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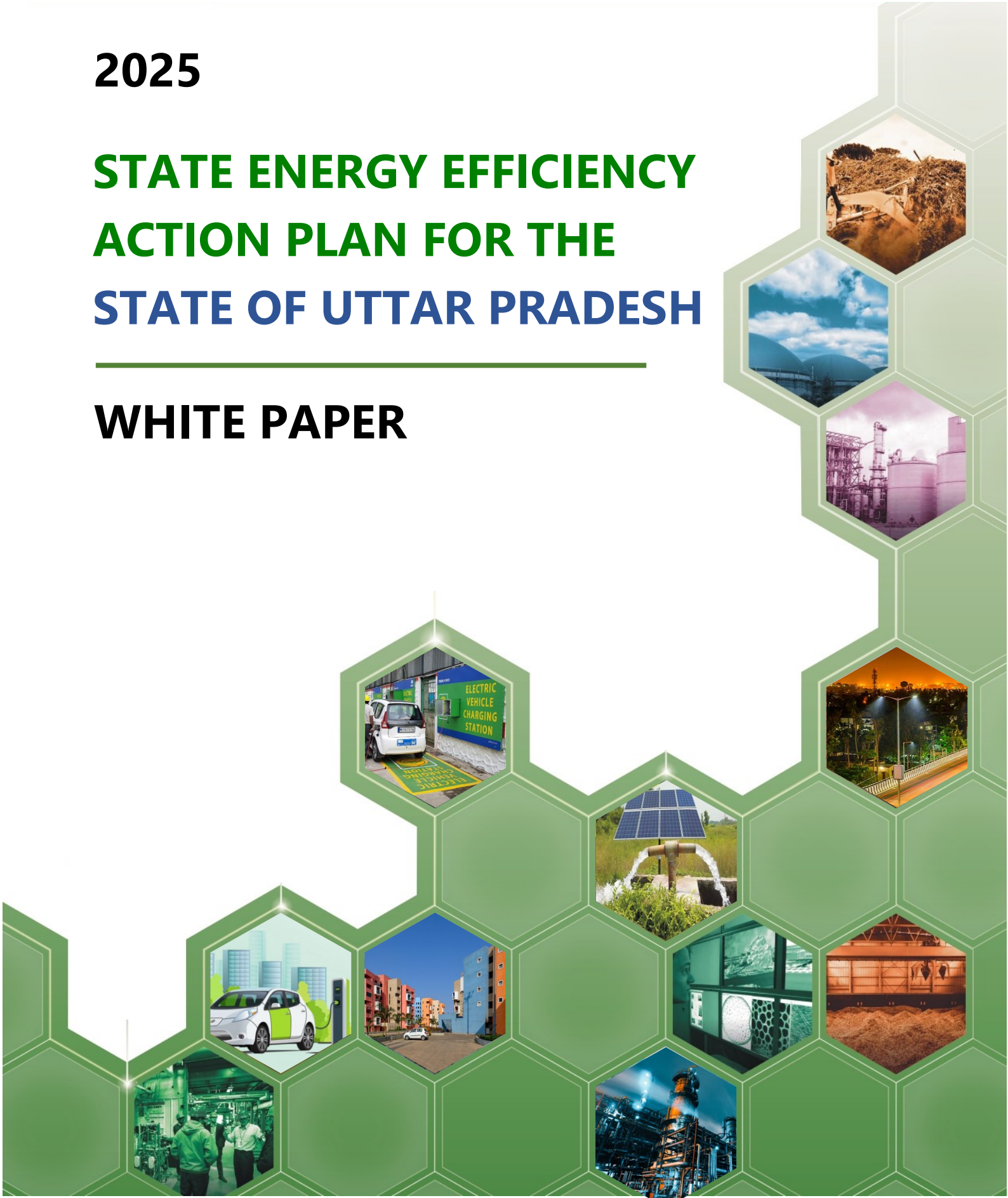
2025

STATE ENERGY EFFICIENCY ACTION PLAN FOR THE STATE OF UTTAR PRADESH

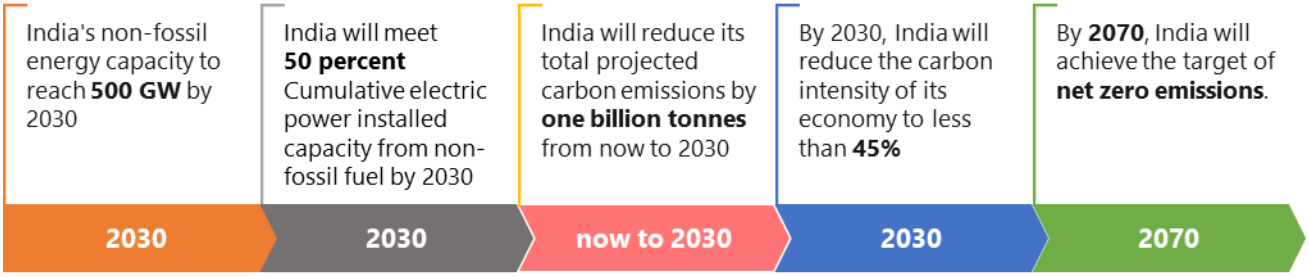
WHITE PAPER



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.



The main focus of this project was to develop strategies aimed at improving the energy efficiency of energy-intensive sectors within the state. This action plan aligns with the Nationally Determined Contributions (NDCs), also known as Panchamrit. For Uttar Pradesh, 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 10.16 million tonnes of oil equivalent (MTOE) in moderate scenario and 19.26 MTOE in ambitious scenario by FY 2031 for the State of Uttar Pradesh.

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 Uttar Pradesh, 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 (Uttar Pradesh New and Renewable Energy Development Agency – UPNEDA), 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 Uttar Pradesh referring the fiscal year 2020 as a base year. Industry, Buildings, Transport, and Agriculture are the identified focus sector for the state.


Industry


Buildings


Transport


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. Industry Sector

Uttar Pradesh is the largest industrial state in India. Kanpur region, Noida region, Gautam Buddha Nagar, Ghaziabad, Jaunpur, Lucknow, Aligarh, Agra, and Meerut region etc. are the major industrial regions of Uttar Pradesh.

The prominent industrial sectors in the state in terms of their scale, investment, employment and share in energy consumption are namely Agro & Food Processing including the Dairy and Sugar sectors, Textile and Handloom, Paper and Pulp, Cement, Brick kilns, Glass, Foundry, Footwear, Plastic, and Tannery.

The proposed strategies for the industrial sector are:

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

In the proposed strategy, it is recommended that the state enhances coverage of energy consumption in PAT industries (DCs) by deepening and widening the PAT scheme in the state. Deepening and Widening of PAT scheme 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 under the PAT scheme. The introduction of new sectors such as Dairy, Sugar etc. in the PAT scheme can be targeted for Uttar Pradesh where these sectors are prominent.

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, Glass, Paper, Foundry and Thermal Power Plant 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. Technical assistance for transition from Bull Trench Kiln to Zig-Zag Kilns, Improved Tank Furnaces in glass sector, and technology upgradations in boilers in paper sector.
d. Issuance of directives for biomass blending in coal-fired brick kilns, and boilers and strengthening the supply chain.
e. Workshop on technology interventions for energy conservations in MSMEs
f. Periodic standardized energy audits for MSMEs on load basis and reimbursement of energy audit cost with maximum cap.
g. Sector-specific policy development for financial assistance on implementation of ECMs suggested in energy audit.

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 the above strategies in the industry sector, it is estimated that approximately 3.36 Mtoe energy savings can be saved under the moderate scenario and 8.16 Mtoe under the ambitious scenario.

2. Buildings Sector

Increasing population and urbanization. As per the 2019 population trends for Uttar Pradesh, 23.8% of the population of Uttar Pradesh lives in urban areas and the urban areas have grown significantly over the past decade. The state government plays a critical role in setting building bylaws and including provisions of energy codes such as the Energy Conservation Building Code (ECBC) in Unified Building Byelaws. However, the implementation of the ECBC code in Uttar Pradesh is still in its early stages, and there is a need to improve its enforcement to ensure effective implementation. Additionally, BEE's Eco-Niwas Samhita (ENS) can set

minimum standards for residential buildings' energy efficiency. The ENS provisions can be incorporated into the state's building bylaws to ensure effective implementation. The suggested strategies for the buildings sector are:

Effective Implementation of ECSBC (previously known as ECBC & ENS)

Uttar Pradesh is the leading state in the country in terms of notifying Energy Conservation Building Code (UP-ECBC 2018). ECBC has also been incorporated in the building by-laws in January 2019. The state is also in the process of adopting Eco-Niwas Samhita for residential buildings. However, in a recent EC Act Amendment 2022, unified code "Energy Conservation and Sustainable Building Code" (ECSBC) is introduced which will cover both commercial and residential buildings. Till the implementation of ECSBC in states, ECBC and ENS will be known as 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:

a. Setting up of effective enforcement plan with ULBs and SDA as monitoring agencies
b. Development and maintenance of ECSBC compliance portal, directory of energy efficient materials/technologies.
c. Periodic upgradation of PWD Schedule of Rates (SoR) to incorporate latest energy efficient materials and technologies.
d. Pilot projects for Super ECBC buildings as case studies (initial 20 Buildings).
e. Market Outreach for ECBC compliant Products, Radio Jingles, Social Media Awareness.
f. Inclusion of curriculum on energy efficiency in buildings, in universities and Schools
g. Home Energy Auditor Training, compliance structure and incentive on energy savings for first few residential projects

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 5-star 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

Promotion of BEE Star Rating and Shunya Rating of 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. Mandatory minimum set point of 24 degrees for air conditioners in all government buildings.
d. Transformation of iconic government buildings to Net-Zero energy buildings.
e. Capacity Building of Architects & Building Professionals and Developers.
f. Market Outreach for Star & Shunya Rating by Social Media Awareness.

Implementation Methodology:

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

By implementing the above-mentioned strategies in the buildings sector, it is estimated that approximately 0.45 Mtoe in energy savings can be achieved under the moderate scenario. Under the ambitious scenario, the estimated energy savings increase to approximately 0.59 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.

3. Transport Sector

The Government of Uttar Pradesh is committed to decarbonize the transport sector and has introduced a number of initiatives towards this direction. The Directorate of Urban Transport, Govt. of Uttar Pradesh has laid down various goals in the seven cities i.e., Lucknow, Kanpur, Agra, Mathura, Allahabad, Varanasi and Meerut at State and City level to ensure sustainable urban transportation under the JnNURM scheme of Government of India.

The Uttar Pradesh Electric Vehicle Manufacturing and Mobility Policy 2019 proposes 10 model cities, namely Noida, Ghaziabad, Meerut, Mathura, Agra, Kanpur, Lucknow, Allahabad, Gorakhpur, and Varanasi for

achieving of EV transition and infrastructure goals till 2024. The following are the strategies 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 UP EV Manufacturing and Mobility Policy 2019. 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).

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.

Ethanol and Biodiesel Blending Program

The proposed Ethanol and Biodiesel Blending Program aims to reduce emissions and offset energy consumption in petrol and diesel by ensuring a fixed ratio of ethanol and biodiesel is mixed into petrol and diesel, respectively. As part of the proposed strategy to achieve the country's goal of 20% ethanol blending in petrol by 2030, a moderate scenario suggests a 10% blending target, while an ambitious scenario suggests a 20% blending target.

Actionable Items:

a. Financial Assistance on Biofuel production plants (Capital Subsidy for MSMEs)

Implementation Methodology:

a. Feasibility Assessment
b. Regulatory Framework
c. Financial Assistance Program
d. Stakeholder Engagement
e. Capacity Building
f. Monitoring and Enforcement
g. Periodic Evaluation and Adjustment

Promotion of Standard and Labelling program of Tyres for Fuel Efficiency in Vehicles

The Bureau of Energy Efficiency (BEE) in India has implemented a standard and labelling program for tyres to promote fuel efficiency in vehicles The promotion of a standard and labelling program for tyres about fuel efficiency in vehicles can be an effective way to encourage the adoption of more fuel-efficient tyres by consumers.

Actionable Items:

a. Awareness campaigns
b. Capacity Building of Tyre Manufacturer and Vehicle OEMs

Implementation Methodology:

a. Program Assessment
b. Regulatory Framework
c. Stakeholder Engagement
d. Compliance Monitoring
e. Research and Development
f. Benchmarking
g. Capacity Building
h. Monitoring and Evaluation

By implementing the above-mentioned strategy, it is estimated that significant energy savings can be achieved. Under the moderate scenario, approximately 5.47 Mtoe can be saved, while the ambitious scenario has the potential to save around 9.33 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

Uttar Pradesh has total geographical area of 24,093 sq.km out of which 16,417 sq.km is under cultivation (about 68%) compared with the national average of 40%. Uttar Pradesh agriculture is highly diversified. It produces numerous crops due to comparative advantage of wide range of agro-climatic variability. Around 76% of the total population live in rural area.

Following are the strategies proposed for the agriculture sector:

Replacement of old pumps (10 years old) or less efficient pumps (non-star rated) with 5 Star rated Pumps along with smart control panel

Initiatives have been taken at both the Central and State levels for switching from diesel pumps to electric pumps. In addition to these initiatives, conversion of diesel pumps to renewable/solar energy powered pumps is one strategy that can be assessed.

The first scenario is the moderate scenario, which aims to replace 50% of the inefficient electric powered pumps with BEE 5 Star rated pumps by FY2031. However, Uttar Pradesh has already replaced 8125 pumps by 5 star rated agricultural pumps with the smart meter on a pilot basis and results show about 30% electricity saving potential. This scenario aims to achieve significant energy savings and improve the efficiency of pumps used in irrigation. BEE Star rated pumps are designed to consume less energy and operate efficiently, resulting in cost savings for farmers in terms of lower electricity bills and reduced maintenance costs.

The second scenario is the ambitious scenario, which aims to replace 70% of the inefficient electric-powered pumps with BEE Star rated pumps by FY2031. This scenario is the ideal goal and aims to achieve maximum

energy savings in the agriculture sector by replacing the majority of inefficient pumps with energy-efficient ones.

Transition of electric pumps to solar powered pumps

A large portion of the pumps used in the agriculture sector are electric powered. As per the Statistical Abstract report, there are 13,00,000 electric pumps installed in State of Uttar Pradesh. For energy savings in the agriculture sector, it is recommended to use BEE star labelled pumps or IE3, and IE4 pumps. These pumps consume less electricity as compared to conventional pumps and hence result in energy savings and equivalent emission reduction.

Transition of Electric Pumps to Solar Powered Pumps is proposed as a strategy for energy savings. In this regard, it is proposed to replace 75% electric pumps to solar powered pumps in the moderate scenario and replace 100% electric pumps with solar pumps in the ambitious scenario. Additionally, as part of component-B of the PM Kusum Yojana, there is a provision for the installation of solar pump sets, with 60 percent of the funding coming from the government and 40 percent from the farmers.

Issuance of notification or government directive that all the new pumps installed in the state should be either energy efficient 5 star rated pumps or solar pumps

To achieve the goal of solarization of the irrigation system, priority for the new pumps should be given to the solar powered pumps. This is because solar pumps are an ecofriendly option and they can help in reducing the dependency on grid electricity for pumping water, which can save on energy bills of farmers and subsequently reduce the total energy demand of the agriculture sector. However, in case of high-water demand and potential challenges with solar powered pumps, priority shall be given to high energy efficient pumps.

The Uttar Pradesh government shall issue directives or notification for the installation of Solar Pumps or BEE 5-star rated pumps for all new pumps required for irrigation purposes. To encourage farmers to adopt these energy-efficient or solar pumps, the government can offer incentives such as subsidies, financial assistance, and rebate on energy bills on the installation of these pumps. A provision may be established to offer a 70 percent government subsidy for the installation of 5-star rated electric pumps or submersible pumps (applicable to pump sets with up to 10 HP) and a 90 percent government subsidy for solar pumps (for pump sets up to 7.5 HP), with farmers contributing only 10 percent of the cost, based on the cost price of solar pump sets.

Additionally, the government can offer technical support and guidance to farmers to ensure that they can effectively use and maintain these pumps. This can help in increasing the adoption rate of these pumps and achieving the desired energy savings.

Sustainable Agriculture through Micro Irrigation

Uttar Pradesh, one of the most populous states in India, plays a crucial role in the country's agricultural landscape. With a diverse range of crops and a significant agricultural workforce, the state faces challenges related to water scarcity, inefficient water usage, and the impact of climate change on agriculture. To address these issues and promote sustainable agriculture, implementing micro irrigation techniques can be a strategic solution.

The proposed strategy outlines a comprehensive strategy for the widespread adoption of micro irrigation systems in Uttar Pradesh. Micro irrigation, which includes drip and sprinkler irrigation, is known for its efficiency in water use, increased crop yields, and minimized environmental impact. By promoting these techniques, the aim is to enhance the overall sustainability of agriculture in the state.

Solarization of Agriculture Feeders

The solarization of agriculture feeders is a strategy to install solar power plants at the distribution substation level to supply power to agricultural consumers. It is a promising initiative that can help to reduce the energy demand of the agriculture sector in Uttar Pradesh. To implement this strategy, the government should identify suitable feeders for solarization. This can be done based on factors such as the number of agricultural consumers, the load on the feeder, and the availability of land for solar power plants. The government may also provide incentives to farmers to install solar panels on their own land.

The Distribution Company (DISCOM)/Power Department in each region will serve as the primary implementing agency for feeder-level solarization. However, where necessary, expert agencies may be appointed by the state government to assist DISCOMs with tendering and installation activities.

Capacity Building Program for Pump Technicians

This strategy includes a Capacity Building Program specifically for pump technicians, with an emphasis on solar pumps. This initiative is designed to enhance the technical skills and knowledge of technicians, ensuring they are well-equipped for the efficient installation, maintenance, and troubleshooting of solar pump systems. By providing specialized training, the program aims to support the sustainable implementation of solar energy solutions, thereby contributing to energy conservation and boosting agricultural productivity.

Promotion of smart agriculture practices and energy efficient farm machineries

This strategy aims to enhance agricultural productivity and sustainability in Uttar Pradesh by promoting the adoption of smart agriculture practices and integrating energy-efficient farm machinery. The initiative focuses on reducing energy consumption, improving resource management, and addressing environmental challenges through the application of advanced technologies and modern farm equipment. By fostering the use of smart farming techniques and energy-efficient machinery, the strategy seeks to optimize agricultural outputs, reduce operational costs, and promote sustainable agricultural practices across the state.

Considering the implementation of the mentioned strategies in the agriculture sector, it is estimated that approximately 0.89 Mtoe energy savings can be saved under the moderate scenario and 1.18 Mtoe under the ambitious scenario by FY2031.

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 Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA), and ASSOCHAM in consultation with Bureau of Energy Efficiency has developed a comprehensive State Energy Efficiency Action Plan for the State of Uttar Pradesh. 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 Uttar Pradesh's TFEC will reach 266.50 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 10.16 Mtoe in total energy consumption by FY 2031. In the ambitious scenario, the reduction is projected to 19.26 Mtoe. Additionally, this plan aims to generate awareness at a mass level and create a market potential of approximately Rs. 35,446 Crore in the energy efficiency sector. Furthermore, it is anticipated to contribute to a reduction of 31.81 $MtCO_2e$ in the moderate scenario and 60.29 $MtCO_2e$ in the ambitious scenario in terms of CO_2 emissions by FY 2031.

Table 1: *Energy Savings Summary and Investment Potential*

Sector	Energy Saving Potential (Mtoe) - FY2031		Emissions Reduction Potential ($MtCO_2e$) - FY2031		Investment Potential (INR Crore)
	Moderate	**Ambitious**	**Moderate**	**Ambitious**	
	Mtoe	Mtoe	$MtCO_2e$	$MtCO_2e$	
Industry	3.36	8.16	10.50	25.53	15,012
Buildings	0.45	0.59	1.42	1.86	1,094
Transport	5.47	9.33	17.11	29.19	17,164
Agriculture	0.89	1.18	2.77	3.70	2,177
Total	**10.16**	**19.26**	**31.81**	**60.29**	**35,446**