



Advisory for a Better Climate

## **CO<sub>2</sub> Baseline Database: Draft Slides for CEA**

By Urs Brodmann & Barla Vieli  
First Climate (Switzerland) AG  
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# CO<sub>2</sub> Baseline Database for the Indian Electricity Grid



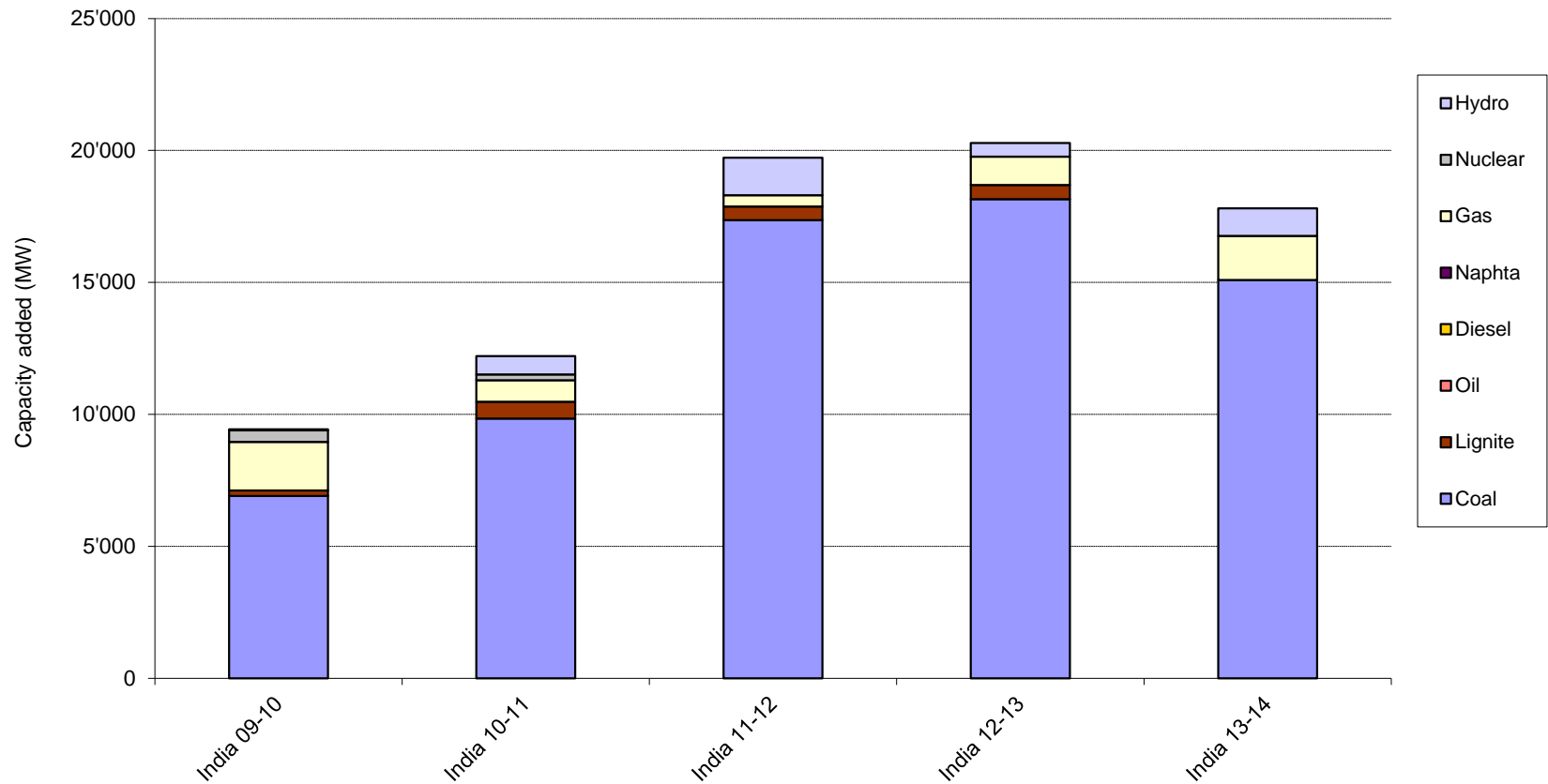
- The database goes back to the **year 2000**
- Annual updates since **2006**
- About **500 stations** and over **1'600 units** are included
  - Thermal stations (coal, gas, diesel...)
  - Hydro stations
  - Nuclear stations
- The database covers data on
  - electricity production
  - fuel consumption and quality
  - CO<sub>2</sub> emissions
- About 500,000 data points

S. NO	NAME	UNIT_NO	DT. COMM.	CAPACITY MW AS ON 31/03/2011	REGION	STATE	SECTOR	SYSTEM	TYPE	FUEL 1	FUEL 2	2000-01	2000-02	2000-03	2000-04	2000-05
												Net Generation GWh	CO2 emissions absolute T	Specific Emissions t CO2/MWh	In Operation	In Stand By
1	PATNATI	0		776.9	CR	JHARKHAND STATE	JREB	THERMAL	COAL	DL		987	166073	1.72	5	
2	BAPAN	0		225.9	CR	BHAR STATE	BSEB	THERMAL	COAL	DL		227	42220	1.85	5	
3	KANALGON	0		2'385.9	CR	BHAR CENTER	NTPC	THERMAL	COAL	DL		9'083	1'677'305	0.90	5	
4	TENGHAT	0		426.9	CR	JHARKHAND STATE	TVM	THERMAL	COAL	DL		1'916	2'182'869	1.47	5	
5	JORNERA	0		366.9	CR	JHARKHAND PVT	TATA PCL	THERMAL	COAL	DL		2'501	2'927'501	1.15	5	
6	CHANDRAPUR	0		896.9	CR	JHARKHAND CENTER	DVC	THERMAL	COAL	DL		1'674	2'400'397	1.39	5	

# CO<sub>2</sub> Baseline Database: Latest Results



## Added Capacity [MW]

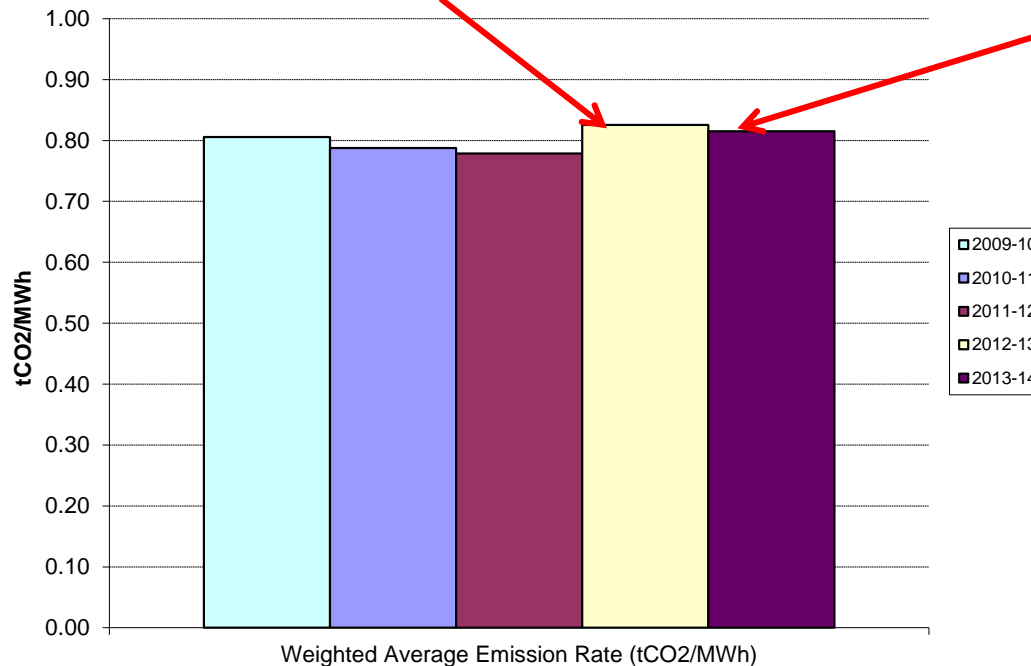




## Weighted Average Emission Rate [tCO<sub>2</sub>/MWh]

**Increase in 2012-13:**  
Newly added coal stations  
Drought  
Scarcity of gas

**Slight decrease in 2013-14:**  
Higher capacity utilization of hydro stations  
Scarcity of gas  
Efficiency gains in coal based capacity



## CO<sub>2</sub> Baseline Database: Significance



The database has become an **indispensable tool for CDM projects owners in India:**

- Over 1,000 registered CDM projects rely on the database
- In 2014 alone, over 200 projects had CERs issued based on the database
- Some 8,000 issuances to Indian projects since inception, for over 100 mln t CO<sub>2</sub>

Meanwhile, the database has become equally important as:

- Documentation of **CO<sub>2</sub> Performance** according to international standards
- Internal tool to analyse drivers underlying the CO<sub>2</sub> performance
- Indicator for the **development** of the Indian electricity sector



The database contains a wealth of data on the electricity sector and is an important tool for Indian project owners and users world-wide.

# CO<sub>2</sub> Baseline Database: Cooperation with First Climate



An update of the database is prepared annually in cooperation with First Climate.

## Tasks performed by CEA:

- Data collection
- Checking data for completeness, plausibility and consistency
- Entry of data into database

## Tasks performed by First Climate:

Calculating CO<sub>2</sub> emission factors in line with ever-changing international CDM standards

Conducting independent plausibility check of data

Completing data gaps in line with international standards

Technical adaptations to the database, as required

# CO<sub>2</sub> Baseline Database: Specific Tasks for First Climate



## For the next database update (FY 2014-15), specific additional tasks for First Climate include:

- Concept for adjusting database to one single electricity grid
  - Ensure continued access to regional grid data as required by CDM rules
  - Draft the guidance to Indian CDM project owners
- Technical modifications to database in line with new concept
  - Reworking database structure and programming of macros
- Provide training to CEA staff newly in charge of database





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## CONTACT:

**Urs Brodmann · Board Member**

[urs.brodmann@firstclimate.com](mailto:urs.brodmann@firstclimate.com)

**Barla Vieli · Project Manager**

[barla.vieli@firstclimate.com](mailto:barla.vieli@firstclimate.com)

**First Climate (Switzerland) AG**

Brandschenkestr. 51  
CH-8002 Zürich, Switzerland

Phone: +41 (0) 44 298 2800

Fax: +41 (0) 44 298 2899