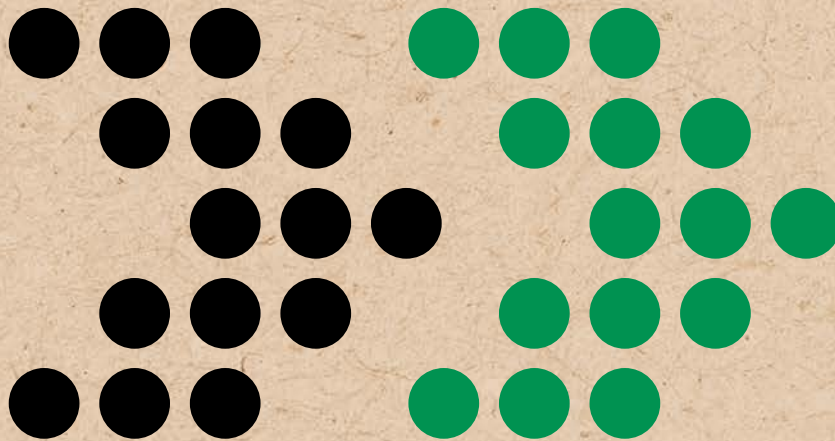


JUST TRANSITION FRAMEWORK FOR INDIA

Policies, Plans and
Institutional Mechanisms



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Contents

<i>List of Tables</i>	vi
<i>List of Figures</i>	vi
<i>List of Maps</i>	vii
<i>Abbreviations</i>	viii
<i>Preamble</i>	ix
Summary for stakeholders	10
Chapter 1. Global Policy Landscape	20
1.1 Introduction	22
1.2 Status of just transition policies and plans	23
Chapter 2. National Just Transition Policies and Mechanisms	28
2.1 Germany	30
2.2 Poland	40
2.3 Spain	45
2.4 Scotland	47
2.5 Canada	50
2.6 United States	53
2.7 South Africa	57
2.8 Observations from the national review	65
Chapter 3. Sub-National Just Transition Policies and Mechanisms	71
3.1 Colorado, USA	73
3.2 Illinois, USA	77
3.3 Appalachian region, USA	82
3.4 Alberta, Canada	83
3.5 Territorial Just Transition Plans, Poland	87
3.6 Territorial Just Transition Plans, Germany	91
3.7 Observations from the sub-national review	96
Chapter 4. Just Transition Framework for India	100
4.1 India's context	102
4.2 Transition strategy	113
4.3 Vision and key principles of just transition	115
4.4 Just Transition Framework	117
Annexures	125
Annexure 1: Just Transition policies and plans adopted by sub-national governments	125
Annexure 2: Allocation under different programmes for energy communities in the USA ...	127
Annexure 3: Just transition investment areas, Mpumalanga, South Africa	127
Annexure 4: Just transition allocations in Colorado, USA	128
Annexure 5: Just transition allocations in Illinois, USA	128
References	129

List of Tables

Chapter 2. National Just Transition Policies and Mechanisms

Table 1: Policy and institutional roadmap of coal transition in Germany, 1968-2020	33
Table 2: Key pillars and elements of just transition in Germany	38
Table 3: Policy and institutional reforms to support just transition in Poland, 1990-2022	42
Table 4: Key pillars and elements of just transition in Poland	44
Table 5: Just Transition Strategy, Spain	46
Table 6: Key pillars and elements of just transition in Spain	46
Table 7: Key recommendations of the Just Transition Commission, Scotland	48
Table 8: National just transition outcomes, Scotland	49
Table 9: Key recommendations of the Just Transition Task Force, Canada	51
Table 10: Regulatory provisions for supporting just transition measures in US	55
Table 11: Key pillars and elements of just transition in US	56
Table 12: Key policy components of the Just Transition Framework in South Africa	60
Table 13: Role of national and sub-national governments	60
Table 14: Sector-wise investments outlined in JET-IP	62
Table 15: Key pillars and elements of just transition in South Africa	64
Table 16: Examples of Government-appointed Just Transition Commission or Task Force ..	69

Chapter 3. Sub-National Just Transition Policies and Mechanisms

Table 1: Amendments introduced by the CEJA	79
Table 2: Recommendations of the Advisory Panel on Coal Communities, Alberta	84
Table 3: Programmes supported by the Coal Workers Transition Fund	85
Table 4: Allocation of Just Transition Fund to Polish coal regions	87
Table 5: Investment components in the TJTP, Silesia	89
Table 6: Allocation of Just Transition Fund to German coal regions	91
Table 7: Investment components in the TJTP for coal regions, Brandenburg	93
Table 8: Investment components in the TJTP for oil and gas regions, Brandenburg	94
Table 9: Examples of state-level Just Transition Funds	97

Chapter 4. Just Transition Framework for India

Table 1: Indian companies' action to meet climate targets	104
Table 2: Unprofitable coal mines	108
Table 3: District GDP dependent on coal mining and coal-based industries	110
Table 4: Abandoned/discontinued coal mines	111

List of Figures

Chapter 2. National Just Transition Policies and Mechanisms

Figure 1: Guiding principles for environmentally sustainable, low-carbon economy and just transition in NDP	58
Figure 2: Components of Just Energy Transition Investment Plan	63
Figure 3: Key pillars of just transition as per global experiences	66
Figure 4: Key policy components of just transition	68

Chapter 3. Sub-National Just Transition Policies and Mechanisms

Figure 1: Laws supporting just energy transition in Colorado	74
Figure 2: Colorado Just Transition Action Plan matrix	75
Figure 3: Laws and their objectives under CEJA	77
Figure 4: Just transition implementation mechanisms in Illinois	78
Figure 5: Key focus of sub-national investment and implementation plans	99

Chapter 4. Just Transition Framework for India

Figure 1: Age of India's coal-based power generation capacity	109
Figure 2: Just transition strategy	113
Figure 3: Key principles of just transition	116
Figure 4: Key policy areas of national just transition framework	117

List of Maps

Chapter 1. Global Policy Landscape

Map 1: Just transition initiatives at the national level	24
Map 2: Just transition initiatives at the sub-national level	25
Map 3: Just Energy Transition Partnerships signed by countries	26

Chapter 4. Just Transition Framework for India

Map 1: Top fossil fuel dependent districts in India	105
Map 2: District-wise distribution of coal mines	106
Map 3: District-wise distribution of coal production	106
Map 4: District-wise distribution of coal-based power plants	107
Map 5: District-wise distribution of coal-based power capacity	107
Map 6: Proportion of multidimensionally poor people in coal districts	110
Map 7: SO ₂ hotspots of India	112
Map 8: Districts with distribution of unprofitable mines	114
Map 9: District-wise distribution of old power plants (units)	114

Abbreviations

AFL	Alberta Federation of Labour	IPG	International Partners Group
AFTSC	Act on Financing the Termination of Subsidized Coal Mining	IRA	Inflation Reduction Act
APR	Action Program Ruhr	JET IP	Just Energy Transition Investment Plan
ARC	Appalachian Regional Commission	JET-P	Just Energy Transition Partnerships
BIPOC	black, indigenous, and people of colour	JTAC	Just Transition Advisory Committee
CARES	Community and Regional Economic Support	JTAP	Just Transition Action Plan
CBA Act	Coal Bearing Areas (Acquisition and Development) Act	JTF	Just Transition Fund
CCR	Coal Combustion Residuals	MBE	Minority Business Enterprise
CDLE	Colorado Department of Labour and Employment	MT	million tonne
CEJA	Climate and Equitable Jobs Act	MoEF&CC	Ministry of Environment, Forest and Climate Change
CIL	Coal India Limited	MSMEs	Medium, Small, and Micro Industries
CPCB	Central Pollution Control Board	MSP	Mining Social Package
CTC	Coal Transition Coalition	NDC	Nationally Determined Contribution
DCEO	Department of Commerce and Economic Opportunity	NDP	National Development Plan
DOLA	Department of Local Affairs	NEVs	New Energy Vehicles
DPR	Development Program Ruhr	NPC	National Planning Commission
EIAF	Energy and Mineral Impact Assistance Fund Grant	NRW	North Rhine-Westphalia
EIB	European Investment Bank	NTPC	National Thermal Power Corporation
EPA	Environmental Protection Agency	OJT	Office of Just Transition
EPP2040	Energy Policy of Poland until 2040	POWER	Partnerships for Opportunity and Workforce and Economic Revitalization
EV	Electric vehicle	RAG	Ruhrkohle AG
FICSR	Future Initiative for Coal and Steel Regions	SBTi	Science-Based Target initiative
GFANZ	Glasgow Financial Alliance for Net Zero	SDA	Structural Development Act
GHG	Greenhouse gas	SME	Small and Medium Enterprises
Gol	Government of India	SRK	Spółka Restrukturyzacji Kopalń
GVA	Gross Value Added	TJTP	Territorial Just Transition Plans
HB	House Bill	UNFCCC	United Nations Framework Convention on Climate Change
ICP	Internal Carbon Pricing	US	United States
IIJA	Infrastructure Investment and Jobs Act	USA	United States of America
INDC	Intended Nationally Determined Contribution		
IOCL	Indian Oil Corporation Limited		

Preamble

India's shift towards green energy will lead to significant changes in the fossil fuel production and consumption value chain in the coming years. While these changes are necessary for building a green economy, they will significantly impact workers, local communities, and the economy in areas with fossil fuel-dependent industries. Therefore, to avoid a trade-off between the economy and the environment in India's fossil fuel-dependent states and districts, a 'just transition' is crucial.

Implementing a just transition will support the country's commitment to accelerated climate change action and provide an opportunity for socio-economic development in many of India's coal districts, which are also among the poorest. A well-planned just transition can help diversify the economy and secure decent work opportunities for the population in districts and states currently dependent on fossil fuels.

India will need to develop comprehensive policies and plans to facilitate a just transition. Experiences from other countries suggest that a just transition involves a comprehensive set of mechanisms to phase down fossil fuel production and consumption, restructure the economy and develop new industries, skill, reskill, and re-employ the workforce, repurpose land and infrastructure for future economic use, substitute public revenue, and make responsible social and environmental investments to build a resilient economy. These mechanisms require well-defined laws and policies at various levels of government, along with stakeholder engagement, to support their implementation.

This report proposes a framework for just transition in India, which can guide the formulation and reform of necessary laws, policies, plans, and institutional and governance mechanisms at the national and state levels. The framework is based on an extensive review of just transition related laws, policies, and plans of various countries and sub-national entities. It has been contextualised with critical issues specific to India's fossil fuel regions and considers the existing regulatory landscape and the constitutional division of responsibilities between the centre and the state.

The just transition framework has been enriched by the engagement and interactions with various stakeholders at the national level and in fossil fuel-dependent states and districts. We express gratitude to members of labour unions, representatives of local communities, policy-makers, members of Panchayati Raj Institutions (PRI) and Urban Local Bodies (ULBs), industry representatives, civil society organisations, academic and research institutions, and media for their valuable insights.

We hope the report will enable the development and implementation of a comprehensive just transition framework and plan for the country.

SUMMARY FOR STAKEHOLDERS

As countries are accelerating their climate change actions and green energy transition, they are also developing and implementing policies, plans, and institutional mechanisms to support a well-planned and well-managed just transition.

For India to meet its net zero target by 2070 and energy independence goal by 2047, a framework of just transition at the national and state levels is essential. The framework(s) will guide strategic pathways and implementation mechanisms to achieve net-positive environmental, social, and economic outcomes in a timebound manner and through the cooperation of all stakeholders.

A. GLOBAL INITIATIVES

Just transition initiatives are being taken by national and state/provincial governments in the global North, and through international partnerships in the global South.

Just transition is primarily being advanced through national policies, laws, and sub-national/provincial plans in the global North. In the global South, Just Energy Transition Partnerships (JET-Ps) has emerged as a catalyst for just transition in some of the large coal-dependent countries.

So far, countries of the global North provide some leading examples of national level just transition policies and plans. These include:

- The Act to Reduce and End Coal-Powered Energy and Amend Other Laws' (Coal Exit Act), and the 'Structural Development Act', enacted by Germany in 2020.
- A Just Transition Planning Framework adopted by Scotland in 2021 to deal with phasing out of coal, oil and gas in the country.
- The 'Just Transition Strategy' of Spain, developed in 2019, provides a strategy and roadmap for the development of the affected regions.
- The 'Inflation Reduction Act' (IRA) and 'The Infrastructure Investment and Jobs Act' (IIJA) of the United States (US), enacted in 2022 and 2021, also addresses issues of just transition of fossil-fuel workers and impacted regions.
- France has developed the 'Ecological Transition Contracts', launched in 2018, to facilitate implementation of locally driven projects in the fossil fuel regions to support low-carbon and resource-efficient development.

From the global South, the only country that has developed a comprehensive just transition framework is South Africa. It has developed 'A Framework for Just Transition' and recently formulated the Just Energy Transition Investment Plan (JET-IP). But these have been catalysed by the JET-P, which has emerged as an enabler for formulating national just transition plans in the global South. Besides South Africa, Indonesia and Vietnam have also signed JET-P deals with developed countries to phase-down coal in a just and inclusive manner.

At the sub-national level, a few states in the US, such as Colorado and Illinois, have developed a comprehensive framework for a just transition that includes specific laws and policies, investment plans, and implementation mechanisms. But in general, at the state/provincial level, just transition plans are being adopted, like in the European Union (EU). As prepared by EU member states, the Territorial Just Transition Plans (TJTP) are aided by the EU's Just Transition Mechanism, specifically the Just Transition Fund, and have become the foundation of sub-national actions.

Coal sector and associated industries are the focus of most policies and plans.

Policies and plans adopted by various countries, including at the national and sub-national levels, are primarily focussed on coal-based power and coal mining. Except for a handful of countries such as Scotland, Nigeria, and Costa Rica, there is little focus on oil or gas. The US has also addressed transition issues of the coal and oil producing regions.

Closure of economically unviable and old mines and old power plants is the first step towards a just transition.

Almost all countries have adopted policies and plans to close economically unviable and old mines and old power plants as a first step towards just transition. While economic reasons have triggered such actions, it has helped these countries develop targeted policies and programmes to support the impacted workers and regions. This has been the case in Germany, Poland, Spain, South Africa, and the Appalachian region of the US. In the next phase, countries have developed laws and policies to allow a phased closure of coal-based power plants and coal mines to meet climate change goals.

A national Just Transition Commission or Task Force has helped develop policies and plans by integrating stakeholder perspectives.

Various governments have appointed a Just Transition Commission or a Just Transition Task Force to inform decision-making and to ensure a well-coordinated, deliberative, and participatory just transition process. These are multi-stakeholder bodies, typically headed by an individual not holding a government office. The reports submitted by these bodies have led to the development of laws and policies to guide just transition processes in various countries. Some prominent examples include the Coal Commission of Germany, the Presidential Climate Commission of South Africa, the Just Transition Commission of Scotland, and the Just Transition Task Force of Canada.

Table 1: Policy outcomes of Just Transition Commissions and Task Forces

Commission/Task Force	Policy outcomes
Commission on Growth, Structural Change and Employment (the Coal Commission), Germany	Enactment of the Act to Reduce and End Coal-Powered Energy and Amend Other Laws (Coal Exit Act) and Structural Adjustment Act in 2020.
Presidential Climate Commission, South Africa	Development of the Just Transition Framework in 2022.
Just Transition Commission, Scotland	Development of the National Just Transition Planning Framework in 2021.
Just Transition Task Force, Canada	Enactment of the Net Zero Emissions Accountability Act in 2021.

Investments in economic diversification, including in green energy, are at the core of just transition plans and investments.

Economic diversification of fossil fuel regions is a key focus of just transition policies and national and state-level plans. Governments are adopting a multi-pronged approach to diversity the economy, create jobs, and boost green growth.

One of the focus areas is investment in green energy. National and state governments have developed laws (including reforms in existing regulations) and programmes to boost investments

in renewable energy (RE), non-conventional energy sources, and storage technology, particularly in the coal regions. Besides, there is a massive push for green manufacturing and the development of green industries.

Green energy investments in regions that will be impacted by the transition are incentivised by giving tax credits to industries. Tax credits are also offered to industries (including start-ups) for green manufacturing, battery manufacturing, clean energy equipment, etc. The IRA and the IIJA of the US create such provisions. South Africa's JET-IP also focuses on green energy investments.

There is also an emphasis on supporting small and medium enterprises (SMEs), considering their potential to create jobs. This is being supported through grants, tax credits, and low-interest loans. Governments have also developed loan programmes to repurpose or replace energy infrastructure (such as under the IRA in the US) that has ceased operations and remain as abandoned and brownfield facilities.

Strong baseline labour and social welfare policies remain crucial for worker transition.

While countries have developed plans and programmes to support workers directly affected by the closure of coal mines, coal power plants, or oil refineries (in few cases), strengthening existing labour policies have been crucial to ensure a just transition of the workers.

The industries and labour unions have also played an important role in developing worker transition plans in coordination with the government. Countries such as Poland and Spain have developed labour transition plans based on negotiations between the government and coal unions. In states such as Colorado, industries have been mandated to develop worker transition plans under the just transition law.

The national government has a central role in mobilising financial resources for implementing just transition measures.

The national government has the most crucial role in providing and mobilising financial resources for implementing just transition measures at the sub-national level. The key mechanisms include the following:

- Creation of national/federal programmes supported through national budget to support elements of just transition in the fossil fuel regions/states;
- Providing grants for revitalisation of impacted communities, social infrastructure investments, etc.;
- Introduction of fiscal reforms, such as tax credits, loans, etc., to incentivise businesses, infrastructure development, and support economic growth; and,
- Mobilising international finance.

A central role of the state/provincial governments is developing just transition plans aligned with national goals of energy transition and climate action.

State/provincial governments have the most crucial role in developing comprehensive just transition plans. The key components of a state action plan include:

- A phased schedule of closure of coal mines and power plants;
- Identification of areas and communities which must be prioritised for just transition investments;
- Labour support measures for impacted workers and workforce development;
- Measures of economic diversification and boosting growth;

-
- Measures to improve social infrastructure build community resilience; and,
 - Measures for environmental sustainability, including promoting circular economy, energy efficiency, etc.

Dedicated administrative system developed at the state level for coordinating, planning, and overseeing the implementation of just transition measures.

A dedicated administrative set-up, such as a just transition department or an office of just transition, has often been mandated in the states/provinces. The department or the office remains the nodal authority for facilitating the development of just transition plans and overseeing the implementation of the plans and programmes.

Besides, coordination with various departments and agencies is vital to implement just transition measures through cooperation and convergence.

Social dialogue and stakeholder engagement forms the basis for ensuring people-centric measures and a just transition.

Both national and state-level policies and plans have strongly emphasised social dialogue and a meaningful stakeholder engagement process to ensure an inclusive transition.

The Just Transition Commission or the Task Force has played an important role in ensuring stakeholder engagement at the national level, and in various fossil fuel regions. Developing state and regional just transition plans also require stakeholder engagement in the process and integrating their challenges and needs into the plans.

B. JUST TRANSITION FRAMEWORK FOR INDIA

1. Just transition strategy

India's just transition strategy should be in congruence with the country's net zero target by 2070 and energy independence target by 2047. It should take into consideration the multiple realities of the fossil fuel sector, the nature of the workforce, and the socio-economic context of the fossil fuel regions. The strategy should include the scope, approach, actions, and processes to guide just transition policies, plans, and institutional mechanisms in the coming decades.

The just transition framework should include all fossil fuel sectors, and not just coal.

India is highly dependent on imported fossil fuels, especially oil and gas, to meet its growing energy demand. To achieve energy security, the country plans to become energy independent by 2047. This means that oil and gas imports, that account for most of their consumption, need to be eliminated in the next 25 years. Similarly, coal, which currently meets the bulk of commercial energy needs, should be phased down over the next three to four decades to meet the net zero target by 2070.

Therefore, a comprehensive approach for the transition of all fossil fuel sectors, and industries dependent on them, needs to be developed. This will involve the progressive substitution of coal-based power with RE and storage, the use of hydrogen in industrial processes, scaling up of zero-emission mobility, and efficient energy use by all, including individuals and industries.

A phased approach of transition for coal mines and power plants should be adopted to ensure energy security, and to minimise social and economic disruptions.

In the first phase, over the next decade, a planned transition needs to be considered for the following:

- Old and unprofitable coal mines;
- Old power plants; and,
- Sectors where rapid technological transformation is underway, such as the automobile sector due to growth of electric vehicles.

In the next phase, a comprehensive roadmap needs to be developed for phasing down coal mining activities and coal-based power production and decarbonising the industrial sectors, including medium, small, and micro enterprises (MSMEs). This will require detailed regional assessments and the development of plans and investment measures. Simultaneously, a roadmap for reducing import dependence on the oil and gas sectors would be necessary to develop a comprehensive transition framework.

Separate just transition frameworks will be necessary at the national and state levels, given their respective powers and roles under the Constitution of India.

The quasi-federal nature of the Constitution of India has provided differential powers to the union and state governments. The key sectors pertaining to just transition are under the ambit of the central government, such as the coal, oil, gas, and power sectors, which are also dominated by large central public sector undertakings. The central government also has the power to frame regulations on land acquisition, forest diversion, and environment. On the other hand, the state governments have power over land subjects. They are also responsible for the growth and development of various regions of states, including industrial development. In addition, the centre and the state governments under the concurrent list can legislate on economic and social planning, trade unions, industrial and labour disputes, the welfare of labour, vocational and technical training of labour, social security and social insurance.

Therefore, a just transition will require national and state frameworks. A national framework will address the competing demands and unequal socio-economic status of various fossil fuel-dependent regions, ensure a balanced distribution of the benefits of the energy transition and green growth, and mobilise national and international finance.

At the state level, a comprehensive planning framework will be necessary to support regional development, the convergence of programmes, agreements with industry and labour, and ensure timely implementation of just transition measures.

An inclusive and participatory decision-making process should be adopted.

Stakeholder engagement and an informed social dialogue will ensure a people-centric just transition. Three processes will be essential to ensure this:

- A strong and diverse coalition of various actors and stakeholders to work through coordination and consensus.
- An effective and transparent communication strategy to reach out to all stakeholders, from national to local levels; and,
- Local support systems, engaging civil society groups and frontline workers, to create a sustained engagement mechanism.

2. National Just Transition Framework

The national framework for just transition will have the overarching objective of guiding national policies and programmes, financial allocations, and institutional and governance mechanisms to support just transition.

Specifying targets and setting milestones.

The central government will need to specify targets for fossil fuel transition, aligning with domestic energy and climate policies and international climate change goals. Towards achievement of the target, short- and medium-term milestones need to be specified, including a peak and cap year for fossil fuels. The timeline, including the milestones, should be revisited every five years, considering the growth in energy demand and developments in the green energy sector and industrial processes (such as in RE, green hydrogen, energy efficiency in industries, etc.).

The National Just Transition Policy should be underpinned by a development agenda, including a major focus on green growth and jobs.

The central government needs to develop a National Just Transition Policy to guide a comprehensive approach to just transition. The policy should be underpinned by a development agenda, including green growth and jobs in the fossil fuel regions. Figure 1 lists the key areas that should be addressed in the National Policy.

Figure 1: Key policy areas

Just transition of old and unprofitable coal mines and old power plants

- A separate policy with year-on-year timeline for closure, and plan for worker and regional transition.

Phased transition of coal mines

- A transition schedule considering the age of mines, resources that can be extracted profitably, and net zero timeframe.

Phased transition of coal-based power plants

- A transition schedule considering the design life of the units, environmental performance, energy access issues in the region, net zero timeframe.

Repurposing of coal mining land and infrastructure

- A comprehensive policy to cover abandoned mines, closed mines, and mines that will close in the coming decades.
- Amendments to the Coal Bearing Areas Act (1957), and revision of the mine closure guidelines to optimise repurposing potential.

Repurposing of power plant land and infrastructure

- Development of a comprehensive policy to guide and mandate repurposing of land and infrastructure available with coal power companies.

Figure 1 continued.

Investments in green energy in coal regions

- Providing production and investment tax credits for green energy investments in states and districts that will experience phase down and closure of coal mines and power plants.

Development of green industries and innovation

- Development of green economic clusters in areas that will be impacted by the energy transition.
- Tax credits and low-interest loans to attract and scale-up RE investments and green manufacturing.
- Promoting circularity in industrial supply chain to create jobs.

Labour support and social welfare

- Revision of labour laws to strengthen support, particularly for contractual and informal workers.
- Creation of a 'Workforce Transition Fund' to provide temporary relief measures to displaced workers.
- Mandating industries to revise worker retrenchment and compensation policies, and develop a 'Workforce Transition Plan'.

Gender responsive development

- Targeted support for women's education, livelihoods and better income opportunities, financial inclusion, etc.
- Gender-sensitive budgeting by ministries and departments.

Structural support to impacted regions

- Strengthening structural support and social welfare policies to alleviate poverty and deprivation, and support revitalisation of local communities to be impacted by the transition.

Appointing a National Just Transition Commission to formulate the National Just Transition Policy in coordination and consultation with stakeholders.

The central government should appoint a National Just Transition Commission, an independent body comprising a wide range of stakeholders that balances different interests. Members of the Commission should include (but not be limited to) representatives of 'at-risk' sectors and value chains, labour representatives, members of civil society organisations with relevant knowledge and experience, academic institutions, and any others considered suitable.

The Commission shall inform the Government of transition measures based on a wide range of stakeholder engagement. The body will also be responsible for developing the National Just Transition Policy and plan in consultation with various stakeholders and the concerned authorities of the central and state governments.

Developing a Just Transition Department to facilitate inter-ministerial and inter-state coordination.

Considering the wide range of issues that just transition should deal with, such as fossil fuel sectors and industrial transitions, labour and employment, economic development, social welfare, clean and affordable energy access, and mobilising public and private finances for various measures, inter-ministerial and inter-state coordination will be essential.

At the central level, a Department of Just Transition needs to be developed and entrusted to facilitate inter-ministerial and inter-state coordination. This can be an independent department under the Prime Minister's Office (PMO) or the Ministry of Finance.

Mobilising national and international finance for just transition measures.

Just transition will require huge financial resources through public financing, as well as through private investments. Besides, international financial support will also be necessary. The central government can support just transition measures through the following mechanisms:

- Integrating just transition imperatives into the national budget and public spending.
- Supporting programmes related to just transition through various ministries, such as for clean energy and industry investments, green skilling, regional development, social security and welfare for vulnerable groups and workers in the unorganised sector, economic advancement of women, etc.
- Introduction of tax credits, interest free or low-interest loans, capital expenditure support to states through a dedicated scheme, etc., to incentivise businesses, develop infrastructure and support economic growth.
- Creating a dedicated Just Transition Fund to provide grants to states to support social welfare investments.
- Developing a framework for financial institutions to support sustainable investments.
- Mobilising international financial resources and support.

Restructuring of the central public sector undertakings in coal mining, power and oil and gas sectors and diversifying their business portfolio.

Considering that the fossil fuel sectors in India are largely public sector undertakings, the central government will have a crucial role in restructuring and diversifying their business portfolio. It will be an important mechanism for revenue substitution and aiding economic diversification in the states and districts where these industries are operating.

3. State Just Transition Framework

The state framework for just transition will primarily guide the formulation of just transition plans, aid regional development, enable the convergence of programmes, facilitate negotiation with industries and labour, and help to implement and monitor just transition measures in a participatory manner.

Developing a comprehensive State and District Just Transition Action Plan.

Developing a comprehensive State Just Transition Action Plan will be the most important responsibility of the state government(s). The plan will be aligned with the national targets to phase down coal mining and coal-based power, industrial decarbonisation pathways, and the net zero target.

The state government will also guide districts to develop the District Just Transition Action Plan. The district plans will be based on the challenges and opportunities of the district and the region and shall be aligned with state just transition pathways and development vision.

Figure 2: Components of State/District Just Transition Action Plan



Economic diversification, job creation, labour support, social welfare, and building resilient communities are the key policy aspects for the state governments.

The key policy aspects of the State Just Transition Framework will be the following:

- Supporting economic diversification and innovation to create jobs, boost economic growth, and ensure the vitality of regions impacted by the fossil fuel transition.
- Strengthening labour laws to ensure adequate job security, payments during retrenchment and compensations for all workers engaged in industries that will be impacted by the transition, as well as ensuring worker security in the green economy.
- Developing programmes to support job retention and employability of workers in the RE sector and green industries, and investing in foundational educational and skill building for human resource development.
- Strengthening social welfare measures to provide timebound support to informal workers and the most vulnerable people.
- Developing social and physical infrastructure to improve social capital and to attract businesses and investors to ensure economic vitality.

Integrating just transition strategies into state policies and plans.

The state government(s) need to suitably integrate just transition strategies into state policies and plans on climate change, RE development, industrial development, economic development, labour, social welfare, and any other as considered appropriate.

Besides, a key mechanism for supporting just transition measures at the state level will be the convergence of programmes, to pool resources and strengthen implementation.

Establishing dedicated institutional and administrative mechanisms to ensure a well-planned and well-managed transition.

A dedicated administrative set-up will be necessary at the state level to coordinate, plan and implement just transition measures. A State Office of Just Transition needs to be developed to function as the nodal authority for delivering on such matters. The state government may appoint a State Just Transition Commissioner as the Head of the Office of Just Transition.

Creating a State Just Transition Fund to provide welfare support to informal workers and vulnerable groups.

A dedicated fund for Just Transition needs to be created at the state level. This will allow interventions outside the planned investments and provide targeted income and welfare support and protection to informal workers and vulnerable groups in the induced economy during the transition.

1 GLOBAL POLICY LANDSCAPE

- Introduction
- Status of just transition policies and plans



Zollverein

GLOBAL POLICY LANDSCAPE

1.1 Introduction

A **growing** body of knowledge and policy deliberations on climate change, both domestically and internationally, has made it clear that a shift away from the fossil-fuel economy is inevitable. The key focus remains a fundamental transition in electricity generation based on renewable energy (RE) and non-conventional energy sources and adoption of measures for deep industrial decarbonisation. This will require aggressive efforts to reduce fossil fuel production and consumption in the next three decades. Such necessity has prompted national and sub-national governments to develop laws, policies, and plans to support the energy transition and strengthen climate change action.

JUST TRANSITION DISCOURSE AT UNFCCC

1997: The International Trade Union Confederation (ITUC) included proposition of just transition in its statement to the Kyoto Conference.

2007-2009: Before 2007 Bali Conference, trade unions raised the issue of employment. In 2009, statement on just transition submitted to the COP15 held in Copenhagen.

2010: Included in the final agreement of COP16 held in Cancun. The agreement notes, “climate change requires a paradigm shift towards building a low-carbon society that offers substantial opportunities and ensures continued high growth and sustainable development, based on innovative technologies and more sustainable production and consumption and lifestyles while ensuring a just transition of the workforce that creates decent work and quality jobs”. [Article I, Para 10].

2015: Just transition gets included in the preamble of the Paris agreement, COP21. The preamble notes that the parties to the agreement shall respond to the urgent threat of climate change “Taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities” [Para 10].

2018: The ‘Solidarity and Just Transition Silesia Declaration’ adopted during the Katowice Conference, COP24, signed by the Polish presidency of the Katowice COP, along with 52 Heads of States and Governments from across the world.

2021: A Just Transition Declaration – supporting the conditions for a just transition internationally: green growth, decent work, and economic prosperity in the transition to net zero – was signed at the Glasgow Climate Conference, COP 26. The signatories of the Declaration were United States, United Kingdom, Norway, Canada, New Zealand and all 27 EU member states. The signatories ‘intend’ to support developing countries and emerging economies for a just transition, by helping in economic diversification, and transitioning to ambitious, clean, resilient growth and development pathways.

2022: Launch of the first “work programme on just transition” to discuss pathways to achieve the goals of the Paris Agreement at COP 27. The Sharm el-Sheikh Implementation Plan also affirmed that just transition must be founded on meaningful and effective social dialogue and participation of all stakeholders [Article VIII, Para 28].

At the same time, there is also an increasing recognition that transitioning away from fossil fuels will have significant social and economic consequences for workers and local communities in the affected regions. Moreover, the transition will also impact government revenue unless alternative industrial and financial measures are implemented. A poorly planned transition, therefore, will significantly disrupt the social and political order. Just transition, thus, has become a centre-piece agenda of global climate change action.

While industry closures have prompted action on just transition due to reasons of unprofitability or environmental concerns, the development of laws, policies, and plans specifically alluding to the issue has gained momentum since the signing of the Paris Agreement in 2015. In the past few years, global South and global North countries have developed such documents. The following section provides an overall outlook of the worldwide policy landscape on just transition.

1.2 Status of just transition policies and plans

Just transition measures are primarily guided by the following types of initiatives led by national and state governments and international partnerships. These include:

- Laws, policies, and plans adopted by national governments.
- Laws, policies, and plans adopted by state/provincial governments.
- Just Energy Transition Partnerships.

A review of information available in the public domain at the time of the research provides an understanding of the initiatives taken by various national and sub-national governments.

Laws, policies and plans adopted by national governments

Three countries of the global North – Germany, Scotland, and the Republic of Korea (South Korea) – have developed laws and frameworks that are just transition specific. These include:

- The ‘Act to Reduce and End Coal-Powered Energy and Amend Other Laws’¹ (Coal Phase-Out Act), and the ‘Structural Development Act’², enacted by the Government of Germany in 2020 to support the phasing out of coal and structural development of coal regions;
- A carbon neutrality strategy called ‘2050 Carbon Neutral Strategy of the Republic of Korea’³ developed by the Government of South Korea in 2020 to support phasing out of coal from its energy mix; and,
- A Just Transition Planning Framework⁴ developed by the Government of Scotland in 2021 to deal with phasing out of coal, oil and gas in the country.

Countries in the global North and the global South have also developed national plans to address just transition. Some of the key examples include the following:

- Spain has developed a ‘Just Transition Strategy’ in 2019 to close all unprofitable mines and plan for the development of the affected regions.⁵
- Greece has developed a ‘Just Transition Development Plan of lignite areas’ in 2020 following the country’s goal to close all lignite plants by 2028.⁶
- Hungary has developed a, ‘National Energy and Climate Plan’ in 2019 to address lignite phase out.⁷
- South Africa, intending to phase out coal, has developed ‘A Framework for Just Transition’⁸ and has also developed a Just Energy Transition Investment Plan in 2022.⁹
- Chile has developed a ‘Just Transition Strategy in the Energy Sector’ in 2021 to phase out coal.¹⁰

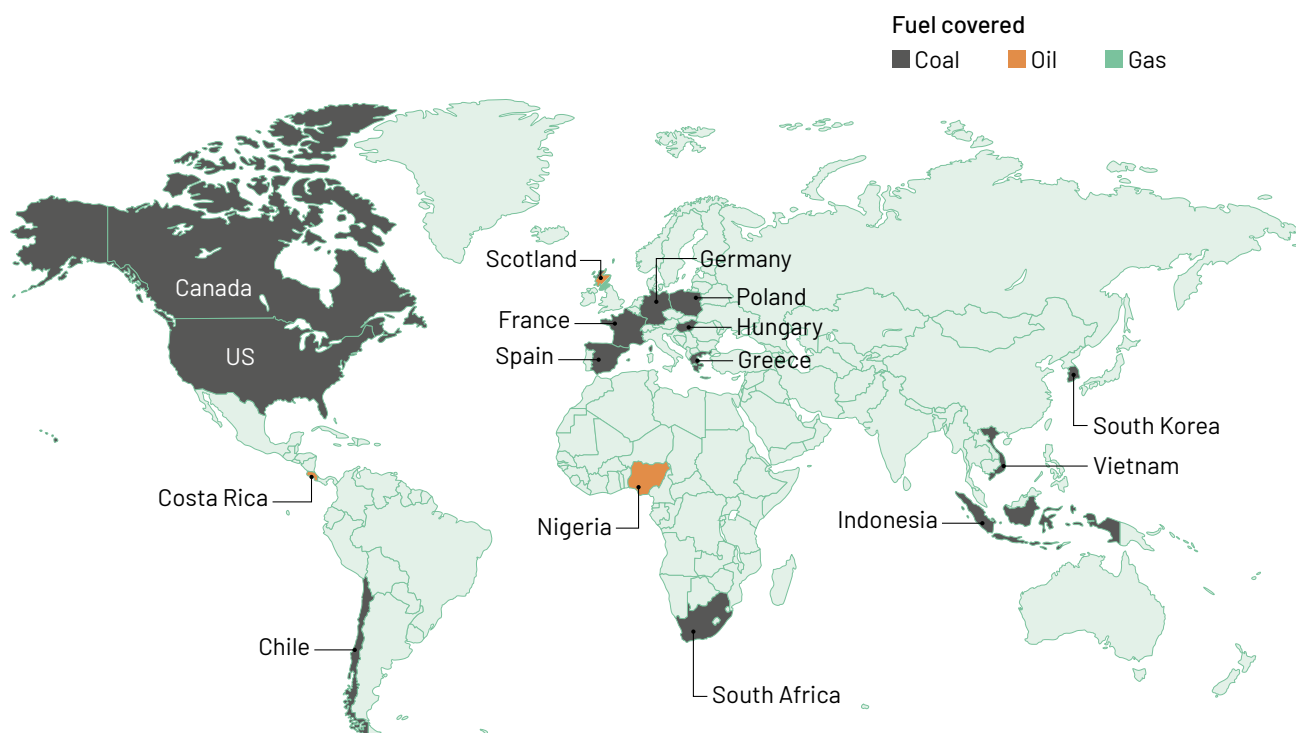
- Nigeria and Costa Rica have addressed phasing out of oil in their national plans. Nigeria has developed a Nigeria Energy Transition Plan in 2022,¹¹ whereas Costa Rica in 2019 released a 'National Decarbonization Plan 2018-2050.'¹²

Poland and the United States (US) have developed laws supporting the energy transition, job creation, and infrastructure investments that allude to just transition measures, particularly for communities affected by coal mines and power plant closures. These include:

- The 'Inflation Reduction Act (2022)¹³ and 'The Infrastructure Investment and Jobs Act (2021)¹⁴ enacted by the US Government; and,
- The 'National Energy and Climate Plan for 2021-2030 (NECP PL)¹⁵ and 'Energy Policy of Poland until 2040 (EPP2040),¹⁶ as developed by the Government of Poland in 2019 and 2021 respectively.
- Besides, France has developed the 'Ecological Transition Contracts' scheme (launched in 2018) to facilitate the implementation of locally driven projects in fossil fuel regions.¹⁷

In totality, these countries account for 20.5% of the global coal consumption.

Map 1: Just transition initiatives at the national level



Note: The legend shows the primary fossil fuel sector in focus.

Source: iFOREST analysis based on review of laws, policies and plans developed by various national governments.

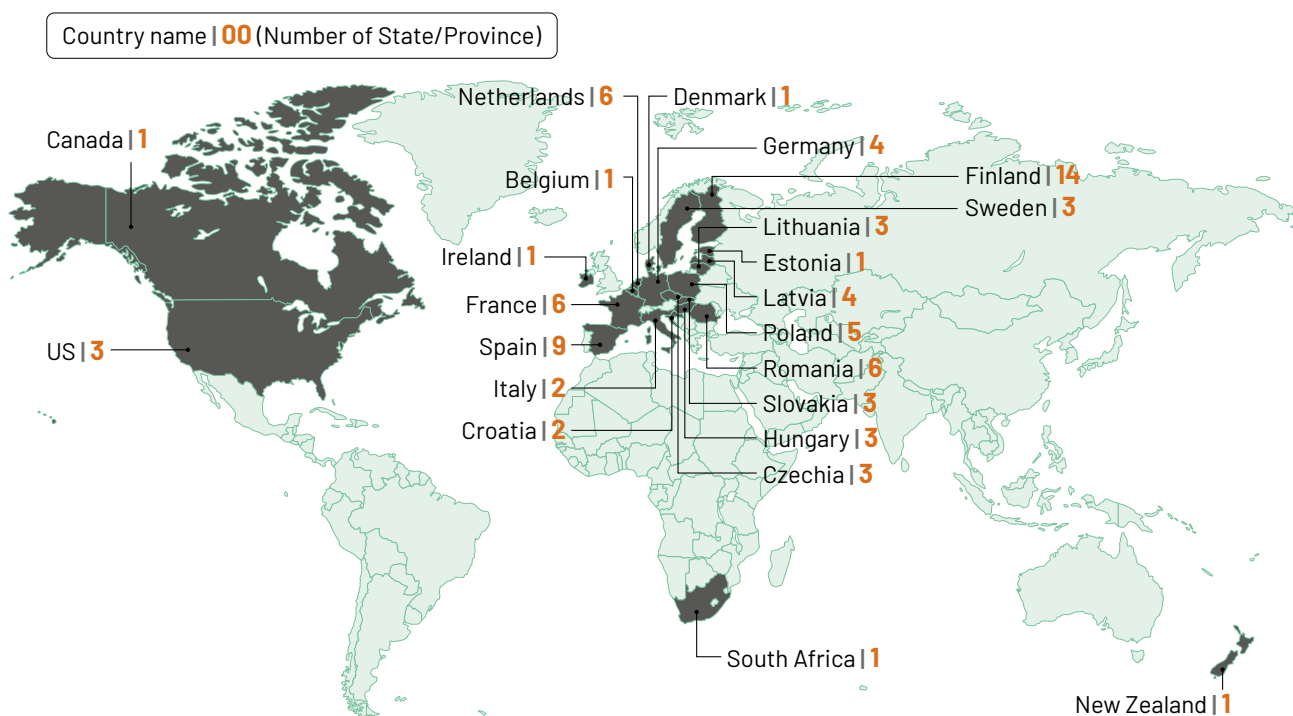
Just Transition policies and plans adopted by sub-national governments

Several sub-national governments have developed policies and plans to combat the effect of energy transition on their local economies. Most of these relate to the European Union (EU) member states, where the development of Territorial Just Transition Plans (TJTP) is mandatory to receive financial support from the EU through the Just Transition Fund (JTF) mechanism.¹⁸ As of latest information, TJTPs were approved for 26 EU members, including territories of the top coal consumers of the EU, such as Poland, Germany, France and the Netherlands (see Annexure 1).¹⁹

Sub-national regions of a few other countries have also developed regional plans to mobilise funds for just transition initiatives. These include the Western Australia state in Australia;²⁰ and Taranaki²¹ and Southland²² in New Zealand. The South African Just Energy Transition Investment Plan also integrates the plan for a smooth transition of the Mpumalanga region.²³

For sub-national laws, three noteworthy examples include the states of Colorado, Illinois, and New Mexico in the US.²⁴ For example, Colorado has enacted four laws to build administrative systems, support planning and implementation measures, and for financing various components of just transition. Among these, the 'Just Transition from a Coal-Based Electrical Energy Economy' law is the principal one. The other three are primarily related to the allocation and transfer of state financial resources for just transition.²⁵ Illinois has enacted an ambitious just energy transition law known as the Climate and Equitable Jobs Act (CEJA) in September 2021.²⁶ The CEJA includes a package of four laws, which are focused on achieving clean energy and climate change goals for the state, while ensuring a just transition. These include the Energy Transition Act,²⁷ the Energy Community Reinvestment Act,²⁸ the Community, Energy, Climate and Jobs Planning Act, and the Clean Energy Jobs and Justice Fund Act.²⁹ New Mexico enacted the Energy Transition Act in 2019, to support investments for just transition of communities and workers to be impacted by the shift to a renewable energy future.³⁰

Map 2: Just transition initiatives at the sub-national level

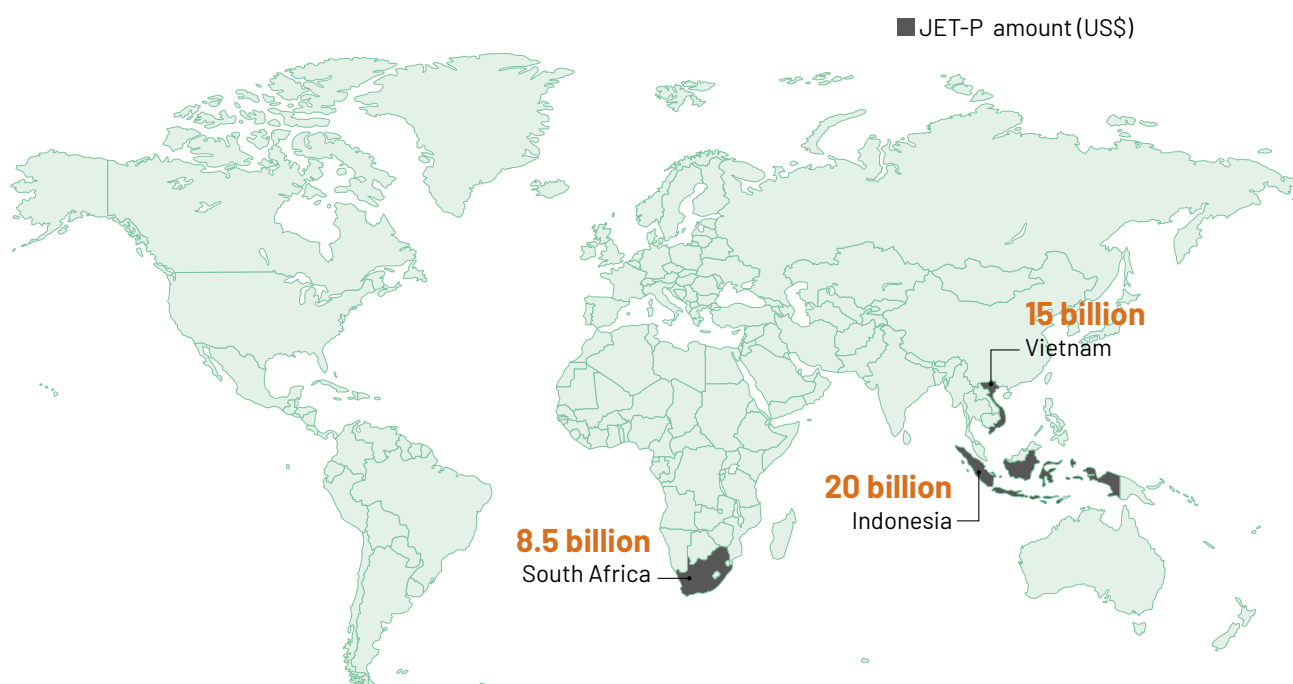


Source: iFOREST analysis based on review of laws, policies and plans developed by various sub-national governments.

Just Energy Transition Partnerships

Just Energy Transition Partnerships (JET-P) has emerged as a mechanism intending to support measures of just transition in countries of the global South. The JET-Ps are financial agreements between governments of developed countries and the concerned developing country, to finance energy transition measures of the latter, precisely to phase out coal-based power. The partnership is between G7 countries and some of the major coal-producing and consuming developing nations.

Map 3: Just Energy Transition Partnerships signed by countries



The first JET-P was signed in COP 26, when France, Germany, the United Kingdom, the US, and the EU promised South Africa US\$ 8.5 billion in just energy transition financing. The partnership aims to mobilise the initial amount between 2023 and 2027 to support South Africa's energy transition and climate goals.³¹ The fund so far has been provided as a loan and some amount of concessional grant.³²

The deal, considered a 'historic' move, was the first-of-its-kind venture to phase out coal-fired power generation. The partnership aimed to accelerate the 'decarbonisation of South Africa's economy, with a focus on the electricity system', and help achieve South Africa's climate goals as specified in the country's updated Nationally Determined Contribution (NDC). While the initial amount pledged looks at a five-year period, the partnership envisions helping South Africa move away from coal over the next two decades and to accelerate its transition to a low emission, climate-resilient economy.³³

The declaration of the partnership also emphasised the need for a just transition. As noted in the official declaration, delivering on the ambition of the JET-P will affect mining communities and workers. Therefore, there was a recognition of the importance of supporting South Africa's efforts to lead a just transition, focused on affected workers and vulnerable communities, especially coal miners, women, and the youth.³⁴

The second tranche of countries that remains a focus of the JET-P included India, Indonesia, Vietnam, and Senegal. In 2022, both Indonesia and Vietnam entered into JET-Ps. The donor pool has also increased since 2021, including multilateral development banks, national development banks, and other financing agencies.

On November 15, 2022, on the sidelines of the G20 Summit in Bali, the Government of Indonesia signed a deal worth US\$20 billion as part of the JET-P to move away from coal-based power to cleaner energy sources. The JET-P is envisioned as a long-term partnership between the government of the Republic of Indonesia and the governments of Japan, the US, Canada, Denmark, the EU, France, Germany, Italy, Norway, and UK, collectively referred to as the International Partners Group (IPG). The joint statement issued by the partnership noted that the JET-P will help Indonesia “pursue an accelerated just energy transition away from fossil fuels and towards renewable sources.”³⁵

The fund will be mobilised over three to five years by the IPG. The US\$ 20 billion will come from public and private sources. Half of the sum, US\$ 10 billion, shall be mobilised by the IPG, co-led by Japan and the US. In contrast, the other US\$ 10 billion shall come through private finance in facilitation with the Glasgow Financial Alliance for Net Zero (GFANZ). The partnership also recognises the need to raise funds through a combination of instruments including market rate loans, concessional loans, guarantees, and grants.³⁶

On December 14, 2022, the Government of the Socialist Republic of Vietnam, together with the IPG, signed the JET-P to mobilise an initial amount of US\$ 15.5 billion over the next three to five years to support Vietnam’s just energy transition.³⁷ The partnership will help Vietnam to work towards meeting its net zero 2050 goal, while also accelerating the country’s energy transition, including the adoption of RE, reflected in several ambitious new targets.³⁸

The contribution towards the total amount of the JET-P deal (US\$ 15.5 billion) will come from both public and private sources. The IPG members will contribute US\$ 7.75 billion through public sector finance. The remaining US\$ 7.75 billion will be sourced from private finance led by the GFANZ.³⁹

As the review suggests, there has been much action in the global North concerning developing laws, policies, and plans for just transition. However, in most cases, these are highly focused on the coal-based power and coal mining sectors. Except for a handful of countries, such as Scotland, Nigeria, and Costa Rica, there is no focus on oil or gas. The sub-national governments, on the other hand, have been primarily involved in developing state and regional plans. Only in a handful of cases, such as by the three states in the US, actual laws have been passed.

2 NATIONAL JUST TRANSITION POLICIES AND MECHANISMS

- Germany
- Poland
- Spain
- Scotland
- Canada
- United States
- South Africa
- Observations from the national review



NATIONAL JUST TRANSITION POLICIES AND MECHANISMS

Global experiences on just transition show that governments are addressing the issue through various regulatory instruments, including laws, policies, and plans. To develop a precise understanding of the scope of these, this chapter includes a review of some of the laws, policies, and associated institutional mechanisms developed by seven countries at the national level. These include, Germany, Poland, Spain, Scotland, Canada, the United States (US), and South Africa. The selection of countries is based on the following considerations:

- Represents countries of the global North, as well as the global South.
- Represents major fossil fuel dependent economies.
- The comprehensiveness of the laws and policies on addressing just transition; and,
- Availability of sufficient information in the public domain at the time of the research.

2.1 Germany

Number of lignite mines: 10 lignite mines (as of 2020)

Lignite production per year: 107 MT (as of 2020)

Regions to be impacted by mine closure: Brandenburg, Saxony, Saxony-Anhalt and North Rhine-Westphalia (NRW)..

Number of coal-based power plants: 60 operational plants (as of 2023)

Installed capacity: 40 GW (as of 2023)

In the last decade (since 2012), Germany has retired nearly 20.7 GW of coal-based power capacity. Out of this, 6.4 GW has been retired between 2021 and 2022, after the enactment of the Coal Exit Act. Further, between 2023 to 2038, over 25.5 GW of additional coal-based power capacity will be retired (Global Energy Monitor, 2023).

Regions to be impacted by coal-based power plant closure: Baden-Wuerttemberg, Bayern, Berlin, Brandenburg, Bremen, Hamburg, Hessen, Lower Saxony, Mecklenburg-Vorpommern, NRW, Saarland, Saxony, Saxony-Anhalt, Schleswig-Holstein.

Workforce scenario: As per the report of the Coal Commission, at the end of 2018 (after the closure of the last hard coal mine), around 86,000 people were still employed directly or indirectly in the coal sector or their employment was induced by the coal sector. The total number of direct employees in the lignite industry was around 20,850, of which 15,600 were employed in open cast mining operations and around 5,200 in lignite-fired power plants.

Sources:

1. Eurostat. (2021). Production of lignite in the EU - statistics
2. Global Energy Monitor. (2023). Coal plant tracker
3. Agora Energiewende und Aurora Energy Research. (2019). The German Coal Commission. A Roadmap for a Just Transition from Coal to Renewables.
4. International Energy Agency. (2020). Germany 2020 Energy Policy Review

Germany has a 60 year long history of formulating and implementing just transition measures related to the coal mining and coal power industries. The closure of such facilities and associated transition measures has been supported through a combination of laws, policies and programmes.

The transition of the coal mining sector started in the late 1950s, the focus of which was the Ruhr valley. The coal mines of the valley had been the bedrock of fuel supply since the time of the country's industrial revolution. Coal mining and the presence of heavy industries (such as steel), made Ruhr the heart of the European Coal and Steel Community, and a hub of employment opportunities. In 1957, considered the peak of the coal industry, the industry in Ruhr directly employed 607,300 people. However, in the following years, as coal mining started becoming non-profitable and reliance on government subsidies increased, it became necessary to close the economically uncompetitive mines. In 1958, the first mine was closed.¹

Policy measures and institutional reforms

The closure of hard coal mines in Germany triggered massive protests by labour unions in the 1960s. To tackle this and proceed with a structured approach to close the mines, the government undertook a restructuring measure. In 1968, about 80% of all hard coal mines, previously owned by independent private companies, were merged into one company the "Ruhrkohle AG" (later including mines from the Saar region and renamed into RAG).

With respect to socio-economic measures, initially the focus was on supporting the workers of the coal sector with the aim of minimising job loss and ensure social safety net. However, in the following years, structural policy measures to support economic diversification and development of coal regions became the key focus of policy reforms. These included programmes such as, 'Development Program' and 'Action Program' in Ruhr, Future Initiative for Coal and Steel Regions (FICSR) programme, etc. Alongside regulations – Act on Financing the Termination of Subsidized Coal Mining (AFTSC) – was also enacted to close the rest of the hard coal mines, and support decommissioning and environmental remediation activities.² A mix of 'baseline policies' that the government had in place were also instrumental for a successful transition. These particularly include the government's social security system, the labour laws, and the system for regional fiscal equalization.³

Since the Paris Agreement in 2015, Germany has taken specific measures to accelerate the transition from coal-fired electricity and ensure a just transition for workers communities of the coal regions. Three specific institutional and regulatory measures have been taken in this respect. These include:

- The setting up of the Coal Commission in 2018;
- Enactment of the Coal Phase-Out Act in 2020; and,
- Enactment of the Structural Development Act in 2020.

The "Commission on Growth, Structural Change and Employment", also known as the Coal Commission, was established by the government in 2018 to facilitate a coal phase out and just transition process. The Commission brought together key stakeholders from industry, trade unions, coal regions, environmental organisations, research institutes and communities affected by the expansion of coal mines to engage in a deliberative process to support a planned transition from coal power and simultaneously ensure a just transition of workers and communities in the coal regions (See box: *Coal Commission of Germany*).⁴

COAL COMMISSION OF GERMANY

In June 2018, the federal government of Germany established a 'Commission on Growth, Structural Change and Employment', commonly referred to as the 'Coal Commission', to recommend a pathway and mechanisms to facilitate a phaseout of coal-based power (and associated coal mines), and support the just transition of workers and coal regions. The Commission was placed under the Federal Ministry for Economy and Energy. It comprised a 31-member (honorary) body including representatives from the energy sector, lignite mining regions, industry, environmental associations, trade unions, the scientific community, and representatives of political parties.

The Commission was required to provide recommendations on the following aspects:

- Close the (present) gap to reaching the domestic 2020 emissions reduction goal of 40% compared to 1990.
- Reach the domestic 2030 targets for the energy sector, including assessment of impacts.
- Gradually reduce and end power production from coal, including a phase out date and accompanying legal, structural, economic, and social measures.
- Identify financial support for the transition in the affected regions and make funds available for the necessary structural adaptation.

The Commission submitted its report to the government in 2019 focussing on five pillars as outlined below.

Pillars	Recommendations
Coal phase out	<ul style="list-style-type: none"> i. No more new coal-fired power plants and mines. ii. Closing down existing plants in a phased manner by 2035, or 2038 at the latest. iii. To ensure sufficient legal certainty to closures, consensual negotiation agreements should be considered, including compensation payments, which should be concluded by the Government with operators by 2022. These will then to be fixed by law until 2030.
Support transformation of traditional mining regions	<ul style="list-style-type: none"> i. Creation of new jobs by investments and modernisation of infrastructure and energy infrastructure. ii. Investment in research and innovation to increase regional competitiveness. iii. Modernise the energy infrastructure, including the expansion of renewables. Also, replacement of old generation assets with alternative generation and storage technologies. iv. Measures to be financed by an additional €40 billion (US\$ 44.8 billion) over the next 20 years for the coal regions.
Alleviate hardship for those concerned	<ul style="list-style-type: none"> i. Maintain competitiveness of industries and affordability for households with power price compensations. ii. Compensate utilities for early shut downs. iii. Transition of workers. iv. Conduct dialogue with affected communities near lignite mines.

Modernise the power system	<ul style="list-style-type: none"> i. Phasing out coal should be safeguarded by simultaneous expansion of RE (65% of gross electricity consumption should be from RE by 2030). The Renewable Energy Sources Act should be amended accordingly. ii. Cancellation of CO₂ certificates. Examination of appropriate CO₂ pricing in sectors outside emissions trading. iii. Modernisation of grids through optimisation, expansion and market measures, and promotion of storage. iv. Review of the existing tax and levy system.
Monitor and adjust measures	Monitor and report progress in 2023, 2026, 2029 and 2032, and take additional action if needed.

Source: Agora Energiewende und Aurora Energy Research. (2019): The German Coal Commission. A Roadmap for a Just Transition from Coal to Renewables.

Following the report of the Coal Commission, the Coal Exit Act and the Structural Development Act were enacted in 2020.

The ‘Act to Reduce and End Coal-Powered Energy and Amend Other Laws (Coal Exit Act)’, proposes to phase out coal-powered electricity by 2038. The Act is targeted towards ensuring a just closure of hard-coal and lignite fired power plant operators, as well as the captive lignite mines. It specifies compensation payments of €4.35 billion (US\$4.9 billion) to two lignite-based power plant operators to pay power plant owners for phased closure of about 21 GW of lignite-based capacity. The Act also focuses on formal workers who work in these establishments and will be affected by the closure of power plants and mines, and outlines provisions for their support including an earmarking of about €5 billion (US\$5.6 billion).⁵

The Structural Development Act (SDA), which is complimentary to the Coal Exit Act, focuses on development of regions that are economically dependent and will be affected by a coal transition.⁶ These include the north-eastern states of Brandenburg and Saxony, the eastern state of Saxony-Anhalt and North Rhine-Westphalia (NRW) in western Germany. The Act also outlines financial support mechanisms for various coal/lignite mining regions of the country, earmarking up to €40 billion (US\$44.8 billion) until 2038. The financial assistance received by the states should be used for investments in “economically relevant infrastructure, local public transport, mobility infrastructure, environmental and landscape conservation”, among others.⁷

Table 1: Policy and institutional roadmap of coal transition in Germany, 1968–2020

Year	Key focus of reforms	Regulation/ policy instruments	Measures
Transition of hard coal mines			
1968	Restructuring of coal mining industry to facilitate structured closure	Formation of Ruhrkohle AG (RAG), through merger of all private coal companies	80% of all hard coal mines, which were owned by independent private companies, were merged into one company the “Ruhrkohle AG” to facilitate a structured and well-managed closure of mines and transition of workers. The aim was to start with the closure of mines which were economically least competitive. The federal government took the responsibility and covered the outstanding debts of companies joining the Ruhrkohle AG.

Table 1 continued.

Year	Key focus of reforms	Regulation/ policy instruments	Measures
1968 - 1999	Formulation of regional development policies and providing funding support for them to mitigate the impact of coal mine closure on jobs and local economy	Development Program Ruhr (DPR) 1968 - 1971	<p>i. The program was developed to:</p> <ul style="list-style-type: none"> • Provide social safety nets and unemployment benefits. • Invest in educational institutions. • Improve connectivity of Ruhr region. • Support urban development activities. • Support environmental remediation measures. <p>ii. €8.7 billion (US\$9.7 billion) total funding support provided for the programme, the majority of which was provided by the regional government of NRW. Support was also received from the national government, Coal and Steel Union funds, and the European Recovery Program.</p>
		Action Program Ruhr (APR) 1980-1984	<p>i. The programme was implemented as a reaction from the government of NRW to the economic downturn resulting from the oil crisis of 1979. The key focus was to prevent emigration by promoting regional economic development and reduce further unemployment in the region.</p> <p>ii. €3.5 billion (US\$3.9 billion) total funding support provided for the programme. It was supported by the regional government of NRW, the national government, and the European Community.</p>
		Future Initiative for Coal and Steel Regions (FICSR). In 1989, FICSR was expanded to the remaining regions and renamed Future Initiative for the Regions of North Rhine-Westphalia (FIRNRW) 1987-1991	<p>i. Implemented to address a massive wave of layoffs in the steel and coal industry.</p> <p>ii. The FICSR focused on infrastructure development, labour market, education and vocational training, attracting companies and investments, future technologies.</p> <p>ii. €1.1 billion (US\$1.2 billion) total funding support provided for the programme.</p> <p>It was supported by the NRW government, national government, the European Community (the support program for steel regions), and European Structural and Investment Funds.</p>
		IBA Emscher Park (IBAEP) 1989-1999	<p>i. Implemented to promote economic, urban, and environmental renewal in the Ruhr area. It brought together stakeholders from business, politics, and professional associations to engage in dialogue to change the Ruhr area's image.</p> <p>ii. €2.5 billion (US\$2.8) total funding support was provided for the programme, largely coming from the private sector. Besides, the existing funding programs of the NRW, the national government and the European Union also provided additional support.</p>

Table 1 continued.

Year	Key focus of reforms	Regulation/ policy instruments	Measures
2007-2018	Reduce sale subsidy for hard coal and close remaining hard coal mines	Act on Financing the Termination of Subsidized Coal Mining (AFTSC) enacted in 2007	<ul style="list-style-type: none"> i. Aimed at gradually ending sale subsidies for domestic hard coal by 2018. In 2007, hard coal production reduced to only 21 million tonnes (MT). ii. The AFTSC updated regulations on the adjustment allowances for laid-off workers and was accompanied by measures from the national government for the reemployment of workers who did not meet the age criterion under adjustment allowances. The law also included provisions for financing the decommissioning process, and supporting post-mining environmental compliance measures. The RAG Foundation (RAG-Stiftung) was created to ensure that the costs of post-mining perpetual obligations (mainly related to water management) were met. iii. €14.8 billion (US\$16.6 billion) total support provided for its implementation. Financial support was provided by the national government, regional governments, and the EU.
Transition of coal and lignite-based power and lignite mines			
2018	Establishment of independent body to guide government on coal transition	Establishment of the 'Commission on Growth, Structural Change and Employment', also known as the 'Coal Commission' in June 2018	Commission tasked with the key responsibilities of developing a strategy for phasing out coal-fired power generation that would allow Germany to meet its climate mitigation targets. Also, define policy measures that would create economic opportunities for the affected coal-mining regions.
2020	Phase out coal power plants (and associated lignite mines) by 2038 towards meeting Paris Agreement goals	Act to Reduce and End Coal-Powered Energy and Amend Other Laws (Coal Exit Act)	<ul style="list-style-type: none"> i. Compensation for closure of lignite-based power plants. Compensation to industries based on negotiation between the German government and the industry. €4.35 billion (US\$4.9 billion) to two lignite-based power plant operators to pay power plant owners for phased closure of about 21 GW of lignite-based capacity.

Table 1 continued.

Year	Key focus of reforms	Regulation/ policy instruments	Measures
2020			<p>ii. Introduces a coal exit auction mechanism for hard coal-based power plants, organised by the German Federal Network Agency (Bundesnetzagentur – BNetzA). Under this:</p> <ul style="list-style-type: none"> • Operators of hard coal-based power plants can demand compensation for closure through reverse auctions. The power plant operators can tender capacity volumes to be taken off the grid, and the money they demand for the closure.⁸ • The first round of auction was set for 2020, with corresponding year of decommissioning being 2021. The last auction will take place in 2023, with the last year for decommissioning power plants cleared in the auction being 2026. No compensation will be provided and forced shutdown will take place post the stipulated timeframe.⁹ • Auction incentivises early closure. Therefore, in 2020, the maximum bid was €165,000/MW (US\$184,800/MW), while in the last auction in 2023 the maximum bid is €89,000/MW (US\$ 99,680/MW). <p>iii. Fiscal compensation for workers.</p> <ul style="list-style-type: none"> • Adjustment money to workers who are above the age of 58 years against their loss of income. The money will be provided for a maximum five-year period until they reach the qualifying age for pension benefits. • Health insurance payment for workers eligible for adjustment money. • Employees in subsidiaries or partner companies if they work almost exclusively for the main companies affected will also be eligible for compensation. • Overall, about €5 billion (US\$5.6 billion) shall be spent towards compensations.
	Support structural development measures and economic diversification of coal regions	Structural Development Act (SDA)	<p>i. A total of €40 billion (US\$44.8 billion) investments until 2038 for job creation, boosting regional economies, broadband and physical infrastructure development, education infrastructure, etc.</p> <p>ii. Of the total €40 billion (US\$44.8 billion), €14 billion (US\$15.7) provided to states/lignite-coal regions as financial aid by the national government; and the rest €26 billion (US\$29 billion) investments is tied through federal programmes.</p>
	Support from the EU	EU JTM	Financial support of €2.5 billion (US\$2.8 billion) for four coal regions of Germany.

Besides policies of the Government of Germany, just transition in the country is also guided by the policies of the European Union (EU). The key one in this regard is the Just Transition Mechanism (JTM).

The JTM was introduced in 2020 to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind.¹⁰ The mechanism aims to provide targeted support to:

- Member states and regions, with high dependence on fossil fuel and carbon-intensive industries;
- People and citizens who are most vulnerable to the transition; and,
- Companies and sectors, active in or comprising of carbon-intensive industries.

The JTM intends to mobilise around €55 billion (US\$61.6 billion) between 2021-2027 in the most affected regions, to alleviate the socio-economic impact of the transition.¹¹ The money shall be mobilized through three mechanisms:¹²

- Just Transition Fund (JTF), which primarily provides grants;
- A dedicated scheme under the InvestEU programme which crowds in private investments; and,
- A public sector loan facility provided by the European Investment Bank (EIB) to mobilise additional investments (public financing) in the regions concerned.

With respect to influencing just transition policies and plans, the JTF is a key instrument. The main objectives of the JTF are to alleviate the impact of the transition by financing economic diversification and modernisation of the local economy of the impacted regions, and mitigating the negative impacts on employment. The JTF supports investments in areas such as, digital connectivity, clean energy technologies and emission reduction mechanisms, regeneration of industrial sites, economic revitalisation, reskilling of workers and technical assistance.¹³

The allocation of the JTF to member states is based on certain criteria. These include:

- Industrial emissions in regions with high carbon intensities;
- Employment in industry and in coal and lignite mining;
- Production of peat and oil shale; and,
- The level of economic development.

The JTF has an overall budget of €17.5 billion (US\$19.6 billion) for 2021-2027. The disbursement of the fund is also contingent on member states having developed the Territorial Just Transition Plans (TJTP) for the concerned regions, and the approval of the same by the European Commission.¹⁴

A 'formula' has also been outlined to determine how the funds will be distributed geographically. The key determining factors are the population of the concerned regions, employment in coal and lignite mining, and employment in industries. The criteria as weighted are as follows:¹⁵

- The carbon intensity of a country's NUTS2 regions, i.e., regions with population between 800,000 to 3 million inhabitants (weighting 49%);
- Employment in coal and lignite mining (weighting 25%);
- Employment in industry (weighting 25%);
- Production of peat (weighting 0.95%);
- Production of oil shale (weighting 0.05%).

For Germany, €2.5 billion (US\$2.8 billion) has been mobilized through the JTF mechanism (October, 2022) to support the implementation of TJTPs in four regions. These include, €785 million (US\$879.2 million) for Brandenburg, €680 million (US\$762 million) for NRW, €645 million (US\$722.4 million) for Saxony, and €364 million (US\$407.7 million) for Saxony Anhalt.¹⁶ (Refer to Chapter 3 for more details).

THE JUST TRANSITION FUND AND TERRITORIAL JUST TRANSITION PLANS

The Territorial Just Transition Plans (TJTJs) are a precondition for EU Member States to access the Just Transition Fund (JTF), that has been set-up by the EU “to mitigate the adverse effects of the climate transition by supporting the most affected territories and workers concerned, and to promote a balanced socio-economic transition” in the regions relying on fossil fuels and carbon-intensive industries.

As per the regulation that establishes the JTF and specifies the formulation of TJTJs, [Regulation (EU) 2021/1056 of the European Parliament and of the Council], the TJTJs are required to address certain factors that are important for implementing just transition measures. These include:

- Identify most affected territories, where JTF support should be concentrated;
- Describe specific actions to be undertaken to reach the EU’s 2030 targets for energy and climate, and a climate-neutral economy of the Union by 2050, in particular the conversion or closure of facilities involving fossil fuel production or other greenhouse gas intensive activities;
- Set out the challenges and needs of those territories, taking into account depopulation risks; and,
- Identify the type of operations needed to contribute to job creation at the level of the beneficiaries and in a manner that ensures the coherent development of climate-resilient economic activities that are also consistent with the transition to a climate-neutral economy.

Source: The European Parliament and Council of the European Union. (2021). Regulation (EU) 2021/1056 of the European Parliament and of the Council establishing the Just Transition Fund

Observations on policy and institutional measures

The key pillars and elements of just transition, as evident from the German experience are outlined below. The key focus of the laws and policies has been articulating strong governance and institutional mechanisms, ensuring labour support and economic diversification of coal regions, and investing in social infrastructure and regional development. Financing support has been provided by the national government, and also leveraged through the EU funding mechanisms.

Table 2: Key pillars and elements of just transition in Germany

Pillars	Key elements
Governance and institutional mechanisms	<ul style="list-style-type: none"> i. Setting up an independent Commission by the national government to inform the government on transition measures and facilitate stakeholder engagement. ii. Setting a target year for a transition from coal-based power (and also closure of mines), considering climate change and greenhouse gas (GHG) emission reduction targets, and outlining a strategic roadmap. iii. Formulation of new regulations and policies, as well as evoking the provisions/strengthening various baseline regulations and policies to guide a well-managed transition. iv. Support to industries to ensure a well-managed and accelerated closure process. v. Dedicated funding support for implementation of policies and programmes.

Table 2 continued.

Pillars	Key elements
Labour support	<ul style="list-style-type: none"> i. Compensations for workers directly employed by the company, and also subsidiaries and partner companies. ii. Reskilling. iii. Social safety nets and unemployment benefits.
Economic diversification	Economic diversification of coal regions through public sector investments, and incentivising private investments.
Social infrastructure and regional development	<ul style="list-style-type: none"> i. Formulation of regional development policies and providing funding support for them. ii. Investments in educational institutions. iii. Investments in local public transport, broadband and mobility infrastructure.
Regional cooperation from European Commission	Financing support through JTF for implementation of just transition in coal regions.

2.2 Poland

Number of mines: 21 hard coal mines, and 5 lignite mines (as of 2020)

Coal and lignite production per year: Hard coal about 56 MT, and lignite 46.1 MT (as in 2020)

Regions to be impacted by coal mine closure: Hard coal mines are primarily located in Silesia and Lubelskie regions, and the lignite mines are located in Bełchatów, Turów, Adamów, Konin, and Sieniawa regions. Among these, Silesia (the upper Silesia coal basin) has the largest concentration of coal mines, with mining playing an important role in the regional economy. The mining industry's share of Silesia's Gross Value Added (GVA) remains about 6.9% (estimates as of 2017). Overall, 80% of Poland's mining sector employees are in Silesia. Considering such production and high dependence on coal, the last coal mine is planned for closure in Silesia in 2049. In other regions, phase out dates are earlier.

Number of coal-based power plants: 43 (as of January 2023)

Installed capacity: 29.13 GW (as of January 2023)

After the promulgation of Poland's National Energy and Climate Plan (2021-2030) in 2019, about 2.6 GW coal-based power capacity has retired. In the next two decades (2023-2040), Poland plans to retire 15.7 GW of coal-based power capacity, which is about half of its current capacity (Global Energy Monitor, 2023).

Regions to be impacted by coal-based power plant closure: Śląskie, Mazowieckie, Kujawsko-Pomorskie, Dolnośląskie, Łódzkie, Lubuskie, West Pomerania, Wielkopolskie, Zachodnio-Pomorskie, Tarnow, Świętokrzyskie, Pomorskie, Podlaskie, Opolskie, Małopolskie

Worker scenario: In 1990, the mining sector in Poland employed about 440,000 workers. As of 2020, it has declined to 88,000. Additionally, there are about 17,948 workers in lignite power plants. To achieve the targets set in the Polish Energy Policy, employment in hard coal mining has to decrease substantially by 2030, with as many as 14,000 direct jobs to be reduced.

Sources:

1. Dmochowska-Dudek, K., Wojcik, M. (2022). Socio-Economic Resilience of Poland's Lignite Regions. *Energies*.
2. International Energy Agency. (2022). Poland 2022 Energy Policy Review.
3. Global Energy Monitor. (2022). Global Coal Mine Tracker.
4. Resources for the Future. (2022). Just Transition in Poland: A review of public policies to assist polish coal communities in transition Report.
5. Global Energy Monitor. (2023). Coal plant tracker.
6. Eurostat. (2021). Coal production and consumption decreased by a third in 2 years in Poland.
7. Sokołowski, J., Frankowski, J., Mazurkiewicz, J., Lewandowski, P. (2022). Hard coal phase-out and the labour market transition pathways: The case of Poland. *Environmental Innovation and Societal Transitions*.

Poland is one of Europe's top producers of hard coal and lignite. Moreover, it is one of the two countries still producing hard coal (the other is Czechia). However, coal mining has been experiencing a steady decline due to emission reduction targets of the EU and its member states.

The transition from coal in Poland started over 30 years ago in the early 1990s. Like Germany, it was triggered by concerns over the economic viability of the coal sector (particularly hard coal) following market competition from other countries.¹⁷ Since 1990, in just three decades, coal production in the country has reduced by more than 50%, from 229 MT in 1990 to 108 MT in 2020. The major share of the decline has been in hard coal production (from 147 MT in 1990 to about 56 MT in 2020). Employment in the mining sector has also decreased simultaneously over the last three decades, experiencing a nearly 80% decline between 1990 to 2020 (from 444,000 to 88,000).¹⁸

Policy measures and institutional reforms

Responding to the challenges in the coal mining sector and subsequently the impacts on workers and local communities, the Government of Poland has promulgated a series of policies and institutional reform measures since the 1990s. The measures are targeted towards streamlining the closure process, providing worker protection, job creation, and attracting investments in the coal regions to ensure economic prosperity.

In the 1990s, one of the first policy decisions was to close unprofitable underground mines and support the transition of workers associated with such operations. The government introduced mainly two policies to aid this – the ‘miner’s leave or pre-retirement benefit’ (1993) and ‘welfare allowances’ to support worker transition measures.¹⁹

In 1998, the Adoption of Reform of Hard Coal Mining Plan was developed to aid the closure of unprofitable mines further and downsize the workforce (reduction of 100,000 workers out of the 243,300 mineworkers employed in 1997). To support the workers, a ‘Mining Social Package’ (MSP) was adopted. The MSP helped in the closure of 13 mines (leaving 41 in operation) and provided support to the workers (67,000 workers benefiting from MSP, and 35,600 opting for regular retirement).²⁰

The transition of the coal-based power sector (alongside the ongoing transition of the coal mining industry) in response to the climate crisis has gained momentum since 2019. Three specific regulations and policies remain instrumental for this. These include:

- The National Energy and Climate Plan (2021–2030), as promulgated in 2019;²¹
- The Energy Policy of Poland until 2040, as adopted in February 2021;²² and,
- The Social Contract signed between the Government of Poland and the coal trade unions in May 2021.²³

The National Energy and Climate Plan (2021–2030): The plan envisions establishing a “stable framework” for a “sustainable, economically effective and just transition towards a low carbon economy”.²⁴ The Plan emphasises on the following aspects to support a just transition:

- Having necessary financing measures at the national level, including the use of JTF, to support projects in the mining areas for providing or augmenting infrastructure (including sewage and rainwater systems, water supply networks and power, heat supply, telecommunications or gas supply networks, etc.).
- Financial support from the national government, and use of EU funds for creation of investment areas at former mine sites to promote economic activities.
- Investments in research and innovation to address social and economic transition in the mining regions of the country.

The responsible agencies for formulating measures for the implementation of the plan include, the Ministry of State Assets (MAP), the Ministry of Development Funds and Regional Policy (MFIPR), the Ministry of Science and Higher Education (MniSW) and the Ministry of Development and Technology (MR).²⁵

The Energy Policy of Poland until 2040 (EPP2040): The Energy Policy underscores that the energy transition in Poland will be based on three pillars – just transition, achieving zero-emission energy system and good air quality.²⁶

Considering the dominant position of coal in the country’s energy system (a share of 68.5% of electricity generation and 40.2% of total energy supply), the policy has laid specific emphasis on coal transition. It aims to reduce both demand and production of coal (no more than 56% share of coal in electricity production in 2030 and at least 23% of RE sources in gross final energy consumption in 2030), while ensuring a just transition for the workers and the communities and regions that the coal transition will impact.²⁷

The following are the key components of just transition that the Policy highlights:²⁸

- Transition of coal regions;
- Reducing energy poverty;
- Development of new industries related to RE (including nuclear energy);
- Reclamation of mining areas for economic development; and,
- Investing in economic and social transition measures of entire coal regions, i.e., Silesia, Lower Silesia, Greater Poland, Lesser Poland, and Łódzkie and Lubelskie.

The policy also mentions that activities related to the transition of coal regions will be supported with funds amounting to approximately €12.5 billion (US\$14 billion).²⁹ Overall, the Policy outlines that nearly €55 billion (US\$61.6 billion) will be allocated toward national energy and climate transition until 2030. This will include funding from the EU and national funds under various mechanisms:³⁰

Social contract: The social contract specifies provisions for labour support and security in the event of coal mine closure. The contract aims to close all hard coal mines (excluding coking coal mines) by 2049.³¹ It ensures that all workers employed in the mines and coal processing plants (as of September 25, 2020), will have the right to either keep their jobs until they retire, or find employment in another operational mine. Further, provisions for early retirement, severance payments, and retraining support for the workers have also been specified.³²

Besides national policies, like various EU member states, just transition measures in Poland are also supported by the JTM and disbursement of the JTF. As of December 2022, €3.85 billion (US\$4.3 billion) has been provided through JTF to “support a just climate transition in the coal regions” of Poland. Out of this, over 62% (€2.4 billion (US\$2.7 billion) has been earmarked for Silesia and Western Małopolska, as Silesia has the largest share of hard coal mining activities in the EU, and a transition of this region from coal extraction, as well as coal combustion, will have an effect on Western Małopolska.³³ Besides, €581.5 million (US\$651.3 million) has been earmarked for Lower Silesia, €415 million (US\$464.8 million) for Wielkopolska, and €369.5 million (US\$413.8 million) for Łódzkie.³⁴ (Refer to Chapter 3 for more details).

Table 3: Policy and institutional reforms to support just transition in Poland, 1990-2022

Year	Key focus of reforms	Regulation/policy instruments	Measures
1993	Labour support to workers engaged in unprofitable underground mines	Miner’s leave or pre-retirement benefit (for miners with three or less years to retirement)	Workers paid 50% of their salary for a maximum of three years. The money could be taken in one-time upfront payment or as monthly instalments. Benefits to be halved if the miner found another job during the benefit period.
		Welfare allowance (for miners who had more than three years left until their retirement age)	Eligible beneficiaries can receive a payment in return for voluntary termination of the employment contract.
1998	Coal sector restructuring for closure of unprofitable mines	Adoption of Reform of Hard Coal Mining Plan in 1998	Aid closure of unprofitable mines, downsize workforce and reform the sector. Target 100,000 reduction in workforce (out of the 243,300 mineworkers employed in 1997).

Table 3 continued.

Year	Key focus of reforms	Regulation/policy instruments	Measures
	Labour support	Enactment of 'Hard Coal Mining to Functioning in Market Economy Conditions and Special Rights and Tasks of Mining Communities' Act in 1998. A special provision in the Act is Mining Social Package (MSP)	<ul style="list-style-type: none"> i. Aid early and voluntary retirement of miners engaged in the unprofitable mines. ii. The benefits included early retirement benefits, welfare allowances (as promulgated in the 1990s), or a one-time unconditional severance payment. Support available to all underground miners who had been employed for at least five years. iii. Support mining areas on environmental protection and job creation. iv. Initial funding for MSP came from a loan provided by the World Bank to the government. Overall expenditures on MSP from state was US\$1.9 billion (1998-2002). Additionally, US\$445 million was provided by the mining companies. 67,000 workers benefitted from the MSP.
2000-2018	Development of agencies to support mine closure	Establishment of a Mine Restructuring Company Spółka Restrukturyzacji Kopalń (SRK)	The company was established to deal with the closure of mines, safeguarding infrastructure, repairing mining damage and reclaiming sites, asset management, and sale of real estate.
	Strengthening of welfare support	Coal allowance for pensioners	In kind remuneration in the form of free coal for use in their homes, or a cash equivalent to pensioners from active and liquidated mines.
2019	Strengthening climate mitigation action, diversifying economy of mining regions, and building resilient communities	National Energy and Climate Plan 2021-2030	<ul style="list-style-type: none"> i. Aims to reduce GHG emissions, support development of RE and energy efficiency. ii. Emphasises on reclamation and repurposing (comprehensive site preparation) of mining sites for economic activities. iii. Emphasizes on having necessary financing measures at the national level, including use of JTF to support projects in the mining areas.³⁵
2021	Reducing environmental impacts of energy sector, ensure energy security, ensure just transition	Energy Policy of Poland until 2040	<ul style="list-style-type: none"> i. Identifies 'just transition', as a key component of energy transition strategy, alongside zero-emission energy system and good air quality. ii. Specifies that the first mine would be closed in 2021, and the last mines would cease operation in 2049; the majority of mines would be closed after 2030. iii. Emphasises transformation of former mine sites, as well as post-industrial sites. iv. Emphasises on investments in RE and green industries creation of new jobs.
	Specific labour support for coal industry workers	Social contract between the Government of Poland and the coal trade unions	<ul style="list-style-type: none"> i. Retraining of all workers employed in the mines and coal processing plants as of September 25, 2020. This will be provided as a one-time opportunity.³⁶ ii. Severance pay - All workers employed in the mines and coal processing plants as of September 25, 2020 can receive a one-time severance payment of US\$31,000.³⁷

Table 3 continued.

Year	Key focus of reforms	Regulation/policy instruments	Measures
			<p>iii. Pre-retirement mining leave or compensation for workers employed in the mines and coal processing plants as of September 25, 2020 are eligible for a special pre-retirement mining leave, during which they will receive 80% of salary.</p> <p>The leave will be available to miners with no more than four years remaining until retirement and employees of processing plants at least three years before retirement.</p>
2022-2023	Power sector reform and investments in RE	Creation of National Energy Security Agency- NABE (Acronym for the state-run National Energy Security Agency)	<p>i. Allow coal-fired generation assets to be separated from state-controlled utilities and transfer them to NABE.</p> <p>These will be both hard coal and lignite power plants, as well as lignite mines.</p> <p>ii. The reform is expected to improve the ability of Poland's state-controlled utilities to access financing for investments in RE and natural gas or nuclear.³⁸</p>
2022	Support from the EU	EU JTM	Financial support of €3.85 billion (US\$ 4.3 billion) for four coal regions of Germany.

Observations on policy and institutional measures

In Poland, while the national-level policies, plans, and social contract create an enabling ecosystem to support a just transition, the JTM of the EU remains instrumental in supporting coal transition measures in the country.³⁹ The pillars and key elements emerging from the national policy review of Poland are outlined below.

Table 4: Key pillars and elements of just transition in Poland

Pillars	Key elements
Strong support of the national government	<p>i. Closure of unprofitable coal mines.</p> <p>ii. Development of institutions to ensure a well-managed closure process.</p> <p>ii. Formulation of new regulations and policies, as well as evoking the provisions/strengthening various baseline regulations and policies to guide a well-managed transition.</p> <p>ii. Providing dedicated funding support for implementation of policies and programmes.</p>
Labour support	<p>i. Early retirement benefits and compensations.</p> <p>ii. Severance packages.</p> <p>iii. In kind welfare allowances.</p>
Economic diversification and job creation	<p>i. Reclamation and repurposing (comprehensive preparation) of mining sites for economic activities by creating investment sites for potential investors.</p> <p>ii. Investments in RE and green industries to create jobs.</p> <p>iii. Investments in infrastructure to attract investments.</p>
Regional cooperation from European Commission	Financing support through JTF for implementation of just transition in coal regions.

2.3 Spain

Coal mining scenario: All coal mines in Spain have been closed down, following the direction of the EU to close all unprofitable mines by December 2018. This essentially covered all coal mines of the country. The closure of 26 uncompetitive coal mines by 2018 affected at least 1,677 workers directly, and many more indirectly. Spain currently remains a net importer of coal, with about 6.4 MT coal imported in 2021.

Number of coal-based power plants: 7

Installed capacity: 2.2 GW

Regions to be most impacted by coal-based power plant closure: Southwest Asturias, A Coruña, Teruel, León, Palencia, Almería, Cádiz, Córdoba, Alcúdia, Asturias.

As per Global Energy Monitor, over the last two decades (2000 to 2022), 40 coal based units with a total capacity of 10.9 GW have retired. By 2025, the country plans to retire 310 MW of its current coal power generation capacity.

Sources:

1. Global Energy Monitor. (2023). Global Coal Plant tracker.
2. World Resources Institute. (2021). Spain's National Strategy to Transition Coal-Dependent Communities.
3. International Energy Agency. (2021). Spain 2022: Energy Policy Review.

Spain's coal mine closure experience relates to the EU's decision to close unprofitable mines operational in the country by the end of 2018. In 2010, the Council of the EU communicated a decision to close all uncompetitive mines by December 31, 2018, considering their little contribution to the overall energy mix.⁴⁰

For Spain, this meant closing almost all coal mines in the country. The decision, therefore, prompted a deliberation on developing and implementing measures of worker's support and just transition in the country.⁴¹ Overall, the closure of 26 uncompetitive coal mines affected 1,677 workers directly and many more indirectly. To deal with this, the following policies and programmes were implemented:

- In 2016, the European Commission provided a €2.13 billion (US\$2.4 billion) aid package to help alleviate the social and economic impact. Mine workers over the age of 48 years, those who contributed to the coal mining social security fund for 25 years, and those who worked for 20 years for an affected company, were eligible for an early retirement benefit. This applied to about 60% of the workers. The other workers received severance pay of €10,000 (US\$11,200) plus 35 days' pay for every year of employment.⁴²
- In 2018, a 'just transition deal' (the Plan del Carbón) was negotiated between the Spanish Government and the mining unions. The deal involved a five-year investment plan (2019–2023) of €250 million (US\$280 million) for training and retraining the workers who lost their jobs due to mine closures, to provide for early retirement, to sustainably restore former mining sites, recover forests, upgrade facilities in the mining communities including facilities for waste management, recycling and water treatment, and improve utilities infrastructure.⁴³
- In 2019, the 'Just Transition Strategy' was adopted under the country's Strategic Framework for Energy and Climate. The strategy provides for a five-yearly roadmap for de-carbonisation of the Spanish economy.⁴⁴ The strategy is to be updated every five years.

The Just Transition Strategy included three key components:⁴⁵

- Just Transition Agreements;
- Urgent Action Plans; and,
- Tripartite agreements.

The details of the three components are elaborated below.

Table 5: Just Transition Strategy, Spain

Components	Purpose
Just Transition Agreements	The objective is the maintenance and creation of business and employment and promotion of economic diversification in accordance with local resources. There are 14 Just Transition Agreements in place, covering 184 municipalities. Projects initiated as part of the Just Transition Agreements do not have a dedicated funding pool, but will receive technical assistance and preferential access to a variety of existing programs and funds to support their implementation, including EU funds. ⁴⁶
Urgent Action Plans	An intervention mechanism targeted for the areas that remain highly vulnerable to the closure of coal mines and power plants. The action plans align with the priorities of the Plan del Carbón. ⁴⁷
Tripartite agreements	It is an agreement with trade unions and companies in the sectors involved. Two important tripartite agreements have been signed: <ul style="list-style-type: none"> i. The Framework Agreement for a Just Transition of Coal Mining and the Sustainable Development of Mining Regions, 2019-2027, signed by the Government of Spain, the trade unions CCOO, UGT, USO and the National Federation of Coal Mining Employers (Carbunión). ii. The Agreement for a 'Just Energy Transition for Thermal Power Plants in Closure', signed by the Spanish Government, the trade unions CCOO, UGT, USO and the companies that own the plants in closure (Endesa, Iberdrola, Naturgy and EDP). A total of €338.9 million (US\$379.6 million) has been invested to support 400 projects in the Just Transition Agreement territories to invest in businesses and create jobs.

Besides national policies and strategies, just transition in Spain is also being aided by the JTF mechanism of the EU. The country has received about €869 million (US\$973.3 million) from JTF in December 2022 for eight coal regions in the country, and some municipalities in Mallorca Island. The money is provided to support sustainable economic development and resilience, develop RE and create jobs in these regions.⁴⁸

Observations on policy and institutional measures

The Spanish coal transition has primarily followed the decision of the EU in 2010 to close all unprofitable coal mines. The transition, while of a much smaller scale compared to major coal economies like Germany or Poland, remains a successful example of worker transition and plan for coal region development.

Table 6: Key pillars and elements of just transition in Spain

Pillars	Key elements
Government support	<ul style="list-style-type: none"> i. Closure of unprofitable coal mines. ii. Facilitating and engaging in negotiations with the labour union. iii. Adoption of a 'Just Transition Strategy' under the country's Strategic Framework for Energy and Climate.
Labour support	Investments for working training and retraining, early retirement, etc. under the 'just transition deal' (the Plan del Carbón).
Revitalisation of coal regions	Investments for restoration of former mining sites, upgradation of infrastructure and municipal facilities in impacted regions, and improvement of utilities infrastructure, etc., under the 'just transition deal'.
Economic and social development	<ul style="list-style-type: none"> i. €2.13 billion (US\$2.4 billion) aid package from European Commission to help alleviate the social and economic impacts of the coal transition. ii. €869 million (US\$973.3 million) from JTF to support economic development, create jobs, build resilience of the coal regions.

2.4 Scotland

Coal mining scenario: There are currently no operational coal mines in Scotland. There are 18 licences that are recorded as having an expiry date beyond May 2022. However, 15 relate to the Scottish Coal Company, which has been in liquidation for some time and where the authorisation to mine is no longer in place. The remaining three sites are either under restoration or already restored. Therefore, no future coal mining is likely take place at any of these 18 sites.

Coal-bases power plant production scenario: The last coal power station in Scotland closed in 2016.

Oil and Gas: Oil and gas extraction alone was worth an estimated £8.8 billion (US\$10.6 billion) in GVA to Scotland's economy in 2019, representing 5% of total Scottish GDP. The oil and gas sector are a major employer, estimated to support around 100,000 jobs in Scotland in 2018 through direct, indirect and induced impacts.

Source:

1. Energy and Climate Change Directorate. (2022). Coal Extraction Policy: Call for Evidence. Government of Scotland.
2. Energy and Climate Change Directorate. Oil and Gas. Government of Scotland.

The Climate Change (Emissions Reduction Targets) Act, 2019, enacted by the Government of Scotland, is an important example of a climate law with principles of just transition enshrined. The law, which specifies a 2045 net zero emissions target year considering various fossil fuel sectors of the economy, also emphasises just transition. Five principles of just transition have been specified in the process of reducing GHG emissions.⁴⁹ These include:

- Support environmentally and socially sustainable jobs;
- Support low-carbon investment and infrastructure;
- Create decent, fair and high-value work in a way which does not negatively affect the current workforce and overall economy;
- Contribute to resource efficient and sustainable economic approaches which help to address inequality and poverty; and,
- Develop and maintain social consensus through engagement with workers, trade unions, communities, non-governmental organisations, representatives of business and industry, and such other persons as the government may consider appropriate.

The government has also taken other measures to support the transition process towards achieving climate change goals. In this respect, developing a Just Transition Commission, and proposing a National Just Transition Planning Framework is significant.

In 2018, a Just Transition Commission was appointed to provide independent advice to Scottish Ministers on the long-term strategic opportunities and challenges relating to the transition to a net zero economy. The Commission was initially established for a period of two years. Between 2019 and 2020, the Commission interacted with various stakeholders to develop recommendations for the government on long-term strategic opportunities and challenges for transitioning to a net zero economy, and submitted their report to the government in 2021.⁵⁰

The Commission recommended key elements for just transition centred around four pillars, which are summarised below.⁵¹

Table 7: Key recommendations of the Just Transition Commission, Scotland

Principles/Pillars	Key elements
Pursue an orderly, managed transition to net zero that creates benefits and opportunities for people across Scotland	<ul style="list-style-type: none"> i. Develop roadmap for the net zero transition in Scotland, including for key technology options. ii. Develop just transition plans for high-emitting industrial sectors and include clear milestones until 2045. iii. Develop a just transition plan for the land and agriculture sectors and include clear milestones until 2045. iv. Develop more competitive offshore wind projects. iv. The public sector should be more prescriptive and strategic in its use of funding streams to build strong and resilient local supply chains. vi. Public funding for climate action should be conditional on 'fair work' terms. vii. Develop a position on the role of a carbon border tax to mitigate against the threat of offshoring emissions and jobs.
Equip people with the skills and education they need to benefit from the transition to net zero	<ul style="list-style-type: none"> i. Lay the groundwork for flexible, accessible skills and education system that can also address existing inequalities in the labour market. ii. Support small and medium sized enterprises to invest in their workforces. iii. Create a skill guarantee for workers in carbon-intensive sectors. iv. Equip farmers and land managers with the skills, training, and advice as required.
Empower and invigorate communities and strengthen local economies	<ul style="list-style-type: none"> i. Implement a 'Green Participatory Budgeting' with agreed funding targets. ii. Launch a call to action for engagement with 'Regional Land Use Partnerships'. iii. Empower and resource local authorities to deliver a just and green recovery. iv. The central government, local authorities and developers must commit to creating communities that embed low-carbon lifestyles, while improving health and wellbeing.
Share the benefits of climate action widely; ensure costs are distributed on the basis of ability to pay	<ul style="list-style-type: none"> i. Take decisive action to ensure that all consumers are able to benefit from the increased availability of new ways of buying and selling electricity. ii. Any additional costs for consumers associated with emissions reduction must be linked to their ability to pay. iii. The public sector pension funds and business support funding must be directed towards ensuring companies align with the just transition to net-zero. iv. Identify new funding mechanisms to mobilise finance towards local projects.

Responding to the report of the Commission, in 2021, the Government of Scotland proposed a 'National Just Transition Planning Framework' outlining a pathway on how a just transition to a net zero economy shall happen. The framework targets all fossil fuel sectors and their value chain. As noted by the Government, this approach is necessary to meet the country's climate change targets of 75% GHG emissions reduction by 2030, and net zero emissions by 2045.⁵²

The framework highlights eight pillars to ensure just transition outcomes for the country. These pillars and the envisioned 'national just transition outcomes' are outlined below.

Table 8: National just transition outcomes, Scotland

Components	Measures and key elements
Citizens, communities and place	Support affected regions by empowering and invigorating communities and strengthening local economies.
Jobs, skills and education	Equip people with the skills, education and retraining required to support retention and creation of access to green, fair and high-value work.
Fair distribution of costs and benefits	Address existing economic and social inequality by sharing the benefits of climate action widely, while ensuring that the costs are distributed on the basis of ability to pay.
Business and economy	Support a strong, dynamic and productive economy which creates wealth and high-quality employment and upholds the UN Guiding Principles on Business and Human Rights.
Adaptation and resilience	Identify key risks from climate change and develop actions to build resilience, ensuring that the economy is flexible, adaptable and responsive to the changing climate.
Environmental protection and restoration	Commit to act within planetary boundaries while protecting and restoring the natural environment.
Decarbonisation and efficiencies	Contribute to resource efficient and sustainable economic approaches that actively encourage decarbonisation, support low-carbon investment and infrastructure, and avoid carbon 'lock-in'.
Further equality and human rights implementation and preventing new inequalities from arising	Address fuel poverty and child poverty, while furthering wider equality and human rights across all protected categories.

The framework is intended to guide just transition planning mechanisms in the country, including at the organisational levels, considering certain key aspects in developing such plans. The plan must be evidence-led, adaptable and iterative, co-designed and co-delivered, and built upon existing work and experience. The government will facilitate coordination among various stakeholders, and oversee the development and drafting of each of these plans, ensure integration with national policy.⁵³

Observations on policy and institutional measures

The experience of Scotland so far suggests that the national government has undertaken strong policy measures to support just transition towards a net zero economy. This includes principles of just transition under the country's Climate Change Act and creating a Just Transition Commission to develop a National Just Transition Planning Framework. The country has also taken a holistic approach to supporting the just transition of all fossil fuel sectors.

2.5 Canada

Number of coal mines: 14 (as of 2022)

Coal production per year: 57 MT in 2019

Regions to be most impacted by coal mine closure: Alberta, Saskatchewan, British Columbia, and Nova Scotia

Number of coal-based power plants: 10 (Global Energy Monitor, 2023)

Installed capacity: 4.7 GW (Global Energy Monitor, 2023)

Regions to be most impacted by coal-based power plant closure: Alberta, Saskatchewan, New Brunswick, and Nova Scotia

As per Global Energy Monitor, currently, 10 coal fired power plants with 4.7 GW capacity are operational in Canada. In the last two decades (2000 to 2022), 47 coal based units with a total capacity of 14.8 GW have retired, 5.1 GW of which after the report of Just Transition Task Force in 2018. By 2029, Canada plans to retire 3.6 GW, which is more than half of its current capacity.

As per the report from Task Force on Just Transition, about 3,500 to 5,000 workers worked at coal-fired generating stations and domestic thermal coal mines in 2016 in Canada. Some coal-fired electricity generating facilities plan to convert to run on natural gas, and will continue to operate and employ staff.

Canada has a current capacity of 22.9 GW gas fired power plant in the country owing to 73 operational power stations.

Source

1. Global Energy Monitor. (2023). Global Coal Plant Tracker.

2. Coal Facts. (2022). Government of Canada

3. Just Transition Task Force. A Just and Fair Transition for Canadian Coal Power Workers and Communities. (2019). Government of Canada.

The coal transition in Canada has been triggered by the national government's enactment of Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations in 2012. The law required coal-fired electricity generating units in Canada to limit emissions to no more than 420 tonnes of carbon dioxide per gigawatt hour.⁵⁴ The regulatory mandate essentially meant that most of Canada's coal-fired units will close before their end-of-life period, unless they are equipped with technology to meet the emission standard, or are located in a province that has an equivalency agreement with the Government of Canada.⁵⁵

In December 2018, the Government of Canada amended the 2012 regulations to accelerate the phase out of traditional coal-fired electricity by 2030.⁵⁶ As per Canada's Energy Future (2021) report published by the Canada Energy Regulator, the country is on its way to reduce its dependence on coal-based power generation to less than 1% of the energy mix by 2035, compared to 5% in 2019.⁵⁷

In 2017 (before the government introduced regulatory amendments), Canada had 36 coal-based power units with a combined generation capacity of about 10 GW. Out of these 20 units were expected to shut down before 2030. Besides, one unit (in Saskatchewan) was equipped with carbon capture and storage technology and was meeting the emission standards. The rest of the 15 units were thus expected to undergo forced closure, implement carbon capture technology or convert to natural gas-fired power plants to lower emissions.⁵⁸

Responding to this, coal-based units in various provinces of Canada announced plans to convert to gas-based units. This was facilitated by provincial governments engaging with companies through off-coal agreements. For example, the Government of Alberta signed an

off-coal agreement with three companies (TransAlta, ATCO, and Capital Power) whose units would face an accelerated closure. These companies were provided a financial package for converting six coal units with a cumulative capacity of 3,500 MW capacity to natural gas units. A C\$1.36 billion (US\$1.03 billion) package was announced that would be paid to the companies over 14 years (2017–2030). The money for compensation is raised from the province’s carbon tax on large industrial emitters.⁵⁹

The move by the government to reduce emissions from coal plants and subsequently to phase out coal-based electricity prompted the deliberation on just transition for the workers and affected communities. In April 2018, the government constituted a ‘Task Force on Just Transition for Canadian Coal Power Workers and Communities’, to better understand the impacts of phasing out coal and the support required for those affected. After engaging with all stakeholders, the Task Force developed a set of recommendations centred around six pillars for a sustainable transition away from coal.⁶⁰ The recommendations are summarised below.

Table 9: Key recommendations of the Just Transition Task Force, Canada

Principles/Pillars	Key elements
Embed just transition principles in policy and processes	<ul style="list-style-type: none"> i. Include just transition provisions in federal environmental and labour laws; ii. Develop a plan for coal phase-out, which must be implemented through monitoring and public reporting iii. Establish a fund to study coal phase out impacts
Ensure locally available supports	Establish locally operated transition centres for affected workers, families, and communities that will provide relevant information and improve access to government services and programs.
Provide workers a pathway to retirement	Create pension bridging program to support early retirement.
Transition workers to sustainable employment	<ul style="list-style-type: none"> i. Create a publicly available inventory of coal workers, including their skills profiles, demographics, locations, and current and potential employers. ii. Create a comprehensive funding program for displaced workers to address their needs during all stages of securing a new job. This will include income support, education and skills building, and mobility assistance.
Invest in community infrastructure	For offsetting employment losses from the coal phase-out in the short term, and supporting economic growth over the medium to long term.
Fund community planning, collaboration, diversification, and stabilisation	Establishing a dedicated, comprehensive, inclusive, and flexible just transition funding program.

Following the Commission’s report, in July 2021, the national government launched an ‘engagement process’ asking the country’s citizens to share their opinions on how the government can ensure a just and equitable transition to a low-carbon future for workers and their communities. The government called upon stakeholders, such as labour, industry, non-governmental organizations, as well as provincial, territorial and Indigenous partners, to provide feedback on potential elements of the proposed just transition legislation.⁶¹ In 2023, the government (the Minister of Natural Resources) announced that a just transition legislation will be introduced in Parliament in the coming year.⁶²

Observations on policy and institutional measures

Just transition measures in Canada have followed the national government's decision to reduce emission from coal-based power plants. As a result, the focus has been on coal power plant workers and the regions where these plants are located. However, due to the conversion of coal-based power units to natural gas-based units, there has been no significant job loss so far.

Simultaneously, the government has developed institutional mechanisms and deliberative processes to support just transition of workers and communities in the coming years. The development of the national Task Force, and a government-supported engagement plan have created the enablers for enacting a law on just transition, which is awaited this year.

2.6 United States

Number of coal mines: 512 (as of 2021)

Coal production per year: 577 MT (as of 2021)

Regions to be most impacted by coal mine closure: Five states account for 74% of coal production, viz., West Virginia and Pennsylvania in the Appalachian region, Illinois in the interior coal region, and Montana and Wyoming in the western coal region.

Number of coal-based power plants: 217 (Global Energy Monitor, 2023)

Installed capacity: 212 GW (Global Energy Monitor, 2023)

Regions to be most impacted by coal-based power plant closure: The states with large concentrations of coal-based power plants include Pennsylvania, Kentucky, Indiana, Iowa, Wyoming, Nebraska, Texas.

US has accelerated the country's coal power decommissioning over the last decade. While the average annual decommissioned capacity between 2000 and 2010 was 1.0 GW, it increased to 11.5 GW in the last decade. By 2040, the country plans to retire about 110.4 GW of coal-based power capacity, out of which 88 GW will be retired by 2030 (Global Energy Monitor, 2023).

Sources:

1. International Energy Agency. (2019). Energy policies of IEA countries: United States 2019 review.
2. Global Energy Monitor. (2023). Global Coal Plant Tracker.
3. Statista. (2022). Coal Mining Employment in the US. 2011- 2021 statistics.
4. US Energy Information Administration. (2022). Count of Electric Power Industry Power Plants, by Sector, by Predominant Energy Sources within Plant, 2011 through 2021. Government of US.

The US does not have any regulation or policy at the federal level that is specifically designed to support just transition. However, the steady decline in the US coal industry, including a large number of low producing mines in the Appalachian region, has prompted the federal government to develop regulations that can support a transition to clean energy and create jobs in the coal regions, alongside boosting the country's employment potential and supporting economically distressed region (See box: *Appalachian US saddled with large number of low producing mines*).

APPALACHIAN US SADDLED WITH LARGE NUMBER OF LOW PRODUCING MINES

The Appalachian region of the US includes a total of eight coal producing states, viz., West Virginia, Virginia, Pennsylvania, Kentucky (Eastern), Maryland, Ohio, Tennessee and Alabama. Over 80% of the coal mines in the US are concentrated in these states. However, they account for only about 26% of the total production.

The Appalachian coal states and counties have been experiencing a steady decline in coal production for nearly two decades. Between 2005 and 2020, coal production in Appalachia declined by more than 65%. Subsequently, employment in the coal industry declined by 54% during the corresponding time period.

A key reason for decline in coal production is the exhaustion of coal reserves that can be extracted profitably. The current reserves tend to be deeper underground and/or within thinner seams that require more labour to extract and creates a significant 'production cost premium'. Considering the declining domestic and global coal demand, coal extraction from such mines prove to be unprofitable.

Source: Appalachian Regional Commission, (2020). An Overview of Coal and the Economy in Appalachia.

Policy measures and institutional reforms

Since 2021, the government has put a renewed emphasis on mechanisms to deal with the climate crisis and clean energy transition. The 'Executive Order on Tackling the Climate Crisis at Home and Abroad' signed by President Biden (January 2021), elaborates on a wide range of transition priorities and environmental justice measures. The Executive Order, while not a legislation, sent a signal about the government's position on the just transition issue. The Order emphasised on a number of issues which are important from a just transition perspective. These include:

- Empowering workers through revitalising energy communities. To revitalise these communities, and create well-paid unionised jobs (including for women and people of colour), emphasis has been laid on reclamation and redevelopment of these areas, including reclaiming abandoned mine land;
- Creating jobs by harnessing the natural resource base, including advancing conservation measures, boosting agriculture and undertaking reforestation, through which jobs can be created for the marginalised communities;
- Building clean energy economy in an equitable manner, with a focus on creating well-paying union jobs and turning disadvantaged communities into thriving communities; and,
- Investments in social infrastructure, such as in clean water, clean energy and energy efficiency, clean transit, affordable and sustainable housing, pollution abatement and remediation, etc.

In April, 2021, the Interagency Working Group Report on 'Coal and Power Plant Communities and Economic Revitalization', which followed the Presidential Executive Order, emphasised on most of these components, including a priority intervention need for communities who will be hard-hit by coal mine and coal power plant closures. With a strong focus on social dialogue and community engagement to facilitate the process, the report laid emphasis on six key principles. These include:

- Creation of good-paying jobs;
- Federal investments to catalyse economic revitalisation;
- Supporting energy workers by securing benefits and providing opportunity;
- Prioritising pollution mitigation and remediation;
- Adopting a government-wide approach; and,
- Formalizing stakeholder engagement measures.

Subsequent to the Order and the report, in 2021, the federal government enacted the Infrastructure Investment and Jobs Act (IIJA), and in 2022, Inflation Reduction Act (IRA). At present, these two laws remain significant for guiding and implementing just transition measures in the country.

The IIJA focuses on investments for infrastructure development to support economic growth, enhance competitiveness, create good jobs, and make the economy more sustainable, resilient, and just.⁶³ The Act has created a number of programmes which will be supported through federal grants (see Annexure 2). These programmes are expected to boost the local economy and create jobs in various rural, distressed, low-income communities, including in areas where coal mines have closed down or oil wells have been abandoned.

The IRA on the other hand has a key focus on increasing investments in clean energy development and deployment, green manufacturing and climate change programmes. The Act include provisions to provide targeted support to 'energy communities', i.e., the areas in which coal mine(s) or coal-based power plant(s) have closed, or areas that have been economically reliant on the extraction, processing, transport, or storage of coal, oil, or natural gas but now face higher-than-average unemployment.⁶⁴ To provide such support, the Act has increased the limits of tax credits to support RE-based electricity generation and job creation in the energy communities, and has introduced loan programme(s) to 'retool, repower, repurpose, or replace energy infrastructure that has ceased operations'.⁶⁵

Table 10: Regulatory provisions for supporting just transition measures in US

Key focus of reform	Regulation/policy instrument	Measures
Economic diversification and job creation	Grants for green energy investments under IIJA	<ul style="list-style-type: none"> i. 'Battery manufacturing and recycling grant programme' targeting low and moderate-income communities, rural communities, or communities that have lost jobs due to displacement of fossil fuel jobs. ii. Grants will be provided by the Department of Energy. US\$3billion has been earmarked for 2022 through 2026.
	Grants for business support under IIJA	<ul style="list-style-type: none"> i. 'Advanced Energy Manufacturing and Recycling grant program' for small and medium-sized manufacturers to build new, or retrofit existing manufacturing and industrial facilities to produce or recycle advanced energy products in communities where coal mines or coal power plants have closed. ii. Eligible entities include manufacturing firms with gross annual sales below US\$100 million, fewer than 500 employees and annual energy bill ranging between US\$100,000 - US\$2.5 million. iii. Programme administered by the Office of Manufacturing and Energy Supply Chains under the Department of Energy. Total funding amount is US\$750 million.
	Grants to improve rural connectivity and in turn augment economic development and jobs under IIJA	<ul style="list-style-type: none"> i. Creates the 'Rural Surface Transportation Grant Programme' to provide grants, on a competitive basis, to eligible entities to improve and expand the surface transportation infrastructure in rural areas, including energy communities. One of the key evaluation criteria for the eligibility of projects include the extent to which these projects will help to address economic development and job creation challenges, including energy sector job losses in energy communities. ii. Grant to be awarded through the Department of Transportation to regional transportation planning organization(s), local government, tribal government or a consortium of tribal governments, etc. US\$2 billion has been earmarked for the programme through 2022 - 2026.
	Tax credits for clean energy production and investments under IRA	Production Tax Credit and Investment Tax Credit increased by 10% for facilities located in energy communities. The tax credits are related to incentivising production and investments in electricity production from non-conventional sources, including RE.
	Tax credits for green manufacturing under IRA	<ul style="list-style-type: none"> i. Re-establishes the Clean Energy Manufacturing Investment Tax Credit for the production or recycling of clean energy equipment, support facilities for carbon capture, storage and sequestration, etc.⁶⁶ ii. The total amount of credits allocated under the programme is capped at US\$10 billion of which US\$4 billion is for energy communities (who will be impacted by transition).
	Loans for repurposing or replacing energy infrastructure under IRA	<ul style="list-style-type: none"> i. Creation of Energy Infrastructure Reinvestment (EIR) Programme to 'retool, repower, repurpose, or replace energy infrastructure' that has ceased operations, or to improve efficiency of operational infrastructure. ii. US\$5 billion was earmarked for the programme in 2022, which is available through September 30, 2026. The programme will be administered by the Department of Energy.

Table 10 continued.

Key focus of reform	Regulation/policy instrument	Measures
Community resilience	Grants to expand digital infrastructure under IIJA	<ul style="list-style-type: none"> i. Deployment of broadband in the Appalachian and tribal regions to develop internet infrastructure in the region and improve affordability. ii. US\$65 billion appropriated for broadband expansion, including US\$2 billion for broadband in tribal communities and US\$14 billion in broadband affordability.⁶⁷
Reclamation and remediation of orphaned oil well sites	Federal grant for remediation and reclamation of orphaned wells under IIJA	Total amount US\$30 million. Funding mechanism is through direct federal spending, grants to States and Tribes, technical assistance funding to Interstate Oil and Gas Compact Commission. ⁶⁸
Repurposing of mining land	Federal grant for clean energy demonstration projects on current and former mine land under IIJA	US\$500 million earmarked for 'Clean Energy Demonstration Programme on Current and Former Mine Land'.

Observations on policy and institutional measures

The two laws that have been recently enacted— IIJA and IRA—that create an enabling ecosystem for just transition, are largely focussed on clean energy investments to ensure energy security, mitigate climate change, and create massive job opportunities. Investments that will go into energy communities are being prioritised and given extra benefits.

The laws also target fossil fuel regions and communities (energy communities) where coal mines and power plants have closed down and there are abandoned mines and oilfields. They do not refer to future closures and any mechanisms to deal with them. Subsequently, the laws also do not specify measures for providing social and financial support to workers who will lose jobs due to energy transition in the future. However, various state laws and plans provide elaborations on such issues (Refer to Chapter 3 for more details).

Table 11: Key pillars and elements of just transition in US

Pillars	Key elements
Support of the national government	<ul style="list-style-type: none"> i. Formulation of new law (such as IRA, IIJA), as well as strengthening existing policies for creating jobs and social infrastructure in fossil fuel regions. ii. Providing funding support for implementation of programmes to support economic growth and create jobs. iii. Introduction of tax credits for boosting clean energy production and investments, and green manufacturing. iv. Grants to expand digital infrastructure.
Job creation	<ul style="list-style-type: none"> i. Federal grants for green energy investments. ii. Federal grants for providing business support. iii. Federal grants for investment in rural infrastructure development and in turn, job creation.
Repurposing of mining land	Federal grant for clean energy demonstration projects on current and former mine land.
Remediation of fossil fuel sites	Federal grant for remediation and reclamation of orphaned wells.

2.7 South Africa

Number of coal mines: 72 (as of 2022)

Coal production per year: 235 MT (as of 2021)

Regions to be most impacted by coal mine closure: The coal mines are distributed primarily across three provinces - Mpumalanga, Limpopo KwaZulu-Natal and the Free State regions. However, 75% of the mines are concentrated in Mpumalanga. Also, most of the closed, cancelled and mothballed coal mines are in Mpumalanga, which makes it a hotspot for planning and implementing just transition measures.

Workers in coal mines: Directly employ over 92, 000 people and support approximately 170, 000 jobs indirectly. (as of 2022)

Number of coal power plants: 15 (as of 2021)

Installed capacity: 44 GW (as of 2021)

Between 2023-2040, the country plans to retire 30.1 GW of coal-based power capacity (Global Energy Monitor, 2023).

Regions to be impacted by coal-based power plant closure: Largely Mpumalanga; other regions include, Gauteng, Limpopo, Free State and KwaZulu-Natal

Workers in coal-based power plants: 10,000

Overall, closure of power plants and coal mines scheduled between 2023-27 in South Africa will affect 10,236 workers.

Sources

1. Presidential Climate Commission. (2022). Report of the Presidential Climate Commission. Government of South Africa.
2. CEIC. South Africa Coal Production.
3. Just Energy Transition Investment Plan 2023-2027. (2022). Government of South Africa.
4. Trade and Industrial Policies Strategies. (2021). Making sense of jobs in South Africa's just energy transition.
5. Cole, M., Mthenjane, M and Andrew van Zyl. (2022). The Just Transition and the Coal Mining Sector in South Africa. SAIMM Committee.
6. Global Energy Monitor. (2023). Global Coal Plant tracker.

South Africa has been one of the first countries of the global South to integrate an agenda for a just transition in the climate change related policies of the country. The National Development Plan (NDP) prepared in 2012 included a complete chapter on "An equitable transition to a low-carbon economy". The NDP envisioned that "by 2030, South Africa's transition to an environmentally sustainable, climate-change resilient, low-carbon economy and just society will be well under way".⁶⁹

Figure 1: Guiding principles for environmentally sustainable, low-carbon economy and just transition in NDP

Just, ethical and sustainable	Recognise the aspirations of South Africa as a developing country and remain mindful of its unique history.
Global solidarity	Justly balance national interests with collective action in relation to environmental risks and existential threats.
Ecosystem protection	Acknowledge that human wellbeing is dependent on the health of the planet.
Full cost accounting	Internalise both environmental and social costs in planning and investment decisions, recognising that the need to secure environmental assets may be weighed against the social benefits accrued from their use.
Transformative	Address the structural and systemic flaws of the economy and society with strength of leadership, boldness, visionary thinking and innovative planning.
Strategic planning	Follow a systematic approach that is responsive to emerging risk and opportunity, and which identifies and manages trade-offs.
Managed transition	Build on existing processes and capacities to enable society to change in a structured and phased manner.
Opportunity focussed	Look for synergies between sustainability, growth, competitiveness and employment creation, for South Africa to attain equality and prosperity.
Effective participation of social partners	Be aware of mutual responsibilities, engage on differences, seek consensus and expect compromise through social dialogue.
Balance evidence collection with immediate action	Recognise the basic tools needed for informed action.
Sound policy making	Develop coherent and aligned policy that provides predictable signals, while being simple, feasible and effective.
Least-cost target	Invest early in low-carbon technologies that are least-cost, to reduce emissions and position South Africa to compete in a carbon-constrained world.
A regional approach	Develop partnerships with neighbours in the region to promote mutually beneficial collaboration on mitigation and adaptation.
Accountability and transparency	Lead and manage, as well as monitor, verify and report on the transition.

The plan also recognised that the poor and the vulnerable are, and will continue to be, disproportionately affected by climate change. Besides, the country's heavy employment dependence on energy-intensive sectors and revenue dependence on coal mining (foreign exchange earnings), requires a transition to be planned in a well-managed manner. The plan, therefore, laid specific emphasis on developing measures to address job losses of particularly the poor and vulnerable, skill development for a low-carbon economy, and protection from inflation in food, energy and transportation costs.⁷⁰

In 2015, just transition was incorporated in South Africa's Intended Nationally Determined Contribution (INDC). The INDC noted just transition as an inclusive process towards building a climate resilient economy and society, taking into account "local and indigenous knowledge, gender considerations, as well as social, economic and environmental implications".⁷¹

Between 2017 and 2019, the National Planning Commission (NPC) also engaged in social dialogues on just transition in all provinces and among a variety of stakeholders, including the youth and energy-intensive users.

Following deliberations on just transition over the years, in December 2020, the Government of South Africa established the 'Presidential Climate Commission' (a multi-stakeholder body), to "advise on the country's climate change response and pathways to a low-carbon climate-resilient economy and society". The Commission was entrusted with a number of responsibilities for facilitating "a common vision for a net-zero" by 2050, including those for supporting a just transition. A foremost responsibility of the Commission was to develop a 'just transition framework'.

In May 2022, the Commission promulgated a Just Transition Framework for South Africa, which received the accent of the President. The Framework has been developed as a guiding document to enable coordination and coherence for just transition planning in the country. It sets out a shared vision for the just transition, principles to guide the transition, and policies and governance arrangements to give effect to the transition.⁷² As noted by the Commission, the framework also "presents an opportunity to start dealing with practical issues relating to jobs, local economies, skills, social support, and governance".⁷³

Just Transition Framework

The Just Transition Framework elaborates on certain key aspects that are essential to guide a just transition and for the implementation of transition measures. These include:

- **Principles to guide the transition:** This includes ensuring distributive justice, procedural justice, and restorative justice;
- **Identification of at-risk sectors and value chains:** This includes the coal value chain, the auto value chain, the agricultural sector, and the tourism sector;
- **Outlining key policy areas to focus on:** This includes, human resource and skill development, industrial development, economic diversification and innovation, and social protection measures for workers and communities;
- **Effective governance arrangement:** This includes arrangements at the national and sub-national levels; and,
- **Mobilising finances:** This involves mobilisation of public and private capital from both domestic and international sources..

The key policy aspects as highlighted in the framework in turn elaborates on certain mechanisms to support a just transition.

Table 12: Key policy components of the Just Transition Framework in South Africa

Key policy components	Elements
Human resource and skill development	<ul style="list-style-type: none"> i. Providing training to workers in the formal sector, as well as the informal sector. ii. Reskilling and upskilling, particularly skill training for green jobs. iii. Improving education to build foundational skills and adaptive capacity. iv. Promoting active labour market policies to help in job search as job opportunities shift, and provide support to relocate as industries rise/fall. v. Providing a basic package of support for the unemployed/transitioning workers.
Industrial development, economic diversification, and innovation	<ul style="list-style-type: none"> i. Improving support (income and relocation) for small and medium enterprises; providing or facilitating financing, sites, and inputs for new small and micro enterprises. ii. Improving income support for the informal economy. iii. Identifying viable new economic clusters, considering the strengths and disadvantages of individual communities, and the potential of local resources. iv. Developing competitive industries to produce inputs and support services for green technologies, including for RE, battery cells, electric vehicles manufacturing, green hydrogen, and net-zero-emissions cement or cement alternatives, targeting domestic and overseas markets. v. Promoting circular economy as a job creator.
Social protection measure for workers and communities	<ul style="list-style-type: none"> i. National social security fund - Basic income support to workers and communities in affected sectors and regions, retirement and disability support. ii. Social Relief of Distress grant - Protection to poor/vulnerable for climate-induced shock to income/assets.

The framework has also emphasised on the merit of effective governance systems at the national, provincial, and municipal levels, with specific roles of each of them, to ensure an equitable transition. The roles at the respective levels have been outlined with respect to formulation of policies and programmes, development and implementation of plans, building consensus, mobilising resources (while avoiding decisions/ investments that are not aligned with the just transition), coordinating implementation, and monitoring progress.

Table 13: Role of national and sub-national governments

Level of government	Key roles
National government	<ul style="list-style-type: none"> i. Articulating the just transition policy imperative (and framework) within the ambit of the central planning system of government, specifically in the National Development Plan, the Medium-Term Strategic Framework, Annual Performance Plans, and annual budgeting processes. ii. Providing overall policy and planning guidance in support of a just transition, with clear execution timelines and targets. iii. Allocating responsibilities, explicitly and consistently, to government agencies for implementing strategies and activities to support a just transition. iv. Mobilising resources, from both the public and private sectors. v. Integrating the just transition imperative into the national budget and public spending.

Table 13 continued.

Level of government	Key roles
	<ul style="list-style-type: none"> vi. Supporting capacity building at the provincial and municipal levels for effective implementation of the just transition agenda. vii. Supporting municipalities to develop a new revenue model for electricity sales in the transition to clean electricity system. viii. Providing public employment opportunities as an important instrument for mitigating the potentially negative effects of the transition on communities, creating employment in areas in which market-based processes are unable to do so at the scale required (such as, expanded public works programmes). ix. Providing financial incentives. x. Creating forums and dispute-settlement mechanisms to ensure timely and binding decision-making around core strategies. xi. Promoting social solidarity and collective action in at-risk communities. x. Monitoring progress toward the overall aims of the just transition and undertaking reform measures as necessary. xi. Strengthening institutions and systems already in place to support just transition measures. xii. Ensuring that mining companies adhere to social and labour plans in line with mining regulations and make adequate financial provision for end-of-life mine rehabilitation in line with environmental regulations (National Environmental Management Act, 1988).
Sub-national government	<ul style="list-style-type: none"> i. Identifying climate impacts, just transition impacts, and vulnerabilities in the province or municipality, along with community needs and adaptation requirements, and integrating these into Provincial Growth and Development Strategies, Development Plans, as well as local climate action plans. ii. Implementing and managing adaptation projects to improve community resilience, including disaster risk management strategies and early warning systems. iii. Providing essential infrastructure services, including service delivery, and to improve the operations and maintenance of these services. iv. Regulating planning and land management, in a manner that supports overall aims of a just transition. v. Supporting local economic diversification, with a particular focus on working people and small businesses in at-risk communities. vi. Empowering individuals, communities, ward committees, municipalities, unions, and civil society organisations to engage in discussions around the transitions, and support participatory planning. vii. Facilitating collaborations with social partners including traditional leaders, in support of a just transition.

Besides government authorities and agencies, the framework also outlines the roles of various other stakeholders for advancing the just transition agenda and supporting implementation measures. This includes:

- Business: Drive innovation and investments in clean technologies to create new jobs, pursue long-term value creation as per stakeholder need.
- Labour unions: Advocate for decent work and protecting jobs.
- Civil society: Advance the social and environmental agenda.
- Research institutions and academia: Provide thought leadership and deepen thinking around the opportunities and risks associated with the just transition and make evidence-based recommendations that inform planning for the transition.
- Youth: Champion a sustainable future for all.

Just Energy Transition Investment Plan

The Government of South Africa, with the support of the International Partners Group (IPG), has also developed a Just Energy Transition Investment Plan (JET-IP) in October 2022. The JET-IP has been formulated to give effect to the Just Energy Transition Partnership (JET-P), that the country entered into at the COP26 in November 2021, with countries of the IPG, including, the US, UK, France, and Germany along with the European Union. The partnership pledged to mobilise an initial amount of US\$ 8.5 billion between 2023 and 2027 to support South Africa's energy transition and climate goals.⁷⁴

The JET-IP highlight the actions and investments necessary to plan an economic and social transition away from a predominantly coal-based economy. It emphasises on the development of new industries, skills, employment and livelihood in areas and sectors that will be most affected by the transition. The five-year plan (2023-27) identifies priority investment requirements in three sectors, viz., electricity, new energy vehicles (NEVs), and green hydrogen. Besides, two cross-cutting priorities - skills development and municipal capacity, have been identified as key components of the JET-IP. The overall funding requirement has been estimated to be US\$ 98.7 billion.⁷⁵

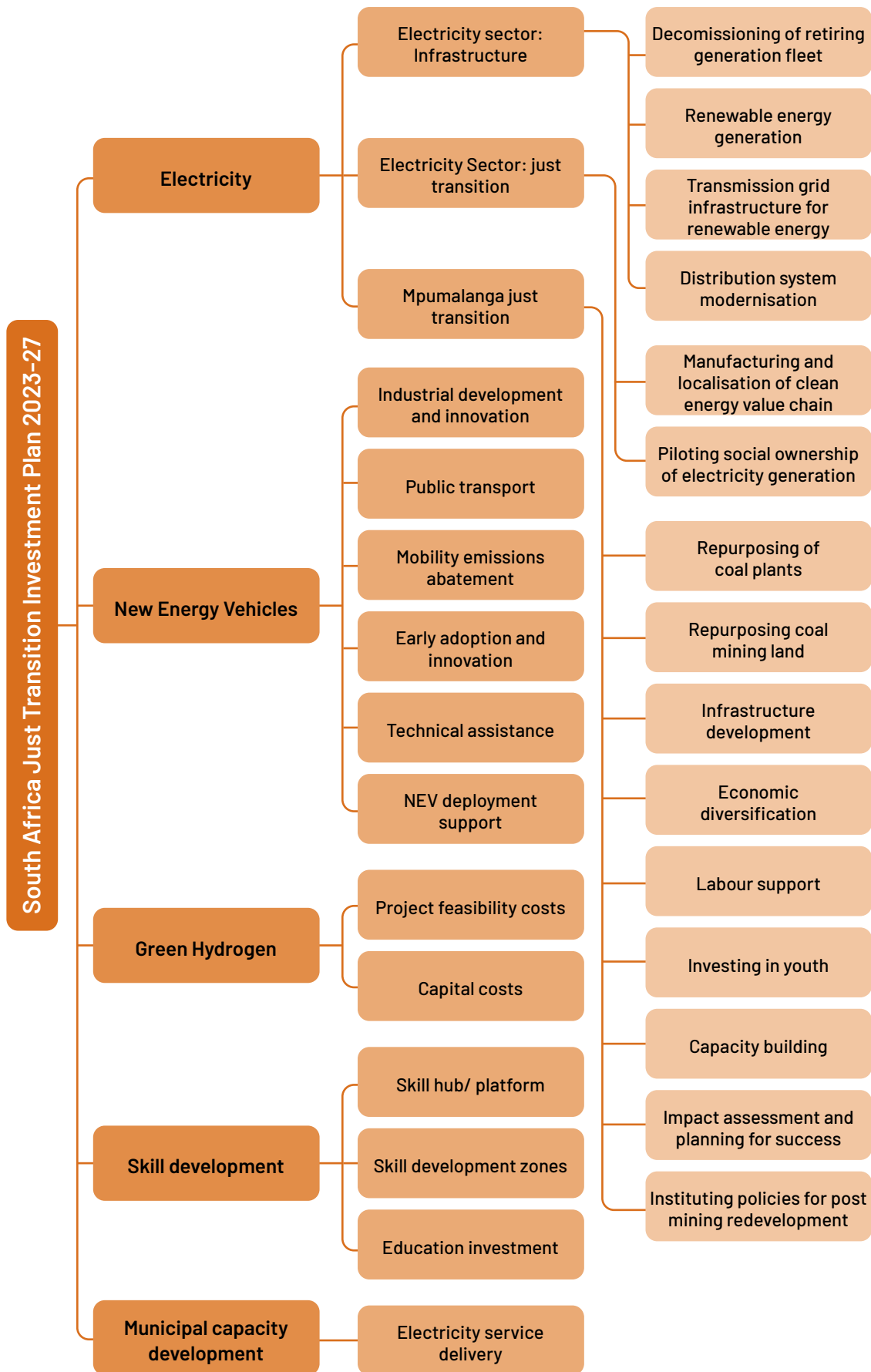
Table 14: Sector-wise investments outlined in JET-IP

Funding Requirements	ZAR billion	US\$ billion
Electricity Sector	711.4	47.2
New Energy Vehicle (NEV Sector)	128.1	8.5
Green Hydrogen	319	21.2
Skill development	2.7	0.18
Municipal capacity	319.1	21.3
Total	1,480.3	98.7

Source: South Africa Just Energy Transition Investment Plan (JET IP) for the initial period 2023-27

The just transition components of the investment plan are primarily targeted towards Mpumalanga, considering the fact that the province produces 83% of the country's coal and is home to Eskom's 12 (of 15) coal fired power plants. The just transition investments for the region's coal communities has been estimated as ZAR 60.4 billion (US\$ 4 billion), under the electricity sector costs. This is about 8.5% of the total cost (US\$47.2 billion) overall estimated for the electricity sector. The largest share of the electricity sector costs, about 91%, is for infrastructure investments. The key components of the investment include repurposing of coal plants, repurposing of coal mining land, development of local infrastructure, economic diversification, labour support and worker transition, investing in youth and preparing the future generation for the transition, capacity building of agencies, conducting impact assessments and planning for success, and instituting policies for post-mining redevelopment (see Annexure 3).⁷⁶

Figure 2: Components of Just Energy Transition Investment Plan



Observations on policy and institutional measures

South Africa, so far, is the only country from the global South to develop a comprehensive just transition framework. The national government has also integrated just transition in the country's NDC, to align the interests of economic development, green industrialization, social sector investments, with the climate change goals. The pillars and key elements as observed from the national review are outlined below.

Table 15: Key pillars and elements of just transition in South Africa

Pillars	Key elements
Governance and institutional mechanisms	<ul style="list-style-type: none"> i. Integrating just transition in the country's NDC. ii. Setting up an independent Commission by the national government to inform the government on transition measures and facilitate stakeholder engagement. iii. Development of a national 'Just Transition Framework' to enable coordination and coherence to just transition planning in the country, outline the principles to guide the transition, and guide formulation of policies and governance arrangements to give effect to the transition. iv. Development of a 'Just Transition Investment Plan', outlining key actions and investments necessary for the country to plan an economic and social transition away from a predominantly coal-based economy. The five-year investment plan highlights requirements for three sectors, viz., electricity, new energy vehicles and green hydrogen. Besides, two cross-cutting priorities - skills development and municipal capacity, have also been identified as key components.
Roles of various stakeholders for facilitating and implementing just transition measures	The Just Transition Framework outlines specific roles of the national government, the sub-national governments, and various other stakeholders, such as industry/businesses, labour unions, research institutions and academia, civil society and youth.
Jobs and labour support	<ul style="list-style-type: none"> i. Reskilling and upskilling, particularly skill training for green jobs. ii. Improving education to build foundational skills and adaptive capacity.
Social protection measures	<ul style="list-style-type: none"> i. Creation of a 'national social security fund' to provide basic income support to workers and communities in affected sectors and regions, retirement support, and disability support. ii. Creation of a 'Social Relief of Distress Grant' to provide protection and relief to the poor/vulnerable for climate-induced shock to their income/assets.

2.8 Observations from the national review

There is a notable similarity how countries have developed their just transition strategies, laws, policies, and plans. These can be summarised under the following key components:

- i. The fossil fuel sectors and associated industries considered for formulating transition measures;
- ii. Key pillars (and corresponding elements) of just transition, used for developing policies and plans;
- iii. Key components of the regulatory framework;
- iv. Role of the national government; and,
- v. Institutional mechanisms to support a well-managed just transition.

i. Coal sectors and associated industries remain a focus of transition measures:

Historically, coal mining has received a significant focus of just transition policies and plans in many countries of the global North, considering the sector's economic unviability and the need for the closure of unprofitable mines. This has been the case of major coal economies of the global North, such as Germany, Poland, Spain, Scotland, and the US (considering coal mines of the Appalachian region).

In the last decade, the coal power sector has also become the focus of just transition laws and policies because of the sector's emission reduction potential and the obligations of international climate agreements. This is evident from regulations developed during 2019-2020, by two of Europe's largest coal consumers, Poland and Germany. In the US, coal power plants are being decommissioned due to their unviability, and hence the investment program of the federal government is also targeted towards reviving the communities affected by coal power plant closure.

Only a few countries have focussed on all the fossil fuel sectors and fossil fuel dependent industries. Scotland has addressed all sectors, including agriculture and land. For the oil sector, the focus is primarily on transition to electric vehicles (EV), as has been emphasised by countries such as the US and South Africa. The US has also focussed on abandoned oil and gas wells and communities affected by it.

ii. Key pillars of just transition: There is a significant commonality in the broad pillars countries have considered for developing their laws, policies, and plans. The key pillars of just transition that have emerged from the nation review are summarised below.

Figure 3: Key pillars of just transition as per global experiences

Government support

- Formulating regulations, policies and investment plans.
- Inter-ministerial and inter-departmental coordination.
- Independent Commission or Task Force for Just Transition.
- Financial support.

Labour support and preparation of workforce

- Reskilling and upskilling, and skilling for green jobs.
- Compensations and worker transition support.
- Severance pay.
- In kind welfare allowances.
- Education investments to build foundational skills.

Social welfare

- Creation of social security fund.
- Distress grants to workers and families.

Economic diversification, innovation and jobs

- Reclamation and repurposing of mining and industrial land.
- Investments in RE and non-conventional fuels.
- Investments in technological innovation.
- Infrastructure investments to attract businesses.

Social infrastructure, regional development and resilience

- Education infrastructure and resources.
- Local transport and mobility.
- Digital infrastructure.
- Energy access.

Environmental sustainability

- Environmental remediation measures.
- Promoting circular economy.

Social dialogue

- Inclusive engagement strategy at national and sub-national level.

iii. Key components of just transition policy framework: Governments have adopted strategic pathways and developed subsequent policy measures to support just transition. The critical measures adopted can be summarised as follows.

Closure of unprofitable mines and old coal-power plants, which are also polluting: The first step in just transition in most countries has been the development of policy and plans for the closure of economically unviable mines and old power plants. This has been the case in Germany, Poland, Spain, South Africa, and the Appalachian region of the US.

Phased closure: Countries have then developed policies and regulations to allow a phased closure of the remaining coal mines and power plants against a target time period for reducing CO₂ emissions and achieving net zero emissions.

Economic diversification, including investments in green energy and industries: Countries are investing heavily on renewable and non-conventional energy sources, energy storage, and green industries to revitalise communities and create jobs. Policies and plans have been developed for:

- Development of RE and clean energy systems to ensure clean energy access, energy security, and create green jobs.
- Development of green industries, including small and medium enterprises (SMEs).
- The European countries have hugely supported business support and investments in innovation and R&D.
- Tax credits/benefits to businesses to invest in coal regions have been a key part of the transition strategy in the US.

Repurposing mining and industrial land: There has also been a strong emphasis in the policies and plans on repurposing coal mining and industrial land to support economic activities.

Labour support and social welfare: All countries have emphasised on worker support and transition measures. However, considering the nature of the workforce in various countries, and the prevailing baseline policies, there are differences in approaches for labour support. For example:

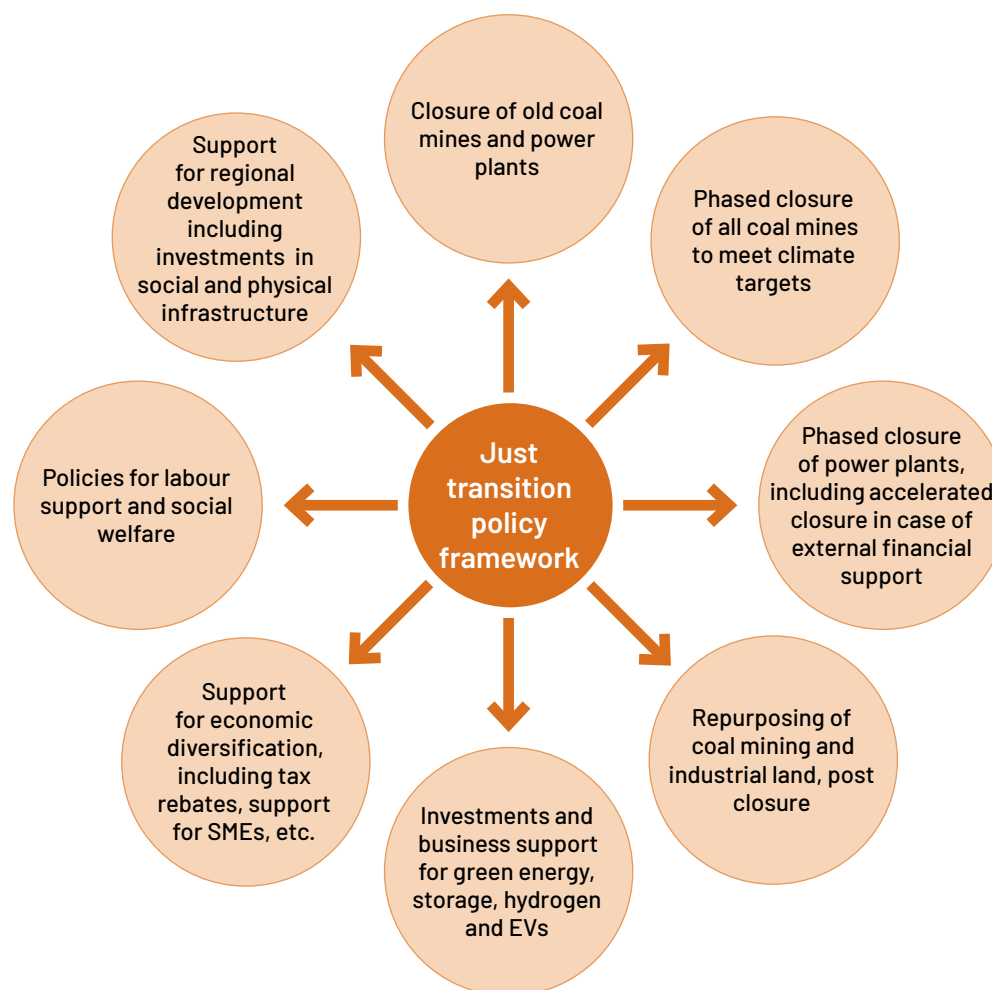
- Countries such as Poland and Spain have developed labour transition plans based on the negotiations between the government and coal unions, with a major focus on formal labour.
- South Africa, on the other hand, has focussed on informal labour, alongside formal workers, considering the worker distribution and dependence on the coal economy.
- Overall worker support and transition measures include compensation, one-time severance pay, skilling, transition support, etc.

While countries have developed specific plans and programmes to support the workers directly affected by the closure of coal mines or coal power plants, strengthening the baseline labour and social welfare policies remain crucial for supporting informal and indirect workers associated with such industrial activities. Accordingly, these measures have been strengthened to provide intermediate unemployment and social security benefits and support active labour market measures for workers to get re-employed.

Revitalisation of fossil fuel regions and infrastructure investments: Finally, the national governments have developed policies and plans to provide targeted support for infrastructure development and economic diversification to regions impacted by fossil fuel transition, especially by the closures of coal mines and coal power plants.

For example, Germany has enacted the SDA (2020) to invest billions of dollars to support the coal regions of the country. In fact, the investments supported through the EU's JTF mechanism in coal regions of various member states are heavily focussed on such measures. Similarly, the US has enacted the IIJA, targeting infrastructure investments in coal communities to revitalise the communities facing closure challenges and creating jobs through infrastructure investments. In countries of the global South, such as South Africa, economic diversification and revitalisation of the country's largest coal region Mpumalanga, remains a major focus of the investment plan (JET-IP) developed by the national government.

Figure 4: Key policy components of just transition



iv. Institutional mechanisms: The review of countries shows that institutional mechanisms for just transition are very much dependent on the governance structure, capacity of the sub-regional governments, structure of the industry, financing provisions, etc.

Role of the national government: In most countries, the national governments have primarily five crucial roles in enabling a just transition. These include:

- Specifying a target year of coal mine and power plant closure, aligning with international targets and domestic climate policies.
- Developing a national policy/framework/plan for enabling a just transition.
- Formulating new policies or strengthening existing policies related to labour, environment and social support.
- Mobilising financial resources for implementing just transition measures. These include:
 - » Creation of national/federal programmes supported through national budget that can support elements of just transition in the fossil fuel regions/states, including regional development support, support for installing green energy and development of industries, etc.
 - » Introduction of fiscal reforms, such as tax credits, loans, etc., to incentivise businesses, infrastructure development and support economic growth.
 - » Mobilising international resources and support.
- Engaging in negotiations with industries to support and accelerate closures.

Inter-departmental coordination: Given that various elements of just transition are through a mix of laws and policies in various countries, the governance architecture has been underpinned through inter-ministerial and inter-departmental coordination.

Government appointed independent Just Transition Commission or Task Force: To ensure a well-coordinated and deliberative just transition process, various governments have appointed a Just Transition Commission or a Just Transition Task Force, a multi-stakeholder body, to inform government decision-making. The observations of these bodies and the reports submitted by them have led to the development of laws and frameworks to guide just transition processes in various countries.

Table 16: Examples of government-appointed Just Transition Commission or Task Force

Commission/ Task Force	Country and Appointment date	Terms of Reference	Output
Commission on Growth, Structural Change and Employment (the Coal Commission), Germany	Germany, 2018	<ul style="list-style-type: none"> i. Assess the impact of coal phase-out, including issues of energy security, electricity prices and coal regions' economies. ii. Creation of concrete opportunities for new and secure jobs in the regions affected by coal transition. This to be done through cooperation between the federal government, states, local authorities and economic actors. iii. Identify and develop a set of instruments to support economic development, structural change, social compatibility, social cohesion and climate protection. 	<ul style="list-style-type: none"> i. Developed a plan to end coal-fired power generation by 2038; provide targeted support for coal-dependent regions and workers. ii. Recommendations led to legislating the Coal Exit Act and Structural Adjustment Act in 2020.
Just Transition Task Force, Canada	Canada, 2018	<ul style="list-style-type: none"> i. Engage with relevant stakeholder groups, provinces, and municipal governments for receiving information and suggestions on how to go about just transition. ii. Provide knowledge support and recommendations to the Minister of the Environment and Climate Change on implementing a just transition for workers and communities directly impacted by phase out of coal fired electricity in the country. iii. Provide recommendations to the Minister on how to structure subsequent phases of consultation and assessments concerning just transition. 	<ul style="list-style-type: none"> i. Submitted a report in 2019 highlighting key pillars and subsequent elements necessary for a just transition. ii. Task Force recommendations led to developing Net Zero Emissions Accountability Act (2021).

Table 16 continued.

Commission/ Task Force	Country and Appointment date	Terms of Reference	Output
Presidential Climate Commission, South Africa	South Africa, 2020	<ul style="list-style-type: none"> i. Advise the Government about the country's climate change response and pathways to transition to a low-carbon climate-resilient economy and society. ii. Provide independent monitoring and review of the country's progress in meeting its emissions reduction and adaptation goals. iii. Facilitating social dialogue among stakeholders to ensure a common vision on net zero by 2050, including those for supporting a just transition. iv. Advise on a common understanding of a just transition, which takes into account the socio-economic, environmental and technological implications of climate change. v. Ensure engagement of key stakeholders on the National Employment Vulnerability Assessment and Sector Job Resilient Plans for their implementation. 	<ul style="list-style-type: none"> i. Development of a Just Transition Framework for South Africa. ii. Facilitation of dialogue and deliberations on JET-P.
Just Transition Commission, Scotland	First Commission formed in 2018; Second Commission in 2021	<ul style="list-style-type: none"> i. Provide independent advice to Scottish Ministers on the long-term strategic opportunities and challenges relating to the transition to a net zero economy. ii. Develop a report that provides practical, realistic, affordable recommendations to the government on maximising the economic and social opportunities that the move to a net zero economy by 2045 offers, building on the country's existing strengths and assets, and understanding and mitigating risks that could arise from issues, such as regional cohesion, equalities, poverty (including fuel poverty), and a sustainable and inclusive labour market. 	National Just Transition Planning Framework

Facilitating stakeholder engagement: The national governments have also played a significant role in engaging and/or facilitating engagement with stakeholder groups to support just transition. For example, in Germany, the government has engaged directly with industries to accelerate closure and just transition. In Spain and Poland, the governments have engaged with the labour unions to ensure a just transition of workers and local communities.

In most cases, the Just Transition Commissions appointed by the government have played a key role in facilitating stakeholder engagement and social dialogue on behalf of the government. In addition, the members of the Commissions have engaged with various stakeholders and the local community to guide evidence-led policy-making and investment planning by the government.

3 SUB-NATIONAL JUST TRANSITION POLICIES AND MECHANISMS

- Colorado, USA
- Illinois, USA
- Appalachian region, USA
- Alberta, Canada
- Territorial Just Transition Plans, Poland
- Territorial Just Transition Plans, Germany
- Observations from the sub-national review



SUB-NATIONAL JUST TRANSITION POLICIES AND MECHANISMS

Just transition has gained momentum at the sub-national level in recent years, especially since 2020. Many states/regions have developed policies and regional/territorial plans for a just transition. The policies and plans have been formulated to support a fair and equitable energy transition, enhance green energy investments and create jobs. In some countries, the states/provinces have been more proactive in enacting laws on just transition, such as a few states in the US.

This chapter reviews just transition policies and plans of sub-national governments of four countries. These include the US, Germany, Poland, and Canada.

3.1 Colorado, USA

Number of coal mines: 8 (as of 2021)

Coal production per year: 12 MT (as of 2021)

Counties to be impacted by coal mine closure: The mines are distributed across six counties - Routt County, Moffat County, Rio Blanco County, Gunnison County, La Plata County, Las Animas County.

Workers in coal mines: 1,068 (as of 2021)

Number of coal-based power plants: 6 (as of 2023)

Installed capacity: 4.6 GW (as of 2022)

Counties to be impacted by coal-based power plant closure: The power plants are distributed across six counties - Routt County, Moffat County, Pueblo County, El Paso County, Morgan County, Larimer County.

Workers in coal-based power plants: 822 (as of 2019)

Sources:

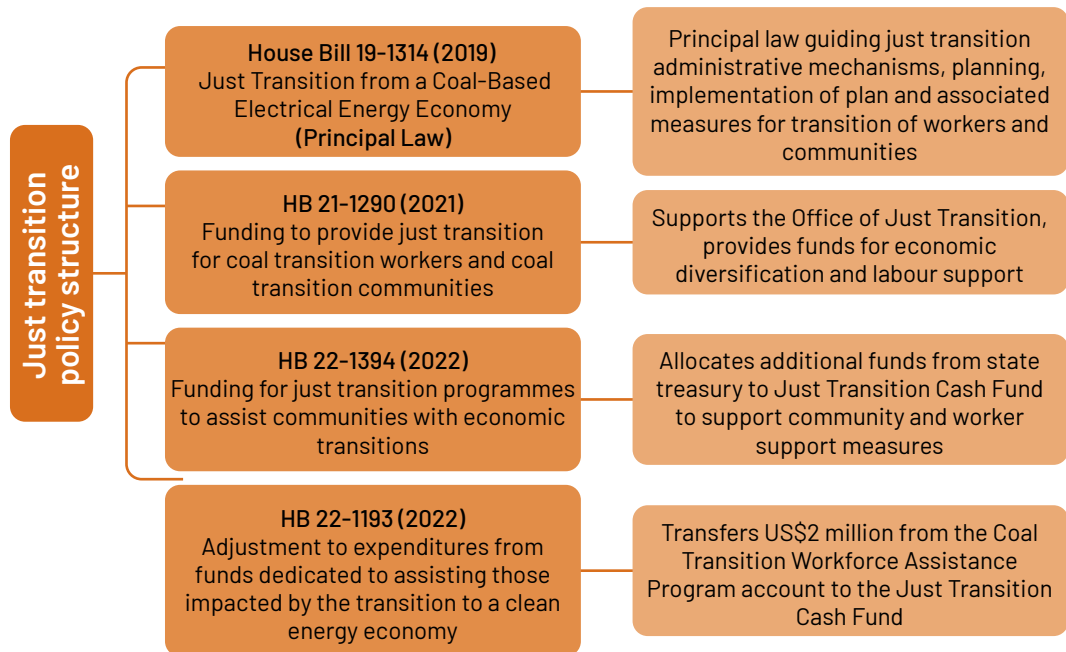
1. US Energy Information Administration. (2020). Coal Production and Number of Mines by State and Mine Type, 2021 and 2020.
2. Global Energy Monitor. (2023). Global Coal Plant Tracker.
3. Office of Just Transition, Department of Labour and Employment, Government of Colorado.

In 2019, the Government of Colorado announced a goal to completely transition to renewable based electricity by 2040. The state also aims to decarbonise the economy 90% below 2005 levels by 2050.¹

Aligning with such targets, the state government has passed four laws since 2019 to support a just transition. These include measures to build administrative systems, support planning and implementation, and finance various components of just transition. Among these, the 'Just Transition from a Coal-Based Electrical Energy Economy' (House Bill 19-1314 passed in 2019) is the principal law guiding just transition measures. The other three laws (HB 21-1290, HB 22-

1394 and HB 22-1394 passed in 2021 and 2022 by the state assembly) are primarily related to the allocation and transfer of state financial resources for implementation of just transition programmes (see Annexure 4).²

Figure 1: Laws supporting just energy transition in Colorado



Source: iFOREST analysis based on Colorado laws

The 'Just Transition from a Coal-Based Electrical Energy Economy' is one of the first sub-national laws on just transition.³ The law has established and mandated the development of four key mechanisms. These include:

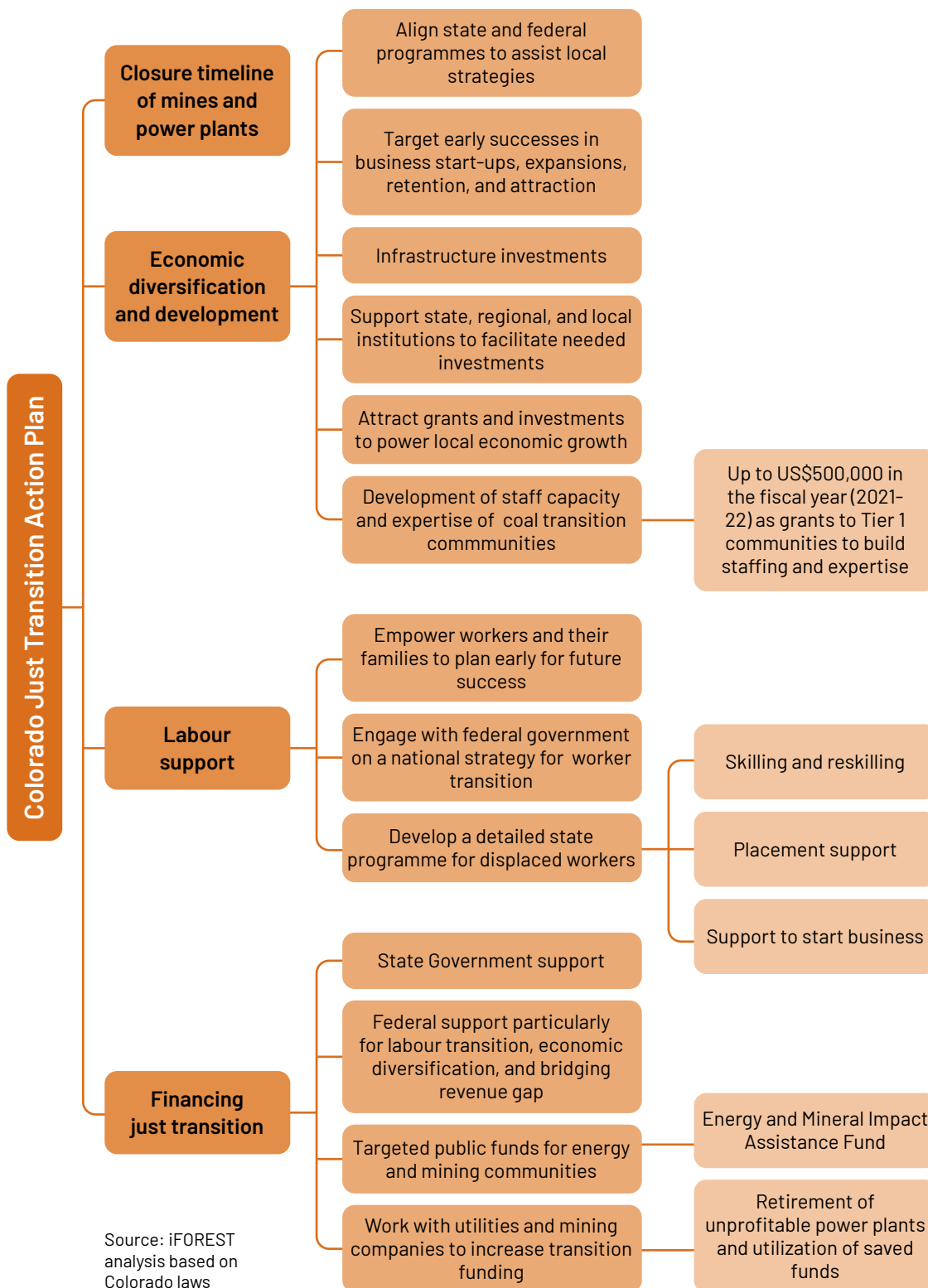
- Establishment of the Office of Just Transition and a just transition advisory committee;
- Formulation of a state just transition action plan;
- Establishment of a just transition fund; and,
- Development of a worker transition plan for the 'utility workforce', including re-employment of workers.

Office of Just Transition (OJT): The OJT remains the nodal authority to coordinate, plan and implement just transition measures in the state. The OJT is housed within the Department of Labour and Employment, with the following specific roles:⁴

- Administer the just transition programme for Colorado;
- Identify or estimate the timing and location of facility closures and consequent job layoffs in coal-related industries;
- Make recommendations for how to most effectively respond to these economic dislocations;
- Appoint members of the Just Transition Advisory Committee (JTAC), and support the work of the committee;
- Submit to the Governor and General Assembly the final Just Transition Plan, based on the draft plan developed by the JTAC and with the approval of the executive directors of the Colorado Department of Labour and Employment (CDLE) and the Department of Local Affairs (DOLA);
- Engage in administrative proceedings that are relevant to the purposes of the office; and,
- Recommend to the General Assembly and Governor legislative changes that would allow the office to better achieve the purposes of the just transition law.

Just Transition Action Plan (JTAP): The JTAP has been developed by the OJT in December 2020. The plan specifically focuses on four key components (and sub-components), including a closure schedule of mines and power plants, economic diversification and development, labour support, and securing finances for just transition. The plan is in the initial stages of implementation and is currently supported by state budget only. However, there is a major emphasis on leveraging federal funds, financing by coal and power industries, as well as identifying additional state resources.⁵

Figure 2: Colorado Just Transition Action Plan matrix



Source: iFOREST analysis based on Colorado laws

Energy and Mineral Impact Assistance Fund to support empowerment and capacity development of local communities to engage in just transition

The Colorado Just Transition Action Plan has identified the 'Energy and Mineral Impact Assistance Fund' as a potential resource to support certain components of the plan. The fund shall be used to build the capacity of staff and expertise so that the coal transition communities can effectively develop and implement local transition strategies. Initially, an amount of US\$500,000 has been earmarked for the fiscal year 2021-2022, to be invested in six counties that are already facing closure challenges or will face so by 2030 (Tier one counties).

The Energy and Mineral Impact Assistance Fund is a public fund administered by the Department of Local Affairs, Colorado. The money come from the state severance tax on energy and mineral production and from a portion of the state's share of royalties paid to the federal government for mining and drilling of minerals and mineral fuels on federally-owned land. The purpose of the fund is to "assist political subdivisions that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels".

Source: Department of Local Affairs, Government of Colorado. (2022). Energy and Mineral Impact Assistance Fund Grant (EIAF).

Just Transition Cash Fund: Colorado has created a dedicated fund - Just Transition Cash Fund - to support administrative expenses associated with planning, coordinating and implementing just transition in the state. The Fund has been created in the state treasury and will be replenished by the state government, and any other money that the general assembly may appropriate or transfer to the fund.

It also has provisions for the securitisation of unprofitable coal-fired power plants to undergo early retirement and utilise the additional financial resources for workers and communities.

Worker transition plan: To protect the impacted workers, the companies have been mandated to submit a Workforce Transition Plan to the OJT. The plan must include the number of workers employed or contractors operating at the facility. Due to the closure of surface or underground mines and retirement of coal-based power plants, the entities must specify the workers who will continue to work in the industry and those who will lose jobs.

For workers who will lose jobs, the transition plan must mention the number of workers who will not be given any other employment opportunity, workers who will retire voluntarily or prefer early retirement, and workers who will be retained through job transfers or provided other jobs by the operator. If the coal-based power plants are repurposing the facility with a new electricity generating one, the plant owner must enumerate the number of employees who will continue to work at the new facility, and the number of jobs that will be outsourced to contractors and subcontractors at the new facility.

The review of the laws of Colorado suggest that the state law and the institutional and administrative mechanisms as established, addresses almost all aspects of a just transition.

3.2 Illinois, USA

Number of coal mines: 12 (as of 2021)

Coal production per year: 36.6 MT (as of 2021)

Counties to be impacted by coal mine closure: The mines are distributed across six counties - Coulterville, Marissa, Marion, Macedonia, Perry, Dahlgren.

Workers in coal mines: 2,500 (as of 2021)

Number of coal-based power plants: 8 (as of 2023)

Installed capacity: 7.4 GW (as of 2023)

Workers in coal-based power plants: 2,045 (as of 2021)

Sources:

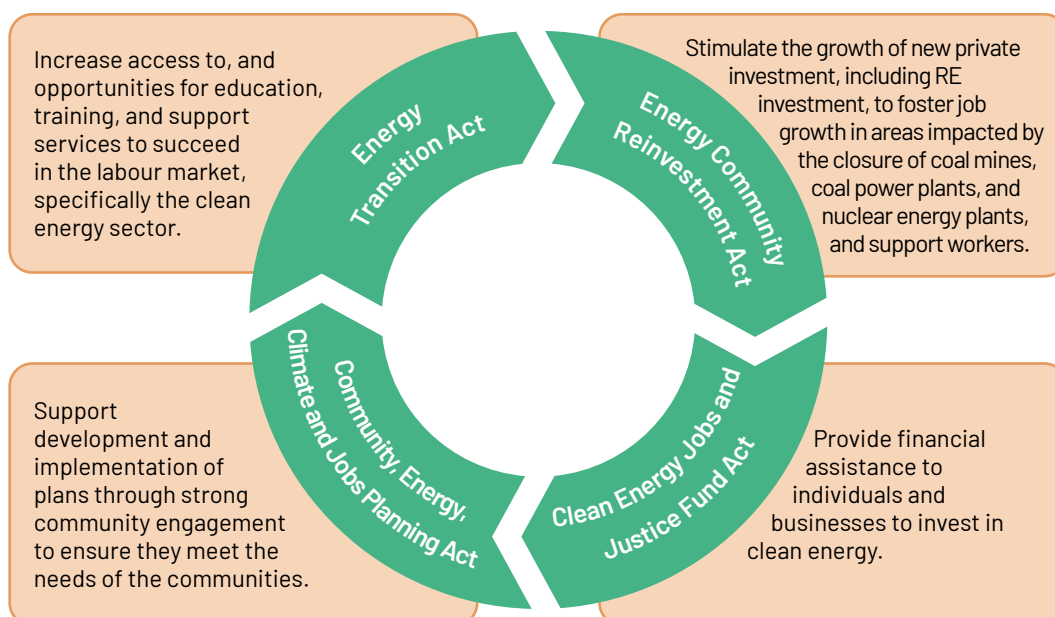
1. US Energy Information Administration. (2020). Coal Production and Number of Mines by State and Mine Type, 2021 and 2020.
2. Department of Natural Resource, Government of Illinois. (2021). Annual Statistical Report. State of Illinois.
3. Global Energy Monitor. (2023). Global Coal Plant Tracker.
4. Department of Energy, US. (2021). US Energy Employment by State 2021.

Illinois enacted an ambitious energy law known as the Climate and Equitable Jobs Act (CEJA) in September 2021.⁶ The Act aims to put Illinois on track for a 100% carbon-free power sector by 2045, and close all fossil fuel-based electricity systems by the same period.⁷

The CEJA includes a package of four laws which are focussed on achieving the state's clean energy and climate change goals, while ensuring a just transition for the communities and workers who will be impacted by closures or reduced use of fossil fuel power plants, coal mines or nuclear power plants, and have suffered environmental injustices⁸. These include:

- The Energy Transition Act;⁹
- The Energy Community Reinvestment Act;¹⁰
- The Community, Energy, Climate and Jobs Planning Act;¹¹ and,
- The Clean Energy Jobs and Justice Fund Act.¹²

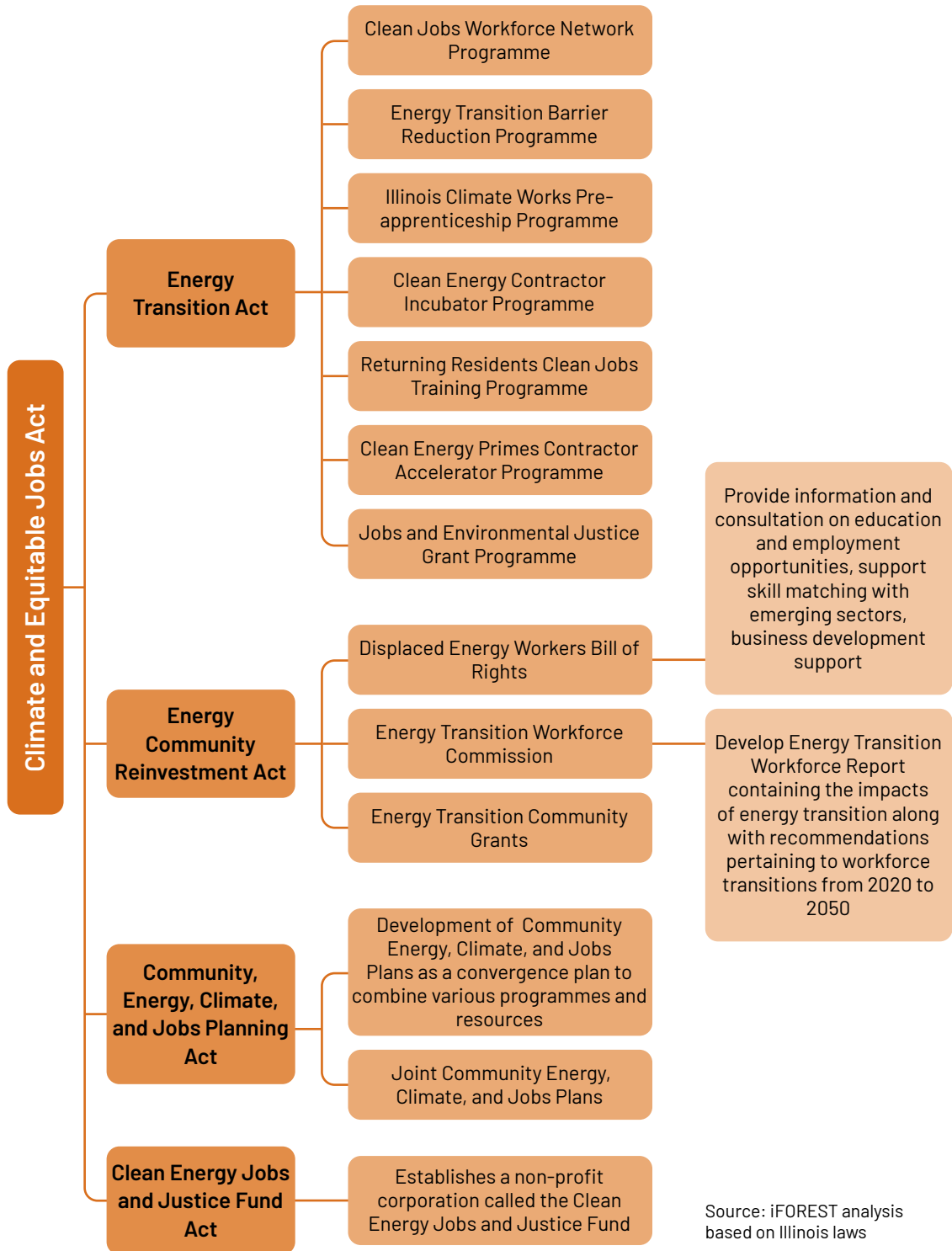
Figure 3: Laws and their objectives under CEJA



Source: iFOREST analysis based on Clean Energy Jobs and Justice Fund Act, 2021

To fulfil the respective objectives of the laws, various programmes, grants, plans, planning mechanisms, and authorities have been created under them. For example, a host of programmes have been created under the Energy Transition Act to support workers and local communities during the transition, and ensure employment opportunities for workers in the clean energy sector. Similarly, under the Energy Community Reinvestment Act, provisions have been created to stimulate investments in communities impacted by coal mine and power plant closures, support RE growth, and create jobs. The allocation of funds to various authorities to implement the programmes has also been provided (see Annexure 5).

Figure 4: Just transition implementation mechanisms in Illinois



Source: iFOREST analysis based on Illinois laws

Clean Energy Jobs and Justice Fund

The Clean Energy Jobs and Justice Fund has been established as a non-profit corporation under the Clean Energy Jobs and Justice Fund Act, 2021. The Fund is not an agency or instrumentality of the State Government.

The Fund will be managed by a Board of Directors comprising 11 members in the State, including policy experts and experts providing energy-related services to low-income, environmental justice, or black, indigenous, and people of colour (BIPOC) communities; and owners or employees of Minority Business Enterprise (MBE)/ BIPOC-owned businesses utilising clean energy.

The Fund is required to undertake the following set of actions:

- Develop programmes to finance and otherwise support clean energy investment and projects as determined by the Fund in keeping with the purposes of this Act.
- Support financing or other expenditures that promote investment in clean energy projects, including projects serving low-income, environmental justice, and BIPOC communities.
- Prioritise the provision of public and private capital for clean energy investment including grants, no-cost or low-cost loans.
- Contract with community-based organizations to design and implement marketing programmes, communications, and outreach to potential users of the Fund's products, particularly potential users in low-income, environmental justice, and BIPOC communities.

The Clean Energy Jobs and Justice Fund will receive funding from the Energy Transition Assistance Fund, a special fund in the State Treasury. The transition assistance fund has been created by amending The Department of Commerce and Economic Opportunity Law of the Civil Administrative Code of Illinois, 2003 [Section 20 ILCS 605/605-1075]. The Energy Transition Assistance Fund will support various just transition programmes under the CEJA.

Source: Government of Illinois. (2021). Clean Energy Jobs and Justice Fund Act, 2021

Besides enactment of four laws as components of the CEJA, Illinois has also introduced amendments to eight state laws under the CEJA. These amendments have been introduced to create financial mechanisms, establish authorities, support RE development and create jobs in the state, including energy communities to support a just energy transition.

Table 1: Amendments introduced by the CEJA

Name of the Act	Amendment(s) introduced	Objective of amendment
Illinois Finance Authority Act, 2004	Designated the Illinois Finance Authority as the Climate Bank	Provide financial aid for the development of clean energy, augment clean water, drinking water and wastewater treatment facilities, and improve access to clean energy and basic amenities to communities, including energy communities.
The Department of Commerce and Economic Opportunity Law of the Civil Administrative Code of Illinois, 2003	Established Bureau on Apprenticeship Programmes and Clean Energy Jobs within the Department of Labour	Increase participation of minorities in the programme and eliminate barriers to access careers in the construction and clean energy sector by minorities.

Table 1 continued.

Name of the Act	Amendment(s) introduced	Objective of amendment
	Created Small Clean Energy Contractor Prevailing Wage Act Assistance	Assist small clean energy businesses by formulating and executing programmes.
	Set up the Energy Transition Assistance Fund	Allocate annual funding to various programmes under CEJA.
Illinois Power Agency Act, 2007	Established an Electric Generation Task Force	Reduce carbon emissions by analysing the technological, economic, regulatory and legislative procedures.
	Developed the Illinois Solar for All Programme	Introduce photovoltaics to low-income communities, boost energy efficiency initiatives and offer incentives for low-income distributed generation and community solar projects.
Illinois Enterprise Zone Act, 1982	Designate "High Impact Businesses" for its growth and expansion subject to certain conditions	The Department of Commerce and Economic Opportunity (DCEO) will designate "High Impact Businesses" in the private sector to support transition. These businesses will qualify for tax credits and tax exemptions if they establish local businesses and create jobs.
Electric Vehicle Act, 2011 and Alternate Fuels Act, 1995 (and renames it the Electric Vehicle Rebate Act, 2021)	Expansion and promotion of electric vehicles	To achieve zero-emission vehicles and support energy transition.
Illinois Worker Adjustment and Retraining Notification Act, 2005	Submission of notice by the owner of an electric generating plant or coal mine before closure	To enhance worker security during mine and industry closures. Require submission of a two-year written notice by the owner before ordering a mass lay-off, relocation or employment loss to the employees and DCEO.
Business Enterprise for Minorities, Women, and Persons with Disabilities Act, 2017	Promote and encourage collaboration with businesses owned by minorities, women, and persons with disabilities	To strengthen support for women, marginalised communities and disabled people. State agencies and public institutions are also encouraged to collaborate with these businesses.
Environmental Protection Act, 1970	Imposes restrictions on discharging any contaminants from a Coal Combustion Residuals (CCR) surface impoundment into the environment	Improve environmental responsiveness of industries. A permit from the US Environmental Protection Agency (EPA), along with the submission of closure alternatives analysis by the owner, will be required for the construction, installation, modification, operation, or closure of CCR surface impoundment. EPA will collect annual fees for incomplete closure and insufficient post-closure measures.

Source: Government of Illinois. (2021). Clean Energy Jobs and Justice Fund Act, 2021

Overall, the CEJA provides one of the most comprehensive regulatory architectures to support a just transition aligned with energy transition goals. It creates various programmes, grants and funds to support just transition measures.

At the same time, the law has introduced amendments to various existing laws to support just transition measures. One of the most important ones in this regard is the creation of the Energy Transition Assistance Fund to support investments for workers and communities impacted by the energy transition.

The law also establishes a state-level non-profit body, The Clean Energy Jobs and Justice Fund (which is not an agency or instrument of the State Government), to develop programmes and prioritise the provision of capital, such as low-interest and zero-interest loans, for clean energy jobs and just transition.

3.3 Appalachian region, USA

The Appalachian region of the US remains one of the most vulnerable regions to coal transition given a large number of coal mines with low production, closure of mines and subsequent unemployment. Besides, many of the Appalachian states have been historically experiencing high rates of unemployment, poverty, and have poor development indicators, such as infant mortality.¹³

Considering the challenges, the Obama administration in 2015 developed the Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Initiative¹⁴, within the Appalachian Regional Commission (ARC)¹⁴ programme. The programme was intended to address worker dislocation and workforce development issues in communities and regions negatively impacted by changes in the coal economy in the Appalachian states. The initiative looks into the entire coal supply chain, including coal mining, coal-based power plants and coal-related supply chain industries.¹⁵ From 2016 to 2019, the initiative received US\$150 million in Federal funding while raising almost US\$800 million from private industry for the Appalachian region.¹⁶

Besides the federally funded initiatives, key coal states in the Appalachia have framed their own regulations to facilitate a just transition. These include states such as West Virginia and Pennsylvania.

In 2020, West Virginia introduced House Bill 4574 to include the provision of “Just Transition support for Coal-related Jobs” under the Economic Development Act, 1985. The Bill (currently pending) endeavours to improve the economic conditions of areas impacted by the decline of coal production and consumption. To plan and implement just transition measures, the Bill proposes the establishment of a Just Transition Office and the Just Transition Advisory Committee. It also mandates coal mining companies and electric utilities to submit a workforce transition plan, including plan for reemployment of affected workers.¹⁷

Pennsylvania also introduced House Bill 100 in 2021 to amend the Pennsylvania Consolidated Statutes (Title 27- Environmental Resources) to support transition to RE and simultaneously ensure a just transition. The Bill, which died in November 2022,¹⁸ had proposed a number of agencies, authorities and also establishment of funds to support the transition.¹⁹

For example, the Bill proposed the development of a Renewable Energy Transition Task Force and a Just Transition Community Advisory Committee to work in coordination with each other. The Task Force was supposed “to integrate the goal of 100% RE throughout the state government operations”. With the aim to transition the “operation of the state” to 100% RE by 2035, the Bill underscored the need of various assessments to be undertaken by the Task Force, including costs of fossil fuel, costs and benefits of RE, and the potential for creating a fund to support worker and community transition measures who will be impacted by the RE transition.²⁰

The Just Transition Community Advisory Committee was to work in “partnership with the Task Force” to ensure “accountability and public participation in the planning and design of the energy transition”.²¹

The Bill also stipulated the establishment of a Council for Renewable Energy Workforce Development to support worker transition measures. The Council was to identify potential employment opportunities in RE and energy efficiency industries, and evaluate the skilling and training requirement of workers to get absorbed in these industries. The Council was also to prioritise maximizing the employment opportunities for fossil fuel workers who will be impacted by the transition. A Clean Energy Workforce Development Fund was proposed to provide financial support for job training, education and employment opportunities to fossil fuel workers in the clean energy industry.²²

3.4 Alberta, Canada

Number of coal mines: 4 (as of 2022)

Coal production per year: 10.2 MT (as of 2022)

Number of coal power plants: 3 (as of 2021)

Installed capacity: 2.5 GW (as of 2020)

Sources:

1. Global Energy Monitor. (2022). Global Coal Mine Tracker.
2. Alberta Energy Regulator. (2022). 2021/2022 Annual Report.
3. Calgary Herald. (2022, April 26). Auditor general slams Ottawa's support for transition from coal in Alberta.
4. Global Energy Monitor. (2023). Global Coal Plant tracker.

Just transition measures in Alberta province of Canada were initiated following the targets and regulations of the national government to curb emissions from coal power plants and retire old and polluting power plants. In 2012, the government formulated the Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations, which was later amended in 2018 to accelerate phase out of coal-based electricity generation by 2030 in the country.²³

Responding to the need to reduce emissions from coal-based electricity, in 2015 the Government of Alberta established a Climate Change Advisory Panel to inform the development of a comprehensive climate change strategy, including measures to reduce CO₂ emissions. The members of the panel consulted a wide range of stakeholders (including unions, farmers, indigenous communities, academia, environmental organizations, industry representatives, etc.) to prepare a report for the government. The report of the panel highlighted core policy measures that the government should consider to develop a comprehensive climate strategy.²⁴

One of the key recommendations of the panel was to formulate a 'Carbon Competitiveness Regulation', the central tenet of which was a carbon pricing mechanism to reduce emissions. The panel suggested that funds levied through such a pricing mechanism may be used to support "a just transition for labour and communities and strategies to protect small and medium-sized businesses", besides other measures.²⁵

In 2015, the Government of Alberta announced a Climate Leadership Plan, which had a key focus on phasing out coal-based power by 2030 and introduction of a carbon tax.²⁶ At that time, coal-based power accounted for over 50% of the province's installed capacity. The government's plan meant an accelerated closure of coal power plants in the province.²⁷

The decision of an accelerated closure prompted the development of institutional mechanisms, policies and programmes to support the closure of the plants, as well as to ensure a just transition of workers and communities to be impacted by the closure.

To support an accelerated closure of coal power plants and implement just transition measures, the Government of Alberta focussed on two specific plans:

- An off-coal agreement with the coal power companies; and,
- Support for workers and coal communities to be impacted by the transition.

Off-coal agreement: The Government of Alberta signed an off-coal agreement with three companies (TransAlta, ATCO, and Capital Power) whose units would face an accelerated closure. These companies were provided a financial package for converting six coal units with cumulative capacity of 3.5 GW capacity to natural gas units. A total package of C\$1.36 billion (US\$1.03 billion) was announced that would be paid to the companies over 14 years (2017–2030). The money for compensation is raised from the province's carbon tax on large industrial emitters.²⁸

Just transition of coal workers and coal communities: In September 2016, the Government of Alberta constituted an ‘Advisory Panel on Coal Communities’ (under the Ministry of Economic Development, Trade and Tourism) to advise the government of transition measures. The three-member independent panel held consultations with workers and local communities and submitted recommendations to the government of measures for supporting workers, the local community and the first nations (see Table 17).²⁹

Table 2: Recommendations of the Advisory Panel on Coal Communities, Alberta

Pillars	Key Recommendations
Supporting workers	<p>For training and providing ‘Employment Transition Services’</p> <ul style="list-style-type: none"> i. Identify pertinent provincial and federal programmes that support worker training and other transition measures, and leverage those programmes. ii. Impacted companies, unions and communities will formulate and execute a worker transition strategy. iii. Worker Transition Teams must be instituted for each affected region to provide support to impacted workers and assess their needs. iv. The government, unions and employers can provide education, skilling and retraining to workers to help retain employment or secure re-employment. v. Formulate an online job-matching tool to connect impacted workers with employers. vi. Offer relocation assistance for new job opportunities. <p>For ensuring income security</p> <ul style="list-style-type: none"> i. Government can facilitate negotiation of a severance package and early retirement benefits between the employers and the labour unions, for both unionised and non-unionised workers of coal mines and power plants. ii. Analyse the impact of transition on pension plans and ensure sufficient funding for these plans. iii. Use employment insurance funds to mitigate immediate impacts on workers. <p>Research studies to inform worker transition</p> <ul style="list-style-type: none"> i. Collaborate with electricity generation companies and unions to develop job profiles of impacted workers. ii. Execute labour market studies at the regional level on supply and demand for occupations and skills. iii. Evaluate successful worker transition measures.
Supporting communities	<ul style="list-style-type: none"> i. Offer temporary stability to services affected by the transition. ii. Develop a coal communities economic transition programme working along with the local government and businesses. iii. Develop an efficient communication system (such as a “conciierge”) between the impacted communities and the government. The conciierge shall work with impacted communities to identify business opportunities in the region that are relevant for the local community. iv. Prioritise infrastructure projects and ensure that the government focuses on economic diversification.
Supporting First Nations	<ul style="list-style-type: none"> i. Collaborate with the Paul First Nation, TransAlta and the Government of Canada to analyse the impacts of the Benefit Agreement. ii. Finance data collection to formulate a profile of the labour force capacity of the First Nation members and labour market opportunities at the regional level. iii. Collaborate with the Government of Canada to formulate and execute a First Nations Training and Employment Strategy. iv. Support the First Nations in acquiring finances for training projects related to reclamation activities and RE projects.

Source: Advisory Panel on Coal Communities recommendations, 2017.

Around the same time, the Alberta Federation of Labour (AFL) established the Coal Transition Coalition (CTC) to advocate for the interests of impacted coal workers and their communities. The CTC submitted their recommendations to the government in March 2017.³⁰

The recommendations of the advisory panel and the CTC led to the development of two specific programmes to support the workers and the local community. These include:

- A Coal Workers Transition Fund; and,
- A Coal Communities Transition Fund.

Coal Workers Transition Fund: This was set up in 2017 to implement various programmes related to coal worker transition. A sum of C\$40 million (US\$30 million) was earmarked towards this by the government.³¹ The programmes implemented by the fund are outlined below.

Table 3: Programmes supported by the Coal Workers Transition Fund

Programmes	Provisions
Bridge to re-employment relief grant	<ul style="list-style-type: none"> i. Provides financial assistance to workers while they search for a new job. ii. Workers are eligible to receive up to 75% of their previous weekly earnings when combined with employment insurance benefits. iii. Relief grant payments are issued every two weeks for up to 45 weeks, or until they get full-time employment, whichever is shorter. If a worker finds temporary full-time employment (35 hrs/week or more), payments will be paused for up to 12 months.
Bridge to retirement relief grant	<ul style="list-style-type: none"> i. Bi-weekly payments to workers, who are at least 53 years old, and have lost their jobs, are close to retirement but not yet eligible for pension. ii. Provides up to 75% of a worker's previous weekly earnings. A worker is eligible to receive this for up to 72 weeks, until they receive their pension, or when gross employment income is greater than the relief payment, whichever condition is met first. The worker should have worked for the same company for at least 10 years to receive the benefits.
Relocation assistance	Workers who have been laid off and need to move at least 40 kilometres to begin a new job are eligible to be reimbursed up to C\$5,000 (US\$3,785) as relocation expenses.
Tuition waiver voucher	<ul style="list-style-type: none"> i. Coal workers are eligible for receiving a voucher of up to C\$12,000 (US\$9,084) to return to education and get training for new careers. ii. Workers eligible for the voucher should have been employed for a year or more at the identified worksite, and the worksite is closing within the next five years, either permanently or temporarily, or have received a formal written notice of layoff.
Career counselling and employment services	Career consultants and employment service providers are made available to engage directly with coal workers to share information, develop personalised plans, and provide short-term skill development courses as required. This service is provided on and off site.
Setting-up of workforce adjustment committee to develop transition plans	<ul style="list-style-type: none"> i. The government can provide employers and unions a list of qualified facilitators who can be hired to assist employers, workers, and unions with setting up a workforce adjustment committee. ii. The committee will create a tailored transition plan for individual worksites using labour market research. The committee can also arrange specialised training and organise career or job fairs.

Source: Support for Albertans affected by coal phase out. Government of Alberta.

Coal Communities Transition Fund: This fund was developed by obtaining grants from the 'The Community and Regional Economic Support (CARES) programme' in 2017.³²

The CARES programme supported initiatives led by municipalities, communities and regions in Alberta which have the objective of enhancing local economic conditions, and leveraging regional resources to build capacity for sustainable economic development. To become eligible for the programme grant, projects must improve the local business environment and/or regional economic collaboration, increase support for entrepreneurs and SMEs, enhance support for businesses and industries that enable diversification in a community or a region, and increase the scope of sustainable job creation.³³

The Coal Community Transition Fund, supported 12 projects in 17 communities across Alberta, amounting to C\$5 million (US\$3.8 million) benefitting the local community. These include, work to expand economic hubs around agri-businesses, transportation and high-tech industries, support tourism development, and also projects related to feasibility studies and strategic planning to diversify the local economy.³⁴

The review of the just transition plan and mechanisms of Alberta suggest that it is sector-specific, primarily focussed on conversion of coal-based power plants to natural gas-based units to meet the emission standards. The worker transition measures developed by the government are aimed at providing support to the affected coal workers. Overall, the measures have a limited focus on non-coal workers engaged in the value chain. The investments in regional development have also been for a targeted period.

3.5 Territorial Just Transition Plans, Poland

The Territorial Just Transition Plans (TJTP), as mandated under the European Union (EU) Just Transition Fund (JTF) mechanism, defines the territories in which the JTF will be used. The territories are identified by the member states through a dialogue with the European Commission. The TJTPs outline the just transition challenges in the identified territories, indicate the development objectives and needs to be met by 2030, identify the types of works or projects that need to be implemented including output and result indicators, a detailed budget for implementing the plan, and specify relevant governance mechanisms.³⁵

Poland, till date, has developed TJTPs for six coal provinces. These include Silesia, Western Małopolska, Wielkopolska, Lower Silesia, Łódzkie, and Lubelskie. Out of these, five plans have been approved by the European Commission (as of December 22). These include the regions of Silesia, Western Małopolska, Wielkopolska, Lower Silesia and Łódzkie. A total of €3.85 billion (US\$4.3 billion) has been allocated through the Just Transition Fund (JTF) mechanism to support the implementation of the TJTPs in these regions.³⁶

Table 4: Allocation of Just Transition Fund to Polish coal regions

Region/ Province name	Amount allocated (€)	Amount allocated (US\$)	Focus of allocation
Silesia and Western Małopolska*	2.4 billion	2.7 billion	<ul style="list-style-type: none"> i. Transitioning to a green economy, and creating new jobs. ii. Economic diversification, including investments in SMEs engaged in RE production and other green industrial activities. iii. Clean mobility. iv. Rehabilitation and decontamination of post-mining areas (2,800 ha) in accordance with the polluter pays principle. v. Augmenting energy efficiency of public buildings and housing by providing home insulation and installing rooftop solar and heat pumps in Western Małopolska. vi. Training of 100,000 workers presently working in the fossil fuels industry. These workers will be given jobs in renewable and climate neutral industries. vii. Creation of 27,000 new employment opportunities.
Wielkopolska	415 million	465 million	<ul style="list-style-type: none"> i. Investments in RE and green hydrogen, including on repurposed industrial land. ii. Building a circular economy. iii. Augmenting energy efficiency through building insulation. iv. Training and reskilling of 5,500 workers in the lignite industry.
Lower Silesia	581.5 million	651 million	<ul style="list-style-type: none"> i. Investment in new SMEs and start-ups for green industry development and economic diversification. Estimated that 1,000 new green employment opportunities will be created. ii. Investments in educational infrastructure. iii. Investment in RE, such as solar.

Table 4 continued.

Region/ Province name	Amount allocated (€)	Amount allocated (US\$)	Focus of allocation
			<ul style="list-style-type: none"> iv. Replacement of polluting industrial activities and equipment, such as obsolete boilers. v. Improving energy efficiency, such as through building insulation.
Lódzkie	369.5 million	414 million	<ul style="list-style-type: none"> i. Development of business infrastructure for local SMEs. ii. Investments in research laboratories. iii. Investments in energy efficiency measures. iv. Investments in RE. v. Skilling and upskilling. vi. Investments in electric public transport, such as buses.

* Under the JTF, the allocation to Silesia and Western Małopolska has been considered together as the closure of coal-based power plants and coal mines in Silesia will have an effect on part of Western Małopolska. Source: European Commission. (2022, December). Press Release. EU Cohesion Policy: €3.85 billion for a just transition toward climate neutral economy in five Polish regions.

The following section provides a detailed evaluation of the TJTP of Silesia (covering the Upper Silesian coal basin), the largest coal region of the country.

Silesia

Number of coal mines: 19 (as of 2022)

Coal production per year: 29.5 MT (as of 2022)

Number of power plants: 4 (as of 2019)

Installed capacity: 6.3 GW (as of 2018)

Worker's scenario: It is estimated that the planned closure of coal mines and power plants until 2030 will result in nearly 37,000 jobs lost (among this 24,000 is related to coal mine closures). However, between 2030-2049, the scale of job losses will be much higher, estimated about 145,000 people (including nearly 96,000 in the mining sector).

Communities to be impacted by coal mine closure: Taking into account the areas where mines have already been closed (liquidated mines) and areas where mining activities are still ongoing but will be impacted by future closures, overall, 64 coal-dependent communities (largely municipal areas) have been considered as impacted areas (largely municipalities).

Sources:

1. Territorial Just Transition Plan of Silesia. (2022). Marshal's Office of the Silesian Voivodeship.
2. European Commission. (2020). Silesia, Poland – Regional Profile.

The Silesia region in Poland is one of the largest coal mining areas in Europe.³⁷ However, coal mines in Silesia have been experiencing a steady decline in the past years due to falling productivity and low profitability. The share of the mining industry in Silesia's Gross Value Added (GVA) decreased from 9.8% in 2000 to 6.9% in 2017. While the sector is still one of the major employers in the region, accounting for 4.2% of total employment (as of 2019), the decline in coal jobs is a growing challenge.³⁸

Silesia has developed a comprehensive TJTP that outlines a strategy to support a planned transition till 2030. The plan has been developed considering a coal mine and power plant closure scenario until 2030 and beyond (the last mine in Silesia is planned to be closed in 2049), and estimating the impact on the workers and local communities. The plan also takes into account strategic intervention areas, which include, areas where mines and power plants have closed down or will be closing, communities whose socio-economic functions will be affected by the transition, and growth centres (areas with the highest potential for the development of new economic functions and enabling the creation and implementation of innovations, including of innovative industries).³⁹

Overall, the plan is applicable for the seven mining sub-regions. In these areas, either coal mines and/or power plants have been closed down from the 1990s to the present, or areas where closure will take place in the time horizon of 2030 -2049.⁴⁰ The various components of the plan and investments are outlined below. The plan is to be implemented by the provincial government of Silesia in coordination with regional/sub-regional and local governments.

Table 5: Investment components in the TJTP, Silesia

Focus area	Activities	Amount (million €)	Amount (million US\$)
Supporting economic diversification and technological innovations in mining areas towards climate neutrality	i. Development of R&D and associated infrastructure to contribute to the transformation. ii. Supporting creation and development of companies in technology parks and hubs. iii. Development of competencies of people employed in technological parks and design centres.	35	39.2
	Leverage inherent potential of mining subregion for transformation.	35	39.2
	Construction and development of R&D infrastructure in enterprises and their consortia, in particular for climate neutral technologies.	100	112
	i. Support entrepreneurship and ease of doing business. ii. Infrastructure investments.	149.5	167.4
	Investment in enterprises/ industries included in the Technology Development Program of Silesia.	140	156.8
	Investments to increase the competitiveness of SMEs.	90	100.8
Increasing resource efficiency in industrial material use, supporting circular economy	i. Investments to reduce the consumption of raw materials (including water) in production processes, implementation of clean technologies to significantly reduce waste generation, and material recycling. ii. Development of competencies of people employed in large enterprises and small and medium enterprises (SMEs).	295.5	330.9
RE development	i. Development of RE infrastructure in post-mining and post-industrial areas and distribution and storage infrastructure. ii. Support distributed energy initiatives (energy cluster, co-operatives, prosumer energy communities).	300	336

Table 5 continued.

Focus area	Activities	Amount (million €)	Amount (million US\$)
Reclamation and remediation of industrial land	Reducing risks of improperly stored wastes and decontamination of post-industrial sites.	70	78.4
	Improvement of water conditions in the mines' impact area.	15	16.8
	Preparation of post-industrial areas intended for economic activities.	328	367.4
Systematic land management of post-industrial areas	Planning, inventorisation and valorisation of post-industrial areas	20	22.4
Zero emission transport infrastructure	Infrastructure for zero emission and non-motorised transport	30	33.6
Labour support and workforce development	Reskilling	100	112
	Mobility support	95	106.4
	Development of vocational education and training centers for green and digital economy.	238	266.6
	Investments in higher education oriented to the needs of green economy.	37	41.4
	Co-ordination of various institutions to provide high quality services to the inhabitants of transition affected regions through reskilling, career support, vocational training, legal and psychological services.	4	4.5
Community support	Initiatives aimed at social integration, preserving regional identity, and industrial heritage in the communities.	41	45.9
Strengthening stakeholder engagement	Strengthening stakeholder capacity for effective management of the transition, including monitoring and evaluation of transition measures.	5	5.6
Institutional strengthening	i. Capacity building of employees of local government units, etc., for planning and implementation.	88.7	99.3
	ii. Communication strategy and dialogue with the communities of the region for building awareness.		

Source: Territorial Just Transition Plan of Silesia, 2022.

3.6 Territorial Just Transition Plans, Germany

In line with the country's commitment to reduce CO₂ emissions by 65% by 2030, Germany has developed TJTPs for the country's four coal regions/provinces – Brandenburg, North-Rhine Westphalia (NRW), Saxony, and Saxony-Anhalt. A total of €2.5 billion (US\$2.8 billion) has been allocated through the JTF mechanism to support the implementation of the TJTPs in these regions.⁴¹

Table 6: Allocation of Just Transition Fund to German coal regions

Region/ Province name	Amount allocated (€)	Amount allocated (US\$)	Focus of allocation
Brandenburg	785 million	879 million	<ul style="list-style-type: none"> i. Economic diversification and gradual transition away from a lignite and petrol-based economy. ii. Support green SMEs. iii. Promote resource efficiency and circular economy in the industrial sector. iv. Develop hydrogen plant as an alternative to local lignite-based production. v. RE energy investments. vi. Skilling for employment in green industries.
North Rhine-Westphalia	680 million	761.6 million	<ul style="list-style-type: none"> i. Rehabilitating lignite mines. ii. Development of green SMEs, and other green industry start-ups in sectors such as resource efficiency, circular economy, bio-based alternative raw materials. iii. Training and coaching to retain jobs.
Saxony	645 million	722.4 million	<ul style="list-style-type: none"> i. Innovation and technology development for RE and circular economy. ii. Development of green, hydrogen-based solutions to substitute raw materials such as gypsum derived from coal-fired power plants. iii. Investment in SMEs in sectors such as green energy and circular economy. iv. Reskilling of workers (1,300). v. Development of vocational schools.
Saxony-Anhalt	364 million	407.7 million	<ul style="list-style-type: none"> i. Rehabilitation of mining sites in a sustainable manner. ii. Development of new hydrogen infrastructure. iii. Development of green start-ups and SMEs. iv. Investments in rural areas for sustainable transport. v. Development of green SMEs and other green industry start-ups in sectors such as resource efficiency, circular economy, bio-based alternative raw materials. vi. Training of workers.

Source: European Commission. (2022, October). Press Release. EU Cohesion Policy: €2.5 billion for a just climate transition in Germany.

The following section provides a detailed evaluation of the TJTP of Brandenburg, which will face significant transition challenges from closure of mines and power plants.

Brandenburg

Number of coal mines: 2 (as of 2022)

Coal production per year: About 25–26 MT (as of 2022–2023)

Number of coal-based power plants: 2 (as of 2023)

Installed capacity: About 3.4 GW (as of 2023)

Worker scenario: 8,600 people are employed in lignite mines and power plants in Brandenburg (as of 2020–2021).

For the Lusatian lignite mining area, Brandenburg's TJTP 2021–2027 aims to retire about half of the coal-based power capacity and 37% of the lignite production.

Regions to be impacted by closure of coal mines, power plants and oil refinery: The mines and lignite-based power plants are located in the Lusatia region (Lausitzer Revier), which will be most impacted by the closures. Besides, there is one oil refinery located in Uckermark, which will also be impacted by the closure of the facility in the coming years.

Sources:

1. Global Energy Monitor. (2023). Global Coal Plant Tracker.
2. Global Energy Monitor. (2022). Global Coal Mine Tracker.
3. Programme of the State of Brandenburg for the European Regional Development Fund and for the Just Transition Fund. (2022). (The information is available for the two regions for which TJTP is targeted).
4. Clean Energy Wire. (2023, January 18). Germany's three lignite mining regions.
5. Organisation for Economic Cooperation and Development (OECD). (2021). The economy and labour market in Brandenburg. OECD Library.

Brandenburg province, located in the eastern part of Germany, is one of the country's oldest coal regions. Currently, the Lusatia district in Brandenburg is among the three districts still producing hard coal from two mines. It also has two power plants. However, the coal mines are very old (around 60 years and above) and nearing the end of their mining lives.⁴² The state also needs to plan a closure of the power plants aligned to Germany's coal exit timeframe.

To manage the transition in the coming years, the state of Brandenburg has created a plan applicable through 2021–2027. The plan identifies the challenges that the region is facing and draws out an action plan to meet specific developmental and just transition objectives.⁴³

From a just transition perspective, the plan focuses especially on two regions in Brandenburg. These include Lausitzer Revier (LR) or Lusatia, which will be the hardest hit region due to lignite phase-out. Besides, the plan also includes the Uckermark (UM), which is an oil refinery region and will suffer the most from the phasing out of oil. LR and UM in Brandenburg have been identified as regions where the JTF will be utilised.⁴⁴ In October 2022, Brandenburg has received €785 million (US\$879 million) from the JTF.⁴⁵

Overall, the TJTP aims to support the transition of coal and oil in Brandenburg. The plan has been developed targeting the key challenges of the region, identifying the target groups, and outlining key investment areas and funds necessary to support various activities. These include providing transition support to the impacted workers, investments for supporting economic diversification and innovation, RE and non-conventional energy development, increasing resource efficiency in industrial material use and production processes, supporting circular economy, and building social infrastructure and community resilience. The various components of the plan are outlined below.

Table 7: Investment components in the TJTP for coal regions, Brandenburg

Focus area	Activities	Amount (million €)	Amount (million US \$)
Supporting economic diversification and innovation	Investments in public research centres and higher education institutions directly related to research and innovation activities	44.5	49.8
	Supporting research and innovation activities, including, industrial research, scientific innovations, feasibility studies, etc.	13.9	15.6
	Corporate development and internationalisation of SMEs	78.7	88
	Entrepreneurship, smart specialisation skills development, and the ability of companies to adapt to change	4.3	4.8
	Advanced support services for SMEs and SME associations, such as for management, marketing and design services	11.1	12.4
	Innovation processes in SMEs	13.6	15.2
	Technology transfer and cooperation between companies, research centres and academia	7	7.8
	Research and innovation processes, technology transfer and cooperation between companies, research centres and universities with a focus on low-carbon economy, resilience and adaptation to climate change	37.2	41.7
	Research and innovation processes, technology transfer and business-to-business collaboration with a focus on circular economy	17	19
	Support for business start-ups	15.1	17
	Energy efficiency and demonstration projects in SMEs and accompanying measures	8.5	9.5
Energy efficiency and demonstration projects in large companies	50	56	
RE and non-conventional energy investments	Support for RE energy development, including geothermal	2.8	3
	Alternative fuels infrastructure	36	40.3
Increasing resource efficiency in material use and production processes to support circular economy	Environmentally friendly public transport infrastructure	19	21.3
	Support for environmentally friendly production processes and resource efficiency in SMEs	11.9	13.3
	Support for environmentally friendly production processes and resource efficiency in large companies	18	20

Table 7 continued.

Focus area	Activities	Amount (million €)	Amount (million US \$)
Social infrastructure and community resilience	Conservation and protection of biodiversity, natural heritage and natural resources	5.5	6
	Highly efficient district heating and cooling	15.2	17
	Water management and protection of water resources	3.5	4
	Information and communication technologies, including high-capacity broadband network infrastructure	172	192.6
	Support for primary and secondary education (excluding infrastructure facilities)	1.2	1.3
	Other social support for infrastructure and resources	3.5	4
Labour support	Educational institutions and vocational training institutes	43.2	48.3
	Support for the adjustment of workers, companies as well as entrepreneurs in change	11.5	12.9

Source: Territorial Just Transition Plan of Brandenburg, 2022.

Table 8: Investment components in the TJTP for oil and gas regions, Brandenburg

Focus Area	Activities	Amount (million €)	Amount (million US\$)
Supporting economic diversification and innovation	Investments in public research facilities and higher education institutions directly related to research and innovation activities	16	18
	Supporting research and innovation activities, including, industrial research, scientific innovations, feasibility studies, etc.	8	9
	IT services and applications for digital competence and digital inclusion	1	1
	Entrepreneurship, smart specialisation skills development, and the ability of companies to adapt to change	4	4.4
	Support for innovation clusters, including between companies, research institutes and public bodies which primarily benefit SMEs	2	2
	Technology transfer and cooperation between companies, research centres and academia with a focus on low-carbon economy, resilience and adaptation to climate change	11	12.3
	Research and innovation processes, technology transfer and business-to-business collaboration with a focus on circular economy	1	1
RE and non-conventional energy investments	Solar energy	1.5	1.7
	Smart energy systems, including smart grids and storage	7.5	8.4

Table 8 continued.

Focus Area	Activities	Amount (million €)	Amount (million US\$)
Social infrastructure and resources	Highly effective district heating and cooling systems	18	20
	Energy-efficient renovation or energy-efficiency measures for public infrastructure, demonstration projects, etc.	3	3.3
	Educational institutions (primary and secondary level)	2	2
	Other social resource investments	2	2
	Support for the development of digital skills	1	1
Labour support	Support for the adjustment of workers, companies as well as entrepreneurs	1	1
	Support for adult education	0.5	0.6
	Support for educational institutions and vocational training centres to support adult education and build skilled workforce	30	33.6
Governance	Improving the institutional capacity of authorities and stakeholders	0.5	0.6

Source: Territorial Just Transition Plan of Brandenburg, 2022.

3.7 Observations from the sub-national review

The review of just transition laws, policies, and plans developed by state and provincial governments in the US, Poland, Germany, and Canada, and also as observed in the JET-IP of South Africa (*in Chapter 2*), shows that there are two types of sub-national interventions on just transition.

The first type is one in which the state government has developed a comprehensive framework for just transition that includes specific laws and policies, investment plans, and implementation mechanisms. These frameworks are similar to the national just transition frameworks of many countries. Some states in the US (such as Colorado and Illinois) have adopted such comprehensive frameworks. The wide-ranging power these states have and the financial resources in hand have helped them develop and implement such frameworks.

The second type is an essentially an investment plan to receive financial support for implementing just transition measures. These include TJTPs, as developed by the coal regions in the EU, to receive funds from the JTF. Similarly, South Africa has developed a JET-IP to receive financial support from developed countries and also multi-national banks.

Besides, there are also definite plans that state/provincial governments have developed to support closure and just transition measures for a particular sector. For example, the plan of Alberta to convert coal-based power plants to natural gas plants is akin to such a measure.

Overall, the observation suggests that comprehensive frameworks have been adopted if the sub-national governments have set their own emission reduction and energy transition targets, such as net zero goals or carbon-free electricity. On the other hand, if the stimulus for a transition is external funding or the objective is limited, sub-national governments and regions are directly developing investment and implementation plans.

The review also provides an understanding of the key elements being addressed through the comprehensive frameworks and the territorial investment and implementation plans. The observations for each of these are summarised below.

3.7.1 Key components of comprehensive sub-national frameworks

The key components of sub-national just transition frameworks can be summarised as follows.

i. A principal law to guide and mandate mechanisms for a well-planned and well-managed just transition: The just transition laws enacted by sub-national governments are aligned to the states' emission reduction and carbon neutrality goals, with a central emphasis on augmenting RE, developing green industries, fostering economic growth, creating jobs, providing targeted support to workers and communities to be impacted by the industry closures and transition to a low-carbon economy, and building resilience of the fossil fuel dependent areas.

The laws also mandate the development of administrative systems, and planning and stakeholder engagement mechanisms to support an inclusive, well-planned and well-managed transition process.

ii. Amendments to existing laws: Amendments have been introduced to various laws related to land, labour, environment, energy, finance, etc., to incorporate provisions to support just transition measures.

iii. Comprehensive planning aligned with the state strategy and targets for just energy transition: Developing a comprehensive state action plan for implementing just transition measures aligning with the timeframe of closure of coal mines, power plants, restructuring of other fossil fuel-based industries is one of the most important mandates of the sub-national laws and policies.

The key components of a state action plan include:

- A timeframe of closure of coal mines and power plants aligned with the state’s clean energy transition and climate change goals.
- Identification of areas and communities which must be prioritised for just transition investments.
- Measures of labour support to be impacted by the closures and industrial decarbonisation processes, and workforce development.
- Measures of economic diversification and development.
- Measures to boost social infrastructure.
- Identification of financing mechanisms for implementation of plan and programmes, through resources available with the state government, national government support, and private financing.

iv. A dedicated funding mechanism: Establishing a dedicated fund to support just transition measures has been created at the state level, that can partially support various components of just transition measures, including administrative costs. Governments have also considered using existing funds that are targeted towards mining-affected communities or those who have been negatively impacted by industrial development, such as the Energy and Mineral Impact Assistance Fund in Colorado.

Besides, using funds or resources available with the state government have also been considered to support various components of just transition.

Table 9: Examples of state-level Just Transition Funds

Name	How it has been developed	Purpose	Source of money
Just Transition Cash Fund, Colorado	Established under the law on just transition – Just Transition from a Coal-Based Electrical Energy Economy, (House Bill 19-1314) – enacted by the Government of Colorado in 2019	<ul style="list-style-type: none"> i. Support administrative expenses associated with planning, coordinating and implementing just transition in the state. ii. Securitisation of unprofitable coal-fired power plants to undergo early retirement and utilise the additional financial resources for workers and communities. 	State government, and any other money that the general assembly may appropriate or transfer to the fund.
Energy Transition Assistance Fund, Illinois	Established by amending The Department of Commerce and Economic Opportunity Law of the Civil Administrative Code of Illinois, 2003, in 2021	<ul style="list-style-type: none"> i. To provide support to communities and workers impacted by the energy transition. ii. Includes, execution of the programs for workforce and contractor development, just transition investments and community support by the state. iii. Support programmes that will be implemented by the Clean Energy Jobs and Justice Fund (a non-profit corporation under the Clean Energy Jobs and Justice Fund Act), enacted by the state government in 2021. 	State government

v. Programmes to support just transition measures: State governments have created various programmes under the state laws and policies to support just transition. For example, a host of programmes have been created under the Energy Transition Act in Illinois to support the impacted workers and communities during the transition, and create jobs for workers in the clean energy sector.

vi. A worker transition policy and plan: Developing a policy and plan by the companies, or by cooperation between the government and the companies, to protect the impacted workers.

vii. A dedicated administrative set-up: Establishing a dedicated administrative set-up, such as a just transition department or an office of just transition, to support coordination, planning, implementing and monitoring just transition measures. The administrative authority shall also inform development of state-level policies and investment plans from time to time.

3.7.2 Just transition investment and implementation plans related to external funding

The just transition investment and implementation plans developed for receiving external funding, such as the TJTPs in EU member states or the JET-IP of South Africa (a key focus of which is the Mpumalanga region), are characterised by certain common features as outlined below.

i. Schedule of fossil fuel phase down and activities to support just transition linked to the receipt of funds: The TJTPs of each member state territory have a schedule of closing coal-based power plants that are aligned to the energy transition and net zero timeline of the EU, and respective member states. The receipt of the funds (JTF) is contingent on the plan for phasing down and closing such industrial activities.

ii. Plans with timebound funding commitment: The plans are developed for a specific timeframe of funding commitment. For example, the TJTPs outline the challenges of closure and transition each territory and the development needs that need to be met in the concerned regions by 2030, for which funding from the EU is secured.

iii. Aimed at job creation and comprehensive regional development: The regional plans aim to create jobs, revitalise communities, and support coherent measures of climate resilient developmental and economic activities. The key components of the plans are outlined below.

Figure 5: Key focus of sub-national investment and implementation plans

Labour support

- Reskilling and upskilling, and skilling for green jobs.
- Education investments to build foundational skills

Economic diversification and innovation to create jobs

- Investments in R&D.
- Investments in RE and green industries, including SMEs.
- Land repurposing for green energy development and green industry investments.

Business support

- Support for entrepreneurship and start-ups.
- Support to increase market competitiveness of SMEs.

Social infrastructure development

- Education infrastructure, including for adult education and vocational courses.
- Sustainable local transport and mobility.
- Digital infrastructure.

Environmental sustainability and resilience

- Reclamation and remediation of industrial land.
- Reduce consumption of primary raw materials in production processes and increase material recycling.
- Enhance energy efficiency to reduce energy demand and consumption.

Overall, given the expanse of socio-economic issues that just transition measures must cover, interdepartmental coordination, as well as coordination between the national and state/provincial governments remains essential in all cases. The state and provincial governments also have a crucial role in facilitating stakeholder engagement for developing and implementing just transition plans. The TJTPs as developed by the EU, the investment plan of South Africa, and the just transition laws enacted by the state governments in the US, underscore such a process.

4 JUST TRANSITION FRAMEWORK FOR INDIA

- India's context
- Transition strategy
- Vision and key principles of just transition
- Just Transition Framework



JUST TRANSITION FRAMEWORK FOR INDIA

Just transition has become a central agenda in transitioning to green energy systems, green industrial processes, and achieving green and inclusive growth. In this section, we bring together the global insights on just transition policies, institutional mechanisms, and specific conditions of India's fossil fuel sectors and regions. The goal is to conceptualise a just transition framework tailored to India's unique circumstances. The 'Just Transition Framework' as proposed, can act as a roadmap for formulating and revising pertinent laws, policies, and plans and institutional and governance mechanisms at the national and state levels.

4.1 India's context

It is essential to understand India's climate change and green energy goals and the realities of its fossil fuel sectors and regions to develop a just transition framework.

4.1.1 Net zero by 2070 and energy independence by 2047

In 2021, the Government of India (GoI) made two significant announcements that signaled a trajectory for greening the country's energy systems in the coming years and ensuring energy security.

In August, the Government announced an energy independence target by 2047, marking 100 years of the country's independence. The focus of this target is to move away from high-cost fossil fuel imports and strengthen the domestic clean energy market. A major emphasis has been laid on electric mobility, production of green hydrogen, and augmenting the supply of natural gas, among others.¹ In November, at the Glasgow Climate Conference, COP 26, a net zero emission target by 2070 was further announced.²

For India to achieve carbon neutrality by 2070 and eliminate imports of coal, oil, and gas by 2047 will require a massive increase in green energy and simultaneous phase down of fossil fuel production and consumption. This will necessitate achieving the following intermediate milestones toward the long-term goals:

- Peaking of coal demand between 2030-2035;³
- Phasing out of coal-based electricity by 2050-60;
- About 80% reduction of coal consumption by 2050, and a complete coal transition by 2060-70;⁴ and,
- Reduction of oil and gas imports by 85% to 90% by 2047, considering current imports⁵ and assuming that our current domestic production would continue.

The necessity to phase down the production, import and use of coal, oil, and gas will heavily bear on the sectors that rely on them. The re-invention of other industrial sectors, especially steel, cement, automobile, and fertilizer will also be necessary.

The GoI has unveiled national plans and enabling policies in the past few years to work towards these goals. Some of the major ones include the following.

Nationally Determined Contribution (NDC) of 2022: In COP 26, the GoI had announced a target of 500 GW of RE installed capacity by 2030. In 2022, under India's updated NDC under the Paris Agreement (as submitted to the UNFCCC in August 2022), the Government has set a target of achieving 50% of the cumulative electric power installed capacity from non-fossil fuel-based energy sources by 2030.⁶

These targets build on earlier targets set by the GoI of installing 100 gigawatt (GW) grid-connected solar power by 2022 under the National Solar Mission and achieving 175 GW of RE target by 2022.⁷

To work towards augmenting production and supply of RE, the Ministry of Power in December 2022 also unveiled a plan—"Transmission System for Integration of over 500 GW RE Capacity by 2030"—that aims to develop transmission corridors and associated infrastructure.⁸

The National Green Hydrogen Mission, 2023: The Mission aims to make India the global hub for producing, using, and exporting green hydrogen and its derivatives to help decarbonise the economy and reduce fossil fuel imports. Towards this, green hydrogen production capacity of at least five million tonne (MT) per year will be built by 2030.⁹

National Mission on Transformative Mobility and Battery Storage, 2019: A multi-disciplinary mission that aims to develop and implement an end-to-end policy framework for transforming the mobility landscape in India.¹⁰ The mission has laid specific emphasis on a five-year phased manufacturing programme (initially up to 2024) to support setting up of large-scale, export-competitive integrated batteries and cell-manufacturing giga plants in India. Simultaneously, a phased manufacturing programme for localised production across the entire electric vehicle (EV) value chain is envisioned until 2024.¹¹

Targets for electric vehicles: The GoI has set ambitious targets for EVs by 2030, including 30% of passenger cars, 80% of two and three-wheelers, and 70% of commercial vehicles.¹²

Considering the targets and plans unveiled so far, monumental changes will likely happen in the next 27 years as India moves towards the long-term goals of a carbon-neutral and green economy.

4.1.2 Industry targets

Besides policies, plans, and central government targets, the industries are also developing their emission reduction and net zero plans, providing additional impetus to the fossil fuel transition. For example, as per an industry review report (2020), various companies have taken up emission reduction initiatives, including energy efficiency in production processes, energy efficiency in buildings, waste reduction and material circularity, non-energy industrial process emissions reductions, etc.¹³ The following are some of the key measures adopted by companies.

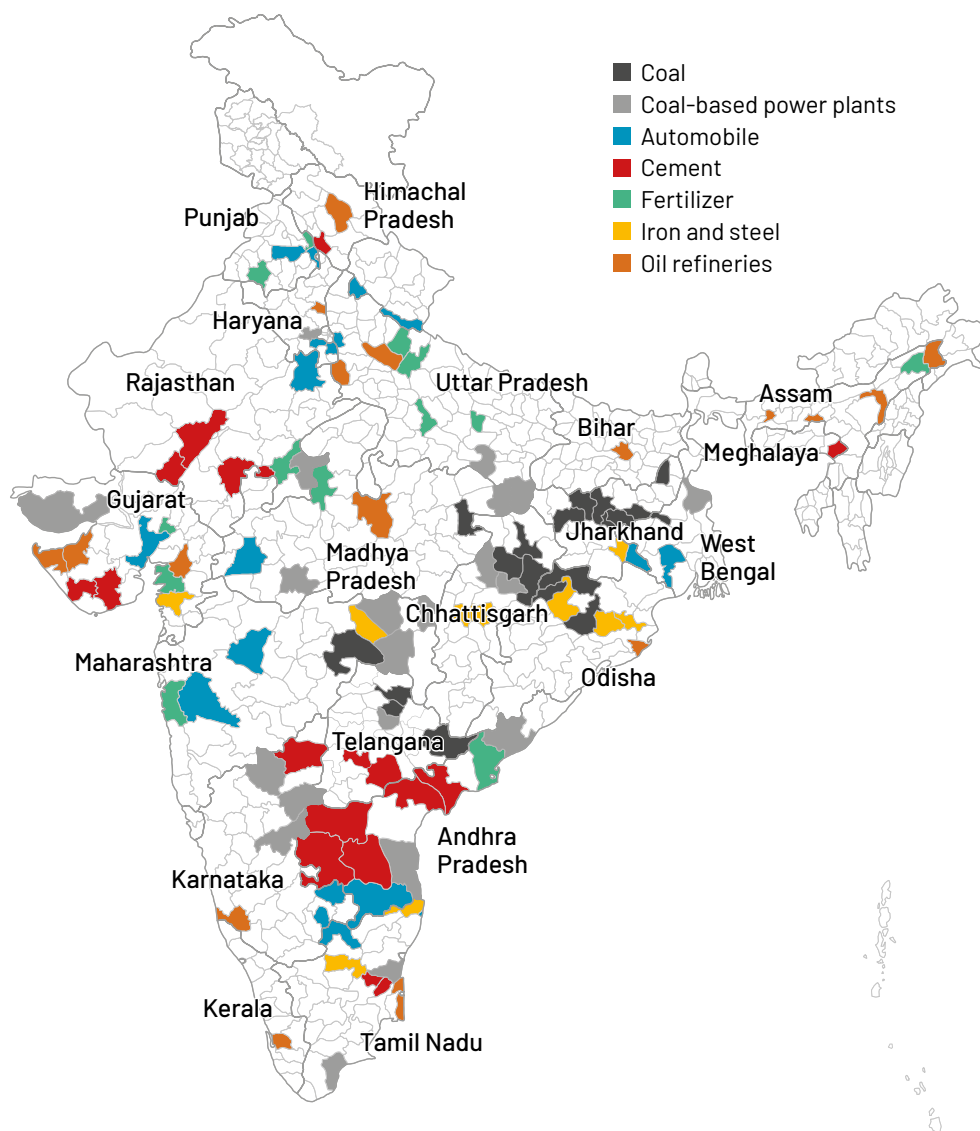
Table 1: Indian companies' action to meet climate targets

Actions	Companies
Companies committed to Science-based Target initiative (SBTi) ¹⁴ which ensures the company is taking shorter-term action to reduce emissions at a pace that consistent with keeping warming below 1.5°/ well-below 2° C	Infosys Limited UPL Limited JSW Energy Limited, Godrej Agrovet Limited, Godrej Consumer Products Limited, Godrej Industries Godrej Properties Limited, Godrej & Boyce Mfg. Co. Ltd, Ultratech Cement Limited, Vakrangee Limited, ACC Limited Adani Ports and Special Economic Zone Limited, SCM Garments PVT Limited, Nahar Industrial Enterprises Limited, Ambuja Cement Ltd Adani Green Energy Ltd, Reliance Jio Infocomm Limited, Bharti Airtel Limited, Gujarat Fluorochemicals Ltd. (GFL), Dalmia Bharat Limited, HCL Technologies Havells India Limited, Mahindra Susten, Eastman Exports Global Clothing Pvt Ltd, JK Tyre & Industries Ltd, Marico Limited, Tata Global Beverages Ltd., EPC Industries Limited, Mahindra & Mahindra Financial Services Limited, YES Bank
RE100, the global corporate RE initiative bringing together businesses committed to 100% renewable electricity	Four companies headquartered in India that have committed to the RE100 initiative - Dalmia Bharat Ltd, Infosys Ltd., Mahindra Holidays & Resorts India Ltd, Tata Motors Ltd.
Internal Carbon Pricing (ICP), a strategy to manage climate-related business risks and prepare for the transition to a low-carbon economy	ACC, Ambuja Cements, Dalmia Bharat Ltd, Dr. Reddy's Laboratories, Godrej Consumer Products, Godrej Industries, Gujarat Fluorochemicals, Hero Motocorp Ltd, Hindustan Zinc, Infosys Limited, JSW Cement Limited, JSW Steel Ltd., Mahindra & Mahindra Mindtree Ltd, Shree Cement, Tata Chemicals, Tata Consultancy Services, Tata Consumer Products, Tata Motors, Tata Steel, Tech Mahindra, Ultratech Cement, Wipro.
Commitments based on Paris Agreement temperature targets	Mahindra Logistics Ltd., Mahindra Heavy Engines Ltd, White House, Dr. Reddy's Laboratories Ltd., Mahindra EPC Irrigation Limited, Swaraj Engines Limited, Gromax Agri Equipment Limited, Mahindra Accelo, Mahindra Holidays and Resorts India Limited, Mahindra Lifespaces Developers Limited, Mahindra World City (Jaipur) Ltd., Mahindra World City Developers Ltd and Polygenta Technologies Limited
Net zero targets	Larsen & Toubro Infotech (year not specified), Tata Steel (2045), Dalmia Bharat (2040). Overall, 40 Indian companies have committed to net zero, including the Indian Railway (net zero emission by 2030).

4.1.3 Scale of the transition

There are 120 districts (out of the 718 districts) in India that have a significant proportion of fossil fuel or fossil fuel-dependent industries – coal mining, oil and gas production, thermal power plants, refineries, steel, cement, fertilizer (urea), and automobile. These districts have about 330 million population, about 25% of the country's total population. As the energy transition happens, these districts will be impacted at various degrees during the next three to four decades. This will impact at least 20 million workers engaged formally or informally in the various fossil fuel industries in these districts.¹⁵ Therefore, there is a need to develop policies and plans for a just transition that can support workers associated with these sectors and support transformative socio-economic changes in these districts and states.

Map 1: Top fossil fuel dependent districts in India*

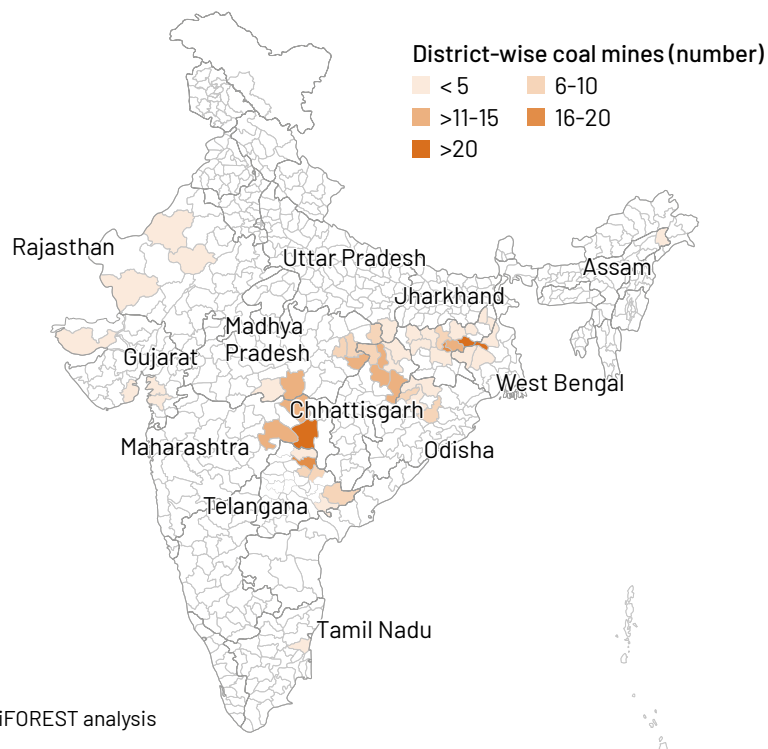


Source: iFOREST analysis

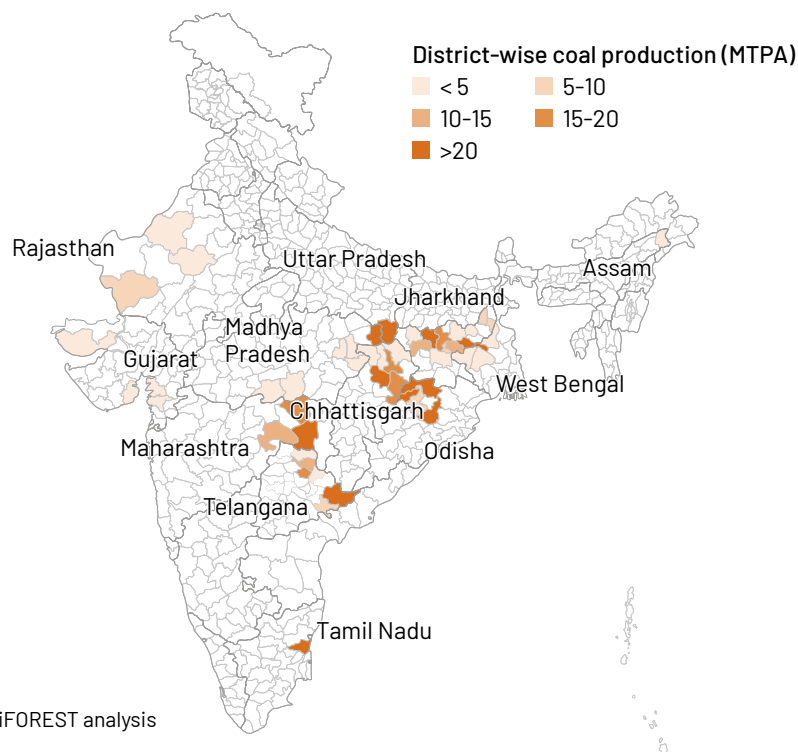
*The legend depicts the most dominant fossil fuel industrial sector in these districts. It is also to be noted that there is a significant overlap between coal mining and coal power districts in the states of Chhattisgarh, Odisha, Maharashtra, Madhya Pradesh

Starting this decade, coal mining and coal-based power districts will remain a major focus of the transition process. There are 417 coal and lignite mines spread across 51 districts in India. However, in terms of coal production, 86% is concentrated in 21 districts across nine states, including districts producing over 100 million tonne of coal per annum (MTPA). The top three coal-producing districts currently are Singrauli (Madhya Pradesh), with a production of nearly 120 MT of coal in 2022, followed by Korba (Chhattisgarh) with 113 MT, and Angul (Odisha) with 97 MT. These three districts account for over 41% of the country's production. Overall, only 12 districts collectively account for more than 72% of coal production.¹⁶ For most other districts, coal production is either plateauing or declining (Refer to sub-section 4.1.3).

Map 2: District-wise distribution of coal mines

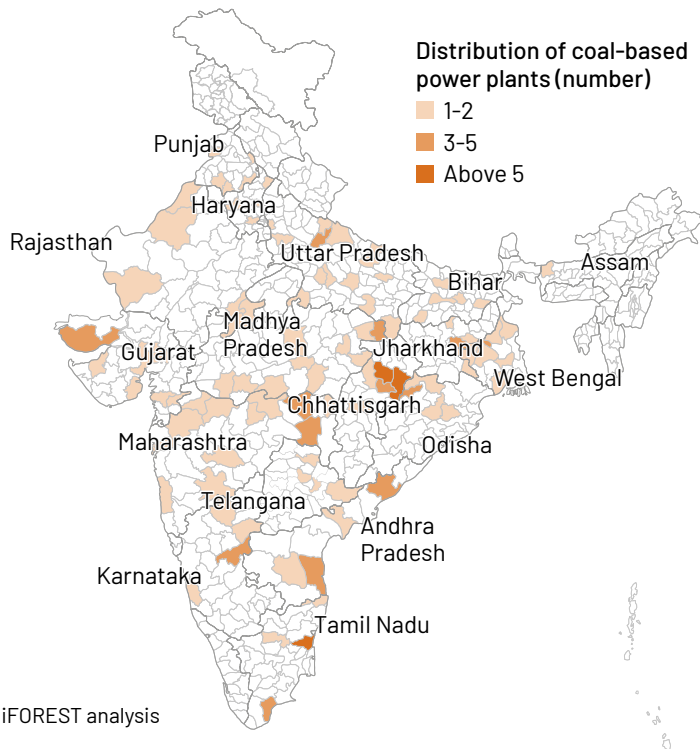


Map 3: District-wise distribution of coal production



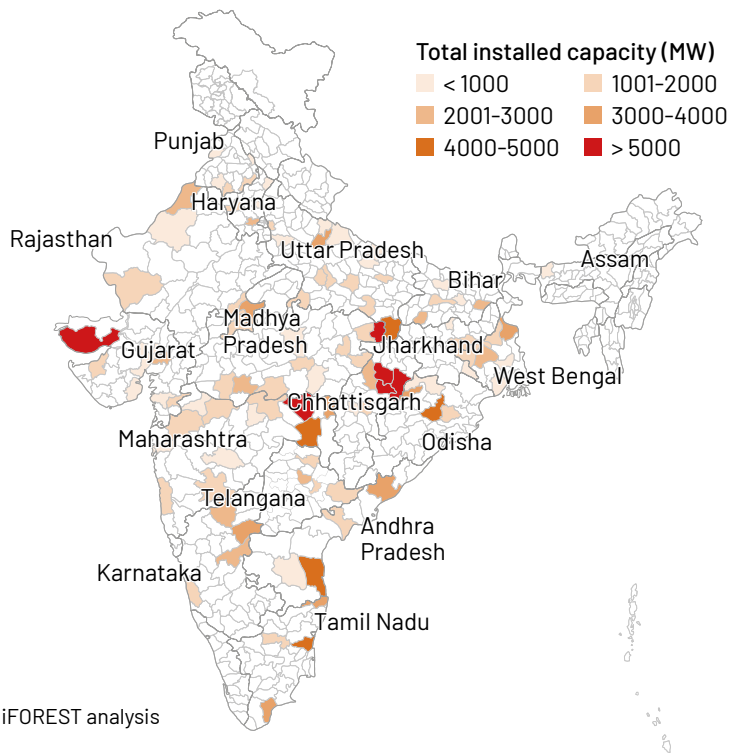
Regarding coal-based power plants, there are 188 operational plants across 17 states. However, over 50% of the country's capacity is concentrated in only 21 districts in 11 states. Singrauli (the biggest coal-producing district) has the highest installed capacity of about 10 GW, followed by Gujarat's Kutch district (9 GW). Other key coal-based power-producing districts include Raigarh (Chhattisgarh), Nagpur, and Chandrapur (Maharashtra), which are also among the top coal mining districts.

Map 4: District-wise distribution of coal-based power plants



Source: iFOREST analysis

Map 5: District-wise distribution of coal-based power capacity



Source: iFOREST analysis

4.1.4 Multiple realities of coal regions

While around 51 coal-producing districts in India are spread across various states, the production and growth scenario vary significantly. Considering the production trend and expansion plans of the various coal companies in these districts, the coal regions of India can be broadly categorised into three stages of coal resource development. These include:

- Regions with declining coal resources, such as in the old coal mining regions of eastern India, such as Jharkhand (Dhanbad, Bokaro, Ramgarh, etc.) and West Bengal (West Bardhaman);
- Regions with plateauing coal resources (while some districts still with high production), such as in the states of Chhattisgarh (Korba), Madhya Pradesh (Singrauli, Sidhi), Maharashtra (Chandrapur, Nagpur), under the operations of; and,
- Regions with increasing coal production, such as in Odisha (Angul).

These regions will experience transition issues at different times, so plans and measures of just transition will also need to be developed accordingly for different timeframes.

4.1.5 Challenges of old mines and power plants

While India has three decades to implement just transition measures, there is an immediate need to address just transition issues related to the old and unprofitable mines and power plants.

Economically unviable and old coal mines

There are a large number of unprofitable mines in India's top coal states. An assessment of the economic status of 293 coal mines in India across eight states (for which data could be obtained) shows that at least 64% of these are unprofitable (188 mines). Nearly 50% of the unprofitable mines are also at least 33 years or older (the average period considered under the mine closure guidelines and by the industry as the time by which a mine should extract coal profitably and recover its investment), which suggests there is no likelihood of extracting coal profitably from these mines in the future.¹⁷

Many of the old and unprofitable mines are concentrated in the states of Jharkhand, West Bengal, Chhattisgarh, Madhya Pradesh, and Maharashtra.¹⁸ The unprofitable mines employ nearly 90,000 workers formally (as per information obtained on department and contractual workers from PSUs for operational mines), which is nearly 29% of the coal industry formal workers. Besides, twice as many workers are informally engaged in these mines, going by the trend of informal workers associated with the coal mining industry. So, closing these mines will impact about 250,000 to 300,000 workers.

Table 2: Unprofitable coal mines

State	Total mines	Unprofitable mines*				Profitable mines	Data not available
		Total	Opencast	Underground	Mixed		
Jharkhand	107	55	29	15	11	35	17
West Bengal	72	48	4	42	2	15	9
Chhattisgarh	49	31	5	24	2	9	9
Madhya Pradesh	52	30	3	26	1	8	14
Maharashtra	50	21	11	10	0	20	9
Odisha	22	3	0	3		15	4
Uttar Pradesh	3	0	0	0	0	3	0
Telangana	43						43
Assam	1						1
Total	399	188	52	120	16	105	106

Source: Ministry of Coal, Government of India, December 2022.

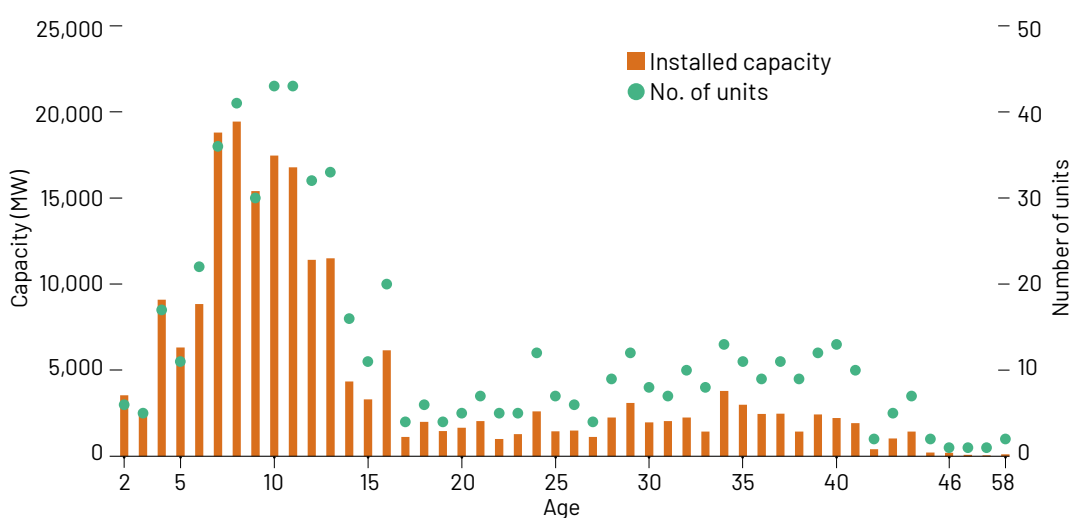
*Unprofitability status as per RTI responses from the CIL subsidiaries, as per August-September, 2022

Old power plants

Over 77% of India's existing coal-based power capacity is under 20 years old. However, the country is staring at a large-scale decommissioning of power plants in the coming years.¹⁹

A unit-wise assessment of the country's operational power plants shows that if an average design life of 35 years is considered, 36.4 GW of capacity across 163 units will reach that age by 2030 and can be retired. Besides, about 169 coal power units have already been retired, including 126 units since 2016.²⁰

Figure 1: Age of India's coal-based power generation capacity



Source: iFOREST analysis based on data obtained from the Central Electricity Authority, 2023

Therefore, from the assessment of end-of-life and unprofitable mines and old power plants, it can be concluded that India's top coal mining and coal-power states are in immediate need of just transition measures. These mainly include the states of Jharkhand, Chhattisgarh, West Bengal, Madhya Pradesh, and Maharashtra.

4.1.6 Socio-economic vulnerability of fossil fuel dependent regions

The fossil fuel-dependent regions in India, particularly the coal districts, suffer from poor socio-economic indicators that increase their vulnerability to any poorly planned industrial and economic transition.

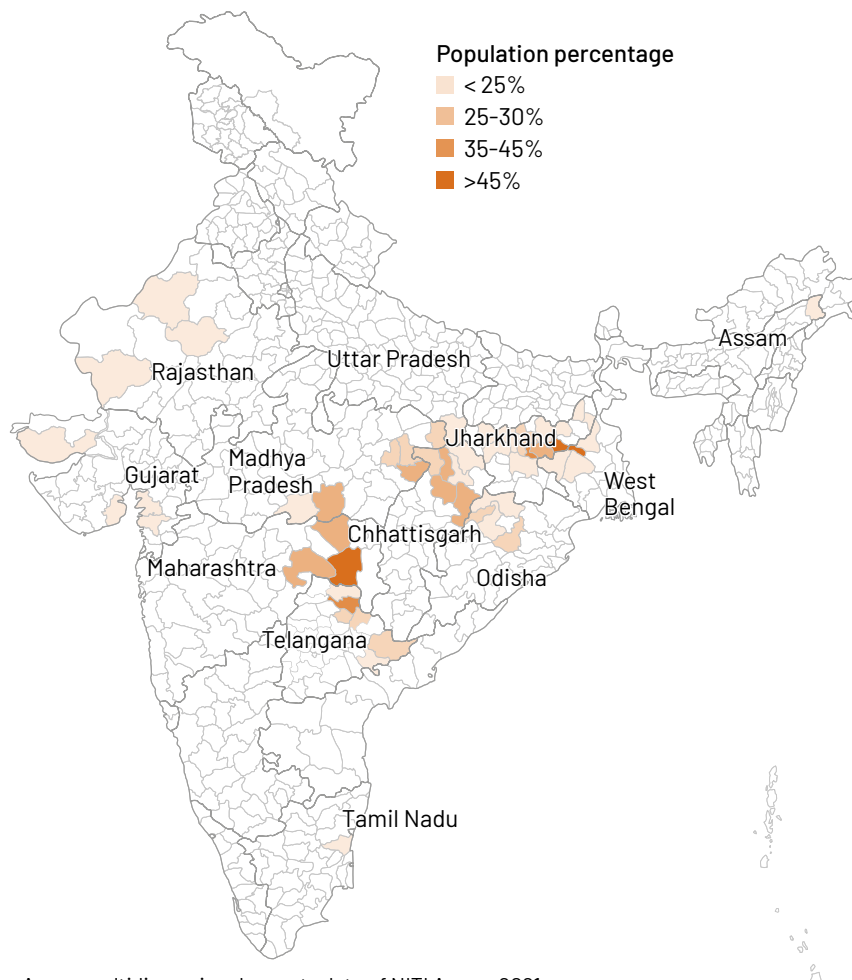
For example, an assessment of multidimensional poverty indicators (exhibits the status of healthcare, education, and living standards of local communities) of all coal mining districts in India (51) shows that 35 districts out of the total (which is nearly 69%), have more than 25% of the population who are multidimensionally poor. The benchmark of 25% here reflects the Indian average. The districts with poor development indicators are highly concentrated in the states of Jharkhand, Chhattisgarh, and Madhya Pradesh.²¹

At the same time, these regions have a high proportion of low-income coal dependency. For example, an all-India extrapolation of total coal workers based on district-level worker assessments undertaken for some of the top coal districts in Jharkhand, Chhattisgarh, and Odisha shows that 65% of workers related to the coal industry are informal with low levels of income.

Considering the coal-centric economy, the districts also remain highly vulnerable to any industrial closure or transition. In many of the top coal districts in India, the industrial activities are centred around coal. For example, in districts such as Bokaro, Dhanbad, Hazaribagh, Korba,

Angul, etc., more than 50% of the district's GDP is dependent on coal mining and coal-dependent industrial sectors.²²

Map 6: Proportion of multidimensionally poor people in coal districts



Source: As per multidimensional poverty data of NITI Aayog, 2021

Table 3: District GDP dependent on coal mining and coal-based industries

State	District	Mining and quarrying (%)	Manufacturing (%)	Electricity, gas and water (%)	Total (%)
Jharkhand	Bokaro	19.6	30.6	3.4	53.7
	Dhanbad	38.5	12.8	1.5	52.8
	Hazaribagh	24.6	17.5	2.6	44.7
Chhattisgarh	Korba	50.4	10.3	16.2	76.9
	Raigarh	15.4	22.7	0.6	38.7
Odisha	Angul	21.6	32.1	7.2	60.9
	Sundargarh	26.5	31.1	0.5	58.2

Source: Jharkhand Directorate of Statistics and Evaluation, 2005-06; Directorate of Economics and Statistics, Chhattisgarh, 2006-07; Directorate of Economics and Statistics, Odisha, 2011-12. The figures have been consulted with the State Government and there is not significant deviation as per information of 2022.

4.1.7 Environmental degradation

Pollution and ecological degradation are critical problems in India's coal regions. Both coal mining activities and coal-based power generation contribute to air, water, and soil pollution, which in turn affects public health, limits access to clean water, and reduces agricultural productivity, among other things.

Given the high pollution levels, the union environment ministry (now MoEF&CC) in 2010 had identified most of the top coal mining areas as 'critically polluted areas'. These include Hazaribagh and Dhanbad in Jharkhand, Singrauli in Madhya Pradesh, Korba in Chhattisgarh, Angul-Talcher areas of Odisha, Chandrapur in Maharashtra, among others. A temporary moratorium was imposed on these areas, and all new and expansion projects were stopped till an action plan was developed to improve the environmental quality. While the moratorium has been removed, these areas must implement short-term and long-term action plans to reduce pollution levels.²³

Abandoned coal mines are another significant source of pollution and risk to public safety. There are at least 287 abandoned/discontinued coal mines in India, concentrated in states such as West Bengal, Jharkhand, Chhattisgarh, Madhya Pradesh, and Maharashtra.²⁴

Table 4: Abandoned/discontinued coal mines

Company name	Number of abandoned/discontinued mines	Location (as per company's command area in states)
Eastern Coalfields Limited	84	West Bengal, Jharkhand
Bharat Coking Coal Limited	39	Jharkhand
South Eastern Coalfields Limited	66	Chhattisgarh, Madhya Pradesh
Western Coalfields Limited	56	Maharashtra, Madhya Pradesh
Central Coalfields Limited	21	Jharkhand
Mahanadi Coalfields Limited	2	Odisha
Northern Coalfields Limited	1	Madhya Pradesh
North Eastern Coalfields	6	Assam
Singareni Collieries Company Limited	12	Telangana
Total mines	287	

Source: Ministry of Coal, 2022, Parliamentary response in Rajya Sabha; Information as obtained through RTI from coal PSUs, 2023.

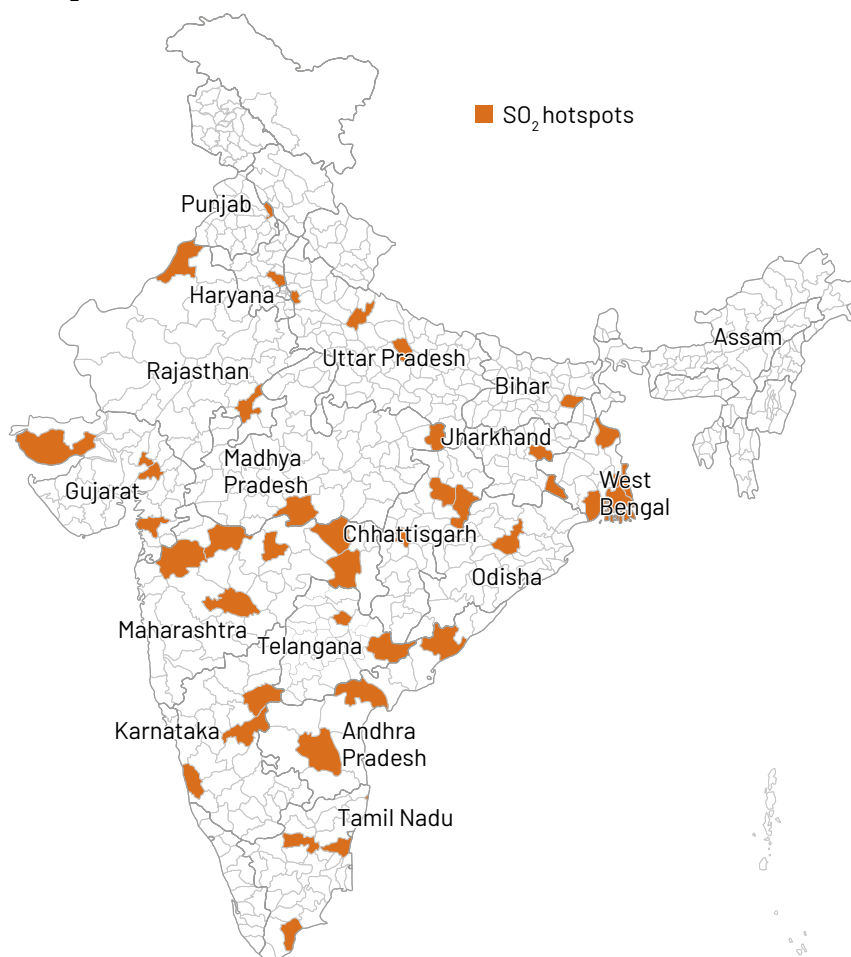
Coal-based power plants are the largest sources of industrial pollution in India. Of the entire industrial sector, power plants alone account for 60% of suspended particulate matter (SPM) emissions, 50% of Sulphur Dioxide (SO₂), 30% of Nitrogen Oxides (NO_x), and 80% of Mercury (Hg) emissions.²⁵

Besides air pollution, high water use and water pollution by coal-based power plants contribute to significant water stress. India's power plants are estimated to withdraw around 22 billion cubic meters of water, over half of India's domestic water demand. The water pollution is primarily related to poor fly ash handling, storage, and disposal systems, which lead to the discharge of ash slurry into water bodies.²⁶

Apart from coal mining activities and coal-based power production, other coal-dependent industries, such as coal washeries, coke ovens, and soft coke plants, have also been identified as the key contributors of ambient air, water, and soil in the coal regions by the Central Pollution Control Board (CPCB).²⁷

Considering the cumulative contribution to air pollution by coal mining and various coal-based industries, there is a substantial overlap between India's air pollution hotspots and areas where coal-based power plants and coal mines are located. For example, many of the sulphur dioxide (SO₂) pollution hotspots are also top coal mining and power districts, including in the states of Maharashtra, Odisha, West Bengal, Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Tamil Nadu, and Gujarat.²⁸

Map 7: SO₂ hotspots of India

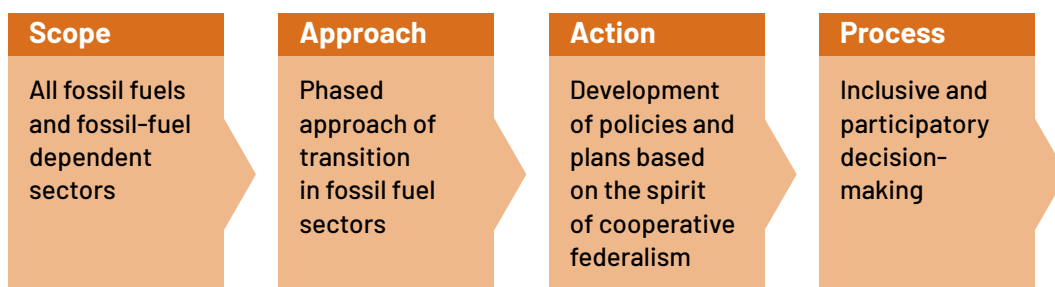


Source: Dahiya, S. et.al. Global SO₂ emission hotspot database. Center for Research on Energy and Clean Air and Greenpeace India. October 2020.

4.2 Transition strategy

Based on above-mentioned factors, the just transition strategy for India is outlined below.

Figure 2: Just transition strategy



Comprehensive focus on all fossil fuel sectors

To meet the energy independence target by 2047 and the net zero target by 2070, a comprehensive approach for the transition of all fossil fuel sectors and industries dependent on them, needs to be developed. This will involve the integration of RE and non-conventional energy for electricity production and industrial processes, mobility with zero emissions, and efficient use of energy for individual lifestyles.

However, transition measures for respective sectors should be considered given their GHG emission reduction potential, along with the availability of alternative technologies in an affordable manner and at scale.

Phased transition approach

An approach for phased transition of coal mines and coal-based power plants must be adopted to ensure affordable energy access and security, and minimise social and economic disruptions for individuals, fossil fuel-dependent communities and regions, and the government.

In the initial phase, over the next decade, a just transition plan needs to be considered for the following:

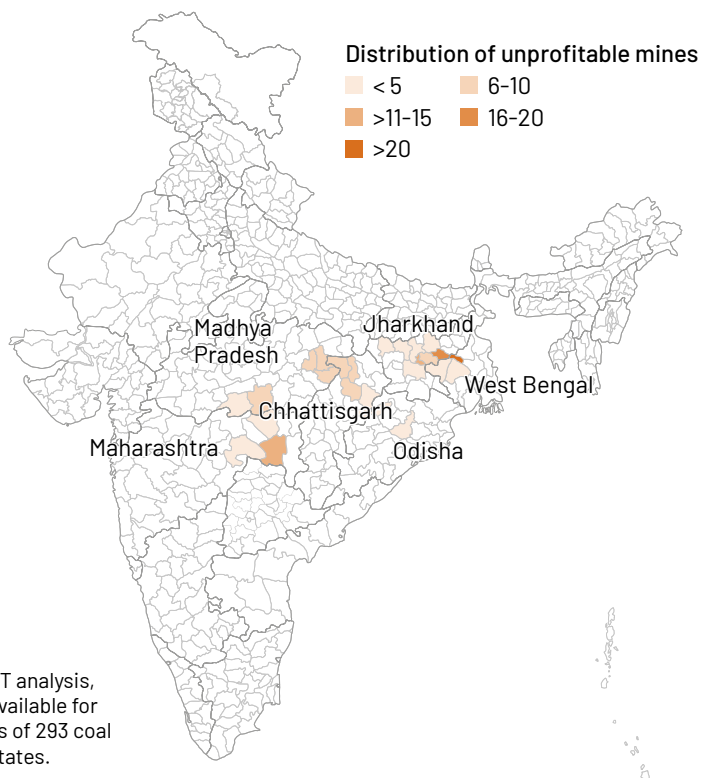
- Old and unprofitable coal mines;
- Old power plants; and,
- Sectors where rapid technological transformation is underway, such as the automobile sector, due to EV growth.

All of these sectors will face a downsizing of the workforce, and will require transition planning and investments for the workers and local communities where these industries are located.

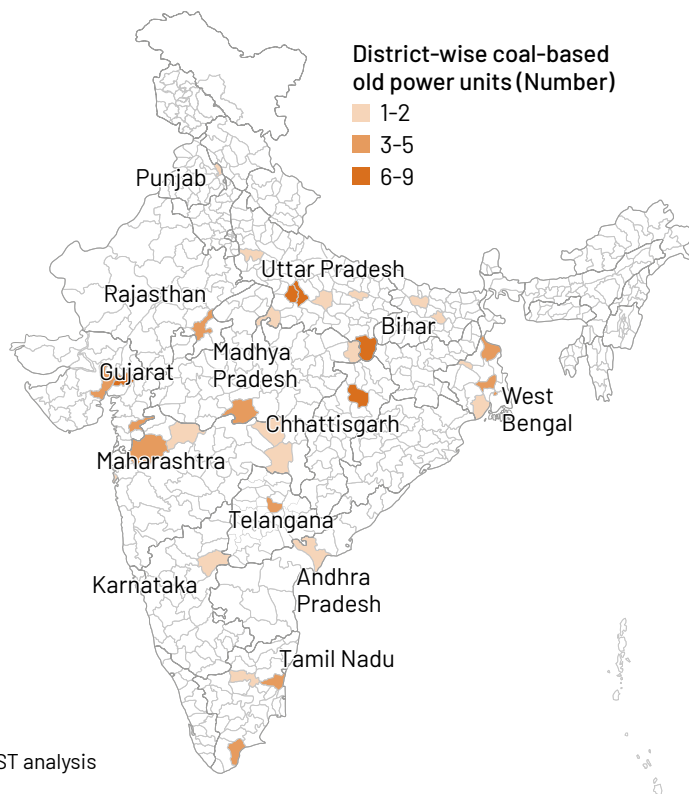
As can be seen in Map 8, one of the most vulnerable regions is eastern India. A large number of unprofitable mines are concentrated in states, such as West Bengal, Jharkhand and Chhattisgarh. Also, there are many unprofitable mines in Madhya Pradesh. The top districts include, West Bardhaman (45) in West Bengal, Dhanbad (22), Ramgarh (15) and Bokaro (8) in Jharkhand, Chandrapur (12) in Maharashtra, Korea (10), Korba (8) and Surajpur (8) in Chhattisgarh, and Annapur (8 each), Chhindwara (6), Shahdol (6) and Umaria (6) in Madhya Pradesh.

With respect to coal power units, Korba district in Chhattisgarh has the maximum number of units (9) above 35 years age. This is followed by Sonebhadra (8) in Uttar Pradesh, and Kheda (6) in Gujarat. Overall, the units are spread out across various states.

Map 8: Districts with distribution of unprofitable mines



Map 9: District-wise distribution of old power plants (units)



In the next phase, the Government should develop a comprehensive roadmap to phase down coal mining activities and coal-based power production, along with decarbonisation of the industrial sectors, including medium, small, and micro industries (MSMEs). Such measures will also require regional assessments and developing plans and investment measures.

Action on policies and plans by the national and state governments

The quasi-federal nature of the Constitution of India has provided differential powers to the central and the state governments.

The key sectors related to just transition are under the ambit of the central government, such as the coal, oil, gas, and the power sectors.²⁹ These sectors are also dominated by large central public sector undertakings, such as the Coal India Limited (CIL) and its subsidiaries, National Thermal Power Corporation (NTPC) Limited, Indian Oil Corporation Limited (IOCL), etc. In addition, central government also has the power to frame regulations on land acquisition, forest diversion, and the environment.

On the other hand, the state governments have power over land subjects, including land rights, tenure, revenue, rents, transfer and alienation of agricultural land, etc. They are also responsible for the growth and development of various regions of states, including industrial development.³⁰

Besides, both the centre and the state under the 'concurrent list' have the power to legislate on economic and social planning, matters of trade unions, industrial and labour disputes, labour welfare, vocational and technical training of labour, social security, and social insurance, etc.³¹

The differential powers of the centre and the state under the Constitution necessitate the development of just transition frameworks at the national and state levels. A national framework will also be essential to address the competing demands and unequal socio-economic status of various fossil fuel dependent and ensure a balanced distribution of the benefits of green energy transition and green growth for all. In addition, the state framework will be essential for guiding comprehensive just transition planning and implementation measures to support regional development and local action.

Inclusive and participatory decision-making process

There are three important processes that must be considered to ensure an inclusive transition. These include:

- Developing a diverse coalition of actors and stakeholders (including workers, labour unions, civil society organisations, public representatives, industry and businesses, and local level institutions) to work towards a shared vision of just transition through coordination and consensus.
- Developing an effective and transparent communication strategy to reach out to all national and local stakeholders to deepen stakeholder knowledge and build public support and engagement in just transition.
- Building local support systems by engaging local civil society groups and frontline workers to create a sustained engagement mechanism for just transition.

4.3 Vision and key principles of just transition

Defining a vision of just transition is essential for formulating relevant policies and plans and developing appropriate institutional mechanisms. Considering the realities of India's fossil fuel economy and fossil fuel regions, the vision for just transition shall be an equitable and inclusive socio-economic development process aligned with the goals of achieving net zero emissions, building a green economy, ensuring energy security and access, securing livelihoods and decent incomes, eradicating poverty and deprivation, building resilient communities, and ensuring social equity.

The vision should guide adopting key principles of just transition, based on which policies, plans, and institutional mechanisms should be developed by the concerned governments.

Figure 3: Key principles of just transition

Support restructuring of the economy and industries, including transforming the energy sector in coal states

- Economic diversification and creation of new economic opportunities in green industries and a low-carbon economy.
- Harness the potential of local resources to strengthen the micro and small scale industrial sector and economic activities.
- Promote renewable energy, green hydrogen, storage etc. in coal dependent states to substitute their loss of fossil fuels.

Support reskilling of workforce and revitalization of communities to be impacted by the transition

- Provide reskilling, transition support, and reemployment assistance to both formal and informal workers.
- Create opportunities to maintain economic vitality of communities and support induced workers.

Support repurposing of land and infrastructure to maximise the potential of these post closure

- Repurpose and redevelop land available with coal mines to create immediate and long-term economic opportunities.
- Repurpose land and infrastructure available with coal power plants for green energy investments and to reuse the assets.

Support responsible social and environmental practices to foster transformative change

- Invest in improving social and physical infrastructure of impacted regions.
- Ensure energy access.
- Improve environmental and ecological conditions through proper closure and decontamination of mining areas, including abandoned mines.

Support investments to build resilient communities

- Unlock the potential of risk-informed public and private sector financing to build community resilience and minimise losses to the economy and local community in the event of a crisis.

Support substitution of revenue

- Develop a progressive revenue substitution plan to substitute revenues of states and districts.

Support social dialogue and inclusive decision-making

- Support inclusive and participatory decision-making processes for workers and the communities in just transition planning, implementation and monitoring.
- Remain sensitive to the issues of gender and marginalised communities.

4.4 Just Transition Framework

Just transition in India is not a simple question of transitioning an industry and the associated workers. Instead, it is a process of economic and social transformation of the fossil fuel-dependent regions to achieve net positive environmental, social, and economic outcomes. Therefore, the just transition frameworks at the national and state levels need to be un-pinned by a development agenda.

4.4.1 National Just Transition Framework

The National Just Transition Framework will have the overarching objective to guide national policies and programmes, financial allocations, and institutional and governance mechanisms to support just transition.

a. Key policy areas

A national framework should allude to the following key policy areas as an integral part of India's clean energy transition and climate change mitigation strategy. Each of the policy areas are elaborated below.

Figure 4: Key policy areas of national just transition framework



i. Just transition of old and unprofitable coal mines and old power plants

A separate policy and plan needs to be formulated for just transition of all unprofitable mines, old mines, and old power plants. The plan should include a year-on-year timeline for the closure of the mines and power plants and mechanisms to ensure just transition of the workers associated with such mines and power plants. The plan should indicate relocation provisions, compensation, severance package, and workers who may require reskilling. It should also outline investments that will be necessary for the local communities.

ii. Phased transition of coal mines

The Government will need to develop a policy and plan for a phased transition of coal mines considering the age, resources that can be extracted profitably, and aligning with India's net zero pathway.

The plan should indicate the coal peak and the timing for capping coal production and setting a reasonable timeframe for just transition. It should also include a regional, state, and national schedule for coal mine closure.

As the timeframe for closing mines will vary from region to region, with some areas phasing out earlier than others, the policy should provide a precise mechanism for state-level consultation and indicators for deciding the coal mine closure schedule.

iii. Phased transition of coal-based power plants

A policy and plan also need to be developed for a phased transition of coal-based power plants, considering the design life of the units, operational efficiency, environmental performance and compliance, generation economics, and energy access issues.

Like coal mines, since the timeframe for closing the power plants will vary from region to region, the policy should provide a precise mechanism for state-level consultation and indicators for deciding the power plant closure schedule.

To facilitate an accelerated closure for power plants that need to be retired before the end of their design life or within the timeframe of a power purchase agreement (PPA) in force, the Government may consider a consensual negotiation agreement, including compensation payments, with the operators. A Special Purpose Vehicle may be created to aid this.

iv. Repurposing of coal mining land and infrastructure

Repurposing the land available with coal mines provides huge opportunity for undertaking various economic activities once the mines are closed. However, the design of the mine closure plans undermines the repurposing potential of coal mining land. The existing closure plans allow significantly high external overburden dumps to exist outside the pits and internal overburden dumps of considerable height inside the pits. Besides, it leaves a void of significant area and depth in the quarry area.³²

There is also ambiguity regarding land transfer to the state government once mines are closed. Under the Coal Bearing Areas (Acquisition and Development) Act, 1957 (CBA), the land is presumed to be given to coal companies in perpetuity. However, the coal mine closure guidelines, and notification(s) issued by the Ministry of Coal in subsequent years, specify that the land is 'leased' to coal companies for a defined period and must be surrendered to the state governments upon closure.³³

To optimise repurposing potential, a comprehensive policy needs to be developed covering abandoned mines, closed mines, and mines those which are operational and will be closing in the coming decades.

The policy guidelines should take into account the following:

- For mines currently in operation, will undergo expansion, or are upcoming, the existing coal mine closure guidelines should be revised to ensure that the closure plans are designed in a way that maximum land can be repurposed.
- The provisions of the CBA Act (1957) related to granting coal mine leases and lease periods need to be revised. The law should include requirements for surrendering land after the closure of mines. At the same time, guidelines need to be developed for transferring land to the respective state governments, also considering the abandoned mines.
- The guidelines should include aspect of social transition.

For infrastructure available with or supported by coal companies (such as housing, healthcare facilities, schools, etc.), a guideline should be developed to allow the productive use of these facilities once the company's operation ceases.

v. Repurposing of power plant land and infrastructure

A comprehensive policy guideline for repurposing land and infrastructure available with power plants should be formulated as soon as possible. Currently, there is no policy to guide and mandate the repurposing of land and infrastructure available with coal power companies. The guidelines should also include the aspect of social transition.

vi. Investments in green energy in coal regions

Policies should be developed to incentivise green energy investments in states and districts that will experience phase down and closure of coal mines and power plants in the coming years. Incentives can be given as production and investment tax credits and capital subsidies. Besides, ease of doing can also be supported by facilitating land procurement and lower charges and duties for procurement of RE from projects set up in these areas.

vii. Development of green industries and innovation

Economic diversification and green industrial development are essential for supporting a just transition and ensuring economic growth. Therefore, enabling policies should be developed to create economic clusters to support green industries and jobs in areas the energy transition will impact. Policy instruments may include:

- Tax credits to support green manufacturing and attract and scale up new low-carbon industries that will create local jobs and support economic diversification.
- Capital expenditure (capex) support to states through dedicated schemes/programmes with interest-free/concessional loans to foster infrastructure development and attract private investments.
- Support ease of doing for green industries.
- Promote circularity of material use for building a sustainable economy and as a job creator.
- Grants to research and technical institutions to support innovation and investments.

viii. Labour support and social welfare

Labour support and human resource development policies must be strengthened for both formal and informal workers.

The following reform measures need to be considered for the labour laws and company labour policies:

- Revise provisions of the labour laws to strengthen support and security for informal or casual workers for their terms of engagement, retrenchment, and transition support in the event of industrial closure.
- Create a special 'Workforce Transition Fund' to provide relief measures for displaced workers, such as temporary income support, mobility assistance, and training and re-skilling assistance for younger workers.
- Provide direction to the companies to revise the Standing Orders related to their workers to include provisions of worker transition support, such as compensation, skilling and reskilling, and support for families of workers of lower grade and low income.
- Provide direction on developing a 'Worker Transition Plan' for facilities scheduled to close within the next three years, to allow sufficient time for worker transition, including finding new jobs.

For skilling and reskilling of the workforce and for development of human resources for future jobs, the following should be considered:

- Training of workers in the formal sector, as well as the informal sector.
- Designing skilling and reskilling programmes to support job creation opportunities and transformation in the new economy.
- Reskilling and upskilling, particularly skill training for green jobs.

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- Improving education to build foundational skills and adaptive capacity of the workers, including investments in technical and vocational institutes.
 - Promoting active labour market policies to help in the job search and provide mobility assistance, specifically for low-paying contractual and informal workers.

ix. Gender responsive development

Supporting gender-responsive development, including strengthening women's livelihoods and economic advancements, should be a key focus for the new social and economic order. This will require investments in education, sustainable livelihood programmes, the extension of public service opportunities, financial inclusion, and other such aspects.

Policies should also mandate gender-sensitive budgeting by ministries and departments, including adequate allocation of resources to improve access and opportunities for women.

x. Structural support to impacted regions

A crucial aspect of just transition is to ensure economic vitality and minimise social instability in the fossil fuel regions. To ensure this, structural support measures and social welfare policies need to be strengthened to alleviate poverty and deprivation and support revitalisation of local communities to be impacted by the transition.

Structural support measures should be targeted towards the following:

- Investments in education infrastructure and resources.
- Investments in healthcare infrastructure and resources to improve access to quality and affordable healthcare.
- Investments in digital infrastructure and access.
- Investments to improve mobility, particularly in remote areas.

b. Role of the national government

The central government will have the most crucial role in developing policies and programmes to support a just transition, setting-up institutional mechanisms at the national level for coordination on just transition measures and monitoring the implementation of policies and plans, and mobilising international cooperation for just transition.

The following are the specific areas where the engagement of the central government will be crucial.

i. Specifying targets and setting milestones

The government shall specify a target for fossil fuel transition, aligning with domestic energy and climate policies and international climate change goals. To achieve the target, milestones need to be determined, including a peak and cap year for coal.

A clear timeline needs to be outlined for just transition of coal-based power plants and coal mines, considering a decadal scenario. The timeline shall be revisited every five years considering the growth of the clean energy sector and industrial processes (RE, green hydrogen, energy efficiency in industries, etc.).

ii. Developing National Just Transition Policy

The central government shall develop a comprehensive National Just Transition Policy to support a well-guided just transition process, balancing the imperatives of net-positive environmental, social, and economic outcomes. The policy will create the necessary obligation for implementing just transition measures.

The government shall also institute reforms in existing laws and regulations (such as for the environment, land, labour, industrial operations, etc.) to create an enabling regulatory environment for a just transition.

iii. Developing plans and programmes to support just transition

The Government may develop short, medium and long-term investment plans to support the implementation of the programmes related to just transition.

iv. Appointing a National Just Transition Commission

The Commission shall be appointed to:

- Inform the government on transition measures based on a wide range of stakeholder engagement.
- Develop the national just transition policy and plan in consultation with various stakeholders and the concerned authorities of the central and state governments.

The Commission shall be an independent body comprising a wide range of stakeholders that balances different interests and supports inclusiveness. Members of the Commission shall include (but not be limited to) representatives of the 'at-risk' sectors and value chains, trade union representatives, members of civil society organisations with relevant knowledge and experience, academic institution, and any other as considered suitable.

v. Establishing a Department of Just Transition

Considering the issues that just transition should deal with, such as fossil fuel sectors and industrial transitions, labour and employment, economic development, social welfare, clean and affordable energy access, and mobilising public and private finances for various measures, inter-ministerial and inter-state coordination will be essential.

The Government may develop a Department of Just Transition at the central level to facilitate inter-ministerial and inter-state coordination and for other administrative purposes. The department can be housed at the Prime Minister's Office (PMO) or the Ministry of Finance.

vi. Establishing agencies to deal with coal mine and power plant closures integrating aspects of social transition

The Government may establish a special agency(s) (such as a Bureau) to deal with the closure of coal mines and power plants, safeguarding infrastructure, supporting reclamation and repurposing of sites, asset management, etc.

The special agency/Bureau will be entrusted with the highest stake and responsibility to lead the process.

vii. Providing and mobilising financial resources for implementing just transition measures

Just transition will require substantial financial resources through public financing, private investments, and international financial support. The Government can support just transition measures through the following mechanisms:

- Integrating the just transition imperative into the national budget and public spending.
- Supporting programmes related to just transition, such as clean energy and industry investment, green skilling programmes, regional development programmes, social security programmes, welfare programmes for vulnerable groups including workers in the unorganised sector, women economic advancement programmes, etc.
- Introduction of fiscal reforms, such as tax credits, interest-free or low-interest loans, capital expenditure support to states through a dedicated scheme (such as the Scheme for Special Assistance to States with 50-year interest-free loan), etc., to incentivise businesses, infrastructure development and support economic growth.

- Creating a dedicated Just Transition Fund to provide grants to states to support social welfare investments.
- Developing a framework for the financial institutions to support sustainable investments.
- Mobilising international resources and support.

viii. Restructuring of the coal mining, power, oil and gas sectors

Government-supported restructuring of the coal mining and coal-based power industry (considering that these are largely public sector undertakings) and diversifying their business portfolio will be an essential mechanism for revenue substitution of the Government and aiding economic diversification in the states and districts. Restructuring of the oil and gas sectors will also be necessary. Transformation measures may include:

- Restructuring of CIL and its subsidiaries for diversification into solar, wind, energy storage, etc., which is also aligned to the public purpose of ensuring energy security.
- Enabling power sector transformation by creating policy, market, and regulatory environment to foster investment for RE in coal states that will be impacted by the transition.
- Provide specific support to state generation companies for business diversification, considering their resources, limited capacity for business planning, and limited prior experience in RE diversification.

4.4.2 State Just Transition Framework

The state-level framework for just transition will primarily guide the development of regional just transition plans, aid regional development, enable the convergence of programmes, support negotiation with industries and labour, and help to implement and monitor just transition measures in a participatory manner.

a. Key policy areas

Following are the key policy aspects that the State Just Transition Framework shall include.

i. Economic diversification and innovation

The state government shall take measures to support the economic vitality and development of regions impacted by the transition. These include:

- Develop or reform state RE, industrial and economic policies to foster investments in RE, green industry, local resource based economic sectors (such as forestry, agri-business, livestock, fisheries, etc.), green SMEs, etc.
- Provide tax incentives to attract and scale up new low-carbon industries to create jobs and substitute revenue sources.
- Provide tax incentives to support entrepreneurship.
- Invest in institutions to support innovation and investments.

ii. Labour support and human resource development

The following need to be considered for strengthening measures of labour support and human resource development:

- Develop and strengthen specific provisions under the state labour laws to ensure adequate job security, payments at time of retrenchment (severance pay) and compensations for all workers engaged in industries that the transition will impact.
- Develop and strengthen provisions under the state labour laws to ensure worker security in the green economy.
- Develop training and skilling programmes for workers in the formal sector, as well as the informal sector.

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- Develop skilling programmes particularly for green jobs.
 - Augment investments in education infrastructure (including vocational education) to build foundational skills and adaptive capacity of the workers.

iii. Social welfare

Strengthen social welfare measures to provide timebound support to informal workers, old and disabled people, widows, marginalised communities in the fossil fuel areas to be impacted by the transition and to safeguard against immediate transition shocks. A State Just Transition Fund may be developed for such purpose.

iv. Social and physical infrastructure development

Develop and augment social infrastructure to improve access to education, healthcare, clean water, energy, connectivity, and urban amenities, to improve social capital and attract businesses and investors to ensure economic vitality.

b. Role of state governments

The state governments, in coordination with district authorities, will be at the forefront for dealing with just transition by developing plans, programmes and institutional and governance mechanisms. The following are the specific areas where engagement of the state government will be crucial.

i. Developing State and District Just Transition Action Plan

Developing a comprehensive State and District Just Transition Action Plan will be essential to state action. The state plan will guide strategic, targeted, and timebound activity on just transition aligning with coal mining and coal-based power production phase down timelines, RE targets, industrial decarbonisation pathways, and the national net zero emission goals.

The district plans will be based on the challenges and opportunities of the district and the region, and shall be aligned with state just transition pathways and development vision.

The state and district-level plans will be developed through stakeholder consultation and inter-departmental coordination. The state government(s) may engage a Task Force (as mentioned below) to develop the plan. In addition, agencies and experts with the necessary experience and expertise shall be engaged in the required capacity.

The key components of the plan(s) will include the following:

- Identifying at risk sectors and just transition hotspots in the state.
- Prioritising actions for 'at-risk' sectors.
- Prioritising actions for most vulnerable communities.
- Supporting planned investments for economic diversification and job creation, including investments in RE, green industries, and circular economy.
- Attracting grants and investments and allocating resources to support infrastructure development for economic growth and development.
- Supporting worker transition and workforce development measures, including increasing participation of women in the workforce.
- Supporting investments in social infrastructure, such as educational infrastructure and resources, healthcare, digital infrastructure, connectivity, etc., and building resilience of local communities.
- Outlining mechanisms of coordinated action between state, district, and other local-level institutions to ensure consensus and streamline action.
- Supporting measures of institutional strengthening and stakeholder capacity building.

ii. Integrating just transition strategies into state development-related policies

Strategies for a just transition should be suitably integrated into state policies and plans pertaining to climate change, RE development, industrial development, economic development, labour, social welfare, and any other as considered appropriate.

iii. Instituting regulatory reforms

Institute necessary regulatory reforms to support just transition measures, subject to matters under the 'state list' and the 'concurrent list' of the Constitution of India. These may include matters of land, labour, social welfare, economic planning, etc.

iv. Appointing State Just Transition Task Force

The state government may appoint a State Just Transition Task Force to inform the government on planning and designing just transition measures through a bottom-up process. The Task Force will engage with workers, local communities, labour unions, industry, local-level institutions, civil society organisations, and other concerned stakeholders at the state and district levels.

v. Establishing an Office of Just Transition and appointing a Just Transition Commissioner

An Office of Just Transition should be established at the state level as the nodal authority to coordinate, plan and implement just transition measures. The state government may appoint a State Just Transition Commissioner as the Head of the Office of Just Transition.

vi. Creating a State Just Transition Fund

A dedicated fund for just transition needs to be created at the state level to allow interventions outside the planned investments, especially to provide income and welfare support and protection to the informal workers and vulnerable groups in the induced economy during the transition.

vii. Convergence of plans

A key mechanism for supporting just transition measures at the state level will be the convergence of programmes supporting various developmental and social welfare activities. Converging programmes will also help to pool resources and strengthen implementation.

viii. Building stakeholder consensus and empowering communities

Building stakeholder consensus at the state and district levels will be essential to support a just transition and sustain the process. An effective communication strategy should be developed for stakeholder consensus building.

Besides, empowering local communities by engaging with the district administration, local-level institutions (such as PRIs and municipal wards), and civil society organisations will be necessary to ensure participatory planning and receive feedback on just transition measures being implemented.

In conclusion, a successful just transition will require an obligation to work towards a shared vision of a better future and commitment to action. The political will of the central and state governments will be essential to guide and strengthen such commitment. The engagement of various stakeholders will be equally important to sustain the journey.

Annexures

Annexure 1: Just Transition policies and plans adopted by sub-national governments

Country	State/Province
United States	Colorado
	Illinois
	New Mexico
Canada	Alberta
South Africa	Mpumalanga
Germany	North Rhine-Westphalia
	Brandenburg
	Saxony
	Saxony-Anhalt
Poland	Silesia
	Western Małopolska
	Wielkopolska
	Lower Silesia - Wałbrzych sub-region
	Łódzkie
Sweden	Norrbotten
	Västerbotten
	Gotland
Spain	A Coruña in Galicia
	Teruel in Aragón
	León in Castilla y León
	Palencia in Castilla y León
	Almería
	Cádiz
	Córdoba in Andalusia
	Alcúdia on the island of Mallorca
	Asturias
Estonia	Ida-Virumaa
Finland	South Karelia
	South Ostrobothnia
	South Savo
	Kainuu
	Central Ostrobothnia
	Central Finland
	Kymenlaakso
	Lapland
	Ostrobothnia
	North Karelia
	North Ostrobothnia
	North Savo
	Satakunta
	4 municipalities of Pirkanmaa, namely Punkalaidun, Virrat, Parkano and Kihniö.

Annexure 1 continued.

Country	State/Province
Latvia	Vidzeme
	Latgale
	Zemgale
	Kurzeme
The Netherlands	Groningen and Emmen
	IJmond
	Groot-Rijnmond
	Zeeuws-Vlaanderen
	West-Noord-Brabant
	Zuid-Limburg
Hungary	Heves County
	Borsod-Abaúj-Zemplén County
	Baranya County
Lithuania	Kaunas
	Siauliai
	Telsiai
Italy	Taranto
	Sulcis Iglesiente
Belgium	Tournai, Mons and Charleroi in Wallonia
Denmark	North and South Jutland
Czechia	Karlovarsky
	Ústecky
	Moravskoslezsky
Slovakia	Upper Nitra
	Košice
	Banská Bystrica
Croatia	Istria
	Sisak-Moslavina
Romania	Dolj
	Galați
	Gorj
	Hunedoara
	Mureș
	Prahova
France	Hauts-de-France
	Loire-Atlantique
	Auvergne-Rhône-Alpes
	Normandy
	Bouches-du-Rhône
	Grand-Est
Ireland	Midland region
New Zealand	Taranaki

Annexure 2: Allocation under different programmes for energy communities in the USA

Allocation areas	Amount allocated (US\$ billion)
Battery manufacturing and recycling grant programme	3
Advanced Energy Manufacturing and Recycling Grant Program	0.75
Clean Energy Manufacturing Investment Tax Credit	10
Energy Infrastructure Reinvestment (EIR) Programme	5
Rural surface transportation grant programme	2
Broadband infrastructure in Appalachian region	0.02
Clean energy demonstration programme on current and former mine land	0.5
Orphaned well site plugging, remediation, and restoration	0.03

Source: Infrastructure Investment and Jobs Act, 2021; Inflation Reduction Act of 2022

Annexure 3: Just transition investment areas, Mpumalanga, South Africa

Activities	Amount allocated (ZAR billion)	Amount allocated (US\$ billion)
Repurposing coal plants	3.4	0.23
Repurposing coal mine land	13	0.86
Improving infrastructure for development	12.3	0.82
Diversifying local economies	24	1.60
Support for coal workforce	5.6	0.37
Investing in youth and preparing future generation for the transition	0.75	0.05
Planning for success	0.3	0.02
Instituting policies for post-mining redevelopment	0.05	0.003
Building capacity	1	0.07
Total	60.4	4.03

Source: Government of South Africa. (2022). Just Energy Transition Investment Plan, (2023-2027).

Annexure 4: Just transition allocations in Colorado, USA

Allocation area	Amount allocated (US\$ million)
Allocation under the Just Transition law (Just Transition from a Coal-Based Electrical Energy Economy, House Bill 19-1314, 2019)	
Just Transition Cash Fund	0.2
Allocation through HB 21-1290, 2021, titled Funding to provide just transition for coal transition workers and coal transition communities	
Community investments	6
Central projects	1.6
Administrative allocation	0.4
Coal Transition Worker Assistance Programme	7
Worker support allocation for Department of Labour and Employment	8
Allocation through HB 22-1394, 2022, titled Funding for just transition programmes to assist communities with economic transitions	
Just Transition Cash Fund (2021-2023)	2
Worker support allocation for Department of Labour and Employment (2021-2023)	4.35
Allocation through HB 22-1193, 2022, titled Adjustment to expenditures from funds dedicated to assisting those impacted by the transition to a clean energy economy	
Just Transition Cash Fund (2021-2023)	15
Coal Transition Worker Assistance Programme (2021-2023)	17
Worker support allocation for Department of Labour and Employment (2021-2023)	13.6

Source: Colorado just transitions laws and programmes, 2019 to 2023

Annexure 5: Just transition allocations in Illinois, USA

Allocation area	Amount allocated (US\$ million)
Allocation under the Energy Transition Assistance Fund	
Clean Jobs Workforce Network Programme	21
Clean Energy Contractor Incubator Programme	21
Clean Energy Primes Contractor Accelerator Programme	9
Barrier Reduction Programme	21
Jobs and Environmental Justice Grant Programme	34
Returning Residents Clean Jobs Training Programme	6
Energy Transition Navigators	6
Illinois Climate Works Pre-apprenticeship Programme	10
Energy Transition Community Support Grants	40
Displaced Energy Worker Dependent Scholarship	1.1
Clean Energy Jobs and Justice Fund	1
Allocation under the Energy Transition Act	
Jobs and Environmental Justice Grant Programme	34
Allocation under the Illinois Power Agency Act	
Illinois Power Agency Renewable Energy Resources Fund	50

Source: Climate and Equitable Jobs Act, 2021

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CHAPTER 1: GLOBAL POLICY LANDSCAPE

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CHAPTER 4: JUST TRANSITION FRAMEWORK FOR INDIA

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