



Promotion of Energy Efficiency in Pakistan, Current Scenario & Way Forward



Contents of Presentation

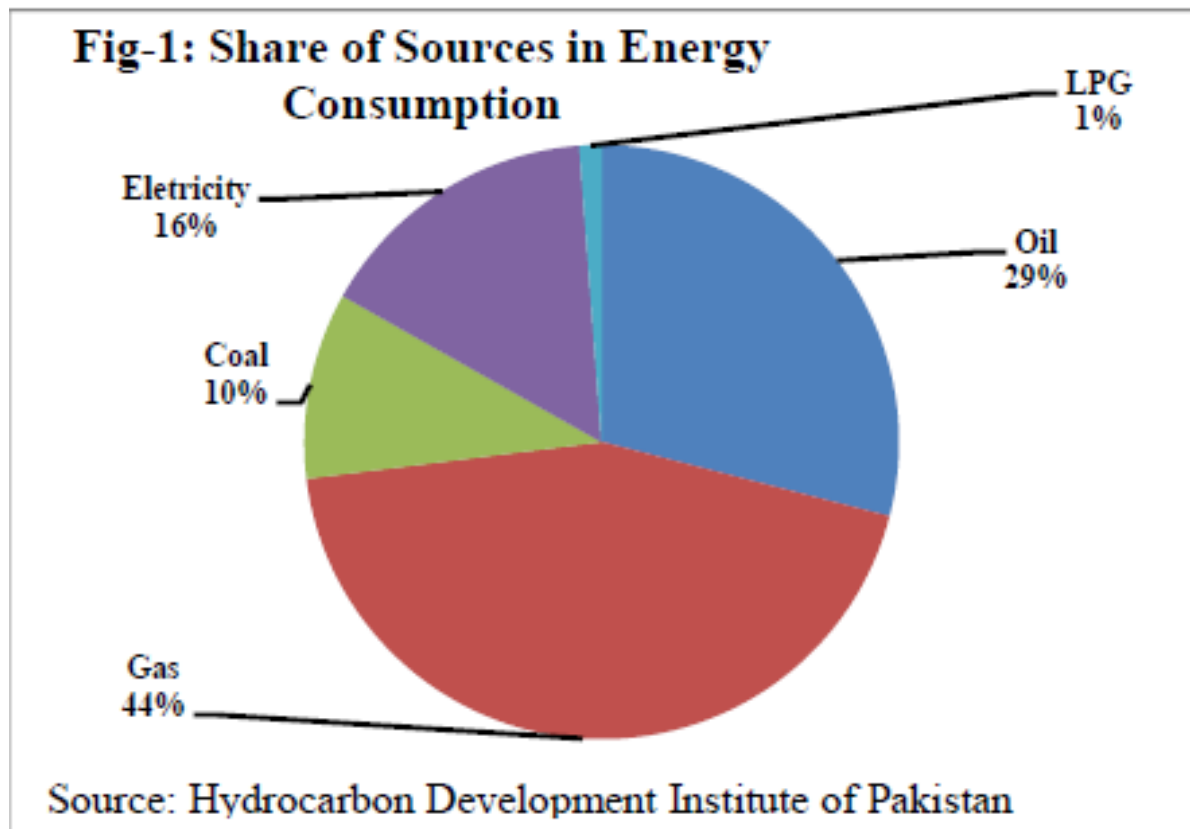
- Basic Energy Information and Indicators
- Current situation of Energy Efficiency in Pakistan
- Vision, objectives, Goals & Policies to promote Energy Efficiency
- Issues and challenges
- Way forward to EE



Basic Energy Information and Indicators

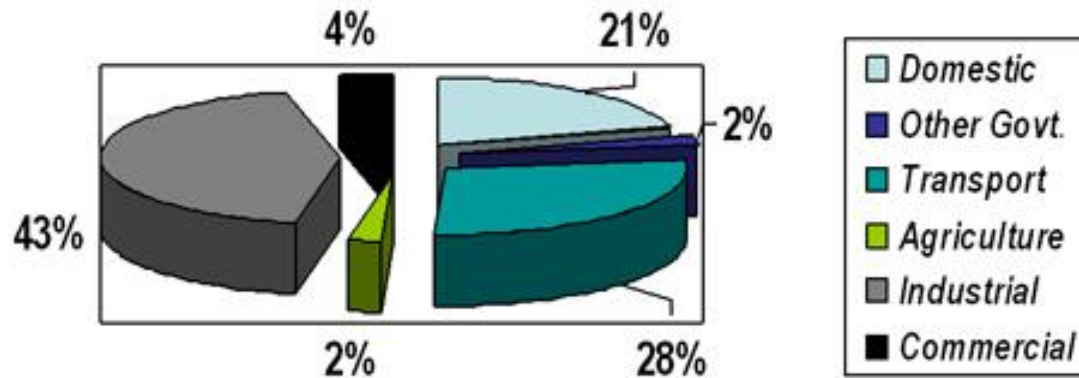


Share of sources in energy consumption





Energy Consumption by Sector



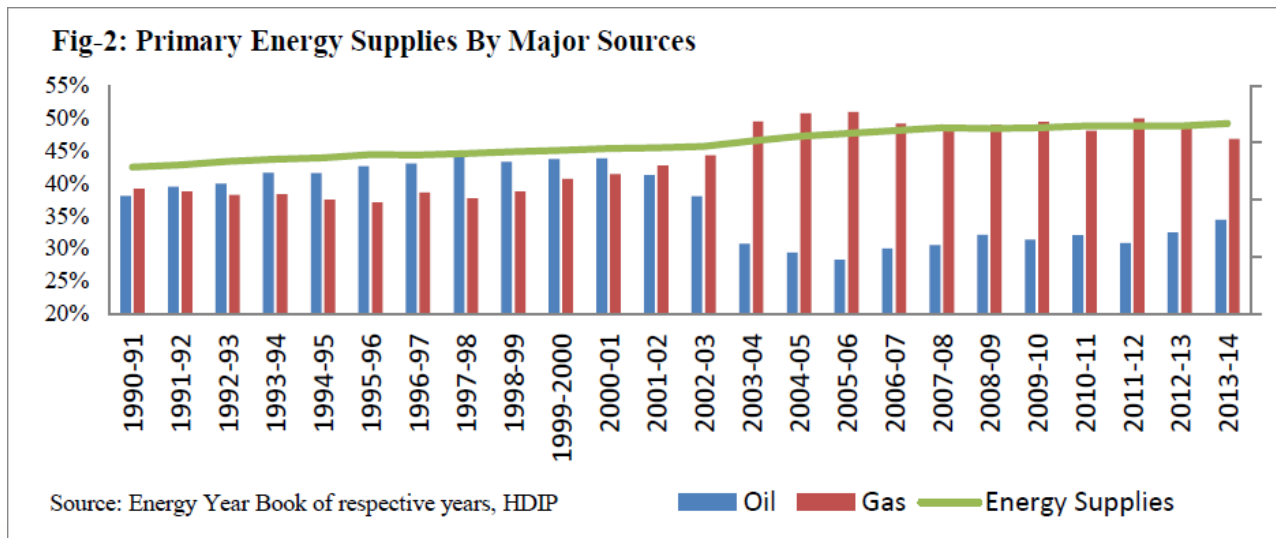
Industrial Sector takes the largest slice of national energy consumption (43%) closely followed by transport sector (28%), and the Buildings (23%)

*Source: National Energy Conservation Centre (ENERCON)



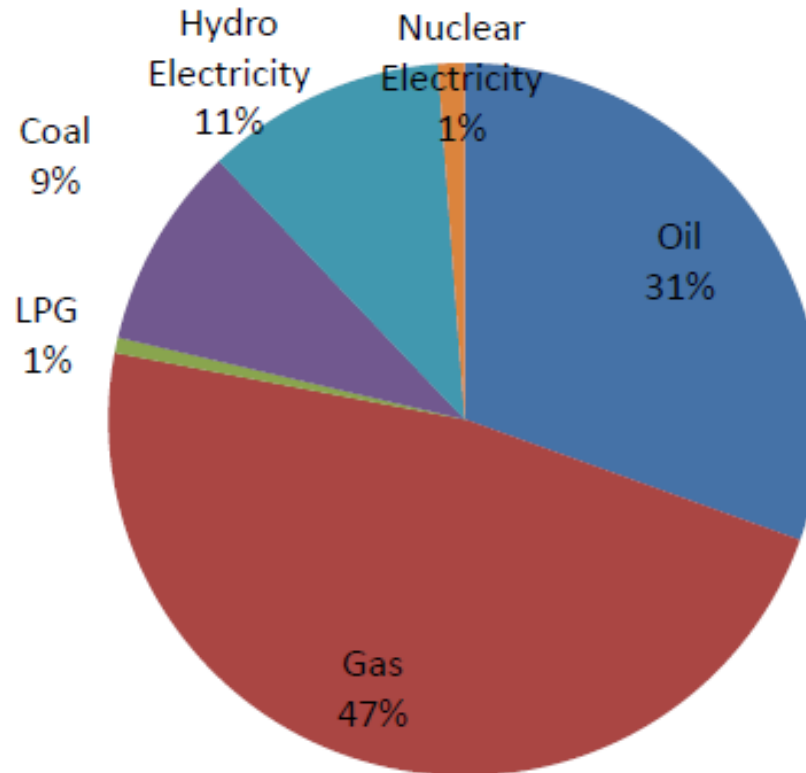
Energy availability and consumption patterns

- Oil & gas remains the major energy supply/usage sources in Pakistan
- The total Energy use in 2014 in Pakistan is 66.8 Million TOE
- In 2014, per capita availability of primary energy supplies was estimated at 0.36 TOE
- Since 1991, the primary energy supplies had shown an annual compound growth rate of 3.6





Primary Energy supplies of Pakistan

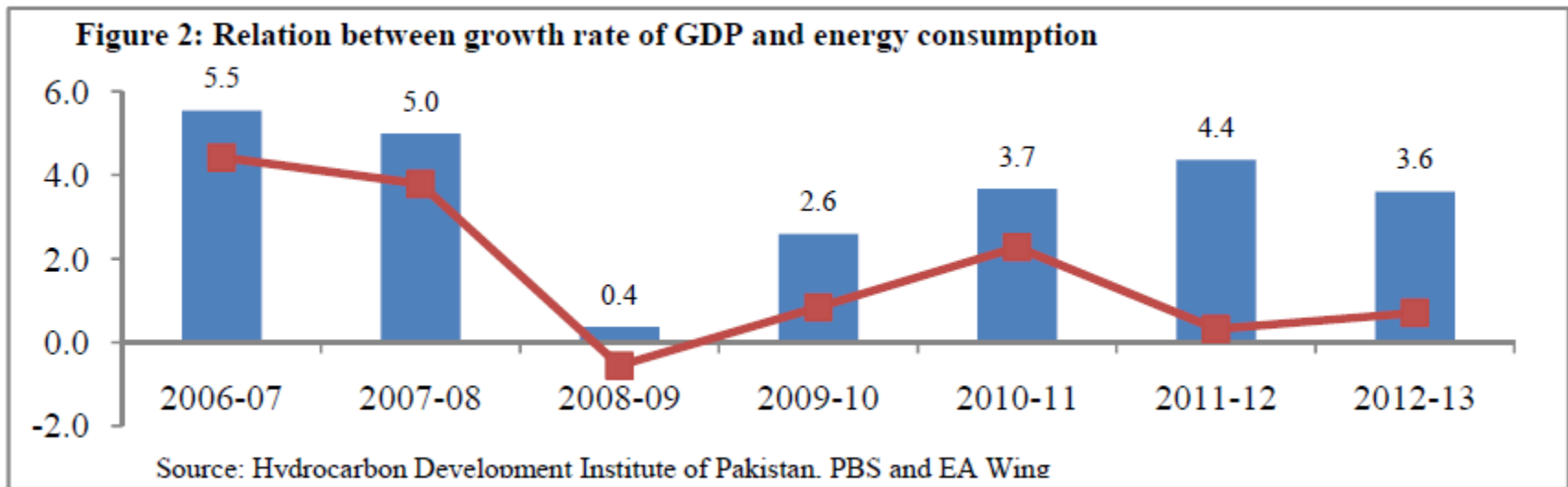


Source: HDIP Energy Year Book



GDP Vs. Energy Consumption

High GDP experienced in the years of high energy consumption.





Current Situation of Energy Efficiency in Pakistan



EC Potential in Pakistan

Possible Savings for Pakistan by EC US\$ 5 Billion/Year.

Industry	25%
Transport	20%
Agriculture	20%
Buildings	30%

Possible Savings for Pakistan by EC US\$ 5 Billion/Year.

Source: ENERCON Website



Energy Efficiency Initiatives in Pakistan

GIZ Renewable Energy Energy Efficiency (RE-EE) Project

REEE has supported GoP and the relevant industrial associations in implementation of Energy Management System (EnMS) in different industrial sectors as given below:

- Textile
- Foundries
- Steel Re-rolling
- Edible oil
- Dairy
- Hospitals



GIZ Approach to Facilitate Textile Sector in EnMS implementation

- Support to All Pakistan Textile Mills Association (APTMA) in establishing a Sustainable Production Centre (SPC) within the association
- Support SPC-APTMA in implementation of Environmental Management System in 25 pilot textile mills
- Capacity development of Energy Service Companies (ESCOs) to implement EnMS
- Support to SPC in making “Energy Performance Contracting”
- Implementation of EnMS in 17 textile mills on performance contracting basis
- Energy Managers Training on technical issues i.e. EnMS, Energy auditing, energy efficiency etc.



Energy & Cost Savings in Textile Sector

Application of EnMS in the textile industry resulted substantial energy and cost savings which are given as:

Energy Savings = 7,600 TOE/year,

Cost savings = 407 Mio PKR/year



OVERALL ENERGY SAVINGS IN ALL INDUSTRIAL SECTORS

#	Industry/Sector	No. of industrial units	Energy Saving (TOE)	Annual Savings (MPKR/Yr)	Implementation costs (MPKR/Yr)	Annual CO2 Reduction (Tonnes/Yrs)
1	Textile	42	7,600	407	70	39644
2	Foundry	5	37	8	5	216
3	Steel Re-rolling	2	6.3	1	0.42	32
4	Edible Oil	4	1045	25	14	2,226
5	Dairy	1	598	3.74	0.81	324
6	Hospitals	8	54.6	9	2.3	284
TOTAL		62	9340	454	92.5	42,726

Note: The saving in US Dollar @ Rs.105 becomes Million \$ 4.32



Other initiatives/project in Energy Efficiency in Pakistan

Currently following projects are also contributing in Energy Efficiency area by other international organizations:

- Sustainable Energy Initiatives for Industry in Pakistan (UNIDO)
- Energy Efficiency Management Program (JICA)
- Another project having Energy Efficiency to support Pakistan Hoisery Manufacturers Association (Bfz)

Previously different projects on energy efficiency also contributed:

- Energy Conservation in Punjab Tanneries (ECPT), Cleaner Technologies Program for Textile Industry & Program for Industrial Sustainable Development (PISD) by the Embassy of the Kingdom of Netherlands (EKN) from 2005-2013
- National Productivity Organization (NPO) & ENERCON have also implemented projects on energy audits



Vision, objectives, Goals & Policies to promote Energy Efficiency



*Pakistan Vision 2025

1. Eliminate current electricity supply-demand gap by 2018, and cater to growing future demand by addition of 25,000 MW by 2025
2. Optimize energy generation mix between oil, gas, hydro, coal, nuclear, solar, wind and biomass – with reference to its indigenoussness, economic feasibility, scalability, risk assessment and environmental impact
3. Tap Pakistan's huge potential for alternative energy
- 4. Focus on demand management and conservation to ensure prioritization in allocation, elimination of wasteful use, incentives to use more energy efficient equipment and appliances and achieve better balance between peak and off-peak hours**
- 5. Introduce institutional reform and strengthen regulatory frameworks to improve transparency and efficiency.**

* Reference: Document Pakistan Vision 2025



*Objectives of Pakistan Power Policy 2015

- To provide sufficient power generation capacity at the least cost
- To encourage and ensure exploitation of indigenous resources
- To ensure that all stakeholders are looked after in the process; a win-win situation
- To be attuned to safeguarding the environment

*Source: Pakistan power policy, 2015



Energy Conservation Policy

- Currently no energy conservation policy exists in the country.
- The energy conservation bill (ECB) has been approved by the standing committee of National Assembly and is pending for approval from the parliament.



Energy Efficiency labelling and standards for equipment

ENERCON has developed Energy Efficiency Standards and Labeling under the project BRESL (Barrier Removal to the cost-effective development and implementation of Energy efficiency Standards and Labeling) funded by Global Environment Facility (GEF) and implemented by UNDP. Labelling and standards have been developed for the following items:

- Window Type & Split Air conditioners
- Self- Ballasted Fluorescent Lamps(CFLs)
- AC Induction Motors
- AC Electric Fans

Moreover, ENERCON is also working on development of Energy Efficiency building codes.



Initiatives of Department of Energy (DoE) Punjab

- After 18th Amendment, DoE Punjab is also working to establish Punjab Energy Efficiency & Conservation Cell (PEECC).
- The PC-1 of the document is approved. However, the strategy is not shared with stakeholders
- The mandate of the PEECC will be to promote the energy efficiency projects on provincial level
- A project on Energy Efficiency evaluation of public offices is going on.



Issues & Challenges

- Seriously worsening gap between Energy supply and demand
- Non sustainability of fossil fuels (limited oil and gas reserves)
- Lack of energy conservation culture
- Lack of financing schemes in the market
- No real time ESCO business in the market
- Access to energy efficient technology adoption to become competitive in the international market
- Establish bench marks for overall energy efficiency, energy mix, water efficiency etc. focusing on the sustainability of business



Way forward to EE

REEE's Outlook (Energy Efficiency) for 2015 – 2016 and onwards

- Support State Bank of Pakistan (SBP) to develop Green Financing Guideline for commercial banks to promote energy efficiency
- Technical evaluation of RE/EE proposals for commercial banks
- Adoption of performance contracting mechanism
- Hand-holding of ESCOs in EE project development
- Pre-qualification and certification of ESCOs (particularly for industry)
- Establishment of a Monitoring & Evaluation system



Contd.....

- Capacity need assessment of partners i.e. industrial associations & their energy cells for their capacity development road map
- Support Ministry of Textile (MINTEX) in implementation of the energy efficiency aspects of their textile policy 2014-19
- Support the GoP and relevant industrial associations on policy level to get access to the state of the art energy efficient technologies
- Support the relevant associations in establishing their bench marks
- Promote Energy Efficient (zero emission buildings) buildings including policy support: Time horizon: 2025 (Partners: DoE Punjab, PEECC etc.)



Key/take away message/s

- Financial institutions should be strengthened up and made aware to recognize their role in overall strategy of EE.
- Provincial govts. and their institutions may also pay valuable contribution in EE strategy depending upon the country's constitutional arrangements.
- An ESCOs development strategy including registration and certification system should be developed and owned by the govt. institutions
- Energy efficiency improvement methodology should be adopted with the Energy Management System (EnMS) approach instead of the conventional energy audit approach.



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