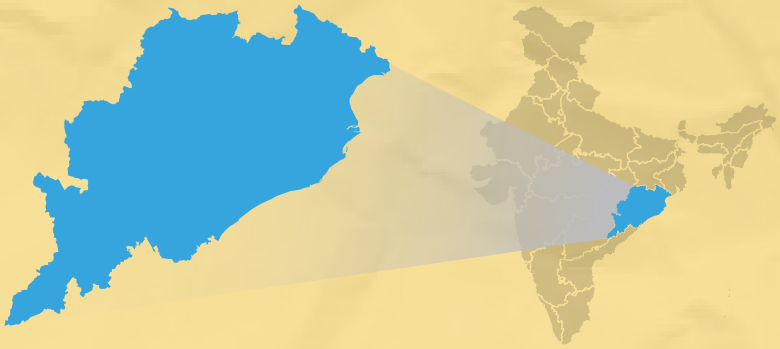

Policy Brief

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

2022

CBGA

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

About this Policy Brief: The policy brief highlights current efforts by the State of Odisha to finance climate change mitigation actions in various sectors, including the power, agriculture, transport and urban development sectors. It identifies policy measures for the long-term transformation of the state towards a green economic recovery.

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Building Knowledge and Capacity for Green Recovery of the States Economies in India. This project is supported by New Venture Fund (NVF).

Policy Brief

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Introduction

India recognises that a clean energy transition is critical to address increasing greenhouse gas emissions. This is reflected in the recent announcement of revised targets for renewable energy—450GW by 2030 — at COP 26, and further made the commitment to decarbonise or go net-zero by 2050. These targets cannot be met without efficient implementation at the state level. Financing of climate mitigation targets is the biggest challenge for state governments given their stressed public finances. States had rightly prioritised financing immediate covid relief measures. However, they need to seek a long-term transformation and push for an inclusive recovery to withstand any future shocks (either pandemic or climatic).

The rise of Covid-19 has given the government an opportunity to build a sustainable growth strategy that will not only help fulfil energy needs for the future, but also a mechanism to finance its quest for clean and renewable energy. State governments can benefit by adopting green economic measures since it serves three primary objectives: improving livelihoods and increasing jobs, expanding the economy manifold, and mainstreaming climate and sustainability concerns. The starting point to draw up a roadmap for the greening of the economic recovery varies according to the state environment, that is, its demography, climatic and geographical conditions, socio-economic status, policies, political environment, and fiscal conditions.

With every state facing myriad environmental challenges, there needs to be a framework where states can address their issues on a more holistic level. One of the major problems that states need to contribute in national ambitions for climate mitigation is the clean energy transition. There is urgent need to address is the rise in greenhouse gas emissions (GHG) and strategically plan out for greening the economic revival. Rising GHG emissions are the key reason for climate change, which has directly caused enormous losses at the economic, social and ecological level. Climate finance is critical to it.

Most of the eastern states in India have poor indicators of socio-economic development as well as high vulnerability to adverse climatic impacts, and their population often bears the financial burden that follows in the aftermath of these episodes. Hence it is significant to build inclusiveness while strategizing for a long-term transformation towards a green economic recovery.

This policy brief focuses on state of Odisha located at eastern region of India. It looked at the budgetary and policy priorities for transitioning towards green economic recovery after the pandemic shocks on its economy. It makes suggestions for effective public finance planning for greening economic recovery of the state.

1.1 Objectives

The goal of this policy brief is to present the ongoing efforts of the Odisha government in its clean energy transition and to identify issues in its path to a green economic recovery that is cohesive and inclusive in nature. It can be broadly categorised into three objectives with the **clean energy transition** of the state the most important of them. The objectives are:

- To understand the impact of the Covid-19 pandemic on Odisha's overall spending and its efforts on climate change mitigation through a review of baseline indicators, and to track the

financial resources available to fund a clean energy transition.

- To understand the conduciveness of state budgetary expenditure towards a clean energy transition and to recommend progressive budgetary provisions aimed at greening the economic recovery.

- To assess how the state can create a suitable environment for a transition to clean energy.

1.2 Scope

This analysis presents and identifies different growth drivers for a Green Economic Recovery by Odisha by assessing state budget data, mainly from the Energy Sector. This policy brief also looks at the fiscal performance of the State in pre-Covid and Covid years as well as various policy interventions with an outlook for the future. It presents the impact of Covid-19 on public financing of climate mitigation actions in various sectors of the economy, such as Energy, Transport, Infrastructure (buildings) and Agriculture. It contains supplementary information on non- financial indicators pertaining to physical achievements in installation of Renewable Energy by Odisha, as well as indicators related to various environmental and social outcomes. The data, for the period from 2017-18 onwards, presents climate relevant schemes and programmes along with the financial outlays by different departments in the state. It tries to analyse the climate responsiveness of some of the social welfare schemes related to skilling and their potential to upskill the local population for job opportunities in the climate mitigation sector.

1.3 Methodology

Methodology to track the financial resources available with Odisha for expenditure on clean energy initiatives

The resource envelope of Odisha's power sector was assessed and plausible estimates on finances made across the following aspects:

A. Budgetary allocations from the Department of Energy, Government of Odisha

B. Share of international loans in budgetary allocations from the Department of Energy

C. Internal and External budgetary Resource (IEBR) reimbursement to Odisha through Central PSUs in the power and renewable energy sector

D. Finance Commission Grants (if any) for clean energy initiatives

Key sources of information:

- Budget documents of various State departments

- International loans routed through departmental budgets

- Annual reports of Central PSUs such as the Solar Energy Corporation of India (SECI) and Indian Renewable Energy Development Agency (IREDA) for reimbursement to State-owned enterprises such as Odisha Renewable Energy Development Agency (OREDA), and IEBRs

- Recommendations of the Fourteenth and Fifteenth Finance Commissions

- Union Budget documents pertaining to renewable energy and transfers to the Odisha government

- State Budget documents

A trend analysis of Odisha's Total Budget Expenditure (TBE) was carried out for various departments, covering pre-Covid years and the present. Odisha's overall progress on renewable energy targets and other outcome indicators through implementation of various policies and regulations was also collated.

Key sources of information were:

- Odisha State Economic Survey
- Greenhouse Gas Inventory for various sectors of Odisha's economy as available online at GHG Platform-India
- State Budget documents and Detailed Demand for Grants (DDGs) pertaining to the Department of Energy from financial year 2017-18 to 2021-22
- Ministry of New and Renewable Energy (MNRE) and Central Electricity Authority (CEA) data on the progress made towards achieving State-wise renewable energy targets
- Status of Odisha's Renewable Purchase Obligation
- Annual Transmission and Distribution Losses

Limitations: There are a few possible limitations in the methodology. Firstly, data on GHG inventory for Odisha is available only till 2018. Secondly, the time series analysis projection till 2021 does not factor in the impact of the pandemic, such as a temporary decline in GHG emissions that might have occurred during the lockdown.

There is a possibility of double counting with various channels of financing such as IREDA reimbursement transfer and MNRE grants into the State for promotion of renewable energy. It was difficult to assess and distinguish between conditional and unconditional grants-in-aid provided by the Union Government to Odisha solely through State budget expenditure data

Secondly, without carrying out a sector-wise analysis and understanding the division of Total Budget Expenditure, it is difficult to say if the decline in the Energy Department's spending (percentage-wise) is due to the stress in the State's finances or because of a shift in priorities towards social welfare. This is beyond the envisaged objectives of our analysis.

Analysis of priorities for expenditure "with climate responsiveness": The aim is to identify the climate responsiveness of all expenditure in the budget of State Power Departments. It consists of an analysis of the budget line by line, with a rationale-based categorisation of actions. The actions are then rated as **Highly favourable, Quite favourable, Unfavourable or Difficult to Catagorise** for the climate responsiveness. The results provide a better understanding of the coherence of State expenditure in achieving a clean energy transition, and in making progressive Budget decisions for a Green Economic Recovery. Expenditure items are classified into three categories according to their responsiveness on climate needs:

i. **Highly Favourable:** This expenditure is in line with the national ambition for climate change mitigation. Expenditure on this activity leads to a significant reduction in emissions compared to existing alternatives. For example: Installation of Renewable Energy Capacity.

ii. **Quite Favourable:** This expenditure reduces emissions in the short term, but the reduction is insufficient to put the State on the path to low-carbon development. This category notably includes equipment and infrastructure that present a risk of carbon lock-in over the long term. For example: Transmission and Distribution networks.

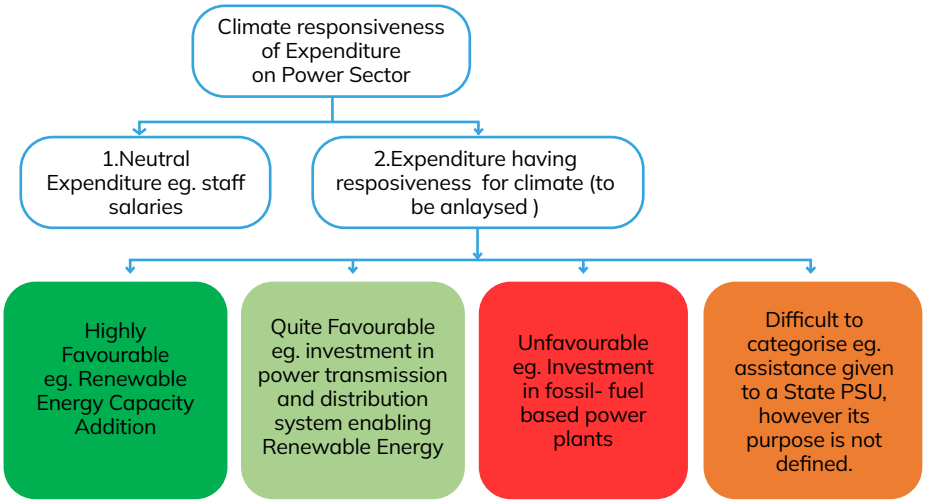
iii. **Unfavourable:** This expenditure is not in line with India's commitment to mitigate climate change because it makes a significant contribution to GHG emissions. For example: Subsidies for diesel-based pumps or fossil fuel-based power generation.

Figure 1: 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)



iv. **Difficult to Categorise:** This expenditure does not fit into any of the above three categories, as it requires extra-budgetary supplementary information and needs to be discussed with the State government.

Users can see the application of the above methodology, appended in Annexure 1,

Section 2

Issues in the landscape of policies of the state

2.1 Odisha's Economic Recovery

Some of the economic indicators suggest that Odisha is amongst the frontrunner states in India and has potential to transition as green economy. The state ranks 9th in terms of area and 11th in terms of population in the country. Its nominal GDP was approximately USD 85.7 billion in 2021-22, higher than at least 121 countries as per the IMF World Economic Outlook GDP estimate for 2021. However, Odisha ranks marginally higher than the median 33 states and union territories in terms of the overall size of the economy, proxied by the GSDP of 2019-20. Like the rest of the states, Odisha has also faced the wrath of the Covid-inducing coronavirus. The state's GDP contracted 5.3 per cent in 2020-21 against an average growth rate of 8.7 per cent in real terms over the preceding five years. Industry was the worst affected sector followed by services. Agriculture and its allied sectors remained resilient to the impact of the Covid impact in 2020-21. (Odisha Economic Survey, 2021-22)

Furthermore, Odisha is one of the most vulnerable states in India, facing challenges such as tropical cyclones and droughts nearly every year. Beyond the severe loss of lives and property, this exerts extreme pressure on the state's exchequer and finances as well. Public expenditure has not received significant focus in the Indian context and spending on climate change issues still remains a challenge. To overcome this, the state undertook a rigorous cross-sectoral analysis to come up with a Climate Budget for 2020–21. Odisha became the first state to receive international finance in the form of Green Climate Fund (GCF) support and also undertook an extensive budget coding exercise to formulate a Climate Budget in 2018.

2.2 Poverty

Odisha has gone on from being the most underdeveloped state to become the state that has recorded the highest decline in poverty. However, compared to other states and union territories, it is still below average where income and standard of living are concerned. In a recently released NITI Aayog report, 'National Multidimensional Poverty Index (MPI) 2021 – Baseline Report', Odisha is ranked eighth from the bottom, with 29.35% of the State's population found to be multi-dimensionally poor. Poverty is higher among the scheduled tribes as compared to scheduled castes and general castes. Furthermore, the percentage of rural families living below the poverty line is found to be much higher in the State. Besides structural poverty, Odisha also faces conjunctural poverty (due to floods, cyclones, droughts, etc.) and destitute poverty (people lacking either money or material to survive), among other forms of poverty. In terms of development indicators such as literacy rate, infant mortality rate, per capita income, etc, the living conditions of the people of the State are considerably lower than the national average. (Panda, 2020) There are greater inter-district variations in the living conditions of the people in the State. In order to reduce GHG emissions and become a carbon-neutral state, Odisha would also need to reduce its poverty and income inequality as the sustainable development of the energy sector also involves the social welfare of its citizens.

Figure 2: Trends in Odisha'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 ex-penditure (%)	RE Versus Total Energy Expenditure (%)
2018-19					
BE	1,20,028.00	1,983.29	10.00	1.65	0.50
A	1,13,948.50	2,146.36	10.00	1.88	0.47
2019-20					
BE	1,39,000.00	2,250.58	10.00	1.62	0.44
A	1,25,167.63	2,431.76	10.00	1.94	0.41
2020-21					
BE	1,24,109.14	1,845.59	2.22	1.49	0.12
A	1,24,109.14	1,845.59	2.22	1.49	0.12
2021-22 BE	1,70,000.00	1,798.88	49.57	1.06	2.76
2022-23 BE	2,00,000.00	3,472.48	54.56	1.74	1.57

Source: CBGA analysis Of Odisha State Budget and Detailed Demand for Grants for Energy Department of Odisha
Abbreviations Used; BE= budget estimates, A= actuals, RE= revised estimates

2.3 Inadequate baseline infrastructure

Lack of proper infrastructure, especially, transport and power, has severely impaired both growth and diversification of industries in the state. So, a serious rethinking on the issue of greater use of power for the State's industrialisation, rather than merely selling it, is essential. In order to activate the industrial sector, development of railways and civil aviation is very essential. To generate income in the rural sector and promote a viable rural industrial base, larger investments need to be made in agricultural development. To accelerate industrial development, a dynamic small enterprise promotion policy is needed. The State is endowed with a range of high-grade minerals, but these are not exploited optimally. Mining activities should be upgraded to the status of a manufacturing industry, wherein mineral processing up to certain stages can be undertaken within the region. A modern agro and forest-based industries need to be encouraged in the State. Finally, preference should be given to new areas of industrial activity with special emphasis on locating them in underdeveloped districts.

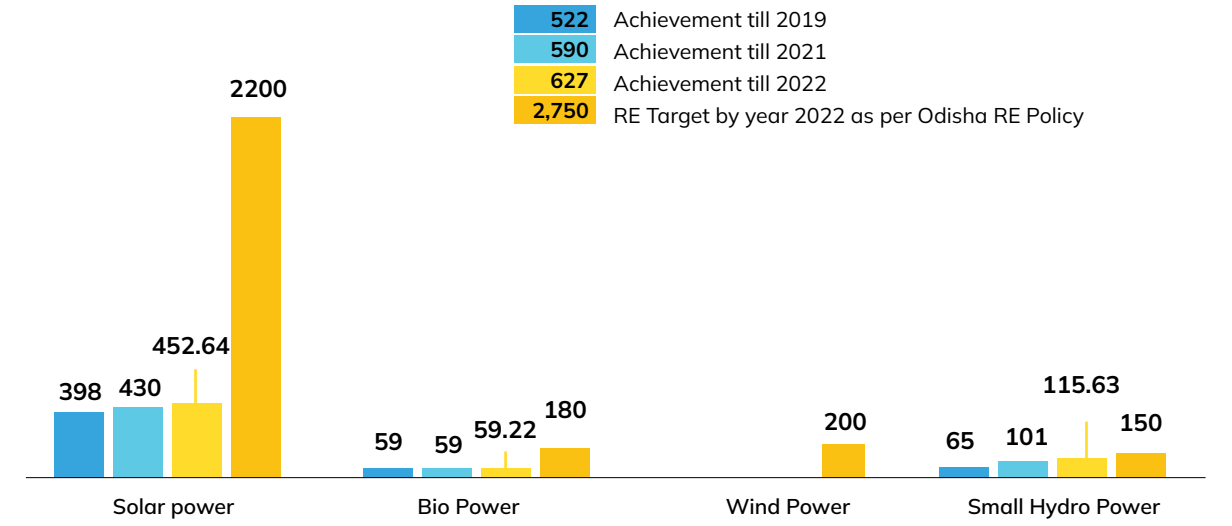
Rural infrastructure is very poor in the remote areas of Odisha, which affects their productivity, connectivity, effectiveness in the agro industry and above all, in their economic development. The level of village electricity is 10% lower than in states such as West Bengal, Punjab or Himachal Pradesh, according to the Economic Statistics of Odisha.

2.4 Impact of Covid-19

According to the Economic Survey of 2020-21, Odisha's economy contracted 4.9 per cent. Trends in Odisha's Total Budget Expenditure (TBE) and Budget expenditure for power sector development in the last five years were analysed. The trend seems quite stable, and the pandemic did not seem to cause much variation in the overall share allotted to the energy sector. However, a slight dip from 2020-21 (Revised Estimates, 1.51%) to 2021-22 (Budget Estimates, 1.06%), can be observed in energy sector spending (Figure 2).

Priority was given to spending on social benefit initiatives and meeting exigencies due to the pandemic. Several social welfare measures were undertaken. For example, the distribution of rice; Rs 17,000 crore allocation for a special livelihood plan

Figure 3: Physical Progress made by Odisha in Renewable Energy Capacity Addition (MW)



Source: Ministry of New and Renewable Energy (MNRE) data Accessed on 5th November, 2021

for employment generation, and a Rs 2,200 crore package for the welfare of weaker sections (Odisha Economic Survey, 2020-21).

Odisha's GDP is expected to grow at 10.1 per cent, according to the advance estimates of 2021-2022. The state's per capita income is also growing at a faster pace. This could be attributed to Odisha's leading role in generating demand and crowding-in investment through high capital expenditure (Odisha Economic Survey 2021-22).

2.5 State unable to meet RE targets

The Government of Odisha has targeted achieving 2750 MW of renewable energy by 2022 to reduce its dependence on conventional sources of energy. In 2021, Odisha made significant progress in adding renewable energy capacity with an increase of 68MW over the previous year. However, the current capacity of 590 MW is still far below its target of 2750 MW by 2022, as stipulated in the Odisha Renewable Energy Policy (Figure 3).

Section 3

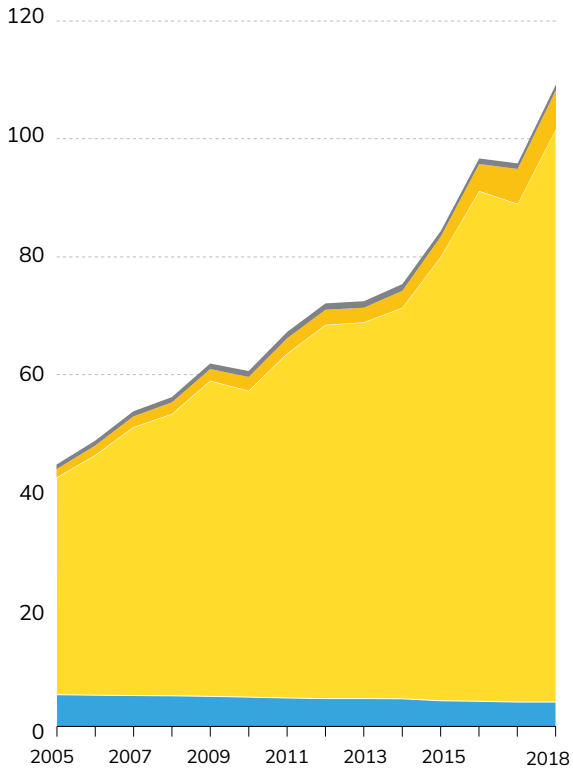
Sectors most relevant for a Green Economic Recovery in the State

According to the report of the Energy Technology Perspectives (2015) from the International Energy Agency, the **energy sector** alone was responsible for around two-thirds of global CO_2 emissions, and CO_2 from energy accounts for about three-quarters of anthropogenic GHG emissions. From the energy sector, the major health threats primarily result from air pollution, GHG emissions, occupational hazards, and the risks of sporadic large-scale accidents, which together cause substantially more environment-mediated morbidity and mortality worldwide than any other sector (Prüss-Üstün et al., 2004). For instance, the largest sources of anthropogenic GHGs, combustion of fuels, especially fossil fuels, causes air pollution (e.g., PM, NOx and SO_2), contributing to mortality and morbidity. Developing countries are more affected due to their more extensive use of coal and generally less-stringent emission control requirements.

Figure 4: Sector-Wise GHG emissions (Economy wide)

Emission estimates (Mt CO_2e)

	Agriculture, Forestry & Other Land Use	Energy	Industrial Product and Process Use	Waste	Grand Total
2005	5.6	36.9	1.4	0.8	**44.7**
2006	5.5	40.8	1.6	0.8	**48.7**
2007	5.4	45.6	1.8	0.9	**53.7**
2008	5.4	47.9	2.0	0.9	**56.1**
2009	5.3	53.6	2.0	0.9	**61.9**
2010	5.2	52.1	2.4	1.0	**60.6**
2011	5.0	58.5	2.6	1.1	**67.2**
2012	4.9	63.5	2.6	1.1	**72.1**
2013	4.9	64.0	2.5	1.1	**72.4**
2014	4.9	66.5	2.9	1.1	**75.4**
2015	4.6	75.5	3.4	1.0	**84.4**
2016	4.5	86.8	4.6	0.9	**96.7**
2017	4.3	84.7	5.9	1.0	**95.9**
2018	4.3	97.4	6.7	1.0	**109.3**



Source: GHG Platform-India

Considering that the sources of GHGs emissions and air pollutants in the energy sector are largely the same, it is important that innovations across clean energy technologies should begin at large scale. This includes decarbonization of energy generation, improvements in energy efficient infrastructure and switching to technologies which has a large potential for climate change mitigation.

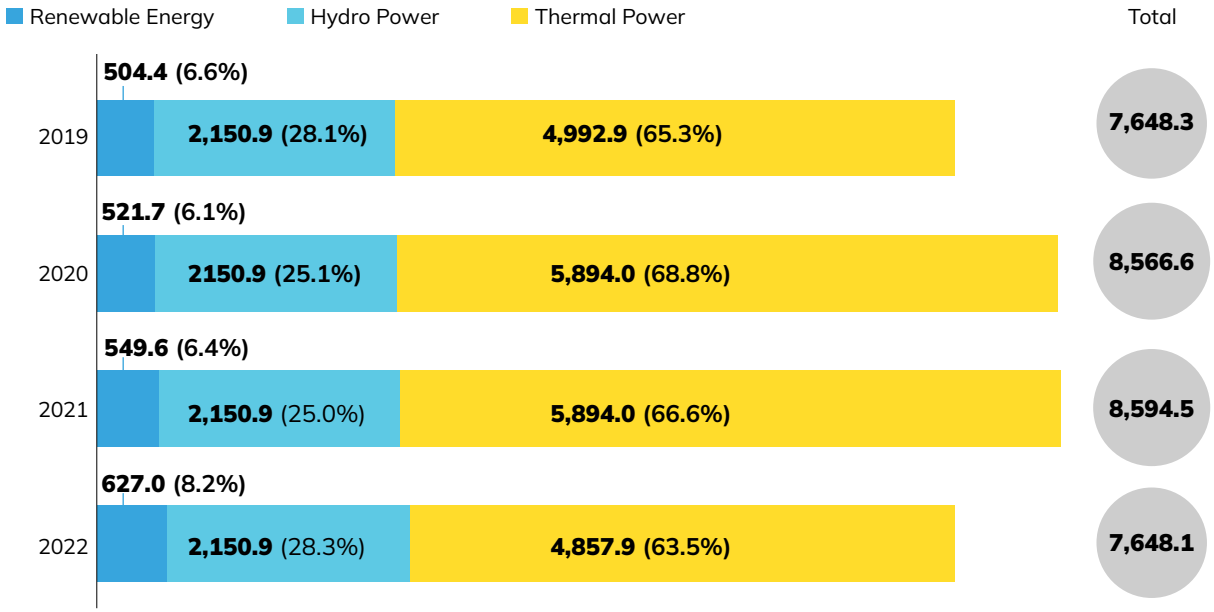
There are several key sectors that contribute to GHG emissions in Odisha, with electricity generation accounting for the most. This figure has been on a rising trend, and between 2005 and 2018, there was a 164% rise in GHG emissions from the energy sector. The trend analysis suggests that the energy sector has the highest GHG emission even for 2022 which predicts a 190% rise with respect to 2005 data (Figure 4).

The other major sources of emissions are agriculture and industry. However, emissions from the agriculture sector have been declining. As per the economic survey, the Gross State Value Added (GSVA) and the percentage of the total workforce employed in the agriculture sector have also come down. However, agriculture is a very important sector for the state's climate finance, as it still employed 48% of the total workforce as of 2019-20 (Odisha Economic survey, 21-22).

In 2019, about 65% of Odisha's energy requirements were addressed using the Thermal Power, which is a non-renewable source of energy (Figure 5). However, 2022 data shows that dependency on thermal power had reduced by 2 per cent. A detailed analysis is required on this decline in share of thermal power installed capacity in the total installed capacity.

The total budget expenditure of different

Figure 5: Installed Capacity of power from different sources (MW)



Source: CEA data 2019, 2020, 2021, 2022

departments and their share in the total budget highlights the state's spending priorities. It can be seen that there has been a reduction in the share of funds allocated for each department from the 2018-19 BE to the 2022-23 BE. The only exception is the transport department, where the share has increased with time. Even though there was a slight decrease in the 2020-21 RE, it again rose to 0.51% in 2021-22 BE. This shows that investment in the transport department has been constant. However, this does not create a significant impact as it is merely 0.5%, on average. The highest share was allotted to the Panchayati Raj and Drinking Water department, with values reaching 13.53%. Generally, it was found that all the departments have been getting a smaller share since Covid-19

Figure 6: 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					
BE	5,162	591	10,196	13,725	1,20,028
A	4,537	214	7,448	15,417	1,13,949
2019-20					
BE	5,579	640	9,713	18,419	1,39,000
A	5,257	450	6,112	16,400	1,25,168
2020-21					
BE	6,180	845	9,374	17,606	1,50,000
A	4,803	569	4,831	14,984	1,35,000
2021-22 BE	5,803	873	8,267	19,801	1,70,000
2022-23 BE	7,258	1,192	10,045	21,741	2,00,000

Share in State's total budget expenditure (%)

	Urban Development and Housing	Transport	Water Resources	Panchayati Raj & Drinking Water
2018-19				
BE	4.30	0.49	8.49	11.44
A	3.98	0.19	6.54	13.53
2019-20				
BE	4.01	0.46	6.99	13.25
A	4.20	0.36	4.88	13.10
2020-21				
BE	4.12	0.56	6.25	11.74
A	3.56	0.42	3.58	11.10
2021-22 BE	3.41	0.51	4.86	11.65
2022-23 BE	3.63	0.60	5.02	10.87

Source: CBGA analysis Of Andhra Pradesh Budget and Detailed Demand for Grants for Energy Department, Andhra Pradesh

Section 4

Tracking the available flows of public finance for climate actions for Green Economic Recovery of the state

The Budget of Odisha's Department of Energy for FY 2021-22 (BE) is estimated to be Rs 1,799 crore. Of this, Rs 150 crore is the expenditure received as loans and advances. Between 2017-18 and 2020-21, disbursement through Central PSUs such as the Indian Renewable Energy Development Agency (IREDA) fell from 40.12 crore to 13.91 crore.

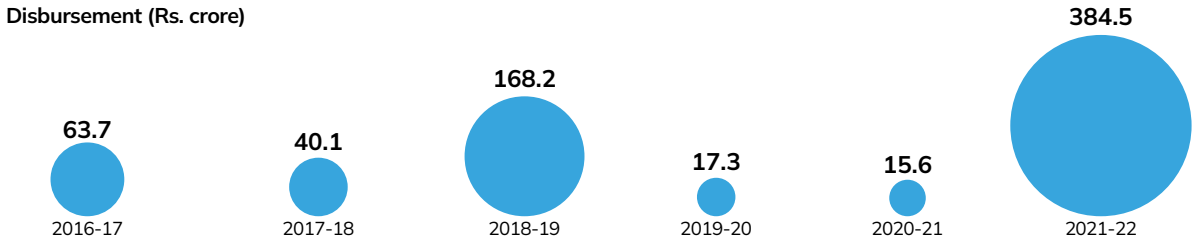
No grants were recommended for the renewable energy sector for any State by the Fourteenth and Thirteenth Finance Commissions. An estimate of finances from different channels contributing to the State's Budget resource envelope for energy financing is depicted below:

Figure 7: Loans and Advances routed through Odisha Budget (Rs Crore)

Major Head: 6801- Loans for power projects Sub-Minor Head	2016-17 A	2017-18 A	2018-19 A	2019-20 A	2020-21 BE	2020-21 RE	2021-22 BE
3095- UDAY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2886- Odisha's share for UMPP (Loan to GRIDCO)	0.0	0.0	0.0	63.3	0.0	0.0	0.0
2152- Accelerated Power Development Reform Programme (Loans to DISTCOs under APDRP)	0.0	105.5	0.0	0.0	0.0	0.0	0.0
3009- Integrated Power Development Scheme (Loan to DISCOMS)	50.0	100.0	106.2	88.1	100.0	100.0	0.0
3009- Integrated Power Development Scheme	0.0	0.0	0.0	0.0	48.0	121.5	0.0
3009- Integrated Power Development Scheme	0.0	0.0	0.0	0.0	2.0	2.0	0.0
3103- Odisha Transmission System Improvement Project - JICA - EAP	0.0	20.0	44.0	100.0	100.0	336.3	150.0
2612- CAPEX Programme for development and up gradation of Distribution System (Loans to GRIDCO)	121.7	0.0	0.0	0.0	0.0	0.0	0.0
3070- Loan to Public Sector and other undertakings (Loan to OPTCL)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**171.7**	**225.5**	**150.2**	**251.4**	**250.0**	**559.8**	**150.0**

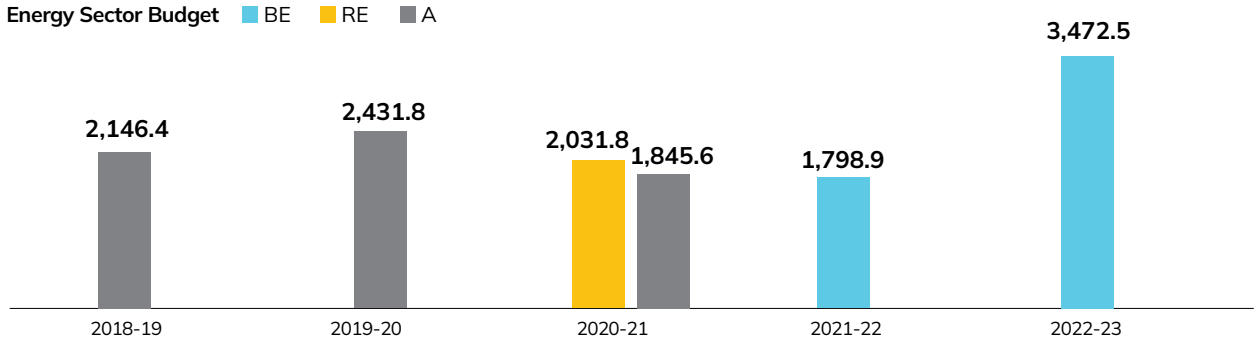
Source: Detailed Demand for Grants for Odisha State Energy Department (Energy Department, Odisha Government 2021)

Figure 8: Disbursement through central PSUs such as Indian Renewable Energy Development Agency (IREDA) to Odisha (Rs. crore)



Source: IREDA Annual Report 2021-22

Figure 9: Budgetary allocation by the Odisha Energy Department (Rs crore)



Source: Detailed Demand for Grants for Department of Energy, Odisha (Department of Energy, Odisha Government, 2021)
Note: Above figures include loans and advances

Section 5

Odisha Climate Budget

The very first climate budget of the state was formulated during the State Climate action plan, which was drafted for the years 2010 to 2015. Eleven sectoral missions were identified, and interdepartmental representation ensured co-ordination amongst sectors. The sector wise expenditure can be seen as follows.

Figure 10: Sector wise Budget Expenditure (Rs crore) of the Climate Change Action Plan (CCAP) - 2012 to 2015

	Budget Expenditure (Rs crore)		
Sectors	2012-13	2013-14	2014-15
Water Resources	908.27	605.27	630.47
Agriculture	218.46	631.44	556.28
Forests and Environment	246.39	310.05	554.59
Energy	274.33	367.48	509.40
Housing and Urban Development	0.00	0.00	502.12
Coast and Disaster	36.15	208.00	319.46
Industries	0.00	0.18	70.50
Health and Family Welfare	0.00	30.03	36.10
Fisheries and ARD	15.41	27.69	28.33
Steel and Mines	0.00	0.00	0.00
Transport	1.16	4.22	0.00
Total	**1,700.17**	**2,184.36**	**3,207.25**

Note: Sectors arranged in descending order of 2014-15 data.
Source: Odisha Climate Budget, 2020-21

Figure 11: Climate-positive expenditure

	Share of Total Budget Expenditure (%)		
Climate Change Sensitive Expenditure (Positive)	2020-21	2021-22 (RE)	2022-23 (BE)
Agriculture	8.22	8.97	8.97
Revenue and Disaster Management	8.22	8.97	8.97
Housing & Urban Development	3.04	4.00	4.49
Water Resources	2.77	3.82	4.06
Rural Development	4.69	4.04	3.24
Fisheries and Animal Resource Development	0.33	0.74	2.58
Forests and Environment	3.93	1.52	1.36
Energy	0.63	0.17	1.22
Panchayati Raj and Drinking Water	1.61	1.50	1.04
Health & Family Welfare	0.36	0.42	0.30
Transport	0.00	0.00	0.00
Total	**1,700.17**	**2,184.36**	**3,207.25**

Note: Sectors arranged in descending order of 2022-23 data.
Source: Odisha Climate Budget, 2022-23

Studying the Climate Budget will definitely benefit the State in a broader spectrum. Proper implementation will also compel implementing agencies to work in a more climate-proof manner and make the State capable enough to get more programme-level benefits.

Figure 12: Sector wise climate-relevant budget expenditure (Rs crore)

	Budget Expenditure (Rs crore)		
	2012-13	2013-14	2014-15
Panchayati Raj and Drinking Water	5,114.86	7,569.32	8,204.96
Water Resources	2,459.48	3,315.82	4,423.40
Health & Family Welfare	2,023.14	3,063.21	3,452.49
Housing & Urban Development	903.34	1,023.50	1,690.85
Rural Development	896.49	771.04	1,536.31
Agriculture	594.99	798.24	1,297.63
Forests and Environment	265.81	957.54	1,121.23
Energy	940.25	1,537.08	864.05
Transport	168.06	178.90	381.14
Fisheries and Animal Resource Development	144.20	188.03	282.42
Revenue and Disaster Management	0.56	5.58	8.31
Total	**13,511.18**	**19,408.26**	**23,262.79**

Note: Sectors arranged in descending order of 2022-23 data.
Source: Odisha Climate Budget, 2022-23

Section 6

Bringing in more cohesion in public financing of climate actions by the State

Odisha has been implementing several policies for climate mitigation and low-carbon development, pertaining to the energy and transport sectors, initiated by the Government of Indi). It has also put in place its own policies, and these are often revised in accordance with the Central Government's policies on mitigation. In fact, under its rubric exclusive policies for promoting the generation of electricity from solar, wind and biomass have been promulgated over the years. The norms and guidelines stipulated under the policies have led to a greater alignment of the Odisha RE programme with the national missions and policies and bringing cohesiveness for leveraging financing.

Other than Apart from renewable energy projects, other climate mitigation actions, such as Energy Efficiency (EE) measures and development of low-carbon transport, largely follow Central government guidelines. Some major Central government programmes pursuing energy efficiency include LED-based lighting for streets, domestic spaces, and industrial and building sectors. The Odisha tate Road Transport Corporation (OSRTC), which is a state-level PSU that provides road transport facilities to passengers in the State, largely manages its public transport system through buses. The Department of Commerce and Transport is responsible for procuring buses and planning mass transport. The

Figure 13: Existing Policy and Intuitional Setup for various Climate Mitigation Action Agency (CCMA) other than Renewable Energy

Odisha Policies for CCMA	Rural Electrification, Strengthening Power Distribution & Transmission	Energy Efficiency and Energy Conservation (EE & EC)	Low Carbon Development (LCD) of Transport system	Sustainable Habitat (waste to energy, EE street lighting & green buildings etc.)
Policy & Regulations	National Electricity Policy, 2005, Adopted by state of Odisha	State Energy Conservation (EC) Mission under the Energy Conservation Act, 2001	• Odisha Electric Vehicles Policy, 2021 • National Waterways Act, 2008, for Inland Water Transport	Odisha Energy Conservation Building Code (OECBC)
State Government's Departments and Institutions	Power Department Odisha Power Transmission Corporation Limited Zonal Electricity Supply Company of Orissa Limited (ESCO) of four regions: CESCO, WESCO, NESCO and SOUTHCO (CEA)	Engineer-in-Chief Electricity-cum-Principal Chief Electricity Inspector, Odisha	Department of Commerce and Transport Directorate of Ports and Inland Water Transport	Urban Development Department, Municipal Corporations

Source: CBGA compilation from various State policy documents

State also promotes other means of transport, such as an inland water transport, a system managed by the Directorate of Ports and Inland Water Transport (IWT).

6.1 Policy and institutional landscape for Renewable Energy

Various State government agencies and corporations have been supporting renewable energy projects to mitigate the effects of climate change. The Odisha Industrial Infrastructure Development Corporation (IDCO) has identified large areas of land under its Land Bank Scheme for renewable energy projects.

The Renewable Energy Policy of 2016 also facilitates the setting up of solar parks to help achieve economies of scale and also minimise project risks. The Green Energy Development Corporation of Odisha Limited (GEDCOL) is the nodal agency facilitating land allotment. Solar park projects are executed under two models — the GEDCOL Solar Parks model and the Private Solar Park Developer model. Each model follows a different system of implementation.

For GEDCOL solar parks, the corporation is responsible for the development of infrastructure facilities (Figure 14). Sometimes, GEDCOL may develop solar parks under the MNRE scheme for the 'Development of Solar Parks and Ultra Mega Solar Power Projects'. It may also develop these parks in partnership with the Solar Energy Corporation of India Limited (SECI) or other agencies.

Under the Private Park Developer model, the private developer procures land to set up a solar park. In case government land is identified, the private developer must apply to GEDCOL for land allotment, and it will be leased as per the Odisha Industrial Policy

Figure 14: Institutions and Policy Guidance for Setting up Solar Parks

Description

- Dedicated norms to develop solar power generation projects, solar manufacturing projects and R&D with basic infrastructure
- Aimed at obligated entities such as captive power plants
- Helps achieve economies of scale and reduce risk

Modes	GEDCOL Solar Parks	Private Developer's Solar Park
Land	• GEDCOL shall develop the Solar Parks with all infrastructure facilities • GEDCOL shall either purchase the land or take it on a long-term lease from the government • GEDCOL will provide land to project developers on a 30-year lease (facilitation charge per MW to be paid)	• Private developer shall identify, procure land, and develop infrastructural facilities • If government land is identified, GEDCOL acts as a nodal agency. Land is allocated on lease by the Government of Odisha, as per IPR 2015 (Max: 5 acre/MW) • GEDCOL will facilitate necessary permits for government lands under Orissa Land Reforms Act, 1960, if necessary
Allocation of Projects	Allocation per developer: Min: 10 MW, Max: 30% of land Competitive bidding on facilitation	Private developer may sub-let land for projects
Nodal Agency	GEDCOL	• GEDCOL monitors the project • The private developer may sub-let the land but would still be responsible for the timely execution of the project (GEDCOL Solar) • 80% of the project to be executed in 5 years; else, a fine of 3 times the lease rent per year is levied for every 1 MW shortfall until 80% is completed

Source: CBGA compilation from various State policy documents

(IPR), 2015. The private developer is responsible for developing the basic infrastructure in solar parks. The institutional requirements and guidelines to set up solar parks are described below.

6.2 Promotion of low-carbon development of urban infrastructure

In 2019, the Union government launched the 'Climate Smart Cities Assessment Framework' to provide a clear roadmap to combat climate change through mitigation and adaptation measures (MoH & UA, 2021). This framework, which is a part of the National Mission on Sustainable Habitat (NMSH), is being implemented through three programmes: Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission, and Smart Cities Mission.

Also included in the NMSH is the mandate to implement Energy Conservation and Buildings Codes (ECBC). The following sections list initiatives for urban development in Odisha and efforts made by the state government to mainstream climate concerns.

The Department of Housing and Urban Development is the main agency handling urban growth and development. The above-mentioned schemes, such as AMRUT, Smart Cities Mission, Swachh Bharat Mission, etc. have been set up in Odisha.

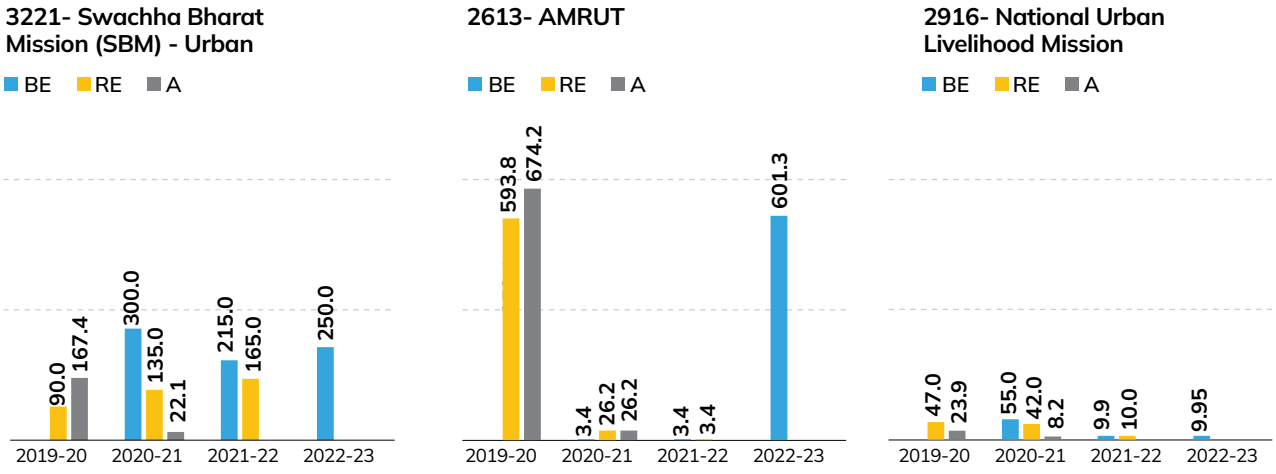
The figure 15 lists various urban development schemes and their respective allocations in the State Budget. (For a detailed breakdown on the distribution of funds, kindly refer to Annexure 1)

6.3 Low-carbon budgetary expenditure in the transport sector

The major change made by the state government in the transport sector is the introduction of Electric Vehicles. The EV policy of 2021 for Odisha primarily focuses on providing subsidy and financial

Figure 15: Urban development schemes in Odisha (Rs Crore)

Major head	2215- Water Supply and Sanitation	2217- Urban Development	2217- Urban Development
Minor Head	All expenses	All expenses	All expenses
Sub-Minor Head (Scheme)	3221- *Swachha Bharat Mission* (SBM) - Urban	2613- AMRUT	2916- National Urban Livelihood Mission

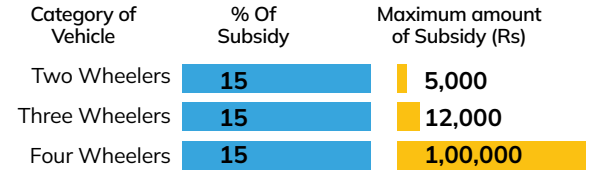


Source : Detailed Demand for Grants for the Urban Development Department

incentives for public and private vehicles. It states that nearly 82% of all new vehicles registered in the State comprise two-wheelers. It is also the segment of vehicles majorly contributing to air-pollution reduction. Three wheelers are 3.06%, while Cars (LMVs) are 7.04% of total registered electric vehicles (EV Policy 2021)(Figure 16). To smoothly transition the policy, the State government facilitates ease of business, primarily for stakeholders directly involved in the purchase and installation of EV charging stations in the State. As of 2022, there were 18,824 electric vehicles in Odisha, which is less than 0.2% of the 95,50,505 vehicles registered in the state (Kumar M, 2021). The EV policy of Odisha – 2021 has set a target of having 20% of all registered vehicles as EVs by 2025.

The Government of Odisha will provide incentives and other support to ensure that electric buses exclusively constitute at least 50% of all new stage carriages procured for city bus services in the next five years. A subsidy of 10% (maximum limit of Rs 20 lakh per vehicle) will be extended to buyers for passenger buses registered in the State. The entire

Figure 16: Purchase incentive for consumer vehicles



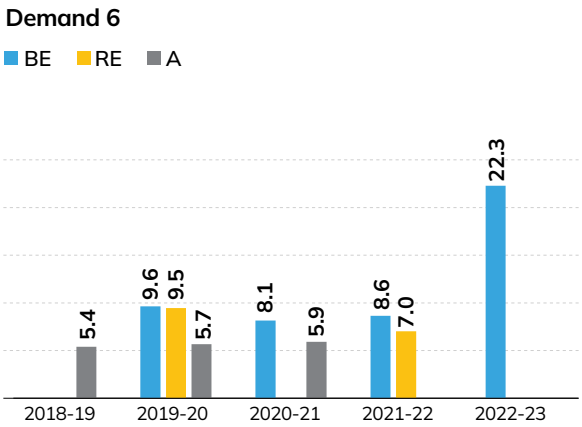
Source: Odisha EV Policy, 2021

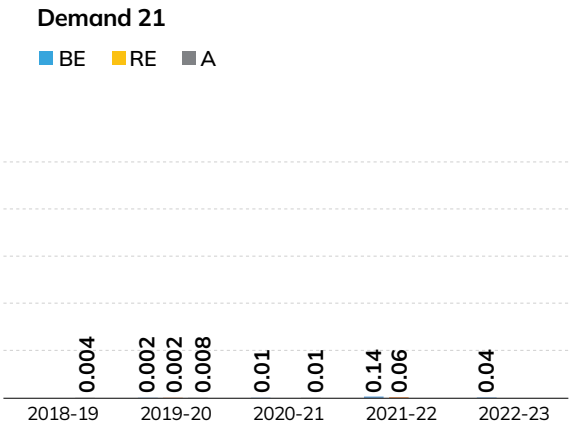
SGST on electric buses sold and registered in the State will be reimbursed during the policy period. There will also be 100% exemption on road tax and registration fees for the first four years. Interest subvention of 5% on loans for purchase of electric buses will also be made available.

Apart from achieving electric mobility in the state, the Odisha government has also invested in a few low-carbon innovations for public transport. The figure below shows public bus and inland water transport as measures taken by the state government to reduce vehicular emissions.

Figure 17: Budget expenditure on sustainable modes of transport (Rs crore)

Demand No.	Demand 6	Demand 21
Major Head	3056- Inland Water Transport	5055- Capital Outlay on Road Transport
Detailed Head	All expenditure	050- Land & Buildings
Object Head	All expenditure	0189- Construction of Bus Stand





Source: CBGA analysis of Odisha State Budget and Detailed Demand for Grants

Recycling will be a key aspect of the Electric Vehicle initiative. Electric Vehicle batteries that are left with 20-30% of their life cycle would be recycled. After every 10-year cycle, batteries will be replaced, and old ones recycled. This is done primarily to mitigate the negative impact of unsafe disposal of batteries (Odisha EV Policy, 2021).

6.4 Clean energy initiatives by the Odisha government in the agriculture sector

In Odisha, 83.3 per cent of the population lives in rural areas (as per the Population Census of 2011), and the majority of the rural workforce is engaged in agricultural activities (Odisha Economic Survey, 2022-23). Despite the adverse impact of Covid-19 and other natural calamities, agriculture and its allied sectors contributed about 20.61 per cent to Odisha's GSVA in 2021-22 and 23.63 per cent in 2020-21.

The Odisha Renewable Energy Development Agency (OREDA) is the State's Nodal Agency for promotion of renewable energy. It aims to enhance the proliferation of rooftop solar within the State for projects less than 1 MW. OREDA is also responsible for supporting Central Government schemes. It has undertaken several measures and plans to assist consumers and utilities in Odisha for large-scale implementation of rooftop solar programmes (OREDA web portal). The Government of Odisha is implementing measures to promote solar energy development in the state and the Odisha Renewable Energy Policy, 2016, has sets a target of 2,200 MW of additional solar generation by 2022. This includes generation through rooftop solar and other non-land-based solar projects. The Government has taken several initiatives to promote rooftop solar projects and is also supporting Central Government schemes for the development of rooftop solar segment. These

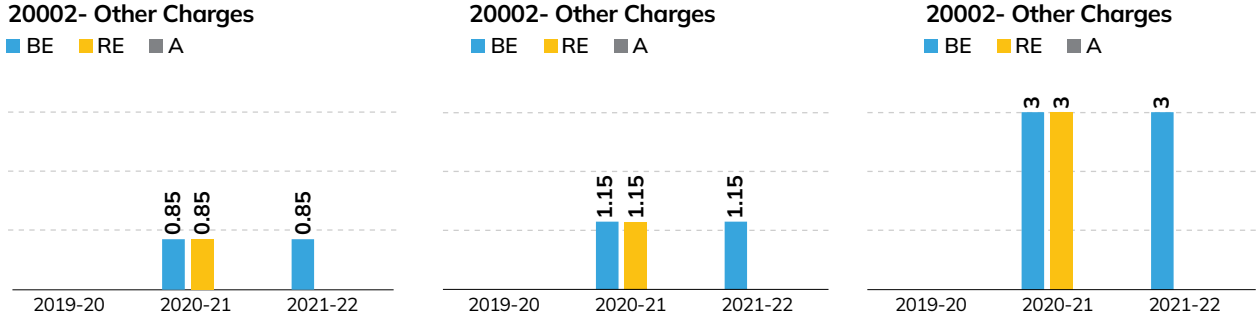
Figure 18: Distribution of electric vehicles in Odisha

Model	Total
2 Wheelers	
L1	15,772
L2	2,219
3 Wheelers	
e-cart	27
e-rickshaw	207
L5M	235
L5N	333
4 Wheelers	
M1	31
Total	**18,824**

Source: FAME-II Ministry of Heavy Industries portal accessed in September 2022

Figure 19: Expenditure on the KUSUM scheme in Odisha (Rs crore)

Major head	2401-Crop Husbandry	2401-Crop Husbandry	2401-Crop Husbandry
Sub-Minor Head (Scheme)	3442- PM KUSUM	3442- PM KUSUM	3442- PM KUSUM
Detailed Head	20002- Other Charges	20002- Other Charges	20002- Other Charges



Source: CBGA analysis of Odisha State Budget and Detailed Demand for Grants

schemes will aid in adding solar energy based cold storage, for storing agriculture produce which is fed by continued and clean energy-based power supply.

Odisha has huge potential for solar energy utilisation. It is an agricultural state and most of the land holdings being smaller than 3-4 hectares makes it feasible to use groundwater wells for irrigation. KUSUM SCHEME (Kisan Urja Suraksha Evam Utthaan Mahaabhiyan) is a central government scheme to install 1-7 HP range solar pumps in farmers' fields (OREDA, Kusum). This plan was started in 2020-21 and the state had targeted installing 5,000 pumps in 2021-2022. Detailed expenditure on the Kusum scheme can be seen in Figure 19.

Odisha's Department of Agriculture and Farmers' Empowerment made allocations for solar pumps to the tune of Rs 0.85 crore in 2021-22 (Budget Estimates). Even though the amount is miniscule compared to the overall funding requirement, it does help the State inch closer to its climate mitigation goals.

The KUSUM scheme comprises of three main components

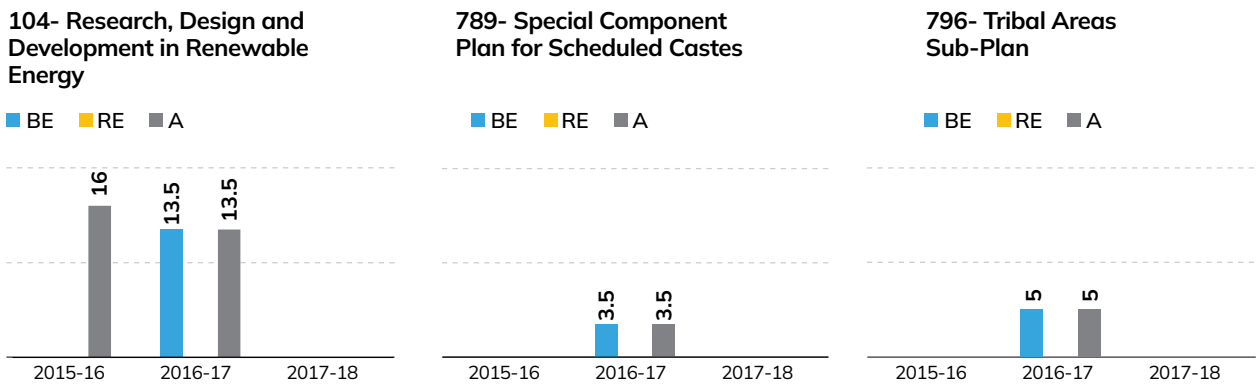
Component A: Setting up of 10,000 MW of Decentralised Grid Connected Renewable Energy Power Plants on barren land. Under this component, renewable energy-based power plants of capacity 500 kW to 2 MW are to be installed. The renewable energy power project will be installed within a five km radius of the sub-stations.

Component B: Installation of 17.50 lakh standalone solar agriculture pumps. Under this component, individual farmers will be provided support to install standalone solar Agriculture pumps with capacity up to 7.5 HP.

Component C: Individual farmers with grid-connected agriculture pumps will be provided support to solarise those pumps. The farmer will be able to use the solar power generated to meet his irrigation needs and the excess will be sold to the electricity department.

Figure 20: Budget expenditure on the use of solar photovoltaic pumps (Rs crore)

Major head	2810-New and Renewable Energy		
Minor Head	104- Research, Design and Development in Renewable Energy	789- Special Component Plan for Scheduled Castes	796- Tribal Areas Sub-Plan
Sub-Minor Head (Scheme)	2999- Solar photovoltaic pumps for irrigation	2999- Solar photovoltaic pumps for irrigation	2999- Solar photovoltaic pumps for irrigation



Source: CBGA analysis of Odisha State Budget and Detailed Demand for Grants

Section 7

Enhancing the performance of the state in achieving climate change policy targets

7.1 Power budget expenditure responsiveness

Through our analysis of priorities for expenditure "with climate responsiveness" as detailed out in the methodology section, it was found that spending on promotion of renewable energy is miniscule in Odisha's power sector budget. Therefore, the state needs to prioritise expenditure in this sector. The largest share in budget expenditure is categorised as Quite Favourable.

This is primarily because Odisha has spent much capital on secondary aspects such as transmission and distribution, or rural electrification, which only indirectly help in reducing GHG emissions. Moreover,

Figure 21 and 22: Power sector budget expenditure's responsiveness towards climate change mitigation

Figure 21: Amount under various categories (Rs crore)

	Highly Favourable	Quite Favourable	Neutral	Unfavourable	Total
2017-18 A	11.2	1,965.4	21.1	308.7	2,306.4
2018-19 A	235.9	1,764.7	22.3	123.4	2,146.4
2019-20 A	21.9	2,320.7	26.0	63.3	2,431.8
2020-21 A	2.2	1,819.0	24.4	0.0	1,845.6
2021-22 BE	52.6	1,483.7	37.6	225.0	1,798.9
2022-23 BE	954.6	1,967.8	550.1	0.0	3,472.5

Figure 22: Various categories' share in total expenditure (%)

	Highly Favourable	Quite Favourable	Neutral	Unfavourable	Total
2017-18 A	0.5	85.2	0.9	13.4	100.0
2018-19 A	11.0	82.2	1.0	5.8	100.0
2019-20 A	0.9	95.4	1.1	2.6	100.0
2020-21 A	0.1	98.6	1.3	0.0	100.0
2021-22 BE	2.9	82.5	2.1	12.5	100.0
2022-23 BE	27.5	56.7	15.8	0.0	100.0

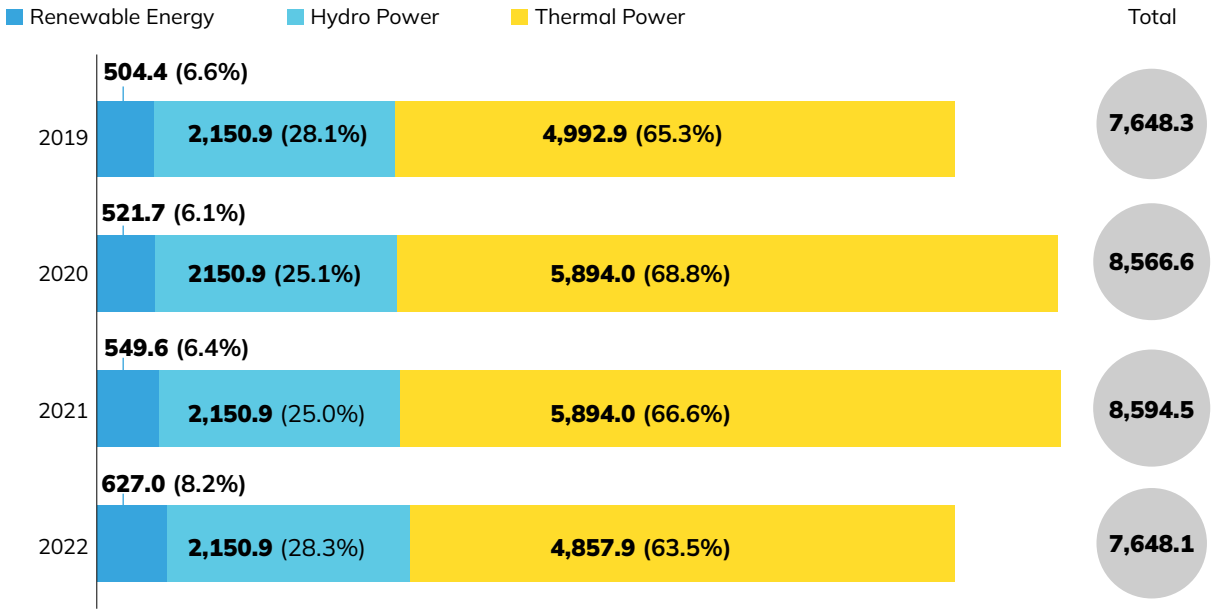
Source: CBGA analysis of Odisha State Budget and Detailed Demand for Grants for the Department of Energy, Odisha

this will only achieve a short-term goal. Annexure 1 provides the rationale used for categorisation. There was an increase in the Unfavourable category in the 2021-22 Budget Estimates (BE) in comparison to 2018-19 (A). The primary cause for this is the increase in expenditure for thermal power projects, which are sources of GHG emissions. On the contrary, there was an increase in the expenditure in the highly favourable category 2022-23(BE). This sudden increase was due the increased expenditure on generation of Hydroelectricity to the Odisha Hydro Power Corporation. In 2022-23 (BE), there was an addition of Rs. 900 crore in the form of share capital investment. This saw the renewable energy budget's share increase by 18 times. Also, the share of this category increased by 25%. A further detailed breakdown of the budget can be seen in the Annexure 1.

7.2 Progress in renewable energy capacity addition in Odisha

In terms of the installed capacity of various energy sources, Odisha has made significant progress. There has been a steady rise in the total RE capacity of the state since 2019 (Figure 23). Hydro power capacity addition has also been good. The state has also reduced the capacity addition of thermal power (a major contributor of GHG emissions) over the years. However, the dependence on thermal power remains a matter of concern, as the renewable energy sector has not been able to match the state's ambitions with its slow progress.

Figure 23: Installed Capacity of power from different sources (MW)



Source: CEA data 2019, 2020, 2021, 2022

Section 8

Improving the social development of the state

The Odisha Skill Development Authority is the state's primary agency carrying out skilling programmes for youth, especially schemes and programmes promoted by the union government. The following are sector-specific schemes for the development of GER of the state.

8.1 Agriculture

Deen Dayal Upadhyaya Grameen Kaushalaya Yojana

This union government scheme focuses on rural youth between the ages of 15 and 35 years from poor families. Over 180 million people, or 69% of the country's youth population between the ages of 18 and 34 years, lives in rural areas. Of these, youth from poor families with no or marginal employment number about 55 million. In Odisha, the scheme focuses on remote regions that have inadequate infrastructure. The skill enhancement of youth in such areas would help support the social and economic programmes of the state and the nation (Nayak, 2016).

Kalia Yojana

Krushak Assistance for Livelihood and Income Augmentation or Kalia is a farmer welfare scheme financing agriculture and insuring cultivators, which is essential to eradicate poverty and boost shared prosperity in the state. The State Government aims to lend funds to farmers through the scheme, with an all-inclusive and flexible support system, ensuring accelerated agricultural prosperity. The main aim is to empower the farmers of the state with loan options. The accessibility of financial services will help ensure agricultural productivity and increase the incomes of farmers, especially small and marginal landholders.

Odisha Fishpond Yojana

Odisha currently produces 3.93 lakh MT of fish from inland resources and imports over 40,000 MT of freshwater fish from neighbouring states per annum to meet demand. The Odisha Fisheries Policy-2015, aims to create 3,000 hectares of freshwater area annually to double fish production over the next five years (*Matsya Pokhari Yojana* Guidelines).

The programme aims to expand freshwater fish production in the state. It aims to get 1630 ha freshwater fisheries by 2022-23. New tanks will be excavated for intensive pisciculture, with subsidy support under the state plan.

According to the plan, any farmer with 0.2 hectare to 2.00 hectares of excavated area, with a minimum water depth of 6 feet, can get a bank loan of Rs 8.5 lakh for the creation of a new water tank. The government will provide 50% of the amount (Rs 4.25 Lakh) as a subsidy. This scheme will fill the gap in fish production in the state and improve efficiency.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

This is the flagship scheme of the Ministry of Skill Development & Entrepreneurship (MSDE). The objective of this skill certification scheme is to enable a large number of youths to take up industry-relevant skill training that will help them in securing a better livelihood. The goal of PMKVY is to develop high-quality skilled employees, who will meet the utilisation needs of various sectors, including the food processing, tourism, beauty and wellness,

gems and jewellery, handicrafts, plumbing, textiles, mobile repair, three-wheeler repair, solar panel repair, health and family welfare sectors (Vision of PMKVY, Tripathi 2021).

8.2 Urban/Rural Development

Biju Gram Jyoti Yojana (BGJY)

The "Biju Gram Jyoti Yojana" has been launched to electrify villages/habitations having a population of less than 100 that are not covered under the *Rajiv Gandhi Grameen Vidyutikaran Yojana* (RGGVY).

The main scope of BGJY is-

- Providing electricity to villages where the cost of electrification for each individual will cost less than 3.5 lakh.
- Upgrading the existing electrification system to handle a greater load at Rs 1.5 lakh per person in the village.
- Give free electricity connections to BPL households that are not connected.

The scheme follows a proper laid out mechanism for its implementation; the district collector's office is the nodal agency for implementation of the scheme. Funds have been placed with all the collectors. A District Electrical Committee has been conceived for the Scheme under the chairmanship of the collector to decide the list of habitations having a population below 100 that are to be taken up for electrification, the list of BPL households to be electrified, and the number of locations to be energised (Ministry of Tribal Affairs, 2017).

8.3 Skill Development

Suryamitra Skill Development Programme

This is a national level programme of the Ministry of New and Renewable Energy that aims to widen the awareness and efficacy of solar Initiatives in the country through various training centres and skilling programmes. The goal of the programme is to improve the skills of the youth so that they can capitalise on jobs created by the solar industry. They will thus be well-equipped to work on the operation and maintenance of equipment and their skills will be useful in India and abroad as well. This programme is a part of the Make in India Scheme (India Filings, 2021).

Green Skill Development Programme

The Green Skill Development Programme (GSDP) was initiated by the Ministry of Environment, Forest and Climate Change to train individuals in jobs that will not only be financially sustainable but would also protect the ecosystem and biodiversity.

The programme will help produce skilled workers who are technically sound and committed to the sustainable development goals. In turn, this will help governments attain objectives such as Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), National Biodiversity Targets (NBTs), as well as Waste Management Rules (2016).

In Odisha, the Centre for Environmental Studies implements the GSDP programme. The Centre offers 5 certificate courses: Eco-tourism; Para-taxonomy,; Environment Impact Assessment; Waste Management; and Operation & Maintenance of effluent treatment plants (CES, Odisha).

Following completion of the course, the candidates can work in zoos, wildlife sanctuaries, national parks, biosphere reserves, botanical gardens, nurseries, wetland sites, State Biodiversity Boards, Biodiversity Management Committees, Wildlife Crime Control Bureaus, and in the private sector. Most importantly, the course enables individuals to be financially self-reliant.

Section 9

Policy takeaways and recommendations for the State's transition towards GER

The creation of a **Green Economy** would mean moving away from the business-as-usual approach and follow a more environmentally efficient path. There is a need to have a clear vision at the state level with the support of the public finances to achieve a green economic recovery.

Odisha has laid down strategies in various sectors of the economy to make them responsive to the needs of climate change mitigation. However, most of the existing strategies operate in a sporadic manner and lack a long-term vision for financing. To institute a framework for a green economic recovery and leverage climate financing, each sectoral policy needs to mainstream climate change concerns, environmental sustainability, and inclusivity. Some key observations from our assessment on the progress of Odisha's climate actions follow:

- The Government of Odisha has set up a target of 2750MW of renewable energy sources by 2022 to reduce its dependence on conventional sources of energy. In 2021, Odisha made significant progress in adding renewable energy capacity with an increase of 68MW over the previous year. The unachieved target in the Odisha Renewable Energy Policy needs to be achieved through planning.

- Till 2021, Odisha had an installed solar capacity of 430MW. However, the State has a production potential of 2,578 MW. This gap between potential and realisation is mainly due to a gap in capital investments and the policy framework. Odisha has also lagged in its renewable energy policy target of 2200 MW by 2022. The approach needs to change drastically. At present the state is labelled only as a mineral rich state but there is immense potential for the state to be a self-sufficient solar producer. Odisha faces a big challenge in meeting its energy demands. Solar energy is one of the solutions to meet the energy demands of the future. Both the Government of Odisha and the Central Government have implemented different policies for development of solar energy in the state. The Government of Odisha has offered a number of incentives for the utilisation of solar energy in the state, and it supports the developers/investors by providing different subsidies and The Ministry of New & Renewable Energy (MNRE) is also thinking about investing in development of solar energy for the state.

- By 2025, the State's electric vehicle (EV) policy targets having one in every five vehicles registered in Odisha as an electric vehicle. This is an ambitious target, even for states that have a head start in EV adoption. Currently, only 7,725 of the 95.50 lakh vehicles registered in Odisha are electric. The State's EV policy, which was announced in 2021, does not contain details of allocation of funds, or plans to procure EVs for public transport, ambulances, etc. It also does not speak about the total employment that would be generated as a result of adoption of electric vehicles. With the new global developments in the EV segment, such as the phasing out of combustion vehicles by 2035 it is important to keep in mind that there would be immense pressure on the state government to meet national standards, which would be formulated in line with global policies. Even though it will not be possible for any state in the country to

phase out internal combustion engine vehicles, an aggressive approach with yearly targets for EVs could be a good start for Odisha.

- Despite Odisha having many skilling programmes, data on these initiatives is not readily available. For instance, there are no details on the number of skilled personnel who have received training in renewable energy installation and operations or even the demand for such skilled personnel. There is also no information on the government's specific target on imparting skills or upgradation, or on the manpower requirement for upcoming renewable energy projects in the State. It is also critical to bear in mind that although the workforce requirement for off-grid technologies in remote areas is large, they do not always present full-time employment opportunities. Therefore, retraining/upgrading the skills of locally placed semi-skilled technicians and service providers for off-grid renewable technologies could be a practical solution to reduce the skill gap in remote areas. Odisha has done a great job in creating employment opportunities for the youth through its skilling programmes but there need to be specific programmes that directly lead to green jobs. There need to be more training centres and more courses. If the long-term goal of the state is to achieve a green economic recovery, then green job skilling programmes are a must.

- The state government has introduced a dedicated Odisha Budget with an appraisal mechanism and a separate budget on climate change — it is the first state to do so. This budget statement has identified priority climate actions based on their climate relevance and sensitivity. This also provides a measure of transparency to potential investors and improves investor confidence in government policies. Odisha is the first state in the country to receive clearance for a project with Green Climate Fund (GCF) financing. Odisha's Climate Budget 2020-21, which is based on a climate impact appraisal framework, is definitely a pioneering and positive step in the right direction that other states in country should follow. However, this climate budget could have been improved upon by providing monitoring and verification indicators against each priority action. Odisha could have thought of providing green budget statement where the budgeting allocations climate mitigation interventions along with other environmental objectives can be suggested.

- Odisha is heavily dependent on external loans for its transmission and distribution network. Often, this increases the burden on state finances due to the requirement of co-financing by the grantee state. Currently, high Transmission and Distribution (T&D) losses are proving a debacle for private investment in the RE sector. The state should explore new climate finance mechanisms (like Green Bonds) to leverage investments in transmission and distribution infrastructure, in association with technical assistance from IREDA and MNRE. The state can demand a direct grant for the renewable energy sector from the subsequent Finance Commission.

- Urban Development with low-carbon development: The Climate Smart Cities Assessment Framework (CSCAF) of the Ministry of Housing and Urban Affairs is an initiative that was launched in February 2019 for 100 Smart Cities, as a guiding framework on climate actions. CSCAF serves as a tool for states and cities to assess their current climate situation and provides a roadmap for them to adopt and implement relevant climate actions. Odisha should set guidelines on implementing such union-level programmes for climate-smart cities. There is a need to make climate change mitigation concerns an integral part of Urban Development programmes and schemes in Odisha, as it brings in local co-benefits by reducing air pollution, and improving the longevity of capital assets.

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Annexure 1: General Framework for Categorization of Expenditure for climate change mitigation responsiveness

We unified the five tiers of budget information for rating the responsiveness of budget expenditure for climate change mitigation particularly for clean energy transition. Broadly, rationale used for categorization of budget expenditure of states is as follows;

Categories of Budget Responsiveness

Highly Favourable | Quite Favourable | Neutral | Unfavourable

Nature of Budget Expenditure		Rationale for Categorisation
New and renewable energy related expenditure (major Head 2810)		This expenditure, under major Head 2810, supports a transition towards low-carbon development (LCD) of the power sector with the promotion of renewable energy.
Expenditure related to hydroelectric power generation		Budget lines related to "hydropower generation" are categorised under the highly favourable category 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 a separate source of energy.
Expenditure related to energy efficiency initiatives		Improving energy efficiency is the key tool in reducing GHG emissions aside from addition of renewable energy and energy conservation. The Odisha State Scheme for Domestic Energy efficient-LED lighting "*Amma Ghar LED lighting*" is an example.
Expenditure on 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 renewable energy while transitioning away from fossil-fuel based energy. Investments in SMART grids are an example.
Expenditure related to intra-state (within the state) distribution networks		Expenditure on inter-state distribution infrastructure supports the integration of renewable energy by improving the robustness of the power system with a reduction in the Average Transmission, Distribution & Commercial (AT& D) losses shown by the power utilities in states. In addition, it indirectly supports the state in promotion of net-metering based off-grid RE technologies.
Expenditure with respect to rural electrification programmes by States		Most of the expenditure with respect to rural electrification comes 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 support for a 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 on administrative or secretariat purposes, salaries, allowances etc. However, expenditure related to salaries of employees in the Renewable Energy Department is categorised as Highly Favourable.
Expenditure related to thermal power generation (largely fossil-fuel based)	This expenditure is non-coherent with the Indian commitment for climate change mitigation and a clean energy transition because it enables activities that significantly contribute 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 placed in the Quite Favourable Category. However, in this version of the methodology, we have kept such expenditure in the Unfavourable Category, subject to future refinement.
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 has therefore been categorised as unfavourable. There is a need to develop a roadmap by states in phasing out free subsidies for fossil fuel-based power supply as it reduces the market scalability of off-grid RE technologies. It also locks in state expenditure on technologies unfavourable to reducing GHG emissions and inconsistent with the goals 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 and subsidised free electricity supply for farmers. However, since such initiatives are still in the planning stage, this version of the methodology has categorised this expenditure as Unfavourable and subject to future refinements.
Expenditure meant for providing grant-in-aid assistance in public sector and other undertakings such as the State's power holding company	This expenditure is categorised as difficult to categorise as it requires supplementary information from the power department to confirm whether there was any spending to justify grant-in-aid assistance to the State PSU for promotion of renewable energy.

Annexure 2: Climate Change Relevance Share — CCRS expenditure (Rs crore)

	CCRS Expenditure, 2020-21(Actual)			CCRS Expenditure, 2021-22 (RE)			CCRS Expenditure, 2022-23 (BE)		
	Total	Positive	Negative	Total	Positive	Negative	Total	Positive	Negative
Agriculture	595.0	39.7	-627.7	798.2	50.6	-831.8	1,297.6	83.3	-1,325.5
Revenue and Disaster Management	0.6	0.1	-0.6	5.6	1.0	-3.3	8.3	1.4	-5.0
Energy	940.3	11.0	-881.7	1,537.1	4.8	-1,781.4	864.1	20.4	-866.7
Fisheries and Animal Resource Development	144.2	1.8	-252.4	188.0	5.3	-323.4	282.4	21.2	-416.0
Forests and Environment	265.8	19.2	-204.6	957.5	20.8	-570.0	1,121.2	22.1	-674.4
Health & Family Welfare	2,023.1	18.8	-1,255.7	3,063.2	32.9	-1,955.9	3,452.5	26.2	-2,359.6
Panchayati Raj and Drinking Water	5,114.9	169.4	-3,803.0	7,569.3	240.0	-4,024.5	8,205.0	177.6	-4,777.1
Rural Development	896.5	129.8	-1,047.7	771.0	101.4	-955.0	1,536.3	143.7	-1,734.6
Transport	168.1	0.0	-145.7	178.9	0.0	-145.4	381.1	0.0	-291.5
Housing & Urban Development	903.3	56.6	-768.1	1,023.5	88.9	-849.5	1,690.8	162.5	-1,376.6
Water Resources	2,459.5	115.6	-2,409.0	3,315.8	216.8	-3,200.5	4,423.4	302.3	-4,155.7
Total	13,511.3	562.0	-11,396.2	19,408.1	762.5	-14,640.7	23,262.8	960.9	-17,982.7

Green Economic Recovery of Odisha

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About the Project:

Building Knowledge and Capacity for Green Economic Recovery of the States in India

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 develop 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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