F-CDM-RtB

CDM: FORM FOR SUBMISSION OF "LETTER TO THE BOARD" (Version 01.1)

(To be used only by the Project Participants and other Stakeholders for submitting Letter to the Board as per Modalities and Procedures for Direct Communication with Stakeholders)

Name of the stakeholder[1] submitting this form (individual/organisation):	Prof Jon Gibbins
Address and Contact details of the individual submitting this Letter:	Address: University of Edinburgh, Edinburgh EH9 3JL, Scotland Telephone number: +44 7812 901244 E-mail Address: jon.gibbins@ed.ac.uk
Title/Subject (give a short title or specify the subject of your submission)	Communication in connection with issues identified in the consolidated methodology ACM0013
Please mention whether the Submitter of the Form is:	☐ Project participant ☒ Other Stakeholder, please specify Academic
Specify whether you want the Letter to be treated as confidential[2]):	☐ To be treated as confidential ☒ To be publicly available (UNFCCC CDM web site)

Purpose of the Letter to the Board:

Please use the space below to describe the purpose for submitting Letter to the Board.

(Please tick only one of the four types in each submission)

☐ **Type I:**

☐ **Request Clarification** ☐ **Revision of Existing Rules**

- ☐ Standards. Please specify reference
- ☐ Procedures. Please specify reference
- ☐ Guidance. Please specify reference
- ☐ Forms. Please specify reference
- ☐ Others. Please specify reference

☐ **Type II: Request for Introduction of New Rules**

☒ **Type III: Provision of Information and Suggestions on Policy Issues**

[1] Note that DNAs and DOEs shall not use this form to submit letter to the Board.

[2] Note that the Board may decide to make this Letter and the Response publicly available

Please use the space below to describe in detail the issue that needs to be clarified/revised or on which the response is requested from the Board as highlighted above. In doing this please describe the exact reference source including the version (if any).
>> Consolidated methodology ACM0013, "Consolidated baseline and monitoring methodology for new grid connected fossil fuel fired power plants using a less GHG intensive technology" – comments on baseline issues and addressing risk of carbon emission lock-in.

Please use the space below to any mention any suggestions or information that you want to provide to the Board. In doing this please describe the exact reference source including the version (if any).

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UNSOLICITED PUBLIC COMMUNICATION WITH THE CDM EXECUTIVE BOARD
in connection with issues identified in the consolidated methodology ACM0013, "Consolidated baseline and monitoring methodology for new grid connected fossil fuel fired power plants using a less GHG intensive technology".

Martin Hession
Chair of Executive Board of the Clean Development Mechanism

Dear Mr Hession,

I was invited to submit a tender to act as a consultant to the Methodology Panel in connection with the above methodology but, although interested in the issues this methodology raises, decided not to proceed and instead am making this communication in a personal capacity.

It appears that the methodology as currently defined would give results broadly consistent with the aims of the CDM provided that:

(a) the baseline determination period for existing plant performance data ends immediately before the period when the power plant seeking CDM credits first starts routine operation (this seems entirely feasible since performance data for the power plant seeking CDM credits will not be available for at least a year after that - it is reasonable to expect investors to be able to make the necessary estimate of likely best and worst case baselines to be included in their investment decision-making process, in the same way as other uncertainties, using data for power plants that are more advanced in their planning/construction as well as for operating power plants);

(b) power plants that are receiving or have applied for CDM support are included in the baseline determination.

The short time difference between the construction of power plants in the baseline group and the CDM applicant plant will minimise the risk of „business as usual' performance changes being rewarded. The inclusion of all power plants, including CDM support applicants and recipients, will ensure that sustained improvements have to be obtained and that only the leading plants which pioneer better efficiencies are rewarded. The latter is quite reasonable, since the technical and commercial risks for new technologies (including new in that market) reduce significantly after the first projects.

It might be considered that an alternative approach to the baseline determination could be based on power plant steam conditions, with the efficiency improvements from higher steam temperatures and/or pressures for a specific new power plant project on the same site as a „baseline' hypothetical plant with less advanced steam conditions being estimated using engineering calculations (see[1] for approximate guidance on this). This approach would not, however, take into account how well the new plant was subsequently maintained and operated, which would necessitate either the experimental determination of specific plant baseline performance emission values through testing the plant seeking CDM credits under „ideal' operating conditions or the estimation of benchmark „best practice' performance parameter values for plant with these characteristics using data from studies such as the one recently done by the IEA[1].

continued

[1] http://www.iea.org/ciab/papers/power_generation_from_coal.pdf

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The steam condition approach does allow for local site conditions to be taken into account, in particular local ambient temperature and humidity and the method of cooling (e.g. river or sea water, wet cooling tower or dry cooling tower). It would be a perverse consequence if power plants were encouraged to use wet cooling methods to obtain higher efficiencies and hence CDM credits when dry cooling would be more appropriate for water management in the region where that plant is located. A power plant using dry cooling could be achieving improvements in efficiency and hence emission reductions compared to a plant that would otherwise have been built and yet still have higher specific emissions than a baseline group of power plants that use wet cooling or, especially, that use direct seawater cooling.

One possible correction for the above problem could be to use plants with similar cooling arrangements in the baseline (or, if this is infeasible, to correct baseline plant performance using estimates of cooling method impact such as given in [1]). This could, however, also induce another perverse incentive not to locate plants on a site where better cooling would have been available or to use an extended water supply pipeline. It would, however, avoid a serious possibility of a power plant with better local cooling arrangements than the existing fleet (e.g. a new coastal unit burning imported coals vs. an inland fleet sited on indigenous coal fields) receiving CDM credits benefits for an efficiency improvement due to cooling benefits that would have been obtained anyway.

In summary, additional measures to address potential problems with cooling methods might include:

(i) the use only of plants with similar cooling methods and local ambient conditions in the baseline provided that it can be demonstrated that the use of better cooling methods in the CDM applicant plant location would not have been reasonable and that alternative CDM applicant plant locations with better cooling were also not reasonable alternatives;

(ii) if insufficient baseline plants are available and the plant satisfies other conditions in (i), the use of baseline plant performance data which has been adjusted for different cooling methods.

It also appears that there is some concern that granting CDM support for new coal power projects is encouraging a long term lock-in to emissions from those projects, which might have been avoided if non-fossil generation sources had been used instead. This specific issue has already been raised in the EU, where new fossil power plants projects are now generally expected to be built as „capture ready' (also referred to as „carbon capture and storage/sequestration ready')[2]. There is also at least one example in a developing country, South Africa, where it has been announced that a future power plant (Kusile) will be built capture ready[3]. Additionally, studies have been conducted on making new power plants in India capture ready[4].

The purpose of capture readiness is to improve the probability that carbon capture and storage (CCS) will be retrofitted to a power plant in the future. It does this by ensuring that no obvious barriers to CCS exist and that reasonable measures to avoid unnecessary costs if capture is subsequently retrofitted have been taken[5]. Importantly, making a plant capture ready also ensures that the plant owners, and probably also the regulators in the country in which it is sited, are more aware of CCS and have an interest in facilitating its future deployment.

continued

[2] E.g. for the UK http://www.decc.gov.uk/en/content/cms/meeting_energy/consents_planning/electricity/electricity.aspx

[3] http://www.southafrica.info/business/economy/infrastructure/eskomloan-300511.htm

[4] http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/tackling%20climate%20change/intl_strategy/dev_countries/india/co2-capture-ready.pdf

[5] http://www.iea.org/papers/2007/CO2_capture_ready_plants.pdf

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With carbon capture (and storage/sequestration) readiness (CCSR) now becoming established and accepted as best practice for new fossil fuel plants in developing as well as developed countries, and with a growing body of expertise on how to implement and assess capture readiness, it would be reasonable for the CDM Board to require that new power plant projects receiving CDM credits are designed and built to be CCSR. An accepted international definition for CCSR (based on detailed negotiation and intended to be appropriate for a range of jurisdictions) is given below[6].

Yours sincerely,

Jon Gibbins

Professor of Power Plant Engineering and Carbon Capture
School of Engineering, University of Edinburgh

[6] http://cdn.globalccsinstitute.com/sites/default/files/CCS%20Ready-Full-Report-Intl-Def.pdf

Proposed International Definition of CCS Ready

A CCS Ready plant is one that is Capture Ready, Transport Ready, and Storage Ready.

Capture Ready Plant

A CO_2 Capture Ready plant satisfies all or some of the following criteria:

1) Sited such that transport and storage of captured volumes are technically feasible;
2) Technically capable of being retrofitted for CO_2 capture using one or more reasonable choices of technology at an acceptable economic cost;
3) Adequate space allowance has been made for the future addition of CO_2 capture-related equipment, retrofit construction, and delivery to a CO_2 pipeline or other transportation system;
4) All required environmental, safety, and other approvals have been identified;
5) Public awareness and engagement activities related to potential future capture facilities have been performed;
6) Sources for equipment, materials, and services for future plant retrofit and capture operations have been identified; and
7) Capture Readiness is maintained or improved over time as documented in reports and records.

Transport Ready Plant

A CO_2 Transport Ready plant satisfies all or some of the following criteria:

1) Potential transport methods are technically capable of transporting captured CO_2 from the source(s) to geologic storage ready site(s) at an acceptable economic cost;
2) Transport routes are feasible, rights of way can be obtained, and any conflicting surface and subsurface land uses have been identified and/or resolved;
3) All required environmental, safety, and other approvals for transport have been identified;
4) Public awareness and engagement activities related to potential future transportation have been performed;
5) Sources for equipment, materials, and services for future transport operations have been identified; and
6) Transport Readiness is maintained or improved over time as documented in reports and records.

Storage Ready Plant

A CO_2 Storage Ready plant satisfies all or some of the following criteria:

1) One or more storage sites have been identified that are technically capable of, and commercially accessible for, geological storage of full volumes of captured CO_2, at an acceptable economic cost;
2) Adequate capacity, injectivity, and storage integrity have been shown to exist at the storage site(s);
3) Any conflicting surface and subsurface land uses at the storage site(s) have been identified and/or resolved;
4) All required environmental, safety, and other approvals have been identified;
5) Public awareness and engagement activities related to potential future storage have been performed;
6) Sources for equipment, materials, and services for future injection and storage operations have been identified; and
7) Storage Readiness is maintained or improved over time as documented in reports and records.

Note: "Economically acceptable" means that, during the operating life of the plant, a reasonable probability exists that the plant can be retrofitted and operated with CCS at a total cost comparable to the GHG mitigation costs borne by other plants in the jurisdiction. The plant's total cost for capture, transport, and storage would include costs for planning, construction capital, and operating costs, including the time value of money.

"Technically feasible" or "technically capable" means that technologies exist that can be applied to capture, transport and store a significant portion of the CO_2 emitted from the plant, while substantially preserving the original functionality of the plant.

If necessary, list attached files containing relevant information (if any)	• [replace this bracket with text, the field will expand automatically with size of text]
Section below to be filled in by UNFCCC secretariat	
Date when the form was received at UNFCCC secretariat	

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History of document

Version	Date	Nature of revision
01.1	09 August 2011	Editorial revision.
01	04 August 2011	Initial publication date.
Decision Class: Regulatory **Document Type**: Form **Business Function**: Governence		