

**Comments on the validation of  
Gudur Thermal Power Project, India  
28 April 2011**

CDM Watch respectfully submits the following comment on the Project Design Document (PDD) for “Gudur Thermal Power Project”, India. We highlight the importance of recognizing the integral role of transparency in the CDM validation process, and for taking this comment into consideration.

We believe that this project is not additional and if approved, will lead to excess issuance of Certified Emissions Reductions (CER’s) beyond any actual emissions reduction. We emphasize that according our analysis of PDD the Project “Gudur Thermal Power Project” must not receive a positive validation under the ACM0013 ver. 4 methodology for the reasons outlined below:

1. Additionality – Faulty baseline
2. Additionality – Baseline efficiency improvements
3. Public participation of civil society
4. Social sustainability
5. Environmental impact assessment

**1. Additionality – Faulty Baseline**

According to our comprehensive analysis of the PDD, the PDD does not fully comply with the requirements of ACM0013 ver. 4. We have identified following examples of non-compliance with ACM0013’s ver. 4 technical and substantive requirements:

- The PDD fails to show that ACM0013 ver. 4 is applicable to supercritical coal projects in India: the project participants identify an incorrect baseline – subcritical technology – for India. Our analysis suggests that the actual baseline in India is more efficient supercritical technology and at least half of India’s more than 70,000 MW in planned coal-fired generating capacity over the next several years will be supercritical.
- The project proponent fails to show that the identified baseline fuel is used in more than 50 % of total generation by utilities in the area. In the PDD (section B.2, page 12) the data provided is from year 2006-2008, which is now several years old. Since the PDD was not released for public comment until the end of March 2011, it should also have been updated to provide the most recent data available.
- Not all plausible baseline scenarios are considered in the PDD: the PDD states (section B.4, page 14) that natural gas “[...] as a fuel has not been found as a viable alternative to the project proponent due to limited supply and [...] the average price of gas is expected to increase by 44% by 2013-14 because of free market-priced gas dominating the supply mix market-price”. However, the PDD fails to provide documented justification for rejecting natural gas as a plausible alternative. The PDD also fails to evaluate properly all sources of renewable energy, which is a glaring omission in light of renewable energy developments in India. The PDD (section B.4, Alternative 4, page 15) states that “[...] renewable energy is not a baseline for the Project because it has comparatively higher capital costs and will not be able to provide services comparable to the project activity”, though there is no detail analysis provided of each renewable energy source.
- According the analysis of import of electricity in India (section B.4, Alternative 5, page 16), the PDD provides data from 2007-2008 which is nearly 3 years old and does not represent the current situation. The PDD states “*The investment analysis is presented in a transparent manner*”, however, the PDD’s investment analysis fails to provide sources and documents as data sources for investment analysis and it is not clear whether the data and numbers provided are reliable (section B.4, Step 2, page 16).
- The project participants must provide documented evidence which demonstrates that they seriously consider the CDM in the decision to implement the project activity. The information provided in the PDD is insufficient to establish that CDM benefits are necessary for the project implementation. The PDD does not document the coal price provided and does not explain deeper the estimated calculations between subcritical and supercritical technologies. However, the investments’ comparison table of these two technologies provides nearly equal data for both technologies, e.g. equal consumption of GCV of coal (3900), PLF (85 %), auxiliary consumption (6,5 %) which makes to doubt if the Project is applicable for supercritical

technology at all and eligible to be financed as CDM project. This is confirmed by statement in the end of investment analysis (PDD, section B.4, page 17): *“Power generation using coal as fuel, but by using subcritical technology is the economically most attractive option available to the project proponent in absence of the proposed project activity”* which shows that the project proponent would implement this project without receiving CDM funding.

Following we would like to point out that an analysis conducted by CDM Watch and the Stanford Environmental Law Clinic in March 2010 reviewed 14 coal projects pending validation. The research showed that none of the expected reductions of the reviewed coal projects are contingent on the additional CDM revenue. These projects would occur regardless of CDM financing as they are included in national energy policies. However, above all, the analysis found in the case of all projects in India that supercritical – not subcritical – should be used as the baseline scenario, which would render supercritical coal plants non-additional within the CDM.

In the case of India, the fact that sub-critical coal technology is no longer baseline is very clear. As early as 1999 the government of India was advised to pursue supercritical coal plants due to their improved efficiency<sup>1</sup>; advice that they have incorporated into core government planning processes. For instance, the National Thermal Power corporation is responsible for nearly 26 GW<sup>2</sup> of the country’s 80 GW of coal fired capacity and is considering mandating supercritical coal technology for the 12<sup>th</sup> five year plan as over half of all capacity additions will be super critical technology<sup>3</sup>. Moreover, as a part of the Government’s Ultra Mega Power Project (UMPP) program, which aims to build nine 4,000 MW coal plants, supercritical technology has been mandated as baseline technology<sup>4</sup>. Finally, for the 13th Five Year Plan, all new coal plants will be supercritical (Mathur, 2010)<sup>5</sup>.

The result is that India was constructing 38 supercritical coal units (660 MW to 800 MW units) in 2010, and some of them would be commissioned in 11<sup>th</sup> Plan itself. It is expected that supercritical units would constitute about 60 % of thermal capacity in 12<sup>th</sup> Plan. For 13<sup>th</sup> Plan, it is expected that the entire coal based capacity shall be based on supercritical technology<sup>6</sup>. All told at least half of India’s more than 70,000 MW in planned coal-fired generating capacity over the next several years will be supercritical. This information casts significant doubt on the claim that sub-critical technology is the appropriate baseline technology.

***This renders the project ineligible under the current methodology. We therefore call on the DOE to validate the proposed “Gudur Thermal Power Project” on the basis of the new baseline, which is supercritical and makes subcritical power plants non-additional.***

## 2. Additionality - Baseline efficiency improvements

In addition to the faulty baseline used in the PDD for this project, we believe that also the vintage of data used in the PDD leads to non-additional emission reductions:

- The PDD fails to prove the project’s additionality, which is the core issue to be validated as CDM project activity. The PDD sensitivity analysis is not robust to reasonable variations in the critical assumptions because it only varies coal prices by +/- 10 %. In fact, prices have fluctuated more than 100 % in recent years, and today’s price is 3600 INR/MT<sup>7</sup>, though the PDD indicates it at 2219 INR/MT rate which seems changed in a few years nearly 60%. After a weak and doubtful sensitivity and common practice analysis the PDD states that *“it can be concluded that the project is additional”* and *“the proposed project activity is not a common practice and hence the project is additional”*. This statement needs further information and documentation to be provided by the project proponent in order to confirm that the data is real and the project complies with all the requirements for the additionality of project.

<sup>1</sup> [http://www.egcfe.ewg.apec.org/publications/proceedings/CleanerCoal/HaLong\\_2008/Day%20%20Session%203A%20-%20Pankaj%20Gupta%20Supercritical%20Technology%20in%20.pdf](http://www.egcfe.ewg.apec.org/publications/proceedings/CleanerCoal/HaLong_2008/Day%20%20Session%203A%20-%20Pankaj%20Gupta%20Supercritical%20Technology%20in%20.pdf)

<sup>2</sup> [http://www.ntpc.co.in/index.php?option=com\\_content&view=article&id=96&Itemid=175&lang=en](http://www.ntpc.co.in/index.php?option=com_content&view=article&id=96&Itemid=175&lang=en)

<sup>3</sup> <http://prosperingindianpowersector.blogspot.com/2010/12/supercritical-tech-set-to-be-made.html>

<sup>4</sup> [http://www.powermin.nic.in/whats\\_new/pdf/ultra%20mega%20project.pdf](http://www.powermin.nic.in/whats_new/pdf/ultra%20mega%20project.pdf)

<sup>5</sup> International Energy Agency 2011: Technology development prospects for the Indian power sector [http://www.iea.org/papers/2011/technology\\_development\\_india.pdf](http://www.iea.org/papers/2011/technology_development_india.pdf)

<sup>6</sup> Central Electricity Authority: [http://www.cea.nic.in/more\\_upload/advisory\\_mop\\_sourcing\\_domestic\\_mfrs.pdf](http://www.cea.nic.in/more_upload/advisory_mop_sourcing_domestic_mfrs.pdf)

<sup>7</sup> [http://money.sulekha.com/coal-india\\_weekly\\_stock-chart](http://money.sulekha.com/coal-india_weekly_stock-chart)

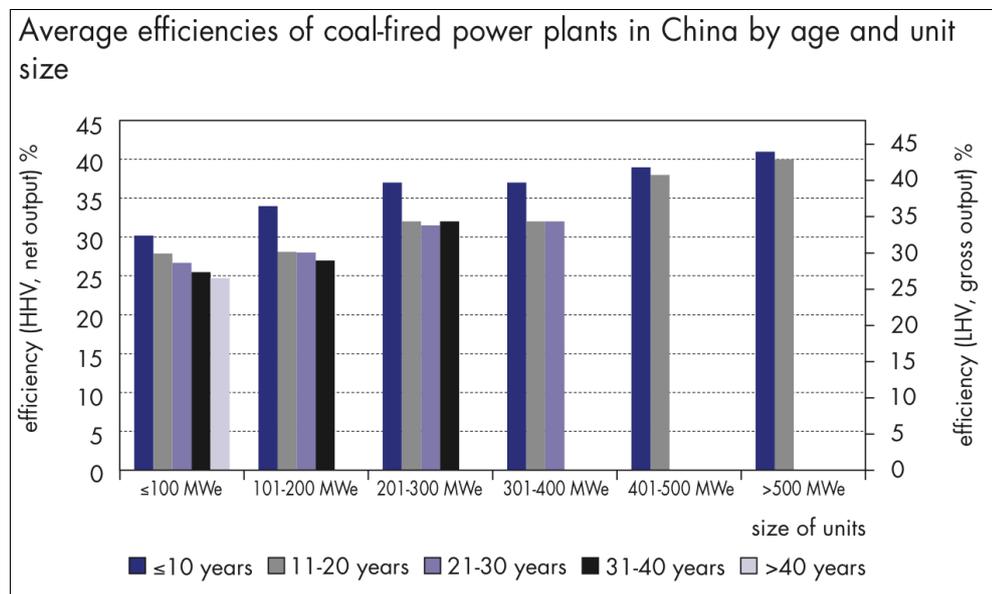
- The PDD uses as a baseline emission factor the lower value between a) the identified baseline technology and b) an emissions benchmark determined based on a defined set of power plants but does not account for the vintage of data used to establish the emissions benchmark.
- Especially in a case where the project will only be commissioned in 2014 it is important that the baseline efficiency be adjusted in take account for the time vintage between the period considered for establishing the benchmark and the start of commercial operation of the project plant. The adjustment is based on the autonomous technological improvements observed in the sector.

In practice the data vintage between the CDM project plant and the reference plants used to establish the emissions benchmark can be considerable, for the following reasons:

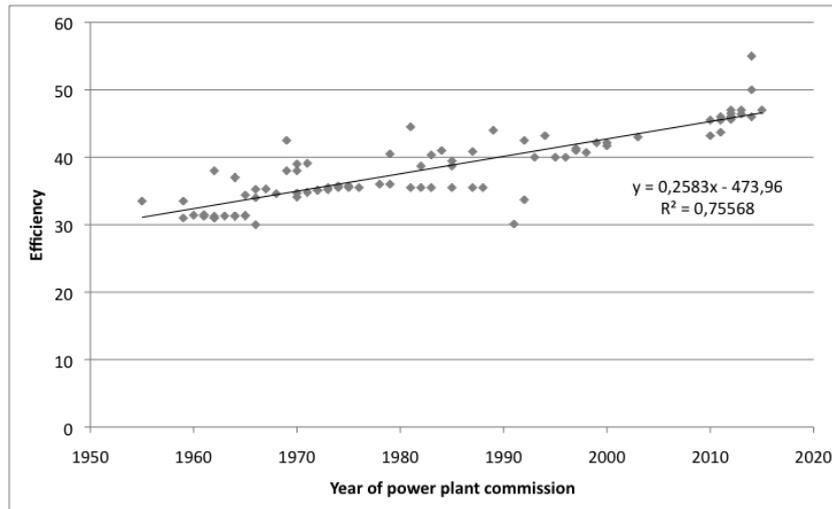
### Technological innovation in the sector

Over the past decades, the efficiency of new fossil fuel fired power plants has improved considerably. Similarly, energy forecasts also assume that the efficiency of new power plants will continue to improve, due to the development of new materials allowing for higher pressures and temperatures in steam and gas turbines but also due to new processes, such as the gasification of coal (see, for example, IEA 2008a and van den Broek et al. 2009). Historical data on power plant efficiency improvements is summarized below:

- The figure below from IEA (2008b, page 51) illustrates the efficiency improvements achieved in coal fired power plants in China. The figure shows that power plants between 100 and 400 MW, constructed in the last 10 years are 5-6% more efficient than power plants constructed in the ten years previously. This results in efficiency gains of 0.5% to 0.6% per year for power plants built in the most recent decade. The figure also shows that the improvements vary with the size of power plants and over time.



- The IEA (2005, page 18) reports that “under ideal conditions, modern coal-fired power plants are capable of achieving efficiency levels of more than 40% on a higher heating value basis. This is about a 30% improvement on plants built in the 1950s and 1960s.” This corresponds to an average annual efficiency improvement of about 0.23% (assuming that the efficiency improved by 30% to a level of 40% over a period of 40 years).
- The figure below illustrates the efficiency of newly constructed coal power plants in Germany (Oeko-Institut, 2010). A regression analysis shows that efficiency gains were 0.26% per year over a period of about 50 years. This is largely in line with the estimate in IEA (2005) for industrialised countries.



- Van den Broek et al. (2009) systematically derived technology learning curves for different fossil fuel power technologies, by applying and extending a model developed at Carnegie Mellon University. The results for the technologies without CO<sub>2</sub> capture and storage are illustrated in the table below and an annual average improvement of power plant efficiency is derived from this data.

Technology	Efficiency (%)			Derived annual average improvement (%)	
	2001	2010	2020	2001 - 2009	2010 - 2020
Natural gas combined cycle	56	61	63	0,56	0,20
Pulverized coal	45	47	49	0,22	0,20
Integrated gasification combined cycle	39	42	47	0,33	0,50

The sources quoted above suggest that the historical average annual efficiency gains depend on a number of factors, such as the technology, the country, the fuel type and the time period considered. However, they are in all cases significant and range between about 0.2% and 0.6% per year.

***Against the above said, project developers must show how the project takes into account the baseline efficiency improvement.***

### 3. Public participation of civil society

The PDD does not meet requirements for disclosure of stakeholder commentary. Robust stakeholder commentary is one of the CDM's key ways of ensuring sustainable development. Yet the PDD does not clearly describe the stakeholders involved in project outreach or the information provided to them.

As a result, the summary of public comments fails to sufficiently illuminate potential sustainability concerns, and the information provided in the PDD rather suggests that the local stakeholder consultation did not take place according to the requirements for the following reasons:

- From information provided in the PDD it is not clear how local stakeholders have been invited to address concerns related to the proposed project and who the stakeholders were, what was the process and priority of selecting stakeholders. The PDD (section E.1, page 33) states that *"All the stakeholders/representatives were informed about the agenda, venue and date of the meeting through notices"* which implies that the local stakeholder consultation process was not conducted in an inclusive manner. Furthermore, the PDD does not indicate what information other than the meeting announcement was provided prior to the stakeholder meeting itself, including documents distributed to stakeholders for review and comment. The project proponent fails to provide the way of informing the stakeholders which has a great importance for their participation and involvement in the process.
- The PDD (section E.2, page 33) states that *"The stakeholders were welcomed [...]"*, however, it is not detailed which of these five identified stakeholders participated in outreach efforts. The PDD should provide a list with people that were invited and participated as well as provide information about where the consultation was held as indicating that the meeting *"[...] was*

*held at site office*” is not enough and needs clarification. Also, the PDD does not describe the information provided to the stakeholders with sufficient clarity, such as whether adverse environmental impacts were described along with the benefits that were mentioned. The fact that EIA has not been realized until the stakeholder meeting took place makes it doubt if the consultation was held at all.

- The PDD (section E.2, page 33) provides a short summary about the meeting and discussion held. We highlight that in the summary of the meeting the information is copy-pasted from previous PDDs and does not address to the meeting with local stakeholders. In the summary there is no single question raised by local stakeholders, any person named as well as no list of participants. The summary provides very general information about the project, GHG, Kyoto protocol and the CDM, which is unlikely to be the main topic of discussion during the stakeholders’ meeting. Much rather it is likely that the local stakeholder consultation has actually never taken place and affected people have not been invited.
- Moreover, the PDD fails to prove the summary of questions raised, e.g., about the employment for local community or air pollution issues. The summary does not provide any concrete number or specified employment positions: *“One of the landlords appreciated the fact that there would be vast employment opportunities and socio-economic development”* (PDD, section E.3, page 34). Please specify the number of people who shall be employed as per the parameters of – skilled, unskilled, contractual and daily-wage workers from the nearest villages. The statement from the PDD (section E.3, page 34) *“There were no other comments other than the mentioned with respect to the project”* is likely to be untrue if we keep in mind that the project’s activity is coal burning for 25 years in advance. Following, there is a lack of environmental and social impact assessment comments which encourages doubting if the meeting was held in reality and if all interested parties attended the meeting.

***Based on the information provided in the PDD it is not credible that the local stakeholder consultation was carried out in an inclusive manner. The project activity cannot be validated under CDM rules until a credible and independent local stakeholder consultation, involving all directly and indirectly affected people and EIA results has been carried out in an effective manner.***

#### **4. Social sustainability and community development**

The PDD (pages 3 and 44) states that *“Pragdisa Power Private Limited would use 2% of the revenues accrued from the sale of Certified Emission Reductions (CERs) on an annual basis for community related activities. These may include providing assistance for development of public amenities in the surrounding areas such as water distribution/sanitation facilities/building of School and Hospital/ free distribution of educational books and school uniforms/annual eye camps/health check up centers for villagers etc”*. We would like to draw your attention that neither intended community development actions and concrete names of local stakeholders involved, nor concrete actions’ implementation plans are mentioned at all in the PDD.

The PDD states (page 3) that *“Proposed power plant would be beneficial in meeting electricity demand in the country. Employment will be provided to eligible persons during both construction and operational phases. Community development activities such as training of local unemployed youth in various construction skills, personality development, provision of drinking water facility, strengthening of rural roads, etc., will be taken up during the implementation of the project”*. However, our careful investigation of the PDD shows that there is lack of specified action plans, local people and organizations involved in the benefit which the project activity might bring to them.

***However, if so, the PDD should state which concrete actions are planned and how they have been agreed upon with local stakeholders.***

#### **5. Environmental Impact Assessment**

According to the CDM rules, all references to support documentation of an environmental impact assessment undertaken are required in accordance with the procedures as required by the host Party. However, the PDD states that *“The Environmental Impact Assessment (EIA) study is in progress to predict the possible environmental impacts due to construction and operation of the project activity, suggesting environmental remedies/safeguards and formulating an effective Environmental Mitigation Plan to ensure an environmentally sustainable development”* (PDD, section D.1, page 31). This clearly

states that the EIA has actually not yet been finalized which makes the Project activity ineligible until the EIA has been reported and presented. Without the EIA conclusions it is impossible to estimate the impact of the project's activity to nature habitats and human welfare and health. Furthermore, the PDD neither provides the exact size of the project activity nor any information about the surrounding area and neighborhoods. Since the EIA has not been finalized, it is not possible to know on which type of land the project activity will be constructed, e.g. whether it includes grazing land and agricultural land etc. Therefore we underline that due to the lack of EIA report and references the project has to be withdrawn from the CDM validation process.

In order to put local stakeholders in a position to make an independent judgment based on realities, it is essential that all supporting documents be made available, including the necessary translation into the language of the region.

***Therefore, the EIA should be finalized and after the local stakeholders meeting should be repeated.***

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For questions, contact [info@cdm-watch.org](mailto:info@cdm-watch.org)