



National Energy Efficiency & Conservation Policy (Final)

Department of Renewable Energy

Ministry of Economic Affairs

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LIST OF ACRONYMS

BSB	Bhutan Standards Bureau
CAGR	Compound Annual Growth Rate
CDM	Clean Development Mechanism
COP	Conference of Parties
DoES	Department of Engineering Services, MoWHS
DoI	Department of Industry, MoEA
DoT	Department of Trade, MoEA
DRC	Department of Revenue and Customs, MoF
DRE	Department of Renewable Energy, MoEA
DCSI	Department of Cottage and Small Industries, MoEA
EDP	Economic Development Policy 2016
EE	Energy Efficiency
EE&C	Energy Efficiency and Conservation
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GNHC	Gross National Happiness Commission
HV	High Voltage
LV	Low Voltage
MEPS	Minimum Energy Performance Standards
MoEA	Ministry of Economic Affairs
MoF	Ministry of Finance
MoIC	Ministry of Information and Communications
MoWHS	Ministry of Works and Human Settlements
MV	Medium Voltage
NEC	National Environment Commission
NA	Nodal Agency
PM	Particulate Matter
REDF	Renewable Energy Development Fund
RGoB	Royal Government of Bhutan
RMA	Royal Monetary Authority
RSTA	Road Safety and Transport Authority
RTIO	Regional Trade & Industry Office, MoEA
UNFCCC	United Nations Framework Convention for Climate Change

LIST OF ABBREVIATIONS

CO ₂	Carbon dioxide
NO _x	Nitrogen oxides
SO _x	Sulfur oxides

LIST OF UNITS

'000	Thousand
GWh	Gigawatt hour
kW	Kilowatt
kWh	Kilowatt hour
MW	Megawatt
Nu	Ngultrum
TOE	Tonnes of oil equivalent

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1. INTRODUCTION

- 1.1. The Royal Government of Bhutan (hereinafter, “the Government”) has implemented national development plans with consideration not only for economic or physical prosperity, but also for preservation of cultural heritage and environment, guided by the development philosophy of Gross National Happiness (GNH). At institutional level, the government broadly follows two national policies viz. Bhutan 2020-A Vision for Peace, Prosperity and Happiness and the Economic Development Policy (EDP) 2016.
- 1.2. The Country’s GDP growth has been impressive over the last ten years. Despite the landlocked and mountainous terrain, GDP in current US dollars has grown at a compound annual growth rate (CAGR) of 7.5% between 2005 and 2014. Annual growth of GDP per capita has averaged around 8.22% during this period¹. Economic development has brought increased urbanization in Bhutan despite the urban population being only around 38% of the total population in 2014². Poverty level has also dropped significantly with the national poverty rate at only 12% in 2012 as compared to 23% in 2007³.
- 1.3. The EDP 2016 emphasizes that the Energy Efficiency and Conservation (EE&C) measures shall be promoted for sustainable use of energy across all sections of the consumers through the adoption of a National Energy Efficiency and Conservation Policy by 2017. The Royal Government shall encourage general improvements in the energy performance standards of four major sectors of Industry, Transport, Buildings and Appliances.
- 1.4. The EDP 2016 also emphasizes a green and self-reliant economy of Bhutan by 2020 through promotion of optimized usage of ecological and natural resource richness of the Country and pursuit of energy efficient productive activity. The sustained pursuit of green growth entails a systematic focus on energy efficient productive activities across different sectors of the economy such as industry, building, transport and appliances. The overall economy of the country will be improved by EE&C measures through reduced energy intensity, avoided GHG emissions and higher revenue earning due to additional export of electricity.
- 1.5. In the 15th Conference of Parties (COP), UNFCCC (2009), the Country committed to remain carbon neutral where emissions of GHG will not exceed carbon sequestration capacity of the Country’s forests, which is estimated at 6.3 million tons of CO₂. In the COP21 (2015), the Country re-emphasized this commitment.
- 1.6. The Country’s Intended Nationally Determined Contributions (INDC) further pledges to promote energy demand side management through efficiency in appliances, buildings and industrial processes and technologies⁴.
- 1.7. The potential of EE&C measures in the Country is based on the findings of technical studies and energy audits conducted across the economy in energy consuming sectors such as industry, transport, building, and appliances. These studies have revealed realizable and implementable interventions that may be pursued in a systematic way to achieve not only the EE&C goals but also further the economic development of the Country.

¹ Based on calculations using World Bank Data Indicators database for GDP at constant prices available at <http://data.worldbank.org/indicator>

² <http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>

³ <http://www.nsb.gov.bt/main/main.php#&slider1=4>

⁴ Intended Nationally Determined Contribution of Kingdom of Bhutan, 2015, National Environment Commission

RATIONALE

- 1.8. EE&C measures also contribute to the country's global commitment on the climate change front to UNFCCC and other international forums. Increasing economic prosperity is expected to drive up the country's demand for energy, including fossil fuels like petroleum products. EE&C measures are likely to lower the intensity of energy use thereby decoupling economic growth from consumption of energy resources and carbon emissions.
- 1.9. In addition, the pursuit of EE&C measures will also align the Country with United Nations' Sustainable Development Goals. Reduced energy intensity will contribute to climate action through reduction in GHG emissions, while also promoting sustainable environment through lesser environmental pollution. Poverty will also be positively affected as reduced energy intensity will increase the economic security.
- 1.10. In 2014, the Country exported around 5,179 million kWh of surplus electricity, the contribution of was around Nu 10,698 million at Nu 2.07 per kWh of average electricity tariff⁵. In the same year, the Country imported Nu 8,432.66 million worth of petroleum products⁶. Clearly, EE&C measures can directly benefit the economy by freeing up energy resources, generating additional revenue through export of saved electricity and reduced imports of petroleum products. This can also relieve government's fiscal burden on energy subsidies and reallocate resources for other developmental activities.
- 1.11. The annual savings potential in electricity consumption, averaged over the 15 years projected period, in the industry, buildings and appliances sectors is about **300 million kWh** annually, which at the present average export tariff of electricity of Nu 2.07 per kWh, amounts to an additional government revenue of about **Nu. 621 million** per annum. Moreover, it also has potential to reduce cross-border GHG emission.
- 1.12. In the transport sector, there is a significant increase in vehicular traffic due to economic development in the Country. Consequently, the import of fossil fuel in transport sector have increased from Nu 1.1 billion in 2002 to Nu 8.4 billion in 2014⁷ and are projected to rise further. Sustainable transportation that focuses on efficient fuel usage and promotion of public modes of travel constitute a huge potential for Bhutan. Energy efficient transportation systems, like fuel efficient vehicles, electric/ hybrid vehicles and non-motorized transportation mechanisms, can lead to savings in fuel consumption in the transport sector. This can significantly reduce the petroleum import bill, reduce traffic congestion and mitigate vehicular pollution (SO_x, NO_x, total hydrocarbon and PM emissions). It is estimated that use of clean and fuel-efficient transportation can lead to an annual savings of import bill to the tune of **Nu 467 million**.
- 1.13. Additionally, EE&C measures in the building sector will reduce fuelwood consumption, which will reduce the pressure on forest resources and further contribute to carbon sequestration. Adherence to climate change commitments will also help the Country to access international/multilateral/bilateral funds and technical assistances from development partners in the future.
- 1.14. Energy savings in any form will also enhance disposable income for households. This will in turn positively affect gender equity, as most households are operated by women.

⁵ National Statistics Bureau

⁶ Developed from data provided by the POL Section, Department of Trade, MoEA Bhutan

⁷ Compiled and tabulated by POL Section, DoT on February 2015

- 1.15. EE&C investments and increased disposable income will contribute to employment creation in energy and other sectors, making EE&C measures as an important contribution to the Government's green growth strategy.
- 1.16. Energy efficient production processes and technologies will improve productivity, profitability and competitiveness of industries by lowering operating costs, enhancing worker skills and disseminating knowledge and best practices. Energy efficiency measures in industries will help in enhancing national economy, transferring technologies from abroad and establishing value chains for energy-efficient goods and services.

2. TITLE, OPERATIVE PERIOD AND ENFORCEMENT

- 2.1. This Policy shall be known as **“National Energy Efficiency & Conservation Policy of Bhutan 2017”**.
- 2.2. This Policy shall come into effect from **XXXXXXX** and will remain in force until superseded or modified.
- 2.3 All EE&C measures in the Country shall be governed by this Policy.

3. OBJECTIVES

- 3.1. This “National Energy Efficiency and Conservation Policy” (hereinafter, “the Policy”) strives to create the framework to promote, incentivize, govern and monitor various actions and behaviour on EE&C front. The Policy is developed through evidence based analysis and consultations with different sectoral stakeholders. The Policy:
 - 3.1.1. Facilitates the improvement of productivity and competitiveness of industries (public/private) and other energy consumers through adoption of EE&C measures.
 - 3.1.2. Strengthens the coordination among all relevant stakeholders, including government agencies, to bring sharper focus on EE&C aspects in planning and implementation of sectoral strategies and projects.
 - 3.1.3. Embodies the Government's commitment towards the pursuit of energy efficiency as an enabler of development that strives to enhance the Country's energy security and contribute to the Country's overarching objective of Gross National Happiness.
 - 3.1.4. Creates the enabling conditions for adoption of EE&C measures by various actors of the economy through guidelines, incentives and actionable policy instruments.
 - 3.1.5. Sets realistic and measurable targets for systematically improving energy efficiency in the short and long term.
 - 3.1.6. Acts as a guiding reference for development of a legal framework for EE&C measures, which will ensure enforcement and implementation.
 - 3.1.7. Delineates and streamlines the roles, responsibilities and mandates of relevant ministries and government institutions to implement various sections of the policy.

- 3.1.8. Contributes towards the Government's global commitment of remaining carbon neutral.
- 3.2. As the Country tries to move towards a more open and market oriented economy, the private sector will start playing an ever increasing role in all aspects of the economy. The Government will strive to create enabling conditions for the private sector to adopt EE&C measures.

4. ENERGY EFFICIENCY ROADMAP

- 4.1. The concerned implementing agencies will develop implementing framework and timeline for the EE&C activities in the EE Roadmap.
- 4.2. The major energy consuming sectors in Country include building, appliances, transport and industry. Energy consumption in each of these sectors in 2014 were as follows:
- 4.2.1.1. Building and appliance sector: 270,356 TOE
 - 4.2.1.2. Industry sector: 241,972 TOE
 - 4.2.1.3. Transport sector: 121,218 TOE
- 4.3. Several technical studies, detailed energy audits and ground surveys were carried out in 2014 to estimate the energy savings potential in these different sectors. Based on the energy savings potential assessed in the Country, similar experience drawn from other developing countries and to make focussed and strategic interventions on relevant sectors, the techno-commercially achievable energy savings targets will be specified in the Energy Efficiency (EE) Roadmap. The targets to be outlined in the EE Roadmap shall be reviewed at regular intervals to take advantage of technological advancement, adoption capacity of the Country and make responsive to the changing needs.

5. INSTITUTIONAL RESPONSIBILITIES

The institutional arrangement outlines the roles and responsibilities of relevant agencies in the promotion of EE&C measures and emphasizes the need for organizational strengthening of the Department of Renewable Energy (DRE) as the Nodal Agency (NA) for EE&C and related activities.

- 5.1. All relevant agencies, while developing or reviewing policies, programs and/or projects, shall strive to give due consideration to EE&C measures. These agencies shall coordinate with DRE for technical inputs regarding EE&C from time to time as appropriate.

Department of Renewable Energy (DRE), MoEA

- 5.2. The Department of Renewable Energy (DRE) under the Ministry of Economic Affairs (MoEA) shall be the "Nodal Agency" (NA) for implementation of the Policy. The Nodal Agency shall promote, facilitate and coordinate EE&C measures in the Country.
- 5.3. The NA shall draw up a comprehensive time bound Policy Action Plan of five years to realize the objectives of the Policy.
- 5.4. The NA shall, among others but not limited to, undertake the following:

- 5.4.1. Review and update the Policy at least once every five years, if deemed appropriate.
- 5.4.2. Establish a dedicated division called Energy Efficiency & Conservation Division with adequate staffs and resources.
- 5.4.3. Periodically identify capacity gaps and build capacity, knowledge and skills for NA to enable them to take up various responsibilities on EE&C aspects.
- 5.4.4. Facilitate capacity building of concerned stakeholders at all levels on EE&C measures.
- 5.4.5. Develop and update the national targets/goals/action plans for EE&C measures.
- 5.4.6. Coordinate with national and international/multilateral/bilateral agencies on EE&C measures.
- 5.4.7. Carry out research and/or pilot EE&C measures in collaboration with other relevant institutions.
- 5.4.8. Advise the Government to develop appropriate fiscal and non-fiscal instruments for implementation of EE&C measures.
- 5.4.9. Advise other relevant agencies to develop appropriate guidelines and standards related for implementation of the Policy.
- 5.4.10. Carry out nation-wide public awareness campaigns to propagate the benefits of EE&C measures through multiple communication instruments including television, mass media and schools.
- 5.4.11. Develop an interactive web-based platform, a knowledge hub, which shall act as a one-stop shop regarding EE&C measures. Here, the DRE shall disseminate best practices and other information. The webpage shall further provide readily accessible materials on latest EE&C measures, best practices, findings of the latest research and projects, case-studies, ready-to-use tools for energy management, list of approved vendors / suppliers of EE technologies / equipment and information on pilot projects implemented, among others.
- 5.4.12. Advise the relevant institutions to incorporate EE&C measures in academic curricula to equip the students with state-of-the-art, industry ready concepts, tools and techniques related to practical application of EE&C measures.
- 5.4.13. In collaboration with relevant institutes and or agencies, establish an energy laboratory to test energy performance of energy efficient appliances and equipment.

Department of Trade (DoT), MoEA

- 5.5 The DoT in collaboration with the Department of Revenue & Customs (DRC), MoF and other relevant agencies, shall monitor the import and sale of energy efficient appliances and equipment in the Country as per the provisions of this Policy.

Ministry of Finance (MoF)

- 5.6 The MoF, in consultation with other relevant ministries and departments, shall design fiscal and financial instruments, including sector-specific incentives and penalties, to catalyse the adoption of energy efficient practices and projects across different sectors. The MoF shall give due consideration to the proposals for EE&C financing instruments recommended by the Nodal Agency.
- 5.7 The MoF shall incorporate EE&C aspects in the Public Procurement system.

- 5.8 The DRC in collaboration with the DoT, MoEA and other relevant agencies, shall strive to monitor the import and sale of energy efficient appliances and equipment in the Country as per the provisions of this Policy.

Gross National Happiness Commission (GNHC)

- 5.9 The GNHC shall periodically review the implementation status and effectiveness of this policy at a national level to ensure its alignment with the overall national development objectives.
- 5.10 The GNHC, in coordination with the MoF and relevant line agencies, shall make efforts to identify funding sources from the international development partners to support EE&C programs. The GNHC may engage in active dialogue with development partners, large international NGOs, bilateral funds and also track and monitor the climate finance flows to various projects and programmes.

Ministry of Information and Communication (MoIC)

- 5.11 As the nodal agency for sustainable transport systems in the Country, the MoIC shall design and/or facilitate implementation of EE&C measures in transport systems in coordination with DRE.
- 5.12 The RSTA shall collaborate with the DRE to organize nation-wide eco-driving awareness and education campaigns to positively influence the adoption of energy efficiency measures in the road transport sector.

Ministry of Works and Human Settlement (MoWHS)

- 5.13 The DoES under the MoWHS shall develop the Energy Efficiency Building Codes in close coordination with DRE for both new building constructions and retrofits in existing buildings.
- 5.14 The DoES, under the MoWHS, shall coordinate with the DRE to conduct targeted outreach and awareness on EE&C measures for building sectors to promote uptake of energy efficient construction technologies and practices.
- 5.15 The DoHS, under the MoWHS, shall use the provision of this Policy as an input for integrated and green urban planning.
- 5.16 The DoES along with Thromdes shall implement and enforce the Energy Efficiency Building Codes developed under the Policy.

Bhutan Standards Bureau

- 5.17 The BSB shall certify the energy performance of energy efficient appliances as well as other sectors included in this policy wherever appropriate as per relevant national standards or such other directives issued by a competent authority

Thromdes

- 5.18 The Thromdes, in collaboration with MoWHS and other relevant agencies, shall implement and enforce the Energy Efficiency Building Codes developed under the Policy.

Bhutan Electricity Authority (BEA)

- 5.19 The BEA shall explore to re-categorize HV, MV and LV industries, from time to time, based on actual power consumption/connected load. BEA in consultation with DRE may design a price signal, as appropriate, for facilitating EE&C measures in industries.
- 5.20 The BEA will study in consultation with the DRE and other stakeholders, applicable tariff instruments, which can incentivize EE&C, demand response or demand side management, as and when appropriate. This policy shall be used as an input for design and/or amendment of the Domestic Electricity Tariff Policy.
- 5.21 The BEA, in collaboration with the Bhutan Power Corporation Limited, shall ensure that the transformer sizing and distribution system design is optimum for consumers for energy efficient operation.

National Environment Commission (NEC)

- 5.22 The NEC shall collaborate with DRE for consolidating all relevant information to prepare the Country's position on climate change mitigation related to EE&C measures and facilitate the flow of climate finance through NAMA, INDCs, and emerging international mechanisms.

Department of Industry (DoI), MoEA

- 5.23 The DoI shall work in close coordination with DRE, Bhutan Chamber of Commerce and Industries (BCCI) and Association of Bhutanese Industries (ABI) to promote and implement EE&C measures in the industry sector.

Department of Cottage and Small Industries (DCSI), MoEA

- 5.24 The DCSI shall work in close coordination with DRE, BCCI and ABI to promote and implement EE&C measures in the small and cottage industries.

Bhutan Chamber of Commerce and Industries (BCCI) and Association of Bhutanese Industries (ABI)

- 5.25 The BCCI and ABI will provide periodic inputs and industry insights to the Government on industrial EE&C measures.

6. APPLIANCES SECTOR

Energy performance of appliances can be improved through a systematic effort of lowering the average wattage of appliances by replacing the current stock of appliances with more energy efficient ones.

- 6.1. The NA shall develop the Technical Specifications (minimum energy performance standards) for select set of appliances and the BSB shall develop and adopt the Standards and Certification Scheme to promote consumer access to energy efficient appliances.
- 6.1.1. The NA, in coordination with the BSB, shall commission technical assistance programs to develop the standards for the purpose of certification of the EE appliances-(i.e. minimum energy performance standards)

- 6.1.2. The NA shall conduct periodic review of the EE Standards where appropriate.
- 6.2. The Ministry of Finance (MoF) shall incorporate the EE&C aspects into the Public Procurement system.
- 6.3. Fiscal incentives shall be introduced to offset the higher prices of the labelled appliances and accelerate penetration of energy-efficient appliances in the market. The NA in consultation with the MoF shall work out the incentives.
- 6.4. The Bhutan Trade Classifications of DRC shall include the protocol for monitoring of appliances as per Standards & Certification Scheme.
- 6.5. The Regional Trade and Industry Office (RTIO), or any successor designated under the MoEA, shall periodically monitor sale of appliances as per the restrictions and/or recommendations on usage of appliances under the Standards & Certification Scheme.

7. BUILDING SECTOR

The building sector in the Country contributed to around 15% of the total electricity and thermal consumption in 2014. Energy performance of buildings can be improved through a systematic effort focusing on retrofits of existing buildings and promoting/mandating energy efficient design for new building constructions.

- 7.1 The MoWHS shall develop and implement Energy Efficiency Building Codes for both new building constructions and retrofits in existing buildings. These codes shall be aligned with the existing legal framework of building construction sector of Bhutan. The MoWHS shall develop this codes in coordination with the NA.
- 7.1.1. The MoWHS shall carry out research in collaboration with other relevant agencies and institutions to identify the EE&C benefits of new building materials and assess their applicability in the Country.
- 7.1.2. The Energy Efficiency Building Codes shall specify the list of energy efficient construction materials which shall be included within the Bhutan Schedule of Rates to promote energy efficiency in the building sector.
- 7.1.3. The MoWHS shall extend support to make energy efficient materials easily available for smooth implementation of Energy Efficiency Building Codes. The Government shall, among others, explore the possibility of promoting and developing the local value chain for manufacturing of the energy efficient building materials as listed in the Energy Efficiency Building Codes.
- 7.1.4. The MoF shall provide tax rebates for manufacture and/or import of energy efficient building materials as defined by the Energy Efficiency Building Codes.
- 7.1.5. The MoWHS shall adopt the Energy Efficiency Building Codes as the guiding document for review and approval of new building designs. Further, Energy Efficiency Building Codes shall be encouraged and promoted for retrofits.
- 7.2. The Energy Audit and Reporting Guidelines (refer to clause 8.2 of the Policy) shall mandate periodic energy audits and reporting of energy performance of energy intensive buildings, as defined in the Energy Efficiency Building Codes.

- 7.3. The Government shall actively encourage hotel industry to adopt EE&C measures and retrofits through sensitization, awareness creation and recognizing good performers. The NA shall assist the MoWHS to explore options for identifying and publicly recognizing the good performers.
- 7.4. The MoWHS, in coordination with the NA and other relevant agencies, shall develop the capacity of relevant stakeholders of the building sector (architects, engineers, planners, developers, artisans, masons, retailers, manufacturers, etc.) on the implementation of the Energy Efficiency Building Codes through trainings, workshops and seminars.

8. INDUSTRY SECTOR

The Industry sector of Bhutan contributes to over 40% to the overall GDP. Various studies revealed that majority of the EE&C interventions in the industry sector have a negative abatement cost⁸ and can be achieved in short term. At unit level, around 10% of an industry's energy consumption may be avoided.

- 8.1 Energy efficiency upgradation measures shall be promoted in industrial processes through retrofit, refurbishment, technology transfer and/or process modifications.
 - 8.1.1. The NA shall work in close coordination with the DoI, the DCSI, the ABI and the BCCI to implement this policy through public-private partnerships.
 - 8.1.2. An energy efficiency quality circle shall be formed among industry sub-sectors initiated by the BCCI, who can meet periodically and exchange knowledge. The quality circle will leverage the web-based interactive platform developed by the NA. The NA and the DoI shall participate in these meetings and transfer knowledge to the quality circle members.
 - 8.1.3. The NA in collaboration with DoI shall develop an energy efficiency codes for Industry which shall specify specific energy consumption targets for each industry type and monitor progress of the industries towards meeting that target.
- 8.2. The NA shall develop and enforce the Energy Audit and Reporting Guidelines within three to five years from the date of adoption of this Policy.
 - 8.2.1. The Energy Audit and Reporting Guidelines shall encourage mandate periodic energy audits at HV and MV industries to measure their energy performance (*viz.a.viz* the targets) and identify energy efficiency improvement and energy conservation potential.
 - 8.2.2. The NA shall develop the template for reporting of energy performance along with mode of submission of the report by the industries; the template will include, but not be limited to the following provisions for reporting:
 - 8.2.2.1. Total energy consumption, segregated by type and amount of each fuel,
 - 8.2.2.2. Energy consumption per unit of output (measured in TOE/unit output),
 - 8.2.2.3. EE&C measures that may be adopted to improve energy performance, and their cost-benefit analysis

⁸ Abatement cost is defined as the difference between the cost of implementing the measure and the savings generated from it over the lifetime of the project and distributed over per unit of savings.

- 8.2.3. The NA with DoI will work out an appropriate penalty scheme for non-compliance industries under the Energy Audit and Reporting Guidelines.
- 8.2.4. The Energy Audit and Reporting Guidelines shall encourage the appointment of an Energy Manager at all HV and MV industries. Responsibilities and minimum qualification of Energy Managers shall be specified under the Energy Audit and Reporting Guidelines.
- 8.3. The NA will carry out capacity building activities to promote the uptake of EE&C measures in the Industry sector.
 - 8.3.1. The NA shall design and develop specific programs and arrange experts, as and when required, and coordinate with development partners for necessary technical and financial assistance.
 - 8.3.2. The NA, in collaboration with the DoI, ABI and the BCCI, shall organize trainings, workshops or campaigns to improve energy efficiency in energy intensive industries. The capacity building programs will emphasize on improving the energy efficiency of industrial equipment and processes.
 - 8.3.3. To coordinate and facilitate capacity building, the NA shall identify industrial energy efficiency experts, design training of trainer programs with, but not limited to, technical institutions under Royal University of Bhutan and create institutional linkages among industries and national and international institutions.
 - 8.3.4. The NA, in close coordination with relevant stakeholders, will design and implement demonstration projects. These pilot projects may be developed on a public-private partnership basis and if successful, scaled-up.

9. TRANSPORT SECTOR

Energy performance of the Transport sector can be improved through systematic adoption of sustainable transportation modalities including use of electric vehicles, use of public transportation, promotion of non-motorized transportation, efficient urban planning, *etc.*

- 9.1 The MoC shall be responsible for promotion of energy efficient transport systems in the Country. Promotion of energy efficient transportation shall include, but not be limited, to the following:
 - 9.1.1 Mass transportation systems
 - 9.1.2 Electric and hybrid vehicles
 - 9.1.3 Non-motorized transportation, like walking and cycling
- 9.2 The NA shall contribute through technical assistance to the MoC in promotion of EE&C aspects in transport sector.
- 9.3 The NA shall periodically commission technical studies and research activities for applicability of alternative fuels in vehicles, including hybrid and electric, and other emerging energy efficient vehicle technologies in the Country.
- 9.4 The MoF shall adopt appropriate measures for higher engine capacity passenger cars to promote the penetration of fuel-efficient vehicles in the Country. The schedule of taxation shall be revised and updated as and when deemed appropriate.

- 9.5 The MoWHS, in collaboration with the Thromdes, shall give due consideration to EE&C aspects in city/town planning to enable user-friendly non-motorized transportation such as cycling and walking, shorten travel distances and avoid traffic congestion. The NA shall provide technical assistance, where necessary.

10. FISCAL MEASURES

- 10.1. For the promotion of EE&C measures, the NA should utilize the funds from the Renewable Energy Development Fund (REDF) established under the Alternative Renewable Energy Policy (AREP) 2013. The REDF shall have two windows: (a) Technical Assistance and (b) Lending for supporting EE&C programs. The first window will extend financial resources for technical studies, pre-feasibility studies, piloting and demonstration activities commissioned by the NA and other relevant ministries for promotion of EE&C measures. The second window, on the other hand, will lend to energy efficiency project developers at a concessional rate of interest and/or to create a credit line to mobilize concessional finance through commercial banks.
- 10.2. The REDF will consider, in particular, the possibility of providing loan guarantee schemes to tackle the high risk perception that financial institutions have of EE&C investments, especially made by small and medium enterprises. The REDF will also explore instruments like revolving funds and partial risk guarantee financing for sustainable financing.
- 10.3. The NA will explore and utilize other innovative financing mechanisms to promote EE&C measures.
- 10.4. A percentage of green tax as deemed appropriate, collected from import of vehicle shall be injected to the REDF for promotion of EE&C measures in the transport sector.
- 10.5. The RMA will classify bank lending for energy efficiency projects, which lead to increased energy efficiency in production processes or in technologies, as "Priority Sector Lending". Concessional interest rates shall be applicable for priority sector lending. The NA shall collaborate with RMA in identifying the category of energy efficiency projects eligible for priority sector lending.
- 10.6. The GNHC and the MoF shall explore access to international funds, in the form of climate finance and/or other development finance assistance. Climate finance instruments that are related to EE&C like NAMA, CDM, INDCs and funding opportunity under Green Climate Fund (GCF) shall also be explored and used for EE&C activities as defined in this policy.
- 10.7. The NA shall coordinate with relevant agencies for identification of funding options from international development partners to support energy efficiency projects.

11. MONITORING AND EVALUATION

- 11.1 The NA shall develop a monitoring, reporting and verification mechanism to periodically assess the effectiveness and relevance of EE&C programs. The NA will update concerned stakeholders regarding policy formulation and implementation status.

12. AMENDMENTS

- 12.1 The Government may amend this Policy, as and when required, with at least one update in every five years. However, the terms and conditions of agreements, which are in effect for the existing projects, shall not be subjected to these amendments.

13. DEVIATION FROM THE POLICY PROVISIONS

- 13.1 Deviation from the policy guidelines shall be treated as default and, actions shall be initiated as per appropriate legal procedures in the Country.

14. INTERPRETATION OF THE POLICY

- 14.1 In the event of conflict of interpretation, the Ministry of Economic Affairs shall on behalf of the Government, be the authority to interpret various provisions of this Policy, which shall be final and binding.

15. DEFINITIONS

- 15.1 'Appliance' is an electrical/mechanical machine that consumes energy. Major appliances include: air conditioners, refrigerators, printer, water heaters, washing machines, scanners, copier machines, projectors, microwave ovens, convection heaters, mobile phone, motor, laptops, tube-lights, bulbs, television, fans, room heaters, halogen heaters, vacuum cleaner, electric cookers, boilers, juicers, electric mixers, etc.
- 15.2 Bhutan Schedule of Rates: It is published by the Department of Engineering Services under the Ministry of Works and Human Settlement and prescribes rates for works by individual component, quality and quantity. Its scope is governed by the Specifications for Building and Road Works (SBRW). It is designed primarily as a tool for estimation of construction project costs.
- 15.3 Bhutan Trade Classification: It is a national government publication which classifies types of goods. It is used to assess the annual exports and imports of the Country with other Countries over time.
- 15.4 CAGR: The compound annual growth rate (CAGR) is the rate of growth of any amount measured annually over a specified period of time that is longer than one year.
- 15.5 CDM: The Clean Development Mechanism (CDM) is one of the Flexible Mechanisms defined in the Kyoto Protocol (IPCC, 2007) that provides credits for emissions reduction projects. which generate Certified Emission Reduction units which may be traded in emissions trading schemes.
- 15.6 Energy Audit means verification, monitoring and analysis of machinery, appliances and the processes of utilization of energy entity and determination of its efficiency.
- 15.7 Energy Audit and Reporting Guidelines: It refers to the guidelines to carry out energy audits for Buildings and Industries in Bhutan.

- 15.8 Energy Conservation means reducing energy consumption through using less energy services. Energy conservation differs from efficient energy use, which refers to using less energy for a constant service.
- 15.9 Energy Efficiency is a way of managing and restraining the growth in energy consumption such that less energy can be used to provide the same service / output.
- 15.10 Energy Efficiency Building Code is minimum criteria and minimum standards for Energy Efficiency in design and/or retrofits in energy intensive buildings. It provides criteria for determining compliance.
- 15.11 Energy Intensive Buildings are buildings or industries that consume huge amount of energy, the magnitude of which will be determined by the Energy Efficiency Building Codes.
- 15.12 Equipment: The set of articles or physical resources that consume energy to serve or equip a person or thing.
- 15.13 Green Tax: Green tax is the additional tax (in addition to sales tax and customs duty) levied on vehicles other than electric vehicles, and vehicular petroleum fuels.
- 15.14 Hybrid Vehicle: A hybrid vehicle uses two or more distinct types of power, such as internal combustion engine and electric motor.
- 15.15 HV and MV Industries: Industries that are connected to high voltage and medium voltage power supply respectively.
- 15.16 Industry: Industry is the production of goods or services within an economy. The major source of revenue of a group or company is the indicator of its relevant industry.
- 15.17 Minimum Energy Performance Standards: MEPS (Minimum Energy Performance Standards) is a specification containing levels of performance requirements for an energy-using device, and that effectively limits the maximum amount of energy that may be consumed by a product in performing a specified task.
- 15.18 NAMA: Nationally Appropriate Mitigation Action (NAMA) refers to a set of policies and actions that Countries undertake as part of a commitment to reduce greenhouse gas emissions.
- 15.19 Nodal Agency: Nodal Agency has the overall responsibility for implementation in the State/project. The Nodal agency supervises the overall execution of the project.
- 15.20 Priority Sector Lending: Priority Sector Lending is an important role given by the RMA to the national banks for providing a specified portion of the bank lending to few specific sectors with some incentive.
- 15.21 Public transport: Public transport is a shared passenger transport service which is available for use by the general public. Public transport modes include city buses, trolleybuses, trams (or light rail) and rapid transit (metro/subways/undergrounds etc).
- 15.22 REDF: Renewable Energy Development Fund is a funding mechanism established under AREP 2013 to support RE and Energy Efficiency initiatives
- 15.23 Tax Rebates: A tax refund or tax rebate is a refund on taxes when the tax liability is less than the taxes paid.
- 15.24 Tonnes of Oil Equivalent: It is a unit of energy defined as the amount of energy released by burning one tonne of crude oil.