

# **UGSM-Monarch Business School**

## **Doctoral Research Plan**

Residential Electricity Subsidies And Tariff Regulation For Enhancing  
Electricity Access And Affordability To The Poor In Rwanda

PROGRAM:	D. Phil. in Economics
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## INTRODUCTION

The electricity sector in many developing countries has recently been subject to restructuring primarily addressing two important problems: the first being increasing access by the poor and the second being the ensuring of consumption affordability (Omar O, Estache, & Catherine, 2001). Rwanda, as well as other developing countries, has undertaken electricity sector reforms which have altered significantly the sector's market structure and institutional framework.

In the electricity reform process, the Government of Rwanda has indicated rural electrification to be one of its top priority issues aimed at providing electricity access to each and every village by year 2012. Some of the important metrics were indicated as an increase in electricity access from 204,000 connections (2011) to 50% of the population (MININFRA, 2011) as well as an increase in the percentage of the population with access to electricity from 6% in 2006 to 16% by 2012 (Jean, Celine, Edouard, & Hermogene, 2011). However, at present, there is still a general lack of electrification of poor rural communities.

In 2007, slightly more than 83.9% of the total population resided in rural areas while in 2012, 86.64% of households in Rwanda were not connected to electricity (Jean, Celine, Edouard, & Hermogene, 2011). In order to combat this subsidies are seen as a way to help make utility services affordable for poor households and as an alternative mechanism for income redistribution for government purposes (Kristin, Jonathan, Vivien, & Wodon, 2006). A financial subsidy is the most common tool of

assisting the poor with their electricity needs (Visagie, Gisela, & Eugeni, 2006).

Electricity subsidies and tariff regulation are among the strategies adopted by the Government of Rwanda for reducing the cost of energy charged to poor customers and consequentially encourage an increase in electricity access and consumption. It is important to note that given that the primary intent of policy is to increase the use of electricity that both electricity connection as well as use must be considered

Unfortunately, as Chris et al. (2006) have argued existing subsidies in many developing countries have failed to benefit the poor as the poorest households face a poverty that often prevents them from affording the up-front cost of gaining access to the network. They also point out that one of the major arguments for providing subsidies is the social protection they provide for poor households and argue that it is especially important to understand how the benefits are distributed among different income quintiles to assess the efficiency in targeting these poor households (Chris, Nobuo, & Mohammad, 2006). A metric called “benefit incidence analysis” allows an understanding of how well a subsidy is targeted to the intended beneficiaries and to assess the impact of electricity subsidies on poor households. In Rwanda, all electricity customer categories are financially supported in the same proportion which as a result does not enhance electricity access to poor households.

Thus, the contemplated research will address this shortfall and examine alternative strategies to improve access. Moreover, it is believed that most research efforts have concentrated on electricity access and have ignored the important aspect of the electricity subsidy programs as a mechanism for increasing both the number of poor

residential electricity customers and electricity consumption to the poor. This aspect will also be a main focus of the contemplated research. Given the above circumstances prevailing within the Rwandan context the contemplated research will focus on the following objectives:

1. To understand the implications and outcomes of the the electricity subsidy program in Rwanda from 2002 to 2012: where it occurred, how it is was financed, and whom it benefited;
2. To examine the effects of electricity subsidy programs on the affordability of electricity service to poor households;
3. To analyze how efficiently subsidies scheme serve as a mechanism for increasing the number of poor residential electricity customers;
4. To scrutinize how electricity end user tariff regulation increase electricity consumption to the poor households, and;
5. To generate a new model or framework for electricity tariffs and subsidies that assist in promoting the availability of electricity to the rural poor.

It is believed that the scope of this research has not been previously completed within the Rwandan context and that it will provide opportunity to inform policy makers and the regulatory authority to better understand electricity subsidy policy and electricity tariff regulation mechanisms that ultimately will provide tangible improvement to the status quo.

## PROVISIONAL RESEARCH QUESTION

Given the above discourse a provisional research question has been developed as:

“What are the characteristics of a new model, framework or policy directive that better addresses the needs of the rural poor for electrification through the provisioning of government subsidies and tariff regulations within Rwanda?”

## RESEARCH METHODOLOGY

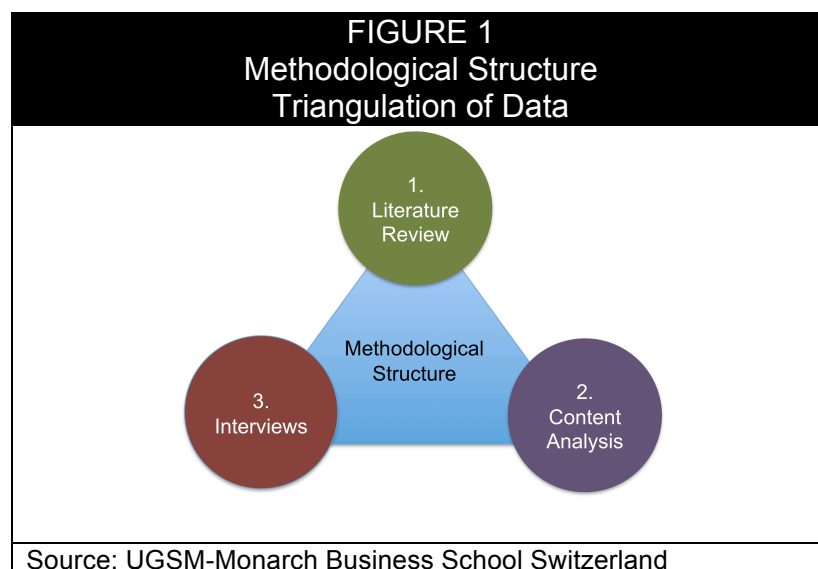
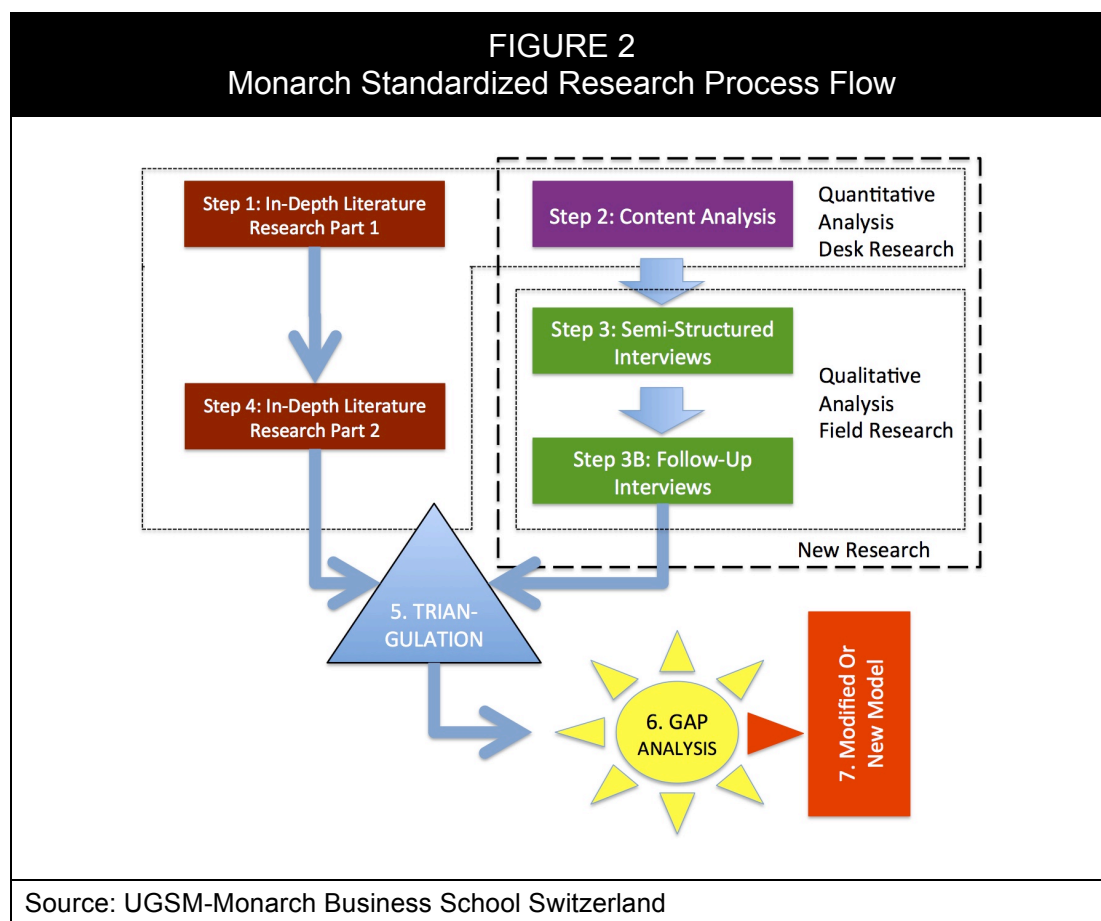


Figure 1 shows that the aim of the contemplated research is to respond to the provisional research question by way of a triangulation of research data, being: 1. literature review of existing seminal academic authors (desk research); 2. content analysis of existing corporate data (desk research), and; 3. interviews with primary stake holders in industry (field research).

Figure 2 illustrates the steps within the Monarch Standardized Research Process

Flow that will be followed within the contemplated research, as:

1. **In-Depth Literature Review-Part 1:** In-depth review of the seminal authors within the study domain will be the first step completed in order to provide a solid academic foundation to the research.
2. **Content Analysis:** An analysis based on data obtained from annual reports, white papers, supporting commercial documents and other commercial data sources will be examined.



### 3. Two-Step Semi-Structured Interview Process:

Step 1. **Preliminary Interviews:** The development of preliminary interview questions will be informed by and synthesized from the

review of the literature and content analysis. Stakeholders to be interviewed will be industry participants considered knowledgeable with respect to the research at hand. A minimum sample of thirty (30) unique participants will be interviewed. Interviews will be held in person at a location amenable to the subjects and are expected to be approximately thirty (30) minutes in length. Telephone interviews will be used in the case that physical interviewing is impossible due to resource or time constraints. Interviews will be tape recorded unless objected to by the participant in which case manual notes will be taken.

Step 2. **Follow-Up Interviews:** of a more specific and narrow view informed by the first round of interviews, content analysis and literature review will be concluded with a smaller sub-set of 15 respondents obtained from the first round sample. These interviews will seek to uncover deeply held personal beliefs and understandings on the research subject that will further uncover important aspects in responding to the provisional research question.

4. **Step 4-In-Depth Literature Review-Part 2:** A second more in-depth literature research review will be completed to further refine the scope and consideration of the existing knowledge within the academic field to add more expertise and specificity to the research analysis.
5. **Step 5 & 6 - Triangulation of the Data & Gap Analysis:** A triangulation of the data will be considered and analyzed in order to determine whether or not

the existing academic knowledge is congruent with the practical application of the field on a commercial basis. The result of this analysis should dictate whether or not a “Knowledge Gap” exists between the academic (theoretical) and the practical (applied) domains.

- 6. Step 7: Development of New Model:** Building on the Gap Analysis a thorough analysis of the existing frameworks within the academic domain will be made. This analysis will inform whether or not the existing frameworks sufficiently address the requirement for practical application within the industry and whether or not they may be further improved or modified.

TABLE 3 Provisional Research Timeline													
		Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PART A	Pre-Literature Review												
	Literature Review Part 1												
	Research Plan												
	Chapter 1												
	Chapter 2 & 3												
	Content Analysis												
		Official Submission of Chapters 1, 2, 3 and Slide Presentation To Obtain Authorization To Continue On To Field Research											
PART B	Interviews Part 1												
	Literature Review Part 2												
	Interviews Part 2												
	Data Analysis												
	Chapter 4, 5, 6												
	Manuscript Perfecting												
	Submission												
Source: UGSM-Monarch Business School Switzerland													

The contemplated research is expected to conclude over a 36 month period. A breakdown of the time allocation by the different phases of the research is outlined in Table 3 above.



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TABLE 4 Provisional Research Budget	
	In Euros
Conferences	1,000
Hotel Accommodations	2,000
Travel	4,500
Books & Articles	1,600
Statistical Software	3,000
Miscellaneous Expenses	2,000
TOTAL	15,000

The research will be privately funded. No requests for supplementary grants, assistantships or scholarships will be made. The total budget of the project is approximately 15,000 Euros. No additional resources or funding will be requested of UGSM-Monarch Business School Switzerland. The budget is presently funded and research may begin immediately upon approval.

## **BIBLIOGRAPHY**

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