

**Comments on the validation of
Thoothukudi Thermal Power Project, India
06 May 2011**

CDM Watch respectfully submits the following comment on the Project Design Document (PDD) for “Thoothukudi 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 to our analysis of the PDD, the Project “Thoothukudi 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. Environmental impact assessment
5. Social sustainability

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 11) the data provided is from year 2006-2009, which is not up-to-date. Since the PDD was not released for public comment until the beginning of April 2011, it should also have been updated to provide the most recent data available.
- According to the PDD, section B2, data of fuel consumption and electricity generation of recently constructed power plants area available (PDD, page 11). However, the information referred to in the PDD “Baseline Carbon Dioxide Emission Database Version 5.0” published by the Central Electricity Authority (CEA) is based outdated. Version 6.0 has already been published in March 2011, while the PDD was released for public comment in the beginning of April. In addition, the access-link in the PDD does not lead to the source of information referred.
- Not all plausible baseline scenarios and updated data are considered in the PDD: the PDD states (section B.4, page 13) that natural gas “[...] as a fuel has not been found as a viable alternative to the project proponent” due to limited supply and that “[...]the average price of gas is expected to increase by 44% by 2013-14 because of free market-priced gas dominating the supply mix”. While the PDD refers to data from “CRISIL published in June 2009”, newest figures from CRISIL¹ indicate that the share of LNG in overall supply of natural gas is expected to increase while domestic gas prices will remain low due to regulation leading to an average price scenario lower than the one indicated in the PDD. Likewise, newest data also released by CIRSIL in March 2011 reiterate this fact by specifying that gas will remain a

¹ <http://www.crisil.com/pdf/research/research-industry-information-report-natural-gas-contents.pdf>

preferred fuel even at escalated prices². Therefore, the PDD fails to provide both a comprehensive analysis and well-documented justification for rejecting natural gas as a plausible alternative. The PDD also fails to evaluate properly all sources of renewable energy, which is an evident omission in light of renewable energy developments in India. The PDD (section B.4, Alternative 4, page 14) states that “[...] the major obstacle for *renewable energy technologies is the comparably higher capital costs, [...] therefore; this alternative is not feasible for the project proponent.*” However, there is no detailed analysis provided of each renewable energy source.

- According to the analysis of import of electricity in India (section B.4, Alternative 5, page 14-15), the PDD provides data from 2007-2009 which is nearly 2 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 15).
- 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 through the following statement (PDD, section B.4, page 17): “*Alternative-2: 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.*” This implicitly indicates that the project proponent would implement the project in question without receiving CDM funding.

In addition to the above, we would like to refer the analysis conducted by CDM Watch and the Stanford Environmental Law Clinic in March 2010, which 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 subcritical coal technology is no longer baseline is evident. As early as 1999 the Government of India was advised to pursue supercritical coal plants due to their improved efficiency³; advice that they have incorporated into core government planning processes. For instance, the National Thermal Power Corporation is responsible for nearly 26 GW⁴ of the country’s 80 GW of coal fired capacity and is considering mandating supercritical coal technology for the 12th Five-Year Plan as over half of all capacity additions will be super critical technology⁵. 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 technology⁶. Finally, for the 13th Five-Year Plan, all new coal plants will be supercritical (Mathur, 2010)⁷.

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 during the 11th Plan itself. It is expected that supercritical units would constitute about 60 % of thermal capacity in the 12th Plan. For the 13th Plan, it is expected

² http://www.crisil.com/pdf/research/CRISIL-Research-cust-bulletin_mar11.pdf

³ http://www.egcf.ewg.apec.org/publications/proceedings/CleanerCoal/HaLong_2008/Day%20%20Session%203A%20-%20Pankaj%20Gupta%20Supercritical%20Technology%20in%20.pdf

⁴ http://www.ntpc.co.in/index.php?option=com_content&view=article&id=96&Itemid=175&lang=en

⁵ <http://prosperingindianpowersector.blogspot.com/2010/12/supercritical-tech-set-to-be-made.html>

⁶ http://www.powermin.nic.in/whats_new/pdf/ultra%20mega%20project.pdf

⁷ International Energy Agency 2011: Technology development prospects for the Indian power sector http://www.iea.org/papers/2011/technology_development_india.pdf

that the entire coal based capacity shall be based on supercritical technology⁸. 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 doubts 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 "Thoothukudi 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 a CDM project activity. The PDD sensitivity analysis is not robust to reasonable variations in the critical assumption because it only considers variations in coal prices by +/- 10 %. In fact, prices have fluctuated considerably in recent years.⁹ The PDD provides confusing data with an indicated price of 2219 INR/MT that merits clarification and a link to data source to prove accuracy of price. In case the mistake is due to a typing error (e.g. 219 INR/MT instead of 2219 INR/MT) the variations in coal prices are beyond +/- 10 % as mentioned before. 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.
- The PDD uses as a baseline emission factor corresponding to 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 order to 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:

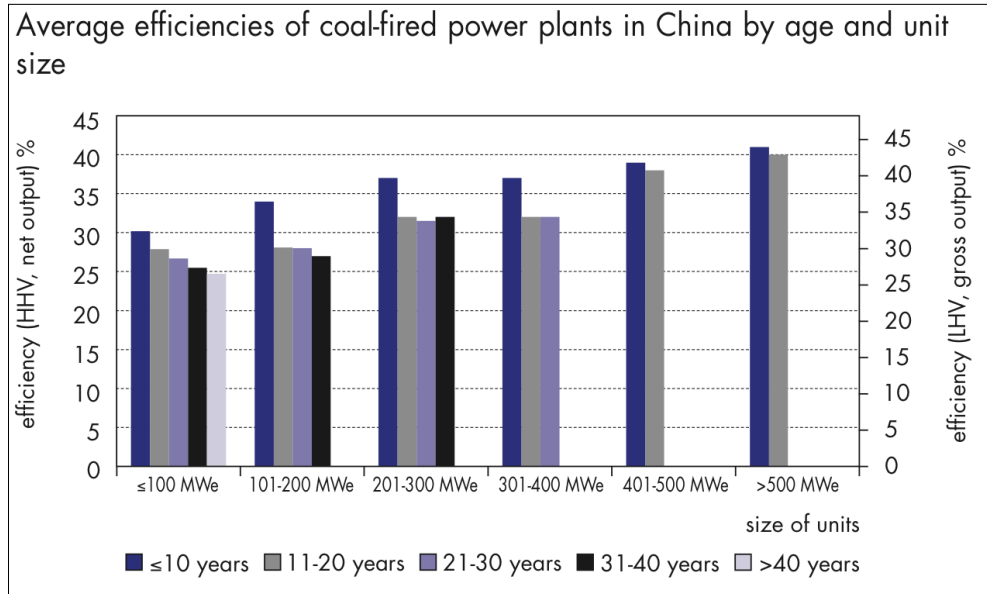
Technological innovation in the sector

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:

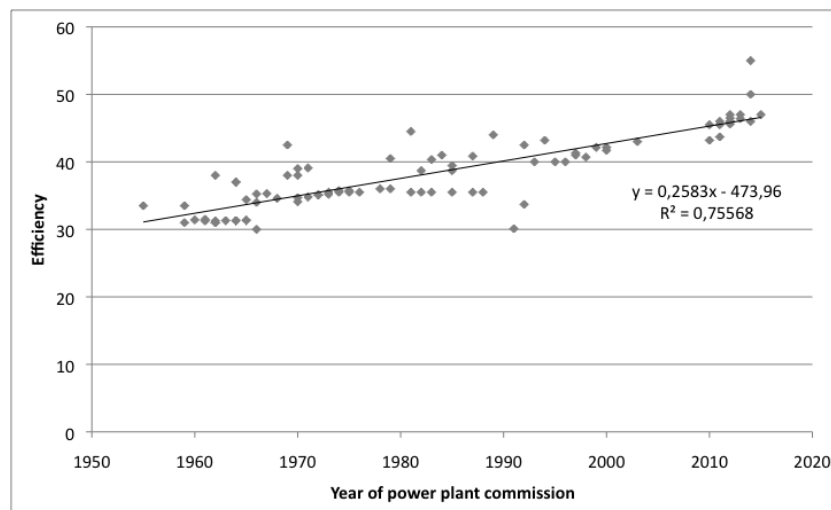
- The figure below from IEA (2008b, page 51) illustrates the efficiency improvements achieved in coal fired power plants in China. The figure shows that power plants between 100 and 400 MW, constructed in the last 10 years are 5-6% more efficient than power plants constructed in the ten years previously. 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.

⁸ Central Electricity Authority: http://www.cea.nic.in/more_upload/advisory_mop_sourcing_domestic_mfrs.pdf

⁹ http://money.sulekha.com/coal-india_weekly_stock-chart



- 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 CO₂ 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 the baseline efficiency improvement into account.

3. Public participation of civil society

The PDD does not meet the 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 highlight 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:

- Participants during the local stakeholder consultation process are not identified in a clear and transparent way. According to the Guidelines for completing the PDD¹⁰, *“Stakeholders mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity”* (p. 11). According to the PDD, participants of the local stakeholders' meeting included the Tamil Nadu Electricity Board, local people, the Tamil Nadu State Pollution Control Board, Gram Panchayat, employees of the company and contractors. However, the PDD fails to provide further information and details: (1) who the participants indicated as “local people” were; (2) what the process and priority of selecting stakeholders were; (3) the number of stakeholders that attended the meeting. CDM Watch considers this section insufficient and unclear as to the actual participation of potentially affected people in the meeting. In addition, the list of invited people includes employees, contractors and governmental servants; this reinforces the impression that only beneficiary parties participated in the consultation. The project proponent should therefore provide more transparent information as to who took part in the stakeholder meeting.
- The PDD provides insufficient information in terms of content and procedure as regards the invitation for the stakeholder consultation. According to Guidelines for completing the PDD *“An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. In this regard, project participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures”* (p. 23). The PDD states *“All the stakeholders/representatives were informed about the agenda, venue and date of the meeting through notices issued seven days prior to the meeting”* (section E.1, p. 31). However, the PDD fails to clarify: (1) how the stakeholders were informed about the consultation, e.g., email, post; (2) what information about the project and its various impacts, including documents distributed to stakeholders for review and comment, was provided to the stakeholders; (3) where the consultation took place as indicating *“The meeting was held at site office”* needs clarification. All mentioned above imply that the local stakeholder consultation process was not conducted in an inclusive manner. The PDD shall provide all necessary information in order to prove that the local stakeholder consultation was held according to CDM project guidelines.
- The summary of comments received is not valid and neglects public participation. The Guidelines for completing the PDD requires the project developer to *“identify stakeholders that have made comments and provide a summary of these comments”* (page 23). However, the PDD fails to meet this requirement because the submitted comment does not provide any comment apart from information given by VPPL, beneficiary side. We highlight that in the summary of the stakeholder meeting the information is copy-pasted from previous PDDs and does not address the meeting with local stakeholders arranged for the Thoothukudi Thermal Power Project. In the summary there is not a single question raised by local stakeholders, nor

¹⁰ http://cdm.unfccc.int/Reference/Documents/Guidel_Pdd/English/Guidelines_CDM_PDD_NMB_NMM.pdf

any person named, as well as there is no list of participants provided. The summary provides very general information about the project, GHG, Kyoto protocol and the CDM, which is unlikely to be the main discussion topic during the stakeholders' meeting. It is unlikely to believe that the project proponent did not receive any comments related to the project's influence on the employment situation, potential environmental and health impacts, etc. Much rather it is likely that the local stakeholder consultation has actually never taken place and affected local people have not been invited. Such superficial treatment of the stakeholder consultation process is not acceptable and undermines the credibility of the CDM as a whole. We urge the DOE to take this inadequate report of local stakeholder consultation into account seriously, since it neglects the involvement of the local community in the process in an inclusive and transparent manner.

- The PDD fails to report and prove the summary of questions raised. We would like to recall, that according to Guidelines for completing the PDD, it is necessary to *"explain how due account has been taken of comments received"* (page 23). Due to absence of comments received, the PDD does not provide any explanation how the comments received were considered. The statement *"VPPL management appreciated the confidence and happiness expressed by the local villagers about the project activity"* is not credible and does most probably not represent any actual comment received from the local stakeholders. The PDD mentions that *"A brief questionnaire was distributed during the stakeholder meeting. All the comments and feedback were collected and compiled"* (E.3, page 33). If so, it is unclear who received the questionnaire and how many participants replied to these questions. Consequently, the PDD should provide an example of the questionnaire and the comments made by stakeholders, as well as an explanation of how these comments have been taken into account. The statement *"There were no other comments other than the mentioned with respect to the project"* (section E.3, page 33) is likely to be untrue if we keep in mind that the project's activity is coal burning for 25 years. Moreover, the lack of environmental and social impact assessment comments further increases doubts over whether the meeting was held in reality and all interested parties had attended the meeting. Overall, it is evident that this part of PDD is copy-pasted from previous Indian PDDs and our analysis indicates a clear ineligibility and absence of qualitative and reliable stakeholder consultation. Therefore we encourage the DOE to suspend the project in the CDM validation process.

Based on the information provided in the PDD it is not credible that the local stakeholder consultation was carried out in an inclusive and transparent 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 has been carried out in an effective and trustful way.

4. Environmental impact assessment

According to the CDM rules and Guidelines for completing the PDD, all references to support documentation of an environmental impact assessment undertaken are required in accordance with the procedures as required by the host Party. Our analysis revealed two main reasons why the proposed project should not be validated as a CDM project:

- The Environmental Impact Assessment has not been realized yet. A footnote Nr. 22 of the PDD discloses that *"Environmental Impact Assessment is being carried out for the project"* (D.1, page 30). 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.
- The summary of management plan of environmental impacts during construction and operation phases does not contain sufficient information to afford a meaningful opportunity for

substantive public commentary. Because project's participants' failed to release their full EIA it is not possible to gauge the project's full potential environmental impacts. Furthermore, according to the applicable rules, the PDD must provide documentation for its analysis regarding environmental impacts. The PDD only includes a short summary chart, which is far from clear and impossible to check its plausibility, as well as there are not enough documented arguments provided to prove that all the measures would be taken to tackle negative environmental impacts of the power plant.

Therefore, the EIA should be finalized and presented for public commenting in an acceptable manner.

- Social sustainability

The PDD's claims to contribute to social sustainability are immeasurable. The PDD states that *"Vinateya 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 checkup centers for villagers etc."* (pages 3). We would like to draw your attention to the fact that the text is copy-pasted from previous Indian PDDs and that there is no activity mentioned in the monitoring plan of proposed expenditure, Annex 4, as the project proponent indicates. Therefore, the contribution to social sustainability is not credible and should be taken into consideration.

Furthermore, the PDD states that *"The proposed project activity of 2 x 660 MW involves huge investments in power generation and associated infrastructure. This will contribute to the economic growth of the region by generating various employment and business opportunities. This project activity will employ skilled labor and reduce unemployment"* (page 3). However, our careful investigation of the PDD shows that there is lack of specification of human resources in the whole PDD.

The PDD should state which concrete actions are planned and how they have been agreed upon with local stakeholders.

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For questions, contact info@cdm-watch.org