

19

STANDING COMMITTEE ON ENERGY
(2015-16)

SIXTEENTH LOK SABHA

MINISTRY OF POWER

**(Action Taken on the recommendations contained in the
Seventh Report (16th Lok Sabha) on 'Energy Conservation')**

Nineteenth Report



**LOK SABHA SECRETARIAT
NEW DELHI**

May, 2016/ Vaisakha, 1938 (Saka)

NINETEENTH REPORT
STANDING COMMITTEE ON ENERGY
(2015-16)
(SIXTEENTH LOK SABHA)
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**[Action Taken on the recommendations contained in the
Seventh Report (16th Lok Sabha) on 'Energy Conservation']**

Presented to Lok Sabha on 10.05.2016

Laid in Rajya Sabha on 10.05.2016



**LOK SABHA SECRETARIAT
NEW DELHI**

May, 2016/ Vaisakha, 1938 (Saka)

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CONTENTS

COMPOSITION OF THE COMMITTEE (2015-16).....		ii
INTRODUCTION.....		iv
CHAPTER I	Report	1
CHAPTER II	Observations/ Recommendations which have been accepted by the Government	20
CHAPTER III	Observations / Recommendations which the Committee do not desire to pursue in view of the Government's replies	49
CHAPTER IV	Observations/ Recommendations in respect of which replies of Government have not been accepted by the Committee and require reiteration	53
CHAPTER V	Observations/ Recommendations in respect of which final replies of the Government are still awaited	54

APPENDICES

I	Minutes of the Sitting of the Committee held on 27 th April, 2016.	58
II	Analysis of Action Taken by the Government on the Observations/ Recommendations contained in the 7 th Report (16 th Lok Sabha) of the Standing Committee on Energy.	60

COMPOSITION OF THE STANDING COMMITTEE ON ENERGY (2015-16)

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LOK SABHA

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16. Shri Gutha Sukender Reddy
17. Shri Devendra Singh alias Bhole Singh*
18. Dr. Pritam Gopinath Munde
19. Shri Malyadri Sriram
20. Shri Bhanu Pratap Singh Verma

(ii)

RAJYA SABHA

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22. Shri Oscar Fernandes
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24. Shri Pyarimohan Mohapatra
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29. Dr. Anil Kumar Sahani
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SECRETARIAT

- | | | |
|----|------------------------|----------------------|
| 1 | Shri K. Vijayakrishnan | Additional Secretary |
| 2. | Shri N.K.Pandey | Director |
| 3. | Ms. Deepika | Executive Assistant |

* Nominated as Member of the Committee w.e.f. 13th April, 2016 *vice* Shri P.A. Sangma who expired on 4th March, 2016.

(iii)

INTRODUCTION

I, the Chairperson, Standing Committee on Energy, having been authorized by the Committee to present the Report on their behalf, present this Nineteenth Report on the action taken by the Government on the recommendations contained in the 7th Report of the Standing Committee on Energy on 'Energy Conservation'.

2. The 7th Report was presented to the Lok Sabha on 11th August, 2015 and was laid on the Table of Rajya Sabha on the same day. Replies of the Government to all the recommendations, except five, contained in this Report were received on 12th February, 2016.

3. The Report was considered and adopted by the Committee at their sitting held on 27th April, 2016.

4. An Analysis of the Action Taken by the Government on the recommendations contained in the 7th Report 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
2nd May, 2016
Vaisakha 12, 1938 (Saka)

DR. KIRIT SOMAIYA,
Chairperson,
Standing Committee on Energy

CHAPTER – I

This Report of the Standing Committee on Energy deals with Action Taken by the Ministry of Power on the Recommendations/Observations contained in the Seventh Report (Sixteenth Lok Sabha) of the Committee (2014-15) on the subject 'Energy Conservation'.

2. The Seventh Report was presented to Lok Sabha on 11th August, 2015 and was laid on the Table of Rajya Sabha on the same day. The Report contained 21 Recommendations/Observations.

3. Action Taken Notes in respect of all the Recommendations/ Observations, except five, contained in the Report have been received from the Government. These have been categorized as follows:

- (i) Recommendations/Observations which have been accepted by the Government:

Serial Nos. 1,3,4,5,9,10,12,14,15,17,18,19,21.

Total - 13
Chapter-II

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

Serial Nos. 2,7,20.

Total - 03
Chapter-III

- (iii) Recommendations/Observations 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) Recommendations/Observations in respect of which the final replies of the Government are still awaited:

Serial Nos. 6, 8, 11, 13, and 16.

Total - 05
Chapter-V

4. Action Taken Notes in respect of the following Recommendations contained in the Report are still awaited:

- (i) Recommendation No. 6 (Para No. 7) relating to the need for designated consumers to report their energy consumption data to a Central Government Agency for which necessary amendments are recommended to be carried out in the Energy Conservation Act, 2001;
- (ii) Recommendation No. 8 (Para No. 9) relating to Energy Intensive Industries;
- (iii) Recommendation No. 11 (Para No. 12) relating to making available adequate and reliable testing facilities for LED lights in the country;
- (iv) Recommendation No. 13 (Para No. 14) relating to Energy Conservation in Agriculture Sector; and
- (v) Recommendation No. 16 (Para No. 17) relating to Investment to promote Energy Conservation.

The Committee draw attention of the Ministry towards this delay in furnishing Action Taken Replies regarding the above mentioned Recommendations/Observations and direct the Ministry to furnish the replies without any further delay.

5. The Committee desire that Action Taken Notes on the Recommendations/Observations contained in Chapter-I of the Report may be furnished to the Committee within three months of the presentation of this Report.

(Recommendation No. 3, Paragraph No.4)

6. The Committee had noted that the Bureau of Energy Efficiency in technical cooperation with Energy Efficiency Services Ltd. had concluded implementation of energy conservation measures in two prominent Government buildings, i.e., NITI Aayog and Shram Shakti Bhawan in New Delhi housing various Government Departments. These projects had demonstrated energy savings in the range of 20% to 25% with additional cost savings towards equipment maintenance and

proven techno-commercial viability of undertaking such energy conservation measures. Based on the experience of these implementations, guidelines for carrying out energy efficiency up-grades in existing buildings had been developed for their large scale adoption and replication. The Committee were appreciative of these efforts of the BEE in energy savings in the Government buildings. However, it was felt that more is required to be done in this regard. The Committee, therefore, had recommended that a time bound target should be set to bring all Government buildings within the purview of energy efficiency norms as about 25% of saving electricity would help in substantial energy savings.

7. In their Action Taken Reply, the Ministry have stated as under:

" Bureau of Energy Efficiency

BEE has developed "Handbook for Energy Efficiency upgrades in Public Buildings" which includes standard templates for energy audits and retrofits on performance contract. MoUD may be requested to provide a time bound action plan for energy efficiency improvements in existing Government buildings.

Energy Efficiency Services Limited

- EESL has successfully completed projects in NitiAayog, Shram Shakti Bhawan & India Habitat Centre.
- Further EESL has recently signed MoU with CPWD for implementation energy efficiency measures in 100 government buildings in the country
- Another MoU has been signed between Ministry of Railways and EESL to implement efficiency measures in buildings, stations, etc.
- EESL is in discussion with large PSUs like ONGC, NLC and Banks (Dena Bank) for implementation of similar projects
- EESL is also taking up a DMRC project for 90-metro stations for lighting.

Ministry of Urban Development

Work of Energy efficiency is already under implementation in CPWD maintained Govt. buildings through ESCO route".

8. In regard to the recommendation of the Committee that a time bound target should be set to bring all Government buildings within the purview of energy efficiency norms as about 25% of saving of electricity will help in substantial energy savings, the Ministry have stated that the BEE has

developed the “Handbook for Energy Efficiency upgrades in Public Buildings” which includes standard templates for energy audits and retrofits on performance contract and EESL has recently signed MoU with the Ministry of Railways and CPWD for implementation of energy efficiency measures in 100 government buildings and railway stations in the country. The Ministry have also stated that the EESL is in discussion with large PSUs like ONGC, NLC and Banks (Dena Bank) for implementation of similar projects and it is taking up a DMRC project for 90 Metro Stations for lighting. Also, work of Energy efficiency is already under implementation in CPWD maintained Govt. buildings through ESCO route.

The Committee are satisfied with these efforts of the Ministry; however, the Committee feel that more is required to be done in a time bound manner so that at least all the Government Buildings may be made Energy Efficient as early as possible.

(Recommendation No. 4, Paragraph No.5)

9. The Committee had noted that there were 478 industrial units categorized as energy intensive industries called designated consumers from 8 sectors. These units consume about 35% of the total energy of the country. They are: Aluminium, Chlor Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles. However, there is no clarity about the norms defining an industry as energy intensive industry; neither has there been any practice specifying the consumption percentage of energy as qualifying standards for energy intensive industry. The Committee were also unclear about the number of units in the country which had been described as designated consumers. In the absence of a proper definition of energy intensive industry, it will be appropriate to have some clear parameters to categorize an industry as being energy intensive. The Committee, therefore, had recommended that:

- (i) A study may be undertaken to include more industries in the compulsory energy efficiency list.
- (ii) There may be major campaign by Ministries, Power PSUs, DISCOMs and also industries involved in power sector be asked to draft and implement major awareness campaign on 'Energy Efficiency and Energy Conservation'.

10. In their reply, the Ministry of Power have stated as under :

(i) "Ministry of Coal

- In this connection it is stated that the Committee has noted that units categorized as energy intensive industries called designated

consumers are from 8 sectors which are: Aluminium, Chlor-Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles. None of these industries comes under the purview of Ministry of Coal.

- Regarding study of industries in the compulsory energy efficiency list, it is mentioned that the subject matter is not in the domain of Ministry of Coal. Bureau of Energy Efficiency is the appropriate authority to deal with the matter.
- In view, of the above it is stated that this Ministry of Coal has no specific comments to offer on the report of the said Committee and there does not seem any actionable point in respect to this Ministry.

Ministry of Petroleum & Natural Gas

- The subject matter of the recommendation falls under the ambit of Bureau of Energy Efficiency (BEE). As such, this Ministry has no comments to offer.
- Perform Achieve and Trade (PAT) mechanism seeks to create a market-based mechanism to facilitate energy efficiency improvements in large energy-intensive industries. While carrying out the audits and through the audit reports, the management is made aware on energy saving opportunities for the units and scope for improvements.
- During Financial Year 2014-15, PCRA provided support to 4 unit of Thermal Power and 1 unit of Textile. During FY 2015-16, PCRA is providing support to 16 industries which covers the sector like Thermal Power Plant, Textile, Iron and Steel and Chlor-Alkali through Energy/Monitoring and verification Audit.
- In cycle-II, PAT is inter-alia covering Refineries under MoP&NG also. A workshop to this effect was organized by Bureau of Energy Efficiency (BEE) on 8th May, 2015. The criteria of notification of Refinery as Designated Consumer is under advanced stage of approval and notification by Ministry of Power (MOP). Meanwhile, a Technical Committee has been formed by BEE in consultation with MoPNG, having representatives from MoP&NG and MoP, and all PSUs as well as Pvt. Refineries, with Executive Director, Centre for High Technology as its Chairman. The Specific Energy Consumption (SEC) calculation methodology developed by CHT has been accepted to be the metric for the PAT scheme. CHT is also helping BEE in developing the format for collection of required data from the Refineries and the calculation of SEC.

Bureau of Energy Efficiency

- Currently 8 energy intensive industrial sectors (Aluminium, Chlor-Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles) are included under Perform, Achieve and Trade (PAT) scheme out of the 15 listed sectors in the schedule of the EC Act. Further, 3 new sectors namely Railways, Petroleum Refineries, Electricity Distribution Companies (DISCOMS) are being included under next PAT cycle. With this about 50% of energy consumption by the industrial sector would be covered for energy efficiency improvements. The next step would be to extend coverage to the remaining listed sectors in the schedule.
- Recommendation of the Committee is noted for carrying out a study for expanding the existing list of sectors.

(ii) Ministry of Coal

Ministry of Coal has no specific comments to offer on the report of the said Committee and there does not see any actionable point in respect to this Ministry.

Ministry of Petroleum & Natural Gas

Ministry of Petroleum & Natural Gas, through its subordinate organizations like Petroleum Conservation research Association (PCRA) and Oil Marketing Companies (BPCL, HPCL and IOCL) is actively involved in awareness campaign on 'Energy Efficiency and Energy Conservation'.

PCRA is providing support and create awareness amongst the industries on 'Energy Efficiency and Energy Conservation" through its various programs as follows:

- **Energy Audits:** In the systems /Sub systems/equipment and processes of the industrial plant, it is necessary to identify future energy saving potential in different area in order to achieve the targeted saving by the target year and to take up implementation activities as per the recommendations of energy audits. Findings are discussed with management of the industry and are made aware regarding energy saving opportunities. In the last three years PCRA has carried out approximately 1000 Energy Audits in different sectors of economy.
- Programs on Energy Efficiency through Energy Audits under PAT (Performance, Achieve and Trade Scheme)
 - ❖ **Energy Management System-ISO 50001 for various industries**
:PCRA has started a new initiative to provide consultancy to various industries for implementation of Energy Management System (ISO-

50001:2011EnMS). This Energy Management System (EnMS) is an effective and proven management tool to continually improve its input energy cost, productivity and thus competitiveness. In the FY 2014-15, PCRA has got (ISO-50001:2011 EnMS) implemented at 12 installation including two oil refineries. This program creates Energy Saving culture at all levels in the subject industry. PCRA also conducted two nos. of National Seminar on Awareness on ISO 50001: EnMS during the Financial Year 14/15.

- ❖ **Industrial training programs:** The Industrial Training Programs is an activity primarily meant to share the experience gained by PCRA during industry audits. These training programs are targeted at raising the awareness level of the members of industry about the conservation opportunities that can be realized through the energy audit of their plant. Industry is also equipped with the tools of self-audit. During 2014-15, PCRA conducted 507 Industrial training in various industries.
- ❖ **Seminars and technical meets:** Technical seminars are an effective tool for the dissemination for information relating to advancement made in technologies and also for improvement in operational practices for improving energy efficiency. PCRA, during 2014-15, organized 131 Seminars/Technical Meets for the benefit of specific industrial sectors. During these seminars, PCRA shares its experience of conducting energy efficiency studies through case study presentations containing details of investment required and the benefits accrued through implementation of the energy conservation measures.
- ❖ **Sector Specific Book Publication:** PCRA has conducted a number of energy audits in different sectors of industries. In order to share its experience of energy auditing and improve the energy conservation in different sectors, we have kept publishing a series of books for different sectors. A list of these books are as under:

S.No	Title
1	Handbook on Energy Conservation in Pulp & Paper Industry
2	Practical Guide to Energy Conservation
3	Practical Guide to Energy Conservation in Dairy Industry
4	Energy Audit Manual for Textile Industry
5	Energy Efficiency in Pharma Sector
6	Practical Guide to Energy Conservation in Ceramic Industry

Such publications are very useful and create awareness on good practices to be followed to improve energy efficiency.

- ❖ **Capacity Building:** In a bid to enhance capacity in the Area Energy Efficiency and Energy Conservation, PCRA regularly provide its expert faculties during various Seminars/Technical Meets/panel Discussions and similar forums to propagate the message of Energy Efficiency and Energy Conservation. Under this program, PCRA have conducted various programs for Capacity Building of various industrial sectors on behalf of MSME and State Designated Agency (SDA).

OMCs are also involved in this endeavour as follows:

- **Bharat Petroleum Corporation Ltd. (BPCL):** BPCL has constituted “Sustainable Development Committee” with the objectives to oversee, approve, provide budgetary allocation and monitor the projects covered under Sustainable Development projects as part of the business plan of business units. It involves an enduring and balanced approach to environmental responsibilities and includes reviewing of the ‘Business Responsibility report’ on a half yearly basis and to place this report to the Board for various energy conservation and loss control measures, utilization of alternate source of energy and technology absorption in its refineries located at Mumbai and Kochi. As regards implementing major awareness campaign on “Energy Efficiency and Energy Conservation” it is in the endeavour of conducting various awareness programmes on Oil Conservation during Oil and Gas Conservation Fortnight.
- **Hindustan Petroleum Corporation Ltd. (HPCL):** HPCL have put in place mechanism of Energy Audits by experts in the field with the intention of identifying areas for energy saving. Based on the reports of the audits, actions like VFD usage, power factor maintenance, change of lights to LED lights are being undertaken. Moreover, HPCL has installed a Solar Power Plant in their Chennai Terminal and feasibilities for alternate energy sources at few other locations are also being studies. Specific Energy Consumption (SEC) in KW/MT of all the locations are being monitored. As regards implementing major awareness campaign on “Energy Efficiency and Energy Conservation”, various awareness programmes on Oil Conservation theme are being conducted by HPCL on the occasion of Oil & Gas Conservation Fortnight.
- **Indian Oil Corporation Ltd. (IOCL):** IOCL also have put in place mechanism of Energy Audits for energy saving. Based on the recommendations, changing of all lighting to LED has been started. Besides, solar lighting is also being implemented at targeted locations on continuous basis. It has also developed water harvesting pits in almost all locations resulting in energy conservation implementing

major awareness campaign on “Energy Efficiency and Energy Conservation”, various awareness programmes on Oil Conservation theme are being conducted on the occasion of Oil & Gas Conservation Fortnight.

Bureau of Energy Efficiency

BEE has undertaken an extensive outreach and awareness campaign on energy efficiency and energy conservation through print, electronic and outdoor media. In order to gear up the propagation of the energy conservation and efficiency in every nook and corner for the country, the services of media were embarked upon and it successfully showed its impact with the nation watching BEE's advertisement on their channels, getting inspiring messages and information through National newspapers and sensing the pulse of energy consciousness through energy saving slogans flashing on electronic display boards at various geographic locations. The media campaign on Electronic, and print was released through DAVP as per policy of Ministry of Information and Broadcasting.

Exhibitions: BEE participated in the India International Trade Fair during November, 2015 at PragatiMaidan, New Delhi and other exhibitions on power sector with a stall on them to display the achievements of BEE.

The National Energy Conservation Day is observed on 14th December every year since 1991. The annual energy conservation awards recognize innovation and achievements in energy conservation by the industries, buildings, zonal railways, state designated agencies; and municipalities and raise awareness that energy conservation plays a big part in India's response to reducing global warming through energy savings. The awards are also recognition of their demonstrated commitment to energy conservation and efficiency. Salient features of EC Award 2015 are:

- Participating units invested Rs. 2384 Crores in energy conservation measures, and achieved monetary savings of Rs. 2928 Crore.
- Participating units also saved electrical energy of 2598 Million kWh, which is equivalent to the energy generated from a 423 MW thermal power station.
- 876 units participated in the year 2015.

The habit of conservation is best introduced and inculcated at the school age. It has been seen that the children are the best agents of change and in this case we need to equip them with the

information and knowledge on energy conservation and create interest among them on this important subject. In this regard, Ministry of Power has taken an initiative and has been organizing Painting competition on Energy Conservation for students since the year 2005. The prizes are awarded in two categories: students in the 4th to 6th standards, and students in the 7th to 9th standards. In the year 2015, 1.06 crore students participated in comparison to 60.17 lakh students in 2014, registering an increase of 65% over previous year.

Hon'ble Union Minister of State (IC) for Power, Coal and New & Renewable Energy launched the microsite www.iLEDtheWay.in. The Minister also became the first citizen to take the pledge on the site.

In today's era of Digital India, the microsite will attempt to reach out to all citizens in the country and spread awareness about the nation-wide movement of #iLEDtheWay. Through this microsite, consumers can take a pledge of switching to LED bulbs, which are safer, brighter and consume less energy.

The Microsite visitors can join the movement by simply clicking "Take a Pledge" tab which is prominently displayed on the homepage. Consumers who do not have access to the LED bulb distribution under the DELP scheme in their city/state yet, can pre-register for the scheme by sharing their contact details.

It will also give exciting information on the reduction in CO₂ emissions, energy saved, avoided peak demand and is filled with pictures, videos, distribution centre details in each state and more.

BEE Star Labelled Appliances Mobile App was launched on 14th December 2015 which is linked with the database of Bureau of Energy Efficiency. The data in the mobile App is updated on a daily basis and the consumers can compare energy and cost saving across all products. It also provides a platform to receive real-time feedback from the consumers."

11. In regard to the recommendation of the Committee that a study may be undertaken to include more industries in the compulsory energy efficiency list and there may be a major campaign regarding 'Energy Efficiency and Energy Conservation' by Ministries, Power PSUs, DISCOMs and other industries involved in the power sector, the Ministry, in their reply, have stated that the recommendation of the Committee has been noted for carrying out a study for expanding the existing list of sectors. Further, the Ministry have stated that currently 8 energy intensive industrial

sectors (Aluminium, Chlor-Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles) are included under Perform, Achieve and Trade (PAT) scheme out of the 15 listed sectors in the schedule of the EC Act and 3 more sectors, namely, Railways, Petroleum Refineries and Electricity Distribution Companies (DISCOMs) are being included under the next PAT cycle, covering about 50% of energy consumption by the industrial sector for energy efficiency improvements. It has also been stated by the Ministry that the next step would be to extend coverage to the remaining listed sectors in the schedule.

The Committee are satisfied with the efforts of the Ministry in this regard; however the Committee feel that the study for expanding the existing list of energy intensive industrial sectors should be initiated as early as possible and there should be time bound inclusion, under PAT, of the remaining listed sectors in the schedule of the Energy Conservation Act.

The Committee are particularly happy with the initiation of awareness campaigns like providing consultancy to various industries for implementation of Energy Management System (ISO-50001:2011EnMS), Industrial Training Programs, Seminars and Technical Meets, Painting competition on Energy Conservation for students, launching of the microsite www.iLEDtheWay, etc. to reach out to all citizens of the country and spread awareness about the nation-wide movement for 'Energy Efficiency and Energy Conservation'.

(Recommendation No. 5 Paragraph No.6)

12. The Committee had taken note of the fact that there were a large number of industries which should be categorized as energy intensive industries based on their energy consumption. It had been proposed to bring in Railways, Distribution Companies and Refineries under the PAT scheme thereby implying their inclusion into the energy intensive industry sector. Although this is a welcome step, but it is limited in scope. A Survey should be conducted to identify more such industries so that they can be dealt with accordingly for the purpose of energy efficiency targets. Energy consumption norms should be notified for other

energy intensive sectors listed in the Energy Conservation Act, 2001. This may increase the coverage to more than 50% of the energy consumption in the country through the addition of large energy consuming sectors. Besides, penetration should also be increased and intensified for identifying the industries within the current sectors so that near accurate number of designated consumers in the country can be identified. For the purpose, a drive may be initiated to be completed in a time-bound manner. The Committee, therefore, had recommended that more number of industrial activities may be brought into the energy intensive industry sector based on the defined criteria.

13. The Ministry of Power in their reply have stated as under:

" Bureau of Energy Efficiency:

Currently 8 energy intensive industrial sectors are included under Perform, Achieve and Trade (PAT) scheme out of the 15 listed sectors in the schedule of the EC Act. Further, 3 new sectors namely Railways, Petroleum Refineries and Electricity Distribution Companies (DISCOMs) are being included under next PAT cycle. With this about 50% of energy consumption by the industrial sector would be covered for energy efficiency improvements. The next step would be to extend coverage to the remaining listed sectors in the schedule.

Recommendation of the committee is noted for carrying out a study for expanding the existing list of sectors".

14. In regard to the recommendation of the Committee that more number of industrial activities may be brought into the energy intensive industry sector based on the defined criteria, the Ministry, in their reply, have stated that the next step would be to extend coverage, under PAT, to the remaining four listed sectors in the schedule of the Energy Conservation Act. The Ministry have also stated that the Recommendation of the Committee has been noted for carrying out a study for expanding the existing list of sectors.

The Committee are of the view that there should be a clear time limit for coverage, under PAT, of the remaining four sectors out of the total 15 listed sectors in the schedule of the Energy Conservation Act and besides these 15 listed Sectors, more industrial Establishments should be brought under the ambit of the Energy Conservation Act in a time bound manner.

(Recommendation No. 9, Paragraph No.10)

15. The Committee had found that the Government had taken an initiative to promote LED lighting in the country in a big way, changing all street lights and lights in public spaces with LED lights. It is estimated that by the year 2020, the LED market will grow to about Rs.37,000 crore from Rs.1,925 crore in the year 2013. All existing Government schemes to distribute CFL are being modified with LED lamp distribution. Under the DDUGJ Scheme, the Government plans to provide LED lamps to BPL houses. Existing DSM schemes by State Governments for distribution of CFL are now being replaced with LED lamps. All LED specifications have been made mandatory and notifications are being issued to commercial buildings to change existing lights to LED. The Committee welcomed the initiative of the Government for raising the demand of the energy efficient lighting. However, the Committee were apprehensive about the realization of the projections, in view of the prevailing ground realities. There exist huge supply weakness, limited testing capacity and heavy dependence on imports of electronic components and chips. Although these factors are dampening and discouraging, yet there is also a brighter side. India's strength lies in conventional luminaries and complete range of lamp manufacture as well as availability of strong labour force for assembling LED products. Our success in CFL manufacturing can be replicated in LED as well. This can be done by providing help in the form of cheap land, lower interest rates etc. Increasing labour cost in China can provide India an edge in becoming a competitive player. The Committee felt that the challenges of the sector can be transformed into opportunities by commitment and untiring efforts. The Committee, therefore, had recommended that:

- (i) The Street Lights concept is 100 year old. There is need to modernize and upgrade the technology. Recent initiative of the Power Ministry to convert street lights into LED based Street Lights, needs in-depth study and action plan.
- (ii) Keeping in view the huge potential available for growth, all efforts should be made to turn this into a national opportunity so that energy efficiency in our household and street lightings becomes a reality, thereby resulting in substantial savings.
- (iii) The present initiative of the Ministry to encourage/ motivate the LED technology is appreciable. The Government after in-depth study must plan an action plan to use the LED technology in different schemes including residential.

16. In their Action Taken Reply, the Ministry have stated as under:

" Ministry of Urban Development

Study group can be constituted which may suggest measures to implement LED technology into street lighting expeditiously given resource crunch & based on the initiatives by EESL.

EESL

- LED based Home and Street Lighting Programme has 2 components, viz. conversion of conventional domestic lights with LEDs, and conversion of conventional street lights with LEDs,
- Under the programme, 100 cities are to be covered by March, 2016 and balance by March, 2019 targeting 77 crore ordinary bulbs and 3.5 crore conventional street lights
- The implementation approach being followed is a 2 tier approach wherein Ministry of Power and Bureau of Energy Efficiency (BEE) is taking up the high level engagement with states to participate in the programme. Engagement with DISCOMs/ Urban Local Bodies (ULBs) - EESL, after the consent of the respective state governments, engages with the DISCOMs and ULBs.
- EESL aggregates demand from various locations and initiates procurement of large quantities of LED bulbs to get the benefit of price reduction. The benefit of lower cost is pooled with the ongoing projects and the benefit is passed on to all.
- As a result, the price of LED lamps has substantially reduced from Rs. 310 per bulb to Rs. 73 per bulb over a year. The retail price of LED bulbs reduced by almost 50% (Rs. 599 to Rs. 317) during this period. For street lights – prices have come down from Rs. 137 per watt to Rs. 85 per watt
- Project Management is carried out through experienced consultants like PTC, IL&FS, REIL, etc.
- Audit to assess social impact of the LED Street Light System."

17. The Committee are satisfied to note that under the LED based Home and Street Lighting Programme, 100 cities are to be covered by March, 2016 and the balance by March 2019, targeting conversion of 77 crore ordinary bulbs and 3.5 crore conventional Street Lights to LEDs. However, the Committee would like to be apprised about the performance of the Ministry regarding this Programme, i.e., has the Ministry been able to achieve their target of covering 100 Cities by March, 2016?

The Committee appreciate the fact that the Bureau of Energy Efficiency has been engaging with States, Urban Local Bodies and DISCOMs to encourage them to participate in the programme and Project

Management has been carried out through experienced consultants like PTC, IL&FS, REIL, etc.

The Committee also note that the Prices of LED Lamps and LED Bulbs have come down substantially over a year. So, the Committee feel that there is a need to upgrade the Government's schemes regarding LEDs periodically due to continuous modernization and upgradation in LED technology in the commercial market.

(Recommendation Serial No. 10, Paragraph No.11)

18. The Committee had observed that large volumes of low quality imports have affected consumer confidence in new technologies, thus increasing the need for quality control on the imports and supply. To enforce it, Indian standards for all products and applications will have to be set and made mandatory, besides creating demand for efficient lighting products. Also, manufacturing capabilities in LED luminaries will have to be enhanced ensuring high quality electronic components, control gear and design capabilities. Local manufacturing should be supported over imports through subsidies and incentives in the form of manufacturing clusters with strong infrastructure, tax breaks, low interest capital, anti-dumping duty and limited FDI restrictions. It will also have to be ensured that optimization of manufacturing and disposal processes do not have adverse environmental impact. Regulators should also create green and IEC compliant standards for products and applications, ensure implementation by making standards mandatory and pass regulation to phase out inefficient lighting. The Committee, therefore, had recommended that in order to promote and strengthen domestic LED manufacturing, a congenial environment with reasonable assurance of stable support base and encouraging regime should be made available to the entrepreneurs of the country.

19. The Ministry of Power in their Action Taken Reply have stated as under:

"D/o Revenue – Ministry of Finance

- 10% basic customs duty (at general peak rate for non –agricultural goods) is levied on LED lights / fixtures & LED Lamps. Further, to incentivize domestic manufacturing of LED lights/fixtures & LED Lamps, basic customs duty has been exempted on major input LEDs and all inputs for manufacture of LEDs.
- In Budget 2015-16, concessional excise duty of 6% (and thus CVD of 6%) and Nil SAD was prescribed on inputs for use in the manufacture of LED drives and MCPCB for LED lights, fixtures and LED lamps.

- LED lights/fixtures & LED Lamps and their major inputs for use in manufacture attract concessional excise duty of 6% as against standard tariff rate of 12.5%.
- Anti-dumping duty (ADD) can be imposed only on the recommendation of the Directorate General of Anti-dumping Duties, who initiates and conducts such investigation based the request of the domestic industry or *suomoto* and recommends imposition of ADD, if the investigation establishes dumping, injury and casual link between the two.

EESL

Promotion of domestic manufacturing industry:

- EESL follows a transparent procurement policy and engages in periodic interactions will be held with Industry to evolve ways for speeding up implementation of LED Street Light Projects and ensure stable demand supply.
- In order to enhance domestic manufacturing capacity and to facilitate lower threshold costs to take up LED Street Light Projects, the proposal to grant infrastructure status and lower taxes to LED Luminaire sector is being pursued.
- Various options are being pursued to attract investment from Private sector players. Innovative models such as formation of SPVs with equity participation by private companies.
- Tender conditions to ensure that small and medium enterprises are able to participate in the bid by reserving 20% of the quantity through NSIC."

20. The Committee are happy to note that the Government is actively promoting and strengthening domestic LED manufacturing and providing a congenial environment with reasonable assurance of stable support base through various initiatives like exemption of major input LEDs and all inputs for manufacture of LEDs from basic customs duty; concessional excise duty of 6% as against standard tariff rate of 12.5% on LED lights/fixtures & LED Lamps and their major inputs for use in manufacturing; the proposal to grant infrastructure status and lower taxes to LED Luminaire sector; favorable tender conditions to ensure that small and medium enterprises are able to participate in the bid by reserving 20% of the quantity through NSIC, etc.

The Committee feel that the efforts of the Government in this regard deserve appreciation.

(Recommendation Serial No. 17, Paragraph No.18)

21. The Committee had noted that the Government of India had given Rs.2 crore to each State for starting State Energy Conservation Fund. 26 States had established the State Energy Conservation Fund. Another 17 States had provided Rs.2 crore or more into the fund. However, 9 States and Union Territories had not created the State Energy Conservation Fund. The Committee, therefore, had recommended that the Government should persuade these States to establish State Energy Conservation Fund and ensure prompt and adequate funding to these Conservation Funds.

22. The Ministry of Power in their Action Taken Reply have stated as under:

"Bureau of Energy Efficiency

Under SECF, States / UTs are provided with contribution of Rs 4.0 crores in two installments of Rs 2.0 crores each. The second installment towards SECF was released only after the states have provided a matching contribution to the first installment of Rs 2.0 crores.

BEE through meetings with State Government officials, National Workshops of SDAs has been pursuing with States for establishment of State Energy Conservation Fund (SECF) and also providing matching contribution to BEE's 1st installment of Rs 2 crores. Till date 26 States have notified SECF, out of which 15 States have also provided the matching contribution under their SECFs. An amount of Rs 82 crores has been disbursed till date under the scheme. The 1st installment of Rs. 2.0 crores is provided once the SECFs are notified and rules and regulations to operationalize them are finalized. An equal amount is provided towards 2nd installment, once the States have provided matching contribution.

During the financial year 2012-13, amount of Rs 2 crores each was provided as 2nd installment to Pondicherry, Jharkhand and Madhya Pradesh towards SECF upon receipt of matching contribution to 1st installment from U.T Administration / State Government.

Rs 4.0 crores were provided to Maharashtra as 1st and 2nd installment towards SECF. The 1st installment was provided upon notification of SECF by Maharashtra and finalization of rules and regulations to operationalize it. The 2nd installment was disbursed upon providing matching contribution to 1st installment of Rs 2.0 crores provided by BEE under contribution to SECF. During the financial year 2013-14, an amount of Rs 6 crores have been released towards Contribution to SECF for the states of Jammu and Kashmir, Gujarat and Goa. Jammu and Kashmir was

provided the 1st installment of Rs 2 crores while the State Government of Gujarat and Goa received 2nd installment towards SECF."

23. In response to the recommendation of the Committee, the Ministry, in their reply, has stated that till date, 26 States have notified SECF, out of which 15 States have also provided matching contribution under their SECFs and a total amount of Rs. 82 crore has been disbursed till date under the scheme.

The Committee appreciate that the BEE, through meetings with the State Government officials and National Workshops of SDAs, has been pursuing with the States to establish State Energy Conservation Fund (SECF) and provide matching contribution to BEE's 1st installment of Rs. 2 crore. However, the Committee feel that these State Energy Conservation Funds should be provided with reasonable funding as the contribution of Rs. 4 Crore in two installments of Rs. 2 Crore each seems inadequate.

(Recommendation Serial No. 19, Paragraph No.20)

24. The Committee had noted that as per Planning Commission, India is the fourth largest consumer of energy in the world after USA, China and Russia but it is not endowed with abundant energy resources. Considering the acute shortages being faced by the country, the Committee believed that we should pay utmost attention towards efficient use of energy and its conservation. The Committee also believed that Energy Audit is the pre-requisite of energy saving. Energy Audit, as per the Energy Conservation Act, 2001, is the verification, monitoring and analysis of use of energy, including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption. The Committee had also noted that in any industry, the three top operating expenses were often found to be energy, labour and materials. Out of the three, the energy component has the highest potential for cost saving. The Committee had been informed that in the Small and Medium Enterprises, wherever Energy Audit had been undertaken, it had resulted in reduction of at least 20% of energy consumption. They were further informed that Energy Audit Studies have revealed a savings potential to the extent of 40% in end use such as lighting, cooling, ventilation, refrigeration, etc. The Committee had been apprised that reduction of 3% of the total energy consumption of Delhi through use of efficient equipment would result in a huge saving of Rs. 21,000 crore. The Committee, considering the findings of these limited scale Energy Audit, believed that this is only the tip of the iceberg in terms of the energy saving potential available in the country. The Committee were aware that consequent to the Honorable Prime Minister's announcement to bring energy consumption by the Government and Private Organizations by 30%

and 20%, respectively, the Bureau of Energy Efficiency (BEE) has identified some buildings for Energy Audit. The concept of energy audit was implemented by the Energy Conservation Act, 2001. However, the Committee felt that there is an urgent need for increasing the scope of Energy Audit and the pace of its execution. Therefore, a system should be established to compile, process, analyze and use data/ observations. The Committee, therefore, had recommended that there was need to review the scope, provision of energy audit and also the concept to use the same."

25. The Ministry of Power in their Action Taken Reply have stated as under:

"Bureau of Energy Efficiency

BEE has developed guidelines for energy audits in different sectors like industries, buildings and other facilities. The guidelines are being reviewed regularly based on the data, stakeholder feedbacks and technology advancement.

As per notification no. S.O 1378 (E) dated 27th May 2014, 478 Designated Consumers identified under PAT are mandatorily required to get energy audit conducted by an accredited energy auditor, in accordance with the BEE (Manner & Intervals of Time for conduct of energy audit) Regulations, 2010. Also, furnish to the concerned designated agency, details of information on energy consumed and details of the action taken on the recommendation of accredited energy auditor, in accordance with the Energy Conservation Rules, 2008."

26. The Committee are satisfied to note that the Ministry have developed guidelines for energy audits in different sectors like industries, buildings and other facilities and these guidelines are being reviewed regularly, based on the data, stakeholder feedbacks and technology advancement.

The Ministry have also stated that 478 Designated Consumers identified under PAT are mandatorily required to get energy audit conducted by an accredited energy auditor, in accordance with the BEE (Manner & Intervals of Time for conduct of energy audit) Regulations, 2010. Also, these Designated Agencies are required to furnish the details of information on energy consumed and details of the action taken on the recommendation of accredited energy auditor, in accordance with the Energy Conservation Rules, 2008.

The Committee appreciate the Ministry for their efforts in this regard.

CHAPTER II

OBSERVATIONS/ RECOMMENDATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

**Status of implementation of the recommendations of the Committee
contained in the Seventh Report, under Direction 73A of the 'Directions by
the Speaker'**

(Recommendation No.1, Para No. 2)

Energy Conservation Building Code (ECBC)

The Committee note that the norms for energy standards for commercial buildings having a connected load of 100 KW or contract demand of 120 KVA and above were developed in May 2007. These were known as Energy Conservation Building Code, giving flexibility to the State Governments to modify the Code, based on their local and regional needs. The Bureau of Energy Efficiency (BEE) has developed a Voluntary Star Rating Programme for buildings based on actual performance in terms of energy usages. The building sector presently utilizes about 34% of the overall electricity and it will increase as this sector is set to grow due to rapid urbanization. The current percentage of electricity utilization in the building sector can be streamlined through various methods of energy efficiency. These *inter-alia* include mandatory implementation of Building Codes, energy efficiency upgradation through retrofits, star labeling, appliance efficiencies and improved design features of the upcoming buildings. To achieve the objective, States should be taken on board to ensure that all buildings are ECBC compliant for which other essential logistical arrangements may be made. Buildings using electricity beyond the set parameters may be declared as designated consumers having the mandatory reporting of energy use data and periodic energy audits. These measures will help in economizing energy use in the building sector. The Committee, therefore, strongly recommend that the following guidelines/ measures should be implemented for energy efficiency:

- (i) All the residential complexes above a certain area should be covered for the purpose of energy efficiency.
 - All Malls, multiplexes should have energy efficiency plan/ Programmes.
 - Local Bodies be asked to cooperate and make it mandatory in the building plans to implement energy efficiency guidelines.
 - The Ministry with the help of Industry Ministry must prepare special energy efficiency guidelines/code for all the major industries.

- Energy efficiency code for small cities.
 - Special encouragement/incentive for green buildings.
- (ii) With the help of consumers, the Ministry of Power and the Ministry of Urban Development jointly evolve energy conservation guidelines, i.e., Energy Conservation Building Code which should become part of National Building Code.
- (iii) The building sector should be accorded the desired priority from the energy efficiency viewpoint and all concerned, particularly State Governments and its agencies, realtors, private developers, housing societies and individuals, should be suitably informed about the importance of the issue, with particular reference to building design, stringent energy codes, appliance standards, aggressive promotion of super-efficient building products and systems, management of energy and technologies and integration of renewable and storage solutions.
- (iv) They should also be sensitized about their role and responsibilities in this regard, besides linking it with the recently launched Smart Cities Mission so that the objective of energy savings from the sector is effectively achieved.

Reply of the Government

(i) **Bureau of Energy Efficiency**

- Currently, residential complexes are not within the purview of the EC Act. However, BEE has developed voluntary design guidelines for energy efficient multi-storey residential complexes. The EC Act may be amended in future to include residential buildings.
- ECBC has been developed for providing design guidelines for energy efficient commercial complexes which include malls and multiplexes. In addition BEE has also developed Star Rating programme for Day Use Office Buildings, BPOs, Shopping Malls and Hospitals.
- Demand Side Management (DSM) measures are being undertaken in Urban Local Bodies (ULBs)/Municipalities. The initiatives focused on implementation of demonstration projects in energy efficient street lighting, municipal water pumping and energy efficiency improvement of municipal buildings. Further, Energy Efficiency Services Ltd (EESL) is implementing LED programme in 98 smart cities approved by government of India. The programme has two components (i) Domestic Efficient Lighting Program (DELP) with a target to replace 77 crore incandescent bulbs with LED bulbs and (ii) Street Lighting National Program (SNLP) to replace 3.5 crore conventional street lights with smart and energy efficient LED street lights by March 2019. In order to promote efficiency in transport sector, Fuel efficiency standard prescribed for passenger cars. Energy-efficiency standards are procedures and regulations that prescribe the energy

performance of manufactured products, sometimes prohibiting the sale of products that are less efficient than a minimum level. The term “standards” commonly encompasses two possible meanings: a) well-defined test protocols (or test procedures) to obtain a sufficiently accurate estimate of the energy performance of a product, or at least a relative ranking of its energy performance compared to that of other models; and b) target limits on energy performance (usually maximum use or minimum efficiency) based on a specified test protocol. Standards & Labeling programme for appliances to provide the consumer an informed choice about the energy saving and thereby the cost saving potential of the relevant marketed product. The scheme is invoked for 21 equipment/appliances.

- Ministry of Power and Bureau of Energy Efficiency (BEE) are implementing Perform, Achieve & Trade (PAT) scheme which is a regulatory instrument to reduce Specific Energy Consumption in energy intensive industries. In the first cycle of PAT (2012-15), 478 industrial units in 8 sectors (Aluminum, Cement, Chlor- Alkali, Fertilizer, Iron & Steel, Paper & Pulp, Thermal Power, Textile) have been mandated to reduce their specific energy consumption (SEC) i.e. energy used per unit of production. The target reduction for each industrial unit is based on their current levels of energy efficiency, so that energy efficient units will have low target of percentage reduction, as compared to less energy efficient units which will have higher targets. Overall, the SEC reduction targets aim to secure 4.05% reduction in the SEC in these industries totaling an energy saving of 6.686 million tonne of oil equivalent.

Ministry of Urban Development

- Provision has been made in draft model bldg. bye laws 2015 by incorporating chapter 10 to titled “Green buildings & Sustainability provisions”.
- Advisory may be issued to all state Govt. to ask local bodies to adopt energy efficiency programme & guidelines.
- MNRE can coordinate with M/o Industry and MoUD can provide requisite facilitation.
- BEE can develop these & MoUD can provide assistance as required.

Ministry of Heavy Industries

- All the major intensive units of BHEL a CPSE under the administrative control of this Department are going for the energy audit for increasing energy efficiency. The energy conservation projects are taken based on energy audit report. BHEL has planned 36 nos. Energy conservation projects in the financial year 2015-16. This financial year they have planned for ISO: 50001: 20011 (Energy Management System) certifications for two energy intensive units CFFP, Haridwar and Trichy. This will improves energy efficiency and also document Energy management System systematically. BHEL has added approx. 5.7MW solar energy in their units. This year BHEL is planning to commission 1.5 MW solar power plant at their Hyderabad unit.

Ministry of New & Renewable Energy

- MNRE is implementing a programme on “Energy Efficient Solar/Green Buildings” which has a provision for giving awards for following categories for promotion of green buildings:-
- **Awards to Urban Local Bodies (ULBs):** ULBs promoting green buildings for adopting and promoting the energy efficient solar/green buildings by suitable incentive and bye-laws amendments.
- **Awards to the Green Buildings having maximum RE Installation:** Buildings that have the maximum installation of renewable energy systems and the net Zero energy based buildings in the Country.
- **Incentive to Architects/Design consultants:** Architect/Design consultant who have designed green/energy efficient buildings which have acquired higher ratings in vogue.

(ii) Bureau of Energy Efficiency

A new chapter on Approach to Sustainability (Part 11) has been included in the National Building Code which focuses on the energy efficient/green buildings by Bureau of Indian Standards. The National Building Code of India (NBC), a comprehensive building Code, is a national instrument providing guidelines for regulating the building construction activities across the country. It serves as a Model Code for adoption by all agencies involved in building construction works be they Public Works Departments, other government construction departments, local bodies or private construction agencies. The NBC has now been amended to incorporate the ECBC through a new chapter named “Approach to Sustainability”, thus giving ECBC a much broader coverage.

Ministry of Urban Development

ECBC 2007 already exists.

Ministry of New & Renewable Energy

A new chapter on Approach to Sustainability (Part 11) has been included by BIS in the National Building Code which focuses on the energy efficient/green buildings.

(iii) Bureau of Energy Efficiency

BEE regularly conducts training and capacity building workshops with all government departments and other stakeholders to sensitize them on the energy efficiency aspects related to building sector. Under the Standards & Labeling programme appliance standards have been developed based on their energy performance, which are upgraded at regular intervals, keeping in view the technological advancements.

The National Energy Conservation Day is observed on 14th December every year since 1991. The annual energy conservation awards recognize innovation and achievements in energy conservation by the industries, buildings, zonal railways, state designated agencies; and municipalities and raise awareness that energy conservation plays a big part in India's response to reducing global

warming through energy savings. The awards are also recognition of their demonstrated commitment to energy conservation and efficiency. Salient features of EC Award 2015 are:

- Participating units invested Rs. 2384 Crores in energy conservation measures, and achieved monetary savings of Rs. 2928 Crore.
- Participating units also saved electrical energy of 2598 Million kWh, which is equivalent to the energy generated from a 423 MW thermal power station.
- 876 units participated in the year 2015.

The habit of conservation is best introduced and inculcated at the school age. It has been seen that the children are the best agents of change and in this case we need to equip them with the information and knowledge on energy conservation and create interest among them on this important subject. In this regard, Ministry of Power has taken an initiative and has been organizing Painting competition on Energy Conservation for students since the year 2005. The prizes are awarded in two categories: students in the 4th to 6th standards, and students in the 7th to 9th standards. In the year 2015, 1.06 crore students participated in comparison to 60.17 lakh students in 2014, registering an increase of 65% over previous year.

Awareness activities on S&L Program:

- Advertisement on Star Rated appliances has been displayed on outdoor sites such as Public Utilities, Bus Queue Shelters, Metro Display Boards etc.
- Promotional material such as Leaflets, Mugs, Pen Stand, and “things to do” booklet with Star Label & BEE logo have been prepared.
- Radio programme titled “BACHAT KE SITARE-DOST HAMARE” is being broadcasted on AIR FM GOLD in Twenty languages regularly, to create awareness on star rated appliances.
- 30 seconds video spot "BIJLI HUM BACHAYENGE" is being telecasted on Cinemas.
- The campaign on LCD/LED screens on various railway stations, 139 Railway Service, audio announcement at various bus stands, video spot on Buses and Bus Queue Shelters etc. were released through DAVP/NFDC.
- Regular advertisements on energy conservation are being released through DAVP in print media.

Ministry of New & Renewable Energy

The Ministry is encouraging integration of renewable energy in the building sector by providing incentives for various renewable energy systems as applicable under schemes of MNRE, organizing capacity building and awareness programme for sensitizing the builders and other related stakeholder and giving awards.

Ministry of Urban Development

Advisory to this effect can be issued by BEE/MoUD.

(iv) Bureau of Energy Efficiency

- BEE regularly conducts training and capacity building workshops with all government departments and other stakeholders to sensitize them on the energy efficiency aspects related to building sector. Under the Standards & Labeling programme appliance standards have been developed based on their energy performance, which are upgraded at regular intervals, keeping in view the technological advancements.
- BEE has undertaken an extensive outreach and awareness campaign on energy efficiency and energy conservation through print, electronic and outdoor media. In order to gear up the propagation of the energy conservation and efficiency in every nook and corner for the country, the services of media were embarked upon and it successfully showed its impact with the nation watching BEE's advertisement on their channels, getting inspiring messages and information through National newspapers and sensing the pulse of energy consciousness through energy saving slogans flashing on electronic display boards at various geographic locations. The media campaign on Electronic, and print was released through DAVP as per policy of Ministry of Information and Broadcasting.
- Exhibitions: BEE participated in the India International Trade Fair during November, 2015 at PragatiMaidan, New Delhi and other exhibitions on power sector with a stall on them to display the achievements of BEE.
- BEE Star Labelled Appliances Mobile App was launched on 14th December 2015 which is linked with the database of Bureau of Energy Efficiency. The data in the mobile App is updated on a daily basis and the consumers can compare energy and cost saving across all products. It also provides a platform to receive real-time feedback from the consumers.
- Energy Efficiency Services Ltd (EESL), is implementing LED programme in 98 smart cities approved by government of India. The programme has two components (i) Domestic Efficient Lighting Program (DELP) with a target to replace 77 crore incandescent bulbs with LED bulbs and (ii) Street Lighting National Program (SNLP) to replace 3.5 crore conventional street lights with smart and energy efficient LED street lights by March 2019.
- For the street light programme, the total connected load of street lights across the country of around 3400 MW, can be reduced to 1400 MW by replacing conventional lights with LED based street lights. These replacements can lead to saving of approximately 9 billion KWh of energy and cost saving of Rs. 5,500 crore to municipalities annually.
- The microsite www.iLEDtheWay.in, launched by ShriPiyushGoyal, Hon'ble Union Minister of State (IC) for Power, Coal and New & Renewable Energy, will attempt to reach out to all citizens in the country and spread awareness about the nation-wide movement of #iLEDtheWay. Through

this microsite, consumers can take a pledge of switching to LED bulbs, which are safer, brighter and consume less energy.

- In today's era of Digital India, the microsite visitors can join the movement by simply clicking "Take a Pledge" tab which is prominently displayed on the homepage. Consumers who do not have access to the LED bulb distribution under the DELP scheme in their city/state yet, can pre-register for the scheme by sharing their contact details.
- It will also give exciting information on the reduction in CO₂ emissions, energy saved, avoided peak demand and is filled with pictures, videos, distribution centre details in each state and more.

Ministry of New & Renewable Energy

The Ministry is encouraging integration of renewable energy in the building sector by providing incentives for various renewable energy systems as applicable under schemes of MNRE, organizing capacity building and awareness programmer for sensitizing the builders and other related stakeholder and giving awards.

[Ministry of Power
OM No.15/1/2015-EC, Dated:12/02/2016]

(Recommendation No.3, Para No. 4)

The Committee note that the Bureau of Energy Efficiency in technical cooperation with Energy Efficiency Services Ltd. has concluded implementation of energy conservation measures in two prominent Government buildings, i.e., NITI Aayog and Shram Shakti Bhawan in New Delhi housing various Government Departments. These projects have demonstrated energy savings in the range of 20% to 25% with additional cost savings towards equipment maintenance and proven techno-commercial viability of undertaking such energy conservation measures. Based on the experience of these implementations, guidelines for carrying out energy efficiency up-upgrades in existing buildings have been developed for their large scale adoption and replication. The Committee are appreciative of these efforts of the BEE in energy savings in the Government buildings. However, it is felt that more is required to be done in this regard. The Committee, therefore, recommend that a time bound target should be set to bring all Government buildings within the purview of energy efficiency norms as about 25% of saving electricity will help in substantial energy savings.

Reply of the Government

Bureau of Energy Efficiency

BEE has developed "Handbook for Energy Efficiency upgrades in Public Buildings" which includes standard templates for energy audits and retrofits on performance contract. MoUD may be requested to provide a time bound action plan for energy efficiency improvements in existing Government buildings.

Energy Efficiency Services Limited

- EESL has successfully completed projects in NitiAayog, Shram Shakti Bhawan& India Habitat Centre.
- Further EESL has recently signed MoU with CPWD for implementation energy efficiency measures in 100 government buildings in the country
- Another MoU has been signed between Ministry of Railways and EESL to implement efficiency measures in buildings, stations, etc.
- EESL is in discussion with large PSUs like ONGC, NLC and Banks (Dena Bank) for implementation of similar projects
- EESL is also taking up a DMRC project for 90-metro stations for lighting.

Ministry of Urban Development

Work of Energy efficiency is already under implementation in CPWD maintained Govt. buildings through ESCO route.

[Ministry of Power
OM No.15/1/2015-EC, Dated:12/02/2016]

(Recommendation No.4, Para No. 5)

Energy Intensive Industries

The Committee note that there are 478 industrial units categorized as energy intensive industries called designated consumers from 8 sectors. They consume about 35% of the total energy of the country. They are: Aluminium, Chlor Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles. However, there is no clarity about the norms defining an industry as energy intensive industry; neither has there been any practice specifying the consumption percentage of energy as qualifying standards for energy intensive industry. The Committee are also unclear about the number of units in the country which have been described as designated consumers. In the absence of a proper definition of energy intensive industry, it will be appropriate to have some clear parameters to categorize an industry as being energy intensive. The Committee, therefore, recommend that:

- (i) A study may be undertaken to include more industries in the compulsory energy efficiency list.
- (ii) There may be major campaign by Ministries, Power PSUs, DISCOMs and also industries involved in power sector be asked to draft and implement major awareness campaign on 'Energy Efficiency and Energy Conservation'.

Reply of the Government

(i) Ministry of Coal

- In this connection it is stated that the Committee has noted that units categorized as energy intensive industries called designated consumers are from 8 sectors which are: Aluminium, Chlor-Alkali, Pulp & Paper, Iron

& Steel, Cement, Fertilizer, Thermal Power Plants and Textiles. None of these industries comes under the purview of Ministry of Coal.

- Regarding study of industries in the compulsory energy efficiency list, it is mentioned that the subject matter is not in the domain of Ministry of Coal. Bureau of Energy Efficiency is the appropriate authority to deal with the matter.
- In view, of the above it is stated that this Ministry of Coal has no specific comments to offer on the report of the said Committee and there does not seen any actionable point in respect to this Ministry.

Ministry of Petroleum & Natural Gas

- The subject matter of the recommendation falls under the ambit of Bureau of Energy Efficiency (BEE). As such, this Ministry has no comments to offer.
- Perform Achieve and Trade (PAT) mechanism seeks to create a market-based mechanism to facilitate energy efficiency improvements in large energy-intensive industries. While carrying out the audits and through the audit reports, the management is made aware on energy saving opportunities for the units and scope for improvements.
- During Financial Year 2014-15, PCRA provided support to 4 unit of Thermal Power and 1 unit of Textile. During FY 2015-16, PCRA is providing support to 16 industries which covers the sector like Thermal Power Plant, Textile, Iron and Steel and Chlor-Alkali through Energy/Monitoring and verification Audit.
- In cycle-II, PAT is inter-alia covering Refineries under MoP&NG also. A workshop to this effect was organized by Bureau of Energy Efficiency (BEE) on 8th May, 2015. The criteria of notification of Refinery as Designated Consumer is under advanced stage of approval and notification by Ministry of Power (MOP). Meanwhile, a Technical Committee has been formed by BEE in consultation with MoPNG, having representatives from MoP&NG and MoP, and all PSUs as well as Pvt. Refineries, with Executive Director, Centre for High Technology as its Chairman. The Specific Energy Consumption (SEC) calculation methodology developed by CHT has been accepted to be the metric for the PAT scheme. CHT is also helping BEE in developing the format for collection of required data from the Refineries and the calculation of SEC.

Bureau of Energy Efficiency

- Currently 8 energy intensive industrial sectors (Aluminium, Chlor-Alkali, Pulp & Paper, Iron & Steel, Cement, Fertilizer, Thermal Power Plants and Textiles) are included under Perform, Achieve and Trade (PAT) scheme out of the 15 listed sectors in the schedule of the EC Act. Further, 3 new sectors namely Railways, Petroleum Refineries, Electricity Distribution Companies (DISCOMS) are being included under next PAT cycle. With this about 50% of energy consumption by the industrial sector would be

covered for energy efficiency improvements. The next step would be to extend coverage to the remaining listed sectors in the schedule.

- Recommendation of the Committee is noted for carrying out a study for expanding the existing list of sectors.

(ii) Ministry of Coal

Ministry of Coal has no specific comments to offer on the report of the said Committee and there does not see any actionable point in respect to this Ministry.

Ministry of Petroleum & Natural Gas

Ministry of Petroleum & Natural Gas, through its subordinate organizations like Petroleum Conservation research Association (PCRA) and Oil Marketing Companies (BPCL, HPCL and IOCL) is actively involved in awareness campaign on “**Energy Efficiency and Energy Conservation**”.

PCRA is providing support and create awareness amongst the industries on ‘Energy Efficiency and Energy Conservation’ through its various programs as follows:

- **Energy Audits:** In the systems /Sub systems/equipment and processes of the industrial plant, it is necessary to identify future energy saving potential in different area in order to achieve the targeted saving by the target year and to take up implementation activities as per the recommendations of energy audits. Findings are discussed with management of the industry and are made aware regarding energy saving opportunities. In the last three years PCRA has carried out approximately 1000 Energy Audits in different sectors of economy.
- **Programs on Energy Efficiency through Energy Audits under PAT (Performance, Achieve and Trade Scheme)**
 - ❖ **Energy Management System-ISO 50001 for various industries**
:PCRA has started a new initiative to provide consultancy to various industries for implementation of Energy Management System (ISO-50001:2011EnMS). This Energy Management System (EnMS) is an effective and proven management tool to continually improve its input energy cost, productivity and thus competitiveness. In the FY 2014-15, PCRA has got (ISO-50001:2011 EnMS) implemented at 12 installation including two oil refineries. This program creates Energy Saving culture at all levels in the subject industry. PCRA also conducted two nos. of National Seminar on Awareness on ISO 50001: EnMS during the Financial Year 14/15.
 - ❖ **Industrial training programs:** The Industrial Training Programs is an activity primarily meant to share the experience gained by PCRA during industry audits. These training programs are targeted at raising the awareness level of the members of industry about the conservation opportunities that can be realized through the energy audit of their plant. Industry is also equipped with the tools of self-audit. During 2014-15, PCRA conducted 507 Industrial training in various industries.

- ❖ **Seminars and technical meets:** Technical seminars are an effective tool for the dissemination for information relating to advancement made in technologies and also for improvement in operational practices for improving energy efficiency. PCRA, during 2014-15, organized 131 Seminars/Technical Meets for the benefit of specific industrial sectors. During these seminars, PCRA shares its experience of conducting energy efficiency studies through case study presentations containing details of investment required and the benefits accrued through implementation of the energy conservation measures.
- ❖ **Sector Specific Book Publication:** PCRA has conducted a number of energy audits in different sectors of industries. In order to share its experience of energy auditing and improve the energy conservation in different sectors, we have kept publishing a series of books for different sectors. A list of these books are as under:

S.No	Title
1	Handbook on Energy Conservation in Pulp & Paper Industry
2	Practical Guide to Energy Conservation
3	Practical Guide to Energy Conservation in Dairy Industry
4	Energy Audit Manual for Textile Industry
5	Energy Efficiency in Pharma Sector
6	Practical Guide to Energy Conservation in Ceramic Industry

Such publications are very useful and create awareness on good practices to be followed to improve energy efficiency.

- ❖ **Capacity Building:** In a bid to enhance capacity in the Area Energy Efficiency and Energy Conservation, PCRA regularly provide its expert faculties during various Seminars/Technical Meets/panel Discussions and similar forums to propagate the message of Energy Efficiency and Energy Conservation. Under this program, PCRA have conducted various programs for Capacity Building of various industrial sectors on behalf of MSME and State Designated Agency (SDA).

OMCs are also involved in this endeavour as follows:

- **Bharat Petroleum Corporation Ltd. (BPCL):** BPCL has constituted “Sustainable Development Committee” with the objectives to oversee, approve, provide budgetary allocation and monitor the projects covered under Sustainable Development projects as part of the business plan of business units. It involves an enduring and balanced approach to environmental responsibilities and includes reviewing of the ‘Business Responsibility report’ on a half yearly basis and to place this report to the

Board for various energy conservation and loss control measures, utilization of alternate source of energy and technology absorption in its refineries located at Mumbai and Kochi. As regards implementing major awareness campaign on “Energy Efficiency and Energy Conservation” it is in the endeavour of conducting various awareness programmes on Oil Conservation during Oil and Gas Conservation Fortnight.

- **Hindustan Petroleum Corporation Ltd. (HPCL):** HPCL have put in place mechanism of Energy Audits by experts in the field with the intention of identifying areas for energy saving. Based on the reports of the audits, actions like VFD usage, power factor maintenance, change of lights to LED lights are being undertaken. Moreover, HPCL has installed a Solar Power Plant in their Chennai Terminal and feasibilities for alternate energy sources at few other locations are also being studied. Specific Energy Consumption (SEC) in KW/MT of all the locations are being monitored. As regards implementing major awareness campaign on “Energy Efficiency and Energy Conservation”, various awareness programmes on Oil Conservation theme are being conducted by HPCL on the occasion of Oil & Gas Conservation Fortnight.
- **Indian Oil Corporation Ltd. (IOCL):** IOCL also have put in place mechanism of Energy Audits for energy saving. Based on the recommendations, changing of all lighting to LED has been started. Besides, solar lighting is also being implemented at targeted locations on continuous basis. It has also developed water harvesting pits in almost all locations resulting in energy conservation implementing major awareness campaign on “Energy Efficiency and Energy Conservation”, various awareness programmes on Oil Conservation theme are being conducted on the occasion of Oil & Gas Conservation Fortnight.

Bureau of Energy Efficiency

BEE has undertaken an extensive outreach and awareness campaign on energy efficiency and energy conservation through print, electronic and outdoor media. In order to gear up the propagation of the energy conservation and efficiency in every nook and corner for the country, the services of media were embarked upon and it successfully showed its impact with the nation watching BEE's advertisement on their channels, getting inspiring messages and information through National newspapers and sensing the pulse of energy consciousness through energy saving slogans flashing on electronic display boards at various geographic locations. The media campaign on Electronic, and print was released through DAVP as per policy of Ministry of Information and Broadcasting.

Exhibitions: BEE participated in the India International Trade Fair during November, 2015 at Pragati Maidan, New Delhi and other exhibitions on power sector with a stall on them to display the achievements of BEE.

The National Energy Conservation Day is observed on 14th December every year since 1991. The annual energy conservation awards recognize innovation and achievements in energy conservation by the industries, buildings, zonal railways, state designated agencies; and municipalities and raise awareness that

energy conservation plays a big part in India's response to reducing global warming through energy savings. The awards are also recognition of their demonstrated commitment to energy conservation and efficiency. Salient features of EC Award 2015 are:

- Participating units invested Rs. 2384 Crores in energy conservation measures, and achieved monetary savings of Rs. 2928 Crore.
- Participating units also saved electrical energy of 2598 Million kWh, which is equivalent to the energy generated from a 423 MW thermal power station.
- 876 units participated in the year 2015.

The habit of conservation is best introduced and inculcated at the school age. It has been seen that the children are the best agents of change and in this case we need to equip them with the information and knowledge on energy conservation and create interest among them on this important subject. In this regard, Ministry of Power has taken an initiative and has been organizing Painting competition on Energy Conservation for students since the year 2005. The prizes are awarded in two categories: students in the 4th to 6th standards, and students in the 7th to 9th standards. In the year 2015, 1.06 crore students participated in comparison to 60.17 lakh students in 2014, registering an increase of 65% over previous year.

Hon'ble Union Minister of State (IC) for Power, Coal and New & Renewable Energy launched the microsite www.iLEDtheWay.in. The Minister also became the first citizen to take the pledge on the site.

In today's era of Digital India, the microsite will attempt to reach out to all citizens in the country and spread awareness about the nation-wide movement of #iLEDtheWay. Through this microsite, consumers can take a pledge of switching to LED bulbs, which are safer, brighter and consume less energy.

The Microsite visitors can join the movement by simply clicking "Take a Pledge" tab which is prominently displayed on the homepage. Consumers who do not have access to the LED bulb distribution under the DELP scheme in their city/state yet, can pre-register for the scheme by sharing their contact details.

It will also give exciting information on the reduction in CO2 emissions, energy saved, avoided peak demand and is filled with pictures, videos, distribution centre details in each state and more.

BEE Star Labelled Appliances Mobile App was launched on 14th December 2015 which is linked with the database of Bureau of Energy Efficiency. The data in the mobile App is updated on a daily basis and the consumers can compare energy and cost saving across all products. It also provides a platform to receive real-time feedback from the consumers."

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.5, Para No. 6)

The Committee have taken note of the fact that there are a large number of industries which should be categorized as energy intensive industries based on their energy consumption. It has been proposed to bring in Railways, Distribution Companies and Refineries under the PAT scheme thereby implying their inclusion into the energy intensive industry sector. Although this is a welcome step, but it is limited in scope. A Survey should be conducted to identify more such industries so that they can be dealt with accordingly for the purpose of energy efficiency targets. Energy consumption norms should be notified for other energy intensive sectors listed in the Energy Conservation Act, 2001. This may increase the coverage to more than 50% of the energy consumption in the country through the addition of large energy consuming sectors. Besides, penetration should also be increased and intensified for identifying the industries within the current sectors so that near accurate number of designated consumers in the country can be identified. For the purpose, a drive may be initiated to be completed in a time-bound manner. The Committee, therefore, recommend that more number of industrial activities may be brought into the energy intensive industry sector based on the defined criteria.

Reply of the Government

Bureau of Energy Efficiency

Currently 8 energy intensive industrial sectors are included under Perform, Achieve and Trade (PAT) scheme out of the 15 listed sectors in the schedule of the EC Act. Further, 3 new sectors namely Railways, Petroleum Refineries and Electricity Distribution Companies (DISCOMs) are being included under next PAT cycle. With this about 50% of energy consumption by the industrial sector would be covered for energy efficiency improvements. The next step would be to extend coverage to the remaining listed sectors in the schedule.

Recommendation of the committee is noted for carrying out a study for expanding the existing list of sectors."

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.9, Para No. 10)

Light Emitting Diode (LED)

The Committee find that the Government has taken an initiative to promote LED lighting in the country in a big way, changing all street lights and lights in public spaces with LED lights. It is estimated that by the year 2020, the LED market will grow to about Rs.37,000 crore from Rs.1,925 crore in the year 2013. All existing Government schemes to distribute CFL are being modified with LED lamp distribution. Under the DDUGJ Scheme, the Government plans to provide LED lamps to BPL houses. Existing DSM schemes by State Governments for distribution of CFL are now being replaced with LED lamps. All LED specifications have been made mandatory and notifications are being issued to commercial buildings to change existing lights to LED. The Committee welcome

the initiative of the Government for raising the demand of the energy efficient lighting. However, the Committee are apprehensive about the realization of the projections, in view of the prevailing ground realities. There exist huge supply weakness, limited testing capacity and heavy dependence on imports of electronic components and chips. Although these factors are dampening and discouraging, yet there is also a brighter side. India's strength lies in conventional luminaries and complete range of lamp manufacture as well as availability of strong labour force for assembling LED products. Our success in CFL manufacturing can be replicated in LED as well. This can be done by providing help in the form of cheap land, lower interest rates etc. Increasing labour cost in China can provide India an edge in becoming a competitive player. The Committee feel that the challenges of the sector can be transformed into opportunities by commitment and untiring efforts. The Committee, therefore, recommend that:

- (i) The Street Lights concept is 100 year old. There is need to modernize and upgrade the technology. Recent initiative of the Power Ministry to convert street lights into LED based Street Lights, needs in-depth study and action plan.
- (ii) Keeping in view the huge potential available for growth, all efforts should be made to turn this into a national opportunity so that energy efficiency in our household and street lightings becomes a reality, thereby resulting in substantial savings.
- (iii) The present initiative of the Ministry to encourage/ motivate the LED technology is appreciable. The Government after in-depth study must plan an action plan to use the LED technology in different schemes including residential.

Reply of the Government

Ministry of Urban Development

Study group can be constituted which may suggest measures to implement LED technology into street lighting expeditiously given resource crunch & based on the initiatives by EESL.

EESL

- LED based Home and Street Lighting Programme has 2 components, viz. conversion of conventional domestic lights with LEDs, and conversion of conventional street lights with LEDs,
- Under the Programme, 100 cities are to be covered by March, 2016 and balance by March, 2019 targeting 77 crore ordinary bulbs and 3.5 crore conventional street lights
- The implementation approach being followed is a 2 tier approach wherein Ministry of Power and Bureau of Energy Efficiency (BEE) is taking up the high level engagement with states to participate in the programme. Engagement with DISCOMs/ Urban Local Bodies (ULBs) - EESL, after the

consent of the respective state governments, engages with the DISCOMs and ULBs.

- EESL aggregates demand from various locations and initiates procurement of large quantities of LED bulbs to get the benefit of price reduction. The benefit of lower cost is pooled with the ongoing projects and the benefit is passed on to all.
- As a result, the price of LED lamps has substantially reduced from Rs. 310 per bulb to Rs. 73 per bulb over a year. The retail price of LED bulbs reduced by almost 50% (Rs. 599 to Rs. 317) during this period. For street lights – prices have come down from Rs. 137 per watt to Rs. 85 per watt
- Project Management is carried out through experienced consultants like PTC, IL&FS, REIL, etc.
- Audit to assess social impact of the LED Street Light System.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.10, Para No. 11)

The Committee observe that large volumes of low quality imports have affected consumer confidence in new technologies, thus increasing the need for quality control on the imports and supply. To enforce it, Indian standards for all products and applications will have to be set and made mandatory, besides creating demand for efficient lighting products. Also, manufacturing capabilities in LED luminaries will have to be enhanced ensuring high quality electronic components, control gear and design capabilities. Local manufacturing should be supported over imports through subsidies and incentives in the form of manufacturing clusters with strong infrastructure, tax breaks, low interest capital, anti-dumping duty and limited FDI restrictions. It will also have to be ensured that optimization of manufacturing and disposal processes do not have adverse environmental impact. Regulators should also create green and IEC compliant standards for products and applications, ensure implementation by making standards mandatory and pass regulation to phase out inefficient lighting. The Committee, therefore, recommend that in order to promote and strengthen domestic LED manufacturing, a congenial environment with reasonable assurance of stable support base and encouraging regime should be made available to the entrepreneurs of the country.

Reply of the Government

D/o Revenue – Ministry of Finance

- 10% basic customs duty (at general peak rate for non –agricultural goods) is levied on LED lights / fixtures 7 LED Lamps. Further, to incentivize domestic manufacturing of LED lights/fixtures & LED Lamps, basic customs duty has been exempted on major input LEDs and all inputs for manufacture of LEDs.

- In Budget 2015-16, concessional excise duty of 6% (and thus CVD of 6%) and Nil SAD was prescribed on inputs for use in the manufacture of LED drives and MCPCB for LED lights, fixtures and LED lamps.
- LED lights/fixtures & LED Lamps and their major inputs for use in manufacture attract concessional excise duty of 6% as against standard tariff rate of 12.5%.
- Anti-dumping duty (ADD) can be imposed only on the recommendation of the Directorate General of Anti-dumping Duties, who initiates and conducts such investigation based the request of the domestic industry or *suomoto* and recommends imposition of ADD, if the investigation establishes dumping, injury and casual link between the two.

EESL

Promotion of domestic manufacturing industry:

- EESL follows a transparent procurement policy and engages in periodic interactions will be held with Industry to evolve ways for speeding up implementation of LED Street Light Projects and ensure stable demand supply.
- In order to enhance domestic manufacturing capacity and to facilitate lower threshold costs to take up LED Street Light Projects, the proposal to grant infrastructure status and lower taxes to LED Luminaire sector is being pursued.
- Various options are being pursued to attract investment from Private sector players. Innovative models such as formation of SPVs with equity participation by private companies.
- Tender conditions to ensure that small and medium enterprises are able to participate in the bid by reserving 20% of the quantity through NSIC.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.12, Para No. 13)

The Committee observe that this is an upcoming market with huge potential, yet having an uncertain and unreliable logistical background. There is a conspicuous lack of educational training and research in the field. If not dealt with properly, this may end up in the weakening of the growth at the desired pace and also the erosion of the confidence of the consumers. The Committee, therefore, recommend that:

- (i) Training centres for luminaries, design and manufacturing, educational centres promoting study of lighting technology and application be set up immediately.

- (ii) Research and development centres in collaboration with premier educational institutes should also be established, focusing on new and efficient lighting technologies.
- (iii) Various suggestions/ observations have been received from the Manufacturers, distributors, DISCOMs regarding implementation of LED technology in India must be considered by the Power Ministry for necessary follow-up action.

Reply of the Government

(i) Ministry of Power

Central Power Research Institute (CPRI), an autonomous organization under Ministry of Power has conducted training programs, Workshops and Conferences in the area of LED Lighting systems for lighting as well as knowledge dissemination. CPRI has full- fledged training center at Bangalore campus coming under a training division, which is geared up to undertake the specific/tailor made training needs as per individual requirements of the LED Industry in the areas of luminaries, design of lamps and manufacture of LED lamps.

Bureau of Energy Efficiency

BEE has initiated activities to set up of testing laboratories for research and testing activities for LED lamps in association with IIT Chennai, National Physical Laboratory, New Delhi and Central Power Research Institute, Bangalore. LED lamps have been included in BEE's Star Labeling programme and EESL has also included Star Labeled LED lamps in their procurement under Domestic Efficient Lighting Programme (DELP).

(ii) Ministry of Power

CPRI has excellent test cum research facility for evaluation of LED lighting systems. Further facilities are being added under the 12th Five year plan of Govt. of India, such as Gonio-photo meter, Three meter Integrating sphere, Half Moon Sphere etc. Future expansion in terms of photo-biological assessment is also being formulated. As per requirements of the Bureau of Energy Efficiency, Govt. of India, CPRI is formulating a research and development program to make LEDs more efficient and affordable to common man.

Department of Science & Technology

Department of Science and Technology has supported Indo US Centre for Building Energy Research and Development which will focus on all aspects to improve building energy efficiency including day lighting and energy efficient lighting. The Department has also come up with a Call Inviting proposal on Building Energy Efficiency which includes lighting also. The Department proposes to include new and efficient technologies for energy efficient lighting research and development in its future calls inviting R&D proposals.

Bureau of Energy Efficiency

BEE has initiated activities to set up of testing laboratories for research and testing activities for LED lamps in association with IIT Chennai, National Physical Laboratory, New Delhi and Central Power Research Institute, Bangalore.

EESL

Training and R&D

- Arrangement/ tie up for the training in the field of design & manufacturing of LED luminaires will be taken up with relevant organizations like ELCOMA
- EESL procurements conform to BIS specification IS 16102 (Part 1) and (Part 2): 2012 for self-ballast lamps. Further these bulbs carry a 3 year free replacement warranty against technical defects.
- Issue pertaining to research & development for improvements in technology and adaption of imported technologies to suit the domestic manufacturing conditions will be taken up with the institutions like IIT.

(iii) Ministry of Power

CPRI has full-fledged test laboratory for evaluation of LED lighting systems which caters to the testing and evaluation needs of Manufacturers for quality and performance certification. CPRI is also conducting field evaluation and third party evaluation of systems installed at site to cater to the needs of the nodal agencies, distributors and DISCOMs regarding the implementation of LED technology in India.

Bureau of Energy Efficiency

Bureau of Energy Efficiency conducted techno-economic analysis on LED lamps and subsequently launched the voluntary star labelling program for self-ballasted non directional general service LED lamps on 6th July, 2015.

With a view to upgrading minimum energy performance level & for transformation of market towards higher energy efficiency, BEE shall not issue approvals for Star 1 during voluntary stage & star 2 during mandatory stage for LED lamps. The star rating plan is valid from the date of launch till 31st December, 2018.

Further, EESL has also included Star Labeled LED lamps in their procurement process under Domestic Efficient Lighting Programme (DELP).

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.14, Para No. 15)

State Designated Agencies (SDAs)

The Committee note that the Energy Conservation Act, 2001 mandated the creation of a two-tier organizational structure to promote the efficient use of energy and its conservation in the country with BEE as the nodal agency at the

central level and State Designated Agencies (SDAs) as the nodal agencies at State/Union territory level. The Committee have been informed that so far 34 States/ UTs have set up SDAs as required under section 15(d) of the Energy Conservation Act, 2001 by designating one of the existing organizations, be it Renewable Energy Development Agency, Electricity Distribution Company or Electrical Inspectorate for this purpose. It was further informed that currently only two SDAs are standalone energy efficiency organizations. The Committee have also noted the fact that the success and longer term continuity of energy efficiency programmes is better in States where standalone agencies are in place because of the exclusive institutional thrust for this matter. The Committee are surprised to note that even after 14 years of the enactment of the Energy Conservation Act, 2001, except for two, the remaining SDAs are not specialized agencies with the sole responsibility of promotion of energy efficiency in their States. Further, most SDAs are located in organizations whose primary purpose are activities other than energy efficiency, and consequently, there is neither organizational priority for energy efficiency activities, nor any linkage to policy making at the level of the State administration. The Committee being well aware of the importance of these SDAs in the implementation of energy conservation programme, feel that it is the high time to reinvigorate them. The Committee, therefore, recommend that:

- (i) The Ministry should persuade all the States to establish SDAs for energy efficiency as an independent standalone agency, overseen by a Committee of Secretaries, headed by the Chief Secretary which would ensure both access of the SDA to policy makers in the State administration and inform policy makers about energy efficiency opportunity in their respective Departments.
- (ii) The Committee also desire that sufficient funds be allocated for the SDAs.

Reply of the Government

(i) Bureau of Energy Efficiency

State Designated Agencies (SDAs) have been notified by the State Governments by assigning additional responsibilities to the existing departments to undertake necessary energy efficiency activities at the State level. In view of this, SDAs shares key facilities/ staff/ budget with the parent department. For smooth and successful implementation of the provisions of the EC Act 2001 and to ensure institutionalization of the enforcement mechanism there is a need to establish “stand alone” SDAs. In most of other areas like renewable energy, distribution of electricity, regulatory commissions’ etc. separate departments in States exists.

As of now, there are two “stand alone” SDAs in the country i.e. Energy Management Centre which is an autonomous body under the Department of Power, Govt. of Kerala and State Energy Conservation Mission under Energy Department, Govt. of Andhra Pradesh. It has been observed that the SDAs of Kerala and Andhra Pradesh are better placed than other SDAs in conceiving ideas on energy efficiency, prompt decision making and implementation of energy efficiency activities in the State. BEE is pursuing with State Governments for establishment of stand-alone SDAs.

(ii) Bureau of Energy Efficiency

In order to kick start the energy conservation activities at the state level with an emphasis on building institutional capacities of the SDAs, Ministry of Power had approved the scheme of Providing financial assistance to the State Designated Agencies for strengthening their institutional capacities and capabilities. This scheme has been supplemented by Contribution to State Energy Conservation Fund (SECF) scheme.

The financial support to the SDAs by the State Govt. for the energy efficiency area is limited or nil. The progress of activities by SDAs will be obstructed without the financial support of BEE which is the primary source of funding for implementing such activities. Therefore, to continue with the efforts and future endeavors on energy conservation activities and to achieve energy savings in each state, during the XII plan the scheme for strengthening of SDAs has been approved with an budget outlay of Rs 205.31 crores comprising of the components namely : Providing financial assistance to the State Designated Agencies to strengthen their institutional capacities and capabilities, Contribution to State Energy Conservation Fund and Human Resource Development for Promoting Energy Efficiency.

➤ Providing financial assistance to the State Designated Agencies for strengthening their institutional capacities and capabilities

Under this component, financial assistance is being provided to SDAs to undertake energy conservation and energy efficiency activities. It is broadly divided into four components namely, demonstration projects to showcase the effectiveness of the most energy efficient technology including LED Village Campaign, institutionalization of enforcement machinery at the state level programmes, manpower support to smoothly coordinate, regulate and enforce energy efficiency in the States and dissemination of knowledge to various stakeholders through workshops, training programmes, impact analysis, publicity / awareness, maintenance of internet platform etc.

During the financial year 2012-13, an amount of Rs 25.23 crores was disbursed to 21 SDAs for implementation of components namely, demonstration projects to showcase the effectiveness of the most energy efficient technology including LED Village Campaign, institutionalization of enforcement machinery at the state level programmes, manpower support to smoothly coordinate, regulate and enforce energy efficiency in the States and dissemination of knowledge to various stakeholders through workshops, training programmes, impact analysis, publicity / awareness, maintenance of internet platform etc. Furthermore, for the financial year 2013-14, amount of Rs 27.493 crores has been disbursed to SDAs. During the financial year 2014-15, financial assistance of Rs 4.5 crores has been disbursed to all SDAs. This has resulted in the following:

- 59 demonstration projects in the areas of street lights and water pumping systems have been successfully completed by SDAs till date.

- LED Village Campaign has been successfully implemented by 27 States as on date.
- Under IGEA of the Govt. Buildings, 491 Govt. buildings have been taken up for energy audit by BEE empanelled ESCOs.
- Workshops / training programmes involving the Energy Managers / Energy Auditors and Designated Consumers appraising about their roles as per the mandate of the Energy Conservation Act 2001 have been organized by the SDAs.
- Media / awareness campaign in all the States has been undertaken by the SDAs. The major focus area were promotion through electronic and print media, translation of BEE materials to local languages, awareness campaign in schools / colleges, and through brochures, banners etc.

➤ Contribution to State Energy Conservation Fund (SECF)

Clause 16 (1) of the Energy Conservation Act 2001 requires State Governments / U.T. Administrations to constitute a fund called State Energy Conservation Fund (SECF) for the purpose of promotion of efficient use of energy and its conservation within the State. In this context, a scheme titled Contribution to State Energy Conservation Fund (SECF) by the Government of India was approved during the 11th plan with an outlay of Rs 66 crores and is continued during the 12th plan with a budget outlay of Rs 50 crores. It is to be used as an instrument to facilitate implementation of energy efficiency projects through market transformation. For undertaking energy efficiency projects major part of the funds disbursed under SECF is to be earmarked separately as Revolving Investment Fund (RIF). The total outlay proposed for this sub-scheme during the XII plan is Rs. 50.00 crores. Till date 26 States have notified SECF, out of which 15 States have also provided the matching contribution under their SECFs. An amount of Rs 82 crores has been disbursed till date under the scheme. The 1st installment of Rs. 2.0 crores is provided once the SECFs are notified and rules and regulations to operationalize them are finalized. An equal amount is provided towards 2nd installment, once the States have provided matching contribution.

- During the financial year 2012-13, amount of Rs 2 crores each was provided as 2nd installment to Pondicherry, Jharkhand and Madhya Pradesh towards SECF upon receipt of matching contribution to 1st installment from U.T Administration / State Government.
- Rs 4.0 crores were provided to Maharashtra as 1st and 2nd installment towards SECF. The 1st installment was provided upon notification of SECF by Maharashtra and finalization of rules and regulations to operationalize it. The 2nd installment was disbursed upon providing matching contribution to 1st installment of Rs 2.0 crores provided by BEE under contribution to SECF.

- During the financial year 2013-14, an amount of Rs 6 crores have been released towards Contribution to SECF for the states of Jammu and Kashmir, Gujarat and Goa. Jammu and Kashmir was provided the 1st installment of Rs 2 crores while the State Government of Gujarat and Goa received 2nd installment towards SECF.

Department of Economic Affairs, Ministry of Finance

With respect to the allocation of funds for SDAs, MOP may consult the matter with DoE for appropriate provision in their demands for grants. DEA has no comments to offer in this regards.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.15, Para No. 16)

Promotion of the Concept of Energy Conservation

The Committee observe that a two-year long nationwide campaign has been proposed on energy efficiency to promote efficient utilization of energy among different category of electricity consumers. It aims at behavioral change among the public by generating interest, driving initiative, etc. The BEE is organizing national energy conservation awards and recognizing innovation and achievements in energy conservation by industries, building, railways, State designated agencies, manufacturers of star-label appliances, electricity distribution companies, etc. The Government has also been organizing Painting Competitions for students since the year 2005. While these efforts are laudable, it appears that such campaigns are not getting the due attention in the rural areas where it is required the most. It is as though the rural areas do not figure anywhere in the promotional campaign. The Committee, therefore, recommend that for the purpose of promotion/ campaigns, the BEE should closely work with SDAs in spreading awareness on energy efficiency and conservation in the rural areas of the States, among consumers, dealer networks, industry associations, etc.

Reply of the Government

Bureau of Energy Efficiency

BEE is carrying out a nationwide consumer-focused campaign on energy efficiency in India to promote efficient utilization of energy among different categories of electricity consumers, including households, institutions and industries. The campaign emphasizes on generating interest, driving initiative and conversation on a mass movement towards energy efficiency in India, and thus facilitates the behavioral change among the public via a mass movement. BEE has undertaken an extensive outreach and awareness campaign on energy efficiency and energy conservation through print, electronic and outdoor media.

BEE is working closely with State Designated Agencies in spreading awareness on energy efficiency and energy conservation in the states involving school

children, consumers, dealer networks, industry associations, etc. through organizing exhibitions / workshops / conferences. Brochures and leaflets on the information are normally printed both in English as well as vernacular languages. In this regard, BEE has dedicated financial allocation to specifically carry out awareness campaigns.

In order to gear up the propagation of the energy conservation and efficiency in every nook and corner for the country, the services of media were embarked upon and it successfully showed its impact with the nation watching BEE's advertisement on their channels, getting inspiring messages and information through National newspapers and sensing the pulse of energy consciousness through energy saving slogans flashing on electronic display boards at various geographic locations. The media campaign on Electronic, and print was released through DAVP as per policy of Ministry of Information and Broadcasting.

Exhibitions: BEE participated in the India International Trade Fair during November, 2015 at Pragati Maidan, New Delhi and other exhibitions on power sector with a stall on them to display the achievements of BEE. In order to facilitate citizens of the country for making informed choice on energy efficient appliances, a mobile application linked to BEE Star Labelled Appliances programme was launched on 14th December 2015. The app enables consumers to compare energy savings across all products/appliances.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.17, Para No. 18)

The Committee note that the Government of India has given Rs.2 crore to each State for starting State Energy Conservation Fund. 26 States have established the State Energy Conservation Fund. Another 17 States have provided Rs.2 crore or more into the fund. However, 9 States and Union Territories are yet to create the State Energy Conservation Fund. The Committee, therefore, recommend that the Government should persuade these States to establish State Energy Conservation Fund and ensure prompt and adequate funding to these Conservation Funds.

Reply of the Government

Bureau of Energy Efficiency

Under SECF, States / UTs are provided with contribution of Rs 4.0 crores in two installments of Rs 2.0 crores each. The second installment towards SECF was released only after the states have provided a matching contribution to the first installment of Rs 2.0 crores.

BEE through meetings with State Government officials, National Workshops of SDAs has been pursuing with States for establishment of State Energy Conservation Fund (SECF) and also providing matching contribution to BEE's 1st installment of Rs 2 crores. Till date 26 States have notified SECF, out of which 15 States have also provided the matching contribution under their SECFs. An

amount of Rs 82 crores has been disbursed till date under the scheme. The 1st installment of Rs. 2.0 crores is provided once the SECFs are notified and rules and regulations to operationalize them are finalized. An equal amount is provided towards 2nd installment, once the States have provided matching contribution.

During the financial year 2012-13, amount of Rs 2 crores each was provided as 2nd installment to Pondicherry, Jharkhand and Madhya Pradesh towards SECF upon receipt of matching contribution to 1st installment from U.T Administration / State Government.

Rs 4.0 crores were provided to Maharashtra as 1st and 2nd installment towards SECF. The 1st installment was provided upon notification of SECF by Maharashtra and finalization of rules and regulations to operationalize it. The 2nd installment was disbursed upon providing matching contribution to 1st installment of Rs 2.0 crores provided by BEE under contribution to SECF. During the financial year 2013-14, an amount of Rs 6 crores have been released towards Contribution to SECF for the states of Jammu and Kashmir, Gujarat and Goa. Jammu and Kashmir was provided the 1st installment of Rs 2 crores while the State Government of Gujarat and Goa received 2nd installment towards SECF.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.18, Para No. 19)

The Committee note that finished LED lamps attract lesser amount of duties as compared to its components, i.e., LED chip, Electronic part and Housing/fixture part. This makes import of finished LED lamps cheaper than importing its components and assembling it in the country. Keeping in view the huge demand of LED lamps in the country, imports of these items can be one of the options but this cannot be permitted at the cost of local enterprises. The Committee, therefore, recommend that custom duty and CVD on LED lamps and its components should be levied in such a manner that it encourage local production and disincentives import of finished LED products.

Reply of the Government

D/o Revenue- Ministry of Finance

10% basic customs duty (at general peak rate 10% basic customs duty (at general peak rate for non-agricultural goods) is levied on LED lights/fixtures & LED Lamps. Further, to incentivize domestic manufacturing of LED lights/fixtures & LED Lamps, basic customs duty has been exempted on LEDs and all inputs for manufacture of LEDs. This duty structure offers protection to domestic manufacturers of LED lights/fixtures & LED Lamps such goods.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

Energy Audit

The Committee note that as per Planning Commission, India is the fourth largest consumer of energy in the world after USA, China and Russia but it is not endowed with abundant energy resources. Considering the acute shortages being faced by the country, the Committee believe that we should pay utmost attention towards efficient use of energy and its conservation. The Committee also believe that Energy Audit is the pre-requisite of energy saving. Energy Audit, as per the Energy Conservation Act, 2001, is the verification, monitoring and analysis of use of energy, including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption. The Committee also note that in any industry, the three top operating expenses are often found to be energy, labour and materials. Out of the three, the energy component has the highest potential for cost saving. The Committee was informed that in the Small and Medium Enterprises, wherever Energy Audit has been undertaken, it has resulted in reduction of at least 20% of energy consumption. They were further informed that Energy Audit Studies have revealed a savings potential to the extent of 40% in end use such as lighting, cooling, ventilation, refrigeration, etc. The Committee have been apprised that reduction of 3% of the total energy consumption of Delhi through use of efficient equipment would result in a huge saving of Rs. 21,000 crore. The Committee, considering the findings of these limited scale Energy Audit, believe that this is only the tip of the iceberg in terms of the energy saving potential available in the country. The Committee are aware that consequent to the Honorable Prime Minister's announcement to bring energy consumption by the Government and Private Organizations by 30% and 20%, respectively, the Bureau of Energy Efficiency (BEE) has identified some buildings for Energy Audit. The concept of energy audit was implemented by the Energy Conservation Act, 2001. However, the Committee feel that there is an urgent need for increasing the scope of Energy Audit and the pace of its execution. Therefore, a system should be established to compile, process, analyze and use data/ observations. The Committee, therefore, feel that there is need to review the scope, provision of energy audit and also the concept to use the same.

Reply of the Government

Bureau of Energy Efficiency

BEE has developed guidelines for energy audits in different sectors like industries, buildings and other facilities. The guidelines are being reviewed regularly based on the data, stakeholder feedbacks and technology advancement.

As per notification no. S.O 1378 (E) dated 27th May 2014, 478 Designated Consumers identified under PAT are mandatorily required to get energy audit conducted by an accredited energy auditor, in accordance with the BEE (Manner & Intervals of Time for conduct of energy audit) Regulations, 2010. Also, furnish to the concerned designated agency, details of information on energy consumed

and details of the action taken on the recommendation of accredited energy auditor, in accordance with the Energy Conservation Rules, 2008.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.21, Para No. 22)

AT&C Losses

The Committee note that the Aggregated Technical and Commercial (AT&C) losses in the country is more than 25%. AT&C have two components, one technical losses which are due to energy dissipated in the conductors and equipment used for transmission, transformation and distribution of power while the other, commercial losses due to pilferage of energy by hooking of lines and bypassing the meters, defective meters, errors in meter reading, etc. In other words, more than 25% of the energy generated in the country is lost or goes unaccounted. The Committee believe that conversion of 25% losses in monetary loss will mean thousands of crores of rupees. The Committee also find that in comparison to international average, India's AT&C losses are too high. Technical losses can be reduced substantially by upgrading the existing old and inefficient transmission system in the country. Reduced AT&C losses, besides monetary gain, will also result in more availability of power for an energy deficient country. The power distributing sector has always been deprived of due investment and attention as compared to other two sectors of power, i.e., generation and transmission. The Committee are aware that the Government had taken an initiative to address this issue as early as in 2000-01 when the Accelerated Power Development and Reform Programme (APDRP) was launched which was later restructured and rechristened as the Re-structured APDRP. However, this also could not yield the desired results. Now, the Government have revamped the programme and re-launched it as the Indian Power Development Scheme (IPDS) which, besides other things, aims at reducing AT&C losses to the level of 15%. The Committee do understand that this is a Herculean task and requires relentless efforts of the Centre as well as the cooperation of the States. The Committee feel that though AT&C losses are separate subject, nonetheless, steps are required to bring down the commercial 'pilferage'.

Reply of the Government

Ministry of Power

- AT&C loss is a transparent measure of overall efficiency of the distribution business as it measures technical as well as commercial losses. High technical losses in the systems are primarily due to inadequate investments over the years for system improvement works, which has resulted in unplanned extensions of the distribution lines, overloading of the systems elements like transformers and conductors and the commercial losses are mainly due to low metering efficiency, theft & pilferages.

- As rightly understood by the committee, the cooperation of all states is very much solicited to achieve the desired level of AT&C Losses at National level. However to supplement the efforts of states in reduction in high AT&C losses, the Government of India has launched various schemes like Erstwhile R-APDRP, Integrated Power Development Scheme and National Electricity Funds.

- The Objective of these schemes is to reduce AT&C Loss level to the desired level through up-gradation, strengthening of sub-transmission & distribution systems, IT enablement of distribution networks of the state's utilities for which the financial assistance is being provided by Government of India.

- Under the "Integrated Power Development Scheme", which also aims reduction in AT&C losses, the AT&C loss reduction trajectory was formulated in consultation with the states to achieve 15% AT&C loss level at national level by 2021-22. The Ministry of Power has taken up the exercise to squeeze the timeline further to achieve the target of 15% of AT&C loss.

- Ministry of Power has also started taking a quarterly review of AT&C losses, since Q1 of FY 2014-15, of all the State owned distribution utilities based on the provisional unaudited data submitted by the utilities. The aim behind the exercise of monitoring quarterly AT&C losses is to sensitize the Utilities is being discussed by Ministry regularly in the monthly meetings of Review Planning and Monitoring.

- Though the desired level of AT&C losses is yet to be achieved, however since launch of erstwhile R-APDRP in 2008-09, there is decreasing trend in AT&C losses at national level which is indicated below:

FY	2009-10	2010-11	2011-12	2012-13	2013-14
AT&C Losses (%)	26.99	26.35	26.63	25.45	22.70

(Source: Power Finance Corporation)

- To enable effective control of theft of electricity, the Electricity Act, 2003 has incorporated specific provisions for detection of theft, speedy trial of theft related offences and also for recovery of the charges of electricity stolen. Government of India, Ministry of Power has amended Section 135 and Section 151 of the Electricity Act, 2003 through the Electricity (Amendment) Act, 2007 making the offence punishable under Section 135 and Section 150 as cognizable and non-bailable. Moreover powers have been vested with the police officer in line with Chapter XII of the Code of Criminal Procedure, 1973 (2 of 1974). The definition of theft has been expanded under Section 135 to cover use of tampered meters and use of electricity for unauthorized purpose by insertion of provisions (d) and (e) under Section 135(1) of the Electricity Act, 2003.

- The Central Government has also requested the State Governments to take steps for effectively curbing power theft and has advised the introduction of suitable incentive schemes for such informers who give clue of the source of theft of electricity. The reward in such a scheme is to be linked to the amount of recoveries that can be effected in the cases reported. The State Governments have also been requested to expedite setting up of Special Courts as provided in Section 153 of the Electricity Act, 2003 for speedy disposal of theft related cases.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

CHAPTER III

OBSERVATIONS/ RECOMMENDATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES

(Recommendation No.2, Para No. 3)

The Committee find that electricity use in the building sector is likely to touch 50% from the current level of 34% in the next decade. India is also likely to have an extremely high cooling load in excess of 100 GW owing to its tropical climate, large population and rising aspirations of the people. To tackle the problem, a sustainable cooling initiative will have to be taken to cool the demand by setting a target. For this, guidelines may be evolved for low income housing to optimize thermal comfort. For supporting the ECBC scheme, capacity should be developed and enabling measures be put in place. States should also be informed about the benefits under the Government National Missions, such as, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities, etc. The Committee note that a large number of States are yet to notify the Conservation Codes. These States should be persuaded to notify them without further delay. Besides, policy measures should be put in place to have sustainable building designs, adaptive thermal comfort standards validated by proper research, stringent notification of air-conditioner efficiency standards, mainstreaming of non-vapour based HVAC technology and adoption of Automated Demand Response strategies to tide-over the peak demand. The Committee, therefore, recommend that in view of the anticipated higher demand of electricity in future in the building sector, adequate policy measures having technical standards for upcoming buildings may be formulated and notified expeditiously.

Reply of the Government

Bureau of Energy Efficiency

- The ECBC has been developed for 5 climatic zones by the Central Government; the State has the flexibility to modify the code to suit local conditions and adopt them. The enforcement of the code lies with the State Government through incorporation in their existing government orders or bye-laws of the municipality. 8 States have already notified ECBC through incorporation in their existing government orders/bye-laws/provisions of the EC Act.

- Currently, residential complexes are not within the purview of the EC Act. Design Guidelines for 'Energy-Efficient Multi-Storey Residential Buildings' have been developed for two climatic zones with the objective to provide a comprehensive information on how to design energy-efficient multi-storey residential buildings. These guidelines will be used by the agencies/persons involved in the regulation, design, and construction of multi-storey residential buildings in urban areas such as private and government sector developers and builders, architects and other design professionals, and urban local bodies.

- BEE has developed a Star Rating programme for buildings which is based on the actual performance of a building in terms of its specific energy usage in kWh/sq m/year. This programme rates buildings on a 1-5 Star scale, with 5 Star labelled buildings being the most efficient. The scheme is propagated on a voluntary basis and the label provided under it is applicable for a period of 5 years from the date of issue. The Star Rating programme provides public recognition to energy efficient buildings, and creates a 'demand side' pull for such buildings. Various categories of buildings such as office buildings, BPOs, shopping malls and hospitals in the five climatic zones of the country have been developed under the scheme.

- The National Building Code of India (NBC), a comprehensive building Code, is a national instrument providing guidelines for regulating the building construction activities across the country. It serves as a Model Code for adoption by all agencies involved in building construction works is they Public Works Departments, other government construction departments, local bodies or private construction agencies. The NBC has now been amended to incorporate the ECBC through a new chapter named "Approach to Sustainability", thus giving ECBC a much broader coverage.

Ministry of Urban Development

Provisions exist in ECBC 2007. However same can be reiterated through notification by BEE.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.7 Para No.8)

The Committee observe that under the Companies Act, all the registered firms are mandated to disclose their annual energy consumption and conservation through the company's annual report. The Ministry of Corporate Affairs, through the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, mandated each company to include an annexure after the Board of Directors Report on annual basis information on energy consumption and conservation. The same provisions were also included in Section 134 (3)(m) of the Companies Act, 2013. There is no exemption given to any company. This has been done with a view to encouraging companies to have robust and streamlined conservation data. This will also encourage them to undertake energy audits, identify energy intensive areas within the firm and formulate energy efficiency measures. However, these measures have not yielded the desired results due to the lackadaisical approach of the Government to take necessary follow up action. There does not seem to be any serious effort at either collating or analyzing the relevant data. It is also observed that no effort has been made to fine tune them, leaving the Reports in the Annexures being perfunctory and semantic, than data based. The Committee feel that had proper action been taken on the data collected in the companies report, it would have led to creation of a clear database for energy efficiency purposes. The Committee, therefore, recommend that:

- (i) Since last 25 years companies are publishing/ releasing data on energy efficiency/ measures taken by the company in their Annual Report. There is need to analyse these data.
- (ii) Henceforth, data collected in the annual report of companies should be collated and analysed for the purpose of formulating appropriate policy regarding energy efficiency in the industries.
- (iii) Designated consumers should also be mandated to provide report about the action taken by them on the observations made following analysis and collation of data supplied by them in their annual report.
- (iv) The Ministry should prepare guideline and fix responsibility on an agency to study/ scrutinize the energy efficiency measures taken by the companies which are reported in their Annual Reports. Such data could be useful for planning and correcting the policies.
- (v) There is a lot of scope to improve both the above concepts, the Ministry with the help of Corporate Ministry, CERC and CEA can refresh the guidelines and also evolve system to scrutinize and use such data.

Reply of the Government

Central Electricity Regulatory Commission

- FOR (to which CERC provides secretarial assistance) has already brought out various reports such as Regulatory updates on DSM, Institutionalizing energy efficiency and Demand Side Management in utility sector in India etc. Best practices adopted in States are also collated by FOR Secretariat.
- CERC has written to MoP to include energy conservation and energy efficiency amongst its function in the Electricity Act, 2003.
- CERC is open to provide support so as to frame/evolve guidelines in measuring/scrutinizing energy efficiency measures and actions taken by companies.
- CERC has constituted the CERC-BEE Committee to facilitate the PAT Trading Mechanism. This involves around 478 Designated Consumers in each sector of industry who are given a target baseline energy consumption to be translated into energy efficiency.

Ministry of Corporate Affairs

- The nature and quantum of data is available with the data repository of the Ministry;
- The time period for which the data is available; and
- Whether the data is available in the machine readable format so that the same can be extracted for further analysis.

Bureau of Energy Efficiency

Ministry of Power and Bureau of Energy Efficiency (BEE) are implementing Perform, Achieve & Trade (PAT) scheme which is a regulatory instrument to

reduce Specific Energy Consumption in energy intensive industries. In the first cycle of PAT (2012-15), 478 industrial units in 8 sectors (Aluminum, Cement, Chlor- Alkali, Fertilizer, Iron & Steel, Paper & Pulp, Thermal Power, Textile) have been mandated to reduce their specific energy consumption (SEC) i.e. energy used per unit of production. The target reduction for each industrial unit is based on their current levels of energy efficiency, so that energy efficient units will have low target of percentage reduction, as compared to less energy efficient units which will have higher targets. As per notification no. S.O 1378 (E) dated 27th May 2014 these 478 DCs are mandatorily required to provide report about the action taken on the recommendation of the energy auditor.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

(Recommendation No.20 Para No.21)

The Committee in regard to Energy Audit note that under section 134 of the Companies Act, there is a requirement that in the Annual Report of the Board of Directors, information regarding the conservation of energy shall also be included. The Secretary, the Ministry of Corporate Affairs during the sitting of the Committee on the subject has deposed that the above provision has further been expanded and now it further requires the information on the steps taken for conservation of energy, the steps taken by the company for utilizing alternate sources of energy, the capital investment on energy conservation equipment. However, the Director General, Bureau of Energy Efficiency, during the sitting pointed out that the information provided by the companies, regarding energy consumption as required by the Companies Act, often have inconsistencies, thus it becomes difficult to use these information. The Committee, therefore, recommend that the Government should issue fresh instructions/ guidelines for the companies covered under the Companies Act for stricter compliance of the provision of disclosure of accurate and consistent information about energy conservation.

Reply of the Government

D/o Corporate Affairs

Ministry of Corporate Affairs would issue fresh instructions/guidelines for the companies covered under the Companies Act for stricter compliance of the provision of disclosure of accurate and consistent information about energy conservation.

[Ministry of Power
O.M No. 15/1/2015-EC, Dated: 12.2.2016]

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

(Recommendation No.6 Para No.7)

The Committee note that the Railways and some other organizations are proposed to be brought within the category of Designated Consumers for the purpose of energy conservation. This is a welcome move, but it is a known fact that all designated consumers have to report to State designated agencies and adjudication for them is to be carried out by State Electricity Regulatory Commission. As per the extent rules, the Railways being a Central Government Department will be accountable to a State level agency or undergo adjudication by a State level organization. This will be inappropriate for Railways as well for the system. Similar problems will arise once buildings are also included as designated consumers. Central Public Works Department owing to the fact that most of the Central Government office buildings across the country are owned by this organization may become a Designated Consumer. It will also face the similar situation as that of Railways. The Committee, therefore, feel that all the Central Government Ministries/ Departments/ agencies which are likely to be named as designated consumers requiring reportage of their energy consumption data should reporting the same to a Central Government agency like Bureau of Energy Efficiency (BEE) and any adjudication arising out of such activities may be done by Central Electricity Regulatory Commission. *The Committee recommend that for the purpose, if deemed essential, necessary amendments may be carried out in the Energy Conservation Act, 2001.*

(Recommendation No.8 Para No.9)

The Committee note that during the next three years, the industrial energy savings are targeted to reach 10% through widening the scope of PAT schemes to new sectors as well as increasing vigil in the current sectors. In addition, guidelines for mandatory disclosures on energy consumption by companies under the Companies Act will help in achieving the 10% targets. The Committee understand that the Perform, Achieve and Trade (PAT) is a regulatory programme to reduce the specific energy consumption in energy intensive industries with the use of tradable energy consumption certificates. This is one of the flagship schemes under the National Mission on Enhanced Energy Efficiency using a market based mechanism. Under the scheme, which is the first cycle of PAT, the designated consumers have been mandated to reduce their Specific Energy Consumption (SEC) to 4.05%. Units which achieve SEC level that are lower than their targets can receive energy saving certificate for their excess savings. These certificates can be traded on power exchanges and bought by other units under PAT who can use them to meet their compliance requirements. Units that are unable to meet the target either through their own actions or through certificate purchases are liable for financial penalty under the

Conservation Act. This will be followed by the second and subsequent cycles with more number of industrial sectors and units participating with more stringent energy conservation norms and standards. The Committee appreciate the steps taken for enforcing energy efficiency in the industrial sector, even though these steps were taken only in the year 2012. Still, a lot more can be done to make the energy intensive industries energy efficient. *The Committee, therefore, recommend that instead of waiting for the second cycle to identify the sectors and units for making them energy efficient compliant, it would be better if this process is continued uninterrupted till the prescribed standards for energy efficiency are observed by the all industries, irrespective of their energy intensity.*

(Recommendation No.11 Para No.12)

The Committee observe that there are identifiable challenges which are posing difficulties to the Indian Lighting Industry. These *inter-alia* include low capability of domestic production of electronics, less energy efficient products, lack of precise database, majority of value addition for Indian LED market being done outside India and less Government support to the sector. The most critical impediment facing the sector is the woefully inadequate testing lab facilities. Consumer confidence can be ensured only with quality products, duly tested in approved laboratories. The backdrop in which LED market is burgeoning further emphasizes the need for adequate testing capabilities. Since this sector is set to grow exponentially, corresponding facilities ensuring quality products to instill confidence among the consumer have become all the more necessary. This can be done only by making available sufficient testing devices. The Committee have been informed that as of now there are very limited testing facilities for LED lights available with the BIS. The rates for such testings are also not uniform and unreasonably high which is creating serious hindrances in the development of the sector. *The Committee, therefore, strongly recommend that:*

- (i) *Immediate steps should be taken to make available adequate and reliable testing facilities for LED lights in the country. To achieve the objective, NABL approved labs and other such apparatus may be considered for empanelment so that the growth of the sector is not impeded.*
- (ii) *Also, rates may be prescribed for such testings to ensure that exploitation does not take place and the prices of the final product are reasonable and uniform all across the country.*
- (iii) *Life time testing specifications for all critical components used in lighting fixtures, including LED, ELCO, MOFOST reflectivity, aging test, etc., may also be defined.*

(Recommendation No.13 Para No.14)

Energy Conservation in Agriculture Sector

The Committee note that India's agriculture sector consumption accounts for 19% of the total electricity consumption of the country. There are about 20 million

pump sets in the country and most of them have efficiency level as low as 20% - 25%. This is a major contributor of wastage of electricity and higher agriculture electricity subsidy burden on States. Since most of the States provide free or highly subsidized electricity to agriculture sector, irrespective of the size of the land holdings, the agriculturist hardly finds any incentive to use more energy efficient pump sets which are costlier. The Committee, therefore, believe that unless there is intervention of the State in this matter, not much is going to change. The Ministry has, however, reported that in order to accelerate the adoption of energy-efficient irrigation pump sets, an agricultural Demand Side Managment (DSM) programme has been launched through which farmers get more energy efficient pumps with the help of utilities and Energy Service Companies (ESCOs) without capital investment. The upfront capital investment is recovered from the energy and cost savings for repayment to the ESCO. *The Committee while welcoming this step feel that:*

- (i) State Governments have to play a key role in the implementation and enforcement of the Agriculture DSM programmes. Therefore, they should establish a specific cell within the State Designated Agencies for ensuring enforcement of various DSM activities in the agriculture sector.*
- (ii) The Committee believe that in tandem with the above mentioned pumps' replacement programme, the policy of incentivizing production and use of efficient pump sets and discouraging inefficient pumps set through differential taxation will also help in achieving energy efficiency in this sector.*
- (iii) The Committee further recommend that there should be outreach campaigns to sensitize consumers in this regard.*
- (iv) Action Plan for the improvement of millions of operating agriculture pump sets, road map to convert the agriculture pump sets into solar agriculture pump sets.*

(Recommendation No.16 Para No.17)

Investment in Energy Conservation

The Committee observe that an estimation has been done about the requirement of funds for achieving the targets under the National Mission for Enhanced Efficiency (NMEE). The Mission seeks to create a conducive, regulatory and policy regime to unlock the market by focusing on enhancing energy efficiency in all sectors, i.e., industry, buildings, commercials and agriculture. On fiscal issues, the Committee have been informed that energy efficiency projects pay for themselves through savings in the energy cost. However, it is difficult to find investments for energy efficiency projects as banks and financial institutions look at these projects as less tangible. Further, the interest rates are also a deterrent to investments as these projects have very long payback period. Moreover, there is no comprehensive study which has been done at present to fulfill the financial

requirements of the sector. The financial support from the Government is available to LED lights in the form of tax concessions. The Committee are of the view that the available financial support from the Government is not sufficient for the growth of the sector. *Therefore, it is recommended that:*

- (i) An enabling financing regime should be created in which the risk perception with regard to energy efficiency projects can be minimized.*
- (ii) Energy efficiency projects should be considered at par with energy generation projects.*
- (iii) Allocation of funds from the National Clean Energy Fund (NCEF) may also be considered for energy efficiency projects.*
- (iv) The Government may consider providing priority sector lending status for energy efficiency projects, reduce excise duty on LED lamps to lower their prices and increase market penetration.*
- (v) The Power Ministry may take up with the Finance Ministry to declare the conversion of Street Lights into LED based Street Lights Project into Infrastructure Project.*

New Delhi
2nd May, 2016
Vaisakha 12,1938 (Saka)

DR. KIRIT SOMAIYA,
Chairperson,
Standing Committee on Energy

APPENDIX-I

MINUTES OF THE TWENTIETH SITTING OF THE STANDING COMMITTEE ON ENERGY (2015-16) HELD ON 27th APRIL, 2016, IN COMMITTEE ROOM 'B', PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 1600 hrs to 1700 hrs

PRESENT

LOK SABHA

Dr. Kirit Somaiya - Chairperson

2. Shri Harish Dwivedi
3. Shri Bhagat Singh Koshyari
4. Dr. Pritam Gopinath Munde
5. Smt. Krishna Raj
6. Shri Vinayak Bhaurao Raut
7. Shri Gutha Sukender Reddy
8. Shri Devendra Singh alias Bhole Singh
9. Shri Malyadri Sriram

RAJYA SABHA

10. Shri V.P. Singh Badnore
11. Shri Oscar Fernandes
12. Shri Pyarimohan Mohapatra
13. Dr. K.P. Ramalingam
14. Shri Ananda Bhaskar Rapolu

SECRETARIAT

1. Shri K. Vijayakrishnan - Additional Secretary
2. Shri N.K. Pandey - Director
3. Smt. L. Nemjalhing Haokip - Under Secretary

List of Witnesses

X X X X X X X X X X X

2. At the outset, the Chairman welcomed the Members and apprised them of the agenda for the sitting. The Committee then took up for consideration the following draft Reports:-

- i) Hydro Power - A Sustainable, Clean and Green Alternative
- ii) Action Taken on the recommendations contained in the 6th Report (16th Lok Sabha) on Demands for Grants of the Ministry of New and Renewable Energy for the year 2015-16.
- iii) Action Taken on the recommendations contained in the 7th Report (16th Lok Sabha) on 'Energy Conservation.
- iv) Demands for Grants of the Ministry of Power for the year 2016-17.
- v) Demands for Grants of the Ministry of New and Renewable Energy for the year 2016-17.

3. After discussing the contents of the Reports in detail, the Committee adopted the aforementioned draft Reports without any change. The Committee authorized the Chairperson to finalize these Reports and present the same to both the Houses of Parliament in the current Session.

4.	X	X	X	X	X	X	X	X	X	X	X
5.	X	X	X	X	X	X	X	X	X	X	X
6.	X	X	X	X	X	X	X	X	X	X	X
7.	X	X	X	X	X	X	X	X	X	X	X
8.	X	X	X	X	X	X	X	X	X	X	X

The Committee then adjourned.

APPENDIX II

(Vide Introduction of Report)

ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE OBSERVATIONS/ RECOMMENDATIONS CONTAINED IN THE SEVENTH REPORT (16TH LOK SABHA) OF THE STANDING COMMITTEE ON ENERGY

(i)	Total number of Recommendations	21
(ii)	Observations/Recommendations which have been accepted by the Government: Sl.Nos.1,3,4,5,9,10,12,14,15,17,18,19 and 21. Total: Percentage	13 61.90%
(iii)	Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies: Sl. Nos. 2,7 and 20. Total: Percentage	03 14.29%
(iv)	Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration: Nil Total: Percentage	00 00
(v)	Observations/Recommendations in respect of which final replies of the Government are still awaited: Sl. Nos. 6,8,11,13 and 16 Total: Percentage	05 23.81%