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STANDING COMMITTEE ON ENERGY

(2022-23)

SEVENTEENTH LOK SABHA

MINISTRY OF NEW AND RENEWABLE ENERGY

[Action-taken by the Government on observations/recommendations contained in Twentieth Report (17th Lok Sabha) on the subject 'Tidal Power Development in India']

THIRTY-SIXTH REPORT

LOK SABHA SECRETARIAT
NEW DELHI

July, 2023/ Ashadha, 1945 (Saka)

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Presented to Lok Sabha on 25th July, 2023

Laid in Rajya Sabha on 25th July, 2023

LOK SABHA SECRETARIAT
NEW DELHI

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Shri Jagdambika Pal - Chairperson

2. Shri Gurjeet Singh Aujla
3. Shri Chandra Sekhar Bellana
4. Shri Pradeep Kumar Chaudhary*
5. Dr. A. Chellakumar
6. Shri Harish Dwivedi
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16. Shri Uttam Kumar Nalamada Reddy
17. Shri Devendra Singh *alias* Bhole Singh
18. Shri Rajveer Singh (Raju Bhaiya)
19. Shri Shivkumar Chanabasappa Udasi
20. Shri Balashowry Vallabbhaneni
21. Shri P. Velusamy

RAJYA SABHA

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23. Shri Rajendra Gehlot
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25. Shri Javed Ali Khan
26. Shri Muzibulla Khan
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29. Shri K.R.N. Rajeshkumar
30. Dr. Sudhanshu Trivedi
31. Shri K.T.S. Tulsi

SECRETARIAT

1.	Dr. Ram Raj Rai	Joint Secretary
2.	Shri R.K. Suryanarayanan	Director
3.	Shri Kulmohan Singh Arora	Additional Director
4.	Ms. Madhumita	Assistant Committee Officer

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* *Nominated as Member of the Committee w.e.f. 4th November, 2022.*

\# *Nominated as Member of the Committee w.e.f. 16th December, 2022.*

INTRODUCTION

I, the Chairperson, Standing Committee on Energy, having been authorized by the Committee to present the Report on their behalf, present this Thirty-Sixth Report on action-taken by the Government on observations/recommendations contained in Twentieth Report (17th Lok Sabha) on the subject 'Tidal Power Development in India'.

2. The Twentieth Report was presented to the Lok Sabha on 5th August, 2021 and was laid on table of the Rajya Sabha on the same day. Replies of the Government to the observations/recommendations contained in this Report were received on 22nd September, 2022.

3. The Report was considered and adopted by the Committee at their sitting held on 20th July, 2023.

4. An Analysis of action-taken by the Government on the observations/ recommendations contained in the Twentieth Report (17th Lok Sabha) of the Committee is given at Appendix-II.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

New Delhi;
20th July, 2023
29 Ashadha, 1945 (Saka)

Jagdambika Pal
Chairperson,
Standing Committee on Energy

CHAPTER – I

This Report of the Standing Committee on Energy deals with action-taken by the Ministry of New and Renewable Energy on observations/ recommendations contained in the Twentieth Report (Seventeenth Lok Sabha) of the Committee (2020-21) on the subject 'Tidal Power Development in India'.

2. The Twentieth Report was presented to the Lok Sabha on 5th August, 2021 and was laid on table of the Rajya Sabha on the same day. The Report contained 5 Observations/Recommendations.

3. Action Taken Notes in respect of all the observations/ recommendations contained in the Report have been received from the Government. These have been categorized as follows:

(i) Observations/Recommendations which have been accepted by the Government:
Serial Nos. 1, 2, 3, 4 and 5 Total - 5
Chapter-II

(ii) Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies:

Nil Total - 00
Chapter-III

(iii) Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration:

Nil Total– 00
Chapter-IV

(iv) Observation/Recommendation in respect of which the final replies of the Government are still awaited:

Nil Total- 00
Chapter-V

4. The Committee further desire that Action-taken Statement on the Recommendations/Observations contained in Chapter-I of this Report may be furnished to the Committee within three months of the presentation of this Report.

5. The Committee will now deal with action-taken by the Government on some of their Recommendations that require reiteration or merit comments.

Recommendation No. 1

6. The Committee had recommended as under:

> "The Committee note that there are three main types of Ocean Energy; Wave, Tidal and Ocean-Thermal. The estimated potential of tidal and wave power in India are 12,455 MW and 41,300 MW respectively, while the potential for Ocean-Thermal has not been estimated till date. The Ministry has submitted that the estimated potential of tidal and wave power is purely theoretical and does not necessarily constitute practically exploitable potential. The Committee feel that as a first step, there is a need to find out the actual exploitable potential of tidal, wave and ocean-thermal power in the Country. The Committee, therefore recommend that the Ministry should get the potential of tidal, wave and ocean-thermal power reassessed in order to explore the practically exploitable potential."

7. In its action-taken reply, the Ministry of New and Renewable Energy has stated as under:

> "Ministry of Earth Science is requested vide O.M No. 151/13/2021-MNRE-GT, Dated 21/09/2022 to get the potential of tidal and ocean thermal power assessed in order to explore the practically exploitable potential."

8. In response to the Committee's recommendation that the Ministry should get the potential of tidal, wave and ocean-thermal power reassessed in order to explore the practically exploitable potential, the Ministry in its action-taken reply has only stated that it has requested the Ministry of Earth Sciences on 21st September, 2022 to get the potential of tidal and ocean thermal power assessed in order to explore the practically exploitable potential. The Committee would like to be apprised of the initiatives taken by the Ministry of Earth Sciences and

the outcome thereof as well as the results of the reassessment process in order to explore the practically exploitable potential of all types of ocean energy.

Recommendation No. 3

9. The Committee had recommended as under:

"The Committee note that India has been playing an active role in harnessing of Renewable Energy in order to mitigate climate change as the Government has set a target to install 175 Giga-watts of Renewable power by the year 2022. However, tidal power has not been included in this target despite the fact that our Country is surrounded by sea on three sides and has a long coastline of around 7500 Kilometers with the estuaries and gulfs where tidal power can be harnessed. However, the Ministry has submitted that all sources of renewable energy, including tidal power will be considered in the deployment targets for 2030. Further, the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap' conducted by Indian Institute of Technology, Chennai in association with Credit Rating Information Services of India Limited (CRISIL) and funded by Indian Renewable Energy Development Agency Limited (IREDA), has suggested a roadmap with a goal to set up commercial tidal power projects by the year 2030. Also on August 22, 2019, the Ministry issued a notification clarifying that energy produced using various forms of ocean energy such as tidal, wave, ocean thermal energy conversion, etc. shall be eligible for meeting non-solar Renewable Purchase Obligations (RPO). As per the Ministry, this notification was in response to inquiries from industry and the inclusion was made to provide scope for tidal power projects. The Committee therefore desire that the Ministry must actively follow-upon this notification through appropriate incentives so that the Country can have commercial tidal power projects by the year 2030. While the decision to make tidal power eligible for meeting Renewable Purchase Obligations is noteworthy, the Ministry cannot rest at that and it needs to actively participate in the process. The Committee, therefore recommend that the Ministry should set up one demonstration/pilot tidal power project in the Country at the most favourable cost-effective location like Gulf of Kutch considering that the capital cost of a tidal power project is site specific. The Committee would also like to be apprised about the follow-up action taken by the Government on the findings of the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap'.

10. In its action-taken reply, the Ministry of New and Renewable Energy has stated as under:

> "Ministry has issued call for proposal under the Renewable Energy Research and Technology Development Programme (RE-RTD) including Tidal Power. The R&D/Pilot projects proposals received in the area of Tidal Power will be examined as per the notification and relevant proposals will be considered."

11. The Committee had recommended that the Ministry should set up one demonstration/pilot tidal power project in the country and the Ministry was also specifically asked to apprise about the follow-up action taken by the Government on the findings of the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap'. The Ministry in its action-taken reply has indicated that a call for proposal has been issued under the Renewable Energy Research and Technology Development Programme (RE-RTD) including Tidal Power, and the R&D/Pilot projects proposals received in the area of Tidal Power will be examined as per the notification and relevant proposals will be considered. The Committee feel that merely issuing a call for proposals is not enough and the Ministry should actively engage in preparing the groundwork for a demonstration/pilot tidal power project so that the feasibility of commercial generation of tidal power can be explored. Nonetheless, the Committee would like to be apprised of the progress made in the area of Tidal power under RE-RTD. The Committee would also like to point out that the Ministry has not furnished anything about the action-taken by the Government on the findings of the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap'. The same may be submitted to the Committee without any further delay. The Committee may also be apprised about the proposed share of tidal power in the renewable energy targets for 2030.

CHAPTER – II

Observations/Recommendations which have been accepted by the Government

Recommendation No. 1

The Committee note that there are three main types of Ocean Energy; Wave, Tidal and Ocean-Thermal. The estimated potential of tidal and wave power in India are 12,455 MW and 41,300 MW respectively, while the potential for Ocean-Thermal has not been estimated till date. The Ministry has submitted that the estimated potential of tidal and wave power is purely theoretical and does not necessarily constitute practically exploitable potential. The Committee feel that as a first step, there is a need to find out the actual exploitable potential of tidal, wave and ocean-thermal power in the Country. The Committee, therefore recommend that the Ministry should get the potential of tidal, wave and ocean-thermal power reassessed in order to explore the practically exploitable potential.

Reply of the Government

Ministry of Earth Science is requested vide O.M No. 151/13/2021-MNRE-GT, Dated 21/09/2022 to get the potential of tidal and ocean thermal power assessed in order to explore the practically exploitable potential.

[Ministry of New and Renewable Energy
O.M. No. 151/13/2021-MNRE-GT, Dated: 22/09/2022]

Comments of the Committee
(Please see Para No. 8 of Chapter – I of the Report)

Recommendation No. 2

The Committee note that two tidal power projects of 3.75 MW and 50 MW installed capacity were initiated in the years 2007 and 2011 in the states of West Bengal and Gujarat respectively. However, both these projects were dropped because of exorbitant cost. In the case of 3.75 MW Durgaduani Tidal Power Project in West Bengal, the project cost was placed at Rs. 238 crore i.e. Rs. 63.50 crore per MW and in the case of 50 MW Tidal Power Project at the Gulf of Kutch in Gujarat, the estimated cost of the project was placed at Rs. 750 crore i.e. Rs. 15 crore per MW. The Ministry has also submitted that the normative cost of installation of 1 MW Solar, Wind, Biomass, Hydro and Thermal Power Plant is Rs. 3.5 crore, Rs. 5.5 crore, Rs. 6 crore, Rs. 10-15 crore, Rs. 5 crore respectively. The Committee feel that comparing the project

cost of Tidal Power that was arrived at around ten years back with the present project cost of Solar, Wind, Hydro, etc. is not justified. The cost of tidal power may have come down in the last ten years as is the case with other Renewable Energy like Solar Power. The Committee, therefore recommend that the Ministry needs to reassess the cost of Tidal Power in India in order to consider its economic viability and benefits in a longer time span.

Reply of the Government

Ministry has issued call for proposal under the Renewable Energy Research and Technology Development Programme (RE-RTD) including Tidal Power. The R&D/Pilot projects proposals received in the area of Tidal Power will be examined as per the notification and relevant proposals will be considered to assess the cost of Tidal Power in India including their economic viability and benefits in a longer time span.

[Ministry of New and Renewable Energy
O.M. No. 151/13/2021-MNRE-GT, Dated: 22/09/2022]

Recommendation No. 3

The Committee note that India has been playing an active role in harnessing of Renewable Energy in order to mitigate climate change as the Government has set a target to install 175 Giga-watts of Renewable power by the year 2022. However, tidal power has not been included in this target despite the fact that our Country is surrounded by sea on three sides and has a long coastline of around 7500 Kilometers with the estuaries and gulfs where tidal power can be harnessed. However, the Ministry has submitted that all sources of renewable energy, including tidal power will be considered in the deployment targets for 2030. Further, the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap' conducted by Indian Institute of Technology, Chennai in association with Credit Rating Information Services of India Limited (CRISIL) and funded by Indian Renewable Energy Development Agency Limited (IREDA), has suggested a roadmap with a goal to set up commercial tidal power projects by the year 2030. Also on August 22, 2019, the Ministry issued a notification clarifying that energy produced using various forms of ocean energy such as tidal, wave, ocean thermal energy conversion, etc. shall be eligible for meeting non-solar Renewable Purchase Obligations (RPO). As per the Ministry, this notification was in response to inquiries from industry and the inclusion was made to provide scope for tidal power projects. The Committee therefore desire that the Ministry must actively follow-upon this notification through

appropriate incentives so that the Country can have commercial tidal power projects by the year 2030. While the decision to make tidal power eligible for meeting Renewable Purchase Obligations is noteworthy, the Ministry cannot rest at that and it needs to actively participate in the process. The Committee, therefore recommend that the Ministry should set up one demonstration/ pilot tidal power project in the Country at the most favourable cost-effective location like Gulf of Kutch considering that the capital cost of a tidal power project is site specific. The Committee would also like to be apprised about the follow-up action taken by the Government on the findings of the Study 'Tidal and Wave Energy in India – Survey on potential and proposition of Roadmap'.

Reply of the Government

Ministry has issued call for proposal under the Renewable Energy Research and Technology Development Programme (RE-RTD) including Tidal Power. The R&D/Pilot projects proposals received in the area of Tidal Power will be examined as per the notification and relevant proposals will be considered.

[Ministry of New and Renewable Energy
O.M. No. 151/13/2021-MNRE-GT, Dated: 22/09/2022]

Comments of the Committee
(Please see Para No. 11 of Chapter – I of the Report)

Recommendation No. 4

The Committee also note that no study has been conducted for assessment of environmental and ecological impact of a tidal power plant. The Ministry has submitted in this regard that a barrage across an estuary may environmentally impact a very wide area ranging for many miles upstream and downstream. The Committee are of the opinion that while seeking to harness the potential of tidal power, there is also a need to pragmatically assess environmental impact and ecological sustainability of tidal power plants. The Ministry may also evaluate global experience in this regard; particularly the two projects installed in France and South Korea, which at present constitute 90 % of the installed capacity of tidal power in the World.

Reply of the Government

Ministry of Environment, Forest & Climate Change (MoEF&CC) will be requested to conduct environmental impact and ecological sustainability study of the approved R&D demonstration / pilot projects in tidal power.

[Ministry of New and Renewable Energy
O.M. No. 151/13/2021-MNRE-GT, Dated: 22/09/2022]

Recommendation No. 5

The Committee note that the Ministry has not spent any funds on development of tidal power so far. During the examination of Demands for Grants (2021-22) of the Ministry, the Committee had observed that the funds allocated to the Ministry for R&D in Renewable Energy Sector as a whole had been drastically reduced at the time of Revised Estimates and the Ministry could not utilize even the reduced amount since at least 2017-18. The Committee, therefore recommend that the Ministry instead of curtailing R&D, should enhance its support significantly, particularly for un-harnessed sources like tidal power, which can go a long way in realizing the vast potential of Renewable Energy in the Country.

Reply of the Government

The RE-RTD Programme has been structured to support research, design, technology development and demonstration for renewable energy sector including Ocean/Tidal Energy research projects. The received proposals will be supported as per the recommendation of the R&D Project Appraisal Committee (RDPAC).

[Ministry of New and Renewable Energy
O.M. No. 151/13/2021-MNRE-GT, Dated: 22/09/2022]

CHAPTER – III

Observations/Recommendations which the Committee do not desire to pursue in view of the Government's Replies

Nil

CHAPTER – IV

Observations/Recommendations in respect of which the Replies of the Government have not been accepted by the Committee and which require Reiteration

Nil

CHAPTER – V

Observations/Recommendations in respect of which the final Replies of the Government are still awaited

Nil

New Delhi;
20th July, 2023
29 Ashadha, 1945 (Saka)

Jagdambika Pal
Chairperson,
Standing Committee on Energy

APPENDIX - I

STANDING COMMITTEE ON ENERGY

MINUTES OF TWENTY-EIGHTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2022-23) HELD ON 20th JULY, 2023 IN MAIN COMMITTEE ROOM, PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee sat from 1500 hours to 1545 hours

LOK SABHA

Shri Jagdambika Pal - Chairperson

2 Shri Chandra Sekhar Bellana
3 Shri Pradeep Kumar Chaudhary
4 Dr. A. Chellakumar
5 Shri S. Gnanathiraviam
6 Shri Sunil Kumar Mondal
7 Shri Gyaneshwar Patil
8 Shri Jai Prakash
9 Shri Uttam Kumar Nalamada Reddy
10 Shri Devendra Singh *alias* Bhole Singh
11 Shri Balashowry Vallabbhaneni
12 Shri P. Velusamy

RAJYA SABHA

13 Shri Gulam Ali
14 Shri Narain Dass Gupta
15 Shri Javed Ali Khan
16 Shri K.R.N. Rajeshkumar
17 Dr. Sudhanshu Trivedi

SECRETARIAT

1. Dr. Ram Raj Rai — Joint Secretary
2. Shri Kulmohan Singh Arora — Additional Director

2. At the outset, the Chairperson welcomed the Members of the Committee 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 observations/ recommendations contained in 20th Report (17th Lok Sabha) on the subject 'Tidal Power Development in India'.
(ii) Report on action-taken by the Government on observations/ recommendations contained in 21st Report (17th Lok Sabha) on the subject 'Financial Constraints in Renewable Energy Sector'.
(iii) Report on action-taken by the Government on observations/ recommendations contained in 27th Report (17th Lok Sabha) on the subject 'Evaluation of Wind Energy in India'.

3. After discussing the contents of the Reports in detail, 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 during the current session.

The Committee then adjourned.

APPENDIX - II

(*Vide Introduction of the Report*)

Analysis of action-taken by the Government on Observations/ Recommendations contained in the Twentieth Report (17th Lok Sabha) of the Standing Committee on Energy

(i)	Total number of Recommendations	5
(ii)	Observations/Recommendations which have been accepted by the Government: Sl. Nos. 1, 2, 3, 4 and 5	
	Total:	5
	Percentage:	100 %
(iii)	Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies: Sl. No. Nil	
	Total:	Nil
	Percentage:	00
(iv)	Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration: Sl. Nos. Nil	
	Total:	Nil
	Percentage:	00
(v)	Observations/Recommendations in respect of which final replies of the Government are still awaited: Sl. No. Nil	
	Total:	Nil
	Percentage:	00