

Mid-Term Evaluation Report

BRA/09/G31

Market Transformation for Energy Efficiency in Brazil

PIMS 3665

GEFSEC Project ID: 2941

**United Nations Development
Program**

**Inter-American Development
Bank**

Government of Brazil

June 2014
by
Alfredo Caprile



Ministério do
Meio Ambiente



Abbreviations and Acronyms

ABESCO	<i>Associação Brasileira das Empresas de Serviços de Conservação de Energia</i> – Association of Brazilian ESCOs
ANEEL	<i>Agência Nacional de Energia - Elétrica</i> -Brazilian Electricity Regulatory Agency
AGU	<i>Advocacia-Geral da União</i> - Federal Attorney General's Office
BNDES	<i>Banco Nacional do Desenvolvimento</i> – Brazilian Development Bank
CB	Capacity building
CBIC	<i>Câmara Brasileira da Indústria da Construção</i> - Brazilian Chamber of the Construction Industry
CFCs	Chlorofluorocarbons
CFC 11	Trichlorofluoromethane or Freon 11
CFC 12	Dichlorodifluoromethane (R-12) or Freon 12
CGU	<i>Controladoria Geral da União</i> – Office of the Comptroller General
EAD	<i>Educação a Distância</i> – Education at distance
EE	Energy Efficiency
EEGM	Energy Efficiency Guarantee Mechanism
EDIFICA	<i>Programa de Eficiência Energética em Edificações</i> – EE program for buildings
ES	<i>Esplanada Sustentável</i> – Sustainable Esplanada
ESAF	<i>Escola de Administração Fazendária</i> – Superior School of Finance Administration
ESCO	Energy Service Company
EPE	<i>Empresa de Pesquisa Energética</i> – Federal Energy Planning Company
EPC	Energy Performance Contracting
FEE	<i>Fundação de Ensino de Engenharia</i>
FSP	Full size project
GEF	Global Environment Facility
GHG	Greenhouse gas
GWh	Giga Watt Hours
HCFC	Hydrochlorofluorocarbon
HPMP	HCFC Phase-out Management Plan
HVAC	Heating, Ventilation, Air Conditioning and Cooling

IDB	Inter-American Development Bank
kW	Kilo Watt
M&E	Monitoring and Evaluation
MLF	Multilateral Fund for the Implementation of the Montreal Protocol
MMA	<i>Ministério do Meio Ambiente</i> - Ministry of Environment
MME	<i>Ministério de Minas e Energia</i> - Ministry of Mines and Energy
MP	Montreal Protocol
MW	Mega Watt
NGO	Non-governmental organization
NPSC	National Project Steering Committee
PBE	<i>Programa Brasileiro de Etiquetagem</i> - Brazilian Labeling Program
PBH	<i>Programa Brasileiro de Eliminação de HCFCs</i> – Brazilian program for the elimination of HCFCs
PBI	Public Building Initiative
PES	<i>Projeto Esplanada Sustentável</i> – Sustainable Esplanada Project
PIR	Project Implementation Review
PMU	Project Management Unit
PNEf	<i>Plano Nacional de Eficiência Energética</i> – National Plan on Energy Efficiency
PROCEL	<i>Programa Nacional de Conservação de Energia Elétrica</i> - Energy Conservation Program
RDC	<i>Regime Diferenciado de Contratações Públicas</i> - Differential Regimen for Public Contracting
TCU	Tribunal de Contas da União - Court of Federal Accounts
ToR	Terms of Reference
TPR	Tri-Partite Review meeting
TWh	Tera Watt hour
UCC	<i>Unidade de Comparas e Contratos</i> – UNDP Purchasing and Contract Unit
UGP	<i>Unidade de Gerenciamento de Projetos do Ministério do Meio Ambiente</i> Project Management Unit of the MMA
UNDP	United Nations Development Program
Currency:	Real
1 USD = 2.21 Reales (15 May 2014)	

Acknowledgements

This report has been prepared by Alfredo Caprile who would like to express his gratitude and appreciation for the involvement of all relevant stakeholders with whom the author met during the course of this mandate. The information shared by these stakeholders has been key for the performance of this Mid-Term Evaluation. In particular, the author would like to thank Rosenely Diegues Peixoto, Ludmilla Andreia Oliveira Diniz, Marina Lopes Ribeiro and Oliver Page from UNDP; Patrick Doyle and Mathew McClymont from the Inter-American Development Bank and Adriano de Oliveira, Alexandra Maciel and Thiago de Araujo Mendes from the Ministry of Environment for their valuable insights on the Project as well as all members of the project team and all other interviewed parties who have supported the evaluation process.

The cooperation with members of the project team was effective..

Table of Contents

ABBREVIATIONS AND ACRONYMS	I
ACKNOWLEDGEMENTS.....	III
TABLE OF CONTENTS	IV
EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	8
1.1 PURPOSE OF THE EVALUATION	8
1.2 KEY ISSUES ADDRESSED	9
2. METHODOLOGY OF THE EVALUATION	10
3. THE PROJECT AND ITS DEVELOPMENT CONTEXT	11
3.1 PROJECT SUMMARY.....	11
3.2 PROJECT TIMING, BUDGET AND EXPENDITURES	11
3.3 PROBLEMS THAT PROJECT SEEKS TO ADDRESS	12
3.4 IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROJECT.....	13
3.5 MAIN STAKEHOLDERS	14
4. FINDINGS.....	15
4.1 PROJECT FORMULATION.....	15
4.1.1 <i>Project strategy and design</i>	15
4.1.2 <i>Assumptions and risks</i>	17
4.1.3 <i>Lessons from other relevant projects incorporated into project implementation</i>	18
4.1.4 <i>Stakeholder participation</i>	19
4.1.5 <i>Replication approach</i>	20
4.1.6 <i>Cost effectiveness</i>	20
4.1.6.1 Effectiveness of CO ₂ e emission reductions	20
4.1.6.2 GEF funds disbursement	21
4.1.6.3 Co-financing disbursement	22
4.1.7 <i>UNDP and IDB comparative advantage</i>	23
4.2 PROJECT IMPLEMENTATION.....	23
4.2.1 <i>Implementation Approach</i>	23
4.2.2 <i>Use of Logical Framework as a Management Tool</i>	25
4.2.3 <i>Application of Adaptive Management</i>	26
4.2.4 <i>Monitoring and Evaluation</i>	26
4.2.5 <i>Management and Coordination</i>	27

4.3	PROJECT RESULTS	29
4.3.1	<i>Attainment of Outcomes/Achievement of Objectives</i>	29
4.3.2	<i>Analysis of indicators and targets</i>	46
4.3.3	<i>Country ownership</i>	55
5.	CONCLUSIONS AND RECOMMENDATIONS	56
5.1	OVERALL PROJECT FINDINGS	56
5.2	PROJECT OBJECTIVE	57
5.3	OUTCOME 1 – ENHANCED EE INVESTMENTS THROUGH CB IN EE IN PRIVATE AND PUBLIC BUILDINGS -.....	59
5.4	OUTCOME 2: ACCESS TO EE SERVICES AND COMMERCIAL FINANCING FOR PUBLIC SECTOR BUILDINGS ENHANCED WITH A PBI	60
5.5	OUTCOME 3: INTEREST ENHANCED IN THE REPLACEMENT OF EE CFC-USING CHILLERS.....	61
5.6	OUTCOME 4: EEGM MADE AVAILABLE TO STIMULATE EE INVESTMENT THROUGH ESCOs	62
5.7	OUTCOME 5: PROJECT MONITORING AND EVALUATION SUPPORT	63
5.8	OUTCOME 6: OVERALL PROJECT MANAGEMENT SUPPORT	63
	ANNEXES	66
	ANNEX 1	67
	TERMS OF REFERENCE	67
	ANNEX 2	69
	LIST OF KEY DOCUMENTS REVIEWED.....	69
	ANNEX 3	70
	LIST OF INTERVIEWS DURING FIELD MISSION.....	70

Executive summary

The Project and its Context

The project “Market Transformation for Energy Efficiency (EE) in Brazil” supported by the Global Environmental Facility GEF (USD 13.500.000) was granted approval in August 2009 and plan to run for 7 years. Envisioned co-financing sources included:

<i>Source of co-financing*</i>	<i>Type</i>	<i>Amount (USD)</i>
IDB	Balance Sheet Commitment	15,000,000
MMA	In-Kind	414,000
Banks, ESCOs, End users	In Cash	105,217,250
Banks, ESCOs, End users	In-Kind	1,142,750
UNDP-Multilateral Funds (MP)	In Cash	1,000,000
Total		122,774,000

** Cash contributions from beneficiaries will only materialize when actual project investments occur during project implementation*

The goal of the Project is to influence, transform and develop the market for EE building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption path in the country by:

- Supporting and promoting EE investments through capacity building in EE in private & public buildings
- Granting access to EE services and commercial financing for public sector buildings enhanced with a Public Building Initiative (PBI)
- Enhancing interest in the replacement of energy-inefficient CFC-using chillers
- Establishing a financial facility Energy Efficiency Guarantee Mechanism (EEGM) to address and substantially mitigate the performance risk aspects of ESCO projects

The main problems that the Project seeks to address are:

- Poor awareness and low understanding of potential benefits of EE improvements in buildings among various market actors.
- Difficulties in accessing EE services and commercial financing for public buildings.
- Low interest in the replacement of energy-inefficient CFC-using chillers.
- Lack of access to performance and credit risk mitigation instruments to enhance the confidence of financial institutions in financing EE projects in buildings.

With this Project Brazil will significantly improve the general conditions in which EE measures are implemented in the building sector. Public and private building

owners/operators will thus have the possibility of taking advantage of energy savings with the technical and financial support of EE service companies such as ESCOs

Purpose of the Evaluation

This Mid Term Evaluation has been performed on a request of UNDP CO in Brazil and has been conducted in accordance with UNDP Evaluation Guidance for GEF Financed Projects. The aim of the evaluation is to contribute to effective project implementation and ensure proper documentation of lessons learned by assessing the amount of progress that has been achieved by the Project activities *vis a vis* the stated objectives and to generate recommendations on how to improve its implementation during the time remaining until its final completion.

The Mid Term Evaluation mission took place in Brazil from February 10 to February 14, 2014 and was followed with communications and data exchanges until the presentation of this report.

Main findings

The Project is professionally managed and administered. However, delivery of results and disbursement of funds are still behind schedule for a number of reasons:

- An extended delay in implementation startup. In accordance with the PRODOC, the Project was originally planned to start in March 2009 but the Inception Workshop was not held until March 2010 and virtually no activities had taken place until early 2012 once the National Project Manager / Coordinator was hired.
- The lack of involvement of the Ministry of Mines and Energy (MME) and the derived difficulties in establishing a National Project Steering Committee (NPSC) continue to be a major issue affecting Project governance. A Technical Advisory Committee has been proposed as an alternative but it is not operational yet.
- The implementation of EE projects in buildings in Brazil is still at a low development stage and hence the Project is finding it harder than expected to achieve its planned objectives.
- The Project has also suffered from lack of government support to participate in the technical decision making process of the *Projeto Esplanada Sustentável* (PES) that plans to implement the retrofit of 23 Federal buildings in Brasilia.
- The interest in EEGM within the public sector has not evolved as planned during the PDF B phase, in part because the Project has not yet been able to identify a contractual approach by which the public sector would be able to enter into an EPC with ESCOs due to the limitations imposed by Brazilian Procurement Law No. 8666.
- The negotiations with BNDES which has been considered as a key strategic ally for assisting in the identification of potential candidates for the EEGM have not progressed as expected. These negotiations have been dependant on the

reorganization within BNDES / PROESCO and not in a breakdown / apathy in negotiations from the Project side. As a result, actions have been taken to focus on other strategic allies until BNDES / PROESCO can be considered as the key strategic ally in line with what was agreed under the PRODOC.

In spite of all, the project team is working towards accomplishing project outputs and outcomes with professionalism.

The overall rating of the Project is Moderately Satisfactory due primarily to amount of time that has passed between project approval and actual initiation of project activities, the poor degree of governance as a result of not having been able to establish neither the NSPC nor the Technical Advisory Committee as agreed in principle in May 2013 and the extremely low rate of disbursement accomplished to date. A summary of the individual ratings is detailed below

Project Formulation	Rating
Project strategy and design	MS
Stakeholder participation	MU
Replication approach	S
Cost effectiveness	U
UNDP and IDB comparative advantage	S
Implementation Approach	MS
Application of Adaptive Management	MS
Use of Logical Framework as a Management Tool	MU
Application of Adaptive Management	MS
Monitoring and Evaluation	MS
Management and Coordination	MU
Outcome 1 –Enhanced EE investments through CB in EE in private & public buildings	MS
Outcome 2 - Access to EE services and commercial financing for public sector buildings enhanced with a PBI	MS
Outcome 3 - Interest enhanced in the replacement of energy-inefficient CFC-using chillers	MS
Outcome 4 - EEGM made available to stimulate EE investment through ESCOs	S
Outcome 5 – Project monitoring and evaluation support	MS
Outcome 6 – Overall project management support	MU

Project Objective

- After a lengthy initiation phase the Project is now under full implementation. Three guarantees for ESCO projects in the private sector have been issued under the EEGM
- Project design continues to be relevant and EE remains as a National priority for Brazil
- The lack of involvement of the MME has negatively affected project governance
- The Project appears to be in a good position to achieve most of its major objectives

Outcome 1 – Enhanced EE investments through CD in EE in private and public buildings

- Capacity building and delivery of training sessions are well underway
- The Project website has not yet been set up but should be developed within the coming months. However, an on-line EE Reference Information Library is being set up

Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI

- The Project has not been included in the ES project that plans to implement the retrofit of 23 Federal buildings in Brasilia, however an EE audit for the Environment and Culture Ministry building in Brasilia (*Bloco B*) is underway
- Preparation of a benchmarking study for EE in public buildings which includes the conduct of 45 pre-audits is being performed and should serve to identify at least 5 pilot cases to become part of the PBI
- A study of the state of the art on the use of EPC schemes is being finalized

Outcome 3: Interest enhanced in the replacement of EE CFC using chillers

- National inventory of CFC and HCF based chillers has been completed
- A call for proposals for the preparation of technical and information material for promotion and dissemination results is underway
- Implementation of workshops, capacity building and training for specialized professionals and owners of CFC and HFCF chillers is being outsourced
- Results from the retro-commissioning of chillers in the Treasury and Finance Ministry will be used to prepare proposals for retro-commissioning of existing chillers
- Retro-commissioning of 4 existing chillers (2 in Brasilia and 2 in Sao Paulo) are being planned.

Outcome 4:

- EEGM is operational and has issued the first three letters of guarantee for total value of USD1.6 million which was able to leverage a total EE investment of USD 9.44 million
- The restructuring of BNDES is still ongoing and but negotiations with BNDES which was initially viewed as a key strategic partner are still open
- Due to the importance of having a pipeline of EE conversations with other entities are being pursued
- An agreement has been reached to work with AGERIO and their EE lines of credit and negotiations are underway to work with *Desenvolve SP*. CAIXA has also expressed an interest in EEGM and negotiations are underway
- Atla Consulting, the EEGM local administration, has been in contacts with other commercial banks that have expressed interest in the EEGM and is currently in negotiations with another 10 direct clients are underway, 3 of which are in an advanced situation.
- A consultancy for the preparation of templates and reference documents has been contracted and will serve to provide recommendations on how to improve and make the EEGM procedure more flexible for future applications.

Conclusions and Recommendations

- ***A substantive revision of project formulation is needed*** A substantive revision of project formulation needs to be undertaken in order to address the necessary changes identified during the Inception Workshop, as well as, incorporate the recommendations being made in this report including: changes in strategy for reaching the proposed outcomes and the establishment of more realistic indicators and their targets due to poor design or a change of strategy rather than simply because they cannot be reached due to low implementation pace.

Changes to Outcome 3 – which have been agreed upon during negotiations with the Montreal Protocol (MP) in 2012 /2013 – need to be incorporated in the Project log frame

Several indicators and targets will have to be adjusted mainly due to the undeveloped state of the ESCO market in Brazil and the difficulties that have been encountered in using EPC within the public sector as per the recommendations made in Sections 4.3.1 and 4.3.2.

An agreement should be reached as to the value of the grid emission factor that should be used for the calculation of the GHG emission reduction potential of the Project and the calculation of carbon emission reduction that would be generated as a result of the Project interventions should be revised.

The decision to incorporate the development of a Program of Activities (PoA) for EE in buildings for validation and registration under the CDM rules as

proposed by the MMA should be confirmed and included in the Project Logical Framework.

Output 3.5 which calls for the replacement of 22 CFC liquid chillers should be revised based on recommendations from technical experts as to the feasibility of considering demonstration projects based on the replacement of HCFC chillers instead. Also, the number of demonstration should be revised also since 22 projects appear to be too high given the current state of the CFC liquid chillers in Brazil.

In general terms an effort should be made to ensure that the funding for Outcome 3 is use in such a manner that is highly relevant for the Project. An agreement with MP should be reached in this regard.

Coordination between UNDP and IADB has been effective and should continue to be a high priority in order to ensure that capacity building and project identification activities are coordinated effectively at the operational level in order to ensure the development of a strong pipeline of project that will become candidates for the EEGM. However, consideration should be given to hiring an assistant that would report directly to the Project Technical Manager in order to strengthen the coordination of the various activities that are being undertaken by UNDP, IDB and the MMA as well as to expedite the preparation and approval of Terms of Reference of the supporting contracts related to such activities. The role and functions of this person should be clearly defined including how this person would assist on Project external communications.

- ***Project governance and the PMU need to be enhanced urgently.*** The detachment of the MME from the Project has negatively impacted on project governance and precluded the establishment of the NSPC, as originally proposed in the PRODOC. The alternative of setting up a Technical Advisory Committee which was decided in May 2013 has not yet been implemented leaving the Project rudderless.

An urgent decision is needed to decide on a suitable governance structure for the Project that will guarantee that timely and well informed decisions will be made. If the final decision is to set up a Technical Advisory Committee, in lieu of the initially proposed NPSC, measures should be taken to ensure that this results in a suitable governance structure for the Project.

As a starting point a real understanding of the priorities, motivations and constraints of the key stakeholders in the Project (i.e., GEF, UNDP, IDB and the government of Brazil) has to be reached since there appears to be some level of confusion as to the specific responsibilities and roles of each of the parties with regard to project implementation and in particular to procedures and approvals for GEF fund disbursements.

Whichever form of governance structure is decided upon it will be important to ensure that regular meetings take place to guarantee timely progress reviews

and be able to identified delays and/ or obstacles in outcome implementation well in advance.

It is also important that the Technical Advisory Committee gets established soonest and starts to meet regularly. Organizations like ABESCO and other academic institutions with a direct interest in EE should be made part of the Technical Advisory Committee due to their wealth of knowledge of the state of the ESCO market and direct access to ESCO players.

The Technical Advisory Committee agenda could be organized in such a manner to avoid any potential conflict of interest by restricting the presence of potential service providers to sessions during which strategic decisions would be made.

The PMU has been set up but needs to be strengthened.

- ***Actions should be taken to speed up fund disbursement*** The overall disbursement rate is still substantially below what has been initially budgeted. There seems to be conflicting issues between the rules that have been set up for disbursement of GEF funds and internal procedures at the MMA. Consequently, procurement and contracting activities should be improved. Support from a procurement/ contracting expert should be sought to solve this issue in order to facilitate disbursement approvals.

Additional resources and personnel may be needed to expedite the preparation and approval of ToR of supporting contract and their follow up and administration

- ***Request for an extension of implementation completion date*** The Project has had at least a 3 year delay to start implementation; it should have begun in 2009 but in fact started in 2012. Given the high potential for EE that Brazil offers and after all of the hard work that has been invested in designing and implementing the EEGM consideration should be given to extending the end date of the Project until 2017 or 2018 taking into consideration that GEF and IDB have already agreed that the EEGM has until June 2018 to issue guarantees plus a 7 year monitoring period since guarantees can be issued for up to 7 years. Having the same end dates for the Project and the EEGM would allow for a more meaningful Final Evaluation
- ***Alternative contractual modalities to utilize an EPC approach with the public sector should be explored.*** Given the difficulties in utilizing an EPC approach with the public sector due to the limitations imposed by Brazilian Procurement Law No. 8666 other modalities such as the use of PPPs and any others which may not be directly associated with an EPC approach should be explored. It is also important to analyse the implications of the recently approved *Medida Provisória* 630/13 which expanded the use of the. *Regime Diferenciado de Contratações Públicas* (RDC), a law which was passed in 2011

providing a special regime of public procurement for works related to FIFA Soccer World Cups, 2016 Summer Olympic Games and airports.

1. Introduction

1.1 Purpose of the evaluation

The mandate of this report is the Mid-Term Evaluation of the UNDP/IADB/GEF Full-sized Project: “**BRA/09/G31 – Market Transformation for Energy Efficiency in Brazil**” which was set to start in September 2009 and is planned to close in August 2016.

This Mid-Term Evaluation has been conducted on behalf of the United Nations Development Program (UNDP) in accordance with the UNDP Evaluation Guidance for GEF-Financed Projects, and based on the criteria set out in the Terms of Reference (ToR) (see Annex 1). Particular attention has been placed to determine the amount of progress that has been achieved by the Project activities *vis a vis* the stated objectives and to generate recommendations on how to improve its implementation during the time remaining until its final completion.

The overall objective of this Mid-Term Review is to provide answers to the following questions:

- Is the Project achieving its objectives?
- What is the progress?
- How well is the Project being executed?
- What are the challenges?
- Are the results and impacts achieved by the Project likely to be sustainable?
- What additional/alternative activities could be proposed?

The Mid-Term Evaluation is based on five major criteria as per the UNDP Evaluation Guidance:

- **Relevance** – The extent to which the activity is suited to local and national development priorities and organizational policies including changes over time
- **Effectiveness** – The extent to which an objective has been achieved or how likely it is to be achieved
- **Efficiency** – The extent to which results have been delivered with the least costly resources possible
- **Results** – The positive and negative, foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs short to medium-term outcomes, a longer-term impact including global environmental benefits, replication effects and other local effects.

- **Sustainability** – The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

1.2 Key issues addressed

As outlined in the ToR for this Mid-Term Evaluation, the following aspects will be considered in the analysis:

- **Project Formulation**
 - Assessment of the logical framework,
 - Evaluation of assumptions and risks
 - Budget analysis
 - Review of proposed timing
- **Project Implementation**
 - IA/EA supervision and support
 - Monitoring and evaluation
 - Stakeholder participation
 - Adaptive management
- **Achievement of Results**
 - Outcomes
 - Impacts
 - Catalytic effect
 - Sustainability
 - Mainstreaming

2. Methodology of the evaluation

This Mid-Term Evaluation was implemented in accordance with the following procedure:

- **Preliminary documentation review** - The initial step involved the review of project documentation which is listed in Annex 2. The documentation was provided by UNDP country office in Brazil.
- **Field Mission** – A field mission to Brazil took place from February 10 to February 14, 2014 and consisted of meetings in Rio de Janeiro and Brasilia plus conference calls with key stakeholders, beneficiaries and project management in Sao Paulo, Porto Alegre, Panama, New York and Washington D.C. A list of the field activities is shown in Annex 3. The meetings and conference calls were arranged by Ms. Ludmilla Diniz, the National Project Manager / Coordinator from UNDP, in order to provide a broad sample of the various stakeholders involved in the project including UNDP, Inter-American Development Bank (IDB), government representatives, consultants, private sector companies and financial institutions. Debriefings were conducted with UNDP, IDB and the *Ministério do Meio Ambiente* (MMA) to comment on the initial findings at the end of the mission.
- **Data analysis** – Following the field visit, the collected data and exchanges of opinions during the interviews and conference calls were compiled and analyzed to ensure an objective evaluation according to the GEF/UNDP Monitoring and Evaluation Policy.
- **Reporting** – This Mid-Term Evaluation Report is based on the information gathered during the interviews, as well as, the review of additional information which was made available via email and includes the most relevant comments and suggestions raised by UNDP, IDB, MMA and other key stakeholders, as well as, the findings and recommendations of the author.

Achievement of project objectives in terms of relevance, effectiveness, and efficiency are rated in a six-level scale as follows:

- **Highly satisfactory** (HS), the project had no shortcomings
- **Satisfactory** (S), minor shortcomings
- **Moderately satisfactory** (MS) moderate shortcomings
- **Moderately unsatisfactory** (MU), significant shortcomings
- **Unsatisfactory** (U), major shortcomings
- **Highly unsatisfactory** (HU), severe shortcomings

3. The project and its development context

3.1 Project summary

The goal of the Project is to influence, transform and develop the market for energy efficiency (EE) building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption path in the country. The project will thus contribute to improving EE in the Brazilian commercial and public building sectors by fostering EE investments in private and public buildings which will specifically address an array of technical and financial barriers which persist despite past and present public and private sector programs and initiatives in this domain.

3.2 Project timing, budget and expenditures

The start of the Project goes back to 2005 when a PDF-B proposal was submitted by UNDP to GEF. The original concept was to seek GEF funding support to complement a US\$ 1 million funding that was granted by the Multilateral Fund for the Implementation of the Montreal Protocol (MLF) to UNDP to demonstrate the value of replacement of Chlorofluorocarbons (CFC)-based chillers with more energy efficient CFC-free models in Brazil, with the provision that a sector approach be adopted and potential for system-wide EE conversion be explored. The overall aim was to initiate market transformation for EE in buildings in Brazil. The synergy of using the MLF approved funding as co-financing for the GEF PDF-B process was considered to lead to significant environmental and economic impact.

The Work Program (for FSP) was approved in June 2007 and the GEF Agency Approval was granted in August 2009. Project implementation was set to start in September 2009, albeit the Inception Workshop did not take place until March 2010. The Project is envisioned to be completed by August 2016 and is comprised of four components. The first two components which are directly executed by the Secretariat of Climate Change of the MMA are destined to enhancing EE investments in public and private sector buildings through capacity building and developing a Public Building Initiative program to effectively tackle the current barriers that are hindering the uptake of EE projects in the building sector. The third component which is destined to stimulate interest in an integrated approach for EE enhancement in buildings by demonstrating the EE potential for CFC-based chillers replacement is executed by the MMA in partnership with the Montreal Protocol (MP). The fourth component, which consists of a USD 25 million guarantee facility to stimulate EE investments through energy services companies (ESCOs) is directly administered by the IDB.

The (originally) planned total budget was US\$136,274,000 of which US\$13,500,000 were contributed by GEF while the total amount of co-financing amounted to US\$122,774,000 as per the following detail:

Source of co-financing	Type	Amount (US\$)
IDB	Balance sheet commitment	15,000,000
Ministério do Meio Ambiente (MMA)	In-Kind	414,000
Banks, ESCOs, End Users	In- Cash	105,217,250
Banks, ESCOs, End Users	In-Kind	1,142,750
UNDP Multilateral Funds (Montreal Protocol)	In-Cash	1,000,000
Total co-financing		122,774,000

It should be noted that the cash contribution from beneficiaries will only materialize when actual investments occur during project implementation based on an initial estimate of 250 projects to be supported by the EEGM with associated investment costs (capital and financing costs) of about US\$ 373,000 per project¹.

3.3 Problems that project seeks to address

The main problems that the Project seeks to address can be summarized as follows:

- **Poor awareness and low understanding of potential benefits of EE improvements in buildings among various market actors.** To overcome this gap the Project plans to implement a capacity building component designed to reach a wide audience including ESCOs and other energy service providers, building owners and operators, as well as, financial institutions. The overall aim of this capacity building component is to raise the level of understanding and skills among stakeholders in the identification, formulation, implementation and management of EE projects in the buildings sector.
- **Difficulties in accessing EE services and commercial financing for public buildings.** The Project will finance a PBI program aimed at removing specific legal and contractual frameworks obstacles which are preventing the implementation of third party financing either in the form of leasing or via the use of Energy Performance Contracting (EPC) in the public sector in Brazil.
- **Low interest in the replacement of energy-inefficient CFC-using chillers.** The Project will contribute to raise interest for potential EE enhancement in

¹ As per table 5 of PRODOC under EEGM pricing – paragraph 67

buildings under an integrating approach by demonstrating the EE potential of CFC-based chillers replacement. Technical assistance will be provided to professionals on EE improvements combined with HVAC equipment replacement and the implementation of pilot projects which will serve to evaluate the impact of the proposed CFC-based chillers replacement program.

- ***Lack of access to performance and credit risk mitigation instruments to enhance the confidence of financial institutions in financing EE projects in buildings.*** The Project will implement a financial facility called Energy Efficiency Guarantee Mechanism (EEGM) which will serve to substantially mitigate the performance risk aspects of ESCO projects by offering performance and credit guarantees in order to stimulate banks to rely on the cash flow generated by shared savings as collateral for loans to ESCOs and incentivize clients to enter into contract with ESCOs.

3.4 Immediate and development objectives of the project

The broad development goal of this UNDP/IDB/GEF project is to influence, transform and develop the market for EE building operations in Brazil and move forward towards a decrease in GHG emissions and more sustainable energy consumption path in the country.

Based on its original design, the Project is expected to contribute to improve EE in commercial and public buildings sectors by 4.00 million MWh of electricity over 20 years and is expected to directly reduce greenhouse gas (GHG) emissions by 2.01 million tons of CO_{2e} over the same period of time with estimated post-project and indirect emission reductions of 16.06 tCO_{2e}.

The objective of this Project is to foster EE investments in private and public buildings by addressing the technical and financial barriers which remain present in spite of past and current public and private sector programs and initiatives in this regard.

The program also has been designed to encourage cross-convention synergies with the Montreal Protocol and includes a chiller replacement component that will contribute to phase-out of CFCs.

The expected short term results of the Project, as stated in terms of Outcomes in the PRODOC are:

- **Outcome 1:** Enhanced EE investments through CB in EE in private & public buildings
- **Outcome 2:** Access to EE services and commercial financing for public sector buildings enhanced with a PBI
- **Outcome 3:** Interest enhanced in the replacement of energy-inefficient CFC-using chillers
- **Outcome 4:** EEGM made available to stimulate EE investment through ESCOs

Each of these outcomes has a series of outputs and indicators to support it. The assessment of each of the outputs and indicators is presented below in sections 4.3.1 and 4.3.2.

3.5 Main stakeholders

The main stakeholders involved in this project are:

- *Ministério do Meio Ambiente* - Ministry of Environment (MMA)
- *Ministério de Minas e Energia* – Ministry of Mines and Energy (MME)
- *Ministério do Planejamento, Orçamento e Gestão* – Ministry of Planning
Coordinator of PES (Sustainable Esplanada Program)
- *BNDES – Banco Nacional do Desenvolvimento* - Development Bank of Brazil
- *Programa Nacional de Conservação de Energia Elétrica PROCEL / Electrobras*
– Energy Conservation Program
- *ANEEL – Agência Nacional de Energia - Elétrica* - Brazilian Electricity
Regulatory Agency
- *ESAF – Escola de Administração Fazendária* - Superior School of Finance
Administration
- *ABESCO – Associação Brasileira das Empresas de Serviços de Conservação
de Energia* – Association of Brazilian ESCOs
- *Atla Consultoria* (Local Administrator of EEGM)
- *APS Engenharia* (ESCO that received the first letters of Guarantee)

4. Findings

4.1 Project Formulation

4.1.1 Project strategy and design

The strategy formulated in the Project Document is based on helping with the removal of a series of finance, technology and policy barriers that are precluding the adoption of EE measures and technologies in buildings in Brazil through a combination of 4 main interventions:

- Building awareness and capacity amongst the various market actors
- Enhancing access to EE services and commercial financing for the public sector buildings through the implementation of a PBI.
- Stimulate interest in an integrated approach for potential EE enhancement in buildings by demonstrating the EE potential of CFC based chillers replacement
- Implement an EE financial facility to mitigate the risks perceived with financing EE projects (i.e., EEGM)

The project design combines awareness and capacity building measures together with the identification and implementation of EE case studies which should serve to fine tune the design of the EEGM as EE projects for the private and public sectors get implemented.

Several shortcomings have been identified in the project design including:

- During the Inception Workshop that took place in March 5, 2010, the targets of Outcome 3 were already identified as in need of a revision due to the lapsed time between project design and approval / implementation in recognition that the CFC based chillers market had changed considerably. The target of having up to 40 CFC-based chillers replacement demonstration projects using MLF co-financing implemented by the end of year 2 needed to be revised urgently. Extensive negotiations with the MP during 2012 /2013 resulted in a change of intervention focus to capacity building and the inclusion of Hydrochlorofluorocarbon (HCFC) chillers². The National Inventory of CFC and HCFC-based chillers completed in November 2013 confirmed that currently there are virtually no chillers using CFCs in Brazil.
- During the Inception Workshop, the need to start collecting baseline information and review the feasibility of certain indicators and their targets was also recognized in conjunction with the need to revise the assumptions related to the calculation of CO_{2e} emissions reduction due to a discrepancy in the grid

² A revised PRODOC for the Chillers components was issued on April 26, 2013 with revised interventions and targets

emission coefficient for Brazil that had been used (i.e., 0.502 tCO₂/MWh instead of .0337 tCO₂/MWh which was being used by the Government at the time³). While this issue was discussed at the Inception Workshop, no modifications to the target level for CO₂ emissions reduction have been incorporated in the project documentation.

- As it will be discussed in more detailed under sections 4.3.1 and 4.3.2 below the baseline for certain indicators have not been fully established and also some of the indicators has not been clearly defined.
- The lack of project related data (i.e., EE projects are still under implementation) and the controversy regarding the emission grid factor that has been used to estimate the level of GHG emissions reductions to be achieved by the Project have not made possible to assess the level of energy savings and / or GHG emission reductions.
- The size of the ESCO market and also the number of CFC chillers in Brazil have been overestimated during project design
- PROESCO financing has not been as active on the ground as it has been assumed

Overall, the project strategy and design continue to be relevant and EE is still a high priority in Brazil. However, some of the targets and indicators are considered as too ambitious in light of the current state of the EE market in Brazil and need to be revised accordingly.

The current view is that once the Mid Term Evaluation is completed, a substantive revision would have to be prepared in order to address the necessary changes identified during the Inception Workshop and also incorporate those others that have been identified in this report including changes in strategy for reaching the proposed outcomes and the establishment of more realistic indicators due to poor project design or a change of strategy rather than simply because they cannot be reached due to low implementation pace. This revision should also incorporate the changes that have been identified in the revised PRODOC for the Chillers component.

³ According to the Ministry of Science and Technology, the Brazilian 2012 average emission factor to the national grid for CDM Project activities was 0,2010 tCO₂/MWh (<http://www.mct.gov.br/index.php/content/view/338047.html#ancora>). According to the same institution, the Brazilian 2012 average emission factor to the national grid for GHG inventories was 0,0653 tCO₂/MWh (<http://www.mct.gov.br/index.php/content/view/321144.html#ancora>). Therefore based on the assumption that the project will contribute to improve EE in the buildings sectors by 4.00 million MWh of electricity over 20 years the expected emission reductions would be from 804,000 tCO₂ to 261,200 tCO₂ if the energy efficiency applied is over a baseline applied to the national grid instead of the 2.01 million tCO₂ stated in the original PRODOC. However, it is worth to mention that the emission factor could be much higher if the energy efficiency measures are compared to different baselines assessed by each building, especially when taking into consideration the current trend of utilizing diesel backup systems (which have been installed to enhance energy security) during peak hours which generates savings due to the differential between electricity rates during peak hours and the cost of generating its own electricity with highly subsidized diesel. The emission factor adopted by the MMA for the use of diesel backup systems corresponds to the one use by the GCE on the consultancy for the retrofit of Bloco B under such scenario which corresponds to 0.844tCO₂/MWh.

Based on the above analysis, the project strategy and design approach for this project is rated Marginally Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

4.1.2 Assumptions and risks

During the project design phase the following assumptions were made (as stated in the PRODOC):

- The government entities involved in the Project are committed to adopt an appropriate legal and regulatory framework for EE promotion and CFC-based chillers replacement;
- Relevant participants, particularly co-funding agencies and companies, are committed to participating in various activities;
- Building owners/operators, especially in Brazil's larger urban centers, are aware of and support, through increased participation, the demonstration pilot programs to improve EE efficiency in public sector and replace CFC-based chillers ;
- Line ministries are prepared to integrate the project strategy within their global and sectoral programs;
- The private sector is prepared to follow the government's lead in participating at various levels (financial, technical, technological, etc.) to the Project's realization;
- Local financial institutions (FIs) are interested in expanding their EE lending portfolios to support market transformation costs.

The main diversion from the stated assumptions has to do with the detachment of the MME from the Project. This has made the establishment of the National Project Steering Committee (NPSC)⁴, directly responsible for the overall management of the Project, impracticable. To address this issue, the formation of a Technical Advisory Committee which would include government institutions only was decided at a meeting that took place in May of 2013⁵ but even though almost a year has passed by it has not yet been implemented.

⁴ The NPSC was originally designed to include senior representatives from the MMA, MME, Ministry of Finance, Ministry of Planning as well as national banks and the privates sector.

⁵ The meeting was attended by representatives of the MMA, PROCEL/Electrobras, Secretariat of Budget and Finance of the Ministry of Planning and academia. All parties agreed that the MMA will be in charge of coordinating the Technical Advisory Committee and interested parties in future projects like academia, consultants and / or ESCOs may be invited to participate in meetings of the Technical Advisory Committee on a case by case basis in order to avoid potential conflict of interests.

The Project has also suffer from lack of Government support to participate in the technical decision making process of the “*Esplanada Sustentável (ES)*” project that plans to implement the retrofit of 23 Federal buildings in Brasília. In lieu, it is currently undertaking an EE study for the Environment and Culture Ministry building in Brasília (*Bloco B*) which includes, an energy audit and labeling of the proposed retrofit, under the *PROCEL / INMETRO* EE labeling program. This should serve as a pilot for lessons learned under the SE initiative. In addition, the still ongoing restructuring of PROESCO which was initially identified as a strategic ally for the EEGM has also retarded the project implementation.

With regard to risks which were identified in the PRODOC the following ones are considered to be the most critical at this stage:

- Lack of support for the implementation of the PBI within the Federal Government’s administration
- Interest in EEGM within the public sector has not evolved as planned during the PD B phase.

To some extent both of these risks have materialized but the Project has been able to take on the necessary steps to mitigate both risks.

4.1.3 Lessons from other relevant projects incorporated into project implementation

The project design recognized the existence of several key programs that the government of Brazil have been undertaking in the area of EE and the project team has remain in close contact with their management in order to explore potential for synergies and to learn from their successes and failures. These include:

- ANEEL
- PROESCO.
- PROCEL
- PBE - *Programa Brasileiro de Etiquetagem*
- PBE / EDIFICA - *Programa de Eficiência Energética em Edificações*

In addition, GIZ, the German technical cooperation agency, has been undertaking two projects in Brazil with EE components whose lessons learned are likely to be of relevance for the Project. These are:

- Renewable Energy Sources and Energy Efficiency (2009-2012) which was executed jointly by *Electrobras* and *Empresa de Pesquisa Energética* (EPE) and looked at strengthening the role of renewable energy sources and EE in Brazil’s energy supply
- Renewable Energies and EE in Cities (2013-2015) which is being executed by the Rio de Janeiro State Ministry for Economic Development, Energy, Industry and Services (SEDEIS). This program is aimed at assisting with the build-up of urban markets for renewable energy and EE in the context of the *Rio Capital da Energia* (RCE) program, which was created in 2011 with the objective of turning the city of Rio de Janeiro into an international reference centre for EE and renewable energies.

Another relevant EE program which is under execution in Brazil is the IFC-supported Pro-Hotels Program, which seeks to develop the market for reducing energy consumption in Brazil's growing hospitality industry. It has been reported that 100 hotels have already joined this program which aims to add an additional 200 hotels by 2014. Each participating hotel receives support to identify opportunities for reducing energy use and greenhouse emissions. This includes access to a full range of more efficient technologies, products, and services available in the Brazilian market and distributed by Pro-Hotels' qualified suppliers. The program also facilitates access to lines of credit for hotels wishing to purchase these systems, and technical assistance from a network of participating ESCOs spread throughout the country.

IDB and the EEGM administrator are proactively exploring opportunities for cooperation and synergies particularly with the Pro-Hotels program both at the IFC and local levels. Even though, so far there have not been any Pro-Hotels projects that have moved into debt financing stage IDB and the EEGM administrator remain engaged and in line to work directly with the Pro-Hotels program when financing or performance guarantees are needed.

The incorporation of lessons learned from other relevant projects is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

4.1.4 Stakeholder participation

The project design involved partnerships with a number of key players (government, utilities, banks, ESCO associations, private sector etc.) and the planned activities and programs have a potential for broad impact. However, as it has been mentioned earlier, the continued lack of involvement of the MME has become an important set-back for the Project implementation specially when taking into consideration that the MME is the national authority for EE. In addition, this has precluded the establishment of the NPSC, as initially envisioned under the PRODOC and thus severely affecting the governance of the Project..

In spite of this, the project team has been successful at keeping a relatively good pace and working toward achieving the project objectives. The support of the MMA, in particular, as well as the one received from other stakeholders such as the Ministry of Planning, Atla Consulting, ABESCO, ESAF, BNDES and PROCEL among others together with the direction provided by UNDP and IDB have been instrumental in this regard.

Due to the political difficulties associated with the setup of a NPSC, the project team has proposed to set up a Technical Advisory Committee in order to generate a more proactive engagement of the different stakeholders. At this stage, it is crucial for the project governance that the proposed Technical Advisory Committee becomes

operational soonest and that the project team continues to seek additional political support for the Project in order to ensure that all key actors remain engaged.

Based on the above, stakeholder participation is rated Moderately Unsatisfactory due in particular to the failure in setting up a NPSC..

HS	S	MS	MU	U	HU	N/A
			X			

4.1.5 Replication approach

The Project has been designed to generate the necessary conditions in Brazil to encourage project developers, financing institutions and building owners/operators to replicate EE projects by providing:

- Capacity building to up to 1,400 local energy product/service providers through training events to develop best practice capacity in the identification, formulation, implementation and management of EE projects in the building sector
- Raising awareness of and interest in implementing EE measures among EE market players
- Creation of a PBI Program for the public sector which will be designed to eliminate the barriers that are currently preventing the implementation of EE projects within the public sector under an EPC approach
- Implementation of selected EE pilot projects within the public and private sectors to promote the implementation of additional EE projects based on the achieved results
- Training professionals on EE improvement combined with HVAC equipment replacement
- Establishing the EEGM to increase the participation of local banks in the financing of EE projects
- Providing lessons learned for future action in Brazil as well as in other countries with similar economic conditions

The project's replication approach is rated Satisfactory

HS	S	MS	MU	U	HU	N/A
	X					

4.1.6 Cost effectiveness

4.1.6.1 Effectiveness of CO₂e emission reductions

As per the PRODOC, the Project target is to directly reduce GHG emissions by 2.01 million ton of CO₂e over 20 years with estimated post-project and indirect emission reduction of 16.06 million tons of CO₂e.

As stated earlier, the MMA has objected the value of the emission grid factor that has been used to calculate these estimates but no final resolution has been reached as to value of the emission grid factor that should be used to estimate the amount of GHG emissions reductions which would be achieved as a result of the Project intervention. In principle, the MMA has calculated that depending whether the lower or upper end of the CDM emission factor⁶ is utilized the estimated CO₂e emission reductions resulting from 47 buildings would range from 1,085,200 tCO₂e to 2,200,000 tCO₂e.

In accordance with the PRODOC, for the calculation of the GHG emissions reduction it has been estimated that about 250 projects with associated investment costs (capital and financing costs) of about US\$373,000 would be covered by the EEGM over the 7-year project period. In view of the current state of the ESCO market in Brazil these assumptions should be revised accordingly.

4.1.6.2 GEF funds disbursement

A summary of disbursement of GEF funds by end of 2013 (Outcome 4 excluded) is detailed in the table 1 below. As it can be observed, no data is provided for Outcomes 3 since zero GEF funds have been allocated to this Outcome.

Outcome								Total Budget
	2010	2011	2012	2013	2014	2015	2016	
Outcome 1 Enhanced EE investments through CB in EE in private and public buildings								
Total Project Budget as in PRODOC	212,800.00	215,500.00	192,500.00	184,500.00	169,400.00	159,300.00	234,170.00	1,368,170.00
Expenditures (As per CDR)	0.00	696.95	9,626.98	85,036.23				95,360.16
Disbursement rate (%)	0.00%	0.32%	5.00%	46.09%				6.97%
Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with PBI								
Total Project Budget as in PRODOC	153,700.00	157,700.00	151,700.00	136,900.00	142,000.00	112,700.00	328,630.00	1,183,330.00
Expenditures (As per CDR)	0.00	0.00	181.95	51,643.25				51,825.20
Disbursement rate (%)	0.00%	0.00%	0.12%	37.72%				4.38%
Outcome 5: Monitoring & Evaluation								
Total Project Budget as in PRODOC	66,000.00	5,500.00	5,500.00	71,500.00	5,500.00	5,000.00	104,500.00	263,500.00
Expenditures (As per CDR)	0.00	0.00	16,084.83	0.00				16,084.83
Disbursement rate (%)	0.00%	0.00%	292.45%	0.00%				6.10%
Outcome 6:Project Management (PMC)								
Total Project Budget as in PRODOC	71,000.00	70,500.00	67,500.00	68,000.00	67,500.00	68,000.00	77,500.00	490,000.00
Expenditures (As per CDR)	0.00	0.00	37,473.00	52,536.54				90,009.54
Disbursement rate (%)	0.00%	0.00%	55.52%	77.26%				18.37%
Grand Total								
Total Project Budget as in PRODOC	503,500.00	449,200.00	417,200.00	460,900.00	384,400.00	345,000.00	744,800.00	3,305,000.00
Total Expenditures (As per CDR)	0.00	696.95	63,366.76	189,216.02				253,279.73
Disbursement rate (%)	0.00%	0.16%	15.19%	41.05%				7.66%

Table 1: Summary of GEF funds disbursements Outcomes 3 and 4 excluded

The disbursement rate to date of all GEF resources administered by UNDP is extremely low (7.66%). During 2013, project delivery showed some improvement as evidence by the increase in the amount of funds disbursed during that year. In spite of that, the overall disbursement rate is still below 50%. Consequently, there is an explicit need to improve project execution of annual work plans and increasing its delivering capacity.

⁶ The upper and lower values of the CDM emission factor for 2013 are 0.27 and 0.55 tCO₂/MWh, respectively.

In this regard, the latest version of the 2014 POA shows that disbursement of GEF funds during this year are forecast to exceed US\$1.3 million which reflects the fact that certain actions have already been taken in this regard. In addition, an effort is being made to incorporate the *Unidade de Gerenciamento de Projetos* (UGP) in regular meetings since until now this unit has been integrated in the process only by the end of the design of the ToRs for Technical Assistances (TAs) which already require a long time to be drafted. A stronger interaction of the Unidade de Comparas e Contratos of UNDP (UCC) and UGP together with the technical area is recommended in order to foster more dynamism to the procurement process and to facilitate the design and approval of the ToRs of contracts.

Information on GEF funds actually disbursed to Outcome 4 to date are reported in Table 2 below which only refer to actual costs incurred in establishing the EEGM plus variable fees paid to Atla Consulting. The amount of guarantees that have been issued to date (i.e., USD 1.6 million) are registered as “commitment” against the USD 10 million GEF grant which forms part of the USD 25 million guarantee facility under which the IDB provided its AAA-rated balance sheet to act as Guarantor of Record. In the event of default, if the guarantees are called they will be registered as “disbursed”. In accordance with the PRODOC, the GEF funds will assume a first loss position in relation to the IDB’s exposure.

Budget Class Number	Budget Class Name	Current Approved Amount	Disbursed Amount	Available Amount
GEF-WB	GEF WB SECRETARIAT	10,195,000.00	561,866.69	9,633,133.31

Table 2: Summary of GEF funds disbursements for Outcome 4⁷

In the case of Outcome 4 since disbursement related to guarantees is recorded only when guarantees are executed, a low disbursement rate should not be seen as a negative outcome necessarily since hopefully the guarantee fund does not come close to full disbursement until the exit strategy is implemented. Consideration should be given to reporting the GEF disbursement for guarantees once funds are committed rather than when the guarantee is executed which would mean that disbursement is seen as a positive rather than negative indicator of project execution.

4.1.6.3 Co-financing disbursement

Co-financing disbursement for Component 3 at the end of 2013 from the MLF was very low, USD 32,234.75. However, during 2014 commitments amounting to USD 535,000 have already been signed which provides an indication of a substantial improvement in fund disbursement for Component 3.

⁷ According to the PIR 2013, US\$1,700,000 of the GEF Grant Funds had been disbursed under Outcome 4 based on CDR information up to 20 June 2013. The discrepancy is due to the fact that the CDR information is registering the amount of guarantees that have been issued as of that date as funds disbursed rather than making the distinction of registering those amounts as “commitments”.

The amount of co-financing committed from banks and ESCOs amounts to USD 9.44 million. This is directly related to the investment in the 3 EE financings that have been closed with the participation of the EEGM.

The amount of in kind co-financing provided by the MMA that has been disbursed as of May 2014 of the total USD 414,000 which have been provisioned.as per the PRODOC amounts to USD 372,273.74.

Based on the above cost effectiveness is rated Unsatisfactory

HS	S	MS	MU	U	HU	N/A
				X		

4.1.7 UNDP and IDB comparative advantage

The Project benefits from UNDP and IDB extensive and active participation and experiences in projects and programs supporting market transformation for EE in terms of institutional capacity building and policy development throughout the region and even worldwide in the case of UNDP. In addition, the wealth of expertise of the IDB in the design and implementation of EE standards and financial mechanisms based on the use of partial risk guarantees as a vehicle to stimulate the participation of local banks has proven to be highly beneficial.

Both UNDP and IDB are well respected by the Brazilian government policy makers within the energy and environment sectors and are recognized for their ability to work at the local level with stakeholders both from the public and private sectors.

Based on the above, the use of comparative advantage was rated satisfactory

HS	S	MS	MU	U	HU	N/A
	X					

4.2 Project Implementation

4.2.1 Implementation Approach

The project start date was set for September 2009. During the Inception Workshop which was not held until March 5, 2010 the participants agreed that a NPSC would necessarily include the participation of representatives from MMA, MME, BNDES, UNDP and IDB. The inclusion of the Ministry of Planning was accepted and the exclusion of the Ministry of Finance was also suggested. In addition, both the Ministry

of Finance and PROCEL could be invited as guest based on the discussions to be held.

As discussed earlier, the setup of the NPSC has not materialized mainly as a consequence of the detachment of the MME. A proposal to replace the NPSC with a Technical Advisory Committee has been made but has not yet been instrumented. At this point, it has become crucial for the Technical Advisory Committee to be fully operational since governance of the Project is a major issue that needs to be resolved soonest. Even though the setup of a Technical Advisory Committee will help in this regard, the project team needs to continue looking for ways to increase political support for the project and ensure proper project governance.

Coordination with BNDES and its PROESCO program which was identified as a key strategic partner to assist with the identification of potential candidates for the EEGM has been difficult. The BNDES / PROESCO program is still under restructuring albeit lines of communication remain open. However, due to the importance of having a pipeline of projects for the EEGM, conversations with other entities are underway. The IDB has recently agreed to work with AGERIO⁸ and their green lines of EE and is also in negotiations with *Desenvolve SP*⁹ Sao Paulo State's Development Bank to achieve exactly the same.

In spite of these difficulties, Atla Consulting is effectively managing the overall administration of the EEGM in terms of marketing, negotiating and closing as discussed below.

- Marketing Phase I (2013) Atla Consulting and the IDB have focused the first year of marketing to get a splash out of the first guarantees through an ad agency, IDB press releases, presentations at various conferences and personal visits by both Atla Consulting and the IDB to high potential clients. In 2013, Atla Consulting performed over 244 direct visits and presentations. IDB also presented the EEGM facility at various conferences and had direct client visits with Atla Consulting.
- Marketing Phase II (2014- 2015) As a result of the marketing splash / ad campaign many high priority clients have been identified and Atla Consulting have been meeting with them to convert their interest into negotiations.
- Negotiations (continued basis) Atla Consulting is meeting with higher priority clients both in terms of partners and direct clients. As mentioned earlier, in early 2014 the EEGM agreed to partner with AGERIO and is in negotiations to close a partnership agreement with *Desenvolve SP*. In addition, CAIXA has also expressed an interest in EEGM and negotiations are underway. Also, Atla Consulting is currently in negotiations with another 10 direct clients of which 3

⁸ AGERIO -*Agência Estadual De Fomento* – Rio de Janeiro State Development Agency (<http://www.rj.gov.br/web/guest/exibeConteudo?article-id=285151>) is the State Development Bank of Rio de Janeiro

⁹ *Desenvolve SP*(<http://desenvolvesp.com.br/>)

are advanced. In addition, Atla Consulting is in discussions with and considering potential formal alignments with related Brazilian institutions in order to establish minimum financial goals for the EEGM to support.

- Closings. The closing of the first guarantees has taken a long time as is usually the case with the first closings of any new facility. However, efficiencies are expected to be gained with each new closing. Also, in order to expedite the closing process the IDB has granted their local legal counsel the power of attorney to run the closings on behalf of the IDB and Atla Consulting in order to make the process that much less burdensome on Atla Consulting.

The project design continues to be relevant and EE in general as well as in direct relationship to buildings is still considered as a national priority by the Government, as evidenced by the launching of the National Plan for EE (PNEf) in October of 2011, the sustained progress of the PROCEL EDIFICA program plus a decree – currently under development - for Sustainable Government Procurement with measures for the Federal Administration to purchase equipment with PROCEL Seal or with A-level PBE label.

Project implementation has improved significantly since the incorporation of UNDP Technical Manager / Coordinator and the Administrator of the EEGM. With the EEGM fully operational, as evidenced by the financial closing of three EE projects to be implemented under an ESCO model, and capacity development underway the Project appears to be on its way to begin demonstrating concrete results.

Based on the above, the implementation approach was rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

4.2.2 Use of Logical Framework as a Management Tool

The Logical Framework included in the PRODOC is considered as an adequate tool for results-based management since it includes targets and indicators which will facilitate the Monitoring and Evaluation (M&E) and management of the project implementation.

However, as discussed below in section 4.3.1, the baseline for certain indicators have not been fully defined and also some of the indicators and their targets have not been clearly stated. In addition, certain targets need to be redefined particularly due to changes in the state of the EE market and the Brazilian economy *vis a vis* what had been envisioned when the project design took place. More detail on indicators that need to be revised is presented in section 4.3.1

The Logical Framework needs to be updated to include the changes to Outcome 3 that have resulted from the revision of the PRODOC to the Chillers component as agreed with the MP during negotiations that took place during 2012/2013.

In consequence the use of logical is rated as Moderately Unsatisfactory

HS	S	MS	MU	U	HU	N/A
			X			

4.2.3 Application of Adaptive Management

The project team has shown competence and good judgment in implementing the project activities when taking into account the array of unexpected changes in political support and additional barriers that they have encountered including:

- The detachment of the MME from the Project which has blocked the setup of the NPSC and hence severely affected project governance
- Political obstacles in having the Sustainable Esplanada Initiative as the pillar of the PBI as originally planned in the PRODOC
- What has been learned in terms of the state of the ESCO market and the type of EE contracts that are being used together with the low appetite of end-users and local financial institutions for EE investments
- Legal impediments for the public sector to use EPC for the implementation of EE projects
- The ongoing restructuring of PROESCO which has delayed the operational synergies that had been anticipated as a result of a well-structured alliance between EEGM, and BNDES's PROESCO program

As a result, the execution of the Project so far has demanded a high degree of institutional articulation in order to adjust the implementation strategy and delivery of project activities in accordance with the circumstances and also taking into consideration the complexities associated of being a multi-stakeholder and cross Convention project.

Based on the above the use of comparative advantage is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

4.2.4 Monitoring and Evaluation

In terms of M&E the project has been reporting to UNDP and GEF via the submission of Project Implementation Reviews (PIR) for 2012 and 2013 and the preparation of Annual Operation Plans (AOP) for 2013 and 2014.

The Mid-Term Evaluation which was planned to take place in early 2013 had been delayed given that major activities including the closing of pilot financing projects under the EEGM had recently taken place and it was preferable to have consistent results of both the IDB and UNDP components to undertake the Mid Term Evaluation.

The need to collect baseline information and to review the feasibility of the targets has been raised at the Inception Workshop and commented in the various PIRs that have

been conducted so far. ToR for the development of a benchmarking study of the energy consumption and CO2e emissions of different building typologies (i.e., public office buildings, bank agencies, and hotels) are under preparation. This benchmarking study will also serve to support the development of a Program of Activities (PoA) for EE in buildings for validation and registration under the CDM rules.

Additional comments on the Monitoring & Evaluation of the Project are provided under the evaluation of Outcome 5 – Monitoring and Evaluation Support in section 4.3.1 below.

Based on the above, the use of comparative advantage is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

4.2.5 Management and Coordination

The management arrangements which were envisioned for the Project are described in the PRODOC. Briefly stated they were supposed to include:

- The MMA has been designated as the leading executing agency in partnership with the MME for project implementation. Since this is a Nationally Executed project, the MMA as the leading executing agency is directly responsible for dealing with the Project's overall implementation, its insertion into the government of Brazil agenda and operational issues.
- A NPSC was meant to be established to oversee the global implementation of the Project and to be composed of senior representatives from the MMA, MME, Finance and Public Planning as well as national banks and private sector stakeholders
- The Project Management Unit (PMU) is in charge of managing and supervising the global implementation of the project except for Outcome 4.
- The PMU is managed by the National Project Coordinator in coordination with a Project Technical Manager hired by the Project and with the support of an assistant. The PMU should report back to the National Project Director and the NPSC. However, the NPSC has not been put in place.
- In accordance with Brazilian legislation, the functions of the National Project Director and National Project Coordinator cannot be transferred to another party consequently the PMU is located at the MMA and is responsible for the Project's daily operations and routines.
- The EEGM (Outcome 4) under the oversight of IDB are managed by an independent Administrator
- UNDP's role is that of the GEF Implementing Agency and as such is responsible for the overall supervision of the Project and reporting to the donor (in general terms). For these tasks, UNDP has assigned a Programme Officer (nowadays called Programme Analyst), a Programme Assistant and one Coordinator.

- In the case of Brazil, though, UNDP is also assisting the government on execution, undertaking procurement actions (above USD 2,500 – below that amount procurement is decentralized so that the Project itself is responsible for process quotations), signing contracts, and processing payments as per Project's request. These functions are complementary to the Project's execution responsibilities and the overall responsibility is within MMA given that UNDP's operational assistance is only provided upon request of the government.
- Besides that, in order to provide the government with expertise to implement this Project, UNDP has hired a full time Technical Coordinator / Manager to assist the Project on technical issues (i.e., design of ToRs, accompanying contracts, providing advice on products and so on). This person officially reports to UNDP but liaises on a daily basis with the MMA and has been hired with Project resources under the management component working exclusively for this Project.

As stated earlier, due to the detachment of the MME the establishment of the NPSC has not materialized. In lieu, the formation of a Technical Advisory Committee has been proposed but it has not been implemented yet. This set back has been responsible for the significant delays in project implementation and poor governance of the Project. It is crucial for the project governance that the Technical Advisory Committee gets established soonest and starts to meet regularly

At this point of the Project high articulation is demanded in order to integrate stakeholders and coordinate capacity development programmes. In consequence, the PMU needs to be strengthened. The Project National Coordinator has been appointed and the Project Technical Manager and its assistant have been hired. However, due to the explicit need for improving project execution of annual work plans and increasing its capacity to deliver, additional resources and personnel are required to expedite the preparation and approval of ToR of the supporting contracts related to such activities and their follow up and administration.

Management and coordination are definitely two key areas that need urgent attention.

Additional comments on Management and Coordination are provided under the evaluation of Outcome 6 - Overall Project Management Support in section 4.3.1 below.

In spite of the good performance of IDB / Atla Consulting and particularly due to the fact that (i) the NPSC has not materialized and (ii) the formation of the Technical Advisory Committee is still pending, management and coordination is rated Moderately Unsatisfactory.

Management and coordination are definitely two key areas that need urgent attention.

HS	S	MS	MU	U	HU	N/A
			X			

4.3 Project Results

4.3.1 Attainment of Outcomes/Achievement of Objectives

The following charts present the results of the analysis of the logical framework in terms of the attainment of Outcomes and Achievement of Objectives. This is a comprehensive analysis with references to revisions of certain indicators and their targets, findings, and recommendations for actions to be taken. The revisions to indicators and their targets have been highlighted in bold letters and are also presented in a separate table in section 4.3.2

The Strategic Results Framework of the PRODOC need to be updated. Changes to the outputs of Outcome 3 resulting from the re negotiation that took place in 2012 /2013 between UNDP and MP should be incorporated together with those other changes that would be agreed upon by the Project based on the recommendations of this MTE..

Objective: To foster EE investments in private and public buildings in Brazil

Target (from PRODOC)	Assessment
<ul style="list-style-type: none">- Increase in investment in EE for building public and private sectors by USD 93 million- Local banking system provide financing in 70% of EE projects- At least 10 FIs and value (at least USD123 MM in total) of financed EE investment enabled by the Project including local FIs, and- At least 250 projects implemented resulting	<ul style="list-style-type: none">- After a long initiation phase the Project is under full implementation. The EEGM has issued three guarantees for ESCO projects with the private sector and capacity development components are fully underway. Project design continues to be relevant- The Project has not yet been able to finalize negotiations with BNDES to approve the link to PROESCO, a strategic alliance which was identified as offering significant operational synergies,- The Project has not been able to identify a contractual approach by which the public sector would be able to enter into a EPC with ESCOs due to the limitations imposed by Brazilian Procurement Law No. 8666. A

<p>in CO_{2e} emission reductions of 2MT CO_{2e} and post-project and indirect emission reductions of 16MT CO_{2e}</p> <p>- Improvement in kWh per m² of building space</p>	<p>specific contract will be procured to further address this issue. Based on informal communications with one of the most prominent Public Law Advisory bureaus of Brasilia it should be feasible for the public sector to enter into EPC with a private sector ESCO. The challenge is to find a public entity and a building manager that would be willing to agree to implement an EE investment under a PBC approach.</p> <ul style="list-style-type: none"> - With regard to this issue, in order to raise awareness among key stakeholders, the Project is including federal institutions such as the <i>Tribunal de Contas da União</i> - Court of Federal Accounts (TCU), <i>Controladoria Geral da União</i> – Office of the Comptroller General (CGU) and <i>Advocacia-Geral da União</i> - Federal Attorney General's Office (AGU) in all invitations to workshops and meetings. - The Pre-audits that will be conducted under the Benchmark project are also intended to foster breaking public manager's resistance to using new procurement paradigms which after all continues to be one the largest challenges of this Project. - The ESCO market in Brazil has not developed in accordance with the expectations of the PRODOC which was designed when Brazil was experiencing GDP growth rates of over 6% and before the effects of the 2008 global financial crisis had been fully felt. - Based on interviews with key stakeholders, the ESCO market in Brazil is today comprised of a handful (about 10) large ESCOs most of which have strong balance sheets and would not necessary be candidates for the EEGM. In addition, there are another +/- 20 mid-sized ESCOs most of which are not necessarily operating as "100% true ESCOs" in the sense that they very seldom offer their services under an EPC approach but rather provide EE implementation services on a cost plus or lump sum basis. - According to the <i>Associação Brasileira das Empresas de Serviços de Conservação de Energia</i> (ABESCO) there are also another 100+ small consulting firms / specialized consultants who are also working in EE projects but which are not likely to be candidates for the EEGM directly. - In spite of the above, the potential savings to be attained through EE
--	--

	<p>investments in Brazil remain to be very high. In a recent article published in <i>Brasil Econômico</i>¹⁰, ABESCO estimates the potential savings from EE investments in the industrial, commercial, residential and public sector to be in the order of 46 TWh per year which is equivalent to half of the electricity production of Itaipu, the largest hydro plant in Brazil, or to the combined electricity consumption of the states of Rio de Janeiro and Espírito Santo. This would translate into annual savings of R\$12 billion and R\$60 billion of additional investments. As a result, the Project design remains valid.</p> <ul style="list-style-type: none"> - Due to the undeveloped state of the ESCO market in Brazil, the target of increasing investment in EE for building in the public and private sector under a EPC approach with ESCOS will have to be revised downward while continuing to explore other alternatives (including other business models for financing and implementation of EE projects) which would maximize the appeal of utilizing the EEGM by other financial intermediaries within the Brazilian capital markets. - The indicator denominated “Rate of public and private building owners/operators reported to use ESCOs services to improve their energy consumption (at least 80%)” is unclear and needs to be revised together with its proposed target. A more meaningful indicator of the fostering of EE investments in private and public buildings in Brazil would be the number of EE projects that would be implemented over the Project life. - If a minimum of 10 FIs and a value of at least USD 123 million of financed EE investments are to be enabled by the Project, the procedures for accessing the EEGM will have to be revised in order to reach a wider market of FIs. The target value of EE investments to be financed through FIs (i.e., at least USD 123 million in total) should be in line with the target value of increase in investment in EE in public and private buildings (i.e., USD 93 million). More importantly,
--	---

¹⁰ http://www.cliptvnews.com.br/mma/amplia.php?id_noticia=41963

	<p>the marketing efforts for identifying potential EE project candidates will have to be increased. Also unless the Project succeeds in designing a PBI mechanism that would be acceptable by the public sector, the amount of financed EE investments will have to be scaled down.</p> <ul style="list-style-type: none"> - The Energy Research Enterprise (EPE) has made certain recommendations regarding the use of EPC mechanisms with the public sector. The study says it would be possible (with a given degree of risk) to implement EPC within Law No. 8666. However, due to the incipient use of EPC by the private sector, it is at this stage difficult to demand the public sector to use EPC for EE investments. An analysis of recent changes in contractual rules and procedures for the public sector will have to be undertaken in order to define the best schemes and governance arrangements to implement EE in public buildings and achieve a higher value of EE investments in projects. - The number of EE projects implemented by the private sector using an EEGM mechanism or similar may be a more easily measurable indicator to assess progress in fostering EE investments in private and public buildings in Brazil. Due to the undeveloped state of the ESCO market in Brazil it is difficult to forecast the amount of actual EE investment that could take place as a result of the Project intervention. The value of investments could also be used as a secondary indicator. - Based on the experience of Retrofit of the MMA project, it has been noticed that once the public building manager had access to the results of a reliable energy audit including the costs, benefits and payback of each scenario, he/she was confident to adopt the suggested improvements using the building maintenance budget. - In line with the previous comments, it does not appear feasible that the Project will be able to implement a minimum of 250 projects by August 2016. In order to meet this target, the Project will have to achieve 9 financial closings per month on average between April 2014 and August 2016, an amount that is unrealistic. - Furthermore, the number of 250 projects is based on the assumption that the <u>average size of EE investments to be supported by the EEGM would</u>
--	---

	<p>be USD373,000. Based on experience, this estimate appears to be low when taking into consideration that it refers to an average amount and given the negative impact that transaction costs would have in project investments below that average amount which is likely to severely affect their financial feasibility..</p> <ul style="list-style-type: none"> - There is no baseline for current average energy consumption in building spaces expressed in kWh per m² and a specific target needs to be defined if this indicator will be used to measure progress towards fostering EE investments in private and public buildings in Brazil. The development of a baseline (i.e., benchmark) is an important step to help define these targets. The calculation of CO_{2e} emission reductions needs to be revised based on the newly agreed upon number of projects that would be set as target and on the expected EE profile of projects based on current market conditions. Also the grid emissions factor that has been used to estimate the amount of emission reductions that would be achieved by the Project has to be revised as per the comments made by the MMA during the Inception Workshop. Also, the targets have to take into account the National Policy for CO₂ emissions reductions stated in Decree 7390 of November 9, 2010.
--	---

OUTCOME 1: Enhanced EE investments through CB in EE in private and public buildings

Target (from PRODOC)	Assessment
<p>Output 1.1: Local energy product / service providers capacity strengthened through training events</p> <ul style="list-style-type: none"> - 1400 ESCOs, Equipment providers, Building 	<ul style="list-style-type: none"> - A detailed Capacity Building Plan has been prepared which includes workshops, seminars and technical materials which have been specifically designed for three different groups: Public sector, private sector and financial institutions. - Delivery of training sessions is already underway. A workshop regarding

<p>owner/managers association, Technical Education institutions and Universities strengthened</p> <ul style="list-style-type: none"> - Project Management Unit set up by end of Yr 1 	<p>the <i>Programa Brasileiro de Etiquetagem</i> (PBE) Edifica has been delivered to 40-50 people and another 14 workshops have already been contracted to be delivered during 2014, expecting to train at least 250 stakeholders (ESCOs, financial institutions, consultants etc). In addition. In addition, as part of its marketing campaign for the EEGM, during 2013 Atla Consulting has made over 10 presentations in different cities of Brazil and overseas which have been attended by close to 800 participants.</p> <ul style="list-style-type: none"> - The website (i.e., Project EEE - http://p3e.ufsc.br/) is targeted at building project developers with very specific EE technical information for a large number of cities / regions throughout Brazil. However, the project website has not yet been developed. The Project is considering hiring a public relations specialist who would be in charge of providing media advisory services, develop the technical features of the Project website and support trainings and EEGM marketing activities. An action needs to be taken in this regard. - Through the MMA, the Project has entered into a cooperation treaty with ESAF (National School for Public Sector Education) to provide support for the delivery EE training seminars to the public sector utilizing its schools in 11 States across the country and its distant learning tools. ESAF in this case is only an operational partner that will provide the logistics and infrastructure to the capacity building events. - Project Management Unit has been set up but with operational inefficiencies due primarily to lack of project governance since the NPSC has not been set up and conflicts on the interpretation of rules for GEF fund disbursements which have resulted in low implementation.
<p>Output 1.2: EE market players have greater awareness of and interest in implementing EE measures</p> <ul style="list-style-type: none"> - Up to 5000 participants from public and private sector informed on the project benefit 	<ul style="list-style-type: none"> - An on-line Library of EE Reference Information which is part of Project EEE is being set up with the assistance of Fundação de Ensino de Engenharia (FEE) de Santa Catarina (FEESC). FEESC will also be providing assistance with 3 specialized workshops - An EE technical specialist (i.e., <i>Ação Engenharia</i>) firm has been contracted to produce a series of technical products to support the implementation of EEGM including templates for performing and

	<p>evaluating Energy Audit in buildings.</p> <ul style="list-style-type: none"> - A specialist was contracted to perform a study on the State of the Art of ESCO / EE contracting in Brazil - There is still no clear indication as to whether the capacity building activities to date have been successful in leading to a sustained enhanced capacity in the recipient institutions.
--	---

Based on the above, Outcome 1 is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

OUTCOME 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI

Target (from PRODOC)	Assessment
<p>Output 2.1: Enabling institutional framework for EE project development in Public Sector is established</p> <ul style="list-style-type: none"> - Institutional framework for EE promotion for approval by the end of Yr 2 	<ul style="list-style-type: none"> - An evaluation of the potential modalities to enter into EPC for EE projects is underway (i.e., <i>Estado da arte dos contratos de performance no Brasil</i>). This study will focus on the private sector but will also provide some advice on the public sector, as well. A specific study for the public sector regarding contractual and financing arrangements should be implemented. The results of this exercise will be crucial to determine what ought to be the best strategy for fostering EE projects with the public sector in Brazil either under an EPC approach or otherwise. - A benchmarking study of energy consumption in private and public buildings is underway and should serve to make progress towards the

	<p>identification of potential case studies for EE in public buildings and eventually for the design of a CDM PoA ¹¹. Also, the hotel sector and bank agencies have been defined as other sectors that ought to be approached. In addition, a total of 45 pre-audits will be implemented of which 25 will be conducted in public buildings with the expectation of providing technical assistance a posteriori in order to motivate EE investment implementation. The goal is to identify a minimum of 5 demonstration projects as a result of this activity for full implementation.</p>
<p>Output 2.2: EE projects realized under ESCO approach by the Government increased; Public building owners/operators have been exposed to PBI program to access EE services and applied its recommendations</p> <ul style="list-style-type: none"> - 15 RFP a year based on the PBI concept (on average) 	<ul style="list-style-type: none"> - The second part of Output 2.2 “Public building owners/operators have been exposed to PBI program to access EE services and applied its recommendations” in same way acts as a duplicate of Output 1.1 which is geared to both private and public sector stakeholders. - Due to the incipient state of the ESCO market in Brazil, the proposed target of 15 RFPs a year based on the PBI concept appears to be unrealistic and needs to be reviewed.. - The Project has not been able to be included in the “<i>Esplanada Sustentável (ES)</i>” project that plans to implement the retrofit of 23 Federal buildings in Brasilia¹². In lieu, it is currently undertaking an EE study for the Environment and Culture Ministry building in Brasilia (<i>Bloco B</i>) which includes, an energy audit and labeling of the proposed retrofit, under the <i>PROCEL/INMETRO</i> EE labeling program. This should serve as a pilot for lessons learned under the SE initiative. The manner in which the PBI concept has been described in the PRODOC is too ambitious and would demand a level of governance that the Project does not have. Even though a comprehensive PBI like the one that is suggested in the PRODOC is highly relevant, its roles and responsibilities should be

¹¹ The MMA is currently in discussions with CAIXA to become the manager of a Programmatic CDM for buildings to be developed after the benchmark is completed. In principle, CAIXA has expressed an interest on this matter and an official letter has been sent to CAIXA by the MMA.

¹² The ES initiative is virtually held back. The government has scaled up the project nationally before getting the results of the first 23 buildings as originally planned. Also changes in the management structure has negatively impacted the implementation of the energy audits of the 23 Federal buildings. As a result, the EE audit of Bloco B is one of the few activities of the ES initiatives which is moving forward.

	<p>downgraded. When taking into consideration the role of the coordinating agency, the proposed PBI should primarily focus on reducing emissions in the public building sector.</p> <ul style="list-style-type: none"> - The development of a forum in the form of an online platform to be called <i>Eficiencia Energética en Prédios Públicos</i> has been agreed to. This will become a channel for marketing the training seminars, check real impacts after trainings have taken place, and generate a communication channel among public agents with the objective of keeping the network alive. ESAF is analysing the possibility to host the forum under its <i>Educação a Distância</i> (EAD) structure. The MME and Ministry of Planning have agreed to manage this tool jointly with MMA and UNDP
<p>Output 2.3: Capacity building (CB) offered to Public Building Owners/Operators and ESCOs in developing and implementing selected projects on a pilot basis for public sector buildings</p> <ul style="list-style-type: none"> - 5 pilot projects for public building sector by the end of Yr 3 - At least 30 ESCOs provided with technical assistance to develop public EE projects 	<ul style="list-style-type: none"> - An energy audit of the ESAF installations in Brasília which is being done by GIZ is underway and ought to serve to design a pilot project for the public building sector. The Project is in discussions with ESAF to provide assistance with the selection of best contract options and the implementation of EE measures. - Additional case studies under different profiles reflecting (i) other regions (ii) other climate zones and (iii) different building conditions have been included under the benchmarking contract in order to assist with the identification of buildings for the pilot studies. - Also, in order to expedite the identification of additional pilot projects the Project is considering offering to undertake approximately 45 pre-audits for free (i.e., 25 public buildings, 10 hotels and 10 bank agencies) and use the results of these audits to select the best 3 to 4 best cases for a full energy audit which may serve as to design specific EE implementation projects. - Additional case studies within the public sector need to be identified urgently. Under Outcome 2 in the PRODOC, the public sector is meant to include federal, state and municipal administration, as well as public service providers, such as schools and hospitals. An effort should be made to identify potential case studies beyond the federal administration - Due to the difficulties in utilizing an EPC approach with the public sector other modalities such as the use of Public Private Partnerships (PPPs)

	should be explored. . In addition, it is important to analyze the implications of the recently approved <i>Medida Provisória</i> 630/13 which expanded the use of <i>Regime Diferenciado de Contratações Públicas</i> (RDC) , a law which was passed in 2011 providing a special regime of public procurement for works related to FIFA Soccer World Cups, 2016 Summer Olympic Games and airports.
--	--

Based on the above, Outcome 2 is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

OUTCOME 3: Interest enhanced in the replacement of energy-inefficient CFC-using chillers

Target (from PRODOC ¹³)	Assessment
Output 3.1: National Inventory of CFC- and HCFC-based liquid Chillers in operation in Brazil <ul style="list-style-type: none"> - Diagnosis of the amount of CFC-based liquid chiller in operation in Brazil 	<ul style="list-style-type: none"> - The National Inventory of CFC- and HCFC-based liquid chillers has been completed in November 2013. The results indicate that 92% of chillers that have been using CFCs have been replaced or retrofitted to use HFC R134 and in consequence there are virtually no chillers using CFCs in Brazil. The total installed capacity of liquid chillers has been estimated at 4 million TR of which about 20% are considered obsolete and thus liquid chillers in operation are estimated to have a capacity of about 3.2 million TR of which 2.5 million TR are located in the south and south eastern regions of Brazil. The total number of chiller equipment using HCFCs is estimated at 130.000. A fundamental point has to do with the fact that the substitution of HCFC R22 is in the process of execution through the HCFC Phase Out

¹³ Outputs of Outcome 3 reflect Outcomes 1-5 of PRODOC BRA/12/G77 – Integrated Management for the Chillers sector approved on 21/06/2013

	<p>Program (HPMP) since 2013. However, the Government is awaiting further definitions at the international level before acting for the refrigeration sector. The plan is to treat this issue during the second stage of the <i>Programa Brasileiro de Eliminação de HCFCs</i> – Brazilian program for the elimination of HCFCs (PBH). The manufacturers of chiller have opted for using refrigerant fluid HFC (R134a and R410A), technology that has been adopted by building owners for the substitution of the old chillers with CFC and HCFC.</p>
<p>Output 3.2: Technical and information material for promotion and dissemination of results</p> <ul style="list-style-type: none"> - 400 training manuals for specialized professionals - 300 workshops on operation and maintenance - 2000 primers elaborated and distributed 	<ul style="list-style-type: none"> - ToRs have been prepared to hire specialized consultants to prepare technical and information material for promotion and dissemination results. A call for proposal was advertised with no results. A second call should be organized shortly.
<p>Output 3.3: Workshops, capacity building and training for specialized professionals and owners interested in the replacement of CFC- and HCFC-based liquid chillers</p> <ul style="list-style-type: none"> - 2 Workshops - 120 capacity-building events and training for the replacement of chillers by specialized professionals - Capacity building for 30 ESCOs - 240 training manuals distributed - 120 capacity-building events and training for chiller operation and maintenance - 1 seminar 	<ul style="list-style-type: none"> - This module is in the process of being outsourced with a budget of USD100,000 and expected to be completed by March 2015. It is foreseen that 5 workshops will take place as follows: 1 in Brasília, 2 in Sao Paulo, 1 in Rio de Janeiro and 1 in Fortaleza. - An effort should be made to improve articulation of the results of the capacity building activities under this Component with those that will result from the implementation of capacity building activities planned under Components 1 and 3.
<p>Output 3.4: Case studies to demonstrate the EE potential and economic and environmental benefits obtained from the replacement of CFC-</p>	<ul style="list-style-type: none"> - The results achieved on the retro-commissioning of the chillers in the Treasure and Finance Ministry will be used in the project proposals for retro-commissioning of existing chillers in order to demonstrate the benefits of lower operation and maintenance costs that can be achieved

<p>based chillers in public buildings</p> <ul style="list-style-type: none"> - Two case studies 	<p>via the re-commissioning which can involve changes in operating procedures to overhauls of and retrofits to the entire chiller system depending on the condition of the existing chillers. Consideration should be given to linking the lessons learned from the retro-commissioning of existing chillers in the Treasury and Finance Ministry into the 5 pilot projects that will arise from the benchmarking study. A retro-commissioning could be an important technical assistance to foster the implementation of EE in public buildings.</p>
<p>Output 3.5: Technical assistance for the elaboration of CFC- and HCFC-based liquid chiller replacement projects aiming to increase EE</p> <ul style="list-style-type: none"> - 22 CFC liquid chiller replacement projects elaborated 	<ul style="list-style-type: none"> - According to the National Inventory of liquid chillers the number of liquid chillers in operation which are still utilizing CFCs is virtually zero. As a result, it will not be possible to consider the implementation of 22 CFC liquid chiller replacement demonstration projects as indicated in the PRODOC. - This Output should be revised based on recommendations from technical experts as to the feasibility of considering demonstration projects based on the replacement of HCFC chillers instead. The number of demonstration should be revised also since 22 projects appear to be too high given the current state of the CFC liquid chillers in Brazil. - Energy audits are being conducted to identify potential candidates. An effort should be made to coordinate the undertaking of energy audits which are being planned under Component 2 with the ones that will be undertaken under Component 1 in order to maximize the number of EE projects that will be implemented by the Project. - At this stage four retro-commissioning of existing chillers are being planned (2 in Brasilia and 2 in Sao Paulo).

In general terms, an effort should be made to ensure that funding for Outcome 3 is used in such a manner that is highly relevant for the Project. Since funding for this component comes from the MP an agreement should be reached among the key project participants and the MP administrators.

Based on the above, Outcome 3 is rated Moderately Satisfactory

HS	S	MS	MU	U	HU	N/A
		X				

OUTCOME 4: EEGM made available to stimulate EE investment through ESCOs

Target (from PRODOC)	Assessment
<p>Output 4.1: Local banks began to treat energy savings as collateral in their lending evaluation matrix</p> <ul style="list-style-type: none"> - Drafting of new strategies for each participating FI in Years 1-2 in response to requests from ESCOs and other professionals - New financial products available on the EE market by Yr 2 - At least 5 financial institutions which have defined target segments for EE financing 	<ul style="list-style-type: none"> - EEGM is operational and has issued the first three letters of guarantee in total value for USD1.6 million and thus was able to leverage a total investment of USD 9.44 million. The three guarantees were issued to the same ESCO (<i>APS Engenharia</i>) and bank (Rio Grande do Sul Regional Bank). - Negotiations with BNDES which was initially viewed as a key strategic ally for identifying potential candidates for the EEGM due to its relationship to the PROESCO program are still underway. One of the objections that BNDES representatives expressed during the interview with the evaluator was related to the cap limit of USD 800,000 per project of the EEGM being too low. The impact of increasing this limit on a project per project basis should be analysed, in particular if this were to open up the door for additional EE projects under the PROESCO program. Also, BNDES has other lines of credit which relate to EE. <i>Fundo Clima</i> which is being coordinated by the MMA is one example. There are also other lines of credits that relate to EE equipment. It would be interesting to examine how the EEGM might interact with the various EE line of credits which are under BNDES. - Due to the importance of having a pipeline of projects for the EEGM, conversations with other entities are underway. The IDB has recently succeeded in approving AGERIO to work with them and their green lines for EE and is also in negotiations with Desenvolve SP São Paulo State's

	<p>Development Bank to achieve exactly the same..</p> <ul style="list-style-type: none"> - Three training seminars for the financial sector are planned for 2014. IDB staff will be in Brazil for the second training that will take place in July. A meeting with BNDES staff should be planned for to explore the opportunity of working with BNDES under other EE financing programmes in addition to meeting with PRODESCO. - Atla Consulting, the EEGM local administration, has been in contacts with a number of commercial banks that have expressed interest in using the EEGM for the financing of EE projects. In addition to BNDES, these include: Banco Indusval & Parners, Banco Itaú, Bradesco, Pine, Banco SOFISA, Banco do Brasil, Caixa Econômica Federal (CEF) and several others. - Consultancy for the preparation of templates and reference documents has been contracted and will serve to provide recommendations on how to improve and make the EEGM procedure more flexible for future applications.
<p>Output 4.2: The EEGM has been experimented and is fully operational</p> <ul style="list-style-type: none"> - At least 250 projects approved under the EEGM and provided with guarantees 	<ul style="list-style-type: none"> - The EEGM is fully operational and has been specifically designed to help reducing barriers related to lack of access to financing by offering a combination of performance and commercial guarantees. - With good insight, the EEGM has been set up as a guarantee mechanism that works under local law and with local currency as well as the legal document package. - In order to maximize the effect of the EEGM in addressing market barriers will be important to review the relevance and acceptance of the EEGM in the market on a periodic basis and if necessary, the EEGM and its menu of guarantee products should be fine-tuned in light of the evolution of the market. - As described in detail under the analysis of the Project Objective (see above), under present conditions the target of closing 250 projects has been set too high and needs to be revised.. - No targets for the number of ESCOS supported by EEGM have been set - Based on information provided by IDB, GEF has agreed that the EEGM

	<p>has until June 2018 to issue guarantees with a 7 year monitoring period after that since guarantees can be issued for up to 7 years. The handling of the different end dates between the Project and the EEGM in relation to the final evaluation reporting should be addressed.</p> <ul style="list-style-type: none"> - As stated in the PRODOC, the exit strategy for the EEGM will be decided based on the EEGM's uptake and relevance over the years. It is important that discussions on the pros and cons of different exit strategies are undertaken in the short to medium term since they may result in changes to the design of the EEGM facility.
--	---

Based on the above, Outcome 4 is rated Satisfactory

HS	S	MS	MU	U	HU	N/A
	X					

OUTCOME 5: Project monitoring and evaluation support

Target (from PRODOC)	Assessment
<ul style="list-style-type: none"> - 100% of planned Project monitoring and evaluation activities completed 	<ul style="list-style-type: none"> - In terms of M&E the project has been reporting to UNDP and GEF via the submission of Project Implementation Reviews (PIR) for 2012 and 2013 and the preparation of Annual Operation Plans (AOP) for 2013 and 2014. - The Mid-Term Evaluation which was planned to take place in early 2013 had been delayed given that major activities including the closing of pilot financing projects under the EEGM had recently taken place and it was preferable to have consistent results of both the IDB and UNDP components to undertake the Mid Term Evaluation. - The need to collect baseline information and to review the feasibility of the

	<p>targets has been raised at the Inception Workshop and commented in the various PIRs that have been conducted so far but no specific actions have been taken in this regard, most probably due to the poor level of dialogue achieved among project participants as a result of the difficulties in establishing the NPSC and the Technical Coordination Committee.</p> <ul style="list-style-type: none"> - As mentioned under each of the Outcome discussions above (see text highlighted in bold and presented separately in Section 4.3.2) several indicators and their targets should be revised.
--	---

Based on the above, Outcome 5 is rated Moderately Unsatisfactory

HS	S	MS	MU	U	HU	N/A
			X			

OUTCOME 6: Overall project management support

Target (from PRODOC)	Assessment
<ul style="list-style-type: none"> - Timely submission of all project reports - Project objectives substantially met 	<ul style="list-style-type: none"> - Every annual Project Implementation Report (PIR) has clearly identified poor governance as a critical issue and has insisted on the need to have a NPSC committee in place. - Due to the detachment of the MME from the Project, the establishment of the NPSC has not materialized. In lieu, the formation of a Technical Advisory Committee has been proposed but it has not been implemented yet. This set back has been directly responsible for the significant delays in project implementation and poor governance of the Project. Even though the best option would be establish a NPSC as demanded in the PRODOC, this alternative does not appear to be viable.

	<ul style="list-style-type: none"> - Accordingly at this stage, it is crucial that the Technical Advisory Committee gets established soonest and starts to meet regularly. More importantly, steps should be taken to guarantee that the issue of poor project governance gets resolved. The MMA informed that invitation letters for the formation of the Technical Advisory Committee, a step which had been agreed in May 2013 and is still under preparation. - Given the need to accelerate implementation, additional manpower resources may have to be hired with Project resources. Whether those will be dedicated staff or consultant needs to be determined. The important issue is to ensure that their functions do not overlap with the functions already performed by the Technical Manager and with Atla Consulting. These additional resources would not be part of the PMU from MMA since its function attains exclusively at administrative management. - Coordination between UNDP and IADB has been effective and should continue to be a high priority in order to ensure that capacity building and project identification activities are coordinated effectively at the operational level in order to ensure the development of a strong pipeline of project that will become candidates for the EEGM. - Consideration should be given to hiring a full time technical assistant that would report directly to the Project Technical Manager in order to strengthen the coordination of the various activities that are being undertaken by UNDP, IDB and the MMA as well as to expedite the preparation and approval of ToR of the supporting contracts related to activities under Outcomes 1 and 2. - The Project implementation has improved and thanks to having the EEGM operational is now ready to begin achieving clear results. Given the high potential for EE that Brazil offers and after all of the hard work that has been invested in designing and implementing the EEGM consideration should be given to extending the end date of the project until 2017 or 2018. GEF and IDB have already agreed that the EEGM has until June 2018 to issue guarantees plus a 7 year monitoring period since guarantees can be issued for up to 7 years
--	--

Based on the above, Outcome 6 is rated Moderately Unsatisfactory

HS	S	MS	MU	U	HU	N/A
			X			

4.3.2 Analysis of indicators and targets

Throughout the report there are references to the need to revise some of the indicators and/or targets for one of the following reasons:

- a) the indicator is considered unrealistic (due to poor project design, or a calculation error) or
- b) a change in circumstances which needs to be reflected in a change of project strategy.

Recommendations for revisions of certain indicators and/or selected targets for the different outcomes are presented below in table form

Project Objective:	Indicators	Baseline (in the absence of the project)	Target	Comments
To foster EE investments in private and public buildings in Brazil.	<p>Increase in the number and in annual revenues of EE project developers</p> <p>Rate of public and private building owners/operators reported to use ESCOs services to improve their energy consumption (at least 80%)</p> <p>Number of FI offering energy savings guarantee services other sources</p> <p>Number of new EE implemented projects using the EEGM or other similar mechanism due to the Project</p>	<p>Very few buildings owners/operators have incorporated EE measures</p> <p>Govt. buildings operation do not specify minimum EE performance values</p> <p>Professionals and developers do not understand basic EE principles</p> <p>Financing institutions are not aware on how they can support the development of EE market</p>	<p>Increase in investment in EE for building public and private sectors by USD93 million</p> <p>Local banking system provide financing in 70% of EE projects</p> <p>At least 10 FIs and value (at least \$ 123M in total) of financed EE investment enabled by the Project, including by local FIs and</p> <p>At least 250 projects implemented, resulting in direct CO2 emission reduction of 2 MT CO₂ and post-project and indirect 16 MT CO₂.</p> <p>Improvement in kWh per m² of building space</p>	<p>Due to the undeveloped state of the ESCO market in Brazil, the target of increasing investment in EE for building in the public and private sector under a EPC approach will have to be revised downward</p> <p>The target value of EE investments to be financed through FIs (i.e., at least USD 123 million in total) should be in line with the target value of increase in investment in EE in public and private buildings (i.e., USD 93 million)</p> <p>The indicator denominated "Rate of public and private building owners/operators reported to use ESCOs services to improve their energy consumption (at least 80%)" is unclear and needs to be revised together with its proposed target.</p> <p>In line with the previous comments, it does not appear feasible that the Project will be able to implement a minimum of 250 projects by August 2016.</p> <p>The calculation of CO2e emission reductions needs to be revised based on the newly agreed upon number of projects that would be set as target and on the expected EE profile of projects based on current market conditions. Also the grid emissions factor that has been used to estimate the amount of emission reductions that would be achieved by the project has to be revised as per the comments made by the MMA during the Inception Workshop</p> <p>There is no baseline for current average energy consumption in building spaces expressed in kWh per m2 and a specific target needs to be defined if this indicator will be used to measure progress towards fostering EE investments in private and public buildings in Brazil</p>
<p><u>Outcome 1:</u></p> <p><u>Enhanced EE investments through CB in EE in private & public buildings</u></p>	<p>EE offer fully functional in private building sector</p> <p>EE offer fully functional in public building sector</p> <p>EE Product and Service providers trained</p>	<p>Limited capacity in term of EE offer from local market players</p>	<p>EE building market capacity building in progress by Yr 1</p> <p>Efficiency Improvement in Brazil reinforced by Yr 5</p>	n.a.

<i>Output 1.1: Local energy product/service providers capacity strengthened through training events</i>	<p>Number of stakeholders (building managers, entrepreneurs, equipment providers, ESCOs) advised or trained (up to 1400 product/service providers)</p> <p>Number of transactions supported by the Project's TA services (more than 90)</p> <p>Feedback on quality and relevance of Project's assistance (80% of beneficiaries rating "very good" the TA)</p>	Limited capacity of EE product/service providers	<p>1400 ESCOs, Equipment providers, Building owner/managers association, Engineers associations, Technical Education institutions and Universities strengthened</p> <p>Project Management Unit set up by end of Yr 1</p>	n.a.
<i>Output 1.2: EE market players have greater awareness of and interest in implementing EE measures</i>	<p>Number of people from public and private building sectors trained (up to 5000 persons)</p> <p>Number of stakeholders reached with Project publications (at least 2,000)</p> <p>Number of unique visitors to Project's Web site (at least 1,000 per month in 6 months after website launch)</p>	Limited EE activities conducted by the Authorities on EE benefit for market players	Up to 5000 participants from public and private sector informed on the project benefit	n.a.

<p><u>Outcome 2:</u></p> <p><u>Access to EE services and commercial financing for public sector buildings enhanced with a PBI</u></p>	<p>Public building EE tender process PBI Program for Public Building operational by end of project</p>	<p>The current purchasing mechanism for public sector is lowest cost only</p>	<p>Model for PBI designed by end of first year.</p> <p>Public sector EE Promotion plan drafted and submitted to the Gov. for adoption by the end of Yr 2</p>	<p>n.a.</p>
<p><i>Output 2.1: Enabling institutional framework for EE project development in Public Sector is established</i></p>	<p>Validation of the EE Program for Public Sector with at least 15 RFP per year</p>	<p>Limited institutional capacity to undertake EE promotion Program</p>	<p>Institutional Framework for EE promotion for approval by the end of Yr 2</p>	<p>Due to the incipient state of the ESCO market in Brazil, the proposed indicator of 15 RFPs a year based on the PBI concept is too high and needs to be reviewed -</p>
<p><i>Output 2.2: EE Projects realized under the ESCO approach by the Government increased ;(Public building owners/ operators have been exposed to PBI program to access EE services and applied its recommendations)</i></p>	<p>Number of ESCOs and building owners/ operators trained on the PBI program (at least 400 persons)</p> <p>Use of the PBI approach for RFP process in public buildings</p>	<p>No tender process for public building under performance contract</p>	<p>15 RFP a year based on the PBI concept (on average)</p>	<p>Due to the incipient state of the ESCO market in Brazil, the proposed target of 15 RFPs a year based on the PBI concept is too high and needs to be reviewed -</p>

<p><i>Output 2.3: Capacity building (CB) offered to Public Building Owners/ Operators and ESCOs in developing and implementing selected projects on a pilot basis for public sector buildings</i></p>	<p>CB provided to public building organizations is effective for a demonstration of EE project implementation</p> <p>Number of ESCOs provided with technical assistance to develop public EE projects</p> <p>At least 80% of satisfaction expressed by public building organizations on TA</p>	<p>Limited CB possibilities in EE sector to public building operators/owners</p> <p>Limited experiences in EE in public building projects</p> <p>Limited experience in ESCO projects in public buildings</p>	<p>5 pilot projects for public building sector by the end of Yr 3</p> <p>At least 30 ESCOs provided with technical assistance to develop public EE projects</p>	<p>n.a.</p>
<p><u>Outcome 3:</u></p> <p><u>Interest enhanced in the replacement of energy-inefficient CFC-using chillers</u></p>	<p>Design the full program complying with the Montreal Protocol regarding CFC-based equipment removal</p>	<p>The inventory of CFC-based chillers is accepted as 1,000 centrifugal chillers</p>	<p>Up to 40 CFC-based chillers replacement demonstration projects using MLF co-financing implemented by the end of Yr 2</p> <p>Effective promotional program for the replacement of CFC chillers</p>	<p>n.a.</p>

<i>Output 3.1: National Inventory of CFC and HCFC liquid chillers in operation in Brazil</i>	Number of CFC and HCFC chillers in operation in Brazil	No data	Diagnosis of the amount of CFC based liquid chiller equipment in operation in Brazil	n.a.
<i>Output 3.2: Technical and information material for promotion and dissemination of results</i>	Number of professionals using practical guides design to assist in CFC-based chillers replacement	None	400 training manuals for specialized professionals 300 workshops on operation and maintenance 2000 primers elaborated and entities related to the energy systems in Brazil	n.a.

<p><i>Output 3.3:</i></p> <p><i>Workshops, capacity building and training for specialized professionals and owners interested in the replacement of CFC and HCFC based liquid chillers</i></p>	<p>Number of workshops, capacity buildings and training events, training manuals distributed and seminars</p>	<p>None</p>	<p>2 workshops</p> <p>120 capacity building events and trainings for replacement of chillers by specialized professionals</p> <p>Capacity building for 30 ESCOs</p> <p>240 training manuals distributed</p> <p>120 capacity building events and trainings for chiller operation and maintenance</p> <p>1 seminar</p>	<p>n.a.</p>
<p><i>Output 3.4</i></p> <p><i>Case studies to demonstrate the EE potential and economic and environmental benefits obtained from the replacement of CFC –based liquid chillers in public buildings</i></p>	<p>Number of case studies accomplished</p>	<p>None</p>	<p>2 Case studies on EE and economic and environmental benefits obtained from the replacement of liquid chillers in public buildings including technical, practical and theoretical aspects carried out</p>	<p>n.a.</p>

<p><i>Output 3.5</i></p> <p><i>Technical assistance for the elaboration of CFC and HCFC-based liquid chiller replacement projects aiming to increase EE</i></p>	<p>Number of projects for replacement of CFC and HCFC-liquid based chillers</p>	<p>None</p>	<p>22 projects for replacement of CFC and HFC-based liquid chillers elaborated</p>	<p>This output should be revised based on recommendations from technical experts as to the feasibility of considering demonstration projects based on the replacement of HCFC chillers instead</p>
<p>Outcome 4:</p> <p><u>EEGM made available to stimulate EE investment through ESCOs</u></p>	<p>The EEGM is operational</p> <p>Number of ESCOs and/or financial institutions using portfolio guarantees such as the EEGM</p>	<p>Few ESCOs can borrow from commercial Banks; they use ANEEL fund and own money or partly client money</p>	<p>At least 250 projects approved under the EEGM and provided with guarantees</p>	<p>n.a.</p>
<p><i>Output 4.1: Local banks begin to treat energy savings as collateral in their lending evaluation matrix</i></p>	<p>Number of financial institutions which have defined target segments for EE financing and made relevant changes in internal procedures</p> <p>At least 2 employees in 10 FIs who know how to assess, structure and monitor loans/guarantee to EE transactions</p>	<p>A limited number of EE projects are implemented due to lack of financing, lack of 'ESCOs' evaluated savings credibility</p>	<p>Drafting of new strategies for each participating FI in Years 1-2 in response to requests from ESCOs and other professionals</p> <p>New financial products available on the EE market by Yr 2</p> <p>At least 5 financial institutions which have defined target segments for EE financing</p>	<p>n.a.</p>

Output 4.2: The EEGM has been experimented and is fully operational	<p>Number of projects approved under EEGM</p> <p>Amount of guarantees (PCGs) provided for qualified projects</p> <p>Number of ESCOs supported by EEGM</p>	None	At least 250 projects approved under the EEGM and provided with guarantees	<p>As described in detail under the analysis of the Project Objective (see above), under present conditions the target of closing 250 projects has been set too high and needs to be revised downward substantially.</p> <p>No targets for the number of ESCOs supported by EEGM have been set</p>
<u>Outcome 5:</u> <u>Project monitoring and evaluation support</u>	<p>One progress report available per year</p> <p>M&E effective on time</p>	None	100% of planned Project monitoring and evaluation activities completed	n.a.
<u>Outcome 6:</u> <u>Overall project management support</u>	<p>Project objectives and deliverables</p> <p>Alignment of sector policies with objectives of EE project</p>	Minimal integration of EE issues in govt. building programs	<p>Timely submission of all project reports</p> <p>Project objectives substantially met</p>	n.a.

4.3.3 Country ownership

The Project addresses the interest of Brazil's government in improving EE in the commercial and public buildings sectors as evidence by comprehensive array of public policies on EE that have been enacted during the last decades including:

- **PBE** – Launched in 1984 which applies to manufacturers and suppliers
- **PROCEL** – Launched in 1985
- **CONPET** – Launched in 1991
- **PEE ANEEL** – Launched in 2000 applying to electricity distribution utilities
- Law 10,295 (Energy Efficiency Law) – Passed in 2001
- **PNEf** – National Energy Efficiency Plan (launched in Oct 2011)
- **Normative Proceeding 01 /MPOG** (passed in 2010) – Environmental sustainability criteria for the purchase of goods, hiring of services and construction work by the Federal Administration.
- **Decree for Sustainable Governmental Procurement** (under development) – Measures for the Federal Administration to purchase equipment with PROCEL Seal or with A-level PBE label. Under this Decree, it will be mandatory for new public buildings to use PDE-Edifica Labeling and also for large renovation projects to use the National Label for energy conservation as a parameter for retrofits which should have a highly positive impact on this Project.

As a result the Project is consistent with national measures and reflects the high priority that the Brazilian government has been putting on providing an adequate policy framework for improving EE.

5. Conclusions and recommendations

Conclusions and recommendations by individual Project outcomes as well as at the Project level are presented below. The majority of these conclusions and recommendations have already been discussed throughout the report. However, they are being repeated here for completeness and to generate a logical sequence for the recommendations that follow the findings and conclusions. Recommendations are presented in a text box.

The focus of the recommendations is on improving the remaining project implementation.

5.1 Overall Project findings

The Project is professionally managed and administered. However, delivery of results and disbursement of funds are still behind schedule for a number of reasons:

- An extended delay in implementation startup. In accordance with the PRODOC, the Project was originally planned to start in March 2009 but the Inception Workshop was not held until March 2010 and virtually no activities had taken place until early 2012 once the National Project Manager / Coordinator was hired.
- The lack of involvement of the MME and the derived difficulties in establishing a NPSC continue to be a major issue affecting Project governance. A Technical Advisory Committee has been proposed as an alternative but it is not operational yet.
- The implementation of EE projects in buildings in Brazil is still at a low development stage and hence the Project is finding it harder than expected to achieve its planned objectives.
- The Project has also suffered from lack of government support to participate in the technical decision making process of the PES project that plans to implement the retrofit of 23 Federal buildings in Brasilia.
- The interest in EEGM within the public sector has not evolved as planned during the PDF B phase, in part because the Project has not yet been able to identify a contractual approach by which the public sector would be able to enter into an EPC with ESCOs due to the limitations imposed by Brazilian Procurement Law No. 8666.
- The negotiations with BNDES which has been considered as a key strategic ally for assisting in the identification of potential candidates for the EEGM have not progressed as expected. These negotiations have been dependant on the reorganization within BNDES / PROESCO and not in a breakdown / apathy in negotiations from the Project side. As a result, actions have been taken to focus on other strategic allies until BNDES / PROESCO can be considered as the key strategic ally in line with what was agreed under the PRODOC.

In spite of all, the project team is working towards accomplishing project outputs and outcomes with professionalism.

The overall rating of the Project is Moderately Satisfactory due primarily to amount of time that has passed between project approval and actual initiation of project activities, the poor degree of governance as a result of not having been able to establish neither the NSPC nor the Technical Advisory Committee as agreed in principle in May 2013 and the extremely low rate of disbursement accomplished to date. A summary of the individual ratings is detailed in table 3 below

Project Formulation	Rating
Project strategy and design	MS
Stakeholder participation	MU
Replication approach	S
Cost effectiveness	U
UNDP and IDB comparative advantage	S
Implementation Approach	MS
Application of Adaptive Management	MS
Use of Logical Framework as a Management Tool	MU
Application of Adaptive Management	MS
Monitoring and Evaluation	MS
Management and Coordination	MU
Outcome 1 –Enhanced EE investments through CB in EE in private & public buildings	MS
Outcome 2 - Access to EE services and commercial financing for public sector buildings enhanced with a PBI	MS
Outcome 3 - Interest enhanced in the replacement of energy-inefficient CFC-using chillers	MS
Outcome 4 - EEGM made available to stimulate EE investment through ESCOs	S
Outcome 5 – Project monitoring and evaluation support	MS
Outcome 6 – Overall project management support	MU

Table 3- Summary of Project ratings

5.2 Project Objective

After a lengthy initiation phase the Project is now under full implementation. Three guarantees for ESCO projects in the private sector have been issued under the EEGM.

Project design continues to be relevant and EE remains to be a National priority for Brazil. The lack of involvement of the MME has negatively affected project governance by not permitting the formation of the NPSC. The establishment of a Technical Advisory Committee which has been suggested as an alternative is long overdue and should be made operational ASAP.

The Project appears to be in a good position to achieve most of its major objectives. However, several indicators and targets will have to be adjusted due to the undeveloped state of the ESCO market in Brazil and the difficulties that have been encountered in using EPC within the public sector. It appears unlikely that the Project will be able to sufficiently influence, transform and developed the market for EE building operations in Brazil within the time remaining unless the Project end date is extended.

- Due to the undeveloped state of the ESCO market in Brazil, the target of reaching USD93 million of increase in investments in EE for buildings within the public and private sector under a EPC approach should be revised downward. The three guarantees that have been issued under EEGM so far are for a total of USD 1.6 million, leveraging a total investment of USD9.44 million. It is highly unlikely that under the present market conditions the Project will be able to meet the target of USD 93 million of EE investments in the 18 months remaining until Project completion.
- If a minimum of 10 FIs and a value of at least USD 123 million of financed EE investments are to be enabled by the Project, the procedures for accessing the EEGM will have to be revised in order to reach a wider market of FIs. The target value of EE investments to be financed through FIs (i.e., at least USD 123 million in total) should be in line with the target value of increase in investment in EE in public and private buildings (i.e., USD 93 million).
- More importantly, the marketing efforts for identifying potential EE project candidates will have to be increased. Also unless the Project succeeds in designing a PBI mechanism that would be acceptable by the public sector, the amount of financed EE investments will have to be scaled down.
- The indicator named “Rate of public and private building owners/operators reported to use ESCOs services to improve their energy consumption (at least 80%)” is unclear and needs to be clarified together with its target.
- The number of EE projects implemented by the public and private sector using the EEGM mechanism or similar may be a more easily measurable indicator to assess progress in fostering EE investments in public and private buildings. Due to the undeveloped state of the ESCO market, it is difficult to forecast the amount of actual EE investments that could take place between now and the end of Project implementation
- A baseline for current average of energy consumption in building spaces expressed in kWh per m² and a specific target needs to be defined, if this indicator is going to be used. It does not appear feasible to define an overall kWh per m² reduction target for the public building sector.
- The grid emission factor that has been used in the PRODOC to estimate CO_{2e} emission reductions needs to be revised and the calculation of estimated GHG

emission reductions that would be expected from Project intervention needs to be recalculated based on the correct grid emission factor and the revised targets of EE investments. This should be done in close coordination with MMA and taking into consideration the National targets that have been agreed upon as a result of international negotiations on climate change and their impact on domestic climate change policy.

- The decision to incorporate the development of a Program of Activities (PoA) for EE in buildings for validation and registration under the CDM rules as proposed by the MMA should be confirmed and included in the Project Logical Framework.
- Most importantly, arrangements for the creation of Technical Advisory Committee should be finalized ASAP..

5.3 Outcome 1 – Enhanced EE investments through CB in EE in private and public buildings -

Capacity building and delivery of training sessions planned as part of this Output are well underway with a total of 14 workshops already contracted for delivery in 2014 which are expected to train at least 250 stakeholders. ESAF has been contracted to provide logistical support for the delivery of capacity building seminars to public building operators in its schools in 11 States across the country and by using distant learning tools.

The Project Website has not yet been set up but should be developed within the coming months and an on-line EE Reference Information Library is being set up. An EE specialist firm has also been contracted to support the implementation of the EEGM with additional technical products including the preparation of templates to perform and evaluate Energy Audits in buildings.

Additional alliances with civil society organizations with access to target sectors are needed.

- An extra effort should be made to create additional alliances with civil society organizations which would facilitate access to target sectors. Potential candidates include: *Câmara Brasileira da Indústria da Construção (CBIC)*, *Centro de Pesquisas de Energia Elétrica (CEPEL)*, *Conselho Brasileiro de Construção Sustentável (CBCS)*, *Associação Brasileira de Grandes Consumidores Industriais de Energia e de Consumidores Livres (ABRACE)*, *Associação da Indústria de Cogeração de Energia (COGEN)*. All of these institutions have been invited to participate in the development of the *PNEf*, a clear indication of their interest and / or participation in EE.
- Capacity building workshops with financial institutions and financial intermediaries should also be increased (more detail is provided under Section 5.6 below) given the current lack of awareness of financial benefits derived from EE investments on the part of financial institutions and financial intermediaries

5.4 Outcome 2: Access to EE services and commercial financing for public sector buildings enhanced with a PBI

Even though the Project has not been able to be included in the ES project that plans to implement the retrofit of 23 Federal buildings in Brasilia, it is currently undertaking an EE audit for the Environment and Culture Ministry building in Brasilia (*Bloco B*) which would include the certification of the building under the PROCEL/INMETRO EE labeling program. The output of this work will serve as a pilot for lessons learned under the SE initiative.

GIZ is performing an EE of the ESAF installations in Brasilia which would serve to design a pilot project for the public building sector as part of the PBI. Discussions with ESAF are ongoing in this regard.

Two other activities which are underway and will help in enabling an institutional framework for EE project development in the public sector. The first one consists of the preparation of a benchmarking study for energy consumption in public buildings which includes the conduct of 45 pre-audits in public buildings (i.e., 25 public buildings, 10 hotels and 10 bank agencies) with the expectation that it would result in the identification of at least 5 pilot cases to become part of the PBI. In addition, a study to examine the state of the art on the use of EPC schemes in Brazil is underway. Even though this study will primarily look at the EPC modalities which are currently being used by the private sector, it will also provide some advice as to how to adapt this contractual structures so they can be used by the public sector.

- The manner in which the PBI concept has been described in the PRODOC is too ambitious and would demand a level of governance that the Project does not have. Even though a comprehensive PBI like the one that is suggested in the PRODOC is highly relevant, its roles and responsibilities should be downgraded. When taking into consideration the role of the coordinating agency, the proposed PBI should primarily focus on reducing emissions in the public building sector.
- The implementation of the on line forum *Eficiência Energética em Edifícios públicos* (EEE) could be considered as a first step in this downgrading to be followed afterwards with a permanent EEE work group which operate under the ESAF EAD platform to make it sustainable over time. A bottom up approach with focus on disseminating information on EE experiences and highlighting the lessons learned from the actual implementation of EE investments in public buildings is likely to generate good results in terms of fostering the transformation of the EE market in buildings in Brazil.
- The second part of Output 2.2 “Public building owners/operators have been exposed to PBI program to access EE services and applied its recommendations” in same way acts as a duplicate of Output 1.1 which is geared to both private and public sector stakeholders. Accordingly, activities planned for this output ought to be merged with the activities of Output 1.1

- Due to the incipient state of the ESCO market in Brazil, the proposed target of 15 RFPs a year based on the PBI concept is unrealistic and should be adjusted downward to reflect the state of the ESCO market in the public sector.
- Additional case studies within the public sector need to be identified urgently. Under Outcome 2 in the PRODOC, the public sector is meant to include federal, state and municipal administration, as well as public service providers, such as schools and hospitals. An effort should be made to identify potential case studies beyond the federal administration. In this regard, an alliance with ANEEL which is a very important stakeholder of EE governance in Brazil should be explored.
- Given the difficulties in utilizing an EPC approach with the public sector other modalities such as the use of PPPs should be explored.
- It is important to analyze the implications of the recently approved *Medida Provisória* 630/13 which expanded the use of RDC

5.5 Outcome 3: Interest enhanced in the replacement of EE CFC-using chillers

The National Inventory of CFC- and HCFC-based liquid chillers has been completed in November 2013. Close to 92% of chillers that have been using CFCs have been replaced or retrofitted to use HFC R134 and in consequence there are virtually no chillers using CFCs in Brazil.

ToRs have been prepared to hire specialized consultants to prepare technical and information material for promotion and dissemination results. A call for proposal was advertised with no results. A second call should be organized shortly.

The implementation of workshops, capacity building and training for specialized professionals and owners interested in the replacement of CFC- and HCFC-based chillers is in the process of being outsourced with a budget of USD 100,000 and expected to be completed by March 2015. It is foreseen that 5 workshops will take place as follows: 1 in Brasilia, 2 in Sao Paulo, 1 in Rio de Janeiro and 1 in Fortaleza.

The results achieved on the retro-commissioning of the chillers in the Treasury and Finance Ministry will be used in the project proposals for retro-commissioning of existing chillers in order to demonstrate the benefits of lower operation and maintenance costs that can be achieved via the re-commissioning which can involve changes in operating procedures to overhauls of and retrofits to the entire chiller system depending on the condition of the existing chillers.

At this stage, the retro-commissioning of four existing chillers are being planned (2 in Brasilia and 2 in Sao Paulo).

- Output 3.5 should be revised based on recommendations from technical experts as to the feasibility of considering demonstration projects based on the replacement of HCFC chillers due to the fact that there are virtually no liquid chillers in operation which are still using CFCs

- The number of demonstration projects should be revised also since 22 projects appear to be too high given the current state of the CFC liquid chillers in Brazil.
- Energy audits are being conducted to identify potential candidates. In this regard, it is important to look for ways of integrating the results of the energy audits that will be undertaken under Component 2 with the EE audits which are planned as part of the activities of Component 1 and 3.

5.6 Outcome 4: EEGM made available to stimulate EE investment through ESCOs

The EEGM is operational and has issued the first three letters of guarantee in total value for USD1.6 million and thus was able to leverage a total investment of USD 9.44 million.

Negotiations with BNDES which was initially viewed as a key strategic ally for identifying potential candidates for the EEGM due to its relationship to the PROESCO program are still underway. •Due to the importance of having a pipeline of projects for the EEGM, conversations with other entities are underway. The IDB has recently succeeded in approving AGERIO to work with them and their green lines for EE and is also in negotiations with *Desenvolve SP* Sao Paulo State's Development Bank to achieve exactly the same. CAIXA has also expressed an interest in EEGM and negotiations are underway

Atla Consulting, the EEGM local administration, has been in contacts with other commercial banks that have expressed interest in using the EEGM for the financing of EE projects. Negotiations with another 10 direct clients are underway, 3 of which are in an advanced situation.

Consultancy for the preparation of templates and reference documents has been contracted and will serve to provide recommendations on how to improve and make the EEGM procedure more flexible for future applications.

- Since one of the objections for the EEGM that BNDES representatives expressed during the interview with the evaluator was related to the cap limit of USD 800,000 per project being too low, the impact of increasing this limit on a project per project basis should be analyzed, in particular if this were to open up the door for additional EE projects under the PROESCO program.
- The target of having at least 250 projects approved under the EEGM and provided with guarantees by the end of the Project needs to be revised downward. So far, only 3 projects have reached financial closing. Under the current assumption that 250 project will have to be approved by the Project before its implementation is completed (i.e., August 2006), that will translate into an average of 8 to 9 financial closings per months which appears as unrealistic.
- No target for the number of ESCOs supported by EEGM have been set which ought to be seen as a viable indicator to measure the performance of the EEGM.

- Given the current lack of awareness of financial benefits derived from EE investments on the part of local commercial banks additional workshops specifically targeted to financial institutions should be planned.
- Exploration of opportunities for cooperation with two other EE programs which are still under execution in Brazil (i.e., IFC-supported Pro-Hotels and Renewable Energies and EE in Cities in Rio de Janeiro) should continue in order to identify potential candidates for the EEGM .Also, a stronger interaction with hotel associations and institutions should prove useful to raise awareness of the EEGM across the sector.
- The handling of the different end dates between the Project and the EEGM in relation to the final evaluation reporting should be addressed.
- It is important that discussions on the pros and cons of different exit strategies are undertaken in the short to medium term since they may result in changes to the design of the EEGM facility.

5.7 Outcome 5: Project Monitoring and Evaluation Support

In terms of M&E the project has been reporting to UNDP and GEF via the submission of the PIRs for 2012 and 2013 and the preparation of the AOPs for 2013 and 2014.

The Mid-Term Evaluation which was planned to take place in early 2013 had been delayed given that major activities including the closing of pilot financing projects under the EEGM had recently taken place and it was preferable to have consistent results of both the IDB and UNDP components to undertake the Mid Term Evaluation.

The need to collect baseline information and to review the feasibility of the targets has been raised at the Inception Workshop and commented in the various PIRs that have been conducted so far but no specific actions have been taken in this regard, most probably due to the poor level of dialogue achieved among project participants as a result of the difficulties in establishing the NPSC and the Technical Coordination Committee.

- Indicators and targets of the various Outcomes should be revised / clarified as per the recommendations made in Sections 4.3.1 and 4.3.2 above.

5.8 Outcome 6: Overall Project Management Support

Risks associated with the lack of creation of NPSC have been underestimated. The formation of a Technical Advisory Committee has been proposed but it has not been implemented yet. This set back seems to have been responsible for the significant delays in project implementation and poor governance of the Project.

- The detachment of the MME from the Project has negatively impacted on project governance and precluded the establishment of the NSPC, as originally proposed in the PRODOC. The alternative of setting up a Technical Advisory

Committee which was decided in May 2013 has not yet been implemented leaving the Project rudderless.

- An urgent decision is needed to decide on a suitable governance structure for the Project that will guarantee that timely and well informed decisions will be made. If the final decision is to set up a Technical Advisory Committee, in lieu of the initially proposed NPSC, measures should be taken to ensure that this results in a suitable governance structure for the Project.
- As a starting point a real understanding of the priorities, motivations and constraints of the key stakeholders in the Project (i.e., GEF, UNDP, IDB and the government of Brazil) has to be reached since there appears to be some level of confusion as to the specific responsibilities and roles of each of the parties with regard to project implementation and in particular to procedures and approvals for GEF fund disbursements.
- Whichever form of governance structure is decided upon it will be important to ensure that regular meetings take place to guarantee timely progress reviews and be able to identify delays and/ or obstacles in outcome implementation well in advance.
- It is also important that the Technical Advisory Committee gets established soonest and starts to meet regularly. Organizations like ABESCO and other academic institutions with a direct interest in EE should be made part of the Technical Advisory Committee due to their wealth of knowledge of the state of the ESCO market and direct access to ESCO players.
- The Technical Advisory Committee agenda could be organized in such a manner to avoid any potential conflict of interest by restricting the presence of potential service providers to sessions during which strategic decisions would be made.
- The PMU has been set up but needs to be strengthened. The Project National Coordinator has been appointed and the Project Technical Manager and its assistant have been hired.
- The overall disbursement rate is still substantially below what has been initially budgeted. There seems to be conflicting issues between the rules that have been set up for disbursement of GEF and internal procedures at the MMA. Consequently, procurement and contracting activities should be improved. Support from a procurement/ contracting expert should be sought to solve this issue in order to facilitate disbursement approvals.
- Coordination between UNDP and IADB has been effective and should continue to be a high priority in order to ensure that capacity building and project identification activities are coordinated effectively at the operational level in order to ensure the development of a strong pipeline of project that will become candidates for the EEGM.
- Consideration should be given to hiring an assistant that would report directly to the Project Technical Manager in order to strengthen the coordination of the various activities that are being undertaken by UNDP, IDB and the MMA as well as to expedite the preparation and approval of Terms of Reference of the supporting contracts related to such activities. The role and functions of this

person should be clearly defined including how this person would assist on Project external communications.

- The Project implementation has improved substantially and thanks to having the EEGM operational is now ready to begin achieving clear results. However, the Project has had at least a 3 year delay to start implementation; it should have begun in 2009 but in fact started in 2012. Given the high potential for EE that Brazil offers and after all of the hard work that has been invested in designing and implementing the EEGM consideration should be given to extending the end date of the project until 2017 or 2018 when in fact GEF and IDB have already agreed that the EEGM has until June 2018 to issue guarantees plus a 7 year monitoring period since guarantees can be issued for up to 7 years. Having the same end dates for the Project and the EEGM ought to provide for a more meaningful Final Evaluation.

Annexes

Annex 1

Terms of Reference

IC 0170/2013 - INTERNATIONAL CONSULTANT UNDP BRAZIL

"MID-TERM EVALUATION PROJECT BRA/09/G31"

**"PROJEC BRA/09/G31 –
MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN BRAZIL"**

MID-TERM EVALUATION

Please find enclosed Terms of Reference and Evaluation Criteria for an IC Selection Process for hiring an International Consultant for the Mid-Term Evaluation of Project BRA/09/G31 - "MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN BRAZIL".

The Procurement Unit of UNDP Brazil would appreciate receiving proposals for the above mentioned selection. The submission of technical (CV) and financial proposals (in US\$), in separate files, should reach the e-mail ic.procurement.br@undp.org no later than **12 December 2013**.

PLEASE CONFIRM YOUR AVAILABILITY.

IC Selection Team
Procurement Unit
UNDP Brazil
ic.procurement.br@undp.org

If you request any additional information it will be provided by e-mail ic.procurement.br@undp.org

**PLEASE REFER TO IC 0170/2013 – UNDP INTERNATIONAL IC CONSULTANT - MID-TERM
EVALUATION PROJECT BRA/09/G31.**

6th December 2013

BRA 09/G31– Market Transformation for Energy Efficiency in Brazil

Market Transformation for Energy Efficiency in Brazil (PIMS 3665)
Atlas Project No.00055992

Terms of Reference

Mid-Term Evaluation

December 2013

Country(ies):	Brazil
ATLAS Award ID:	00058719
PIMS Number:	3665
GEF Focal Area:	Climate Change
GEF Strategic Objective:	CC-SP1-Building EE
GEF Budget (USD):	13,500,000
Co-Financing Budget (USD):	122,774,000
Project Document Signature date:	October 9 th , 2007
Date of first disbursement:	September, 2009
Original Planned Closing Date:	December 2011
Executing Agency:	MMA
Date of Project Closure	December 2016



1. INTRODUCTION

UNDP/GEF Monitoring and Evaluation (M&E) policy

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives:

- i) to monitor and evaluate results and impacts;
- ii) to provide a basis for decision making on necessary amendments and improvements;
- iii) to promote accountability for resource use;
- iv) to document, provide feedback on, and disseminate lessons learned.

A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project – e.g. periodic monitoring of indicators -, or as specific time-bound exercises such as mid-term reviews, audit reports and final evaluations.

In accordance with applicable policies for UNDP/GEF projects, all GEF-funded projects implemented by UNDP are subjective to a mid-term and a final independent evaluation. According to the Project Document of the project BRA09/G31 'Market Transformation for Energy Efficiency in Brazil' mid-term evaluation is foreseen.

The current Terms of Reference of the Mid-Term Evaluation of the 'EE Market Transformation Project' outline what is expected from the Evaluation Team/Evaluator and briefly reflect key aspects of the project and its background. For any description on methodology, procedures and content of the evaluation report reference is made to the UNDP Evaluation Guidance for GEF Financed Projects (Annex 1).

Brief project description

Brazil has an enormous energy savings potential in all sectors of its economy. Energy saving policies and programs represent a potential least-cost contribution to the National energy supply in the medium and long term. Significant energy savings can be obtained through initiatives addressing heating, ventilation and air conditioning (HVAC) systems in buildings. In commercial and public buildings, 64% of the energy consumption corresponds to air conditioning and lighting. In the industrial sector, the total potential is of the order of 10-15 percent of total consumption per year.

Based on a rough evaluation, it can be estimated that the Brazilian energy efficiency (EE) market in the building sector represents approximately USD 4.77 billion per year. But, the current market opportunities for EE projects are limited due to a lack of confidence by both the end-user and the lender in the guaranteed energy savings projections provided by Energy Services Companies (ESCOs). Local banks are not familiar with the performance risk associated with energy savings projects and are not willing to consider energy savings as collateral. Funding opportunities for EE projects remain limited as accessing third party financing and performance-based contracting, is virtually impossible for public buildings due to legal barriers, and lack of knowledge and understanding by various public sector stakeholders.

To help removing the above-mentioned finance, capacity, technology and policy barriers that currently stand in the way of the widespread adoption of energy-efficient measures and technologies in buildings in Brazil, GEF support is requested in the amount of USD 13.5 million to implement a capacity building and financial tools and mechanisms program that will help realize market transformation. There is significant potential to achieve energy savings and reduce greenhouse gas emissions from the buildings market in Brazil. The program will encourage cross-convention synergies with the Montreal Protocol Chemicals to include a chiller replacement component, thus contributing to the phase-out of CFCs and HCFCs. The project will positively influence the EE market in Brazil and will help chart a less carbon-intensive and more sustainable energy consumption path in Brazil and subsequently in the Latin American Region as a whole.

The project will strive to remove the identified barriers through a comprehensive and integrated approach that will focus on:

- Building awareness and capacity amongst various market actors;
- Creating a favorable policy and financing environment to eliminate the barriers specific to the implementation of EE projects in public buildings and facilities;
- Establishing an integrated approach for potential EE enhancement in buildings while demonstrating the EE potential of CFC/HCFC-based chillers replacement; and,
- Under the lead of the IDB, implementing an energy efficiency financial facility to reduce the risks perceived with financing EE projects.



To address capacity barriers with respect to the institutional framework and the lack of awareness amongst target end users, the project supports a nationwide technical assistance program targeted to all of the relevant stakeholders identified during the project conception phase. This program will develop a range of knowledge products focusing on the technical, environmental and economic merits, and technical options (associated with EE practices) for public and private building owners or operators that can lead to broader scale replication in Brazil.

By taking a holistic view of the market, and by targeting both the supply and demand side of the EE technologies market, the project boosts its chances of success and hence increase its potential impact on reducing GHG emissions. Improving EE in building operations will contribute to lowering GHG emissions from an energy consumption perspective, as well as through the reduction of CFC/HCFC emissions which have a very high global warming potential. The implementation of this project can position Brazil as one of the front runners in the area of market transformation through uptake of EE technologies, with wide-ranging applications and replication potential outside Brazil.

The goal of the project is to influence, transform, and develop the market for energy-efficient building operations in Brazil and move towards a less carbon-intensive and more sustainable energy consumption path in the country. The project will contribute to improving EE in the Brazilian commercial and public building sectors by 4.00 million MWh of electricity over 20 years, and intends to contribute to direct project GHG emissions reductions in the order of 2.01 million tons of CO₂ and additional direct post-project and indirect emission reduction of about 16.06 million tons of CO₂.

The objective of this project is to foster EE investments in private and public buildings, by addressing the technical and financial barriers which persist despite past and present public and private sector programs/initiatives in this domain.

2. OBJECTIVES OF THE EVALUATION

The Mid-Term Evaluation (MTE) will be conducted according to guidance, rules and procedures for such evaluations established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects (Annex 1). A key principle of the evaluation is that it must provide clearly documented evidence and analysis, and unbiased assessment. The four components of the project will be analyzed:

- Outcome 1 - Enhanced EE investments through Capacity Building (CB) in private and public sector buildings
- Outcome 2- Access to EE services and commercial financing for public sector buildings enhanced with a Public Building Initiative (PBI)
- Outcome 3: Interest enhanced in the replacement of energy-inefficient CFC-using chillers (BRA/12/G77)
- Outcome 4: Energy Efficiency Guarantee Mechanism (EEGM) made available to stimulate EE investment through ESCOs – its capacity to trigger the market for energy efficiency and not how the mechanism operates.

With the objective to strengthen the project adaptive management and monitoring, mid-term evaluations are intended to identify potential project design problems, assess progress towards the achievement of objectives and make recommendations regarding specific actions that might be taken to improve the project. Through the identification and documentation of lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects) an MTE also enhances organizational and development learning.

The main stakeholders of this project that shall be interviewed are:

- Ministério do Meio Ambiente (Ministry of Environment) (MMA),
- Ministério de Minas e Energia - Ministry of Mines and Energy- (MME) ,
- Ministry of Planning- Coordinator of PES (Sustainable Esplanada Program)
- BNDES (Development Bank of Brazil),
- PROCEL/ Eletrobras (Energy Conservation Program)
- ANEEL(Brazilian Electricity Regulatory Agency),
- ESAF (Superior School of Finance Administration);
- ABESCO (Associação Brasileira das Empresas de Serviços de Conservação de Energia) - Association of Brazilian Energy Service Companies;
- Atla Consultoria (Local administrator of EEGM)
- APS Engenharia (ESCO that received the first letters of Guarantee)



3. SCOPE OF THE EVALUATION

The evaluation will cover the five major criteria which are relevance, effectiveness, efficiency, results and sustainability. These five evaluation criteria should be further defined through a series of questions covering all aspects of the project intervention, broken out in three main sections:

1. Project Formulation: Logical framework, Assumptions and Risks, Budget (co-finance) and Timing
2. Project Implementation: IA/EA supervision and support, monitoring (including use of tracking tools) and evaluation, stakeholder participation, adaptive management.
3. Achievement of Results: Outcomes, Impacts, Catalytic effect, Sustainability, Mainstreaming (e.g. links to other UNDP priorities, including related support programmes set out in the UNDAF and CPAP, as well as cross cutting issues).

The UNDP Evaluation Guidance for GEF Financed Projects (Annex 1) details which of the project components need to be rated as well as a definition of the six point rating scale (from Highly Satisfactory to Highly Unsatisfactory).

4. PRODUCTS EXPECTED FROM THE EVALUATION

Product 1: Draft report and Oral presentation of main findings of the evaluation to UNDP CO and Project Team before the mission is concluded in order to allow for clarification and validation of evaluation findings

Product 2: Evaluation report in line with the Report Outline described in the Guidance.

Payment and Delivery of products

Product	Amount (%)	Delivery time (after contract signature)
1	50	20 days
2	50	30 days

5. METHODOLOGY OR EVALUATION APPROACH

The GEF methodology is to follow the Guidance (Annex 1) and the Evaluation Team is to present a fine-tuned proposal in the Inception Report which is to be discussed with the UNDP-Brazil country Office and the projects Coordination Unit.

A list of documents to be reviewed by the Evaluation Team is attached in Annex 2.

6. EVALUATION TEAM AND PROFESSIONAL ABILITIES REQUIRED

The mid-term evaluation will be undertaken by the External Evaluator and must be performed in close cooperation with the Coordination Team of Brazilian 'EE Market transformation' Project which will assist and support with documents and all information needed for the evaluation process.

6.1 Eligibility Criteria and Technical Competencies for the External Evaluator

Experience (mandatory):

- Education: University degree in Engineering, Architecture, Environmental or Social Sciences, Administration, Economics or related fields.
- Experience in development, and/or implementation and/or monitoring of projects focused on energy efficiency (EE) policies and/or energy efficiency financing and/or Climate change mitigation through EE at national and/or international level;
- Experience in monitoring/evaluation of policies and/or technical cooperation projects;
- Fluency in English.



Qualifying CV criteria:

- Post-graduate studies level;
- Years of experience in development, and/or implementation and/or monitoring of projects focused on energy efficiency policies and/or financing at national and/or international level;
- Years of experience in monitoring /evaluation of policies and/or technical cooperation projects;
- Authors or co-authored book, book chapter and/or scientific articles on topic related to the object of the present consultancy (energy efficiency in buildings, energy efficiency financing, climate change mitigation through efficiency measures);
- Experience in multi-disciplinary and inter-institutional projects.

Qualifying interview criteria:

- Oral and written presentation skills with capacity to communicate effectively with different stakeholders and different target groups (in English and Spanish);
- Knowledge on the Brazilian energy efficiency market;
- Acquaintance with issues related to energy efficiency in buildings, challenges regarding the public sector, regulations/ programs in place and the connections with climate policies at national and/or international level;
- Ability to formulate questions, set priorities and implement plans consistent with project interests.

The consultant in charge of the MTE will be held to the ethical standards referred to in the Guidance (Annex 3) and are expected to sign the Code of Conduct (Annex 3) upon acceptance of the assignment.

7. IMPLEMENTATION ARRANGEMENTS

Management Arrangements and Supervision

The MTE is a requirement of UNDP and GEF and solicited and led by the *UNDP-Brazil* as GEF implementing agency. The *UNDP-Brazil* has overall responsibility for the coordination and logistical arrangements of the evaluation as well as day-to-day support to the evaluation team (travel, accommodation, office space, communications, etc) and timely provision of per diems and contractual payments. The *UNDP-Brazil* will also organize the site missions (travel arrangements, meetings with key stakeholders and beneficiaries, interviews, field trips). The evaluation team will be briefed by the UNDP Country Office and the Regional Coordination Unit (RCU) upon the commencement of the assignment, and will also provide a terminal briefing. Other briefing sessions may be scheduled, if deemed necessary.

Payment modalities and specifications: The evaluator will be contracted directly from the project budget. Payment will be 50% at the submission of the first draft to the UNDP-CO, UNDP-GEF RCU and PT, and the other 50% once the final report has been completed and cleared by both the UNDP-CO and UNDP-GEF RCU. The quality of the evaluator's work will be assessed by the UNDP-CO and UNDP-GEF- RCU. If the quality does not meet standard UNDP expectations or UNDP-GEF requirements, the evaluators will be required to re-do or revise (as appropriate) the work before being paid final installments.

These Terms of Reference follow the UNDP-GEF policies and procedures, and will be agreed upon by the UNDP-GEF RCU, UNDP Country Office and the Project Team. The final report must be cleared and accepted by UNDP before being made public, therefore, the UNDP-CO and UNDP-GEF-RCU will have to formally clear the report (as per the Approval Form in Annex 4).

7.1 Timeframe, resources, Location and logistical support and deadlines

7.1.1 Timeframe

The total duration of the evaluation will be **30 days - preferably during January, February and March 2014** - according to the following plan:



Preparation before field work: (2-4 days including travel time)

- Acquaintance with the project document and other relevant materials with information about the project (PRODOC, Inception Workshop Report, Quarterly Progress Reports, PIRs, Baseline Tracking Tools, Steering Committee's reports and minutes, Annual Operational Plans (AOPs/POAs), any additional M&E report, Terms of Reference of ongoing studies, etc);
- Familiarization with overall development situation of country (based on reading of UNDP - Common Country Assessment and other reports on the country);
- Inception Report preparation, including methodology, in cooperation with the UNDP Country Office and the Project team;
- Initial telephone discussion with UNDP-GEF-Regional Technical Advisor.

Mission to pilot areas: (12 -15 days)

- Meeting with UNDP Country office team;
- Meetings with key stakeholders in country;
- Collection and review of all available materials with focused attention to project outcomes and outputs in general;
- Observation and review of completed and ongoing field activities (capacity development, awareness /education, demonstration projects and activities, etc);
- Interviews with key beneficiaries and stakeholders, including representatives of local authorities, local environmental/energy authorities, associations' stakeholders, etc.

Draft report (6-8 days): To be provided within two weeks of mission completion

- Final interviews / cross checking with UNDP CO, UNDP RCU and Project team;
- Drafting of report in proposed format;
- Telephone review of major findings with UNDP CO and UNDP-GEF RTA;
- Completing of the draft report and presentation of draft report for comments and suggestions within 1 month.

Final Report (2 days)

- Presentation of final evaluation report for the Project coordination Team and special guests will held in Brasília.

7.1.2 Resources

The consultant must propose a total price for each product, accounting for all working hours to implement the activities and services necessary to deliver all products. The Price should consider a gross value, including expenses regarding taxes required by the applicable national legislation. The Project will pay for the costs of travel expenses (transport, per diem), if necessary.

7.1.3 Location

Home based, considering field missions for verification, if needed, and meetings in Brasilia – DF and Sao Paulo - SP

7.1.4 Availability

The candidate must have availability to start the work immediately after contract and be available to travel and meetings.



8. SELECTION / EVALUATION CRITERIA

The proposal submitted will be disregarded in breach of the provisions of this Notice: file 1 containing the CV and File 2 containing the Proposed Price.

The final criteria for this procurement process will be TECHNICAL CAPACITY AND PRICE for the final evaluation and selection.

1. CLASSIFICATION OF THE TECHNICAL PROPOSALS (CV AND INTERVIEW)

The maximum score in the Technical Qualification is 100 points.

Qualification criteria are divided into 02 (two) steps:

- a) **Step 1 (qualification / no scoring):** analysis of the CV relating to compliance with the mandatory requirements specified in the Terms of Reference.

Candidates who do not meet the minimum mandatory criteria described in Item 6 of the Term of Reference will be disqualified at this stage.

- b) **Step 2 (classification / scoring):** CV analysis and interview

Phase 1: CV scoring (70 points)

The criteria for CV analysis are contained in the table below. Only will be analyzed the resumes of candidates accepted under Step 1 of the Qualification.

Criteria for CV Scoring - 2nd Step- Phase 1 of Technical Qualification			
Criteria	Score	Weight	Maximum Score
Post Graduated Studies MSc – 3 points ; PhD – 5 points	1 to 5	1	5 points
Years of experience in development, and/or implementation and/or monitoring of projects focused on energy efficiency (EE)/ energy efficiency financing and/or climate change mitigation through EE at national and/or international level. 1 < 4 years – 1 point; 4 ≤ 6 years – 2 points; 6 ≤ 8 – 3 points; 8 ≤ 10 – 4 points; > 10 – 5 points.	1 to 5	4	20 points
Years of experience in monitoring/evaluation of policies or/and technical cooperation projects. 1 < 4 years – 1 point; 4 ≤ 6 years – 2 points; 6 ≤ 8 – 3 points; 8 ≤ 10 – 4 points; > 10 – 5 points.	1 to 5	4	20 points
Authors or co-authored book, book chapter and /or scientific articles on topic related to the object of the present consultancy 1 point per publication.	1 to 5	1	5 points
Experience in multi-disciplinary and inter-institutional projects. 1 to 2 projects - 1 point; 3 to 4 projects - 2 points; 5 to 6 projects - 3 points; 7 to 8 projects - 4 points; 8 projects and above - 5 points	1 to 5	4	20 points
Maximum score of the 2nd Step of the Technical Qualification			70 points

**Phase 2: Interview (30 points)**

The criteria for the interview are contained in the table below. Only will be analyzed the resumes of candidates accepted under Step 1 of the Qualification.

Criteria Interview - 2nd Step – Phase 2 of Technical Qualification			
Criteria	Score	Weight	Maximum Score
Oral and written presentation skills with capacity to communicate effectively with different stakeholders and different target groups. Poor – 1 point; Needs improvement – 2 point; Good – 3 points; Very Good -4; Excellent – 5 points.	1 to 5	1	10 points
Knowledge on the Brazilian energy efficiency market Poor – 1 point; Needs improvement – 2 point; Good – 3 points; Very Good -4; Excellent – 5 points.	1 to 5	2	10 points
Acquaintance with issues related to energy efficiency in buildings, challenges regarding the public sector, regulations/ programs in place and the connections with climate policies at national and/or international level. Poor – 1 point; Needs improvement – 2 point; Good – 3 points; Very Good -4; Excellent – 5 points.	1 to 5	1	5 points
Ability to formulate questions, set priorities and implement plans consistent with project interests. Poor – 1 point; Needs improvement – 2 point; Good – 3 points; Very Good -4; Excellent – 5 points.	1 to 5	1	5 points
Maximum score of the 2nd phase of the Technical Qualification			30 points

Scoring:

The Evaluation Committee will be composed of at least three members who assign individual evaluation scores. The final score of the consultant under evaluation will be the weighted average of individual scores of the evaluators.

Individual scores will be awarded in accordance with the information submitted in the candidate's Curriculum Vitae and their performance in the interview. Therefore, it is important that candidates clearly indicate in their CV the professional experience required in both the qualification and classification phases, so that the evaluation committee may conduct a proper analysis.

The interview will serve as inputs for the application of the score provided in the table above and will be the moment that the evaluation committee will collect general information and ask about the availability of the consultant for the task.

The interview will be conducted by telephone, Skype or other remote communication device available. Applicants will be notified with a minimum of 24 hours, via e-mail or telephone, the date and time for the interview. The interviews will have at most one hour.



2. CLASSIFICATION OF BUSINESS PROPOSALS (PRICE) – FINAL

Only the business proposals (price) of the candidates who receive the final Technical Score with a minimum of **80 points** in Step 2 (Phase 1 CV Review and Phase 2 Interview Course) will be taken into consideration.

The **final Score – FS** of the process will be given by the sum of the **final Technical Score – TS** multiplied by a factor of **0.70**, with the **PS Score of the price proposal multiplied by the factor 0.30**, i.e:

$$FS = TS \times 0.70 + PS \times 0.30$$

The score of the Price Proposal – PS will be calculated according to the following:

$$PS = 100 \times LPP / Ppe$$

where:

PS = score of the price proposal

LPP = lowest price proposal

Ppe = price proposal under evaluation

The lowest price proposal will score one hundred (100).

It will be selected the proposal that achieves the higher final Score.

3. SPECIAL CONSIDERATIONS

This process will be conducted by UNDP, following the rules and guidelines of the organism (simplified selection and procurement through IC).

"According to the United Nations rules, hiring active servers of the Federal, State, Federal District or Municipal, direct or indirect, as well as employees of its subsidiaries, is allowed only in special circumstances."



9. ANNEXES

Annex 1: UNDP Guidance on Evaluation of GEF Financed Projects (Version for external evaluators)

Annex 2: List of Documents to be reviewed by the evaluators

Annex 3: Evaluation Consultant Code of Conduct Agreement Form

Annex 4: Evaluation Report Clearance Form to be completed by CO and RCU and included in the final document



Annex 1: UNDP Guidance on Evaluation of GEF Financed Projects (Version for external evaluators)

Separated file : UNDP EVALUATION GUIDANCE FOR GEF-FINANCED PROJECTS VERSION FOR EXTERNAL EVALUATORS.



Annex 2: List of Documents to be reviewed by the evaluators

- PRODOC
- Inception Workshop Report
- Quarterly Progress Reports
- PIRs – Project Implementation Reports
- POAs- Programs of Activities (annual)
- Baseline Tracking Tools
- Consultive Committee's reports and minutes
- Annual Operational Plans (AOPs/POAs)
- Local consultant's reports and products
- Terms of Reference of ongoing studies:
 - IDB templates
 - Retrofit project for the Environment Ministry Building
 - Performance contracts Study
 - Capacity Development Program
 - Capacity development with ESAF



Annex 3: Evaluation Consultant Code of Conduct Agreement Form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and: respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: _____

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at (place)on _____

Signature: _____



Annex 4: Evaluation Report Clearance Form to be completed by CO and RCU and included in the final document

Reviewed and Cleared by

UNDP Country Office

Name: _____

Signature: _____ Date: _____

UNDP- GEF- RCU

Name: _____

Signature: _____ Date: _____

Annex 2

List of Key Documents Reviewed

General documentation

- UNDP Evaluation Guidance for GEF-Financed Projects
- Joint Public Approaches for Energy Efficiency Finance - IEA

Project Documentation

- PRODOC
- CEO Endorsement / Approval file
- Inception Workshop Report – March 5, 2010
- PIRs- Project Implementation Reports 2012 and 2013
- POAs – Program of Activities 2013 and 2014
- Plano de Capacitação em Eficiência Energética 2013

Local Consultant's Reports, Activities and Products

- *Acordo de Cooperação Técnica entre MMA e ESAF*
- *Planejamento Mensual de Atividades 2014- BRA/12/G77 Chillers*
- *Plano de Trabalho MMA – ESAF 2013*
- *Modelo de Relatório de Diagnóstico Energético para Projetos de Eficiência Energética em Edifícios / Ação Engenharia e Instalações Ltda*
- *Termo de Referência para Contratação de Consultoria para Realizar o Projeto de Retrofit (Reforma para Ampliar Desempenho de Eficiência Energética) do Bloco B da Esplanada dos Ministérios*
- *Termo de Referência para Contratação de Consultoria para Biblioteca de Informações de Apoio a Edificações Eficientes / PROCEL*

EEGM

- EEGM - Mecanismo de Garantia para Projetos de Eficiência Energética / Informações necessárias para apresentação do projeto
- EEGM Mecanismo de Garantia em Eficiência Energética / Atla Consultoria presentation
- Contrato de Garantia Parcial de Crédito
- Contrato de Compartilhamento de Garantia
- Contrato de Reembolso de Garantia Parcial de Crédito

Chillers

- PRODOC
- Inventario chillers

Annex 3

List of Interviews during Field Mission

Lista de Entrevistados – Avaliação de meio-termo BRA/09/G31

Arrival: 09/02/2014– Rio de Janeiro 10:41

- **10/02- Rio de Janeiro**

9:00 hs

PROCEL (Programa de Conservação de Energia Elétrica)/ Eletrobras

Fernando Perrone (Gerente do Departamento de Projetos de Eficiência Energética – PFP)

Tel: 55 21 2514-5919 | fax: 55 21 2514-5767 perrone@eletrobras.com, Marco Aurélio Moreira, Gerente do Divisão de Eficiência Energética no Setor Privado, Joao Queiroz Krause, Divisão de Eficiência Energética no Setor Privado, Estefania Neiva de Mello, Arquiteta e Urbanista Divisão de Eficiência Energética no Setor Privado

Local: Avenida Rio Branco, 53/14º andar – Centro – Rio de Janeiro

- **10/02 - Brasília**

15:30

Protocolo de Montreal

Marina Ribeiro (Gerente Protocolo Montreal PNUD) / **Magna Luduvica** (Coordenadora Ozonio Ministério do Meio Ambiente)

Local: PNUD Brasília - Programa das Nações Unidas para o Desenvolvimento (PNUD). Setor de Embaixadas Norte. Quadra 802, Conjunto C, Lote 17. Brasília.

16:30

PNUD- Brasil

Rose Diegues (Oficial de programa – Coordenadora GEF Brasil) / Ludmilla Diniz (Coordenadora Técnica BRA/09/G31)

Local: PNUD Brasília

18:00 - Conference call

UNDP - NY

Marcel Alers- Head, Energy, Infrastructure, Transport&Technology Manager of MDG Carbon Facility, UNDP - Global Environment Facility United Nations Development Programme.

Contacts: marcel.alers@undp.org/ skype name: theccboss/ Phone: +1-212-906-6199)

- **11/02 – Brasília**

11:00

SMCQ – Secretaria de Mudanças Climáticas e Qualidade ambiental (Ministério de Meio ambiente –MMA)

Entrevistados: Alexandra Maciel (Analista de infraestrutura) / Thiago Mendes (Gerencia de mudança do clima e sustentabilidade)

Local: MMA - Edifício Marie Prendi Cruz, SEPN 505 norte, Bloco B, 3º andar.

14:30

Ministério do Planejamento – Coordenador do PES (Programa Esplanada Sustentável)

Luiz Guilherme Pinto Henriques Coordenador Geral de Inovacao e Assuntos Orcamentarios e Federativos /Isabella Amarau

Local: SEPN 516 bloco D Lote 8 , sala 102

Fone:2020-2480

18:00 (Presencial e conference call)

IDB + Atla Consultoria

Alvaro Silveira (Atla Consultoria - Administrador local EEGM)/ Matthew Mc'Clymont

Local: PNUD Brasília & Conference call with IDB Washington

- **12/02 - Brasília**

9:30

Ministério de Minas e Energia - MME

Carlos Alexandre Principe Pires – Coordenador geral de Eficiência Energética - Secretaria de Planejamento e Desenvolvimento Energético carlos.pires@mme.gov.br

Local: MME- Esplanada dos Ministérios Bloco U, sala 530.

Fone: 2032-5014/ 2032- 587a

14:30

ANEEL (Agência Nacional de Energia Elétrica)

Máximo Pompermeyer - Superintendente de Pesquisa e Desenvolvimento e Eficiência Energética – SPE maximo@aneel.gov.br

Tel: (61) 2192-8918

- **13/02 – Brasília**

10:00

ESAF (Superior School of Finance Administration) - Ministério da Fazenda

Paulo Mauger (Diretor de Cooperação Técnica), Raquel Lima

Contatos: 55 (61) 3412 6119 / 55 (61) 9100 3697

Local: ESAF – Jardim Botânico

14:00 – Conference Call (rescheduled for February 17, 2014)

ABESCO (Associação Brasileira das Empresas de Serviços de Conservação de Energia)

Rodrigo Aguiar – Presidente rodrigo.aguiar@agesconsultoria.com.br
Fone (11) 3549-4525/ skype: rodrigoal / celular: 11. 996367146

15:30 Conference call plus luncheon in Rio de Janeiro on February 14, 2014.

Raymundo Aragão – Consultor do estudo: Estado da arte dos contratos de eficiência energética no Brasil

Contatos: (21) 2721 4678 / (21) 99923 4280/ skype: raragaoneto

16:30 - Conference call

APS Engenharia (Primeira ESCO a receber garantia EEGM)

Alexandre Behrens - Gerente de Relacionamento com o Mercado

(51) 3378.3838 / (51) 3378.3851 / (51) 9878.2674/

- **Rio de Janeiro (14/02)**

11:00

BNDES

Gaspar Giacomini (Administrador - Departamento de Meio Ambiente)/ Odette Campos
(Departamento de Meio Ambiente)

Telefone: (21) 3747-9439 / Tel: +55 21 2172-6084

Local: BNDES

14:30 (Conference call) rescheduled for February 17, 2014

Banco Indusval & Partners

Pedro José Guerra

e-mail: pguerra@bip.b.br

telefone: 11 3315 6937

Debriefing - MMA - Alexandra Maciel and Thiago Mendes plus Ludmilla Diniz UNDP – rescheduled for February 18, 2014

Debriefing IDB – Matt McClymont, Patrick Doyle and Vanessa Matos IDB and Alvaro Silveira Atla Consultoria - rescheduled for February 25, 2014

Debriefing UNDP - Oliver Page - Regional Technical Adviser - Climate Change Mitigation Environment and Energy Practice United Nations Development Program
(oliver.page@undp.org)

Departure (14/02) :Rio de Janeiro - 22:40