



# United Nations Economic Commission for Europe



## Global Energy Efficiency 21 Project

# Potential of replication of the EE21 project to other regions: example of India



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## India: a major economy with growing energy demand

- 2<sup>nd</sup> world largest population
- 9% of average GDP growth over the last years
- 10 % of electricity shortage
- 40 % of population without regular access to electricity
- 55 % of electricity produced from coal
- 5th world largest energy consumer
- 5 times inferior Electricity consumption per capita to the world's average

Energy production will be growing exponentially

energy efficiency is essential  
to mitigate CO<sub>2</sub> emissions



# India – Russia: comparative indicators

	<b>India</b>	<b>Russia</b>
<b>GDP</b>	<b>\$ 910 billion</b>	<b>\$ 990 billion</b>
<b>Electricity production</b>	<b>5<sup>th</sup> world producer (4%)</b> 745 TWh	<b>4<sup>th</sup> world producer (5,3 %)</b> 995 TWh
<b>CO2 emissions</b>	<b>1250 Mt</b> <b>4,5% of world emissions</b>	<b>1590 Mt</b> <b>5,7 % of world emissions</b>
<b>Share of electricity production from large hydro</b>	7 <sup>th</sup> world producer 25 % of electricity production 115 TWh production	5 <sup>th</sup> world producer 18 % of electricity production 175 TWh
<b>Coal production<sup>1</sup></b>	3 <sup>rd</sup> world producer 485 Mt	6 <sup>th</sup> world producer 315 Mt
<b>Population</b>	<b>1100 million</b>	<b>143 million</b>
<b>Electricity consumption per capita</b>	<b>503 kWh</b>	<b>6120 kWh</b>
<b>Share of electricity production from coal</b>	3 <sup>rd</sup> world producer <b>55 % of electricity production</b> 510 TWh	8 <sup>th</sup> world producer <b>18 % of electricity production</b> 180 TWh
<b>Share of electricity production from RE</b>	<b>9 %</b>	<b>less than 1 %</b>
<b>CO2 emissions per capita</b>	<b>1,1 t</b>	<b>11 t</b>

Source: IEA, 2006



# Structure of the Indian energy sector: legislation and governmental structure

## Very broad ministerial structure

- Ministry of Petroleum and Natural Gas
- Ministry of Coal
- Ministry of Power
- Ministry of New and Renewable Energy
- Ministry of Environment and Forests
  
- Bureau of Energy Efficiency
- Central Electricity Regulatory Commission

## National legislation in place

### **Guidelines rather than laws**

- Acts:           Energy Conservation Act (2001)  
                          Electricity Act (2003)
  
- Policies:       National Electricity Policy  
                          Integrated energy Policy  
                          XIth National Plan (2007-2012)
  
- National Action Plan on Climate Change  
                          (2008)

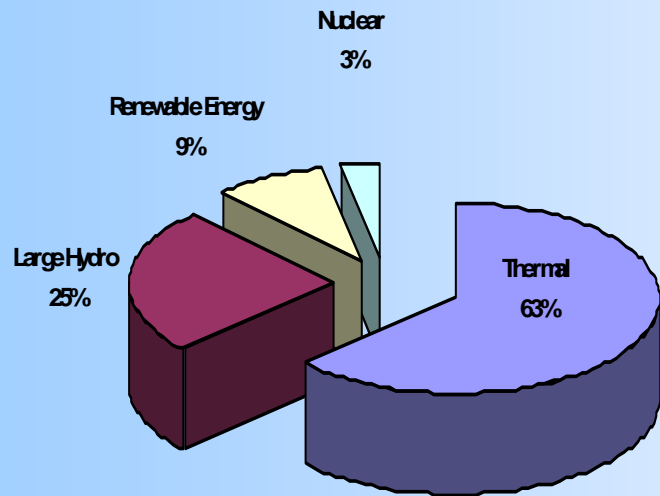
## Central government and States governments



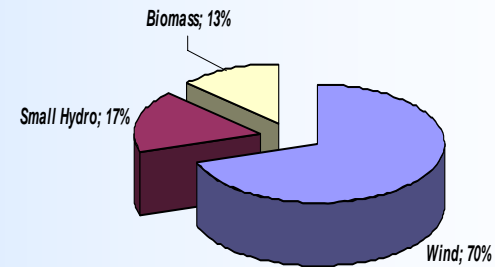
# Very special status of renewable energy

A dedicated Ministry of New and Renewable Energy (MNRE)

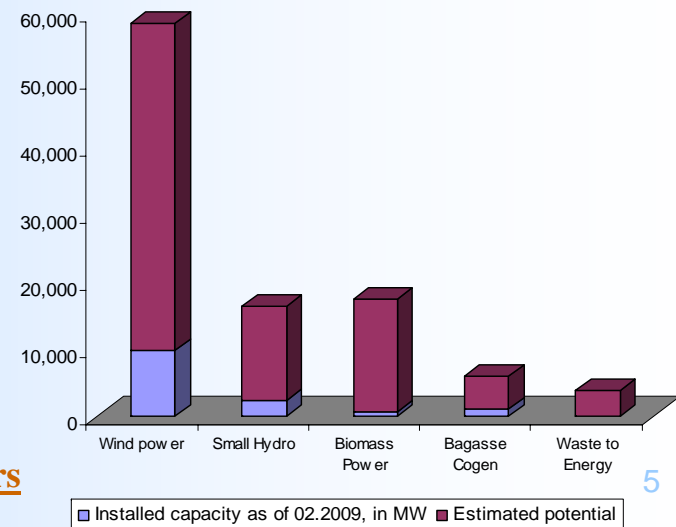
9 % of RE in the electricity production



Share of different RE resources



Significant potential for further development



Favourable conditions for investors

- feed in tariffs
- financial incentives
- facilitates licenses and concessions procedures

Projects highly welcome in solar, wind and biomass sectors



## Status of energy efficiency

- Energy efficiency is a much newer issue than RE
  - ☞ 2003 - Bureau of Energy Efficiency (BEE)
    - Awareness raising
    - Accreditation of Energy Auditors
    - Standards and labelling
- Priorities of the government where international projects would be welcome
  - ☞ Provision of power
  - ☞ Transmission and distribution
  - ☞ SMEs
  - ☞ Technologies
  - ☞ Buildings



# Existing financing schemes

- Financing RE

- ☞ Private investors
- ☞ IREDA
- ☞ Credit lines

- Financing EE

- ☞ Equity and mezzanine financing strongly needed
- ☞ Increasing credit lines through local banks, which are not much familiar yet with financing EE projects
  - ESCOs
  - SVPs
  - clusters
- ☞ Project bundling schemes development is under way



## Capacity building needs

- Awareness
- Energy Audits
- Measurement and verification
- Bankable project proposals



## National partners and International institutions

- Bureau of Energy Efficiency
- Regional network
  - ☞ Ministry of Micro, Small and Medium Enterprises
  - ☞ Ministry of Commerce and Industry (National Productivity Council)
  - ☞ State Designated Agencies
  - ☞ TERI
- International presence
  - ☞ UNDP
  - ☞ UNIDO
  - ☞ UNESCAP
  - ☞ World Bank, ADB
  - ☞ USAID, KfW and GTZ, DFID



## Approaches to the replication of EE21

- Legislation: adoption and implementation by States
- International projects need to comply with national priorities
- Direct work with States is necessary
- Areas of potential projects
  - ☞ RE: further investments, particularly in photovoltaic
  - ☞ EE: SMEs, technologies, distribution, buildings
- Financial climate pre-established, although to be further developed



## Potential cooperation with countries of the UNECE region



- RE, particularly wind
- ESCO, SPV, project bundling
- Equity and mezzanine funds



**Thank you for your attention !**