Terminal Evaluation

Pakistan Wind Energy Project (WEP)

"Sustainable Development of Utility Scale Wind Power Production"

Government of Pakistan
United Nations Development Programme
Global Environment Facility

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Contents

List of Abbreviations iv
Executive Summary v
Standard Project Identification and Financial Data ix

1. Evaluation Methodology 1
- Purpose of terminal evaluation 1
- Audience of terminal evaluation 1
- Focus of terminal evaluation 1
- Content of analysis 3
- Method of gathering data and information 4
- Method of analysis and methodological shortcomings 5

2. Background, Baseline versus Present Situation, and Short-Term Forecast 6
- **2-1. Project Background** 6
- **2-2. Background on Pakistan's Power Sector and External Environment** 8
  - Pakistan's Power Sector 8
  - Key Government Agencies Involved in Pakistan's Power Sector 9
  - External Environment 10
- **2-3. Baseline Situation of Wind Sector versus Present Situation** 11
- **2-4. Short-Term Forecast** 13

3. Objective Level Analysis and Overall Assessment of the Project 14
- **3-1. Objective Level Analysis: Was the goal achieved?** 14
- **3-2. Overall Thoughts and Cross Cutting Findings** 14

4. Outcome Level Analysis 16
- **4-1. Wind Resources Program - Outcome Level Analysis** 16
  - 4-1-1. Raised capacity of PMD in wind resource assessment 16
  - 4-1-2. Raised capacity of AEDB in wind resource assessment 17

4-1-3. Increased availability of bankable wind data **17**
4-1-4. Increased capacity of investors in wind resource analysis **18**
4-1-5. Wind Resource Program overall **19**

4-2. Policy and Tariff Program - Outcome Level Analysis **20**
4-2-1. Increased capacity of NEPRA with regard to wind **20**
4-2-2. More attractive tariff policy for wind **21**
4-2-3. Established protocols for grid integration of wind **21**
4-2-4. Effective EIA framework for wind farms and capacity of regulators to assess EIAs **22**
4-2-5. Other renewable energy policy improvements achieved **22**
4-2-6. Revised grid code **23**
4-2-7. Increased NTDC capacity to assess feasibility of grid connection for wind **23**
4-2-8. Policy and Tariff Program overall **24**

4-3. Finance Program - Outcome Level Analysis **26**
4-3-1. Increased understanding by IPPs on preparation of financial documents **26**
4-3-2. Increased involvement of financial institutions in renewable energy **26**
4-3-3. Revised CDM policies and increased knowledge of CDM among investors **27**
4-3-4. Establishment of public sector renewable energy fund **28**
4-3-5. Finance Program overall **28**

4-4. Capacity Building and Knowledge Transfer Program - Outcome Level Analysis **29**
4-4-1. AEDB effectively meets the needs of wind farm investors **30**
4-4-2. Increased potential for local manufacturing and services related to wind **30**
4-4-3. Incorporation of renewable energy training into curriculum of vocational and academic institutions **31**
4-4-4. Capacity Building and Knowledge Transfer Program overall **32**

4-5. Off-grid Program – Outcome Level Analysis **34**
4-5-1. Favorable groundwork laid for increased activity in remote off-grid systems **34**
4-5-2. Pilot off-grid hybrid system that can serve as a model **35**
4-5-3. Off-grid Program Overall **36**

4-6. Overall Assessment of Outcomes **36**

5. Output Level Analysis and Exit Strategy **36**
5-1.Output Level Analysis **37**
5-2. Issues of Delays and Exit Strategy **39**
5-2-1. Reasons for Delays across Project Activities **40**
5-2-2. The Masts – Reasons for Delays and Exit Strategy **41**
5-2-3. Off-Grid System – Reasons for Delays and Exit Strategy **44**

6. Project Budget and Cost Effectiveness **46**

7. Processes and Monitoring and Evaluation System **48**
7-1. Processes Affecting Attainment of Project Results **48**
7-2. Monitoring and Evaluation **49**

8. Project Ratings **49**

9. Lessons Learned and Recommendations for Future Projects **52**
Building on project strengths **52**
Stakeholder involvement – lessons learned **54**
Project delays – lessons learned **54**
Project design and changes to project activities – lessons learned **56**
Budget – lessons learned **57**
Stakeholder recommendations not included above **57**

Annex 1. Documents and Other Materials Reviewed **A-1**
Annex 2. Additional Materials on Forecast **A-3**
Annex 3. Processes and Monitoring and Evaluation **A-4**
Annex 4. TOR for the Final Evaluation **A-8**
Annex 5. Management Response Matrix **A-23**

List of Abbreviations

ADB	Asian Development Bank
AEDB	Alternative Energy Development Board
CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
CPPA	Central Power Procurement Agency (under the management of NTDC)
CTA	Chief Technical Advisor
DISCOs	power distribution companies
EAD	Economic Affairs Division of the Government of Pakistan
EIA	environmental impact assessment
EPC	engineering, procurement, and construction
GEF	Global Environment Facility
GHG	Greenhouse Gases
GoP	Government of Pakistan
GW	Gigawatts (1,000 Megawatts)
IPP	Independent Power Producer
M&E	monitoring and evaluation
MW	Megawatts
NEPRA	National Electric Power Regulatory Authority
NREL	National Renewable Energy Laboratories (US-based)
NTDC	National Transmission Distribution Company
PCRET	Pakistan Council for Renewable Energy Technologies
PIR	Project Implementation Review
PMU	Project Management Unit
PMD	Pakistan Meteorological Department
PPI	Power Planning International
PPIB	Private Power and Infrastructure Board
PSC	Project Steering Committee
UET	University of Engineering and Technology
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority
WEP	UNDP-GEF Pakistan Wind Energy Project

Executive Summary

- **The project**: Launched in Nov. 2006, the UNDP-GEF Pakistan Wind Energy Project has the objective of avoiding CO_2 emissions through deployment of grid-connected wind power. It aimed to achieve this by creating an enabling environment for private-sector investment in wind power. The project was extended twice from its initial two-year timeline. The current closing date is Aug. 31, 2011. The budget consists of $3.1 million in GEF grant and $720,000 government in-kind. The project consists of five programs: (1) Wind Resource Assessment, (2) Policy and Tariff, (3) Finance, (4) Capacity Building and Knowledge Transfer, and (5) Off-grid.
- **Evaluation purpose:** The purpose of the evaluation is two-fold: (1) transparency of project's achievements and shortcomings and (2) lessons learned for future projects.
- **Evaluation methodology**: Following document review, a team of two consultants, facilitated by UNDP, conducted 24 face-to-face interviews with a variety of investors, government officials, and other stakeholders. Focus of interviews and subsequent analysis was on outcomes targeted by the project. Outcomes are considered the most appropriate level of analysis, as objective is too-long term and outputs (e.g. persons trained), while easiest to measure, provide less insight. Other areas covered include: baseline versus present situation, short-term forecast for installed wind capacity, delays and cancellations of activities, and budget.
- **Power sector background:** With an estimated 15 GW available, Pakistan's power demand exceeds supply by an estimated 5 GW. Blackouts occur several times a day in major cities, putting a major strain on industry and society. Power supply is currently a mix of mostly hydropower, fuel-oil generation, and natural gas generation. Due to rising costs of fossil fuel imports, government is keen to develop indigenous sources, including wind energy.
- **External environment:** Security and ability of government to pay for power are major barriers to grid connected wind. Yet, current project pipeline suggests these are not insurmountable.
- **Baseline versus current situation:** Investors indicated strong improvements in investment environment for wind since project launch, including: streamlining of approval documents, more attractive tariffs, and guarantee money/deadlines required of investors. AEDB notes many improvements including: sovereign guarantee, presence of EPC contractors in-country, and (attributed directly to the project) change in grid code, EIA capabilities, and increased capacity of NTDC to assess grid-connection feasibility studies.
- **Short-term forecast:** Despite lack of installed wind capacity to date (only 6 MW nationwide), project pipeline much stronger than in the past. With *reasonably strong certainty* expect construction of 200 MW to be underway in 2012. (Includes 50 MW of Fauji Fertilizer already under construction, and 100 MW of Fauji Foundation and 50 MW of Zorlu now in process of financial close.) With *medium certainty* expect 150 MW more to reach financial close in 2012. There is also serious interest from foreign players who are moving quickly (e.g. NBD, AES, etc.)
- **Overall impression:** Investment environment has improved and project did contribute. Investors most enthusiastic about project workshops/training. Project praised for getting investor and policy-maker feedback. Yet, strong criticism voiced for delays and high management costs.

- **Wind Resource Assessment Program – Outcome level analysis[1]:** (1) PMD not involved in project to extent expected and capacity not raised to extent expected. (2) AEDB capacity raised, but many trained staff have left. (3) Availability of bankable wind data from project masts limited. Of 12 masts targeted, data from only three available. Most investors unaware of data. (4) Raised capacity of investors in wind resource assessment achieved, though not initially a targeted outcome. Three investors gave the project high marks in this area.
- **Policy and Tariff Program – Outcome level analysis:** (1) NEPRA capacity not built through project due to cancellation of activity. (2) Project credited with more attractive tariff for wind, since NEPRA influenced by involvement in PSC. (3) Project did not lead to established protocols for grid integration of wind due to cancelled activity. NTDC and others continue to doubt potential of grid to handle substantial amounts of wind. (4) Effective EIA framework for wind achieved by project. (5) Project did not contribute much to other renewable energy policy improvements. Instead, ADB had $800,000 project to assist AEDB with medium-term renewable energy policy. (6) While not targeted, project achieved important outcome of revising grid code to accommodate wind. (7) While not targeted, project increased capacity of NTDC to conduct wind-related grid feasibility assessments, which will speed up approval timeline.
- **Finance Program - Outcome level analysis:** (1) IPPs have increased understanding of preparation of financial documents, partly due to project workshops. (2) Project did not directly lead to increased involvement of financial institutions, as there were no dedicated activities. (3) Revision of CDM policy not achieved, but investors did raise their CDM knowledge through one project workshop. (4) Renewable energy fund satisfactorily designed for AEDB, but still pending government approval process.
- **Capacity Building and Knowledge Transfer Program – Outcome level analysis:** (1) Aside from wind resource assessment work, no specific activities to achieve raised capacity of AEDB. Project overall is sure to have helped some, but greater coordination of government agencies as targeted not really addressed. (2) Only one study conducted for local manufacturing. Due to lack of installed capacity, market not developed. Yet, strong stakeholder interest suggests initial work may have been worthwhile. (3) While project not responsible for renewable energy coursework at vocational and academic institutes as initially targeted, software and training provision to UET has stimulated interest in grid connection feasibility work for wind.
- **Off-grid Program – Outcome level analysis:** Hybrid renewable village power system not yet installed. Demo is poised to (1) create groundwork for increased interest in off-grid renewable village power systems and (2) serve as an effective model for other off-grid systems. Yet, the pilot faces many challenges in sustainability that must be addressed.
- **Output-Level Analysis – dropped activities:** Of major activities indicated in Inception Report, eight completed, five partially completed (four due to cancellation of sub-activities), and six not completed to significant extent (four due to cancellation of activities). While it is reasonable for projects to change course due to changing circumstances, our assessment is that some important

[1] Summaries of the Outcome Level Analysis presented here for each Program address, in succession, targeted outcomes and their achievement. Significant outcomes not targeted, but achieved, are also covered. For a particular program, each numbered item represents one outcome.

activities were dropped and that more was dropped than added. Given stakeholder concern about both grid integration and the capacity building needs of NEPRA, dropping of grid integration study and the NEPRA tariff support work may be regretful.

- **Output-Level Analysis – delayed activities:** According to stakeholders, a great weakness of WEP has been delays. While some delays can be explained, we feel delays in installation of the wind masts and off-grid system have been excessive. As project drawing to close (after first extension) in Dec. of 2010, consultant recommended second extension until Aug. 31, 2011 and timeline whereby all activities would be completed by then. PSC adopted timeline and asked that it be closely monitored. Yet, progress since that time has been limited. We have some concern that decision-making is getting hung up in the executing agency.
- **Recommendations for exit strategy – wind masts:** Despite agreement to install remaining wind masts in Sindh if Balochistan and KPK locations could not be secured in January 2011, locations in other provinces still being considered for five remaining masts. Of seven installed masts, data for only three posted. We recommend remaining five masts be installed in Sindh, within a strict three to four month timeline. The objective of opening up new areas for wind farm investment should be taken into consideration. That is, new sites should have good wind resources and enough land available nearby for multiple 50 MW wind farms. For handover of the 12 masts, AEDB, PMD, Sindh Environment and Alternative Energy Department, investor(s), or consultant may be considered. Investors may be involved in conjunction with government agency, to build project pipeline more quickly. Partner chosen should be willing to support data collection for a second year (after installer support ends), support data analysis, and provide data to investors. In the best case, partner may be willing to support long-term data collection (e.g. five to seven years). A time-bound agreement with chosen partner is recommended.
- **Recommendations for Exit Strategy - off-grid system:** Community has been identified, contractor selected, and procurement approval received. Yet, little or no forward motion since target completion date of July 2011 adopted by PSC. Given sustainability concerns, a proactive partner, with willingness to support demo after one year of contractor support expires and to visit site frequently, recommended. Options for handover include: AEDB, Sindh Government, local NGO (which may be more willing to commit its own resources), or a combination of foregoing. A time-bound agreement with chosen partner recommended.
- **Project budget and cost effectiveness:** Wind masts, off-grid system, and ESIA study (last with budget over $200,000) stand as the three large expense items in the budget. Most other items are in the $25,000 range or less, except for capacity building for AEDB ($50,000 range), though this represents combination of activities. Some of the most impactful activities to date have been the trainings, workshops, and software provision. All of these efforts represent relatively low expenditure in aggregate, perhaps a total of less than $150,000, which compares to about $1.3 million for wind mast and off-grid efforts combined (yet to show their worth due to delays) or $1.1 million in project management costs (representing 40% of the budget). Spread of budget between two extremes suggests "mid-cost" activities (low six figures) were mostly eliminated. High management costs (standard is 20%) raise strong concerns that project funds were used for items too far afield from targeted project outcomes and truly necessary management costs.

Some stakeholders also expressed concern that items moving through other parts of budget did not hold direct enough relationship to targeted project outcomes.

- **Project ratings:** Moderately Satisfactory (MS) for results overall. (Satisfactory (S) for relevance and MS for effectiveness.) Project should be recognized for strong impact of some outcomes, but we feel others were dropped that might have contributed to overall positive impact; and delays make it hard to assess associated outcomes at present. Because of budget concerns (high management costs, concerns of spending on items too far afield, and lack of completion of major activities making it hard to assess impact), efficiency (or "cost effectiveness") rated as Moderately Unsatisfactory (MU). Sustainability rated as Moderately Likely (ML) based on the four sustainability sub-ratings: financial (ML), socio-political (ML), institutional (ML), and environmental (Likely). M&E rated as MS, as appropriate care taken in design and implementation, but system could not effectuate change when problems identified.

Lessons Learned and Recommendations for Future Projects

- Building on project's strengths: Comprehensive and flexible projects like WEP well-suited to assisting countries in early phase of deployment of a particular renewable energy technology and addressing functions that more narrowly focused donor projects do not. Yet, "flexible response" needs to be controlled. Staying in touch with investors was an effective aspect of this project, though easier access to project reports and more frequent updates may be needed. PSC provided powerful forum of policy-makers that may be leveraged in future projects. Low-cost workshops and trainings of the project were particularly impactful.
- Improved project governance needed to address delays, too limited involvement of other government agencies, and budget issues. PSC and UNDP need more power to address problems. PMU should be more empowered so not all decisions need to go through executing agency. PMU Project Manager may need more status. Duo to lead the PMU may be more effective.
- Stakeholder involvement: In case of Pakistan, provincial authorities relevant for grid-connected power and may be involved in future projects. Also, central government agencies besides the executing agency did not benefit from project activities to extent originally envisioned. Changes to project governance, as discussed above, may address this in future projects.
- Project delays: Improved project governance (as outlined above) is key recommendation here. Also, early preventative actions may be taken for activities that appear challenging to complete. Parallel processing important (e.g. site selection work while waiting for procurement approval).
- Project design and changes to project activities: Important to recognize targeted outcomes generally require targeted activities. In WEP, some targeted outcomes fell through the cracks with no activities to support them. Donors may need to coordinate more closely, especially when donor overlap is the reason given for cancellation of multiple activities.
- Budget: Tighter definition on allowed expenditures needed. UNDP should have more power to question and halt, if necessary, budgetary expenditures that stray too far from core focus on delivery of targeted project outcomes. PSC and/or Executive Committee should also review budget trends on periodic basis and have power to effectuate change when needed.

Standard Project Identification and Financial Data

I. Project Identification
GEF Project ID: 1260
GEF Agency Project ID: 624 (UNDP PIMS ID)
Countries: Pakistan
Project Title: Sustainable Development of Utility-Scale Wind Power Production – Phase 1
GEF Agency (or Agencies): United Nations Development Programme (UNDP)

II. Dates

Milestone	Expected date*	Actual date
CEO endorsement/approval		March 21, 2005
Agency approval date	NA	December 29, 2005
Implementation start	NA	November 6, 2006
Midterm evaluation	NA	October 2008
Project completion	NA / (Nov. 5, 2008)*	August 31, 2011
Terminal evaluation completion	NA	August 15, 2011
Project closing	NA / (Nov. 5, 2008)*	August 31, 2011

*Note: Expected dates were to be as per expectations at the point of GEF CEO endorsement/approval. While the project was initially to be completed within two years of project launch, or Nov. 5 2008, to our knowledge a target date for project completion and other milestones were not provided at the time of GEF CEO approval.

III. Project Framework

Project component	Activity type***	GEF financing (in $)		Cofinancing (in $)**	
		Approved	Actual†	Promised	Actual
1. Policy	Inv., TA	$340,000	$492,986	NA	NA
2. Facilitation of investment	------	$340,000	-------	NA	NA
3. Wind resource assessment	Inv., STA	$560,000	$1,064,145	NA	NA
4. Manufacturing	----	$375,000	-------	NA	NA
5. Awareness raising and dissem.	TA	$295,000	$119,899	NA	NA
6. Financial instruments	TA	$324,500	$12,817	NA	NA
7. Mainstreaming renewable energy	-----	$240,000	-------	NA	NA
8.Project management	-----	$625,500	$1,121,357	NA	NA
Balance	-----	---------	$288,756*	NA	NA
Total	------	$3,100,000	$3,100,000	$720,000	$720,000

†Project components were restructured in the Project Inception Report of June 2007. Whereas the Project Document had seven components, the Project Inception Report had only four. We have attempted to list each of these final four components on the same line as the original component that matches most closely. We must note, however, that with the reorganization there were some changes in content, so that the new components have some differences in content with the old ones.
*Budget includes committed amounts, such as $200,000+ for off-grid system.
**Co-financing for specific components was not designated. All co-financing was in-kind.
***Activity types are investment (Inv.), technical assistance (TA), or scientific and technical analysis (STA).

IV. Co financing

Sources of Cofinancing	Type	Project preparation		Project implementation		Total	
		Expected	Actual	Expected	Actual*	Expected	Actual*
Host gov't contribution	In-kind			$720,000	$720,000	$720,000	$720,000
GEF Agency (ies)							
Bilateral aid agency (ies)							
Multilateral agency (ies)							
Private sector							
NGO							
Other							
Total Cofinancing				$720,000	$720,000	$720,000	$720,000

Notes: Expected amounts are those submitted by the GEF Agencies in the original project appraisal document. Cofinancing types are grant, soft loan, hard loan, guarantee, in kind, or cash. Actual cofinancing was not substantiated but explained as in-kind contributions of staff input from executing agency and tariff reductions on imported items.

Terminal Evaluation
Pakistan Wind Energy Project

1. Evaluation Methodology

Purpose of Terminal Evaluation: On the highest level, our methodology is guided by the intended purpose and audience of the terminal evaluation. In accordance with Global Environment Facility (GEF) guidelines, the purpose of this terminal evaluation is two-fold: The first aim is transparency – to let all know how the project went and provide accountability for the achievement (or potential achievement) of GEF objectives. The second aim is to provide insights and lessons learned to contribute to the effective design and implementation of future projects, particularly GEF partner renewable energy projects around the world and other GEF partner projects implemented in Pakistan across sectors. While not the primary aim of our work, we also hope that this terminal evaluation may highlight some of the key successes of the project, which may then be used in the promotion of Pakistan's wind sector and future international cooperation in Pakistan.

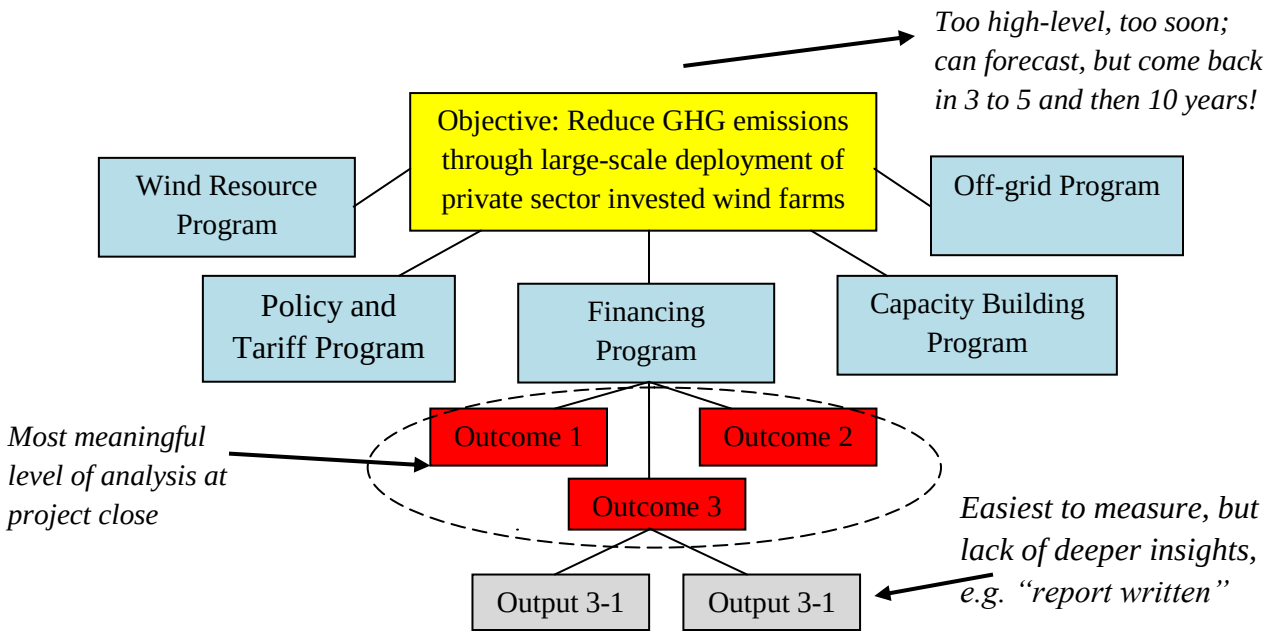
In general, a GEF terminal evaluation is not meant as justification of a future project nor meant to make recommendations to the current project, which, by definition is coming to a close. Yet, in light of the opportunity provided by the timing and depth of our stakeholder consultations, combined with the project's need for clearly defined next steps for major unfinished activities, we will provide some discussion of "exit strategies." We hope this discussion can be taken into consideration by the Project Steering Committee (PSC), UNDP, the project executing agency (AEDB), and the Project Management Unit (PMU) in their final planning for the project.

Audience of Terminal Evaluation: Based on the two primary aims of this terminal evaluation (transparency and provision of insights and lessons learned), the targeted audience encompasses all stakeholders in the Pakistan Wind Energy Project (WEP), as well as all interested parties that may be designing and implementing renewable energy projects and development projects more generally in Pakistan and around the world. Given the broad scope of our audience, we aim in this report to make the language and approach simple, clear, and accessible to all.

Focus of Terminal Evaluation: The primary focus of GEF terminal evaluations is on results, especially at the outcome level. The outcome level – a level intermediary between long-term objectives and short-term activity level targets – is believed to be the most effective level to assess a project at the time of its close. To illustrate this point, Exhibit 1 below shows the overall structure of the project, as conceptualized for the purpose of this evaluation.

Exhibit 1: Structure and Focus of Analysis

Main focus on results, with greatest attention at the "outcome level"



Assessment of project objective and purpose: At the highest level, WEP has the objective of reducing greenhouse gas (GHG) emissions through the large-scale deployment of private sector investment in grid-connected wind farms. Yet, at project close, this objective remains too high-level and long-term, so that it is too soon to assess its achievement. Thus, on the objective level, we will be limited to offering our best guess forecast of future installed wind capacity and suggesting that interested parties check back in on that capacity in three to five years and then in ten years. At the same time, we will attempt to assess achievement of the related overall purpose of the project – "creating an enabling environment for private sector investment in grid-connected wind farms" – which, at this time, we believe cannot be assessed based on installed capacity alone. Our premise, then, is that the very limited installed capacity of grid-connected wind achieved in Pakistan to date (6 MW) does not rule out the potential for the project objective to be achieved in the longer term, nor does it rule out the possibility that credit will be due to WEP in the expediting and achievement of that objective.

Program, outcome, and output levels: In the inception report, the project is divided into four programs, each with a number of intended outcomes. In our analysis, we move the off-grid outcomes and activities out of the Policy Program and into their own individual program, yielding a total of five programs. While each of these programs has a number of associated activities and outputs, the output level (e.g. report submitted, conference attended by 100 persons, etc.), while easiest to assess, is not the most meaningful level of analysis. Instead, the outcome level (e.g. capacity raised, tariff policy more attractive to investors, etc.) allows us to better assess whether the

project is moving the environment for private sector investment in Pakistan's wind sector closer to a level that will eventually facilitate substantial installed wind power capacity. Thus, while this report will also review whether outputs were achieved (particularly with an emphasis on identifying problems in delivery), the main focus for assessing project results (and thus the centerpiece of this evaluation) will be on achievement of outcomes and the evidence for such achievement.

This report will assess project outcomes for each of the five programs: (1) Wind Resource Assessment Program, (2) Policy Program, (3) Finance Support Program, (4) Capacity Building and Knowledge Transfer Program, and (5) Off-grid Program. While outcomes are drawn mostly from the Project Inception Report, we did adjust these in two regards. First, we moved some outcomes from one program to another, in efforts to tighten our analysis. In particular, in the Inception Report and other project documents, we found that capacity building related to the first three programs was sometimes included (or repeated) in the fourth program (a general capacity building program). While there is indeed overlap in the scope of the programs, we felt a better approach would be to include capacity building whenever possible in the relevant topical category (e.g. Wind Resource Assessment Program) and include only that capacity building which is unrelated to other programs or cross-cutting in the Capacity Building and Knowledge Transfer Program. We suggest future projects, despite unavoidable problems of overlap between components, pursue tighter construction for the organization of outcomes, so as to better support analysis of results. The second change made to project outcomes for the purpose of our analysis was the adjustment of some specific outcomes to an appropriate level for assessment at project close, so that they were neither too narrow (e.g. output level) nor too broad and long-term.

Content of Analysis: As indicated, the content of this report will focus on results, especially at the outcome level. The greatest emphasis will be on "efficacy" – whether the results were achieved and, in particular, what the evidence is. The results analysis will also cover sustainability and related risks, efficiency (whether the money spent towards achievement of results was cost effective), and relevance (whether results are in line with country and GEF priorities).

In terms of structure, the subsequent sections of the report are organized as follows:

- Background, Baseline versus Current Situation, and Short-Term Forecast
- Objective-level Analysis and Overall Assessment of Project
- Results (and related evidence) at the outcome level for each of the following programs:
    - Wind Resource Assessment Program
    - Policy Program
    - Finance Support Program
    - Capacity Building and Knowledge Transfer Program
    - Off-grid Program
- Output-Level Analysis and Exit Strategy (a check for completion of activities and recommendations for next steps)

- Budget and Cost Effectiveness
- Processes (e.g. feasibility of project design, stakeholder involvement, etc.)
- Monitoring and Evaluation (M&E) System
- Project Ratings (for relevance, efficacy, sustainability, efficiency, and M&E)
- Lessons and Recommendations for Future Projects

Method of gathering data and information: Prior to mission launch, the evaluation team conducted desk review of key project documents to familiarize themselves with the project (see Annex 1 for documents reviewed). Findings from the document review, as well as the terms of reference for the mission, informed our design of the information collection and analysis phases of this work.[2] Yet, the key source of information on which this report is based is the series of 24 face-to-face interviews conducted with stakeholders during the eight days from July 25 – August 1, 2011. Stakeholders interviewed include government entities, private sector investors with substantial interest in Pakistan's wind sector, academic institutions, project management, etc. Exhibit 2 shows lists the organizations or individuals interviewed[3]: The team travelled to Islamabad, Lahore, Karachi, Gharo Wind Corridor (Sindh Province), and Keti Bandar (Sindh Province) in the course of its consultations.

Interview questions were tailored to stakeholders' individual involvement and/or relevance to the project and its targeted outcomes. A "master interview guide," containing key questions to be applied in various situations across the interviewee pool, was also prepared. Most investors were asked to discuss the baseline situation (late 2006) versus the current situation with regard to grid-connected wind power in Pakistan, to assess and provide evidence on the likelihood of wind installations in the near future (enabling us to drill down on the expected scale of installed capacity in the short-term), and to discuss any of the targeted project outcomes that are relevant to them, again providing evidence when possible. Other stakeholders were asked similar questions, but with a greater emphasis on the intended project outcomes most relevant to them. Those stakeholders closely involved with the project were asked, in addition, to discuss project processes, including reasons for delays. Most stakeholders were also asked if they thought there were any aspects in which the project could have had a more positive impact, either through its design or implementation, and how their situation or the situation of the wind sector at present would be different had the project not occurred.

[2] Annex 4 includes the Terms of Reference for the Terminal Evaluation Mission.
[3] In a few cases, the team interviewed an individual who had been affiliated with the organization indicated, but had subsequently left it.

Exhibit 2: Face-to-Face Consultations Conducted

Investors	**Central Government and Affiliated Companies**
Fauji Fertilizer Co.	National Electrical Power Regulatory Authority (NEPRA)
Dawood Power	Alternative Energy Development Board (AEDB)
Zephyr	National Transmission and Dispatch Company (NTDC)
Lucky	Pakistan Meteorological Department (PMD)
Investor and Guarantor	Economic Affairs Division (EAD)
Asian Development Bank	Power Department, Planning and Development Board
Consultant to Investors	Private Power Investment Board (PPIB)
WindRose Consultancy	**Provincial Government or Branches of Central Entities**
Project and UNDP	Pakistan Meteorological Department (PMD) – Lahore branch
WEP National Project Manager	Energy Department, Punjab Government
WEP M&E Officer	Environment and Alternative Energy Department, Sindh Gov't
UNDP Environment Unit	AEDB – Karachi branch
National Project Director (NPD)	**Universities**
Off-Grid Site (Keti Bandar)	UET (Electrical Engineering Department)
Landowner and villagers	NED (Mechanical Engineering Department)

Method of Analysis and Methodological Limitations: During the consultation days, in between and after meetings, the evaluation team conducted numerous discussions and debates on topics to be covered in the evaluation. Detailed interview notes were also prepared for each of the 24 face-to-face interviews. During the report writing phase, these interview notes were used to aggregate the feedback from all relevant interviewees on each key topic (e.g. baseline versus present situation; likelihood of new wind capacity soon; achievement of intended project outcomes in each program, as well as related evidence; etc). These aggregations of feedback by topic were then assessed (in light of materials reviewed in the desk study prior to the mission) and key findings prepared. When interviewees offered conflicting views, which was often the case, the team attempted to verify the more accurate position based on feedback from multiple interviewees, assessment of the evidence provided, consideration of the background of the interviewees, follow up calls, etc. Both the international and national evaluator independently prepared drafts of key findings and these were later discussed, debated, and then integrated. The greatest limitations of our analysis are: (1) the limited timeframe for conducting interviews and assessing results (and therefore the incomplete information on which the analysis is based); and (2) the qualitative nature of the analysis required in the case of many outcomes, which makes it difficult to sort out differing stakeholder opinions.

At a presentation on the draft findings of the mission on August 5, 2011, one stakeholder suggested the terminal evaluation methodology include provision of a listing of activities in report form to stakeholders and getting their feedback in writing, rather than focusing only on feedback from face-to-face meetings. We feel this is a good idea to be carried out in conjunction with face-to-face meetings. Yet, we also have concerns whether enough time would be available to aggregate and assess results of the written survey, given the tight mission timeline.

2. Background, Baseline versus Present Situation, and Short-term Forecast

In this section, we provide a brief background on the project, Pakistan's power sector, and the external environment. One stakeholder asked that we cover the last in particular, so as to offer an understanding of factors that have an impact on achievement of project objectives, but that are out of the range of control of the project. Next, we provide a comparison of the baseline situation of the investment environment for grid-connected wind power in Pakistan in 2006, when the project was launched, to the situation at present time. We further offer a short-term forecast of grid-connected wind capacity that will be installed in the near future. These last two sub-sections are included in response to the high level of skepticism expressed by some stakeholders that any improvements in the investment environment have been made and that any significant wind capacity would be installed in Pakistan for years to come. They noted that they had been hearing year after year that hundreds of megawatts would be installed soon, but that, to date, installed capacity remains at only 6 MW. As we interviewed stakeholders closest to the matters at hand, however, we did become convinced that, despite ongoing problems, the investment environment has improved substantially and that, despite the lack of installed capacity to date, progress is extremely like to be made soon.

2-1. Project Background

The GEF-funded UNDP Pakistan project "Sustainable Development of Utility Scale Wind Energy Production," more commonly known as the "Wind Energy Project" or "WEP," has the primary overall objective of avoiding CO_2 emissions through the deployment of grid-connected wind power. The project aims to achieve this objective by creating an enabling environment in Pakistan for private sector investment in grid-connected wind farms. The project also has a secondary objective of decreasing CO_2 emissions through the deployment of off-grid hybrid renewable village power systems, to be achieved through replication of a demonstration system financed through the project.

The project began with a small UNDP-GEF study back in 1997.[4] One stakeholder explained to us that, at that time, the project's topic (wind power in Pakistan) was considered an "exotic" one. Indeed, at that time, UNDP and GEF took a risk on a little known topic, which now appears to be paying off with the creation of an enabling environment and pipeline of wind projects (more on these in subsequent subsections). In 2001-2003, additional project preparatory work was undertaken with PDF B funding from the GEF of US $350,000. A number of baseline studies were conducted and one wind mast was installed in Pasni, Baluchistan. Stakeholders applauded the studies as being well-done and helpful, but one stakeholder criticized the Pasni mast as being placed in an area without baseline data. Indeed, in the end, it was found the area was not viable for wind farms. The full project was originally envisioned as a two-phase project, with the first phase (and the project

[4] This was a PDF A (or Project Development Fund A) study. Such studies are generally preliminary with very limited funding, typically in the range of US$20,000.

covered in this terminal evaluation) having a duration of two years and focusing on the creation of an enabling environment. The second phase, which was never approved, was to focus on the establishment of a pilot wind farm of up to 10 MW.

The project document (for what was originally considered the first phase) was drafted in January 2004, approved by the GEF in March 2005, and endorsed at the country level in December 2005. The executing agency is the Alternative Energy Development Board (AEDB). The project was launched in November 2006, with an inception workshop in December 2006. The Inception Report was prepared in June 2007 and is particularly important in its outline of activities and targeted outcomes, as the original project document had become somewhat outdated by time of project launch. A mid-term review was conducted in October 2008, at which time it was recommended (and soon agreed) to offer the project an extension of two years to its original two-year timeline, so that the project would be roughly a four-year project ending in December 2010. In December 2010, a project implementation review recommended a second extension until August 2011. These dates and those of the PDF work are summarized in Exhibit 3 below.

Exhibit 3: Project Timeline and Timing of Key Events

Project Timeline	
Item	**Timeline**
PDF A work (estimated funding: $20,000)	1997
PDF B work (funding: $350,000)	2001-2003
Full project (funding: $3.1 million GEF, $720,000 Government in kind)	• initially Nov. 2006 – Nov. 2008 (two years) • after first extension, Nov. 2006 – Dec. 2010 (four years) • after second extension, Nov. 2006 – Aug. 2011 (about 4.75 years)

Key Project Events	
Event	**Timing**
Project document completed	Jan. 2004
GEF approval	March 2005
Project document endorsed – country level	Dec. 2005
Project launch	Nov. 2006
Project inception workshop	Dec. 2006
Project Inception Report	June 2007
Mid-term review and recommendation of first extension	Oct. 2008
Project Implementation Report and recommendation of second extension	Dec. 2010
Terminal evaluation	August 2011

The project is staffed by a Project Management Unit (PMU), headed by a Project Manager, who officially has the title of Deputy Project Manager. The project did have a foreign Chief Technical Advisor (CTA) off and on for several months in its initial year and also later tried to recruit a lead domestic Project Manager, but in the end the current Project Manager led this project for the bulk of its duration. The PMU also had a Monitoring and Evaluation Officer and a Finance Officer, but these both left over two years ago and the positions are now being filled by temporary personnel. In addition, the PMU is supported by administrative personnel and drivers.

The project aims to create an enabling environment for private-sector investment in grid-connected wind (as well as achieve replication of off-grid renewable village power systems) through five project programs: (1) the Wind Resource Assessment Program, (2) the Policy and Tariff Program, (3) the Finance Program, (4) the Capacity Building and Knowledge Management Program, and (5) the Off-grid Program.[5] Activities include a mix of hardware intensive items (including both wind masts for wind resource assessment and a pilot off-grid village system), multiple workshops and training events, software provision to appropriate organizations, and commissioned consulting studies and advisory work to support policy makers and investors.

2-2. Background on Pakistan's Power Sector and External Environment

Pakistan's Power Sector: Pakistan's power demand exceeds supply by far, resulting in daily blackouts (or "load shedding") across the country. In major cities like Islamabad, Lahore, and Karachi, these blackouts occur several times per day; and many organizations keep diesel generators on the premise to ensure a continuous supply of electricity. Some of the reasons for the imbalance offered to us include: demand growth outstripping supply growth, the shutting down or inoperability of aging hydropower and fossil fuel capacity without replacement, high system losses, and unavailability due to the high costs of fuel oil. We also understand that seasonal reduction in the availability of hydropower is a problem. The power gap and blackouts are putting a major strain on industry and overall economic development. One official consulted, incidentally, suggested that power import from Iran will not be the solution, as transmission lines would take five to seven years to build.

While installed power capacity in 2010 was said to be about a bit over 20 GW, experts estimate that only about 15 GW is available to end users and that the shortfall between supply and demand is about 5 GW. The power mix consists mostly of hydropower, gas, and oil, with one recent source offering a breakdown of 34.3% gas, 32.1% oil, 29.9% hydro, 3.4% nuclear and other, and 0.1% coal.[6] While Pakistan is said to have substantial coal resources, the country has to date not been successful in developing these. Rising costs of fuel oil have been a major factor in increasing the attractiveness of wind power.[7] According to one source, oil and gas projects are now unaffordable; and the willingness of international financial institutions to finance wind projects, but not fossil fuel projects, also buoys the potential of wind power in an environment in which finance is hard to come by.

[5] The Inception Report includes only four programs, with the off-grid activities included in the Policy and Tariff Program. As discussed elsewhere, we have taken some liberties in adjusting the programs and outcomes to enhance the ease of analysis.

[6] Irfan Afzal Mirza, "Working Paper on Current Tariff of Wind Energy in Pakistan," May 2010.

[7] One source further pointed out to us that Pakistan has only single cycle fossil fuel plants, which are much less efficient than the combined cycle plants being built elsewhere in the world. He estimates that Pakistan's single cycle plants have an efficiency of only about 35% as compared to the 50% achieved with combined cycle.

At the same time, other sources were skeptical of wind, both because of its high cost and because its intermittency issues have not been addressed. One stakeholder told us that top-tier consumers (those using over 700 kWh or more per month) pay 10 Rupees (11.7 US cents) per kWh, while second tier users (400 – 700 kWh used per month) pay 7 Rs (8.2 cents) and the lowest tier pays 4 Rs (4.7 cents), illustrating that the feed-in tariffs being contemplated for wind power producers (13 cents for international financing and 16 cents for domestic financing) surpasses the consumer tariff. The same stakeholder, however, mentioned that tariff being offered rental power units (fossil fuel power plants that are constructed quickly and offered contracts on the order of five years) has now reached up to 18 Rs (21 cents) per kWh.

Key Government Agencies Involved in Pakistan's Power Sector: To familiarize the reader with some of the main organizations involved in the project, we briefly describe the role of key government agencies with regard to wind below:

NEPRA – National Electric Power Regulatory Authority: Determines power tariffs and issues licenses for generation, transmission, and distribution of power. NEPRA determines tariffs on a cost-plus basis and has recently decided to offer a higher margin to wind, as an incentive. It has issued US 16 cents per kWh to Fauji Fertilizer, which, with domestic financing, has become the first financial close in the wind sector. Some expect NEPRA to offer a feed-in tariff soon of 16 cents for wind farms with domestic lenders and of 13 cents for those with international lenders.

WAPDA and NTDC: Established in 1958, WAPDA (Water and Power Development Authority) was initially responsible for dams, irrigation, hydropower mainly, thermal power, and transmission and distribution. Transmission and distribution, along with non-hydro power, was later split off. Now, the "power wing" has 14 corporate entities, including four thermal generation companies, NTDC (National Transmission and Dispatch Company), and, under NTDC, 8 or 9 distribution companies. NTDC and its subsidiaries are responsible for receiving and purchasing power from all generational sources and selling it. According to NTDC, while generation and distribution can be privatized, transmission needs to maintain national status. As the national grid company, NTDC is responsible for power planning, including generation planning and transmission planning. For wind power projects, NTDC approval of grid interconnection studies of project feasibility studies is required.

AEDB – Alternative Energy Development Board: Established in 2003 and now under the Ministry of Water and Power, AEDB is a government agency responsible for facilitating renewable energy power generation projects of all sizes, except for hydropower projects of over 50 MW. For wind projects, AEDB issues LOIs to investors, can facilitate land acquisition, approves feasibility studies, and issues LOSs (Letters of Support) after NEPRA tariff determination and generation license issuance and after submission of a performance guarantee (currently $250,000) to AEDB by the investor.

PPIB – Private Power Infrastructure Board: Founded in 1994, PPIB's role is to facilitate IPPs (independent power producers) in Pakistan. In terms of renewable power, it is responsible only for

hydropower projects of over 50 MW. Yet, because of its experience with IPPs, it has been providing significant assistance in the area of renewable power, including support in calculating potential up-front tariffs and negotiating energy purchase agreements (EPAs). PPIB has only 35 professionals and is quite a different structure from government agencies. They are self-financed, profitable, and employ staff on a contract and performance-basis only.

PMD – Pakistan Meteorological Department: Functioning under the Ministry of Defense, the PMD provides meteorological services throughout Pakistan for a wide variety of applications. PMD's wind mapping network was instrumental input into the well-known USAID-NREL wind maps of Pakistan, as there was no other ground data available to combine with satellite data. Over the past decade, PMD has become somewhat active in developing its own network for measuring wind resources for wind power applications. In 2001-2004, with a network of forty 30 m masts, they assessed wind potential in coastal areas. They have more recently done a study in the ShahidaSir area of NWFP, concluding that area is not suitable for grid-connected wind. PMD was originally targeted as a key player in this project's Wind Resource Assessment Program, but in the end its role was lessened significantly.

Sindh Province Environment and Alternative Energy Department: Now responsible for approving wind farm EIAs, in the future the Department might also play a greater role in the development of wind farms in Sindh. It may be better able to coordinate the acquisition of land than the central government. Further, the provinces do have the right to offer LOIs and LOSs for independent power projects.

Punjab Province Energy Department: Like Sindh, Punjab can also offer its own LOIs and LOSs for power projects. While Punjab has less attractive wind resources than Sindh, the Punjab Energy Department has been active and is working directly with one foreign investor that has set up masts and is now assessing wind resources.

External Environment: The external environment is considered by some stakeholders to be the greatest remaining barrier to achieving installed capacity of grid connected wind in Pakistan. The two key issues are security and ability of the Government of Pakistan (through the NTDC) to pay for the power as promised over the estimated 20-year lifetimes of projects. Should these issues have been considered when initially designing and launching the project? According to some stakeholders, these were not the greatest barriers when the project was designed. In 2004, they note, Pakistan was a more investor-friendly environment and lenders were more willing to engage. Regarding security, one investor emphasizes that while the situation has not gotten better recently, investors are learning to deal with it and have set up their own association to pool resources. Finally, regarding ability of the government to pay, ADB is now offering a counter guarantee facility to the sovereign guarantee offered for wind power purchase. Yet, interestingly, some projects have begun to move forward without this guarantee.

Our overall assessment is that the two key features of the external environment (security and the government's ability to pay) are quite serious and should be taken into account in assessing the slow pace at which grid-connected wind is being adopted in Pakistan. One investor has even suggested that if the geopolitical situation improves, "people will rush in" to Pakistan's wind sector to fill "a great vacuum." At the same time, recent changes in the investment environment and projects in the pipeline lead us to believe that, despite the seriousness of ongoing challenges, WEP was not implemented in vain and some wind power capacity additions are soon to be realized. We find that, while many overseas investors tell us they will not consider Pakistan's wind sector because of the investment environment, a select handful is on-the-ground in-country actively developing projects. Similarly, a number of foreign financial institutions are now anxious to find a way, perhaps through the ADB guarantee, to finance wind farm projects in Pakistan.

2-3. Baseline Situation of Wind Sector versus Present Situation

Based on investor and government agency consultations, our assessment is that, aside from security and government ability to pay issues, the investment environment for grid-connected wind in Pakistan has improved since 2006 when the project was launched. We further believe that, while certainly not responsible for all improvements in the investment environment, WEP has played a significant role in enhancing certain aspects of that environment.

Exhibit 4: Comments from Investors on Baseline versus Present Situation

Then (2006)	Now (2011)
Biggest barrier: Government; government guarantee not clear	Standard documents available for everything; government guarantee clear; biggest barrier land
Tariff not attractive enough	Tariff attractive
Didn't know how to put up a wind mast	Have our own wind mast
Government gave far too much land for 50 MW	Government knows how much land certain scale of wind farm needs
International wind turbine manufacturers backed out of contracts	Now they're calling us back
Barrier: security situation	Security still an issue, but equity investors getting used to it
Debt financing a barrier	Debt financing still a barrier, due to security situation and lack of confidence government will pay for power (but international lenders more active than before)
No deadlines for investors with land; investors sitting on their land hoping to sell to the highest bidder	Deadlines: Leases expire end of August if milestone not met; deadlines are very important!

Exhibit 4 above summarizes comments from various investors on how the investment environment has changed since the baseline year of 2006. Investors interviewed were mostly positive about changes in the investment environment. The first investor to achieve financial close after a long multi-year effort told us they believe that, due to the streamlining of processes and the improvement in their own capabilities, for future projects they will be able to achieve financial close within six months. Perhaps some of the most important changes since baseline (as noted by investors) are: the

streamlining of approval documents, the increased attractiveness of tariffs, and the guarantee money and deadline requirements recently instituted by AEDB.

Exhibit 5: Pakistan's Wind Sector: Comparison of Year of Project Launch to the Present - Comments by AEDB CEO

Factor	2006 (year of project launch)	2011 (present)
Tariff	No tariff to anyone except two who said they could do $0.06/kWh. No official NEPRA contract.	8 companies with tariffs; 10 companies who have provided bank guarantee of $250,000 each with condition that they have a signed EPC by Aug. 31, 2011; cost-plus feed-in tariff expected by end of year
Grid code	"We did not know what grid code is." In 2008, started to think about it.	In 2010, changed grid code to accommodate wind. First change in 60 years – did so at lightning speed, considering all power producers, including IPPs had to agree to change.
Financial close	No financial close in wind to date	First financial close in June 2011 ($136M for 50 MW wind). First financial close in the power sector in the last two years aside from one hydropower project that shouldn't really count.
Power agreement	No standard power agreement	Standard power agreement to be signed by NTDC and project sponsor
Implementing Agreement	Never issued a "sovereign guarantee" or Implementing Agreement (IA)	Standard IA already signed
EIA guidelines	None	Now approved EIA guidelines (note: credit goes to project)
Land area for a project	Giving away too much land without figuring out how much needed.	Now can microsite land to see how much, for a certain capacity, you need using software and training provided by the project (so credit to the project).
Land value	Didn't understand the value of land in high wind resource areas; land was cheap	Now seeing lands with wind potential sold at a premium from one investor to another
NTDC capability	NTDC not familiar with wind; did not incorporate wind into their software	Credit to project for training of NTDC and transfer of software
Wind farms	None	6 MW owned by Zorlu; DESCON has broken ground for construction of the 50 MW Fauji plant.
Supply side	Not a single EPC contractor available in country; if no EPCs, can't build wind farms	8 of 10 top turbine suppliers offering EPC contracts have teamed up with an EPC contractor with presence in Pakistan (most contractors are foreign); the eight are: Vestas, Nordex, Siemens, Goldwind, Sinovel, Gamesa and one more. Partnerships are GE-EAMC of China; Goldwind and CWE (China Wind and Electric); Nordex and Descon, etc.

Exhibit 5 summarizes comments offered by AEDB's CEO on how the investment environment has changed since the baseline year. Highlights of positive changes include the tariff, sovereign guarantee, and presence of EPC contractors in country. Several other important changes are

attributed directly to the project: change in grid code, EIA capabilities, and increased capacity of NTDC.

2-4. Short-term Forecast

In our stakeholder consultations, to address skepticism as to whether the investment environment has improved, we further made a special effort to determine whether pipeline wind farm projects are substantially closer to closing than in the past. Our findings (summarized in Exhibit A-1 of Annex 2) suggest that the project pipeline is much stronger than in the past, with a number of projects on the verge of realization. While Pakistan has an installed grid-connected wind capacity of only 6 MW, in June of this year, Fauji Fertilizer, a domestic investor achieved financial close for 50 MW; and construction of this project is already underway. We understand that financial close of 100 MW for Fauji Foundation (Fauji Fertilizer's parent company) and 50 MW for Zorlu (the Turkish company that installed the 6 MW) is currently in process and expected by end of year or at latest first quarter of next year. Thus, we predict with *reasonable certainty* that construction of 200 MW will be underway in 2012. Stakeholders indicate that financial close is *fairly likely* for another 150 MW (50 for each of CWE – China Water and Electric, Lucky Energy, and Sapphire) in 2012, bringing the anticipated total to 350 MW, though with *medium certainty*. As illustrated in Exhibit A-1 of Annex 2, the five other investors in the top ten have also made significant progress with their 50 MW projects.[8]

Of the top ten, only two (Zorlu, and CWE) are foreign. In addition, however, we have heard about serious interest from a few other overseas investors, which are now setting up offices and proceeding with site selection, whereas before they were only seeking information. These serious foreign investors include the Norwegian company NBD, which is targeting 600 MW in two phases, and AES, which has acquired two plots for 50 MW wind farms from domestic investors.

To address the skeptics, one investor who strongly believes the turning point for wind in Pakistan is finally here, points to the case of South Korea, in which it took six years from the initial point of strong interest to the installation of the first 50 MW wind farm. After that, a 98 MW wind farm was installed, and thenceforth speed picked up rapidly. Some stakeholders suggest that AEDB's new requirement that investors submit a performance guarantee of $250,000 and reach required milestones in order not to lose it has been a key factor in picking up the pace in Pakistan.

[8] The top ten are among the 23 to 24 investors to which land has been leased. Aside from these, no one else can enter the game at this point unless the Sindh Government decides to lease more land.

3. Objective-Level Analysis and Overall Assessment of Project

3-1. Objective Level Analysis: Was the goal achieved?

It is still too early to say for certain whether the project objective of avoiding greenhouse gas emissions will be achieved. Yet, we believe, based on the comparison of the baseline with the current situation and based on the forecast of impending installed capacity that the enabling environment for private sector investment in grid connected wind has been significantly improved since 2006. The question that remains is whether the project can claim credit for any of this improvement or if it would have all happened anyway. Some direct improvements credited to the project are highlighted in the baseline comparison to the present situation. We cover overall thoughts and cross-cutting findings on the project in the sub-section below. Assessment of project outcomes, the centerpiece of this evaluation, is provided in the next section.

3-2. Overall Thoughts and Cross-cutting Findings

In response to the question, "Did the project contribute to the changes in the investment environment and the project pipeline," we feel that it did. Our overall impression of the project is that it made strong contributions in supporting investors with workshops and trainings and by being in the right place at the right time to influence policy as needed. UNDP-GEF took a chance on an "exotic" project back in the 90s during the PDF A stage and it turned out to be the right thing to do. The project emerged long before other donor projects in wind power if you count the PDF A and PDF B work. At the same time, despite the strong overall contributions, the project did have substantial deficiencies in completion of activities and in cost effectiveness, due to the high proportion of management costs in the total. These issues will be discussed later in this report. Yet, taking them into account, the overall impression we are left with is that the project has had a very good and important impact, but could have done so much more.

Exhibit 6: Investor Comments on Overall Impact of Project

- "Our financial close is the biggest evidence of the success of the UNDP project – couldn't have achieved it alone. The UNDP project and no one else made this possible through its capacity building workshops including training in Windpro, etc."
- "The project used to contact investors to get their training needs."
- "It is not just the UNDP project, but it did contribute. If there were no project, we would have been slower."
- "The project did a very good job to create awareness and to educate the investors – to know what is a wind mast, what is a wind farm and what is the yield…The trainings were very helpful – everything was new."
- "If no UNDP project – well, if you have to find your way, you have to find it…but, if we didn't have this, we'd have had to go abroad for training…"

Comments from investors and policy makers alike support our conclusion that the overall contribution of the project to the enabling environment was significant. Exhibit 6 lists some of the key comments made by investors in this regard and Exhibit 7 lists some of the key comments made

by policy-makers. We attempt to give a fair view by including less enthusiastic comments as well positive ones.

Investors were generally enthusiastic about the project's overall impacts, focusing most on the workshops and training and also to some extent on policy impacts. One investor asserted that the project has made the key regulators (NTDC, NEPRA, and AEDB) much more aware of wind power and associated technologies. This investor emphasized the importance of the tariff, grid code, energy purchase agreement, and Government guarantee in its progress. We note that the first two of these, the tariff and grid code, are (as explained later in the Outcome Analysis) areas in which the UNDP project had a direct impact. Overall, it seems investors were most struck by the capacity building workshops and trainings of the project and tended to know little if anything about its hardware oriented aspects (e.g. the wind masts). One investor commented that the project kept in touch to get their feedback; and a policy maker had a similar comment. We feel that this "keeping in touch" and getting stakeholder feedback on an ongoing basis is an important strength of the project and one that may be considered by other projects that seek to create an enabling environment.

Exhibit 7: Government and Other Stakeholder Comments on Overall Impact of Project

- "Has everything (all the successes in the wind sector between 2006 and 2011) been because of the project? That's really hard to say – some will say "yes" and some will say "no" and they will both be wrong."
- "Competent and sincere in the way they communicated. Came to us to get our input…communicated with us on how to go on…"
- "This project is results based – but flexible…[different than the other donor projects]..got us speaking to…[the other regulators]."
- "The project did create an enabling environment. It generated a new excitement about wind power. There were very lively meetings – people stayed morning to evening. This is important… The project was a good opportunity to discuss policy issues. Although the project didn't develop the policy, it provided input on policy that is yet to be issued…The forum of the project provided the idea that there would be an up-front tariff and now there is very likely to be one announced in the next three weeks."
- "It was not implemented in an efficient manner."
- "Under the circumstances, UNDP did its job well. Not the best, but well. They did their best to convince people that wind is good."
- "Very good at capacity building, but could have been more proactive."

Government and other (non-investor) stakeholders provided a range of comments on the overall impact of the project. A few were highly critical but most suggested that the project, while not being the only factor, did make a contribution to the improved enabling environment.

4. Outcome Level Analysis

As explained in the discussion of methodology, this part of the report - the outcome level analysis – is the key focus of our findings. Below, we go through each of the five major programs on an outcome-by-outcome basis. In some cases, we also review meaningful outcomes that were achieved, but not initially targeted. In assessing outcomes, our greatest emphasis is on whether they were achieved and the evidence for that achievement.

4-1. Wind Resources Program – Outcome Level Analysis

Exhibit 8 below lists the three key targeted outcomes of the Wind Resource Assessment Program. It also includes one outcome not initially targeted by the project, but that we feel is an important achievement. Our findings with regard to each outcome, including evidence of achievement, are included in the subsections that follow, with one outcome covered per subsection.

Exhibit 8 – Targeted and Non-Targeted Outcomes of Wind Resource Assessment Program

Wind Resource Assessment Program – Targeted Outcomes
1. Increased ability of PMD staff to collect, process, and disseminate bankable wind data 2. Increased capacity of AEDB in analyzing wind data for power generation and in disseminating resulting information to potential investors 3. Increased availability of bankable wind data obtained through project masts
Wind Resource Assessment Program – Outcome not mentioned in Inception Report
4. Increased capacity of investors in wind resource assessment

4-1-1. Increased Capacity of PMD in Wind Resource Analysis

Achievement of outcome: Limited. Overall, stakeholders that discussed the impact of the project on PMD's capacity suggested that, while benefiting to some extent, PMD's capacity was not raised that much by the project. It seems that in the end the project decided to focus the bulk of its public sector capacity raising efforts in wind resource assessment on AEDB instead.

Evidence: According to stakeholders, PMD has been involved in two ways in the project's Wind Resource Program: (1) participation in site selection with AEDB and the PMU; and (2) software training. The project provided software and sent two or three PMD staff abroad, one of whom later became a master trainer. PMD does not feel the project increased their capacity in data collection or with regard to 80 m wind masts, but did so with regard to determining the energy curve.

Discussion: The evaluation team found that PMD, through its own initiatives and those funded by the Ministry of Science and Technology, is getting more involved in the assessment of wind power resources using 30 m masts. It is not very familiar with 80 m masts, such as those utilized in the project. Given PMD's interest in wind resource assessment and its institutional relevance, as

pointed out by the PMD itself, the question is raised whether PMD should have been more closely involved in both data collection from the project masts and associated wind resource analysis, as directed by the Project Inception Report. In the end, these functions were handled by a consultant that partners with pre-eminent international experts in the field and managed by AEDB. Given the expertise of the consultant and his partners, his involvement probably insured international standard data quality and masts installed with the latest equipment. At the same time, with capacity building targets in mind, a greater effort might have been made to involve PMD, perhaps in conjunction with the consultant.

Based on the information we have, it is difficult for us to determine whether a greater role for PMD would have been the right choice in terms of long-term sustainability and benefits to the investment environment. Yet, the team does feel strongly that not enough of an effort was made during project implementation to assess whether PMD should have been more closely involved. Justifications we have heard for the decision to have the masts and data analysis handled by AEDB and project consultants alone include AEDB's closer ties to investors, the need for wind sector expertise, and PMD's lack of experience in international standard 80 m masts. Given PMD's own activities in the assessment of wind power potential since at least 2001 and the ongoing debate in the Project Steering Committee regarding PMD's involvement in the project, however, we feel the decision of how to involve PMD should have been based on deeper, outcome-based analysis and more clearly justified.

4-1-2. Increased Capacity of AEDB in Wind Resource Analysis

Achievement of outcome: Strong, but sustainability uncertain. Stakeholders generally believe that the project successfully raised AEDB's capacity in wind resource assessment.

Evidence: AEDB has been able to post data from the first three masts on its website and is now planning to set up its own wind resource assessment center. An added benefit of its increased capacity is that AEDB can also now verify data – that is, it can evaluate studies turned in by investors, before sending results on to RISO to make them bankable. Stakeholders did express concern, however, that this outcome may not be sustainable, as AEDB, due to high turnover, has lost most of the staff trained by the project, again raising the question, in retrospect, of whether PMD with perhaps greater stability in personnel should have been more closely involved.

4-1-3. Increased Availability of Bankable Wind Data

Achievement of outcome: Partial achievement because of delays in installing project masts, with strong potential to more fully realize outcome with time; yet, regretful that data has not been available sooner. The evaluation team believes the project partially achieved its target of increasing the availability of bankable wind data through its own masts and that this outcome will be more fully realized over time, as data is obtained from new areas in which there is as of yet no wind farm

development. On the other hand, because of delays, the project was not able to make as much of its own bankable wind data available by project close to directly contribute to this outcome as expected. Indeed, data from only three out of twelve masts has been fully analyzed and made available at project close.

Evidence: The team understands that investors that are pursuing wind farms on land leased to date are using either data from their own masts or that from the masts of other investors. We further understand that the seven masts installed to date through the project and the five more that will be installed are on (or to be on) land not yet opened up to investors. Thus, in some ways, the investors charged ahead of the project in obtaining bankable wind data on their own. The wind data developed by the project, as well as that to be developed in the near future, then, will help investors as they move on to new sites and potentially speed up the pipeline for those new projects, but has not been relevant to any projects in the pipeline to date.

Investors we spoke with were, for the most part, unaware of the data already made available by the project (on AEDB's website) and thus, as a lesson learned, we would suggest greater liaison with top investors in projects of this nature in the future, perhaps through an email list of key investors. In terms of evidence, one investor active in attending project workshops had not heard about the project masts and told us they would have been interested in seeing this data. A second investor provided the feedback that they learned a lot about wind resources assessment in project workshops, but never saw the data from the project masts. A third mentioned that none of the project masts are helpful to their efforts, but workshops helped them in determining their capacity factor and were much appreciated. A fourth investor mentioned that they had been anxious to see the project data and had provided their own data to AEDB, but were never informed of the availability of project data. While this data is now on the AEDB website, then, investors have not been alerted to check the website. On the positive side, AEDB has applied to the Government for the funding of 30 more 80 m wind masts. So, if funding is granted, this may be considered a major replication effect of the project.

4-1-4. Increased Capacity of Investors in Wind Resource Analysis

Achievement: Strong. Investors now know much more about getting masts installed and assessing results.

Evidence: While this outcome was not highlighted as a target in the Project Inception Report, at least three investors gave the evaluation team very positive feedback that they had benefited in their capacity to assess wind resource data through attendance at project workshops. Further, at least six investors are said to have set up their own masts after learning how to do so through the project. One stakeholder pointed out that, while a few investors (such as Zorlu, which already had wind mast experience in Turkey) installed their own wind masts before project inception, most did not know much about this prior to project trainings.

4-1-5. Wind Resource Assessment Program Overall

This program was highly successful in building the capacity of investors in wind resource assessment and has high potential for stimulating the pipeline for new wind projects in the future, as its masts will be providing data in new areas that may be eventually opened up to investors. At the same time, the program received a lot of criticism from stakeholders for its delays. Slow implementation (only seven of twelve masts installed at project close and data from only three masts available to investors at project close) and delayed results for investors mean that this program may have had less of an impact than it otherwise could have.[9] One stakeholder suggests that the first set of masts (five in number) should have all been installed in 2007 so that data would have been available to investors much sooner. The other seven were approved in 2008, so installation might have been achieved that year or the next. While major challenges in security and land acquisition did occur, there have been some indications that site selection has been stalled due to the internal processes of the executing agency. Delays and exit strategy for the masts are discussed further in Section 5 of this report. A summary of findings on the four outcomes discussed above is given below in Exhibit 9:

Exhibit 9: Summary of Outcome Analysis of Wind Resource Assessment Program

Outcome	Rating	Reasoning/Evidence
1. Raised capacity of PMD in wind resource assessment	Weak	Project did not involve PMD much in masts/data collection; project did provide PMD software training in wind resource assessment; PMD official became master trainer
2. Raised capacity of AEDB in wind resource assessment	Satisfactory	Data from three masts posted on AEDB's website; AEDB can evaluate wind data submitted by investors; concern about sustainability since most AEDB staff that were trained have since left.
3. Bankable wind data from project masts	Partial; delayed	Data from project masts expected to help open up new areas to wind farm development; future potential is high, but, to date, data from only 3 masts available and most investors are unaware of this.
4. Raised capacity of investors in wind resource assessment	Excellent	At least six investors are said to have set up their own 80 m masts after receiving training from the project. At least three investors stated strongly that they had benefited greatly from project's wind resources training.

[9] Data from Keti Bandar, Hawksbay, and Baburband was made public in 2011 after analysis. Yet, while enough data for analysis has also been collected from two other sites, this has not to date been analyzed and made public. The evaluation team believes that, in addition to getting all remaining masts installed as quickly as possible, the project should have conducted the analysis and publicizing of data at a faster pace in order to ensure that the project had the greatest impact possible in stimulating the project pipeline and overall rate of progress in the wind sector.

4-2. Policy and Tariff Program – Outcome Level Analysis

Exhibit 10 below summarizes the five key targeted outcomes of the Policy and Tariff Program. It also includes two outcomes not initially targeted by the project, but that we feel are important achievements. Findings with regard to these outcomes, including evidence of achievement, are covered in the following seven sub-sections on an outcome-by-outcome basis.

Exhibit 10: Targeted and Non-Targeted Outcomes of Policy and Tariff Program

Policy and Tariff Program – Targeted Outcomes
1. Increased capacity of NEPRA (e.g. increased understanding of wind farm cost issues and economics that determine tariffs, etc.) 2. More attractive tariff policy that is also clearer to investors 3. Established protocols for grid integration: Established technical and operational protocols for wind farm dispatch that balance wind project viability, unpredictable wind variation, grid constraints, and the demand cycle (with positive impact on policy for amount of power purchased) 4. Effective environmental and socioeconomic impact framework for wind farms that can be used as a model for future projects; increased capacity of provincial environmental regulatory authorities to understand and assess impact of proposed wind farms 5. Other policy improvements for renewable energy
Policy and Tariff Program – Outcomes not Mentioned in Inception Report
6. Revised grid code that accommodates wind 7. Increased capacity of NTDC to assess feasibility of grid-connection for wind projects

4-2-1. Increased Capacity of NEPRA with Regard to Wind Power

Achievement of outcome: Weak. We do believe WEP made a critical contribution to NEPRA's agreement to offer higher margins for wind projects and thus to an attractive tariff for wind (discussed below in 4-2-2). Yet, besides changing NEPRA's thinking to a more positive outlook on wind, findings suggest the project did not strengthen other aspects of NEPRA's capacity as originally intended.

Evidence: NEPRA has indicated to the team that the WEP project did not increase its capacity, but did increase its acceptance of wind and higher margins for wind. The Project Inception Report suggests that one aspect of NEPRA capacity raising would be increased understanding of wind farm cost issues, but NEPRA has indicated that this is not so important in their tariff determination – that determination is not difficult and this is not a big concern. It was also indicated to the evaluation team that other donors, instead of WEP, took on work in assisting NEPRA in tariff determination, but we were unable to verify the scope or scale of any such interventions. In light of the new higher tariffs being offered for wind, some stakeholders suggest that NEPRA has raised its capacity. Yet, others indicate there is still frustration with long 4-6 month waits for tariff determination and that NEPRA is really still in need of assistance.

4-2-2. More Attractive Tariff Policy for Wind

Achievement of outcome: Excellent. The tariff policy for wind is now much more attractive than previously, leading to the first financial close (50 MW, Fauji Fertilizer Company). This will be the first substantially sized wind farm in the country and the only connected grid installation to date aside from the 6 MW installed by Zorlu. Well-informed stakeholders expect a number of other financial closes soon.

Evidence: The up-front wind tariff was raised to US$0.085 per kWh in 2007 and to US$0.095 in 2008, but Fauji Fertilizer was recently offered a negotiated tariff of US$0.16 per kWh. Sources suggest that as early as three weeks from now and at latest by year end, NEPRA will offer a similarly attractive up-front tariff: US$0.16 per kWh for projects with domestic lending and US$0.13 per kWh for projects with foreign lending. (Others, however, feel less certain this will occur.) While some of the great success exhibited through this new tariff level and first financial close must be attributed to the hard work of Fauji, NEPRA has suggested that it was the "forum" provided by the Project Steering Committee (PSC) that really got them to accept an incentive margin (i.e. higher margin than for fossil fuels) for wind. They explain that the PSC was really the only place that key government stakeholders relevant to the future of wind all got together on a regular basis to discuss new ideas and exchange opinions.

4-2-3. Established Protocols for Grid Integration of Wind

Achievement of outcome: Weak/nonexistent. The project did not end up implementing the NTDC grid integration study it had originally planned and for which it had requested proposals.

Discussion: While one of the great strengths of WEP was its flexible responsiveness to stakeholder needs, which has understandably resulted in some change of project outputs and targeted outcomes over time, the evaluation team questions whether the activity associated with this outcome should have been dropped. We feel that the cancelled grid integration study may represent a missed opportunity for the project to contribute to an area critical to the sustainability of wind sector growth in Pakistan. That is, the question of whether the grid can really handle wind is very important; and the study should have been undertaken even if costs turned out to be somewhat more than budgeted. In our meeting with NTDC, they told us that wind's intermittency had not been addressed and expressed concern as to whether the grid could handle much wind. The importance of NTDC's commercial and master planning roles as the entity (along with subsidiaries) that is responsible for receiving and purchasing power from all grid-connected generational sources and then selling that power should not have been overlooked. While the evaluation team did hear that this grid integration study was cancelled, because the Asian Development Bank (ADB) was carrying out the study instead, ADB officers we spoke with were not aware of this study. While a source from the NTDC's CPPA did confirm ADB support of such a study, our best guess is that whatever was done was much reduced in scope and scale from the major study WEP had planned to

commission and not disseminated to NTDC's Planning Department. The latter was unaware of the ADB study and, as mentioned, stated that wind's intermittency has not been addressed. They were aware of the planned WEP study, but not of why it was cancelled.

4-2-4. Effective EIA Framework and Capacity of Regulators to Assess EIAs

Achievement of outcome: Excellent. Almost all stakeholders who discussed associated activities were highly complimentary and indicated the EIA work had done what it set out to do.

Evidence: At the time of activities associated with this outcome, there were four or five EIAs pending with the environmental authority of Sindh Province, since the agency did not know how to clear them. A consultant hired by the project helped the Sindh environment agency clear the four studies. The agency indicates it now, as a result of this work, has the basic approach needed to assess wind EIAs. Prior to the project's EIA work, each investor had to prepare its own EIA from scratch, but now they can base their EIAs in large part on the UNDP regional study's content and guidelines. One investor pointed out that the WEP EIA study had reduced their workload and also made them aware of environmental issues associated with wind farms, whereas before they had not realized an EIA would be required. The project-supported regional EIA report and guidelines have been made public on the AEDB website and are also available in printed form. With the publicizing of results and the capacity built in the Sindh environmental authority, this outcome is considered to have a strong level of sustainability.

4-2-5. Other Renewable Energy Policy Improvements Achieved

Achievement of outcome: Weak. The project aimed to support renewable energy policy more broadly, and, particular, preparation of a medium-term renewable energy policy. Yet, while there was substantial achievement in more specific policy outcomes as covered elsewhere in this section, policy achievements addressing renewable energy more broadly were quite limited. At the same time, the project did provide a valuable forum in its policy seminars for stakeholders to debate the midterm policy and limited support to the government's revision of that policy.

Discussion: The project had aimed to assist in formulation of the medium-term renewable energy policy, as prepared by AEDB. Yet, in the end, the ADB carried out an $800,000 technical assistance project to help with this document. Under these circumstances, we believe it is highly reasonable for the project to have dropped associated activities. WEP did, however, provide a legal review of the policy. The new policy has not been issued, but a finalized version is pending approval in the Council for Common Interests (CCI). Stakeholders feel that finalization of the new policy was slow in coming. The evaluation team believes that the medium-term policy is an important missing link in strengthening investor confidence, so hope that promulgation can be achieved as soon as possible.

4-2-6. Revised Grid Code

Achievement of outcome: Excellent. While not a part of the original project design, wind related-grid code revision work made an important contribution by removing a critical barrier in the path of investor progress towards financial close.

Evidence: The WEP project provided a consultant to work with AEDB, NEPRA, and NTDC in revising the grid code and was the only donor supporting wind-related aspects of this work. While the changes to the code required agreement from stakeholders all over the country, they were impressively approved in a matter of months, passing in 2009. Previously, the code required generators to be capable of a "black start up," with no access to the grid. Wind farms need the grid for start up and this is allowed by the revised code. The amendment to the code was signed by NERPA, NTDC, and AEDB.

4-2-7. Increased NTDC Capacity to Assess Feasibility of Grid Connection for Wind

Achievement of outcome: Excellent. NTDC's capacity to assess and conduct feasibility studies for grid connection of wind installations is much improved.

Evidence: The project provided software and training to NTDC and other distribution companies (DISCOs) for assessing the least cost solutions for grid connection of wind farms. Previously, there was only one consultant (Power Planning International, PPI) that could conduct the system studies on the interconnection facilities required for wind farms. Because WEP trained NTDC and provided the relevant software, they are now not only in a better position to assess grid connection feasibility studies prepared by others, they can also conduct such studies themselves. NTDC stakeholders told the team that without the UNDP project, such studies would not be completed and approved in less than two years (including six to eight months for review by NTDC), but that now these studies and their review will take only a few months. Traditionally, conventional power plants all go straight to NTDC for their grid connection feasibility studies. Before, however, NTDC didn't have capabilities to prepare such studies for wind projects, so people went to PPI. Now, NTDC is confident it can do the wind project studies itself. The Punjab Energy Department, which can directly approve power projects of less than 50 MW in Punjab Province, offered similar feedback on the value of the training, in which they were also involved. They told us that prior to the training they had no tool with which to assess the grid connection chapter of wind feasibility studies submitted to them, but that now they do.

Sustainability: NTDC has hired 8-10 recently graduated engineers and would like to get these trained in use of the software as well. They have asked for further support in training these new employees, since hands on experience is needed before someone can train internally. While, on the one hand, this raises sustainability concerns since the training cannot be handled internally, the

greater number of staff and continued interest of NTDC in the software and training also bodes well for the sustainability of their ability to prepare and assess grid connection feasibility studies for wind projects.

4-2-8. Policy and Tariff Program Overall

Review of the seven outcomes above reveals some very strong policy contributions made by WEP, namely its influence of NEPRA (through involvement in the PSC) to offer a higher margin for wind projects, its provision of wind farm EIA guidelines and assistance to the Sindh Government in how to assess these, its support of revisions to the grid code to accommodate wind, and its building of capacity of NTDC and other organizations to review and even prepare grid connection feasibility studies for wind farms. At the same time, the experience with WEP's Policy and Tariff Program highlights some issues that stakeholders may do well to address in future projects.

The first issue is that a good portion of the planned policy-related efforts appear to have been either cancelled or drastically reduced in scope. In most cases, the argument was made that other donors assisting AEDB, particularly ADB, took on these efforts. Our assessment is that donor overlap was the issue in some cases, but in others, intervention of the magnitude envisioned by the project never occurred and may have thus made the project less effective than it otherwise could have been.

Reference to donor overlap was so common across the outcomes of the Policy and Tariff Program that we think it merits further attention. We got the impression that instead of each donor having its own key policy issue(s) to work on, multiple donors were each working on the same policy issues. While this approach may have still yielded good results, it makes it harder for donors to measure and manage their outcomes than would be the case with an approach in which different donors are targeting different outcomes. Thus, greater donor coordination may be called for. At present, there is a donor coordination committee on renewable energy in Pakistan, but this group has not been very active and may not be addressing overlap issues at the level of detail needed.

In terms of cancelling activities when interventions of similar magnitude were not available to replace them, we feel that more "big picture" thinking was needed to assess what was really important to the wind sector, before deciding which activities to maintain and which to drop. This kind of "big picture" thinking becomes particularly important for projects that adopt the "flexible response" structure that WEP did. We believe that the project might have done better in terms of impact to maintain the grid connection protocol study even if the budget required dropping some of the smaller, multi-donor efforts instead (such as partial support of the medium-term renewable energy policy).

The a second issue arising from consultations with regard to the Policy and Tariff Program is the need for greater coordination between NTDC, NEPRA, and AEDB on policy matters. The "forum" provided by the PSC, as a wonderful "side-effect" of the project, provided an important roundtable

for stakeholders from these and other organizations to share ideas on wind energy. Yet, future projects may wish to include in their design a more targeted means to achieve coordination among key entities on policy matters.

A last issue stems from a recommendation made by one of the investors we have consulted. The investor suggests that, while the project did a good job of building capacity at the higher levels of key government organizations, future work should also target the mid-level government staffers, as these actually do much of the concrete work in formulating policy and granting approvals. The evaluation team was not able to research this issue fully, but would like to share this idea for discussions related to the design of future projects hoping to impact policy and the capacity levels of government agencies.

A summary of the outcome analysis for the Policy and Tariff Program is given below in Exhibit 11:

Exhibit 11: Summary of Outcome Analysis of Policy and Tariff Program

Outcome	Rating	Reasoning/Evidence
1. Increased capacity of NEPRA with regard to wind power	Weak	NEPRA convinced of value of wind, but did not benefit from greater understanding of wind farm cost issues, etc.
2. More attractive tariff policy for wind	Excellent	NEPRA credits Project Steering Committee as unique forum, participation in which convinced it to provide higher profit margin to wind.
3. Established protocols for grid integration of wind	Weak	Related activities were dropped for various reasons; yet we feel this work was critical and should have remained a priority. Without this work, NTDC and other parties continue to doubt the potential of the grid to handle substantial amounts of wind.
4. Effective EIA framework and capacity of regulators to assess	Excellent	Widely praised by stakeholders of all types; before framework instituted, EIAs of investors stalled with regulators who did not know how to assess; now investors use guidelines of model and regulators know how to assess.
5. Other Renewable Energy Policy Improvements Achieved	Weak, yet reasonable to drop this effort	Revision of medium-term renewable energy policy taken on by ADB instead in $800,000 technical assistance project, but WEP did provide some legal advice.
6. Revised Wind-related Aspects of Grid Code	Excellent	Investors believe this is a critical contribution; without it, wind farms, which require "black start," could not connect to the grid.
7. Increased capacity of NTDC for wind-related grid feasibility assessment	Excellent	Studies that might have taken one or two years to be completed by the one qualified consultant in Pakistan and then reviewed by NTDC will now be completed and reviewed by NTDC in three months; some concerns on sustainability as NTDC has many new staff and does not feel qualified to train internally, yet the increased human resources may also be a positive for sustainability.

4-3. Finance Program – Outcome Level Analysis

Exhibit 12 below summarizes the three key targeted outcomes of the Finance Program. In addition, another outcome that was not mentioned in the Inception Report, but apparently added later, is included. As discussed further below, it appears that this Finance Program's originally targeted outcomes as a group received less focused attention than did the groups of outcomes of the other programs. The results obtained with regard to the four outcomes and evidence of achievement is included on an outcome-by-outcome basis in the subsections that follow.

Exhibit 12: Targeted and Non-Targeted Outcomes of Finance Program

Finance Program – Targeted Outcomes
1. Increased understanding by IPPs on preparation of financial proposals, tender bids for procurement, power purchase agreements, and implementation agreements (IAs), resulting in increased number of financial closures 2. Increased involvement of financial institutions in renewable energy; with, possibly, special financing instruments designed 3. Revised CDM polices and increased knowledge of CDM among investors
Finance Program – Outcome not Mentioned in Project Inception Report
4. Establishment of public sector renewable energy fund

4-3-1. Increased Understanding by IPPs on Preparation of Required Financial Documents

Achievement of outcome: Satisfactory. Investors now have a much better understanding on the preparation of required financial documents for wind farms in Pakistan.

Evidence: Investors praised the project's cross-cutting workshops that covered all the steps in the wind farm development process, both financial and technical. Government and investor sources agree that this outcome has certainly been achieved. Yet, they gave varying levels of credit to the project in its achievement. We note that activities specifically focused on this outcome may have been limited, but that cross-cutting workshops addressed it several times. Interviewees point out that project initiatives created an environment in which issues related to the preparation of required documents could be discussed.

4-3-2. Increased Involvement of Financial Institutions in Renewable Energy

Achievement of outcome: Limited/indirect. While it is true that the first wind farm project has achieved financial close and that other financial closes are expected soon, there is not strong evidence that the project played a substantial role in: (a) educating financial institutions about the wind sector in Pakistan, (b) developing special financial instruments, or (c) connecting investors with debt financing. One stakeholder, however, did suggest with a fair degree of certainty that it was the project that raised certain debt financing institutions' interest and got them information,

which eventually led to their pursuing deals. The stakeholder mentioned OPIC (Overseas Private Investment Corporation of the US Government), the Islamic Fund, and CDB (China Development Bank) as lenders actively looking at deals. Yet, the team has to date not uncovered strong evidence of the links between the project and these lenders' current activity. Overall, though, the education of investors achieved through the project is indirectly building the capacity of financial institutions as equity investors educate their lenders.

Evidence: Of the four investors and one investor/guarantor interviewed, none attributed current involvement of lending institutions in negotiations for Pakistan wind deals to WEP. One stakeholder closely involved in the project did mention a match-making event. In terms of developing special financing instruments, no efforts by WEP to this end were mentioned by stakeholders, though we note that the ADB has a $500 million fund for guaranteeing off-take risk that was already approved in 2006, the year the WEP was launched. No guarantees to our knowledge have been issued yet, but some may be in the pipeline. Investors did suggest that greater inclusion of lenders in project activities may have been beneficial to their capacity. In particular, it was mentioned by one investor that domestic banks have a limited understanding of the wind sector. Debt financing is seen by many as one of the key remaining barriers holding up deals. In light of this, the team feels that efforts towards educating the domestic banks on the wind sector and educating international financial institutions on opportunities in Pakistan's wind sector may have been impactful and a key way to have made the Finance Program more substantial. At the same time, we do understand that the project at one point did establish a finance committee consisting of lenders as part of the project's advisory system, but that interest was not strong and the group dissolved. Finally, we do believe that the project is playing an indirect role in building the capacity of domestic lenders to understand wind projects, as equity investors educate their lenders. Fauji Fertilizer's financial close is evidence of this, given that Fauji Fertilizer is an investor that actively participated in project activities and expressed real benefits from this participation.

4-3-3. Revised CDM Policies and Increased Knowledge of CDM among Investors

Achievement of outcome: Partial. Pakistan's CDM policies have not been revised, but investors do have increased knowledge of CDM, which may be attributed directly to the project.

Discussion and Evidence: Certified Emission Reduction (CER) credits provided through the Clean Development Mechanism (CDM) could provide an additional revenue stream to investors and thus perhaps lower the tariff required to make wind projects attractive to them. Yet, the Government's current CDM policy is not considered practicable. Ownership of the CER credits is to be shared between AEDB, NTDC, and the investors. Investors do express an interest in pursuing CDM for future projects, but feel that collective ownership of CERs is not practical and hope that full ownership can be offered to the investor in the future. To our knowledge, the project's CDM

activities were limited to a single workshop; and no other activity was undertaken to achieve the policy change originally targeted. Investors feel they did benefit from the workshop.

4-3-4. Establishment of Public Sector Renewable Energy Fund

Achievement of outcome: Partial. Fund has been designed, but not yet set up.

Discussion/Evidence: AEDB expressed strong enthusiasm for this fund, which would be set up as a company with accounts separate from AEDB, but with the purpose of achieving AEDB objectives. The fund would cover public sector investments in wind, solar, geothermal, and other types of renewable energy projects. This outcome was not included in the project inception report, so must have been added later due to strong interest from AEDB. The project supported design of the fund, which AEDB indicates was very well done. AEDB's board has approved the fund and it has been submitted to the government for higher-level approval and funding, though this may be difficult to get. The fund has received some preliminary interest from one outside investor, but more investors would be pursued should approval be achieved. AEDB stresses one key purpose of the fund would be for the Government to get a real handle on the costs of renewable energy projects. In some ways, in the case of wind, this may be seen as a substitute for what was originally to be Phase II of WEP (now no longer being pursued), a grid connected wind farm of up to 20 MW. At the same time, given that the first financial close for grid-connected wind has been achieved and others are expected soon, some suggest there is no longer a need for public sector investment in a grid-connected wind farm.

4-3-5. Finance Program Overall

As mentioned above, the Finance Program's originally targeted outcomes as a group received less focused attention than did the sets of outcomes of the other programs. Still, some worthwhile contributions were made by the project with regard to the Finance Program's outcomes. Further, the first financial close of a grid-connected wind farm in Pakistan was achieved (with contributions from the project as a whole, though not necessarily this program in particular). Overall, we feel that the Finance Program to some extent fell through the cracks due to lack of dedicated activities addressing targeted outcomes. For example, the first targeted outcome was covered by cross-cutting activities, though did not have any activities solely dedicated to its achievement. The second targeted outcome was not addressed in a focused way; and the third was addressed only by a single workshop. The fourth outcome was added to the program later, but was supported by a focused consultancy.

A summary of the outcome analysis for the Finance Program is given below in Exhibit 13:

Exhibit 13: Summary of Outcome Analysis of Finance Program

Outcome	Rating	Reasoning/Evidence
1.Increased understanding of IPPs on preparation of required financial documents	Satisfactory	Cross-cutting workshops included training on financial documents. Outcome achieved at highly satisfactory level, though credit due to the project likely only partial.
2. Increased involvement of financial institutions in renewable energy	Limited/not due directly to project	No dedicated project activities addressing this outcome; project may have stimulated lender interest and got them informed, but limited evidence of this; project did educate investors who in turn are educating their lenders.
3. Revised CDM policies and increased knowledge of CDM among investors	Partial	CDM policy not revised and still not practicable. Project activities targeting this outcome limited to one workshop. Investors did increase their CDM knowledge through workshop.
4. Establishment of public sector renewable energy fund	Partial	Fund designed, but not yet set up. AEDB very satisfied with project-supported design. Some question whether public sector support of wind projects needed, now that first private sector financial close achieved and more expected soon.

4-4. Capacity Building and Knowledge Transfer Program – Outcome Level Analysis

As noted earlier, in defining the Capacity Building and Knowledge Transfer Program, for the purpose of this analysis, we include only those outcomes and activities not clearly falling under other programs. Thus, for example, activities and outcomes related to increased capacity in wind resources assessment fall under the Wind Resource Assessment Program.

Exhibit 14 below summarizes the three key targeted outcomes of the Capacity Building and Knowledge Transfer Program. The results obtained with regard to these outcomes and evidence of achievement are included on an outcome-by-outcome basis in the subsections that follow.

Exhibit 14: Targeted Outcomes of Capacity Building and Knowledge Transfer Program (*note: includes only outcomes not clearly falling under other programs*)

Capacity Building and Knowledge Transfer Program – Targeted Outcomes
1. AEDB effectively, with support of other relevant partner government organizations, operates as a "one-window facility" that meets needs of private sector investors developing wind farms 2. Increased potential for local manufacturing and service organizations related to wind energy through building of their knowledge base 3. Incorporation of renewable energy training into curriculum of vocational and academic institutions

4-4-1. AEDB Effectively Meets the Needs of Wind Farm Investors

Achievement of outcome: Partial. AEDB has improved its capacity to support investors as evidenced by the recent first financial close of a wind farm in Pakistan in June, 2011. At the same time, stakeholders point out ongoing deficiencies in AEDB's capacity and its coordination with other key stakeholders, the latter being an area this project was meant to address. Finally, aside from the wind resource assessment aspect, the project appears to have had less of a direct role in raising AEDB's capacity, though indirect contributions, given the extent and duration of the project, are highly likely.

Evidence: Aside from the wind resource assessment capacity building (addressed under the Wind Resource Program) and limited support for the medium-term policy (addressed under the Policy and Tariff Program), the evaluation team did not identify specific activities of the project meant to build the capacity of AEDB. Indeed, there is some concern that the budget criteria for this outcome were too open. Yet, as a whole, with its active involvement in the project since the end of 2006 through the National Project Director, the AEDB has certainly built its knowledge base and capacity to meet the needs of investors. One stakeholder mentioned that the project helped AEDB in the design of standard documents, which are now on the website, but the team was unable to confirm the role of the project in this. Investors provided mixed reviews on AEDB's capacity to help them meet their needs, some positive, but others less so. One issue is sustainability, as AEDB has had a lot of staff turnover. Indeed, it was suggested to the team that AEDB may be understaffed and this may be limiting its effectiveness. Another issue raised is that AEDB in executing donor projects should get other key agencies more involved –so that there is ownership in the places it should be. While a need to strengthen AEDB's coordination with other key government entities is in order, we also note that AEDB is said to have played an important role (through the vehicle of the PSC) in convincing NEPRA to raise the tariff offered for wind.

AEDB explains its role with regard to investors as "facilitator" rather than as "one-stop window," a terminology adopted in WEP documents. So, perhaps the project was over-ambitious in targeting the "one-stop window" outcome. AEDB explains that it issues the letter of intent (LOI) and works with investors to get all the documents with other agencies approved and then finally issues the Letter of Support (LOS), after which investors must achieve financial close. AEDB further explains that it can now provide help in some specific areas, such as EIA guidelines (as provided by the project) and provision of data, as supported under the WEP's Wind Resource Assessment Program.

4-4-2. Increased Potential for Local Manufacturing and Services Related to Wind

Achievement of outcome: Partial. This outcome has been affected by being "before its time" due to the ongoing nascent status of Pakistan's wind sector. With only 6 MW installed to date, local companies and foreign investors alike lack the incentive to establish wind-sector related

manufacturing operations, though we understand that some service providers may be developing a limited presence. At the same time, several stakeholders (including NEPRA) stressed the critical importance of local manufacturing as a way to bring down the high cost of building wind farms in Pakistan, one even suggesting liaison with Pakistan's Heavy Mechanical Complex in this regard. As such, we do not feel the one study commissioned by the project to address this outcome was misplaced in time, but rather that it should be treated as an early work in what will hopefully be a growing field. At the same time, it is true, as was commented by one stakeholder, that the initial formulation with regard to this outcome was probably overambitious.

Evidence: The project commissioned only one study on this topic and it has not been fully completed.[10] At the same time, the 50 MW Fauji Wind Farm project, for which ground has been broken, will have a significant proportion of its towers (on which the turbines will be placed) manufactured domestically. While there is no direct connection to WEP; and Fauji is not required to use local content, one stakeholder suggested the project should be credited with "getting the idea of domestic manufacturing out there." The study commissioned looks at items believed to be suitable to local manufacturing, such as towers and blades. It looks at which existing industries in Pakistan may be able to handle which components, with an idea that some overseas manufacturers may wish to partner with local companies once the market expands. AEDB has noticed some domestic activity in the manufacture of small, off-grid wind turbines and is keen to use remaining funds for an activity to support this.

4-4-3. Incorporation of Renewable Energy Training into Curriculum of Vocational and Academic Institutions

Achievement of outcome: Satisfactory, although outcome somewhat modified. The original idea behind this outcome is that the project would support vocational and academic institutes in developing a curriculum for renewable energy. In the end, WEP focused instead on providing software to one university and involving professors of another university in workshops and training. While the software has broader applications than wind power alone, the evidence suggests wind applications of the software have been incorporated into its use by students at the first university. An off-grid turbine and solar modules were also provided to the second university, but we were unable to obtain any feedback on this.

Discussion and Evidence: The WEP provided the Electrical Engineering Department of the University of Engineering and Technology (UET) in Lahore with PSSE and PSM software. As the software was delivered a bit late in the project (Dec. 2010), it has not been used yet in coursework, but will be used next semester. The software's use is not limited to wind, but rather it is a key tool in power systems analysis. The professor in charge showed the evaluation team three or four student theses conducted based on the software. One of these was focused on wind power. Because WAPDA (the Water and Power Development Authority, a key employer of graduates) uses PSSE,

[10] The study did not include the economic analysis required by the TOR, but other portions were completed.

which the university did not previously have, it was taking recent graduates around six months on the job to get up to speed on it. The university plans to use the software to do studies on the feasibility of grid connected wind. Their purpose is to see what the impact on power quality is as wind is added to the grid. The university has groups actively researching wind. It also has a new undergraduate course on renewable energy and one at the master's level, though these may not be directly attributable to the project. The university believes the impact of the WEP contribution is sustainable as they have 60 work stations with the software; and many students take the course Power Systems Analysis that will be using the software. The university had no plans to purchase this software had the project not supported it.

The project also supported the Mechanical Engineering Department of the NED University of Engineering Technology in Karachi through involvement of its professors in capacity building and software training over a period of four or five years. In addition, the project provided an off-grid wind turbine and solar modules to the department. The professor with whom the evaluation team spoke did not mention the wind turbine or solar modules, but did state that the capacity building and training workshops had been useful in raising awareness. One point to note is that the main NED contact for WEP has moved to Spain, which may have implications for sustainability. The professor consulted indicated that, while the university does have one undergraduate and one graduate course in renewable energy, these cannot be attributed to the project. He noted that such courses are quite common nowadays.

4-4-4. Capacity Building and Knowledge Program Overall

WEP's Capacity Building and Knowledge Transfer Program has yielded some positive results, though in the case of two outcomes, specific activities to support the outcome were limited. In the case of the third outcome, the intended outcome appears to have been modified a bit (from renewable energy curriculum development to capabilities in grid connection feasibility assessment at one university and to capacity building at another). Yet, the project achieved good, sustainable results in the case of at least one of the universities.

Two issues arose in the course of consultations regarding this program that suggest approaches the project might have taken or that might be pursued in future projects:

The first issue, which became apparent during the course of the project, is that the provincial governments (particularly Sindh at this point) will be playing an important role in the progress towards achievement of substantial grid connected wind capacity and therefore might have been more closely involved in the project. We understand that the Sindh Government may in the future lease land directly to investors and has already been critical in resolving land lease issues. Yet, wind-related capacity in the relevant body, the Sindh Environment and Alternative Energy Department, is low. The Department requested support from WEP in the form of a baseline capacity assessment, but such support never came through. Yet, given the role that this Department is likely

to play in the wind sector in the future, the evaluation team feels that this may have been money well spent. One stakeholder mentioned to the team that investor interactions at the central level may be limited to submitting documents and that most other things must be done locally. Another mentioned that the next group of investors may be doing more local liaison and that off-grid efforts, in particular, are a provincial subject.

The second issue is that investors have found that they have common interests that would benefit from having a coalition of sorts. As a result, they have set up a wind farm investor association in Sindh to jointly police check points and make a road. The formation and leveraging of an association to achieve sustainable project outcomes is an approach this association brings to mind and one that may be considered for future projects.

A summary of the outcome analysis for the Capacity Building and Knowledge Transfer Program is given below in Exhibit 15:

Exhibit 15: Summary of Outcome Analysis of Capacity Building and Knowledge Transfer Program (*note: includes only outcomes not clearly falling under other programs)*

Outcome	Rating	Reasoning/Evidence
1. AEDB capacity raised to meet the needs of wind investors	Partial	Aside from wind resource assessment capacity building, no specific activities to address outcome. Yet, overall involvement in project over the years likely to have contributed to AEDB capacity. Project intended to improve AEDB's coordination with other agencies in supporting investors. WEP PSC did provide a forum for this, but a need is seen for AEDB to get other key government agencies more involved in donor projects in order to facilitate ultimate intended outcome of meeting the needs of investors.
2. Increased potential for local manufacturing and services related to wind	Partial/limited, but initial work may be useful to future efforts	Only one study commissioned for identifying potential manufacturers and matching with interested overseas investors. Report not fully completed. While work may have been a bit before its time as there is no substantial market in Pakistan yet, key stakeholders emphasized the importance of developing local manufacturing to get the costs down. So, we believe this albeit limited effort can serve as a worthwhile initial stepping stone.
3. Incorporation of renewable energy into curriculum of vocational and academic institutes	Satisfactory, although modified from pure curriculum building to grid feasibility and capacity building	Impact on UET seems strong. Software provided will be used in coursework. Though applications are broader than wind alone, the software provision has stimulated research on the feasibility of grid connection for wind. Impact on NED less clear from stakeholder consultation. Professors trained in workshops and off-grid hybrid system provided, but one key professor has left. Stakeholder consulted feels capacity has been built, but does not feel renewable energy courses are due to WEP project.

4-5. Off-grid Program – Outcome Level Analysis

Exhibit 16 below summarizes the two key targeted outcomes of the Off-grid Program.

Exhibit 16: Off-grid Program

Off-grid Program – Targeted Outcomes
1. Favorable groundwork laid for increased activity in remote off-grid solar-wind hybrid systems as evidenced by increased government (for poverty reduction), private sector, or NGO interest and understanding of barriers and actions required to remove them. 2. A pilot off-grid hybrid system for a remote community that is effectively poised to serve as a model for stakeholders likely to replicate the effort (i.e. government, private sector, and NGOs).

Program status: So far, the feasibility study for the off-grid pilot has been completed. Three communities have been surveyed based on selection criteria (how far from grid, affordability level of community, and potential for sustainability); and one (Jangesar) has been selected. A contractor has also been selected to install and service the system; and procurement orders have been sent. Yet, money has not been paid and no work has begun.

As work has not yet begun on the off-grid installation and because there have been no other capacity building, awareness raising, or dissemination activities associated with the program, neither of the two targeted outcomes have been achieved. As a result, in the two subsections that follow, we will be limited to reviewing our initial findings regarding the potential to achieve these outcomes and the plans for the system. As much work on this program remains to be done, further comments will be included in the section of this report covering exit strategies.

4-5-1. Favorable Groundwork Laid for Increased Activity in Remote Off-Grid Systems

While lack of funds is always a concern, there is interest among stakeholders in off-grid systems for remote villages. Thus, the project could have the potential to lay the groundwork for further activity. The Sindh Provincial Government intends to electrify a large number of its villages without electricity, though WAPDA has indicated that there is a large number that can still not be connected to the grid in the next 20 years. Further, the Government of Sindh reportedly has 50-60 million rupees allocated to be spent over three years on off-grid renewable energy applications including wind and biogas and thus finds the project's off-grid program of interest. The provincial government has a proposal to set up the same kind of system in 11 villages. Development agencies may also provide a good audience to the pilot. GIZ and World Bank were mentioned as donors that may have particular interest in off-grid systems. Stakeholders did not mention the existence of any other wind-solar hybrid off-grid systems with batteries in Pakistan, so this pilot could indeed be groundbreaking. We have heard that there are some off-grid village systems based on wind, but with no battery back-up.

4-5-2. Pilot Off-grid System that Can Serve as a Model

The site, Jangesar, is located in Keti Bandar, Sindh Province, near the place where the Indus River empties into the sea. During a field trip to the project site, the evaluation team learned that the grid actually extends to the site, but is extremely weak and not expected to be improved. We saw corroded and dilapidated towers for power lines and were told that annual maintenance costs of distribution lines in the area, due to the salty environment and heat, can be as high as the original cost of distribution equipment. We were further told that the area has 21-23 hours per day without the grid and that the grid power, when provided, is low quality/low capacity.

The local people in the area fish and farm. While the local area is said to be rich in resources (sea, land, and livestock), it is one of the less developed parts of the country due to lack of infrastructure. The local people live in simple thatched homes, but a number of cement homes, financed by the Prince of Dubai, have been built; and the first group of villagers are to move into their new homes within a month. These homes will have the added advantage that they provide a stronger base for installation of the mini-grid distribution lines.

There is a landowner associated with these villages; and he is currently using a diesel generator for power. The plan is that the local landowner would, along with the villagers, make use of the hybrid system, pay for the power he uses, and provide his diesel generator as backup. The system will be 20kW, consisting of 10kW of solar and 10kW of wind. The landowner used to use a 5kW diesel generator, but now uses smaller generators for each of his separate buildings as he found the 5kW generator provided too much power for their needs and wasted fuel. Some stakeholders have expressed concern that the landowner, as a powerful person in the area, may use the system to his greater advantage at the expense of the local people. Project management asserts, however, that the contract with the land owner will be legally binding, so that he cannot take over the system. Clearly, this is an issue that the eventual implementers and maintainers of the pilot will want to consider in their plans for management of the system and that should be emphasized in the exit strategy of WEP.

The project also has an interest in encouraging productive uses of the off-grid power from this pilot. In particular, it has been suggested that local fishermen are at a disadvantage in terms of cold storage, so that this would be an area in which the pilot could help. At present, when these fishermen bring in a lot of fish, the middleman benefits, since the local people must buy ice from far away and cannot really manage to store the fish for long. On the other hand, no analysis has been done yet of the kind of load cold storage would require, so this also should be part of next steps.

The team had only a brief visit to one of the local clusters of families to be served by the system. School attendance rates appeared to be very low although there is a newly built school just nearby. The villagers (or at least the women and children) did not seem well-informed about the new homes or the electrification plan. They told us that they now use flashlights and kerosene in place of grid-

powered lighting, though interestingly the one home we visited had a light switch installed on the wall.

4-5-3. Off-grid Program Overall

A summary of the outcome analysis for the Off-grid Program is given below in Exhibit 17:

Exhibit 17: Summary of Outcome Analysis of Off-Grid Program

Outcome	Rating	Potential for Achievement	Explanation
1. Groundwork laid for increased interest in renewable energy off-grid village power systems	Limited progress	Strong if pilot done well, but implementation will be challenging	Sindh Government has some funding and strong interest for similar initiatives. Donors may have an interest as well. According to WAPDA, many villages in Sindh will not have real grid access for at least another 20 years.
2. Pilot off-grid system that can serve as effective, best-practice model	Limited progress	Strong if pilot done well, but implementation will be challenging	New, sturdy homes and the potential for productive applications add to the attractiveness of the model. The rich land owner – poor village community structure may be similar to that found in other areas lacking electricity, thus adding to the value of the model if successfully implemented.

4-6. Overall Assessment Outcomes

Section 9 of this report gives our ratings on various aspects of project achievement. The important rating on "efficacy" – the extent to which results were achieved – relies heavily on the foregoing outcome analysis, offering an overall assessment of the achievement of outcomes. Exhibit 24 found in Section 9 aggregates the achievement level of all the outcomes listed above into the categories of "excellent," "satisfactory," or "weak" and subdivides the "weak" category by reason (project delays, cancellations, lack of activities to support, or lack of stakeholder involvement), thus providing a good overview of the outcome-by-outcome findings given above.

5. Output Level Analysis and Exit Strategy

This section reviews the level of completion of targeted and added activities, as well as reasons for delays. Findings indicate that there has been both a high level of cancelled activities and of activities that are delayed. While there can be reasonable explanations for both cancellations (e.g. inappropriate project design, changes in needs over time, etc.) and delays, we do feel findings

suggest a tighter accountability process for cancellation of activities and addition of new ones, as well as for meeting project timelines. This section closes with a review of recommendations for project exit strategy for the two major uncompleted activities.

5-1. Output Level Analysis

Exhibit 18 below lists (with some reorganization) major activities listed in the Project Inception Report ("IR") as well as those added later ("AL"). To the best of our understanding, we have indicated the level of completion of each of these activities. While our system for indicating completion level and defining activities is far from comprehensive, we note as a rough measure that eight major activities have been more or less fully completed, six have not been completed to a significant extent, and five have been partially completed. Of the non-completions, four are due to cancellation of activities while two are due to delays. Of the partial completions, four are due to cancellation of sub-activities and one due to delays. While this record of completion seems relatively weak, we also note that activities as designed at the time of the project inception report, particularly for a "flexible response" project such as this one, may end up not being fully appropriate or end up being too ambitious. Thus, deeper analysis is needed.

Exhibit 18: Completion Status of Targeted Activities

*note: IR indicates activity targeted in Project "Inception Report" (June 2007); AL indicates activities "added later."

Activity	IR or AL?*	Completion	Comments
Wind Resource Assessment Program			
1. Baseline assessment and site analysis for wind resource assessment	IR	Yes	Less emphasis on PMD than targeted
2. Setup of six demo wind masts	IR	Partial	PMD not involved as planned; data for only 3 sites available at project close
3. Setup of six more masts	AL	No (only 1 complete)	Sites for five masts not even selected yet
4. Setup of wind data telemetry systems	IR	Yes, but changed	PMD not involved as planned
5. Training for wind resources assessment and data collection	IR	Yes	Not sure if PMD involved in mast setup training as targeted
Policy and Tariff Program			
1. Comprehensive policy and tariff overview and refinement strategy	IR	No, cancelled	Told ADB handled this, but did not confirm.
2. Study of grid integration of wind farms	IR	No, cancelled	Told ADB handled this, though they did not confirm. Study conducted may have been much smaller than this one for which bids were $200,000-$400,000
3. Environment and Socio-Economic Assessment Frameworks	IR	Yes	Received strongly positive reviews
4. Support for wind-related changes in grid code	AL	Yes	Received positive reviews
5. Legal support for mid-term RE	AL	Yes	Input may have been limited; ADB

policy			provided main support on revisions to medium-term RE policy
6.Training for policy and tariff stakeholders	IR	Partial	Policy workshops held, but procurement and training on tariff and financial software not undertaken
Financial Support Program			
1. Preparation of financial proposals and legal agreements	IR	No	Sub-activities outlined in IR under this item not implemented
2. Dissemination activities	IR	Partial	Seminars covered some targeted topics; not sure if brochures/ papers developed
3. CDM workshop	AL	Yes	Good reviews
4. Design of Renewable Energy Fund	AL	Yes	AEDB happy with output
Capacity Building and Knowledge Transfer Program			
1. AEDB specific capacity building measures	IR	Partial	Sub-activities not completed – e.g. communications protocol between AEDB, CPPA, and NEPRA; assisting with open bidding system for wind developers etc.
2. Developing capacity of local manufacturers, service providers and center of excellence	IR	Partial	Manufacturing capacity assessment report partially completed; vocational training on installation and O&M not completed.
3. Curriculum development	IR	Yes, but changed	Instead of curriculum development, grid connection software provided to university instead.
4. Establishment of Center of Excellence	IR	No	Not pursued; had planned to assess PCRET or other appropriate organization's capacity
Off-grid Program			
1. Study of off-grid wind energy development	IR	Yes	Project off-grid site chosen based on this study.
2. Off-grid demo	IR	No	Delayed, but procurement approved.

We believe that (in addition to delays, which are reviewed later) it is important to review which major activities were added and which ones were dropped, as indicated in Exhibit 19, to assess whether better choices, in retrospect, might have been made. After reviewing the major additions and deletions, our assessment is that some important activities were dropped that were not outside of the capacity of the project and that more was dropped than added. Given stakeholder concern about both grid integration and the capacity building needs of NEPRA, dropping of the grid integration study and the NEPRA tariff support work may be regretful. For the grid integration study, we were unable to gain a full picture of the activity ADB is said to have undertaken in its place. Neither ADB officers nor NTDC's Planning Department seemed aware of this study, though NTDC's CCPA indicated at a stakeholder meeting on the terminal evaluation they know about it and it was conducted by a domestic consultant. We were told that the ADB study was to handle grid integration issues for up to 700 MW national wind capacity, while UNDP would conduct a study for capacity of over 700 MW, though the latter never came to fruition. More generally speaking, issues

of high project management costs (as discussed later) may have eaten into the budget that otherwise might have supported dropped activities.

Exhibit 19: Major Activities Dropped and Added

Activities Dropped	Activities Added	Comments
1. Comprehensive policy and tariff overview and refinement strategy 2. Grid integration study 3. Procurement and training on tariff and financial software 4. Preparation of financial proposals and legal agreements 5. AEDB capacity building, including: communications protocol between AEDB, CPPA, and NEPRA; assisting with open bidding system for wind developers etc.* 6. Vocational training on installation and O&M not 7. Establishment of manufacturing Center of Excellence	1. Addition of six more wind masts 2. Support of wind-related revisions to grid code 3. Design of renewable energy fund	• *Dropped activities*: Stakeholders' concern about grid integration and capacity building needs of NEPRA remain; therefore dropping of grid integration study and tariff work may be regretful. While told that ADB had taken on these activities, we are not sure of scope since ADB did not acknowledge. • *Added activities*: grid code support strongly praised; justification of adding six masts, given high costs, should have been stronger

*This item includes AEDB capacity building in areas other than wind resource assessment.

Issue of donor overlap: For some of the major dropped activities, particularly the grid integration and tariff support studies, we were told that ADB had taken up these activities instead. ADB was also mentioned as taking up a number of other sub-activities targeted by the project. As with the grid integration study, however, we were unable to determine the scale of ADB involvement in most other overlapping activities. While ADB does have a major technical assistance project for revision of AEDB's medium-term renewable energy policy, we are less clear on the level of support for other areas. The donors do have a committee for coordinating on renewable energy, but it appears the committee is not very active. We suggest that there may be a need for donors to coordinate in more detail when overlap is given as the reason for cancellation of multiple project activities.

5- 2. Issue of Delays and Exit Strategy

According to many stakeholders, the greatest weakness of WEP has been delays in implementation. As the timeline for the project was drawing to a close (after a first extension), a consultancy was undertaken in December of 2010 to set a timeline for remaining activities. The consultant recommended a second extension of the project until August 31, 2011 and a timeline whereby all activities would be completed by then. The PSC adopted this timeline and asked that
it be closely monitored. Yet, progress since that time has been limited, particularly with regard to two key outstanding activity areas: (1) installation of wind masts to measure wind resources in new areas and (2) installation of an off-grid wind-solar hybrid system at an appropriate village. While there have been many valid reasons for delays of various activities over the lifetime of the project,

the evaluation team believes that, with concerted effort and decisive action, much more progress towards completion (if not completion itself) could have been achieved since the last project extension in December 2010.

Thus, we recommend that an exit strategy be formulated by the PMU for the wind masts and off-grid system, that a firm timeline with accountability be set, and that no new activities in other areas be initiated at this point. In this sub-section, we first cover feedback from stakeholders on reasons for delays across project activities, then address specific reasons for delays with the wind masts and recommendations for an exit strategy, and finally cover reasons for delays of the off-grid system and recommendations for an exit strategy. We note that designing an exit strategy is generally not one of the primary purposes of a terminal evaluation. We offer the recommendations, then, mainly because we have been asked to do so by stakeholders and because the timing of our mission coincided very appropriately with the urgent need for design of a final exit strategy. Of course, in the end, it will be the responsibility of the PSC, UNDP, and the executing agency to come to agreement, based on the PMU's proposal, of a more detailed exit strategy.

5-2-1. Reasons for Delays across Project Activities

Stakeholders offered both practical reasons (such as slow procurement processes and security issues) and reasons of project governance and management structure (such as slow decision-making within the executing agency) for delays in project activities. In the recommendations section of this report, we do include some recommendations on the practical issues, though believe the greatest room for improvement may be in project governance/decision-making and therefore focus our recommendations there.

Prior to delving into delays in project activities, we note delays in project launch: While the project document was completed in January 2004 and GEF CEO endorsement obtained in March 2005, in-country endorsements were not obtained until December 2005. We were told that some of this delay was due to difficulties in reaching agreement on the executing agency. The project was not launched until Nov. 2006, almost a year after in-country endorsement. Given the great delays, the project document became outdated and an inception report, which became the key document outlining outcomes and activities, was prepared, but not until June 2007, about seven months after project launch. While we don't know the reasons for these last two delays, we would suggest in the future greater effort be made to get the inception report out within a couple months of project launch.

In discussion of practical reasons for project delays, project proponents indicate procurement and security as major barriers. While there may be some margin to expedite UNDP procurement processes, we understand these are vital to assuring transparency. Thus, we suggest that future projects design procurement timelines into their overall work plans. Timeline design should emphasize the undertaking of parallel activities while waiting for procurement approvals in order to

achieve deliverables by target dates. We also suggest that future projects in Pakistan be launched with full awareness of potential security roadblocks and seek to learn from this project and others how to address those issues and still achieve targeted delivery dates if at all possible. Comments offered on these issues by the executing agency and the PMU include the following: (1) The first procurement, a baseline capacity study, was delayed, since it was initially not approved by UNDP. (2) In another procurement, delay was caused when the third bidder pulled out towards the end, leaving only two, and the second complained about fairness. (3) By the time approval for the grid integration study was obtained, the top bidder could no longer be available to do it. (4) There was a period of implementation in 2007-2009 when foreign consultants declined to come to Pakistan due to security reasons. The project eventually sent master trainers abroad to solve this problem. (5) The project has had to change targeted locations for the masts due to security issues.

Other stakeholders focused on issues of project governance in causing delays; and we believe this area may offer the greatest room for improvement in future projects. Items raised by stakeholders include the following: (1) The project had a foreign Chief Technical Advisor (CTA) only for several months in its initial year. In the end, the project was run by the (domestic) Deputy Project Manager. Efforts to recruit a (domestic) Project Manager never came to fruition. Thus, the PMU was run by a single person, whereas a duo of top project personnel, as is more common in projects of this nature, may have been more effective in pushing things ahead. (2) The PMU was not empowered to make decisions; and these (such as where to install the masts) instead often got hung up within the executing agency's own decision-making processes for months on end. A PMU with a foreign CTA or a domestic project manager given higher status may have been better able to balance the executing agency and push things forward. (3) Although the PSC made decisions, such as to adhere to the July 31, 2011 targeted completion dates as recommended at the time of the second project extension, the PSC and UNDP lacked the influence to enforce its decisions with regard to the project.

5-2-2. The Masts – Reasons for Delays and Exit Strategy

Status: Seven of 12 wind masts have been installed and are still collecting data. Results from three of these wind masts have been posted on AEDB's website. The five remaining masts still lack a confirmed site, although target completion date at the time of the last extension was July 31, 2011. Exhibit 13 below shows the status of the masts at key junctures over time, along with reasons for delays and the timelines that were planned or recommended at each of these junctures.

Reasons given for delays: Seven more masts (originally there were to be five in total) were added in mid-2008. The request for procurement went out in Dec. 2008 and was not approved until Dec. 2009. Then, work began on site selection. In retrospect, the evaluation team would suggest that site selection be carried out while waiting for procurement to come through. We have been told that the remaining five masts continue to be stalled because of site selection. One issue is that some private landowners are unwilling to have masts located on their land without compensation and, in some

cases, land ownership is disputed. Yet, we understand that the executing agency may also be maintaining its initial interest in pursuing sites in provinces other than Sindh (such as Balochistan), although the recommendation adopted by the PSC after the review in Dec. 2010, was to consider sites in other provinces only for one month (Jan. 2011) before making a decision whether to shift all remaining masts to Sindh (see Exhibit 13). As an aside, we also add that the justification for adding seven more masts to the project is not entirely clear. When the masts were added, investors for the most part were unaware of the mast activity, as this was located outside of the areas in which they had been allocated land and as no data had yet been made available from them. Thus, the drive for adding the masts must have been independent of investor feedback.

Exhibit 20 – Changes in Targeted Completion Dates for Masts over Time

Date and Report	Status of Masts	Reasons for Delays and Comments	Timeline Suggested Going Forward
1. Inception Report (June 2007)	6 masts targeted	Not discussed	In 2007, study on location of wind data stations to be completed
2. Mid-Term Evaluation (Oct. 2008)	1 of 5 installed (only 5 targeted at that time)	Not discussed	Installation of 4 others by end of 2008 in Sindh, Punjab, and Balochistan
3. Project Implementation Review – PIR (Dec. 2010)	5 of 12 installed: remaining included 3 to be in Sindh, 1 in Punjab, 2 in Balochistan, 1 in KPK	Sites confirmed for 3 in Sindh and 1 in Punjab, but security situation resulted in lack of confirmed sites for Balochistan and KPK	April 30, 2011 for installation of 3 Sindh and 1 Punjab masts; in Jan. 2011, project to determine whether it can move forward in Balochistan and KPK and report to UNDP. If not, shift these 3 masts to Sindh for installation by April 30, 2011. If so, installation by July 31, 2011.*
4. present (Aug. 2011)	7 of 12 masts installed; 6 in Sindh and 1 in Punjab	Despite Dec. 2010 recommendations, sites of remaining 5 masts still not agreed upon.	We recommend remaining 5 masts be installed in Sind by Nov. 2011 latest.

*Recommendation adopted by PSC

Recommendations and Considerations for Exit Strategy: In designing the exit strategy, we recommend that strong attention be given to the objectives of installing the masts. We recommend that strong oversight then be taken to ensure that chosen sites meet objectives and other practical considerations, such as viable availability of land for multiple wind farms in the area. According to our understanding, the potential objectives and uses of the masts are three-fold, as follows, with the first being the primary objective and the third being a "bonus" or secondary objective, to be targeted if at all possible:

- Primary objective: Facilitation of the government opening up new areas to wind farm investment; two years of data collection preferable. Location should be in an area with the potential (in terms of future land availability) for multiple wind farms (assuming 50 MW scale of each). Areas with major security issues should be avoided.

- Side-benefit: If located appropriately, data from mast may be used in investor feasibility study.
- Secondary objective: Long-term data collection to build up national wind database. Attractive option, but will be based on partner's willingness to collect data for five to seven years. Interestingly, China's equivalent to the PMD is now setting up 100 m masts across the country for this purpose.

In terms of location, we recommend that the remaining five masts be installed in Sindh, unless an extremely strong case can be made for an alternative. We fully agree that expansion of the mast effort to other provinces is highly attractive, as it would include them in this important effort to develop Pakistan's wind sector and open up new wind farm areas. The experience of this project has shown, however, that security issues (in the case of Balochistan and KPK) make this impractical in the short-term. Thus, we recommend that installation of masts for development of wind farms in other provinces be targeted to be carried out with the additional 30 masts that AEDB is planning. In terms of our reasoning, first, we note that project completion is urgent – the Dec. 2010 PIR targeted July 31, 2011 for completion of wind mast installation, but the sites for five masts remain undetermined. Second, masts in Sindh are likely to yield faster benefits in terms of future installed wind capacity and therefore greater momentum for Pakistan's wind sector at a time when it's needed, thus contributing more strongly to the project's goal of creating an enabling environment for private sector investment in grid-connected wind power.

We recommend a targeted installation timeline in Sindh of three to four months for the five remaining masts. This timeline would be pending confirmation that consultant identified sites meet the criteria of: (a) good wind resource, (b) availability of land in the area for multiple wind farms in the near future, and (c) viability of acquisition of land for mast and of addressing any security issues.

We further recommend that the project consider the following organizations for potential handover of the masts: AEDB, PMD, Sindh Environment and Alternative Energy Department, investor(s), or consultant. While we emphasize the first three options, the project may wish to consider a combination of one of the first three with one or both of the latter two. There may be special benefits to involving interested investors in terms of priming the project pipeline. In terms of pros and cons of potential partners: AEDB, as the executing agency, has experience with the seven masts installed to date and purports to be planning 30 more masts, though has lost wind resource assessment capacity developed due to turnover of personnel. PMD's institutional mandate (and recent activity in wind resource assessment) fits well with both the primary and secondary objectives of mast installation; and they may be a good candidate for longer term collection of data. We further understand that the PMD has submitted a proposal to the PSC for transfer of the masts to PMD, though have not seen this proposal. The Sindh Environment and Alternative Energy Department, as a provincial-level entity, may be playing a more active role in land acquisition and development of wind farms in Sindh in the future and may generally have a stronger capacity for dealing with local issues faced in installing the masts. Yet, it also indicates a lack capacity to handled unfunded initiatives.

In choosing a partner for handover of the masts, we suggest the following be taken into consideration: (1) Project funds will support installation and one year of operation and maintenance, but the preferred partner will be willing to collect data for two years and (in the best case scenario) maybe even five to seven years. (2) The preferred partner will be capable of analyzing the data or outsourcing the analysis. (3) The preferred partner will be willing to provide data to the public, especially investors.

In terms of next steps in designing the exit strategy, we suggest the project carry out discussions with potential partners for mast handover to assess their interest, their ability to deliver, and their willingness to support at least two years of data collection and potentially the longer term effort (five to seven years). Further, the partner chosen should be willing to pursue professional design of the tower instrumentation, buying the latest equipment with adequate data storage and wireless data transmission capabilities, particularly if the sites will not be visited on a regular basis. We further suggest that a time-bound agreement be signed with the preferred partner, outlining obligations, and that allowance be made to move on to another partner if milestones are not achieved (e.g. land acquisition in two months and installation after an additional two months).

5-2-3. Off-Grid System – Reasons for Delays and Exit Strategy

Status: The community for the off-grid system has been identified and the contractor selected. Procurement approval for the off-grid system has been obtained from UNDP, but no money has been paid to the vendor as of yet.

Delays and reasons for them: Our understanding is that there has been little or no forward motion in the status of the off-grid system, since the Dec. 2010 PIR, which recommended completion of installation and training by July 2011, a target also adopted by the PSC. Further, progress between March 2009 and May 2010 when the tender was floated was very slow. Our understanding is that the off-grid component got started towards the end of 2008; and the needs assessment was completed in March 2009. Because the cost of the off-grid system represented a change in budget, there was a need for the project to discuss this with AEDB, but it seems this process may have unnecessarily taken over a year. Exhibit 21 summarizes the status of the off-grid pilot and planned timeline going forward at various key milestones in WEP's history.

Recommendations and considerations for exit strategy: While the off-grid system could be a great contribution, with strong potential for replication, we believe there are many concerns that need to be addressed in the exit strategy. Sustainability issues include: landowner – villager control issues, load concerns, training of operators, setting up of a tariff collection system and banking the proceeds for repairs, and training of the community.[11] Thus, a proactive partner (for handover of

[11] As for the first issue, it should be noted that this landowner - villager societal model is a common one in the region. The villagers are poor and reportedly illiterate. The landowner's ability to pay for his portion of the power will be

the system) that will be able to visit the site frequently to ensure sustainability is needed. The partner should also be able to offer its own resources to support any follow-up needed after expiry of the service provider's one year of contracted follow up. Ideally, the partner would also have the capacity to promote replication of the off-grid system in other communities.

Exhibit 21 – Status and Targeted Completion Dates for Off-Grid System over Time

Date and Report	Status of Off-Grid System	Reasons for Delays and Comments	(New) Timeline Suggested Going Forward
1. Inception Report (June 2007)	Off-grid system mentioned as target	Not discussed	Not discussed
2. Mid-Term Eval (Oct. 2008)	Not discussed	Not discussed	Not discussed
3. PIR* (Dec. 2010)	Procurement approval obtained from UNDP	Not discussed	Contract signing with preferred supplier: Dec.2010; Site Prep: March 2011; Shipment of equipment: April 2011; installation: April – July 2011; community training July 2011
4. present (Aug. 2011)	Procurement approval obtained from UNDP	Not discussed	Suggest same allotment as determined in PIR, 7 months from now: by March 2011 installation and training completed

Options in terms of partners for handover include: AEDB, Sindh Government, a local NGO, or a combination of the foregoing. The advantage of AEDB is its involvement in the project to date and nationwide reach. Yet, there have been some reports of village off-grid wind turbines under AEDB's purview not being well maintained. Some have emphasized that a local partner, such as the Sindh Government, would be the natural fit for an off-grid project, which requires frequent visits. Yet, we have been told that the Sindh Government (Department of Environment and Alternative Energy) may lack the resources to maintain the system after the contractor's one year responsibility to do this expires. One possibility is to involve a local NGO along with a government partner, such as the Sindh Department of Environment and Alternative Energy. The NGO may be more willing to commit its own resources to visiting and maintaining the site and ensuring sustainability through creation of a community organization to manage the system. Finally, if a decision is made to handover the system from one partner to another after one year, we emphasize that the second partner should be actively involved from the start so that it can benefit from learning opportunities with the installation company during the first year.

As next steps, we recommend that the project discuss the handover with potential partners to assess their interest, ability to deliver and follow up with frequent site visits, and their willingness and ability to support the system from one year after commissioning onwards, when installer support expires. It is suggested that a time-bound agreement be signed with the partner and that payment

important, since the villagers may be unable to pay for theirs. Yet, the project will need to insure that the villagers remain in control of their system. This issue and the issue of loads are also discussed in Section 4, "Outcome Level Analysis."

and shipment be commenced immediately. Using the amount of time allotted for completion in the Dec. 2010 PIR (and assuming that nothing was done in the interim), completion of installation and training should be targeted for late March 2012 (or 7.5 months from the present)

6. Project Budget and Cost Effectiveness

Exhibit 22 below shows the project's audited financials generated by UNDP's ATLAS software on a component by component basis. We note that these components are a bit different than the ones adhered to in this report. The Wind Resource Assessment Program below does not include capacity building workshops (that are instead included in the Capacity Building Program). Further, the Policy and Tariff Program does include the study and hardware for the off-grid system, these last two totaling about $254,000. Subtracting this latter amount from the Policy and Tariff Program, we see that remaining expenditures in this category are $239,000. Further subtracting the environmental and social impact assessment work (which cost over $200,000) leaves a very small amount in this category.

An overall finding of our stakeholder consultations is that some of the most impactful activities to date have been the trainings, workshops, and software provision. Interestingly all of these efforts added together represent relatively low expenditure, perhaps a total of less than $150,000 if combining these elements encompassed under Policy and Tariff Support with the full budget for the Knowledge and Technology Transfer Program. This compares to a total of about $1.3 million for the wind resource data and off-grid system efforts (not including related capacity building), which, being incomplete, have yet to prove their worth. It further compares to about $1.1 million in project management costs, which represent 40 percent of total expenditures.

Exhibit 22: Audited Expenditures by Component

Component	2006	2007	2008	2009	2010	2011	Total
Wind Resource Assessment	4,786	36,516	493,869	321,743	182,055	25,176	1,064,145
Policy and Tariff Support	0	22,791	86,086	22, 519	0	361,914	492,986
Financial Instruments	0	12,827	0	0	0	0	12,827
Capacity Building and Knowledge Transfer	0	14,181	0	26,562	47,576	31,580	119,899
Project Management	217,210	174,721	248,666	241,537	158,925	80,298	1,121,357
Grand Total	221,996	248,210	841,448	612,038	388,556	498,996	2,811,244
Balance Amount:							288,756*

*The balance amount includes funds already committed, but not yet paid, such as amounts for procurement and installation of the remaining five wind masts and the off-grid system.

The high ratio of project management costs are of particular concern. The PMU did provide us with a revised budget in which these dropped to 34 percent of total costs. Yet, the revised version

appears to have issues of accuracy and comprehensiveness; and we further note that management cost level is still substantially higher than the recommended 20 percent. Overall, the high management costs raise strong concerns that project funds were used for items too far afield from targeted project outcomes and from truly necessary management costs to have been a cost effective use of funds. While further verification would be needed, it seems the true problems with the management cost budget occurred in items billed to the categories of "office expenses" and "travel," as only travel unrelated to project activities should have been included in management costs. Project management costs do include a fee from UNDP that is three percent of total annual expenditures.

Analysis of the budget and related stakeholder comments offer several useful insights. First, while we do have some concerns about the accuracy of the revised budget provided, we still feel it can be useful in highlighting a peculiarity in terms of the spread of costs for various activities. Namely, there are only a few very high cost activities indicated: the wind masts (over $879,000 in the PMU revised budget), the off-grid program ($254,000), and the ESIA report ($260,000 in the PMU revised budget). Then, aside from these few costly items, most other activities fall roughly in the $25,000 or less range, aside from $54,000 for AEDB capacity building (which includes a mix of items). We do have some concern that other more costly efforts were unnecessarily avoided, such as the grid integration study, for which we heard costs estimates of between $200,000 and $400,000. Finally, some stakeholders also expressed concern that items moving through the budget did not hold a direct enough relation to targeted project outcomes. These include items such as general trips abroad and laptop provision (the latter being charged to "capacity building"). Concerns were also expressed that good use was not made of the project vehicles as all three remained in Islamabad. It was suggested that at least one should have been moved to Sindh, where there were ongoing efforts to identify sites for the masts and vehicles instead had to be rented. We have pointed out that some of the smaller budget items were the most impactful in aggregate. Had a tighter cap been put on other expenses, the project might have chosen to implement more of these and/or perhaps more a few more items on the lower end of the high cost spectrum (i.e. low six figures), such as the ESIA, which also received very high marks from stakeholders.

Overall, based on all the above findings, we feel concerned that the wide scope allowed for changes to project activities and for the charging of budget items may have created a perverse incentive to conserve cash when it came to outcomes originally targeted by the project and spend this money instead on more general, less targeted activities and procurements. While UNDP and the PSC are likely to have been aware of some of the issues outlined above, there was not an adequate checks and balances system for them to enforce change. Given the importance of how money is spent to the effectiveness and efficiency of projects, we suggest strong measures be taken in future projects to: ensure a tighter scope on what types of items may be charged to the budget, more power to UNDP

and the PSC to question and effect change in how the money is being spent[12], and a clearer initial activity-wise budget plan with subsequently tighter control of changes to that plan.

7. Processes and Monitoring and Evaluation System

7-1. Process Affecting Attainment of Project Results

Exhibit 23: Summary of Findings on Processes Affecting Attainment of Project Results

Issue Area	Findings and Comments
1.Preparation and readiness	-initial two-year project timeline too tight for wind mast effort to achieve two years of data collection; suggest three to four year project design -some outcomes did not have activities to support; needed tighter project design -some key beneficiaries not as involved as they might have been: tighter design in terms of which stakeholders involved may be considered -concerns expressed as to commercial and technical experience of executing agency, as well as its willingness to closely involve other agencies
2. country ownership/ drivenness	-project in line with government's drive to grow indigenous sources of power -some regulatory change, particularly revision of grid code, has occurred in line with project objective -government co-financing of $720,000 considered low and was not substantiated in detail, but explained as being realized through executing agency manpower provision and import tariff reductions
3. Stakeholder involvement	-extensive involvement of private sector and government stakeholders in workshops -cancellation and reduction of expenditures for certain activities that would have benefited key government stakeholders (especially NTDC and NEPRA and perhaps PMD) reduced overall efficacy of project.
4. Financial planning	-PMU had finance officer and audits were conducted. -confusion remains about the budget, including 40 percent management cost ratio; implementing agency appears to lack power to prevent expenditures it believes in appropriate; stronger system needed in future
5. GEF agency supervision and backstopping	-UNDP remained closely involved through its monitoring function -UNDP effective at identifying problems, such as delays and budget issues, but lacked power to effect needed changes
6. Co-financing	-as mentioned, unable to verify $720,000 in-kind contribution, though active contribution of executing agency staff is clear
7. Delays and project outcomes and sustainability	-extensive delays, as discussed in Section 5, do present some risk to project sustainability, as project resources and backstopping will be unavailable during a crucial time for completion of two major initiative: (1) wind mast installation, data collection, analysis, and dissemination and (2) installation of and training for off-grid system; comprehensive and focused exit strategy needed to reduce sustainability risks.

[12] Perhaps either these organizations could be given "veto power" with regard to some of the issues discussed or an "investment committee" with a total of three votes (one for each of the PSC, UNDP, and the executing agency) could be formed to make final decisions on controversial budget issues.

Based on GEF terminal evaluation guidelines, we consider each of the seven issue areas listed in Exhibit 23 in terms of impact on implementation and attainment of project results. As there is some overlap with other sections of this report, we include only the highlights of our findings in Exhibit 23. The more detailed write-up may be found in Annex 3.

7-2. Monitoring and Evaluation System

Overall, the project appears to have put the appropriate effort and care into its monitoring and evaluation system, both in design and implementation. In Annex 3, we cover each of the GEF terminal evaluation guideline recommended monitoring and evaluation subtopics, showing substantial project effort in this area. Yet, despite having a satisfactory M&E system in place, the issue of project governance arises again. Namely, while the M&E system could point out delays in and cancellations of project activities, there was no power to implement recommended solutions to problems. Further, given the concerning budget issues covered in Section 6, future M&E systems may wish to incorporate a closer watch on budget developments, particularly management costs. Finally, there are no plans for follow-up monitoring after project close, but given concerns about two major activity areas that are still far from completion (the wind masts and the off-grid system), some provision for follow-up M&E might be considered.

8. Project Ratings

Below are our ratings and associated explanations for the relevance, effectiveness, efficiency (cost effectiveness), and sustainability of project results, as well as for project monitoring and evaluation. A summary of the ratings is provided in Exhibit 25 at the end of this section. Based on the ratings for relevance and effectiveness and given that the overall rating cannot be higher than the rating for either of these, we give the project's results an overall rating of moderately satisfactory (MS).

Relevance rating: The project's outcomes to date are consistent with GEF focal areas and strategies and with Pakistan's priorities to increase indigenous sources of power, such as grid connected wind. As discussed elsewhere, we do think in some cases the project could have been stronger at the activity and outcome level in addressing the most important issues facing Pakistan's wind sector. Therefore, we rate the relevance of project outcomes as satisfactory (S).

Effectiveness rating: Exhibit 24 below provides a summary of our findings on the achievement levels of project outcomes targeted at inception (as well as a few achieved without targeting). We used this summary to help us assess the overall effectiveness of project results. In rating the effectiveness of the project in achieving results, we believe it important not to penalize the project too much for changes in direction (e.g. outcomes dropped) if the decisions to drop these outcomes (either because they were not critical or because the project design was too ambitious) were good ones. We also believe it important to recognize the strongly positive impact of the project with regard to some targeted outcomes. On the other hand, as mentioned in the outcome analysis section,

we believe some important activities may have been dropped when they shouldn't have been and that partially avoidable delays have had a strong impact on the quality of outcomes to date. Therefore, for the time being, we rate the effectiveness of delivery of results as moderately satisfactory (MS). With a substantial portion of the project remaining incomplete, it is hard to get a full view of what this project will contribute in terms of outcomes. Should the key outstanding activities eventually be completed and their associated outcomes achieved with a high level of success, a retrospective rating of Satisfactory (S) might be in order for this project. Yet, at the same time, the concern that some important activities may have been unnecessarily dropped will remain.

Exhibit 24: Summary of Findings on Achievement of Outcomes

Strong Achievement	**Satisfactory**	**Weak**	**Weak (continued)**
-raised capacity of investors in wind resource assessment -more attractive tariff policy for wind -effective EIA framework and capacity of regulators to assess -revised wind-related aspects of grid code -increased capacity of NTDC for wind-related grid feasibility assessment	-raised capacity of AEDB in wind resource assessment -increased understanding of IPPs on preparation of required financial documents -design of public sector renewable energy fund -incorporation of renewable energy into curriculum of vocational and academic institutes	**Because of delays:** -bankable wind data - groundwork laid for increased interest in renewable energy off-grid village power systems - pilot off-grid system that can serve as effective, best-practice model **Because of cancelled activities:** -increased capacity of NEPRA -established protocols for grid integration of wind -other renewable energy policy achievements	**Because of lack of activities to support:** -increased involvement of financial institutions in renewable energy -revised CDM policies and knowledge of investors on CDM -AEDB capacity raised to meet needs of wind investors (in areas other than wind resource assessment) -increased potential for local manufacturing and services related to wind **Because of lack of stakeholder involvement:** -raised capacity of PMD in wind resource assessment

Efficiency rating: Based on our analysis of the project's overall budget (see Section 6), we rate the efficiency (or "cost effectiveness") of results as moderately satisfactory (MU), due to significant shortcomings in this area. While Section 6 offers more details, our key reasoning is (a) the high project management costs, (b) the lack of completion of major budget items, making it impossible for us to assess the efficiency of money spent on them, and (c) concerns that some budget has been spent on items too far afield from targeted outcomes, while more relevant activities have been cancelled.

Sustainability rating: Based on the assessment below of four components of sustainability, the overall rating given for sustainability of results is conservatively assessed at moderately likely (ML).

Financial risks: Sustainability in this aspect moderately likely (ML). In terms of the overall goal of the project, it is the private sector and financial institutions that must now take over in the proliferation of grid-connected wind farms in Pakistan. Debt finance, as discussed, is still an issue, though progress appears to have been made; and the ADB guarantee fund offers further insurance to get the sector "over the hump" in this initial stage. Our strongest concerns about financial risks pertain to the major unfinished initiatives of the projects: (1) the installation of five more wind masts and the continued collection of data from these and the initial seven masts and (2) installation and follow up with the off-grid project. Stakeholders that are candidates for handover of these two initiatives have emphasized that they need ongoing financing to support them, yet such financing is unlikely to be available.

Socio-political risks: Sustainability in this aspect moderately likely (ML). As a result of the project and other work, there has been more buy-in of key stakeholders to the importance of grid-connected wind. Yet, we feel that the project might have done more to bring key stakeholders on board, including NTDC. Further, as discussed, the larger socio-political environment, including security issues in Pakistan and the ability of the government to pay for power as promised, presents some risk, though the project pipeline suggests these risks are being adequately addressed at present.

Institutional framework and governance risks: Sustainability in this aspect moderately likely (ML): While the analysis of the baseline versus present situation show substantial improvements in the institutional and policy environment for grid-connected wind, the policy structure remains incomplete and the institutional framework going forward presents some uncertainties. In particular, there is still no feed-in tariff for wind, though one is expected soon. In addition, the institutional sustainability of AEDB does present some question. Many staff trained by the project in wind resource assessment have left. Stakeholders suggest stronger sustainability of staff in NTDC, NEPRA, and PMD, other organizations impacted by the project.

Environmental risks: Sustainability in this aspect likely (L): One of the stronger achievements of the project was to introduce a framework for environmental and social impact assessment (ESIA) of grid-connected wind projects and to raise capacity of the Sindh Government is reviewing ESIAs. Thus, while wind farms do pose environmental risks, we believe these risks have been well-addressed in a sustainable fashion.

Monitoring and Evaluation: Based on overall assessment of the design and implementation of the project's monitoring and evaluation, we rate the M&E system as moderately satisfactory (MS). While it appears that the M&E plan was in place with necessary reports submitted and reviewed at two levels by the PSC and Executive Committee, the inability to use the M&E system during the project to improve performance was a major shortcoming of this project. The shortcoming, as mentioned elsewhere, we believe to be related to project governance. In our consultations with stakeholders we sensed frustration from PSC members due the inability of the PSC to enforce project timelines it had adopted. We also feel that there is a great need for the PSC and UNDP to have a means to effectuate changes related to problems detected with the budget.

Exhibit 25: Project Ratings

Item	Rating	Explanation
I. Results Overall	MS	-based on the ratings for effectiveness and relevance
a. Relevance	S	-in line with GEF and country priorities -could have been stronger at times at outcome/activity level in addressing most important challenges to wind power in Pakistan
b. Effectiveness	MS	-project should be recognized for strong impact of some outcomes -some targeted outcomes were dropped that might have contributed to overall positive impact of project -delays in major activities make it hard to assess associated outcomes at this point
c. Efficiency	MU	-high project management costs -lack of completion of major activities make it hard to assess cost effectiveness of involved funds -concern that some budget has been spent on items too far afield from targeted outcomes, while more relevant activities cancelled
II. Sustainability Overall	ML	-based on the four sub-ratings for sustainability
a. Financial	ML	-strongest concerns regard unfinished initiatives: stakeholders indicate a lack of funds to sustain their involvement, yet project funding will not be available for such backstopping
b. Socio-political	ML	-project might have done more to bring key stakeholders on board, but has achieved some important buy-in -the larger environment - security and government ability to pay as promised for wind power – presents some risks, but strong project pipeline suggests these risks being addressed
c. Institutional	ML	-substantial improvements, but policy structure for grid-connected wind remains incomplete -staff turnover at AEDB of concern; less concern for staff sustainability at other agencies involved in the project
d. Environmental	L	-well addressed by the ESIA work of the project
III. M&E Overall	MS	-appropriate effort and care in both design and implementation -inability of M&E system to effectuate improved performance (due to project governance issues) is a major shortcoming of project

Note: MS = moderately satisfactory, S = satisfactory, MU = moderately unsatisfactory, ML = moderately likely, L = likely

9. Lessons Learned and Recommendations for Future Projects

Building on Project Strengths

- Type of project: WEP's achievements and its very positive feedback from investors suggest that comprehensive and flexible projects like WEP are well-suited to assisting countries in the very early phase of deployment of a particular renewable energy technology. Thus, designers of future projects may wish to consider this type of project in such situations. As the project's

scope cut across all aspects of barriers to the adoption of grid-connected wind, the project was well suited to gather government stakeholders, educate investors just getting started in wind power, and respond to special needs that came up in the investment environment. Several stakeholders told us that WEP, in its broad scope, served very useful functions not addressed by the more focused projects of other donors.

  - Project flexibility versus achievement of outcomes: At the same time, the project's flexibility may have at times caused it to be less effective than it could have been as important initiatives were cancelled or delayed and others added in. Thus, it is recommended that projects with "flexible response" have an especially strong project governance and balance-of-power system (discussed later) to assure they don't lose sight of the big picture and important targeted outcomes. In essence, the level of "flexible response" should be controlled.

- Staying in touch with investors: Another impressive strength of WEP is that the Project Management Unit stayed in good touch with investors, as well as surveying them as a group annually, to understand their needs and adjust accordingly. It is suggested that future projects hoping to stimulate private sector investment in a particular renewable energy technology adopt this approach of staying in frequent touch with the investors.
  - Updating investors: At the same time, the evaluators noticed most investors were unaware of the availability of data from the project masts, although this was one of the key and the most costly aspects of the project. While this data has recently been posted on AEDB's website, we believe a system (such as email listserv) to alert serious investors to special project developments, such as the posting of data, be adopted in future projects like this one.
  - Easy access to project final reports for all activities: Stakeholders from both government and the private sector suggested that all the learning from the project be made easily available to all. We suggest that future projects of this nature keep their websites updated with various final reports, and, with the sort of listserv suggested above, keep key stakeholders alerted as new reports become available. One investor noted that easy access to critical information, like the EIA work, may reduce legal and other expenses faced by investors.
- Forum for key policy makers: An unintended strength of the project is that the PSC brought key government stakeholders together, reportedly resulting, for example, in a positive development in wind tariffs.
  - Making the forum more targeted: Based on this unintended benefit, future projects with policy components may wish to more proactively take advantage of the "forum" provided by PSC meetings by having not only project issues on their meeting agenda, but also key policy items. Or, alternatively, other types of activities might be designed in future projects to create a forum of key government stakeholders.
  - Involvement of mid-level officials: One stakeholder recommended that the project try and engage more mid-level government officials in addition to the top-level ones, as

mid-level officials often handle the policy drafting and approval process. A forum mechanism as discussed above may also be relevant in this regard.

  - More frequent interaction between NEPRA, NTDC, and AEDB: For any future grid-connected renewable energy donor projects in Pakistan, more frequent communication between NEPRA, NTDC, and AEDB is recommended.

- Impactful and cost-effective activities – workshops and training: The evaluation showed that some of the most impactful and cost-effective activities of the project were workshops and training, though software provision was also highly praised. While this may be due to the fact that both the costly wind masts and the off-grid system are behind schedule, we recommend that future projects take the foregoing into consideration.

Stakeholder Involvement – Lessons Learned

- Involvement of Provincial Authorities: Future projects of this type, depending on the country and sector, may wish to strongly consider provincial level authorities in the design of their capacity building programs. In terms of Pakistan's wind sector, it has become apparent that the Government of Sindh Province, where most of the country's first wind farms will be developed, may play a key role in wind power there in the future. Even the Government of Punjab, which has less wind, is at present working directly with a strong potential investor, who has installed three wind masts in the province. In 2006, Punjab developed its own power generation policy for private sponsors to develop projects up to 50 MW. In Pakistan, the Constitution and NEPRA Act both give provinces the right to be involved in the electricity business.
- Greater Involvement of Appropriate Government Agencies: The most common project management model is to designate a single government organization as executing agency. Yet, we believe that mechanisms to ensure greater involvement of other organizations in relevant activities, so that ownership is where it needs to be, may be necessary. We feel that one important weakness of this project is that government agencies besides the executing agency did not benefit from project activities to the extent originally envisioned. Possible options to consider are: (1) splitting up projects by component among multiple executing agencies; (2) increasing balance of power between executing agency and project management unit, PSC, and/or UNDP; or (3) stronger designation in project design of which government agencies will be involved in (or supported by) which activities, with major changes to plan requiring approval of UNDP or the PSC.

Project Delays – Lessons Learned

- Avoiding delayed start-up: Start-up of the full project was delayed by several months due to difficulties in determining the executing agency. In the future, if at all possible, a push should be made to determine the executing agency at the time of project submission. Further, the inception report was not completed until seven months after project launch. Future projects should attempt to have the inception report ready within two months after project launch.
- Balance of power: As mentioned above, there is a need for a greater balance of power between the executing agency and the project management unit, PSC, and UNDP. A better balance of

power may improve the project delivery timetable (which was especially weak in this project), ensure that PSC recommendations have more weight, and enable achievement of deeper involvement of other key government organizations in the project. While this section is focused on project delays, the recommendations below for achieving balance in project governance can also be applied to other issues faced in the project, including involvement of other agencies, cancellation of important activities, and budget issues:

- Greater power granted to project management unit and its management: The PMU may be granted greater decision-making authority with regard to implementation for a certain scope of decisions to be agreed upon in advance. UNDP may wish to define the scope of decisions that the PMU may make without executing agency approval, so that an already very busy executing agency is not overburdened with less critical project responsibilities.
- Efforts made to empower and complete the project management team: This project would have likely done better in balancing the executing agency and delivering on time had it had either a foreign chief technical advisor or a project manager that was given more power or stature within the hierarchy responsible for this project. Also, a team of two to lead the project may have been more effective than one. Given the added management expenses created by project extensions and the high ratio of management costs to overall costs in this project, higher salary expenditures for project leadership may have been worth it if they could have led to more timely delivery. The project management team should be held accountable for timelines, but at the same time should be given the power to achieve them. Finally, all effort possible should be made to fill vacancies in the project team within three months.
    - Project management team contracts: UNDP and its partners may wish to consider issuing future project staff contracts for the expected term of the project rather than annually renewable contracts. With greater job security, staff may be more stable.
- Greater empowerment of PSC and UNDP to effect necessary changes: The PSC and UNDP detected problems with regard to project delays and the budget, but lacked the power to effectuate desired changes. We strongly recommend work be done to improve project governance structures. This may involve redefining the powers of the PSC and UNDP with regard to effectuating change when needed. Another possibility may be adopting an "investment committee" approach, in which the PSC, UNDP and the executing agency each have one vote on major issues. For parties not complying with decisions made, appropriate penalties or remedial actions must be instituted.

- Monitoring: For projects that appear to be off-track in timeline (or other aspects), the M&E officer may be assigned to monitor progress on decisions made in the PSC, offering monthly updates to PSC members.
- Strong awareness of and preventative actions for "in danger of delay" items: Given the experience with this project, we suggest that for future projects a mini-exercise of identifying activities in danger of delay be conducted at project launch. For each of the items in danger of

delay (which would most likely include activities requiring big ticket procurement, site identification, and/or land acquisition), a "preventative medicine" plan should be undertaken. That is, recognizing the difficulty of keeping such items on track, the PMU should come up with a proactive plan to achieve on-time delivery. The plan should also include tight deadlines for any decisions required from the executing agency and, after review by the PSC, the executing agency should be bound by these deadlines. In particular, the plan should include "parallel processing" strategies. For example, while waiting for procurement requests to be approved, the team should be actively conducting site selection.

- Security issues: This project also experienced delays because several foreign consultants declined to visit Pakistan during the course of the project due to security concerns. If future projects face this situation, they may wish to design a solid security plan for visitors and alert potential consultants in the RFPs as to the security measures that will be taken for their visits and to the recommendations that will be made for hotels, transport, etc. Some consultants may feel more comfortable if they are given more information up front. As an alternative, steps can be taken as quickly as possible to send master trainers abroad, a strategy pursued in this project.

Project Design and Changes to Project Activities - Lessons Learned

- Dedicated activities for target outcomes: Targeted outcomes generally require dedicated activities. In this project, some targeted outcomes fell through the cracks with no activities to support them. The project may have been expecting indirect impacts or cross-cutting activities to result in those outcomes.
- Tighter project design: In preparing this evaluation, we found that some outcomes and activities overlapped across project components. While it is sometimes difficult to avoid overlap, we believe that, in order to better keep track of what your project is achieving, activities and outcomes should be grouped topically under components whenever possible rather than functionally. That is, for WEP, we believe organizing workshops in wind resource assessment under the project's Wind Resource Assessment Program more effectively enables us to assess outcomes than organizing such workshops under the general Capacity Building Program. At the same time, we do recognize the value of assessing impacts by type of project activity and indeed have found through this evaluation that the relatively more economical capacity building and training activities were among the most impactful so far, while activities involving relatively more expensive hardware (the 12 wind masts and the off-grid system) have yet to have any real impact due to extensive delays.
- Donor coordination: Although donors do have a coordination committee for renewable energy in Pakistan, the committee is not very active. Given that several initiatives of this project were cancelled due to their reportedly being handled by other donors, we recommend that efforts be made through UNDP for closer coordination at a more detailed level with donors implementing projects with potential overlap. Ideally, rather than having several donors all working on the same thing (whether it be tariffs or medium-term renewable energy policy or something else), each donor would be able to focus on its own distinct items, thus better enabling it to measure results.

- Keeping sight of the big picture: Given the "flexible response" nature of projects such as this one, if the big picture of what is important is not kept in mind, valuable project activities may fall by the wayside, while other ones are taken up. We feel that in this project, the grid integration study that was to be conducted for NTDC was a missed opportunity. It is important not to lose sight of what matters and consequently eliminate important activities in an attempt to cut costs. Thus, future projects may wish to have a tighter design and a more structured process in place for the approval of dropping key activities.
- Involved agencies: For a project that may have options as to which government agencies to involve in which activities, stronger analysis/justification for the choices made are needed than was provided by this project. As the main example, a stronger justification of the choice of AEDB over PMD to handle the wind mast activities would have been appreciated.
- Investor associations: In projects trying to stimulate private sector activities, industry or investor associations may be an effective way to leverage the project and perhaps ensure greater sustainability. As mentioned, we understand that wind investors in Sindh have already set up their own association for cost-sharing on security and road issues.

Budget – Lessons Learned

- Tighter definitions and greater checks and balances for budget: Related to both changes in project activities and the very high proportion of management costs for this project is the need for tighter definition on allowable activities and budget changes, as well as the need for greater checks and balance for the budget. We recommend that greater detail be provided on the scope of allowable activities to be included in both the project budget and management costs. For example, travel should be required to be related directly to specific project activities rather than general purpose, as should hardware procurement. Further, UNDP Pakistan should have more power to question and halt, if necessary, budgetary expenditures that stray too far from a core focus on delivery of targeted project outcomes. The PSC and/or Executive Committee should also review budget trends on a periodic basis and have the power to effectuate change when needed.
    - Analysis of budget: In their analysis of the budget, the PSC and UNDP may wish to review which government agencies are the primary beneficiaries of which activities and what the budget is for those activities. They may also wish to look at the spread of budget allocations for all of the major activities. While, as we have seen with this project, activities with small budgets can be very cost effective, if there are only a very few activities with mid-sized budgets in a project of this scale, it may be important to delve further and compare planned budgets for key activities to what is actually being realized.

Stakeholder Recommendations not Covered above

- One stakeholder recommended that critical courses be repeated during the duration of the project. While this may be beyond the budget of some projects, it is worth considering. In some cases, replacement of some less essential workshops with repetition of critical ones may be in order.

Annex 1: Documents and Other Materials Reviewed

Note: Documents in each category are listed in rough order of importance, with the most important listed first.

1. Evaluation Methodology and Policies

Key materials

Guidelines for GEF Agencies in Conducting Terminal Evaluations, Global Environment Facility Evaluation Office, Evaluation Document No. 3, 2008.

Other materials

The GEF Monitoring and Evaluation Policy, Global Environment Facility Evaluation Office, Evaluation Document No. 4, Nov. 2010.

GEF Evaluation Office Ethical Guidelines, Global Environment Facility Evaluation Office, Evaluation Document No. 2, 2007.

The Evaluation Policy of UNDP, Executive Board of the United National Development Programme and the United Nations Population Fund, November 2010.

Standards for Evaluation in the UN System, United Nations Evaluation Group, April 2005.

Norms for Evaluation in the UN System, United Nations Evaluation Group, April 2005.

2. Project Plans and Structure

Key materials

Inception Report for Wind Energy Project of Pakistan, June 2007.

Project Document for Wind Energy Project of Pakistan (note: full project name is "Sustainable Development of Utility Scale Wind Power Production"), January 2004 (endorsed in-country on December, 2005).

Project Implementation Review Report (Wind Energy Project of Pakistan), Dec. 17, 2010.

3. Project Achievements and Previous Evaluations

Key materials

Note: See also, *Project Implementation Review Report* listed above

Mid-term Evaluation - Wind Energy Project (WEP) of Pakistan, October 2008

Project website (www.wep.org.pk , particularly section on project components)

Other materials

AEDB website (www.aedb.org)

Annex 2: Additional Materials on Forecast

Exhibit A-1: Ten Most Advanced Wind Farm Investors in Pakistan

Name	Total* MW	Current status (mid-2011) – most advanced stage reached	Likelihood to move forward; if likely, expected timing of financial close	Verification	Interaction with project? How extensive?
1a. Fauji Fertilizer	**50MW**	Financial close achieved	----------	Investor and many others	Yes, extensive
1b. Fauji Fertilizer	*100MW*	*LOI; land not yet acquired*	*Unknown – no land*	*Investor*	*Yes, extensive*
1c. Fauji Foundation	**100 MW**	Negotiating EPC contract.	In process of closing; very likely by Q1 2012	Investor and Financier	Yes, extensive
1d. Fauji Found.	*50 MW*	*LOI, land not yet acquired*	*Unknown – no land*	*Investor*	*Yes, extensive*
2a. Zorlu	**6 MW**	Constructed	----------	Well-known fact	No interaction with project
2b. Zorlu	**50 MW**	Tariff determined, all studies done and approved.	In process of closing; very likely by Q1 2012	2nd investor	No interaction with project
3. CWE	**50 MW**	Filed tariff plan; EPC with Goldwind; all studies done and approved.	Expect tariff in a month or two; financial close in 2011 likely	AEDB; others confirm seriousness; 14 people visited from China	No interaction with project
4. Lucky Energy	**50 MW**	EPC determined; now negotiating with lender	Financial close likely by Q2~Q3 2012	Investor and other source	Yes, extensive
5.Sapphire	**50 MW**	EPC almost ready, all studies done.	Financial close likely by Q3~Q4 2012	Third party sources	Yes, extensive
6. Tanaga Generasi	50 MW	Final EPC in a month or so; all studies done.	Financial close likely by Q2~Q3 2012	AEDB	Yes, extensive
7. Sachal Energy	50 MW	Expect EPC contract by Aug. 31	Financial close likely by Q3~Q4 2012	Got conflicting reports	Yes, extensive
8. Gul Ahmed /Metro	50 MW	Expect EPC contract by Aug. 31	Financial close likely by Q1 2013	AEDB	Yes, extensive
9. Dawood Power	50 MW	Negotiating EPC			Yes, extensive
10.New Park	50 MW	Obtained LOS, tariff accepted, Negotiating EPC.			Unknown

*Note: MW in red are those expected with *strong certainty* to close in 2011 or 2012 and break ground in 2012. MW in purple are those for which we feel financial close in 2012 is *fairly certain*.

Annex 3. Processes and Monitoring and Evaluation

This Annex provides additional detail on our findings on (a) processes affecting attainment of project results and (b) project monitoring and evaluation.

A3-1. Processes Affecting Attainment of Project Results

This section of Annex 3 provides further detail on the findings summarized in Exhibit 23 of the main text. Based on GEF terminal evaluation guidelines we consider each of the following issue areas in terms of impact on implementation and attainment of project results: (1) preparation and readiness, (2) country ownership/drivenness, (3) stakeholder involvement, (4) financial planning, (5) GEF agency supervision and backstopping, (6) cofinancing and project outcomes and sustainability, and (7) delays and project outcomes and sustainability. Some of these issue areas are discussed elsewhere in this report and in such cases we reference those other discussions in our coverage of the issues below.

Preparation and readiness: In retrospect, the initial two-year timeframe for the project was overly ambitious, particularly with regard to the Wind Resource Assessment Program. With an objective of providing "bankable" wind data, this program needed to select sites, procure and install masts, and ideally collect two years of data, before analyzing data and providing results to investors. Further, as mentioned in the discussion of outcomes, some outcomes were targeted without clearly outlined activities to support them. Thus, while the project design is to be applauded in the results it led to, we also believe it could have been tighter and more carefully conceived, with activities to support all outcomes and with a more realistic initial timeline of perhaps three to four years.

In terms of stakeholder involvement, as mentioned elsewhere and discussed below, we believe that key stakeholders aside from the executing agency were not as closely involved and supported as expected from the Project Inception Report. While this may be mainly an implementation issue, we also suggest that tighter project design in terms of which institutions will be involved in and benefit from which activities may be something to consider.

Finally, in terms of the executing agency selected, while AEDB has the mandate to promote renewable energy in Pakistan and was thus clearly a top candidate for the role of executing agency, some stakeholders question the commercial and technical capacity of AEDB to execute the project to the highest level of benefit. Others questioned AEDB's willingness to involve other key government agencies to a level at which they would benefit most from project activities when there were substantial costs involved.

Country ownership/drivenness: The project, in its goal of creating an enabling environment for private sector investment in wind, is very in line with Pakistan country priorities. As discussed, the power shortage is a major issue in Pakistan. Given the current high cost of fuel oil, the government is promoting the development of indigenous sources of power, including renewables. Project outcomes are in line with government priorities; and some regulatory change, particularly revision of the grid code to accommodate wind, has occurred that is in line with the project's targeted objective. From the start, the level of government in-kind co-financing at $720,000 compared to GEF contribution of $3.1 million was considered somewhat low; and the initial expectation was that this would be made up for in a follow-on phase investment project. We were not able to fully verify that the in-kind contribution was realized, but were told that it was realized through work contributions of AEDB (including the NPD) and also through duty exemptions of imported items, such as software.

Stakeholder involvement: On the one hand, the project is to be applauded for its extensive involvement of private sector and government stakeholders in its workshops and for its ongoing communications with these to assess their needs and preferences. On the other hand, as mentioned elsewhere, we believe that cancellation and reduction of expenditures for certain activities that would have benefited government stakeholders other than the executing agency reduced the overall efficacy of the project. In particular, greater direct support for NEPRA in tariff work and for NTDC in grid integration and perhaps of PMD in wind resource assessment could have made the project impact stronger. As one stakeholder explained to us, NTDC is still hesitant to bring in wind, as they don't want to disturb the grid. The six-figure project study that was cancelled (and replaced with low five-figure provision of software and training) would have been a good opportunity to address this hesitation.

We did not find that major efforts were made to mainstream gender into project interventions. Project proponents, however, point out to us that the PMU had a majority female staff and further that the off-grid village power system activity should provide special advantages to women who wish to pursue productive applications at home.

Financial planning: The PMU did have a finance officer, expenditures were entered into UNDP's ATLAS system, and audits were conducted. Yet, the evaluation team finds that at project close there remains confusion about the budget. Namely, the official ATLAS version of the budget shows very high management costs, about 40 percent of expenditures to date. An unofficial redo of the budget suggested a 34 percent proportion, but the accuracy of this figure could not be confirmed; and, regardless, it remains substantially higher than the recommended 20 percent. Finally, as discussed elsewhere, the implementing agency appears to lack the power to prevent expenditures that it believes are inappropriate in terms of being too far afield from intended project outcomes. In view of these findings, we feel that future projects should have a stronger system of checks and balances on budget decisions.

GEF agency supervision and backstopping: It appears that UNDP remained closely involved in the project through its monitoring function. UNDP was involved in several field visits for the project and kept in very close touch with the PMU regarding issues. In our view, UNDP was quite good at identifying problems with the project, particularly with regard to delays in implementation and budget issues, but lacked the power to effect needed changes.

Cofinancing and project outcomes and sustainability: As mentioned, we were unable to verify the $720,000 in-kind contribution, though the active involvement of AEDB staff and contribution of their time to the project is clear.

Delays and Project Outcomes and Sustainability: The issue of delays is covered extensively in Section 5 (Output Level Analysis). These delays do present some risk to project sustainability as project resources and backstopping will be unavailable during a crucial time of completion of two major initiatives ((1) wind mast installation, data collection, analysis, and dissemination and (2) installation and training for off-grid system). We recommend that a very focused and comprehensive exit strategy be designed to avoid sustainability risks to the greatest extent possible. Our recommendations for exit strategy are also included elsewhere in Section 5.

A3-2. Monitoring and Evaluation

This section of Annex 3 provides details of our findings on the project M&E system, as further elaboration of the brief assessment provided in Section 7 of the main text.

M&E design: The M&E design consisted of quarterly reports and annual project implementation reviews (PIRs), with workshop reports annexed to the PIRs. The review process was handled by the PSC (which met two times a year) and the Executive Committee (which is said to have met much more frequently). An issue mentioned by one stakeholder is that the PSC lacked consistency of which individuals attended from the represented organizations. The Executive Committee was said to have more consistent representation and have provided strong benefit in being more working level in nature. The M&E system did not have a baseline (considered difficult given the nature of the project and lack of installed wind capacity at project launch) and did not use SMART indicators. They did follow the log frame of the project inception report and monitored indicators, such as how many people were trained, etc. There was a timeframe for M&E activities, but the timeframe for the project as a whole was not followed due to delays and financial constraints. In terms of organizational setup, there was an M&E officer from the end of 2006 until March 2009, who spent about 40 percent of her time on M&E, but was also quite involved in other project activities, such as preparing TORs. After this,

we understand that a temporary M&E officer was hired. In addition to the salary of the M&E officer, there was also a designated M&E budget to pay for travel and field trips.

M&E plan implementation and budgeting: The M&E plan was implemented through the provision of quarterly and annual reports and through review by the PSC and Executive Committee. While efforts were made to effectuate improvements upon the identification of problems, as discussed elsewhere, project governance issues are believed to have prevented timely intervention. There was no training of M&E personnel and no M&E is planned for after project close. As mentioned, the M&E officer used about 40 percent of her time in M&E activities until leaving in March 2009, when she was replaced by temporary personnel. We were told that there was adequate budget for M&E, but in the end not all the money allotted for M&E was spent on M&E. Some was diverted to other needs.

Monitoring of long-term changes: The project did not establish a long-term monitoring system and there are no plans for follow-up monitoring. Due to the nature of the project, perhaps the most interesting indicator to watch for the long-term will be the amount of grid-connected installed wind power capacity in Pakistan. As mentioned in the main text, however, some follow-up monitoring for unfinished activities may be in order, given the substantial resources expected to flow into these efforts after project close.

Annex 4: Terms of Reference for Evaluation Mission

Sustainable Development of Utility Scale Wind Power Production
(PAK/ 00051009)

1. Introduction

Country Programme Action Plan (CPAP)

UNDP under the mandate of the Country Programme Action Plan (CPAP) with the Government of Pakistan is committed to provide support in designated thematic areas. Under Environmentally Sustainable Development the CPAP states that: *It is essential to strengthen the capacity of institutions, dealing with policy formulation and legal and regulatory frameworks under global conventions, to meet national commitments. The development agenda integrates environmental concerns and builds capacities to implement integrated umbrella programmes that respond to the needs of the poor.*

Under the broader framework of CPAP, UNDP-supported programme focuses on policy reforms for providing necessary conditions to meet the commitments under global conventions including UNFCCC, improvement of living conditions in the urban centers; capacity building for decision-making; mainstreaming environment into the development process; and information dissemination and advocacy.

Sustainable Development of Utility Scale Wind Power Production Project (WEP)

The project "Sustainable Development of Utility-Scale Wind Power Production" commonly termed as Wind Energy Project (WEP) was designed to be implemented in two phases, the first phase is designed to focus on removal of barriers that inhibit the formation of an enabling environment for private sector investment in utility-scale Wind Energy (WE) production, and the Phase II to support sustainable development of WE projects in Pakistan. Phase-I of the GEF-funded project "Wind Energy Project (WEP)" effectively commenced operation on November 1, 2006. Project document for the full-scale project was completed in January 2004, and was jointly endorsed by the Government of Pakistan (GOP)/AEDB and UNDP Pakistan in December 2005.

The overall objective of the full project is to avoid CO_2 emissions by removing barriers to utility-scale wind energy (WE) production in Pakistan. It focuses on establishing a wind power industry in the country based on internationally proven technology being economically viable and sustainable option by removing policy, institutional, regulatory, fiscal and technical barriers to attract private investments in wind farms and their integration with the power grid, especially in remote areas where alternative generation options are limited, not existing and/or costly. The Phase II objective will be decided during Phase I with the likely objective being to support sustainable growth of wind energy in Pakistan.

The original project document was drafted in 2003 with assumptions on the baseline, existing situations and costs. However, the baseline assumptions outlined in the 2004 project document were updated with revised work plans for years 2007 and 2008, reflecting global changes in the energy sector as well as wind energy developments in Pakistan between 2003 and 2006. The mid-term review of WEP conducted in October 2008 recommended a two year project extension until 2010 for the following reasons:

a) to compensate for inception delays and delays in some project activities caused by external factors,

b) to prepare an exit strategy, and
c) to ensure cooperation between AEDB, NTDC, NEPRA, Provincial Governments, financial institutions and private investors.

2. Objectives of the Evaluation

The Pakistan Wind Energy Project is scheduled for completion on 31 October 2010. UNDP-GEF policy requires that an independent terminal evaluation take place three months prior to the final Project Board meeting. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The main stakeholders of the evaluation include: Alternate Energy Development Board (AEDB), Govt. of Pakistan; Ministry of Environment (CDM-Cell, GEF OFP); Economic Affairs Division and Planning & Development Division (Energy Wing), Govt. of Pakistan; Provincial Planning and Environment and Alternate Energy Divisions; EPA, NERPA, PPIB, WAPDA/NTDC, KESC/DISCOs; Pakistan Meteorological Department (PMD); PCRET, ENERCON

3. Scope of the Evaluation

The terminal evaluation of the Pakistan Wind Energy project should properly examine and assess the perspectives of the various stakeholders. The following areas should be covered in the terminal evaluation report:

1. General Information about the Evaluation

The terminal evaluation report should include information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology. The terminal evaluation report will also include the evaluation team's TOR and any response from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report.

2. Assessment of Project Results

The terminal evaluation will assess achievement of the project's objective, outcomes and outputs and will provide ratings for the targeted objective and outcomes. The assessment of project results seeks to determine the extent to which the project objective was achieved, or is expected to be achieved, and assess if the project has led to any other short term or long term and positive or negative consequences. While assessing a project's results, the terminal evaluation will seek to determine the extent of achievement and shortcomings in reaching the project's objective as stated in the project document and also indicate if there were any changes and whether those changes were approved. If the project did not establish a baseline (initial conditions), the evaluator should seek to estimate the baseline condition so that achievements and results can be properly established.

Assessment of project outcomes should be a priority. Outcomes are the likely or achieved short-term and medium-term effects of an intervention's outputs. Examples of outcomes could include but are

not restricted to stronger institutional capacities, higher public awareness (when leading to changes of behavior), and transformed policy frameworks or markets. An assessment of impact is encouraged when appropriate. The evaluator should assess project results using indicators and relevant tracking tools.

To determine the level of achievement of the project's objective and outcomes, the following three criteria will be assessed in the terminal evaluation:

- **Relevance**: Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?

- **Effectiveness**: Are the actual project outcomes commensurate with the original or modified project objective?

- **Efficiency**: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost effectiveness? Wherever possible, the evaluator should also compare the costs incurred and the time taken to achieve outcomes with that of other similar projects.

The evaluation of relevancy, effectiveness and efficiency will be as objective as possible and will include sufficient and convincing empirical evidence. Ideally the project monitoring system should deliver quantifiable information that can lead to a robust assessment of the project's effectiveness and efficiency. Outcomes will be rated as follows for relevance, effectiveness and efficiency:

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

When rating the project's outcomes, relevance and effectiveness will be considered as critical criteria. If separate ratings are provided on relevance, effectiveness and efficiency, the overall outcomes rating of the project may not be higher than the lowest rating on relevance and effectiveness. Thus, to have an overall satisfactory rating for outcomes, the project must have at least satisfactory ratings on both relevance and effectiveness.

The evaluators will also assess other results of the project, including positive and negative actual (or anticipated) impacts or emerging long-term effects of a project. Given the long term nature of impacts, it might not be possible for the evaluators to identify or fully assess impacts. Evaluators will nonetheless indicate the steps taken to assess long-term project impacts, especially impacts on local populations, global environment (e.g. reduced greenhouse gas emissions), replication effects and other local effects. Wherever possible, evaluators should indicate how the findings on impacts will be reported to the GEF in future.

3. Assessment of Risks to Sustainability of Project Outcomes

The terminal evaluation will assess the likelihood of sustainability of outcomes at project termination, and provide a rating for this. Sustainability will be understood as the likelihood of continued benefits after the GEF project ends. The sustainability assessment will give special attention to analysis of the risks that are likely to affect the persistence of project outcomes. The sustainability assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. It will include both exogenous and endogenous risks. The following four dimensions or aspects of risks to sustainability will be addressed:

- **Financial risks**: Are there any financial risks that may jeopardize sustainability of project outcomes? What is the likelihood of financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining the project's outcomes)?

- **Socio-political risks:** Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?

- **Institutional framework and governance risks:** Do the legal frameworks, policies and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? Are requisite systems for accountability and transparency, and required technical know-how, in place?

- **Environmental risks:** Are there any environmental risks that may jeopardize sustainability of project outcomes? The terminal evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

Each of the above dimensions of risks to sustainability of project outcomes will be rated based on an overall assessment of the likelihood and magnitude or the potential effect of the risks considered within that dimension. The following ratings will be provided:

Likely (L): There are no or negligible risks that affect this dimension of sustainability.

Moderately Likely (ML): There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability.

Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, the overall rating for sustainability will not be higher than the lowest rated dimension. For example, if a project has an 'Unlikely' rating in any dimension, then its overall rating cannot be higher than 'Unlikely'.

4. Catalytic Role

The terminal evaluation will also describe any catalytic or replication effect of the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the catalytic role.

5. Assessment of Monitoring and Evaluation System

The terminal evaluation will assess whether the project met the minimum requirements for project design of M&E and the implementation of the project M&E plan. GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project. Given the long duration of many GEF interventions, projects are also encouraged to include long-term monitoring provisions to measure mid-term and long-term results (such as global environmental effect, replication effects, and other local effects) after project completion. The terminal evaluation report will include separate assessments of the achievements and shortcomings of the project M&E plan and of implementation of the M&E plan.

M&E design. Projects should have a sound M&E plan to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART (specific, measurable, achievable, realistic and timely) indicators and data analysis systems, and evaluation studies at specific times to assess results and adequate funding for M&E activities. The time frame for various M&E activities and standards for outputs should have been specified.

M&E plan implementation. The terminal evaluation should verify that: an M&E system was in place and facilitated timely tracking of progress towards the project objective and outcomes by collecting information on chosen indicators continually throughout the project implementation period; annual project reports were complete, accurate and with well justified ratings; the information provided by the M&E system was used during the project to improve performance and to adapt to changing needs; and, the project had an M&E system in place with proper training for parties responsible for M&E activities to ensure data will continue to be collected and used after project closure.

Budgeting and funding for M&E Activities. In addition to incorporating information on funding for M&E while assessing M&E design, the evaluators will determine whether M&E was sufficiently budgeted for a the project planning stage and whether M&E was funded adequately and in a timely manner during implementation.

Project monitoring and evaluation systems will be rated as follows on quality of M&E design and quality of M&E implementation:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

The overall rating of M&E during project implementation will be based solely on the quality of M&E plan implementation. The ratings on quality at entry of M&E design and sufficiency of funding both during planning and implementation stages will be used as explanatory variables.

6. Monitoring of Long-Term Changes

The monitoring and evaluation of long-term changes is often incorporated in GEF supported projects as a separate component and it may include determination of environmental baselines, specification of indicators, provisioning of equipment and capacity building for data gathering, analysis and use. This section of the terminal evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:

Did this project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component?

What were the accomplishments and shortcomings in establishment of this system?

Is the system sustainable – that is, is it embedded in a proper institutional structure and does it have financing?

Is the information generated by this system being used as originally intended?

7. Assessment of Processes that Affected Attainment of Project Results

When relevant, the evaluation team should consider the following issues affecting project implementation and attainment of project results. Note that evaluators are not expected to provide ratings or separate assessments on these issues, but these could be considered in the performance and results sections of the report:

Preparation and readiness. Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?

Country ownership/drivenness. Was the project concept in line with the sectoral and development priorities and plans of the country? Are project outcomes contributing to national development priorities and plans? Were the relevant country representatives, from government and civil society, involved in the project? Did the recipient government maintain its financial commitment to the project? Has the government approved policies or regulatory frameworks that are in line with the project's objectives?

Stakeholder involvement. Did the project involve the relevant stakeholders through information sharing, consultation and by seeking their participation in the project's design, implementation, and monitoring and evaluation? For example, did the project implement appropriate outreach and public awareness campaigns? Did the project consult with and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the design, implementation and evaluation of project activities? Were perspectives of those who would be affected by project decisions, those who could affect the outcomes and those who could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and powerful supporters and opponents, of the processes properly involved? Gender perspective: To what extent did the project account for gender differences when developing and applying project interventions? How were gender considerations mainstreamed into project interventions?

Financial planning. Did the project have the appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds? Was there due diligence in the management of funds and financial audits? Did promised cofinancing materialize? (**Please complete the cofinancing table in Annex 1**).

GEF Agency supervision and backstopping. Did UNDP staff identify problems in a timely fashion and accurately estimate their seriousness? Did UNDP staff provide quality support and advice to the project, approve modifications in time and restructure the project when needed? Did UNDP provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

Cofinancing and Project Outcomes and Sustainability. If there was a difference in the level of expected cofinancing and the cofinancing actually realized, what were the reasons for the variance? Did the extent of materialization of cofinancing affect the project's outcomes and/or sustainability, and if so, in what ways and through what causal linkages?

Delays and Project Outcomes and Sustainability. If there were delays in project implementation and completion, what were the reasons? Did the delays affect the project's outcomes and/or sustainability, and if so, in what ways and through what causal linkages?

8. Lessons and Recommendations

The evaluators will present lessons and recommendations in the terminal evaluation report on all aspects of the project that they consider relevant. The evaluators will be expected to give special attention to analyzing lessons and proposing recommendations on aspects related to factors that contributed to or hindered: attainment of project objective, sustainability of project benefits, innovation, catalytic effect and replication, and project monitoring and evaluation.

Evaluators should refrain from providing recommendations to improve the project. Instead they should seek to provide a few well formulated lessons applicable to the type of project at hand or to GEF's overall portfolio. Terminal evaluations should not be undertaken with the motive of appraisal, preparation, or justification, for a follow-up phase. Wherever possible, the terminal evaluation report should include examples of good practices for other projects in a focal area, country or region.

4. Products expected from the evaluation

The key product expected from the evaluation is a comprehensive analytical report. The length of the terminal evaluation report shall not exceed 50 pages in total (not including annexes). The report shall be submitted to the UNDP Pakistan CO. See Annex 2 for a suggested outline of the report.

Following is the tentative timeline for the deliverables for the evaluation starting 11 July 2011:

Deliverable	**Timeline**
Completion of stakeholder consultations	15 July 2011
Submission of first draft	18 July 2011
Submission of final report	22 July 2011

5. Methodology or Evaluation Approach

An outline of an evaluation approach is provided below; however the evaluation team is responsible for revising the approach as necessary. The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and applicable to the remaining period of project duration.

The evaluation should provide as much gender disaggregated data as possible.

The methodology to be used by the evaluation team should be presented in the report in detail. It shall include information on:

- Documentation review (desk study) - the list of documentation to be reviewed is included in Annex 3 of the Terms of Reference);
- Meetings will be held with the UNDP – Pakistan, project team and key stakeholders
- Field visits;
- Questionnaires, participatory techniques and other approaches for the gathering and analysis of data.

6. Evaluation Team

A team of independent experts will conduct the evaluation. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities. The evaluation team will be composed of one International Consultant or team leader and one National Consultant. The consultants shall have prior experience in evaluating Energy particularly Renewable Energy/ wind energy and Climate Change projects.

Team Qualities:

i. Recent experience with results-based management evaluation methodologies;
ii. Experience applying participatory monitoring approaches;
iii. Recent knowledge of the GEF Monitoring and Evaluation Policy;
iv. Recent knowledge of UNDP's results-based evaluation policies and procedures
v. Competence in Adaptive Management, as applied to conservation or natural resource management projects;
vi. Demonstrable analytical skills;
vii. Work experience in relevant areas for at least 10 years;
viii. Project evaluation experiences within United Nations system will be considered an asset;

Specifically, **the international expert (team leader)** will perform the following tasks:

- Lead and manage the evaluation mission;

- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Decide the division of labor within the evaluation team;
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft related parts of the evaluation report; and
- Finalize the whole evaluation report.

The evaluation will be undertaken in-line with GEF principles:

- Independence
- Impartiality
- Transparency
- Disclosure
- Ethical
- Partnership
- Competencies and Capacities
- Credibility
- Utility

7. Implementation Arrangements

The principal responsibility for managing this evaluation lies with UNDP-Pakistan CO. UNDP-Pakistan will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project implementation unit will be responsible for liaising with the evaluation team to set up stakeholder interviews, arrange field visits, coordinate with the Government and ensure the timely provision of per diems and travel arrangements.

Addendum 1 to TOR: Required Project Identification and Financial Data

The terminal evaluation report should provide information on project identification, time frame, actual expenditures, and cofinancing in the following format, which is modeled after the project identification form (PIF).

I. Project Identification

GEF Project ID: [Assigned by the GEF Secretariat at pipeline entry.]
GEF Agency Project ID:
Countries:
Project Title: [As per the project appraisal document submitted to the GEF.]
GEF Agency (or Agencies):

II. Dates

Milestone	Expected date	Actual date
CEO endorsement/approval		
Agency approval date		

Implementation start		
Midterm evaluation		
Project completion		
Terminal evaluation completion		
Project closing		

III. Project Framework

Project component	**Activity type**	**GEF financing (in $)**		**Cofinancing (in $)**	
		Approved	**Actual**	**Promised**	**Actual**
1.					
2.					
3.					
4.					
5.					
6.Project management					
Total					

Activity types are investment, technical assistance, or scientific and technical analysis.

Promised co financing refers to the amount indicated at the point of CEO endorsement/approval.

IV. Co financing

Sources of Cofinancing	**Type**	**Project preparation**		**Project implementation**		**Total**	
		Expected	**Actual**	**Expected**	**Actual**	**Expected**	**Actual**
Host gov't contribution							
GEF Agency (ies)							
Bilateral aid agency (ies)							
Multilateral agency (ies)							
Private sector							
NGO							
Other							
Total Cofinancing							

Expected amounts are those submitted by the GEF Agencies in the original project appraisal document.

Cofinancing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

Addendum 2 to TOR: Evaluation report template and quality standards

This evaluation report template is intended to serve as a guide for preparing meaningful, useful and credible evaluation reports that meet quality standards. It does not prescribe a definitive section-by-

section format that all evaluation reports should follow. Rather, it suggests the content that should be included in a quality evaluation report. The descriptions that follow are derived from the UNEG 'Standards for Evaluation in the UN System' and 'Ethical Standards for Evaluations'.

The evaluation report should be complete and logically organized. It should be written clearly and understandable to the intended audience. In a country context, the report should be translated into local languages whenever possible. The report should also include the following:

Title and opening pages—Should provide the following basic information:

- Name of the evaluation intervention
- Time frame of the evaluation and date of the report
- Countries of the evaluation intervention
- Names and organizations of evaluators
- Name of the organization commissioning the evaluation
- Acknowledgements

Table of contents—Should always include boxes, figures, tables and annexes with page references.

List of acronyms and abbreviations

Executive summary—A stand-alone section of two to three pages that should:

- Briefly describe the intervention (the project(s), programme(s), policies or other interventions) that was evaluated.
- Explain the purpose and objectives of the evaluation, including the audience for the evaluation and the intended uses.
- Describe key aspect of the evaluation approach and methods.
- Summarize principle findings, conclusions, and recommendations.
-

Introduction—Should:

- Explain why the evaluation was conducted (the purpose), why the intervention is being evaluated at this point in time, and why it addressed the questions it did.
- Identify the primary audience or users of the evaluation, what they wanted to learn from the evaluation and why, and how they are expected to use the evaluation results.
- Identify the intervention (the project(s) programme(s), policies or other interventions) that was evaluated—see upcoming section on intervention.
- Acquaint the reader with the structure and contents of the report and how the information contained in the report will meet the purposes of the evaluation and satisfy the information needs of the report's intended users.

Description of the intervention—Provides the basis for report users to understand the logic and assess the merits of the evaluation methodology and understand the applicability of the evaluation results. The description needs to provide sufficient detail for the report user to derive meaning from the evaluation. The description should:

- Describe what is being evaluated, who seeks to benefit, and the problem or issue it seeks to address.
- Explain the expected results map or results framework, implementation strategies, and the key assumptions underlying the strategy.
- Link the intervention to national priorities, UNDAF priorities, corporate multiyear funding frameworks or strategic plan goals, or other programme or country specific plans and goals.

- Identify the phase in the implementation of the intervention and any significant changes (e.g., plans, strategies, logical frameworks) that have occurred over time, and explain the implications of those changes for the evaluation.
- Identify and describe the key partners involved in the implementation and their roles.
- Describe the scale of the intervention, such as the number of components (e.g., phases of a project) and the size of the target population for each component.
- Indicate the total resources, including human resources and budgets.
- Describe the context of the social, political, economic and institutional factors, and the geographical landscape within which the intervention operates and explain the effects (challenges and opportunities) those factors present for its implementation and outcomes.
- Point out design weaknesses (e.g., intervention logic) or other implementation constraints (e.g., resource limitations).

Evaluation scope and objectives—The report should provide a clear explanation of the evaluation's scope, primary objectives and main questions.

- Evaluation scope—The report should define the parameters of the evaluation, for example, the time period, the segments of the target population included, the geographic area included, and which components, outputs or outcomes were and were not assessed.
- Evaluation objectives—The report should spell out the types of decisions evaluation users will make, the issues they will need to consider in making those decisions, and what the evaluation will need to achieve to contribute to those decisions.
- Evaluation criteria—The report should define the evaluation criteria or performance standards used. The report should explain the rationale for selecting the particular criteria used in the evaluation.
- Evaluation questions—Evaluation questions define the information that the evaluation will generate. The report should detail the main evaluation questions addressed by the evaluation and explain how the answers to these questions address the information needs of users.

Evaluation approach and methods—The evaluation report should describe in detail the selected methodological approaches, methods and analysis; the rationale for their selection; and how, within the constraints of time and money, the approaches and methods employed yielded data that helped answer the evaluation questions and achieved the evaluation purposes. The description should help the report users judge the merits of the methods used in the evaluation and the credibility of the findings, conclusions and recommendations. The description on methodology should include discussion of each of the following:

- Data sources—The sources of information (documents reviewed and stakeholders), the rationale for their selection and how the information obtained addressed the evaluation questions.
- Sample and sampling frame—If a sample was used: the sample size and characteristics; the sample selection criteria (e.g., single women, under 45); the process for selecting the sample (e.g., random, purposive); if applicable, how comparison and treatment groups were assigned; and the extent to which the sample is representative of the entire target population, including discussion of the limitations of the sample for generalizing results.
- Data collection procedures and instruments—Methods or procedures used to collect data, including discussion of data collection instruments (e.g., interview protocols), their appropriateness for the data source and evidence of their reliability and validity.
- Performance standards—The standard or measure that will be used to evaluate performance relative to the evaluation questions (e.g., national or regional indicators, rating scales).
- Stakeholder engagement—Stakeholders' engagement in the evaluation and how the level of involvement contributed to the credibility of the evaluation and the results.

- Ethical considerations—The measures taken to protect the rights and confidentiality of informants (see UNEG 'Ethical Guidelines for Evaluators' for more information).
- Background information on evaluators—The composition of the evaluation team, the background and skills of team members and the appropriateness of the technical skill mix, gender balance and geographical representation for the evaluation.
- Major limitations of the methodology—Major limitations of the methodology should be identified and openly discussed as to their implications for evaluation, as well as steps taken to mitigate those limitations.

Data analysis—The report should describe the procedures used to analyse the data collected to answer the evaluation questions. It should detail the various steps and stages of analysis that were carried out, including the steps to confirm the accuracy of data and the results. The report also should discuss the appropriateness of the analysis to the evaluation questions. Potential weaknesses in the data analysis and gaps or limitations of the data should be discussed, including their possible influence on the way findings may be interpreted and conclusions drawn.

Findings and conclusions—The report should present the evaluation findings based on the analysis and conclusions drawn from the findings.

- Findings—Should be presented as statements of fact that are based on analysis of the data. They should be structured around the evaluation criteria and questions so that report users can readily make the connection between what was asked and what was found. Variances between planned and actual results should be explained, as well as factors affecting the achievement of intended results. Assumptions or risks in the project or programme design that subsequently affected implementation should be discussed.
- Conclusions—Should be comprehensive and balanced, and highlight the strengths, weaknesses and outcomes of the intervention. They should be well substantiated by the evidence and logically connected to evaluation findings. They should respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to the decision making of intended users.

Recommendations—The report should provide practical, feasible recommendations directed to the intended users of the report about what actions to take or decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation. They should address sustainability of the initiative and comment on the adequacy of the project exit strategy, if applicable.

Lessons learned—As appropriate, the report should include discussion of lessons learned from the evaluation, that is, new knowledge gained from the particular circumstance (intervention, context outcomes, even about evaluation methods) that are applicable to a similar context. Lessons should be concise and based on specific evidence presented in the report.

Report annexes—Suggested annexes should include the following to provide the report user with supplemental background and methodological details that enhance the credibility of the report:

- ToR for the evaluation
- Additional methodology-related documentation, such as the evaluation matrix and data collection instruments (questionnaires, interview guides, observation protocols, etc.) as appropriate
- List of individuals or groups interviewed or consulted and sites visited

- List of supporting documents reviewed
- Project or programme results map or results framework
- Summary tables of findings, such as tables displaying progress towards outputs, targets, and goals relative to established indicators
- Short biographies of the evaluators and justification of team composition
- Code of conduct signed by evaluators

Addendum 3 to TOR: List of documentation to be reviewed

1. Country Programme Action Plan (CPAP)
2. Project Document
3. Inception report
4. Mid-term Evaluation Report
5. Management Response to mid-term evaluation report
6. Project Implementation Reviews
7. Quarterly project progress reports
8. Atlas risk log
9. Baseline Capacity Assessment Report of Key Project Stakeholders
10. Regional Environmental Assessment Study of the Gharo Wind Corridor in Pakistan
11. Guidelines for Environmental Assessment of Wind Farms in Pakistan
12. Wind data report of first wind mast
13. Training materials developed under the project
14. Promotional materials and media articles about the project

Annex 5. Management Response Matrix