

ENERGY EFFICIENT LIGHTING

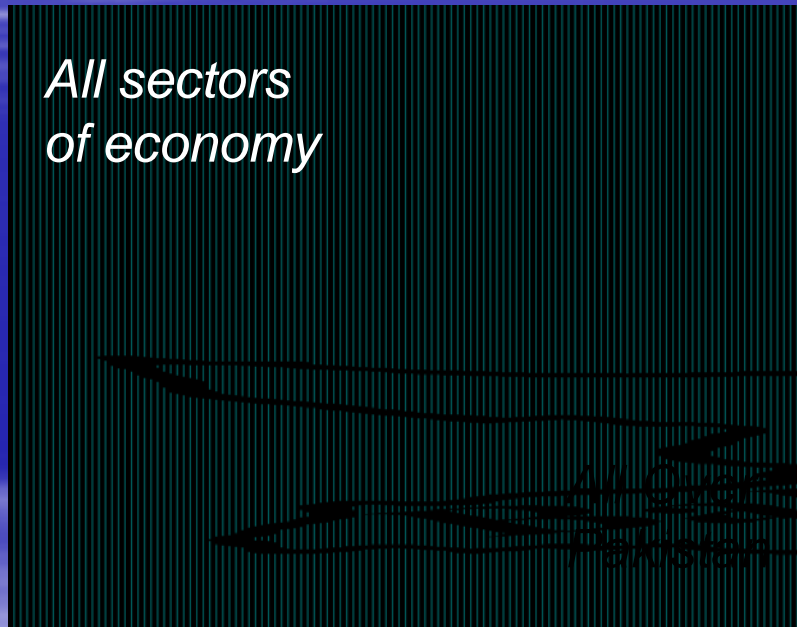
**A Triple Win for People
Environment and the Economy**

Presentation By – MD ENERCON - Pakistan

ENERCON

National Focal institution to promote Energy Conservation in Pakistan

*All sectors
of economy*



An attached department of
Ministry of Environment

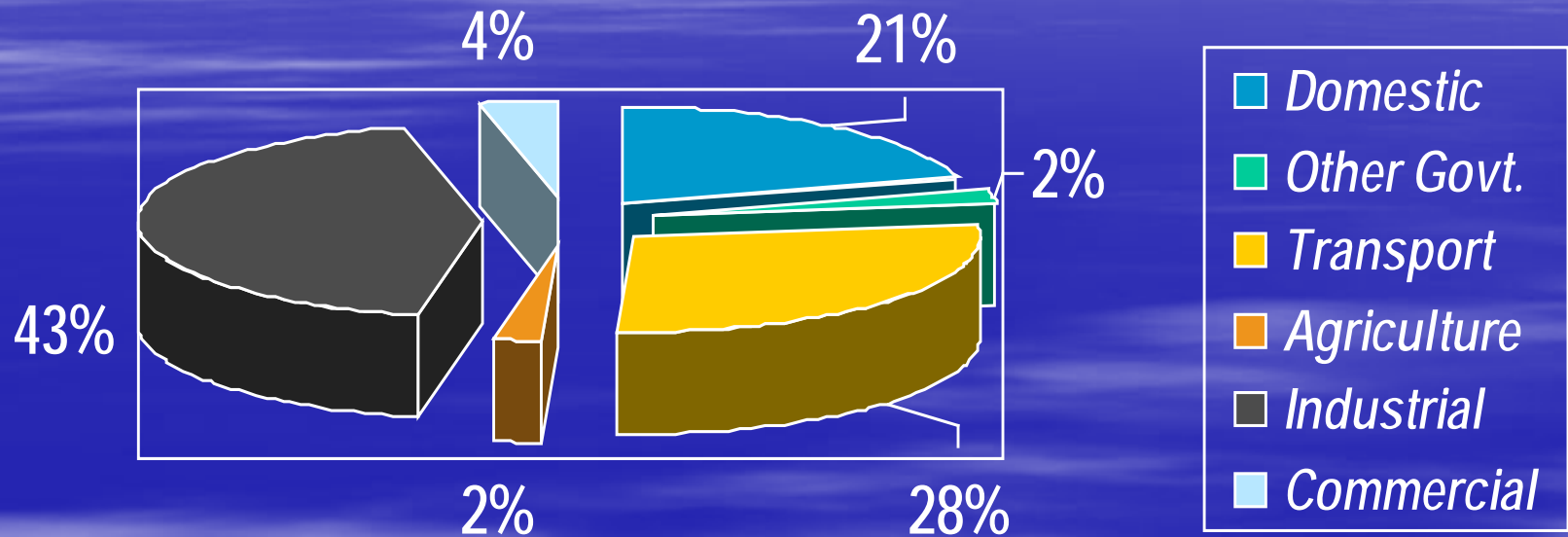
Mission Statement

Cultivating a new energy culture focusing on achieving sustainable development through conservation and efficient use of energy resources.

Vision

To Steer Pakistan towards an Energy Efficient and Environment Friendly Tomorrow.

Energy Consumption by Sector (Total: 33.95 Million TOE)



Industrial Sector takes the largest slice of national energy consumption closely followed by transport sector (28%) HSD consumption for tractors is not separately available and is included in the transport section.

EE/EC Potential in Pakistan

Industry	25%
Transport	30%
Agriculture	20%
Buildings	30%
Average	26%

**Achievable Savings for Pakistan through EE/EC
(over US \$ 2 Billion/Year).**

ENERGY EFFICIENT LIGHTING

- **A Triple Win for People, Environment and the Economy**
- Simple low cost way remedies
 - Climate change goals
 - Energy usage and cost reductions
 - Energy security Issues

EEL – further spread & support

- forty plus countries phased withdrawal of incandescent bulbs.
- 2005-2007, Cuba replaced all and banned the import/sale of incandescent bulbs.
- USA (Clean Energy Act of 2007) by 2014; in Australia by 2010
- Other aspirants :guidance/support

PRESENT SCENARIO IN PAKISTAN

- Serious energy deficit. By 2010 shortfall by 25% 5,500 MW
- Prime Minister's Directive :
 - Easy availability and mandatory use of climatically suitable insulation material be ensured along with fixtures, equipment and appliances for efficient HVAC and lightings.

ENERGY CONSUMPTION IN CITIES & BUILDINGS

- Building and commercial sector is one of the major energy consuming sectors in Pakistan
- Inefficient lighting – major energy consuming factor
- Electrical lighting system and appliances consume more than 50% of the total electricity used in domestic and commercial buildings in Pakistan

ENERGY CONSUMPTION IN CITIES & BUILDINGS

- Electricity consumption in domestic sector = 33,704 GWh/year
- Electricity consumption in commercial sector = 5,572 GWh/year

Data Source: Pakistan Energy Year Book, 2008

ENERGY CONSUMPTION IN CITIES & BUILDINGS

- Power consumption for 9.8 million electric home appliances* = 3530 MW
- Expected energy savings due to implementation of energy efficient appliances including lighting system is 10% = over 350 MW

* Home appliances: Refrigerators, room air conditioners, electric motors, fans & lighting systems.

Lighting Trends in Pakistan

- Wide spread use of Incandescent lamps and tube lights in public, commercial and private buildings due wasteful culture
- Awareness still to take root that Incandescent lamps:
 - **Consume five times the amount of energy as the compact fluorescent lamps (CFLs)**
 - **Have one-tenth the life of an energy saving lamp (CFL)**
 - **Nearly 80% energy wasted in heat**

Lighting Trends in Pakistan

- Incandescent lamps less than 1/5th the price of CFLs compounding the challenge of propagation for the poor
- Clouding the fact they eventually incur high costs through higher energy use and frequent replacements

Benefits to be understood

Incandescent Light Bulb Consumption (Watts)	Minimum Light Output (Lumens)	Common CFLs Consumption (Watts)
40	450	9-13
60	800	13-15
75	1,100	18-25
100	1,600	23-30
150	2,600	30-52

%age load

commercial/residential sector

- <u>Electric lighting</u>	34%
- Fans	33%
- Refrigerators/Freezers	13%
- Electric irons	7%
- Room air-conditioners	5%
- Air coolers	1%
- Others	7%

Market Vs Demand

- Annual total Demand = 140 Million
- CFL Demand = 30 million
- Import of CFLs = 21 million
- Gap being reason for higher price
- Higher price restricting further spread
- **Great investment opportunity in the CFLs and energy efficient lighting industry in Pakistan**

Policy targets

- 15 million high-quality CFLs to save \$78 million over the lifetime of those bulbs (approximately 2 years).
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- 880 MW of power demand avoided cost \$1.15 billion (at \$1.3 million per MW).
- Improved energy efficiency represents a least-cost development strategy for Pakistan with substantial benefits to the economy.
- Relief to industries in the shape of availability of 880 MW of electricity.
- Creation of an energy efficient culture at both public and private sector.

Obstacles

- **public awareness about benefits of energy efficient lighting systems**
- **high prices of CFLs as compared to incandescent bulbs and tube lights**
- **Lack of clear and strong government policy comfort**
- **issues of management, monitoring and accountability in the public sector for introducing CFLs in public buildings**
- **Security perception Challenges to favourable business**

Strategy

- Phasing out domestic/industrial incandescent bulbs of ratings 60 Watts and above
- Putting import legislation in place to ban the import of incandescent
- Replacing the inefficient incandescent for highly efficient CFLs
- Attract investment to set up CFLs industry in Pakistan to meet the local demand

Recommended Strategy

- Approaching Multilateral donors, allies and international NGOs for subsidising CFLs thereby making them available in the local market at subsidized rates
- Fully converting all public buildings and places such as government offices, police stations, hospitals, etc. to CFLs
- Incentive to be introduced for employees in public buildings for savings achieved through efficient lighting

Suggested Methodology

- A planned support infrastructure aimed at phasing out incandescent bulbs should be pursued on war footing
- The pricing of CFLs should be rationalised to the level of Incandescents through subsidising (Clean Development Mechanism, whereby richer nations assist developing nations to cut down on emissions)
- Spread of awareness regarding CFLs should be mandated extensively through TV and the print media
- Pakistan's current and projected energy requirements demand strong Government leadership and with optimal leveraging of external financiers and market players

Energy Efficient Lighting for Cities, Commercial Area, Residential and Non Residential Buildings,

A Triple Win for:

- End Users
- For the Environment
- For the Business

THANK YOU