

CLIMATE INVESTMENT FUNDS

CTF/TFC.8/CRP.5
November 4, 2011

Meeting of the CTF Trust Fund Committee
Washington, D.C.
November 4, 2011

PRESENTATION BY GOVERNMENT OF INDIA ON THE INDIA CTF INVESTMENT PLAN



Clean Technology Fund Investment Plan for India

CTF Trust Fund Committee

Washington, DC

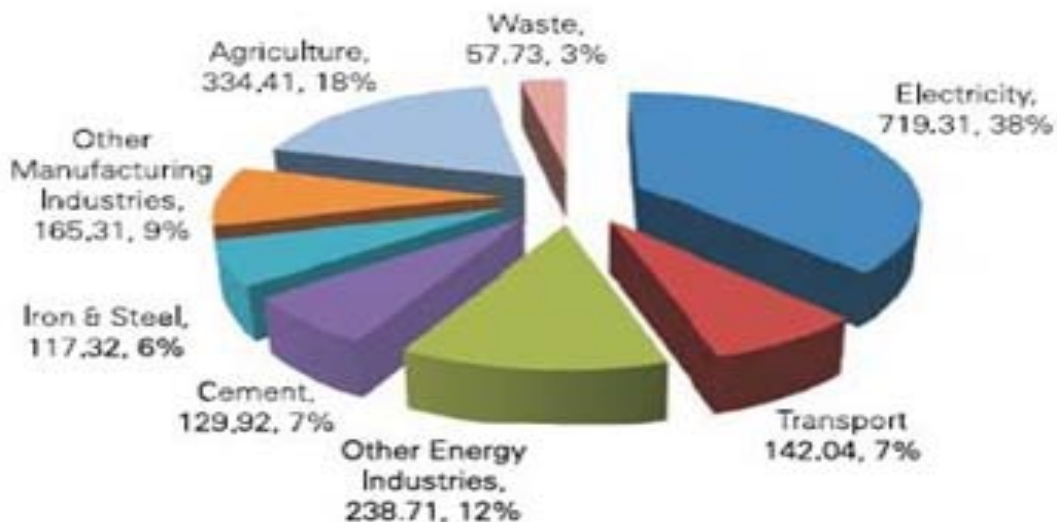
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Investment Plan Focuses on Energy Sector

- **Largest GHG reduction potential**
- **Comprehensive Policy Framework in Place**
- **11th Five Year Plan (2007-2012) and 12th Five Year Plan (2012-2017) currently under preparation seek to accelerate deployment of all sources of renewable and clean energy**
- **Integrated Energy Policy addresses energy security long term**
- **Voluntary Commitment: to reduce carbon intensity by 20 to 25 % by 2020 against a 2005 baseline**
- **Supports two National Missions of the National Action Plan on Climate Change: (i) the National Mission for Enhanced Energy Efficiency and (ii) the Jawaharlal Nehru National Solar Mission**

India's GHG Emissions Profile

- The largest shares of emissions from electricity generation (38%), agriculture (18%) and other energy intensive industries (12%)



In million tons of CO₂e

Source: Interim Report of the Expert Group on Carbon Strategies for Inclusive Growth,
May 2011

India's Investment Plan

Innovative

- First **Partial Risk Guarantee**, co-financed with the Global Environment Facility (GEF)
- First use of **Development Policy Loan**, which will enable one State to achieve carbon neutrality
- **Perform, Achieve and Trade (PAT)**, which is among the first market based mechanisms aimed at energy efficiency in the developing world

Transformative

- **State Level Hydropower Development:** HP DPL would establish a policy framework for environmentally and socially acceptable hydropower development in one progressive state (with a hydropower potential of 30 GW), which can then be replicated in other mid-Himalayan states (total hydropower potential in India is 150 GW+)
- **Solar:** CTF would support scaling up of National Solar Mission to 20 GW by 2022, where bidding for the first 1000 MW was oversubscribed at reasonable costs
- **Enhanced Energy Efficiency:** will promote the reduction of energy demand (objective of NMEEE to avoid 19 GW of electricity generation)

Leverages Private Sector Investments

- CTF investment expected to leverage significant private sector investments through public-private partnerships, reducing costs of commercial lending, improving investment climate, and providing essential infrastructure

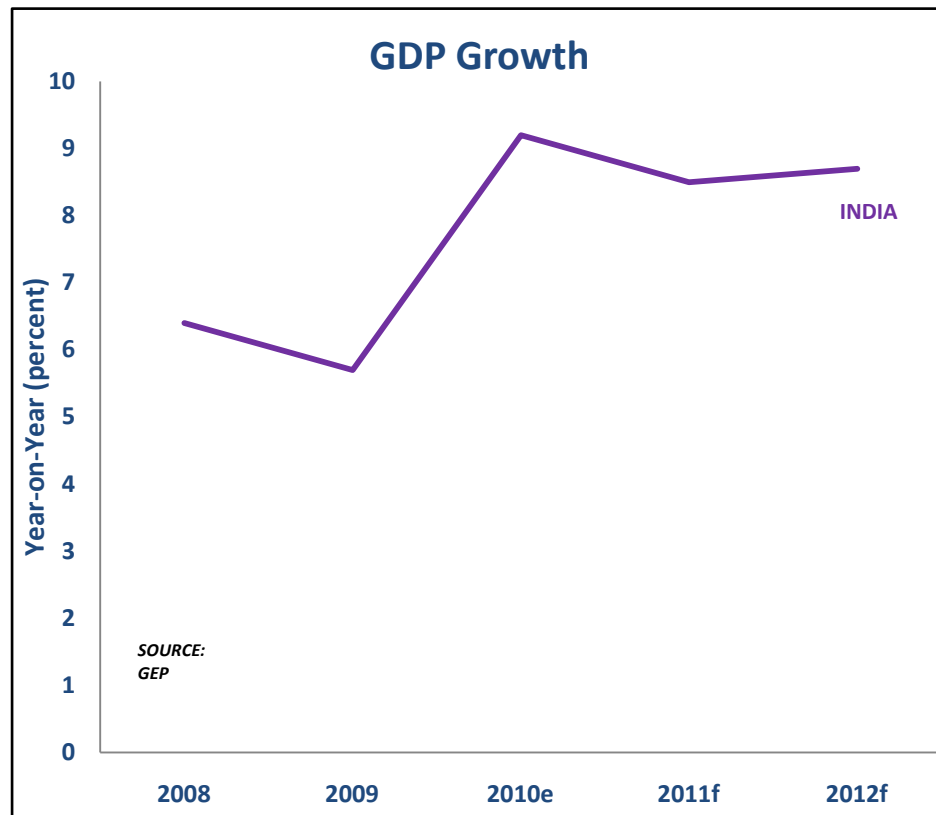
Two Key Objectives of Energy Sector

Contribute to Poverty Reduction

- 350 million still lack access to electricity
- Two thirds of households rely on biomass for cooking

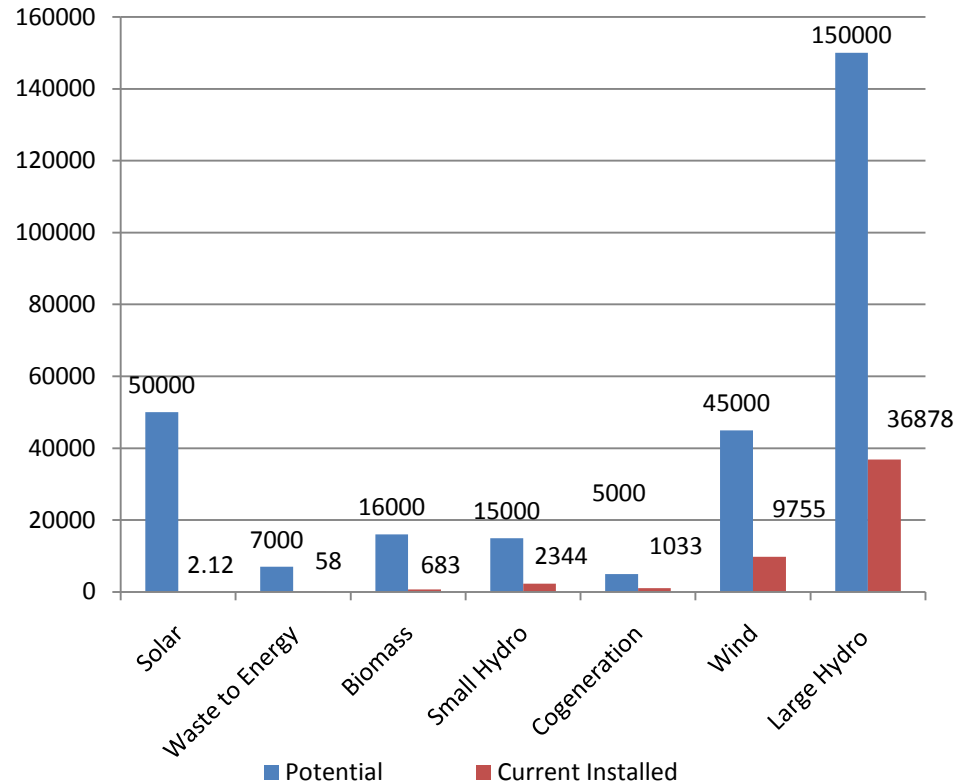
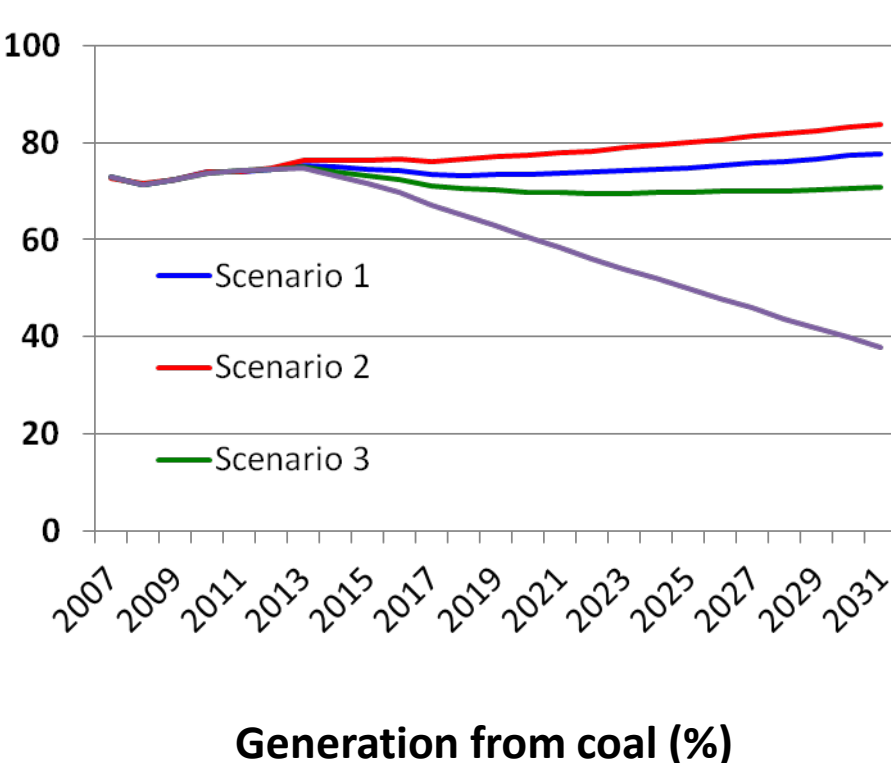
Enable Growth

- GOI aims to double per capita GDP over next ten years
- IMF estimates high economic growth to continue; 8 % annual growth until at least 2015
- Energy cited as single biggest barrier across Investment Climate Assessments

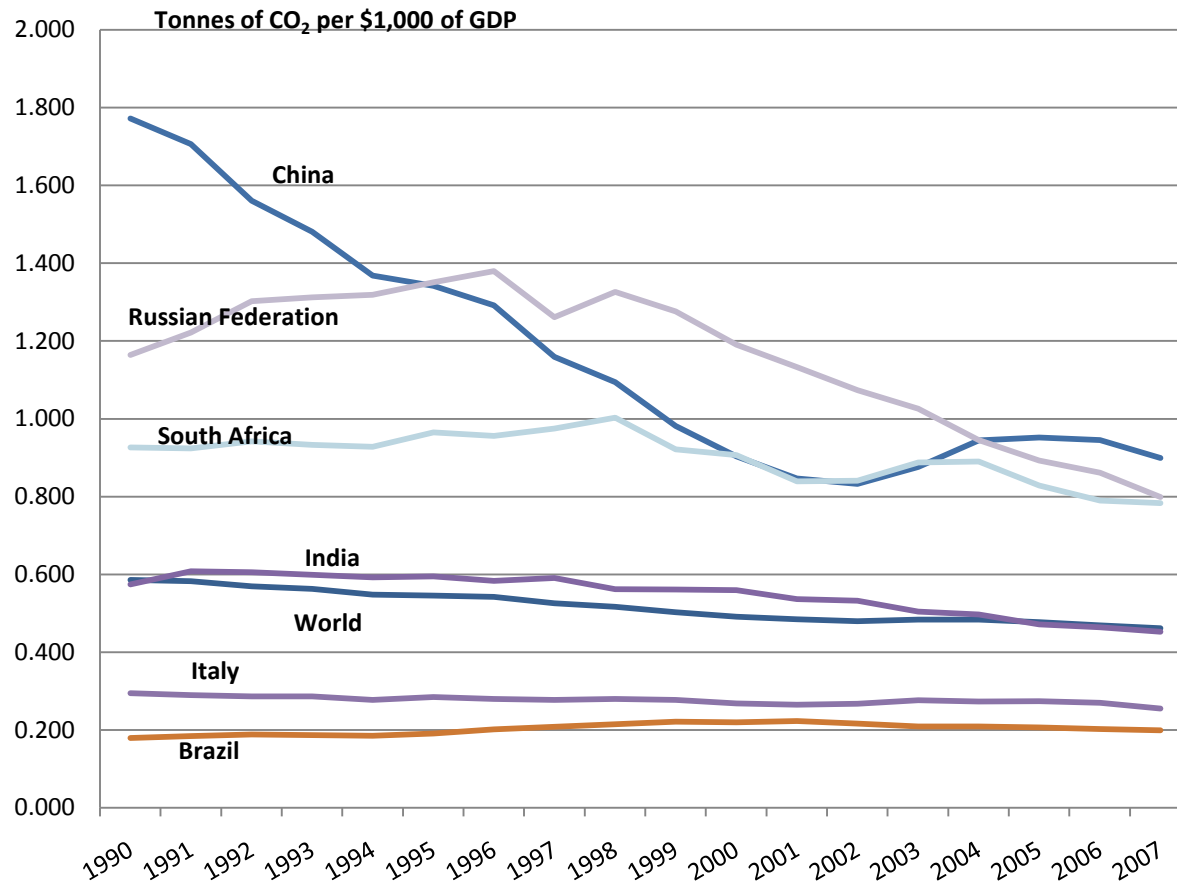


Alternate Sources of Energy

- In an 9% growth scenario until 2020, India will need to increase its installed capacity from current 172 GW to 377 GW, and emissions from the power sector could more than double depending on scenario
- Altogether, India has more than 200 GW of untapped renewable energy potential



India's GHG Footprint Is Relatively Modest



- Due to the size of its economy and population, India is among the top ten emitters - at 5 % of global GHG emissions
- Per capita GHG emissions among the lowest at 1.8 tCO₂e
- Carbon intensity (CO₂e per unit of GDP, on PPP basis) on par with global average
- Forest cover has stabilized
- Carbon intensity has been decreasing over the past two decades

Carbon Intensity 1990 – 2007

(metric tonnes CO₂/ thousand GDP PPP (US \$ 2000))

source: World Bank 2007)

Summary of Proposed Investment Plan (US\$m)

	MDB	MDB financing	CTF	Wholesale GOI Co-financing	Wholesale Private Co- Financing
Carbon Neutral State / Renewable Energy					
HP DPL	WB	100	100	11,400	14,400
National Enhanced Energy Efficiency Mission (NMEEE)					
NMEEE/ SEEP	WB	0	50		1,930
PRG	WB	25	25	20	1,885
National Solar Mission					
Rajasthan Solar Park	ADB	50	200	350	4,350
Gujarat Solar Park	ADB	50	150	150	2,700
Maharashtra Solar Park	ADB	50	150	150	2,700
Integrated Solar Hybrid	ADB	50	50	50	300
NMEEE/ PAT	WB	0	50		
Total		325	775	12,120	28,265

Himachal Pradesh Development Policy Loan



- GoHP intends to become the **first-carbon neutral state in India**, with transformative actions across the key engines of economic growth, namely energy, tourism, rural development and industry
- Will require an expansive policy matrix which supports a quantum shift and concerted effort among all key economic sectors
- Policy framework will include innovative policies on environment (river basin management and cumulative assessments) and social development (participatory approach and community benefit sharing)
- Policy Framework will apply to scaling up of hydropower from 6.7 GW of installed capacity to an additional 10 – 14.5 GW in next 10 years

National Enhanced Energy Efficiency Mission



Objectives

- to implement market-based approaches to unlock energy efficiency opportunities, estimated to be worth about Rs. 7,400 million (about US\$ 165 billion)

Outcomes:

NMEEE is expected to have made the following gains:

- Annual fuel savings in excess of 23 million ton of oil equivalent (TOE)
- Cumulative avoided electricity capacity addition of 19 GW
- CO2 emission mitigation of 98 million tons per year

CTF Support:

(i) Super Efficient Equipment Program

- **Barrier:** higher up front costs of efficient equipment and perceived risks in attaining energy savings and recovering costs
- **Solution:** CTF would provide a subsidy to monetize the energy savings up front, using electric fans (10 million sold annually, or 25 percent of the market) as the pilot
- **Replication:** air conditioning units, chillers, refrigerators, electric motors, etc.

National Enhanced Energy Efficiency Mission (II)



CTF Support:

(ii) Partial Risk Guarantee

- **Barrier:** Financial institutions and commercial banks are averse to investing in projects whose technologies or processes have not been deployed widely
- **Solution:** to provide commercial banks with partial coverage of their risk exposure for renewable energy projects, thereby helping investors get lower cost of commercial debt
- **Replication:** Expected to bring advanced renewable energy investments closer to grid-parity faster and reducing payback periods of energy efficiency investments

(iii) Perform, Achieve and Trade (PATs)

- **Barrier:** high costs of industry to comply with PATs
Solution: CTF intervention would provide an interest financial support incentive to kick start the initiative and achieve a market transformation.
- **Replication:** PATs could galvanize proposed investments of US\$4 billion required for compliance with the scheme

Jawaharlal Nehru National Solar Mission



Objectives

- To create an enabling policy framework for the deployment of 20,000 MW of solar power by 2022
- To create favorable conditions for solar manufacturing capability, particularly solar thermal for indigenous production and market leadership. To promote programs for off grid applications

CTF Support:

- **Barrier:** first-of-a-kind “pioneer” projects with high costs, first mover risks, and challenges of large scale development of intermittent renewable energy resources with new technology
- **Solution:** to develop several solar parks and transmission systems, demonstrate feasibility of public-private partnership approach (PPP), and optimize generation output and delivery to consumers
- **Replication:** high learning value for the deployment of 20,000 MW by 2022

Indicative Results from Investment Plan

Indicators	Baseline	CTF Investment	IP Results	Wholesale Leveraging
Himachal Pradesh DPL	6.7 GW	\$100 m	10 - 14.5 GW in 10 years	1:30
Annual GHG emission reductions			1 Mt CO2 / yr	
Replication potential	50 GW ++		5 Mt CO2e/yr	
NMEE		\$125 m	98 Mt CO2 /yr	1:30
Annual GHG emission reductions			2 mt CO2e/ yr	
Replication potential			10 Mt CO2e/yr	
JWNSM		\$550 m		1:20
Annual GHG emission reductions			6 Mt CO2e / yr	
Replication potential			30 Mt CO2e/ yr	

Rationale for CTF Co- Financing

- **Cost Effectiveness**
 - Potential to leverages 20 to 30 times the investment mostly from private sector
 - Need concessional finance for demonstration effect of innovative policies
- **Demonstration of Potential at Scale**
 - CTF would support initial phases of innovative policies
- **High Replication Potential for hydropower development, solar and energy efficiency**
- **Developmental Impact**
 - Energy efficiency investments directly benefit consumers
 - Development of indigenous solar manufacturing base and employment in clean energy
 - Improving energy security
 - Support paradigm shift from conventional socio-economic development to true low-carbon development in one State
 - Avoided coal generation and associated health benefits
- **Implementation Potential**
 - The carbon neutral and energy efficiency policies have been developed with substantial stakeholder analyses and inputs, and experience in other countries.
 - The proposed solar parks are first-of-a-kind in terms of scale and design, which present first-mover risks. Significant private sector interest in generation.
 - Proposed operations support national programs with strong country ownership

A scenic mountain landscape. In the background, a large, rugged mountain peak is covered in snow and partially obscured by thick, white clouds. The sky is a clear, deep blue. In the foreground, there are green, grassy hills. On the right side of the foreground, there is a small white building with a dark, domed roof and a smaller structure next to it. The overall scene is bright and clear, suggesting a sunny day.

Thank You