
Policy Relevance of CCS for Climate Change Mitigation



Pradeep Kumar Dadhich, PhD

Senior Fellow, TERI

Seminar: Carbon dioxide Capture and Sequestration : Status and Prospectus

25 February 2010

Venue: The Lalit Hotel, New Delhi

Structure of Presentation



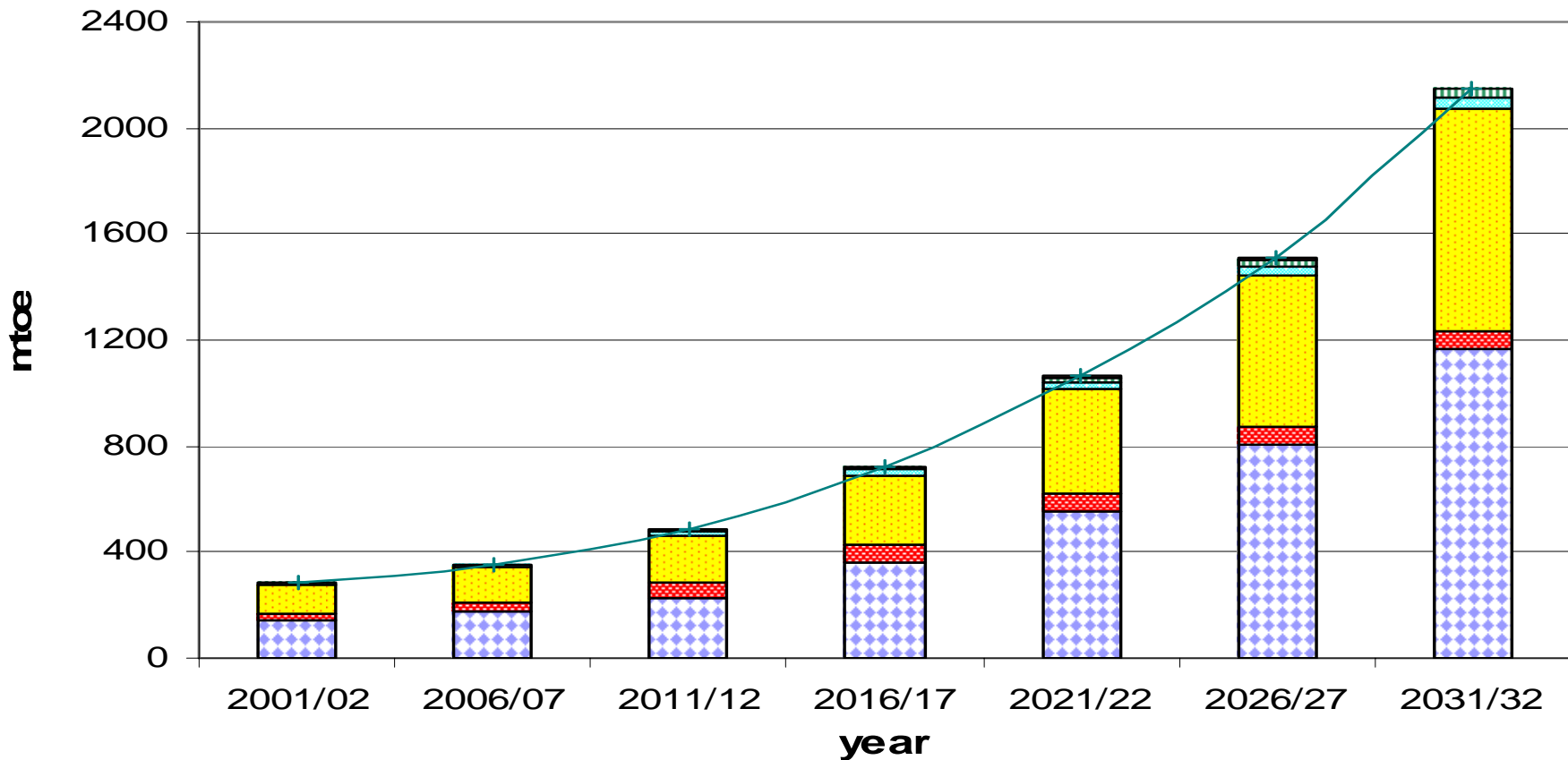
- Current Energy Scene
- Energy Projection
- CO2 storage potential
- Legal and regulatory requirements
- Discussions

Current Energy Status of India

- Installed generating capacity ~ 150,000 MW
 - 53% is coal based
 - Rapidly declining coal reserves
 - 84.39 bn tonnes (1999)
 - 56.49 bn tonnes (2005)
 - Suffering from huge shortages (2007/08) of
 - ~ 10% in energy terms
 - ~ 17% in peak energy
 - Shortages increasing rapidly due to inability to meet more than 40-50% of the targeted capacity addition requirements in the last 3 five year plan periods.
 - 90% of rural India dependent on traditional fuels for cooking
-

Reference Energy Demand Projections

Commercial Energy Requirements in Reference Scenario



Coal

Natural Gas

Oil

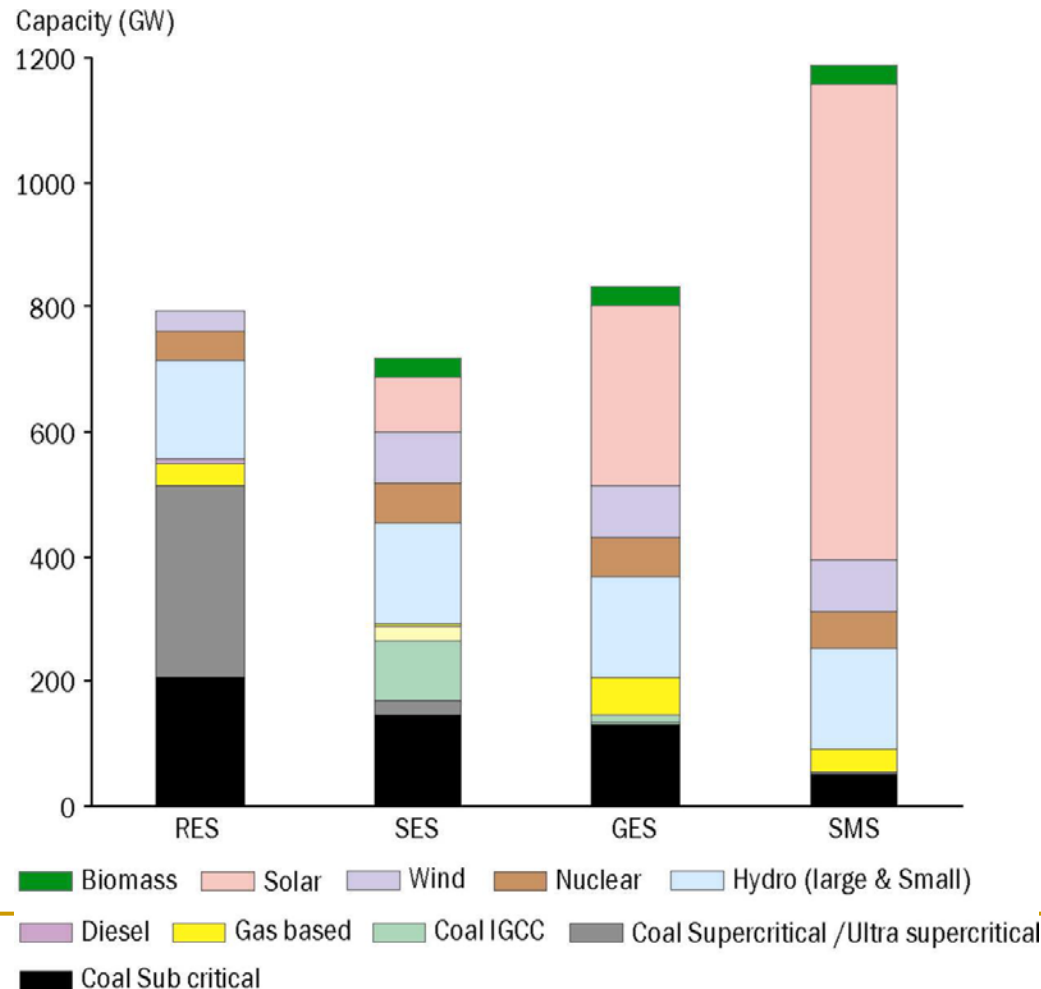
Hydro (large & small)

Nuclear

Solar & Wind

Total

Power generation capacity mix 2031



CO2 Storage potential

5 GT CO2	Un-mineable coal seam
7 GT CO2	Depleted oil and gas reservoirs
360 GT CO2	Offshore and onshore deep path equipment
200 GT CO2	Mineralization of basaltic rocks
572 GT	Total
	Source: A.K. Singh 2000

CO2 emissions

- Current CO2 emission is 1.4 GT
- CO2 emission in 2030:

Sector	Amount of emission (GT)
Cement	0.8 GT
Steel	0.8 GT
Power	2.7 GT
Other sectors	4.5 GT
Total	7.8 GT

Legal and Regulatory requirements

- Bring about a legal and regulatory framework for demonstration of CCS
- A comprehensive legal and regulatory framework for large scale commercialized deployment of CCS
- Review and refine legal or regulatory frameworks in all states as we gain expertise

Capture ready

A CO₂ capture ready power plant is a plant which include CO₂ capture when the necessary regulatory or economic drivers are in place.

Developers of capture ready plants should take responsibility for ensuring that all known factors in their control would prevent installation and operation of CO₂ capture have been identified and eliminated.

This might include:

- A study of options for CO₂ capture retrofit and potential pre-investments
- Inclusion of sufficient space and access for additional facilities that would be required
- Identification of reasonable routes to store CO₂

CCS requirements for fossil fuel plants

- Performance standards for new coal based plants
- State level capital requirements
- Consider to bring CO₂ abated under energy efficiency certificates
- Get UNFCCC acceptance to include CO₂ abated projects under CDM

Process for implementing CCS

Site specific geological characteristics	Site selection, monitoring plan, risk assessment
Data routinely collected and reported	Injection simulation
Beyond the CO ₂ plume	Area of review
Reviewed and renewed with time	Regulatory framework
Liability and stewardship	Public engagement

Thank you