

1 230 811 265

CLIMATE CHANGE AND THE WORLD BANK GROUP

Phase II: The Challenge of Low-Carbon Development

Table of Contents

Abbreviations.....	vi
Acknowledgments.....	vii
Foreword.....	viii
Executive Summary.....	ix
Management Response.....	xvi
Chairman's Summary: Committee on Development Effectiveness (CODE).....	xvii
Statement of the External High-Level Review Panel.....	xviii
Contents.....	xxv
1. Introduction.....	1
Climate Context.....	3
Global Mitigation Context and the WBG.....	4
Evaluation Questions.....	5
Evaluation Framework.....	6
Evaluation Scope.....	7
2. Energy.....	11
Low-Carbon Energy Projects and Their Performance.....	12
Overcoming Barriers to On-Grid Renewable Energy.....	18
On-Grid Renewable Energy: Hydropower.....	23
Energy Access and Low-Carbon Development.....	26
Off-Grid Renewable Energy: Solar Photovoltaics.....	27
The Way Forward for Renewable Energy.....	30
3. Energy Efficiency.....	34
Energy Efficiency in the First Phase Evaluation.....	34
Using Financial Intermediaries to Overcome Barriers to Energy Efficiency Investments.....	34
Direct Investments in Energy Efficiency.....	38
Transmission and Distribution.....	40
Efficient Light Bulbs.....	41
The Way Forward for Energy Efficiency.....	44
4. Urban Transit.....	48
5. Forests.....	52

5. Special Topics	61
Efficiency in Coal-Fired Generation	62
Technology Promotion and Transfer	65
Carbon Finance at the WBG	71
6. Conclusions and Recommendations	79
The Congruence of Mitigation and Development	80
A Systems View Is Essential	80
Recommendations	81

Appendixes

A. Renewable Energy Tables and Figures	89
B. World Bank Experience with Renewable Energy Surveys	97
C. Energy Efficiency: Supplementary Information	98
D. Lessons from Completed Transmission and Distribution Projects	102
E. Coal	104
F. Transport Tables and Figures	106
G. Energy Project Portfolio Databases	108
H. Pilot and Demonstration Projects	110
I. Carbon and Economic Returns of Projects	113
J. Recent WBG Developments in Emission Mitigation Activities	115
K. Evaluation Summary from Climate Change and the World Bank Group—Phase I	118

Endnotes	122
-----------------------	------------

Bibliography	124
---------------------------	------------

Photographs	128
--------------------------	------------

Boxes

1.1 The Strategic Framework on Development and Climate Change	2
2.1 The Economics of Grid-Connected Renewable Energy	19
2.2 Monitoring and Evaluation Provides Rapid Feedback on the Performance of Landfill Gas Projects	20
2.3 Mitigating Political Risks in Renewables: a MIGA Case	22
2.4 Gender and Low-Carbon Energy	26
2.5 On-Grid and Off-Grid Renewable Energy in Sri Lanka	31
3.1 Energy Service Companies and Energy Performance Contracting	36
4.1 The TransMilenio BRTS	50
4.2 The Silvopastoral Project: A Successful Demonstration	55
5.1 Technology Learning (or Experience) Curves	65
5.2 Carbon Offsets, a Peculiar Commodity	72