

# National Energy Efficiency & Conservation Policy 2022 - (Draft)



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NEECA



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## GLOSSARY OF TERMS

AC	Alternate Current
DC	Direct Current
CAGR	Compound Annual Growth Rate
CCI	Council of Common Interests
DISCOs	Distribution Companies
DSM	Demand Side Management
ECF	Energy Conservation Fund
ECT	Energy Conservation Tribunal
EE&C	Energy Efficiency and Conservation
EIH	Energy Information House
EnMS	Energy Management System
ENERCON	Energy Conservation Centre
EPC	Energy Performance Contract
ESCO	Energy Service Company (ies)
EUI	Energy Use Index
EV	Electric Vehicles
EVSE	Electric Vehicle Supply Equipment (charging infrastructure)
FY	Financial Year
GBGs	Green Banking Guidelines
GDP	Gross Domestic Product
GENCOs	Generation Companies
GHG	Greenhouse Gas
G2G	Government to Government
HRS	Heat Recovery Systems
ICE	Internal Combustion Engine
ISO	International Organization for Standardization
Kgoe	Kilogram of Oil Equivalent
MEPS	Minimum Energy Performance Standards
MIS	Management Information System
MOE	Ministry of Energy

MOIP	Ministry of Industries and Production
MOCC	Ministry of Climate Change
MOST	Ministry of Science and Technology
MRV	Measuring, Reporting and Verification
MTOE	Million tons of oil equivalent
NDCs	Nationally Determined Contributions
NEP	National Electricity Policy 2021
NEECA	National Energy Efficiency and Conservation Authority
NEEC	National Energy Efficiency & Conservation
NEPRA	National Electric Power Regulatory Authority
NGO	Non-Governmental Organization
NLC	National Logistics Cell
NTDC	National Transmission and Despatch Company
NTRC	National Transport Research Centre
OGRA	Oil and Gas Regulatory Authority
PDA	Provincially Designated Agency
PIA	Pakistan International Airline
PNAC	Pakistan National Accreditation Council
PSQCA	Pakistan Standard and Quality Control Authority
PCSIR	Pakistan Council for Scientific and Industrial Research
SBP	State Bank of Pakistan
SMEs	Small and Medium Enterprises
SNGPL	Sui Northern Gas Pipelines Limited
SSGC	Sui Southern Gas Company
UFG	Un-accounted for Gas
VSD	Variable Speed Drives
WAPDA	Water and Power Development Authority

## PREAMBLE

Energy Efficiency and Conservation (EE&C) plays a vital role to accelerate clean energy transition leading to sustainable development. The surge in energy prices, increasing demand for energy, and depleting energy resources compels Pakistan to opt for higher energy efficiency and conservation measures. EE&C is the first fuel for energy sector planning and policy formulation— saving one unit is always cheaper than producing one unit of energy. Improvement in energy efficiency and conservation is one of the easiest and least cost-effective pathways to improve country's energy sector sustainability. This can produce the co-benefits of decrease in the cost of energy, improvement in access to energy, industrial competitiveness, reduction in energy import bill, and achieving the NDCs targets.

Historically, in Pakistan energy landscape EE&C was either totally missing or not properly integrated in the energy planning and policy formulation. Energy sector has become a conundrum faced with challenges of high prices, peak demand, and circular debt which is addressed through tariff regimes. Seasonally, in winter months' country faces gas shortages whereas, in peak summer days there is a shortage of electricity. For the rest of the year, the demand and supply remain mostly stable, however, capacity additions for peak demand days result in capacity payment for the spinning reserves. The demand-side management through EE&C measures can be a silver bullet for peak shaving; where the energy policy and planning can focus on meeting the baseload. Similarly, the integration of EE&C measures in different sectors of the economy can be instrumental to achieving sustainability goals.

Energy Conservation and Efficiency is not new to Pakistan but remained unable to get the right priority in the national agenda. National Energy Conservation Center (ENERCON) was established as an advisory body in 1987 with the mandate to promote EE&C measures in the country. ENERCON promulgated the National Energy Conservation Policy in 2006. The policy offered limited regulatory support and authority to enforce energy efficiency measures. Further, the 18th amendment in the constitution changed the institutional framework which eroded the implementation of the policy.

The promulgation of the National Energy Efficiency and Conservation Act of 2016 established National Energy Efficiency and Conservation Authority (NEECA). This strengthened the EE&C agenda in the country. However, there is an increasing demand to develop effective regulatory measures complemented with appropriate policies, institutions, technical, economic, and fiscal instruments for an effective governance framework for EE&C in Pakistan.

The National Energy Efficiency and Conservation Policy of 2022 have been formulated with a vision to inculcate a culture of conservation and efficient use of energy, based on six guiding principles. The policy identifies interventions to ensure deep-rooted institutionalization, operationalization, and implementation of EE&C in the country. The policy also informs, on the basis of techno-economic analysis, enforcement mechanisms required for adoption and compliance of EE&C regulatory measures along with precise guidelines for coordination with the provincial governments.

## 1 VISION

To steer Pakistan towards a culture of conservation and efficient use of energy resources to achieve sustainable development.

## 2 GOAL

The National Energy Efficiency and Conservation (NEEC) Policy 2022 has a goal to double the rate of energy efficiency by improving energy intensity, ensuring cost-effective measures and developing market based mechanisms to achieve the country's energy efficiency targets of 9 MTOE by 2030.

## 3 GUIDING PRINCIPLES FOR THE NEEC POLICY

Following principles shall inform the actions and plans of the NEEC Policy so as to achieve the goal identified above:

### 3.1 THE FIRST FUEL

Energy conservation shall be the strategic priority of the country as the first fuel from planning and decision making to the execution of the action plans of not only energy sector but other key sectors of the economy. It is a universal fact that saving one unit of energy is always cheaper than producing one. Efficiency is the core guiding principle of the NEEC policy and will be translated into the policy objectives, actions and the very design of energy efficiency and conservation measures with an aim to increase the demand for this first fuel in Pakistan. Adherence to this principle will result in less energy intense society and more inclusive growth.

### 3.2 SUSTAINABILITY

All the energy efficiency and conservation measures under the ambit of this policy will be based on basic pillars of sustainability. The financial viability and affordability of the EE&C measures will be ensured through promotion of public and private investments and will be balanced with prioritization based on sectoral needs. The focus will be to grow an indigenous industry with both EE&C services and equipment manufacturing through incentivizing rather penalizing at least for the short and medium term. As a part of social responsibility, access to energy efficiency & conservation will be made cost-effective and affordable for end-users. In short to achieve the broader objectives of the sustainability, integration of EE&C in national energy planning and policy making including energy pricing will be ensured.

### 3.3 VALUING CO-BENEFITS

Energy efficiency and conservation has many additional benefits other than simply energy cost saving. These can include: low energy intensity and competitiveness; reduce need to invest in supply capacity; reduced emissions; and job creation in the local economy. These benefits can accrue at the level of the consumer making an improvement in energy efficiency, within the energy industry (upstream, midstream and downstream), or at a national level (e.g. emissions reduction). Designated consumers of energy should be encouraged to consider

the multiple benefits when making investment decisions and national programs and projects should be evaluated taking into account all of the benefit streams at each level.

### **3.4 ACCESS TO ALL**

Ensuring universal access to reliable and affordable energy is the government's responsibility. NEEC policy shall focus on designing and prioritizing such EE&C actions that assist the over-all energy sector in realizing this national obligation. Further, the NEEC policy instruments should be devised as such that under no circumstances the potential disadvantaged sectors are deprived of this basic right such as SMEs or residential consumers with in the larger industrial and building sectors.

### **3.5 EVIDENCE BASED APPROACH**

EE&C measures across all the sectors shall be based on evidence based information. The objective of this evidence based approach shall be to provide a simplified framework to show a business case for energy efficiency from the standpoint of consumers, utilities and government policies. NEECA will develop data repository for EE&C data through digital applications to facilitate the consumers, manufacturers and all relevant stakeholders in making rationale choices. The digitization of entire EE&C market shall be encouraged as a way of informing on the national energy demand for more accurate and timely decision making in the energy sector. Adhering to this principle will provide many benefits including the improvement in energy efficiency at national level through better deployment of energy efficient products and services, as well as allowing suitable behaviors take hold in the society.

Energy efficiency is the number one lever for decarbonizing the economy as well as the most cost-effective way to achieve the mitigation side commitments of the Pak-NDCs offering climate resilience at the national level. This characteristic of energy efficiency is recognized in climate change policies globally and in the Climate Change Policy of Pakistan. Therefore, all aspects of the EE&C deployment as well as prioritization in the country, shall be guided by the climate change targets benchmarked with Pakistan's global commitments to reduce and limit GHG emissions.

### **3.6 BEHAVIORAL CHANGE**

Energy conservation at national level is only sustainable through changes in national behavior where responsibility of use is inculcated in the social fabric. Therefore, NEEC policy instruments shall be designed in such a way that prescribed energy conservation actions focus on the behavior modification covering entire spectrum of stakeholders in the EE&C implementation at the national level. The behavior change strategies and best practices shall be adopted and communication plans based on these strategies shall be made an integral part of all the future EE&C program development. The human behavioral aspects of Responsibility of Use through information, training and capacity building, are central to EE&C basic principles.



## 4 BARRIERS TO ENERGY EFFICIENCY AND CONSERVATION IN PAKISTAN

With the promulgation of National Energy Efficiency & Conservation Act 2016, a renewed focus on EE&C was witnessed in the national energy sector landscape. This provided a much lucid and robust governance framework for institutionalization and operationalization of EE&C in the country. However, the changing landscape in national energy sector as well as high priority of climate change agenda at global level required more ambitious interventions through EE&C. But various barriers offered impediments to the activation of the NEEC Act 2016. The NEEC Policy, on the basis of a comprehensive gap analysis of existing EE&C landscape in the country, informs on these major barriers which are categorized as under;

### 4.1 INSTITUTIONAL AND REGULATORY BARRIERS

Pakistan is among the few countries in the region where energy efficiency and conservation was adopted as a key component of its energy planning. The Energy Conservation Centre (ENERCON) was established in 1985 in the country and, over the years, various EE&C interventions were undertaken by the ENERCON being the custodian for EE&C in the country. ENERCON remained in transition where it has been relocated from one Ministry to other until finally became an attached department of Ministry of Water and Power. These continuous transitions eroded the institutional capacity of ENERCON.

The post 18th amendment devolved 47 ministries and departments under the Federal Concurrent List to provinces. The electricity remained in the Federal Legislative List and the energy was made a provincial subject. The ENERCON's mandate was diluted which resulted in a regulatory vacuum and intergovernmental coordination gap between Federal and Provincial Governments. The provincial governments were unable to institutionalize the energy efficiency and conservation mandate with an exception of Punjab province. The focus largely remained on the generation to meet the increasing energy demand at national and provincial level, which overshadowed the energy efficiency and conservation.

The severe energy crises in the country in the last decade resulted in enactment of National Energy Efficiency and Conservation Act of 2016. However, this lacked budgetary support and requisite technical human resource which translated into inherently diminished capacity of the NEECA. This coupled with the lack of regulatory framework, inadequate institutional arrangement, absence of integrated approach for institutionalization of EE&C, and lost the priority in the energy policy agenda of the country. Resultantly, EE&C integration in the sectoral policies and planning across key sectors of the economy was not realized. Similarly, renewable energy in the local landscape has been picked up but EE&C has not taken up properly in this process.

### 4.2 ECONOMIC AND FINANCIAL BARRIERS

Economic and financial viability plays a crucial role to establish and strengthen EE&C in the country. Economic and financial barriers are one of the major impediments for the adoption of Energy Efficiency technologies, practices, and management in key sectors of economy.

EE &C projects are considered to be requiring higher upfront costs and offer long paybacks, compared with similar projects with no EE&C consideration. Contrary, there does not exist any information repository in Pakistan to justify higher investment via independently verified and bankable case studies. The increasing energy prices are sensitizing the consumers towards the EE&C measures. There are no specific financial/credit products that have been developed for EE&C by the financial sector. There does not exist performance guarantees on behalf of solution providers and risk coverage for investors. Similarly, there are no tax rebates/credits for investing in EE&C projects. Resultantly, investments for EE&C projects remain low.

The State Bank of Pakistan (SBP), issued Green Banking Guidelines (GBG) in 2017 for banks/DFIs as a first step to a series of interventions leading to a sustainable economic environment in the banking sector. Expected to be implemented in 12 months' period and periodically reported to the SBP, the guidelines for EE&C has not yet materialized (SBP, 2017).

Banking sector is very risk averse. Project based financing is usually limited to organizations with long credit history. Most of the industrial enterprises in Pakistan are SMEs with low credit worthiness. In absence of risk coverage for SMEs, their financing hardly has significant presence on Financial Institutions balance sheet. As a result, financial Institutions front load their products with risk premium for SME finance, resulting in frequent reluctance of many consumers to take on loans for any EE improvement project. Due to this fact, energy service companies (ESCOs) have not been able to develop and flourish.

#### **4.3 TECHNICAL AND OPERATIONAL BARRIERS**

As no structural mechanism has been put in place to ensure adoption of EE products, there is a limited availability of EE products in the local market and the availability is primarily supply driven. Due to limited number of suppliers, there is a lack of competition and transparency regarding the performance and pricing. Further, energy performance claims of equipment suppliers can't be cross checked due to the limited testing infrastructure in Pakistan. In the absence of independently verified consumers' data, investors' perception about the performance claims of supplier are mere marketing gimmick and not satisfactory evidence.

Adoption of energy performance standards is one of the most effective mechanisms for successfully implementing policies on EE in Pakistan. The lack of requisite rules and regulations is one of the major barriers to implement and enforce the MEPS in Pakistan. At present, Pakistan has promulgated MEPS for limited equipment, such as AC/DC electric fans, LEDs, single-phase induction motors, air conditioners, and refrigerators. However, similar standards for other home appliances/industrial energy equipment are in the pipeline. The Pakistan Energy Label has been applied to electric fans only.

The end user lacks the knowledge and capacity to identify, develop, and implement energy efficiency measures. In the absence of independently certified auditors, industry rely on their in-house staff's judgment on EE&C projects which, without proper training in this domain, lack the acumen to understand and perceive such interventions. The risk of disruptions in the production process is one of the biggest barriers to deployment of EE technologies,

processes and management practices in the industries of Pakistan. Therefore, industrialists are skeptical about the level of financial loss due to disruption in production.

The manufacturer/ supplier of energy efficient appliance and equipment fear lack of demand from the end-user. This dis-incentivizes the introduction of new energy efficient technology in the market.

#### **4.4 INFORMATIONAL BARRIERS**

The channelization of information about the importance and benefits of opting energy efficiency and conservation measures to common citizens is crucial. Particularly, the role of women in household energy consumption is important. However, there has not been made sustained effort to make EE&C measures as a part of norms and behaviors of the society as whole. No long-term campaigns have been launched to increase the level of awareness of general public in this regard.

No efforts have been made to integrate the information regarding EE&C in school, colleges, polytechnique institutes and universities to sensitize the young generation. No specific courses and programs have been designed to raise awareness. In this era of digital media, no specific campaigns were launched.

The industrial and commercial facilities managers' awareness level about the energy efficiency opportunities and benefits is very low. In the industrial sector, technical professionals understand and are willing to implement energy efficiency projects. However, they face difficulties when they try to convince the upper level management regarding the benefits of implementation of EE projects. There is a lack of confidence in obtaining energy savings resulting from energy efficiency projects.

Awareness of energy efficiency opportunities in the commercial sector is even lower than the awareness in the industrial sector. Developers do not take the EE aspects into account during the design of commercial properties such as shopping malls, housing schemes, etc.

Most financial institutes also lack awareness on energy efficiency, especially with respect to assessment of technical and economic soundness of EE projects. No dedicated projects have been undertaken to improve this baseline.

These informational barriers apply to energy consumers in all sectors, industry, commerce, transport, agriculture and the domestic, as well as the financial sector.

### **5 STRATEGIC SECTORAL MEASURES**

The sectoral measures include a number of energy efficiency and conservation interventions to be implemented in the key sectors of the economy. The sectoral measures are prioritized based on the saving potential in the Industry, Building, Transport, Power & Petroleum, and Agriculture sectors. Activities like identification of opportunities; baseline studies; formulation of sectoral strategies; development of information systems; demonstration and implementation of low and medium-cost, fast pay-back interventions will be high priority areas of action during the initial period of policy implementation. Short and medium term sectoral intervention plans covering a period up to 2030 will be devised to ensure systematic

implementation of planned activities on a case to case basis in collaboration with federal, provincial and local governments, sister organizations, and relevant private sector stakeholders. While under the longer term policy horizon (beyond 2030) and in light of the full mainstreaming and integration of energy efficiency & conservation within the nation's energy planning, a five (05) year Action Plan will be developed aligned with the NEP 2021.

## 5.1 INDUSTRIAL SECTOR

Industry is responsible for the largest share of energy use at 37.1% of total final energy consumption and accounts for 18% of overall GHG emissions in the country. The industrial sector is highly energy intensive with an intensity of 0.117 kgoe/\$GDP(PPP) versus 0.08 kgoe/\$GDP in Europe<sup>1</sup>. Improving energy efficiency in industry reduces operating cost and can help companies become more competitive. Global customers are increasingly demanding higher levels of energy efficiency from their supply chain as a way to reduce costs and carbon emissions.

Improving energy efficiency in the industrial sector requires a broad range of initiatives to improve the capacity of energy management as well as to encourage the adoption of key technologies that can have the largest impact across a sector and the economy.

These initiatives shall include, but not limited to:

- Encouraging and promoting energy efficiency & conservation standards in the industrial sector by employing a broad range of energy management, efficient technologies, and practices to reduce overall energy consumption.
- Promoting and developing Energy Management Systems that include data collection and analysis of energy consumption; efficiency indices; energy efficiency potentials; and best available practices in various industrial sub-sectors.
- Promotion of regional/sectoral national programs on boiler energy efficiency improvement/ implementation of low-cost, fast-payback energy conservation measures in industrial sector
- Development of Industrial Assessment Centers at Engineering Universities across federal and provincial headquarters in coordination with the Higher Education Commission.
- Designing and implementing custom made capacity building programs for installation and operationalization of EE&C measures stated above including implementation of broader EnMS across relevant high priority industries (especially textile, cement, Sugar, and Paper & Pulp).
- Designing cost-benefit based various direct & indirect incentive schemes involving subsidized energy utility tariffs, tax exemptions/concessions, soft loans, concessional import duties, sectoral awards and competitions in consultations with federal and provincial governments to promote industrial EE&C across the country.

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<sup>1</sup> The World Bank Data- <https://data.worldbank.org/indicator/EG.EGY.PRIM.PP.KD?locations=PK>

## 5.2 BUILDING SECTOR

The building sector includes all kind of residential, commercial, public and private buildings. Only the residential buildings alone accounts for 22.2 % of final energy consumption (Energy Year Book 2019) and 24.87 Million Tons of CO<sub>2</sub>e of GHG emissions. The country is rapidly urbanizing and by 2023, over 40 million people are expected to live in urban centers and towns. This growth in urbanization means that many buildings are under construction or are being planned now and ensuring that these forthcoming developments have a high level of energy efficiency is essential to avoid 'locking in' a higher than necessary energy usage and cost into the future. Avoiding lock in of high energy consumption is particularly important as buildings have a long lifetime. Improving energy efficiency across the building sector (both new and existing buildings) requires a broad range of initiatives including:

- Promoting energy efficient building design techniques for new construction through capacity building of relevant stakeholders ranging from local, provincial to federal level.
- Promoting and enforcing the implementation of national building energy efficiency codes for all new construction
- Promoting and enforcing the implementation of building energy efficiency code in the new construction.
- Developing coordination and establishing partnership channels with financial institutions for financing facilities to ensure compliance with building energy efficiency code.
- Promoting energy audits and retrofits of existing buildings with the energy efficient equipment as well as implementation of energy conservation guidelines
- Evaluating building materials and components for their energy efficient characteristics with respect to different climatic zones and promoting the adoption of best practice nationwide.
- Encouraging use of energy efficient equipment, fixtures and appliances in both new and existing buildings.
- Promoting the use of energy efficient HVAC practices in new as well as existing buildings.
- Promoting the transition from conventional lighting equipment towards more innovative energy efficient lighting equipment and practices across the entire value chain.
- Developing an appropriate regulatory framework along with a database or MIS to enforce mandatory compliance with implementation of EnMS across new and existing buildings.
- Designing and launching mass awareness campaigns on building sector energy efficiency and conservation measures to achieve desired behavior change at the end-user side.

## 5.3 Transport Sector

The transport sector accounted for 31% of total final energy consumption in 2019. Liquid fuels dominate in the transport energy mix. The number of cars and motorcycles has been growing

at CAGR of 10% leading to a consequent growth in the demand for fuel, particularly gasoline. To address energy efficiency in transport the following initiatives shall be implemented;

- Developing and implementing National Fuel Economy Standards for Pakistan.
- Developing an Energy Star Labeling Program for both Internal Combustion Engine (ICE) Vehicles and Electric Vehicles
- Promotion and operationalization of Vehicle Tune-up Centers for ICE vehicles across the country.
- Promoting mandatory mass transit mechanism for cities and vehicle/fleet retirement age.
- Promoting management practices like higher toll taxes on the single occupancy on the motorway for more than 800CC cars.
- Promoting and encouraging the adoption of emerging technologies, codes and standards associated with Electric Vehicle Supply Equipment (EVSE), Electric Vehicles (EVs) and the related charging infrastructure.
- Developing and implementing EV charging infrastructure (such as smart grids, energy demand scenarios for EVs, vehicle to grid, EV charging tariff, and charging behavior) Standards and Ensure the standardization of deployment of Electric Vehicles Supply Equipment (EVSE)
- Initiating an achievable and phased program for automotive emissions controls by requiring local automotive manufacturing industry (Rickshaws, Cars, Trucks and Tractors) to comply with EURO Standards for new models.
- Encouraging major transport fleet holders to carryout annual energy audits with special attention paid to Municipal Corporations, Pakistan International Airlines (PIA), Water and Power Development Authority (WAPDA), National Logistics Cell (NLC), Private Transporters, Railways and Shipping, etc.
- Encouraging research, development and innovation related to technology, management practices, and mass transit mechanisms for energy efficient transportation and mobility in coordination with the NTRC.
- Development of a regulatory framework for car sharing and car-pooling (inclusive of private vehicles) with an appropriate incentive regime in close coordination with the relevant authorities and governments.

## 5.4 ENERGY SECTOR

The energy efficiency and conservation in Pakistan's energy sector involves following sectoral measures at both Power and Petroleum Divisions under the umbrella of Ministry of Energy:

### 5.4.1 POWER SECTOR

The transmission and distribution losses of Power Sector in Pakistan are very high. The average power distribution losses in Pakistan are about 20% and for some DISCOs, these losses reach 38%. The energy efficiency & conservation gains will help to reduce the transmission and distribution losses of the Power Sectors. To support the improvement in energy efficiency and conservation of Power Sector, NEECA will;



- Collaborate with power sector entities (such as, but not limited to, GENCOs, NTDC, and DISCOs) for jointly designing and commissioning energy loss reduction programs and to improve energy efficiency in power generation, distribution and transmission, apart from strict compliance of efficiency standards and conservation measures.
- Develop the capacity of Power Sector entities to implement the EE&C mandate under the National Electricity Policy (NEP) 2021
- Collaborate with the NEPRA to promote incentive-based demand participation mechanism through a transparent regulatory framework.
- Assist the power sector entities with requisite techno-economic analysis and inputs for smooth implementation of the demand side energy management programmes.
- Jointly develop and promote the standards and compliance mechanism for regulating energy efficiency across power sector

#### 5.4.2 PETROLEUM SECTOR

Both oil and gas has the major share in the energy consumption mainly in three major energy intensive sectors i.e. industry, building and transport. Pakistan's unaccounted for gas (UFG) losses in the gas network for SSGC and SNGPL stand at about 15% and 11.5% respectively. In this context, a huge potential for EE&C interventions in Petroleum sector do exist. To improve the EE&C in coordination with oil and gas sector regulators and utilities, NEECA will;

- Collaborate with petroleum sector entities/organizations (such as, but not limited OGRA, SNGPL and SSGC) for designing and commissioning oil and gas loss reduction programs;
- Ensure strict compliance of efficiency standards and conservation measures in gas utilities network
- Collaborate with the OGRA to promote incentive-based demand participation mechanism through a transparent regulatory framework
- Assist the gas sector utilities with requisite techno-economic analysis and inputs for smooth implementation of the winter load management programmes.
- Support in basic and annual load profile assessment of domestic, commercial and industrial consumers for energy efficiency gains.

#### 5.5 AGRICULTURE SECTOR

Agriculture sector accounts for 1.5% of total final energy consumption. The use of commercial energy is steadily increasing as mechanized practices are being adopted to improve agricultural productivity. The process of irrigation through diesel and electric powered pumps is extremely inefficient. Effective energy efficiency measures can help farmers save energy, reduce production costs and increase yields, as well as increase health and well-being.

A range of initiatives shall be developed to improve energy efficiency in the agricultural sector including:

- Developing and promoting energy efficiency standards for water pumps and tube-wells in the country.

- Promoting Fuel Economy Standards for Tractors and Farm Machinery
- Promoting energy efficient agriculture tractor and farm machinery
- Promoting energy efficient practices through education, information dissemination, outreach and demonstration.
- Promoting the coordination/integration of pumping with water resource management and on-farm energy efficiency measures.

## 6 POLICY INTERVENTIONS FOR EE&C

The successful implementation of energy efficiency requires a strong national commitment and coordination. The development and implementation of necessary policy measures necessitates establishment of robust institutional framework. Informed and evidence based policy measures and instruments play an important role in the market to reinforce the role of energy prices, and create the appropriate conditions for increase in the demand for energy efficient equipment and services. NEECA's policy instruments have been proposed in the light of provisions made in NEEC Act 2016 for energy efficiency and conservation in the key sectors of economy. These interventions will provide an enabling environment to achieve the energy efficiency & conservation goal at the national level.

### 6.1 REGULATORY FRAMEWORK

The NEEC Act 2016 provides guidance on the regulatory framework for effective conservation and efficient use of energy in the country. This guidance also provides for establishment of EE&C institutions as well as enunciates the mechanisms and procedures required at both federal and provincial level to institutionalize the EE&C. However, in light of the 18th Constitutional amendment, the authority and powers to regulate and legislate key sectors have been devolved to provincial governments. Therefore, the necessary legislations, regulatory framework, implementation mechanisms, roles and procedures shall be developed in close consultation with Provincial Designated Agencies of the Authority. The provincial designated agencies shall develop frameworks as necessary to create a culture for rational and efficient energy use under the provisions of NEEC Act 2016. These shall support a strong implementation mechanism and an effective organizational structure.

Necessary rules, regulations, by-laws and standards shall be adopted/developed, in consultation with relevant public and private stakeholders at both federal and provincial levels including GB and AJ&K, on the following;

- a) Voluntary/mandatory compliance of minimum energy performance standards and labelling regimes for electric and gas appliances, equipment and products
- b) Mandatory compliance of energy conservation building codes, energy audits and implementation of energy management system across all public, commercial and residential buildings
- c) Mandatory procurement of energy efficient equipment in all public procurements
- d) Mandatory evaluation of energy efficient appliances during basic load profiling for electricity or gas connection across commercial, household, industrial, agricultural connections



- e) Establishment and operationalization of provincial designated agencies
- f) Collaboration mechanisms with provincial energy departments, energy utilities, PSQCA, PCSIR, SBP, financial institutions, sectoral ministries, and departments.
- g) Operational framework including MRV systems for designated consumers across the sectors
- h) Effective complaint redressal framework including the establishment of Energy Conservation Tribunal
- i) Direction, coordination, renewal, and termination of the services of energy auditors and inspectors
- j) Stakeholders engagement in the energy efficiency regime i.e. trainers, professionals, experts, industrial associations, chambers of commerce and civil society organizations
- k) Accreditation of appliances, equipment, building design and material testing laboratories
- l) Compliance of EE&C best practices in the management systems of power and gas sector utilities

## 6.2 SECTORAL POLICIES

Federal and provincial governments including AJ&K and GB shall review and integrate EE&C in all policies, plans and programs. NEECA shall develop coordination mechanism for inclusion of EE&C provisions in National and Provincial Policies to ensure compliance and enforcement of the efficiency standards and conservation measures through designated agencies. As in the case of NEP 2021 where the section 5.7 clearly indicates the role of EE&C, the policy statement for integration of EE&C in different sectoral policies, rules and regulations should be exercised especially in the following:

- Agriculture and Food Security Policy
- Alternative Renewable Energy Regulations 2021
- Automotive Development Policy 2021
- Climate Change Policy 2012
- Federal Board of Revenues- Tax and Customs Rules/ Regulations/ SROs
- National Education Policy, 2021 (Proposed)
- National Housing Policy 2001
- National Industrial Policy
- National Science, Innovation and Technology Policy 2021 (Proposed)
- National Start-Up policy 2021 (Proposed)
- Natural Gas Allocation and Management Policy 2005
- NEPRA Rules and Regulations:
- OGRA Rules and Sectoral Policies
- Provincial Industrial Policies
- Provincial Procurement Policies and Rules
- Public Procurement Rules
- State Bank of Pakistan's Green Banking Guidelines (GBG)

### **6.3 MINIMUM ENERGY PERFORMANCE STANDARDS**

Development of Minimum Energy Performance Standards (MEPS) are essential as they guide the consumers and motivate manufacturers to develop and use efficient appliances, practices and processes.

NEECA, in consultation with manufacturers, retailers, associations, experts and all other relevant stakeholders shall draft the MEPS for energy consuming appliances and equipment in Pakistan and recommend them to PSQCA for adoption and implementation at the national level. Defining the MEPS, reviewing and updating them periodically; including addition of different products and sectoral equipment categories as needed, shall be carried out as and when required.

### **6.4 ENERGY LABELING REGIME**

Labels help consumers to distinguish the energy performance of equipment and appliances, thus, rallies the demand for energy efficiency in the market. A mandatory/voluntary energy labeling regime for gas and electricity consuming appliances and products shall be launched, subject to the availability of testing laboratories.

NEECA shall review and improve necessary frameworks, mechanisms and procedures for coordination and implementation of energy labeling regime(s) with the Pakistan Standards and Quality Control Authority (PSQCA), Pakistan Council for Scientific and Industrial Research (PCSIR), or any other relevant body at provincial and/or federal level.

### **6.5 ACCREDITED TESTING LABORATORIES**

Successful implementation of energy appliance energy performance and labeling measures requires adequate facilities of energy standards and certification laboratories in any policy settings. NEECA shall promote the development of a competitive market for energy efficient appliance, equipment, product, material testing services and facilities both in public and private sectors in the country. NEECA shall establish and maintain one or more laboratories as accredited/ enlisted laboratories for conducting tests and analysis to improve the performance of its functions and to conduct research in various aspects of energy conservation and efficiency.

A cost effective G2G mechanism shall be developed where coordination with the International Testing Laboratories shall be ensured to promote exports of indigenous appliances and products. This G2G operational framework shall be used as an exchange platform to learn from the experiences of other countries to develop policies and identify best practices along with capacity building of local human resource in harmonization of MEPS and setting up the testing labs.

### **6.6 ENERGY AUDITS, ASSESSMENTS AND MANAGEMENT SYSTEMS**

Regular energy audits, assessments and the implementation of a holistic energy management system (EnMS) approach offer improved energy intensity and competitiveness to industries; reduced energy costs; and the carbon foot print of the buildings.

A voluntary scheme for energy audits for facilities and business operations of designated consumers shall be introduced in the short run, followed by a mandatory energy audit and assessment regime across key sectors of the economy in the medium and long term. Energy performance Certificate Regime shall be developed with a goal to encourage the market towards an increased demand for energy efficient practices, operations and facilities. The Energy Performance Certificates shall be issued by NEECA to the designated consumers in compliance with the voluntary or mandatory energy audit and assessment regime (whichever is enforced in the given fiscal year).

Demonstration project(s) on energy audits, assessments and EnMS for Industrial and Building Sectors, particularly for small and medium enterprises (SMEs), shall be launched to promote and replicate the adoption of the EnMS. The R&D for improvement in the EnMS related best practices, technological innovation and showcasing the business viability shall be made an integral part. The capacity building of local workforce through on-site trainings shall also be prioritized in such projects.

## **6.7 ENERGY MANAGERS AND AUDITOR CERTIFICATION**

The certification of energy auditors and managers will help to build the skilled work force for EE&C market, improve the existing capacity and ensure a high and consistent standard for carrying out energy audits and energy assessments in the country. NEECA shall define the curriculum for energy auditors & managers, and certification regime for this workforce.

The designated consumers shall be required to have a certified/enlisted energy manager for managing/supervising their EnMs along with compulsory reporting to the authorities concerned. Similarly, energy auditors will be certified/enlisted for energy audits.

## **6.8 ESCO MARKET DEVELOPMENT**

Implementation of energy efficiency retrofits and process improvements that pays for itself through energy saving can be a catalyst for achieving the desired impact of the national EE&C efforts. A developed Energy Service Companies (ESCO) market in the country offers such catalyzing effect.

NEECA shall develop an enlistment program for local companies fulfilling the NEECA registration criteria which operate under the ESCO model<sup>2</sup> or providing energy services. An operational ESCO Model shall enable the energy consumers to retrofit to more efficient technologies, cutting down their investment cost and energy demand.

NEECA shall encourage the growth of these ESCOs by developing a comprehensive financial and operational framework through development of regulations in collaboration with AEDB for net-metering inclusive of energy management systems and audits.

## **6.9 INCENTIVIZING AND FINANCING OF ENERGY EFFICIENCY AND CONSERVATION**

Fiscal and financial incentives are essential to achieve energy efficiency improvements. These incentives are typically provided to encourage investments in energy efficiency by

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<sup>2</sup> An energy service company (ESCO) is a commercial business offering a range of comprehensive energy solutions including design and implementation of energy efficiency & conservation projects, and risk management.

bringing down the equipment and processes costs for improvements. The policy instruments for financing energy efficiency and conservation shall be developed in close consultation and coordination with relevant Federal and Provincial Governments, Ministries, Departments, Autonomous Institutions, and public and private stakeholders. These shall include, but not limited to:

### **6.9.1 INNOVATIVE FINANCING FOR ENERGY EFFICIENCY**

Concessional financing facilities are provided to retrofit existing buildings, appliances and industrial facilities with a goal to shorten the payback times and encourage investments in the EE&C. NEECA shall develop programs and initiatives in close coordination with Ministry of Finance, Revenue Division/Federal Board of Revenue, Ministry of Commerce, State Bank of Pakistan, DFIs and other relevant financial stakeholders to attract, increase, and incentivize the level of public and private investment in the domestic EE&C Sector. These programs shall include working to build the capacity within the financial sector to finance viable energy efficiency projects.

NEECA shall carry out, through the Energy Conservation Fund (ECF), investments in the form of equity financing in the development of energy efficiency projects, capable of generating technical and financial returns, and work to increase the level of private sector investment into efficiency. NEECA may raise equity through launch of Energy Efficiency Bonds to fund innovative financing platforms which may include, among other, Revolving Guarantee/Loan Fund.

### **6.9.2 EXEMPTION OF CUSTOM DUTIES AND TAXES ON ENERGY EFFICIENCY EQUIPMENT**

Fiscal incentive has an indirect impact on the investments in the EE&C sector and includes tax credits, exemption on custom duties and taxes on energy efficiency equipment and processes. Based on a careful techno-economic and cost-benefit analysis, NEECA shall coordinate with the Ministry of Finance to develop fiscal incentive schemes such as grants, rebates, tax credits, exemptions and concessions on custom duties, or any other fiscal measures as deem fit to promote production, usage and compliance of energy efficient products, equipment, services and practices in the country.

### **6.9.3 EASY AND EQUITABLE ACCESS TO CAPITAL**

Initial capital costs is a potential barrier which can be intensive in energy efficiency investments. An access to capital for initial investments at attractive financing terms shall be a fundamental step to overcome this barrier. NEECA shall work with the State Bank of Pakistan, Ministry of Finance, multi-lateral development agencies and the financial sector to develop specific financing instruments for encouraging energy efficiency investments. These instruments may include credit products at subsidized interest rates by the banking sector, concessional credit lines such as setting up the revolving loan/guarantee funds and issuance of energy saving certificates to fund these concessional credit lines. SMEs and export oriented industrial sector shall be prioritized in such schemes.

#### **6.9.3.1 ON-BILL FINANCING SCHEMES**

On-bill financing can be one of effective financial instruments offering the utility consumers to overcome the barrier presented by the high initial costs of energy efficiency measures. NEECA shall work with the power and gas sector utilities to establish on-bill financing mechanisms that can be used to repay investment into energy efficiency measures in the industrial, commercial, public and residential sectors.

#### **6.9.4 FINANCIAL SUSTAINABILITY**

NEECA shall take measures for the financial sustainability of its EE&C interventions in the country while being cognizant of the costs associated with the monitoring and enforcement of EE&C as well as investments in the concessional financing facilities. NEECA shall finance its operations through, but not limited to:

- a) NEECA shall develop resource generation strategy through sustainable and equitable revenue streams involving, but not limited to, provision of technical services, launch of financial instrument, penalty structure, and energy efficiency cess in all sectors of the economy.
- b) Issuance of energy saving certificates and bonds to designated consumers as well as general public
- c) Defining, fixing and realizing fee (s), rate (s) and charge (s) for rendering any service or providing any facility or information or data audit or assessment or test or certification carried out pursuant to the provisions of the NEEC Act 2016.

#### **6.10 ENERGY INFORMATION HOUSE**

Data is one major prerequisite for an effective demand side energy management and to achieve desired behavior change among masses. Transparent and reliable energy data enables analyses and provides the policy makers, practitioners, consumers, and all other EE&C sector stakeholders with credible information which can be crucial for an evidence based educated decision making for not only EE&C actions but for the energy planning at a national level. NEECA shall develop Energy Information House (EIH), for energy information and dissemination, at the Federal and Provincial headquarters in close coordination with its Provincial Designated Agencies and other relevant Energy Sector entities. These EIHs shall collect data on energy efficiency and consumption across key sectors of the economy through existing or new energy data collection mechanisms as well as establishing Industrial Assessment Centres across engineering universities, in-house market research, registered ESCOs, energy audit firms and appliance manufacturers. A reliable and sustainable mechanism shall be developed for dissemination of the energy information based on the analyses of the collected data at the national level for all the stakeholders. This information shall help develop the benchmarking for the Energy Use Index (EUI) as well as assess KPIs and direct feedback or evaluation of efficiency measures across the key sectors of the economy.

### **6.10.1 NATIONAL ENERGY EFFICIENCY REGISTRY SYSTEM**

With rigorous protocols, robust data Quality Assurance/Quality Control (QA/QC) protocols and standardized reporting formats, NEER has the potential to catalyze new levels of investment in addition to facilitating EE use as a compliance pathway for environmental regulations.

The creation of a National Energy Efficiency Registry System (NEERS) has the potential to inform future EE&C Action Plans and catalyze new levels of investment in energy efficiency in addition to facilitating compliance of EE&C regulatory framework.

NEERS will be a place where, apart from measuring progress on EE&C initiatives and making informed policy decisions, energy savings from across the country can be documented, aggregated and exchanged. NEECA shall develop rigorous registration and robust Quality Assurance/Quality Control (QA/QC) protocols as well as standardized reporting formats for the NEERS.

Following shall be the components of the NEERS, subject to update(s) and addition(s) as and when necessary;

- a) The manufacturers and/or importers of electric and gas appliances, products, and equipment shall be registered for compliance towards the mandatory/voluntary labelling regime for their product lines.
- b) The testing laboratories for appliances and building material shall be registered for accreditation to ensure quality, validity and reliability of testing services locally and internationally.
- c) The local and international ESCOs shall be registered with in the NEERS as a precondition to operate in the country to ensure quality of services and operations.
- d) The certified energy auditors and managers shall be registered in the NEERS to ensure transparency and accountability for the quality of services rendered as well as for the reporting mechanism on the EnMS.

### **6.11 SURVEILLANCE AND ENFORCEMENT**

NEECA shall develop enforcement mechanisms and procedures to prohibit manufacture, sale or import of equipment or appliances which are not energy-efficient. Surveillance mechanisms shall be chalked out for the implementation of the rules and regulations to ensure display of the EE&C particulars through labels on equipment or appliances. Following shall be the key components of the enforcement framework, but not limited to;

- a) NEECA shall design and implement the process to conduct the inquiry or investigation into wasteful use of energy across key sectors of the economy, to fulfill its regulatory mandate as prescribed in NEEC Act 2016.
- b) Energy consumption thresholds for designated consumers, across the sectors, shall be defined and notified.
- c) Mechanisms for the mandatory energy saving plans along with clear targets and timelines for reduction in the inefficient energy use shall also be developed and implemented in the



key sectors especially Power and Gas Utilities to cut their energy losses and improve energy efficiency.

- d) Operational protocols shall be formulated to summon and enforce the attendance of any person or an officer, employee, proprietor partner, manager, director or chief executive of an entity and require him to supply any information or document needed for conducting an inquiry or investigation into any issue being carried out pursuant to the provisions of the NEEC Act 2016.
- e) NEECA shall develop a complaint response and redressal mechanism to address the issues and problems faced by designated consumers, manufacturer and/or entity regarding the energy efficiency and conservation standards of the products and equipment.
- f) A clear mechanism for levying fines and penalties on non-compliance shall be developed as a component of the wider enforcement framework.
- g) NEECA shall direct, coordinate, renew and terminate the services of energy auditors, relevant trainers and energy efficiency inspectors as may be specified by regulations.

#### **6.11.1 MONITORING, REPORTING AND VERIFICATION**

NEECA shall establish a system for surveys, monitoring, inspection and audits to prevent the wasteful or inefficient use of energy resources and recommend implementation of specific energy conservation measures. Energy standards and labeling are essential to ensure that appliances are energy efficient it is also imperative that effective monitoring and implementation of such energy standards be devised, for that NEECA with support from any relevant body shall carry out the inspection at least once in a year.

NEECA shall direct an initial energy use assessment to be carried out for any upcoming project and submitted to the Authority before commencement.

NEECA shall develop protocols to carry out energy audits either by itself or direct any person to conduct an energy audit by any certified or designated energy auditor for any facility, enterprise, factory, building or object for the purpose of identification of energy conservation issues and making recommendations for corrective measures.

#### **6.12 AWARENESS, EDUCATION, AND CAPACITY BUILDING**

NEECA shall conduct awareness sessions, develop technical manuals, educational curriculum/courses related to EE&C and hold competitions and national awards to acknowledge and boost energy efficiency activities in the country. Suitable awareness raising programs shall be developed for different audiences including operational staff, engineering staff, through to senior management. Awareness and education will be imparted from grass root level awareness-raising sessions from school level up to university level.

NEECA shall develop different mobile applications, webpages and registries for fast communication and for maximum outreach. NEECA shall develop a comprehensive social media strategy and communication plans to disseminate information related to different energy efficiency initiatives.

NEECA in partnership with the Higher Education Commission (HEC) of Pakistan will integrate the curriculum, courses and training programs on EE&C at university level. Courses in Energy Auditing, Policy and Management shall be introduced in all relevant engineering disciplines and chapters shall be added into school and college grade course books. The polytechnic institutes will be targeted to educate the associate engineers. School awareness campaigns will be launched to sensitize the children about the significance of EE&C measures.

NEECA shall take appropriate institutional development and capacity building measures for effective implementation of the provisions of the Act. Academia-industry linkages shall be developed to boost research and information dissemination regarding new technologies and techniques for EE&C gains. The industrial assessment centers will be developed in collaboration with universities in the industrial hubs of the country. The liaison will be developed and strengthened with chambers of commerce and industrial associations.

NEECA shall arrange, conduct and monitor the training of relevant professionals for their performance as energy auditors or managers.

### **6.13 INNOVATION, RESEARCH & DEVELOPMENT**

NEECA shall conduct and initiate the research, development programs and demonstration projects in support of its functions. Broadly, the research and innovation in EE&C are integral part of NEECA's initiatives for energy conservation in key sectors of the economy.

NEECA will conduct research and introduce innovative solution to set benchmark for energy consumption at a certain facility, Investment requirement for efficient equipment, alter the list of energy intensive industries, establishing energy consumption norms, criteria for designated consumers, setting the energy standards and recommending preferential use of energy.

### **6.14 GENDER MAINSTREAMING IN ENERGY EFFICIENCY & CONSERVATION**

The energy efficiency and conservation interventions shall be gender focused by assessing the implications for women and men of any planned action, policies, regulatory measures, and programs, in all areas and at all levels. NEECA shall ensure the participation of all genders in all its policies, projects, and initiatives.

NEECA will devise a women focused capacity and awareness raising strategy for broader EE&C gains at household level as the women spend maximum hours of a day at home. Further, women have central role in decision making for the purchase and use of home appliances. It is therefore, NEECA will ensure the implementation of women-focused EE&C awareness and sensitization Initiatives in print and digital media.

### **6.15 COORDINATION MECHANISMS WITH PROVINCIAL GOVERNMENTS & OTHER STAKEHOLDERS**

NEECA has a mandate to improve energy efficiency nationwide. However, the 18th Constitutional amendment has devolved the authority and powers for legislation to provinces as well. The legal status of provincial energy efficiency agencies/departments and their functions need to be considered for the smooth implementation of energy efficiency. NEECA



shall develop mechanisms for liaison with provincial governments for the establishment of its provincial designated agencies. NEECA shall provide the necessary support to its provincial designated agencies for their operationalization as per the NEEC Act 2016.

There are multiple stakeholders in energy efficiency including: manufacturers, factories, traders, retailers, civil society organizations and business and domestic consumers of energy. Therefore, coordination and partnership protocols with relevant functionaries of the government, international organizations, financial institutions, academic institutions, civil society organizations, private sector and industrial association shall be developed for energy efficiency and conservation gains.

## **7 POLICY IMPLEMENTATION FRAMEWORK**

### **7.1 ACTION PLAN**

NEECA shall develop a national EE&C Action Plan for the next five years based on the programs identified in strategic guidelines for the key sectors of the economy. The Action Plan shall be developed in consultation with all the key public and private sector stakeholders at both federal and provincial level to ensure their effective participation in working to achieve EE & C targets at the national level.

In addition, NEECA shall support the custodians of sectoral policies in developing their respective EE&C action plans, ensuring their alignment with the national EE&C goals and targets set in the EE&C Action Plan.

### **7.2 EVALUATION, ACCOUNTABILITY, AND LEARNING**

Transparency, the accuracy of the information, innovation, and replication of best practices shall be an overarching strategy for the development of energy efficiency and conservation sector in Pakistan. To ensure effective implementation of the energy efficiency regimes in Pakistan, NEECA shall develop specific review and evaluation mechanisms for each thematic area along with resource management, impacts & results and cost & benefit analysis. The outcome of such review/s and evaluation will help in devising a future course of action to achieve energy efficiency targets set at the national level.

Knowledge management shall be developed to produce periodical reports and objective documentation procedures for learning, knowledge management, and institutional growth.

### **7.3 AMENDMENTS, REVISIONS AND UPDATING**

The National Energy Efficiency & Conservation (NEEC) Policy 2022 shall come into force immediately after its approval and the National Energy Conservation Policy 2006 will be superseded. The NEEC Policy shall remain effective until any other policy framework as may be prescribed by the Government of Pakistan.

The Government, on its own motion or on the request of the provincial government, may review and propose revisions/amendments in the National Energy Efficiency & Conservation Policy 2022 from time to time.

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## APPENDIX – 1

### DEFINITIONS

- i. "Accredited Laboratory" means a laboratory designated by the Authority or the Provincial Government and duly accredited by the National Accreditation Body to carry out such procedures and tests as are necessary for furtherance of the purposes of this Policy;
- ii. "Agriculture Sector" means activities or practices related to soil management. land preparation (tillage, plowing etc.), harvesting, threshing, mechanized livestock and agriculture farming, livestock and agriculture farm irrigation and drainage, livestock and agriculture farm management, livestock and agriculture farm produce transportation, agro-chemicals management, livestock, plant and agriculture food processing, preservation and value addition, bio-mass recycling, rangeland and forest management, livestock and poultry management, post-harvest output management;
- iii. "Authority" means the National Energy Efficiency and Conservation Authority established under section 6 of the NEEC Act 2016;
- iv. "Buildings Sector" means all buildings including private domestic household, commercial, industrial, public and community buildings;
- v. "Certified Energy Auditor" means any person to be certified and designated by the Authority for carrying out energy audit in accordance with the provisions of the NEEC Act 2016;
- vi. "Demand-side management (DSM)" means the planning, implementation and monitoring of those utility activities designed to influence customer use of energy in ways that will produce desired changes in the utility's load shape i.e., changes in the pattern and management of a utility's load;
- vii. "Designated Agency" means an agency designated as such by the NEECA Board established under Section 3 of the NEEC Act 2016 or a Provincial Government;
- viii. "Designated Consumer" means a consumer designated as such by the Authority;
- ix. "Efficiency" means the ratio of energy output to energy input in respect of energy consuming equipment, appliances or systems;
- x. "Energy" means conventional and non-conventional, alternate sources of energy including petroleum, coal, natural gas, liquefied petroleum gas or compressed natural gas and electrical energy and may also include such other new or renewable forms of energy as the NEECA Board may, by notification in the official Gazette, specify;
- xi. "Energy Audit" means an examination of any energy consuming project about the way the energy is generated, transmitted, distributed or used there and identification of areas where energy waste can occur for improving energy efficiency and where scope for improving energy use efficiency may be possible;
- xii. "Energy Conservation" means reduction in energy consumption by minimizing waste, of curtailment of energy use or improving generation, transmission, distribution or end use energy efficiency to avoid waste, creating additional energy supply at source and effecting a reduction of undesirable emissions to the atmosphere or air due to better fuel combustion;

- xiii. "Energy Conservation Tribunal" means the Tribunal constituted under Section 19 of the NEEC Act 2016;
- xiv. "Energy Intensity" means the amount of energy used to produce a given level of output or activity;
- xv. "Energy Waste" means amount of energy that remains unused or discarded due to incomplete burning or combustion or due to use of inefficient energy consuming equipment, appliance or due to process or inefficient operation, maintenance and management of a system;
- xvi. "Government" means the Federal Government or, as the case may be, a Provincial Government;
- xvii. "Industrial Sector" means small scale, medium scale and large scale industry involving manufacturing, making, formulating, altering, repairing, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal;
- xviii. "Pollution" means contamination of air, land or water due to discharge of pollutants as a consequence of incomplete or inefficient combustion of energy resources that alters unfavorably the chemical, physical, biological, radiation, thermal, radiological or aesthetic properties of air, water or atmosphere;
- xix. "Power Sector" means generation, transmission and distribution system of electricity;
- xx. "Reduced Energy Intensity" means using less energy to produce a product or provide a service;
- xxi. "Regulations" means the regulations made under the NEEC Act 2016 with the guidance of this Policy;
- xxii. "Rules" means the rules made under the NEEC Act 2016;
- xxiii. "Sectors of Economy" include but not limited to power sector, industrial sector, transport sector, agriculture sector and the buildings sector;
- xxiv. "Standards" means numeric values for optimum level of energy units required to produce a unit of output or desirable energy efficiency levels assigned to any process, object, equipment or appliance either for general applicability or for specific application established under the provisions of the NEEC Act 2016; and
- xxv. "Transport Sector" means road transport, railways, aviation and such other means of transportation as the NEECA Board may determine.