

Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector in Indonesia





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TABLE OF CONTENTS

Table of contents	5
List of abbreviations	7
Foreword	8
Acknowledgments	10
Executive Summary	11
 1. Introduction	 19
1.1. Context of the study	21
1.1.1. Indonesia's Green Economy Agenda	21
1.1.2. ILO support for PAGE-Indonesia	22
1.1.3. A Just Transition for a greener economy	24
1.2. Aims and objectives of the study	25
1.3. Method and limitations	25
1.4. Structure of the report	26
 2. The state of green jobs in Indonesia	 27
2.1. What are green jobs?	28
2.1.1. ILO definition of green jobs	28
2.1.2. Green jobs definition in Indonesia	29
2.1.3. Measuring green jobs	32
2.2. The need for green jobs in Indonesia	38
2.2.1. Labour force characteristics in Indonesia	38
2.2.2. Climate action and climate impacts on jobs	40
 3. Green jobs and Indonesian energy transition	 43
3.1. Energy transition policy in Indonesia	44
3.2. The energy transition's impact on jobs by sector	47
3.2.1. Employment impact in sectors related to electricity supply	49
3.2.2. Employment impact in sectors related to electricity demand	54
 4. Policy readiness to support green jobs and a Just Transition in the energy sector	 61
4.1. Assessing policy readiness for green jobs and a Just Transition	62
4.2. Policy readiness for green jobs and a Just Transition in Indonesia	64
4.2.1. Regional context	64
4.2.2. Progress in policy development related to green jobs and a Just Transition	65
 5. Discussion and recommendations	 77
5.1. Policy readiness for green jobs and a Just Transition in the energy sector	78
5.1.1. Creating demand for green jobs	79
5.1.2. Creating supply for green jobs	81
5.1.3. Institutional arrangements for social dialogue and policy coherence	83
5.2. Changing roles for actors in the energy Just Transition and the way forward	85

References	88
Annex	92
Annex 1. List of consulted stakeholders	92
Annex 2. Interview guide	93
Annex 3. Highlights from the Just Transition Dialogue for Energy and Textile and Garment Industries in Indonesia – PAGE Indonesia and Decent Work in the Garment Supply Chain in Asia (DWGSCA)	94

LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asia Nations
BAPPENAS	Ministry of National Development Planning (Badan Perencanaan Pembangunan Nasional)
BLK	Vocational Training Centre (Balai Latihan Kerja)
BPS	Statistics Indonesia (Badan Pusat Statistik)
CCS	carbon capture and storage
CCUS	carbon capture, utilization and storage
CEACR	Committee of Experts on the Application of Conventions and Recommendations
CFPP	coal-fired power plant
COP	UNFCCC Conference of the Parties
DEN	National Energy Council (Dewan Energi Nasional)
EV	electric vehicle
FOLU	forestry and other land use
G20	Group of Twenty
GDP	gross domestic product
GHG	greenhouse gas
GSEN	National Energy Grand Strategy (Grand Strategi Energi Nasional)
ICE	internal combustion engine
IPP	independent power producers
KBLI	Indonesia Standard Industrial Classification (Klasifikasi Baku Lapangan Usaha Indonesia)
KEN	National Energy Policy (Kebijakan Energi Nasional)
LCDI	Low Carbon Development Initiative
LTS-LCCR	Long-Term Strategy for Low Carbon and Climate Resilience
MEMR	Ministry of Energy and Mineral Resources
MOM	Ministry of Manpower
MSMEs	micro-, small- and medium-sized enterprises
MSOE	Ministry of State-Owned Enterprises
NDC	Nationally Determined Contribution
NEET	not in employment, education or training
NZE	net-zero emissions
OEM	original equipment manufacturer
OJK	Financial Service Authority (Otoritas Jasa Keuangan)
OSH	occupational safety and health
PLN	State-Owned Enterprises for Power (Perusahaan Listrik Negara)
PV	photo-voltaic
RPJMN	National Middle-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional)
RUPTL	Electricity Business Plan (Rencana Usaha Penyediaan Tenaga Listrik)
SAKERNAS	National Labour Force Survey (Survei Angkatan Kerja Nasional)
TVET	technical and vocational education and training
SDG	Sustainable Development Goal
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UN-PAGE	United Nation Partnership for Action in Green Economy
UNITAR	United Nations Institute for Training and Research

FOREWORD

The Government of Indonesia has shown a strengthened climate commitment in recent years, with the country's enhanced Nationally Determined Contribution reflecting an increased climate mitigation and adaptation target that aims to achieve net zero emissions by 2060 or sooner. To achieve this ambitious target, a transition towards a cleaner energy system is imperative, as Indonesia's energy sector is still heavily dependent on fossil fuels, making it one of the country's top emitters.

However, transforming the energy sector is no easy task. The transition will trigger structural changes in the economy that will affect the world of work. It will involve changing production methods across related sectors such as mining and quarrying, transportation and construction, and will induce changes in a wide array of economic sectors. An energy transition represents a cross-sectoral agenda that requires a systemic and integrated approach to overcome any and all barriers and challenges.

Although such a transition may impose a risk of job loss in certain sectors, if managed well, it may open opportunities for creating green jobs. However, challenges persist on how to develop policy that can create decent employment for workers and communities whose livelihoods are affected by the transformation while conducting these activities sustainably. Other considerations arise from the fact that the current economic contribution of natural capital-based activities is significant in Indonesia, including for employment. Therefore, an energy transition needs to be a Just Transition that considers the interests of the business, workers and communities – while also being affordable and feasible to implement.

This study is part of the ILO's support for the Government of Indonesia under the Partnership for Action on Green Economy (PAGE). It is aimed at assisting the country's efforts in planning a just energy transition that also considers measures to mitigate negative employment impacts. The work of the ILO has always focused on advancing social justice and advocating for decent work. In this regard, we acknowledge the importance of collaborative efforts on reducing environmental impacts and addressing climate change while creating employment opportunities and ensuring socially just outcomes.

The preparation of this report has been an exciting and insightful journey. The study employed an inclusive and consultative approach that facilitated social dialogue with our tripartite constituents – an essential element of Just Transition planning. It also allowed for a knowledge co-creation process in building an understanding of the current state of affairs in order to plan a transition in the energy sector.

We hope this Policy Readiness Assessment on the Green Jobs and Just Transition for the Energy Sector in Indonesia can inform stakeholders on the readiness level of the current policy framework and identify the capacity of stakeholders to undertake the greening of Indonesia's energy sector, while also setting the stage for social dialogue to align the vision and support the mobilization of all the stakeholders in the energy transition process.

We would like to take this opportunity to thank the partners who were directly involved in the development of this report, including our colleagues from the ILO Regional Office of the Asia Pacific and the ILO Country Office for Indonesia. Special thanks and appreciation go to the Directorate of

Environment Affairs of the BAPPENAS, which guided the study, and to our colleagues from the UNDP, as the PAGE Indonesia coordinating agency, for their support in developing this study.

We also express our appreciation to the ministries and other stakeholders who have supported the process of developing this document. Hopefully, this assessment report can become a common reference to provide insights into how we can implement a green recovery and face the challenges that need to be addressed.



Michiko Miyamoto

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Finally, we would like to thank to the participants of the Tripartite Validation Workshop for the report; the Just Transition Dialogues for Energy and Textile and Garment Industries in Indonesia – PAGE Indonesia and Decent Work in the Garment Supply Chain in Asia (DWGSCA); and the ILO Asia-Pacific Green Jobs Network, SIDA, and PAGE Asia Regional Sharing Workshop, which also provided insights and inputs to improve this study's results.

EXECUTIVE SUMMARY

Indonesia has shown a growing climate commitment over the last decade. Since ratifying the Paris Agreement in 2016 and thereby strengthening its climate pledge, the Government of Indonesia has been incorporating climate considerations into its development agenda and policy framework, setting up carbon reduction and net-zero emission targets, and mobilizing resources to achieve its climate ambitions.

As part of this effort, the Government of Indonesia joined UN-PAGE (Partnership for Action in Green Economy) in 2018. This report is part of the ILO's support for PAGE Indonesia, and focuses on green jobs and ensuring a Just Transition as part of policy aimed at mitigating and adapting to the impacts of climate change. This report provides an assessment of the green jobs and Just Transition policy frameworks and activities at a macro level in Indonesia; reviews the readiness of these policy frameworks at the national level; and analyses green jobs and Just Transition readiness specifically in the energy sector in Indonesia.

The energy sector plays a significant role in Indonesia's green economy agenda because of the large amount of carbon emissions produced by the sector, the coal dependency of power generation, and the sector's critical role in net zero emissions (NZE) policy directives. The energy transition has become one of the subsets of green economy policy in Indonesia, along with low-carbon development (LCD) and the blue economy. It is also set as one of the priority issues of Indonesia's presidency of the G20 in 2022, in which just and sustainable aspects of energy transition are emphasized.

A just energy transition

An energy transition is imminent in Indonesia given the country's increasing climate-related ambitions and the impact of the energy sector on greenhouse gas emissions. The commitment for transitioning to a cleaner energy system has been made explicitly by the Government of Indonesia on several occasions. The country is committed to reach net-zero emissions (NZE) by 2060, or sooner with international assistance, and energy transition is one of the key strategies in achieving this net-zero commitment. More specific, the country has signed the Global Coal to Clean Power Transition Statement, which also commits to accelerating a transition away from unabated coal power generation in a way that benefits workers and communities and ensures access to affordable, reliable, sustainable and modern energy for all by 2030.

Indonesia's strategy in reducing carbon emissions from the energy sector is concentrated on four main avenues:

- i. implementation of energy efficiency measures;
- ii. use of decarbonized electricity in transport and buildings;
- iii. fuel shift from coal to gas and renewables in industry; and
- iv. enhancement of renewable energy in power generation, transport and industry (Indonesia, Government of Indonesia 2021a).

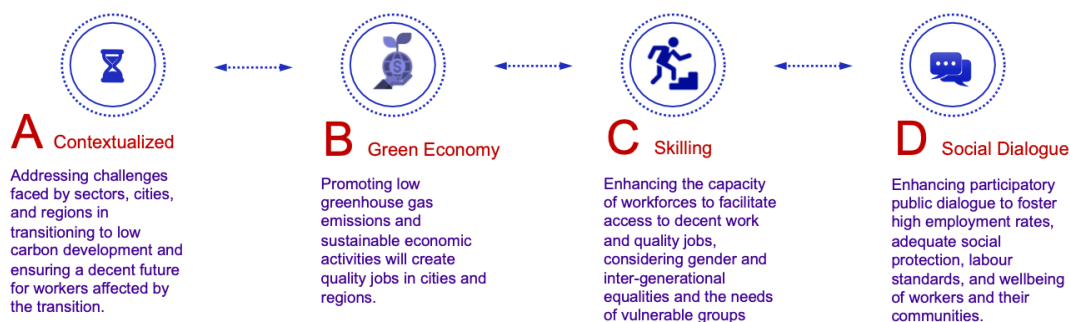
However, the legal framework that provides a detailed road map on how to implement the energy transition is still under development by the Ministry of Energy and Mineral Resources (MEMR) in coordination with the National Energy Council (Dewan Energi Nasional, or DEN). Nevertheless, the

Government has signaled key directives for the transition through actions and strategies covering the next 30 years-plus.

Following the Government of Indonesia's plan, the energy transition will involve direct impacts across sectors related to the electricity supply value chain (such as mining and quarrying; electricity generation, including renewables; and construction) and in the sectors targeted for increasing electricity demand (clean transport/automotive and electronics manufacturing). Although employment in these sectors is relatively lower than in other sectors such as agriculture, manufacturing and retail, they are closely linked to other economic sectors and have strong multiplier effects. Changes in electricity generation, transport and construction in the energy sector will have flow on impacts in other sectors.

These changes will shift jobs along the value chain throughout the transition period. It is anticipated that there will be job losses, job shift, and job growth within all sectors where the energy transition policy is implemented. Given the geography and the timeline of the transition, the employment impact in the electricity supply may differ in various regions and over time. For example, coal mining regions such as East Kalimantan, West Kalimantan and South Sumatra may experience job losses in the coal mining and quarrying sectors; while regions such as West Papua, Central Sulawesi and Maluku will experience an increase in jobs due additional demand for their copper and nickel reserves. Employment in renewable energy production may also follow a similar path, as the choice of renewable energy development is directly correlated with the available resources, and the development of geothermal, hydro and wind electricity infrastructure will be defined by geography. Policy consideration based on geographic hotspots of impact and opportunity need to be carefully assessed when planning the transition.

To ensure the sustainability of the transition towards a lower carbon economy, the Government of Indonesia is committed to delivering a just process. A Just Transition process is one that considers the interests of the government, businesses, workers, and communities, and therefore no one is left behind. In relation to addressing the vulnerability of labour markets while transitioning towards low-carbon development, the country had signed the Just Transition Silesia Declaration and has designed a strategy for achieving a Just Transition for the workforce, as follows:



Source: Indonesia, Government of Indonesia 2021b.

Key findings on the policy readiness for promoting green jobs

The policy mix for promoting green jobs and a Just Transition is broad and interrelated. The ILO *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* highlight that the greening of economies and work will require a country-specific mix of macroeconomic, industrial, sectoral and labour policies that create an enabling environment for

sustainable enterprises to prosper and create decent work opportunities by mobilizing and directing public and private investment towards environmentally sustainable activities (ILO 2015b). This report uses the Guidelines as the framework for assessing policy and employs methodology developed for the ASEAN and ILO (2021) *Regional Study on Green Jobs Policy Readiness in ASEAN*. The analysis has drawn the following insights on Indonesia's policy readiness for a Just Transition in the energy sector.

- Indonesia has envisioned its green economy agenda and anchored it in national development planning, macroeconomic policies and climate targets. Sectoral and industrial policies have also started to incorporate greening, but alignment between sectors and the national agenda needs strengthening.
- With its strengthened climate commitment, the Government of Indonesia has made substantial progress on policy development towards a cleaner energy transition, including setting up a target for net-zero emissions. However, a road map for energy transition is still under development, and there is an ambiguous commitment on phasing-down from coal. The absence of a strong commitment and a clear road map on the energy transition may hamper a Just Transition planning process that is necessary to mitigate any negative impacts such a transition might have in the world of work.
- While the green economy framework has been established, there is not yet alignment between this agenda and policies related to employment. Currently, no policy and regulation provides a conceptual or operational definition of green jobs, and energy transition policy still does not cover employment considerations.
- In regard to the key energy transition initiatives announced by the Government that revolve around the electricity sector, the transition will trigger substantial changes for jobs in sectors related to the supply of and demand for electricity, both directly and indirectly. This will entail the value chains for renewable energy, mining and quarrying, automotive, construction, fossil fuel-based energy, and electronics manufacturing.
- To ensure a Just Transition process, measures for preparing the labour market to respond to structural changes are necessary. These measures should entail elements for enterprises, active labour market policies (ALMPs), and green skills development, which currently are still lacking.
- The labour protection measures are also still suboptimal. While there have been positive developments in social protection programmes, including the recent implementation of unemployment benefits, the overall programme is still insufficient for providing enough of a cushion for affected workers and communities in a time of major transition. In addition, at the workplace level, practices on occupational safety and health (OSH) are still largely focused on curative intervention; although positive progress and initiatives from employers and workers to establish a better OSH system are emerging.
- A tripartite social dialogue process is anchored in the legislative system and serves as an effective mechanism to maintain good industrial relationships and to handle disputes concerning employment issues. However, this process only covers issues directly related to employment and not broader issues that affect the world of work, such as the Sustainable Development Goals (SDGs) and the push for a Just Transition. Current institutional mechanisms for coordinating policy frameworks aimed at promoting a green economy, including energy transition, rarely include participation from the tripartite constituents.

Summary of current policy readiness

Policy Area	Readiness	Notes
Development policies establish the green agenda		Development and fiscal plans have set a green economy agenda, including aligning it with national commitments around Indonesia's Nationally Defined Contribution (NDC) and NZE.
Industrial and sector policies for greening		Industrial and sectoral policies have been established, but need alignment in accordance with the transition target. An NZE target has been set, but a clear road map for energy transition is still being developed.
Enterprise policies and initiatives for greening		Policies to promote enterprises in investing in and shifting to greener energy systems are available (especially for financing, incentives and awareness); however, many crucial aspects necessary to ensure a conducive investment climate are still missing.
Skills development for greening		Emerging and partial initiatives had been implemented, especially in technical and vocational education and training (TVET), but comprehensive planning and policies for skills development to support green jobs and energy transition are lacking.
ALMPs for greening		No ALMPs specifically intended to encourage green jobs and assist in a Just Transition are available.
OSH related to climate change issues		The ILO Promotional Framework on Occupational Safety and Health Convention, 2006 (No. 187), and the Maritime Labour Convention, 2006, have been ratified, but implementation has only focused on curative action. Social dialogues to address OSH for climate change issues are emerging at the tripartite and bipartite level.
Social protection		The ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), has yet to be ratified, though an unemployment benefit has just been introduced. Labour protection focuses on formal employment via a formal mechanism, despite the persistence of large-scale informality in employment.
Cross-cutting issues: labour rights and standards and social dialogue processes in greening		ILO Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144), which addresses social dialogue and tripartism, is in force and effective for industrial relationships, but the involvement of tripartite constituents in the green economy – especially in regard to energy transition planning and policy – is very limited.
Significant policy elements in place Some policy elements in place Limited/no policy elements in place		

Recommendations

Recommendation	Key takeaways
► Creating demand for green jobs Establish an operational definition of green jobs for labour market and employment analyses	• This definition can include both a high-level/economy-wide understanding of green jobs, as well as a sectoral definition that uses a spectrum-of-greening approach to identify core green, indirectly green and non-green occupations across different sectors and geographies. These definitions can be combined with an activity/task-based approach to ensure that the definition includes decent work aspects, and also includes processes/occupations necessary for greening but that are not in currently defined green sectors. • The definition shall maintain the provision of decent work criteria to ensure the sustainability of the transition. The Government and the other tripartite constituents can work together to design and implement indicators based on the minimum criteria of the fundamental principles and rights at work in order to develop the appropriate proxies. • The Ministry of National Development Planning (BAPPENAS) can join forces with the Ministry of Manpower (MOM) in setting up the guidelines for defining green jobs as part of the development of a road map for green jobs, in coordination with Statistics Indonesia (BPS) and sectoral ministries. This process should involve consultation with workers' and employers' representatives.
Collect labour market data necessary to assess the impact of the energy transition on jobs	• To enable the policymakers and related stakeholders to address challenges faced by sectors, cities and regions, data collection for labour market analysis should include elements related to the gender, age and geography of the workforce affected by the transition. • The data collection can be centralized and integrated within the established workforce survey conducted by BPS; while the evaluation and reporting can be done using a sectoral approach led by the line ministries. • Specific sectoral and subnational data collection can also be conducted by line ministries and subnational governments to update the existing information systems, such as the Labour Market Information System (LMIS) under the MOM and the National Industrial Information System (SIINAS) under the Ministry of Industry, or to assist the regional development plan. • Employers' organizations, especially relevant sectoral/ industrial organizations, and trade unions can also conduct their own data collection processes in order to start planning measures necessary for businesses and workers in response to the transition plan. The ILO can provide guidance to ensure comparability and compatibility of these multiple data sources.

Recommendation	Key takeaways
Develop sectoral analysis for Just Transition planning	• Key areas of analysis and information critical for Just Transition planning that are still lacking include: sectoral employment impact and labour protection analysis, potential sectors and enabling dynamics for economic transformation, fiscal incentives, green jobs potential, and skills needs assessment. • Accelerating the development of the energy transition road map, anchored in the National Energy Grand Strategy (GSEN) and other legally binding mechanisms, needs to be prioritized by Ministry of Energy and Mineral Resources (MEMR) and the National Energy Council (DEN). • This road map needs to be informed by disaggregated data collection and analysis focusing on the sectoral and regional hotspots that will be impacted by the energy transition, and should also consider the choice of technologies to be employed, especially in emerging sectors due to the transition. • The MOM's intention to develop a National Action Plan (NAP) for a Just Transition can be a starting point for planning a Just Transition for the workforce in the energy sector. The process of developing the NAP needs to be done in collaboration with BAPPENAS at the national level and with other related ministries at the sectoral level, and it should be informed by the Roadmap for Green Jobs that is currently under development by BAPPENAS.
► Creating supply for green jobs	
Link skills programmes with the green jobs and energy transition agenda	• Just energy transition planning should also cover plans for green-skilling that will be comprised of re-skilling and up-skilling of workers to ensure that they can successfully transition, as well as skilling for communities in which livelihoods are directly affected by the transition process, so they can also successfully transition. Skills development needs to include the necessary skills and knowledge development to prepare existing and future workforces via both formal and non-formal education systems. • The skills development activities also need to target training for new green job opportunities towards underrepresented labour force groups, such as women and youth, so as to extend the inclusivity of the energy transition. • The NAP for Just Transition that will be developed by the MOM should identify the employment needs and gaps and lay out a strategy for skills development for green jobs in response to the energy transition. The NAP, informed by the Green Jobs Road map, then can be used to design and cascade programmatic skilling actions, such as the occupation mapping, alignment with the national qualification framework (SKKNI), and designing training programmes, as well as embedding green skills development into formal education. Several opportunities exist to accelerate green-skilling by mainstreaming the prioritized programmes into the training and education provided by technical and vocational education and training (TVET) institutions (including state-run Vocational Training Institutes, or BLKs) and industry/enterprise training systems (both on- and off-the-job training), as well as embedding a green skills framework into the formal education system (primary to tertiary).

Recommendation	Key takeaways
Design social protection policies and active labour market policies (ALMPs) for the energy transition	• Provision of specific measures to support workers and communities affected by the energy transition is required, but these need to be designed in a way that does not create overlap with the other social protection mechanisms. Therefore, the development of these measures needs to be accompanied by an evaluation of the overall social protection system, covering labour market interventions, social insurance and social assistance (including unemployment benefits) to identify overlaps or deficiencies and to streamline the overall system. • Intervention in ALMPs can be focused on improvements in terms of access to job opportunities, training programmes and job counselling that can assist people to find job replacements or improve their skills, and which should be specifically targeted towards groups affected by the energy transition. • The development of renewables and the transition of the mining and quarrying industry may enable opportunities to design certain public works programmes and public employment programmes that can be directly targeted towards affected workers from these industries.
► Institutional arrangements for social dialogue and policy coherence	
Raise knowledge of and capacity on a Just Transition among tripartite constituent and policymakers	• The current asymmetrical knowledge levels of key stakeholders on a Just Transition needs to be addressed through targeted awareness-raising and capacity-building to mobilize support and to ensure meaningful participation from workers and business owners. Knowledge development needs to cover all related actors – including government, employers and workers – and be conducted at the national, region and even enterprise levels, as well as by promoting multiparty dialogues. • Capacity-building for policymakers is also critical, since Just Transition planning will require a new set of skills for each of these groups. The process can be delivered via training, education and socialization/awareness-raising activities, as well as through participative interactions during the policymaking process.
Ensure policy coherence among sectoral policies, especially between employment policy and the green economy and energy transition agendas	• Policy coherence needs to be strengthened through coordination between relevant ministries. To address employment impacts in the energy transition plan, the MOM needs to be involved in the policy and regulation development on the energy transition currently being spearheaded by the MEMR and DEN. The MOM needs to start developing its own employment policy that responds to the potential impacts of an energy transition. Line ministries also need to start aligning their sectoral policies to ensure that industrial policies (including regulation in the renewables, transportation, green industry, trade and fiscal policies) are in accordance with Just Transition planning. • Further, to ensure the process and to strengthen coherence, BAPPENAS needs to streamline the energy transition into the next national development plan (RPJMN 2025–2029), which will guide policy development within line ministries in upcoming years.

Recommendation	Key takeaways
Establish an effective mechanism for a social dialogue process that allows for active participation from the actors of the world of work, and ensure that the results of social dialogue processes can be fed into Just Transition planning	● The tripartite constituents consisting of government, employers organizations, and workers' organizations are all in agreement on the need to promote a social dialogue process on a Just Transition and the need to develop an effective mechanism for how the results of such dialogue can be fed in into Just Transition planning. ● It is perceived that there is a need to develop a specific social dialogue mechanism for Just Transition planning and to institutionalize this mechanism alongside the ongoing tripartite processes that are already anchored in legislation. This new mechanism needs to also be extended to include not only the common tripartite constituents, but also other relevant social partners such as sectoral regulators, communities (including CSOs) and academics. Coordination of the efforts to develop this mechanism should be handled by the MOM with support from the ILO.

A Just Transition will require system-level change. An energy transition will create structural changes; it is not just about a move towards a more sustainable energy system, but rather it is about transforming the whole economy and social landscape. Public policy will be critical in creating an enabling environment for a Just Transition; both by providing minimum standards and rules for the game, as well as encouraging innovation and incentives for change that need to cover both the demand and supply sides. To develop an inclusive policy, it is important to engage social partners at all levels. Social dialogue between employment actors and sectoral policymakers is therefore of the utmost urgency and importance. A working mechanism that allows such social dialogue processes to be institutionalized is therefore something that also needs to be prepared.

INTRODUCTION



1. INTRODUCTION

Indonesia has experienced stable economic growth over the past decade, transforming the country into one of the largest economies in Asia. This economic growth has been accompanied by positive labour market outcomes, wherein the unemployment rate hit a five-year low in 2019 (World Bank, n.d.-a). However, there is growing concern that the country's progressive development is unsustainable due to its heavy reliance on vast exploitation of natural resources, which results in environmental damage and social problems nationwide (Indonesia, BAPPENAS 2019).

This concern has been exacerbated by the COVID-19 crisis, which confronted Indonesia with the most severe challenges it had faced since the 1997 financial crisis (OECD 2021, 13). The pandemic curtailed Indonesia's economic growth and led to going from an upper-middle-income country to lower-middle-income status as of July 2021 (World Bank, n.d.-b). This in turn affected the labour market, which remains unfavourable compared to pre-pandemic levels, with the unemployment rate rising to 6.5 per cent (in August 2021) and labour income losses remaining prevalent despite the economy rebound that began in early 2021 (World Bank 2021, 8). These negative effects have been felt disproportionately across the Indonesian population, with marginalized and vulnerable groups, including youth, women and informal workers, bearing the most significant impact (ILO 2021), posing greater risk of further deepening inequality.

These conditions have prompted the Government of Indonesia to strengthen its climate commitment and shift its development approach towards a low-carbon and greener economy. Indonesia has ratified the Paris Agreement and set greenhouse gas (GHG) emission reduction targets via its Nationally Determined Contribution (NDC). As a follow-up, the Government of Indonesia has adhered to Article 3.4 of the United Nations Framework Convention on Climate Change (UNFCCC) by incorporating climate change into national development planning under its National Medium-Term Development Plan (RPJMN) 2020–2024, as stipulated under Presidential Decree No. 18 of 2020. This legislation sets low-carbon development (LCD) policies as one of the national priority agendas and serves as the primary reference for sectoral development programmes (Indonesia, BAPPENAS 2020). Policymakers also consider LCD as a gamechanger within the post-COVID-19 economic recovery. In 2021, the Government of Indonesia published the Green Recovery Roadmap 2021–2024, which includes – albeit at suboptimal levels of allocation – a national economic recovery fund for LCD initiatives and planning, including budget allocation for three pilot projects in the waste, energy and agriculture sectors that have the potential to create more than 300,000 jobs in 2022–24 while avoiding more than 400 million tonnes of carbon dioxide emissions over 25 years (Indonesia, BAPPENAS 2021a). In addition, 42 per cent of the US\$408 billion of COVID-19 Recovery Fund established by the Government in 2020 has been allocated to fiscal stimulus, which also covers green projects – albeit only a limited number (Indonesia, Ministry of Finance 2020).

The year 2021 also marked a new milestone for the Government of Indonesia's climate commitments. During the 2021 United Nations Climate Conference (COP26), the Government submitted its updated NDC with an increasingly ambitious GHG emission reduction target, wherein the country aimed to reach the national GHG emissions peak in 2030 with a net sink of forest and land-use, and ultimately to explore the opportunities needed to achieve net-zero emissions (NZE) by 2060 or sooner (Indonesia, Government of Indonesia 2021b). Under this strategy, the energy sector plays a critical role, since together with forest and land use they account for about 97 per cent of the total national commitment

(Indonesia, Government of Indonesia 2021b). To achieve these targets, Indonesia is set to implement an energy transition from a fossil fuel-based energy system to a low-carbon system.

It is believed that when managed well, the transition towards a greener economy is not the enemy of jobs, but quite the opposite. In 2018, the ILO estimated that action to limit global warming by achieving the Paris Agreement will result in positive net employment impacts. Measures taken in the production and use of clean energy, for example, could lead to the creation of some 24 million new jobs, and losses of only around 6 million jobs (ILO 2018b, 1). Recent estimates from the UN (2021a) also project that public investments for a Just Transition to a climate neutral and circular economy can potentially generate over 100 million new jobs by 2030 globally. This is also what had been predicted by LCD Initiative reports in 2019 for Indonesia, where the high-end scenario sees a reduction of the unemployment rate to 3.4 per cent by 2045 (Indonesia, BAPPENAS 2019).

However, there is a prerequisite for achieving this projected impact smoothly. The implementation of green economy policies within the context of sustainable development and poverty eradication needs to be inclusive and equitable – with the involvement of all stakeholders. It also needs to be delivered within the framework of a Just Transition (United Nations 2012, 15–16 and 40). A Just Transition includes a set of principles, processes and practices that produce plans, policies, investments and concrete measures designed to move the world towards a future where jobs are green and decent, carbon emissions are net zero, poverty has been eradicated, workers and their families enjoy their human right to social protection, and communities are thriving and resilient (ASEAN and ILO 2021, 37). In this regard, readiness and coherence of policies across related sectors in the broader economy and in relation to development, industry and employment are imperative to ensure that the transition to a greener economy will leave no one behind.

1.1. Context of the study

1.1.1. Indonesia's Green Economy Agenda

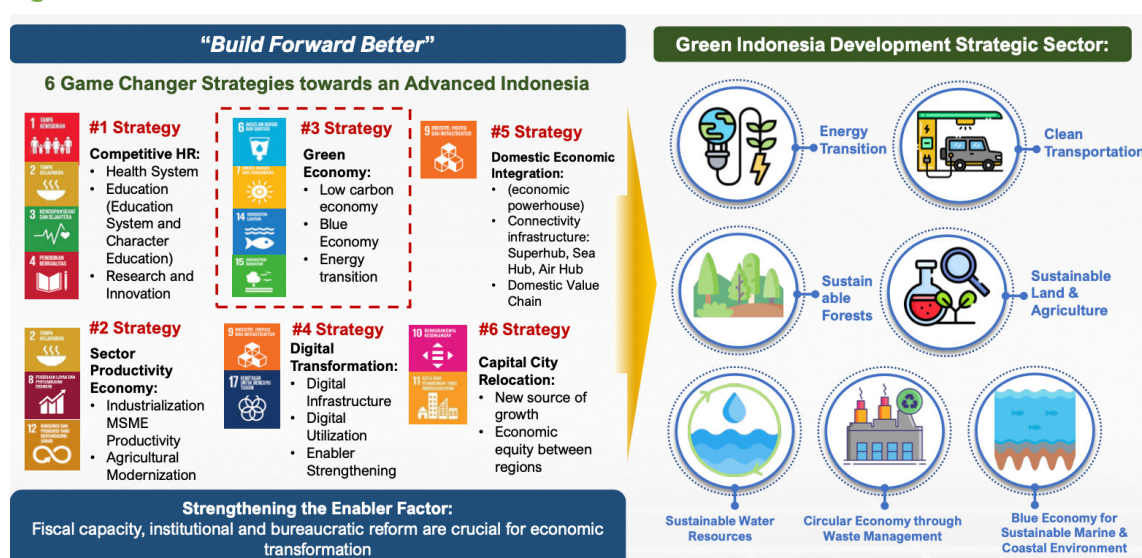
As part of its commitment to the Paris Agreement, the Government of Indonesia under the leadership of the Ministry of National Development Planning (BAPPENAS) launched the LCD Initiative (LCDI) in 2017 as a coordinated approach to achieving low-carbon development, sustainable natural resource management and poverty alleviation while maintaining economic growth. Under the LCDI, BAPPENAS exercised various policy scenarios using a system dynamic approach that balanced economic, social and environmental considerations. The results were then mainstreamed into the RPJMN 2020–2024 via a strategic environmental assessment as part of the technocratic process in planning development (Indonesia, BAPPENAS 2019, 9).

The RPJMN states that achieving a green economy represents an imperative approach wherein LCD policies are incorporated as part of the national priority agenda for building the environment and enhancing resilience against climate change and associated natural disasters. This green economy is to be delivered through policies within five prioritized sectors: sustainable energy development, sustainable land restoration, waste management, green industry development, and low-carbon coastal and marine environment (Indonesia, BAPPENAS 2020).

With the widespread impact of the COVID-19 pandemic, measures to accelerate economic recovery while sustaining growth necessary for achieving the Indonesian Vision of 2045 are required. Therefore, the Government of Indonesia has redesigned its development strategy via

an economic transformation framework to build forward better (Indonesia, BAPPENAS 2021b). Under this framework, the green economy is part of a number of game changer strategies towards an advanced Indonesia, which comprises low-carbon development, resource efficiency and social inclusion. The green economy strategy is brought forward via three subsets – low-carbon economy, blue economy, and energy transition – which are aligned with Indonesia's climate commitments to achieving its NDC as well as NZE. The Government plans to implement the green transformation through seven key areas, namely: energy transition, clean transportation, sustainable forests, sustainable land and agriculture, sustainable water resources, circular economy, and blue economy (Indonesia, BAPPENAS 2021c).

Figure 1. Indonesia Economic Transformation Framework



Source: Widyasanti 2022.

Given these policy directives, energy transition plays a very significant role within Indonesia's economy transformation. However, a smooth transition requires not only the development of infrastructure for renewables and energy efficiency, but also the availability of enabling conditions such as alternative financing schemes that can promote green private investment, the promotion of green technology innovation development, and the preparing of green jobs policy.¹

1.1.2. ILO support for PAGE-Indonesia

Aligned with the LCDI, Indonesia joined the Partnership for Action on Green Economy (PAGE) in 2018 to transform its economy into a sustainability and social inclusion driver, and thereby address development and environmental challenges at the national and subnational levels. PAGE is a collaboration between five UN agencies² that seeks to provide integrated and holistic support to countries in eradicating poverty, increasing jobs and social equity, strengthening livelihoods and environmental stewardship, and sustaining growth. This study is part of ILO's

¹ BAPPENAS' statement in the tripartite workshop consultation on the PAGE Indonesia Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector, 28 June 2022.

² The United Nations Environment Programme (UNEP), the ILO, the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) and the United Nations Institute for Training and Research (UNITAR).

support for PAGE Indonesia, with the ILO's PAGE activities focused on green jobs and ensuring a Just Transition.

With BAPPENAS as the implementing partner, PAGE Indonesia was launched in October 2018 to support the implementation of the LCDI in line with the national priority programme in the RPJMN 2020–2024. At the national level, PAGE aims to support the translation of LCDI targets into specific sectoral policies with a focus on the energy sector. In Indonesia, the energy sector contributes as the second-biggest carbon emitter and records the highest annual carbon emission growth. National power generation is highly dependent on fossil fuels, with coal still dominating the energy mix. To achieve climate targets as prescribed by the RPJMN and the Paris Agreement, Indonesia needs to navigate its energy transition by investing in more renewables and less coal in the power sector as soon as possible. With this consideration, energy transition has become one of the key strategic priorities in Indonesia's planned green economy transition.

Figure 2. Indonesia's updated NDC (2021)

Table 1. Projected BAU and emission reduction from each sector category

Sector	GHG Emission Level 2010* (MTon CO ₂ e)	GHG Emission Level 2030			GHG Emission Reduction				Annual Average Growth BAU (2010-2030)	Average Growth 2000-2012
		MTon CO ₂ e			MTon CO ₂ e		% of Total BaU			
		BaU	CM1	CM2	CM1	CM2	CM1	CM2		
1. Energy*	453.2	1,669	1,355	1,223	314	446	11%	15.5%	6.7%	4.50%
2. Waste	88	296	285	256	11	40	0.38%	1.4%	6.3%	4.00%
3. IPPU	36	70	67	66	3	3.25	0.10%	0.11%	3.4%	0.10%
4. Agriculture**	111	120	110	116	9	4	0.32%	0.13%	0.4%	1.30%
5. Forestry and Other Land Uses (FOLU)***	647	714	217	22	497	692	17.2%	24.1%	0.5%	2.70%
TOTAL	1,334	2,869	2,034	1,683	834	1,185	29%	41%	3.9%	3.20%

Notes: **CM1**= Counter Measure 1 (*unconditional mitigation scenario*)
CM2= Counter Measure 2 (*conditional mitigation scenario*)

*) Including fugitive.

**) Only include rice cultivation and livestock.

***) Including emission from estate crops plantation.

Source: Indonesia, Government of Indonesia 2021b.

The LCDI assumes that low-carbon development will create greener and better-paid jobs. However, challenges persist on how to develop policy that can balance the need for good-paying and lasting jobs among those whose income currently depends on primary resources vis-à-vis the need to conduct these activities sustainably. This challenge is amplified by the fact that the contribution of natural capital-based activities to wealth creation in Indonesia is even larger than what is implied by the shares of the primary sector in terms of both value-added GDP and employment (Indonesia, BAPPENAS 2019, 12 and 25).

In other words, a transition toward LCDI targets, including in the energy sector, needs to be a Just Transition: a well-managed transition to environmentally sustainable practices that contributes to the goals of decent work for all, social inclusion, and the eradication of poverty. Such a transition is also expected to create green jobs, namely, good jobs for people, the environment, and the economy. To ensure the conditions needed to achieve these aims, the availability of policy to promote green jobs and appropriate Just Transition planning are both imperative. This study aims to contribute to this arena by providing policy recommendations related to managing employment effects to ensure the creation and promotion of green jobs and a Just Transition in the energy sector.

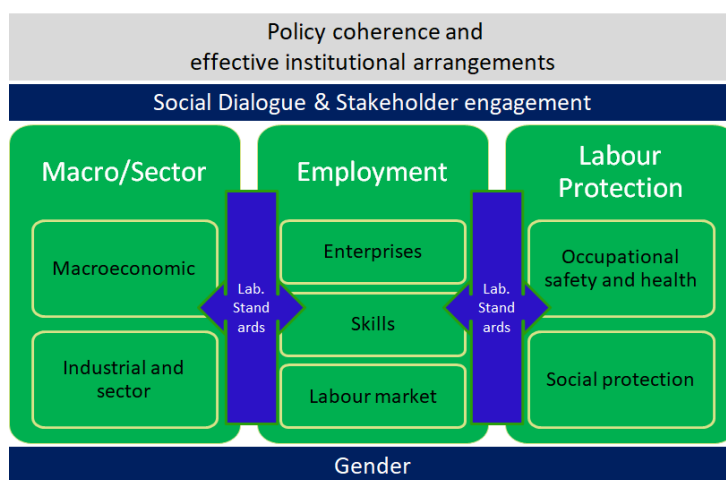
1.1.3. A Just Transition for a greener economy

Evidence suggests that implementing strategies for decarbonization alone will not necessarily bring about more work or work that is decent (ILO 2018b). Similarly, there are also no guarantees that a transition will be “just” where existing inequalities are addressed and reduced, and no person or community is left behind, but the issue of sustainability is not adequately addressed.

To provide a compass for nations in navigating the transition towards a green economy that is just, the ILO Governing Body in 2015 adopted the Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All. The Guidelines were drafted by a tripartite meeting of experts, including an expert nominated by the Government of Indonesia (ILO 2015a). The Guidelines provide a policy framework and practical tool to help countries at all levels of development manage the transition to low-carbon economies that can support them in achieving their NDC and the Sustainable Development Goals (SDGs). Designed to promote decent work on a large scale and to ensure that social protection exists where needed, the Guidelines also include mechanisms for social dialogue among governments, workers and employers throughout policy-making processes (ILO 2015b).

The Guidelines are a non-binding practical tool and highlight that the greening of economies and work will require a country-specific mix of macroeconomic, industrial, sectoral and labour policies that create an enabling environment for sustainable enterprises to prosper and create decent work opportunities by mobilizing and directing public and private investment towards environmentally sustainable activities (ILO 2015b). They identify interrelated policy areas that will each provide critical elements for achieving a Just Transition.

Figure 3. ILO guidelines for a Just Transition



Source: ILO 2015b.

Indonesia is one of the signatories to the COP24 Solidarity and Just Transition Silesia Declaration (Indonesia, Government of Indonesia 2018), which recognizes the importance of ensuring the Just Transition of the workforce and the creation of decent work and quality jobs within climate change responses.³ Under its updated NDC, Indonesia had addressed the Just Transition of the workforce for an effective and inclusive green transition, with the following efforts to be considered within the implementation:

³ The full text of the Declaration is available at:

<https://www.ioe-emp.org/index.php?eID=dumpFile&t=f&f=134978&token=91237abd5b4e38c1e7c2e4364b2b8e7095d8e0fd>.

1. Addressing challenges faced by sectors, cities and regions in transitioning to low-carbon development and ensuring a decent future for workers affected by the transition.
2. Promoting low greenhouse gas emissions and sustainable economic activities will create quality jobs in cities and regions.
3. Enhancing the capacity of workforces to facilitate access to decent work and quality jobs, considering gender and inter-generational equalities and the needs of vulnerable groups.
4. Enhancing participatory public dialogue to foster high employment rates, adequate social protection, labour standards, and the wellbeing of workers and their communities (Indonesia, Government of Indonesia 2021b).

To meet these commitments, Indonesia needs to ensure the availability and coherence of a set of policies relevant for the transition process as highlighted by the Just Transition Guidelines, as well as the establishment of an effective institutional arrangement that allows for a participatory and inclusive process throughout the transition.

1.2. Aims and objectives of the study

This study is intended to support the Government of Indonesia and social partners in strengthening LCDI implementation for a green jobs and Just Transition planning policy in the energy sector. The Green Jobs and Just Transition Policy Readiness Assessment is aimed at provide technical inputs – including data collection, analysis and reporting – on two areas:

1. **Mapping current policy and programme activities for the green jobs at the macro level** – Assessing the existing capacity of policy and associated institutions (governments and other constituents and stakeholders) to undertake green jobs and Just Transition planning
2. **In-depth exploration focused on the energy sector** – Analysing sectoral policies and how these interact with the national level policy framework.

The assessment objectives are set to inform stakeholders by providing a snapshot on the readiness level of the current policy framework for a just energy transition; identifying the capacity of stakeholders to undertake the green and Just Transition planning; and allowing a social dialogue process to align the vision and discuss resource and support mobilization from all stakeholders to support the energy transition.

1.3. Method and limitations

Measuring policy readiness involves a systematic assessment of a policy system and its ability to undertake transformational change. Such a review examines the current policy composition and identifies gaps where new procedures, processes and policies are needed. A policy readiness assessment is essential, because a supportive policy ecosystem is critical to enabling future green jobs growth and ensuring a Just Transition, yet in many policy areas and jurisdictions, green jobs and a Just Transition are new concepts and require activities to build awareness and capacity before policy can be fully developed.

This assessment employs a two-step method using a qualitative approach to portray the current policy framework in Indonesia and to identify policy gaps that need to be addressed in order to transition into a greener economy. The methodology begins with desk research on the existing policy context and constructing a narrative of its development, followed by policy stakeholder mapping.

With the essential stakeholders identified, a series of consultation interviews specifically focused on the policy ecosystem for green jobs and a Just Transition were conducted. These interviews allowed for the identification of gaps and forthcoming policy measures, and set the stage for an analysis of the coordination and coherence of the policy ecosystem. The analysis follows the Just Transition Guidelines as a policy framework and refers to the Association of Southeast Asian Nations (ASEAN) and ILO (2021) *Regional Study on Green Jobs Policy Readiness in ASEAN* as a benchmark.

The second stage comprises data analysis for drafting a situational analysis report. This report was then validated through a tripartite consultation held on 28 June 2022, where representatives from the key government institutions, employers' organizations, and trade unions discussed the report's findings and developed a work plan for future activities, including in priority policy areas that are necessary to ensuring the transition process is guided by the Just Transition Guidelines.

The study solely used qualitative methods involving the review of policy documents, sectoral studies, informed opinion and secondary research. The study aims to provide a snapshot of the current state of the policy framework necessary for green jobs and a Just Transition in Indonesia's energy sector. To this end, it should be noted that the study has considered data on regulation, policies, programmes and activities up to a cutoff date of March 2022.

1.4. Structure of the report

This report has five sections. After this introductory section, Section 2 provides an overview of the current state of green jobs, covering the definition of green jobs and the need for green jobs in Indonesia. Section 3 discusses the sector potential for green jobs within the context on an energy transition. Section 4 presents Indonesia's green jobs policy readiness assessment, focusing on the energy sector. Section 5 discusses the findings from the country analysis, reflecting on the priorities for this study (definitions and categorizations of green jobs; green economy agendas and how employment considerations are linked; priority sectors for green employment; readiness level of the current policy framework; and institutional mechanisms to support policy coherence and coordination), and highlights the recommendations for enhancing policy readiness for a Just Transition in Indonesia's energy sector.

THE STATE OF GREEN JOBS IN INDONESIA



2. THE STATE OF GREEN JOBS IN INDONESIA

2.1. What are green jobs?

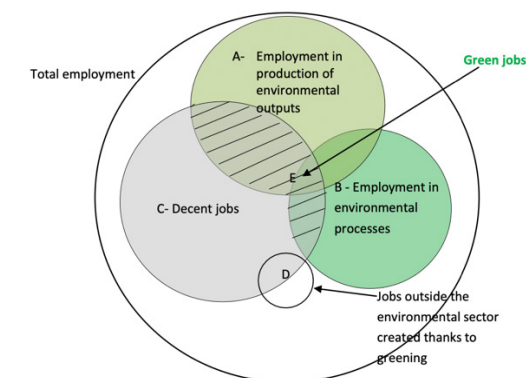
2.1.1. ILO definition of green jobs

The ILO defines green jobs as “decent jobs that contribute to the preservation and restoration of the environment, be they in traditional sectors such as agriculture and manufacturing, or in new, emerging green sectors such as renewable energy and energy efficiency” (ILO 2016). Decent jobs refer to work that meets the ILO decent work criteria; that is, work that pays a fair income, guarantees a secure form of employment and safe working conditions, ensures equal opportunities and treatment for all, includes social protection for the workers and their families, offers prospects for personal development and encourages social integration, and workers are free to express their concerns and to organize (ILO 2013a).

For the ILO, the concept of green jobs summarizes the transformation of economies, workplaces, enterprises and labour markets into a low-carbon, sustainable economy that provides decent employment opportunities for all. Green jobs help to improve energy and raw materials efficiency, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems, and support adaptation to the effects of climate change (ASEAN and ILO 2021, 23).

At the enterprise level, green jobs can produce goods or provide services that benefit the environment, for example, green buildings or clean transportation. However, these green outputs (products and services) are not always based on green production processes and technologies. On the other end, green jobs can also be derived from contributing to more environmentally sustainable production processes, even when the final outputs of these activities are not environmental goods and services.

There is no universal definition or accepted way of categorizing and counting green jobs. To some extent, the ILO's definition of green jobs provides a theoretical foundation for formulating a green jobs definition at a practical level. Statistically, green jobs are a subset of employment in environmental activities that meets decent work requirements. The relation between total employment, green activities, and decent work that provides guidance for a statistical definition of green jobs is shown in figure 4. To enable data collection on green jobs, an operational definition must be adopted.

Figure 4. Statistical definition of green jobs

Source: ILO, 2013h

Green jobs are those jobs that either produce environmental outputs or are involved in environmental processes and meet the criteria of decent work at the same time $((A \cup B) \cap C)$.

Additional notes:

- Total employment in environmental activities (A+B): This includes some jobs that do not meet decent work criteria.
- Employment thanks to greening (A+B+D): In addition to working in environmental activities, this includes jobs created in other sectors thanks to greening. These can consist of jobs in industries that sell products to environmental industries (indirect jobs) and jobs created by people's consumption in environmental sectors (induced jobs).
- Green jobs need to be in E at the centre of the figure – that is, they contribute to the environment but are also decent jobs.

Source: ILO 2013c, 20.

2.1.2. Green jobs definition in Indonesia

The aforementioned ASEAN and ILO (2021) regional study on green jobs concluded that most ASEAN Member States have conceptual definitions of green jobs and green skills, and in many cases, these have been developed from the ILO definition of green jobs. However, the specific defining of green jobs has received less focus in the region compared to the overall implementation of a green economy agenda, with the belief that creating low-carbon development and adapting to climate change will create momentum in the economy for the creation of green jobs. This also appears to be case in Indonesia, as national development planning documents (such as the RPJMN 2020–2024 and the Bali Economic Transformation Roadmap) have elaborated the concept of a green economy, but no policies or regulations explicitly mention or provide a conceptual and operational definition for green jobs.

Sectoral policies have sought to address and incorporate green aspects into their regulations and programmes, such as “green industry” under the National Industrial Development Masterplan (*Rencana Induk Pembangunan Nasional*, or RIPIN) 2015–2035 of the Ministry of Industry (2015). Another example is “green productivity”, a concept adopted from the Asian Productivity Organization and defined as a holistic, proven approach for strengthening competitiveness, protecting the environment, achieving sustainable low-carbon growth to combat the adverse impacts of climate change, and alleviating poverty (United Nations, n.d.), which the Ministry of Manpower has incorporated within their productivity policy and training programme (Indonesia, MOM 2021). However, both of these policies focus more on production chain processes that emphasize resource efficiency and sustainability and on aligning industrial development with environmental and societal preservation, but they do not touch upon aspects related to the actual jobs or occupations held by workers, with the exception of some considerations related to occupational safety and health (OSH).

This absence of an operational definition of green jobs may result in difficulties in setting targets and evaluating the impact of green economy policies, making policy alignment and coordination across sectors challenging and creating barriers to capacity-building and knowledge sharing, as each organization may categorize green jobs differently in their assessments. This state of affairs has been noted by representatives from all tripartite constituents in Indonesia, raising the urgency for establishing of a green jobs definition that can provide a uniform framework for understanding what a green job is and that can be translated from a technocratic concept into something practical and achievable within the context of the Indonesian economy.⁴ In regard to formulating this definition, workers' representatives have highlighted the importance of incorporating decent work aspects; while employers have focused on inclusivity so as to ensure that all occupations that can fall within the green jobs category can be accommodated by the definition. Notwithstanding with the social partner's aspirations, for practical reasons, the application of a green jobs definition should consider the quantity, quality and consistency of available data. The development of an operational definition for green jobs must consider whether available data is sufficiently detailed for the green credentials of jobs to be assessed on an individual basis or whether there is only enough detail for certain industries or companies, in their entirety, to be treated as green (ILO 2013b).

Another point to be considered when working on an operational definition of green jobs is comparability. In this regard, adopting a definition based on a common framework with other ASEAN Member States will allow knowledge sharing of green jobs analyses across the region and accelerate the accumulation of knowledge and evidence needed for policymaking and generating support (ASEAN and ILO 2021, 81). Within this context, taking a spectrum approach to an operational definition of green jobs that identifies core green, indirectly green, and non-green occupations across different sectors and geographies can be considered as an alternative avenue.

4 Points raised at the tripartite consultation workshop on the PAGE Indonesia Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector, 28 June 2022.

Box 1. Examples of defining green jobs in ASEAN Member States**Viet Nam**

The initiation of a green economy in Viet Nam began with Decision No. 1393/QĐ-TTg, which approved the National Strategy on Green Growth for 2011–2020 and Viet Nam’s Vision 2050 national master plan. The decision set out a definition for green jobs as “jobs in agriculture, manufacturing, research and development, administrative management and services, which make a significant contribution to the preservation and restoration of environmental quality”, which considers green economic sectors but overlooks the characteristics of these jobs. However, with the decision to implement the SDGs in 2017, the definition of green jobs was adjusted as employment in sectors that help preserve or restore the environment or bring about sustainable development and employment with decent and satisfactory working conditions.

Viet Nam currently classifies green jobs based on criteria related to impact on the environment – reducing GHG emissions and protecting biodiversity and the environment. Three levels of effects are identified:

- i. core green job sectors (such as renewable energy, clean water supply, forestry);
- ii. partly green sectors (organic agriculture, recycling, green construction); and
- iii. non-green or brown sectors (such as healthcare, finance and business services).

Decent work criteria are also applied to identify green jobs, including salaries and payment, contracting and availability of social protection, freedom of association and collective bargaining, and no forced labour or child labour.

The Philippines

The country enacted the Philippine Green Jobs Act (PGJA) in 2016 to provide legislative support for promoting green jobs. The PGJA defines green jobs as employment that contributes to preserving or restoring the quality of the environment, as well as being jobs that are decent, productive, respect the rights of workers, deliver fair income, provide security in the workplace and social protection for families, and promote social dialogue.

Under the PGJA, the Climate Change Commission, in consultation with seven national government agencies, including the Department of Labour and Employment, is mandated to develop standards for assessing and certification green jobs in the country. The Commission has identified three approaches for determining green jobs, namely:

- i. Industry approach – Is the company’s business among those on the green list (green industries)?
- ii. Product/ service approach– Are the products or services certified as green/meet a green threshold?
- iii. Process approach – Do you have core business processes and initiatives that deliver or directly cause delivery of substantial environmental value beyond compliance?

Source: ASEAN and ILO 2021, 81 and 62–63.

2.1.3. Measuring green jobs

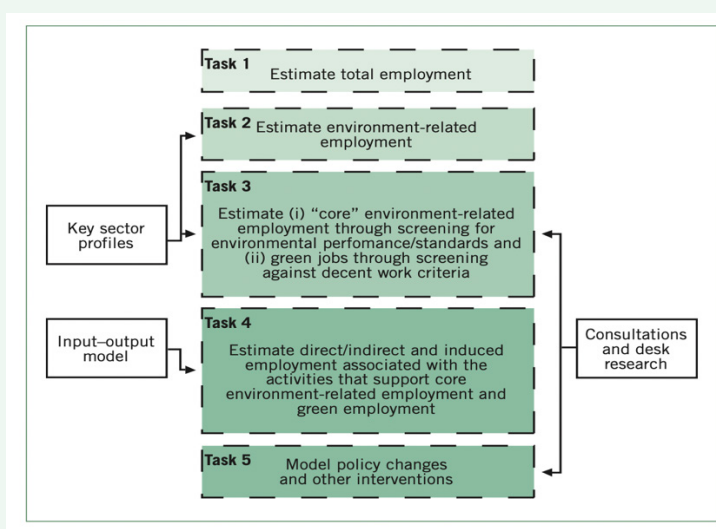
The absence of a conceptual and operational definition for green jobs within the available policy framework – and the consequent lack of reliable green jobs data – were some of the main stakeholder concerns documented throughout the study. In response to this, related government institutions such as BAPPENAS and the Ministry of Manpower (MOM) conveyed their plan to formulate policy and regulations on green jobs, which will also cover the definition and scope of green jobs, which can be used as the basis for data collection and assessment.⁵

By definition, measuring green jobs will concern assessment on two dimensions: the quantity and quality of the impacts that green policies have on employment (GAIN 2017, 29–31). The first dimension assesses three employment effects – direct, indirect and induced effects – which combined translate into the gross and net impacts on employment. The second dimension will look into the quality of green jobs, that is, whether the jobs created in the green economy transition are also decent jobs. Despite the increasing importance of green jobs, the working conditions in such jobs remain largely unexplored, with one of the challenges in this space being the difficulty involved in translating qualitative decent worker criteria into quantitative indicators.

⁵ Both Ministries are still in the initial stage of developing the policy on green jobs. Although both Ministries have common topics, the MOM's objective is to prepare a National Action Plan (NAP) on the Impact of Climate Change on the Labour Sector that looks at all policy aspects related to the transition process to a greener economy that are relevant to employment; while BAPPENAS, especially in the Directorate of Manpower, focuses on the skills part, especially in the electricity sector in accordance with the energy transition.

Box 2. Steps and method for developing countries to measure green jobs

Given the different contexts and economic structures found in developing countries, the ILO has suggested that the green jobs assessment put focus on employment in distinctively green industries, either based on data from enterprise surveys in these industries or starting from existing sectoral data (generally from national statistical agencies), and splitting the sectors into synthetic green and non-green parts based on sector-level research. The modelling technique can then estimate the number of additional jobs in other industries that may arise from selling to green sectors (indirect jobs) and from consumer spending by those employed in the sectors (induced jobs). Finally, to comply with the definition of green jobs, an estimate on how many of the jobs counted comply with decent work criteria will arrive at the green jobs measure. This approach can be summarized in the step-by-step flow diagram below:



Source: Jarvis, Varma, and Ram 2011.

To measure green jobs, two screening criteria need to be established, namely, environmental criteria and decent work criteria. The environmental criteria should ideally attempt to cover a comprehensive set of environmental impacts, including:

- resource efficiency;
- energy efficiency;
- abatement and mitigation of waste and emissions;
- adaptation and resilience to environmental risks; and
- biodiversity conservation.

One of the approaches to defining these environmental indicators is sequentially analysing sectoral data by:

- i. reviewing compliance with international and/or national environmental laws, including delineating the voluntary environmental standards and associated management systems that are not consistent with the laws;
- ii. screening strategic plans and targets for environmental management;
- iii. setting up performance benchmarks or minimum thresholds for industries or sectors; and
- iv. identifying activity-based approaches that might be considered as providing core environmental jobs because of their low resource use and/or positive environmental impacts.

Several sectoral policies in Indonesia implement some sort of environment screening in the various industries and sectors they cover. One of them is the green industry standard, developed by the Ministry of Industry. The standard focuses on optimizing the efficiency and effectiveness of industrial production processes to ensure environmental sustainability. The criteria cover the overall production chain, starting from raw and auxiliary materials, energy, production process, organization management, waste management, and other standardized aspects based on the consensus of related industry stakeholders.⁶ Standards are developed based on each particular commodity, and as of 2022, 41 standards have been set up. In the long term, green industry standards are expected to be made compulsory, although they are currently voluntary.⁷

Another sectoral policy that implements environmental screening for industry is the new “Green Taxonomy” published in 2022 by the Financial Service Authority (Otoritas Jasa Keuangan, or OJK). The Taxonomy is an economic activity classification that supports environmental protection and management efforts as well as mitigation and adaptation to climate change. It is aimed to provide standardized definitions and criteria for the green sector, especially in relation to financing mechanisms, and provides an overview of the classification of sectors/subsectors that have been scientifically categorized as green based on the fifth level of the Indonesia Standard Industrial Classification (KBLI).⁸ The Green Taxonomy does not focus only on subsector/group/business activities already categorized as green, but also includes those yet to be classified as green, with the current version covering 919 subsectors, based on a mapping of 2,733 sectors. The sectors are classified into three categories, namely:

- green (does no significant harm, applies minimum safeguards, provides positive impact to the environment, and aligns with the environmental objective of the taxonomy);
- yellow (does no significant harm); and
- red (harmful activities).

The screening criteria used for classification were developed using a consultative process with sectoral regulating bodies and relevant stakeholders, and include:

- i. provisions issued by the relevant ministries/agencies;
- ii. best practices on environmental objectives;
- iii. other science-based references; and
- iv. regional and international standards on the environment.

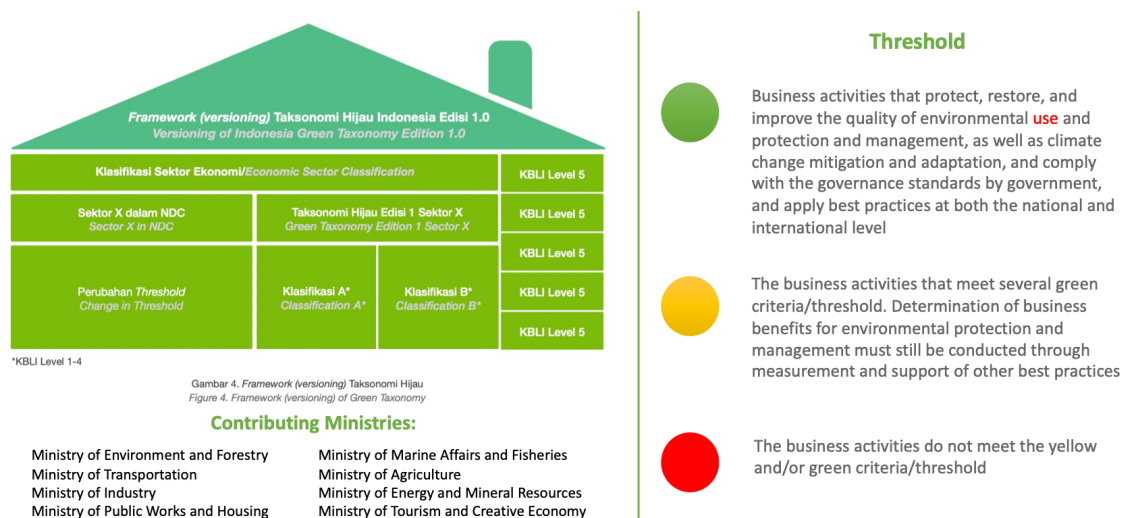
Indonesia Green Taxonomy Edition 1.0 is a dynamic/living document that is open to further revision in economic sectors that meet the green criteria. It applies a continuous approach to encourage improvements from time to time to ensure its effective contribution to environmental objectives within the Green Taxonomy.

The tripartite consultation process for this study concluded that, to certain degree, the Green Taxonomy may provide reference for environmental screening when measuring green jobs, but only with much consideration. Several concerns raised by stakeholders consist of data limitations, the need for standardized thresholds, the need for detailing a sectoral approach by combining it with a task/process approach, and the need for further elaboration and discussion with related stakeholders, including with Statistics Indonesia (Badan Pusat Statistik, or BPS).

⁶ Article 1(3) of Ministry of Industry Regulation No. 51/M-IND/PER/6/2015. There are two criteria for a green standard, namely technical and management. There are aspects regarding the raw and auxiliary materials, energy, water, the production process, packaging, waste management, and GHG emissions in the technical requirements. The management requirements include organizational policy and strategy planning, implementation and monitoring of green industry standards, management reviews, job safety analysis, and OSH.

⁷ Consultation result with Ministry of Industry.

⁸ The KBLI is issued by BPS based on the International Standard Industrial Classification of All Economic Activities (ISIC) and the ASEAN Common Industrial Classification (ACIC).

Figure 5. The Indonesian Green Taxonomy, version 1.0

Source: Indonesia, OJK 2022, 34.

As noted above, the second screening criteria for measuring green jobs concerns the decent work aspects. Measuring decent work in developing countries is challenging but possible through a broad-brush approach (Jarvis, Varma and Ram 2011, 12). Using this approach, decent work can be disaggregated into ten main elements for measurement purposes, with a mix of qualitative and quantitative data required to measure these indicators. The ILO Regional Office for Asia and the Pacific has also developed indicators for measuring decent work within the region.⁹ BPS also publishes annual decent work indicators based on the ILO's 2011 *Decent Work Country Profile* using the National Labour Force Survey (Survey Angkatan Kerja Nasional, or SAKERNAS), although not all indicators can be measured due to data limitations.¹⁰ In regard to addressing the technical difficulties of measuring decent work, a study conducted by the ILO (2014) in the Philippines set out the minimum criteria for decent work indicators in green jobs, which can be modified following the achievement of a consensus during sectoral consultations in order to better reflect the Indonesian context.

Within the tripartite consultations for this study, the constituents emphasized the importance of the decent work aspect when defining green jobs. The discussion raised the necessity of aligning national and international standards when setting up decent works criteria. Law No. 13/2003 Concerning Manpower set up provisions for labour protections that cover workers' rights in regard to employment contracts, collective bargaining, strikes, OSH, minimum wages, livelihood and social protection, contract termination, and special provisions for women, child and disabled labours. On top of this, it is also important to recognize the workers' rights provisions found in international labour standards, such as ILO Conventions and Recommendations. Special provision for accommodating informal workers when defining and measuring green jobs was another point stressed by the tripartite constituents. Indonesia's economy is characterized by a large share of informal workers, which is also apparent within the sectors associated with the green economy (see box 3).

⁹ ILO decent work indicators are available at: https://www.ilo.org/integration/themes/mdw/WCMS_189392/lang-en/index.htm. Another resource is ILO, *Decent Work Indicators for Asia and the Pacific: A Guidebook for Policy-makers and Researchers*, 2008.

¹⁰ The latest BPS measure on decent work indicators (as at 11 April 2022) is available at: <https://www.bps.go.id/publication/2022/04/08/1ea92e310421c90fcc82a84e/indikator-pekerjaan-layak-di-indonesia-2021.html>.

Table 1. Comparison of decent work indicators

ILO broad Indicators	ILO Asia and the Pacific indicators	BPS decent work indicators	ILO – IGES study minimum indicators
1. Equal employment opportunities 2. Unforced paid work 3. Adequate earnings and productive work 4. Fair and equal treatment in employment 5. Decent working hours 6. Fair balance of work and family life 7. Safe work environment 8. Stability and security of work 9. Social protection 10. Social dialogue and workplace relation	Rights at work 1. Child labour 2. Women in the workplace 3. Complaints/cases brought to labour courts or ILO Employment 4. Labour force participation rate 5. Employment to population ratio 6. The working poor 7. Wages 8. Unemployment 9. Youth unemployment 10. Youth inactivity 11. Time-related underemployment 12. Employment by status of employment and branch of economic activity 13. Labour productivity 14. Real per capita earnings (from national accounts) - Social protection 15. Informality and social protection 16. Rates of occupational injuries 17. Hours of work Social dialogue 18. Trade union membership rate 19. Number of enterprises belonging to employer organizations 20. Collective bargaining coverage rate 21. Strikes and lockouts: Rates of days not worked	1. Employment opportunities 2. Equal earnings and productive work 3. Decent working hours 4. Abolition of child work 5. Stability and security of work 6. Fair and equal treatment in employment 7. Social protection 8. Social dialogue, workers' and employers' representation	1. Rules and regulation of minimum wages 2. Freedom of association and the effective recognition of the right to collective bargaining 3. Elimination of all forms of forced or compulsory labour 4. Effective abolition of child labour

Box 3. Green jobs mapping study in Indonesia

In 2013, the ILO published an advance draft of the Green Jobs Mapping Study in Indonesia, which was conducted in 2011–12 under the ILO Green Jobs Initiative of Green Jobs in Asia Project. The study aimed to identify key economic sectors with environment-related activities that are creating green jobs in Indonesia and to offer some suggestions on how to move forward. To this end, the study identified core environment-related sectors and green subsectors and estimated the number of core environment-related jobs and decent green jobs within each sector. It also provided policy recommendations for further action to promote green jobs within the identified subsectors.

The study estimated that there were approximately 8.8 million core environment-related jobs, with approximately 4 million of these being green jobs. The sectors with the highest potential for further green job creation were agriculture, manufacturing and transport, although significant potential was also found in forestry, fisheries and construction if appropriate policies are implemented to promote environmentally sustainable activities and to address decent work deficits. The table below highlights the green employment figures ascertained from the study.

e	Core environment related jobs	Green jobs
Agriculture	4 809 584	2 434 667
Forestry	213 620	97 630
Fisheries	549 012	241 739
Mining and energy	6 780	4 820
Manufacturing	1 062 761	331 538
Construction	414 780	187 752
Transportation	1 659 606	603 593
Tourism	21 407	10 665
Waste	73 462	73 462
Total	8 811 012	3 985 866

Methodology

The green jobs mapping study applied a mixed method approach that incorporated techniques that include the collection of qualitative data from key informants and focus group discussions as well as analysis of quantitative data from the National Labour Force Survey (SAKERNAS). This data was then used to examine the structure of the economy in order to: identify green subsectors; estimate environmentally sustainable employment in these green subsectors; examine how many of these jobs adhered to decent work principles; and then estimate the numbers of green jobs in that particular sector.

The first step in the methodology for estimating green jobs involved understanding the structure of the economy and its links to employment as per the international standard classification of industry. Each sector of the economy was then examined to determine the particular subsectors that were strongly integrated with the environment. In Indonesia, it was determined that there were nine core sectors where green jobs were clustered, as presented in the table above. Green subsectors that exist within these parent sectors were determined through a combination of focus group discussions with key focal points from each of the sectors, as well as a thorough literature review of national laws and regulations, voluntary standards and activities that are associated with each sector. Criteria for determining the extent to which activities could be considered to be sustainable within an identified subsector were also identified. Once the green subsectors were identified and agreed upon by the ILO's constituents, SAKERNAS data was used to generate estimates for employment that could be considered to be environmentally sustainable within each green subsector.

The final step involved in estimating green jobs involved the introduction of criteria to provide insight on employment quality or "decent work". Focus group discussions with the ILO's constituents determined that variables providing insight on adequate earnings, formality, safe working environment, access to social security, social dialogue, and employers' and workers' representation were highly relevant for the estimation of the decency of work in each green subsector. Estimates for green jobs were then derived using a combination of insights collected from focus group discussions and data from the SAKERNAS.

Source: ILO 2013d.

2.2. The need for green jobs in Indonesia

2.2.1. Labour force characteristics in Indonesia

The last two decades of economic improvement have allowed Indonesia to become an emerging market. Indonesia is now characterized by the strong presence its manufacturing and service sectors, and the economy has been moving away from the primary sector, reflected largely by the declining share of agriculture. These changing conditions are also reflected in the labour market, with almost 50 per cent of employment currently residing in the service sector, while agriculture only carries a 29 per cent share.

However, Indonesia's economy is still significantly reliant on its natural resources and therefore vulnerable to climate change risk. Natural capital-based activities contribute more than half of Indonesia's foreign revenues and employment, and more than 20 per cent of value-added GDP (Indonesia, BAPPENAS 2019, 25). Primary sectors such as mining and quarrying, agriculture and fisheries, as well as manufacturing and service subsectors related to primary resources, especially oil and gas, basic chemicals, palm oil, wood, and vegetable and animal products, are the main contributors to the economy and employment.

Table 2. Sectoral shares of GDP and employment, 2021 (%)¹

	Agriculture	Industry	Service
GDP (at current price)	13.84	41.54	44.62
Employment			
– Total	29.00	21.80	49.30
– Male	31.00	25.60	43.40
– Female	26.00	15.90	58.10

¹ Sectors based on ILO classification wherein:

- agriculture consists of agriculture, hunting, forestry and fishing;
- industry consists of mining and quarrying, manufacturing, construction and public utilities; and
- service consist of wholesale and retail trade, restaurants and hotels, transport, storage and communications, finance, insurance, real estate and business services, and community, social and personal services.

Source: GDP data is generated from BPS; Employment data is derived from ILOSTAT (2021).

The COVID-19 crisis had affected the labour market severely. The unemployment and underemployment rates rose significantly to 7.07 and 10.19 per cent, respectively, in 2020, compared to the 2019 rates of 5.23 and 6.42 per cent. Conditions started to rebound in 2021, when unemployment and underemployment decreased to 6.49 and 8.71 per cent, respectively, although this was still below the pre-pandemic level. In addition, the job retrieval rate for female workers seems to be slower than for males, although the unemployment rate for male workers remains higher overall. However, it is essential to note that women's labour participation rate is significantly lower than that of men, sitting at just 53.34 per cent, with many working age women engaged in unpaid care work at home, and therefore serving as an untapped resource in the labour market.

Indonesia has enormous labour potential; the country is experiencing an era of demographic dividend, which started in the 2000s but will soon dissipate in 2030 as the population ages. By 2020, the Indonesian population of productive age amounted to 70.7 per cent of the total population, and giving it the fourth-largest working age population in the world. This opportunity

is not without its challenges. The manufacturing industry that contributes significantly to job creation has stagnated since 2016, and fewer youth are willing to engage in the agriculture sector. These circumstances are partially reflected in the youth unemployment rate, which is significantly higher than total unemployment. It is also reflected in the youth NEET¹¹ share, as young people who are not in employment, education or training are at risk of living below the poverty line and of lacking the skills needed to improve their economic situation.

Table 3. Labour force participation, unemployment and vulnerability, 2020 and 2021 (%)

Category	2020	2021
Labour force participation		
– Total	67.77	67.80
– Male	82.41	82.27
– Female	53.13	53.34
– Employment to population	62.98	63.40
Unemployment		
– Total	7.07	6.49
– Male	7.46	6.74
– Female	6.46	6.11
– Youth	20.46	19.55
Vulnerability		
– Share of youth not in employment, education, or training (NEET)	24.28	22.40
– Underemployment	10.19	8.71
– Informal worker	60.47	59.45
– Vulnerable employment	34.60	34.50

Source: BPS 2022a.

Indeed, most of the working population are under-trained, which prohibits many from enjoying quality jobs. In 2021¹² only 12.9 per cent of workforce had acquired an advanced education, and the share of managers, professionals and technicians only accounted for 10.9 per cent of workers. Nevertheless, the share of the workforce with a less than basic education is low, at 11.9 per cent. This is due to the significant progress made in the education system in the past 20 years, with almost all children being able to attend primary education for free and enrolment in secondary and tertiary education is continuously increasing. However, despite these advances, the Organisation for Economic Co-operation and Development (OECD) suggests that there are signs of low teaching and learning quality in Indonesian education, with the data showing that most pupils leave school lacking basic knowledge and skills required by the job market (OECD 2021).

Another significant challenge comes from the high level of precarity of employment. The share of informal workers in the labour force were projected to reach 59.45 per cent in 2021, slightly better than in 2020 when it reached 60.47 per cent. However, informality in employment was already high even before pandemic. In 2019 when labour market conditions were strong and with low unemployment, informal workers accounted for 55.88 per cent of the total labour

¹¹ NEET is an acronym for “not in employment, education or training”.

¹² The figures that follow are based on data compiled in the [ILOSTAT database](#) (accessed at 8 April 2022).

force. When the data is disaggregated, most informal workers are shown to be females and low-skilled (Indonesia, BPS 2021a; Indonesia BPS 2021b). Precarity in employment is also reflected in the number of vulnerable workers – that is, own-account workers and contributing family workers – which account for 34.5 per cent of the labour force. These groups represent self-employed workers whose remuneration is solely dependent on the products/services they can produce. They have greater economic risk when facing transition and crisis, since they are more prone to informal work arrangements and less likely to have social security coverage or to benefit from social dialogue (ILO 2018a). This precarity is visible in the agriculture sector, which, even though its contribution to overall GDP has shrank, still provides significant employment, especially in rural areas.

2.2.2. Climate action and climate impacts on jobs

The updated NDC states that Indonesia's climate commitment will require strong action to implement measures for rapid decarbonization, climate mitigation and climate adaptation. However, this will need to be accompanied by measures that address climate change's underlying socioeconomic and health impacts. In the world of work, this only can be done through a Just Transition process.

The employment implications of climate change will arise in two main areas (ASEAN and ILO 2021, 81):

- **Employment changes due to the decarbonization of economic activities to meet NDC and NZE commitments** – These employment changes will be both positive and negative – as specific industries will decline along with reductions carbon-intensive activities, for example, coal mining and fossil-based energy; while other sectors will grow in response, for example, renewable energy, electric mobility, energy efficiency, and resource-efficient manufacturing.
- **Employment changes due to climate impacts** – These impacts include economic and employment disruptions associated with extreme weather events (storms, floods), sea-level rise (inundation of low-lying urban areas and agricultural assets), and increased ocean temperature/acidification (changes in fish stocks).

A 2018 ILO study concluded that decarbonization can lead to a net positive impact on employment at the global level (ILO 2018b, 37). Compared to the business-as-usual scenario, changes in energy production and use to achieve the 2°C goals can create around 18 million jobs throughout the world economy by shifting to renewable energy sources and greater efficiency, through the adoption of electric vehicles, and through construction work to achieve greater energy efficiency in buildings. This net job growth is predicted to result from the creation of some 24 million new jobs and the loss of around 6 million jobs by 2030. The circular economy may create almost 6 million jobs by moving away from an extract-manufacture-use-discard model and embracing the recycling, reuse, remanufacture, rental and longer durability of goods. Notably, this would mean a reallocation of employment from the mining and manufacturing sectors to waste management (recycling) and services (repairs, rentals). However, the shifting of these jobs will not be equally shared throughout the world.

In addition, Indonesia, as an archipelago country, is particularly prone to climate change risk (Widyasanti 2022). From 1981 to 2018, Indonesia experienced a temperature increase of around 0.03°C per year. The country has also experienced a sea level rise of 0.8–1.2 cm/year. Conditions such as these can lead Indonesia to lose 0.66 per cent to 3.45 per cent of GDP by 2030. According to the ILO (2018b), they can also present a threat to the world of work, as jobs

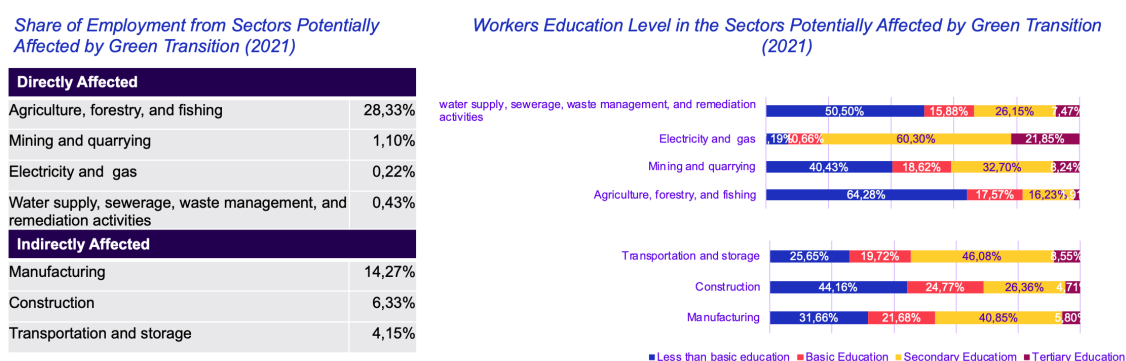
may be vulnerable to local environmental risks that have the potential to destroy ecosystems and communities, with decreases in agricultural incomes and rural jobs due to changing weather patterns, increased risk of heat stress and health risks due to rising of temperatures, and damage to marine ecosystem threatening the fisheries sectors. Measures to mitigate the risk to employment due to climate impacts also need to be considered for a country seeking to transition to a green economy.

Looking at the sectoral share of GHG emissions and the Indonesian strategy to achieve its NDC, the energy sector and the forestry and other land use (FOLU) sector are the two prioritized sectors of Indonesia's pathway to decarbonization. Therefore, the employment impacts from greening the economy from now to 2060 are likely to be concentrated around the supply chains within these sectors, such as energy, manufacture, agriculture and forestry. However, since any transition towards a greener economy will trigger structural change, the employment impacts from greening will reach all sectors.

The agricultural, forestry and fishing sectors have significant potential for green job creation because of the size of the workforce and its relation to climate action and impact. Opportunities also exist in energy and electricity supply, automotive manufacturing, energy efficiency, and mining and quarrying – sectors that will be touched by mitigation actions in the energy sector. Other opportunities come from renewable energy, which has been rapidly adopted globally due to technological advancements that allows such energy sources to be more affordable and achievable. These projections are aligned with current government planning in accelerating an energy transition to achieve NDC and NZE commitments by 2060 or sooner by promoting renewable energy and increasing its contribution in the energy mix.

In 2021, the sectors that potentially will be affected by climate mitigation and adaptation actions – both direct and indirectly – comprise 54.83 per cent of total employment. Of these sectors, the agriculture, forestry and fishing sector and the manufacturing sector are two of the top three employment contributors in Indonesia. Given these labour characteristics, opportunities for green jobs creation from high-contributing sectors remains strong. But, persisting challenges in employment, such as informality, skills gaps and enterprises' readiness to respond to transition, need to be well addressed and carefully planned for in order to seize the momentum and mitigate the socioeconomic risks arising from the transition.

Figure 6. Employment in sectors potentially affected by a green transition

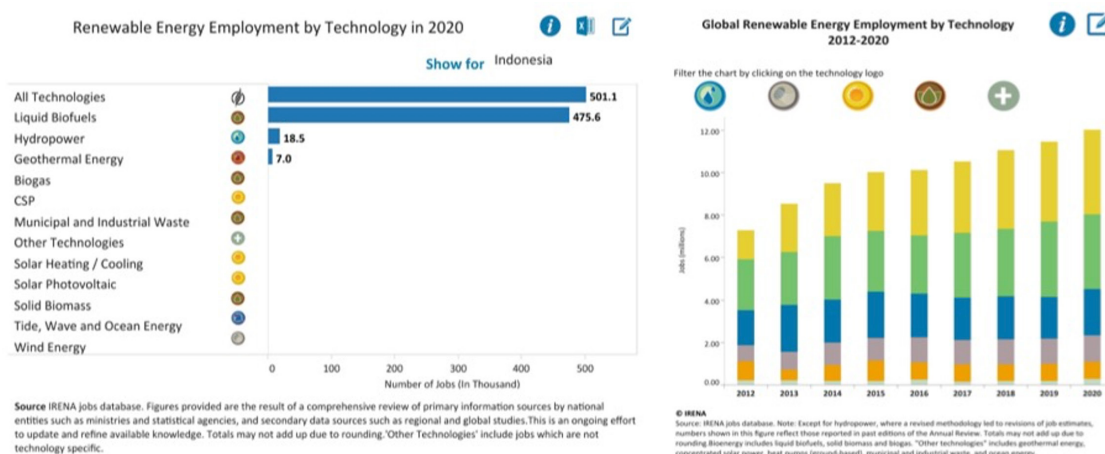


Note: Employment by selected 1-digit sector level according to KBLI (ISIC – Rev. 4)

Source: BPS 2022b.

Employment in the renewable energy sector has also been a focus of the analysis on green jobs due to the enormous impact the energy sector has in regard to carbon emissions. In the ASEAN region, renewable energy is starting to be adopted into the energy systems rapidly, with a quarter of the energy generated in ASEAN Member States, on average, being derived from renewable sources (ASEAN and ILO 2021, 31). Expanding access to renewable energy, especially centralized renewable energy, directly creates jobs in local communities where the energy is generated and used.¹³ The utilization of renewables and employment in the energy sector will vary depending on the geography and technology adopted, however, recent data shows that there is an increasing trend of employment in the sector over the last decade (IRENA 2021). Figure 7 shows the employment trend in renewable energy by the technology used, and it shows that liquid biofuels and biomass, hydro (large and small), and solar account for the majority of employment in renewable energy worldwide. However, there are data limitations in regard to renewable employment in Indonesia, as to date it has only been able to capture the number of employments in biofuels, hydropower and geothermal energy production.

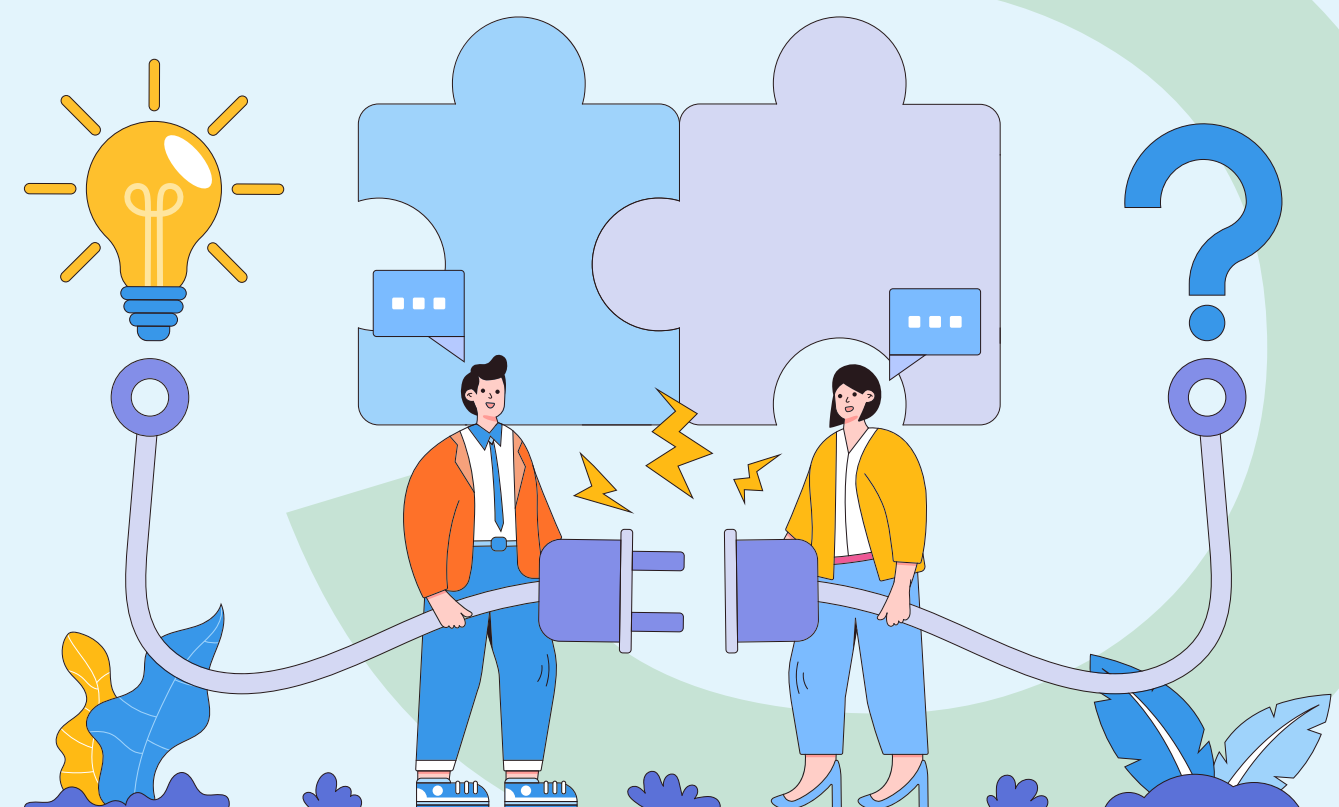
Figure 7. Employment in renewable energy



Source: [IRENA Resource Renewable Energy Employment](#) and [IRENA Renewable Energy Employment Time Series](#)

13 Power for all (2020)

GREEN JOBS AND INDONESIA ENERGY TRANSITION



3. GREEN JOBS AND INDONESIAN ENERGY TRANSITION

Indonesia's commitment to climate change mitigation needs to be reinforced by formulating policies, especially in the energy sector. Energy transition has become the focus of the discourse on Indonesian's effort to achieve its NDC targets because of the carbon emissions produced by the energy sector and its critical role in NZE policy directives. COP26 marks the formal announcement from the Government of Indonesia of its intended transition towards a cleaner energy system and to achieve NZE by 2060 or sooner; although the Government did not explicitly endorse the commitment to cease permits for and end support for new unabated coal-fired powered plants (CFPPs).¹⁴

Energy transition – along with coal phase down – was one of the key debates during COP26, and not just in regard to Indonesia (*Carbon Brief* 2021). The energy sector is key to a successful transition to a low-carbon economy; together, electricity and heat production, transport, and buildings account for almost half of global GHG emissions (IPCC 2014). Article 20 of the Glasgow Climate Pact¹⁵, as the consensus achieved by parties, states the need to:

accelerate the development, deployment and dissemination of technologies, and the adoption of policies, to transition towards low-emission energy systems, including by rapidly scaling up the deployment of clean power generation and energy efficiency measures, including accelerating efforts towards the phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a Just Transition.

The urgency of energy transition and phasing down from coal has been well documented by science-based studies, among others, the Intergovernmental Panel on Climate Change special report *Global Warming of 1.5°C* and the International Energy Agency's net-zero emissions pathway (IEA 2021). This has increased the pressure on Indonesia to transition towards clean energy due to its role as one of the biggest coal producers and GHG emitters because of the national energy system's dependency on coal. Seizing the momentum, the Government of Indonesia had even pushed further the discourse at the global level by setting energy transition as one of the main issues during Indonesia's Presidency of the G20 summit in 2022.

3.1. Energy transition policy in Indonesia

Indonesia's NZE target date is 2060 or sooner, but unclear commitments on phasing down from coal had been received with mixed responses. While the Government of Indonesia has continuously progressed with policies that support decarbonization – including passing the green RUPTL (that is, the Electricity Supply Business Plan 2021–2030¹⁶ of the state electricity company PLN¹⁷), the promulgation of regulations on rooftop solar PV¹⁸, and the introduction of a carbon tax in 2021 – some see the

¹⁴ As per the *Global Coal to Clean Power Transition Statement* signed at COP26.

¹⁵ The text of the Glasgow Climate Pact is available at: https://unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf.

¹⁶ RUPTL is the abbreviation for Rencana Usaha Penyediaan Tenaga Listrik (Electricity Supply Business Plan).

¹⁷ PLN is the abbreviation for Perusahaan Listrik Negara (State Electricity Company).

¹⁸ PV is the abbreviation for photo-voltaic, which refers to a type of solar cell used to generate electricity from sunlight.

Government as still being reluctant to commit to moving away from coal (IESR 2021). The strategy to achieve Indonesia's NDC still allows for the use of fossil fuels and the energy mix within the green RUPTL is still dominated by coal for the next ten years, albeit with an increased share of renewables. Figure 8 shows the mitigation scenario committed to in the most recent NDC. The ambiguity of this commitment has also been questioned by employers' organizations and trade unions.¹⁹ Without a strong commitment and clear road map on the energy transition, it is hard to plan for a Just Transition and to implement measures in the employment sector required to mitigate the socioeconomic impact of the plan within the world of work.

Figure 8. Mitigation plan for the energy sector in the updated NDC of Indonesia

SECTOR: ENERGY			
	BAU	Mitigation Scenario 1 (CM 1)	Mitigation Scenario 2 (CM 2)
1. Efficiency in final energy consumption.	Inefficiency in final energy consumption.	75% *	100% *
2. Implementation of clean coal technology in power plants.	0%		
3. Renewable energy in electricity production.	Coal power plant	19.6% (Committed 7.4 GW based on RUPTL)	Electricity production of 132.74 TWh **
4. Implementation of biofuel in transportation sector	0%	90%	100%
5. Additional gas distribution lines (Gas pipeline for residential and commercial sectors)	0%	100%	100%
6. Compressed Natural Gas consumption (CNG fuelling station).	0%	100%	100%

* The total target to be achieved through clean energy and energy efficiency programmes

**132.74 TWh is equivalent to 21.65 GW

Additional notes:

- Efficiency in final energy consumption: Energy efficiency measures to be carried out by all energy consuming sectors (industry, commercial, transport, residential) through improvement of device efficiency and energy system efficiency.
- Implementation of clean coal technologies in power plants: Clean coal technologies such as supercritical and ultra-supercritical CFPPs and other technologies that will be implemented after they are commercially available.
- Renewable energy in electricity production: Renewable power plants to be developed; includes geothermal, hydropower, solar PV, wind turbine, biomass and biofuel.
- Implementation of biofuel in transportation sector: The main feedstock for biofuel production will be palm oil.
- Additional gas distribution lines (gas pipelines for residential and commercial sectors): Construction of additional natural gas pipelines is intended to serve as a substitute for the kerosene used for cooking in residential and commercial sectors.
- Compressed Natural Gas consumption (CNG fuelling stations): CNG consumption is expected to increase overall gas consumption in the transportation sector.

Source: Indonesia, Government of Indonesia 2021b.

Critical concerns regarding energy transition indicated by the Government include the affordability, energy security and technological aspects. The updated NDC shows Indonesia's commitment to accelerating its mitigation efforts, but the Government is also wary of the cost that it will entail (World Bank 2021). According to the Government, to achieve the NDC target in 2030, an estimated 3,460 trillion rupiah (or 266 trillion rupiah annually) will be required, but current fiscal capacity can only afford to fund 34 per cent of this amount. Out of this overall cost, the vast majority is projected to be required for mitigation measures in the energy sector, with the total estimated need for that sector

¹⁹ Concluded from a consultation process with APINDO and selected trade union confederations (KSBSI, KSPI, KSPSI).

being US\$250 billion, compared to only US\$6.5 billion for the FOLU sector.²⁰ More importantly, the energy transition needs to ensure access to affordable, reliable, sustainable and modern energy for all (United Nations 2021b), as energy is a public good. In addition, there is also a concern about access to renewables technology that is technically and economically feasible for the transition (PLN, Corporate Planning Directorate 2021). Therefore, the Government states that its commitment to tackling climate change will be carried out through progressive steps that put forward the principles of a sustainable economy and prioritize the principles of justice and affordability by considering the business climate and small communities (Satria 2021).

The Government's strategy in reducing carbon emission from the energy sector is built on four pillars:

- i. implementation of energy efficiency measures;
- ii. use of decarbonized electricity in transport and buildings;
- iii. fuel shift from coal to gas and renewables in industry; and
- iv. enhancement of renewable energy in power, transport and industry.

The Government's policy, therefore, will be developed following these scenarios into set of targets and programmes (Indonesia, Government of Indonesia 2021a).

During the UN's high-level dialogue on energy, the Government of Indonesia presented their concerns about the energy transition, which stressed that in a time of recovery, it is essential to reach a balance between energy access and transition so as to safeguard a sustainable recovery (United Nations 2021b). From the Government's point of view, critical issues needed to be addressed in accelerating and ensuring an energy transition comprise:

- i. securing energy accessibility by ensuring that the energy transition is people-oriented, creates more jobs, enhances socio-economic development, and assures equitable and inclusive policies and public participation;
- ii. scaling up clean and smart technology as a way of uniting purpose globally, since different levels of readiness and context will require a different transition pathway for each country; and
- iii. mobilizing global clean energy financing to ensure the feasibility of the transition.

The document also addresses critical strategies that the Government of Indonesia will implement in orienting the energy transition by:

- Mainstreaming key policies essential for the transition, such as accelerating renewable energy development, improving power grid infrastructures (including expanding integrated transmission networks and smart grids among islands), and increasing the use of battery-based electric vehicles into the national energy strategy.
- Setting long-term, gradual and rationalized measures in transitioning away from unabated coal power while developing carbon capture and storage (CCS)²¹ and clean technologies for fossil fuels.
- Promoting innovative financing facilities wherein several platforms have been mobilized, such as establishing special mission vehicles (SMVs) or public financing corporations, issuing green bonds, setting up environmental funds, and collaborating with international partners in de-risking the renewables business.

Currently, the Ministry of Energy and Mineral Resources (MEMR), in coordination with the National Energy Council (Dewan Energi Nasional, or DEN), is investigating alternative policy scenarios to develop a road map for the energy transition to achieve NZE. This road map will later:

- be incorporated into the National Energy Grand Strategy (Grand Strategi Energi Nasional, or

²⁰ Presentation by the Ministry of Finance during the S20-G20 High Level Panel Discussion on Just Energy Transition, 17 March, 2022 (AIFI 2022).

²¹ There is also CCUS, which refers to carbon capture, utilization and storage.

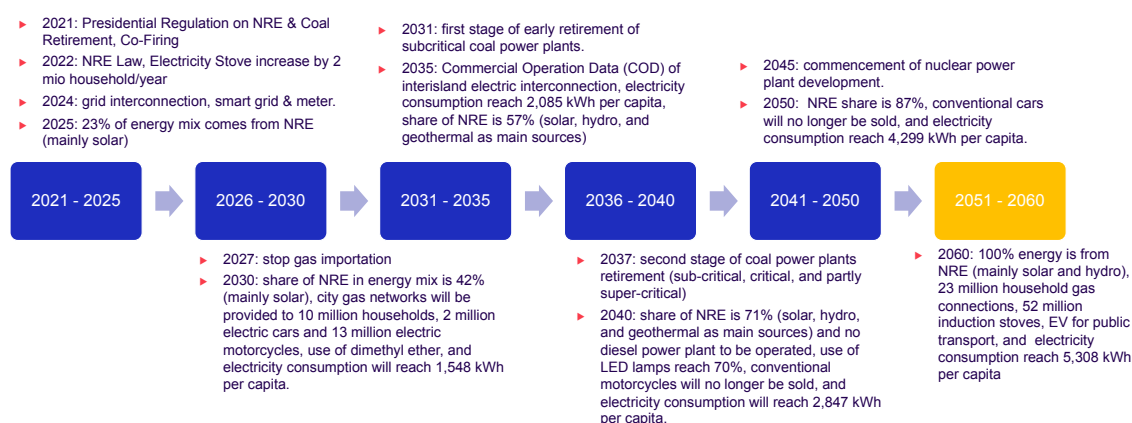
GSEN) (Indonesia, MEMR 2022);

- serve as an adjustment to National Energy Plan (Rencana Umum Energi Nasional, or RUEN) (Indonesia, MEMR 2021a); and
- be incorporated into the revised National Energy Policy (Kebijakan Energi Nasional, or KEN).²²

Although there is not yet a clear timeline on when this road map can be announced to the public and/or integrated into the KEN,²³ the Ministry has signaled key directives and a timeline for transition, as illustrated in figure 9.

Consultation with the MEMR confirmed the rationale of the transition plan. Within the current context, there is an electricity oversupply due to the over-optimistic assumption used as the basis of previous and ongoing investment as well as the pandemic situation, which decreased national electricity demand.²⁴ Therefore, a green energy transition should be approached from the supply side by moving to a cleaner primary source of electricity generation, as well as from the demand side by electrifying transportation sectors and through the use of electricity for clean cooking to absorb electricity production. This approach will also need regulation support, which will provide a legal basis for the plan and manage the transition process' governance from the legislative level, such as the New Renewable Energy Bill currently under consideration and the associated implementing regulation.

Figure 9. Government of Indonesia policy directives related to energy transition



Note: This scenario is still tentative. The MEMR, together with DEN, is still developing a simulation for the transition with the aim to later integrate it into the National Energy Policy. Several publications and announcements from related institution differ in terms of targets and timelines; however, the strategy more or less remains.

Source: Indonesia, MEMR 2021b.

3.2. The energy transition's impact on jobs by sector

Under the Government's plans, the energy transition will involve changing production methods across a number of related sectors, namely mining and quarrying and electricity generation, including renewables, transport and construction. Although employment in these sectors is relatively lower

²² Based on consultation meeting with MEMR.

²³ There are several versions of the Energy Transition for NRE milestones expressed by officials of the MEMR on different occasions, as documented in the press releases of the Ministry; however, there are no significant differences in the key policies, targets and timelines.

²⁴ Based on consultation meeting with MEMR.

than in other sectors such as agriculture, manufacturing and retail,²⁵ they are closely linked to other economic sectors and have strong multiplier effects. Through these changes in electricity generation, transport and construction, transformation in the energy sector will affect other sectors. For example, electric vehicles (eVs) entail very different value chains than internal combustion engine (ICE) vehicles within the automotive sector. Therefore, the proposed changes electricity generation, transport and construction will result in further changes in forwarding- and backward-linked industries as well as changes in demand for petroleum products, thus modifying consumer spending patterns (ILO 2018b, 40–41).

This condition is well-known to the Government. The plan to gradually replace coal with renewable energy as the primary energy source in electricity generation from the supply side, for example, will induce job loss in the sector throughout the cycle from mining to the electricity generation, but can create new jobs in the renewable energy industry from manufacturing to construction to generation. On the demand side, energy utilization shifting from fossil-fuel-based to electricity will be implemented in two areas: the first is in the transportation sector by switching to eVs; and the second is in the household by switching from kerosene and gas to induction stoves and LED lamps. This will substantially impact employment because the industrial chain in fuel will be different from that in electricity-based industry. In addition, the Government is also looking into the possibility of using advanced technology such as using carbon capture and storage for the oil and gas industry and the development of nuclear power plants.

Although the transition may result in job destruction in specific subsectors, ILO estimates from 2018 show that shifting to a cleaner energy system will result in net job creation in almost all regions and sectors (ILO 2018b, 42). To be precise, the estimate projects around 18 million jobs created globally by 2030 compared to the business-as-usual scenario. Employment creation is driven by demand for renewable energy sources and the entire value chain associated with renewable energy, eVs and construction. Some regions will reap the most benefits from this job creation, while others will experience a decline. Asia and the Pacific is actually projected to have the best employment outcome among the regions of the world, with around 14 million jobs created, which would also be greener jobs.

Indeed, the MEMR also expects that the energy transition will create green jobs. Current policies such as the renewable energy targets in the primary energy mix and the NDC will necessarily shift employment from emission-intensive activities to other activities that contribute to the preservation and restoration of the environment. However, despite this recognition from the Ministry on the linkage between energy policy and employment, there is not yet a policy specifically developed to manage the consequences of the transition to greener jobs.

A recent ILO (2022a) report on the impact of coal phase-out on jobs in South-East Asia – and that includes an in-depth analysis of the situation in Indonesia – concluded that job losses due to mine closures in coal-dependent regions and the loss of indirect jobs in their industrial ecologies will have a profound negative effect on the labour markets, economies and livelihoods of these local communities. This report shows the need to mitigate the adverse impacts of coal phase-out on affected populations and to achieve the best-case scenario through Just Transition policies. With the potential significant employment impact of an energy transition, it is necessary to look into the potentially affected sectors for context analysis to assist the policy-making process.

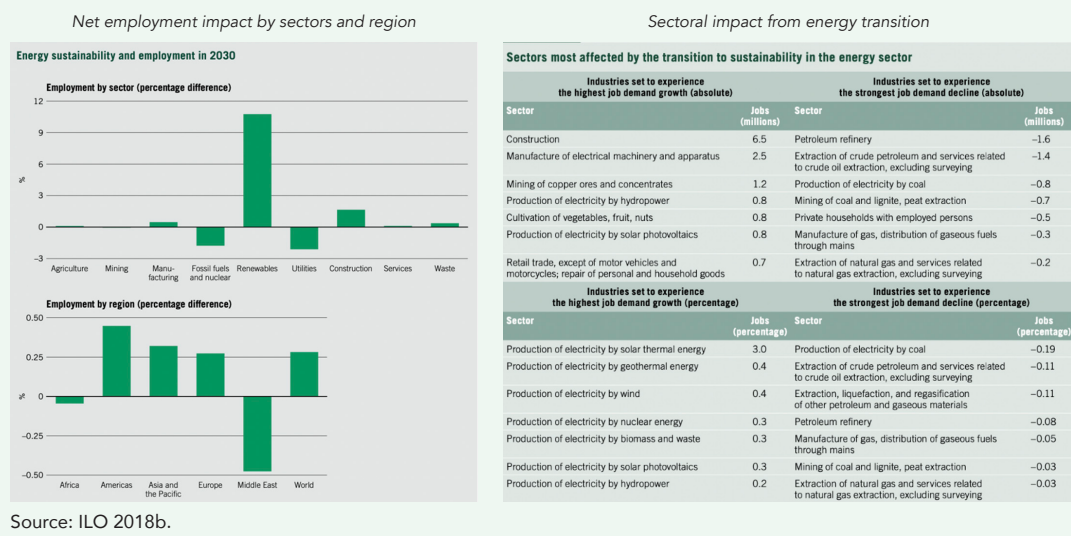
²⁵ See figure 6 in Chapter 2 for the sectoral employment shares.

Box 4. Estimating the employment impact of a clean energy transition

The ILO has employed Exiobase V.3, a multiregional input–output table (MRIO) that maps the world economy and the linkages between industries across the world, to estimate employment and environmental outcomes by 2030. The estimation is based on the specific environmentally sustainable (green) compared to a business-as-usual scenario. All the scenarios draw on projections of GDP growth made by the International Monetary Fund (IMF) and the International Energy Agency (IEA), and population growth projections by the United Nations. The scenarios do not assume any windfall investment in the green economy, but rather assume that projected GDP growth and policy measures will promote investment in green technologies. They also assume that relative prices and the world trade structure remain constant.

For estimating the employment impact of the energy transition, two scenarios were developed using the IEA's projections: (i) 2°C as the green scenario; and (ii) 6°C as the business-as-usual scenario. The estimate implements the scenarios in the MRIO for each country and industry up to 2030, considering the changes in electricity generation and heat production, industry, transport, and construction. It considers the substitution of fossil fuel-based energy by renewables and improvements in energy efficiency. Inherent in this scenario is an advanced switch to electric vehicles (eVs) and greater energy efficiency of buildings via green transport and green construction scenarios that complement the energy sector's transformation. The scenario is also supported by UBS Research (2017) projections for EV sales and the change in inputs compared to internal combustion engine vehicles. It also provided details on employment and the input structure related to efforts to increase the energy efficiency of buildings.

Although analyses were carried out using a disaggregated table, the results were aggregated by industry (agriculture, construction, fossil fuels and nuclear electricity production, manufacturing, mining, renewable-energy electricity production, services, utilities, and waste management and recycling) and by region (Africa, Americas, Asia, Europe, and the Middle East). Below is the result of the exercise developed using the approach.



3.2.1. Employment impact in sectors related to electricity supply

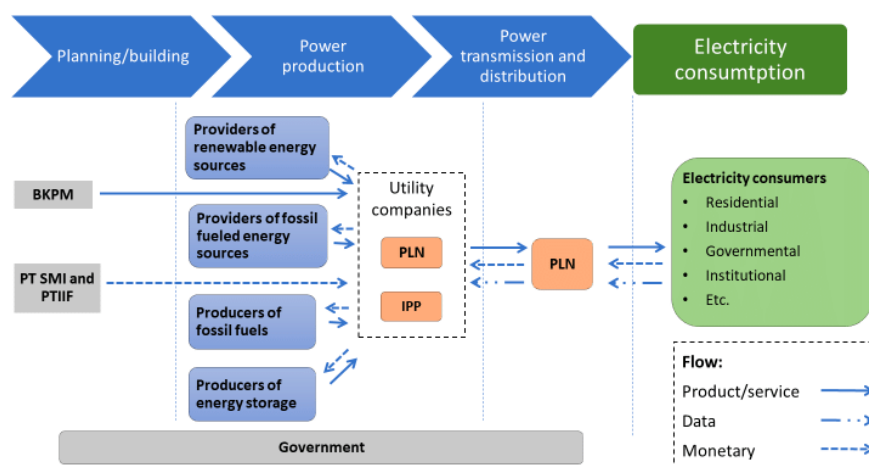
A great deal of attention is paid to the energy sector in the energy transition plan. This is because the Indonesian power system depends heavily on fossil fuels, especially coal, and consequently the sector is the largest contributor to GHG emissions in Indonesia (Indonesia, Government of Indonesia 2021a).

Electricity generation is a highly regulated industry. The Constitutional Court has decreed that electricity is a public good and therefore that provision for its generation and distribution should be a responsibility and obligation of the State.²⁶ Law No. 15/1985 concerning Electricity

26 Constitutional Court Decree No. 001-021-022/PUU-I/2003 on review appeal of Law 20/2002 on electricity against

designates the PLN as the sole authority that provides electricity. In supplying electricity demand, the PLN produces electricity from its own power plants and acts as the single buyer that purchases electricity from independent power producers (IPPs). Apart from the PLN and IPPs, there are “captive power producers”, basically companies that generate power solely for their use, as well as cooperatives that sell their electricity directly to consumers (IAEA 2017). Figure 10 illustrates Indonesian electricity supply value chain.

Figure 10. Value chain for the national energy system in Indonesia



Value chain phases:

- **Planning and building phase:** The authority to issue business licences for electricity providers is under the Governor or Minister, depending on the scope. However, the process is delivered through online single submission under the Indonesia Investment Coordinating Board (BKPM). State-owned companies such as SMI and IIF can provide financing for projects in the power generation sector.
- **Power generation phase:** Electricity production is conducted either by the PLN or IPPs. All equipment that produces or stores electricity is supplied by technology providers. The Government regulates the power market.
- **Power transmission and distribution phase:** The PLN acts as sole distributor for the electricity supply. The consumers consist of residential, industrial, governmental and institutional consumers who all have different demands for electricity stability/quality, different demand profiles and value the service differently.

* Not included in the value chain: captive power electricity generation (that is, generation by cooperatives, individuals or companies solely for their own use).

Source: Ma et al. 2018; Indonesia, MEMR, Directorate-General of Electricity 2021.

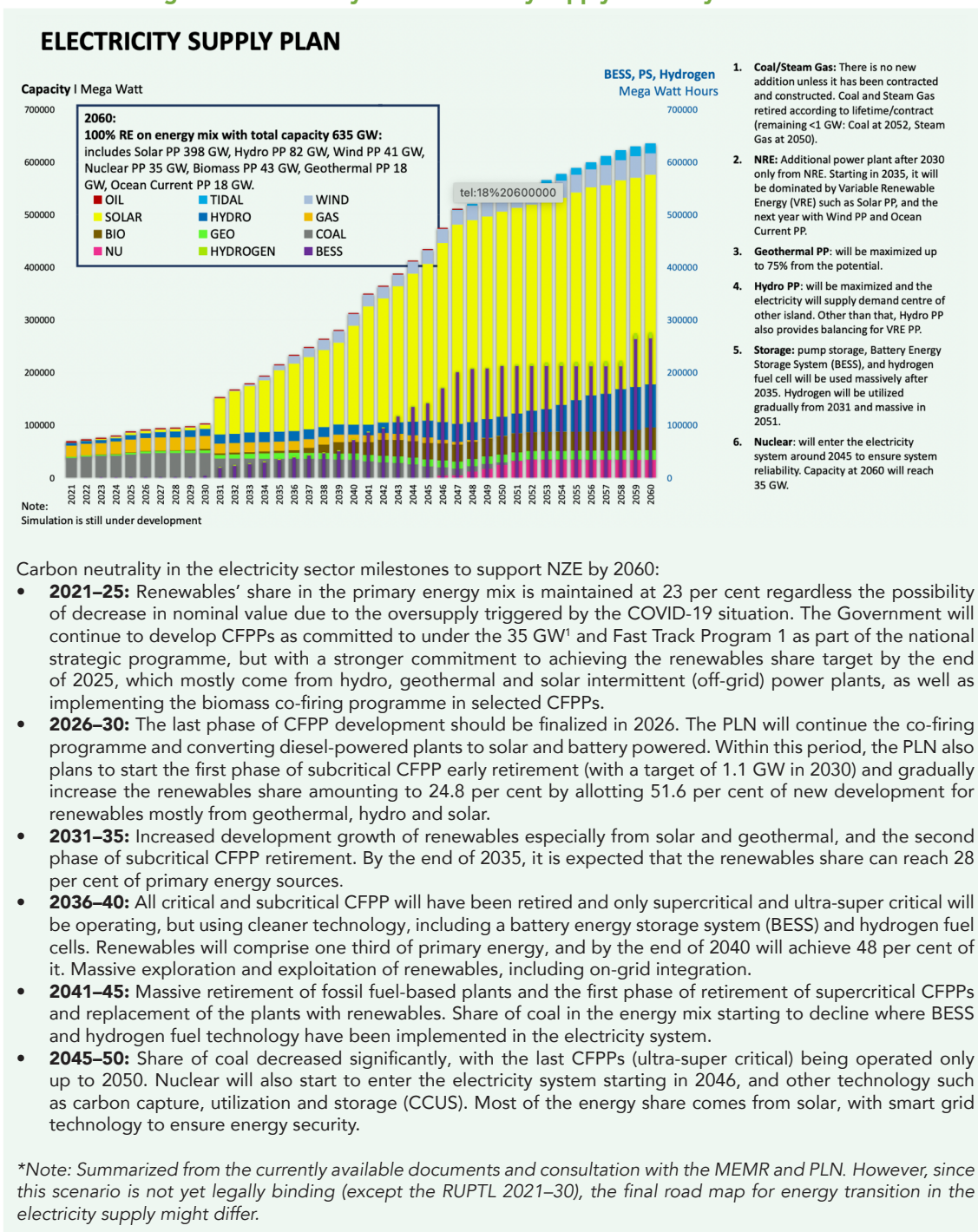
In terms of energy transition planning, electricity production is the only subsector that currently provides a clear pathway on how to deliver the energy transition plan. The key policy in the energy transition around the power supply consists of gradually retiring coal-fired power plants (CFPPs) by shifting to renewables and utilizing substitutes and clean coal technology to reduce emissions from coal during the transition. The newest RUPTL that the MEMR released in October 2021 lays out the energy mix target for the years 2021–30, setting ever bigger shares of renewables and providing a general overview of the plan for the gradual retirement of CFPPs.²⁷ Previously, in April 2021 the Ministry had also published a carbon neutrality by 2050 strategy document for the electricity sector to guide the PLN in transitioning the power and utilities sector (Indonesia, MEMR 2021c). Based on these policies, the PLN established the company's own road map to achieve NZE by 2050.²⁸ Box 5 presents an overview of the path to achieving carbon neutrality as laid out in these various plans.

the 1945 Constitution of the Republic of Indonesia, 21 December 2004.

27 Ministerial Decree no. 188.k/HK.02/MEM.L/2021 on RUPTL 2021 – 2030.

28 Consultation interview with PLN.

Box 5. Achieving carbon neutrality in the electricity supply sector by 2050



¹ GW is the abbreviation for a gigawatt.

Sources: Indonesia, MEMR 2021c; MEMR Ministerial Decree no. 188.k/HK.02/MEM.L/2021 (2021); PLN, Corporate Planning Directorate 2021; opening remarks of the Director-General of New Renewable Energy and Energy Conservation at the Just Energy Transition towards Net Zero Emissions in Indonesia national webinar, 25 August 2021; consultations with the MEMR and PLN.

Based on the scenario described in box 5, there would be a gradual job shift along the value chain throughout the transition period. The data shows that currently there are 165,784 coal mining workers in Indonesia, around 1.2 million workers in the coal mining supply chain, and

millions of workers in related sectors.²⁹ Changes in the process of electricity production and supply would likely affect the work of these workers in the form of jobs lost, shifting of jobs, and in some cases, job growth. In the long term, jobs for providers of fossil fuel-based energy and coal-based utilities (both via the PLN and IPPs) will be reduced; producers of coal will decline due to substantial decreases in domestic coal demand; and jobs related to renewable energy will increase. In addition, there will be a trade-off in jobs between providers of coal and fossil fuels and providers of renewable energy sources. If there is no change in the institutional setting of the electricity generation sector and the PLN remains as the sole authorized body that manages electricity supply, the transition would also prompt a shift in occupations within the PLN, especially in technical functions that will require different processes and competencies. In addition, in the intermediate period of the transition, there would also be job shifting to providers of biomass for the co-firing process.

Table 4. Sectors with potential job gains and job losses in the electricity supply value chain

Sector with job growth		Sector with job loss	
Production of electricity by renewables	• Solar PV • Geothermal • Hydro (large and micro) • Wind (including tidal) • Hydrogen fuel cell • Nuclear • Biomass and waste	Production of electricity by fossil fuels	• CFPP • Oil • Diesel • Gas
Providers of renewable energy sources	• Construction of renewables plants and infrastructure • Manufacture of electrical machinery and equipment • Mining of copper and nickel ores • Manufacture of batteries • Exploration and exploitation of geothermal energy • Cultivation of vegetable, fruits, nuts (for co-firing and biomass) • Renewable technology providers	Providers of fossil fuels	• Mining of coal and lignite, and peat extraction • Extraction of crude oil and services related to crude oil extraction • Extraction of and services related to natural gas extraction • Petroleum refineries • Construction of refineries • Manufacture of machinery and equipment for oil and gas, coal mining • Technology providers for oil and gas and coal mining
Energy storage	• Battery energy storage system (BESS) • CCS/CCUS¹	Distributors of fossil fuels	• Distribution of oil • Manufacture and distribution of gas

¹ CCS refers to carbon capture and storage, and CCUS refers to carbon capture, utilization and storage.

Given the geography and the timeline of the transition, the employment impact in the electricity supply sector may differ in different regions and over time. For example, coal mining regions such as East Kalimantan, West Kalimantan and South Sumatra may experience job losses in coal mining and quarrying; while regions such as West Papua, Central Sulawesi and Maluku will experience an increase in jobs due additional demand for their copper and nickel reserves. Employment in renewable energy production may also follow a similar path, as choices concerning renewable development are directly correlated with the available resources – unlike CFPPs that are relatively easy to establish anywhere, development of geothermal, hydro and

²⁹ Statement from the workers' representative during tripartite consultation meeting on 28 June 2022.

wind electricity infrastructure will be defined by geography. Therefore, policy considerations based on geographic hotspots of impact and opportunity need to be carefully assessed when planning the transition.

The number of jobs created will also depend on the transition stage and the technology choice. For example, 2020 Global Green Growth Institute estimates conclude that most of the direct jobs created from renewable investment will take place during the construction and installation stage (except for solar), and technology like hydropower is more labour-intensive compared to other technologies such as solar and geothermal, which are more capital intensive. These characteristics also likely require different skill levels among workers. Hence, Just Transition planning should consider the context during policy development.

At the tripartite consultation meeting for this assessment,³⁰ an employers' representative noted that the risk of job loss among workers in electricity generation was likely low, since technically they could be transferred to the new renewable-based power plants. However, there is a higher risk for workers within the coal supply chain, namely in mining and quarrying, logistics, and other supported services. Employers perceive that retraining will be an appropriate measure, especially for the coal mining workers, since the skills required for other mining and quarrying operations would be relatively similar to those needed for coal extraction. However, there is a more pressing need to carefully assess the effects of declining demand for coal on jobs across the supply chain, since these impacts will be varied. This identification of the sectoral impacts of coal phase out is imperative to planning a business transformation that can be sustainable. Should these companies in the coal supply chain manage to transform their businesses, the risk of job loss can be minimized.

30 Tripartite consultation meeting on 28 June 2022.

Box 6. Estimating employment impact in renewable energy sector in Indonesia

In 2020, the Global Green Growth Institute assessed the employment impact of renewable energy in 2030 using an input–output model. The estimates are developed based on two scenarios, namely the national energy plan 2019–2038 (RUKN) and the RUPTL 2019–2028 (PLN),

Scenario	Total installed capacity in GW (2030)	Share of renewables	Share of fossil fuel-based energy
PLN	123.0	23.0%	77.0%
RUKN	166.0	26.0%	74.0%
RUPTL 2021–2030*	99.2	24.8%	75.2%

The model results in the following prediction:

- Under the PLN scenario, large hydro creates the most total job at around 1.7 million, followed by geothermal at 1.4 million; whereas solar and small hydro can create 0.5 and 0.4 million jobs, respectively. The pattern remains the same for the RUKN scenario, wherein large hydro creates around 4.6 million total jobs, followed by geothermal with 1 million jobs, small hydro with 0.9 million jobs, and solar PV with 0.7 million jobs.
- In both scenarios, around 94–95 per cent of potential direct jobs would be in sectors where capital expenditure is spent, such as equipment manufacturing and distribution. Sectors where operational expenditures are spent, such as operations and maintenance and the replacing of equipment, will generate far fewer direct jobs, at around 5–6 per cent of the total. Similarly, around 90–92 per cent of the indirect and induced jobs created in both scenarios would be where capital expenditure is invested, such as in equipment manufacturing and distribution, project development, and construction and installation. The remaining 8–10 per cent of indirect and induced jobs will be created in sectors related to operations and maintenance and equipment replacement.
- Jobs created by skill:
 - Solar PV requires a high demand for highly skilled occupations such as engineers and management professionals (52 per cent); while the technical and non-professional workforce accounts for 48 per cent, which would mainly comprise technical and construction workers that require low to medium skill.
 - The direct jobs created in the equipment manufacturing sector are estimated to consist of 64 per cent medium- and low-skilled occupations (for technicians and factory workers), with the rest being in highly skilled occupations, including management professionals (9 per cent) and engineers (27 per cent).
 - Jobs created during the project development stage require high-skill workers from various backgrounds, such as engineering (36 per cent) and management-related jobs, such as financial sector workers, administrative staff, logistics, and environment and safety experts (64 per cent).
 - Construction and installation requires around 45 per cent low-skilled jobs, identified as non-professional workers; around 45 per cent low- to medium-skilled jobs, identified as technicians; and 10 per cent high-skilled jobs in the form of engineers.
 - Jobs created at the operations and maintenance stage consist of 50 per cent low-skilled occupations (non-professionals), 34 per cent high-skilled engineers, and 16 per cent low- and medium-skilled technicians.

However, these projections are made on much higher assumptions of renewable energy development. The installed capacity targeted in the newest RUPTL (2021–2030), albeit with a higher share from renewables, are only 85.9 per cent of the PLN scenario and 51 per cent of the RUKN scenario.

* Note: The RUPTL figure is for comparison. It is not included in the GGGI's scenario and stipulated later via MEMR Decree no. 188.K/HK.02/MEM.L/2021 on 28 September 2021.

Source: GGGI 2020; MEMR Ministerial Decree No. 188.k/HK.02/MEM.L/2021 (2021).

3.2.2. Employment impact in sectors related to electricity demand

The energy transition scenario also lays out a strategy to create a balance between electricity supply and demand. On the demand side, the strategy is focused on electrification of transportation and equipment among end users by promoting EV and electric/induction stove usage. This strategy is underlined by:

- current electricity oversupply, which needs to be addressed to reduce operational costs and ensure sustainability;
- gas importation for household needs that currently puts additional burdens on government fiscal capacity; and
- the need to reduce carbon emissions from the transportation sector

Electrification of vehicles

From an employment point of view, the policy to shift the transportation sector from internal combustion engine (ICE) vehicles to eVs will trigger substantial impacts in terms of jobs lost, jobs created and the shifting of jobs. Indonesia has a strong automotive manufacturing sector with an integrated value chain that produces not only for domestic use, but also for the export market (*Indonesia Investments* 2018). In addition, Indonesia also has abundant nickel deposits, which are required to produce lithium-ion batteries, one of the key components of eVs (KPMG 2021). Table 5 illustrates the automotive industry value chain in Indonesia.

Table 5. Automotive industry value chain

Type	Upstream (raw materials)	Core: Manufacturing		Downstream (sales and distribution, aftersales)
ICE	• Mining (e.g., nickel, copper, cobalt) • Steel and metals (primary and fabricated) • Plastic, rubber and glass	Component manufacturers: Tier 1 and lower tiers (producing 100+ moving parts)	Car manufacturers/ original equipment manufacturers (OEMs)	• Logistics companies and dealers • Service, repairs, parts • Fuel supply • Used car market
	Adjacent: Finance, legal, and related services			
EV	• Mining (e.g. lithium, nickel, cobalt) • Steel and metals (primary and fabricated) • Plastic, rubber, and glass	Component manufacturers: Moving parts (battery pack, inverter, motor) Battery parts (cathode, precursor)	Car manufacturers/ OEMs	• Logistics companies and dealers • Service, repairs, parts • Charging stations • Battery replacement (battery swap) • Used car market • Waste management
	Adjacent: Finance, legal, and related services			

Source: Compiled by the author based on PwC 2019; Mathur 2013; Paunov and Planes-Satorra 2019.

Transportation and industry are the major end-consumers of final energy production in Indonesia. Indonesia's current strategy for achieving its NDC states that mitigation targets in transport will be achieved by: (i) electrification of transport; (ii) supplying more biofuels as diesel substitutes; and (iii) gasoline substitutes (Indonesia, Government of Indonesia 2021a). The energy transition plan includes EVs as part of its agenda, with gradual targets starting from increasing the EV market by 2030 (2 million four-wheel vehicles and 13 million two-wheel vehicles), before banning sales of conventional motorbikes by 2040 and ICE cars in 2050 (Indonesia, MEMR 2021b). This agenda is in accordance with previous regulation, namely Presidential Decree No. 55/2019 on the Acceleration of the Battery EV Program for Transportation Sector, which was later mainstreamed through various initiatives of the MEMR, such as the launch of the Battery EV Program (Indonesia, MEMR 2020) and aligning the initiative with the NZE strategy via the exercise of the updated GSEN, RUEN and KEN that are currently underway within the DEN and MEMR. In addition, the Ministry of Industry had also established the Battery EV Road Map via Minister of Industry Decree 27/2020 on Specifications, Development Road Map, and Provisions to Calculate the Domestic Component Standards for Domestic Battery Electric Vehicle (EV).

Looking at the automotive industry supply chain, shifting to EV will create major disruptions in the sector. Technically, EVs are much simpler in construction and operation compared with ICE vehicles. Most EVs require limited numbers of moving parts and do not use major systems that are essential for ICE vehicles. Makers of exhaust systems, fuel systems and transmissions may experience decreasing output as a result of EV adaptation. At the other end, given the current technology of eVs, the share of a car's value attributable to the powertrain and electronics will rise significantly at the expense of the chassis, body and interior components, especially for the lithium-ion battery pack (PwC 2019).

Given this, the shift to EV will affect processes and jobs in overall value chain, starting from the supply of raw materials (especially in nickel mining for batteries) and going all the way through to aftersales support. Research from the Ministry of Industry (2021) documents that in 2020, among car manufacturers, there are 22 four-wheeler original equipment manufacturers (OEMs) and 26 two-wheeler OEMs, with total investment around 109.21 trillion rupiah. The industry is estimated to employ 38,390 workers in the OEMs only, and 1.5 million workers across the value chain.

Table 6. Employment in the automotive value chain (excluding upstream industry) in 2020

Enterprises	No. of establishments	No. of workers
Lower tier (2 & 3) component manufacturers	1 000	210 000
Tier 1 component manufacturers	550	220 000
Assembly	22	75 000
Authorized dealers and repairs	14 000	400 000
Unauthorized dealers and repairs	42 000	595 000

Source: Indonesia, Ministry of Industry 2021.

To support the Battery EV Program, the Government of Indonesia also initiated the development of the EV Battery Ecosystem via state-owned enterprises, including by establishing the Indonesia Battery Corporation, a joint venture (JV) between multiple state-owned enterprises (SOEs) – Mind ID, Antam, Pertamina, and PLN – and strategic partners. This initiative is trying to set up an integrated value chain for battery production stretching from mining to battery manufacture to distribution. It is aiming to be a global-level producer for nickel sulphate (raw material) and precursors and cathodes (parts), and a regional player in battery EVs. It is estimated that the SOEs' EV Battery JV can employ up to 16,600 workers per year, which will include 3,600–7,200 workers in the nickel mining sector, 4,200–8,400 workers with battery parts manufacturers, and 800–1,000 workers in the battery manufacturer.³¹

The existing literature indicates that the electrification of private transport will have both positive and negative impacts on employment ranging from direct, indirect and induced effects with the intensity varying depending on the country context (UNECE and ILO 2020). Direct effects would include the creation of jobs associated with the manufacture of electric vehicles and the generation of electricity to power them. These two activities will also have indirect effects through their corresponding supply chains. Furthermore, given that electricity is cheaper than gasoline or diesel for households and businesses, the ensuing increased consumption of other goods and services will lead to induced effects. At the same time, demand for ICE vehicles and their inputs, for fossil fuels and for related services is reduced. The oil-producing and refining sector will be faced with a reduction in jobs.

Table 7. Sectors with potential job gains and job losses in the battery EV transition

Sectors with job growth	Sectors with job losses
Manufacturing • EV OEM • EV battery cell and pack • EV battery parts (cathode, precursor) • EV component manufacturers • EV assembly	Manufacturing • ICE OEM • Tier 1 components • Lower tier components • ICE assembly

³¹ Consultation with Ministry of State-Owned Enterprises.

Sectors with job growth		Sectors with job losses	
Upstream (raw material providers)	- Nickel mining and refinery - Electricity generation	Upstream (raw material providers)	Oil and gas mining and refineries
Downstream	- Construction of charging ecosystem: charging stations, energy storage systems, and battery swap stations - Charging station and battery swap operators - EV dealers and repairs - Waste management	Downstream	- Fuel supply - ICE dealers and repairs - ICE used car market

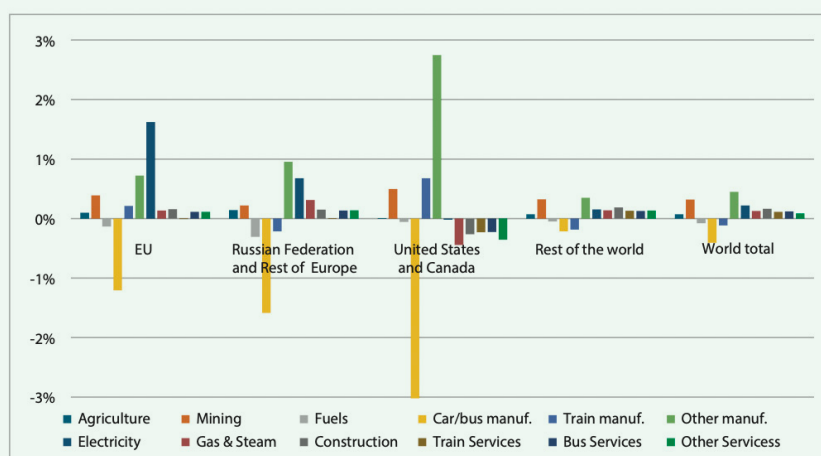
Unlike the electricity supply industry, which is highly regulated and monopolistic, the automotive sector is market-driven. It also contributes significantly to GDP and employment. Indonesia's automotive industry is highly linked with global value chains; almost all OEMs are affiliated with a global auto manufacturer, predominantly auto manufacturers from Japan. A 2021 survey of automotive components and parts association (GIAMM) members also shows that at least 77 per cent of Indonesian component manufacturers are majority-owned by foreign corporations, with just 13 per cent being majority owned by local entrepreneurs and 9 per cent being joint-ventures between local and foreign enterprises (PwC 2022). While this structure maybe beneficial for the industry in facing a transition, a direct shifting from ICE vehicles to eVs will disrupt 47 per cent of parts and component manufacturers, and therefore, the industry prefers a gradual shift to eVs while maintaining the possibility of the use of other low-carbon technology (Gaikindo 2021). To ensure a Just Transition in this sector, alignment between industry policy and the energy transition plan, along with active engagement and participation from private sector actors – namely employers and workers – is very critical.

Moreover, looking at the number of workers throughout the value chain, aftersales services would also be greatly affected by the transition to eVs. Aftersales services related to ICE vehicles employs more than 1 million workers, mostly low to medium skilled, and more than half of the enterprises in this sector are not formally linked with OEMs. This situation poses great risk for these unaligned enterprises and the workers they employ as the industry rapidly shifts from ICE vehicles to EV-focused production. Measures to assist this group in preparing for the transition should be considered when planning and implementing the policy.

Box 7. Estimating employment impact from the electrification of private transport

The United Nations Economic Commission for Europe (UNECE) and the ILO conducted an assessment on jobs in green and healthy transport in ECE region in 2020. Using the EXIOBASE V.3 database, the exercise concluded that the electrification of private transport will result in net positive employment effects, with job creation being concentrated in the development and manufacture of electrical equipment and battery technology, in the construction of infrastructure, and in electricity generation.

Although the manufacture of EVs is less labour-intensive than that of ICE vehicles, the industries related to EVs, if considered together, tend to employ more people than the industries that are set to decline. Job losses across the world would be concentrated in the manufacture of ICE vehicles and in the petroleum extraction and refinery sectors. Across the UNECE countries, some 355,000 jobs could be lost in the ICE vehicle manufacturing industry. Some job losses are also expected to occur in the services sector in the European Union and North America, largely owing to the linkages between that sector (maintenance and repair) and the car manufacturing industry and, to a lesser extent, also as a result of the reduction in value added production across these economies. Indeed, EV manufacturing is more closely linked to the services sector than the manufacture of electrical machinery, and the loss in value added feeds back into a reduction in household spending on services. Conversely, the increase in value added outside the ECE region leads to an increase in the demand for services there. Through the modelling the sectors identified with potential job losses and creation are as follow:



Source: ILO estimates based on EXIOBASE version 3.

Source: UNECE and ILO 2020.

Electrification of other equipment of end-users (residential and commercial)

The largest energy consuming sectors after industry and transportation are the residential and commercial sectors. However, a just energy transition should also ensure access to affordable, reliable, sustainable and modern energy for all. While the Government of Indonesia made progress in achieving universal access to electricity by 2020, mostly due to the development of robust electricity infrastructure, and in promoting clean cooking by replacing kerosene and wood with gas cylinders, this policy will not be sustainable over the long term due to its dependency to fossil fuels.

To achieve energy resilience and to ensure equitable access for all, Indonesia is facing a challenge where there will be an exponential increase in energy demand but with limited

energy supply capacity. The current GSEN lists several challenges such as: the high need of imported crude oil, gasoline and liquified petroleum gas (LPG); declining trend of coal exports; and gas and electricity infrastructure not yet being fully integrated. To tackle these issues, the Government of Indonesia plans to increase the construction of the city gas network, encourage the use of electric stoves, and implementing coal gasification to produce dimethyl ether (DME) as a gas replacement.³² The updated NDC also conveys plans to increase the construction of additional natural gas pipelines in order to replace kerosene for cooking in residential and commercial sectors as part of its mitigation effort in the energy sector (Indonesia, Government of Indonesia 2021b). Regarding this policy development, the proposed energy transition plan describes the increased use of induction stoves and LED lights in households, extending city gas infrastructure, and the use of DME as part of the milestone. The Government of Indonesia had also started to implement the coal gasification programme via PT Batu Asam, a coal mining SOE, to develop DME production from their coal deposits, which is expected to replace gas needs for residential use in Sumatra.³³

In 2020, the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) employed the National Expert SDG 7 Tool for Energy Planning (NEXSTEP) to develop a policy scenario for Indonesia in relation to energy transition pathways to meet the 2030 agenda for SDG 7 and the country's NDC commitment (UN ESCAP 2020). The study concluded that extending city gas networks or promoting induction-type electric cooking stoves will help Indonesia to achieve universal access to clean cooking, as well as limiting the carbon emissions from energy consumption in residential and commercial premises. The induction/electric stove offers more time- and cost-effective benefits when the electricity generation surplus that is currently persisting is being considered. It also offers improved fiscal benefits, since it can better target poor and vulnerable households compared to the current LPG subsidy, which is still suboptimal, especially when considering that most LPG is still being imported.

Although not as massive as the impact in the electricity generation and transportation sectors, the energy transition plan for the electrification of equipment for commercial and residential use may also trigger employment impact. Sectors related to electric equipment manufacture, electricity generation, DME processing, gas providers, and construction may experience job growth; while sectors related to gas distribution and gas cylinder production may face job decreases.

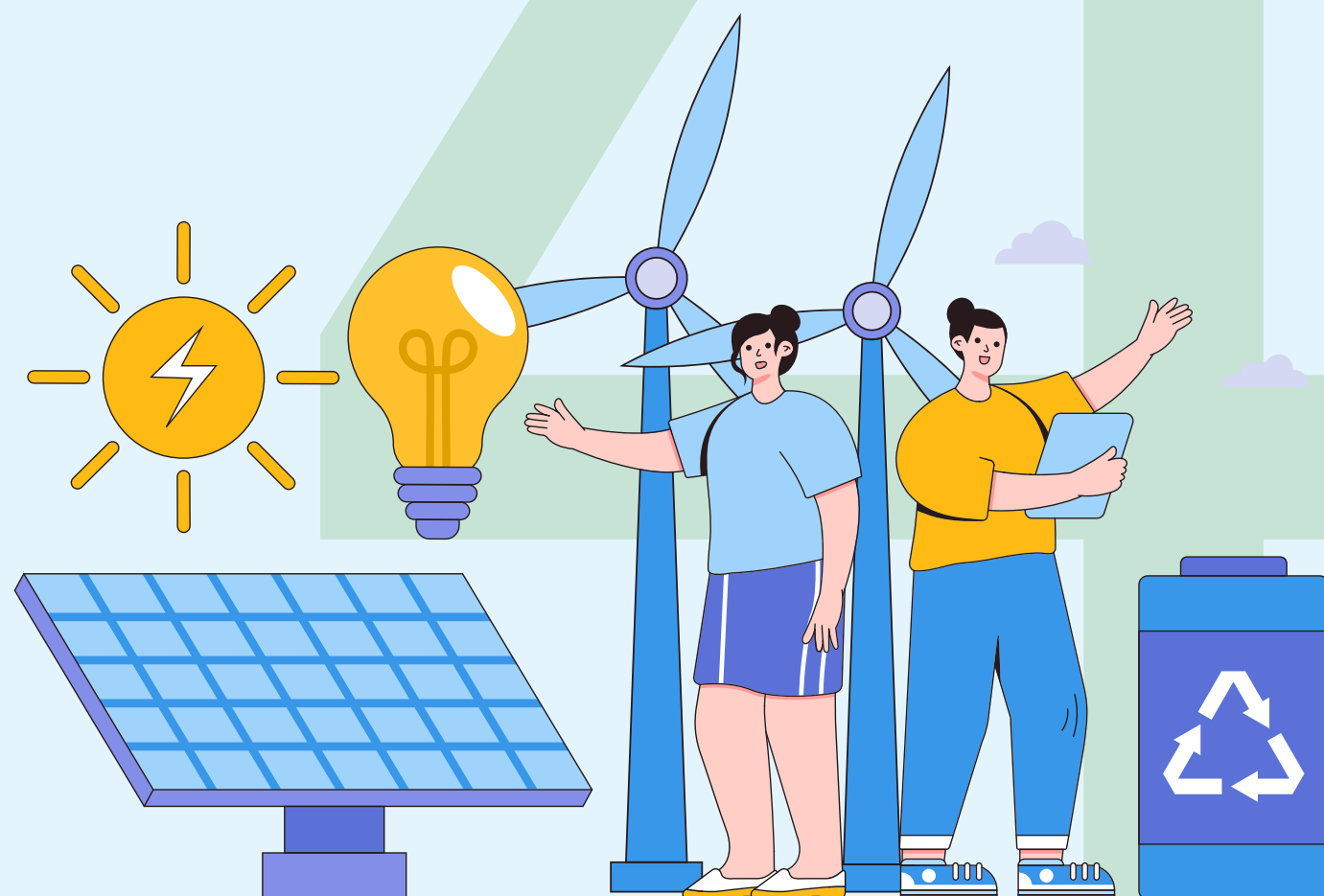
Table 8. Sectors with potential job gains and job losses related to the electrification of end users

Sectors with job growth		Sectors with job losses
Products/services used for electric stoves	• Manufacture of electric equipment • Electricity generation	• Manufacture of gas cylinders • Distribution of gas • Gas retailers
Products/services used for city gas	• Construction (for city gas infrastructure) • Manufacture and distribution of gas	
Coal gasification	• Manufacture of DME • Construction • Distribution of DME	

32 From the opening remarks of the Director-General of New Renewable Energy and Energy Conservation Opening at the Just Energy Transition towards Net Zero Emissions in Indonesia national webinar, 25 August 2021.

33 Based on consultation with the Ministry of State-Owned Enterprises (MSOEs).

POLICY READINESS TO SUPPORT GREEN JOBS AND A JUST TRANSITION IN THE ENERGY SECTOR



4. POLICY READINESS TO SUPPORT GREEN JOBS AND A JUST TRANSITION IN THE ENERGY SECTOR

4.1. Assessing policy readiness for green jobs and a Just Transition

Policy readiness is a multi-level construct but essentially refers to the ability of a policy framework to signal and implement change. Within the study context, the change relates to economic transitions due to energy transition, but more specifically to managing the employment implications of this transition by promoting green jobs and a Just Transition.

As outlined by the ILO Just Transition Guidelines, the policy mix for ensuring a Just Transition that promotes green jobs is broad. It includes measures to produce green jobs in traditional and emerging sectors, and measures to reduce the impacts of job losses and industry phase-outs on workers and communities. This encompasses many policy fields, including development and employment policy, energy policy, industry policy, and training and skills development, as well as the development and implementation of sectoral level policies and policies at different jurisdictional levels. In addition to a policy mix, policy coherence and coordination are also critical issues in the successful implementation of policies for promoting green jobs.

This study refers to the ILO Just Transition Guidelines (ILO 2015b) when assessing the policy framework. It also follows the ASEAN and ILO (2021) *Regional Study on Green Jobs Policy Readiness in ASEAN* when analysing them, and which distinguishes the policies into three broad areas, namely:

Policy influencing the demand for green jobs

This policy set includes macroeconomic national development policy and, increasingly, how these policies encompass the green agenda of individual nations (including how they will meet Paris Agreement targets through the NDCs), and how the impacts of this national development agenda manifest in labour markets. Other key policy areas include policies for mitigating and adapting to climate change, energy policy, and industry policies – particularly in target sectors in which the energy transition will trigger structural changes.

Government's role in encouraging private sector activities in the green economy is also critical. This includes specific policy support for subsidies and access to finance for greening production and employment, support for commercialization and green entrepreneurship, the creation and enforcement of a supportive regulatory system for environmental sustainability, and the creation of new, green markets.

Policy influencing the supply of workers to undertake green jobs

Policies and mechanisms that influence the supply side for green jobs include skills development policies and the institutions that provide and assess these skills, such as technical and vocational education and training (TVET) organizations. It will also include the availability of relevant labour market policies in line with the transition agenda, be they:

- passive labour market policies that seek to lessen the financial burden on workers who have been laid off in line with the country's social protection programme; or

- active labour market policies (ALMPs) that aim to activate the labour force towards reemployment by increasing or improving the employment opportunities of unemployed or inactive persons to get or return to a job, such as via provision of job market information and training targeted for affected workers and communities.

Institutional arrangements

This policy set comprises measures that ensure protection for workers and communities that are highly impacted by the economy transition via labour and social protection. At the workplace level, this will include policy that ensures the availability and appropriateness of OSH. At the broader level, it is essential that institutional arrangements emphasize the availability of social protection for workers and communities affected by the physical impacts of climate change or the adverse effects of green policies. A comprehensive social protection system includes measures that enhance the adaptive capacity of individuals and communities to absorb and respond to shocks. Measures will consist of social insurance that covers affordable healthcare, unemployment protection, facilitated early retirement for workers of advanced age at risk of losing their jobs due to phase-outs of carbon-intensive industries, and social assistance, such as targeted cash transfer schemes.

Creating Just Transition plans for sectors and geographies that are highly impacted by decarbonization will ensure that workers and communities negatively affected by greening in the economy will not be left behind and will have pathways to transition to new employment. Just Transition planning is a new skill set for policymakers. As the employment implications of the green economy are far-reaching and involve many public institutions, how policy is coordinated across government and the economy is integral to the success of these green policy frameworks. Therefore, part of the policy mix also needs to consider how policies are coordinated and coherent.

Measuring policy readiness involves a systematic assessment of a jurisdiction's policy framework, and the ability of this policy framework to stimulate and guide the transformational change to achieve the just and sustainable transitions required to meet the Paris Agreement and the SDGs. The assessment classifies and examines the policy framework into nine areas, outlined in table 9. The assessment enables us to identify challenges; where new procedures, processes and policies are needed; and where gaps exist. In assessing readiness, we are looking to identify the elements of the green jobs and Just Transition policy framework; to highlight where they are sufficient (that is, containing all the sub-elements listed in table 9); and to identify challenges and gaps.

Table 9. Promoting green jobs and a Just Transition policy framework

Creating demand for green jobs	
Macroeconomic and growth policies	National Development Framework: • Green agenda established in the National Development Framework • Climate change impact and assessment plans • Links to international agreements/commitments on climate targets Public investment leveraged for green jobs • Infrastructure investment – climate and green jobs issues included • Policies for green public procurement • Policies for green eco-innovation/R&D support
Industrial and sector policies	• Target sectors for green jobs/Just Transition identified and scoped, and sectoral strategies developed with the involvement of social dialogue processes • Sector-specific policies (for example, in relation to energy)

Enterprise policies	• Information, assistance and financial incentives for greening in enterprises • Green entrepreneurship support, including support for women and young entrepreneurs • Business resilience programmes to support enterprises in implementing adaptation, especially in micro-, small- and medium-sized enterprises (MSMEs)
Creating supply for green jobs	
Skills development	• Green skills consensus • Identification of skills needs, including for target groups such as women and youth • Assessment of adequacy and availability of green skills training, plans for enhancement • Integration of on-the-job training/skill acquisition into formal training and accreditation systems
Active labour market policies	• Green jobs and green skills labour market information available by demographics and geography • Just Transition plans and social dialogue in impacted industries/hotspots • Re-training and transition programmes for affected workers • Labour market policies linked to infrastructure and industry development policies
Institutional arrangements	
Occupational safety and health (OSH)	• OSH risks associated with climate change and resource scarcity assessed • ILO Occupational Safety and Health Convention, 1981 (No. 155), is in force,
Social protection	• Unemployment protection • Social protection mechanisms that contribute to offsetting the impacts of climate change and the challenges of the transition on livelihoods, incomes and jobs
Cross-cutting elements	• Inclusion of labour rights and standards into green jobs and Just Transition policy • Social dialogue processes informing the development and implementation of greening policies • ILO Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144), which addresses social dialogue, in force • Measures to achieve policy coordination and coherence

4.2. Policy readiness for green jobs and a Just Transition in Indonesia

4.2.1. Regional context

The ASEAN and ILO (2021) *Regional Study on Green Jobs Policy Readiness in ASEAN* utilizes 2019 and 2020 data to assess the green jobs policy readiness in the ASEAN Member States, including Indonesia. The study documents that Indonesia shows readiness in several areas, particularly that policies for creating green jobs demand have been put in place. However, this has not been balanced with the capacity to create green jobs supply and effective institutional arrangements. Figure 11 summarizes Indonesia's policy readiness assessment result, as concluded by the regional study.

Figure 11. Policy readiness for green jobs and a Just Transition in ASEAN Member States (2021)**Policy Readiness in AMS**

Policy area	Brunei Darussalam	Cambodia	Indonesia	Laos PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Development policies establish the green agenda										
Industrial and sector policies for greening										
Enterprise policies and initiatives for greening										
Skills development for green skills										
Active labour market for greening										
OSH for climate change issues										
Social protection										
Cross-cutting issues – labour rights, standards & social dialogue processes in greening										

■ Significant policy elements in place ■ Some policy elements in place ■ Limited/ No policy elements in place

Policy Readiness in Indonesia

Policy area	Notes
1. Macro-economic growth plans and development policies establish the green agenda	Green economy well established in development plans
2. Industrial and sector policies for greening	Specifically, Energy and waste sectors
3. Enterprise policies and initiatives for greening	Focus on access to finance
4. Skills development for green skills	Emerging skills development policies in place, need systematic expansion
5. Occupational Safety and Health for climate change issues	ILO C155 on OSH still to be ratified, no other information available
6. Social protection	ILO C102 on social protection still to be ratified, medical, old-age, work injury, invalidity and survivors' benefit available, no family allowances and limited unemployment and sickness benefit available.
7. Active labour market for greening	Emerging
Cross-cutting issues – labour rights and social dialogue processes in greening	C144 in force, no specific detail on social dialogue processes in green economy plans

Key summary on Indonesia readiness from the study:

- Indonesia already has significant policies in place related to green economy agendas, plans and strategies. These include the development policy as laid out by the LCDI under the RPJMN 2020–2024; fiscal policy through the green planning and budgeting strategy; energy sector policies from KEN, RUEN, RUKN, and the National Master Plan for Energy Conservation (RIKEN); a road map for waste reduction (namely the Clean Waste Indonesia 2025); and the Indonesia 4.0 industry policy, which address digitalization.
- However, active labour market policies (ALMPs) are limited or non-existent, suggesting that macroeconomic and sectoral policy are not aligned with labour market policy. This condition is also similar with regard to labour protection at the enterprise level, where OSH policy regarding climate change is limited if not absent.
- Policies to support skills development for green skills are also critical. The assessment shows that only some policies are in place, including partial integration of green skills into the Indonesian TVET system. However, current policies to support skills development are insufficient for achieving a Just Transition.
- Another policy area that the assessment found to be lacking in regard to the greening of jobs is social protection. Social protection is imperative to achieve a Just Transition that is inclusive for all. This is especially critical for marginalized groups, namely the affected workers and elements of society that might be deprived of their livelihoods due to the green transition.
- Concerning cross-cutting issues, the ILO Convention No. 144 on social dialogue is in force; however, there are no specific details on social dialogue processes in the green economy plan.

4.2.2. Progress in policy development related to green jobs and a Just Transition

Indonesia has seen an increasing awareness of the green economy issue since 2018. Starting with the integration of the low-carbon development scenario within the national development planning for 2020–2024, the sectoral regulators have gradually aligned the policy to incorporate the LCDI. Issues on the green economy have gained broader interest from policymakers with the Covid-19 crisis, where green economy was positioned as one of the key strategies for economic recovery. The COP26 and G20 Presidency have strengthened global pressure from countries to increase climate commitments and have also promoted the green economy to the center stage, with the one of the main focuses on the energy transition.

With the growing concern on the green economy and especially on the energy transition, progress in the policy readiness in this regard is well evidenced. This section traces the current state of the policy framework necessary for ensuring green jobs and a Just Transition in the context of the energy transition plan, referring to the ILO Just Transition Guidelines.

Macroeconomic and growth policy

Indonesia has ratified the Paris Agreement and stipulated it under [Law No. 16/2016](#). Within the same year, Indonesia had also submitted its first NDC that reinforced the country's pledge to reduce carbon emissions by 26 per cent with its own effort and 41 per cent with international support (Indonesia, Government of Indonesia 2016). As part of this commitment,

the Government of Indonesia mainstreamed its climate target and strategy into the National Medium-Term Development Plan (RPJMN) 2020–2024 (stipulated in the Presidential Regulation No. 18/2020) under the Low Carbon Development Initiative (LCDI) scenario. This scenario is part of the national priority and development strategy, which marks energy, waste, industry, forestry and peat, agriculture, and blue carbon as focus sectors (Indonesia, BAPPENAS 2020).

With the crisis triggered by the COVID-19 pandemic, the Government of Indonesia repositioned its green economy strategy within the national economic transformation design. In 2021, BAPPENAS published the *Green Recovery Roadmap Indonesia 2021–2024*, which elaborate the strategy for programme and budget prioritization aligned with LCD to accelerate economic recovery, and also released its Climate Resilience Development Policy (Indonesia, BAPPENAS 2021a; Indonesia, BAPPENAS 2021d). In the same year, BAPPENAS, in collaboration with Bali Province, developed the Masterplan for Kerthi-Bali Economy that contains sustainable and inclusive economic transformation design at the national level and elaborates a detailed recovery strategy and targets at the subnational level for recovering Bali's economy (Indonesia, BAPPENAS 2021e). Later, at the end of the year, the BAPPENAS published a white paper on the Roadmap for Indonesia 2045 Transformation for a Fair, Green and Advanced Indonesia (Indonesia, BAPPENAS 2021c).

As part of COP26 in 2021, the Government of Indonesia submitted their updated NDC with its more ambitious GHG emission reduction targets. The country aims to reach the peak of national GHG emissions in 2030, have the forest and land-use sector be a net-sink by 2050, and reach net-zero emissions (NZE) in 2060 or sooner (Indonesia, Government of Indonesia 2021a, iii). Under this strategy, the energy sector plays a critical role since, together with the forest and land use sector, they account for about 97 per cent of the total national commitment (Indonesia, Government of Indonesia 2021b).

The fiscal policy framework also incorporates climate change considerations. In 2015, the Government introduced the Climate Budget Tagging and Green Planning and Budgeting Strategy for Indonesia's Sustainable Development 2015–2020. The Government also developed innovative financing products and mechanisms such as green bonds and green funds. Recently, the Government has introduced a carbon tax through Law No. 7/2021 on Tax Regulation Harmonization, and is currently developing the implementing regulations, with the implementation target set for early in the second semester of 2022 (Agustiyanti 2022). Aligned with the G20 Presidency, the Ministry of Finance is developing a climate change fiscal framework for 2022. Specific to the energy transition, the Ministry is exploring the possibility of developing innovative financing via the Energy Transition Mechanism in cooperation with the Asian Development Bank (Indonesia, Ministry of Finance 2021). There are, however, fiscal policy constraints that come from fossil fuel-related subsidies, especially in regard to coal. The Government has been continuously transforming its policy on such subsidies, including cutting off the fuel subsidy. However, the financial need for fossil fuel-related subsidies are still very high due to current dependency on fossil fuels at the primary energy source for electricity generation, transport and households. Coal-related subsidies such as the Domestic Market Obligation (DMO) also contribute to this fiscal policy constraint (UN ESCAP 2020).

Concerning financing support, the Financial Service Authority (OJK) has been developing the Sustainable Finance Roadmap that is aimed at establishing an ecosystem to support the acceleration of sustainable finance, increase the supply and demand for environmentally friendly funds and financial instruments, and strengthen the surveillance and coordination of

sustainable finance implementation.³⁴ In the first phase of the road map (2015–19), the OJK issued:

- POJK No.51/2017 on the Implementation of Sustainable Finance for Financial Institutions, Issuers, and Public Companies in order to enhance awareness of the financial industry;
- an action plan for strengthening sustainable finance and the obligation for enterprises to publish a sustainability report; and
- POJK No.60/2017 on green bond issuance.

During the second phase (2021–24), the OJK has so far issued the Indonesia Green Taxonomy and are in the process of reviewing the regulatory framework for a carbon exchange/market (Indonesia, OJK 2021; Indonesia, OJK 2022).

Indonesia has also published several regulations to promote green procurement via sustainable procurement policy, as mentioned under Presidential Regulation No. 16/2018 on Public Good/Service Procurement. The policy encourages government bodies to procure environmentally friendly goods and services, and promotes the market for ecolabel goods and services as regulated under Ministry of Environment and Forestry Regulation No. 5/2019 on procedures for applying ecologically friendly labels for the procurement of environmentally friendly goods and services (Indonesia, LKPP 2019).

One of the challenges to developing a green economy, especially during the energy transition, that has been identified by the Government is access to and the advancement of technology. Within this context, policy on research and innovation is critical to enable an innovative environment to accelerate the transition. Previously, there was no integrated and comprehensive policy on research and innovation in Indonesia; as a consequence, research and innovation policies relevant to the green economy agenda are dispersed across the sector. For example, the Indonesian Institute of Sciences (LIPI) has been designated to develop various prototypes of eVs and related components (UN ESCAP 2020), and the Green Industry Research & Development Centre was established to build the innovation and industrial strategy necessary for promoting green industry. To tackle the issue, the Omnibus Bill on Job Creation aims to integrate research and innovation under one umbrella regulation by provision of the Research and Innovation Support cluster, which is expected to improve coordination and promote innovation, although the policy still has shortcomings in the operationalization context (CIPG 2020).

Sector and industrial policy

With its strengthened climate commitment, the Government has made substantial progress on policy development in the energy sector. Indonesia has a comprehensive suite of energy, renewable energy and energy efficiency policies, including the National Energy Policy (GR No. 79/2014) and the National General Energy Plan (Presidential Regulation No. 22/2017), which target a renewable energy share of 25 per cent by 2025 and 40 per cent by 2050, and a reduction in energy intensity of 1 per cent annually between 2015 and 2025.³⁵ Given the current conditions, the Government aims to adjust these set policies to align with the commitment in the updated NDC.

³⁴ Consultation result with OJK.

³⁵ The 2020 UN ESCAP report *Energy Transition Pathways for the 2030 Agenda: SDG 7 Roadmap for Indonesia* provides an evaluation of Indonesia's current energy policies in accordance with the SDG 7 and the NDC target by 2030 based on the NEXSTEP economic model developed by UN ESCAP (pp. 43–45).

In 2021, the Government issued the RUPTL 2021–30, in which coal still dominates the energy mix but there is provision for more considerable new and renewable energy development (PLN, Corporate Planning Directorate 2021). But in keeping with the 2060 NZE target, the MEMR in 2021 announced a strategy to achieve carbon neutrality in the power sector by 2050 (Indonesia, MEMR 2021c), and the PLN has aligned their long-term plan to accommodate this target.³⁶ However, several crucial policies necessary for the energy transition are not yet finalized and enacted. Among these are the renewable energy bill, the renewable energy tariff regulation, and the energy conservation regulation (IESR 2021). In addition, the regulatory progress on energy transition milestones such as CFPP co-firing and early retirement have also been delayed (Sari 2021). Crucial for Just Transition planning is the availability of a clear road map in orienting the transition; one that elaborates the strategy, scope, programme, target and timeline of the transition, and that will guide sectoral planning related to the transition. To date, the master plan for the energy transition is still under development in the MEMR and the DEN.³⁷

The Government has also developed several industrial policies. The Ministry of Industry had been promoting green industry and digitalization in the manufacturing sector by introducing green industry policies and the Making Indonesia 4.0 road map that has been mainstreamed into the National Industrial Development Masterplan (RIPIN). The green industry policies contain provisions for green industry standardization via certification processes, covering criteria not only in the production process but also in the waste management, carbon emission, and enterprise management (Lestari 2022). The certification process is currently undertaken on voluntary basis, but the Ministry aims to make it compulsory in the longer term, depending on the readiness of the Government and industry.³⁸

The Government had also stipulated regulations on local component requirements (TKDNs) to promote domestic industry.³⁹ While the policy might positively affect the economy and job creation, due to discrepancies in technology, this policy is deemed as a constraint on current energy transition initiatives in the short run.⁴⁰ To tackle this issue, the Government is developing provisions for industry to ensure the achievement of an energy transition while gradually capacitating local industry to provide the necessary supply for fulfilling the TKDNs. One such provision can be found in Ministry of Industry Regulation No. 6/2022, which was specifically intended for Battery EV industry development.

In the Indonesian economy, state-owned enterprises (SOEs) play a significant role. Not only do these companies have a substantial share of the economy, including employment (*Indonesia Investments* 2020), but the Government also frequently positions SOEs as a vehicle to implement its development agenda,⁴¹ including those elements related to the energy transition plan. Internal analysis by the Ministry of State-Owned Enterprises (MSOE) estimates that in 2019, SOEs accounted around 20 per cent of national carbon emissions, especially from the power and industry sectors. To support the Government's decarbonization pathway, the MSOE is currently developing a road map for SOEs to achieve the NZE target by 2050 via three strategic initiatives, namely:

36 Consultation with PLN; PLN 2022.

37 Consultation with MEMR and tripartite constituents.

38 Consultation with MOI.

39 A list of these regulations is available at: <http://tkdn.kemenperin.go.id/regulasi.php>.

40 Consultation with PLN and MSOEs.

41 As an example, see: <https://bumn.go.id/investor/project>.

- i. reducing end-to-end emissions by cutting emissions from the core business;
- ii. building adjacent business as a green economy ecosystem by diversifying SOE portfolios into the adjacent value chain; and
- iii. exploring step-out opportunities – especially for SOEs that might adversely be impacted by the transition.⁴²

Employment policy

The suite of employment policies relevant for a Just Transition covers policy measures related to enterprise, skilling and the labour market. At the enterprise level, the Government has rolled out several initiatives and policies to promote private sector involvement in the green economy transition. In the financing area, the Government has established regulations and mechanisms that incentivized enterprises to engage in the green sector, such as establishing a green climate fund under State-Owned SMI and Green Sukuk. In the financial market, the OJK has issued a regulation on the implementation of sustainability finance that includes the obligation for financial service industries and listed companies to publish sustainability reports that include the disclosure of environmental, social and corporate governance data to promote sustainable investment.

The Government also provides incentives to attract renewable energy investment, including tax holidays for pioneering industry, tax allowances, and exemption from VAT and import duties for renewable energy inputs, such as for solar PV and geothermal. These kinds of incentives are also provided by the Government for the battery EV industry. Under Presidential Decree No. 55/2019, the Government provides fiscal and non-fiscal incentives, which include import duty and tax incentives; incentives for research and development; and incentives for certification of human resources and products (KPMG 2021). However, since investing in a cleaner energy system requires a big commitment, creating an overall attractive investment climate is perceived to be necessary. The time-consuming permitting process for renewables, unattractive purchase power agreement terms, and the absence of legal certainty in implementing regulations such as those related to tariffs and targets are perceived to be a constraint for enterprises in shifting their business (IESR 2021).⁴³

To raise awareness and to motivate sustainable and green practices in industry, the Ministry of Industry has instituted the Green Industry Standard and Green Industry Award to encourage enterprises to green their processes. The Ministry is also exploring the possibility of providing fiscal incentives for enterprises that meet green industry standards (Lestari 2021). Similar to this, the Ministry of Environment and Forestry also launched PROPER (Program for Environmental Performance Rating) to encourage enterprises in meeting environmental standards within their operations. In addition, the Ministry of Manpower (MOM) had also initiated Green Productivity programmes to promote green aspects in the workplace and mainstreamed it into productivity awards at the national and subnational levels. These green productivity aspects are also part of the evaluations carried out by the national productivity body responsible for providing annual recommendations on productivity to the Government.⁴⁴

Overall, the MOM had not yet issued any specific regulations related to green jobs and a Just Transition. In the green skills policy, the absence of a definition of green jobs creates challenges in developing occupational mapping and competency standards for green jobs in order to

42 Consultation with MSOEs.

43 Consultation with APINDO.

44 Consultation with MOM.

plan a comprehensive green skill development policy. The ILO's 2018 assessment concluded that the efforts to institutionalize the green economy are not being followed up with skills development strategies for green jobs. In addition, a lack of identification of green jobs supply and demand, the absence of a national integrated framework for anticipating green jobs in different sectors, and a lack of manpower policies on skills development for green jobs were identified as critical gaps (ILO 2018c).

The Government has partially responded to these conditions since 2018. At present, there has been some integration of green skills into the Indonesian TVET system, including the addition of energy literacy content into relevant subjects, efforts to increase energy literacy through extracurricular activities, and the involvement of some TVET institutions in green campus metrics (ASEAN and ILO 2021). The MOM has also incorporated green skills in the training programmes provided by Vocational Training Centres (BLKs), such as training in renewable energy at the BLKs in Aceh, East Lombok, Ambon, and Ternate.⁴⁵ At the enterprise level, several industry-led initiatives have also contributed meaningfully to the green skilling programme, establishing a continuous green training and education programme specifically aimed at meeting their own needs for green-skilled personnel (ILO 2018c).

Given that the energy transition plan entails a progressive renewable energy target that will impact job demand and job shifting, it is essential to start preparing the labour force to ensure the availability of job supply. With the urgency of the energy transition and the rising awareness of climate change's impact on works, the MOM is initiating the development of a National Action Plan (NAP) on the Impact of Climate Change on the Labour Sector. This initiative is still in early discussions, and as part of the initial phase, the Ministry is planning to prepare a short-term plan to respond to Just Transition issues. Further, the Ministry is also planning to develop a Critical Occupational List that will map out the jobs that are disappearing and those that are emerging due to the transition. These documents are expected as part of the policy response to plan a Just Transition.⁴⁶

There are opportunities for building renewable energy skills using available partners, such as developing renewable energy courses/training programmes in the BLKs under the MOM, providing support for current or prospective workers to attain certification in renewable energy, embedding/mainstreaming climate change and renewable energy skills in the higher education curriculum, and collaborating with private/industry in providing training on renewable energy. BAPPENAS is currently developing policy recommendations for green jobs promotion in the electricity sector focusing on skills. The Ministry aims to produce a regulation draft on green jobs, and is currently in the process of developing an urgency paper that will elaborate on the rationale and background of the regulation, the level of law in the legal system, stakeholder mapping, and the scope of law, which might touch upon aspects of a definition of green jobs, occupational mapping, competency standards, training, incentives, and a labour market information system (LMIS).⁴⁷

There is also an absence of active labour market policies (ALMPs) specifically intended to promote green jobs. These ALMPs might include policies and programmes related to vocational training, assistance in the job search process, wage subsidies or public works programmes, and support to micro-entrepreneurs or independent workers. It should be noted that the MOM

45 Consultation with MOM.

46 Statement from the Ministry of Manpower during the tripartite consultation meeting, 28 June 2022.

47 Consultation with the Employment Directorate of BAPPENAS.

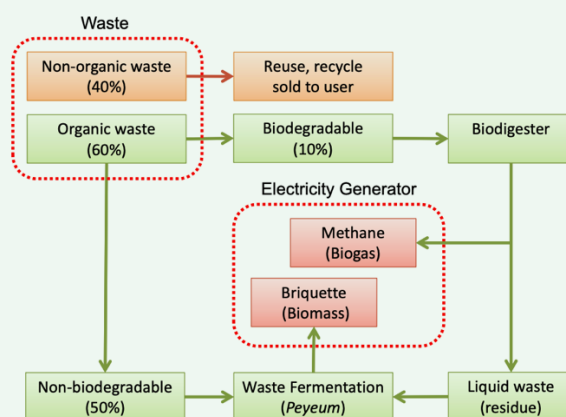
had previously implemented a public works programme that might be considered to have offered green jobs,¹⁵⁶ but this was ultimately an ad hoc programme and lacked sustainability and coherence with a more comprehensive policy aimed at promoting green jobs. Provision for unemployment benefits in the form of wage subsidies, access to job market information, and training for the unemployed, and MSME support provided under the Omnibus Bill do not explicitly aim to promote green jobs. In addition, the Omnibus Bill promotes a more flexible labour market by easing regulations related to contracting and outsourcing, attaining foreign workers, and severance pay, which provides more urgency to developing resilient ALMPs.

Box 8. Example for green jobs opportunities supported by green skills programmes in the energy sector

Green skilling programmes have been emerging in response to the growing demand for green jobs in Indonesia. The Technological Institute of PLN (ITPLN, previously STT-PLN) is one such programme, established by a foundation under PLN in 1998. It aims to transfer knowledge and skills on electricity generation and development from PLN experts to future generations.

The ITPLN offers diploma and vocational programmes in electrical engineering, with a focus on power systems, electrical machines and power electronics, and renewable energy, preparing students for careers in the electricity industry. In addition, it provides in-service training for PLN employees to enhance their knowledge and skills. Since 2020, the ITPLN has transformed its programmes to focus on thematic areas such as electricity and renewable energy, energy telematics, technology and regional infrastructure, and technology and energy business, keeping its curriculums updated with industry developments and investing in laboratories.

In 2017, the institute introduced the Listrik Kerakyatan (or “Citizenship Electricity”) programme and the waste-to-energy programme TOSS (Tempat Olah Sampah Setempat) in cooperation with Padjajaran University and Brawijaya University. As a pilot project on a community-based waste-to-energy generation, TOSS was developed using the following model:



The TOSS programme has three phases, in which each phase creates potential opportunities for an impact on green jobs:

- Waste collection and segregation to biogas production in a village area** – This phase can have positive impact on the users in terms of higher waste segregation skills, higher income, lower risks to health and safety, and development of additional skills such as biodigester operation.
- Waste fermentation to biomass production** – A waste fermentation and briquette production centre can be in a subdistrict covering several villages so as to achieve an economic level of waste utilization. At this stage the model creates opportunities for entrepreneurs to establish waste fermentation and briquette production centres in subdistricts. Subsequently, there will be green job opportunities as managers or operators of such centres.
- Converting biogas and biomass to generate electricity, which is transmitted to the national grid** – In this phase there are opportunities for establishment of micro-scale IPPs (independent power producers) in regions containing several waste fermentation and briquette production centres. This will subsequently provide opportunities for construction and installation projects by general contractors and financing of green projects by banks. In the long run, micro-scale IPPs will provide green jobs opportunities for managers and operators.

The programme is still ongoing, though it has been rebranded as the WTEC (Waste to Energy Center) programme. It successfully developed briquettes from waste as a fuel replacement and has been piloted in Tegal in Central Java and the Klungkung District of Bali. The ITPLN had also established a WTEC laboratory and inaugurated a waste and biomass gasification laboratory in October 2021.

Source: ILO 2018c; ITPLN, n.d.; ITPLN 2021.

Labour protection policy

Indonesia has achieved significant progress in establishing better social protection systems within the past decade. However, the scheme is not yet operating at its full potential and there are significant challenges, such as the population size, the employment structure, financing and unreliable data. Following the Asian financial crisis, which exposed the shortcomings and lack of social protection programmes, Indonesia has been continuously reforming its social protection system. Social protection is recognized as a basic human right by Indonesia's Constitution, promulgated in 1945 and amended in 1999, 2001, and 2002. Various pieces of legislation were passed to provide a legal basis for necessary programmes, such as:

- labour protection via the Manpower Act of 2003;
- the National Social Security System Law of 2004, which set up social insurance,
- the National Social Security Administering Body on Health (BPJS Health), which is responsible for universal health coverage and public health insurance and which was established by the Social Security Provider Law of 2011 and began operation in 2014¹ and
- the on National Social Security Administering Body on Employment (BPJS Employment), which is responsible for employment-related social security, and which was also established by the Social Security Provider Law of 2011 and began operations in 2015 (OECD 2019, 61–63).

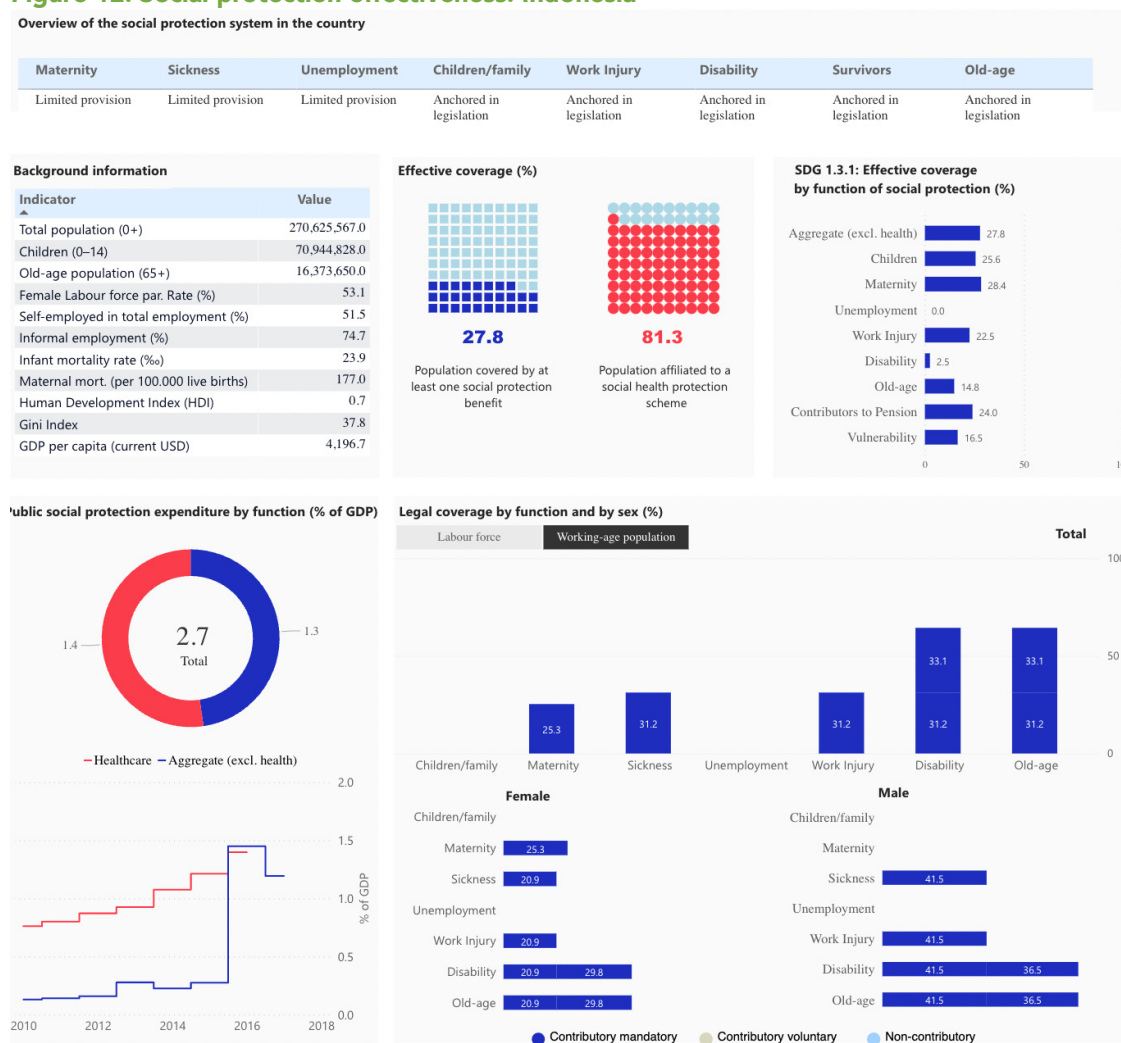
In addition, the Omnibus Law on Job Creation also provides the legal foundation for an unemployment benefits programme (Warokka and Yuriutomo 2020). The ILO's [World Social Protection Data Dashboard](#) has also documented that Indonesian legislation has anchored the social protection system for children/family, work injury, disability, survivors, and old age benefits, but only offers limited provision for maternity, sickness, and unemployment benefits, as illustrated in figure 12.

Due to the COVID-19 situation, the Government has also been expanding social protection by increasing resource/budget allocation, extending coverage, introducing new benefits, as well as increasing benefit levels (ILO, n.d.-a.). The programmes take on various forms, such as complementary social assistance for poor households that cannot afford their basic needs, which can include direct cash transfers, groceries and provision of staple items, and scholarships. However, many people are still excluded from this assistance due to inconsistencies in government databases. In addition, most of the measures are gender insensitive (52.63 per cent), making women a vulnerable group. The new unemployment benefit introduced by the Omnibus Law on Job Creation offers cash stipends and training for the unemployed, but it remains sub-optimal since it fails to provide universal coverage, as only employees who are already registered with the BPJS Employment will be eligible (ITUC 2021a). This is also largely the case for overall labour protection, as current legislation provides sufficient protection for formal workers – albeit with a low level of compliance – but fails to reach informal workers, who are ineligible for poverty-targeted social assistance and excluded from employment-based contributory arrangements.

Various OSH regulations have been put in place, namely the Safety Law (1970) and Government Regulation No. 50/2012 on the Implementation of the Occupational Safety and Health Management System. The Government has also ratified the ILO Promotional Framework on Occupational Safety and Health Convention, 2006 (No. 187) (via Presidential Regulation No. 34/2014) and the Maritime Labour Convention, 2006, (via Law No. 15/2016). However, OSH practices still primarily focus on corrective intervention, while promotion and prevention are neglected. Reporting of accidents and diseases is compulsory, but actual data coverage is suboptimal.

Regardless of the shortcoming in the implementation level, OSH regulations have provided an opportunity for social dialogue related to green jobs, especially at the workplace level. At present, employers are starting to advocate for the greening of workplaces as part of OSH, which also involves social dialogue at both the bipartite and tripartite levels.⁴⁸ However, this initiative has not yet touched upon issues related to a Just Transition.

Figure 12. Social protection effectiveness: Indonesia



Source: ILO [World Social Protection Data Dashboard](#) (accessed on 20 April 2022).

Cross-cutting policy

Currently, Indonesia has ratified 9 out of 10 ILO fundamental Conventions, 2 out of 4 priority governance Conventions, and 9 of the 176 technical Conventions (ILO, n.d.-b). However, a recent International Trade Union Confederation report shows that Indonesia still struggles to comply with international standards regarding freedom of association and the right to collective bargaining, as well as with the more general implementation of the framework of its industrial relations in a fair and effective way (ITUC 2021b). In addition, Indonesia still faces gender-based discrimination at work. The ILO Committee of Experts on the Application of

48 Consultations with trade unions, APINDO, and MOM.

Conventions and Recommendations (CEACR) noted that gender discrimination is persisting, including in regard to equal opportunity to be recruited and promoted and in accessing TVET, although the Government has been making efforts such as providing technical guidelines for wage structures and scales, raising awareness, and raising supervision on gender equality and non-discrimination in general.⁴⁹

In term of tripartism, Indonesia has ratified ILO Convention No. 144 on tripartite consultation and as follow up has passed regulations on tripartite consultation, including under the Labour Law. With the appropriate policy framework, the tripartite mechanism is formally in place and legally binding at the national, region and enterprise level, and can be used as an effective tool to maintain balanced industrial relations more concretely in the form of collective bargaining agreements (Perjanjian Kerja Bersama, or PKB).⁵⁰ However, in regard to the policymaking process, especially for areas that are not directly related to employment, such as the SDGs and climate change, trade unions report that although they are usually invited to participate in consultations, their input is scarcely taken into consideration by the Government, whose actions seem to not go beyond reporting it in consultations records (ITUC 2021b). The Government does, however, involve trade unions in implementing the SDGs through the National SDG Coordination Team and its task force for the economy, which deals with SDGs 7, 8, 9, 10 and 17.

Specific to climate issues and a Just Transition, there are limited initiatives within the social dialogue process to engage the tripartite constituents. In 2019, the MOM initiated a tripartite national discussion on the climate response and a Just Transition to align labour policies with climate targets via the Bogor Declaration on the Response Measures towards Climate Changes Effects on Employment. The document was developed by tripartite constituents and submitted to the Ministry of Forestry and Environment in October 2019.⁵¹ This document highlights the position held by tripartite constituents in regard to the effects of climate change, namely:

1. Decent work principles are imperative in ensuring a sustainable business.
2. Climate mitigation and adaptation policy need to adopt Just Transition schemes.
3. Government bodies need to increase access to green financing from domestic and global funds. The use of green funds needs to consider the participation of tripartite parties to provide intervention within employment sectors.
4. Tripartite constituents (MOM, APINDO, and trade unions) need to increase participation in climate change discourse at the domestic and international levels.

Notwithstanding the agreement and the position of tripartite parties towards the importance of labour and climate sector policy alignment, there has been no concrete action implemented on such an aligned policy or programme. Given the increased traction on the discourse and policy discussions around climate change and especially the energy transition, several major labour unions initiated the establishment of the Workers' Alliance on Climate Change and Just Transition Issues. In October 2021, the Alliance submitted their aspirations on the energy transition to the MOM, namely:

1. the need to establish a dedicated structure within the MOM that is responsible for coordinating green jobs and a Just Transition;
2. the need to also establish a tripartite committee on climate change and a Just Transition that consists of representation from tripartite constituents and, if necessary, related stakeholders; and

49 CEACR, Observation – Discrimination (Employment and Occupation Convention, 1958 (No. 111) – Indonesia, 2021.

50 Consultation with tripartite constituents.

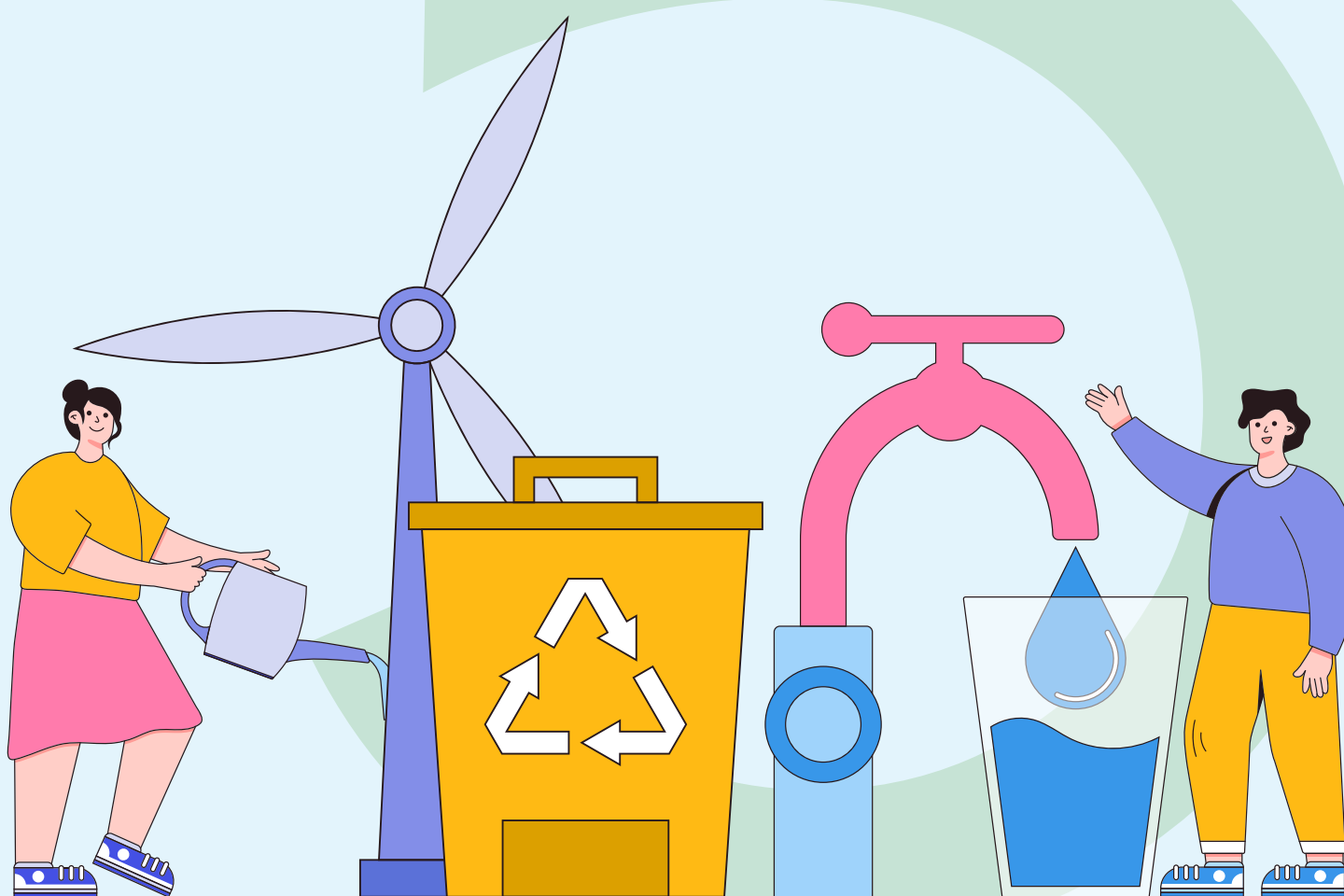
51 Unpublished communique from Ministry of Manpower, October 2019.

3. that the Government needs to promote bipartite dialogue at the workplace level to discuss the mitigation of and adaptation to climate effects on work, including developing a dialogue manual if necessary.

Outside of the tripartite mechanism, there is currently no specific interministerial coordination mechanism and/or body to align policy coherence on greening the economy and energy transition. BAPPENAS has established the LCDI Commissioner Board and LCDI Secretariat to accelerate and support policy alignment with LCDI across sectors, and they also developed AKSARA to monitor, evaluate and report on applications for low-carbon programmes for government bodies at the national and subnational levels. However, the tasks and functions of the board are limited. Furthermore, there is also no specific coordination mechanism/body established to support a Just Transition agenda in the employment sector. Despite being the lead agency for employment policy, the MOM has not been involved in the development of the energy transition road map, even though there is an awareness that the plan will impact employment. Similarly, the MOM is also not part of the DEN, which is involved in the formulation of energy policy.

These constraints identified in the policy readiness assessment reflect an overarching challenge that has been commonly identified – namely coordination among policymakers. Coordination and the presence of coordinating mechanisms for regulatory and operational procedures, the need for strong engagement and communication with stakeholders, and the existing silo-based institutional setting are all identified as challenges in implementing Low Carbon Development Initiatives (LCDI). Identifying and implementing coordination mechanisms across regulatory procedures and the vast array of stakeholders necessary for the success of low-carbon development is a challenge in Indonesia and many other ASEAN countries.

DISCUSSION AND RECOMMENDATIONS



5. DISCUSSION AND RECOMMENDATIONS

5.1. Policy readiness for green jobs and a Just Transition in the energy sector

The study is aimed at highlighting the policy framework relevant for promoting green jobs and a Just Transition and at assessing its readiness for the country to start transitioning to a greener economy with a focus on the energy sector. Table 10 below summarized the assessment results using colour coded identification, with:

- green representing significant elements of the framework element being in place and ready for activities to promote green jobs and a Just Transition;
- orange representing a need for additional processes and policies that in many cases have already been identified or are in development; and
- grey representing no policy elements identifiable to date.

The table also compares the readiness identified in the ASEAN and ILO (2021) regional study to the current conditions.

Table 10. Policy readiness in Indonesia for green jobs and a Just Transition in the energy sector

Policy area	Readiness	Notes
Development policies establish the green agenda	Green	Development and fiscal plans have set a green economy agenda, including aligning it with national commitments around Indonesia's NDC and NZE.
Industrial and sector policies for greening	Orange	Industrial and sectoral policies have been established, but need alignment in accordance with the transition target. An NZE target has been set, but a clear road map for energy transition is still being developed.
Enterprise policies and initiatives for greening	Orange	Policies to promote enterprises in investing in and shifting to greener energy systems are available (especially for financing, incentives and awareness); however, many crucial aspects necessary to ensure a conducive investment climate are still missing.
Skills development for greening	Orange	Emerging and partial initiatives had been implemented, especially in TVET, but comprehensive planning and policies for skills development to support green jobs and energy transition are lacking.
ALMPs for greening	Grey	No ALMPs specifically intended to encourage green jobs and assist in a Just Transition are available.
OSH related to climate change issues	Orange	ILO Convention No. 187 and the MLC, 2006, have been ratified, but implementation has only focused on curative action. Social dialogues to address OSH for climate change issues are emerging at the tripartite and bipartite level.
Social protection	Orange	The ILO Social Security (Minimum Standards) Convention, 1952 (No. 102), has yet to be ratified, though an unemployment benefit has just been introduced. Labour protection focuses on formal employment via a formal mechanism, despite the persistence of large-scale informality in employment.

Policy area	Readiness	Notes
Cross-cutting issues: labour rights and standards and social dialogue processes in greening		ILO Convention No. 144 on social dialogue and tripartism is in force and effective for industrial relationships, but the involvement of tripartite constituents in the green economy – especially in regard to energy transition planning and policy – is very limited.

The current developments on the policy directives and regulation on the energy and climate sector demonstrate the commitment from the Government for a cleaner energy transition. The Government of Indonesia has started to solidify their approach for achieving its NZE target, with energy transition becoming the main strategy, albeit with an indefinite plan and target to date. Given this situational context, it is critical to plan an energy transition that ensures the mitigation of negative impacts in the world of work and that achieves an inclusive transition that will leave no one behind. The following sections are organized around the three high level categories for promoting green jobs: (i) creating demand for green jobs; (ii) creating supply for green jobs; and (iii) institutional arrangements.

5.1.1. Creating demand for green jobs

Establishing an operational definition for green jobs in Indonesia

The absence of guidelines for a uniform conceptual and operational definition of green jobs leads to various consequences that hamper the promotion of green jobs and Just Transition planning, from the process of data collection, coordination and alignment between sectors to policy formulation and awareness raising and dialogue between actors. To ensure an appropriate Just Transition process, the Government needs to define a workable definition of green jobs as jobs that both contribute to sustainability but also include ILO decent work standards, contextualized with the needs and conditions of the country.

One approach to set up the definition is by using a sectoral and spectrum approach to identify core green, indirectly green, and non-green occupations across different sectors and geographies. This approach can also be combined with an activity/task-based approach to ensure that the definition includes processes that are necessary for greening but fall outside the green sectors. This definition is critical for developing transition planning, analysing employment impacts, and developing green skills, all of which are critical for the planning and policymaking process. As suggested by the regional report, a commonly agreed definition for green jobs across ASEAN Member States is recommended, as it would allow for knowledge sharing of green jobs analyses across the region and allow countries to leverage other ASEAN Member State's understanding of green jobs in various sectors, further accelerating knowledge and evidence for policymaking and support (ASEAN and ILO 2021, 81–82).⁵² However, at the operational level, the definition can be contextualized via factors such as data availability, the national statistics approach, and employment profiles (for example, when designing the decent work criteria or to account for informality in employment).

52 The definition green jobs was proposed to as one of the thematic topics for discussion at the subsequent ASEAN Green Jobs Forum. The purpose of the Forum is to accelerate collaboration and cooperation across ASEAN Member States in initiating and achieving the actions under the ASEAN Green Jobs Declaration adopted at the ASEAN Summit in Nov 2018. The first Forum was hosted by the Government of Malaysia in October 2020, and featured the participation of the tripartite constituents of ASEAN Member States. The Forum has now been institutionalized into an annual subregional exchange platform dedicated to green jobs and Just Transition promotion. The regional green jobs policy readiness assessment was presented and validated at the Forum in October 2020.

Given the current progress on setting up a policy for green jobs, BAPPENAS can join forces with the Ministry of Manpower in setting up the guidelines for defining green jobs in coordination with BPS and sectoral ministries and in consultation with workers' and employers' representatives. Specifically for designing the decent work indicators, the constituents can work based on the minimum criteria that cover the fundamental principles and rights at work in order to develop the appropriate proxies, such as those that had been developed by Viet Nam. For ensuring comparability, collaboration among the ASEAN Member States to agree on a common and workable definition of green jobs can also be pursued as a follow up to the ASEAN Green Jobs Declaration in upcoming years, particularly when Indonesia holds the ASEAN Chairmanship.

Using the definition of green jobs to collect data and analyse labour markets

Definitions and categorization of green jobs, especially definitions that consider greening on a spectrum, will allow for the identification of and data collection on jobs that can and will transition and those that will phase out. This will allow for Just Transition planning to take place.

To ensure the inclusivity of the process, it is also important to investigate the gender, age and regional dimensions of the labour market segments potentially affected by the transition. People who are socially, economically, culturally and institutionally marginalized are particularly vulnerable to the impacts of climate change. This includes low income and low-skilled workers, workers in informal employment, and women. Gender-responsive policies for green jobs and skills are necessary to ensure women have equal access to these jobs.

At the other end, since the impact of the energy transition on employment will likely vary in relation to the economic activities along the supply chain related to electricity supply and demand across geographic regions, the data collection needs to also address sectoral and geographical disaggregation. Data collection can be prioritized for the identified selected sectoral and geographic hotspots identified in chapter 3 and in accordance with the government plan for energy transition. The information collected from this process will enable policymakers and related stakeholders to address challenges faced by sectors, cities and regions in transitioning to cleaner energy and ensuring a decent future for workers affected by the transition.

Ideally, the data collection needs to be done frequently to measure progress and allow for evaluation processes. The collection can be centralized and integrated within the established workforce surveys conducted by BPS; while evaluation and reporting can be done using a sectoral approach led by the line ministries, since the transition will likely induce economy-wide impacts. In addition, specific sectoral and subnational data collection can be conducted by related policymakers, that is, the line ministries and subnational governments can update existing information systems, such as the Labour Market Information System (LMIS) under the MOM or the National Industrial Information System (or SIINAS) under Ministry of Industry. Employers' organizations, especially within impacted sectors/industries, and trade unions can also conduct their own data collection processes to start planning measures necessary for enterprises and workers to respond to the transition plan.

Conducting necessary assessments related to employment important for Just Transition planning

Currently there is a lack of relevant assessments and information to support evidence-based policy and planning for a Just Transition. The ILO tripartite consultation in May 2021 concluded that key topic areas critical for Just Transition planning that are still lacking information include:

- sectoral employment impact and labour protection analysis;

- potential sectors and enabling dynamics for economic transformation;
- fiscal incentives; and
- green jobs potential and skills needs assessment.

This information is essential for government to formulate a comprehensive policy framework to develop a just energy transition plan, and would inform stakeholders so they can be active participants and mobilize resources to ensure a smooth transition process.

However, a more concrete and detailed policy on the energy transition road map/plan that is legally binding will be imperative for the assessment to be conducted.⁵³ In this regard, aligning the energy transition plan to the National Energy Grand Strategy (GSEN) or other legally binding mechanisms needs to be prioritized by the MEMR. In addition, to ensure Just Transition planning that can mitigate adverse employment impacts, the involvement of employment actors within this process is necessary; this can be achieved by involving the MOM in discussions on policy development processes on the energy transition, as the Ministry can serve as a focal point for presenting workers' and employers' aspirations within this process. Currently, however, the MOM is not part of the National Energy Council (DEN).

Moreover, since the impact of the energy transition on employment will differ in various industries and regions that are related to the transition plan, a disaggregated analysis focusing on the sectoral and regional hotspots will also be needed. This is particularly necessary given that different sectoral contexts, decentralized power structures, and cultural differences will likely have an impact on the Just Transition process, especially given the anticipated social transformations. This analysis can be done by the respective policymakers and stakeholders, and can also be supported by development partners and community-based organizations, as well as academics. In addition, the choice of technology for emerging sectors triggered by energy transition implementation will also shape the employment impact. The introduction of digital technology into businesses may trigger a shift of value from labour to capital (that is, the number of jobs created may be less than the number of jobs eliminated), and addressing this will require personnel with certain skills. Therefore, the sectoral analysis should also take into consideration the different technological choices when assessing the potential employment impact. The information gathered from this process will assist planning and coordination at the sectoral and regional level to help create contextualized and appropriate measures in response to the energy transition, depending on the state of the ongoing process.

Concerning guidance at the national level, given the absence of a national employment road map or strategy for green economy, the plan from the MOM to develop a National Action Plan (NAP) for a Just Transition can serve as a starting point for planning a Just Transition for the workforce in the energy sector. The process for developing the NAP needs to be done in collaboration with BAPPENAS at national level and with other related ministries at the sectoral level, and it should be informed by BAPPENAS' programme for developing a road map for green jobs.

5.1.2. Creating supply for green jobs

Linking skills programmes with the green jobs and Just Transition agenda

Skills for green jobs are critical for a just energy transition. Green-skilling programmes may provide protection for affected workers and communities by providing the means to equip

53 Interview with APINDO, MSOEs, and Trade Union's representative

them to re-enter the labour market or to adjust to the new requirements within their occupation as a consequence of the energy transition. Such programmes will also prepare the future workforce to acquire necessary skills and knowledge to fulfil the job demands created by the transition. Therefore, just energy transition planning should also cover:

- green-skilling that touches upon both re-skilling and up-skilling to ensure that workers can survive the transition;
- skilling for communities whose livelihoods will be directly affected by the transition process; and
- inclusion of the necessary skills and knowledge in both formal and non-formal education systems in order to prepare the future workforce.

Currently, there is a lack of planning and initiatives to prepare the workforce to respond to the energy transition. Ongoing initiatives are dispersed and try to deal with greening the economy in general. Current policy is not being executed in systemized manner, as some programmes are not being guided by the comprehensive national agenda or anticipating industry needs. Within policy level, the condition is somewhat similar with the previous analysis conducted by the ILO (2018c), but progress is arising within activity level. However, there are potential area to be optimized especially in the TVET where current system (including programmes managed by the BLKs and industry-led initiatives) can be leveraged to accommodate the needs while steps in embedding the skills via formal education in the secondary and tertiary level also needs to be started. Available programme in the enterprises' level, project-based programmes including those that were supported by the development partners, and green-skill certification programme can also be synergized with the overall effort in anticipating the skill needs.

The NAP for a Just Transition in the workforce can be the basis to link skills programmes with the green jobs and Just Transition agenda. The NAP can identify the employment needs and gaps and lay out a strategy for skills development for green jobs. The process of developing the plan should involve potentially impacted companies, business and professional associations, and TVET institutions, and be done in consultation with employers' and workers' organizations. Given the energy transition plan, prioritization can be provided for sectors that are already predicted to be impacted, namely industries around electricity supply and demand. Specific provision should also be made on skilling programmes for youth and female workers due to the high level of NEET youth and the large untapped employment opportunity that female workers represent.

The skills development strategy derived from the road map and the NAP can be used to plan more programmatic actions, such as:

- occupational mapping;
- alignment with the national qualification framework (SKKNI);
- designing training programmes, specifically through TVET institutions, including programmes managed by government-run Vocational Training Institutes (BLKs) and industry/enterprise training systems (on/off-the-job training); and
- embedding green skills into formal education (from primary to tertiary).

Strengthening social protection and integrating a Just Transition via ALMPs

A Just Transition requires social protection for workers negatively affected by decarbonization, as well as investment in their communities to sustain and vitalize their future. Specific measures needed include income security and job transition measures for workers, as well as skills development measures for workers to take up new green job opportunities (ASEAN and ILO

2021, 29). Indonesia's current social protection policy is arguably better compared to a decade ago; however, several problems persist that continue to make the social protection scheme suboptimal. Unfortunately, this hurts the most marginalized segments of society the most, especially workers in the informal sector. Current social protection levels may also be insufficient to protect workers within formal employment that might be affected by an energy transition. For example, the effectiveness of the unemployment benefit scheme, which provides cash stipends and training to the unemployed, is being questioned, with several identified problems, including the registration process, the procurement of training providers, the substance and methods of the training provided, and the lack of evaluation metrics (Nurita 2020).

On a macro level, various stakeholders have raised the need to streamline current social protection (including the unemployment) system. This needs to be done by evaluating the overall social protection system in regard to its labour market interventions, social insurance and social assistance⁵⁴ in order to identify overlaps or deficiencies (ILO 2022b). This necessity has become more urgent with the development of a new regulation (that is, the Omnibus Bill) that directly affects the social protection system and various social assistance programmes. With the energy transition plan in the pipeline, it is necessary to identify the specific measures to support affected workers and communities (such as the social assistance indicated by ILO (2022a) study on the impact of coal phase out on jobs), but in a way that does not create overlaps with other efforts.

Closely related to the issue of social protection, is the needs to mainstream the green jobs and just energy transition agenda into active labour market policies (ALMPs).⁵⁵ Current policy development has arguably prompted the labour market to become more flexible than ever. Measures to support workers affected by the energy transition process to enable them to re-access the job market are necessary to mitigate negative social impacts of the transition. Intervention via ALMPs can be focused on improvements in terms of access to job opportunities, training programmes and job counselling, which can assist people to find replacement jobs or improve their skills, and these policies should specifically targeted towards groups impacted by the energy transition. In addition, the development of renewables and the transition of industry, especially in mining and quarrying, will also involve massive infrastructure development. This necessity may open up opportunities to design public works programmes and public employment programmes that can be directly linked to affected workers and community, and which need to be designed with particular care.

5.1.3. Institutional arrangements for social dialogue and policy coherence

Raising knowledge of and capacity on a Just Transition among the tripartite constituents and policymakers

The study documents that there are growing concerns on the asymmetric level of information on and awareness of a Just Transition and what it entails. Different stakeholders may possess different understandings about what a Just Transition is, and knowledge about appears to still be scarcely available among many stakeholders. In order to mobilize support and ensure meaningful participation from workers and business owners, awareness-raising and capacity-

54 These include, among others: JKK – worker injury benefits; JKM – death benefits; JHT – old-age benefits; JP – pension benefits; and Tapera – housing benefits.

55 ALMPs cover all government interventions that help the unemployed to find work, including public employment services (for example, job centres), skills training schemes (including technical and vocational training), and employment subsidies.

building that target them is essential. In addition, capacity-building for policymakers is also critical, since Just Transition planning will require a new set of skills for many of them.

In the level of practice, there is a need to change the view of capacity development. Programmes designed to leverage capacity need not be limited to training, education and awareness-raising activities only. The discussion process among related stakeholders within all transition stages can also provide a good avenue for not only developing capacity, but also for co-creating knowledge and solutions that are more inclusive. Efforts to promote discussion at the enterprise level – both via bipartite forums or other dialogues between management and workers – in order to identify ideas and innovations required by the enterprise to transform the business in the face of the energy transition can be perceived to be a good opportunity that not only able to empower workers, but also benefit the enterprise.⁵⁶ Collaboration between trade unions and employers' organizations (or individual enterprises) can also be effective in bridging the two sides' understanding on issues related to greener business and a Just Transition.⁵⁷ Therefore, promoting and mainstreaming Just Transition issues within these dialogues can be beneficial in reducing asymmetric information between stakeholders while also raising their capacity.

The same holds true in the policymaking process. Dialogue forums and interactions between policymakers and their constituents while planning a Just Transition not only ensure an inclusive process but also develop the capacity of policymakers, especially in regard to identifying problems and designing solutions. Dialogue can also create a space for human-centred innovation within the policymaking process.

Ensuring coherence and coordination among policymakers especially when aligning sectoral development with employment policies

Despite the development of policy at the macro and sectoral levels – including development policy, macroeconomic policy, environmental policy, and energy sector policy – there is still no connection between these sets of policy with employment policy. Climate measures do not yet consider their employment effects, and the development policy, although it has projected the employment impact, is still not aligned with addressing these impacts to reach an employment target. The energy transition road map that is currently under development by the MEMR also does not specifically touch upon the employment effects that it could trigger. This state of affairs poses major concerns about planning a just energy transition that can manage social impacts, especially those related to employment and livelihoods in affected communities.

As previously mentioned, there is a need to strengthen coordination between related ministries. To address the employment impacts of the energy transition plan, the MOM needs to be involved in the development of the energy transitions regulations being spearheaded under the MEMR and DEN, in addition to starting to prepare their own policies that respond to the planned transition. Line ministries also need to start aligning their sectoral policies to ensure that industrial policies (including regulations related to renewables, transportation, green industry, trade and fiscal policy) are in accord with Just Transition planning. Further, to ensure the implementation of the transition process and to strengthen coherence, BAPPENAS needs to streamline the energy transition into the next national development plan (RPJMN 2025–2029), which will guide the policy development within line ministries.

⁵⁶ Statement from the employers' representatives during the Social Dialogue Forum for a just Transition in Energy and Garment Sectors, 28 October 2022.

⁵⁷ Interview with trade unions' representative.

Establishing effective mechanisms for social dialogue is necessary for a Just Transition

The social dialogue process is especially important given the fact that knowledge of and awareness on climate change impacts and a Just Transition are unevenly shared. This imbalance in awareness is particularly critical given an apparent lack of consideration around employment impacts in the current policy strategy and framework revolving around the green economy and energy transition. One of the key strategies for attaining a Just Transition, as laid out by the Government, emphasizes the need to enhance participatory public dialogue to foster high employment rates, adequate social protection, labour standards, and the wellbeing of workers and their communities. This strategy rightly highlights that establishing an effective mechanism for a social dialogue process is very critical for a Just Transition, not only in the planning process, but across all stages.

The tripartite constituents consisting of the MOM, employers' organizations, and workers' organizations (trade unions) are all in agreement on the need to promote social dialogue process on a Just Transition and to develop effective mechanisms on how to feed the results of social dialogue processes into Just Transition planning.⁵⁸ There is ongoing mechanism for tripartism anchored in the legislation in Indonesia, and this mechanism is perceived to be effective in facilitating participatory discussion for employment and industrial relations policy – but the mechanism rarely touches upon wider issues, such as the energy transition. That tripartite mechanism should come into play here as well; indeed it should be expanded upon. Given that the energy transition process will trigger structural changes that will affect not only jobs, but the wider economy, the dialogue process needs to be extended beyond the typical tripartite constituents, but also other relevant social partners, such as sectoral regulators, communities and academics. Given this context, it is necessary that stakeholders agree on a social dialogue mechanism that will be effective for ensuring a Just Transition in the energy sector and also agree on how to institutionalize this mechanism to ensure that it remains relevant moving forward.

5.2. Changing roles for actors in the energy Just Transition and the way forward

A Just Transition will require system-level change. It is hard for individual actors to achieve impact alone, no matter how good they are. Climate change poses a grand challenge that needs to be tackled using a new paradigm that is inclusive, mission-oriented, and puts people at the centre of its design (Mazzucato 2021, 130–131). An energy transformation will create structural changes; it is not just about a transition towards more sustainable and environmentally friendly energy system, but also about transforming the whole economy and social landscape related to it.

Put this way, a careful and well-planned energy transition that considers economic, social and environmental impact is imperative. In Indonesia, it has become more crucial since the energy transition is imminent, although there is still no legal certainty on the detailed plan and timeline. Planning is needed to mitigate the negative externalities that may arise as a by-product of the transition process. This is especially true in the world of work, as an energy transition will likely affect – directly and indirectly – workers, business owners and elements of society whose livelihoods are dependent on the energy sector's value chain. Therefore, energy transition planning should include labour considerations in policy development and implementation, to ensure that such a transition results to a sustainable economy and the future that we want.

⁵⁸ Tripartite validation conference and interviews with APINDO, trade unions, and MOM representatives.

After successfully hosted the 2022 G20 meeting, Indonesia is on the right path on delivering the energy transition. The event produced the Bali Communique,⁵⁹ which addresses the urgency for a rapid transformation and diversification of energy systems that advances energy security and resilience and promotes market stability by accelerating and ensuring clean, sustainable, just, affordable and inclusive energy and flows of sustainable investments. The G20 meetings also delivered important documents including the Bali Compact and the Bali Energy Transition Roadmap, which emphasize the commitment of G20 countries to taking leadership in finding solutions to ensure the envisioned energy transition, including providing support for a just process.

In accordance with this commitment, Indonesia and the International Partners Group (IPG), co-led by the United States of America and Japan, and including Canada, Denmark, France, Germany, Italy, Norway and the United Kingdom of Great Britain and Northern Ireland, agreed on the Just Energy Transition Partnership (JETP) that was also launched during the G20 Summit (European Commission 2022). The Partnership aims to support the acceleration of Indonesia achieving NZE by 2050 (Indonesia, Government of Indonesia and European Union 2022). It aims to mobilize an initial US\$20 billion in public and private financing over a three-to-five-year period, using a mix of grants, concessional loans, market-rate loans, guarantees and private investments. Half of this sum, \$10 billion, will be mobilized by the IPG members. In addition, the energy transition plan will also be supported through the Government's Energy Transition Mechanism (ETM) Country Platform, which has earned a commitment of US\$500 million from various development partners and private sector actors (Indonesia, Cabinet Secretariat 2022). The ETM fund ultimately aims to mobilize more than US\$4 billion in financing to accelerate the early retirement of fossil fuel power plants.

With the strong commitment both from the Government and internationally for an energy transition in Indonesia, public policy will be critical in creating an enabling environment for a Just Transition; both by providing minimum standards and rules for the game, as well as encouraging innovation and incentives for change that need to cover both the demand side (such as by funding procurement and financing) and the supply side (such as training and skill development) in addition to encouraging markets for environmental goods and services. The expert view is that to achieve its energy transition ambitions, Indonesia needs regulation to disincentivize the coal industry and incentivize renewables, clear commitment and communication, and institutional reforms to be put into action in realizing the plan – including ensuring a smooth transition for coal workers. In addition, some also view the current energy transition plans as lacking proper supervision, that ultimately risks the process ending up devolving into a business as usual scenario (Faridz 2022).

To develop an inclusive policy, it is important to engage social partners at all levels. Active participation from the tripartite constituents in energy transition planning is important, and there is a pressing need for social dialogue between employment actors and sectoral policymakers. However, current Just Transition governance in Indonesia is somewhat characterized by a government-led technocratic process in which the role of national social dialogue is limited (ILO 2022c). A working mechanism that allows for such a dialogue process is therefore something that needs to be prepared.

Of course, a just energy transition should also be an affordable process. In fact, affordability is the *sine qua non* of any transition process.⁶⁰ However, the issue on how to finance a transition process and how much resources can be mobilized for it – including the actors that are willing to engage in it – should be discussed after there is a greater understanding of the different stakeholders' positions on a Just

59 The full text of the Communique is available at: <https://web.kominfo.go.id/sites/default/files/G20%20Bali%20Leaders%27%20Declaration%2C%2015-16%20November%202022%2C%20incl%20Annex.pdf>.

60 As per the presentation of ILO Director-General Guy Ryder during the PAGE high-level discussion on Green Recoveries for a Job Rich Future, 9 July 2021.

Transition. Discussion and prioritization are very critical for planning such a massive transition.

To date, labour policy and labour considerations are still somewhat missing in the discourse around a just energy transition, and it is therefore important to initiate consultative forums that bring together the tripartite constituents and related stakeholders in the energy and environment sectors. These forums may provide avenues to understand different perspectives, identify priorities from each partner, and optimize resource mobilization to support the Just Transition process. Such forums may also be a starting point to trigger further social dialogue processes that can hopefully promote a Just Transition in the energy sector. In the long term, to ensure the effectiveness and inclusivity of the social dialogue process, as well as the incorporation of stakeholder aspirations into public policy planning, the effort to institutionalize the social dialogue process will also be critical. The social dialogue process finds urgency when we consider the breadth of the aspects affected by, as well as the length of the period needed to manifest, the energy transition.

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ANNEX

Annex 1. List of consulted stakeholders

No	Name of organization	Type
1.	Ministry of Manpower - Cooperation Bureau - Directorate for Employment Supervision and OSH - Centre for Employment Policy Development - Centre for Vocational and Productivity Training Development	Government
2.	Ministry of National Development Planning/BAPPENAS - Directorate for Employment - Directorate for Environmental Affairs - Directorate for Energy, Mineral, and Mining - Directorate for Electricity, Telecommunication, and Informatics	Government
3.	Ministry of Energy and Mineral Resources – Directorate for New and Renewable Energy	Government
4.	Ministry of Industry – Centre for Green Industry	Government
5.	Ministry of State-Owned Enterprises: - Mining Industry - Energy and Oil and Gas Industry	Government
6.	Financial Service Authority (OJK), Sustainability Finance Task Force, Integrated Policy for Financial Service Group (GKKT)	Government
7.	APINDO: - Energy and Mineral Resources Desk - Public Policy Desk	Employers' organization
8.	PT PLN	State-owned power utility company
9.	Mr Stefanus Oetomo, Automotive Expert	Individual expert
10.	K-SBSI: All Indonesian Trade Union Confederation	Labour union
11.	K-SPSI - AITUC: All Indonesian Trade Union Confederation	Labour union
12.	K-SPI: Confederation of Indonesian Trade Unions	Labour union
13.	Coaction	Community-based organization

Annex 2. Interview guide

These questions form a guide for interviews

This assessment aims to review and provide a snapshot for the green jobs and Just Transition policy frameworks and activities at a macro level and to assess the readiness level within the energy sector. The assessment will include policy coverage and policy coherence, skills gaps and areas of recommendations.

The assessment is part of the ILO support for the Partnership for Action on Green Economy (PAGE) Indonesia – a collaboration between five United Nations agencies (UNEP, ILO, UNDP, UNIDO, and UNITAR) that aims to accelerate progress towards inclusive, green and sustainable development in the partner countries, with the Ministry of National Development Planning/BAPPENAS as the government focal point. As part of this research, ILO consultants will interview selected stakeholders about green jobs and a Just Transition in the energy sector in Indonesia. The following questions will guide the discussions:

1. Can you tell me about your role and how your organization has been involved with/supporting energy transition and/or green jobs creation?
2. How do you think about the awareness/understanding level on green jobs, a Just Transition, and energy transition within your organization and/or stakeholders?
3. How do you think the current policy framework, especially in relation to your organization's function, performs in supporting a just energy transition? What are the positives, and where are the gaps – can you give examples?
4. What is the degree of coherence/alignment between policies on the macroeconomy and development, energy and environment sector, and employment/labour sector? Which areas do you identify as having strong coherence and which areas are still lacking, and what prevents coherence in these cases?
5. What do you think would be the ideal institutional arrangement/coordination to support a just energy transition in Indonesia? How would it need to perform to link the macro-sector (environment and energy) and employment areas (labour market policy, skills and training)? Are there any best practice examples of the mechanism? These can be Indonesian or international.
6. To what degree are social dialogue processes used in the discourse and policymaking process on green economy and/or a just energy transition? What about the involvement of world of work actors (sectoral ministries, businesses, and trade unions)? Should there be limited social dialogue and stakeholder participation? What are the barriers, and how can it be improved?
7. Thinking about Indonesia's NZE and energy transition targets – what needs to change in our existing policy framework and institutional arrangement to achieve this? What else needs to be in place?
8. What is going to be the most challenging aspect? What is the most immediately actionable?

Annex 3. Highlights from the Just Transition Dialogue for Energy and Textile and Garment Industries in Indonesia – PAGE Indonesia and Decent Work in the Garment Supply Chain in Asia (DWGSCA)

Key messages

- The importance of social dialogue in creating decent jobs that are green, while ensuring that workers impacted in the garment and energy sectors can make a substantive contributions in the planning and implementation of a Just Transition strategy.
- Meaningful social dialogue would help policy design, implementation and evaluation of a Just Transition
- Emerging economies such as Indonesia contextualize tripartite dialogue to their country's circumstances.
- Strengthening policy alignment, which will also enhance the interest of investors and lenders to co-finance a Just Transition.
- The critical need for consistent planning for a Just Transition in the garment sector.



1. Country context

Economic outlook

Indonesia has experienced stable economic growth over the past decade, transforming the country into one of the largest economies in Asia. Indonesia's economic growth has been accompanied by labour market outcomes wherein the unemployment rate hit a five-year low in 2019. However, there is growing concern that the country's progressive development is unsustainable due to its heavy reliance on the vast exploitation of natural resources, which results in negative environmental impacts and social problems nationwide (Indonesia, BAPPENAS 2019).

These concerns have been exacerbated by the COVID-19 crisis, which curtailed Indonesia's economic growth and led it to fall from upper-middle income nation status to lower-middle-income status as of July 2021. This, in turn, affected the labour market, wherein employment trends have become unfavourable compared to pre-pandemic levels, with the unemployment rate rising to 6.5 per cent (by August 2021) and labour income losses remaining prevalent despite the economy's rebound since early 2021 (World Bank 2021). These negative effects are weighing disproportionately on marginalized and vulnerable groups, including youth, women and informal workers (ILO 2021), posing greater risk of widening inequality.

Climate action

The current economic and social challenges have not halted the Government of Indonesia's efforts to strengthen its climate commitment and related shift in approach to low carbon and greener economy development. Under the Ministry of National Planning (BAPPENAS), Indonesia has adopted the Low Carbon Development Initiative (LCDI) agenda, mainstreamed into the Middle-Term National Development Plan (RPJMN) 2020–2024. Moreover, during COP26, the Government submitted its updated NDC, which showcased increasingly ambitious goals on GHG emission reductions. These targets were elaborated in the LTS-LCCR 2050, which aimed at reaching the peak of national GHG emissions in 2030, having the forest and land-use sector be a net-sink by 2050, and reaching net-zero emissions (NZE) in 2060 – or sooner (Indonesia, Government of Indonesia 2021a). To achieve these emission targets, energy transition has become one of the key strategies – making the energy sector one of the hotspots for green economy efforts. Other sectors, such as textiles and garments, are also key to the agenda, not only as they are at the root of local pollution, but because they also contribute to GHG emissions due to energy consumption, transport and so on.

Just Transition

To achieve Indonesia's climate ambitions, the LTS-LCCR 2050 also adheres to implementing an approach that ensures a Just Transition. The strategy is aligned with the previous commitment that the country signed on to via the Solidarity and Just Transition Silesia Declaration (2018). One of the key strategies to achieve a Just Transition in Indonesia is to enhance participatory public dialogue to foster high employment rates, adequate social protection, labour standards and the well-being of workers and their communities (Indonesia, Government of Indonesia 2021a). Within this effort, the promotion of social dialogue is a centrepiece.

Just Transition planning will need to map out: how the intended sectors and/or regions accomplish decarbonization and the SDGs; how workers, enterprises and communities that will be impacted; as well as how to develop and negotiate a road map and investments to help support workers and enterprises make this transition successfully. Actors in the world of work in the related industries and/or regions have the potential to tackle the challenges these industries are facing and contribute to fair and inclusive outcomes through adjustments and restructuring processes.

Planning for this transition is a knowledge- and resource-intensive process. If undertaken properly, it can provide green job creation through decarbonization and adaptation activities. It also means that the workers, firms, communities and sectors affected by the need to decarbonize and the resulting changes receive the support, information, training and capacity they need to transition successfully. Timely technical support in the form of information, guidance and training can greatly enhance the quality and results of Just Transition pathways. To this end, the Just Transition Dialogue for Energy and Textile and Garment Industries in Indonesia workshop was part of the support provided by the Decent Work in the Garment Supply Chains in Asia (DWGSCA) project funded by the Swedish International Development Cooperation Agency (SIDA) and the Partnership for Action in Green Economy (PAGE) Indonesia. The DCWGSA aims to contribute to decent work and environmental sustainability in the garment sector; while PAGE brings together the specialized expertise of five United Nations agencies (UNDP, ILO, UNEP, UNIDO, and UNITAR) to accelerate a Just Transition to a low-carbon, resource-efficient, nature-friendly and socially inclusive economy. In Indonesia, one of the key sectors supported by PAGE is the energy sector.

2. Aim and objectives of the workshop

The aim of the workshop was to promote the social dialogue process for Just Transition planning while improving the capacity of social partners to be actively involved in the process. The workshop was focused on the social partners relevant to the sectors supported by both projects, namely the energy sector and the textile and garment sector.

The specific objectives of the workshop were to:

- Facilitate a social dialogue process for a Just Transition among the energy and textile and garment industry constituents and other relevant stakeholders to promote further dialogue processes necessary for Just Transition planning.
- To strengthen the capacity of relevant social partners in Just Transition planning processes by discussing relevant key concepts and benchmarks from other regions.
- To identify the specific sustainability and Just Transition issues and context for Indonesia, and how these could enable and/or challenge Just Transition planning processes.
- To identify the priority of prospective actions from each social partner as well as further areas of support from the ILO for promoting a Just Transition in the energy and textile and garment sectors.

3. Environmental impacts of the textile and garment sector

The textile and garment sector has significant negative environmental impacts. These impacts are concentrated at certain points in the supply chain, particularly in four areas:

- i. weaving, dyeing and finishing processes in textile manufacturing;
- ii. energy use throughout the supply chain, but concentrated in textile manufacturing and to a lesser extent in garment assembly;
- iii. textile waste associated with garment assembly; and
- iv. transport emissions throughout the supply chain, as materials and then final products are shipped globally.

The most significant impacts, however, are within the first two areas, with the main impacts deriving from the intensity of water resources and chemical use (including toxic chemicals), waste water discharges and lack of treatment processes, as well as energy use and the carbon intensity of electricity generation.

Textile manufacturing is very water- and chemical-intensive. The growth and sustainability of the sector is highly dependent on how resources are managed. The textile industry in general has an enormous water footprint ranging from agricultural water consumption for cotton farming, to water consumption in textile printing, dyeing and finishing. The sector is one of the largest users of fresh water in the world, consuming an estimated 79 billion cubic meters of fresh water annually across the entire value chain (United Kingdom, House of Commons, Environmental Audit Committee 2019). As textile production is prevalent in countries that already have insecure water supplies, water crises are forecast in several textile-producing countries.

The sector is also responsible for severe water pollution by discharging large volumes of wastewater containing hazardous substances into rivers and water courses without appropriate treatment. It is reported that 20 per cent of industrial water pollution globally is attributable to the dyeing and treatment of textiles (EMF 2017).

Moreover, the increase of fast fashion has stimulated demand for fast, cheap and low-quality goods. Both the growing volume of garment production and how these garments are used and disposed of have resulted in increasing climate change impacts stemming from the garment sector. Between 2005 to 2016, the climate impact of various production stages in the apparel sector increased by 35 per cent and is projected to continue to increase under a business-as-usual scenario (Quantis 2018).

The carbon footprint from the sector is significant, with calculations estimating the sector accounts for more than 8 per cent of total global emissions (Quantis, 2018). The carbon intensity of production is directly related to the carbon intensity of electricity supply in production countries. Over 60 per cent of textiles are used in the garment sector, and a large proportion of garment manufacturing occurs in China and India. India relies heavily on hard coal and natural gas for electricity and heat production, sharply increasing the carbon footprint of each apparel product.

The Paris Agreement sets out to limit global warming to less than 2 degrees Celsius above pre-industrial levels, with the preferable target of limiting warming to 1.5 degrees. The emission reductions associated with achieving this goal are significant – to reach this target, global emissions will need to decline by about 45 per cent (on 2010 levels) by 2030 and be at net zero by 2050.

Garment sector stakeholders came together in 2018 to commit to climate action through the United Nations Framework Convention on Climate Change (UNFCCC) Fashion Industry Charter for Climate Action. Signatories to the Charter commit to 30 per cent greenhouse gas (GHG) emission reductions by 2030 (from a 2015 baseline) and net-zero emissions by 2050. This is a significant challenge – realizing this 30 per cent reduction in the sector's emissions would require a reduction of more than half a billion tonnes of carbon dioxide across the sector per year by 2030. Meeting this challenge will require system-level changes in the production and consumption of textiles and garments, and will likely have significant impacts on how and where garments are produced, and the employment associated with this production. The implications for decarbonization in the sector, and the ambition and timeline for this decarbonization to contribute to the Paris Agreement and commitments in the UNFCCC Fashion Industry Charter on Climate Action are clear. What is less clear are the adjustments that need to be made to working processes by manufacturers in Asia and their supply chains to reduce emissions.

Decarbonization of the sector will be closely related to the clean energy transition. Encouraging energy efficiency and switching to renewable energy sources, such as solar, hydro or wind power, can significantly reduce emissions and improve the sustainability of textile production. Although there

is growing pressure and scrutiny on major international brands and their decarbonization plans, it is these plans – together with national ambitions and strategies for clean energy transition, including energy efficiency incentives and standards – that will drive energy-related emissions reductions in the sector.

Indonesia has a comprehensive suite of regulations that promote environmental management practices in the textile and garment sector, and there are an emerging range of initiatives and support activities from the Government and development partners in piloting good environmental management practices. These regulations provide a good minimal standard, but performance that goes beyond minimum standards is not encouraged or incentivized. Regulatory compliance (including obtaining relevant environmental impact assessments) is high for accessing permits, but less so for ongoing reporting and monitoring.

The sector in Indonesia includes both textile manufacturing and garment assembly, and there is a strong divide between the two. Environmental impacts are concentrated in textile manufacturing, and as garment assembly work is labour-intensive work, sustainability activities are focused more on social sustainability and labour standards activities. However, with the increasing integration of social and environmental performance standards in brand requirements and export standards as part of free trade agreements this separation is becoming less relevant and could become a barrier in increasing the sustainability performance and international competitiveness of Indonesia textile and garment manufacturing.

4. Just transition for the future of work

The realization that climate policies can have a decisive and asymmetrical distributional impact among different groups of workers, as well as between women and men, has generated support for the concept of a “Just Transition”. Originating from earlier efforts in the 1970s by trade unions to protect and support workers in coal mining and fossil fuel industries that came under pressure in countries like Canada, the United States, Germany and Poland, the concept has broadened as a result of the growing recognition how climate change itself is affecting vulnerable groups most. Since the inclusion of the notion of a Just Transition of the workforce in the preamble of the Paris Climate Agreement in 2015, the concept has gained traction among governments, social partners and civil society. Increasingly, it is referred to more broadly to enhance equity and greater inclusiveness through the implementation of climate policies.⁶¹ The principal means to achieve this is by limiting job losses and optimizing employment gains and equity across the labour force, while ensuring social protection for those affected.

In accordance with their commitments to the 2015 Paris Climate Agreement, countries are adopting and implementing national strategies to reduce GHG emissions, to adapt to climate change effects and to protect the environment and natural resources for future generations. These strategies are leading to both positive and adverse changes for enterprises and workers (for example, in sectors like energy, construction, transport, forestry and waste management). Addressing these effects and ensuring social inclusion and equity cannot be an afterthought, but have to be central in designing and monitoring the policy responses. The societal goal of the transition is to have decent work for all in a low-carbon, climate-resilient society.

⁶¹ The G7 Development Ministers, for example, announced their support for Just Energy Transition Partnerships in their May, 2022 meeting in Berlin.

Promoting a “Just Transition” means creating fair and inclusive change in society that benefits all when taking climate change action and when implementing environmental policies and strategies. A Just Transition can be initiated by companies, trade unions, civil society and government. It can be realized at the factory level, sector level, provincial level or as a national strategy.

The ILO’s *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* prioritize social dialogue, institutional collaboration and policy coherence as prerequisites for realizing effective Just Transition strategies and plans at the national level. The Guidelines were formulated and endorsed by a tripartite group of Experts in 2015 and endorsed by the ILO’s global Governing Body, with equal voice for workers, employers and governments from its 187 Member States. A “Just Transition for the Workforce” was subsequently included in the 2015 Paris Climate Agreement.

The ILO Guidelines propose a suite of policy areas where action for a Just Transition can be initiated. They range from macroeconomic and trade policies, sector policies, active labour market and enterprise policies, and skills development to occupational and health policies and social protection. The actual resulting policy towards a Just Transition will differ from country to country and from sector to sector, given national circumstances and conditions. The relevance and strength of a Just Transition strategy will largely depend on the effectiveness of social dialogue and strong political leadership.

Increasingly, countries are shaping Just Transition strategies. Many of them focus on reshaping the energy sector, in particular to enable the phasing down of coal.⁶² Others have taken a whole-of-government approach, realizing that vulnerability to climate change and the need to take rigorous adaptation and mitigation measures will induce economic and social changes across all sectors and localities in the country.⁶³

In response to the demand for guidance on a Just Transition, several international agencies have documented best practices and developed tools and guidelines.⁶⁴ In respect to the textile and garment sector, the ILO has produced a toolkit for a Just Transition, with many practical applications.⁶⁵

5. Just Transition planning in action

Through social dialogue and stakeholder consultation, a strategy towards a Just Transition can be developed. For the elaboration of the strategy, the following issues should be taken into consideration:

- What are the issues and the drivers towards greater environmental sustainability in the country?
- What are the expected effects of environmental policies and market changes on enterprises, (informal) workers and communities?
- How can workers and communities be involved to steer the responses and actions?
- How can social inclusion and gender equality be ensured?
- What are the building blocks and whose input is needed to build a common strategy and shared action plan?

Addressing these questions, the following results emerged from the workshop interactions.

A. Context of a Just Transition in the energy sector

Indonesia has enacted its intention not to build new coal-fired power plants and to drive the transition towards clean energy in Presidential Regulation No. 112 of 2022 on the Acceleration

⁶² Examples are South Africa, Mexico and India.

⁶³ An example is The Philippines.

⁶⁴ See for example: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_826060.pdf

⁶⁵ See https://www.ilo.org/asia/media-centre/news/WCMS_806222/lang--en/index.htm

of Renewable Energy Development for the Supply of Power (signed by President Joko Widodo on 13 September 2022). The Regulation creates a broad enabling framework for the clean energy transition and calls for the drafting of detailed road maps and implementing guidelines. At COP26, the Government endorsed the global coal to clean power statement,⁶⁶ with reference to the new Presidential Regulation that can provide incentives for industry to develop renewable energy (for example, better pricing mechanisms and incentives) and thus is expected to accelerate energy transition.

As a consequence, employment in and around coal mining and related energy value chains will reduce over time. By contrast, jobs in renewable energy will increase as investment in renewable energy will continue to grow. There may be options to conserve employment through innovation in coal processing and alternative usage downstream ("*hilirisasi*"), thus contributing to greater sector sustainability. Collaboration with research institutions will be useful in this respect (for example, with the National Research and Innovation Agency, or BRIN).

Addressing challenges

- Government should commission impact employment assessments for different scenarios of phasing down coal from the national energy mix. Subsequent measures should be put in place to cushion the negative effects and maximize possible alternative employment opportunities in affected regions and communities.
- Workers should be actively engaged in this process through social dialogue. Where required, updated (re-)skilling programmes targeted towards workers and communities affected by the transition should be undertaken as co-investment for job creation. To boost demand for labour, incentives should be provided to mobilize investments in relevant industries.
- Employers must play a key role by investing and changing business models in response to changing conditions in energy markets. Workers, through their organizations, should be continuously involved, as they will be most affected by the transition. They should also be involved in bipartite discussions with employers on alternatives for business continuity and/or transformation.
- Efforts should be made to significantly improve the Labour Market Information System, which is currently not equipped to measure and anticipate green jobs and changes due to environmental and energy policies. As a result, the need for skills development and training is not identified adequately nor in a timely manner.
- Policies for the transition should be undertaken across all relevant ministries (Economic Affairs, Manpower, Industry, Environment and Forestry), with the Ministry of Energy providing strategic direction jointly with BAPPENAS. Policy coherence, which currently is lacking, is critical to planning and managing a Just Transition. Overall leadership should come from the President's Office, as the challenge and required response demands an overall, well-coordinated and decisive transition policy.

Specific responsive actions

- i. Undertaking targeted investment strategies for employment creation in affected areas/hotspots. This would include facilitation through a more enabling business environment with accessible permits, tax breaks and other incentives. The related ministries should play an active role, such as the Ministry of Finance, Ministry of Investment/Indonesia Investment Coordinating Board (BKPM), Ministry of Industry, and Ministry for Cooperatives and SMEs, under the guidance of the Coordinating Ministry of Economic Affairs, Coordinating Ministry of Maritime and Investment, and national development planning under BAPPENAS.

⁶⁶ <https://ukcop26.org/global-coal-to-clean-power-transition-statement>

- ii. Improving the capacity and role of labour market institutions through an improved labour market information system underpinning sound analysis of the workforce, informing demand side measures, and improving employability through skills development.
- iii. Reskilling and upskilling workers with funding from state budget and cooperation with private or development partners, in order to meet competency requirements in new and upcoming jobs, alongside recognition and certification of existing and new skills.
- iv. Promoting gender equality in the transition through sex-disaggregated analysis of employment impacts and through the use of remediating measures to address imbalances, for example, through targeted training programmes for women.

B. Context of a Just Transition in the garment sector

The textile and garment sector is under pressure to improve its environmental performance and contribute to lowering GHG emissions. As markets in developed countries impose “greener” import criteria, the demand in producing countries with high emission intensity will be reduced. This will erode profits and lead to job losses and poorer communities. As a consequence, tax revenues will diminish. Companies may sacrifice environmental safeguards and outsource to informal enterprises. Clearly, the garment sector needs to adopt more resource-efficient technologies and less polluting work practices. Where possible, renewable energy sources should be used.

Addressing challenges

- A road map (or model of change) for the transition of the garments sector should be developed to tackle: (i) the impact of changing market demand; and (ii) the effects on companies, workers, government at the national and subnational level, and communities.
- Policies should be undertaken across sectors in coherence with the impact of the transition, avoiding duplication and realizing synergies. Legal action (such as a presidential decree) should anchor such a linked-up policy approach.
- Social dialogue at the national level is a prerequisite for a Just Transition, as well as bi/tripartite dialogue at the company level. Workers need also to be involved in dialogue at the company level in responding to market demand to increase productivity and resource efficiency.
- Workers who are affected – including workers in the informal economy – should be supported by active labour market policies (ALMPs) including (re-)skilling and training. Complementary social protection provisions in the form of cash transfer assistance should be considered.

Specific responsive actions

- i. Improving regulations towards higher resource efficiency and renewable energy and improved waste management, including through incentives for companies and enterprises. Regulatory impact assessments (REAs) should be undertaken to avoid excessive overburdening of companies with the costs of compliance (organization, time and financial).
- ii. Encouraging investments and (digital) innovation by government (local and central), as well as renewables energy resources.
- iii. Empowering and supporting SMEs and promoting entrepreneurship, especially for redundant workers, where appropriate, in collaboration with the Ministry of Cooperatives and SMEs.
- iv. Mobilizing financial resources from public sources (national and subnational government) complemented by green finance from private sector of international organizations in order to enable the transition. Trade in carbon emission certificates and returns on investment and innovation could further contribute financing for the implementation of policies.
- v. Disseminating information to and raising awareness among the general public and formal educational systems (among others) about a Just Transition by involving civil society organizations, industry associations and academics. Communication mechanisms, including

social media, should be harmonized between the national level, hotspots, international brands and domestic enterprises.

Prioritization for a Just Transition strategy across economic sectors

Measurable actions should be initiated to develop the strategy and legal framework for a Just Transition in the context of the further development of energy and environmental policies and regulations. Some of these actions are:

- i. Measurable actions should be initiated to develop the legal framework for a Just Transition, possibly in the context of the current deliberations on the draft environmental bill and related legislation, such as those for conducting environmental protection (PP 22/2021)
- ii. A dedicated Climate and Just Transition Tripartite Committee or Commission should be established at the national level, with possible extensions at the subnational, sector and enterprise levels. This body should be separate from the current tripartite committee in order to fully focus on climate and a Just Transition. It should include all relevant stakeholders (tripartite plus). Related policy developments – such as the green jobs policy under BAPPENAS – should be taken in consideration in the work of the Committee with a view to enhancing policy coherence and institutional coordination.
- iii. The Committee should be established and coordinated by the President in order to achieve the highest level of effectiveness across policies and sectors concerned.
- iv. The key task of the Committee is developing a road map for a Just Transition for businesses, workers and communities. As part of this work, the costs of the transition should be assessed, based on sound analysis.
- v. An operational budget for the Committee should be allocated, possibly through state budget complemented by international development support.
- vi. The Committee should also act as a forum to anticipate and respond to market changes in order to maintain and strengthen the competitiveness of the Indonesian garment industry as well as its environmental sustainability.
- vii. Existing support programmes, such as the ILO/IFC Better Work programme, could be involved, in particular to strengthening the competitiveness of Indonesian factories in regard to exports. Other best practices in Just Transition management should be consulted and adopted as well, where appropriate.

6. Next steps (identified for specific actors)

As organizer of the workshop, the ILO should ensure that a meeting is held among the constituents to determine what steps could be taken towards the establishment of the aforementioned Climate and Just Transition Tripartite Committee. Informal consultations with staff advising the President could be held prior to the meeting. If desired, a small working group or task team could be put together under the auspices of the ILO Office.

Once there is agreement on how to set into motion the process of establishing the Committee, tasks should be assigned to develop the Terms of Reference of the Committee. Wider consultations with stakeholders could be undertaken to gauge the interest in participation among civil society organizations, academia and development partners. Consideration could be given to have the Committee institutionalize these interactions by way of a Partnership Forum for a Just Transition, for example.

Other follow up actions could include:

- Consultations with the Better Work programme to consider integrating the promotion of

environmental sustainability in their offer.

- Including the Just Transition workshop results and initiatives in the final stage of PAGE.
- Introduce a Just Transition and planning to constituents from Indonesia in other sectors and further strengthen work in this area by expanding its linkages to PAGE activities in the region, for dissemination and advocacy.
- Consider the inclusion of support for a Just Transition in the revised Decent Work Country Programme.

Workshop Agenda

MC: **Tendy Gunawan**, ILO CO Jakarta

Time	Activities
Day 1: Energy Day - Monday 24th October 2022 [13:00-17:30]	
60 minutes (12:00 – 13:00)	Registration and Lunch Participants to register their attendance and have networking lunch in the designated venue
20 minutes (13:00 – 13:30)	Welcome and introductions MC: Mr <i>Tendy Gunawan</i> ILO Jakarta Welcome by Ms <i>Michiko Miyamoto</i> ILO CO Jakarta (5 mins) Welcome by Ms <i>Cristina Martinez</i> , ILO ROAP (5 mins) Welcome by Ms <i>Diah ratna Pratiwi</i> , ILO PAGE Indonesia (5 mins) Overview of the aims and objectives of the workshop, plus quick overview of the activities, Associate Professor Dr <i>Samantha Sharpe</i> , Institute for Sustainable Futures, University Technology Sydney (5 mins) Participant introductions
75 minutes (13:30 – 14:45)	Session 1 - Just transition in the energy sector Facilitator: Associate Professor Dr <i>Samantha Sharpe</i> , Research Director, Institute for Sustainable Futures, University Technology Sydney. <i>Presentations</i> - Just Transition for the Future of Work and ILO JT Guidelines: Mr. <i>Kees van der Ree</i>, ILO Senior Expert (10 mins) - A Just Energy Transition in Southeast Asia: the impact of coal-phase-out on jobs - Dr <i>Cristina Martinez</i>, Sr Specialist Environment and Decent Work, Regional Office for Asia and the Pacific (10 mins) - Questions and answers (10 mins) <i>Group work activity with Kees van der Ree – Mapping for action: main dimensions, opportunities and challenges of a Just Transition in the energy sector (45 mins).</i>
15 minutes (14:45 – 15:00)	Coffee Break

Time	Activities
80 minutes (15.00 – 16:20)	Session 2 – What Makes Just Transition Works - Just transition planning and governance to support energy transition Facilitator: Ms <i>Diah ratna Pratiwi</i>, ILO PAGE Indonesia <i>Plenary report back</i> (15 mins) - Report back from the group work session and raising question on what's next? <i>Presentations</i> - Green Jobs energy assessment in Indonesia – key findings (Ms <i>Lailly Prihatiningtyas</i>) (15 mins) - Questions and answers (10 mins) - What is Just Transition planning – key components (10 mins) (Dr. <i>Samantha Sharpe</i> University of Technology Sydney) <i>Group work activity with Kees van der Ree</i> – Following the discussion in the first session and presentations, the participants discuss what will be the possible responses or solutions from each partner. What can be done, and who may be able to contribute (45 mins). Two sets of coloured cards, two pens, name tags, flip charts, red/colour dots, five stickers and a couple of sheets/participants, post-its, paper tips <i>Plenary report back</i> (20 mins) – report back of the result from the group work activity in the previous session.
60 minutes (16:20 – 17:30pm)	Session 3 – Just transition planning: key action points Facilitator: Mr <i>Kees Van der Ree</i>, ILO <i>Plenary discussion</i> – Prioritization, stakeholder engagement and leadership for creating a Just Transition Action Plan for the Energy sector and green jobs. <i>Comments from representatives from each partner</i> (20 mins): Open discussion about follows up action, possibly with prioritization and partners taking up roles. <i>Comments from partners:</i> <i>Diah ratna Pratiwi</i>, PAGE Indonesia <i>Samantha Sharpe</i>, UTS <i>Cristina Martinez</i>, Regional Office for Asia and the Pacific
10 minutes (17:20 – 17:30)	MC- Mr <i>Tendy Gunawan</i>, ILO CO Jakarta to close day 1 Participants can check in to the provided accommodation room
Day 2: Textile & Garments Day - Tuesday 25th October [9:00-12:10]	
15 minutes (09:00 – 09:15)	Welcome to Day 2 Workshop MC: Mr <i>Tendy Gunawan</i> ILO Jakarta Welcome by Dr. <i>Cristina Martinez</i>, Sr Specialist Environment and Decent Work, Regional Office for Asia and the Pacific Overview of the aims and objectives of the workshop day 2 plus quick review of workshop day 1, Associate Professor, Dr <i>Samantha Sharpe</i>, Institute for Sustainable Futures, University Technology Sydney

Time	Activities
80 minutes (09:15 – 10:35)	Session 1 – Promoting a Just Transition in the Garment Sector Facilitator: Mr. Kees van der Ree <i>Presentations</i> - Revisiting Just transition – Mr <i>Kees Van der Ree</i>, ILO Senior Expert (10 mins) - Overview of the global changes and trends on the sustainability practices in the garment and textile sector and implications for a Just Transition: Key findings from the SIDA-DWCGSA project – Associate Professor <i>Samantha Sharpe</i>, Institute for Sustainable Futures, University Technology Sydney (10 mins) - Questions and answers (10 mins) <i>Group work activity with Kees van der Ree – Mapping the main dimensions, opportunities and challenges of environmental sustainability and Just Transition in the garment and textile sector (30 mins).</i> <i>Plenary report back (20 mins) - Report back from the group work session</i>
20 minutes (10:35 – 10:55)	Network Coffee Break and Room Check Out <i>[Participants that stayed in the hotel are asked to check out from the room]</i>
70 minutes (10:55 – 11:50)	Session 2 – What Makes Just Transition Works - Just transition planning and governance to support change Facilitator: Mr <i>Kees Van der Ree</i> <i>Presentations</i> - What is Just Transition planning recap – components of Just Transition planning/recap from day 1 (5 mins) (Dr. <i>Samantha Sharpe</i> University of Technology Sydney) <i>Group work activity – Using the results from the previous session, as a group start creating a Just Transition plan/strategy? Including identifying the key actions and actors (who takes responsibility for what), timelines, resources needed, how JT plans will be operationalized, what will success look like? What prioritize? (30 mins)</i> <i>Plenary report back (20 mins) - Report back from the group work session</i>
40 mins (11:50 - 12:30)	Key take aways and closing Facilitator: Dr <i>Samantha Sharpe</i> <i>Plenary discussion – Prioritization, stakeholder engagement and leadership for creating a Just Transition Action Plan for the textile and garment sector and green jobs</i> <i>Comments from representatives from each partner about follow up actions, possibly with prioritization and partners taking up roles (20 mins).</i> Mr <i>Kees Van der Ree</i> Government representative Workers' and Employers' representatives <i>Closing (5 mins) Dr Cristina Martinez / Mr Tendency Gunawan</i>
60 mins (12:30 – 13:30)	Networking Lunch

PAGE PARTNERSHIP FOR ACTION ON GREEN ECONOMY

Indonesia has made significant progress in mainstreaming green economy activities into the country's macroeconomic and national development plans. The country has also increased their global climate commitments – including setting a net zero emissions target by 2060. However, the energy sector in Indonesia remains the country's second-largest carbon emitter, with national power generation being highly dependent on fossil fuels – particularly coal. As such, energy transition is a critical mechanism to achieving Indonesia's climate targets and green economy ambitions.

Energy transition will, however, create significant employment changes in the energy and electricity sectors. In the face of such changes, developing a supportive policy ecosystem to enable future green jobs growth and to ensure a Just Transition is critical. This green jobs policy readiness assessment aims to develop a baseline perspective of current green jobs and Just Transition policy frameworks in Indonesia, with a focus on the energy sector. To this end, the report explores recommendations for measures aimed at supporting the labour market, from both the supply and demand sides, as well as for overarching measures that will promote the enabling environment needed to ensure a Just Transition process.

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