context of the power sector transition, the need for renewable energy technologies (e.g., solar PV, wind power, and smart grids) could impede energy sovereignty as the technology and supply chain for most of the RE technologies are controlled by developed economies

2.2 ADB'S IMPACT ASSESSMENT APPROACH

The Asian Development Bank (ADB) has proposed a more comprehensive approach to assessing the impacts—or associated costs—of the just energy transition. The various aspects considered for this are summarized in Table 2.

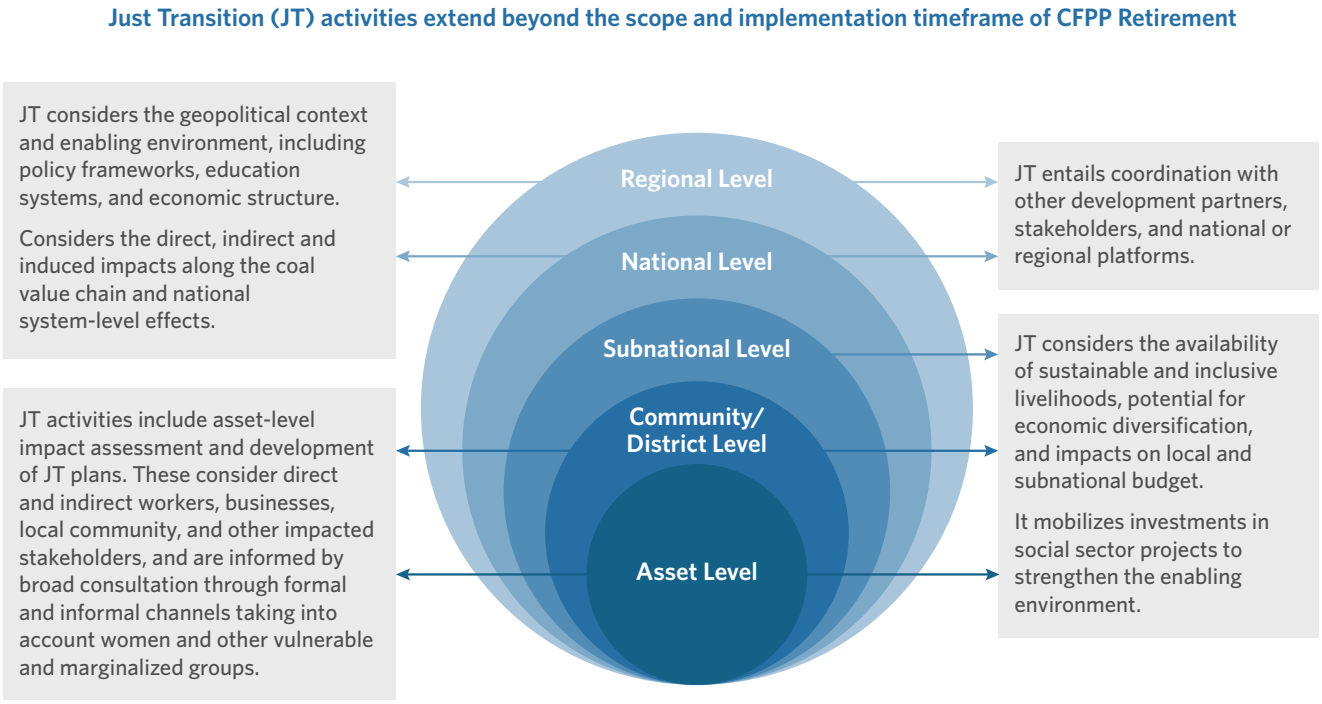
Table 2: Analytical framework of ADB's preliminary just transition assessment

Channels of impact	Employment, prices, taxes, access, assets, agency
Dimensions of impact	Social, institutional, environmental, political, and societal, economic
Nature of impact	Direct, indirect, induced
Affected stakeholders	Workers, vulnerable groups including women, communities, businesses, government (national, provincial, district and subdistrict)
Nature of risk	Qualifies and discusses the nature of risk
Mitigation measures	Provides a series of actions to be implemented to manage the risk; also provides benefits of the mitigation action
Responsible parties	Determines who is responsible for the implementation of the mitigation actions

Source: *ADB (2024)*

Using a case study of the early retirement of a coal-fired power plant (CFPP) in Cirebon, Indonesia, ADB also conducted an impact assessment at the asset, community/district, subnational, regional, and national levels, as shown in Figure 3.

Figure 3: ADB's preliminary just transition assessment for Cirebon CFPP



Source: *ADB(2024)*

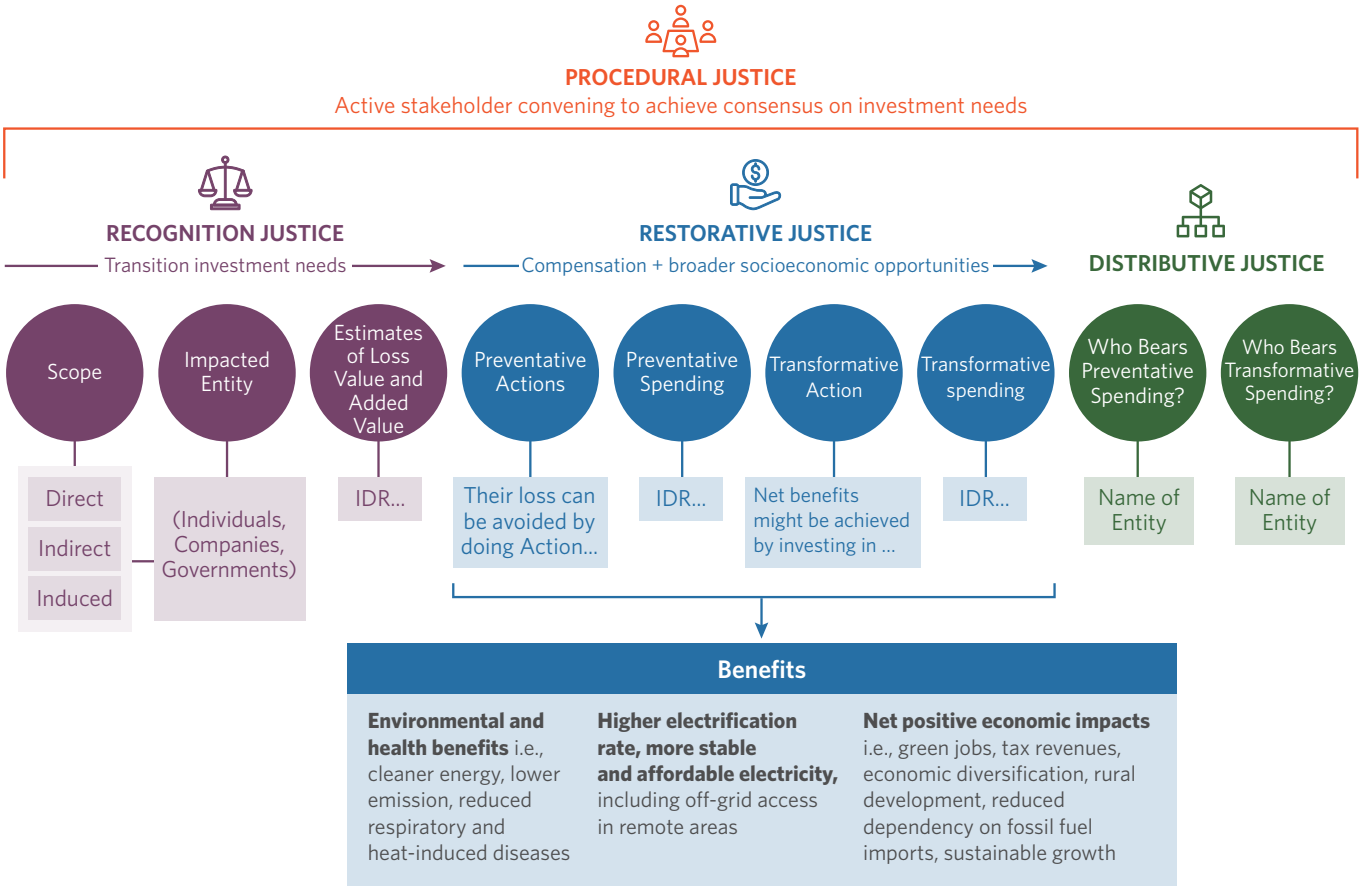
By acknowledging the varying impacts of transition on different entities, ADB applies bottom-up empirical analysis to ensure comprehensive and context-specific information. Rather than prescribing generic cost components and cost factors, it conducts surveys on the ground to assess real energy transition contexts. Directly assessing who is impacted and to what extent it fulfills the recognitional element of a just transition.

3. RECOMMENDED FRAMEWORK

Recognizing the limitations of the iFOREST approach and building upon ADB's impact assessment approach, a more viable framework is needed to comprehensively assess case-specific investment needs for a just energy transition in Indonesia. ADB's survey-based data collection method is herein adopted and tailored to a particular transition case, allowing it to fully capture the four justice aspects (recognitional, restorative, distributive, and procedural).

Figure 4: Case-specific Just Energy Transition Financing Framework

A framework for quantifying all investment needs that ensure a truly equitable outcome tailored specifically to country-specific energy transition context



Source: *CPI analysis*

To demonstrate how this framework can work in practice, the planned early retirement of Indonesia's Cirebon 1 CFPP is used as a case study. Table 3 outlines the data required to calculate the investment needs of each justice component as well as connections among different data points

Table 3: Example of the recommended data table

			(I)			(II)			(III)	
Scope	**Impacted Entity**	**Impacted Entity Type & Quantity**	**Loss Description**	**Loss Value**	**Preventative Action**	**Preventative Spending**	**Who Bears Preventative Spending?**	**Transformative Action**	**Transformative Spending**	**Who Bears Transformative Spending?**
Direct	Name of Entity	"Companies: ... Workers: ..."	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity	Net benefits might be achieved by investing in ...	IDR ...	Name of Entity
	Name of Entity	"Companies: ... Workers: ..."	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity		IDR ...	Name of Entity
Indirect	Name of Entity	"Companies: ... Workers: ..."	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity		IDR ...	Name of Entity
	Name of Entity	"Companies: ... Workers: ..."	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity		IDR ...	Name of Entity
Induced	Name of Entity	"Companies: ... Workers: ..."	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity		IDR ...	Name of Entity
	Name of Entity	Government: ...	They may lose their ...	IDR ...	Their loss can be avoided by doing Action ...	IDR ...	Name of Entity		IDR ...	Name of Entity

Source: *CPI analysis*

Detailed application of this data collection methodology to the Cirebon 1 case study is provided in the Appendix.

3.1 DATA FOR RECOGNITIONAL JUSTICE

The following datasets are required to assess all negative externalities so that policymakers can properly capture recognitional justice.

1. Data should be gathered on all three scopes of the impact of the energy transition:
    I. **Direct costs** borne by the main companies running the plant and those that they contract, cascading down to these companies' employees.
    II. **Indirect costs** borne by other companies in the plant's supply chain — for example, coal transportation service companies and their employees. In most instances, the impacts on supply chains are generally identified through contractual obligations; other links beyond these obligations may not be easily traceable.
    III. **Induced costs** affecting external groups such as electricity customers (due to rising electricity price) and local governments (due to falling taxable incomes). These costs are indirect expenses that occur as unintended consequences of certain socioeconomic dynamics.
2. **Information on the level of impact on the affected entities** is also required. Each entity listed under the direct, indirect, and induced scopes can be classified as either individual, corporate, or government:
    I. Individuals: People with no legal entity that are affected by the transition, including communities and vulnerable groups.
    II. Companies: Entities with the purpose of generating profit from certain business activities and employing individuals to perform those activities.
    III. Government: Policymakers and government officials who devise regulations, collect taxes, mobilize resources, and have a responsibility to provide citizens with the means to a decent life.
3. Data should also be gathered on the **loss items suffered by the impacted entities**. In the case of a power plant's retirement, the loss is typically in the form of income but could also be household savings (higher living costs and electricity costs).
4. **Estimates of the loss value for impacted groups** (in IDR, USD, etc.) should be gathered. Unlike the "top-down" method, which uses the prescribed cost components and cost factors, the "bottom-up" method estimates loss values through surveys or other non-generic data collection to enable considerations of the unique context of each project.

3.2 DATA FOR RESTORATIVE AND DISTRIBUTIVE JUSTICE

Important information required for policymakers to accurately capture the restorative justice element of an energy transition includes:

- **A list of preventative actions to avoid identified losses** to the extent possible (e.g., reskilling programs to prevent workers from losing their jobs, development of RE plants to avoid any decrease in the electricity supply, debt refinancing to avoid significant financial losses from early retirement of coal plants).
- **Estimates of preventative spending** to support these preventative actions.

- **A list of transformative actions done throughout the process of transition to ensure ensure net benefits of transitional impacts are achieved** (e.g., green jobs creation, job service centers prioritizing local hires, RE cooperatives to optimize productive-use energy/PUE, diversification of local economies, and other benefits).
- **Estimates of transformative spending to fund those transformative actions** (e.g., capacity building with seed capital or subsidized loans for local SMEs).

To further capture distributive justice—i.e., how to share the burden of identified spending estimates—policymakers will need **information on who will bear the costs for both preventative and transformation actions and spending**.

Distribution of costs across different actors ideally depends on both the responsibility and investment appetite. Depending on what is being funded, financing for these costs can be sourced from companies' financiers, concessional capital, philanthropic money, or government fiscal spending. Severance pays and social protection payments are the responsibility of the companies with which employees have a contractual relationship. Costs for specific reskilling or upskilling programs can be borne by incoming companies as part of their investment in skilled workers, such as training local workers to operate and maintain renewable energy facilities.

Beyond the responsibilities assigned above, grants and public finance are the most viable instruments considering many just transition initiatives have limited private returns but significantly higher social returns. For example, more general educational and vocational programs can be funded by the government to prepare the local workforce for economic diversification into agriculture, manufacturing, services, or entrepreneurship.

3.3 RELATIONSHIP BETWEEN PREVENTATIVE ACTIONS AND TRANSFORMATIVE ACTIONS

Every energy transition will entail some adverse monetary impacts in the forms of decreased income and/or increased spending to prevent and/or compensate for such losses. Financing more preventative actions today may translate to spending on fewer transformative actions tomorrow. This relationship is illustrated below:

Table 4: Relationship between preventative and transformative actions

Preventative Actions		Transformative Actions	
Done **before** potential transitional impacts take place, to prevent potential adverse transitional impacts from taking place.		Done **throughout** the process of transition, to ensure the net benefits of transitional impacts are achieved.	
Non-exhaustive examples include:		**Non-exhaustive examples include:**	
Some people follow **retraining program**...	So that they can find a new job quickly and avoid being unemployed.	Current economy favours imported human resources	**Local jobs:** New service centres set up prioritizing local hires
RE plants are built to replace the outgoing CFPPs ...	So that the system can avoid a decrease in the electricity supply.	Locals have limited access to clean electricity	**Local consumers:** Government ensures the RE plant serves locals
Debt refinancing and carbon credit sales are enabled for CFPP...	So that the CFPP early-closure projects can avoid a financial loss.	Local GDP growth is low or stagnant	**Local producers:** RE Cooperatives formed for locals' Productive-Use Energy
Financing these actions may not only make the energy transition more feasible, but also more beneficial.			

Note: CFPP means coal-fired power plants

Source: *CPI analysis*

3.4 ENSURING PROCEDURAL JUSTICE THROUGH TRANSPARENT DATA CIRCULATION

In addition to the datasets identified above, ensuring procedural justice requires active engagement and convening with as many relevant stakeholders as possible throughout the whole data collection process.

Making datasets available to all relevant stakeholders and further refining them upon consensus can help safeguard this pillar of the just transition. Further to information accessibility, it is important to ensure that all datasets are of high quality and impartial (e.g., not skewed toward certain vested interests). While achieving such a consensus may entail an additional cost, such as for facilitating stakeholder engagements, representation of the affected parties, accountability of the companies and the government, and neutral review of objections, it can help to ensure procedural justice and also avoid the need for expensive conflict resolution procedures such as court cases or compensation (Shukla, 2021).

3.5 SCALABLE STRUCTURAL THINKING

The recommended framework could be applied across different scopes of cost assessment, from the asset level to the national level. For example, if the assessment is applied to a batch of coal power plants, then the adverse impacts could be assessed at the industry level rather than the company level. Or, when numerous coal power plants are shut down, decreases in associated tax revenues could be assessed at the national level rather than the local level.

On the other hand, when many coal power plants are shut down, grid stability may be affected, creating the need for another major national impact to be inserted into the table.

4. CONCLUSION

If not carefully managed, low-carbon energy transition risks deepening existing inequalities. By learning from past energy transitions, policymakers can develop strategies that ensure a more equitable shift.

This paper presents a framework for categorizing transition costs across different levels and actors—individuals, companies, communities, and governments. By applying a standardized yet flexible approach, policymakers can assess these costs more accurately based on specific contexts and objectives.

Recognizing and addressing the financial challenges of the transition is crucial, particularly for EMDEs, which have less fiscal capacity than advanced economies to proactively deal with transition impacts. Transition costs—whether from lost revenue or increased expenses—can be significant, but greater accuracy in understanding these impacts will help mitigate risks and uncover broader socioeconomic opportunities.

By applying this framework in key initiatives such as Indonesia's JETP and Energy Transition Mechanism (ETM), stakeholders at all levels can make informed decisions about just transition finance that pave the way for a more equitable, sustainable, and prosperous energy future.

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APPENDIX

The table in this Appendix presents an indicative example of the application of our approach to the Cirebon 1 CFPP. Some data used to populate this table comes from the Strategic Environmental and Social Assessment of the Cirebon 1 power plant prepared by the ADB. However, many data points in this table are not available as they have not been surveyed in this methodology proposal.

				(I)		(II)			(III)	
Scope	**Impacted Entity**	**Impacted Entity Type & Quantity**	**Potential Loss Suffered by Impacted Entity**	**How Much is Lost?**	**Preventive Actions (to avoid the Loss from happening)**	**How Much Spending is Needed to do Preventive Actions?**	**Who Bears Preventive Spending?**	**Transformative Actions (to ensure the net benefits of transitional impacts are achieved)**	**How Much Spending is Needed to do Tranforma-tive Actions?**	**Who Bears Transfor-mative Spending?**
Direct	Management & operation companies running Cirebon 1 (not outsourced)	Company: 2 Individual: 225	Losing income due to business discontinuation.	IDR: no official estimation yet	For workers, there might be reskilling or retraining facilities. Also, continuous engagement with workers to ensure their preparedness.	IDR: no official estimation yet	Cirebon 1	For workers, there should be severance package, more green jobs created, and service centres set up to prioritize local hres.	IDR: no official estimation yet	Cirebon 1
Direct	Operation & maintenance companies running Cirebon 1 (outsourced)	Company: 3 Individual: 247	Losing income due to business discontinuation.	IDR: no official estimation yet	For workers, there might be reskilling or retraining facilities. Also, continuous engagement with workers to ensure their preparedness.	IDR: no official estimation yet	Cirebon 1	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Coal suppliers (on contract)	Company: 2 Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet *FYI: These suppliers supply ~0.83% of the coal output of South & East Kalimantan per year to Cirebon 1.*	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*

				(I)		(II)			(III)	
Scope	**Impacted Entity**	**Impacted Entity Type & Quantity**	**Potential Loss Suffered by Impacted Entity**	**How Much is Lost?**	**Preventive Actions (to avoid the Loss from happening)**	**How Much Spending is Needed to do Preventive Actions?**	**Who Bears Preventive Spending?**	**Transformative Actions (to ensure the net benefits of transitional impacts are achieved)**	**How Much Spending is Needed to do Tranforma-tive Actions?**	**Who Bears Transfor-mative Spending?**
Direct	Coal transporters (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet *FYI: These transporters bring ~12,000 ton of coal per day to Cirebon 1.*	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Diesel oil suppliers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet *FYI: These suppliers supply ~2 million liters of diesel per year to Cirebon 1.*	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Maintenance service providers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Technical & scientific service providers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Chemicals suppliers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	Catering service providers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*

				(I)		(II)			(III)	
Scope	**Impacted Entity**	**Impacted Entity Type & Quantity**	**Potential Loss Suffered by Impacted Entity**	**How Much is Lost?**	**Preventive Actions (to avoid the Loss from happening)**	**How Much Spending is Needed to do Preventive Actions?**	**Who Bears Preventive Spending?**	**Transformative Actions (to ensure the net benefits of transitional impacts are achieved)**	**How Much Spending is Needed to do Tranforma-tive Actions?**	**Who Bears Transfor-mative Spending?**
Direct	Operational vehicle providers (on contract)	Company: unknown Individual: unknown	Losing income due to business discontinuation.	IDR: no official estimation yet	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Direct	FABA (fly ash & bottom ash) off-taker (on contract)	Company: 1 Individual: unknown	Losing income, due to losing raw materials to be processed further & to be sold.	IDR: no official estimation yet *FYI: This off-taker gets around 75,000 ton of FABA per year from Cirebon 1.*	For companies, they might be facilitated in business repurposing or diversification program.	IDR: no official estimation yet	Cirebon 1 and local governments.	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Mechanical workshop service providers (on as-needed basis)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Laundry service providers (on as-needed basis)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Health care providers (on as-needed basis)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Shops for stationery & computer services (on as-needed basis)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*

				(I)		(II)			(III)	
Scope	**Impacted Entity**	**Impacted Entity Type & Quantity**	**Potential Loss Suffered by Impacted Entity**	**How Much is Lost?**	**Preventive Actions (to avoid the Loss from happening)**	**How Much Spending is Needed to do Preventive Actions?**	**Who Bears Preventive Spending?**	**Transformative Actions (to ensure the net benefits of transitional impacts are achieved)**	**How Much Spending is Needed to do Tranforma-tive Actions?**	**Who Bears Transfor-mative Spending?**
Indirect	Mom-and-pop stores (known locally as warung kelontong)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Local home restaurants (known locally as warteg)	Company: unknown Individual: unknown	Losing income, as their customers are mainly Cirebon 1's workforce in the area.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Indirect	Community-level home production	Company: unknown Individual: unknown	Losing income, due to CSR discontinuation from Cirebon 1, on which they depend	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Induced	Electricity customers (industrial)	Company: unknown	Possibly facing manufacturing process disruption due to unstable grid.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Induced	Electricity customers (residential)	Individual: unknown	Possibly having lower HH savings, due to higher tariff, due to lower power supply.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*
Induced	Local and national governments	Government: 3 levels ▪ national ▪ provincial ▪ municipal	Losing tax revenue, due to lower incomes felt by parties depending on Cirebon 1.	IDR: no official estimation yet	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	Government itself	*No info in ADB's SESA document for Cirebon 1.*	IDR: no official estimation yet	Government itself

NOTES:

1. Columns (I), (II), and (III) are important, as they might relate to each other.
    - When Column (II) goes higher, then Column (I) may go lower. It is because the spending in Column (II) is meant to lower the probability of the loss described in Column (I) to happen.
    - When Column (I) goes lower, then Column (III) may go lower as well. It is because the spending in Column (III) is to compensate the loss described in Column (I).
    - Column (I) talks about how much income decreases, while Column (II) and Column (III) talks about how much spending increases. Both are detrimental financially.
2. The table above summarizes the negative impacts of the early retirement of one CFPP only (Cirebon 1).
3. If the number of CFPPs being retired is more, then the magnitude of the negative impacts will be higher. For example:
    - The whole industry of coal mining & coal transportation will be negatively impacted. The impact will be at industry-level, and not at company-level anymore.
    - The tax revenue collected by the national government will be negatively impacted. If only one CFPP gets retired, the impact might not be so felt by the national government.
    - The social protection spending of the national government will increase. If only one CFPP gets retired, such spending might not impact the national government much.
    - The grid disruption is more felt. If only one CFPP gets retired, such grid disruption might not be too significant to be felt.

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