



National Energy Conservation Policy

National Energy Conservation Centre (ENERCON)
Ministry of Water & Power
Government of Pakistan

National Energy Conservation Policy

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Foreword

Security and affordability of energy supplies are key inputs to ensure sustainable development. Energy conservation or efficient use of energy resources has been practiced as a cost-effective and environmentally sound option to plug energy deficits in several developed as well as developing societies. We are late in recognizing the strong need to gear the society for an energy-efficient tomorrow and support various initiatives in this regard. The first-ever National Policy on Energy Conservation approved by the Cabinet recently will go a long way in tapping a large energy reservoir which remains un-harnessed due to inefficient practices in various sectors of economy.

Pakistan today is faced with an energy deficit which, if not addressed timely and appropriately can very seriously hamper the pursuit of sustained economic growth. We face energy shortages which unfortunately co-exist with wasteful energy use in various sectors. The potential and role of energy conservation as a cost-effective energy supply option can no longer be relegated to the back burner. Using energy efficiently makes simple financial sense. It is environment friendly and provides tremendous opportunity to achieve economic self-sustenance.

The National Energy Conservation Policy, prepared by ENERCON through an extensive consultative process involving all stakeholders, is a contribution to the national effort to steer the country out of a difficult energy supply situation by promoting efficient use of energy resources. It must be pointed out here that conservation of energy resources covers a very wide spectrum, with a large number of stakeholders in the public as well as private sector. The responsibility for implementing the policy lies collectively on these stakeholders and together we can rise to meet the energy challenge. The recent establishment of the Cabinet Committee on Energy headed by the Prime Minister will provide the hitherto missing coordination and decision-making forum at the highest level.

The officers and staff of ENERCON deserve appreciation for their inputs on the National Energy Conservation Policy. The active support and cooperation of Ministry of Environment was instrumental in the timely approval of the policy by the Government.

**Managing Director
ENERCON**

National Energy Conservation Policy

Executive Summary

The policy enumerates broad guidelines to enhance end-use efficiency in various energy consuming sectors of economy. The policy is likely to create an enabling environment to support energy security plans of the government and for effecting a change in course from the present wasteful practices to sustainable energy and environment patterns in the future.

Main Features

The proposed policy supports the following initiatives to be taken at various levels during the short and as well as long term;

Policy Initiatives

1. Formulate and enact a comprehensive legislation on Energy Conservation and Management.
2. Development of energy conservation codes and standards.
3. Create Public Awareness through training education, information dissemination and demonstration.
4. Participatory approaches and practices to be adopted to design and implement energy management demonstration and undertaking targeted services.
5. Strengthen institutional capacities and ensure resource availability to enable develop and achieve sector specific targets on conservation of energy resources and meet national aspirations in this regards.
6. Declare Energy Conservation as an industry to allow fiscal and financial incentives to be available for Energy Conservation pursuits.
7. Institution of National Awards for outstanding work on energy conservation.

Sectoral Initiatives

a) Industry:

1. Introduce and facilitate Energy Audits in Industries and promote targeted technical services.
2. Encourage and promote better housekeeping and implementation of low-cost, fast payback energy conservation measures in industry.
3. Promote energy efficient combustion processes, instrumentation and control and metering practices in industry.
4. Develop MIS on Energy Efficiency Potentials indices; and BAT/BAP Best Available Energy Efficient Techniques
5. Promote energy efficiency conservation modernization and revamps

b) Power:

1. Support the deployment of cost-effective and environment friendly technologies for electricity production from Coal.
2. Promote Co-Generation as a means to plug power deficits

3. Collaborate with WAPDA and utilities to devise and enforce efficient administrative and technical measures for promoting DSM and conservation projects/programs.
4. Collaborate with power utilities in reducing T&D losses as well as energy loss reduction on the generation sides.

c) **Transport:**

1. Promote use of better fuel quality and quality automotive lubricants
2. Promote regular tune-ups of vehicles and energy efficient driving practices
3. Assist strengthening the institution of motor vehicle examiner at local levels.
4. Facilitate local production and import of low-sulphur diesel fuel.
5. Promote safe disposal of waste from automotive workshops.
6. Promote cycling culture and pedestrianization.
7. Promote CNG as preferred fuel; and local manufacture of CNG systems.
8. Promote conservation in other modes of transportation like railways, shipping and aviation
9. Promote mass transit public transport systems and institute Fleet Management practices. Set model solutions for public transport

d) **Building:**

1. Encourage and facilitate introduction of energy audits in commercial and community buildings.
2. Encourage adoption of energy efficient considerations in the household.
3. Evaluate Building and Insulation materials for energy efficient characteristics.
4. Encourage use of energy efficient equipment, fixtures and appliances in buildings.
5. Develop/update a Building Energy Code for the country and institute measures for its compliance.
6. Promote use of energy efficient HVAC and lighting practices in buildings
7. Develop appropriate database/MIS with respect to energy conservation in building
8. Promote energy efficient building design and ensure compliance with Building Energy Code

e) **Agriculture:**

1. Promote Energy efficient agriculture tractor and farm machinery
2. Promote Energy efficient tube wells and Water Pumping Stations
3. Coordinate/Integrate water pumping activities with proper water resources.
4. Promote energy efficient practices through education, information dissemination, outreach and demonstration

f) **Renewable Energy:**

1. Promote development and deployment of Biogas Units; Bring Livestock Farms and Dairy Industry in the loop

2. Promote development and deployment of Solar Thermal technologies like solar water heater and solar desalinaters, driers etc
3. Promote development and deployment of cost- effective solar and wind energy technologies
4. Promote development of Micro and Mini-Hydel Plants
5. Promote use of new and alternate sources of energy wherever cost-effective and feasible

Implementation and Monitoring

1. ENERCON will be the focal national institution to coordinate and facilitate the implementation.
2. The provincial government shall be asked to establish policy directorates and designate relevant departments/ministries to ensure coordinated implementation of the policy
3. Task Force/subject specific advisory committees to be constituted by Secretary, Environment
4. Legislative Framework to have strong implementation mechanism

National Energy Conservation Policy

1.0 Preamble

Equitable access to energy constitutes a basic element of effort to combat poverty and sustained economic activity. Efforts to alleviate Poverty will be impaired unless adequate attention is paid to the crucial role energy services play in the development process, particularly in relation to the economic, environmental and social well being of the poor. Strong action is therefore needed to orient market forces toward environmentally optimal energy supply solution in meeting rising demands of scarce energy resources. The National energy Conservation Policy is intended to create an enabling environment for effecting a change in course from the present wasteful practices to sustainable energy and environment paths in the future.

The National Energy Conservation Policy (NECP) includes guidelines and actionable points to enhance end-use efficiency for various energy-consuming sectors of the economy and also for addressing various cross-sectoral issues that continue to retard promotion of energy conservation. The policy is consistent with existing energy and environment related national policies, strategies and action plans. The policy is meant to generate sufficient activity to promote energy conservation practices and effect energy savings of perceptible magnitude at the national level.

2.0 The National Policy Framework

2.1 Goal

The National Energy Conservation Policy has four strategic goals.

(a) Sustainable Development

Energy conservation, as a least cost supply option, will help in meeting the requirements of rising levels of energy consumption without putting corresponding additional burden on the environmental resources.

(b) Improve Economic Productivity and Poverty Alleviation

Cost effective energy efficiency measures will improve Pakistan's economic performance and the value the economy derives from the use of energy resources. Energy efficiency and conservation measures can result in profitable business opportunities and will become a means for poverty alleviation.

- (c) **GHG Mitigation and Climate Control**
Energy efficiency and conservation measures will reduce CO2 emissions and help Pakistan meet its international climate change responsibilities. Efficient use of energy in various sectors of economy will reduce adverse local environmental effects which are otherwise attributed to energy inefficiency and wasteful energy use practices.
- (d) **Gender Mainstreaming**
A unit of energy conserved is a unit of energy produced, which in turn creates a room for energy supplies for rural areas. Provision of energy to rural areas serves the goals of gender equality and mainstreaming.

3.0 Objectives

The National Energy Conservation Policy has four broad objectives as stated below;

- (a) Foster Energy Conservation through stimulation of resources and regularizing total energy management programs in all sectors of economy.
- (b) Energy Conservation Market development and facilitating commercialization by creating awareness and launching nation-wide demonstration projects.
- (c) Maximize satisfaction of demand for energy from indigenous resources.
- (d) Create an enabling environment to reduce energy intensity of different energy consuming sectors through appropriate technological and policy measures, to promote sustainable growth.

4.0 Sectoral Guidelines

4.1. Intervention Plans

The sectoral guidelines include a number of initiatives to be taken as a consequence of policy approval. Activities like identification of opportunities; baseline studies; 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 action plans covering a period upto 2010 will be devised to ensure systematic implementation of

planned activities on a case to case basis in collaboration with partners and relevant stakeholders. While under the longer term policy horizon (beyond 2010) energy conservation will be fully mainstreamed and integrated within the nation's energy planning

4.1.1. Industry & Power Sector

Short and Medium term:

- (a) Encourage and facilitate the introduction of a national program on Energy Audits particularly in small and medium scale industrial units. Promote targeted technical services in such industrial units.
- (b) Develop Management Information System on energy consumption; efficiency indices; energy efficiency potentials; and best available practices in various industrial sub-sectors.
- (c) Encourage Energy Efficient Combustion processes, controls and instrumentation, and facilitate tune-up of combustion furnaces, and boilers, etc.
- (d) Encourage and promote better housekeeping, and implementation of low-cost, fast-payback energy conservation measures in industrial sector.
- (e) Promote nationwide small scale technology programs in industrial sub-sectors, particularly in the small and medium scale industrial units to demonstrate the efficiency of energy conservation like waste heat recovery, combustion control systems energy efficient motors, power factor improvement, etc.
- (f) Promote regional/sectoral national programs on boiler energy efficiency improvement.

Long term:

- (g) Promote energy efficiency conservation modernization and revamps in industrial sector
- (h) Support the deployment of cost-effective and environment friendly Technologies for electricity production from Coal.
- (i) Promote Co-Generation as a means to plug power deficits.
- (j) Collaborate with WAPDA and utilities to devise and enforce efficient administrative and technical measures for promoting DSM programs in various sectors of economy.
- (k) Collaborate with utility companies/IPP's in energy loss reduction programmes and to improve energy efficiency in power generation, distribution and transmission.

4.1.2. Transport Sector

Short and Medium term:

- (a) Promote use of better fuel quality and quality automotive lubricants.
- (b) Initiate National effort to control vehicular overloading.
- (c) Promote regular tune-ups of vehicles and other energy efficient driving practices among drivers, vehicle and fleet managers and operators.
- (d) Assist the establishment and strengthening of institution of motor vehicle examine is at local levels.
- (e) Facilitate local production and import of low-sulphur diesel fuel.
- (f) Promote safe disposal of waste from automotive workshops
- (g) Promote cycling culture and pedestrianization.
- (h) Promote CNG as preferred fuel; support efforts and facilitate local manufacture of CNG systems for cars and their standardization.

Long term:

- (i) Establish "National Transportation Safety Board".
- (j) Promote conservation in other modes of transportation like railways shipping and aviation.
- (k) Promote mass/transit public transport systems and institute Fleet Management practices. Set model solutions for public transport.
- (l) Initiate achievable and phased programme for automotive emissions controls by asking local automotive manufacturing industry (Cars, Trucks and Tractors) to comply with EURO Standards for new models.
- (m) Encourage major transport fleet holders to carryout annual Energy Audits. Special attention to Municipal Corporations, PIA, WAPDA, NLC, Private Transporters, Railways and shipping, etc.)
- (n) Facilitate and Encourage Labour Welfare Department to develop and implement mitigation strategies to reduce health risks to child labour in automotive workshops; as all automotive paints contain lead compounds.

4.1.3. Buildings and Households Sectors

Short and Medium term:

- (a) Encourage and facilitate introduction of energy audits in commercial and community buildings.
- (b) Encourage adoption of energy efficient considerations in the household.

- (c) Evaluate Building and Insulation materials for the energy efficient characteristics with report to different climatic zones and promote their adoption nation wide.
- (d) Encourage use of energy efficient equipment, fixtures and appliances in buildings.
- (e) Develop/update a Building Energy Code for the country and institute measures for its compliance.
- (f) Promote use of energy efficient HVAC and lighting practices in buildings.
- (g) Develop appropriate database/MIS with respect to energy conservation in building.

Long term:

- (h) Promote through relevant authorities, energy efficient building design.
- (i) Ensure compliance with Building Energy Code

4.1.4. Agriculture Sector

- (a) Promote Energy efficient agriculture tractor and farm machinery.
- (b) Promote Energy efficient tube wells and Water Pumping Stations.
- (c) Promote energy efficient practices through education, information dissemination, outreach and demonstration.
- (d) Promote coordinate/integration of pumping with water resource management and on farm energy efficiency measures.

4.1.5. New, Alternative and Renewable Sources of Energy

- (a) Promote development and deployment of energy and cost efficient bio-mass technologies including Biogas Units; and bio-fuels. Bring Livestock Farms and Dairy Industry in the loop.
- (b) Promote development and deployment of Solar Thermal technologies like solar water heater and solar desalinators, driers etc. and cost effective Solar PV technologies.
- (c) Promote development and deployment of cost effective solar and wind energy technologies.
- (d) Promote development of Micro and Mini-Hydel Plants.
- (e) Promote cost-effective and acceptable HSSE based, alternate resources of energy, e.g. CNG & LPG, bio-fuels, etc wherever cost-effective and feasible.

Long term:

- (f) Promote waste to energy generation

5.0 Cross-Sectoral Guidelines

5.1. Energy Conservation and Poverty Alleviation

By integrating energy and rural development, ENERCON shall highlight that

- (a) Energy Conservation can address rural energy needs, help achieve multiple development goals and effect poverty alleviation.
- (b) Energy Conservation can help in satisfying basic and productive energy needs of the rural population and assist in managing rural energy transitions.
- (c) Energy efficiency can enhance energy technology absorption capabilities and ensure sustainability of existing resources.

5.2. Energy Conservation and Gender Mainstreaming

Gender based division of tasks and responsibilities within the household, women have different energy dynamics than men particularly in rural setting. By promoting energy conservation ENERCON shall highlight;

- (a) Energy Conservation plays a vital role in gender mainstreaming particularly in the context of rural areas
- (b) Integration of energy conservation, into rural development policies with horizontal and vertical involvement of stakeholders, can help the cause of gender mainstreaming.
- (c) Energy Conservation efforts can create awareness at the community level about women's position in society and bring to fore issues related to recognition or acceptance on gender aspects related to energy and development.
- (d) Energy Conservation efforts can result in focussed interventions on drudgery reduction for women; on women specific needs and improving women's productivity in entrepreneurship, and interventions related to improved access through efficient fuel and technology alternatives available locally.

5.3. Energy Conservation and Sustainable Development

To achieve the sustainable development objectives, ENERCON shall highlight that:-

- (a) Implementation of energy conservation measures can increase resource productivity given the present state of technology
- (b) Conservation can meet the challenge of rising level of consumption without putting additional burden on the conventional sources of energy, and contribute to sustainable development.

5.4. Energy Conservation and Environment

To demonstrate the Energy Conservation linkages with environment, ENERCON shall highlight that;

- (a) Conservation of convention energy resources lead to local and global emission abatement.
- (b) Energy Efficient practices provide principal inputs to clean production.
- (c) Energy Conservation projects provides a major avenue to attract climate control and CDM finding.
- (d) Energy efficiency pursuits contribute to meeting MDG's and goals as envisaged in various multilateral agreements and protocols.

5.5. Energy Conservation and Better Health

Energy conservation provides a principal inputs to better hygiene, clean drinking water, better sanitation, better access to education and health facilities and better quality of life both by increased energy availability and reduced pollutants.

5.6. Energy Conservation and Economic Self Reliance

To achieve economic self-reliance, ENERCON shall

- (a) Promote Energy Conservation as a cost-effective energy supply option which makes simple economic sense.
- (b) Promote Energy Conservation as a means to save foreign exchange and a means to achieve energy autarky.
- (c) Promote Energy Conservation as a means to increase the life of fast-depleting oil and gas reserves.

6.0 Policy Interventions

The following key initiatives will be taken for achieving National Environment Conservation Policy objectives.

Short and Medium term:

- (a) Legislation and Regulatory Framework.
- (b) Public Awareness, Training and Education.
- (c) Institutional Strengthening/Capacity Building.
- (d) Public-Private-Civil Society Partnership
- (e) Promoting recognizing energy conservation as an 'Industry.
- (f) Energy conservation plans by large energy consuming entities.

Long term:

- (g) Integrating Energy Conservation into National Energy Policies.
- (h) Financial and Fiscal Incentives.
- (i) Energy Services Companies

6.1. Legislation and Regulatory Framework

- (a) Legislation on energy conservation and Management will be drafted and enacted.
- (b) The proposed legislation will have provision for developing energy efficiency codes and standards; energy reporting and energy audits; labeling of equipment and appliances; and other such provision as necessary to create a culture for rational energy use.
- (c) The proposed legislation will support a strong implementation mechanism and an effective organizational structure.
- (d) Necessary rules, regulations and standards will be developed to assist policy implementation

6.2. Public Awareness, Training and Education

Training

- (a) Promote training of managers, engineers and technician in Energy Conservation and management techniques in the industrial, agricultural, transport and building sectors.

Home Energy Conservation Seminars

- (b) Promoting training and awareness of general public and particularly the housewives, working women and girl students in energy-savings and best practices, in the household like cooking, washing and driving.

Education

- (c) Promote introduction of Energy Conservation topics/materials in the curricula of the educational institutions, such as schools, colleges, vocational institutes, polytechnics and engineering colleges/universities.

Information/Dissemination/outreach

- (d) Disseminate information on Energy Conservation and energy efficiency to the public through the print and electronic media. Information dissemination will also be done through publication and distribution of manuals/booklets, guides, leaflets and newsletters to the relevant stakeholders.

Policy Platforms

- (e) Promoting events like symposiums, workshops, forums to act as platform for the technical and policy experts to deliberate upon the most relevant issues in the field of Energy Conservation.

Energy Conservation/Resource and Information Centre

- (f) Establishing Energy Conservation Resource and Information Centre to be equipped with publications, guides, leaflets and other information materials on Energy Conservation.

National Energy Management Award

- (g) In order to stimulate personal and corporate initiatives in Energy Conservation, an award will be instituted to recognize outstanding efforts in Energy Conservation nationwide for both public and private sector organizations/individuals.

Demonstration and Pilot Projects

- (h) Promote demonstration and pilot projects as a means to create awareness and spread Energy conservation information..

6.3 Integrating Energy Conservation into National Energy Policies and Plans

- (a) Energy Conservation shall be recognized as a cost effective energy supply option and a key input to achieve energy autarky.
- (b) Energy conservation shall be integrated with clean production, climate control and Clean Development Mechanism programs.
- (c) Energy Conservation shall be an important ingredient to national plans and policies on energy and environment.
- (d) Energy Efficiency Impact Assessment shall be incorporated for major development projects.

6.4 Institutional Strengthening/Capacity Development

- (a) ENERCON shall be recognized as the key national focal institute to promote energy conservation programmes at the national level.
- (b) Necessary provisions shall be made in terms of professional staff, equipment, testing facilities, infrastructure and allocation of sectoral and sub-sectoral resources to enable ENERCON meet national aspirations.
- (c) Provision shall be made for resource availability for and sub-sector specific R&D, SST, and demonstration activities in all sectors of economy.
- (d) Necessary provisions to be made for regular training exposure of ENERCON professional in national and international institutes and their lateral movement in other institutions for their capacity building.

6.5 Financial & Fiscal Incentives

- (a) Provision shall be made for allowing grants for carrying out energy audits in industry and other sectors of economy
- (b) Financial and trade incentives reduced tariffs, tax concessions, accelerated depreciation, soft loans, etc shall be offered to private and public sector for achieving better /high levels of energy efficiency.

- (c) Best use market mechanism to encourage energy conservation investments shall be promoted.

6.6 Public-Private-Civil Society

Partnership and International Cooperation

- (a) Public sector organizations will be encouraged and created.
- (b) Strategic partnerships with private sector and civil society organizations shall be encouraged to promote conservation of energy resources.
- (c) Participatory approaches and practices shall be adopted to design and implement energy conservation programmes.

6.7. Energy Service Companies

ENERCON will promote creation and functioning of energy service companies in the private sector by building partnership and generating energy conservation activities in various energy consuming sectors.

6.8. Energy Conservation as an Industry

Energy Conservation will be declared as an industry to allow fiscal and financial incentives to be available for energy conservation pursuits.

6.9. Corporate Plans

Government will promote and development of energy conservation plans by heavy energy consumers who will also be required to report these annual production viz energy use and conservation plans.

7.0 Implementation and Monitoring

ENERCON will be the focal national institution to coordinate and facilitate the implementation and monitoring of the national policy. All other relevant institutions and stakeholders at the national as well as regional level will assist in national efforts to promote conservation. To ensure effective coordination, Secretary Environment may create one or more subject-specific advisory committee(s) as deemed appropriate from time to time to oversee the policy implementation and/or seek guidance a subject specific issue related to implementation. The Secretary shall call such meetings biannually. The status of implementation of policy will be reported to Federal Minister for Environment accordingly. The implementation and monitoring arrangements will be subject to change in accordance with legislative interventions that may be introduced from time to time.

The provincial government shall be asked to establish policy directorates and designate relevant departments/ministries to ensure coordinated implementation of the policy through effective participation of relevant local stakeholders.