

**Joint World Bank Group/African Development Bank
Clean Technology Fund Investment Plan Mission
August 24-28, 2009**

Draft Aide Memoire

Introduction

1. A joint World Bank Group (IBRD and IFC) and African Development Bank (ADB) mission visited South Africa from August 24-28, 2009 to support the Government to finalize the preparation of its Clean Technology Fund (CTF) Investment Plan. This mission is a follow up to the March 2009 scoping mission. The mission comprised the following persons: Herbert Acquay, Rohit Khanna, Reynold Duncan, Juan Gaviria, Jean-Christophe Carret, and Grayson Heffner (World Bank); Desnei Leaf-Camp (IFC); and Yogesh Vyas and Obiora Okoye (ADB).

2. The specific objectives of this mission were to: (a) reach initial agreement with Government on its strategic priorities for CTF co-financing, the specific pipeline of projects to be included in the Investment Plan, and the indicative allocation of CTF funding to the projects; (b) identify information/data needed to complete the CTF Investment Plan; and (c) reach agreement among the Government, World Bank, IFC, and ADB on the schedule, roles and responsibilities in finalizing the CTF Investment Plan for submission to the CTF Trust Fund Committee for its review on October 27, 2009.

3. The mission is grateful for the excellent cooperation it received from the Government officials and staff of relevant institutions it met (see Annex 1 for the list of persons the mission met). This draft aide memoire summarizes the main findings and agreements reached during the mission and they are subject to confirmation by the National Treasury (on behalf of the Government of South Africa) and the Managements of the World Bank and the ADB. They were discussed at a wrap-up meeting on August 28, 2009, which was chaired by xxx, National Treasury.

Summary of the Mission's Findings and Agreements

4. Strategic use of CTF financing: CTF funds would be used to support the Government's goal of significantly reducing greenhouse gas emissions, as outlined in its Long-term Mitigation Scenario, including: (a) generating 4% of the country's electricity requirements (about 10,000 GWh) from renewable energy by 2013; (b) improving energy efficiency by 12% by 2015; and shifting modes in the transport sector, including from private to public modes for passengers (with a potential GHG reduction of 469 million tons of CO₂ equivalent between 2003-2050), and from road to rail for freight.

5. Structure of the Investment Plan: The plan would comprise of two phases. Phase 1 would include projects that would be ready for implementation within the next 12-18 months and it would have an indicative total CTF allocation of US\$500 million. Other eligible projects that may not be ready during this time period would be slated for Phase 2 of the Investment Plan, subject to the availability of additional CTF funds.

6. Priority projects: A list of potential projects was developed during the March 2009 mission and additional priorities were submitted by the Government as part of its response to the mission’s aide memoire. The following projects were prioritized for Phase 1 CTF co-financing during this mission, based on World Bank, IFC, and ADB country programs and pipeline of projects to blend with CTF, readiness of the technology for commercial deployment, and the existence of enabling policies.

IBRD

7. IBRD/CTF would co-finance the low carbon component of the proposed Eskom Investment Support Project. This component would comprise the following sub-components – Concentrating Solar Power (CSP) and wind energy. Interventions related to wind power would include transmission infrastructure to facilitate private sector participation. Detailed national institutional and project implementation arrangements, including the role of the private sector would be developed during further project preparation.

IFC

8. IFC/CTF financing through lines of credit to local banks for private sector–led renewable energy (including solar, wind, and biomass) and energy efficiency projects, as well as support to municipalities and private sector for South Africa’s solar water heating scale-up objectives.

ADB

9. ADB/CTF would co-finance with CTF and the World Bank the Eskom CSP and wind projects. It would also co-finance with CTF private sector-led renewable energy and energy efficiency projects. Specific details on interventions to be financed by the World Bank and ADB respectively in the Eskom project would be developed during project preparation.

10. Financing Plan: Table 1 presents a summary of the indicative financing plan for energy and transport sector projects, which would be co-financed with CTF and other development partners (notional amounts, to be confirmed) as well as projects that would be fully financed by IBRD and ADB.

**Table 1: Indicative Financing Plan for Phase 1 Energy and Transport Sector Projects
(in US\$ millions)**

Project	CTF				ADB	IBRD	EIB	KfW	Afd	Total
	IBRD	ADB	IFC	ADB (private sector)						
CSP	200	50	-	-	50	150	50	100	-	600
Wind	50	50	-	-	50	110	-	-	140	400
Renewable energy/energy efficiency/SWH	-	-	75	75	-	-	50	-	150	350
Majuba Rail	-	-	-	-	75	450	-	-	-	525
Total	250	100	75	75	175	710	100	100	290	1,875

11. The following Phase 2 projects are not expected to be ready for implementation within the next 12-18 months because of lack of World Bank, IFC, and ADB pipeline of projects to blend with CTF, readiness of the technology for commercial deployment, and/or the enabling policies are currently under development.

- Bus rapid transit
- Electric car
- Road-to-rail

12. Next steps

- Confirmation of the findings and agreements of the mission by the National Treasury and the Managements of the World Bank Group and ADB by 2 September 2009.
- Draft Investment Plan submitted by the World Bank and ADB to National Treasury by September 7, 2009.
- Government of South Africa comments on draft Investment Plan, September 14, 2009.
- World Bank Operations Committee Review, September 21, 2009.
- Final draft of Investment Plan submitted by the World Bank and ADB to National Treasury, September 23, 2009.
- Government of South Africa will inform the World Bank and ADB of government endorsement of submission by October 2, 2009.
- Submission of the Investment Plan to the CTF Committee for approval by the World Bank and ADB by October 5, 2009.

Details on the Priority Projects

13. Concentrating Solar Power (CSP): The Upington Concentrating Solar Power (CSP) plant is a 540 MW_t tower and mirror design which is configured to operate as a base load unit. Utilizing molten salt as a thermal circulating fluid and storage medium allows this design to achieve a 60-65 % annual load factor with a rated capacity of 100 MW_e. About 60 % of the component value can be sourced locally. Total cost including site preparation and interconnection is 6.5 Billion Rand, or \$8,000/kWh. Although a plant this large has not yet been constructed, Eskom has obtained warranties from each of the proposed major component suppliers.

14. However, there remains substantial risk regarding capital cost (± 25 %), performance as measured by annual kWh output (± 20 %), construction time, and operating and maintenance costs (± 25 %). This project has not yet been approved by the Eskom Board, which has requested a final design review and risk mitigation exercise before proceeding. A CTF grant request for such a review will be submitted with the Investment Plan. The estimated avoided GHG emissions resulting from an annual energy production of 516 GWh is 0.45 million tons of CO₂/year. The barriers of high capital cost and high risk involved in constructing and operating this first-of-its-kind power plant, as well as the strong replication potential, make this CSP

project a strong candidate for CTF concessional lending. The CTF could be used to buy down the initial cost and/or to mitigate specific risks through a cost over-run or performance guarantee.

15. Wind energy: The Western Cape Province Wind Energy Facility is about 160 km north of Cape Town near the town of Skapvlei. The site will accommodate up to 500 MW, but the first phase consists of a 100 MW wind farm comprising a variety of 1.5-2.5 MW (Class 2A) wind turbines. An EIA has already been concluded and an approval issued. The site has a “moderate” wind resource, which means a load factor of 25-30% is likely and it is near a 66 kV sub-transmission line. The project is fully scoped with an estimated direct cost of 2.2 Billion Rand or \$300 million, equivalent to \$3,000/kW.

16. There is relatively little project risk because the technology is well-proven and commercially available from multiple suppliers. Performance risk (e.g., annual output) remains despite intensive wind measurement, as is the case with any wind project. The potential GHG emissions reduction from construction and operation of this plant is 0.24 million tons/year based on annual output of 271 GWh. The major barriers to scaling-up this technology for South Africa are lack of proven performance results for grid connected wind power in South Africa, high initial costs, and performance risk. These barriers make this initial large-scale wind farm a good candidate for CTF concessional lending. The CTF financing could be used to buy down the initial cost of the plant and/or to provide a performance guarantee.

17. Private Sector-led Energy efficiency and renewable energy projects: ADB and IFC intend to pursue three private sector-led areas of intervention – renewable energy (such as wind, solar, biomass), energy efficiency including cogeneration, and solar water heating. The mission’s initial assessment is that the wind market is about 400 MW in the first phase. Whilst developers have responded positively to the recently announced tariffs from NERSA, developers also expressed concerns relating to: (a) size of the market due to uncertainty about allocations for different technologies; (b) process for power purchase agreements; and (c) grid extension. These barriers suggest the need for non-market based financing for those entering the market to buy down the additional risks of cost overruns and operating performance associated with being the first mover in the market.

18. With respect to energy efficiency, the projects could provide financial incentives or risk products to market leaders to encourage them to implement new low carbon technologies and establish new standards and benchmarks for such technologies. ADB is also in talks with private sector developers with interest in developing about 120 MW Cogen projects.

19. These activities will be supported with \$150 million in CTF lending matched by ____ in ADB and IFC lending. These two MDBs could possibly join with the French Development Agency (Afd), which has tentatively agreed to provide another \$150 million in the form of credit lines to commercial banks (such as ABSA and NedBank) for on-lending to energy efficiency and renewable energy project developers and direct funding to solar water heating projects working with municipalities and the Energy Development Corporation within CEF.

Annex 1: List of Persons the Mission Met.

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