

Operational Guidance for World Bank Group Staff

Criteria for Screening Coal Projects under the Strategic Framework for Development and Climate Change



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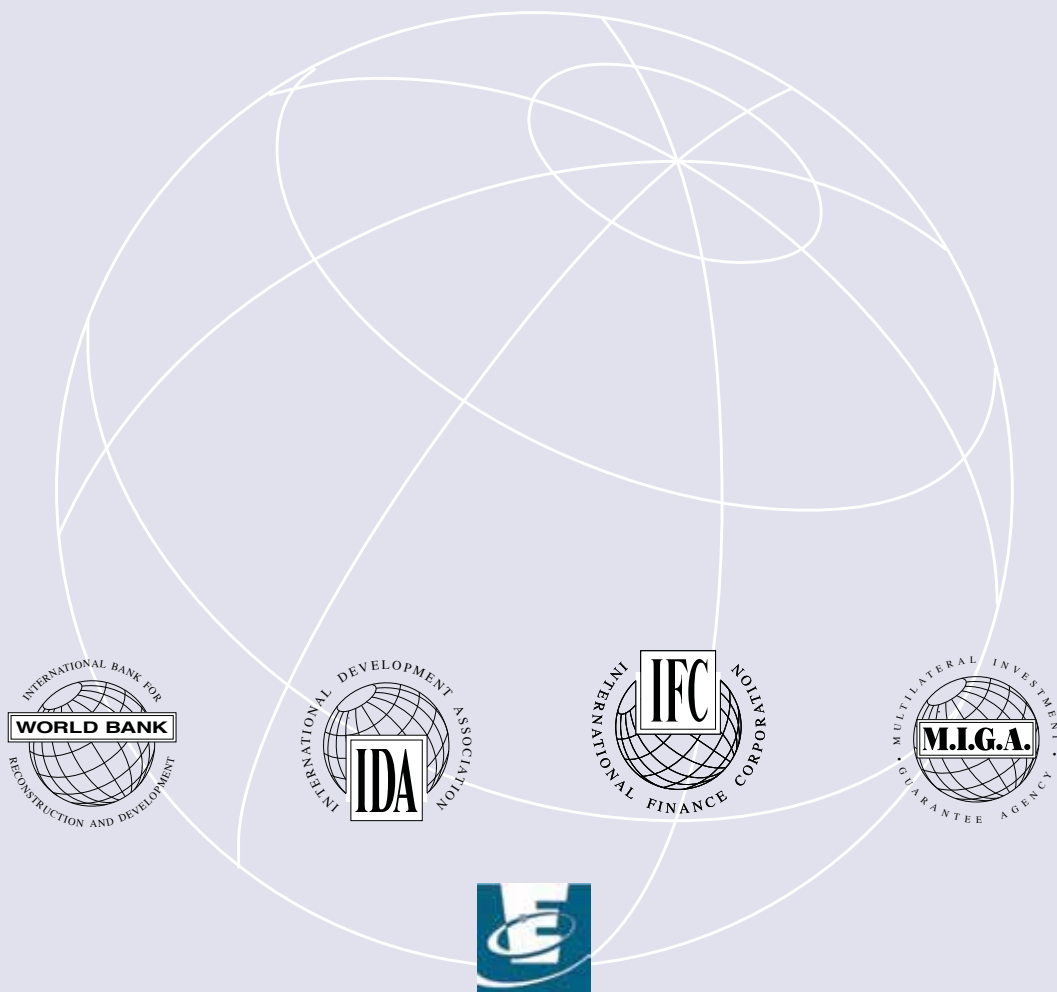
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ABBREVIATIONS & ACRONYMS

CO ₂	Carbon dioxide
DSM	Demand Side Management
EE	Energy Efficiency
GHG	Greenhouse gases
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
kWh	kilowatt hour
MD	Managing Directors
MIGA	Multilateral Investment Guarantee Agency
MW	megawatt
NO _x	Nitrogen oxides
PM	Particulate matter
RE	Renewable energy
RVP	Regional Vice Presidency
SDN VP	Sustainable Development Network Vice Presidency
SFDCC	Development and Climate Change: A Strategic Framework for the World Bank Group
SO _x	Sulfur oxides
WB	World Bank
WBG	World Bank Group

FOREWORD

The WBG receives requests to provide support to its developing partner countries through lending, guarantees, and non-lending technical assistance for projects related to coal-based power generation. The demand for this Guidance Note stems from the need to provide WBG staff with operational directions to mainstream the decision-making process regarding coal-based power generation projects. This Guidance Note describes a set of monitoring indicators and proposes how they can be used to assess WBG support for coal-based power projects under the *Development and Climate Change: A Strategic Framework for the World Bank Group*, which was endorsed by the Development Committee in October 2008.



Jamal Saghir

Director, Energy, Transport, and Water
Chairman, Energy and Mining Sector Board
Sustainable Development Vice Presidency

1. CONTEXT & BACKGROUND

Access to reliable, affordable, and sustainable energy services is critical to economic growth, poverty reduction, and the achievement of the Millennium Development Goals. A key priority for the WBG is assisting partner countries in balancing growth imperatives and climate change concerns through improving and enhancing reliable access to energy services while constraining the impact of global and local emissions.

The “Development and Climate Change: A Strategic Framework for the World Bank Group” (SFDCC) defines the WBG policy on the issue of development and climate change. Fossil fuels, including coal, will continue to play an important role in the primary-energy mix of developing countries. With respect to the WBG’s support for coal-based power generation projects, the SFDCC states: “Reflecting the importance of coal for electricity generation in many developing countries, the WBG could support client countries in developing new coal power projects based on the most appropriate technology and analysis of alternatives.” The SFDCC also recognizes the important role of the WBG in working with “donors to secure grant financing to identify and introduce emerging technologies, including new renewable technologies and carbon capture and storage for oil and coal applications in interested client countries.”

The SFDCC outlines broad criteria under which the WBG could support its partner countries in developing coal-based power generation projects. The criteria are defined as follows:

1. There is a demonstrated developmental impact of the project, including improving overall energy security, reducing power shortage or increasing access for the poor;
2. Assistance is being provided to identify and prepare low carbon projects;
3. Energy sources are optimized, looking at the possibility of meeting the country’s needs through energy efficiency (both supply and demand) and conservation;
4. After full consideration of viable alternatives to the least cost (including environmental externalities) options, and when the additional financing from donors for their incremental cost is not available;
5. Coal projects will be designed to use the best appropriate available technology to allow for high efficiency and, therefore, lower GHG emissions intensity;¹ and
6. An approach to incorporate environmental externalities in project analysis will be developed.

¹ For additional technical guidance, please refer to the World Bank Group Environmental, Health, and Safety Guidelines. Both the General

2. OPERATIONALIZATION OF SFDCC SCREENING CRITERIA

The overall objective of this Guidance Note is to define more precisely the SFDCC criteria, by quantifying, where applicable, monitoring indicators to make these criteria operational. The expected outcome is to facilitate the decision-making process at an early stage of project preparation, ensuring that WBG-supported interventions are consistent with the SFDCC requirements.

The scope of this Guidance Note focuses on coal-based thermal power generation projects and programs targeted for development of new electricity production facilities, associated transmission infrastructure for power evacuation, and rehabilitation and modernization of existing coal power plants. The latter project category will be excluded from complying with Criteria #2 and #5, in cases where rehabilitation projects result in reduction in lifecycle GHG emissions relative to the relevant counterfactual defined by the team (depending, *inter alia*, on the expected increase in efficiency and increase in power generating additional capacity). Upstream activities such as coal mining and processing would be subject to the present Guidance Note if they are developed for the purposes of supplying fuel feed stock for specified

coal-based power generation facilities either domestically or abroad.

This Guidance Note is for projects planned for financing by the International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency (MIGA). Project Concept Notes (in the case of the IBRD and IDA), or Summaries of Proposed Investments (in the case of IFC), or Definitive Applications (in the case of MIGA) will be subject to compliance with the Guidance requirements starting April 15, 2010.

Given the variety and complexity of country and project circumstances, this Guidance Note cannot provide answers or detailed recommendations to the individual challenges that staff will face. It is expected to rather provide the basic principles guiding the application of the six criteria, translating the SFDCC's requirements into specific indicators to undertake technical analysis and quantify the expected impact through the development of a set of monitoring indicators.

3. EXTERNAL PANEL OF EXPERTS

To ensure the quality of compliance with the screening criteria, an External Panel of Experts would be engaged at an early stage of the project preparation. For each project, which is subject to compliance with the criteria, different External Panel members will be selected to ensure appropriate regional representation. Based on the roster of experts prepared by the Sustainable Development Vice Presidency (SDNVP), in consultation with the operational departments of WB, IFC, and MIGA, panel members will be selected. The External Panel will include three experts in the fields of power systems planning and economics, energy policy including evaluations of low carbon options for the energy sector, and power technologies. One of the members would be appointed as the Panel Chair.

The Terms of the External Panel of Experts along with the names and resumés of the Panel members will

be available on the WB website. The final report goes to the SDNVP, with copies to the Regional Vice Presidency/Managing Directors (RVP/MD) for the World Bank, or as applicable to the IFC and MIGA, to Executive Vice Presidencies, as input to their respective decision-making processes. The final Expert Panel report will be posted on the WBG website as soon as submitted.

In the event that the Expert Panel has reservations about how some criteria have been applied, it would provide practical and viable alternatives that are consistent with the objectives of the SFDCC. The expected deliverable of the Expert Panel will be a concise (10-15 page) report containing the findings and recommendations of the assessment. The expected duration of the assignment for the Expert Panel is limited in time (and should not exceed one calendar year).

SFDCC's Criteria for Screening Coal-Based Power Projects

CRITERIA	IMPACTS	SET OF MONITORING INDICATORS	KEY ASSUMPTIONS
1. There is demonstrated developmental impact of the project including improving overall energy security, reducing power shortage, or increasing access for the poor	Significant increase in access to electricity and/or reliability of power supply for sustained economic growth and poverty reduction.	<p>Depending on the country and project specific context either or both of the following monitor indicators shall be presented:</p> <ul style="list-style-type: none"> • Expected Increase in Access to electricity for the national and sub-national population from the baseline value of [specify value and year] by [specify percentage or value and year] • Expected Improvement in System Reliability: <ul style="list-style-type: none"> (i) resource and demand balancing— increased power-generating capacity and reserve margins to reduce/avoid shortages and blackouts; (ii) enhanced voltage control and reduced reactive power demand; (iii) avoided transmission congestion. From the baseline value of [specify value and year] by [specify percentage or value and year] 	<ul style="list-style-type: none"> • Stable macroeconomic situation and energy demand • Timely project commissioning • Timely implementation of associated energy infrastructure facilities

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SFDCC's Criteria for Screening Coal-Based Power Projects (continued)

CRITERIA	IMPACTS	SET OF MONITORING INDICATORS	KEY ASSUMPTIONS
<p>2. Assistance is being provided to identify and prepare low-carbon projects</p>	<p>Identification and possible support to Renewable Energy (RE), Energy Efficiency (EE) and other low carbon interventions, projects and policies, and identification of associated reductions in GHG emissions, exploiting the synergies between Bank/IFC/MIGA policy dialogue and action plans.</p>	<p>Depending on the availability of low carbon studies and/or national strategies for promoting renewable energy/energy efficiency (RE/EE) and other low carbon interventions, the following monitor indicators shall be presented:</p> <ul style="list-style-type: none"> • In the case low carbon studies and/or policies, and/or national strategies for promoting RE/EE and other low-carbon interventions are not available: • Technical Assistance to help prepare studies and/or policies is being provided either through the inclusion in the scope of the project or supported by other sources, including country's own and/or donors [specify year of study start and completion and key objectives of the studies] • In the case low-carbon studies for RE/EE and other low carbon interventions have already been prepared: <ul style="list-style-type: none"> • Technical Assistance to help develop and design a pipeline of bankable RE/EE projects and other lower carbon interventions suitable in the country context is being provided through the inclusion in the scope of the project or supported by other sources, including countries' own and/or donors [specify year of study completion; expected power generating capacity (MW) and GHG emission reduction estimates]. If specific country conditions allow for parallel engagement of several donors, the Bank's support of the preparation of bankable projects needs to be incremental to the efforts of other donors or national governments. [specify contribution and objectives of the Bank's supported Technical Assistance] 	<ul style="list-style-type: none"> • Stable macroeconomic situation and energy demand • Adequate institutional capacity to carry out studies and implement RE/EE and other low carbon projects

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SFDCC's Criteria for Screening Coal-Based Power Projects *(continued)*

CRITERIA	IMPACTS	SET OF MONITORING INDICATORS	KEY ASSUMPTIONS
<p>2. (continued) Assistance is being provided to identify and prepare low-carbon projects</p>		<ul style="list-style-type: none"> • In the case low carbon studies and projects design and/or national strategies for promoting RE/EE and other low carbon interventions have already been prepared: <ul style="list-style-type: none"> • Support the financing of bankable projects in RE/EE and other low carbon interventions and/or implementation of policy recommendations as part of the scope of the project and/or to ensure that access to finance for these projects is available from other sources including countries' own and/or donors [specify policy/regulation and year of implementation], [for projects: specific value by year if development decisions have been made] [for all: GHG emissions reduction estimates]. If the defined pipeline of bankable projects or a policy implementation action plan allows for parallel engagement of several donors, the Bank's financing of RE/EE or other low carbon interventions needs to be incremental to the efforts of other donors and national governments. [specify incremental financing provided by the Bank in addition to the already available finance] 	

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SFDCC's Criteria for Screening Coal-Based Power Projects *(continued)*

CRITERIA	IMPACTS	SET OF MONITORING INDICATORS	KEY ASSUMPTIONS
<p>3. Energy sources are optimized looking at the possibility of meeting the country's needs through energy efficiency (both supply and demand) and conservation</p>	<p>Evaluation of existing plans on future energy requirements by incorporating energy efficiency (both demand and supply) and energy conservation interventions and quantifying their impacts. If not satisfactory, help in their establishment and implementation to facilitate a full cost economic comparison of supply and demand resources to meet energy needs capitalizing on the synergies between Bank/IFC/MIGA policy dialogue and action plans.</p>	<p>Depending on the availability of EE studies, the following monitor indicators shall be presented:</p> <ul style="list-style-type: none"> • In the case where energy efficiency studies have already been prepared: <ul style="list-style-type: none"> • Specify reduced energy consumption that would allow to avoid/delay the planned increase in power generating capacity addition from the national or sub-national baseline value of [specify value and year] by [specify percentage or value and year] • Define associated policies and regulations necessary for the above interventions to be made effective, including for pricing strategies (increased cost recovery from tariffs and enhanced collections, targeting of energy subsidies or other methods, including minimum efficiency standards): [specify specific policy and regulatory actions and implementation year] • In the case where EE studies are not available, support the preparation of energy efficiency studies and their implementation, assess the potential savings generated from the following: <ul style="list-style-type: none"> • Supply side incentives: Reduction of losses in generation and/or transmission and distribution that would allow to avoid/delay the power generating capacity additions from the baseline value of [specify value and year] by [specify percentage and year]. • Demand side incentives: Demand side management (DSM) programs to reduce electricity consumption that would allow to avoid/delay the power generating capacity additions from the baseline value of [specify value MW and year] by [specify percentage and year]. 	<ul style="list-style-type: none"> • Adequate government commitment to implementation of energy efficiency programs, including policies and regulation. • Adequate institutional capacity to implement, supervise and monitor programs.

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SFDCC's Criteria for Screening Coal-Based Power Projects *(continued)*

CRITERIA	IMPACTS	SET OF MONITORING INDICATORS	KEY ASSUMPTIONS
<p>4. After full consideration of viable alternatives to the least cost (including environmental externalities) options and when additional financing from donors for their incremental cost is not available</p>	<p>Project is confirmed to be the least cost after full consideration of alternatives and inclusion of environmental externalities in the analysis.</p> <p>In case other options are economically viable, availability of additional financing from donors to cover incremental costs, have been actively pursued and assessed (but ultimately does not materialize).</p>	<ul style="list-style-type: none"> • Least cost analysis <ul style="list-style-type: none"> • Quantify environmental externalities [specify variables] – see also criterion #6 below • Project is least cost after full consideration of alternatives and after factoring in environmental externalities costs [yes, no] • Assessment of incremental costs of alternative options (with and without environmental externalities) [alternatives and associated costs] • Evaluation of switching prices between the proposed project and alternative low carbon options [switching price expressed in US\$/ton CO₂] • Incremental Financing <ul style="list-style-type: none"> • Identification and evaluation of external funding sources to meet the incremental financial cost gap between the proposed project and a lower carbon alternative; and explanation of steps undertaken to access sources, including carbon market, GEF, CTFs, and bilateral donors, etc. [contacted financial organizations] 	<ul style="list-style-type: none"> • Assessment of alternative projects at the same level of preparation and information • Availability of incremental financing for low carbon alternatives • Test the robustness of the proposed project to alternative scenarios (DSM projects, impacts of energy conservation and efficiency, fuel prices, etc.)
<p>5. Coal projects will be designed to use the best, appropriate available technology to allow for high efficiency and therefore lower GHG emissions intensity</p>	<p>Assessment of the appropriateness of the selected technology option, factoring in specific system constraints and size requirements, technical, local environmental situation, commercial availability of technology, and environmental performance.</p>	<ul style="list-style-type: none"> • Analysis of Alternative Technology Options: Assessment of alternative technology options including a justification for their rejection based on technical, efficiency, and environmental considerations [reasons for discarding alternative technologies, specifying to the extent possible not only a relevant generation technology but also specific efficiency criteria within a given technology] • Extension to Regional Analysis: Assessment of regional considerations for the technology choice² [do results change if regional considerations are included?] [If yes, can a regional approach be adopted – yes, no, why?] 	<ul style="list-style-type: none"> • Technology uncertainty • Test the robustness of the proposed technology to alternative scenarios (including, but not limited to alternative demand projections, more stringent environmental requirements, and extension to regional pool or trade options)
<p>6. An approach to incorporate environmental externalities in project analysis will be developed</p>	<p>Develop a methodology for assessment of net local (SO_x, NO_x and PM) and GHG emissions at the project level. Such methodologies will be included in the analysis of alternatives and least cost options in Criterion 4 above.</p>	<p>Quantification of local and global GHG emissions reduction and corresponding switching prices between the proposed project and alternative low-carbon options.</p> <p>Net emissions (SO_x, NO_x, PM and GHG) reduced from the baseline value of [specify percentage and year] and [associated switching price expressed in US\$/ton CO₂]</p>	<ul style="list-style-type: none"> • Uncertain switching prices might require sensitivity analysis

² The technology selection should also account for possible regional electricity supply options. For example, a bigger unit size allowing for the application of a more efficient steam cycle (supercritical and ultra-supercritical) might be considered if there is a possibility to export power either to a regional pool or neighboring countries.



THE WORLD BANK



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