

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**Impacts of Power Sector Reforms
on Rural Electrification
in the Philippines**

*A thesis presented in partial fulfillment of the requirements for the degree of
Master of Philosophy in Development Studies
at Massey University, Palmerston North,
New Zealand*

Ronaldo F. Corpus

2004

Abstract

Inspired by neo-liberal principles, waves of electricity industry reforms have swept the world over the last two decades. To a great extent, the traditional government-extended electrification service was transferred to the hands of private actors and market forces. While these reforms are expected to bring about efficiency gains as a result of market liberalization and private competition, the provision of electrification service to relatively poorer rural areas is less certain. In this light, it is of great interest in development studies to therefore understand the impacts of these reforms on the delivery of public service goals in cash-strapped developing countries like the Philippines.

Through assessments of relevant Philippine government data and case study findings, this thesis outlines how the restructured Philippine electricity industry has impacted on the accessibility, service quality and affordability of electrification, especially in rural areas. In a nutshell, electricity industry restructuring in the Philippines resulted in better delivery of public service goals to the rural beneficiaries, but not necessarily resulting from privatization, competition and deregulation that is fostered by a free market regime.

Acknowledgement

I would like to thank my supervisor, Dr. Donovan Storey, and the International Students Support Office (ISSO) of Massey University, the governments of New Zealand and the Philippines, and all the research participants for their invaluable support enabling the completion of this thesis.

Table of Contents

Abstract	ii
Acknowledgement	iii
Table of Tables	vi
Table of Figures	vii
Table of Photographs	vii
Acronyms	viii
Chapter I – Introduction	1
The Research Problem, Aims and Objectives	6
Research Methodology	7
Chapter II - Global Perspectives on Power Sector Reforms	13
Introduction	13
Ideological Links and Perspectives	15
Concepts Behind Power Sector Reforms	17
<i>Vertical Unbundling</i>	18
<i>Privatization</i>	19
<i>Competition</i>	23
<i>Deregulation</i>	25
From a Regulatory Regime to a Deregulated Market	28
Acclaimed Best Model and Other Country Reforms	32
Problems with Power Sector Reforms	34
Profitability vs. Affordability	38
Conclusion	40
Chapter III – The Path to Reforms	42
Socio-Economic Importance of Electrification in the Rural Area	42
Three Waves of Privatization in the Philippines	45
The Philippine Power Sector	49
Philippine Rural Electrification Revisited	54
The Government Rural Electrification Program	57
The Electricity Industry Restructuring Act	59
Conclusion	64

Chapter IV – Impacts of the Power Sector Reforms	65
EPIRA Implementation Status	65
<i>On NPC Privatization</i>	72
<i>On the Wholesale Electricity Spot Market</i>	74
<i>On Rates Unbundling</i>	75
Impacts on Power Adequacy and Reliability	76
Reform Impacts on Electric Cooperatives	82
<i>Gross Revenue</i>	82
<i>Collection Efficiency</i>	83
<i>System Loss</i>	85
<i>System Interruption (in Region III)</i>	87
Impacts on Rural Electrification Access	88
Impacts on the Price of Electricity	93
<i>Another Round of Price Reductions?</i>	96
Conclusion	97
 Chapter V – Case Study for Reform Impacts	 99
The Nueva Ecija I Electric Cooperative	99
The Case Study Barangay and Sitio	109
<i>Barangay Bagong Sikat, Cabiao, Nueva Ecija</i>	109
<i>Sitio Barangka, Barangay Pulo, San Isidro, Nueva Ecija</i>	117
Conclusion	123
 Chapter VI – Conclusion	 125
 Appendices	 132
A. Information Sheet for Government Officials	132
B. Information Sheet for the Private Sector Participants	134
C. Information Sheets for Rural Electrification Beneficiaries	136
D. Consent Form (English Version)	138
E. Consent Forms (Local Language Version)	139
F. Top 45 Privatized Government Assets	140
G.1 List of Operational BOT Projects	141
G.2 List of BOT Contracts Awarded Through Public Bidding	143
G.3 List of BOT Contracts Awarded Through the Unsolicited Mode	144
G.4 List of Completed BOT Projects	145
H. Highlights on Private Sector Participation in Other Public Infrastructures in the Philippines	146
I. List of ECs with ERC-Approved Unbundled Rates	151
J. Rate Reductions due to Loan Condonation	152
K. Matrix of Fieldwork Information at Bagong Sikat	156
L. Matrix of Fieldwork Information at Sitio Barangka	160
 Bibliography	 164

Table of Tables

Table 2.1	– Electricity Access – Regional Disparities	14
Table 2.2	– Pros and Cons of Privatization	23
Table 3.1	– MERALCO’s Customer Profile	53
Table 3.2	– Rural Electrification Program	57
Table 4.1	– EPIRA Implementation Milestones	71
Table 4.2	– Revised Electric Billing Structure	75
Table 4.3	– Plant Line-Up for the Luzon Grid	77
Table 4.4	– Plant Line-Up for the Visayan Grid	78
Table 4.5	– Plant Line-Up for the Mindanao Grid	78
Table 4.6	– Transmission Program	79
Table 4.7	– Prioritization Criteria for New Missionary Electrification Projects	80
Table 4.8	– Electric Cooperatives’ Monthly Gross Revenues	83
Table 4.9	– Electric Cooperatives’ Collection Efficiency	84
Table 4.10	– Electric Cooperatives’ System Losses	86
Table 4.11	– Outages Report for Electric Cooperatives in Region III	88
Table 4.12	– Barangay Electrification Level (National Total)	89
Table 4.13	– Cumulative Number of EC-Energized Barangays by Main Grid	90
Table 4.14	– Expanded Rural Electrification Program	91
Table 4.15	– Average System Rates of Electric Cooperatives	94
Table 5.1	– Electrification Status of NEECO-I	101
Table 5.2	– NEECO-I Financial Data	102
Table 5.3	– NEECO-I System Losses	104
Table 5.4	– NEECO-I Service Interruptions	106
Table 5.5	– Income, Expense & Power Bill of Respondents in Bagong Sikat	113
Table 5.6	– Income, Expense & Power Bill of Respondents in Sitio Barangka	119
Table 5.7	– Bill versus Income in the Case Study Areas	120

Table of Figures

Figure 1.1 – Map of the Philippines	5
Figure 3.1 – Rural Electrification Promotion by Organization	58
Figure 4.1 – Revised Electricity Industry Relationship	68
Figure 4.2 – Revised Transaction Flows under the EPIRA	69
Figure 4.3 – DDP/MEDP Formulation Process	81
Figure 4.4 – EC Electrification Levels By Region	89
Figure 5.1 – NEECO-I Franchise Area	100
Figure 5.2 – Map of Cabiao (indicating Barangay Bagong Sikat)	110
Figure 5.3 – Map of San Isidro (indicating Sitio Barangka)	118

Table of Photographs

Photograph 5.1 – Pole Metering	103
Photograph 5.2 – Bamboo Poles	105
Photograph 5.3 – Barangay Access Road	111
Photograph 5.4 – Leaning Post	116

Acronyms

ADB	Asian Development Bank
APT	Assets Privatization Trust
BAPA	Barangay Power Association
BOT	Build-Operate-Transfer
CCPSP	Coordinating Council for Private Sector Participation
COP	Committee on Privatization
CPPA	Cost of Purchased Power Adjustment
DA	Department of Agriculture
DAR	Department of Agrarian Reforms
DBM	Department of Budget and Management
DDP	Distribution Development Plan
DILG	Department of Interiors and Local Government
Disco	Distribution Utility
DOE	Department of Energy
DOF-PMO	Department of Finance-Privatization and Management Office
EC	Electric Cooperative
ECA	Energy Conversion Agreement
EPIRA	Electric Power Industry Restructuring Act
ERC	Energy Regulatory Commission
EREP	Expanded Rural Electrification Program
GDP	Gross Domestic Product
Genco	Generating Company
GOCC	Government Owned- and Controlled- Corporation
GRAM	Generation Rate Adjustment Mechanism
IPP	Independent Power Producers
IT/IS	Information Technology/Information Systems
JBIC	Japan Bank for International Cooperation
LGU	Local Government Unit
LRAC	Long-Run Avoidable Cost
MEDP	Missionary Electrification Development Plan
MERALCO	Manila Electric Company
MTPDP	Medium-Term Philippine Development Plan
NASECORE	National Association of Electric Consumers for Reforms
NEA	National Electrification Administration
NEDA	National Economic and Development Authority
NPC-SPUG	National Power Corporation-Small Power Utilities Group
PCGG	Presidential Commission on Good Government
PDP	Power Development Plan
PDU	Private Distribution Utility
PEP	Philippine Energy Plan
PIOU	Private-Investor-Owned Utilities
PIP/REP	Performance Improvement Program/Rehabilitation Efficiency Plan

PNOC-EDC	Philippine National Oil Company-Energy Development Corporation
PPA	Power Purchase Agreement
PSALM	Power Sector Assets and Liabilities Management Corporation
QTP	Qualified Third Party
RORB	Return of Rate Base
SARS	Severe Acute Respiratory Syndrome
TDP	Transmission Development Plan
TOU	Time of Use
Transco	National Transmission Company
TSC	Transition Supply Contract
UC	Universal Charge
UC-EN	Universal Charge for Environmental Purposes
UC-ME	Universal Charge for Missionary Electrification
WB/IMF	World Bank/International Monetary Fund
WESM	Wholesale Electricity Spot Market

Chapter I – Introduction

Electrification is recognized as playing a potentially significant contribution towards socio-economic upliftment of its beneficiaries. Considered as the most modern source of energy in most parts of the world, benefits of electrification include improving business and farm productivity, enhancing convenience of household tasks, and providing a more efficient form of household lighting. More particularly in rural areas of less developed countries, electricity provision opened opportunities to reduce poverty. In Bolivia and Malawi, both rural living standards and quality of life improved due to electrification (ESMAP, 2002). In India and Bangladesh, rural electrification increased the use of irrigation in agriculture, which helped reduce poverty incidence and improved the lives of beneficiaries, thereby transforming the low sense of peoples' powerlessness into increased empowerment (Ali & Pernia, 2003). Availability of electricity in some parts of Indonesia that enabled access to technology contributed directly to increased employment and incomes of the poor (Ali & Pernia, 2003). But despite energy being one of the largest sectors in the global economy, there are noted disparities in access to electricity with the developing countries in Asia sheltering almost two-thirds of the world's population that have not been reached by electricity services in their homes.

Electricity is considered as the most versatile form of energy. Consistent growth in electricity demand has been experienced worldwide as it became a necessity rather than a luxury. Especially for most developing countries, electricity provision along with other essential public infrastructures is viewed as a deciding factor that influences the investment decisions of the private sector. Because of its strategic economic importance, many governments deeply involved themselves in electricity provision (Sidorenko, et.al., 2002). As a consequence, governments became traditional service providers and owned as well as operated power generation plants, transmission grids and distribution systems through state-owned or government-controlled enterprises.

During the last two decades, however, the rise of neo-liberal philosophies introduced a presumably more efficient means for electricity provision. Worldwide waves of power sector reforms were implemented involving greater reliance on private actors and market forces. In industrialized countries, it is believed that the private sector could do a better job of running the electricity industry as proven in the transportation and telecommunications industries. Among the developing nations, the need to raise cash undeniably motivated their efforts towards power sector reforms (Bacon & Besant-Jones, 2001).

Developing countries joined the global trend in reforming their power sectors anchored on the perceived benefits of the neo-liberal prescriptions preached by the industrialized countries. The reforms expect the transfer of government onus in traditionally supporting electrification service provisions, especially in the areas of bulk electricity production and distribution, to private actors and market forces. While envisioned to free governments from considerable expenditure, privatization, market competition and deregulation are also expected to bring about efficiency gains which can in turn lead to economic growth and international competitiveness. Despite the perceived efficiency gains, however, it is argued that free market regimes tend to ignore social equity objectives mainly due to capitalistic profit motivations among private entrepreneurs especially in the context of the less developed nations. Business-as-usual practices dictate that the private sector would enter the market only if there is profit to make, most probably leaving the non-profitable or unviable areas unattended (Bhattacharyya, 1995).

One developing country that reformed its electricity industry recently is the Philippines (see Figure 1.1 for the map of the Philippines). Commonly referred to as the Pearl of the Orient, the country lies at the heart of southeast Asia. Consisting of 7,107 islands, its land area covers about 300,000 square kilometers. The archipelagic country is divided into 78 provinces (which are subdivided further into municipalities and villages) and 16 distinct regions. They are geographically clustered to form the country's three main island groups; namely Luzon, Visayas and Mindanao. Manila, the country's capital city,

is located at the National Capital Region (NCR) in Luzon. Cebu City in the Visayas and Davao City in Mindanao are also functioning as gateways for international trade.

According to the May 2000 census¹, the Philippines has a population of 76.5 million people with an average household size of 5 persons. Population is projected to reach about 82.7 million by 2004 at an annual growth rate of 2.4%. Among the main island groups, Luzon is the most populous sheltering about 56% of the total population. Mindanao comes in next with 24%, while the Visayas houses the remaining 20%. Luzon hosts the most populated regions of the country. Region IV (Southern Tagalog) has 15.4%, while the NCR and Region III (Central Luzon) follow with 13% and 10.5%, respectively. In contrast, the Cordillera Administrative Region (CAR, also in Luzon), the CARAGA Region (in Mindanao) and the Autonomous Region for Muslim Mindanao (ARMM) are the least populated with 1.8%, 2.7% and 3.2% of the total population, respectively. It may be interesting to note that about half of the total population is below 21 years old, and that 59.2% of the people (*i.e.*, those aged between 15 to 64 years old) are considered economically active or may be engaged in paid productive activities. In terms of literacy, 92.3% of the country's predominantly Christian people are able to read and write. The country has a democratic form of government (with its seat in the NCR) which was restored through the bloodless People Power Revolution in 1986.

Agriculture, industry and services are the main economic activities in the Philippines, with services as the leading growth sector (with 5.9% growth rate in 2003)². While agriculture (including fisheries and forestry) maintained a modest growth of 3.9% in 2003, the growth of the industry sector softened in 2003 due to lower public construction. The country's gross domestic product (GDP) is placed at around ₱ 1.25 trillion (US\$ 24 billion) while its gross national product (GNP) is estimated at ₱ 1.33 trillion (US\$ 25.6 billion) as of May 2003. With the resulting per capita GNP of ₱14,366, the Philippines falls within the category of low-middle income economies in the world. As of end 2003, the country's foreign debt burden reached US\$56.7 billion

¹ done by the National Statistics Office, Republic of the Philippines

² all growth rate figures are sourced from the National Economic and Development Authority, the central planning agency of the country

(Dumlao, 2004). Based on the country's per capita poverty threshold of ₱13,913 as of 2000 from the National Statistics Office, 40% of the total population is considered poor. Poverty incidence is worse in rural Philippines at 47.4% compared to 20.5% in urban areas. It may be noted that these poverty incidence figures for 2000 deteriorated compared to 1997 corresponding data. The top three poorest regions are ARMM, Region V (Bicol in Luzon) and Region XII (Central Mindanao). As of 2002, 20% of the 15.9 million Filipino households have no access to safe drinking water while 21% do not have electricity at their homes.

The Research Problem, Aims and Objectives

Saddled with persistent budget deficits due to poor economic performance coupled with the continuously increasing population demand for electricity, the Philippines acceded to power sector reforms in June 2001 with the enactment of the Electric Power Industry Restructuring Act (EPIRA). In this connection, it is of great interest in development studies to know whether the perceived benefits of EPIRA have really trickled down to the rural population of the Philippines as enunciated under the Act. In this light, there is a felt need to investigate and analyze the impacts of electricity industry restructuring in the Philippines on rural electrification particularly on whether the delivery of public service goals (*i.e., accessibility of service especially in remote and far-flung areas, service quality in terms of adequacy, reliability and continuity, and affordability of electric prices*) improved in the rural areas after the enactment of electricity industry reform law. This thesis will explore the proposition that economic efficiency in the electricity industry should be accompanied by social equity objectives in order to achieve better delivery of public service goals. To address the above research objective, central question and theoretical proposition, the investigation focused on finding the answers to the following queries:

- a. Are there changes in electrification policies and their implementation, as well as organizational, institutional and operational aspects upon the enactment of the Philippine power sector reforms? What changes were instituted by the reforms towards private sector participation in rural electrification? What are their implications? How were they carried out?
- b. Have the power sector reforms improved the quality of electricity service in terms of supply adequacy, reliability and continuity in the rural areas? If so, how was it being carried out?
- c. As the main entities concerned in the delivery of electrification service to rural areas, have the reforms improved the performance of electric cooperatives? How and in what ways?

- d. Have the reforms expanded the accessibility of service especially in remote and far-flung rural areas? How was it being implemented?
- e. Have privatization, competition and deregulation of the electricity industry resulted in lower power rates especially in the rural areas? Why or why not?

Research Methodology

With emphasis of the research work on how the enacted power sector reforms affected service quality, accessibility of electrification service and affordability of the electric tariffs, this research thesis employed the case study approach. Relevant information/data were sourced from documentations (*e.g.*, administrative records/proposals, progress reports, letters, memoranda, legal issuances, formal studies, newspaper articles), archival records (*e.g.*, maps, charts, organizational records, survey data), key-informant interviews, direct observation, and participant-observation and site visits. Multi-sourcing of case study evidences was resorted to for purposes of data triangulation as well as complementation. Modes of analysis employed are pattern-matching between the predicted outcomes and empirical findings, explanation building with historical tracking, as well as time-series analysis of data collected.

Case study areas were purposely chosen to assess the cause and effect of the interventions introduced by the reforms within a real-life context. Two (2) case study areas were covered to verify the external validity of findings. Despite the time and budget limitations and the acknowledged weakness of having relatively few respondents, it is hoped that the data/information gathered from concerned rural electrification entities and the findings from the two selected case study areas could be generalized in relations to existing theories and ongoing debates presented in the following chapter given the flexibility of the case study approach for explorations. To avoid biased responses, efforts have been made to accurately balance the empirical evidence.

Through the courtesy of the National Economic & Development Authority (NEDA), preparatory fieldwork activities (*e.g.*, fine-tuning and reproduction of interview

questionnaires, setting and confirmation of appointments, drafting of request letters) and preliminary data/information processing and transcription were undertaken in a fieldwork base station with access to computers, photo-copying machine, facsimile machine and telephone lines. Initially, connections/acquaintances from the local consulting industry as well as from the Department of Energy were approached in order to identify and establish key contacts within relevant entities such as government agencies, concerned private sector firms and electricity end-consumers.

Due respect to the Philippine government protocol was observed. Courtesy visits to concerned high-ranking government officials and authorities were made first to secure clearance in accessing agency data/documents as well as in interviewing the identified focal persons/informants. Souvenir items (*i.e.*, Paua shells) were given out after the courtesy visits as a token of appreciation for the time spent with the researcher. Onward correspondences with identified key informants were then personally pursued, initially through telephone calls in order to secure appointments for interviews including the most convenient place and time to meet them. Depending on the participants' preference and availability, their cooperation was solicited either through formal request letters or verbal communications (*i.e.*, through the telephone, electronic mails and text messages).

To enjoin full cooperation, the research project was introduced to each of the willing research participants emphasizing, among others, the nature, objective and purpose of this case study research. In most cases, the information sheets and consent forms for the different research participants (copies attached as Appendices A to E) were discussed/explained with the key informants during the start-up portion of actual personal interviews. Each of the research participants were briefed about their rights, informed consent, data anonymity and confidentiality, as well as the use, safety and privacy of the information gathered. Meanwhile, the researcher exerted best efforts to maintain impartiality and neutrality, sensitivity to gender and class issues, and to minimize potential risks and harm to the participants and himself. Some informants, though, asked for time to go over the information sheets before agreeing to participate in the research. Flexible semi-structured interviews with key informants and agency

data/information browsing, note-taking and photo-copying were conducted. The focal persons contacted/interviewed were from the Department of Energy (DOE), National Electrification Administration (NEA), National Power Corporation-Small Power Utilities Group (NPC-SPUG), National Transmission Co. (Transco), Power Sector Assets and Liabilities Management Corp. (PSALM), Energy Regulatory Commission (ERC), Philippine National Oil Co.-Energy Development Corp. (PNOC-EDC), the private sector (*i.e.*, independent power producers), the Nueva Ecija I Electric Cooperative, rural electrification beneficiaries and local government officials (in the two case study areas and nearest urbanized settlements) and a cause-oriented non-government organization (*i.e.*, the National Association of Electric Consumers for Reforms or NASECORE). Also contacted were concerned personnel from the Department of Finance-Privatization and Management Office (DOF-PMO), the Coordinating Council for Private Sector Participation (CCPSP), the Departments of Budget and Management (DBM), Agriculture (DA), Agrarian Reform (DAR), Interiors and Local Government (DILG), and the National Economic & Development Authority (NEDA).

At first, the researcher thought that it would be easy to collect the needed information/data from “old familiar faces” with whom the researcher had once worked with (some of whom were even the researcher’s former officemates/subordinates). Introductory meetings were very heart-warming and encouraging for research work, but as the fieldwork progressed, accessing them and agency data became difficult mainly because of their time constraints and current loyalty to their new respective agencies. It was noted that members of the “Energy Family (*i.e.*, DOE, NEA, NPC & PNOC)” within the government bureaucracy were observing a protocol before releasing data/information: *i.e.*, *secure clearance first from higher authorities before the researcher is allowed access to data and interviews*. One key government informant was at first hesitant to participate since another researcher (who also posted as a student) actually used the collected agency data for consultancy work. Said informant only agreed to cooperate and participate in the research only after another government informant verbally endorsed the research project upon the request of the researcher.

Some scheduled interviews were postponed for later dates due to urgent errands from higher-ups. With respect to the private sector informants, information about business profitability and financing sources for their corporate social responsibilities towards rural electrification efforts were obtained through less formal means (*i.e.*, chats during consultative meetings wherein the researcher participated as an observer, or through casual telephone conversations or informal interviews) as these information are sensitive and confidential from their points of view.

One *barangay* and one *sitio* were selected as case study areas. A *barangay* is the smallest political unit in the Philippines while a *sitio* is a satellite cluster of settlement within a *barangay*. Prior to actual interviews of electricity end-consumers in the case study areas, reconnaissance surveys in the provinces of Nueva Ecija and Pampanga in Region III (Central Luzon) were undertaken in view of President Gloria Macapagal-Arroyo's recent statement that some rebel groups (*i.e.*, the New People's Army) had recently moved closer to Metro Manila. Delimited by budget and time for fieldwork, the researcher preferred to cover rural areas in the province of Nueva Ecija which is about 100 kilometers north of Metro Manila since some local folks or distant relatives could serve as local guides and/or research assistants. Identification and background investigation of potential case study areas were carried out by the researcher through interaction with local residents in the municipality of San Isidro (in Nueva Ecija) during their pastimes (*e.g.*, playing cards or billiards, karaoke singing). The two (2) case study areas (*i.e.*, Barangay Bagong Sikat in the municipality of Cabiao & Sitio Barangka, Barangay Pulo in the municipality of San Isidro) were finally selected with due consideration to the length of rural electrification service (*i.e.*, at least with electric service since 1998), accessibility, availability of local guides and the prevailing peace & order situation. Given the limited budget and the short timeframe allowed for the conduct of the case study, these selection criteria were drawn with the objective of ensuring that the respondents had experienced rural electrification service before and after the power sector reforms, that the area is reachable by wheeled vehicles for travel facilitation, that there are residents or mainstays in the study area who could accompany

the researcher in freely moving around the vicinity, and that the safety of the researcher and his companions is assured.

The researcher traveled daily to and from the selected study areas (using a hired vehicle) for a span of one week for each. Collecting information and perceptions of rural informants was done through systematic random sampling to minimize bias; *i.e.*, via interviews of households spaced 5 to 10 houses apart. Visits to the study areas were carried out only during daytime as an additional safety measure. Actual interviews of rural residents were conducted during slack times after lunch while the rest of the day was spent for transect walks and/or direct observations. There were tendencies though, especially during the first day of site visit, for people to crowd around the researcher in one household which resulted in multiple interviews but necessitating the conduct of separate direct observations of the interviewee's household. Such reaction of the rural informants had been triggered by the giveaway (*i.e.*, New Zealand-made ball pens) to those who are willing to be interviewed. The attached map of the country (see Figure 1.1) would provide the approximate geographic location of provinces/places mentioned in this thesis.

After this introductory chapter, Chapter II provides the relevant literature on power sector reform principles, the ideologies and concepts behind the reform and the emerging global and regional issues concerning rural electrification. Chapter III links the global and general issues to the Philippine rural electrification situation. After expounding on the importance of electrification in rural Philippines, it traces government efforts towards power sector reforms vis-à-vis the global trends and developments. Chapter IV discusses the impacts of the enacted electricity industry restructuring on the delivery of public service goals in the country. It relates the outcomes and updates on the implementation of the restructuring law as they relate to rural electrification efforts as well as the discussion and analysis of reform impacts on power supply reliability and system efficiency, accessibility to electricity service, and on electric tariffs at the national and regional levels. Chapter V looks at the impacts of the electricity industry reforms in the selected case study areas. It includes the discussion of changes in the

operating performance of the electric cooperative serving the electricity demands of the selected case study areas as well as the impacts of the electricity industry reform on the areas' electrification beneficiaries including their perceptions and experiences regarding the reforms. This thesis ends with a summary of the research findings, drawing conclusions thereon as well as recommendations and suggestions for further research.