

A Factsheet

Bihar's Public Policy and Budgetary Priorities for a transition towards a Green Economic Recovery

2022



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Published in: June 2022

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Bihar's Policy and Budgetary Priorities for Transitioning towards Green Economic Recovery

About Factsheet: The factsheet highlights Bihar state's current efforts for financing climate change mitigation actions in various sectors such as; power, agriculture, transport and urban development. It identifies policy measures for long-term transformation towards green economic recovery.

This factsheet is prepared under the Project:

Building Knowledge and Capacity for Green Recovery of the State Economies in India

The project is supported by New Venture Fund.

A Factsheet

**Bihar's Public Policy and
Budgetary Priorities for a
transition towards a Green
Economic Recovery**

2022





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Section 1

The Context

A lot of rethinking is happening—nationally and internationally—on avoiding economic practices that are detrimental to the environment and on keeping climate change in focus during an economic recovery. This particular Policy Brief presents an assessment of public financing in the state of Bihar, in eastern India, for a clean energy transition, which is critical for a green economic recovery. With an average of over 10 percent annual growth, Bihar has registered [higher growth](#) than the Indian economy in the three years preceding 2020-21. However, Bihar is also a state that is vulnerable to climate change and a growing population, which threaten to undermine its developmental efforts.

The Unemployment Rate (UER) of Bihar is 12.1 per cent, which is much higher than the national UER of 7.1 per cent for August 2022. According to the [2020-21 Bihar Economic Survey](#), a shift towards more sustainable development is imperative for the state's continued economic growth. The scope of policy brief largely covers public financing channels through budgetary routes by the state of Bihar for post pandemic green recovery. Public Policy design is critical as a poorly designed recovery process will be ineffective in delivering desired social, economic and climate outcomes. It is important to take an economic recovery pathway that is in sync with sustainable development objectives and make the economy strong enough to withstand any sudden shocks (pandemic or climatic). There is a need to bring into the public discourse evidence-based research on how to mainstream climate concerns in designing developmental actions and follow low-carbon developmental pathways. There is also a need to look at how to align climate policy and its financing for socio-economic development and brings in equity and inclusion.

This particular policy brief presents public finance data (budget expenditure) and incentives offered under various state policies on Low Carbon Development (LCD) to various sectors of the economy in Bihar. These include interventions such as the addition of Renewable Energy (RE) capacity, increasing the share of electric vehicles in the transport system, as well as low-carbon urban development and infrastructure in Bihar. In particular, the policy brief looks at the clean energy transition in the power sector since energy is the main driver for socio-economic development of any state as most industrial activity, agriculture productivity, domestic consumption and dwellings depend on energy and power supply. However, fossil fuel-based energy is the largest contributor to GHG emissions from Bihar. A detailed methodology note has been prepared to assess the responsiveness of Bihar's power sector budget to climate change mitigation. This holds significance for future assessments against other states' priorities for climate mitigation actions and highlights immediate actions needed by governments for the sector.

We have also studied the temporary reduction, if any, in Bihar's total budget expenditure (TBE) and allocations to the energy sector due to the economic downturn caused by the COVID-19 pandemic. There is a lack of disaggregated budget data and provisioning (in terms of budget allocations for programmes and schemes) for clean energy, clean fuel utilisation, and energy efficiency-related initiatives in sectors other than electricity generation (such as, transport, urban development and agriculture), and so, we have made an attempt to analyse the priorities of existing policies/ strategies/ programmes and schemes by the Bihar government, through surveys of secondary literature.



The Policy Brief presents Bihar's public policy priorities in skilling the local populace and outlines how the current skilling practices can be made more cohesive to increase green jobs while at the same time supporting clean energy related industries and businesses with a skilled workforce. Various suggestions have been made for integration of skilling for green jobs in existing programmes and bringing in equity and inclusivity in Bihar's transition towards clean energy. The purpose of this Policy Brief is to make suggestions for budgetary and policy provisions for a green economic recovery in Bihar. It makes an assessment of efforts by the Bihar Government towards a clean energy transition, and identifies issues in transitioning towards a Green Economic Recovery using budget analysis as tool. Given the above context, the policy brief is scoped to

achieve three key objectives:

1. To assess Bihar's efforts for a clean energy transition through policy-level interventions and the responsiveness of budgets to climate mitigation-oriented actions
2. To track state budgets and financing towards a clean energy transition in the power, transport, agriculture and urban development sectors, and to assess the state's overall efforts for low-carbon development across these sectors
3. To suggest policy measures for a clean energy transition with the integration of equity and inclusivity concerns in Bihar's climate change mitigation efforts, which are need of the hour.





Section 2

Approach and Methodology

The approach and methodology in this report, and their limitations, are presented in Annexure 1 and 2 of this policy brief.

Annexure 1 highlights the approach and methodologies followed for each of the above objectives, such as tracking available finances for clean energy in Bihar, assessing the state's climate mitigation policies across sectors, and assessing the existing efforts of the state to enable a clean energy transition as well as social benefits such as income generation.

Annexure 2 describes the methodological guidance note on assessing the climate responsiveness of Bihar's power sector financing and categorising the impact of state expenditure in the power sector according to its favourability for a clean energy transition. The assessment holds significance for future analysis of best practices for a clean energy transition in the state environment, which can be adopted by Bihar for a green economic recovery.





Section 3

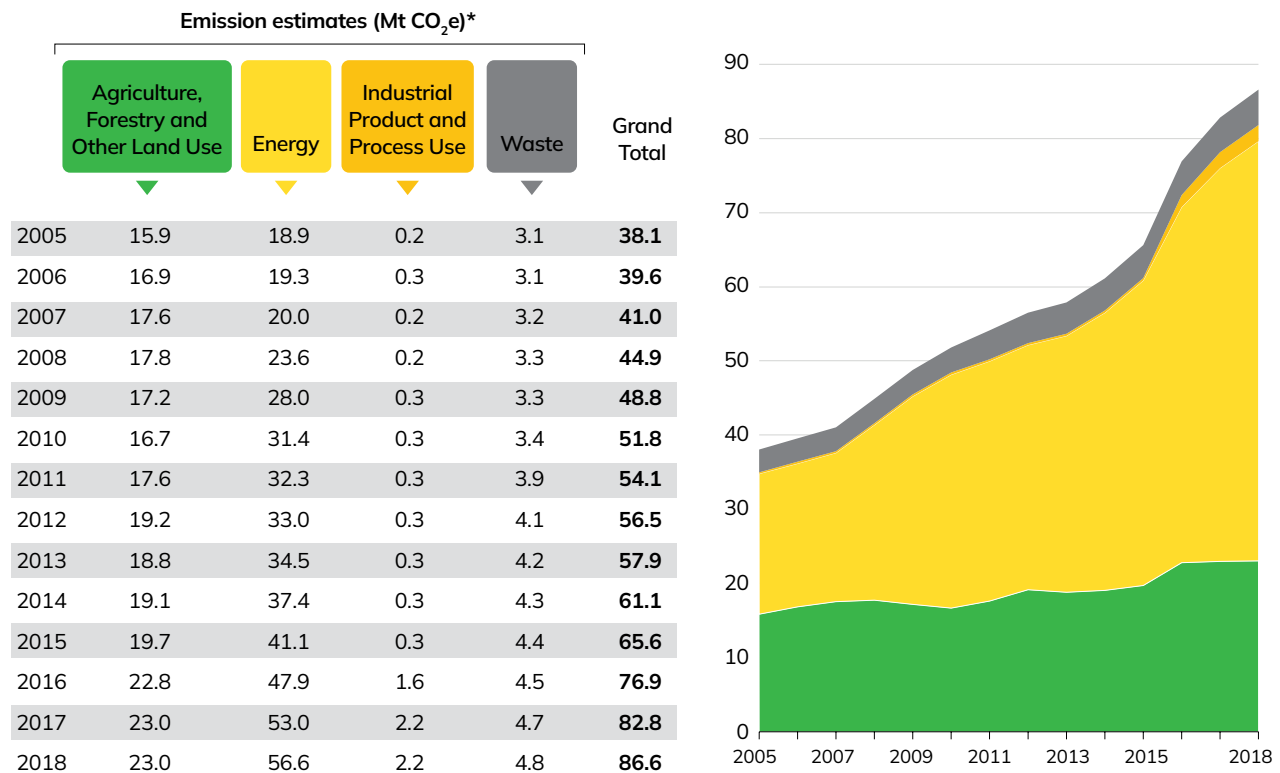
Sectors most relevant from the point of view of a Green Economy Recovery

3.1 Contribution of various sectors of the economy towards GHG emissions in Bihar

Emissions in Bihar increased at a CAGR of 6.53% from 38.06 Mt CO₂e in 2005 to 86.59 Mt CO₂e in 2018. The share of emissions from the Energy sector increased from ~50% in 2005 to ~65% in 2018. In contrast, the contribution of the Agriculture, Forestry and Other Land Use (AFOLU) sector in economy-wide emissions reduced from 42% in 2005 to 27%

in 2018. The Industrial Product and Process Use (IPPU) sector's emissions increased from 0.5% in 2005 to 3% in 2018, while the share of Waste sector emissions reduced from 8% in 2005 to 5% in 2018. Hence, for a green economic recovery in Bihar, a transition towards clean energy should be a major area of intervention, considering that the highest contribution to GHG emissions is from the energy sector.

Figure 1A: Emission estimates (economy-wide) for various sectors in Bihar

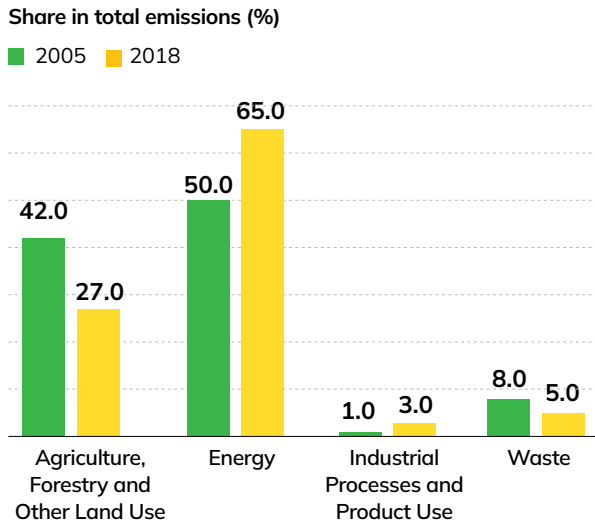


* Million Tons of Carbon dioxide equivalent

Source: Economy-Wide Analytics - GHG Platform India (ghgplatform-india.org)



Figure 1B: Share of Various Sectors in GHG Emission in Bihar, 2005 and 2018



Data Source: ghgplatform-india.org: Analysis of GHG emissions from 2005-2018

Available at: https://www.ghgplatform-india.org/wp-content/uploads/2022/09/GHGPI_Trend-Analysis_2005-to-2018_Bihar_Sep22.pdf

Despite renewable energy addition being the key intervention, with the outbreak of COVID-19, Bihar

recorded negative growth (-18.2 per cent) in the first quarter of fiscal year 2020-21 (Bihar Government, 2020). In absolute terms, the negative impact is substantial for a state like Bihar. The percentage share of power sector spending in the state's total budget expenditure (TBE) reduced considerably, to 5.38 per cent in 2020-21 (Actuals), from 7.84 per cent in the actual estimates of 2018-19 (Bihar Government, 2021 and Energy Department, Bihar Government, 2021). This decline may have long-term consequences for the power sector and further derail financing for a clean energy transition.

The total budget expenditure of different departments and their share in the state's total budget expenditure (TBE) from 2018-19 (Actuals) to 2022-23 (BE) has been studied. It reveals that the allocations for various departments follow a set pattern, with very few changes. The allocations dwindled in 2019-20 (Actuals) in comparison with 2018-19 (Actuals), after the onset of the Covid pandemic, for the departments of Urban Development and housing, Transport and Water resources.

Figure 2: Trends in Bihar's Total Budget Expenditure (TBE) for energy sector

	Total State Budget Expenditure (Rs. crore)	Energy sector budget (Rs. crore)	Energy Versus Total state expenditure (%)	Energy Versus Total state expenditure (%)	RE Versus Total Energy Expenditure (%)
2018-19 A	154,655.44	12,117.90	28.61	7.84	0.24
2019-20 A	143,613.69	9,107.45	46.60	6.34	0.51
2020-21 A	165,696.49	8,911.62	27.32	5.38	0.31
2021-22 RE	255,473.55	10,025.25	79.46	3.92	0.79
2022-23 BE	237,691.19	11,475.97	70.00	4.83	0.61

Source: CBGA's analysis of Bihar Budget Documents;* Detailed Demand for Grants for Bihar Energy Department (Energy Department, Bihar Government, 2022-23)

Notes: Abbreviations Used; BE= Budget Estimates, A= Actuals, RE= Revised Estimates



Figure 3: Trends in total budget expenditure of different departments

Amount (Rs Crore)

	Urban Development and Housing	Transport	Water Resources	Panchayati Raj & Drinking Water	Odisha Total Budget Expenditure
2018-19 A	3,247.8	1,161.6	2,829.9	603.7	154,655.4
2019-20 A	3,144.5	264.0	948.4	510.1	143,613.7
2020-21 A	5,572.7	216.4	2,767.8	1,105.1	165,696.5
2021-22 RE	11,261.6	421.0	5,604.6	1,010.1	255,473.6
2022-23 BE	8,175.9	394.2	4,310.6	1,023.5	237,691.2

Share in State's total budget expenditure (%)

	Urban Development and Housing	Transport	Water Resources	Minor Water Resource
2018-19 A	2.1	0.8	1.8	0.4
2019-20 A	2.2	0.2	0.7	0.4
2020-21 A	3.4	0.1	1.7	0.7
2021-22 RE	4.4	0.2	2.2	0.4
2022-23 BE	3.4	0.2	1.8	0.4

Source: Detailed Demand for Grants for various departments in Bihar





Section 4

Tracking the available flows of public finance for the state's climate change mitigation actions

This section provides the approximate estimates of different financing channels contributing to state budget resources for expenditure on a clean energy transition. Bihar's Financial Resource Envelope for Power sector financing was assessed and a plausible estimate on finances was arrived at across the following aspects and channels;

- Budgetary allocations from the Energy Department, Government of Bihar (GoB)
- Institutional loans in Budgetary allocations from the Energy Department

Figure 4: Different channels of energy financing

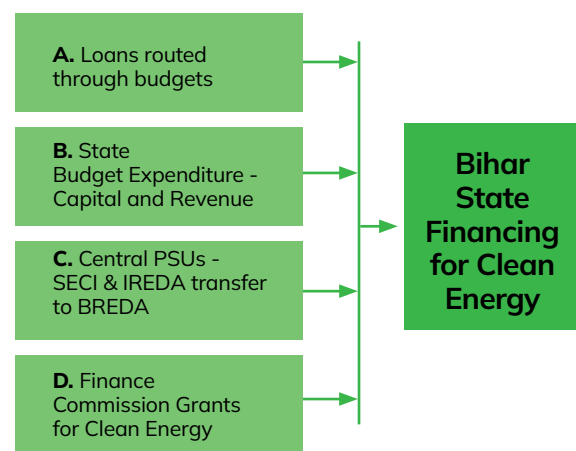


Figure 5A: Loans and advances from central institutions such as NABARD and Rural Electrification Company routed through the Bihar budget (Rs crore)

Major Head: 6801- Loans for power projects	2017-18 A	2018-19 A	2019-20 A	2020-21 RE	2021-22 BE
0015- South Bihar Power Distribution Company Ltd. (Repayment of loan taken from Rural E. Co.)	13.8	14.9	14.0	15.0	15.3
0016- North Bihar Power Distribution Company Ltd. (Repayment of loan taken from Rural E. Co.)	27.3	25.0	26.4	25.0	26.8
0017- South Bihar Power Distribution Company Ltd. (Repayment of loan taken from Rural E. Co./ principal amount)	0.0	0.0	12.0	13.0	13.9
0018- North Bihar Power Distribution Company Ltd. (Repayment of loan taken from Rural E. Co./ principal amount)	0.0	0.0	19.8	10.0	20.5
0101- Loan to Bihar State Hydroelectric Corporation	15.3	11.7	5.8	20.0	10.0
0105- Loan to Bihar State Hydroelectric Corporation (NABARD)	0.0	0.0	0.0	0.0	10.0
0508- Transmission of Bihar State Power (holding) Company Ltd. and Distribution Project	100.0	0.0	165.1	0.0	0.0
Sub- Total	156.4	51.6	243.0	83.0	96.5

Source: Detailed Demand for Grants for Bihar State Energy Department (Energy Department, Bihar Government 2022-23)



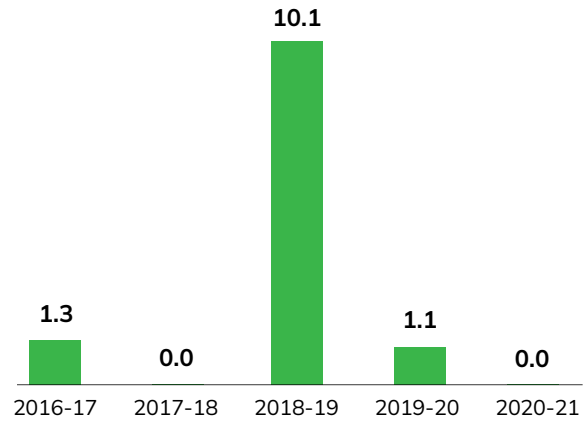
- Internal and Extra budgetary Resource (IEBR) reimbursement to Bihar through Central PSUs in the power and renewable energy sector
- Finance Commission Grants (if any) with respect to clean energy

Approximate estimates from different financing channels contributing to the state budget resources for expenditure on a clean energy transition are presented below, from Figure 5a to Figure 5c.

There are no grants recommended for the renewable energy sector for any state in the reports of the 14th and 15th Finance Commissions.

The budget of the state power department for 2022-23 shows following share of kind of expenditure in budget that is, 13 per cent capital expenditure, 1 per cent loan expenditure and 86 per cent revenue expenditure. The department is spending a large amount on subsidies to power distribution companies, that is, Rs 9,809 crore, as a part of its revenue

Figure 5B: Disbursement through central PSUs such as Indian Renewable Energy Development Agency (IREDA) to Bihar (Rs crore)

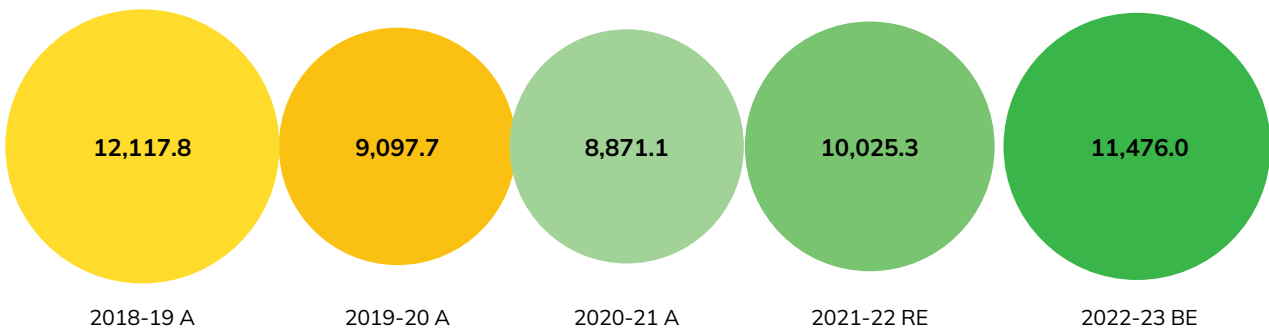


Source: IREDA Annual Report 2020-21

expenditure under major head 2801 (meant for power sector). It is important to note that capital expenditure drastically contracted from Rs 5,035 crore in 2018-19 (Actuals) to Rs 1,126.0 crore in 2020-21 (Actuals).

Figure 5C: Budgetary allocation by the Bihar energy department (Rs crore)

Energy Department Budget



Source: Detailed Demand for Grants for Bihar State Energy Department (Energy Department, Bihar Government 2022-23)

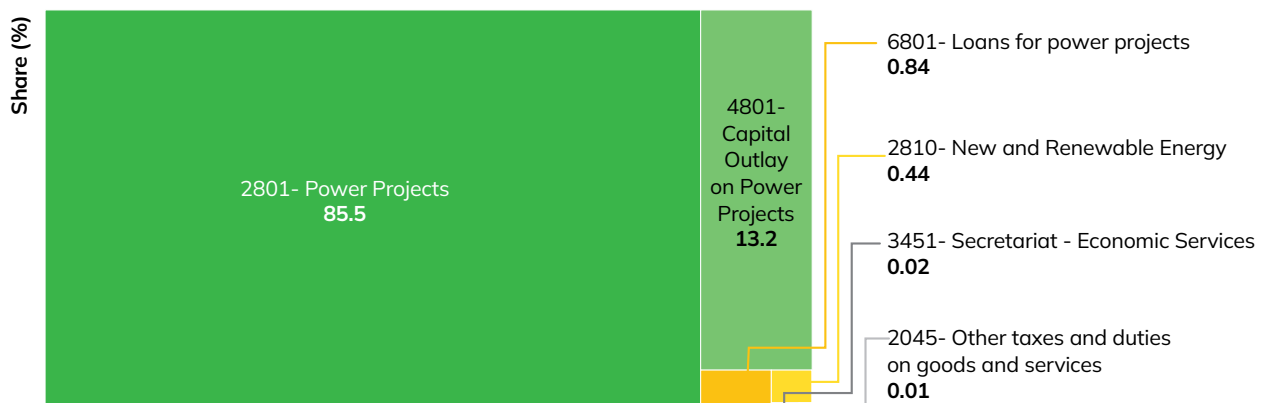
Note: The above figures includes loan and advances as depicted in Figure 5A.



Figure 6A: The bifurcation of the budget of the state power department (Rs Crore)

	2018-19 A	2019-20 A	2020-21 A	2021-22 RE	2022-23 BE
2045- Other taxes and duties on goods and services	1.3	1.3	1.3	1.4	1.4
2801- Power Projects	6,909.7	5,950.2	7,517.6	8,448.7	9,809.3
2810- New and Renewable Energy	13.3	25.2	-19.0	59.5	50.0
3451- Secretariat - Economic Services	1.7	2.1	2.2	2.6	2.3
4801- Capital Outlay on Power Projects	5,035.4	3,067.3	1,126.0	1,430.0	1,516.5
6801- Loans for power projects	156.4	51.6	243.0	83.0	96.5
Total - Power department budget	12,117.8	9,097.7	8,871.1	10,025.2	11,476.0

Figure 6B: Share of various major heads of expenditure in the total budget of the power department for 2022-23 (%)



Source: Detailed Demand for Grants for Bihar State Energy Department (Energy Department, Bihar Government, 2022-23)





Section 5

Landscape of Efforts, Budgets and Policies for a GER in Bihar



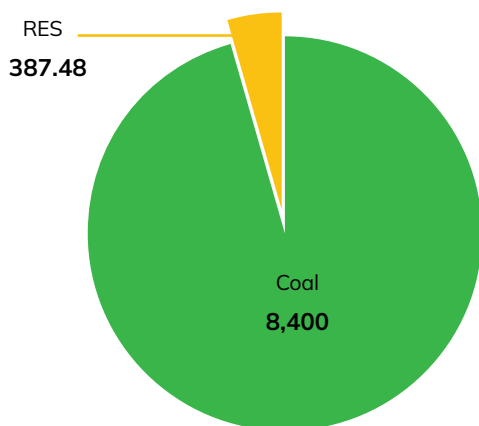
A. State efforts for a clean energy transition

5.1. The share of renewable energy in Bihar's energy mix is 5 per cent

Electricity generation using conventional fuel such as coal is the major contributor to GHG emissions in the state. Despite this, Coal-based power generation has the highest share in the electricity mix of the state, as per recent data from the Central Electricity Authority on installed capacity. In the case of Bihar, the coal power-based installed capacity is around 95 per cent. Bihar has not been able to achieve its targets under the renewable energy policy. Only 11 per cent of the state's Renewable Energy policy target has been achieved so far. Given that fossil

Figure 7a: Resource-wise Installed Capacity in Bihar (MW) in October 2022

Total Installed Capacity: 8,787.48 MW



Bihar had no capacity in gas, diesel, nuclear and hydro.

Source: Resource-wise installed capacity for Bihar, CEA data, October 2022 Available at : Dashboard - Central Electricity Authority (cea.nic.in)

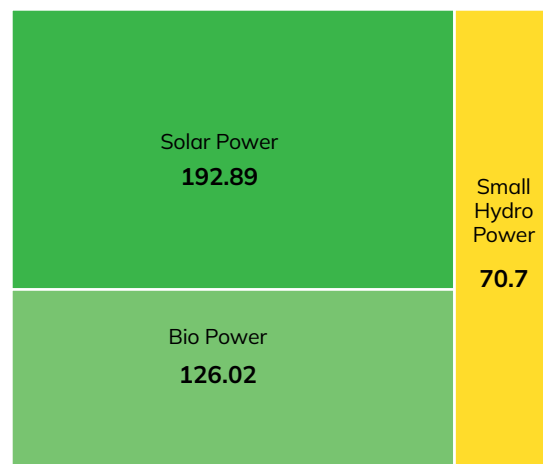
fuel-based energy is the highest contributor to its GHG emissions, Bihar needs to focus on the addition of clean energy in the electricity mix as its major strategy for a green economic recovery.

5.2 State DISCOMs' efforts to reduce distribution losses

The actual distribution losses of the North Bihar Power Distribution Company Limited (NBPDC) and South Bihar Power Distribution Company Limited (SBPDCL) have reduced from 34.57% and 48.52% in 2015-16, respectively, to 22.06% and 29.56%, respectively, in 2019-20. Despite this reduction in distribution losses, the DISCOMs have failed to achieve the distribution loss targets stipulated by the Bihar Electricity Regulation Commission across all years. This might have negative implications for its hopes of attracting

Figure 7b: Installed capacity of Renewable Power in Bihar as on 30.11.2022 (MW)

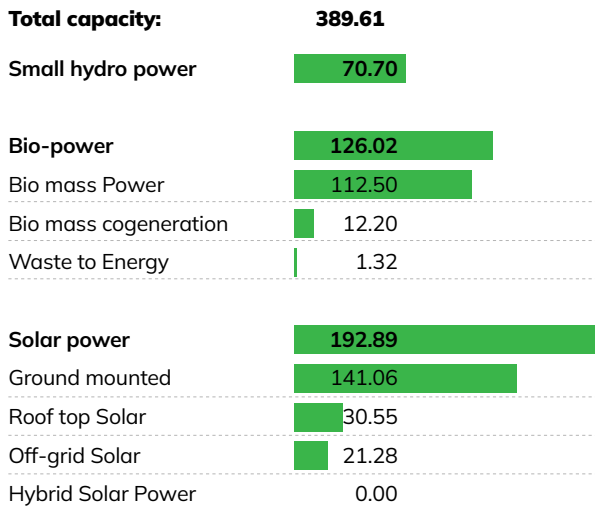
Total Capacity: 389.61 MW



Source: MNRE Physical Progress Achievement Data, November 2022, Available at: file_s-1671181340628.pdf (mnre.gov.in)



Figure 8: Breakup of Bihar's installed Renewable Power capacity under technology types (MW)



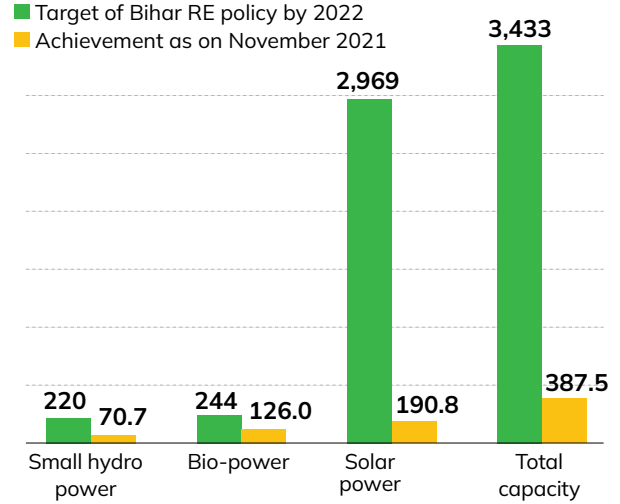
Source: MNRE progress achievement data (2021)

private investors for installation of Renewable Energy capacity.

5.3 Revenue losses of Power DISCOMs and Sudden shortfall in trading of renewable energy certificates during the pandemic

The power sector has been severely impacted by the Covid-19 pandemic as there has been a significant drop in power consumption. During the April-June 2020 period, consumption of power declined by 18.3 per cent on a year-on-year basis. More importantly, there has been a steeper fall in

Figure 9: Bihar's target versus installed capacity of renewable energy, in MW

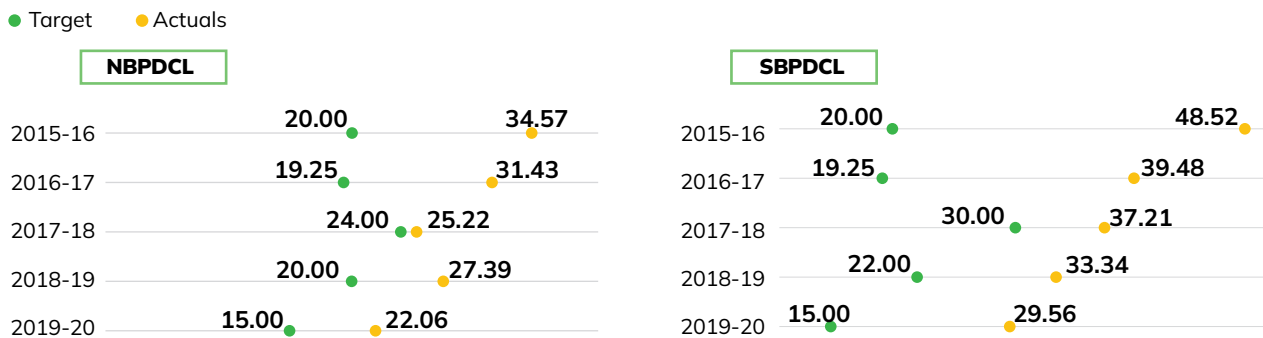


Source: MNRE progress achievement data (2021)

industrial and commercial consumption, two major revenue earners for the Distribution Companies (DISCOMs). There is clearly a longer-term impact from the Covid-related slowdown on electricity offtake, which has reduced power demand and, hence, revenues.

The power distribution companies (DISCOMs) have not been able to purchase the desired share of RPOs from 2019-20 to 2020-21 largely due to the lack of revenues to purchase RPOs. This is partly due to the sudden shortfall in trading of renewable energy certificates during the pandemic. Bihar is

Figure 10: Actual distribution losses of NBPDC and SBPDCL vis-a-vis target distribution losses from FY 2015-16 to 2019-20 (%)



Source: BERC, Patna, Tariff Order for FY 2021-22

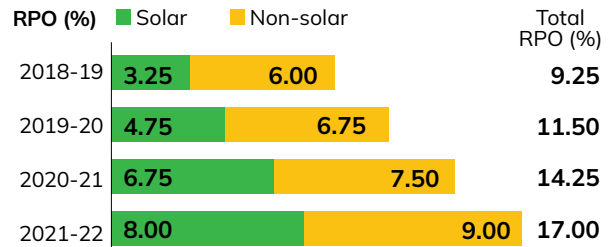


obligated to purchase renewable energy under the Renewable Purchase Obligation (RPO) Regulation, 2010. The Bihar Electricity Regulatory Commission (BERC) approved the request of the Bihar State Power Holding Company Limited (BSPHCL) to carry forward the shortfall in its RPO for 2019-20 to FY 2020-21. A viable and well-functioning distribution sector is a pre-requisite in attracting investment to expand capacity and provide reliable, sufficient power to avoid bottlenecks in economic growth. It is a pre-requisite to attract the external funding required to transition quickly to clean energy. Clearly, the pandemic impacted the promotion of renewable energy in Bihar due to the lack of revenue to power DISCOMs during the pandemic.

5.4 Bihar continued subsidising diesel-based electricity to farmers

The Bihar Government increased the diesel subsidy for farmers due to the delay in the launch of the solar irrigation pump scheme PM-KUSUM, which the Centre announced in 2019-20. The Bihar government provides a subsidy of Rs 50 a litre and a farmer with an acre of land gets a subsidy for 10 litres of diesel for each round of irrigation. According to a news report, as many as 22.93 lakh farmers applied for a diesel subsidy during the 2019 *rabi* season, while the number of applications received during the *kharif* season was 19.38 lakh. Of these, around 15.64 lakh farmers got a diesel subsidy worth Rs 195 crore in the *kharif* season alone. While budget data evidence for the same is not available,

Figure 11: Electricity to be purchased from renewable energy sources by obligated entity as a percentage of total consumption in Bihar



Source: BERC orders available at <https://berc.co.in/images/pdf/Other-Order/ord-6of19.pdf> and Mercom India report available at: <https://mercomindia.com/bihar-commission-discoms-rpo-shortfall/>

this is “highly unfavourable” expenditure in meeting the objectives of climate change mitigation.

5.5 Less than 1 per cent being spent for addition of Renewable Energy

As a common trend, Bihar is spending a miniscule amount—less than 1 per cent—on addition of renewable energy despite the fact, that the addition of renewable energy is considered to be a “highly favourable” action in reducing GHG emissions.

5.6 Implications of Bihar’s Public finances situation and prioritisation of requisite energy sector spending by state

With the outbreak of COVID-19, Bihar recorded a negative growth rate (-18.2 per cent in the first

Figure 12: Trends in Bihar’s Total Budget Expenditure (TBE) for energy sector

	Total State Budget Expenditure (Rs. crore)	Energy sector budget (Rs. crore)	Energy Versus Total state expenditure (%)	Energy Versus Total state expenditure (%)	RE Versus Total Energy Expenditure (%)
2018-19 A	154,655.44	12,117.90	28.61	7.84	0.24
2019-20 A	143,613.69	9,107.45	46.60	6.34	0.51
2020-21 A	165,696.49	8,911.62	27.32	5.38	0.31
2021-22 RE	255,473.55	10,025.25	79.46	3.92	0.79
2022-23 BE	237,691.19	11,475.97	70.00	4.83	0.61

Source: CBGA’s analysis of Bihar Budget Documents;* Detailed Demand for Grants for Bihar Energy Department (Energy Department, Bihar Government, 2022-23)

Notes: Abbreviations Used; BE= Budget Estimates, A= Actuals, RE= Revised Estimates



quarter of the fiscal year 2020-21).²In absolute terms, the negative impact on the economy is substantial for a state such as Bihar. It has seen either downward or stable trends in spending on power sector development with no upward trends from 2018-19 to 2022-23. The share of power sector spending in the State's Total Budget expenditure (TBE) has reduced to 5.38 per cent in the 2020-21 Actuals from 7.84 per cent in the actual estimates for 2018-19.³ This indicates that the Bihar government's finances require different measures to increase public financing for climate actions.

5.7 Dependence on loans to build Transmission and Distribution infrastructure

The Bihar Government spent Rs 83 crore received as loans and advances from various institutions such as NABARD and Rural Electrification Company in 2021-22. The state government depends entirely on loans and advances received from Banks and Energy Corporations to finance rural electrification projects and build transmission and distribution networks. There is a high dependence on the loan component in the building of transmission and distribution systems in Bihar. This is despite the fact that the availability of a robust Transmission and Distribution (T&D) network is "quite favourable" for expansion of renewable energy and frequently a major point of attraction for external investors in clean energy.

5.8 Fund transfers from Central PSU IREDA have been poor in Bihar

Over the years, the disbursal of funds by Central Public Service Under takings (PSUs) such as the Indian Renewable Energy Development Agency (IREDA) to promote Renewable Energy has been negligible in Bihar. The state government received Rs 2.4 crore per annum on an average from IREDA between 2017-18 and 2020-21. This is quite minuscule for a state such as Bihar, which has huge RE target to be achieved.

² Bihar State Economic Surveys, 2020-21 and 2021- 22

³ CBGA [Audit Reports | Comptroller and Auditor General of India \(cag.gov.in\)](#) and Audit Reports | [Comptroller and Auditor General of India \(cag.gov.in\)](#)

5.9 Favourability of the power sector budget for a clean energy transition

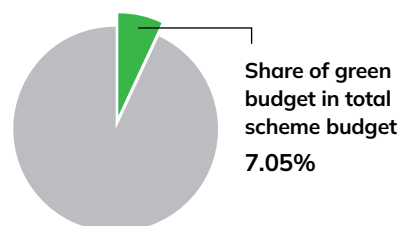
On benchmarking of the responsiveness of Bihar's power sector budget under five categories per their favourability for a transition to clean energy [as per categorisation methodology described in Annexure 2], it was found that there was an increase in the state government's spending in the 'highly favourable' category from 2017-18 to 2022-23. This is largely due to an increase in subsidies for renewable energy-related programmes in 2022-23. However, the share of the highly favourable category is still the lowest in comparison to the other five categories. A detailed analysis is provided in Annexure 2 of this paper.

5.10 Green budgeting in the state

It is worth mentioning that Bihar's Green Budget 2020-21 has earmarked 7.05 per cent of the total scheme budget for implementation of several "green" objectives, including a clean energy transition. The Green Budget statement considered several objectives, such as climate change adaptation, waste management, sustainable land use, pollution abatement, circular economy measures, biodiversity conservation and natural resource management besides climate change mitigation, including promotion of clean energy in Bihar. However, there

Figure 13: Green budget statement of Bihar, 2020-21 (BE)

Amount (Rs crore)	
Total size of state budget	211,761
Total budget allocations (department-wise)	81,176
Total scheme budget (scheme-wise)	27,221
Total green budget	5,719



Source: Bihar Green Budget, 2020-21



are gaps in financing a green economic recovery (Finance Department, Government of Bihar, 2021). Bihar's green budget has created an opportunity to monitor state finances for climate actions. However, there is need for improving ex-ante planning process while budgeting so new and innovative interventions can be included in green budgets.

B. Landscape of Policy for Energy Transport and Urban Development

5.11 Bihar policy landscape for promotion of renewable energy

The Bihar Renewable Energy Development Agency (BREDA) is the state's nodal agency to undertake renewable energy projects and formulate policies to support the growth of clean energy. The Bihar State Hydropower Corporation Private Limited (BSHPCL) is responsible for the implementation of mini/micro and large-scale renewable energy projects. The state's Energy Department is the primary agency for decisions recognising nodal agencies / partners/ project developers for the implementation of various policies.

The policy offers several incentives for the generation of solar energy for commercial purposes, tax benefits, exemptions from electricity duty and concessions on cost of the transmission system for the evacuation of renewable energy power to the nearest sub-station. It also envisages the constitution of a dedicated fund to develop a cohesive infrastructure for project

developers. The specifics are as follows:

- All units engaged in the generation of solar and / or renewable energy for commercial purposes will be given tax benefits for an additional 30% of the approved project cost
- For power plants of up to 15 MW, which are based on non-hazardous municipal waste and use auxiliary fuels such as coal/ lignite/ petroleum products, up to 15% is exempted
- All new micro and small units will be given tax benefits for an additional 30% of the approved project cost
- Manufacturing units shall also be offered exemption from electricity duty for five years
- The capital cost of the transmission system to evacuate renewable energy power to the nearest sub-station, including all metering and protective instruments, shall be borne by the state government
- Projects with an individual capacity of more than 1 MW shall contribute a one-time payment as a facilitation fee of Rs 1,00,000/MW, payable at the time of application, towards the Bihar State Renewable Energy Development Fund. This fund will be utilised to build cohesive infrastructure for project developers.

Figure 14: Objectives and vision of Bihar's RE policy

Objectives and targets of Bihar RE policy



1. To target installed capacity of 2,969 MW solar, 244 MW biomass & bagasse cogeneration and 220 MW small hydro- power by 2022 in a sustainable manner
2. To attract private sector participation
3. To provide decentralised renewable energy to the agriculture, industry, commercial and household sectors, particularly in rural areas
4. To support R&D, in the sector
5. To promote local manufacturing
6. To impart skills and facilitate capacity-building to establish an RE ecosystem

Nodal agency



Bihar Renewable Energy Development Agency and Bihar State Hydro Power Corporation Limited (BSHPCL) for small/micro/mini hydro power projects

Source: Bihar Renewable Energy Policy, 2017



Several programmes of the Union Ministry of New and Renewable Energy (MNRE) are operational in Bihar and BREDA has been working on various schemes. One of the components of the *Jal Jeevan Hariyali* Mission is focussing on the universal solarisation of all government-owned setups, such as hospitals, panchayat institutions, jails and schools, in a phased manner. It fully funds the installation of solar projects in government set-ups in all the districts. With other initiatives, such as *Neeche Matsya Upar Bijli* ('fish below, energy above'), the state government also plans to install floating solar projects, roping in the fishing community to ensure benefits for them as well while facilitating the smooth installation of clean energy projects.

5.12 Bihar policy landscape for promotion of low-carbon development of the transport sector, and its financing

Bihar 's draft Electric Vehicle Policy, 2019, is aimed at the creation of a manufacturing ecosystem for e-vehicles in the state, accomplishing SDG targets in this field, and making the state the preferred destination for investments. Its mission, as mentioned in the draft policy, is to support the Centre in its proposal to bring 100 per cent e-mobility by 2030, ending manual pedalling in the state, setting up fast-charging stations every 50 km on state highways, attracting on-ground investments of Rs 2,500 crore, and creating empowerment opportunities for 10,000 persons. Under this policy, priority is being

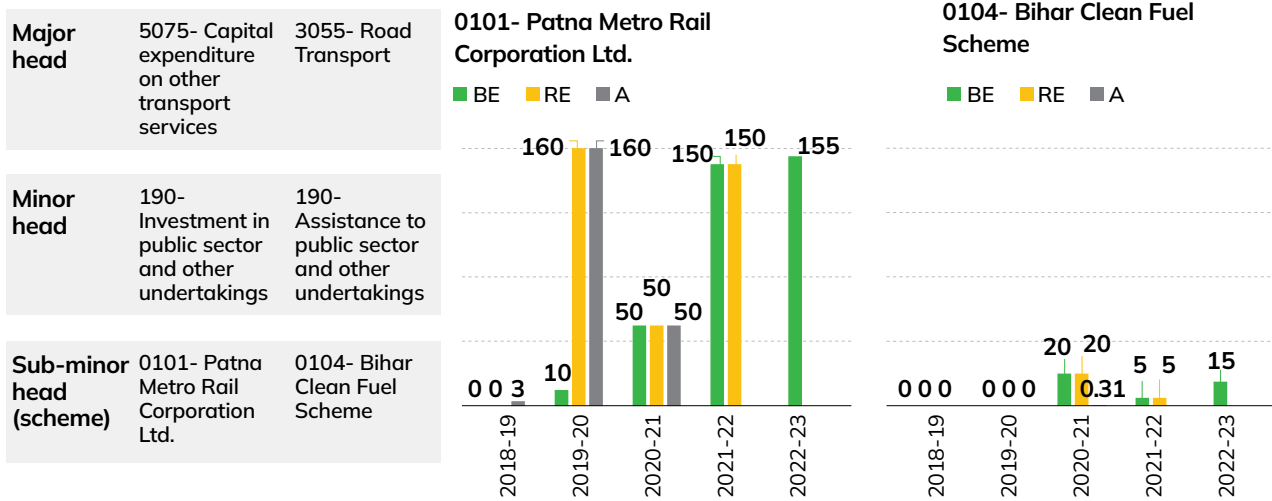
Figure 15: Various interventions of Bihar government for low-carbon development of the transport sector and their financing

Objectives and targets	Incentive provisions under the policy	Implementing agencies
<p>The mission of the state policy is to support the Centre in its proposal to bring in 100 per cent e-mobility by 2030, end manual pedalling in the state, set up fast-charging stations every 50 km on state highways, attract on-ground investments of Rs 2,500 crore and create empowerment opportunities for 10,000 persons. Priority is given to the removal of pedal rickshaws and upgradation to 100 per cent electric mobility by 2022. The Bihar State Road Transport Corporation (BSRTC) and Transport Department are the implementing agencies for the EV policy.</p>	<ol style="list-style-type: none"> 1. First 10,000 EVs in different segments to get end-user subsidy of 15 per cent on the base price with caps in each segment 2. Special incentive of Rs 10,000 shall be given to electric rickshaws on using lithium-ion batteries as a replacement to lead acid battery 3. Exemption from road tax and registration feels for electric vehicles 4. Top-up subsidy of Rs 8,000 if the end-user is below the poverty line or belongs to the SC/ST community 5. The first 250 commercial public EV charging stations will be eligible for 25 per cent capital subsidy on equipment/ machinery (limited at Rs 10 lakh per station) 6. Other incentives offered under Industrial Investment Promotion Policy, 2016 	<p>Bihar State Road Transport Corporation (BSRTC) and Transport Department</p>
<p>National Mission for Enhanced Electric Mobility Mission Vision</p>	<p>Demand-based incentives offered by the Centre</p>	<p>Bihar State Road Transport Corporation (BSRTC)</p>
<p>The objective is to encourage the operation of clean fuel-powered vehicles (CNG and battery-powered vehicles) with the aim of alternative and low-carbon transport arrangements and expected improvement in ambient air quality.</p>	<p>An incentive is offered if the owners replace old diesel-powered three-wheelers with CNG- or battery-powered vehicles. Also, incentives are provided to owners of petrol-powered three-wheelers for replacement with new CNG-driven or battery-driven three wheelers or for retrofitment of CNG kits.</p>	<p>Municipal corporations and Road Transport Department</p>

Source: Bihar EV policy, draft



Figure 16: Budget allocations for a few low-carbon modes of transport (Rs crore)



Source: Detailed Demand for Grants for Various Years, Road Transport Department in Bihar

given to remove pedal-rickshaws and upgrade to 100 per cent electric mobility by 2022. The Bihar State Road Transport Corporation (BSRTC) and Transport Department are the agencies for the implementation of the EV policy.

Other initiatives by the Bihar government include the augmentation of its bus fleet, participating in the Central scheme for electric vehicles (FAME-II) and a clean fuel scheme for the promotion of CNG-based three-wheelers. The BSRTC is the nodal agency for the purchase of buses and implementation of other clean fuel-related initiatives. The state government provides grant-in-aid and subsidies to BSRTC (Rs 80 crore in Budget Estimates 2020-21). It is also taking steps to phase out diesel-run buses from the capital city, Patna (Faryal Rumi, *The Times of India*, 2021). This is an important intervention for a modal shift towards a clean fuel-based (CNG-based) public transport system in Bihar. However, investments in a CNG-based bus transport system present the risk of carbon lock-in over the long term and may not be sufficient for a reduction in GHG emissions and a green economic recovery (Renewable and Sustainable Energy Reviews, 2021).

The Bihar government has also started participating in the Central scheme 'Faster Adoption and

Manufacturing of Hybrid and Electric Vehicles, Phase-II' (FAME-II), which provides demand-based incentives to all states for augmenting their transport systems with electric-based fleets. Bihar seems to be focussed on adding vehicles in low-end segments. Of the 5,725 e-vehicles it has added using incentives under FAME-II (National Automotive Board, 2021), 5,250 are electric two-wheelers and e-rickshaws.

The state government also launched a Clean Fuel Scheme in 2019 to encourage three-wheeler owners to retrofit petrol/diesel-based vehicles with CNG or battery-operated kits (Transport Department, Bihar Government, 2019). The Scheme's objective is to encourage the operation of clean fuel-powered vehicles (CNG and battery-powered vehicles) with the aim of establishing alternative and low-carbon transport arrangements with an expected improvement in the ambient air quality. The budget estimate for the scheme was Rs 5 crore in 2020-21. Apart from giving a thrust to augment its electric vehicle fleet, the Bihar government has invested in public transport systems such as a Metro Rail in the capital city, Patna. The allocations for the clean fuel scheme and Patna Metro Rail Corporation Limited were Rs 5 crore and Rs 150 crore, respectively, in the Budget Estimates for 2020-21.



5.13 Bihar government's clean energy initiatives in the agriculture sector — solar agricultural pumps

In the agriculture sector, Bihar launched the *Saur Kranti Sinchai Yojana* in 2012 as a solution for the lack of adequate electricity for irrigation. The scheme aims to increase the irrigated area in the state by providing highly subsidised (90 per cent capital subsidy) small solar pumps (2 kWp) to farmers with 1-5 acres of land and a functional borewell, who are willing to contribute 10 per cent of the capital cost: Rs 28,000 for alternating current (AC) pumps and Rs 29,700 for direct current (DC) pumps. Another important initiative in Bihar is the policy for the Promotion of New and Renewable Energy, 2017. It targets the deployment of 10,000 solar pumps by 2022. A report found that under the *Saur Kranti Sinchai Yojana*, solar pumps were not powerful enough (2 kWp) to irrigate all the land owned by farmers with non-contiguous landholdings. It was also found that there was not enough water in shallow aquifers for the pumps to be operable throughout the winter and summer seasons. Besides these ground challenges, the delay in the launch of the solar irrigation pump scheme Kusum, which the Centre announced in 2019-20, left the Bihar government with no option but to increase its diesel subsidy for farmers. The Bihar government provides a subsidy of Rs 50 a litre and a farmer with an acre of land gets a subsidy for 10 litres of diesel for each round of irrigation. According to a news report, as many as 22.93 lakh farmers applied for the diesel subsidy during the 2019 *rabi* season, while the number of applications received during the *kharif* season was 19.38 lakh. Of these, around 15.64 lakh farmers got a diesel subsidy worth Rs 195 crore in the *kharif* season alone (TV Jayan et.al. *The Hindu Business Line*, 2019).

5.14 Bihar Policy landscape for the promotion of low-carbon development of the urban sector

The Centre launched the Climate Smart Cities Assessment Framework, 2019, to provide a clear

Figure 17: Objectives, targets and incentives offered under Solar Pump Scheme



Climate change mitigation related policy/ state scheme

Scheme related to decentralised renewable energy applications, such as agricultural solar pumps for irrigation—*Bihar Saur Kranti Sinchai Yojana* (Solar Energy Irrigation Scheme)



Objectives and targets

The Bihar Renewable Energy Policy targets deployment of 10,000 solar pumps by 2022. Bihar has a dedicated scheme to meet this target—*Bihar Saur Kranti Sinchai Yojana*. Under this scheme, farmers will get solar pumps for irrigation purposes.



Nodal agency

Bihar Renewable Energy Development Agency and Agriculture Department



Incentive provisions under the policy

Under the scheme, 90 per cent of the subsidy grant is offered to farmers by the government and the remaining 10 per cent will be deposited by the farmers. Cultivators with land holdings of 1-5 acres will be eligible for this scheme. Also, farmers who have a bore of 4 inches or more will be selected.

roadmap to combat climate change through mitigation and adaptation measures in urban development (MoH & UA, 2021). This framework will be part of the National Mission on Sustainable Habitat (NMSH). And, this will be implemented through three programmes: the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission, and Smart Cities Mission. Along with these programmes, the implementation of the Energy Conservation Building Code (ECBC) is mandated under the National Mission on Sustainable Habitat. In this context, this section provides a summary of Bihar's initiatives for urban development and its efforts for low-carbon development of the urban sector.

In the urban development sector, Bihar has adopted Central government schemes Smart City Mission, Housing for All Mission and AMRUT Mission, and has a state scheme for multi-storey housing for the urban poor under CM's *Saat Nischay-2*. Bihar is also

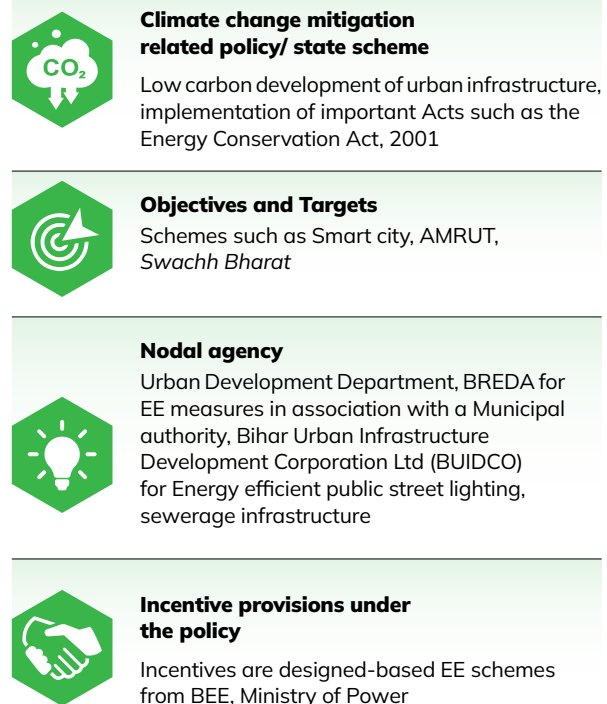


rolling out schemes for integrated development of small and medium towns and for the development of its capital city. However, there are no specific guidelines for a strategy relevant to climate change mitigation under these schemes. The schemes are financed through the SMART Cities Mission and other central missions for urban development. There is a gap in the adoption of low-carbon strategies among some city-level government agencies; mainstreaming low-carbon development in city-level planning and inclusion in budgetary outlays is still an uphill effort. Bihar is also set to become the country's first state to have two green energy efficient towns, in Rajgir and Bodh Gaya, which will be supplied with renewable energy by 2023 (Ruchir Kumar, *Hindustan Times*, 2020). This pilot holds significant potential to dovetail the objectives of developing climate-resilient and low-carbon cities and towns with low-carbon urban infrastructure.,

As a green measure, the Bihar government is committed to use 100 per cent fly ash-based bricks for construction. However, demand from buyers needs to increase (outside Bihar) for fly ash bricks. This is possible if quality standards and quality assurance processes are followed in the manufacture of bricks, attractive financial incentives are provided, and a marketing strategy is brought in by the Bihar government (Development Alternatives, 2019).

The Applicable Energy Conservation Act, 2001 is an important strategy for low-carbon development of urban infrastructure. The Energy Conservation Building Code under the EC Act, 2001, as notified by the Bureau of Energy Efficiency (BEE), Ministry of Power, in 2017, and amended in 2020, for construction of new commercial buildings, targets a 50% reduction in energy use in the country by 2030. This would translate into energy savings of about 300 billion units and peak demand reduction of over 15 GW in a year, equivalent to expenditure savings of Rs 35,000 crore and CO₂ emission reduction of 250 million tonnes. As on March 31, 2020, the BEE had

Figure 18: Landscape of Public Policy for Low Carbon Development of the Urban Sector



Source: CBGA compilation from review of several climate mitigation policies

processed approvals for the implementation of ECBC in Bihar (BEE, 2020). BREDA will be the nodal agency for ECBC implementation in Bihar. The adoption of this building code by Bihar will drive low-carbon development of urban infrastructure in the state through energy conservation. This could thus be an enabling strategy for a green economic recovery in Bihar.

A few examples of urban development department programmes that can be improved for inclusion of climate actions are: Smart Cities Mission, Housing For All Urban Mission, Swachh Bharat Mission, Solid and Liquid Waste Management under the *Saat Nichayee Programme*, and the Urban Renewal Mission under the Atal Mission for Renewal and Urban Transformation (AMRUT).





Section 6

Climate change responsiveness of the state power sector budget

It is important to understand the existing priorities of public financing in Bihar in terms of climate change mitigation. An attempt has been made to assess the responsiveness of the state budget for the power sector towards climate change mitigation using methodology coined by CBGA. We found through a summation of category-wise expenditure that expenditure towards the promotion of renewable

energy is quite minuscule compared to the overall power sector budget of the state government, and that the state needs to increase it. Below is the information on the category-wise budget expenditure (sub-total and share) for climate change mitigation by the Bihar Energy Department.

Figure 19A and 19B: Bihar power sector budget expenditure responsiveness towards climate change mitigation

Figure 19A: Amount under various categories (Rs crore)

	Highly Favourable	Quite Favourable	Neutral	Unfavourable	Undefined	Total
2017-18 A	0.0	6,402.6	2.7	1,292.5	3,832.5	11,530.3
2018-19 A	28.6	6,123.8	3.0	0.0	5,962.5	12,117.9
2019-20 A	46.6	3,107.2	3.4	0.0	5,950.2	9,107.5
2020-21 A	27.3	1,363.2	3.5	0.0	7,517.6	8,911.6
2021-22 RE	79.5	1,719.1	4.1	0.0	8,222.6	10,025.2
2022-23 BE	70.0	1,749.7	3.7	0.0	9,652.6	11,476.0

Source: CBGA analysis of Bihar State Budget and Detailed Demand for Grants for Department of Energy, Bihar

Note: The General Framework for Categorisation of Expenditure for climate change mitigation responsiveness can be seen in Annexure 2.

Figure 19B: Various categories' share in total expenditure (%)

	Highly Favourable	Quite Favourable	Neutral	Unfavourable	Undefined	Total
2017-18 A	0.0	55.5	0.0	11.2	33.2	100.0
2018-19 A	0.2	50.5	0.0	0.0	49.2	100.0
2019-20 A	0.5	34.1	0.0	0.0	65.3	100.0
2020-21 A	0.3	15.3	0.0	0.0	84.4	100.0
2021-22 RE	0.8	17.1	0.0	0.0	82.0	100.0
2022-23 BE	0.6	15.2	0.0	0.0	84.1	100.0

Source: CBGA derived methodology



Section 7

Bringing in job opportunities for the State through a Renewable Energy Transition

A few experts believe that renewable energy technologies tend to be more labour-intensive than conventional energy technologies. At the same time, distributed renewables such as small-scale hydro, rooftop solar, and biomass create vast employment opportunities. According to a study led by think-tanks CEEW and TERI, rooftop solar employs 24.72 persons, small hydro employs 13.84 persons, and biomass employs 16.24 persons to construct and run a 1 MW plant. A review of the policies and programmes of the Bihar government reveals that it is paving the way for skilling. It has a dedicated policy—Bihar Skill Development Policy, 2016—and the Bihar Skill Development Mission, which aim to link skill development with improved employability and productivity. The *Mukhya Mantri Saat Nishchayee Yuva* programme and its key scheme, the *Kushal Yuva* Programme, provide an objective framework to carry out skill development in the state.

BSDM is also implementing various skilling schemes to offer domain-specific training courses, including in solar technologies. The *Surya Mitra* Scheme and Solar LED Lighting Scheme are among courses designed to up-skill youth in the operation, maintenance and manufacturing of solar PV and solar LED equipment. These skilling programmes are important to make the state future-ready for transition towards a green economy. However, it is not known whether the targets of these RE-specific skilling courses will be commensurate with the skilling requirements for a clean energy transition. Per BSDM data, there are 16 training centres for the *Surya Mitra* Course, but the number of enrolled beneficiary trainees or candidates per centre is rather low. There is a need to set the targets for skilling in these fields.

Figure 20: Renewable energy-specific courses offered under the Bihar Skill Development Mission



Domain skilling courses

- Solar PV Surya Mitras
- National Institute of Electronics & Information Technology (NIELIT) - Solar LED Lighting Product (Design & Manufacturing)
- Solar Power Installation, Operation and Maintenance



State institution / mission

- Bihar Skill Development Mission

Source: Skill Development Mission of Bihar

There are many skilling schemes being implemented by various departments of the Bihar government, mandated for the welfare of vulnerable segments of the population, such as the those focussed on women, farmers, SC/ST, rural youth, etc. Some of the schemes run by these departments are mentioned below. These schemes are enabling inclusiveness in the state government's skilling programme. Currently, there is a lack of disaggregated information on how these programmes are integrating skilling with job opportunities in the climate change mitigation sector. Also, there is a need to create an interface between existing skilling programmes from various departments and the up-skilling requirements for job opportunities in the climate change mitigation sector.



Figure 21: Schemes for Bihar Skill Development

Department	Scheme
Bihar Skill Development Mission	<i>Kushal Yuva Programme (state scheme) under Mukhya Mantri Saat Nishchayee Yuva programme</i>
Rural Development Department through Bihar Rural Livelihood Promotion Society (BRLPS)	<i>Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) (Central scheme)</i> Rural Self Employment Training Institutes (RSETIs) Skill development programme funded by the World Bank
SC/ST Welfare	<i>Dashrath Manjhi Kaushal Vikas Yojna (DMKVY)</i>
Minority Welfare	<i>Mukhya Mantri Shram Shakti Yojna</i>
Science & Technology	Skill development scheme
Social Welfare (Social Welfare Directorate)	<i>Mukhyamantri Nari Shakti Yojana (MNSY) - Service Sector Training</i>
Social Welfare (Women Development Corporation)	<i>Mukhyamantri Nari Shakti Yojana (MNSY) - Service Sector Training</i>
Social Welfare (State Society for Ultra Poor and Social Welfare-SAKSHAM)	<i>Mukhyamantri Bichhabritt Nivaran Yojna</i>
Village and Small Industry Division under the Industry Development Department	Skill development programme
Industry (Directorate of Technical development)	Skill development short-term training programme
Industry (Directorate of Technical development)	Employment-oriented training programme

Source: Bihar Skill Development Mission Programmes and Initiatives





Section 8

Policy recommendations for the State's transition towards a Green Economic Recovery

While Bihar has laid down strategies to make various sectors of the economy responsive to the needs of climate change mitigation, most of the existing strategies are executed in a sporadic manner, without a long-term vision for a green economic recovery. To instigate a framework for such a recovery and leverage climate financing, each sectoral policy needs to mainstream concerns about climate change, environmental sustainability and inclusivity. While doing so, the Government can consider the following action points;

1. Need for accelerated efforts by the state to harness new investment opportunities for a clean energy transition

Bihar has been able to achieve installation of only 386 MW of renewable energy, which is only around 11 per cent of the stipulated target by 2022. Unlike other states, Bihar has not seen much private investment from big renewable energy players for large-scale clean energy projects. This could be the reason for low achievement of RE targets as on date. Experts believe that the non-availability of land, as well as high transmission and distribution losses to the tune of 22 per cent and 29 per cent with State DISCOMS- NBPDC and SBPDCL, respectively, are other reasons for the lack of interest from RE investors. The lack of financing for installation of RE capacities in the state and tepid private investor interest are major challenges in achieving the RE policy target. Hence, the state government needs to accelerate efforts to harness new investment opportunities for the installation of RE capacities.

In the case of Bihar, the share of the power sector in the State's Total Budget expenditure (TBE) reduced considerably to 3.92 per cent in 2021-22 (BE) from 7.84 per cent in the actual estimates for 2018-19, while the spending trend on the power sector has been the same over the years. This decline in spending on the power sector may have been a consequence of the COVID-19 induced economic crisis. Thus, the state's ability to undertake further expenditure amidst the economic fallout of the pandemic would depend on how well it mobilises independent sources of revenue. Bihar's ability to tap independent sources of financing would therefore be crucial. This indicates that the state government would need to take measures to increase effective public financing for climate actions while setting priorities for an economic recovery.

2. Need to phase out unfavourable expenditure

As a common trend, Bihar spends a miniscule amount—less than 1 per cent—on addition of renewable energy despite the fact that the addition of renewable energy is considered a “highly favourable” action in reducing GHG emissions. Overall trends in state power sector expenditure and its responsiveness to a renewable energy transition suggest that the state needs to phase out unfavourable expenditure and swap these spends with highly favourable expenditure for a green economic recovery. A specific methodology has been followed to understand the favourability of power sector expenditure in climate mitigation. In brief, the Budget expenditure lines



Figure 22: Bihar interventions under various categories of favourable impacts

Categories	Bihar interventions
Highly Favourable	Grants-in-aid to Bihar Renewable Energy Development Agency Loan to Bihar State Hydroelectric Corporation
Quite Favourable	Transmission and Distribution Backward Area Grant Fund for Electrification <i>Mukhyamantri Krishi Vidyut Rishta Nishchay Yojana</i> <i>Har khet tak Sinchae ka Paani</i> - Saat Nishchay-2 meant for Electrification for Irrigation purposes
Neutral/Difficult to categories	Repayment of loans, Salaries, Grants-in-aid to Bihar State Power (holding) Company Ltd.
Unfavourable	Thermal Power Generation

have been rated as neutral, highly favourable, quite favourable, unfavourable, or difficult to categorise based on its responsiveness in reducing GHG emissions. Tracking of Bihar’s power sector budgets and a secondary literature review reveal that the state spends a considerable amount on programmes and schemes that have an “unfavourable impact” on climate change. Bihar has been spending on diesel subsidies to provide farmers free conventional fuel-based electricity rather promoting solar-based agriculture pumps.

3. Need for a dedicated strategy instead of a sporadic, pilot scale approach

While Bihar has laid down strategies to make various sectors of the economy responsive to the needs of climate change mitigation, most of its strategies are executed in a sporadic manner without a long-term vision for a green economic recovery. Pilot projects being implemented in the state for clean energy usage in towns and cities are a step in the right direction. These pilot projects hold significant potential to dovetail the objectives of developing climate-resilient and low-carbon cities and towns with low-carbon urban infrastructure. However, Bihar should roll out a dedicated strategy with holistic planning instead of moving in a sporadic manner on this objective.

4. Need to explore new climate finance mechanisms such as green bonds for transmission and distribution network investments

It is evident from tracking the state’s power sector budget that Bihar’s highest spend is on building transmission and distribution networks and rural electrification than on other categories of expenditure, in terms of their favourability to climate change mitigation. The source of state spending on building transmission and distribution networks is through loans obtained from external or international agencies. Internationally available climate finance to India remains skewed towards concessional loans instead of grants. More importantly, much of the finance made available by these sources, whether through grants or loans, has perforce to be accompanied by co-financing by the Union or the state government that centre or state government has to generate internally, often from public funding.⁴ It is difficult for a poor state such as Bihar to mobilise the required co-financing to get international funds. Hence, Bihar needs to explore new opportunities such as Green Bonds rather than depending solely on international loans to build Transmission and Distribution networks. Internal and Extra Budgetary Resources (IEBR) from the central PSU Indian Renewable Energy Development Agency (IREDA) and domestic banking entities such

⁴ Third Biennial Report submitted to UNFCCC by MOEF&CC, Available at "https://unfccc.int/sites/default/files/resource/INDIA_%20BUR-3_20.02.2021_High.pdf" [INDIA_BUR-3_20.02.2021_High.pdf](https://unfccc.int/sites/default/files/resource/INDIA_BUR-3_20.02.2021_High.pdf) (unfccc.int)

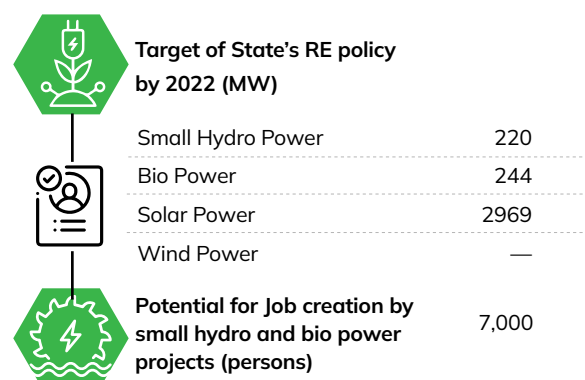


as NABARD contribute significantly to large-scale renewable energy projects and these agencies have started raising green bonds for promotion of RE and its infrastructure. This might help a state such as Bihar meet its RPO requirements in future through internal RE capacity addition.

5. Need for developing a framework for creation of livelihood from Decentralised Renewable Energy (DRE) technologies and capacity building of local population for livelihood in clean technologies

DRE-powered livelihood solutions have the potential to reduce and eventually eliminate the reliance of livelihoods on diesel, particularly in rural settings, and can supplement grid supply. DRE livelihood applications can be defined as applications powered by renewable energy—solar, wind, micro-hydro, biomass and their combinations—and used to earn livelihoods directly. Examples include solar dryers, solar mills, solar or biomass-powered cold storage/chillers, solar charkhas and looms, small-scale biomass briquettes/pellet-making machines, etc. Apart from creating jobs, these applications would help in achieving the goal of a self-reliant India i.e. *Atma Nirbhar Bharat*, which is important for an inclusive and green economic recovery. There are successful pilots and business models for livelihood applications using various types of decentralised renewable energy technologies. However, this is still only a small fraction of the overall spectrum of livelihood activities throughout India. Experts believe that, decentralised Renewable energy technologies tend to be more labour intensive than conventional energy technologies. At the same time, distributed renewables such as small-scale hydro, rooftop solar, and biomass create maximum employment for every MW of installed capacity. According to a study led by think tanks CEEW and TERI, Rooftop solar employs 24.72 persons, small hydro employs 13.84 persons, and biomass employs 16.24 persons in constructing and running a 1 megawatt plant.⁵

Figure 23: Potential for job creation in Bihar



Source: State RE policy Note: Potential for Job creation in Small hydro and Bio-power is calculated by multiplying the respective target by 13.84 and 16.24 persons per MW

With these projections, Bihar can create 12,000 jobs by 2022 deploying decentralised small hydro power and bio-power RE solutions, if the policy target for them is achieved.

DRE livelihood applications have the potential to create new local job opportunities in operations & maintenance and installation/fabrication. Trained human resources will be required across the state for these activities. The availability of a trained workforce will also help in increasing the credibility of products for consumers, increase scalability and financiers' interest.⁶ State rural livelihood missions (SRLMs) and various departments are already operating several skilling schemes mandated for welfare of vulnerable segments of the population: Women, farmers, SC, ST, rural youth etc. Currently, there is a lack of disaggregated information on interfacing between ongoing programmes and departments with job opportunities in DRE applications. Overall, in order to have a thriving environment for skilling purposes for DRE applications, there is a need for an interface between existing skilling programmes from various departments and up-skilling requirements for job opportunities in the climate change mitigation sector. As per the Bihar Skill Development Mission (BSDM) data portal, a few of the domain skilling courses are designed for up-skilling youth in

⁵ https://www.cobenefits.info/wp-content/uploads/2020/12/COBENEFITS_INDIA_POLICY_REPORT.pdf

⁶ MNRE guidelines on Framework for promotion of decentralised renewable energy livelihood application available at : file_f-1644909209115.pdf (mnre.gov.in) and file_f-1649657782759.pdf (mnre.gov.in)



operation, maintenance and manufacturing of Solar PVs, Solar LED equipment, Solar LED Lighting Products (Design & Manufacturing) and Solar Power Installation. However, there is no specific target for training, and enrolment has been poor. As per the BSDM data portal, there are [16 training centres for the Surya Mitra Course](#); however, the number of enrolled beneficiary trainees or candidates per centre is much lower. There is a need to stipulate targets for skilling in these specific courses.⁷

- SRLMs should be instructed to coordinate and train Self Help Group (SHG) women in providing after-sales and repair service at the local level, and thereby facilitate the creation of green jobs. Integration of such training modules in curriculum of relevant courses at
- Industrial Training Institutes and Rural Self-Employment Training Institutes needs to be pursued at the state level. A targeted emphasis needs to be placed on creating skilling and entrepreneurship opportunities for local youth, especially from SC/ST communities and women. Instead of reinventing the skilling policy, existing schemes being operated by the social welfare department, such as the *Mukhyamantri Nari Shakti Yojana* (MNSY) to train women for service sector jobs, can include certain domain specific training for service sector related job opportunities in the DRE sector or other climate change mitigation interventions.
- In addition, existing community-level institutional platforms, such as the SHG federation, Farmer Producers Organisations, *Krishi Vikas Kendras* etc., should be mobilised with the support of technology providers to build the capacity of potential users and buyers in basic troubleshooting of equipment to boost the adoption of DRE technologies. In addition, efforts should also be made with the governing bodies of other sectors' skill councils to integrate training curriculum and modules for DRE technologies in agriculture and

allied activities, textiles, food processing, etc.

- While, there are courses in operation and maintenance of solar technologies for ITI or engineering graduates, there is a need for inclusion of the local unskilled workforce, such as women, rural youth, and the SC/ST population in skilling for Renewable Energy-based equipment.
- A customised programme can be designed to involve unskilled labour in supply chain mechanisms such as after-sales service coordination, instructing consumers on plug-in steps, information on subsidy benefits, household distribution of DRE equipment and technologies etc. This will improve economies of scale and the local market for clean energy technologies. Programmes and schemes of the State Rural Livelihood Mission largely engaged with the unskilled population can be oriented towards supply chain related training programmes in RE technologies. Another measure the state can take is improving training course quality standards to global standards so that candidates skilled in Bihar can easily be absorbed in other states.
- Training needs should be designed on local resources and requirements; for example, Bihar has the highest demand for e-Rickshaws and so, training programmes can be designed in manufacturing, operation and maintenance services in this segment. Similarly, training programmes for the manufacture of ancillary equipment meant for DRE technologies or operation and maintenance of biomass-based energy technologies can also be included in training and skilling programmes.

6. Need to improve institutional capacities in state and cities governance for mainstreaming climate actions in Urban Development

Over the years, Union government came to recognise the climate benefits associated with these

⁷ Dash board of Skill Mission in Bihar. Available at ; <https://ds1.skillmissionbihar.org/dsDashboard/#/dashboard/centercount>



programmes and new programme components or guidelines were defined to promote and support the development of renewable energy, build climate-resilient infrastructure, and adopt energy-efficient technologies in cities. For example, MoHUA's Climate Smart Cities Assessment Framework (CSCAF) is an initiative that was launched in February 2019 for 100 Smart Cities as a guiding framework for cities towards climate actions. CSCAF serves as a tool for states and cities to assess their current climate situation and provides a roadmap for cities to adopt and implement relevant climate actions.⁸ Despite these union government guidelines, however, most state governments have been implementing union-level programmes in a business-as-usual manner, without mainstreaming climate actions. Urban development policies or budgetary allocations for these programmes by the state do not reflect any targeted guidelines or disaggregated budget allocations for climate actions. There is a need to increase institutional capacity in the state and city governance to mainstream climate actions in Urban Development in Bihar. There is also a need to make climate change mitigation concerns an integral part of Urban Development programmes as interventions bring local co-benefits by reducing air pollution and improving the longevity of the capital assets created.

7. Need to stipulate a strategy to shift investment away from CNG based transport systems to less carbon intensive technologies such as Electric Vehicles

Bihar is procuring CNG fuel-based public transport, like many states, or providing subsidies to increase the share of CNG-based auto rickshaws. The Bihar Government has been implementing a clean fuel scheme since 2019 to encourage the operation of clean fuel-powered vehicles (CNG powered vehicles) with the aim of improving ambient air quality.⁹ Bihar has been following a business-as-usual approach investing in a CNG-based bus transport system, and subsidies have been provided to its State Transport

Undertaking for this. The state spending on CNG-based transport is quite favourable in controlling local air pollution and may also reduce emissions in the short term, but the reduction is insufficient to put it on the path to low-carbon development. Such a state investment poses the risk of carbon lock-in over the long term as CNG may not be the most suitable technology in comparison to electric vehicle based transport systems.

8. Need to prioritise financing of a cohesive environment to drive up EV purchases

Besides addition of renewable energy, increasing the share of electric vehicles in the total transport fleet is considered an important strategy for low-carbon development of the transport sector.

The state had released their state specific Electric Vehicle for a four-to-five-year period from the time of notification. In its EV policies, Bihar has decided to allot subsidies for electric two-wheelers (that are eligible for incentives under the FAME-II scheme) on the basis of the size of their lithium-ion battery

Figure 24: Distribution of electric vehicles in Odisha

Model	Total
2 Wheelers	
L1	8,959
L2	1,052
3 Wheelers	
e-cart	7
e-rickshaw	4,100
L5M	1,166
L5N	315
4 Wheelers	
M1	2
Total	15,601

Source- FAME-II Ministry of Heavy Industries dashboard, accessed in November 2022

⁸ Economic Survey of India, 2021-22

⁹ Transport Department, Bihar Government. (2019). Bihar Clean Fuel Scheme. Gazette Notification No. 8183 <http://egazette.bih.nic.in/SearchNotification.aspx>.

**Figure 25: Incremental rise in Bihar's Green budget share - 2020-21 and 2021-22**

Details	2020-21, Budget Estimates	2021-22, Budget Estimates
Amount (Rs crore)		
Total State budget	211,761.49	218,302.70
Total budget allocations (department-wise)	81,176.46	79,359.72
Total Scheme Budget (scheme-wise)	27,162.85	29,337.33
Total Green Budget (GB)	5,693.88	7,682.91
Share (%)		
Outlay for GB as a share of the total identified scheme budget	7.01%	9.68%
Green share of the scheme budget	21.00%	26.19%

Source: Author's compilation from Bihar's Green budgets for 2020-21 and 2021-22

packs. However, the policy guidelines issued by the state have failed to attract potential EV buyers in large numbers as evident from the low number of EV registrations so far. According to experts, the state needs to carefully design a strategy for a long-term shift towards an EV-based transport system and should take steps to build a cohesive environment to enable this, by establishing charging infrastructure etc.

9. Need to set monitoring indicators for Bihar Green budget

Bihar already had a green or climate budget being released on an annual basis since 2020-21. It has been following a structured process, but not much has been achieved in terms of having a sizeable improvement in terms of meeting the financial requirements of climate actions over these years. There has been an increase of just 6 per cent in the total budget for schemes. Experts believe that this might be due to appropriations in the state budget and there have been no major modifications in green share or adjustments in the state financing process or budgetary provisions for climate relevant

programmes and schemes.¹⁰ This indicates that a lot needs to be done to develop climate-responsive budgeting tools that link budgetary allocations with expected outcomes. There is also a need for an annual performance appraisal of the climate or green budget being implemented by the state. The planning for a Green Budget should be ex-ante and not ex-post with outcome assessment.

10. Forthcoming finance Commission should take up for consideration the renewable energy sector's need for grants

The Fourteenth and Fifteenth Finance Commissions have made no recommendations for a specific grant for promotion of renewable energy in general for any state. However, considering the centrality of the financial strength of DISCOMs to the soundness of State finances, the Fifteenth Finance Commission has recommended an additional borrowing space of 0.5 per cent of GSDP for the State during the four-year period from 2021-22 to 2024-25. Either the Bihar state finance commission or the Central finance Commission should take up for consideration the renewable energy sector's need for grants.

¹⁰ Webinar held under Greening the Indian Financial System Initiative by Shakti Sustainable Energy Foundation Available at : <https://shaktifoundation.in/initiative/green-indian-financial-system-initiative-gifs-initiative/?psec=NQ==>



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Annexure 1

Methodologies followed for various objectives of tracking the available finances for clean energy in the state, assessing climate mitigation policies across the sectors and assessing the existing efforts of the state for clean energy transition and bringing social benefits

1.1 Methodology to track the financial resources available to Bihar from various sources for expenditure on clean energy initiatives

Bihar's Financial Resource Envelope for Power sector financing was assessed and a plausible estimate on finances was arrived at across the following aspects and channels;

- Budgetary allocations from the Energy Department, Government of Bihar (GoB)
- Share of International loans in Budgetary allocations from the Energy Department
- Internal and Extra Budgetary Resource (IEBR) reimbursement to Bihar through Central PSUs in the power and renewable energy sector
- Finance Commission Grants (if any) with respect to clean energy

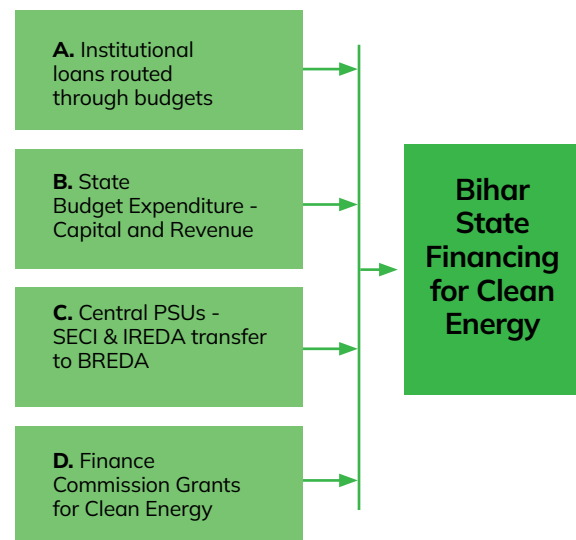
Key sources of information:

- Budget Documents of various State Departments
- Institutional loans Routed through Departmental Budgets
- Annual Reports pertaining to Energy of Central PSUs such as Solar Energy Corporation

of India (SECI) and Indian Renewable Energy Development Agency (IREDA) for reimbursements to Bihar's State Owned Enterprises, such as BREDA, as IEBR support

- Recommendations of the Fourteenth and Fifteenth Finance Commissions and sections pertaining to Renewable Energy (if any), as well as Budget transfers to the Bihar Government appearing in State or Union Budget Documents for renewable energy (if any)

Different channels of energy financing



Limitations: There is a possibility of double counting due to there being various channels of financing, such as IREDA reimbursements and MNRE grants to the state for promotion of renewable energy. It was difficult to assess and distinguish the conditional and unconditional grants-in-aid being provided by the Union Government to the State solely through State budget expenditure data.



1.2 Methodology to understand the budgetary priorities of State Budgetary Expenditure towards a clean energy transition

A trend analysis has been carried out of Bihar's Total Budget Expenditure (TBE), covering the COVID and pre-COVID years for various departments. The state's overall physical progress on targets such as Renewable Energy and other outcome indicators through implementation of various policies in and regulation of the power sector has also been collated.

Key sources of information:

- Bihar State Economic Survey
- An online portal, GHG-platform India, for information on the Greenhouse Gas Inventory for various sectors of Bihar's Economy
- State Budget Documents and Detailed Demand for Grants (DDGs) for the Energy Department from financial years 2017-18 to 2021-22
- MNRE data on state-wise physical progress on targets pertaining to Renewable Energy
- Status of Bihar's Renewable Energy Purchase Obligation
- Annual Transmission and Distribution Losses

Limitations: Data was available for Bihar on GHG inventory only up to 2015 and a mere time series analysis projection till 2021 does not factor in the COVID-19 pandemic's impact, such as a temporary decline in GHG emissions during the lockdown. It is difficult to firmly say whether the decline in the share of Energy Department spending is due to stress in the state's finances or a shift in priorities towards social welfare without a sectoral analysis and clear breakup of the Total Budget Expenditure across sectors.

1.3 Approach followed to present the policy and institutional landscape of climate mitigation policies in the energy, transport and urban development sector

Bihar's overall progress on targets such as renewable energy and other outcome indicators through the implementation of its Renewable Energy policy were collated. Interventions and policies were assessed in terms of their ability to augment strategies for low-carbon development in sectors such as energy, transport and urban development. In the transport sector, state policies, programmes and schemes for the promotion of public transit systems and electric mobility (if any) were collated. State spending under specific programmes and schemes, with the possibility of mainstreaming climate mitigation interventions in the urban development sector, was also studied. In the energy sector, the key attributes of the Bihar Renewable Energy Policy were highlighted as a ready reckoner for policymakers. The state's participation status in central schemes meant for the promotion of electric vehicles, energy efficiency and solar pumps was also assessed. The budgeted schemes of the Bihar Skill Development and Social Welfare Department were studied for an understanding of the upskilling efforts (if any) for jobs in renewable energy and other climate mitigation sectors such as electric mobility.

Key sources of information:

- Bihar Renewable Energy Policy
- Bihar Electric Vehicle Policy
- Disaggregated budgeted information on programmes and schemes with climate relevance, as available
- Union government guidelines for mainstreaming climate concerns in the SMART Cities Mission
- Central government guidelines under specific programmes to promote electric vehicles and



solar pumps, such as the FAME-II scheme and PM-KUSUM

- Central scheme-specific portals providing information on state-wise performances. This is available for FAME-II, KUSUM, and energy efficiency-related schemes
- The Budget document of the Bihar Skill Development and Social Welfare Department
- The Bihar State Skill Development Mission strategic document
- Bihar government orders
- News media articles

Limitations: There is a lack of disaggregated budget data and data on provisions (in terms of budget allocations for programmes and schemes)

for clean energy, clean fuel utilisation, and energy efficiency-related initiatives in other sectors such as transport, urban development and agriculture. Hence, we attempted to analyse the priorities of the existing policies, strategies, programmes and schemes through secondary literature surveys. While assessing the state performance under central schemes, it is not known if cross-sectional subsidies were given by the state to achieve the same targets as the national targets. The year the state started participating in central schemes is not known and information is not available in the public domain. The cumulative information is provided till date on most national portals. The annual information on state-wise performances in central schemes is not available. There are certain schemes and programmes reported on by the news media. However, it is difficult to assess the disaggregated budgeted information in various core schemes and programmes appearing in departmental budget documents.





Annexure 2

A Methodological Guidance Note on Assessing the Climate Responsiveness of Bihar's Power Sector Financing

2.1 Purpose of the Methodology

The onus of implementing the national ambition for a clean energy transition largely lies with state governments and their climate policies. Financing of states' climate policies is demonstrated through their budgets' responsiveness. Thermal Power Generation is the biggest contributor to GHG emissions among all the sectors in India. Broadly, budget expenditure can have a positive impact on climate if it represents measures for mitigation, or have a negative impact if it directly or indirectly supports the use of fossil fuel-based power generation. However, assessing the climate responsiveness of budgets requires a methodical process as it is not always easy to determine this for policymakers to have conclusive insights. It is therefore necessary to develop this methodological guidance note, which offers a framework to assess the responsiveness of States' power sector budgets in financing climate change mitigation (reducing GHG emissions) interventions. The objective is to improve the responsiveness of the budget towards climate mitigation by ensuring that actions and investments progressively eliminate expenditure with a negative impact on the climate, wherever possible, and increase expenditure that supports a clean energy transition. This will assist in designing well-thought-out proposals for a green economic recovery by identifying climate-relevant expenditure for investors, meeting demands for transparency in climate financing, and promoting information on cross-sectional issues.

Ultimately, this methodological guidance will

provide a better understanding of the cohesiveness of states' public expenditure in reaching climate mitigation targets with respect to the power sector. This will provide inputs to frame a progressive public climate finance policy that enables a Green Economic Recovery from the shock of the pandemic.

2.2 Steps involved in Assessing the Climate Responsiveness of State Budgets

Several steps were involved in assessing the climate responsiveness of budgets. The three major steps are:

1. Establishing the scope of expenditure in terms of identifying the department(s) mandated with functions of Power sector development. At the scoping stage, it sets out the expenditure items (pertaining to nodal Departments) that are to be included and those that are out of scope. Receipt budget expenditure is kept within the scope of analysis.
2. Identifying Budget lines, that is, neutral or "with climate impact" Once budget lines are identified in terms of having 'climate responsiveness' or being 'neutral,' expenditure items 'with climate impact' are analysed in depth, most often by analysing supplementary information in addition to budgetary or financial data. There are five tiers of information in Budget accounts: Major heads, Sub-major heads, Minor Heads, Detailed Heads, and Object Heads. Budget lines are placed in three categories by unifying the information lying in these five tiers of information (by concatenating them). The criteria to identify budget lines as neutral or "with climate impact" are as follows:



a) Neutral: This expenditure does not have a significant impact on emissions or on capturing greenhouse gases. It therefore does not actively contribute to climate change, nor does it help reduce GHG emissions. Examples: social benefits to employees, salaries, and administration travel, recoveries and food allowances.

b) With climate responsiveness: This expenditure is compatible with national ambitions for climate change mitigation, particularly for Renewable Energy. It provides a significant reduction in emissions compared to existing alternatives. For example, Addition of Renewable Energy, Transmission and distribution networks, Electrification using off-grid technologies etc.

3. Analysis on Priorities of expenditure “with climate impact”: The aim of this third stage of analysis is to identify the climate responsiveness of all expenditure included in the budget of the Power Departments of State Governments. It consists of a line by line analysis of the budget on a rationale-based categorisation of actions. Actions are then rated as highly favourable, quite favourable, unfavourable or difficult to categorise for climate action. The results provide a better understanding of the cohesiveness of the expenditure towards making progressive budget decisions for a green economic recovery.

Expenditure items are classified into three categories, according to their impact on the climate:

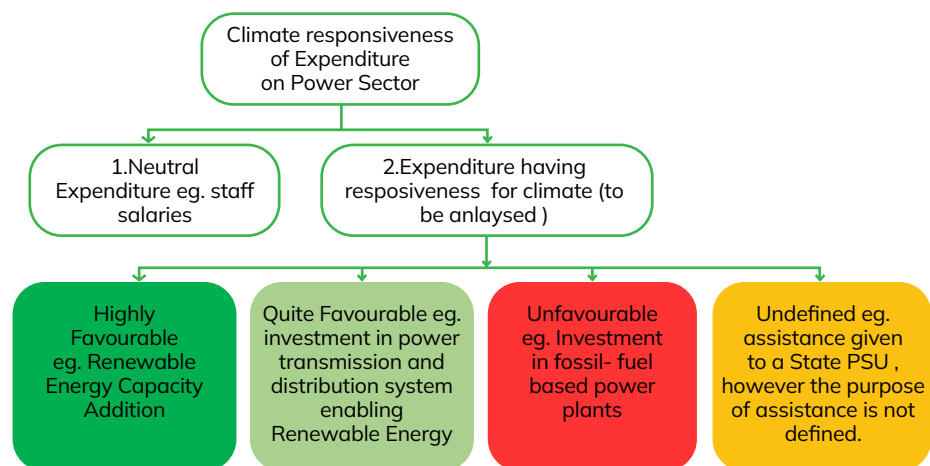
- 1. Highly Favourable:** This expenditure is cohesive with national ambitions for climate change mitigation. Expenditure on this activity provides a significant reduction in emissions compared to existing alternatives. For example: Installation of Renewable Energy Capacities.
- 2. Quite Favourable:** This expenditure reduces emissions in the short term, but the reduction is insufficient to put the area on the path to low-carbon development. This category notably includes equipment and infrastructure, which present a risk of carbon lock-in over the long term. For example: a transmission and distribution network.
- 3. Unfavourable:** This expenditure is not cohesive with the Indian commitment for climate change because it makes a significant contribution to greenhouse gas emissions. Examples include subsidies for diesel-based pumps or fossil fuel-based power generation.
- 4. Difficult to categorise:** This expenditure cannot be categorised in the above three ratings, as these items require extra-budgetary supplementary

Figure 2: Climate Responsiveness Categorization

Step 1: Identification of key department(s) for power sector

Step 2: Identification of Budget lines that is, neutral or “with climate mitigation responsiveness”

Step 3: Rating the responsiveness of budget expenditure for Climate Change Mitigation (clean energy transition)



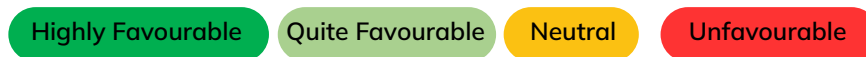


information and need to be discussed with the State Government.

2.3 Rationale used for Categorisation of expenditure for Climate Change Mitigation

We unified the five tiers of budget information to

Categories of Budget Responsiveness



rate the responsiveness of budget expenditure on climate change mitigation, particularly for a clean energy transition. Broadly, the rationale used for categorisation of the budget expenditure of a state is as follows:

Nature of Budget Expenditure	Rationale for Categorisation
New and Renewable Energy Related Expenditure (major Head 2810)	● This expenditure supports a transition to low-carbon development (LCD) of the power sector with promotion of renewable energy.
Expenditure related to Hydroelectric Power Generation	● Budget lines related to “hydropower generation” are categorised as highly favourable as the government, under the New Hydroelectricity Policy , has approved ‘renewable energy status’ for large hydel projects. Earlier, only smaller projects of less than 25 Megawatt (MW) capacity were categorised as renewable energy. In addition, large-scale hydro projects are considered as a separate source of energy.
Expenditure related to Energy Efficiency Initiatives	● Improving energy efficiency is the key tool in reducing GHG emissions besides addition of Renewable Energy and Energy Conservation. For example, Scheme for Domestic Energy efficient LED lighting, “ <i>Amma Ghar LED lighting</i> ”
Expenditure related to Transmission and distribution networks	● Expenditure on Transmission and Distribution infrastructure supports the integration of renewable energy into the power grid. It supports parallel development of low-carbon power generation capacity using renewables along with a transition away from fossil fuel-based energy e.g.. Investments in SMART grids.
Expenditure related to intra-state (within the state) distribution networks	● Expenditure on Intra state Distribution infrastructure supports the integration of renewable energy by improving the robustness of the power system with a reduction in Average Transmission, Distribution & Commercial (AT&D) losses shown by the power utilities in the state, and indirectly supports the state in promotion of net-meter-based off-grid RE technology installation.
Expenditure with respect to Rural Electrification Programmes by States	● Most of this expenditure falls under Central Sponsored Schemes such as SAUBHAGYA-Pradhan Mantri Sahaj Bijli Har Ghar Yojana, Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) or the State’s own initiatives for rural electrification. The scope of work of the DDUGJY and most of the rural electrification programmes includes agriculture feeder separation, laying down low-tension electric lines, as well as strengthening and augmentation of the sub-transmission and distribution network in rural areas for electrification. This is leading to parallel development of low-carbon power generation capacity, using renewables in the end.

Continued on next page...







Categories of Budget Responsiveness

Highly Favourable

Quite Favourable

Neutral

Unfavourable

Nature of Budget Expenditure	Rationale for Categorisation
Expenditure related to salaries, pay allowances and secretariat-related work	 This expenditure does not have a significant impact on emissions. It therefore does not actively contribute to climate change, nor does it help reduce GHG emissions. The expenditure is for administrative or secretariat purposes, salaries, allowances etc. However, expenditure related to salaries of employees in the Renewable Energy Department is categorised in the Highly Favourable Category.
Expenditure related to thermal Power Generation (largely fossil-fuel based)	 This expenditure is non-cohesive with the Indian commitment for climate change mitigation and a clean energy transition because it is an enabled activity that makes a significant contribution to greenhouse gas emissions through thermal power generation. There could be an argument that Thermal power generation equipped with Ultra Mega Power Plant (UMPP) technologies could be considered under the Quite Favourable Category. However, with respect to this version of the Methodology, we have kept such expenditure in the Unfavourable Category and it is subject to future refinement in the methodology.
Expenditure on Free Power (Largely Fossil Fuel based) Supply to Farmers	 This expenditure causes a huge burden on the state government and at the same time derails the transition towards clean energy adoption and thus has been categorised as unfavourable. There is a need for the state to develop a roadmap to phase out free subsidies of fossil fuel-based power supply as they reduce the market scalability of off-grid RE technologies and locks in state expenditure on technologies. This is also unfavourable in reducing GHG emission. It is also inconsistent with the goal of promoting solar-based agriculture pumps / other off-grid RE technological solutions. A few governments have recognised the burden of free power subsidies and started planning for solar-based free electricity supply subsidies to farmers. However, since such initiatives of the government are still at the planning stage, this version of the methodology has categorised this expenditure in the unfavourable category, subject to future refinements.
Expenditure meant for providing Grant-in-aid Assistance in Public sector and other undertakings such as the State Power holding company etc.	 This expenditure is Difficult to categorise as it requires supplementary information from the power department to confirm whether there was any spending of grants-in-aid on State PSUs for promotion of Renewable Energy.





Bihar's Public Policy and Budgetary Priorities for a transition towards a Green Economic Recovery

Authors: Jyotsna Goel and Subrata Sekhar Rath

Technical Inputs: Khwaja Mobeen Ur Rehman, Malini Chakravarty and Niraj Chourasia

Editorial Inputs: Allan Lasrado

You can reach the authors at jyotsna@cbgaindia.org and info@cbgaindia.org

Designed by: How India Lives (www.howindialives.com)

Published by Centre for Budget and Governance Accountability

B-7 Extn./110A (Ground Floor), Harsukh Marg, Safdarjung Enclave, New Delhi-110029

Phone: +91-11-49200400/ 401/ 402 Website: www.cbgaindia.org Email: info@cbgaindia.org

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About the Project:

Building Knowledge and Capacity for Green Recovery of the State Economies in India

The project- Building Knowledge and Capacity for Green Economic Recovery of the States in India is meant to build knowledge and capacity for facilitating the green recovery of the State economies in India, following the sharp economic downturn due to the COVID-19 pandemic.

The project is meant to build knowledge and capacity for facilitating the green recovery of the State economies in India, following the sharp economic downturn due to the COVID-19 pandemic. The research will help in developing knowledge resources and recommendations that State Government actors could refer to for incorporating climate mitigation actions under their economic revival measures.

The project is supported by New Venture Fund.

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