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**STANDING COMMITTEE ON
ENERGY
(2021-2022)**

SEVENTEENTH LOK SABHA

MINISTRY OF NEW AND RENEWABLE ENERGY

**DEMANDS FOR GRANTS
(2022-23)**

TWENTY-FOURTH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

March, 2022/Phalguna, 1943 (Saka)

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STANDING COMMITTEE ON ENERGY
(2021-2022)

(SEVENTEENTH LOK SABHA)

MINISTRY OF NEW AND RENEWABLE ENERGY

DEMANDS FOR GRANTS
(2022-23)

Presented to Lok Sabha on 22.03.2022
Laid in Rajya Sabha on 22.03.2022



LOK SABHA SECRETARIAT
NEW DELHI
March, 2022/Phalguna, 1943 (Saka)

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COMPOSITION OF THE STANDING COMMITTEE ON ENERGY
(2021-2022)

Shri Rajiv Ranjan Singh *alias* Lalan Singh — *Chairperson*

MEMBERS

Lok Sabha

2. Shri Gurjeet Singh Aujla
3. Shri Devendra Singh Bhole
4. Shri Harish Dwivedi
5. Shri Sanjay Haribhau Jadhav
6. Shri Kishan Kapoor
7. Dr. A. Chella Kumar
8. Shri Sunil Kumar Mondal ^
9. Shri Uttam Kumar Reddy Nalamada
10. Shri Ashok Mahadeorao Nete
11. Shri Praveen Kumar Nishad
12. Shri Velusamy P.
13. Shri Parbatbhai Savabhai Patel
14. Shri Gyaneshwar Patil®
15. Shri Jai Prakash
16. Shri Dipsinh Shankarsinh Rathod
17. Shri Gnanathiraviam S.
18. Shri Bellana Chandra Sekhar
19. Shri Shivkumar C. Udasi
20. Shri Akhilesh Yadav
21. Vacant#

Rajya Sabha

22. Shri Ajit Kumar Bhuyan
23. Shri T. K. S. Elangovan
24. Shri Rajendra Gehlot*
25. Shri Muzibulla Khan
26. Shri Maharaja Sanajaoba Leishemba
27. Shri S. Selvaganabathy*
28. Shri Sanjay Seth
29. Dr. Sudhanshu Trivedi
30. Shri K.T.S. Tulsi
31. Vacant[§]

SECRETARIAT

- | | | | |
|----|---------------------------|---|----------------------------|
| 1. | Dr. Ram Raj Rai | – | <i>Joint Secretary</i> |
| 2. | Shri R.K. Suryanarayanan | – | <i>Director</i> |
| 3. | Shri Kulmohan Singh Arora | – | <i>Additional Director</i> |
| 4. | Ms. Deepika | – | <i>Committee Officer</i> |

^ Nominated as Member of the Committee w.e.f 01.12.2021 vice Smt. Sajda Ahmed.

@ Nominated as Member of the Committee w.e.f 07.02.2022 vice Shri Ramesh Chander Kaushik.

Vacant since constitution of the Committee

* Nominated as Member of the Committee w.e.f. 11.11.2021

\$ Shri Jugalsinh Lokhandwala resigned from the membership of the Committee w.e.f. 02.12.2021.

LIST OF ABBREVIATIONS

AJAY	Atal Jyoti Yojana
BE	Budget Estimates
BHEL	Bharat Heavy Electricals Limited
CAPEX	Capital Expenditure
CASE	Commission for Additional Sources of Energy
CFA	Central Financial Assistance
Ckm	Circuit Kilometers
Committee	Standing Committee on Energy (2021-22)
CPSU/CPSE	Central Public Sector Undertaking/Enterprise
CoP-26	26 th Session of the Conference of Parties held at Glasgow in 2021
CRAR	Capital to Risk Weighted Assets Ratio
DBT	Direct Benefit Transfer
DCR	Domestic Content Requirement
DISCOM	Distribution Companies
DNES	Department of Non-Conventional Energy Sources
EFC	Expenditure Finance Committee
FDI	Foreign Direct Investment
FIT	Feed in Tariff
FY	Financial Year
FLS	Feeder Level Solarization
GBI	Generation Based Incentive
GBS	Gross Budgetary Support
GCCA	Grants for Creation of Capital Assets
GEC	Green Energy Corridor
GW	Giga-watt
HP	Horse Power
IEBR	Internal and Extra-Budgetary Resource
IPO	Initial Public Offer
IREDA	Indian Renewable Energy Development Agency
IREP	Integrated Rural Energy Programme
ISTS	Inter State Transmission System
KWh	Kilo Watt hour
LPG	Liquefied Natural Gas
MH	Major Head
Ministry	Ministry of New and Renewable Energy
MNRE	Ministry of New and Renewable Energy
MVA	Mega Volt Amperes
MSW	Municipal Solid Waste
MW	Megawatt
MWeq	Megawatt equivalent
NCPRE	National Centre of Photovoltaic Research and Education

NER	North-East Region
NIBE	National Institute of Bio Energy
NISE	National Institute of Solar Energy
NIWE	National Institute of Wind Energy
NNBOMP	New National Biogas and Organic Manure Programme
NPA	Non-Performing Assets
OMC	Oil Marketing Companies
OFS	Offer for Sale
PAT	Profit after tax
PBT	Profit before tax
PERC	Passivated Emitter and Rear Cell
PGCIL	Power Grid Corporation of India Limited
PLI	Productivity Linked Incentive
PM-KUSUM	Pradhan Mantri Kisan Urja SurakshaevamUtthaanMahabhiyan
RDD	Rural Development Departments
R&D	Research and Development
RE	Revised Estimates
RESCO	Renewable Energy Service Company
RoW	Right of Way
RTS	Roof-top Solar
SC	Scheduled Caste
SECI	Solar Energy Corporation of India
SHP	Small Hydro Power
SNAs	State Nodal Agencies
SOP	Standard Operating Procedure
SPV	Solar Photo Voltaics
ST	Scheduled Tribe
STU	State Transmission Utility
TSP	Tribal Sub Plan
UTs	Union territories
VGF	Viability Gap Funding
WRST	World Renewable Spiritual Trust

INTRODUCTION

I, the Chairperson, Standing Committee on Energy, having been authorized by the Committee to present the Report on their behalf, present this Twenty-Fourth Report of the Committee on 'Demands for Grants (2022-23) of the Ministry of New and Renewable Energy'.

2. The Committee examined the Demands for Grants under Rule 331E(1)(a) of the Rules of Procedure and Conduct of Business in Lok Sabha.

3. The Committee took evidence of representatives of the Ministry of New and Renewable Energy on 22nd February, 2022. The Committee wish to express their thanks to representatives of the Ministry for appearing before the Committee for evidence and furnishing the desired information in connection with the issues relating to the subject.

4. The Report was considered and adopted by the Committee at their sitting held on 15th March, 2022.

5. The Committee place on record their appreciation for the assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

6. For the facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in Part-II of the Report.

NEW DELHI;
15 March, 2022
24 Phalguna, 1943 (Saka)

RAJIV RANJAN SINGH *alias* LALAN SINGH
Chairperson
Standing Committee on Energy

PART I
NARRATION ANALYSIS

CHAPTER I

INTRODUCTORY

1.1 In 1981, the Commission for Additional Sources of Energy (CASE) was established under the Department of Science & Technology with the responsibility of formulating policies and programmes for development of renewable energy apart from coordinating and intensifying R&D in the sector. In 1982, a new department i.e. Department of Non-conventional Energy Sources (DNES) that incorporated CASE, was created in the then Ministry of Energy. In 1992, DNES became the Ministry of Non-conventional Energy Sources. In 2006, the Ministry was renamed as the Ministry of New and Renewable Energy (MNRE) which is the nodal Ministry of the Government of India for all matters relating to renewable energy resources. Under the Allocation of Business Rules, the Ministry has been assigned the following specific items:

- Research and development of biogas and programmes relating to biogas units;
- Commission for Additional Sources of Energy (CASE);
- Solar Energy including Solar Photovoltaic (SPV) devices and their development, production and applications;
- All matters relating to small/mini/micro hydel projects of, and below, 25 MW capacity,
- Programmes relating to improved chulhas and research and development thereof;
- Indian Renewable Energy Development Agency;
- Research and development of other non-conventional/renewable sources of energy and programmes relating thereto;
- Tidal Energy;
- Integrated Rural Energy Programme (IREP);
- Geothermal Energy.

1.2 The Government has set an ambitious target for installation of 175 GW of renewable energy capacity by 31st December 2022. This includes 100 GW from solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro power. Further, as contribution of India to climate action, Hon'ble Prime Minister presented Panchamrit at CoP-26 at Glasgow in November, 2021 which included the following:

- India will increase its non-fossil energy capacity to 500 GW by 2030;
- India will meet 50 percent of its energy requirements from renewable energy by 2030;
- India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030;
- By 2030, India will reduce the carbon intensity of its economy by less than 45 percent;
- By the year 2070, India will achieve the target of Net Zero.

1.3 Status regarding installation of renewable energy as on 31st January, 2022 is given below:

Sector	Installed capacity (GW)	Under Implementation (GW)	Tendered (GW)	Total Installed/ Pipeline (GW)
Solar Power	50.30	41.45	17.79	109.54
Wind Power	40.10	9.64	2.70	52.44
Bio Energy	10.61	0.00	0.00	10.61
Small Hydro	4.84	0.36	0.00	5.20
Hybrid/Round the Clock/Peaking Power/ Thermal+ renewable energy Bundling	0	5.69	4.55	10.24
Total	105.85	57.14	25.04	188.03

1.4 In response to a question about future role of the Ministry keeping in view its diminishing active participation in the Sector and also the fact that major policies and regulations related to generation, transmission and distribution of electricity are handled by the Ministry of Power, the Secretary of the Ministry deposed as under:

“We should be given some powers to issue our guidelines, at least. We are a Ministry which does not have power even to issue our bidding guidelines because the Electricity Act and its implementation are the responsibilities of the Ministry of Power. I have also put this on record that if you want to go ahead very quickly in renewable energy, you have to have grid connected electricity under a single administrative entity because if we deal only with renewable energy generation without looking at transmission or without looking at distribution, then the picture is fragmented.”

CHAPTER II

DEMANDS FOR GRANTS (2022-23) OF THE MINISTRY

2.1 The Ministry of New and Renewable Energy presented Demand No. 70 to the Parliament for financial year 2022-23 on 3rd February, 2022. The voted provisions made in the Revenue and the Capital Heads of the demand are as under:

(In Rs. Crore)			
	Revenue	Capital	Total
Charged	---	---	---
Voted	6888.94	11.74	6900.68

2.2 The Ministry informed the Committee that the Department of Expenditure has rationalized the programme heads of the Ministry for Demands for Grants (2022-23) and onwards as per its work allocation. The new heads are as follows:

- Solar Energy
- Bio Energy Programme
- Programme for Wind and other Renewable Energy
- Support Programmes
- National Green Hydrogen Mission
- Storage and Transmission

2.3 A statement showing the details of the Budget Estimates for the financial year 2022-23 vis-à-vis Budget Estimates and Revised Estimates of 2021-22 and actual expenditure during 2020-21 is given at *Annexure-I*.

2.4 Regarding the allocations sought for the year 2022-23 and the amount actually sanctioned by the Ministry of Finance, the Ministry furnished as under:

(In Rs. Crore)			
Sl. No.	Name of Umbrella /Scheme	BE 2022-23 proposed by Ministry	Approved BE for 2022-23
1.	Solar Energy	8775.08	5205.89
2.	Bio Energy Programme	292.59	100.00
3.	Programme for Wind and other Renewable Energy	1518.00	1102.00
4.	Support Program	138.10	80.03
5.	Hydrogen Mission	0.00	0.01
6.	Storage and Transmission	600.00	300
Total of Central Sector Schemes		11323.77	6787.93
7.	Secretariat Economic Services	60.33	56.01
8.	Autonomous Bodies (ABs)	54.90	45.00
9.	Office Buildings	10.00	11.74
Total of Non-Scheme		125.23	112.75
Grand Total		11449.00	6900.68

2.5 When asked about the reasons for hike in Central Plan Outlay for the year 2022-23 as compared to the last year, the Ministry stated that:

“During the year 2022-23, BE of Rs. 6900.68 crore has been allocated to the Ministry, which is an increase of 19.95% over the BE of Rs. 5753 crore for the year 2021-22. Additional funds have been provided for implementation of solar schemes, PLI scheme and PM-KUSUM schemes during the year 2022-23.”

2.6 On being questioned about the sufficiency of the budgetary allocation made for the year 2022-23 in order to achieve the physical targets, the Ministry stated as under:

“As record low tariffs have been achieved in recent renewable energy auctions, grid connected renewable energy has become economically viable for DISCOMs. Therefore requirement for Viability Gap Funding (VGF) support has drastically reduced during the past 2-3 years. Most of the grid connected renewable energy projects in the Country are being implemented by the private sector developers selected through transparent competitive bidding process.

However, implementation of decentralized programs such as Solar Off-grid Program, Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) Scheme, etc. where Central Financial Assistance is provided may be impacted because of reduction of funds. However additional funds will be sought at RE stage after reviewing the progress of these programmes.”

2.7 The financial allocations & physical targets for various programmes/ schemes for the financial year 2022-23, as furnished by the Ministry, are as follows:

		B.E. 2022-23 (In Rs. Crore)	Target/Capacity Likely to be commissioned during 2022-23
A.	NON-SCHEME COMPONENT		
I	Establishment Expenditure		
	Secretariat Economic Services	56.01	-NA-
	Office Buildings	11.74	-NA-
II	Other Central Expenditure		
	Autonomous Bodies/CPSEs	45.00	-NA-
TOTAL- Establishment Expenditure		112.75	-NA-
B.	SCHEME COMPONENT		
I	Solar Energy		
	Solar (Grid)	3304.03	12000 MW
	Solar (Off grid)	61.50	15.89 MWeq
	KUSUM	1715.90	2000 MW
	Other Renewable Energy Applications	0.10	Pending Liabilities
	Interest Payment and Issuance Expenses on Bonds	124.36	-NA-
Total- Solar Energy		5205.89	-

II	Bio Energy Programme		
	Bio-Power (Grid)	50.00	Biomass(Bagasse): 122 MW Waste to Energy: 59.7 MWeq
	Bio-Power (Off Grid)	20.00	Biomass (Non-Bagasse): 18.29 MW Waste to Energy: 4.2 MWeq
	Biogas	30.00	Nil (Pending Liabilities)
Total- Bio-Energy Programme		100.00	-
III	Programme for Wind and other Renewable Energy		
	Wind Power (Grid)	1050.00	1750 MW
	Hydro Power (Grid)	50.00	100 MW
	Hydro Power (Off grid)	2.00	Nil
Total- Programme for Wind and other RE		1102.00	-
IV	Support Programme		
	Monitoring & Evaluation	0.10	-NA-
	I&PA	6.00	-NA-
	HRD	30.93	No. of Fellowships – 75 Trained Manpower - 5000 no.
	International Relation	8.00	-NA-
	R&D	35.00	-NA-
Total- Support Programme		80.03	-
V	Hydrogen Mission		
	National Green Hydrogen Mission	0.01	Funds for Preparatory Activities
Total- Hydrogen Mission		0.01	-
VI	Storage and Transmission		
	Green Energy Corridor	300.00	9700 ckm of transmission lines and 22600 MVA of substations (Cumulative Target)
Total- Storage and Transmission		300.00	-
Grand Total		6900.68	-

CHAPTER III

REVIEW OF PAST PERFORMANCE OF THE MINISTRY

(A) BUDGET ALLOCATION AND UTILIZATION

3.1 A statement showing year-wise allocation and actual expenditure of the Ministry including Gross Budgetary Support (GBS) and Internal and Extra Budgetary Resources (IEBR) is given below:

(In Rs. Crore)									
	2019-20			2020-21			2021-22		
	BE	RE	Actual Exp.	BE	RE	Actual Exp.	BE	RE	Actual Exp. (upto Jan 2022)
GBS	5254.83	3891.74	3562.11	5753	3591	3096.73	5753	7681.80	3199.55
IEBR	12353.81	12466.32	10450.85	13726.74	10089.38	9505.56	11778	18974.19	9388.58
Total	17608.64	16358.06	14012.96	19479.74	13680.38	12602.29	17531	26655.99	12588.13

3.2 When asked about the reasons for variations in BE/RE and actual expenditure during the last three years, the Ministry stated that:

"2019-20: The expenditure during 2019-20 was 91.53% of RE. These shortfalls were due to not receiving adequate proposals from any of North Eastern states under various schemes.

2020-21: During the year 2020-21, against a BE of Rs. 5753 crore and RE of Rs. 3591 crore, actual expenditure was Rs. 3096.73 crore which was 86.24% of RE. The Shortfall was mainly due to COVID outbreak and also because the Department of Economic Affairs issued guidelines to restrict the monthly expenditure to 5% of the Budget Outlay during each month upto December, 2020.

2021-22: During the year 2021-22, against a BE of Rs. 5753.00 crore, an expenditure of Rs. 3199.55 crore has been incurred which was 55.61% of BE. Utilisation of funds is low because of two consecutive waves of COVID. The shortfall is likely to be recovered to a large extent by the end of the financial year."

3.3 Quarter-wise utilization of budgetary allocations during the previous years, as submitted by the Ministry, are given below:

(In Rs. Crore)							
FY	BE	RE	Actual Exp.	Quarter			
				1 st	2 nd	3 rd	4 th
2018-19	5146.63	5146.63	4477.80	940.52	1156.56	775.08	896.21
2019-20	5254.83	3891.74	3562.11	875.74	1861.40	304.29	520.68
2020-21	5753.00	3591.00	3006.73	854.90	855.62	692.59	603.62
2021-22	5753.00	7681.00	3244.66 (upto 10 th Feb 2022)	418.02	1439.70	1212.33	174.61 (upto 10 th Feb 2022)

3.4 On being asked whether the quarterly expenditure during these years was as per the plan and norms, the Ministry stated that:

"Quarterly expenditure is broadly in line with the Ministry of Finance norms. A periodical monitoring mechanism is already in place to ensure that phasing of expenditure is as per the norms prescribed by the Ministry of Finance."

3.5 When asked about the details of financial utilization *vis-à-vis* allocation during the previous years under Grid-interactive and Off-Grid Renewable Power, the Ministry furnished as given below:

(In Rs. Crore)			
Grid Interactive Renewable Power			
Year	BE	RE	Expenditure (% of RE)
2019-20	4272.15	3089.64	2811.07 (90.98%)
2020-21	4350.00	2689.48	2468.10 (91.77%)
2021-22	4324.48	4121.96	2654.59 (64.40%) (upto 31 st January 2022)
Off-Grid Renewable Power			
2019-20	688	550.36	494.12 (89.78%)
2020-21	1184.20	557.93	322.61 (57.82%)
2021-22	1180.50	812.44	460.66 (56.70%) (upto 31 st January 2022)

3.6 In response to a question about the amount of budgetary allocation that was surrendered due to non-utilization during the last three years, the Ministry furnished the following:

(In Rs. Crore)			
Major Head	2018-19	2019-20	2020-21
3451- Secretariat Economic Services	3.00	3.79	2.061
2810- New and Renewable Energy	177.93	1222.05	2091.449
2552 – North Eastern Areas	381.17	172.00	342.24
4810- Capital Outlay on New and Renewable Energy	22.00	-	-

(B) PHYSICAL TARGETS AND ACHIEVEMENTS

3.7 In response to a query about the physical achievements *vis-à-vis* targets during the previous years, the Ministry furnished the following:

PHYSICAL TARGETS AND ACHIEVEMENT DURING 2018-19, 2019-20, 2020-21 and 2021-22									
Sl. No.	Programme/System	2018-19		2019-20		2020-21		2021-22	
		Target	Ach.	Target	Ach.	Target	Ach.	Target	Ach. (upto Jan 2022)
GRID POWER (Capacities in MW)									
1.	Wind Power	4000	1480.97	3000	2117.78	3000	1503.30	3260.80	853.88
2.	Small Hydro	100	107.35	100	90.00	100	103.65	120.00	53.09
3.	Bio Mass	250	414.70	250	97.00	250	270.61	170.00	29.69
4.	Waste to Power#	5	6.58	2	28.45	30	43.30	45.00	46.52
5..	Solar Power*	11200	6750.97	8900	6510.06	9500	5628.78	16040.1	9067.56
OTHER RENEWABLE ENERGY SYSTEMS									
6.	Family Type Biogas Plants (No. in lakh)	1.00	0.27	0.76	0.30	0.60	0.20		\$

Includes Waste to Energy Offgrid/Distributed Component.

* Includes Solar Offgrid/Distributed Component.

\$ The programme was not implemented during 2021-22 as EFC has recommended the continuation of the National Bioenergy Programme, for the period FY2021-22 to FY 2025-26, only to meet the already committed liabilities.

CHAPTER IV

PROGRAMMES/SCHEMES OF THE MINISTRY: GRID INTERACTIVE AND OFF-GRID RENEWABLE POWER

(A) SOLAR ENERGY

4.1 As per the Ministry, the estimated solar power potential in the Country is 748.99 GW. Against the overall target of 100 GW, the installed capacity is 50.303 GW as on 31.01.2022.

4.2 The Ministry stated that the Government has allowed 100% FDI in renewable energy sector through automatic route and most of the investment in solar energy comes from private sector and some CPSUs like NTPC Ltd., NHPC Ltd., SJVN Ltd etc. Budgetary allocation and actual expenditure for Solar Energy during the previous years, as furnished by the Ministry are given below:

(in Rs. Crore)			
Year	BE	RE	Actual Expenditure
2017-18	2259.00	1003.12	1001.33
2018-19	2045.25	2157.24	1903.76
2019-20	2479.90	1789.49	1529.28
2020-21	3517.60	1776.24	991.59
2021-22 (upto 31.01.2022)	3603.43	3375.52	2236.36

4.3 When asked about the physical achievements *vis-à-vis* targets with respect to Solar Energy, the Ministry furnished as under:

Financial Year	Targets	Capacity added during the year (MW)	Cumulative Capacity (MW)
2018-19	11000	6750.97	29097.18
2019-20	8500	6510.06	35607.24
2020-21	11000	5628.79	41236.03
2021-22 (upto 31-01-2022)	14000	9067.53	50303.56

(A)(i) SOLAR ROOF-TOP PROGRAMME

4.4 On being asked about the progress made under solar roof-top programme against the overall target of 40 GW, the Ministry stated that:

“Under the ongoing phase II of the rooftop solar programme, an aggregate capacity of 3.162 GW has been sanctioned to various distribution utilities out of which over 1.176 GW has been reported as installed. Overall over 5.87 GW of Rooftop Solar projects have been reported as installed in the country (with or without CFA).”

4.5 In response to a query about the reasons for slow progress of solar rooftop programme, the Ministry stated that the following major issues have been observed during implementation of the programme:

- “Delay in vendor empanelment;
- Slow progress even after vendor empanelment;
- Delay in CFA disbursement to vendors by DISCOMs;
- Vendors not willing to install RTS plants in other parts of State/Discom;
- Non-adherence to timelines specified in the SoP;
- Lack of publicity and awareness;
- Restrictive QRs resulting in less numbers of empanelled vendors;
- Restrictive regulatory provisions;
- Delay in net-metering/high cost of net metering fees etc.”

4.6 Further explaining about the reasons for non-achievement of target under solar roof-top programme, the Secretary of the Ministry deposed as under:

“.....Discoms are not very keen on solar rooftops. The reason is simple. If they do the net metering and if they go in for solar rooftops, then discoms lose income.”

(A)(ii) OFF-GRID/DECENTRALIZED SOLAR PROGRAMME

4.7 When asked about the actual expenditure *vis-à-vis* allocation for off-grid/decentralized schemes, the Ministry furnished the following:

(In Rs. Crore)			
Financial Year	BE	RE	Actual Expenditure
2019-20	525	491.02	455.84
2020-21	366.14	366.14	149.43
2021-22	237	210	98.07 (upto 28.2.2022)

4.8 Given below are the physical achievements *vis-à-vis* targets with respect to solar off-grid applications as furnished by the Ministry:

Sl. No.	Applications	Target 2018-19 Cumulative	Ach. 2018-19 Cumulative	Target 2019-20 Cumulative	Ach. 2019-20 Cumulative	Target 2020-21 Cumulative	Ach. 2020-21 Cumulative	Target 2021-22 Cumulative	Ach. 2021-22 Cumulative
1.	SPV Systems (MW)	2.5 MW	NA	2.5 MW	0.2 MW	2.5 MW	2.05 MW	2.5 MW	2.5 MW
2.	Solar Street Lights (Nos.)	1.75 lakh	NA	1.75 lakh	0.03 lakh	1.75 lakh	0.69 lakh	1.75 lakh	1.46 lakh
3.	Solar Home Lights	Financial support has been discontinued for solar home lights							
4.	Solar Pumps	Subsumed in PM-KUSUM Scheme							
5.	Study lamps (Nos.)	11.15 lakh	NA	11.15 lakh	0.41 lakh	11.15 lakh	5.24 lakh	11.15 lakh	9.34 lakh

4.9 When the Committee wanted to know the reasons for non-achievement of targets for solar off-grid applications, the Ministry stated as under:

“The Scheme was issued in August 2018 and states were requested to send their demands and capacities were allocated. However, soon thereafter the model code of conduct was imposed for General Elections in March 2019 and implementation got delayed. Thereafter tendering process was completed and implementation in the field started. However, a lockdown was imposed due to outbreak of COVID-19 and therefore, the progress was slow during 2019-20 and in first half of 2020-21. The scheme was valid till 2020-21 and therefore, no new capacity could be sanctioned under the scheme after 31.3.2021. The Ministry has initiated the evaluation of the Scheme and a view on its further continuation will be taken after the evaluation is concluded.”

4.10 In response to a question about the possibility of re-introduction of schemes for solar off-grid applications including AJAY Scheme, the Secretary of the Ministry deposed as under:

“It needs to be taken up again. So, we are in the process of making a scheme. We will shortly circulate the EFC memo and hopefully, in the next two or three months, the scheme will be in place.”

(A)(iii) PM KUSUM SCHEME

4.11 Regarding the PM KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) Scheme, the Ministry stated that it aims to add a solar capacity of 30.80 GW by 2022 with central financial support of Rs. 34,000 crore. The Scheme consists of the following three components:

Component A	10,000 MW of Grid Connected Solar Power Plants (500 kW to 2MW Capacity).
Component B	Installation of 20 lakh standalone Solar Agriculture Pumps (upto 7.5 HP).
Component C	Solarisation of 15 Lakh Grid-connected Solar Agriculture Pumps (upto 7.5 HP).

4.12 Cumulative sanctioned and installed capacity under KUSUM Scheme, as furnished by the Ministry is shown below:

Component	Sanctioned Capacity	Installed Capacity
Component-A	4909 MW	27.75 MW
Component-B	3.59 lakh pumps	78,940 pumps
Component-C	75,650 pumps 9,25,427 pumps (FLS)	1026 pumps

4.13 On being asked about the reasons for slow progress under KUSUM Scheme, the Ministry stated as under:

“The Scheme was issued in March 2019 and after stakeholder consultation the implementation Guidelines were issued in July 2019. Capacities for 2019-20 were allocated to states in August 2019. They were requested to confirm allocation and also availability of state share of subsidy for implementation of the allocated capacity. Based on the response received from states, the final sanction for capacities was issued in the

latter half of 2019-20. It took time to conclude the tendering process and soon after that, lockdown was imposed due to outbreak of COVID-19 and therefore, the progress was slow during 2019-20 and in first half of 2020-21. Further, most of the states curtailed the state share of budget for providing state subsidy under PM-KUSUM Scheme leading to less achievement than expected. It is expected that state share of subsidy would be available during 2021-22 and targets would be achieved. Under Component-A, farmers were facing issues in getting finance from the Banks for small solar plants of capacity upto 2 MW. Now some banks have come out with suitable financial products. MNRE has been constantly pursuing with banks for availability of finance to farmers at soft terms.”

4.14 Further explaining about the reasons for slow implementation of KUSUM Scheme and steps taken by the Ministry, the Secretary of the Ministry deposed as under:

"It is a fact that after the announcement of PM KUSUM, the progress of Component A has not been satisfactory, the reason being that farmers aren't getting access to loans. I have no hesitation in stating that there was drawback in the design itself that we didn't take into account the financing aspect. We have made efforts to get it included in the Agricultural Infrastructure Fund, so that there is interest subvention of 3%. The Ministry of Agriculture has also accorded in-principle concurrence for this. A Cabinet note on this has also been prepared by Ministry of Agriculture. This will help us. The problem with Component B is merely that the State Governments are facing difficulty in arranging their share of 30% because of strained financial conditions. The variant we have designed, feeder level solarisation, neither contains State Government's subsidy nor does it have farmer's contribution. The shortcoming in terms of progress of KUSUM, are being covered through feeder level solarisation. Ministry of Finance has consented that the funds under Component B and for solarisation of individual grid connected pumps under Component C, which remain unutilized, can be diverted for feeder level solarisation. There has been significant progress in this and a lot of demand has been received from State Governments. Work is also commencing gradually. I'm personally very hopeful that there will be significant progress in KUSUM next year because of this variant of feeder level solarisation wherein, neither the farmers nor the State Government is required to make any contribution."

(A)(iv) PRODUCTIVITY LINKED INCENTIVE SCHEME

4.15 Regarding Productivity Linked Incentive (PLI) Scheme for High Efficiency Solar PV Modules, the Ministry furnished the following:

“In order to enhance India’s manufacturing capabilities and exports, on 28.04.2021, Ministry of New & Renewable Energy has issued the Scheme Guidelines for Production Linked Incentive Scheme ‘National Programme on High Efficiency Solar PV Modules’, with an outlay of Rs. 4,500 crore. The Scheme has provisions for supporting setting up of integrated manufacturing units of high efficiency solar PV modules by providing Production Linked Incentive (PLI) on sales of such solar PV modules. Letter of Awards have been issued by IREDA on 11.11.2021 and 02.12.2021 to three successful bidders for setting up 8,737 MW capacity of fully integrated solar PV module manufacturing units (involving manufacturing of polysilicon + ingot-wafer + cell + module) with PLI amount of Rs. 4455 crore and IREDA’s charges of Rs. 44.55 crore @1% of PLI to the extent of funds available at that time. This 8,737 MW capacity of fully integrated solar PV module manufacturing units is expected to get commissioned within a period of three years. An additional outlay of Rs 19500 crore has been announced in the Budget speech for 2022-23.”

(B) BIO ENERGY PROGRAMME

4.16 As per the Ministry, the cumulative Biomass and Bagasse Potential in the Country is 42.31 GW. Against the overall target of 10 GW, the installed capacity is 10.18 GW as on 31.12.2021.

4.17 In response to a query about the budgetary allocation *vis-à-vis* utilization during the previous years under Bio Power Programme, the Ministry furnished the following:

(in Rs. Crore)				
Year	BE	RE	Utilization (Biomass Power Projects)	Utilization (Waste to Energy)
	including both Biomass Power and Waste to Energy			
For Grid connected Projects				
2019-20	25	4.68	4.50	0
2020-21	75	14.15	6.22	0
2021-22	120	56.85	3.00 (as on 28.2.2022)	0
For Off Grid Projects				
2019-20	50	10.03	0.96	0.82
2020-21	53	14.23	8.68	7.49
2021-22	70	36.48	8.17 (as on 28.2.2022)	15.32 (as on 28.2.2022)

4.18 When asked about the reasons for non-utilization of funds in the previous years, the Ministry stated that:

"As per scheme guidelines, eligible CFA is disbursed only after commissioning (COD) and successful performance of the plant for a period of 3 months. The time period for commencement of COD is around 2 years for Biomass based Power projects. The claim for disbursement of CFA is raised by project developers only after successful performance of the plant. Thus the release of CFA to eligible developers takes almost a period of 1-2 years from the date of sanction. Thus most of the liabilities created up till 31.3.2021 shall be cleared only by FY 22-23. There have been instances of delay in commissioning, non-achievement of plant performance and delay in inspection resulting in lower utilisation of fund. For the FY 2021-22, the reason for lower utilisation of funds is Covid-19 Pandemic."

4.19 On being asked about the physical achievements *vis-à-vis* targets under Bio Power Programme during the previous years, the Ministry furnished the following:

Both grid connected and off-grid		
Year	Target (MW)	Achievement (MW)
2018-19	250	429.70
2019-20	250	240.55
2020-21	250	5.00
2021-22	350	30

4.20 Details regarding physical achievements *vis-à-vis* targets under Waste to Energy Programme, as furnished by the Ministry, are given below:

Year	Target (MWeq)	Achievement (MWeq)
2018-19	20	6.58
2019-20	12	28.4
2020-21	40	43.30
2021-22	60	46.52 (as on 28.2.2022)

4.21 In response to a question about the discontinuation of Programme for Bio Power including Waste to Energy, the Secretary of the Ministry deposed as under:

“We had very ambitious plan in waste to energy and my personal impression is that for the first time in India, the Municipal Waste to Energy Sector was picking up and there were very promising signs in the sense that we had received about 27 proposals under this Scheme for converting municipal waste to energy. Somehow the Ministry of Finance did not agree with our proposals. We had an outlay of Rs. 5000 crore.”

4.22 About the New National Biogas and Organic Manure Programme (NNBOMP), the Ministry stated as follows:

“The New National Biogas and Organic Manure Programme (NNBOMP) is implemented under Renewable Energy for Rural Application which aims at setting up family type biogas plants for meeting cooking energy and lighting needs of mainly rural and semi-urban households of the country. Since inception of the National Biogas Programme, a cumulative total of about 50.80 lakh (5.08 million) family type biogas plants have been installed in the country as up to 31st March, 2021. This NNBOMP scheme was valid till 31.03.2021. Beyond 31.03.2021, the Bio-energy Programme of MNRE has been continued for the period of FY 2021-22 to FY 2025-26 only to meet the already created liabilities and no new projects are to be sanctioned.”

4.23 When asked about the budgetary allocation and actual expenditure under New National Biogas and Organic Manure Programme (NNBOMP) during the previous years, the Ministry furnished the following:

(In Rs. Crore)			
FY	BE	RE	Actual Expenditure
2017-18	134	93.50	67.70
2018-19	135	78	42.72
2019-20	100	51	34.68
2020-21	60	46.50	31.74
2021-22	95	25	5.65 (as on 28.2.2022)

4.24 In response to a question about the physical achievements *vis-à-vis* targets during the previous years, the Ministry furnished as given below:

(In lakhs)							
FY 2018-19		FY 2019-20		FY 2020-21		FY 2021-22 (Upto January, 2022)	
Physical Target	Achievement	Physical Target	Achievement	Physical Target	Achievement	Physical Target	Achievement
1.00	0.27	0.76	0.30	0.60	0.20	-	-

4.25 On being asked about the reasons for continuous non-achievement of targets, the Ministry stated that:

- (i) "The increase in costs of construction of biogas plant mainly due to increase in prices of cement, sand, bricks and steel and balance of equipment and accessories which are the major contributors in total cost of a biogas plant, have resulted in lower installations of household biogas plant. The upfront threshold limit of investment for biogas plants by the potential beneficiaries/households has thus been reduced drastically. The subsidy support also came down below 30% of the total cost of plant installation. In order to see the impact of increased cost of installation and consider the same, the States Government Departments/SNAs etc. have been asked to have re-estimate of the unit costs of various size biogas plants as approved under the NNBOMP so as to assess the required level of support.
- (ii) Though, a biogas plant also helps in giving organic enriched bio-manure but the beneficiaries compare it with only cooking fuel. When it comes with cooking, then the LPG is an increasing challenge on account of its easy availability and very less upfront cost to be borne by the beneficiary as compared to a biogas plant and also comparatively more comfort in operation & maintenance. The extensive campaigning for the domestic LPG by rich Oil Marketing Companies (OMCs) and their wider dealer networks is also a positive side for LPG, which is not there for Biogas Plants.
- (iii) Financial help in first registration of LPG connection in some States also distanced the potential biogas plant beneficiaries from opting biogas plants.
- (iv) Some of the States, though have good potential but lacked in priority for the Central Sector Scheme, NBMMP.
- (v) Impact of Ujjwala Scheme
- (vi) Back-ended subsidy/CFA support & problem faced in DBT mode of Scheme implementation.
- (vii) The NNBOMP was launched w.e.f. 01.04.2018 by designating all the States'/UTs' Rural Development Departments (RDDs) as new implementing agencies considering that their wide ground network will help in upscaling the numbers, but many of the Rural Development Departments of the States and UTs did not start the implementation during the year 2018-19.
- (viii) Most of the newly designated State Programme Implementing Agencies mainly the State Rural Development Departments could not initiate the implementation during 2019-20 also and Ministry has taken the matter with the States/UTs."

(C) WIND ENERGY PROGRAMME

4.26 The Ministry stated that the estimated wind power potential in the Country is 695.50 GW at 120 meter and 302.25 GW at 100 meter above ground level. Against the overall target of 60 GW, the cumulative installed capacity of wind power is 40100.93 MW as on 31.01.2022.

4.27 In response to a query about the fund utilization *vis-à-vis* allocation during the last three years, the Ministry furnished the following and stated that these are liabilities of the wind GBI scheme which was closed in 2017:

(In Rs. Crore)			
Year	BE	RE	Funds utilized
2019-20	920	1026	1026
2020-21	1299.35	1059.35	1059.35
2021-22	1100	1100	754.045 (as on 28.1.2022, the remaining funds are likely to utilized by March 2022)

4.28 About the budgetary allocations for wind energy sector, the Ministry furnished the following:

“It may be noted that there is no linkage between capacity commissioned and budgetary allocation. A budget of Rs 1050 crore has been allocated for 2022-23 under GBI scheme which will be utilized for clearing past liabilities. Funds are being utilized for meeting liabilities under wind Generation Based Incentive scheme which was operational till March, 2017. We have sufficient funds for the financial year in this regards. The new wind power projects are being set up by private developers based on techno-economic viability of the project. Government is not providing any direct central financial assistance for installing new wind power project.”

4.29 Regarding physical targets and achievements in wind power sector during the previous years, the Ministry furnished the following:

Year	Target (MW)	Achievement (MW)
2019-20	3000	2117.78
2020-21	3000	1503.3
2021-22	1750	854.625 (till 31.01.2022)

4.30 When asked to explain the reasons for non-achievement of targets, the Ministry stated that:

“The Government has set a target of 175 GW of installed capacity of renewable energy sources by 2022, which includes 60 GW from Wind Power. The capacity additions till 2017 (i.e. 32.27 GW) were through Feed in Tariff (FiT) mechanism. Subsequently, the tariff regime shifted from Feed-in-Tariff (FiT) to bidding route, which disrupted the installation of projects. Further, recently the projects have been delayed due to COVID-19 pandemic during the last and current financial year (i.e. 2020-21 and 2021-22).”

(D) SMALL HYDRO POWER

4.31 The Ministry stated that the identified potential of small hydro power capacity in the Country is 21.13 GW from 7133 identified sites. Against the overall target of 5 GW, installed small hydro power capacity is 4.84 GW as on 31.01.2022.

4.32 Details regarding utilization of funds *vis-à-vis* allocation during the previous years for small hydro power, as furnished by the Ministry, are given below:

Year	(In Rs. Crore)		
	BE	RE	Achievement
2018-19	218.50	218.50	137.66
2019-20	190.90	94.14	77.28
2020-21	102.00	49.50	40.78
2021-22	92.00	66.00	16.86

4.33 In reply to a question about reasons for non-utilization of allocated budget, the Ministry stated that:

"No new projects could be sanctioned after the lapse of SHP Scheme 2014 on 31.03.2017, resulting in non-utilization of funds. Only old liability, created for projects commenced prior to 31st March 2017, is being cleared from the budget allocation."

4.34 On being asked about the physical targets and achievements with respect to small hydro power during the previous years, the Ministry furnished the following:

Year	Target (MW)	Achievement (MW)
2018-19	100	107.35
2019-20	100	90.00
2020-21	100	103.64
2021-22	150	54.75

4.35 When the Committee queried about the non-achievement of target, the Ministry replied as under:

"During 2019-20, the achievement was short by 10 MW. Reasons for the non-achievement of target are the difficult locations of SHP projects, short working season in hilly areas and natural calamities such as flash floods."

4.36 About the Small Hydro Programme, Secretary of the Ministry deposed during the evidence as under:

"On small hydro, we are in the process of making a scheme. Somehow the small hydro scheme has not been in place since 2017 and the reason was that there was a lot of discussion on the need for a small hydro scheme - both in the PMO as well as in the NITI Aayog. And finally, when it was decided that the scheme was needed, there was a ban on new schemes by the Ministry of Finance because of COVID and therefore, everything got delayed. Now, the EFC memo has been circulated. This scheme is likely to be in place as soon as we have the EFC meeting and the subsequent Cabinet's approval."

(E) GREEN ENERGY CORRIDOR (GEC)

4.37 About the status of Green Energy Corridor, the Ministry stated as under:

“The Inter-State Transmission System (ISTS) component of GEC consisted of total length of 3200 ckm transmission lines and 17000 MVA substations. The project has been implemented by the Ministry of Power through Power Grid Corporation of India Ltd (PGCIL) and completed in March 2020.

The Intra-State component of Green Energy Corridor (GEC) project is being implemented by the State Transmission Utilities (STUs) of the respective States and has been divided into total 84 packages by the States. As of 31.12.2021, a total of 8468 ckm of transmission lines have been constructed out of total target of 9700 ckm, and a total of 15268 MVA substations have been charged out of total target of 22600 MVA. The progress shown reflects of only those substations which have been commissioned and all the remaining substations are at various stages of construction.”

4.38 The financial allocations *vis-à-vis* utilization during the last three years for GEC, as furnished by the Ministry, are given below:

	(In Rs. Crore)		
Financial Year	2018-19	2019-20	2020-21
Budget Estimates	600	500	300
Revised Estimated	500	52.61	160
Fund disbursed	500	52.61	159.53

4.39 When asked about the reasons for non-utilization of allocated funds, the Ministry stated that:

“The grant is disbursed in two installments: (a) 70% as advance on award of work and (b) remaining 30% after three months of commissioning of project. The reasons for non-utilization of allocated funds *vis-à-vis* B.E. are as follows:

- (i) Some projects were retendered due to low bid turnout, hence delay in award of work (Maharashtra, Himachal Pradesh and Madhya Pradesh).
- (ii) Some projects had to be cancelled as the planned renewable energy generation projects did not come up (Rajasthan). Accordingly, alternate projects were planned and sanctioned. These projects are under implementation.
- (iii) Some projects were cancelled due to no bid turnout (Maharashtra and Himachal Pradesh).
- (iv) Some projects were cancelled by the State (Andhra Pradesh).
- (v) The States have submitted proposals for release of 30% balance grant for only few of the projects which have been commissioned during FY 2020-21 and 2021-22. The proposals for release of 30% balance grant for most of the projects are yet to be received.”

4.40 The physical targets and achievements under Intra-State portion of GEC Programme, as furnished by the Ministry, are as follows:

Financial Year	2018-19	2019-20	2020-21	2021-22 (till 31.12.2021)
Transmission lines target – cumulative (ckm)	3000	6000	8000	9000
Transmission lines constructed – cumulative (ckm)	3500	6400	7965	8468
Substations capacity target – cumulative (MVA)	4500	6800	15000	20000
Substations charged – cumulative (MVA)	4757	6812	12638	15268

4.41 In response to a query about the reasons for delay in completion of Green Energy Corridor, the Ministry stated as under:

"There was no delay in the Inter-State Transmission System (ISTS) portion of GEC. However, the Intra-State portion of GEC project has been delayed in all the States due to various reasons such as Right of Way (RoW) issues, delay in issuing tenders, delay in substation land acquisition, delay in award of works due to low bid turnout in various projects which resulted in retendering several times, court cases, forest clearances, etc. The commissioning schedule of GEC project has been extended till 30.06.2022 upon requests from the State Governments."

(F) NATIONAL GREEN HYDROGEN MISSION

4.42 For financial year 2022-23, a token amount of Rs. 1 lakh has been allocated for National Green Hydrogen Mission.

4.43 About the implementation time-line of National Green Hydrogen Mission, the Secretary of the Ministry deposed as under:

"Hon'ble Prime Minister had announced it in the last Independence Day speech. We had earlier targeted it as 31st December, 2021. Now, I think it will go beyond March, 2022. The Finance Ministry has held one EFC and there is another EFC to be held. After that, it will go to the Cabinet."

4.44 When asked about the anticipated constraints in implementation of the Mission, the Secretary of the Ministry deposed as under:

"One issue with this Mission is that the number of Ministries which are involved is large. The Petroleum Ministry is involved, the Fertilizer Ministry is involved, the Power Ministry is involved, we are involved and there are other ministries like Shipping, Steel and transport. It is a very futuristic document. It is an area where not much has been done in terms of implementation across the world. So, we are trying to put in place a futuristic mission."

CHAPTER V

RENEWABLE ENERGY FOR NORTH-EASTERN STATES AND SCs/STs

5.1 When asked about the programmes being implemented by the Ministry in North-Eastern States, the Ministry stated as under:

"During the year 2022-23, Ministry will be implementing Solar Parks, Solar rooftop, PM-KUSUM schemes in the NE regions for development of solar energy. Further, funds will be released for catering for the projects already sanctioned under Small Hydro and Bio-gas programmes as these schemes have been discontinued."

5.2 In response to a query about financial expenditure *vis-à-vis* allocation during the previous years for the North-Eastern States, the Ministry furnished the following:

(in Rs Crore)			
Year	B.E.	R.E.	Expenditure
2018-19	504.53	504.53	122.41
2019-20	513.00	375.00	128.0850
2020-21	565.00	335.00	107.4126
2021-22	565.00	499.00	38.62 (upto 31 st Jan 2022)

5.3 When asked about the physical achievements during the previous years in the North-Eastern States, the Ministry furnished the following:

Grid Connected (in MW)				
	2018-19	2019-20	2020-21	2021-22 (Upto 31 st Jan 2022)
Solar power	19.64	27.1	5.17	24.28
Small Hydro Power	28.0	0	0	0
Bio mass	0	0	2	0
Off-grid/Decentralized (in No.)				
Home lighting systems	23150	-	-	-
Solar Pumps	-	-	63	421
Solar Street lights	6132	3264	43838	52315
Solar Study Lamps	466910	192152	385732	362995
Biogas Plants	441	615	978	-

5.4 When the Committee wanted to know the reasons for low utilization of fund allocated for North-Eastern States, the Ministry stated that:

- "Due to low solar insolation and wind power density, the output of such projects is less and cost is relatively high due to remoteness, etc. This results in higher tariff and it

becomes unviable for DISCOMs to purchase. Even scheme with subsidy and VGF specially designed for these region find few takers as it is cheaper for utilities to purchase cheaper power from other states than to produce in their own state.

- Both wind & solar power projects are land intensive requiring large flat tracts of shadow free contiguous land with accessibility which is difficult to find in north eastern region.
- Non-receipt of adequate number of proposals from state governments for setting up of grid connected solar & wind power projects in this region make achievements of targets much difficult.”

5.5 Further explaining about the reasons for low utilization of funds allocated for North-Eastern Region, during the evidence, the representative of the Ministry deposed as under:

“.....there has been a lower demand and also the fact that the resource in Northeast is not very conducive to renewable energy.”

5.6 Given below are the details regarding financial expenditure *vis-à-vis* allocation under SC and ST Components, as furnished by the Ministry:

Financial Year	SC component			ST component		
	BE	RE	Actual Exp.	BE	RE	Actual Exp.
2021-22 (upto Jan. 2022)	469.00	414.00	159.38	486.00	429.00	129.13
2020-21	469.00	278.00	206.21	486.00	288.00	204.99
2019-20	426.00	311.00	284.88	441.00	322.00	279.92
2018-19	217.00	217.00	122.00	217.00	217.00	188.18
2017-18	184.00	143.00	139.54	92.00	73.00	71.06
2016-17	168.00	144.00	122.50	87.00	72.00	69.51

CHAPTER VI

RESEARCH, DESIGN AND DEVELOPMENT IN RENEWABLE ENERGY

6.1 The budgetary allocation and actual expenditure incurred on research, design and development in renewable energy sector, as furnished by the Ministry are given below:

(in Rs. Crore)			
Year	Budget Estimate	Revised Estimate	Expenditure
2018-19	94.00	43.00	25.43
2019-20	60.00	15.00	14.52
2020-21	20.00	49.00	36.47
2021-22	75.00	27.50	10.78 (upto 31 st January 2022)

6.2 When the Committee wanted to know the reasons for low utilization of funds during the previous years, the Ministry stated that:

"R&D projects are generally with duration of three to four years and the associated efforts are continuous in nature. The Funds are released after compilation of various milestones achieved and proper evaluation of the ongoing projects."

6.3 In response to a query about the major programmes/research undertaken and major achievements during the last three years, the Ministry stated as under:

"Major projects were supported in the area of Solar Photovoltaic, Solar Thermal, Hydrogen Fuel Cells and Wind-Solar Hybrid Systems.

- (a) Under an R&D 21% on 6 in. x 6 Project, BHEL has developed a PERC solar cell with efficiency of in. on controlled wafer and is targeting toward 22% efficiency.
- (b) Under a National Centre of Photovoltaic Research and Educations (NCPRE) Project at IIT, Bombay, a high efficiency crystalline silicon solar cell of 19.4% efficiency on 6 in x 6 in. was achieved.
- (c) Support for developing solar cells using other materials was provided to R&D/academic institutions. IIT Bombay has developed Perovskite solar cell with 20.6 % efficiency and in another phase, Flexible Perovskite Solar Cells and Intermediate Module with a target of Laminated Roll to Roll devices with >18% efficiency with T80>10000 hrs. are under development.
- (d) Indigenous Silicon Ingot has been prepared at SSN College of Engineering in Tamil Nadu and cost effective reliable Solar-powered Clean Drinking Water Systems suitable for various locations have been installed in the different parts of the Country.
- (e) Support for developing solar thermal system and component was provided for technology development and demonstration for utilizing solar energy for thermal and power generation applications. A one MWe Solar Thermal Power Plant with 16 hours thermal storage has been set up at Mount Abu by World Renewable Spiritual Trust (WRST), Mumbai which is running successfully.

- (f) IISc. Bangalore has developed a supercritical CO₂ Turbomachinery along with high efficiency receiver for solar thermal power plants which would be the next step for close loop CO₂ cycle waterless solar thermal power plant.
- (g) CSIR-Central Salt & Marine Chemicals Research Institute, Bhavnagar, Gujarat and NIT Agartala have developed a 5 Kg solar dryer installed at NIT-Agartala for drying of natural rubber sheets as demonstration unit which is useful in North East region for quicker rubber drying using solar energy.
- (h) Research and Development have been supported in hydrogen fuel cells focussing on technology development and demonstration for hydrogen production and storage for stationary and transport applications.”

6.4 The thrust areas that have been identified for R&D support in the renewable energy sector during the year 2022-23, as furnished by the Ministry are given below:

“Support will be provided for development, demonstration, testing, standardization, and validation of technologies/systems/ components with emphasis on application oriented R&D, improving efficiency, reliability and cost effectiveness for indigenous development and manufacturing. Participation of industry will be encouraged.

- In solar thermal, the thrust areas include development of solar thermal technology for power generation and industrial process/heat, storage systems, hybridization, etc.
- In Solar Photovoltaic (SPV), thrust is on improving Si-PV efficiency, reducing the cost, developing solar cells by using new material, production of Si material from sand, improving modules quality and reliability, development of standard designs for support structure for SPV systems, materials and fabrication technology for solar cells and modules, inverters, power conditioning units, grid integration, etc. In addition, focus would be on storage solutions.
- The thrust areas in biogas include development of efficient and cost effective designs of biogas plants, standardization of multiple designs of biogas plants, standardization of biogas slurry based bio-fertilizer, bio-manure up-gradation, development of biogas purification systems, development of efficient biogas engine for power generation.
- In wind, the thrust areas include wind turbine system design & integration, off-shore technology and wind solar hybrid systems.
- In Small Hydropower (SHP), thrust areas include development of ultra-low head turbines (below 3m), generators, monitoring systems, pumped storage systems, etc.
- R&D in hydrogen and fuel cells will focus on hydrogen production from various feedstock, technology for storage and development of efficient and cost effective fuel cells for stationary, transport applications etc.”

CHAPTER VII

PSUs/AUTONOMOUS BODIES UNDER THE MINISTRY OF NEW AND RENEWABLE ENERGY

7.1 To support the Ministry, there are five institutions i.e. two Public Sector Undertakings - Indian Renewable Energy Development Agency (IREDA) and Solar Energy Corporation of India (SECI) and three autonomous bodies- National Institute of Solar Energy (NISE), National Institute of Wind Energy (NIWE) and National Institute of Bio Energy (NIBE).

7.2 Details regarding budgetary allocation for the year 2022-23 for PSUs/Institutions under MNRE, as furnished by the Ministry, are given below:

Sl. No.	Institution	Objective/Focus Areas	BE 2022-23 (In Rs. Crore)
1.	Indian Renewable Energy Development Agency (IREDA)	It is a Non-Banking Financial Institution. It provides term-loans for renewable energy projects	-
2.	Solar Energy Corporation of India (SECI)	It is section 3 company under the Companies Act. It functions as the implementing and executing arm for the National Solar Mission.	-
3.	National Institute of Solar Energy (NISE)	It serves as the technical focal point for solar energy research & development.	16.00
4.	National institute of Wind Energy (NIWE)	It serves as the technical focal point for wind power research & development.	22.00
5.	National Institute of Bio Energy (NIBE)	It focuses on research & development in Bio Energy	7.00

(A) INDIAN RENEWABLE ENERGY DEVELOPMENT AGENCY (IREDA)

7.3 The financial performance of IREDA during the previous years, as furnished by the Ministry, is as follows:

Parameters	(In Rs. Crore)		
	2018-19	2019-20	2020-21
Loan Sanctions	11,942	12,696	11,001
Loan Disbursements	9,385	8,785	8,827
Total Income	2,022	2,372	2,659
PBT	311	241	570
PAT	250	215	346
NPA% (Gross)	6.12%	10.08%	8.77%
NPA% (Net)	3.74%	7.18%	5.61%
Net Worth	2,584	2,521	2,995
Loan Book	20,888	22,811	26,923
Earning per Share (Annualized)	3.19	2.73	4.42
CRAR (%)	16.32%	14.34%	17.12%
MOU Ratings	Very Good	Fair	Excellent

7.4 When asked about the credit plan of IREDA to utilize the capital infusion of Rs. 1500 crore, the Ministry stated as under:

“With the capital infusion of Rs 1,500 crore by the Government, IREDA aims to:

- Lend Rs 12,000 crore (approx.) to the Renewable Energy Sector, thus facilitate the debt requirement for additional capacity of approx. 3,500 – 4,000 MW.
- Enhance its net-worth which will help it in additional Renewable Energy financing, thus contributing towards achieving capacity addition targets of the Government.
- Improve its capital-to-risk weighted assets ratio (CRAR) to facilitate its lending and borrowing operations.
- Come out with Initial Public Offer (IPO) of Rs. 13.90 crore shares to meet its further requirement of capital for the purpose of targets set in the 5-year Business Plan. Also, DIPAM has communicated its proposal for Offer for Sale (OFS) of 10% post infusion of Gol equity of Rs. 1,500 crore along with IPO.”

(B) SOLAR ENERGY CORPORATION OF INDIA (SECI)

7.5 In response to a question about the credit plan of SECI to utilize the capital infusion of Rs. 1000 crore, the Ministry stated as follows:

“Ministry of Finance has approved the proposal for infusion of equity of Rs 1000 Cr. in SECI on 21.01.2022. The additional fresh equity is proposed to be used by SECI for-

- Financing its own projects. The projects envisaged to be funded through equity infusion would be set up in a phased manner. About 3300 MW installed capacity of renewable energy projects is planned to be set up by SECI by FY 2025-26.
- To strengthen the Net worth of SECI to mobilize additional resources at cheaper rates to meet the payment obligations arising out of long term PPA signed. As SECI is the PPA counter-party for the projects that are set up through tenders which requires SECI to have a strong balance sheet with sufficient net-worth to meet the payment obligations arising out of long term PPA signed. A higher net-worth will lead to better credit rating, thereby improving credibility of SECI’s PPAs for sectoral investors. Strong balance sheet will also enable SECI to make timely payments to developers in case of delays by Discoms, through internal resources or by raising short-term loans, thereby boosting investor confidence.”

(C) NATIONAL INSTITUTE OF SOLAR ENERGY (NISE)

7.6 The Ministry furnished the following details regarding financial allocation vis-à-vis utilization by NISE during the previous years:

(In Rs. Crore)			
Financial Year	BE	RE	Expenditure
2018-19	18.00	18.00	18.11
2019-20	15.00	13.00	16.47
2020-21	5.00	13.00	13.73
2021-22	19.50	15.04	13.66 (as on 28.2.2022)

7.7 The Ministry stated that no significant non-utilization/over-utilization of funds has been made by NISE and during FY 2019-20 an amount of Rs 4.66 crore was available as carry forward.

(D) NATIONAL INSTITUTE OF WIND ENERGY (NIWE)

7.8 On being asked about financial allocation *vis-à-vis* utilization by NIWE during the previous years, the Ministry furnished the following:

(In Rs. Crore)			
Year	BE	RE	Funds utilized
2019-20	17	23	23
2020-21	1.5	13.5	13.5
2021-22	20.84	20.84	8.3319 (as on 14.02.2022. The remaining funds are likely to utilized by March 2022)

(E) NATIONAL INSTITUTE OF BIO ENERGY (NIBE)

7.9 Details regarding financial allocation *vis-à-vis* utilization by NIBE during the previous years, as furnished by the Ministry are given below:

Year	BE	RE	Utilization	Remarks
	(In Rs. Crore)			
2017-18	8.00	1.00	1.00	The actual expenditure was Rs 204.03 lakhs. The amount of Rs 104.03, which was over and above the grants, was utilized from the carried forward grant of previous year (Rs 531.02 lakhs). The balance excess of Rs 426.98 (including Bank interest of Rs 51.45 lakhs) was carried forwarded to next year.
2018-19	3.00	1.00	1.00	The actual expenditure was Rs 285.11 lakhs. The amount of Rs 185.11, which was over and above the grants, was utilized from the Carried forward grant of previous year (Rs 426.98 lakhs).The balance excess of Rs 241.86 plus Bank interest of Rs 40.39 lakhs, i.e. a total of Rs 282.25 lakh was surrendered to the Govt.
2019-20	3.00	0.70	0.66	Rs. 4.00 lakhs in GIA capital could not be utilized as the same was released at the fag end of the year. However, the actual expenditure was Rs 169.14 lakhs under General and Salary Head. Thus, the excess amount of Rs 103.14 was utilized over and above the grants. The Bank interest was Rs 1.50 lakhs and the excess expenditure of Rs 101.64 lakhs was adjusted from the interest of Corpus Fund (which was Rs 185.47 lakhs during FY 2018-19) after the approval of Governing Council.
2020-21	1.50	4.70	4.70	The actual expenditure was Rs 473.06 lakhs. No amount was carried forward grant of previous year. The balance excess of Rs 34.83 lakhs, including Rs 34.22 lakhs as interest, was surrendered to the Govt.
2021-22	8.33	4.69	4.69 (as on 28.2.2022)	No carried forward grant of previous year. The actual expenditure by 31.03.2022 is envisaged at Rs. 4.96 crore.

7.10 The Ministry stated that physical targets are not achieved by the National Institute of Bio Energy due to acute shortage of manpower at the institute and Covid-19 hindrance.

PART – II

OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE

WORK ALLOCATION OF THE MINISTRY

1. The Ministry of New and Renewable Energy is the nodal Ministry of the Government of India for all matters relating to renewable energy resources. The Committee note that an administrative entity for promotion of renewable energy came into existence in 1981 as a Commission which was converted into a Department in 1982 and this department became the Ministry of Non-conventional Energy Sources in 1992. It is astonishing to note that a Ministry, which has been in existence for thirty years, has no power to formulate and issue its guidelines because implementation of the Electricity Act is responsibility of the Ministry of Power. It is true that grid connected electricity should be under a single administrative entity in order to have a holistic picture. However, keeping the Ministry of New and Renewable Energy as responsible only for generation of renewable power without looking at transmission and distribution gives a fragmented picture. Moreover, India has been a flag-bearer for extensive adoption of renewable energy and it has committed itself to increase its non-fossil energy capacity to 500 GW by 2030 and achieve the target of Net Zero by 2070. Keeping in view India's long term commitments regarding renewable energy and also to create synergy in the electricity sector, the Committee recommend that there should be an overhauling of the central administrative entities dealing with electricity with creation of a set up which can bring generation from all sources along with transmission and distribution under a single administrative Ministry for administrative convenience and also to harmonize the policy making for all matters relating to this sector. The Ministry of New and Renewable Energy should take initiatives in this direction and apprise the Committee about the outcome.

DEMANDS FOR GRANTS (2022-23) OF THE MINISTRY

2. The Committee note that the Ministry projected a budgetary requirement of Rs. 11449 crore for the financial year 2022-23 but only Rs. 6900.68 crore have actually been allocated which is an increase of about 20% over the Budget Estimates of the previous year. The Committee observe that about 73% budget of the Ministry is allocated for only two components i.e. Solar Power (Grid) and KUSUM Scheme. Further, about 20% of the budget has been allocated for clearing past liabilities and interest payment. Therefore, it is clear that the Ministry has been actively dealing with only two programmes i.e. grid connected solar including roof-tops and KUSUM Scheme. However, it has been furnished by the Ministry that most of the grid connected renewable energy projects in the Country are being implemented by the private sector developers without any central financial assistance. The past trends also reflect that the Ministry could not fully utilize its budgetary allocations during the previous years. It implies that the allocated funds are more than sufficient and the Ministry could not justify its demand during the process of allocation by the Ministry of Finance. The Committee, therefore, recommend that the Ministry should focus on exhaustive utilization of the budgetary allocation during the coming financial year and then justify the need for allocation of more funds for its central sector schemes.

BUDGET ALLOCATION AND UTILIZATION

3. The Committee note that Gross Budgetary Support to the Ministry has been substantially decreased at the time of Revised Estimates during the previous years. The allocation was reduced by about 26% for the financial year 2019-20 and about 38% for 2020-21. For the financial year 2021-22, although the data furnished by the Ministry shows an increase of Rs. 1928.80 crore at RE, but, it includes Rs. 1500 crore and Rs. 1000 crore provided by the Government of India as equity infusion in Indian Renewable Energy Development Agency and Solar Energy Corporation of India Limited respectively. Therefore, there is an actual reduction in the budgetary support for schemes/programmes of the Ministry at the time of Revised Estimates for 2021-22 as well. The Committee observe that the Ministry has not been able to fully utilize even the decreased allocations during the previous years. It could utilize only 91.53%, 86.24% and 61.75% of revised budgetary allocations during the financial years 2019-20, 2020-21 and 2021-22 (upto January, 2022) respectively. The Committee find it very strange that funds are un-spent in such an important and dynamic sector. Moreover, such a mismatch in the demand, allocation and actual utilization of funds clearly points towards poor financial planning by the Ministry. The Committee, therefore, recommend that the Ministry should streamline its budget formulation process so as to present a realistic and need-based estimation of funds required for various schemes and programmes and augment its administrative capacity for better utilization of allocated funds.

PHYSICAL TARGETS AND ACHIEVEMENTS

4. The Committee note that a total renewable energy capacity of 105.85 GW has been installed in the Country as on 31st January, 2022 which is about 60% of the overall target of 175 GW. The Committee are constrained to note that the Ministry has continuously failed to achieve its yearly physical targets. For the years 2018-19, 2019-20 and 2020-21 against the renewable energy targets of 15,555 MW, 12,252 MW and 12,880 MW, the Ministry could achieve only 8,760.57 MW, 8,843.29 MW and 7,549.64 MW with shortfall of about 44%, 28% and 42% respectively. Similarly, during the year 2021-22, against the target of 19,635.90 MW, 10,050.74 MW of renewable power could be installed upto January, 2022 which is only 51% of the given target. The Committee feel that because of continuous non-achievement of the assigned yearly physical targets, it is highly unlikely that the target of 175 GW can be achieved by the end of the year 2022. The performance of the Ministry does not seem to be in sync with our ambitious commitments and announcements made at various international fora regarding adoption of renewable energy. Against such gross under-achievement, the Ministry needs to significantly improve its target fulfillment in the financial year 2022-23. Keeping in view India's commitment to increase its non-fossil based energy capacity to 500 GW by the year 2030, the Committee expect the Ministry to ramp up its pace and recommend the Ministry to closely assess and examine the factors responsible for non-achievement of targets and take corrective measures without any delay so that the physical targets set for the financial year 2022-23 are successfully achieved. The Ministry should also monitor the implementation of the projects and ensure adherence to the prescribed timeline for their commissioning.

SOLAR ROOF-TOP PROGRAMME

5. The Committee note that against the overall target of 40 GW to be achieved by the end of this year, 5.87 GW of rooftop solar projects have been installed in the Country, that is an achievement of less than even 15% of the target. The Committee are concerned with the weak performance of the Ministry in solar roof-top programme and believe that given the performance of the Ministry in this Sector till date, the solar roof-top target for installation of 40 GW cannot be achieved by the end of 2022 with such tardy pace of progress. It has been observed that the roof-top systems are not proving to be attractive for the consumers due to non-availability of information at the grass root level, lack of awareness about this scheme amongst the masses, time consuming and complicated procedures for setting it up, delays in disbursement of subsidy, etc. The Committee thus recommend that:

- (i) The Ministry should explore the possibility of introducing Direct Benefit Transfer (DBT) for subsidy disbursement directly to the consumer so as to make the process transparent, simpler and faster.
- (ii) The Ministry should widely advertise the incentives being provided by the Government for solar roof-top power system in all vernacular print and electronic media so as to spread awareness among the masses.
- (iii) One-stop-Solution Centers should be put in place in all the Districts of the Country to provide assistance/services/information to the customers and facilitate them in getting solar roof top system installed in a hassle free manner.

OFF-GRID/DECENTRALIZED SOLAR PROGRAMME

6. The Committee note that the off-grid and decentralized solar application programme has been discontinued by the Ministry *w.e.f.* 31st March, 2021. The programme was initiated with a focus on areas where grid power has not reached or is not reliable; backward and remote areas in North Eastern States; Left-Wing Extremism (LWE) affected districts, etc. While the objectives of the programme were laudable, the Committee are disappointed to observe that the programme has been discontinued without achievement of the envisaged targets. The Ministry has submitted that the guidelines of the scheme were issued in August 2018 and its implementation got delayed due to imposition of model code of conduct for General Elections, 2019 and lockdown on account of COVID-19. It is clear from the reasons given by the Ministry that the programme could not get its full run since its initiation. Similarly, AJAY Scheme was closed due to discontinuation of MPLAD Scheme by the Government in the year 2020 but the same has not been restarted despite restoration of MPLAD Scheme in November, 2021. Keeping in view the fact that off-grid and decentralized solar applications have the capability to enhance energy access of the people living in backward and remote areas, the Committee recommend that off-grid and decentralized solar application programme and AJAY Scheme should be restarted. The Ministry should also evaluate these programmes and incorporate the feedbacks received from the stakeholders for better implementation at the ground level.

PM-KUSUM SCHEME

7. The Committee note that PM-KUSUM Scheme aims to add a solar capacity of 30.80 GW by end of the year 2022 with central financial support of Rs. 34,000 crore. The

Committee observe that against the target of 10,000 MW of grid connected solar power plants under Component A, only 27.75 MW could be installed. Under component B, against the target of 20 lakh stand alone solar pumps, only 78,940 pumps have been installed. Under component C, against the target of 15 lakh grid-connected solar agriculture pumps, only 1026 pumps have been solarized. The Committee are extremely disappointed with the dismal performance of the Ministry under this scheme. It is observed that farmers have been facing issues in getting finance from the Banks for small solar plants and most of the states are not able to provide their share of the subsidy under the Scheme. The Ministry furnished that it has introduced feeder level solarization and been pursuing to arrange fund through Agriculture Infrastructure Fund. The Committee note that the Ministry has made efforts to redress the issues which have been adversely impacting the implementation of the scheme. In order to address the problem of non-availability of funds and further ease the financial burden of the farmers, the Committee recommend that the Ministry should allow payment of farmers' share of funds through MPLAD Scheme. The Ministry should also coordinate and hold consultations with the State Governments and actively encourage them to participate in the Scheme.

BIO ENERGY PROGRAMME

8. The Committee note that the Bio Power Programme including Waste to Energy Programme and New National Bio-Gas and Organic Manure Programme (NNBOMP) have been discontinued by the Ministry. It is observed that the Ministry has not been able to achieve the targets for biomass power since 2019-20, however under waste to energy programme, physical targets have been achieved but the fund utilization was poor. Moreover, the physical and financial targets under NNBOMP also remain unachieved. The Ministry has furnished that a proposal under umbrella scheme of National Bioenergy Programme was submitted but the Ministry of Finance did not agree with the proposal. The Committee have been apprised that the Municipal Waste to Energy Sector seems to be picking up and the Ministry has received 27 proposals for converting municipal waste to energy. The Committee desire that the waste to energy programme should be continued as use of agricultural waste/residue to produce energy has the added benefit of reducing stubble burning and thereby addressing the problem of air pollution. Similarly, Bio-Gas Plants not only meet the cooking fuel requirements of rural folks but also provide them organic bio-manure. The Committee, therefore, recommend that the Ministry should pursue the matter with the Ministry of Finance and impress upon them the need for continuation of these programmes.

SMALL HYDRO POWER

9. The Committee note that the small hydro power programme was discontinued w.e.f. 31st March, 2017 and since then, the budget allocations have been used to clear old liabilities only. The Ministry has apprised the Committee that the process for formulation of a new scheme for small hydro power has started and the scheme is likely to be in place soon. It is worth pointing out that the Ministry does not have a scheme for small hydro power for last five years and the same is still under process. In this regard, the Committee recommend that the Ministry should critically review its performance under the previous small hydro power programme and formulate the new scheme in a time bound manner after ensuring that the factors which hindered the implementation of the earlier programme are properly addressed in the new scheme.

GREEN ENERGY CORRIDOR (GEC)

10. The Committee note that the Inter-State Transmission System (ISTS) component of Green Energy Corridor (GEC) consisting of total length of 3200 ckm transmission lines and 17000 MVA substations has been completed, whereas the Intra-State component of GEC project which is being implemented by the State Transmission Utilities of the respective State has been delayed and given multiple extensions. The Committee observe that a total of 8468 ckm of transmission lines have been constructed out of the total target of 9700 ckm and a total of 15268 MVA substations have been charged out of total target of 22600 MVA as on 31st December, 2021. It implies that 1232 ckm of transmission lines have to be constructed and 7332 MVA of substation have to be charged in order to meet even the extended deadline of 30th June, 2022. The Committee are concerned about the much delayed implementation of the intra state component of GEC. Keeping in view the importance of the project for evacuation of power from renewable energy rich States, the Committee recommend that the Ministry should pursue the matter with the States concerned and get the Green Energy Corridor ready within the given time frame in order to avoid grid congestion and to facilitate evacuation of large scale renewable power capacity.

RENEWABLE ENERGY FOR NORTH EASTERN STATES

11. The Committee note that the Ministry has not been able to fulfill its obligation regarding utilization of 10% of its annual budget for development of renewable energy in the North-Eastern Region. During the financial years 2018-19, 2019-20 and 2020-21, against the Revised Estimates of Rs. 504.53 crore, Rs. 375 crore and Rs. 335 crore for North-East Region, expenditure of Rs. 122.41 crore, Rs. 128.09 crore and Rs. 107.41 crore have been incurred with huge unspent balance of 76%, 66% and 68% respectively. For 2021-22, against an RE of Rs. 499 crore, only Rs. 38.62 crore could be utilized upto 31st January 2022. It has been submitted that substantial shortfall in fund utilization was due to non-receipt of adequate proposals from the North-East States. It is observed that the north-eastern region has substantial potential for small hydro power; however, the small-hydro programme of the Ministry has been under consideration since April, 2017. Further, the north-eastern states are interested in off-grid and decentralized schemes of the Ministry, but, the schemes like Atal Jyoti Yojana (AJAY), off-grid and decentralized solar PV application programme, etc have been closed/discontinued by the Ministry. It is perplexing to note that on the one hand, the Ministry has been complaining about lack of proposals from North-Eastern States and on the other hand, the relevant schemes have either been under consideration for about five years or discontinued or closed down. The Committee, thus recommend that the Ministry should give proper consideration and due priority to the requirements of North-Eastern States while formulating the new schemes/programmes for off-grid/decentralized solar applications and small hydro power and fully utilize the funds allocated for development of renewable energy in this region.

RESEARCH, DESIGN AND DEVELOPMENT IN RENEWABLE ENERGY

12. The Committee note that the budgetary allocation for research and development in renewable energy for the years 2018-19, 2019-20 and 2021-22 were drastically reduced at the time of Revised Estimates, while the financial year 2020-21 being the exception. In 2018-19, BE of Rs. 94 crore was reduced by about 54% to Rs. 43 crore; in 2019-20, BE of Rs. 60 crore was reduced by 75% to Rs. 15 crore and in 2021-22, BE of Rs 75 crore was

reduced by about 63% to Rs. 27.50 crore at RE stage. It is found that even the severely reduced allocation could not be fully utilized by the Ministry. In 2020-21, BE of Rs. 20 crore was increased to Rs. 49 crore at RE stage, but again, the Ministry could not fully utilize the allocation. The Committee feel that sufficient investment in research and development is a pre-requisite for sustained growth and the persisting inability of the Ministry to utilize the allocated funds shows its casual approach towards R&D in this sector. The Committee, therefore recommend that the Ministry should focus on maximum utilization of allocated funds so that research, design, demonstration and development in renewable energy sector do not suffer due to low utilization of sanctioned amount. The Committee also desire that the Ministry should collaborate with and provide funds to universities and specialized research institutions in order to support them for research in renewable energy.

NATIONAL INSTITUTE OF BIO-ENERGY

13. The Committee note that the National Institute of Bio-Energy is an autonomous institution under the Ministry which focuses on research & development in bio energy. The Ministry has submitted that the institution has not been able to achieve its physical targets due to acute shortage of manpower. This Committee had raised the issue of acute shortage of technical and scientific manpower at National Institute of Bio Energy in their Report. In September 2020, the Ministry, in its action taken replies, submitted that the recruitment was under process and it was expected to be completed soon. However, the Committee find that the shortage still persists which has obviously impacted the efficiency of the Institution. It has also come to the notice that the Institute does not have a regular Director General since atleast last 2 years. In view of the above, the Committee recommend that the Ministry should complete the recruitment process of Director General as well as other technical and scientific positions at the earliest so that the Institution functions properly and is able to achieve its objectives.

NEW DELHI;
15 March, 2022
24 Phalguna, 1943 (Saka)

RAJIV RANJAN SINGH *alias* LALAN SINGH
Chairperson
Standing Committee on Energy

Detailed statement showing the Budget Estimates for the year 2022-23 *vis-à-vis* the
Budget Estimates and Revised Estimates of 2021-22
and Actual Expenditure during 2020-21

(In Rs. crores)									
		Actuals		BE		RE		BE	
		2020-21		2021-22		2021-22		2022-23	
		Revenue	Capital	Revenue	Capital	Revenue	Capital	Revenue	Capital
A.	CENTRE'S EXPENDITURE								
I	Establishment Expenditure								
3451	Secretariat Economic Services	34.15	-	49.05	-	44.30	-	56.01	-
4810	Office Buildings	-	162.97	-	10.00	-	110.00	-	11.74
TOTAL- Establishment Expenditure		34.15	162.97	49.05	10.00	44.30	110.00	56.01	11.74
II	Central Sector Schemes								
2	Schemes of MNRE								
2.01	Grid Interactive Renewable Power								
2810	Wind Power	1059.35	-	1100.00	-	1100.00	-	-	-
2810	Hydro Power	38.78	-	90.00	-	65.50	-	-	-
2810	Bio Power	6.22	-	120.00	-	56.85	-	-	-
2810	Solar Power	1049.85	-	2369.13	-	2475.26	-	-	-
2810	Green Energy Corridors	159.53	-	300.00	-	150.00	-	-	-
2810	Interest Payment and issuing Expenses on the Bonds	124.37	-	124.35	-	124.35	-	-	-
2810	KUSUM	30.00	-	221.00	-	150.00	-	-	-
Total- Grid Interactive Renewable Power		2468.10	0.00	4324.48	0.00	4121.96	0.00	-	-
2.02	Off-Grid/Distributed and Decentralised Renewable Power								
2810	Wind Power	1.32	-	0.00	-	0.00	-	-	-
2810	Hydro Power	1.99	-	2.00	-	0.50	-	-	-
2810	Bio Power	11.68	-	70.00	-	36.48	-	-	-
2810	Solar Power	149.43	-	237.00	-	210.00	-	-	-
2810	Biogas Programme	31.74	-	95.00	-	25.00	-	-	-
2810	Other Renewable Energy Applications (Solar Cities, Green Buildings, Demonstration of Renewable Energy Applications, Cookstoves, etc.)	0.02	-	0.20	-	0.20	-	-	-
2810	KUSUM	126.43	-	776.30	-	540.26	-	-	-
Total- Off-Grid/Distributed and Decentralised Renewable Power		322.61	0.00	1180.50	0.00	812.44	0.00	-	-
2.03	Research and Development Activities								
2810	Research and Development	36.47	-	75.00	-	27.50	-	-	-
Total - Research and Development Activities		36.47	0.00	75.00	0.00	27.50	0.00	-	-
2.04	Supporting Programmes								
2810	Monitoring/Evaluation and Other Studies	0.00	-	0.30	-	0.10	-	-	-
2810	Information, Education and Communication	1.60	-	8.00	-	2.00	-	-	-

2810	International Relations -	20.30	-	20.00	-	3.40	-	-	-
2810	Human Resources Development and Training	19.33	-	37.00	-	20.10	-	-	-
Total - Supporting Programmes		41.23	0.00	65.30	0.00	25.60	0.00	-	-
2.05	Solar Energy								
2810	Solar Power (Grid)	-	-	-	-	-	-	3304.03	-
2810	Solar Power (Off-grid)	-	-	-	-	-	-	61.50	-
2810	Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)	-	-	-	-	-	-	1715.90	-
2810	Other Renewable Energy Applications (OREA)	-	-	-	-	-	-	0.10	-
2810	Interest Payment and issuance Expenses on Bonds	-	-	-	-	-	-	124.36	-
Total - Solar Energy		-	-	-	-	-	-	5205.89	0.00
2.06	Bio Energy Programme								
2810	Bio Power (Grid)	-	-	-	-	-	-	50.00	-
2810	Bio Power (Off-grid)	-	-	-	-	-	-	20.00	-
2810	Biogas Programme (Off-grid)	-	-	-	-	-	-	30.00	-
Total - Bio Energy Programme		-	-	-	-	-	-	100.00	0.00
2.07	Programme for Wind and other RE								
2810	Wind Power (Grid)	-	-	-	-	-	-	1050.00	-
2810	Hydro Power (Grid)	-	-	-	-	-	-	50.00	-
2810	Hydro Power (Off-grid)	-	-	-	-	-	-	2.00	-
Total - Programme for Wind and other RE		-	-	-	-	-	-	1102.00	0.00
2.08	Support Programme								
2810	Monitoring & Evaluation	-	-	-	-	-	-	0.10	-
2810	Information and Public Advertising (I&PA)	-	-	-	-	-	-	6.00	-
2810	Human Resources Development and Training	-	-	-	-	-	-	30.93	-
2810	International Relations	-	-	-	-	-	-	8.00	-
2810	Research and Development	-	-	-	-	-	-	35.00	-
Total - Support Programme		-	-	-	-	-	-	80.03	0.00
2.09	Hydrogen Mission								
2810	National Green Hydrogen Mission	-	-	-	-	-	-	0.01	-
Total - Hydrogen Mission		-	-	-	-	-	-	0.01	0.00
2.10	Storage and Transmission								
2810	Green Energy Corridor	-	-	-	-	-	-	300.00	-
Total - Storage and Transmission		-	-	-	-	-	-	300.00	0.00
Total - Central Sector Schemes		2868.41	0.00	5645.28	0.00	4987.50	0.00	6787.93	0.00
III	Other Central Expenditure								
3	Autonomous Bodies								
2810	National Institute of Wind Energy	13.50	-	20.84	-	20.00	-	22.00	-
2810	National Institute of Bio Energy	4.70	-	8.33	-	4.96	-	7.00	-
2810	National Institute of Solar Energy	13.00	-	19.50	-	15.04	-	16.00	-
Total - Autonomous Bodies		31.20	0.00	48.67	0.00	40.00	0.00	45.00	0.00
Investment in CPSEs									
4810	Indian Renewable Energy Development Agency (IREDA)	0.00	-	0.00	-	1500.00	-	0.00	-
4810	Solar Energy Corporation of India (SECI)	0.00	-	0.00	-	1000.00	-	0.00	-
Total - Investment in CPSEs		0.00	0.00	0.00	0.00	2500.00	0.00	0.00	0.00
Total		2933.76	162.97	5743.00	10.00	5071.80	2610.00	6888.94	11.74

STANDING COMMITTEE ON ENERGY

MINUTES OF EIGHTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2021-22)
HELD ON 22nd FEBRUARY, 2022, IN COMMITTEE ROOM 'D',
PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 1400 hrs to 1530 hrs

Lok Sabha

- Shri Rajiv Ranjan Singh *alias* Lalan Singh – *Chairperson*
2. Shri Gurjeet Singh Aujla
 3. Shri Devendra Singh Bhole
 4. Shri Kishan Kapoor
 5. Dr. A. Chellakumar
 6. Shri Sunil Kumar Mondal
 7. Shri Uttam Kumar Reddy Nalamada
 8. Shri Gyaneshwar Patil
 9. Shri Dipsinh Shankarsinh Rathod
 10. Shri Bellana Chandra Shekhar

Rajya Sabha

11. Shri Rajendra Gehlot
12. Shri S. Selvaganabathy
13. Shri K. T. S. Tulsi

SECRETARIAT

1. Shri R.C. Tiwari – *Additional Secretary*
2. Dr. Ram Raj Rai – *Joint Secretary*
3. Shri R.K. Suryanarayanan – *Director*
4. Shri Kulmohan Singh Arora – *Additional Director*

WITNESSES

Ministry of New and Renewable Energy

1. Shri Indu Shekhar Chaturvedi – Secretary
2. Shri Vimalendra Anand Patwardhan – Joint Secretary & FA
3. Dr. Vandana Kumar – Joint Secretary
4. Shri J. Rajesh Kumar – Economic Adviser
5. Shri Arvind Kumar – Chief Controller of Accounts

Public Sector Undertakings/Autonomous Bodies

- | | | | |
|-----|------------------------------|---|----------------------------|
| 6. | Shri Pradip Kumar Das | – | CMD, IREDA |
| 7. | Ms. Suman Sharma | – | MD, SECI |
| 8. | Shri Dinesh Dayanand Jagdale | – | Joint Secretary & DG, NIBE |
| 9. | Dr. K. Balaraman | – | DG, NIWE |
| 10. | Shri G. Upadhyay | – | Scientist – G & DG, NISE |

2. At the outset, the Hon'ble Chairperson welcomed the Members of the Committee and the representatives of the Ministry of New and Renewable Energy to the sitting and informed that the sitting had been called for evidence in connection with examination of Demands for Grants (2022-23) of the Ministry. The Chairperson also apprised them about the provisions of Directions 55(1) and 58 of the Directions by the Hon'ble Speaker.

3. During the discussion, a power-point presentation was made on the subject which, *inter-alia*, covered Hon'ble Prime Minister's Panchamrit at CoP-26, Overview of Renewable Energy Projects, Progress over the Years, Falling Renewable Energy Tariffs, Structural and Programme Interventions, PM-KUSUM Scheme – Progress Update, Solar Parks, Roof-top Solar Phase-II, Aatmanirbhar Bharat – Solar Manufacturing, National Green Hydrogen Mission, Transmission Network, Off-shore Wind, Renewable Energy in Ladakh, Impact of Covid 19 Pandemic, Expenditure during last three years, Proposed Demand v/s Approved BE 2022-23, Action proposed during 2022-23, etc.

4. The Committee, *inter-alia*, deliberated upon the following points with representatives of the Ministry of New and Renewable Energy:

- (a) Need to augment Ministry's administrative capacity for better absorption of funds with visible results on the ground;
- (b) Need to ensure time-bound achievement of the stipulated targets;
- (c) Issues related to weak performance of the Ministry in Solar Roof-top Programme;
- (d) Need to widely publicize the Solar Roof-top Scheme;
- (e) Issues related to slow progress of KUSUM Scheme;
- (f) Need to encourage States to participate in the PM-KUSUM Scheme;
- (g) Need to explore possibility of utilising MPLAD funds under KUSUM Scheme;
- (h) Need to utilize funds allocated for North-Eastern Region;
- (i) Implementation time-line of National Green Hydrogen Mission and associated challenges;
- (j) Issues related to Productivity Linked Incentive (PLI) Scheme for manufacturing of 'High Efficiency Solar PV Modules';
- (k) Issues related to Generation based Incentive Scheme for Wind Power;
- (l) Need to enforce Renewable Purchase Obligations;
- (m) Issues related to imposition of basic customs duty of 40% and 25% on imported solar modules and cells respectively starting April 2022.

- (n) Issues related to discontinuation of various programmes/schemes like AJAY Scheme, Off-grid and Decentralized Solar Programme, Small-Hydro Programme, Programme on Energy from Urban, Industrial and Agricultural Wastes, National Bio-Gas and Organic Manure Programme, etc.;
- (o) Issues related to future role of the Ministry keeping in view its diminishing active participation in the Sector and also the fact that major policies and regulations related to generation, transmission and distribution of electricity are handled by the Ministry of Power.

5. The Members also sought clarifications on various other issues relating to the subject and representatives of the Ministry responded to the same. The Committee directed representatives of the Ministry of New and Renewable Energy to furnish written replies to those queries which could not be readily responded to by them within seven days.

The Committee then adjourned.

STANDING COMMITTEE ON ENERGY

MINUTES OF THE NINTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2021-22)
HELD ON 15th MARCH, 2022 IN COMMITTEE ROOM 'B',
PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee sat from 1030 hours to 1100 hours

Lok Sabha

- Shri Rajiv Ranjan Singh alias Lalan Singh – *Chairperson*
2. Shri Sunil Kumar Mondal
 3. Shri Velusamy P.
 4. Shri Parbatbhai Savabhai Patel
 5. Shri Dipsinh Shankarsinh Rathod
 6. Shri Gnanathiraviam S.
 7. Shri Bellana Chandra Sekhar
 8. Shri Shivkumar C. Udasi

Rajya Sabha

9. Shri Ajit Kumar Bhuyan
10. Shri T.K.S. Elangovan
11. Shri Muzibulla Khan
12. Shri S. Selvaganabathy
13. Shri Sanjay Seth
14. Dr. Sudhanshu Trivedi

SECRETARIAT

1. Dr. Ram Raj Rai – *Joint Secretary*
2. Shri R.K. Suryanarayanan – *Director*
3. Shri Kulmohan Singh Arora – *Additional Director*

2. At the outset, the Chairperson welcomed the Members and apprised them about the agenda of the Sitting. The Committee then took up for consideration and adoption the following draft Reports:

- (i) Report on 'Action-taken by the Government on recommendations contained in the 6th Report (17th Lok Sabha) of the Committee on Demands for Grants (2021-22) of the Ministry of New and Renewable Energy'.
- (ii) Report on 'Action-taken by the Government on recommendations contained in the 7th Report (17th Lok Sabha) of the Committee on Demands for Grants (2021-22) of the Ministry of Power'.

(iii) Report on 'Demands for Grants (2022-23) of the Ministry of New and Renewable Energy'.

(iv) Report on 'Demands for Grants (2022-23) of the Ministry of Power'.

3. After discussing the contents of the Reports, the Committee adopted the aforementioned draft Reports without any amendment/modification. The Committee also authorized the Chairperson to finalize the above-mentioned Reports and present the same to both Houses of the Parliament.

The Committee then adjourned.