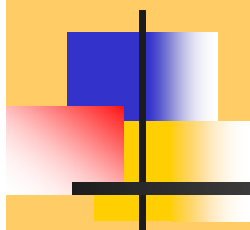


# Energy and Environment



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# Presentation Outline

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- Energy Capacity and Capability Overview
- Research Capacity Building at Universities
- Energy and Environment Research
- Demand and Supply of Energy
- Energy Systems and Policies
- Assessment of Energy Management Practices, Technology and Policies

Source: UK Energy Research Center



# Energy Capacity & Capability

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- Energy Installed Capacity: 19,460 MW
  - Thermal (fossil-fuels): 12,478 MW 64.12%
  - Hydel: 6,480 MW 33.30%
  - Nuclear: 462 MW 2.37%
  - Renewable: 40 MW 0.21%
  
- Renewable Energy Potential in Pakistan
  - Wind: 346,000 MW
  - Solar: 2,9000,000 MW
  - Bagasse Cogeneration: 1800 MW
  - Waste to Power: 500 MW
  - Mini & Small Hydel: 2,000 MW

Source: Alternate Energy Development Board (AEDB)

# Research Capacity Building at Universities



- Challenges facing Pakistan in the energy sector
- Importance of energy research
- Lack of energy research center at the national and provincial levels
- Relevance of collaboration between academia, policy makers and utilities

# Energy and Environment Research Center



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- Systems approach requires study of
  - Engineering, economics, physical environment and social sciences
- Bridge between research community, policy makers, international research community and utilities
- Capacity building in management training



# Demand and Supply of Energy

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## ■ Demand

- Social drivers of the demand for energy
- Choice of technologies at the point of energy use
- Demand side participation

## ■ Supply

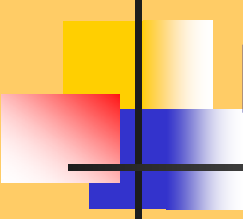
- Sources of energy
- Efficiencies of energy management system
- Use of renewable energy sources
- Integration of new generation sources



# Energy Systems & Policies

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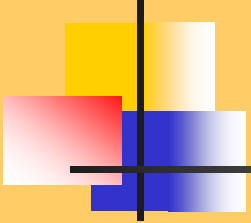
- Micro-economic models
  - Evaluates the cost & efficiencies of utilities
  - Cost of infrastructure and efficiencies of the technologies
- Macro-economic models
  - Generates insights into energy sources
  - Cost of energy sources
  - Effects of climate changes



# Assessment of Energy Management Practices, Technology & Policies

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- Investment in energy generation
- Environmental cost of energy
- The effect of technology on the cost of production and environment
- Choice of technology
- Management and training capacity building of utilities



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Thank You