



Landscape of Policies and Budgets for Cohesive and Inclusive Low- carbon Development in Rajasthan

Roundtable Discussion
Towards Inclusive and Cohesive Low-carbon
Development in Rajasthan

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24 November, 2022

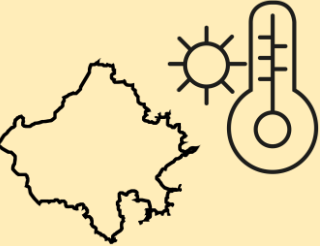
Structure of the Presentation



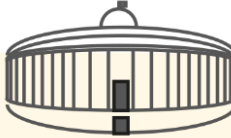
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Context



Rajasthan falls in area of **high climate sensitivity**, significant vulnerability and low adoptive capacity, as reiterated in the Draft Climate Change Policy, 2022.



Government's role through a mix of policy, budgetary support and regulatory instruments, is a key driver for low-carbon development.



The **Covid-19 pandemic** has affected budgetary spending in most States, especially for the energy sector, and have resulted in increased inequality and unemployment (CMIE, 2022).



Rajasthan government has introduced several **policy and regulatory initiatives** for promoting low-carbon development in the recent past.

Study objectives



To assess the **impact of the pandemic** on the State's overall spending priority for the energy sector.

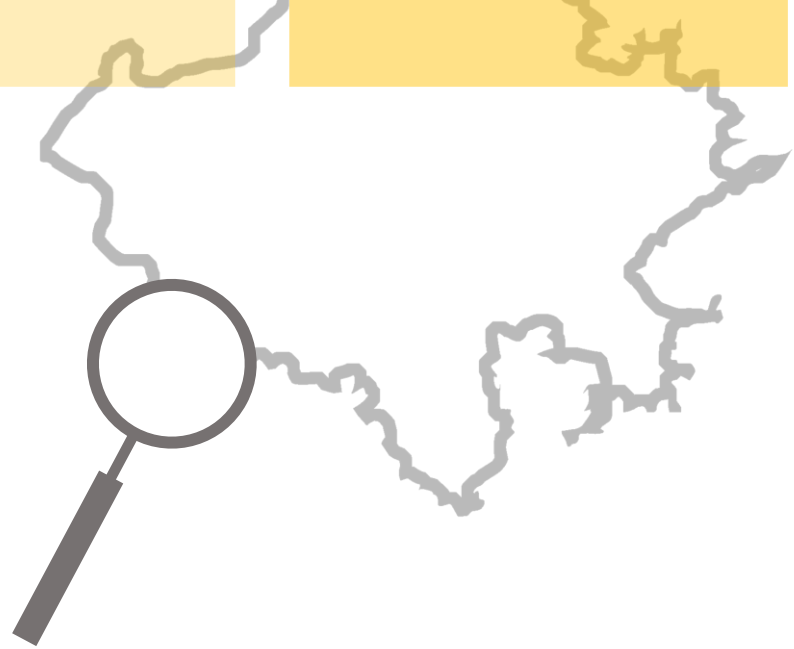
To track the financial resources available from various sources, for **expenditure on renewable energy** in Rajasthan.

To understand the responsiveness of State budgetary **expenditure towards low-carbon development.**

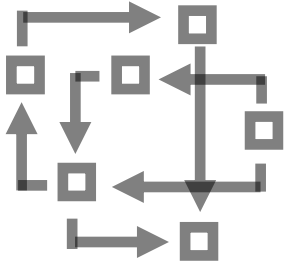
To unpack the **policy landscape of the energy sector (and transport sector)** in Rajasthan, for a long-term low-carbon development trajectory of the State economy.

To assess:

- a) PM- KUSUM with co-benefit of enhancing farmers' income
- b) Skilling related schemes of the government from the **inclusion lens**



Methodology



Tracking of State finances through different Channels

Categorisation of energy sector budget based on its favourability towards mitigation action

Secondary data available in government policy documents

Different channels of energy financing

Institutional loans routed through budgets

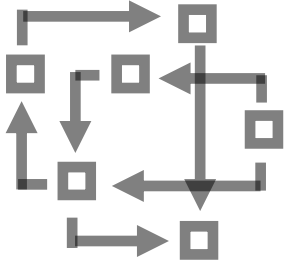
State Budget Expenditure – Capital and Revenue

Central PSUs - SECI & IREDA transfer to BREDA

Finance Commission Grants for Clean Energy

Rajasthan State Financing for Clean Energy

Methodology



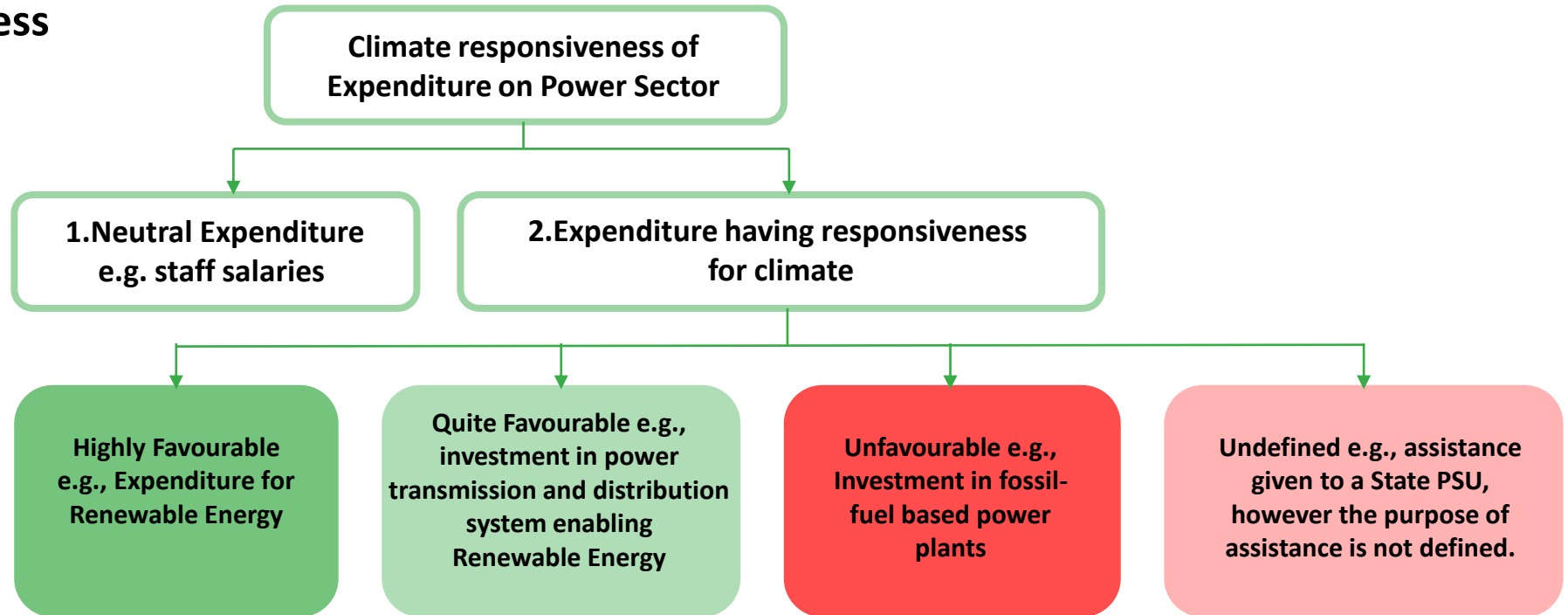
Categorisation of energy sector budget based on its favourability towards mitigation action

Climate Responsiveness Categorisation

Step 1: Identification of major codes 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)

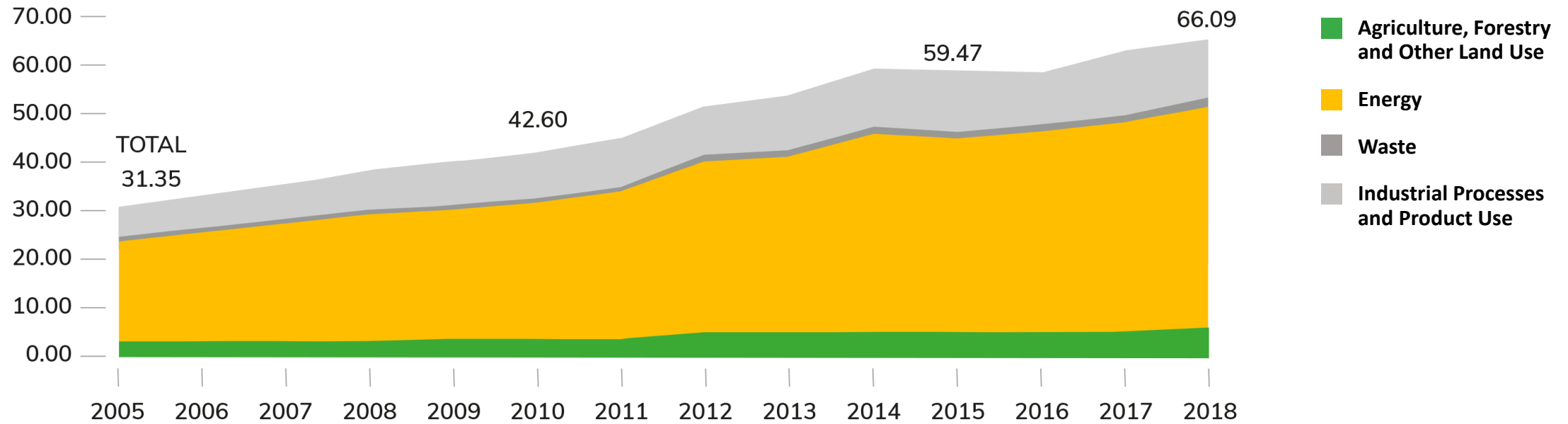


Why the Focus on the Energy Sector

For low-carbon development of the economy of Rajasthan, clean energy transition is the required key intervention

GHG Emission Profile of Rajasthan, 2005-2018

Emission estimates (Mt CO₂e)

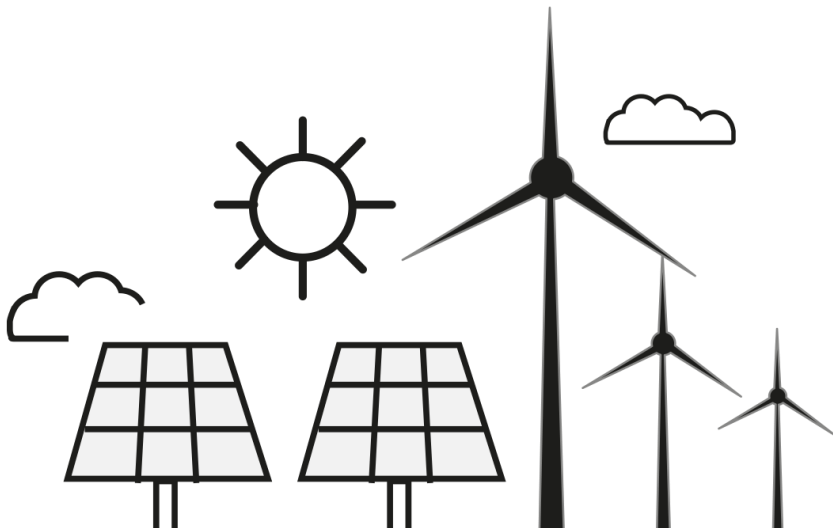
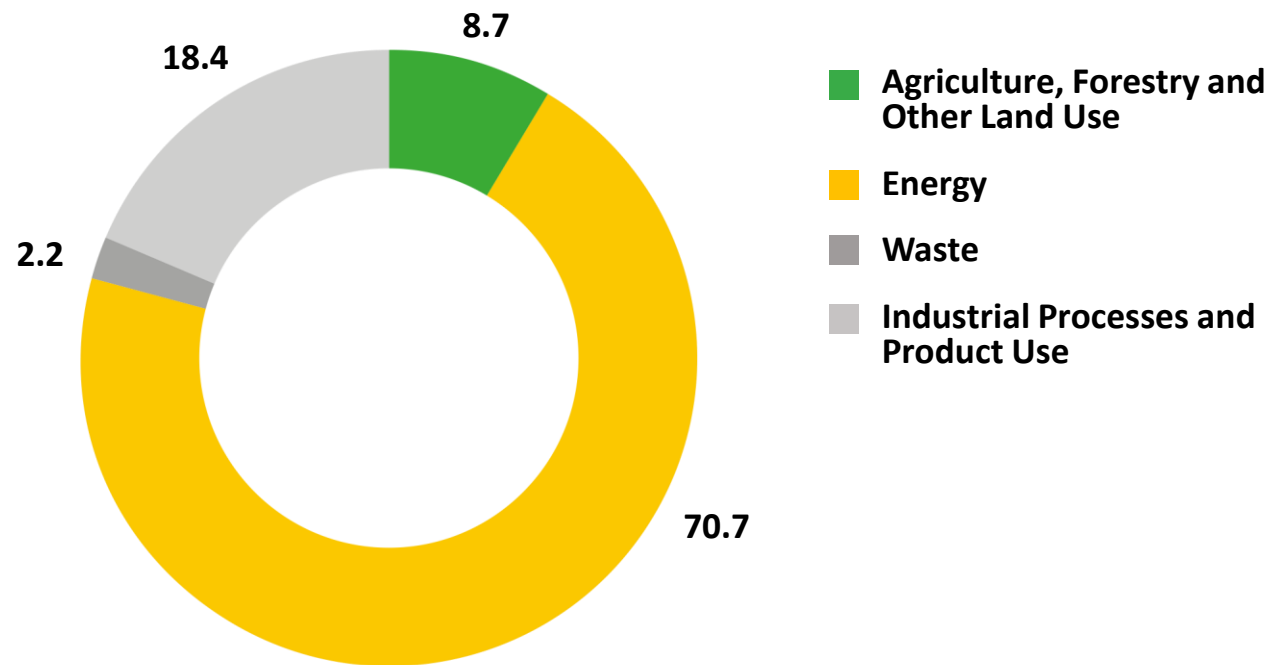


Source: <https://www.ghgplatform-india.org/economy-wide/>

Why the Focus on the Energy Sector (contd.)

For low-carbon development of the economy of Rajasthan, clean energy transition is the required key intervention

Fig.: Share of Various Sectors in GHG Emission in Rajasthan, 2018





Assessment of the Landscape of Efforts, Budgets and Policies for Low-carbon Development in Rajasthan

Assessment of the Landscape of Efforts, Budgets and Policies for Cohesive Low-carbon Development of Rajasthan



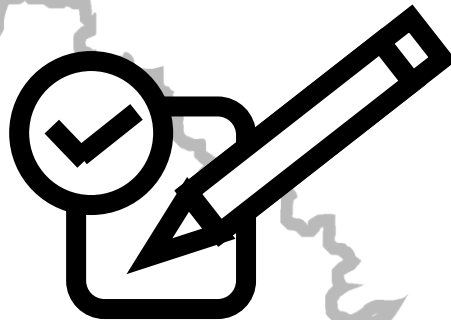
1. State performance of Renewable Energy (RE) Addition

2. State Budgetary provisions

- Possible Challenges in RE Transition in Rajasthan
- Government Financial Support for State DISCOMS Essential to Enable RE Integration with the Grid

3. Additional Financing Channels to the State for RE Transition

4. Cohesiveness of RE and EV policies for leveraging private domestic and international finance

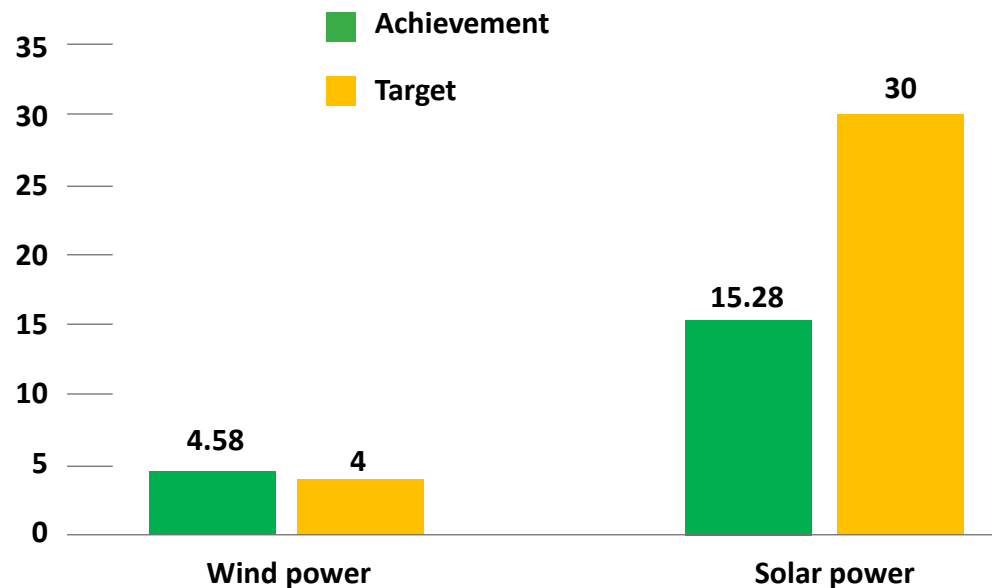


Significant Progress in RE Capacity Addition in Rajasthan



Rajasthan is one of the few States in India that has achieved its target of wind energy capacity addition well within time. It may even achieve its target of solar energy capacity addition by 2024-25. But more needs to be done.

Fig.: Target vs. Achievement in Rajasthan's Wind and Solar Energy Capacity Addition

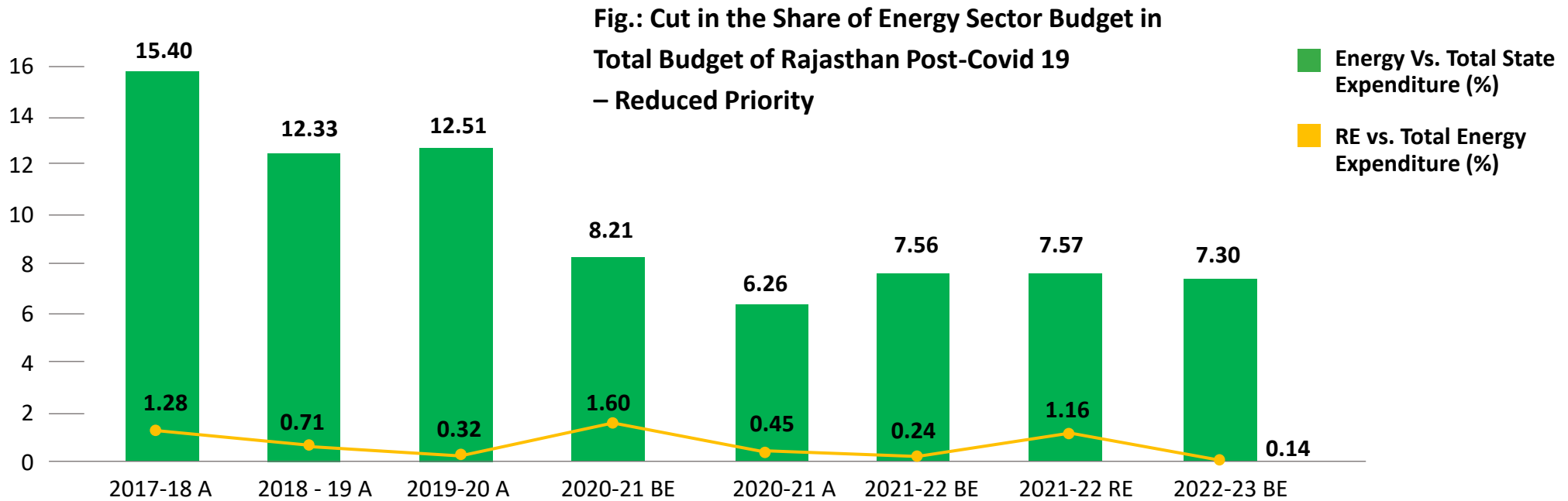


Source: MNRE Progress Achievement Data (2022)
Achievement as on 30.09. 2022
Target as given by Rajasthan Solar Energy Policy and Wind Energy Policy

State Budgetary Provisions

Cut in government budget for the energy sector post the Covid-19 pandemic in Rajasthan could imply reduced priority for the sector

Although capacity addition for RE in Rajasthan is driven by private sector investment, the amount allocated from the State budget in 2022-23 (BE)—a mere 0.14 per cent of the total energy budget—is lowest since 2017-18



Possible Challenges in RE Transition in Rajasthan



Continuing high transmission and distribution losses could pose a constraint for continuing interest for private investment in the RE sector in the future.

Also, AT&C loss (%) in Rajasthan in 2020-21 at 26.23 stands higher than national average of 22.32.

Source: PFC, 2021

Target vs. Actual Distribution Losses of JVVNL, AVVNL and JdVVNL (in %)

■ Target not achieved

Year	JVVNL		AVVNL		JdVVNL	
	Approved	Actual	Approved	Actual	Approved	Actual
2016-17	22	25.48	20	22.1	18	21.69
2017-18	18.5	21.06	17.5	20.15	16.5	19.33
2018-19	15	20.54	15	18.03	15	23.12
2019-20	15	17.21	15	14.48	15	19.38
2020-21	15	19.44	15	15.15	15	22.46

Source: RERC, Tariff Order, September 2022

Possible Challenges in RE Transition in Rajasthan (contd.)



RPO Targets in Rajasthan Not Achieved Even Before Covid-19

Target vis-a-vis achievement of RPOs for DISCOMS in Rajasthan, 2013-1017

■ Target not achieved

	Wind		Biomass		Solar		Total	
	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
2013-14	5.7	5.92	1.5	0.42	1.0	0.97	8.2	7.21
2014-15	6.8	5.60	0.7	0.41	1.5	0.69	9.0	6.71
2015-16	7.3	6.27	0.9	0.35	2.0	0.96	10.2	7.58
2016-17	7.8	7.41	1.1	0.40	2.5	1.17	11.4	8.98
2017-18 (Prov.)	8.2	7.22	1.3	0.52	4.75	2.89	14.25	10.62

Source: SOR RPO Amendment Regulations, RERC, 2019

New RPO targets set for DISCOMS in Rajasthan (excluding hydropower)

	Non-solar	Solar	Total
2021-22	9.98%	8.50%	18.48%
2022-23	10.45%	9.50%	19.95%
2023-24	11.16%	10.50%	21.66%

Source: Draft RERC RPO VII Amend. Reg, 2021

Government Financial Support for State Discoms Essential to Enable RE Integration with the Grid



In order to ensure that the Discoms are financially stable and not overburdened with high losses, **government financial support is essential.**

Need to reform distribution to enable larger renewable energy into their grids. **Cut in the recent years budget does not bode well** in this aspect. The State needs to either create fiscal space or seek alternative sources of finance.

Discoms are supported by the Govt of Rajasthan through: Tariff subsidy for agriculture, BPL and small domestic consumers; Subvention through ED retention and compounding charges; **Equity stake in various capital expenditure schemes**, etc.

On an average, seventy-five per cent of Rajasthan's energy budget goes towards Discom subsidies.

Share of capital expenditure, necessary for building Transmission and Distribution infrastructure, declining.

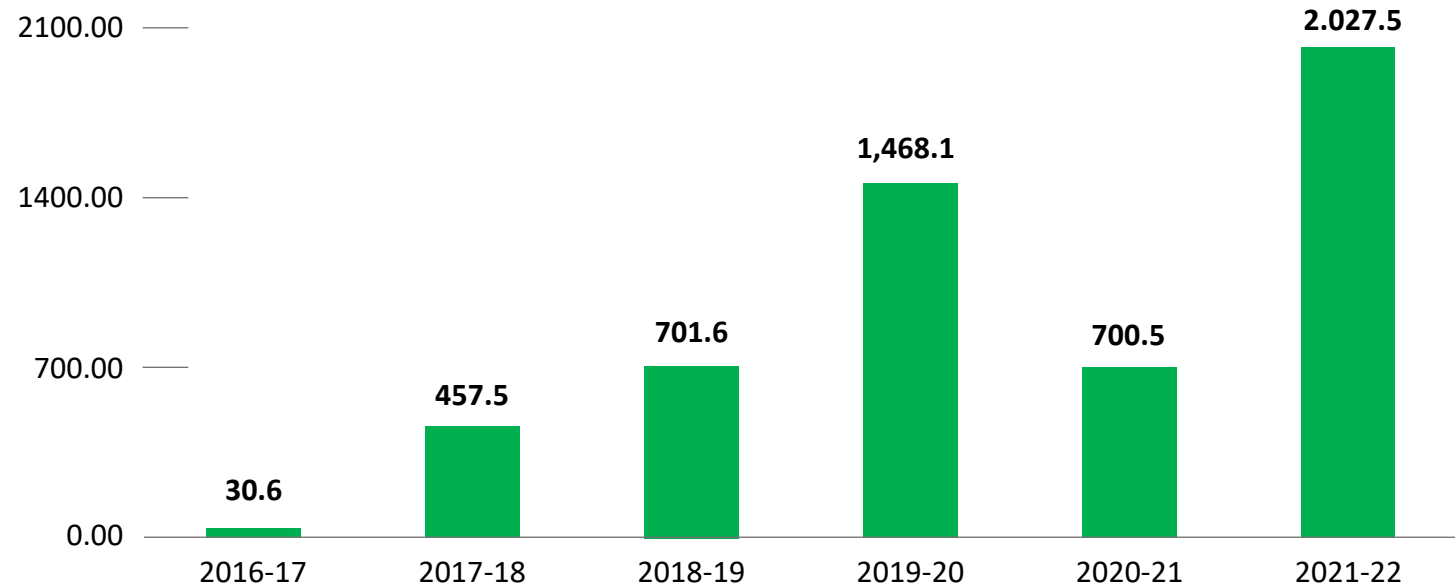


Additional Financing Channels to the State for RE Transition

Fund transfers from Central PSU- IREDA has been fairly consistent and highest in 2021-22 since FY 2016-17

However, no grants for Renewable Energy sector in the 15th Finance Commission Recommendations to any State

Fig: Disbursement through central PSUs such as Indian Renewable Energy Development Agency (IREDA) to Rajasthan (Rs. crore)



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

Key Objectives of Rajasthan Solar Energy Policy, 2019

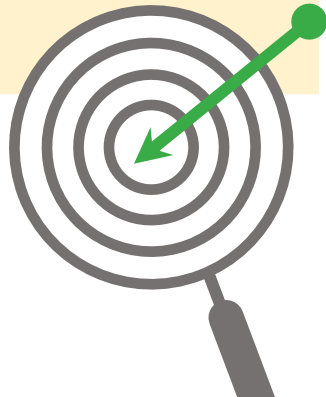


To be a **major contributing** State for achieving the national target of 100 GW capacity of solar energy as a part of global commitment

To **promote new technologies** in solar energy generation and storage to make solar energy more cost competitive and reliable source of energy for consumers

To facilitate **development of infrastructure** in generation, transmission, distribution and manufacturing sector of renewable energy

Human resource development with particular reference to renewable energy and generation of employment opportunities



Create better atmosphere to innovate and invest for **micro, small and medium enterprises** for harnessing solar energy

To facilitate and support **R&D activities** in the field of RE. Nurturing better products, processes and systems to promote growth of renewable energy

Incentives Offered to Build Cohesiveness for Private Investors in Rajasthan Solar Energy Policy, 2019



Investment subsidy on SGST

- Exemption of 90% of State Goods and Services Tax (SGST) to solar energy equipment manufacturers

Exemption/Relaxation from Electricity Duty for 7 years for

- Rooftop PV Solar Power Systems with Net Metering.
- Utility Grid Solar Power Projects for Captive Use within as well as outside premises of a consumer of Rajasthan.
- Solar Power Projects with storage system for captive use or third-party sale.
- Renewable Energy based EV Charging Station providers.
- Manufacturing of Solar energy equipment by MSMEs.

Concessions for Transmission and Wheeling charges

- 50% of normal transmission and wheeling charges for a period of 7 years from date of commissioning of the project for Utility Grid Solar Power Projects for Captive Use outside the premises of consumer of Rajasthan and for grid connected Solar Power Projects for Third Party Sale set up for sale of power within State through open access.
- 25% of normal transmission and wheeling charges for a period of 7 years from date of commissioning of the project for Solar Power Projects with storage system for captive use or third-party sale.
- 100% exemption in normal transmission and wheeling charges for a period of 10 years from date of establishing of Electric Vehicle (EV) charging station.

Grant of incentives available to Industries

- Different types of incentives available to industrial units under the Rajasthan Investment Promotion Scheme (RIPS) will be applicable to Generation of electricity from Solar Power Plant as well.

Land allotment at concessional rates

- At 50% concessional rate for first 500 renewable energy-based EV charging stations installed within 5 years from the date of commencement of the Policy.
- At 50% concessional rate for MSMEs in industrial area/any other area.

Objectives and Targets of Rajasthan EV Policy, 2022



Objectives



Support the adoption of EVs in both personal mobility and public transport segments.

Enable the creation of a robust network of EV charging stations & battery swapping stations catering to all types of EVs with focus on clean energy sources.

Foster R & D and skill development in the State's electric mobility space.

Promote the manufacturing of electric vehicles and batteries in the State by providing appropriate incentives under RIPS-2019.

Targets

Category	Target
Two wheelers	15% Electric Vehicle share in new vehicle registrations
Three wheelers	30% Electric Vehicle share in new vehicle registrations
Four wheelers	5% Electric Vehicle share in new vehicle registrations
Buses	Phased transition to e Buses used in routes connecting priority cities
Manufacturing	Manufacturing target of 35 Lakh unit per year in the next 5 years.

Incentives Offered to Build Cohesiveness for Private Investors in Rajasthan EV Policy, 2022



Vehicle Category	Incentives	Number of EVs to be incentivised
All eligible EVs	100% SGST reimbursement	As per limits indicated below for each category
Two Wheelers	Upfront Incentives as per battery capacity Fixed Battery: from INR 5,000-10,000; Swap-able Battery: from INR 2,000-5,000	1,00,000 e-2W
Three Wheelers (e- Rickshaw, e-Cart, e- Auto and e-Goods Carrier)	Upfront Incentives as per battery capacity Fixed Battery: from INR 10,000-20,000 Swap-able Battery: from INR 4,000-10,000	25,000 in e-Rickshaw, e-Cart category
		25,000 in E-Auto and E-Goods Carrier category
	Retrofit kit - 15% of the retrofit kit cost (including taxes) up to INR 10,000 per vehicle	3,000 Retrofit vehicles
Four Wheelers (4W): Personal Cars/ Taxis/CVs/ Light Goods Vehicle (LGV)	Upfront Incentives to vehicles with maximum Ex-showroom price to avail this incentive is INR 20 lakhs as per battery capacity: from INR 30,000-50,000	1,000 personal e-4W
		1,000 commercial e- 4W
		2,000 e-Maxi cab and e-Goods carrier
	Retrofit kit - 15% of the retrofit kit cost (including taxes) up to INR 15,000 per vehicle	2,000 Retrofit vehicles
Buses	Upfront incentive as per battery capacity - from INR 1,00,000-5,00,000	500 e-buses
	Retrofit kit - 15% of the retrofit kit cost (including taxes) up to INR 2,50,000 per vehicle	200 Retrofit vehicles

Assessment of Cohesiveness in Solar Energy Policy, 2019, for Leveraging Finance



Land allotted for
RE projects



- Lack of clarity on who is to bear the financial costs associated with incentives/concessions announced in the Policy (Prayas, 2020).
- Lack of certainty on the concessions/incentives offered for attracting private investment.
- Lack of clear targets on job creation and skilling in Renewable Energy Policy despite policy acknowledging the socio-economic development as a key co-benefit.



Assessment of Specific Schemes from the Inclusion Lens

PM-KUSUM

**Skilling programmes (on-going)
in Rajasthan**

Inclusion Aspects of PM KUSUM Scheme

The four main objectives of

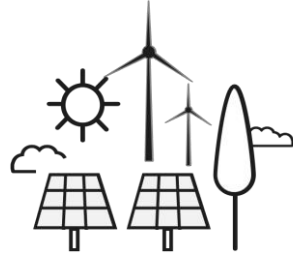
Pradhan Mantri Kisan Urja

Suraksha Evam Utthaan

Mahabhiyan (PM KUSUM) scheme

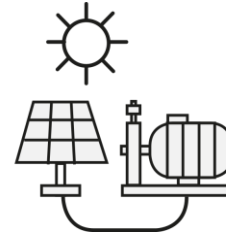
are to:

- Increase farmers' income from agriculture
- Improve access to reliable power
- Reduce the agriculture sector's dependency on fossil fuels and
- Reduce the power subsidy to agriculture (MNRE 2019).



Component-A

for setting up **10,000 MW** of decentralised solar or other **renewable energy** plants on **agricultural lands**



Component-B

for installation of **2 million** stand-alone **solar pumps** for off-grid areas and to replace **diesel pumps**



Component-C

for solarising **1.5 million** existing grid-connected **irrigation pumps**

Source: CEEW, 2021

PM KUSUM scheme is particularly important for Rajasthan as agriculture accounts for 40% of electricity consumption in the State (highest among all States).

Financing of PM KUSUM Scheme and Rajasthan's Achievement

Government Financing of PM-KUSUM

For components B and C of the scheme, (the central and state governments each provide financial assistance of 30% of the cost. The remaining 40% is to be borne by the farmer, of which bank financing is available for 30%. Thus, a farmer is required to initially pay 10% of the total cost of the pump.

Rajasthan is one of the few States that has operationalised all the three Components of PM KUSUM scheme. While many States have made progress under Component-B of the scheme, Rajasthan is one of the few States (other States are Haryana and Himachal Pradesh) that has allocated capacities under Component-A of the scheme. Further, a pilot project of 24 nos. of solarisations has been completed by Discoms under Component-C in Rajasthan.

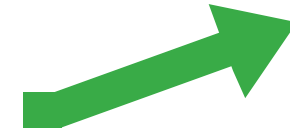


Component-wise Implementation of PM KUSUM Scheme in Rajasthan

Component A	1200
Component B	75000
Component C	
Individual Feeder Level Pumps Solarization	37500
Individual Feeder Level Pumps Solarization	0

Source: MNRE Annual Report, 2021

Obstacles in Inclusion Aspects under PM KUSUM Scheme



Initial barriers to entry

The main challenges to inclusion aspects under PM KUSUM arise from barriers to entry in terms of: a) capital to invest in solar pumps, b) ownership of land, etc. (Amkrau, et al. 2020).

These issues are particularly pertinent for small and marginal farmers and marginalised groups.

Challenges for small and marginal farmers:

Affordability: Investing in the upfront cost of the pump and accessing formal bank credit remains a challenge for small and marginal farmers.

Non-ownership of own electric pumps: These category of farmers, who constitute almost 60 percent of Rajasthan's total land area, rarely own electric pumps. They may not benefit from KUSUM, as the scheme may drive up water prices and reduce water access for those without pumps (Princeton, 2020)

Challenges for historically marginalised groups:

Tribal communities, which comprise a sizeable 13.5 percent of Rajasthan's population, struggle to access groundwater for irrigation.

Targeting access for Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) may be difficult in a universal scheme like KUSUM. Given the unequal distribution of landholdings and wealth in Rajasthan means that these marginalised groups are unlikely to benefit from PM KUSUM Scheme without additional support from the government.

On-going Skilling Schemes in Rajasthan

State Schemes

Employment Linked Skill Training Programme (ELSTP)/ Rojgar Aadharit Jan Kaushal Vikas Karyakram (RAJKVIK)

Regular Skill Training Programme (RSTP)/Swarojgar Aadharit Kaushal Shiksha Mahabhiyan (SAKSHM) and Swarojgar Aadharit Kaushal Shiksha Mahabhiya (SAMARTH)

Mukhya Mantri Kaushal Vikas Yojana (MMKVY 1.0 & 2.0)

Indira Mahila Shakti-Kaushal Samridhi Yojana (IM-Shakti)

PM- DAKSH

Centrally Sponsored Schemes

Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)

Pradhan Mantri Kaushal Vikas Yojana (PMKVY- 2.0 &3.0)

Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) funded by World Bank.

Water Sanitation Support Organization (WSSO)

Skill training schemes under convergence scheme of Rajasthan Skill and Livelihoods Development Corporation (RSLDC)

Rajasthan Scheduled Caste Scheduled Tribe Finance & Development Cooperative Corporation Ltd.

Border Area Development Programme (BADP)

Tribal Area Development (TAD) Project

Van-Dhan Yojana

National Urban Livelihood Mission (NULM)

Rajasthan Rural Livelihood Project (RRLP)

Swavalamban Yojana for Women

SHG Women Training



More Can be Done for Integrating Green Jobs Related Skilling

Rajasthan Skill and Livelihood Development Corporation (RSLDC) conducting skilling for green jobs under the ELSTP scheme (reformulated as *Rojgar Aadharit Jan Kaushal Vikas Karyakram* (RAJKViK) scheme) and some courses are operational in solar industry related skilling.

Several other skilling schemes are on-going in Rajasthan for skilling of vulnerable segment of population - women, farmers, SCs, STs, rural youth, etc.

Currently, there is a lack of disaggregated information on interfacing between the on-going programmes and departments with job opportunities in DRE application.

Green Jobs Skilling Courses

S. No.	Green Job Role
1	Agri-residue Aggregator
2	Animal Waste Manure Aggregator (Option: Biogas Plant Operator/Compost Plant Operator)
3	Biomass Depot Operator
4	Desludging Operator
5	Faecal Sludge Treatment Plant O&M Technician
6	Manager- Waste Management (Elective: Biomass Depot/Compost Yard/Dry Waste Center)
7	Recyclable Waste Collector & Segregator
8	Safai Karamchari (Option: Wet Cleaning/ Mechanized Cleaning)
9	Septic Tank Technician
10	Solar PV Installer - Civil
11	Solar PV Installer - Electrical
12	Solar PV Installer (Suryamitra)
13	Solar PV Maintenance Technician - Civil (Ground Mount)
14	Wastewater Treatment Plant Helper
15	Wastewater Treatment Plant Technician



**Policy Suggestions for Cohesive
and Inclusive Low-carbon
Development of Rajasthan**

Policy Suggestions

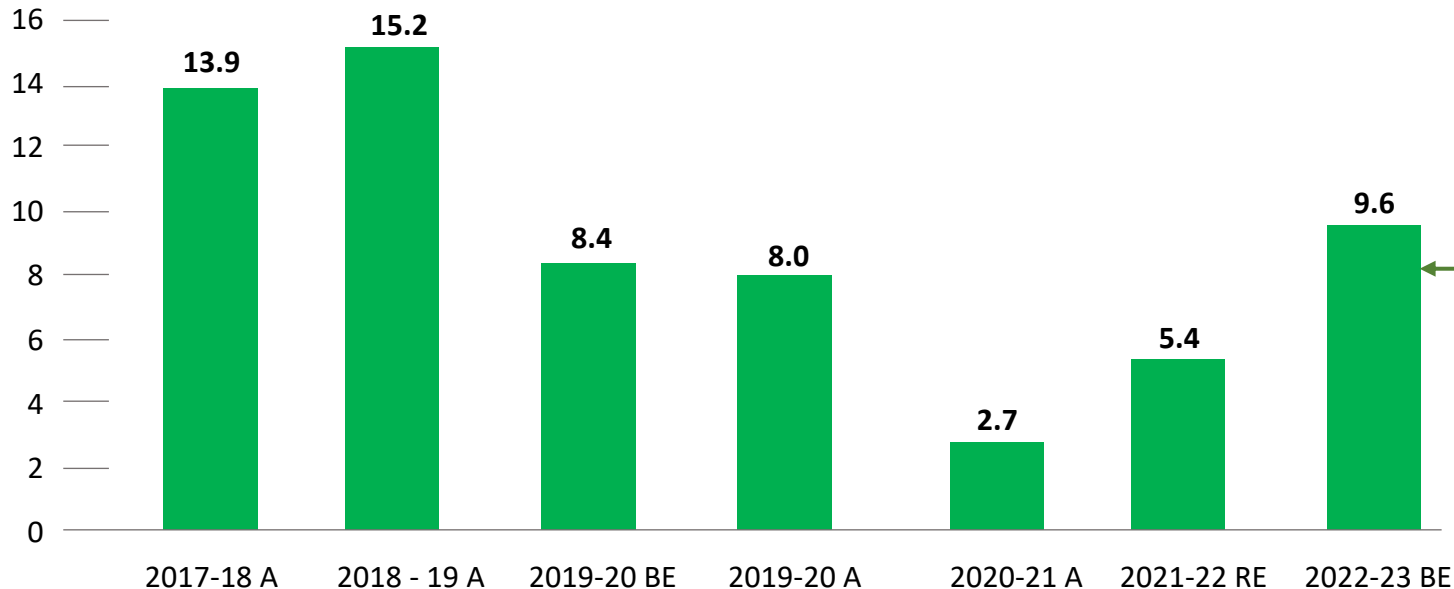
Prioritising Budgetary Spending on the RE Sector

There is a need to orient public finance outlays on schemes such as *Mukhyamantri Kisan Mitra Urja Yojana* (which provides assistance to the agriculture power consumers) towards use of clean technologies like solar based irrigation pumps.

Explore New Climate Finance Mechanisms

Capital expenditure in Rajasthan State Budget for transmission and distribution (T&D) network has been declining. Given that high T&D losses can prove to be a challenge for integrating RE and hence attracting private investment in the RE sector, the Rajasthan Government could explore new climate finance mechanisms like green bonds for leveraging investment in transmission and distribution infrastructure.

Share of CAPEX in total Energy Budget (%)



The 2022-23 figures are for BE and hence Actuals are likely to be different (lower).

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

Policy Suggestions

Put forth demand for direct grant for RE sector by the subsequent Finance Commission

While Fifteenth Finance Commission recommended an additional borrowing space of 0.5 per cent of GSDP for states, during the four-year period 2021-22 to 2024-25, owing to the centrality of the financial strength of Discoms to the soundness of State finances, the performance matrix recommended by 15th Finance Commission for monitoring the performance improvement of the States in the power sector due to extra borrowing space, does not include renewable energy addition or other climate mitigation oriented actions as the performance criteria.

Need for policy clarity and certainty

Given that the share of the power sector in the State's total budgetary expenditure has declined considerably, the State's needs to tap into external finance (domestic private and international) would be crucial. For that it is essential to have policy clarity and certainty, which has not happened in the recent past.



Policy Suggestions

Ways to affirm the inclusion of marginalised groups in PM KUSUM Scheme

The current design of the PM KUSUM scheme does not include specific provisions to ensure small and marginalised farmers can access its benefits.

To ensure all farmers share in the opportunities afforded by this scheme, the Government of Rajasthan could prioritise feeders in areas with high proportions of marginalised groups and also reduce other barriers to entry.

Reforms in Rajasthan that other States could emulate

In order to promote decentralised solar power plants, the Government of Rajasthan has formulated *Saur Krishi Ajivika Yojna* (SKAY) under PM KUSUM component C to help farmers set up solar power plants on their unutilised or barren land. Rajasthan Discoms have developed a dedicated online portal where farmers can register their land for leasing out for setting up solar power plant. Under this scheme, the developers will also be able to get the Central grant (30 per cent of the cost) under PM KUSUM Yojana for setting up the plant. Further, the government will enter into a tripartite agreement between the landowner/farmer, the developer and the concerned Discoms or company to ensure that the landowner/farmer is protected from risk.

Policy Suggestions

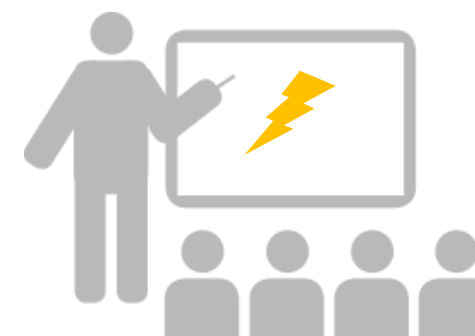
State can develop a framework for creation of livelihood from decentralised renewable energy (DRE) technologies and capacity building of local population for livelihood in clean technologies

Decentralised/off- grid renewable energy (DRE) is known to be more employment-intensive compared to utility scale solar projects. The former, therefore, provides an opportunity for both livelihood generation and supporting low-carbon pathways.

This is particularly, important given the sharp increase in unemployment rate in Rajasthan following the Covid-19 pandemic. This is equally important to increase Female Labour Force Participation in Rajasthan, which is known to be very low.

Clean energy skills and trainings: Towards this end, some of the existing schemes being implemented in Rajasthan such as *Indira Mahila Shakti-Kaushal Samridhi Yojana (IM-Shakti)*, for training of women, can have inclusion of certain domain specific trainings for service sector related job opportunities in the DRE sector or other climate mitigation interventions.

A 2019 report by NRDC-SEWA-SCGJ on building skills and improving livelihoods of women salt farmers in Gujarat provides an example of good practice of how the focus on developing the necessary skills for the solar pumps has played a critical role in expanding the use of clean energy for salt-farming.





Thank You

Work presented is from the Policy Brief:

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