



GOVERNMENT OF INDIA



## 2023

# STATE ENERGY EFFICIENCY ACTION PLAN FOR THE STATE OF PUNJAB

## WHITE PAPER



### Background

The increasing demand for energy puts a strain on the country's resources and has negative environmental impacts. Therefore, it is necessary to separate the country's economic growth from its energy demand. This objective is also reflected in India's Intended Nationally Determined Contribution submitted before the Paris Climate Conference, where the government emphasized energy conservation as a crucial mitigation strategy.

During the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2021, the Government of India presented India's climate action plan, which included five essential elements known as Panchamrit. These elements include the target of achieving net zero emissions by 2070 and obtaining 50% of the country's energy from renewable resources by 2030.

India's non-fossil energy capacity to reach <b>500 GW</b> by 2030	India will meet <b>50 percent</b> Cumulative electric power installed capacity from non- fossil fuel by 2030	India will reduce its total projected carbon emissions by <b>one billion tonnes</b> from now to 2030	By 2030, India will reduce the carbon intensity of its economy to less than <b>45%</b>	By <b>2070</b> , India will achieve the target of <b>net zero emissions</b> .
2030	2030	now to 2030	2030	2070

The main focus of this project was to develop strategies aimed at improving the energy efficiency of energyintensive sectors within the state. This action plan aligns with the Nationally Determined Contributions (NDCs), also known as Panchamrit. For Punjab, the action plan identifies key sectors and evaluates the potential for energy conservation and efficiency improvements in the region.

The State Energy Efficiency Action Plan sets both short-term goals to be achieved by FY 2026 and long-term goals to be achieved by FY 2031, with the objective of achieving significant energy efficiency improvements by 2031. The implementation of the proposed action plan is expected to result in estimated energy savings of 1.176 million tonnes of oil equivalent (Mtoe) in a moderate scenario and 1.895 Mtoe in an ambitious scenario by FY 2031 for the State of Punjab.

### Identification of the focus sectors

In order to facilitate the transition towards low-carbon development pathways, each state or union territory (UT) plays a crucial role. The Bureau of Energy Efficiency, under the guidance of the Ministry of Power in consultation with State Designated Agency, various stakeholders from different sector of the state and knowledge partner ASSOCHAM has developed state-specific energy efficiency action plan to ensure that resource allocation aligns with the state's requirements and aids in achieving state-specific goals related to sustainable development.

Identifying the focus sectors or areas is important because certain sectors within a state tend to consume a significant portion of energy. To determine the focus sectors for Punjab, a comprehensive study was conducted, taking into account various parameters such as energy consumption patterns, emissions, Gross State Value Addition (GSVA), gap analysis in respective sectors, potential for energy efficiency and emission reduction, planned efforts by the state in prioritized sectors, State Designated Agency (Punjab Energy Development Agency - PEDA, and inputs from stakeholders.

Based on the Total Final Energy Consumption (TFEC) in the state and its sectoral distribution, the following sectors have been identified as the focus sectors for devising energy efficiency strategies in Punjab referring the fiscal year 2020 as a base year. Buildings, Industry, Transport, and Agriculture are the identified focus sector for the state.



Buildings







Agriculture

By targeting these focus sectors and implementing energy efficiency measures, the state aims to optimize energy consumption, reduce emissions, and contribute to sustainable development goals.

## Proposed Strategies with Implementation Methodology

The chapter discuss the proposed strategies outlined in the action plan for the identified focus sector along with their potential impact in terms of energy efficiency and emission reduction. These proposed strategies are stated below with their actionable items and implementation methodology.

#### 1. Buildings Sector

In Punjab, as per census 2011 around 37.50% of the population resides in urban areas and 62.5% of the population resides in the rural area. PEDA has prepared and notified the Energy Conservation Building Code for the state. Furthermore, Bureau of Energy Efficiency, GoI has launched Eco-Niwas Samhita (ENS) for residential buildings and residential part of mixed land used projects build on plot area  $\geq$  500 square meters in 2018. In the first phase minimum standards for the building envelope were launched to limit heat gain or heat loss of the residential building comprising adequate day lighting potential and ventilation. BEE, GoI developed Eco-Niwas Samhita part-II for setting up minimum standards for the Electromechanical Equipment for efficient use of energy in residential buildings. The provisions of ENS must be incorporated in Unified Building Byelaws (UBBL). The suggested strategies for the building sectors are:

#### Effective Implementation of ECSBC

The State of Punjab has already notified the Energy Conservation Building Code (ECBC) for commercial buildings in the year 2016 and amended in 2021. The state is in the process of adopting Eco-Niwas Samhita (ENS) for residential buildings. However, in a recent EC Act Amendment 2022, unified code "Energy Conservation and Sustainable Building Code" (ECSBC) was introduced which will cover both commercial and residential buildings. Till the implementation of ECSBC in states, ECBC and ENS will work in place of ECSBC. Effective implementation of Energy Conservation and Sustainable Building Code (ECSBC) by increasing the penetration of ECBC and ENS compliant buildings in the state is proposed for upcoming commercial and domestic buildings in the state as a strategy for energy savings in the buildings sector.

#### **Actionable Items:**

Setting up of effective enforcement plan with ULBs and SDA as monitoring agencies а.

- b. Development and maintenance of ECSBC compliance portal, directory of energy efficient materials/technologies.
- c. Capacity Building Workshops for ECSBC
- d. Pilot projects for Super ECBC buildings as case studies (initial 20 Buildings)
- e. Home Energy Auditor Training, compliance structure and incentive on energy savings for first few residential projects
- f. Periodic upgradation of PWD Schedule of Rates (SoR) to incorporate latest energy efficient materials and technologies.

#### Implementing Methodology:

- a. Establishing guidelines
- b. Awareness and training programs
- c. Code adoption
- d. Compliance and enforcement
- e. Performance evaluation
- f. Incentives and recognition.

#### Replacement Program for inefficient (below than 3 star-rated) appliances:

The strategy has been proposed for the complete buildings sector, covering both commercial and domestic buildings. The electricity consumption pattern varies greatly between urban and rural areas. This is due to the variation in type and number of appliances being used by urban and rural residents.

#### **Actionable Items:**

- a. Development of state-specific implementation models and identification of relevant agencies.
- b. Issuance of directive to government offices and buildings in the state to replace all existing inefficient appliances (lower than 3 Star Rated) with BEE 5-star rated appliances.
- c. Phase-wise plan for replacement of existing inefficient appliances (lower than 3 Star Rated) with BEE 5star rated appliances in all buildings, through DSM schemes.
- d. Workshops & Campaigns on behavioural change interventions for energy conservation.

#### Implementation Methodology:

- a. Identification of inefficient appliances
- b. Selection and procurement of energy efficient appliances
- c. Distribution and installation of the appliances
- d. Disposal of the old appliances
- e. Monitoring and Evaluation

#### Mandatory BEE Star Rating or Shunya Rating for Government Buildings

The Star Rating and Shunya Rating of buildings is currently at a voluntary stage which is used as a benchmarking system for buildings in order to classify them in terms of 'Star-Rating' & 'Shunya Rating' on the basis of their energy performance. It is proposed that to promote Star Rating & Shunya Rating in all government & commercial buildings and conduct an assessment for their energy performance along with the ECBC Compliance process.

#### **Actionable Items:**

- a. Issuance of directives to all government departments to conduct energy audits and target to achieve BEE Star Rating for their buildings.
- b. Periodic energy audits for buildings to maintain the star rating of buildings.
- c. Capacity Building of Architects & Building Professionals and Developers.
- d. Market Outreach for Star & Shunya Rating by Social Media Awareness.
- e. Mandatory minimum set point of 24 degrees for air conditioners in all government buildings.
- f. Transformation of iconic government buildings to Net-Zero energy buildings.

#### Implementation Methodology:

- a. Identification for the eligible buildings
- b. Awareness Campaigns
- c. Compliance and Enforcement
- d. Incentives and recognition
- e. Performance evaluation

By implementing all the strategies in the buildings sector, it is estimated that approximately 0.076 Mtoe in energy savings can be achieved under the moderate scenario. Under the ambitious scenario, the estimated energy savings increase to approximately 0.0998 Mtoe. These savings signify the potential reduction in energy consumption and improved energy efficiency resulting from the implementation of energy conservation measures and the promotion of sustainable building practices.

#### 2. Industry Sector

Punjab has emerged as a preferred investment destination for national and international investors. The state is a vibrant and fast-growing, attracting investors for profitable investments. The state provides investment opportunities in sectors such as textiles, agro-based industries, automotive and auto components, sports goods, and light engineering goods. Punjab is the source of 95% of India's woolen knitwear production, 85% of India's sewing machine production, and 75% of India's sports goods production. According to the Department for Promotion of Industry and Internal Trade, cumulative FDI inflow in the state stood at US\$ 778.73 million during 2019-21. The major industries in Punjab are Hosiery and Readymade Garments, Textile and Yarn Industry, Cycle and Cycle Parts, Sewing Machine Manufacturers, Sports Goods, Sanitary Fittings, Leather and Rubber Industry, Packing Material and Machinery, Textile Printing, Printing Industry, Information Technology, Pharmaceuticals, Diesel Engine and Parts, Steel Rolling Mills, Combine Harvester, Bricks, and Foundry & Forging.

Punjab has a huge investment opportunity for energy efficiency as the state has a large number of MSME units. They play an important role in the state's economy and provide employment to a large share of people. The individual power consumption of MSMEs is usually low but the collective consumption of clusters is usually high. The electricity consumption of the industrial sector for the Punjab state has risen in the last few years. The existing PAT DCs in the state of Punjab are Cement, Chlor-Alkali, Pulp & Paper, Textile, TPP, Fertilizer, DISCOM, and Petroleum Refineries.

The proposed strategies for the industrial sector are:

#### Deeping and Widening of Perform, Achieve and Trade (PAT) Scheme

In this strategy, it is suggested that the state should enhance coverage of energy consumption in PAT industries (DCs) by Deeping and Widening of the PAT scheme in the state.

In this it would imply notifying more industries as designated consumers under the current PAT sectors by lowering the threshold limit for eligibility (TOE/annum), as well as the inclusion of new sectors such Dairy, Food Processing, Sugar Mills, Cold Storage, Forging & Foundry, Steel Rerolling etc.

#### Actionable Items:

- a. Partial Risk guarantee program to encourage implementation of latest energy efficient technologies in the sectors (Over and above existing schemes with state contribution)
- b. Capacity building of energy managers and auditors in PAT DCs and probable sectors for compliance with scheme and new technologies.
- c. Mandatory standardized energy audits in every three years for all units that have energy consumption below PAT threshold, in all notified PAT sectors, excluding MSMEs.
- d. Development of mechanisms for B2B interaction with global technology suppliers.

#### Implementation Methodology:

- a. Identification of potential sectors
- b. Setting energy targets
- c. Implementation of energy efficiency measures
- d. Monitoring and verification
- e. Trading of energy saving certificates

#### Energy Efficiency Interventions for MSME Clusters

The strategy is proposed for the Small and Medium Enterprises (SME) sector, which consists of MSMEs in identified prominent sectors such as Bricks, Hand Tools, Cycle Manufacturing, Leathers, Steel Rerolling, Foundry & Forging etc. A PAT-like scheme is proposed under this strategy for the unorganized and small industries sectors, which would not meet the threshold energy consumption under the conventional PAT scheme. The strategy would involve the implementation of energy efficient technologies and new & innovative decarbonization technologies in the market in order to enable SMEs to meet their energy saving targets.

#### Actionable Items:

- a. Carrying out of energy and resource mapping studies MSME clusters.
- b. Implementation of demonstration projects on energy efficient technologies in SME clusters.
- c. Workshop on technology interventions for energy conservations in MSMEs
- d. Periodic standardized energy audits for MSMEs on load basis and reimbursement of energy audit cost with maximum cap.
- e. Sector-specific policy development for financial assistance on implementation of ECMs suggested in energy audit.
- f. Phase wise plan to implement DSM scheme for replacement of existing inefficient (non-star rated) pumps through DISCOMS.
- g. Technical assistance for transition from Bull Trench Kiln to Zig-Zag Kilns in Bricks cluster, Induction billet heater in Cycle manufacturing cluster, energy efficient furnaces etc.
- h. Policy on Energy Efficiency in MSME
- i. Policy on Energy Efficiency in Motors
- j. MSME Budget for Skilling and Re-skilling of Technicians/Operators in the form of Certification from Technical Institution
- k. Issuance of Directives for Ban on Highly Polluting Fuels in MSME Clusters, especially in Industries like Leather

#### Implementation Methodology:

- a. Identification of energy intensive MSME clusters
- b. Conduct energy audits in the selected clusters
- c. Implementation of energy efficient interventions
- d. Monitoring and verification

Considering the implementation of both the strategies in the industry sector, it is estimated that approximately 0.219 Mtoe energy savings can be saved under the moderate scenario and 0.576 Mtoe under the ambitious scenario.

#### 3. Transport Sector

Due to emerging of Punjab as one of the most vital business centers in India, the government of Punjab has invested a lot in recent years to provide proper transportation facilities to the people. The number of registered motor vehicles has shown a persistent increase over the year. The transport sector in Punjab is driven by road transport, followed by railways. Punjab ranks 2nd in terms of road density with 92% of its roads surfaced. The state government has notified Punjab Electric Vehicle Policy in 2022 which provides benefits such as 100% waiver on motor vehicle tax, 100% waiver on permit fee for the 4 wheelers and tolls on the state highways to be waived off. The number of registered motor vehicles has shown a persistent increase over the year. The following is the strategy proposed for Transport Sector:

## Infrastructure Development for EV charging stations and Incentives to Consumers for quick transition to EVs

This strategy suggests a plan to convert newly registered vehicles in the state to electric vehicles until the fiscal year 2031. The conversion targets are based on two different scenario trajectories: the moderate scenario and the ambitious scenario. These targets align with the guidelines outlined in the Punjab EV Policy of 2022. The highest EV conversion rate is proposed for 2-wheelers because of it having the highest share in registered vehicles and taking into consideration the availability and affordability of 2-Wheeler electric vehicles.

#### **Actionable Items:**

- a. Establishment of regulatory mechanism to develop EV charging infrastructure.
- b. Pilot projects on battery swapping stations.
- c. Pilot projects on hydrogen fuel cell vehicles (HCVs).
- d. BEE Star Labelling of Batteries.

#### Implementation Methodology:

- a. Identification of target areas.
- b. Selection of charging technologies.
- c. Procurement and installation of charging stations.
- d. Operations and maintenance.
- e. Incentives to consumers.
- f. Awareness campaign.
- g. Monitoring and evaluation.

By implementing the above-mentioned strategy, it is estimated that significant energy savings can be achieved. Under the moderate scenario, approximately 0.85 Mtoe can be saved, while the ambitious scenario has the potential to save around 1.18 Mtoe. These savings indicate the reduced energy consumption resulting from the transition to electric vehicles, contributing to a more sustainable and efficient transportation sector.

#### 4. Agriculture Sector

Agriculture forms the backbone of Punjab's economy contributing 28.68% share in GSVA, and 24.6% in state employment. The agriculture sector in Punjab continues to rise with courtesy of Green Revolution (1960-1970) and agriculture mechanization. Ground water has been extracted by electric tube wells and diesel pump sets. Consequently, the number of electric tube wells has increased over the period. The power sector exerts a critical influence on the performance of the agriculture sector as it affects farmer access to end use of electricity for a variety of irrigation operations, particularly pumping ground water for irrigation.

Following are the strategies proposed for the agriculture sector:

#### Transition of conventional diesel pumps to solar powered pumps

By FY2024, the Agriculture sector intends to implement a strategy that involves shifting from traditional diesel pumps to solar-powered pumps. This approach aligns with the nation's objective of replacing diesel with renewable energy sources within the agricultural domain, ultimately aiming to eliminate diesel usage entirely by FY2024. This transition is imperative to decrease the sector's reliance on fossil fuels and embrace a more sustainable and ecologically conscious energy alternative.

#### Actionable Items:

- a. Greater outreach to relevant stakeholders
- b. Capacity Building of Panchayat/Block Level officials
- c. Budget allocation for providing subsidies under the PM KUSUM Scheme

#### Implementation Methodology:

- a. Access feasibility
- b. Awareness and training programs
- c. Financial incentives and support
- d. Vendor selection and procurement
- e. Installation and commissioning
- f. Monitoring and mechanism
- g. Evaluation and impact assessment

#### Replacement of transmission lines supplying electricity for irrigation systems in rural areas

The rural areas experience significant transmission and distribution losses. To advance energy efficiency in the agricultural sector, it is imperative to formulate a strategic approach for the replacement of transmission lines delivering electricity to irrigation systems in rural zones. This strategy will enhance energy efficiency within the agriculture sector, focusing on optimizing the delivery of electricity to rural farming communities.

#### **Actionable Items:**

- 1. Conduct a Comprehensive Study for Losses in Transmission Lines in Rural Areas:
- 2. Prioritize Transmission Line Replacement
- 3. Expand Renewable Energy Integration

- 4. Smart Grid Integration
- 5. Monitoring and Evaluation

#### Implementation Methodology:

- a. Access feasibility
- a. Financial analysis
- b. Regulatory Compliance
- b. Incentives and support
- c. Vendor selection and procurement
- d. Installation and commissioning
- e. Monitoring and mechanism
- f. Evaluation and impact assessment

Considering the implementation of the mentioned strategies in the agriculture sector, it is estimated that approximately 0.032 Mtoe energy savings can be saved under the moderate scenario and 0.043 Mtoe under the ambitious scenario by FY2031.

## **Other Strategies**

## 1. Budget allocation for Research and Development (R&D) and Research Institute on Energy Efficiency by Centre/State:

In order to facilitate collaborations between research institutions, industries, and local stakeholders in Punjab, budgetary resources are required from the Centre/State Government. This will accelerate the development and implementation of energy-efficient solutions.

Punjab Energy Development Agency (PEDA) in collaboration with the research facilities and technical institutes can run the R&D programs for new and effective energy efficiency technologies. After the successful demonstration of the developed technologies, PEDA can implement those technologies at ground level with the support of various stakeholders.

#### **Actionable Items:**

- 1. Need for Assessment.
- 2. Stakeholder Involvement and Strategic Planning.
- 3. Budget Allocation.
- 4. Monitoring and Evaluation.
- 2. Replacement of inefficient sewerage and water pumps installed before the year 2008 with BEE 5star rated pumps under all municipal corporations and rural areas of the state:

The strategy involves replacing inefficient sewerage and water pumps with more energy-efficient pumps, specifically the BEE 5-star rated pumps, in all municipal corporations and rural areas in Punjab. The pumps which were installed before the year 2008 may be considered in phased manner. In addition, all the new pumps to be installed must be BEE 5-star rated or maximum available star rating with respect to capacity of pump. By adopting these pumps, Punjab seeks to optimize energy consumption, reduce wastage, and minimize operational costs.

#### Actionable Items:

- 1. Initial Assessment and Energy Audit.
- 2. Funding and Budgeting.
- 3. Training and Capacity Building.
- 4. Awareness Campaign.
- 5. Monitoring and Measurement.
- 3. Development of Energy Efficiency Curriculum for School, Universities, ITI Colleges and other technical institutes:

The development of an energy efficiency curriculum for schools, universities, ITI colleges, and other technical institutes is an important step in promoting energy conservation in Punjab. The Department of Education, Punjab and Punjab Energy Development Agency (PEDA) can develop the curriculum to cover various topics on the basics of energy, the environmental impacts of energy use, the principles of energy efficiency, the benefits of energy efficiency, and the latest technologies for energy efficiency etc.

The curriculum should be designed to be age appropriate and engaging for students of all levels. It should also be relevant to the local context, so that students can learn about the specific energy challenges and opportunities. By educating students about the importance of energy conservation, they can make informed choices about their energy use and help the state reduce its energy consumption.

#### **Actionable Items:**

- 1. Need for Assessment.
- 2. Curriculum and Content Development.
- 3. Awareness and Training Programs.

#### 4. Replacement of old and inefficient transformers with energy-efficient ones:

The strategy aims for the replacement of old and inefficient transformers with energy-efficient transformers across various sectors which includes Industries, Commercial and Domestic Buildings, Transport, Agriculture, Distribution Companies, Power Generation Plants etc. This strategy would be beneficial for reducing energy consumption, minimizing greenhouse gas emissions, and helping in reducing T&D losses. It would be a great initiative in strengthening the resilience of electrical distribution systems and in supporting the sustainable goals.

#### **Actionable Items:**

- 1. Carrying out audits.
- 2. Cost-Benefit Analysis.
- 3. Installation of energy efficient transformers
- 4. Maintenance and Monitoring

### **Financing Mechanism**

In the context of energy efficiency, a financial mechanism is a system put in place to provide financing for the implementation of energy efficiency measures. These mechanisms can include loans, grants, subsidies, tax incentives, and other financial tools that provide financial support for energy efficiency measures.

To achieve the targets and the cost savings, the state must implement various energy efficiency policies, schemes, and programmes, so to support the funding, the Bureau of Energy Efficiency has introduced various financing mechanism which the states can consider for the implementation.

The Bureau of Energy Efficiency has started a programme named 'The National Mission for Enhanced Energy Efficiency (NMEEE)' under the National Action Plan on Climate Change.

#### **Energy Efficiency Financing Platform:**

The Bureau of Energy Efficiency has started this financing initiative under the National Mission for Enhanced Energy Efficiency, the initiative aims to provide a platform to interact with Financial Institutions and project developers for implementation of energy efficiency projects.

#### Framework for Energy Economic Development:

The financing initiative was taken to ease the financing of energy efficiency projects through different fiscal instruments, the aim is to provide ease to stakeholders by implementation of schemes such as Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE), Venture Capital Fund for Energy Efficiency (VCFEE).

**PRGFEE** – Partial Risk Guarantee Fund for Energy Efficiency - "Addressing the credit risks and barriers to structuring the transactions Engaging financial institutions and building their capacity to finance EE projects on a commercially sustainable basis, it has a guarantee Period of Up to a maximum of 5 years. The Government of India has approved about INR 312 crores for PRGFEE.

**VCFEE** – Venture Capital Fund for Energy Efficiency - The VCFEE provides risk capital support to EE investments in new technologies, goods, and services. The Government of India has approved about INR 210 crores for PRGFEE.

**Revolving Funds:** Revolving funds are a financial tool that can be used to support sustainable development projects in various sectors, including agriculture, small business, and community infrastructure. These funds are given at a low-interest rate and are intended to support these sectors. The repayment of these loans is used to replenish the fund, enabling it to provide more loans to new borrowers.

**Green Bonds:** Green bonds are a type of financial instrument that are specifically designed to finance projects and initiatives with environmental benefits. They are typically issued by governments, municipalities, corporations, or other entities to raise capital for projects that promote sustainability, renewable energy, energy efficiency, climate change mitigation and other environmentally friendly initiatives.

**Soft Loans:** Soft loans, also known as concessionary loans or subsidized loans, are loans that are provided on more favourable terms compared to standard commercial loans. These loans typically have lower interest rates, longer repayment periods, and more flexible terms and conditions. Soft loans are often offered by governments, international financial institutions, or development agencies to support specific objectives such as economic development, social welfare, or sustainability.

### Summary

Through extensive research and collaboration with various stakeholders, the Punjab Energy Development Agency (PEDA), and ASSOCHAM in consultation with Bureau of Energy Efficiency has developed a comprehensive State Energy Efficiency Action Plan for the State of Punjab. This plan recognizes the necessity, potential, and opportunities for energy efficiency within the state. The action plan outlines a detailed roadmap for implementing these strategies, while also emphasizing the importance of monitoring their implementation through involvement from multiple stakeholders.

By projecting the state's total final energy consumption (TFEC) based on energy consumption and economic growth, it is estimated that Punjab's TFEC will reach 41.30 Mtoe by FY 2031.

In light of this projection, the action plan identifies Industry, Buildings, Transport, and Agriculture as the key focus sectors. It further analyses sector-specific strategies to achieve energy savings. In the moderate scenario, the implementation of this plan is expected to result in a reduction of 1.176 Mtoe in total energy consumption by FY 2031. In the ambitious scenario, the reduction is projected to 1.895 Mtoe. Additionally, this plan aims to generate awareness at a mass level and create a market potential of approximately Rs. 3,487.5 Crore in the energy efficiency sector. Furthermore, it is anticipated to contribute to a reduction of 3.680 MtCO<sub>2</sub>e in the moderate scenario in terms of CO<sub>2</sub> emissions by FY 2031.

Sector	Energy Cor Reduction (M	sumption toe) - FY2031	Energy Con Reduction (N - FY2	nsumption Aillion Units) 2031	Emissions (MtCO <sub>2</sub> )	Investment Potential	
	Moderate	Ambitious	Moderate	Ambitious	Moderate	Ambitious	(INR Crore)
	Mtoe	Mtoe	MU	MU	MtCO <sub>2</sub> e	MtCO <sub>2</sub> e	
Industry	0.219	0.576	2546	6696	0.685	1.802	1,059.526
Buildings	0.076	0.100	884	1160	0.238	0.312	183.597
Transport	0.85	1.18	-	-	2.66	3.68	2,165.279
Agriculture	0.032	0.043	-	-	0.101	0.135	79.107
Total	1.176	1.895	3429	7856	3.680	5.932	3,487.509

#### Table 1: Energy Savings Summary and Investment Potential

	2024		2025		2026		2027		2028		2029		2030	
	Mod	Amb												
	Mtoe													
Industry														
Deeping and Widening of Perform, Achieve and Trade Scheme	0.0698	0.1831	0.0726	0.1904	0.0761	0.1995	0.0788	0.2061	0.0821	0.2146	0.0857	0.2236	0.1020	0.2651
Energy efficiency in MSME clusters	0.0843	0.2241	0.0890	0.2365	0.0939	0.2496	0.0991	0.2635	0.1047	0.2783	0.1106	0.2940	0.1169	0.3107
Buildings														
Effective Implementation of ECSBC	0.0004	0.0006	0.0007	0.0009	0.0009	0.0012	0.0012	0.0015	0.0014	0.0018	0.0017	0.0021	0.0025	0.0033
Replacement program for inefficient appliances	0.0250	0.0333	0.0257	0.0342	0.0264	0.0352	0.0434	0.0570	0.0446	0.0586	0.459	0.0602	0.0727	0.0954
BEE Star Rating and Shunya Rating of Buildings	0.0001	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0006	0.0010	0.0007	0.0010
Transport														
EV Transition and Charging Infrastructure	0.0648	0.0859	0.0995	0,1329	0.1527	0.2056	0.2345	0.3180	0.3600	0.4918	0.5527	0.7607	0.8485	1.1767
Agriculture														
Transition of conventional diesel pumps to Solar powered pumps	0.0322	0.0430	0.0322	0.0430	0.0322	0.0430	0.0322	0.0430	0.0322	0.0430	0.0322	0.0430	0.0322	0.0430
TOTAL	0.2766	0.5702	0.3199	0.5053	0.3825	0.7345	0.4896	0.8896	0.6255	1.0888	1.2425	1.3846	1.1755	1.8952

#### Table 2: Energy Savings (Year-Wise)