REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

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PART I: PROJECT INFORMATION

Project Title: **Delivering the transition to energy efficient lighting in Chile**			
Country(ies):	Chile	GEF Project ID:[1]	5150
GEF Agency(ies):	UNEP	GEF Agency Project ID:	00940
Other Executing Partner(s):	Fundación Chile	Resubmission Date:	24/06/2015
GEF Focal Area (s):	Climate Change	Project Duration(Months)	36
Name of Parent Program (if applicable): For SFM/REDD+ X		Project Agency Fee ($):	236,143

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (USD)	Cofinancing (USD)
CCM-1 Technology Transfer Promote the demonstration, deployment, and transfer of innovative low-carbon technologies	Technology successfully demonstrated, deployed and transferred Indicator: Percentage of technology demonstration reaching its planned goals	Innovative low-carbon technologies demonstrated and deployed on the ground	GEFTF	655,546	2,650,000
	Enabling policy environment and mechanisms created for technology transfer Indicator: Extent to which policies and mechanisms are adopted for technology transfer	National strategies for the deployment and commercialization of innovative low-carbon technologies adopted	GEFTF	381,849	2,550,000

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

CCM-2 Energy Efficiency: Promote market transformation for energy efficiency in industry and the building sector	Appropriate policy, legal and regulatory frameworks adopted and enforced. Indicator: Extent to which energy efficiency policies and regulation are adopted and enforced	Energy efficiency policy and regulation in place Energy savings achieved	GEFTF	1,272,696	4,100,000
CHEM-3 Pilot sound chemicals management and mercury reduction	Country capacity built to effectively manage mercury in priority sectors Indicator: Countries implement pilot mercury management and reduction activities.	Countries receiving GEF support for mercury management and reduction, on a pilot basis.	GEFTF	45,622	0
		Subtotal		2,355,713	9,300,000
		Project Management Cost	GEFTF	130,000	119,843
Total project costs				**2,485,713**	**9,419,843**

B. PROJECT FRAMEWORK

Project Objective: Promote the rapid uptake of high energy efficient lighting technologies through the transformation of efficient lighting products markets, thereby reducing electrical demand and consumption and the related greenhouse gas (GHG) emissions.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (USD)	Confirmed Cofinancing (USD)
1. Strengthening monitoring, verification and enforcement (MVE) capacities to ensure an effective transition to efficient lighting markets	TA	1.1 Capacities to Monitor, Verify and Enforce (MVE) for effective transition to efficient lighting markets are strengthened	1.1.1 Defined and implemented legal and administrative processes to improve compliance with national standards. 1.1.2 Technical support to government authorities and customs administrations. 1.1.3 Strengthening of national laboratories to verify compliance with standards.	GEFTF	290,361	2,630,000

			1.1.4 Monitoring, Reporting and Verification actions to assess progress in the transition to efficient lighting.			
2. Ensuring an environmentally sound management and sustainable transition to efficient lighting	TA	2.1 Government of Chile is able to enact and enforce a national policy creating an extended producer responsibility framework and to influence user behavior	2.1.1 National framework and strategy developed for environmentally sound management of lighting products.	GEFTF	69,228	450,000
			2.1.2 Training provided to governmental authorities, retailers and collection services. 2.1.3 Development of CRSO business model for spent lamps, including international coordination for the environmentally sound export/import of lamp waste. 2.1.4 Awareness raising and communication campaigns to promote collection and recycling of spent lamps.	GEFTF	655,780	2,130,000
3. Lighting innovation: accelerating the use of solid state lighting (including light emitting diodes (LEDs) and controls)	TA	3.1 Consensus by consumers and decision makers in government and private sector on the increased use of solid state lighting and lighting controls in the domestic, commercial/industrial and outdoor lighting applications	3.1.1 Enhance National Efficient Lighting Strategy with more stringent MEPS, taking into account advanced lighting technologies and systems. 3.1.2 Supporting policies developed (to increase user acceptance and demand for high efficiency products and systems). 3.1.3. MVE scheme produced (to ensure high quality products that will deliver the expected energy and GHG emission benefits).	GEFTF	654,587	1,540,000

	TA	3.2. Consumers and decision makers are aware of the economic benefits of advanced lighting systems through demonstration programmes	3.2.1 Design and evaluation of a demonstration programme implemented (for locally-appropriate LEDs and lighting controls among country selected stakeholder groups (i.e. low income residents)).	GEFTF	192,780	1,450,000
	INV		3.2.2 Energy efficient lamps procured and installed	GEFTF	431,477	1,100,000
				Subtotal	2,294,213	9,300,000
				Project management Cost (PMC)[3]	GEFTF	130,000	79,843
				M&E Plan (Audit & External Evaluation)		61,500	40,000
				Total project costs		**2,485,713**	**9,419,843**

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (USD)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	**Name of Co-financier (source)**	**Type of Cofinancing**	**Cofinancing Amount (USD)**
Government Contribution	Ministry of Energy	In-kind and in cash	5,600,000
Government Contribution	Ministry of Environment	In-kind	50,000
NGO	Fundación Chile	In-kind	369,843
GEF Implementing Agency	UNEP	In-kind	100,000
Private Sector[4]	Osram	In-kind	1,500,000
Private Sector	Philips Lighting	In-kind	1,500,000
Private Sector (select)	National Lighting Test Center, China (NLTC)	In-kind	300,000
		Total Co-financing	**9,419,843**

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA ANDCHILE[1]

GEF Agency	**Type of Trust Fund**	**Focal Area**	**Country Name/ Global**	**(in USD)**		
				Grant Amount (a)	**Agency Fee (b)[2]**	**Total c=a+b**
UNEP	GEF TF	CCM	Chile	2,440,091	231,809	2,671,900
UNEP	GEF TF	CHEM-3	Chile	45,622	4,334	49,956
Total Grant Resources				**2,485,713**	**236,143**	**2,721,856**

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

[2] Indicate fees related to this project.

[3]PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

[4]Private sector partners' in-kind co-financing are estimated based on the number of full time equivalent (FTE) employees, which will be dedicated to the project. At a monthly consultant cost in the range of 30,000 USD for Osram and Philips and 12 000 for NLTC, we expect in total around 100 FTE months to be dedicated to the project (Osram 40 months, Philips 40 months, and NLTC 18 months).

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS

Component	Grant Amount (USD)	Cofinancing (USD)	Project Total (USD)
International Consultants	108,184	0	108,184
National/Local Consultants	388,832	1,900,000	2,288,832

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT?(Select)

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

N/A

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[5]

The project design is in line with the original PIF. The main modification consists in the choice of the Executing Agency, which will be Fundación Chile instead of the Ministry of Energy and the Ministry of Environment as indicated in the PIF. The Ministry of Energy nominated Fundación Chile (FCH) as the Executing Agency given its capacity to successfully implement projects such as the National Strategy for Efficient Lighting which was developed following the en.lighten methodology (see section A.3.2 and the Capacity Assessment Appendix for more details).

The following changes have taken place related to co-financing in comparison with the original PIF:

- Component 1 – Strengthening monitoring, verification and enforcement (MVE) capacities to ensure an effective transition to efficient lighting markets:

  The Ministry of Energy has reassessed its allocation to project activities in Components 1 and 3 according to funding sources it has further identified. Therefore, there is an increase in co-finance to both Components.

In addition, and in response to GEF comments received during GEF CEO Endorsement review, the co-finance is allocated differently:

- Component 2 – Ensuring an environmentally sound management and sustainable transition to efficient lighting:

  The Ministry of Environment is strongly committed to this project and has increased its contribution from USD 30,000 at the PIF stage to USD 50,000. However, the lack of resources of this Ministry and particularly the Division in charge of Natural Resources, Waste and Risk Evaluation, hampers the increase of its co-finance beyond this amount. In order to address this situation, Fundación Chile has also identified additional resources and has increased its contribution from USD 119,843 to USD 369,843, meaning a USD 250,000 allocation to Component 2. These USD 250,000 resources being allocated derive from an ongoing project (MERCUTREAT) closely related to activities in Component 2. This project is developing

[5] For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter "NA" after the respective question.

sound recycling technologies for mercury containing products. Private sector co-financing has also been re-allocated from activities under Component 3 to activities under Component 2 to further strengthen the co-financing for this Component as requested.

Resources for Component 2 will be allocated to the development of an enabling regulatory environment for environmentally sound management of lighting products. It includes the formulation of a policy framework, training, awareness raising activities and the design of a business model for a collection and recycling services organization (CRSO). The process to develop the CRSO will include the participation of lighting companies, distributors and importers. Recycling and disposal facilities will also be involved and consulted. The exact stakeholders will be identified during the first stages of Component 2 implementation. Resources will not be allocated to the construction of a recycling plant, but the project will ultimately facilitate the implementation of environmentally sound management of spent lighting products in the country based on the developed business model for CRSO

- Component 3 – Lighting innovation: accelerating the use of solid state lighting (including light emitting diodes (LEDs) and controls)

  As per GEF Sec comments, the private sector co-financing for Component 3 has been reduced. The remaining co-financing mainly comes from an efficient lighting massive distribution programme implemented by the Ministry of Energy, using Chile's national budget. Co-financing resources for this Component are allocated to (i) the design and implementation of communication campaigns, (ii) the design, bidding and evaluation of the demonstration programme, and (iii) the procurement and installation of efficient lighting products.

Some minor changes have been introduced in the wording of outcomes and outputs, guided by new data and information collected in the project design (PPG) phase with inputs and suggestions provided by public and relevant stakeholders.

A.1 National strategies and plans

or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

The project is in line with national priorities of Chile and will contribute directly to its sustainable development.

The Government of Chile developed in 2012 a **National Energy Strategy** which provides guidelines for the country's energy use until 2030. The National Energy Strategy is based on six pillars:(1) energy efficiency as priority public policy, (2) accelerate the incorporation of renewable energy, (3) enhance traditional renewable energy, (4) new approach to transmission, (5) more competitive power market and (6) progress in international electrical interconnection. As part of the National Energy Strategy Chile has set the ambitious goal of reducing final growth and energy demand by 12%. To reach this goal, the country will adopt, among others, the following key measures, including energy efficiency labels (including lighting products) and Minimum Energy Performance Standards (MEPS) for incandescent lamps and linear fluorescent tubes (already in place).These MEPS, even though they are not technology specific, they will lead to the phase out of incandescent lamps because only CFL or more efficient lamps will meet the standards. In addition the National Strategy includes a component promoting efficient lighting in the domestic and street lighting sectors, with a focus on disadvantaged communities but set to expand to all sectors of society.

The **National Efficient Lighting Strategy 2013 – 2017 (ENIE)**[6] was developed by the Ministry of Energy with UNEP/en.lighten support. ENIE benefits are estimated on USD 486.4 million per year and time of return on investment is estimated at three months; savings in annual electricity consumption are estimated at 2.8 TWh (4.8% of national electricity consumption) and reductions in greenhouse gas emissions by 1.2 million tonnes of CO2e emissions per year. Furthermore could be preventing the emission of 77 kg of mercury, 2,500 tons of sulfur dioxide and 4,600 tons of nitrous oxide to the atmosphere by decreasing coal combustion due to lower electricity demand. The investment required for the implementation of the ENIE is $ 8.9 million.
The activities were defined trough a participative process and planned for being executed in five years starting in 2013, under an integrated policy approach and organized into four strategic axis:

- Minimum Energy Efficiency Standards (MEPS) that ensure the efficiency and quality of lighting products energy saving
- Support mechanisms and policies that restrict the provision of inefficient lighting and promote the demand for energy saving products
- Control programs, verification and inspection (MVE) that allow deter the distribution of non-conforming
- Environmental sustainability actions including the establishment of maximum limits of mercury and the implementation of programs of collection, recycling and proper waste disposal of used lamps

Government officially presented on August 2010 to UNFCCC Secretariat its pledge to achieve a 20% deviation below the business as usual emissions growth trajectory by 2020, as projected from the year 2007 below a **voluntary commitment**.

Chile intends to introduce **Nationally Appropriate Mitigation Actions (NAMAs)** and to this end has been conducting a series of studies in recent years to determine the precise potential for mitigating GHG emissions in the country and the costs associated with that potential. Energy efficiency, renewable energy, waste management, and land use change and forestry measures will be the main focus of Chile's NAMAs. Chilean Self-supply Renewable Energy (SSRE) NAMA was selected on 2013 jointly with other three initiatives to the next stage of in-depth appraisal[7].

The **Minamata Convention** on Mercury is an international treaty designed to protect human health and the

[6] http://www.minenergia.cl/ministerio/galeria-actividades/estrategia-nacional-de-iluminacion.html
[7] http://nama-facility.org/projects/projects-selected.html

environment from anthropogenic emissions and releases of mercury and mercury compounds. It was adopted in October 2013. Chile signed on 10 October 2013.

The **Second National Communication**[8]answered to fulfill Chile's reporting commitments as a Party to the United Nations Framework Convention on Climate Change (UNFCCC). It reports on the national advances made to implement the Convention from 2000 through 2010.
According to the International Energy Agency (IEA, 2010) Chile ranked 61st in the world for per capita CO2 emissions in 2008, producing 4.35 tons CO2 per person, slightly above the global average of4.23 tons of CO2 per person. Nevertheless, the country's emissions are growing significantly, mainly as a result of growth in its energy sector. The country follows on its voluntary commitment to achieving a 20% reduction in its emissions growth trajectory by 2020, as projected from the year 2007.
The task of fulfilling its commitments under the UNFCCC will involve overcoming obstacles, filling in important gaps, and meeting various needs related to financial and technical matters and the development of local capacities. The work already done and the achievements made to date reflect the equitable balance between national efforts and international support. **Energy efficiency** is between the areas in which Chile expects to carry out additional sector specific efforts to establish and strengthen its climate change-related capacities. Specifically solid state lighting technologies[9] are seen as an important opportunity tackled with joined national and international efforts.

The **United Nations Development Assistance Framework for Chile (UNDAF)**[10] summarizes the joint strategic programming of the agencies, funds and programs of the system for the period 2011-2014. Through this programming exercise the core areas in which the United Nations in Chile focus their cooperation is defined. These areas are identified based on a joint assessment of the situation, the comparative advantages of the system according to their mandates and technical resources and national priorities set out in the Government Program. For the period 2010-2014, one of these areas has been climate change, environmental and energy sustainability. Establishing that the country must have made progress in designing and implementing policies for environmental and energy sustainability. The new proposal for cooperation 2015 – 2018, which was discussed in Santiago (July 2014)[11], keeps the area of **environmental sustainability and risks management** which includes, among others, the following elements related to this project:

- The government strengths its capacities concerning adaptation and mitigation to climate change, considering especially vulnerable groups.
- Public policies of sustainable management of natural and energy resources will be enhanced with participation of civil society and affected groups.

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities

The project is consistent with the GEF-5 Climate Change Focal Area Objective 1 that deals with the promotion, demonstration, deployment, and transfer of innovative low-carbon technologies. In particular, the project aims to promote innovative high efficiency lamps, such as LEDs, and usage-controlling lighting technologies (Component 3). The project also fits squarely in the GEF-5 Climate Change Focal Area Objective 2 that that deals with the promotion of market transformation for energy efficiency in industry and the building sectors, because lighting is a major electricity-consuming appliance system in all buildings, sectors and industries (Components 1 and 3). The project also contributes to its Chemicals Strategy Objective on sound chemicals management and mercury reduction, by addressing the recollection of lamp residues and mercury recovery from CFLs in its Component 2).

[8]http://www.mma.gob.cl/1304/articles-50880_docomunicadoCambioClimatico.pdf
[9]Solid-state lighting (SSL) refers to a type of lighting such as light-emitting diodes (LEDs) that uses semiconductor as sources of illumination rather than electrical filaments, plasma (used in arc lamps such as fluorescent lamps), or gas
[10]http://www.cl.undp.org/content/dam/chile/docs/Doc_legal/undp_cl_operaciones_marco_legal_UNDAF_2011_2014.pdf
[11]http://www.cl.undp.org/content/dam/chile/docs/Doc_legal/undp_cl_operaciones_marco_legal_UNDAF_2015_2018.pdf

"The Global Market Transformation for Energy Efficient Lighting project" (known as "the en.lighten initiative") is accelerating global market transformation to sustainable lighting technologies. It serves as the global umbrella initiative for all GEF efficient lighting projects. The proposed project builds upon the success and the need for support to additional countries that has been generated by the "en.lighten initiative", funded by the Global Environment Facility (GEF) Earth Fund and implemented by the United Nations Environment Programme (UNEP).

To assist countries in accelerating market transformation to environmentally sustainable, efficient lighting, the en.lighten initiative established a Center of Excellence with a global network of lighting specialists, governments, lighting manufacturers and civil sector organizations en.lighten developed a consensual method- the Integrated Policy Approach-and best practice guidance, published online as, "The Efficient Lighting Toolkit." en.lighten works with governments to generate a global consensus to phase-out inefficient incandescent lamps by 31 December 2016.

As of March 2014, 55 countries have joined the en.lighten Global Partnership Programme. The Partnership is a quick start mechanism that delivers technical assistance from en.lighten and its private sector partners. Additional countries are expected to join the Global Partnership in the following years. Although the en.lighten initiative has started to assist some Global Partners, it is unable to meet the extensive requests of its growing number of members, each of which seeks significant policy and technical support for its efforts to phase out inefficient lamps and introduce high efficiency products.

Through the project the GEF will expand assistance to Chile to support implementation of the National Efficient Lighting Strategy and transform the lighting market to save energy through efficient lamps, including compact fluorescent lamps (CFLs), LED lamps, and lighting controls while at the same time it will help to protect the environment from the release of mercury from spent CFLs. The project will expand its strong partnership with private sector companies, technical organizations and international agencies and initiatives to encourage lighting innovation.

The en.lighten initiative's suggested Integrated Policy Approach

The task forces of international experts convened by the en.lighten initiative in 2010 to 2012 concluded that using an integrated policy approach would ensures that all pertinent policy aspects related to energy efficient lighting would be considered when countries develop their phase-out strategies. The outcome of this public-private consultation process includes four elements:

- Minimum energy performance standards (MEPS)
- Supporting policies and other mechanisms (fiscal policies, labeling and consumer information) to ensure that MEPS can be implemented successfully and permanently
- Monitoring, verification and enforcement (MVE)
- Environmentally sound management of lighting products, throughout their life cycles

Countries determine how these elements fit within their national context. An integrated approach involves all relevant authorities and stakeholders. This includes Ministries of Energy and Environment, energy efficiency agencies, private sector organizations (lamp manufacturers, retailers, distributors and others in the supply chain) and civil society groups. Establishing an integrated National Efficient Lighting Strategy ensures long-term, substantial energy and financial savings and environmental benefits such as reductions of GHG emissions.

For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

N/A

For projects funded from NPIF, relevant eligibility criteria and priorities of the Fund:

N/A

A.3 The GEF Agency's comparative advantage

As the executing partner in the UNEP/GEF en.lighten initiative, UNEP has generated a globally accepted policy consensus to phase out inefficient incandescent lamps. The en.lighten initiative offers a Centre of Excellence comprised of over 50 lighting experts—representing over 30 countries—from private sector companies, governments, civil society, academia, research organizations and international agencies. The Centre of Excellence provides recommendations, technical guidance and efficient lighting expertise to assist countries in the shift to energy efficient lighting.

The UNEP/GEF en.lighten initiative has developed informative and practical tools to support committed countries in their efforts:

- Country Lighting Assessments (CLAs) – analyzing the potential benefits gained through the global adoption of efficient lighting – provides 150 country-specific estimates for potential energy savings, CO_2 reductions and financial gains
- Global Policy Map—indicating the readiness and progress of countries worldwide to institute energy efficient lighting policies, with interactive features that link to specific policy documents that can serve as models for other countries
- Efficient Lighting Toolkit – delivering best practice guidance for an integrated policy approach and technical and practical tools for those directly involved in country phase-out activities
- Guidance – providing a step-by-step consensus process for the development of National Efficient Lighting Strategies in individual countries and regions
- Online (virtual) support tool – including targeted technical advice from international lighting experts for countries, webinars and training videos to help professionals take effective action to develop MEPS, MVE, communications and environmentally sound management schemes.

The UNEP/GEF en.lighten initiative is considered a successful model of public-private partnership between the GEF, UNEP, OSRAM AG, Philips Lighting B.V. and the National Lighting Test Center of China. It brings together the expertise and capacities of these leaders and organizations to enhance innovative approaches to accelerate the deployment of efficiency lighting in developing and emerging countries. UNEP and the National Lighting Test Center of China jointly have established a UNEP Collaborating Center on Energy Efficient Lighting, the Global Efficient Lighting Center, to support developing and emerging countries in strengthening their capacities around testing and laboratory capacities to ensure an effective transition to efficient lighting.

A.3.1. Indicate the co-financing amount the GEF agency is bringing to the project:

UNEP will provide in-kind co-financing of USD 100,000.

A.3.2. How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:

Climate Change is one of UNEP´s seven thematic priorities/focus during 2014-2017 as per decision taken by UNEA as well as the global framework agreed through the UNFCCC. The Project contributes to UNEP's objective of improving energy efficiency in partner countries with the aim of reducing GHG emission, it particularly falls in the area of developing tools and approaches to be piloted in countries to develop mitigation plans, policies,

measures, and low emission development strategies, and spur sector investment and innovation within and across selected sectors. The Project is expected to take advantage of the experience of UNEP in being an executing partner in the UNEP/GEF en.lighten initiative, where UNEP has generated a globally accepted policy consensus to phase out inefficient incandescent lamps. The en.lighten initiative offers a Centre of Excellence comprised of over 50 lighting experts—representing over 30 countries—from private sector companies, governments, civil society, academia, research organizations and international agencies. The Centre of Excellence provides recommendations, technical guidance and efficient lighting expertise to assist countries in the shift to energy efficient lighting.

UNEP also co-leads with the Collaborative Labeling & Appliance Standards Program (CLASP) and the US Department of Energy the "High Impact Opportunity on Advanced Lighting and Appliance Efficiency" of SE4All, such global programs would become flagships of the UN Secretary General's initiative Sustainable Energy for All (SE4All), and enable meeting the goal of doubling the global rate of improvement of energy efficiency by 2030.

As such, and based on existing GEF policies, UNEP is the Implementing Agency for the Project and will be responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures and will provide guidance on linkages with related UNEP and GEF-funded activities. The Project will be implemented by the Division of Technology, Industry and Economics (DTIE) of UNEP. UNEP Division of Technology, Industry and Energy's activities focus on the needs of developing countries and countries with economies in transition. The activities involve various facets of technology research, development, transfer and commercialization, as well as promoting innovative energy efficiency methodologies and techniques.

The Executing Agency (EA) nominated by the Ministry of Energy is Fundacion Chile (FCH)

FCH capacities for following up a successful implementation of the projects would be summarized in the following:

- Experience of having been part of en.lighten initiative in Chile from 2012. Keeping the entire knowledge transferred by UNEP during the process. Specially, FCH has the experience of developing the National Strategy for Efficient Lighting (ENIE) following the en.lighten methodology.
- FCH has developed technical competences on energy efficiency labeling and MEPs from 2007. Developing of new standards, testing protocols, certifications, technical training as required by the Ministry of Energy, Ministry of Economy and Ministry of Environment.
- FCH, in partnership with two centers from Spain, is developing the MERCUTREAT project which aims to provide a sustainable solution to the country's excess of mercury. The main objective is to develop a cost-efficient technology for stabilizing / solidifying elemental mercury and wastes containing mercury. This project has the support of the Ministry of Environment, Ministry of Health, Ministry of Mining and Ministry of International Affairs. Also has co-financing of a mining company and the National Society of Mining.
- FCH plays a role of coordinator between the different stakeholders of society (government, business, and community)
- FCH has experience as a local open innovation platform connected to the world. This approach to the development of innovation processes goes beyond the limits of FCH. Decades of working with many national and international networks, allowing it to have the collaboration with external professionals and thus combine internal and external knowledge for development of new projects, including knowledge of suppliers, customers, strategic partners, research centers, competitors and financing.
- As a nonprofit organization with high level professionals, FCH helps the private companies to be more competitive moving the local markets and the country to better horizons of sustainability.
- FCH and Agencia Chilena de Eficiencia Energética (AChEE) are non profit organizations specialized on EE, that could implement this initiative, but the Minister of Energy has selected FCH because of its experience of more than seven years working with EE appliances and lighting labeling and deep

environmental applied technologies. That experience allows FCH have a deep knowledge of the key stakeholders: lighting suppliers and retailers, lab and certification bodies and waste recycling companies.

A.4. The baseline project and the problem that it seeks to address

A.4.1. Summary of the national energy situation

Chile has an installed capacity of 16,974 MW[12], divided into four separate grid systems; of which 74% is in the Central Interconnected System, (SIC), 25% in the Norte Grande Interconnected System (SING), and less than 1% in medium-sized systems in Aysen and Magellan Regions. In 2011, the power matrix was composed of 34% of large-scale hydropower, 63% of thermal generation (mainly coal and natural gas) and 3% of non conventional renewable energy (NCRE).

Table 1. Chile's Electricity Market in 2011, Gross Generation:

Great North Interconnected System	**Central Interconnected System**	**Aysen Region System**	**Magellan Region System**
Installed capacity: 4,344 MW Max. Demand: 2,162 MW Generation: 15.9 TWh Thermal Generation: 100% Population: 6% Emission factor: 0.725 MWh/tCO2e	Installed capacity: 12,488 MW Max. Demand: 6,881 MW Generation: 46.1 TWh G. Hydro: 45% - 65% Population: 92% Emission factor: 0.379 MWh/tCO2e	Installed capacity: 49 MW Max. Demand: 20 MW Generation: 134 GWh Population: 1%	Installed capacity: 89 MW Max. Demand: 40 MW Generation: 269 GWh Population: 1%

The emission factors of greenhouse gases of the Central Interconnected System and of the Great North Interconnected System have increased to 0,432 MWh/tCO2e[13] and to 0,811 MWh/tCO2e[14], respectively. The main reason is the number of years of drought that have affected the country.

The electricity production market involves several participants and competing technologies. Most power producers sell their electricity into the wholesale electricity market, which is controlled by a few large companies. Utility companies buy power from the wholesale market and supply it to electricity customers.

Taking into account the expected economic and population growth trends until 2020, electricity consumption is expected to grow by around 7% per year, implying that the country needs to add over 8 GW of new electricity generation by 2020 in order to be able to meet expected energy demand increases, according to the National Energy Strategy 2012-2030. This would be a huge undertaking. Chile is predominantly an importer of energy resources and that in recent years it has especially depended on fossil fuels at high prices, which has resulted in an increase in the marginal costs of energy generation and, consequently, higher electricity prices. To reduce the country's reliance on imported energy sources, while being able to meet future power demand, the Government plans to reduce energy demand by 12% in 2020 and to increase generation by means of NCRE to 10% by 2020[15].

[12] National Energy Strategy 2012 – 2030, Ministry of Energy (Feb 2012)
[13] http://huelladecarbono.minenergia.cl/emision-para-el-sic
[14] http://huelladecarbono.minenergia.cl/emision-para-el-sing
[15] Law 20.257 to promote Non-Conventional Renewable Energy sources sets the target of 10% for NCRE by 2024

After years of up and down actions on energy efficiency mostly of them related to shortage of electricity during drought years. The Government of Chile began in 2005 the implementation of actions to increase energy efficiency with the creation of the National Programme on Energy Efficiency, this effort was institutionalized in early 2010 with the creation of the Division of Energy Efficiency at the Ministry of Energy focused on policy development, and the Chilean Energy Efficiency Agency (AChEE), focused on implementation of policies.

The new Energy Efficiency Action Plan 2012-2020 (PAEE 2020), developed by the division of Energy Efficiency at the Ministry of Energy is intended to be a guide for the public and private sectors to take the necessary actions to achieve the above-mentioned goal of a 12% decrease in the projected electricity demand for 2020, decreasing Chile's expected energy demand by 1122 MW. PAEE 2020 contains the following key action items:

- Improvements in the "green buildings sector", including social housing. The action plan aims to reduce the energy intensity of already constructed buildings and to design buildings to new high-efficiency standards (building codes), and to offer construction products and services with efficiency criteria (labeling);
- Establishment of minimum energy performance standards (MEPS) that must be met by certain products, equipment, appliances, materials and other products that use any kind of energy (the MEPS will limit the maximum amount of energy that can be consumed by a specific product) as well as increase the energy labeling of specific products (informing consumers about the energy performance of a certain product);
- Encouragement of the mining sector and other industrial consumers to adopt energy efficiency measures, including the use of cogeneration and implementation of smart energy systems;
- Compilation of data on energy use that will be used to encourage greater efficiency in passenger transport and freight. A vehicle labeling system and the setting of minimum energy efficiency standards for vehicles will also be established;
- To oversee these efforts, the government will create an Inter-ministerial Commission for the Development of Energy Efficiency Policies, which will periodically report directly to the President of Chile on the country's energy efficiency improvements.

The plan also calls for the establishment of new residential and street lighting programs to accelerate the deployment of high-efficiency lighting technologies in the residential and public sectors (in particular municipalities and for the sector of vulnerable households, through promotion and educational activities).

The country does not have more specific promotions and incentives for energy efficiency that those mentioned before. Nevertheless, the scenario has changed and in the recently launched Agenda de Energía 2050[16], the Ministry of Energy have compromised the development of an Energy Efficiency Law Proposal for being presented to National Congress on 2015.

A.4.2. Energy labeling and standards in Chile

In the framework of the Energy Efficiency National Program (PPEE) and with the Fundación Chile, the Chilean Energy Efficiency Standards and Labeling Program (Programa Nacional de Etiquetado de Eficiencia Energética en Chile – PNEEE) was created in 2005 as a strategic activity. This has resulted in:

- A regulatory framework, which defines: (i) the requirements for development, adoption and application of technical regulations and procedures for conformity evaluation, (ii) the certification systems and procedures for electrical products, and (iii) the authority of the Superintendency for Electricity and Fuels (Superintendencia de Electricidad y Combustibles – SEC) to authorize and supervise the certification and inspection bodies, test laboratories and certification procedures;

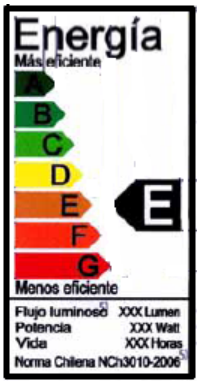
[16] http://www.energia2050.cl/uploads/material/e199d53a2ec461d3244277bd09cea29500f3df87.pdf

- International energy efficiency test procedures have been adopted as Chilean Standards (Normas Chilenas – NCh) for a range of appliances and equipment;
- Mandatory energy efficiency labeling has been implemented for incandescent lamps; self-ballasted compact fluorescent lamps (CFLs); single-capped and double-capped fluorescent lamps; refrigerators, freezers and refrigerator-freezers; three-phase electric motors; and microwave ovens; stand-by (music equipment, TV, DVD players) and room air-conditioners;
- Mandatory labeling is under consideration for household clothes washers; gas cookers, as well as halogen and LED lamps (for domestic and general uses)

A.4.3. Mandates and roles of organizations involved in energy, product standards or lighting

Table 2. Existing labeling standards for lighting products

Product	Date	Efficiency and safety standard	Labeling standard
Incandescentlamp	30 April 2007	IEC60064 IEC60432	NCh 3010
Self-ballastedcompactfluorescentlamp	31 October 2007	IEC60969 IEC60968	NCh 3020
Double-capped Fluorescentlamp	31 July 2009	IEC60081 IEC61195	NCh 3020
Single-cappedfluorescentlamp	31 July 2009	IEC60901 IEC61199	NCh 3082
Electronic and electromagnetic ballasts		NCh 3083 IEC 61347	NCh 3082
Self-ballasted LED for general uses		IEC/PAS 62612 IEC 62560	TBD
Halogen lamps for general purpose		IEC 60357 IEC 60432-2	TBD



Labels NCh 3010 and 3020

In 2010, Chile bolstered its support of the implementation of the renewable energy and energy efficiency by creating the Ministries of Energy and Ministry of Environment. In 2010, in accordance to Law 20.402 (2009), the Ministry of Energy has become the principle authority of the Chilean energy sector.

Its predecessor, the National Energy Commission, now reports to the Ministry of Energy and continues to be in charge of "analyzing prices, tariffs and technical standards to be observed by energy production, transmission and distribution enterprises" (Art. 7 of the revised DL No 2.224). The Ministry has the mandate "to propose, dictate and oversee the enforcement of standards for the energy (production) sector with regard to energy efficiency, safety and its adequate functioning and development." In accordance with this mandate, Ministry of Energy decides the general policies on energy efficiency.

Also in 2010, the **Chilean Agency for Energy Efficiency** (Agencia Chilena de Eficiencia Energética, AChEE) was set up, hereby transforming the energy efficiency program PPEE into a separate non-profit agency. Its mission is to promote, strengthen and consolidate the efficient use of energy, joining the relevant actors at the national and international level, and implementing public-private initiatives in the different sectors of energy consumption, contributing to the competitive and sustainable development of the country". The Board of Directors of AChEE is presided over by a representative of the Ministry of Energy and includes representatives of the Ministry of Finance, industrial associations and universities. While the Division of Energy Efficiency at the Ministry of Energy focuses on energy policy development, AChEE focuses on implementation of policies.

The **Superintendency for Electricity and Fuels** (Superintendencia de Electricidad y Combustibles, SEC) is a decentralized state entity related to the Ministry of Energy from its creation on 2010. The objective of SEC is "to control, inspect and supervise the observance of legal and regulatory stipulations, and technical standards regarding the generation, production, storage, transport and distribution of liquid fuels, gas and electricity" (Article 2 of Law No 18.410). With respect to standards and labeling, SEC is in charge of developing technical regulations, form 2005, in particular in the area of product testing and certification of safety and efficiency. In its role as control and inspection entity, SEC is in charge of verifying compliance of certified and labeled products with the respective specifications and regulations. SEC also authorizes and controls the certification bodies which participate in the program.

The **Instituto Nacional de Normalización (INN)** is Chile's National Standardization Institute, which is responsible for the development and publication of all Official Chilean Standards. INN is a member of the international standardization body, ISO. INN's Standards Division develops and issues Official Chilean Standards (NCh) for energy efficiency test procedures, adopting international reference standards. The Certification Division acts as an accreditation body for certification bodies and test laboratories.

Test laboratories are privates and legally authorized by SEC to measure, examine and test products in installations authorized for such purpose. Chile has relatively few test laboratories not enough for satisfying the increasing demand. They are authorized to carry out energy performance tests for household appliances, lamps and industrial equipment.

Certification bodies are legal private entities, authorized by SEC, which issue certificates of approval based on the test reports issued by the authorized test laboratories. By 2009, thirteen domestic certification bodies were authorized by SEC, but few of them offer certification services to the lamp manufacturers and retailers.

The National Consumer Service (Servicio Nacional del Consumidor – SERNAC) has been in the energy efficiency programs to promote the energy label among social organizations and consumers, including overseeing training programs for salespersons and supervisors of distributors and retailers of labeled products.

Fundación Chile (FCh) is a non-profit organization created in 1976 by the Chilean Government. FCh supports Chilean businesses and industry by facilitating technological innovation and technology transfer and enabling the sustainable development in Chile. The Energy Sustainable Program of Fundación Chile started the National Energy Efficiency Standards and Labeling Program, training and delivering to SEC professionals its management. FCh has supported the implementation of the before mentioned UNEP en.lighting project activities in Chile 2012 – 2013, including the development of the National Efficient Lighting Strategy (Estrategia Nacional de Iluminación Eficiente, ENIE).

The Ministry of Environment, through its Climate Change Office, is responsible for "proposing policies and formulating plans, programs and action plans in the area of climate change" (Law 19.300). The Ministry was created in 2010, replacing the National Commission for Environment. The National Climate Change Action Plan (Plan de Acción Nacional de Cambio Climático 2008-2012; PANCC) describes the national climate change strategy. Also, the ministry is responsible for environmental and waste management regulations, including reduction of waste, recycling, re-use, treatment and final disposal of residues in an environmentally sound manner. Proposal of Law of Extended Producer Responsibility was developed by this Ministry and enter to legislative phase in the National Congress on 2015.
The Ministry of Environment is also responsible for the national implementation of the Minamata Convention Agreement in Chile, and additional full time human resources have been incorporated to the organization.

A.4.4. Lighting applications and policies in Chile

A number of studies have been carried out recently to assess the lighting market in Chile:

- Estudio de Usos Finales y Curva de Oferta de Conservación de la Energía en el Sector Residencial de Chile, Ministry of Energy (2010), based on a nation-wide residential survey;
- Evaluación Nacional de Iluminación, Country Lighting Assessment, by the UNEP en.lighten project (2010), based on sales data provided by lamp suppliers, such as Philips and Osram;
- Information provided to SEC in the framework of the national energy labeling program PNEEE, again based on report provided by lamp suppliers.

According to the Final Uses study, lighting represents 16% (289.4 kWh/year) of the average household electricity consumption of 1,805.7 kWh/year, with refrigeration 29%, TV 12%, stand-by modes in various equipment 10%. Following tables give an overview of the annual sales data and estimated stock (lamps installed) per type of lamp technology.

Table 3. Historical data on annual sales of lamps for some technologies

Technology	**Annual sales** *(Source: SEC statistics)*			
	2007	2008	2009	2010
Incandescents	24.642.506	23.353.392	26.757.117	21.724.708
CFL	8.163.700	10.546.767	9.718.050	8.443.337
Tubular TL	1.784.189	3.089.673	3.630.509	3.139.449

Table 4. Data on annual sales of lamps and stock (installed lamps) in 2010

Technology	Sales 2010 (en.lighten based on Comtrade shipments)			**Stock** *(Source: en.lighten)*			**Stock** *(Source: MoE Final uses study 2010)*	
	Total	Residential	Other	Total	Residential	Other	Residential	Lamps/ unit
Incandescents	45,717,000	44,989,000	728,000	30,796,233	27,247,623	3,548,610	34.964.839	3,3
Tungsten hal	11,066,000	8,762,000	2,304,000	2,235,307	1,549,179	686,127	2.151.682	0,4
CFL	8,142,000	6,695,000	1,447,000	41,523,022	33,283,271	8,239,751	28.509.792	5,3
LED	956,000	918,000	38,000	163,235	82,327	80,908	1.075.841	0,2
HID	1,625,000	13,000	1,612,000	3,122,450	15,148	3,107,301		
HID eff	404,000	1,000	403,000					
Tubular TL	8,183,000	4,507,000	3,676,000	25,887,580	12,295,806	13,591,774	4.841.285	0,9
TL eff	1,156,000	237,000	919,000					
	77,249,000	**66,122,000**	**11,127,000**	**103,727,826**	**74,473,355**	**29,254,471**	**71.543.440**	**13,3**

The Government of Chile is promoting the transition to efficient lighting as a pillar of its energy efficiency strategy and national energy strategy. A selection of major activities is given below:

- From 2007 to date the Ministry of Energy has spearheaded campaigns disseminating information on the proper use of energy, the campaigns highlight the use of energy efficiency labels and advice for individuals to make them chose efficient light bulbs (see Figure 1);
- Between 2008 and 2009 the Government of Chile carried out a program to replace inefficient incandescent bulbs with CFLs in which it distributed nearly three million CFLs in vulnerable sectors of the population under the program “Únete a la Buena Energía”. This action helped to disseminate and increase awareness on this efficient technology in the country. Currently, the Ministry works with the Solidarity and Social

Investment Fund FOSIS (Fondo de Solidaridad e Inversión Social) on the replacement of incandescents by efficient lamps for the target beneficiaries of the FOSIS programs;

- Pilot projects, such as the Juan Fernández project, in which 1,000 LED lamps will be donated to the community on the islands;
- Education and communication programs, supported by international organizations, ChileCompra , SERNAC and AChEE; these have included:
- "Brigada Energética Diego y Glot" (Diego and Glot's energy brigade), which included a movie with energy saving tips for children of 8 – 13 years of age, presented by the well- known comic figures "Diego y Glot";
- Promotional events in supermarkets and department stores, in cooperation with the private sector;
- Training courses for sales personnel in department stores and home centers, with a typical duration of half a day. These courses were carried out over a period of one year, in cooperation between PPEE, SEC and SERNAC, using learning material developed for this purpose;
- Training courses for officials from government agencies (such as ChileCompra) and NGOs

Figure 1. Samples of efficient lighting campaign materials

The UN Development Program (UNDP) has supported SEC and the Chilean Association of Municipalities (ACHM, Asociación Chilena de Municipalidades) during 2008-2012 in a project to improved energy efficiency in public lighting, in which efficient street lights were installed in four municipalities and institutional capacities at local level were strengthened.

It is expected that the ministries of Energy and Environment work closely in order to the environmentally sound management of lamp waste, in particular the recovery of mercury. So far, there have been discussions at the national level to develop national legislation for electronic waste (therefore including lighting products), though the future of this legislation is uncertain at this stage. In addition, some private sector companies have undertaken communication activities for consumers on the treatment of used mercury added lamps.

The country joined the UNEP en.lighten initiative in 2012 as one of seven pilot projects worldwide. The en.lighten Country Assessment of Chile has estimated that the use of efficient lamps in the residential and other sectors (commercial/industrial, outdoor). En.lighten suggests move to Chile from 2010 lamps stock, Table 5 first column, to the lighting efficient alternative scenario, second column, in a period of time not defined. The country have accepted the idea looking for achieve the transition to energy efficiency and substantial annual environmental and economic benefits:

Table 5. Country lighting assessment (en.lighten, 2010)

	2010 stock	En.lighten alternative	Annual benefits	
Incandescent	30,796,233	3,079,623	CO2 reduction	1.3 kilotonCO_2
Halogen	2,235,307	223,531	Energy savings	3.1 TWh
CFL	41,523,022	65,309,807	Cost savings	517 million USD
LED	163,235	6,104,835	Mercury release	84.8 kg Hg
HID	3,122,450	0		
HID eff	0	3,122,450		
Tubular TL	25,887,580	0		
TL eff	0	25,887,580		
	103,727,826	103,727,826		

In this context, Chile received technical and policy support from en.lighten initiative during 2012 and 2013 for developing a National Efficient Lighting Strategy (Estrategia Nacional de Iluminación Eficiente, ENIE). Fundación Chile was the Technical Secretary supporting the Ministry of Energy. The Strategy was adopted by the Ministry by the end of 2013. Implementation of ENIE will lead to the progressive phase-out of inefficient incandescent lamps following a country-led approach. The strategy is setting the following national objectives:

- Promotion of innovative energy-efficient lighting technologies;
- Contribute to achieving the goal of 12% energy demand reduction by 2020,a s mentioned in the PAEE 2020;
- Reduce the level of greenhouse gas emissions to reach the goal of 20% compared to the business-as-usual emission trajectory by 2020;
- Control the level of mercury in lighting products and limit its release into the environment;

ENIE also includes a detailed roadmap to phase-out inefficient incandescent lamps. Activities include:

- Identifying national phase-out and efficient lighting objectives; Establishing national mandatory lighting MEPS, based on global best practice, accepted international standards and Chile conditions;
- Devising a national quality control mechanism to ensure compliance with the lighting MEPS;
- Creating policy support mechanisms such as: economic and financial incentives and tools, information and awareness raising campaigns and other market-based actions;
- Designing an environmentally sound management scheme with a robust legal framework;
- Establishing roles, responsibilities and an achievable timeline for implementing the strategy; Considering how to best finance the strategy to address initial costs and to measure and capture long-term economic benefits

GEF and enlighten vision support ENIE by helping to go quickly through the next barriers:

- Regulatory and institutional
    - Lack of technical knowledge on cost, benefits and environmental aspects of lighting products
    - Testing labs and certification bodies do not invest in lighting testing due to perceived small market, while lamp suppliers face with insufficient testing capacity when needed
- Technical
    - No control or regulations exist regarding sustainable management of lamp residues, in particular mercury recovery; No regulations regarding extended responsibility of manufacturers.

- No collection system in place and companies that would be able to process large volume of lamp waste for recycling and mercury recovery

- Market and awareness

  - Consumers (residential) are not fully aware of the benefits of LEDs over its lifetime and shy away due to the high initial price of LEDs vs CFLs vs incandescent lamps (18:5:1) and/or perceived different lamp characteristics (start-up time, color temperature, etc.);
  - Despite campaigns in the past, surveys have shown that there is still a need to educate consumers as to how to read and interpret the information provided on the energy label, especially when introduced for new technologies (such as LED)

A.5. Incremental /Additional cost reasoning

describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

A.5.1. Barriers to more widespread efficient lighting in Chile

The Lighting Strategy (ENIE) mentions a number of barriers, gaps and challenges that are summarized in the table below. The middle column gives the expected results of implementation over the coming years of ENIE. The investment needed to fully implement the ENIE is estimated at USD 8.9-10 million, which will come from the Ministry of Energy (about USD 5.9 million) as well as other national ministries and agencies (Environment, FCh; about USD 0.07million), private sector (USD 3 million) and international organizations, in particular GEF (USD 2.5 million).

Description of gap or barrier	**Results mentioned in the Efficient Lighting Strategy (ENIE)**	**Outputs expected from GEF support (incremental reasoning)**
Regulatory and institutional		
Lack of technical knowledge on cost, benefits and environmental aspects of lighting products Testing labs and certification bodies do not invest in lighting testing due to perceived small market, while lamp suppliers face with insufficient testing capacity when needed	MEPS and labeling for new lighting products established (halogen, LEDs) Market monitoring of sales of lighting products (suppliers, technologies, prices) and measurement of impacts of MEPS; Operation of system of monitoring, verification and enforcement (MVE); Capacity strengthened of SEC, testing laboratories; Harmonization of certification processes with other Latin American countries GEF Support: USD 587,239 Cofinancing: USD 2,600,000	Strengthen competencies of professional staff at regulatory entities, Ministry of Energy and SEC 1.1.1 Defined and implemented legal and administrative processes to improve compliance with national standards; 1.1.2 Technical support to government authorities and customs administrations; 1.1.4 Monitoring, reporting and verification actions to assess progress in the transition to efficient lighting; 3.1.1 Enhance National Efficient Lighting Strategy with more stringent MEPS, taking into account advanced lighting technologies and systems GEF Support: USD 407,347 Cofinancing: USD 2,340,000 Facilitate commercial and other links between testing laboratories, international organizations and local certification bodies 1.1.3 Strengthening of national laboratories to verify compliance with standards

		GEF Support: USD 191,391 Cofinancing: USD 330,000
Technical		
No control or regulations exist regarding sustainable management of lamp residues, in particular mercury recovery; No regulations regarding extended responsibility of manufacturers. No collection system in place and companies that would be able to process large volume of lamp waste for recycling and mercury recovery	Information disseminated on mercury content, recollection of finished lamps and sustainable disposal; Framework developed for environmentally sound management of lighting product wastes, including approved legislation on extended responsibility of producers; Established standards on maximum mercury content; Support companies on recollection and disposal of lighting residues GEF support: USD 750,008 Cofinancing: USD 2,300,000	National framework and strategy developed for environmentally sound management of lighting products 2.1.1 National framework and strategy developed for environmentally sound management of lighting products; 2.1.2 Training provided to governmental authorities, retailers and collection services; 2.1.3 Development of CRSO business model for spent lamps, including international coordination for the environmentally sound export/import of lamp waste; 2.1.4 Awareness raising and communication campaigns to promote collection and recycling of spent lamps GEF support: USD 725,008 Cofinancing: USD 2,580,000
Market and awareness		
Consumers (residential) are not fully aware of the benefits of LEDs over its lifetime and shy away due to the high initial price of LEDs vs CFLs vs incandescent lamps (18:5:1) and/or perceived different lamp characteristics (start-up time, color temperature, etc.); Despite campaigns in the past, surveys have shown that there is still a need to educate consumers as to how to read and interpret the information provided on the energy label, especially when introduced for new technologies (such as LED)	Replacement with CFLs in low-income sector (with support of FOSIS) of 200,000 lamps a year during 2013-2017; Pilot projects designed and implemented, replacement with LEDs; Improve energy efficiency of lighting systems in government installations and buildings (information and analysis; Improvement of public procurement (with ChileCompra); Information dissemination campaign (with SERNAC) on energy standards and labeling and new technologies GEF Support: USD 1,005,467 Cofinancing: USD 4,050,000	Supporting policies to increase user acceptance and demand for high efficiency products and systems 3.1.2 Supporting policies developed (to increase user acceptance and demand for high efficiency products and systems) 3.1.3 MVE scheme produced (to ensure high quality products that will deliver the expected energy and GHG emission benefits) GEF Support: USD 346,210 Cofinancing: USD 1,500,000 Public sector support to promote increase market share for LEDs (and lowering price) 3.2.1 Design and evaluation of a demonstration programme implemented (for locally-appropriate LEDs and lighting controls among country selected stakeholder groups (i.e. low income residents)). 3.2.2 Energy efficient lamps procured and installed GEF Support: USD 624,257 Cofinancing: USD 2,550,000

A.5.2. Project scope and activities

Incremental cost reasoning

The project will address the above-mentioned barriers and help Chile to achieve the objectives of its ENIE strategy by strengthening the capacity of the Government of Chile, raising awareness among consumers and interest of lighting industry key players about efficient lighting technologies. The project will speed up the transfer of low-

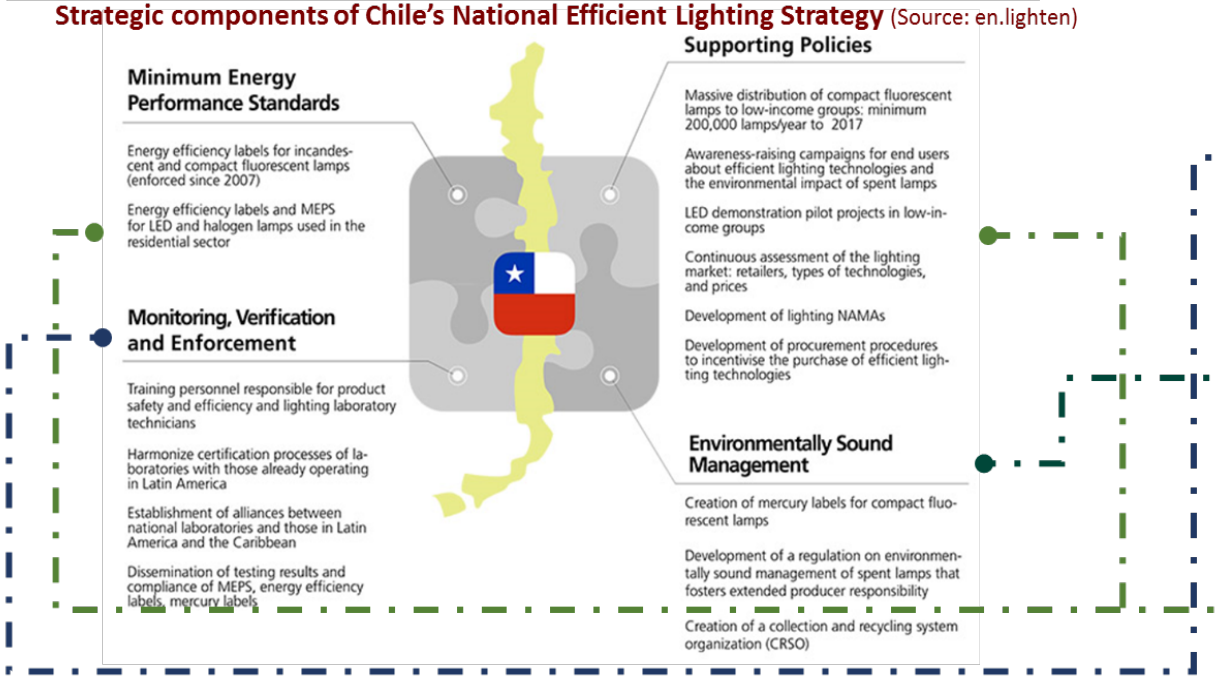
carbon, high efficiency technologies for the lighting sector, which will be translated into comprehensive national policy and regulatory frameworks and create the necessary conditions for technology transfer benefiting Chile.

As part of the financing plan for ENIE, GEF support is sought to mobilize international experience and expertise, for example for studies and analyses on labeling and MEPS and harmonization with standards and labeling systems with other countries in the region; establish a framework for environmentally sound handling of lamp product waste (including mercury) and practical definition and implementation of a recollection and waste disposal system; strengthening of testing laboratories and certification and harmonization of protocols with countries in the region.

The relationship between ENIE and the project as well as the outcomes and outputs of the project are detailed in the two following pages. The diagrams are followed by a detailed explanation of each component of the project.

Timeline of Chile's National Efficient Lighting Strategy (Source: Chile NELS Brochure)

Strategic components of Chile's National Efficient Lighting Strategy (Source: en.lighten)



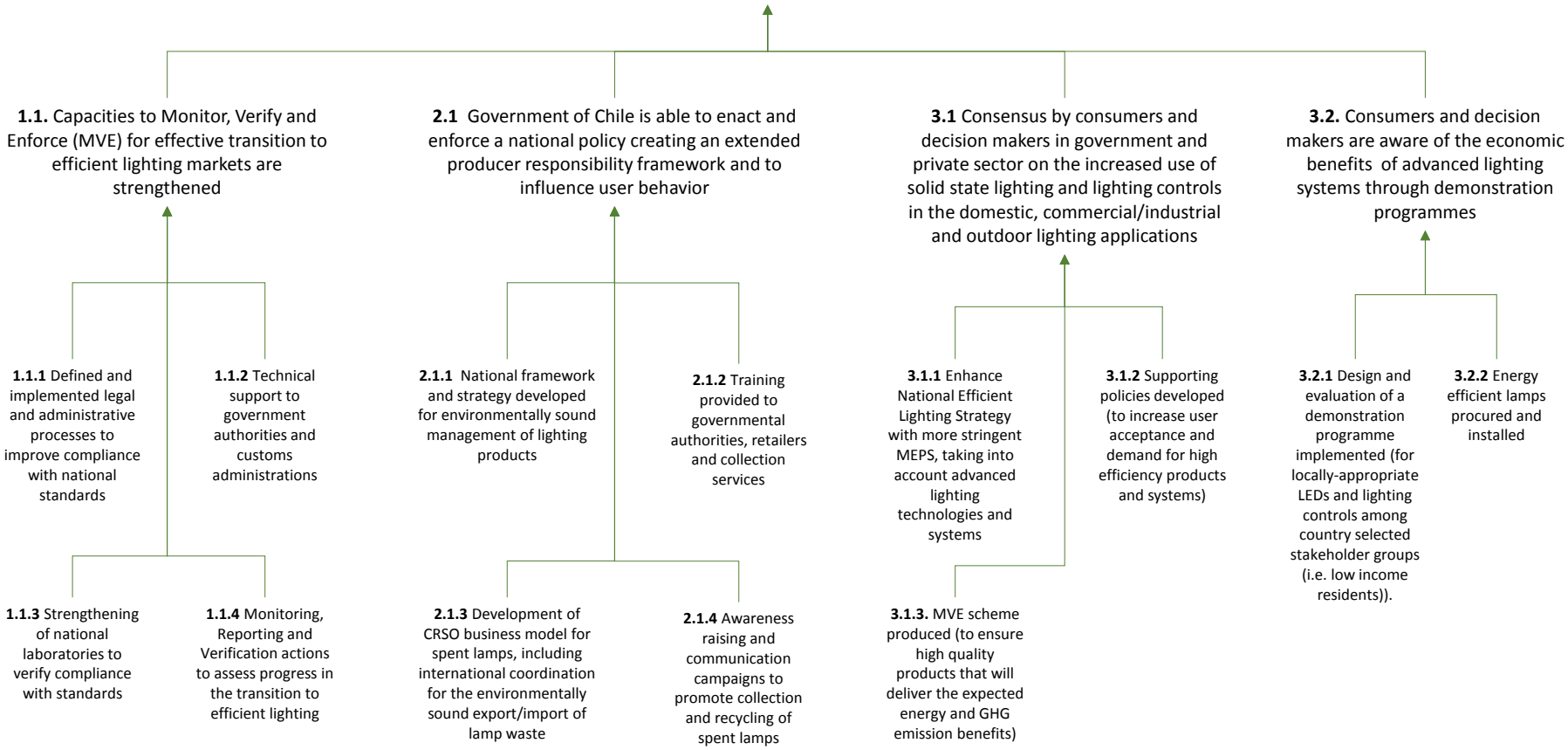
GEF Project's Objective

Rapid uptake of high energy efficient lighting technologies through the transformation of efficient lighting products markets, thereby reducing electrical demand and consumption and the related greenhouse gases emissions.

Outcomes	Outputs
Monitoring, Verification and Enforcement	• Legal & administrative processes • Trainings • Labs strenghten • Monitoring, Reporting and Verification
Enviromentally Sound Management	• Strategy for ESM • Ambilamp Academy training • CRSO development • Communications campaigns
Ligth Emmiting Diode (LED) Lamps	• MEPS, supporting policies & MVE • Demonstration project

GEF Project's Objective

Rapid uptake of high energy efficient lighting technologies through the transformation of efficient lighting products markets, thereby reducing electrical demand and consumption and the related greenhouse gases emissions.



Project goal

Promote the rapid uptake of high energy efficient lighting technologies through the transformation of efficient lighting products markets, thereby reducing electrical demand and consumption and the related greenhouse gas (GHG) emissions.

Component 1: Strengthening Monitoring, Verification and Enforcement (MVE) capacities to ensure an effective transition to efficient lighting markets

Outcome: Capacities to Monitor, Verify and Enforce (MVE) for effective transition to efficient lighting markets are strengthened

Outputs	Activities
1.1.1 Defined and implemented legal and administrative processes to improve compliance with national standards	a.0. Regular management of legal and administrative process of EE labeling and MEPS a.1. Participation on International specialized technical meetings, Lighting Fairs and/or visit to lighting test labs
1.1.2 Technical support to government authorities and customs administrations	a.2. Training by experts on international technology trends and specific technical aspects like: lifetime, luminous flux, beam opening angle, colour temperature and rate of colour reproduction to SEC professionals and others
1.1.3 Strengthening of national laboratories to verify compliance with standards	a.3. International expert diagnosis of testing labs in LA and Chile: business models, technical people, equipment and facilities and define/cost estimate of improvements alternatives at international, Latinamerican and national levels a.4. Improve/develop lighting safety and efficiency test protocols as required a.5.Learning by doing training to Labs technicians
1.1.4 Monitoring, Reporting and Verification actions to assess progress in the transition to efficient lighting	a.6. Checking and verifying the original baseline data and progress monitoring the transition to efficient lighting. a.7 Development of a lighting NAMA or other climate financial tools

The success of a transition strategy depends on a well-functioning system of monitoring, control, and testing facilities to ensure enforcement and full compliance with MEPS. International experience indicates that unless effective market surveillance systems are established and enforced, substandard products continue to enter national markets, reducing energy and financial savings and thus spoil the market for high performance products. Poor quality products disappoint users and lead to complaints about the transition to efficient lighting. MVE activities include: continuous assessment of the process to verify product efficiency; validating declarations of conformance; and, enforcing actions against suppliers or retailers of non-compliant products.

Chile does not start from zero; the country has a system of monitoring, control, and testing facilities to ensure enforcement and full compliance of safety and quality issues. Indeed, safety certifications have been managed by the Superintendence of Electricity and Fuels (SEC) for more than 15 years. On 2005, energy efficiency was incorporated based on existing quality legal and regulatory schemes, allowing have a Mandatory EE Labeling Program for appliances and lighting.

Following paragraphs summarize the existing MVE process and its legal framework.

DS 298/2005 is the current regulation established by the Ministry of Energy for certification of electrical products and fuels. It establishes procedures for certification of safety and quality of electrical products and fuel, prior to be market in the country, as likewise regulate the authorization of the certification bodies (CB), inspection bodies (IB) and testing laboratories (TL). The process is summarized in the figure 2.

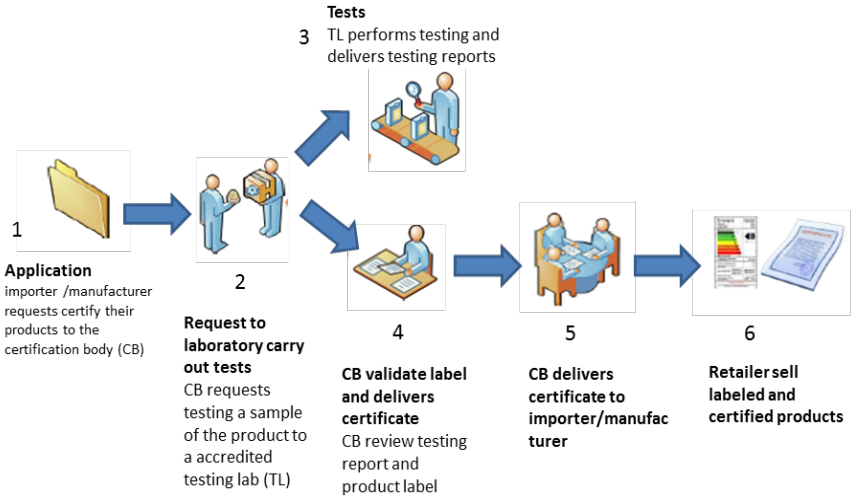


Figure 2. Process of products labeling and certification defined in DS 298/2005.

As it can be seen in figure 2 the regulation DS298/2005 also defines the responsibilities and obligations for electrical and lighting products importers, manufacturers and national retailers, which are, certify their products, load into the SEC web system the certificates approved by the Certification Body; physically to label the approved products and inform the SEC about the final location of rejected products.

Law18.410 defines the products, machines, tools, equipment, appliances, apparatus and materials in accordance with current regulations, must be subject to certification and may not be marketed in the country without the respective Certificates of Approval (CA).

The law also defines the methods of enforcement direct and indirect.

- Direct enforcement is made through SEC web system (e-declarador) and customs
- Indirect enforcement processing reported certificates and monitoring the market through specific studies

On April 2013, a resolution of SEC[17] states that five companies imported and marketed various appliances, including fluorescent tubes and washing machines, without the appropriate safety and quality certification, so the sale of such products was prohibited and a fine was applied to the companies.

As it can be seen Chile has an operating procedure for **certification of safety and quality of electrical products** and fuel. Nevertheless, new lighting technologies means a different challenge to MVE teams of professionals they need to be familiarized with a market that moves close to solid state technologies and to integrate lighting to building elements.

[17] http://www.sec.cl/portal/page?_pageid=33,5083637&_dad=portal&_schema=PORTAL

Specifically, the activity a.0 (Regular national management of legal and administrative process of EE labeling and MEPS) will be financed by the Ministry of Energy and it is the regular safety and quality MVE process of lighting technologies and the activity a.1. Participation on International specialized technical meetings, Lighting Fairs and/or visit to lighting test labs will allow the SEC professionals to have a better understanding of the dynamic lighting market that moves quickly to solid state and building integrated technologies, leaving the traditional large suppliers as Osram and Philips with a minor share of total market. To know who are the new suppliers and the new lighting technologies is key for ensuring a well MVE process.
To enhance the MVE capacity in Chile, the Project will facilitate sharing of information and skills between neighbouring or similar countries. The project will encourage regional cooperation and harmonization to strengthen MVE schemes and to discourage entry of poor-performance products.

The Project will also develop Monitoring, Reporting and Verification (MRV) actions to evaluate the effects of the transition to efficient lighting in Chile in terms of reduced electricity consumption and carbon emissions. Actions may include checking and verifying the original baseline data and comparing it with independently published data; developing a model and sampling protocol for reporting and verifying; and implementation of periodic, spot measurement tests in selected areas in order to assess the progress in the transition to efficient lighting brought by the Project. Longevity of use of installed lighting products in the field is a major concern for any energy efficiency lighting program. This activity will consider and evaluate existing Clean Development Mechanism protocols and any other MRV best practices.

Key actors include governmental authorities in change of market control and customs, such as the Superintendency of Electricity and Fuels in close coordination with the Ministry of Energy.

Component 2: Ensuring an environmentally sound management for lighting products

Outcome: Government of Chile is able to enact and enforce a national policy creating an extended producer responsibility framework and to influence user behavior

Output	Activity
2.1.1 National framework and strategy developed for environmentally sound management of lighting products	b.1. Design of an operational framework and strategy to establish a collection scheme, recycling facilities and/or sound disposal systems, as appropriate, to ensure the sustainable end of life treatment of spent lamps
2.1.2 Training provided to governmental authorities, retailers and collection services	b.2. Training on environmentally sound management of lighting residues
2.1.3. Development of CRSO business model for spent lamps, including international coordination for the environmentally sound export/import of lamp waste (CRSO ready to be operational)	b.3. Developing of a business base for CRSO through a participative process and according to international conventions b.4. Local counterpart for the design of an implementation plan for the CRSO and local public or private initial investors identification
2.1.4 Awareness raising and communication campaigns to promote collection and recycling of spent lamps	b.5. Design and application of collection and recycling campaign

Concerns over the mercury content of CFLs with regard to health and the environment may be overstated in the media, but are nonetheless widespread. These concerns are an obstacle to the use of CFLs. To reduce this barrier and to address public concerns, en.lighten's global task force experts recommend that: the doses of mercury in lamps be reduced to the maximum allowable content in line with international best practice; and, countries adopt environmentally sound management systems to ensure that mercury and electronic waste is not released into the environment. This advice is consistent with global initiatives such as the "Basel Convention on the Control of

Transboundary Movement of Hazardous Wastes and their Disposal," and the 2013 "Minamata Convention on Mercury".

This component includes the implementation of an operational framework to establish a collection scheme, recycling facilities and/or sound disposal systems, as appropriate, to ensure the sustainable end of life treatment of spent lamps. Actions will conform to the national legal waste management framework for efficient lighting products. The system will be adapted to the conditions of Chile to ensure effectiveness.
The project and its private sector partners will coordinate activities among countries within the region and with other organizations to ensure conformance with the Basel Convention. The system will collect and recycle magnetic ballasts that may contain polychlorinated biphenyls (PCBs), and, CFLs and other mercury-added lamps (linear fluorescent and mercury vapor) that presently could be disposed of in an environmentally unsound manner.
These activities will be implemented in close partnership with private sector organizations (lamp manufacturers, recycling companies, importers, distributors and retailers).

This component will also develop awareness raising campaigns. It is suggested that these campaigns include surveys before and after the campaign to assess their success disaggregating by different population categories (i.e. age, gender) and that they take into consideration the different roles/responsibilities of these categories concerning the disposal of spent lamps.

In order to provide technical solutions to mercury waste, Fundación Chile is developing "Mercutreat", a project financed with national R&D funds (2014-2017). Working together with the Centro Nacional del Mercurio in Spain and Universidad de Santiago, the objective is to develop a cost-efficient technology to stabilize / solidify elemental mercury. First technical results are expected by end of 2015 and economical evaluations/business models will be explored in 2016.

Component 3: Lighting innovation – accelerating the use of solid state lighting (including light emitting diodes (LEDs) and controls

Outcome: Consensus by consumers and decision makers in government and private sector on the increased use of solid state lighting and lighting controls in the domestic, commercial/industrial and outdoor lighting applications and consumers and decision makers are aware of the economic benefits of advanced lighting systems through demonstration programmes

Output	Activities
3.1.1. Enhance National Efficient Lighting Strategy with more stringent MEPS, taking into account advanced lighting technologies and systems.	c.1.Develop training courses on advanced technologies and systems, including LEDs and controls, to public and private sectors c.2. Develop EE Labeling and quality specifications and/or MEPS for LED lamps and other efficient technologies as required. c.3. ENIE - GEF coordination for accelerating the use of LEDs
3.1.2 Supporting policies developed (to increase user acceptance and demand for high efficiency products and systems).	c.4. Design and application of communication campaigns c.5. Study that proposes a unified energy label for all types of lighting technologies.
3.1.3. MVE scheme produced (to ensure high quality products that will deliver the expected energy and GHG emission benefits).	c.6. MVE of LEDs technologies in the market
3.2.1 Design and evaluation of a demonstration programme implemented (for locally-appropriate LEDs and lighting controls among country selected stakeholder groups (i.e. low income residents)).	c.7. Design, bidding and evaluation of a demonstration program
3.2.2 Energy efficient lamps procured and installed	c.8. Procure and install CFLs (from cash cofinancing

	source from Ministry of Energy) c.9. Procure and install LEDs and control systems

Solid state lighting and controls used throughout Chile could significantly reduce electricity consumption and related GHG emissions. Energy consumption (watt-hours) for lighting can be reduced by deploying technologies that require lower input power (watts); and, by reducing unnecessary use (hours) through automatic controls or changes in user behaviour.

As LEDs are still not labelled and they are at high costs in Chile, at least on 2014 and 2015 the annual replacement program of the Ministry of Energy must be opened to CFL technologies. As soon as the Chilean market has certified LEDs products and costs become closer to CFL technologies, the national replacement programs will be opened to LEDs technologies.

The en.lighten initiative Partner Countries, including Chile, express a strong interest in demonstrating, evaluating and deploying light emitting diodes (LEDs), a solid-state lighting technology that meets or exceeds the efficiency of CFLs and incandescent lamps. LEDs for general illumination applications are available in developed markets, but higher initial costs and unfamiliarity among users are two of the common barriers to their deployment in developing countries. Nonetheless, many developing country governments note that LED lamps do not contain mercury and therefore may be an alternative to mercury-added lamps. The alternative option of using LED lamps is often raised by countries that experience challenges establishing a programmed for the collection, recycling and treatment of mercury-added lamps.

Lighting controls and the education of lighting users so that they can reduce wasted lighting energy also offer significant energy efficiency benefits. However, they are not widely applied in developing countries due to unfamiliarity with the technology and its benefits, limited understanding of how to use controls in lighting systems, and a lack of appropriate products for developing country conditions.

This component will develop awareness raising campaigns on the benefits of LEDs. It is suggested that these campaigns include surveys before and after the campaign to assess their success disaggregating by different population categories (i.e. age, gender) and that they take into consideration the different needs and roles of these categories concerning lighting technologies.

Through this project Chile will promote the use of LEDs and controls. Through stakeholder consultations, the project will develop a menu of market-pull activities including:

- Training and information about LEDs and controls and how they are best applied in each sector (domestic, commercial/industrial and outdoor lighting), drawing upon international best practices, case studies and published evaluations;
- Demonstrations and evaluations of LEDs and lighting controls, including case studies of financial models for offsetting the higher initial first cost of high efficiency products (such as bulk procurement discounts, leasing schemes, micro-financing, energy service company financing, low-cost loans for pre-qualified products and installation services, and other strategies proven to work in developing countries);
- Best practice technical advice for LED and lighting controls procurement, such as specification development and product performance evaluation methods;
- Development of quality specifications and/or MEPS for LED lamps and lighting controls to protect local markets and consumers from inferior products at lower price points;
- Technical advice and training via the en.lighten expert network for laboratories that intend to be qualified to test and evaluate the performance of LED lamps and lighting control products; and,

- If requested by industry or economic development authorities, technical consultations will be arranged by en.lighten for manufacturers or assemblers of lighting products, so that they can learn about and potentially produce LED lamps and controls.

Key actors include governmental authorities such as the Ministry of Energy, utilities part of the Asociación Gremial de Empresas Eléctricas and private sector companies. Chilecompra, the Direction of the Ministry of Finance in charge of public purchases, will be in the position to facilitate through framework agreements or other tools the public purchases of LED lamps.

Annually from 2007 until now, the Ministry of Energy has disposed of a national budget for massive distribution of efficient lamps to low-income households. Activities in this project will allow for opening and focusing these campaigns from CFL to LED technologies.

This component will also develop and strengthen the operational elements that will guarantee compliance with lighting labeling and MEPS for solid-state technologies. Lighting test facilities will be strengthened according to the specific needs and situation in Chile. Any MVE scheme will comply with Chile's legal system and with the framework of the National Efficient Lighting Strategy.

A.5.3. Innovativeness, sustainability and potential for scaling up

The proposed project supports the GEF climate change focal area objective CCM-1 that deals with the promotion, demonstration, deployment, and transfer of **innovative low-carbon technologies,** particularly high efficiency LED and usage-controlling lighting technologies. Although the initial cost of a typical LED lamp is still much higher than CFLs, let alone, incandescent lamps, internationally the prices are dropping rapidly and Chile aims to be a leader in using LED technology.

On ***sustainability***, a number of risks may affect the likelihood of continuation of the project's benefits after the project ends. These are listed in the next section A.6 and possible risk mitigation measures are assessed. The project will expand its strong partnership with private sector companies, technical organizations and international agencies and initiatives to encourage lighting innovation.

Regarding ***scaling up,*** the implementation of the system of labeling and standards (MEPS) together with the capacity building efforts and information and awareness campaign will lead to a larger stock of high-performing lighting products in which the mix of incandescent-CFLs-LEDs sales is changed in the coming 3-5 years from the current 60%-11%-1% to 0%-70%-18% market shares, respectively.

A.6 Risks

Including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The project is subject to risks that can be anticipated. Adequate risk management and mitigation strategies ensuring successful project implementation may be developed and implemented. The possible risks are:

Risk description	Mitigation measure	Level of risk
Policies might be recommended but not implemented. Changes of staff in policy-making bodies, especially after election time, may hinder implementation and cause delays. In this respect a new Government was formed after the national elections in 2014	Meetings with new authorities and involvement of the UNEP Regional Office for advice and contacts for the implementation of project activities Closely coordinate activities and obtain political support and advice from the UNDP and UNIDO offices in Chile The Project Steering Committee and the various seminars and	Medium

	events will also act as discussion forums for the various entities involved in efficient lighting; and allow participants to identify needs and demands through continuous dialogue	
Weak government support, which leads to inadequate and ineffective enforcement or policies and regulations.	Strengthening the capacity of staff from the Ministries, SEC and other organizations involved in the MVE system is integral part of the project. In case of lighting the project can already build upon experiences with other electric appliances and incorporate lessons learned regarding the application on labeling, MEPs and MVE for lighting products	Low
Low commitment of local laboratories to strengthen its capacity for testing of lighting products	The project will support assessment of the current capacity for testing and certification of lighting products. It will provide further training support and enhance for testing of lighting products and facilitate linkages and info exchange with similar testing labs and certification bodies in the region	Medium
Delayed implementation of activities that are baselines for specific incremental activities of the proposed project	The National Efficient Lighting Strategy provides a good indication for the planned baseline activities, including a timeframe and progress indicators for implementation. The activities in the GEF project are built upon ENIE, so can be considered a realistic schedule, but that has to be monitored and fine-tuned by the responsible agencies according to real-time progress	Medium
Low participation from the private sector actors including lighting technology manufacturers and distributors	Private sector key players have been engaged in the project's design stage and some have even expressed commitment by means of a co-financing letter (e.g., Philips, Osram) as long as the project support their marketing strategies to introduce new efficient technologies Key private stakeholders of the national lighting sector will continue to be involved in various workshops under the Project to ensure their views are taken into account and that they will comply with the adopted policies with regard to the development of a market for CFLs and LEDs as well as the phasing out of ILs and environmentally sound disposal of lamp waste	Medium
The designed and executed EE in lighting and waste management communication campaign is not effective in terms of educating and raising awareness of consumers with regard to the benefits of using LEDs, CFLs and efficient TLs	Under PPEE (2005 -2009) various educational campaigns and trainings for consumers, government officials and sales personnel were carried out, in which the program frequently cooperated with SERNAC. These experiences and lessons learned will be taken into account when continuing the info and awareness campaigning; In general, consumer education should continue as a collaborative effort, involving state entities, manufacturers, retailers, electricity companies, consumer associations and NGOs, all under the coordination of MoE/AChEE.	Low

A.7. Coordination with other relevant GEF financed initiatives

The project aligns with and provides a valuable resource for GEF's other initiatives linked to energy efficiency lighting. This project builds on the UNEP/GEF en.lighten initiative which has been established as the GEF de facto global authority on lighting energy efficiency policies. The en.lighten initiative offers a repository of knowledge and best practice experiences to promote efficient lighting solutions. UNEP coordinates all of its GEF-funded lighting projects with en.lighten's integrated policy approach. On request, the en.lighten team also consults with UNDP and World Bank lighting project teams.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE

B.1 Stakeholders and project management

Describe how the stakeholders will be engaged in project implementation.

B.1.1. Role of stakeholders in the project

Stakeholder	Role
Government and national standards-setting bodies	Policy makers, officials and technical staff within government ministries will play a crucial role in the implementation of the proposed project. In practice, the Ministry of Energy is responsible for policy and regulatory actions to promote energy efficiency. The Ministry of Environment will also play a key role because climate mitigation activities as well as mercury control competencies rely on this body. Other ministries such as economy, commerce, health and the Chilean Energy Efficiency Agency will also play a key role through their participation in the project oversight and implementation of market control activities. The national standards- setting body will play a key role in the proposed project implementation.
Energy providers	Energy utilities have an incentive in the longer term to encourage efficiency to lower capital costs for infrastructure (deferred investment in capacity expansion). Utilities can provide key inputs to the projects as they often have the best information regarding consumer demand patterns.
Testing laboratories and technical institutions	Test procedures represent the technical foundation for MEPS. Testing laboratories would actively take part in the process of standards and quality control.
Lighting manufacturers, importers, distributors and retailers	Lighting manufacturers, importers, trade associations, distributors and retailers are directly affected by energy efficiency regulations. They have valuable information about production costs and market structures. MEPS necessarily impose some burdens on manufacturers and importers, but these can be acceptable as long as they affect all companies equally and also introduce new business opportunities. Domestic and international firms will play a crucial role by providing their input. Equipment retailers will participate in the proposed project implementation by characterizing the market and consumer response to lighting product efficiency and pricing.
Environmental advocates and consumer groups	Non-governmental organizations that advocate responsible energy policies will contribute their perspectives during the development of lighting MEPS. They will provide a balancing perspective to manufacturers with regard to the stringency of MEPS and MVE schemes. Input from civil society consumer groups can ensure that regulations do not require overly expensive or less functional lighting products.
International organizations, regional banks and financial institutions	International organizations and institutions will be critical to ensure support in the implementation of national activities. The project will work very closely with the Latin American standardization organization COPANT as well as with standardization agencies and energy ministries in the region

B.1.2. Project administration arrangements

The Project is co-financed with funding from the Global Environment Facility (GEF) with the United Nations Environment Programme (UNEP) acting as the GEF Implementing Agency. UNEP, as the GEF Implementing Agency, will be responsible for the supervision of project execution to ensure consistency with GEF and UNEP policies and procedures, and will be responsible for overall project reporting. UNEP will formally participate in

steering committee meetings and terminal evaluations, clearance of half yearly and annual reports, technical review of project outputs, and additional technical assistance for the execution of the project as may be requested. The Ministry of Energy will designate Fundación Chile as the executing body. Fundación Chile is a non-profit organization with more than eight years supporting the public and private initiatives on energy efficiency, it will be accountable to the Government and UNEP/GEF for ensuring:

- Proper achievement of the objectives of the Project;
- Monitoring and evaluation of the project outputs and outcomes;
- Effective use of both international and national resources allocated to it;
- Timely availability of financing to support project implementation;
- Proper coordination among all project stakeholders; in particular national parties; and
- Timely submission of all project reports, including work plans and financial reports.

The project implementation is arrangements of the following, whose functions are detailed in Annex H.

- National Project Director (NPD)
- Project Steering Committee (PSC)
- Project Implementation Unit (PMU)
- Technical Working Group (TWG)

B.2 Socioeconomic benefits

Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

Economics

The proposed project aims to provide socio-economic benefits at the national and local level. The transition to efficient lighting significantly impacts the ability to maximize use of existing electrical power generation without having to build new and expensive generation and distribution facilities. In a time of global recession, avoiding the construction of new power plants is financially significant to any developing economy.Such transition would reduce power demand and therefore reduce expensive oil imports. The transition would also reduce peak power demand and decrease substantially the risk of black-outs.

The project delivers lighting quality and economic productivity benefits to all Chile citizens because high efficiency lamps last longer and can deliver better quality light than do inefficient incandescent lamps. The collection, recycling and environmentally sound management of spent lamps will reduce the risk of mercury contamination for all citizens. The design of a collection and recycling system organization (CRSO) and future implementation will create green jobs in Chile.

Environmental

In addition to economic benefits, the technology offers great potential to avoid CO_2 emissions from direct fossil fuel burning for electric power production (see next section B.3) and reduce related local and regional air pollution (NO_x and SO_2).In the baseline scenario of the market development of lighting products calculated with the STAP methodology, mercury content of lamps entering Chile's territory between 2015 and 2027 will equal 1,369 kg Hg. In the GEF-supported alternative trajectory, the LED penetration will be boosted and mercury content will be 1,214 kg Hg, thus avoiding 154 kg of mercury. In addition, the collection, recycling and environmentally sound management of spent lamps will significantly reduce the risk of mercury contamination for all citizens; up to 85-89% of the mercury in recycled lamps can be recovered. This project will allow the country to have an integrated waste management system that could be replicated for other types of wastes. Moreover, there is an important reduction of mercury emissions related to the energy savings. Indeed, 24.5% of Chile's electricity supply is based on coal and it is estimated that this process of energy production from coal emits 0,11mg/kWh. Therefore, the post-project direct energy savings will prevent to release 909kg mercury from energy production process.

Social benefits and gender
The project will track gender of participants in stakeholder groups, workshops, task forces, project oversight committees, project staff and staff or consultants retained by Chile. Gender as a topic will be addressed in the project team and stakeholder meetings, to help identify other areas where gender goals could be established. For example, purchasers of lighting products may have gender-related preferences that could be identified in order to encourage greater participation in market-based promotion and consumer information campaigns.

B.3. Global environmental benefits and cost-effectiveness
Explain how cost-effectiveness is reflected in the project design:

The project is expected to have a **direct emission reduction of almost 23 kilotons of CO_2** ($ktCO_2$) related to the demonstration programme directly financed by the project using GEF funding and Government co-financing. This programme consists of direct procurement and distribution of efficient lamps during the period 2015-2017. Additionally, the project has **direct post-project GHG emissions savings of 15,568 $ktCO_2$** related to standards and labels policies that will lead to the transition of the market towards more efficient lighting products (cumulatively over the period 2018-2027).
Concerning the **indirect impacts**, using a **bottom-up** methodology the emission savings are estimated to more than **83 $ktCO_2$** and using a **top-down approach** the emission savings are estimated to more than **9,104 $ktCO_2$**.

These impacts have been calculated using the GEF Energy Efficient Tool (2013), the reader is referred to Annex D for details of the impacts per activity component.

Table 6. Global environmental benefits

	Total	*2015-2017*	*2018-2027*
Direct Electricity Savings (MWh)	49,260	9,188	40,072
N/A	0	0	0
N/A	0	0	0
N/A	0	0	0
Direct Total Energy Savings (GJ)	**177,335**	33,076	144,259
Direct GHG Emission Savings (tCO2)	**22,775**	4,248	18,527
Direct Post-project GHG Emission Savings (tCO2)	**15,567,841**		15,567,841
Indirect Bottom-up Emission Savings (tCO2)	**83,372**		83,372
Indirect Top-down Emission Savings (tCO2)	**9,104,365**		9,104,365

Therefore, the **cost effectiveness** of the project considering only direct impacts (including also post-project) is **0.16 USD/tCO_2.**

C. DESCRIBE THE BUDGETED M&E PLAN

UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process.

The project will be reviewed or evaluated at mid-term. The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools.

The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE or MTR is required or if the yearly Project Implementation Review are sufficient because it is a 3 years project.

An independent terminal evaluation (TE) will take place at the end of project implementation. The Evaluation Office (EO) of UNEP will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

(i) to provide evidence of results to meet accountability requirements, and
(ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.
The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the EO when the report is finalized. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.
The direct costs of reviews and evaluations will be charged against the project evaluation budget. A summary of M&E activities envisaged is provided in Annex G. The GEF contribution for M&E activities is USD 61,500.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S)

(Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OFP endorsement letter).

Name	Position	Ministry	**DATE**(MM/dd/yyyy)
Ximena George-Nascimento	GEF Operational Focal Point	Ministry of Environment	09/12/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	**Signature**	**Date (Month, day, year)**	**Project Contact Person**	**Telephone**	**Email Address**
J. Christophe Bouvier Director, Office for Operations and Corporate Services, UNEP GEF		June 24, 2015	Ms. Ruth Zugman Do Coutto	+33 1 44 37 16 34	ruth.coutto@unep.org

Coordination Office					

ANNEX A: PROJECT LOGICAL FRAMEWORK

(either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Objective	Indicators	Baseline	Targets	Means of Verification	Assumptions & Risks	UNEP MTS reference[18]
Project Objective: Promote the rapid uptake of high energy efficient lighting technologies through the transformation of efficient lighting products markets, thereby reducing electrical demand and consumption and the related greenhouse gas (GHG) emissions.	A) Number of lamps entered in the market, IL, Hal, CFL, LED, others B) Energy savings and corresponding emission reductions	A) 2010, Sold lamps 77.3 million; technology rates IL/Hal/CFL/LED/others – 59%/14%/11%/1%/15% 2017, Sold lamps 85.7 million; technology rates IL/Hal/CFL/LED/others - 0%/14%/70%/2%/14% 2027, Sold lamps 99.5 million; technology rates IL/Hal/CFL/LED/others 0%/13%/4%/68%/15% B) Energy savings and corresponding emission reductions: 0 GWh/year; 0 ktCO2e/year	A) 2017, Sold lamps 85.7 million; technology rates[19] IL/Hal/CFL/LED/others - 0%/10%/70%/6%/14% 2027, Sold lamps 99.5 million; technology rates IL/Hal/CFL/LED/others - 0%/2%/67%/17%/14% B) Energy savings and corresponding emission reductions: Direct 2015-2017: 49 GWh; 23 ktCO2e , Direct post project: 33,671 GWh; 15,568 ktCO2e Indirect between: 83 ktCO2e and 9,104 ktCO2e	Official import and technology vendor statistics; Information will be collected by the Ministry of Energy/SEC on an annual base from national statistics and lighting suppliers surveys in the context of EE Labeling Program The source used for the estimations is UN comtrade.	The assumption is that risks as given in Section A.6 of Part II do not have negative impact on the project's progress or can be mitigated: • Policies might be recommended but not implemented; • Weak government support • Low commitment of local laboratories to strengthen capacity for testing of lighting products; • Delayed implementation of activities that are baselines activities; • Low participation from the private sector actors including lamp suppliers • The designed and executed EE in lighting and waste management communication campaign is not effective	Strategic focus: 1. Climate Change 2. Chemicals and waste

Outcomes

[18]UNEP Medium-Term Strategy (MTS) 2014-2017

[19] The STAP/GEF model used to create the BAU and the project scenarios for the market transition is based on standards and labels regulations adopted by the government which are planned to be enforced by 2020. Therefore the model shows the same technology rates for the GEF scenario than for the BAU in 2017 (IL/Hal/CFL/LED/others - 0%/14%/70%/2%/15%). However, the project aims to boost the LED market share during the project period through communication campaigns and demonstration programmes, therefore the target for LED share in 2017 is at least 4% even if this is not shown in the STAP/GEF model.

Outcome	Indicators	Baseline	Targets	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
1.1 Capacities to Monitor, Verify and Enforce (MVE) for effective transition to efficient lighting markets are strengthened	1.a Law 18.410[20] and regulations are amended 1.b Decrease in the % of non compliance according to the law (or number of fines)	0 (No) To be developed in the project first year	1 (Yes) 10-20%[21]	• Official government publications, documents and news bulletins • Project work plans; monitoring and evaluation reports • Technical reports (on labeling and MEPS; capacity assessment, market studies)	The assumption is that risks as given in Section A.6 of Part II do not have negative impact on the project's progress or can be mitigated: • Policies might be recommended but not implemented; • Weak government support • Low commitment of local laboratories to strengthen capacity for testing of lighting products; • Delayed implementation of activities that are baselines activities; • Low participation from the private sector actors including lamp suppliers • Lack of interest of national labs considering lighting products are just a small part of their income and services, no necessarily the most profitable	Expected Accomplishment(EA) 2: Low emission growth
	2. % of requests to testing lamps that are met on time as defined by contract	To be developed in the project first year	100%	• Laboratories reports and/or lamps suppliers (Philips, OSRAM, Westinghouse and others)		
	3. Rating of the certified labs according to the interlaboratorial assessment increased by at least 1 level	First interlaboratorial evaluation is currently being developed by NLTC, the results will be used as baseline	1 level	• Interlaboratorial evaluations reports with suggestions of improvement quality of services, building on baseline of Chilean and Latin America		

[20] As stated in Section A.5.2, the Law 18.410, revised in 16.05.2012, defines the products that may not be marketed in the country without the respective Certificates of Approval and defines the methods of enforcement

[21] To be revised based on the baseline to be developed in the inception phase (first year)

Outcome	Indicators	Baseline	Targets	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
2.1 Government of Chile is able to enact and enforce a national policy creating an extended producer responsibility framework and to influence user behavior	4. Law of Extended Producer Responsibility developed and endorsed *(Ley Marco para la Gestión de Residuos y responsabilidad Extendida del productor[22])*	0 (No)	1 (Yes)	• Official government journals, publications, documents and news bulletins	National Congress could not approve or delay Law of Extended Producer Responsibility; Ministry of Environment could delay regulation required for implementing the Law	Expected accomplishment (EA) 3: Waste
	5. A CRSO[23] Business Model developed, endorsed and available to be shared with potential investors in the sector	0 (No)	1 (Yes)	• Project technical reports (incl. description of waste disposal and management strategy, issues and options)		
	6. Increase of the % of population aware of the importance to dispose correctly their spent lamps (disaggregated by men/women) (proxy indicator)	The baseline will be defined during the public campaign	20%	• Reports on campaign impacts (including assessment before the campaign)		

Outcome	Indicators	Baseline	Targets	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
3.1 Consensus by consumers and decision makers in government and private sector on the increased use of solid state lighting and lighting controls in the domestic, commercial/industrial and outdoor lighting applications	7. Multistakeholder working group and a work plan stablished to build consensus on the increased use of solid state lighting and controls	0 (No)	1 (Yes)	• Work plan, reports and minutes of the working group		
	8. Standarized and comprehensive labels and/or MEPS for LED technologies are developed and adopted by the government	0 (No MEPS and labels for LEDs)	1 (Yes)	• Reports, technical studies and LEDs lamps with labels • Official government documents	• Weak government support , not giving priority to LEDs • LEDs are still too expensive for consumers	Expected Accomplishment (EA) 2: Low emission growth
	9. Increase of the % of population aware of the benefits of LED technology (disaggregated by men/women) (proxy indicator)	The baseline will be defined during the public campaign	20%	• Reports on campaign impacts (including assessment before the campaign);		
3.2. Consumers and decision makers are aware of the economic benefits of advanced lighting systems through demonstration programmes	10. Market share of LEDs from total lamps increase	In BAU scenario : 2% in 2017	6% in 2017	• The estimation for market share is based on annual sales data		

[22] http://www.camara.cl/pley/pley_detalle.aspx?prmID=9501
[23] Collection Recycling System Organization

ANNEX B: RESPONSES TO PROJECT REVIEWS

(*from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).*

Response to the Council Member comments: N.A.

Response to the GEF Secretariat review at PIF/Work PROGRAM INCLUSION

- Agency Comparative Advantage

Question 5.Does the project fit into the Agency's program and staff capacity in the country?

DER, September 28, 2012. Yes. The approach for providing integrated technical assistance from the Global Centers is innovative and should provide efficiency in the delivery of global quality policy guidance. At CEO endorsement we expect a precise description of how the global technical assistance support will be integrated with local technical support and monitored carefully for transparency and accountability.

Response: It has been developed in Annex A, G, H, I.

- Project Design

Other comments has been addressed on PIF, pending issues are:

Question 12. Has the cost-effectiveness been sufficiently demonstrated, including the cost-effectiveness of the project design approach as compared to alternative approaches to achieve similar benefits?

Response: It has been included in B.3.

Question 14. Is the project framework sound and sufficiently clear?
DER, February 8, 2013.
b) Table B has been modified to show how the GEF grant is allocated between the TA and INV components. However, it is not clear how the co-financing will be allocated. Please update that during project design.

Response: Cofinancing has been included in Table B, Also Table C has detailed cofinancing by organization and cofinancing letters from Ministry of Energy, Ministry of Environment, NLTC,Phillips, and OSRAM has been included.

Question 20. Is the project implementation/ execution arrangement adequate?
DER, September 28, 2012. Yes. As discussed in box 5, the approach for providing integrated technical assistance from the Global Centers is innovative and should provide efficiency in the delivery of global quality policy guidance. Please address the comment in box 5 at CEO endorsement.

Response: Done

Secretariat Recommendations at PIF Stage

Question 31. Items to consider at CEO endorsement/approval.
DER, September 28, 2012.
Please clarify by CEO endorsement if a facility for MVE will be created, as this may consume more of the resources.

Response: The Superintendency of Electricty and Fuels[24] in Chile is responsible for MVE of EE labeling program including MEPS. The Ministry of Energy delivered them an annual budget that it is has been considered cofinancing.

[24] www.sec.cl

Please provide precise description of how the global technical assistance support will be integrated with local technical support and monitored carefully for transparency and accountability, especially as the center may be supporting multiple countries simultaneously.

Response: Specific details for each of the knowledge transfer activities including management actions will be provided on M&E Reports

Please consider the use of lighting quality labels, especially for LEDs, modelled after similar approaches in the U.S. and EU (e.g., LED Lighting Facts)

Response: Chile has an Energy Efficient Labeling program based on EU standards from 2007, incandescent and CFL are included. Activities on this project contribute to incorporate LED lamps.

Please identify the large-scale LED demonstration program, and if possible, sustainable funding strategies.

Response:

Annually from 2007 until now the Ministry of Energy have had a national budget for massive distribution of efficient lamps to low income people. Activities on this project will allow opening and focusing these campaigns from CFL to LED technologies.

5) Clear break down of co-financing for each investment and TA component.

Response:

See Annexes clear break down for cofinancing has been provided.

Response to the comments by the STAP scientific and technical screening of the Project Identification Form (PIF):

From STAP screening February 25, 2013. Further guidance from STAP

- Distribution of 3 million CFLs in 2008/2009 by Chilean government was a good start but would be important to understand share of total incandescent bulbs it replaced. In similar contexts this has been a very small percentage. Ex-ante assessment as well as provision for monitoring are desirable.

Response:

The Chilean government annually reserve budgets for distribution campaigns of efficient technologies (CFL) to the low income sectors, an estimated 200,000 CFLs in 2013 and based on the results also LEDs will be included in future. The Superintendency of Electricity and Fuels (SEC) as part of its responsibility as the enforcement organization of Energy Efficiency Labeling Program and MEPS recently published has been evaluating and monitoring imported lamps from National Customs Statistics. The GEF project will include activities on updating market analyses and data.

- Page 10. CO2 reductions should be "over 20 Mt CO2" and not "20 TWh". Is this based on the present electricity generation mix or on how that mix might evolve out to 2030?

Response:

The figure in the PIF was corrected to 20 Mt CO2. The grid emission factor is based on the present electricity generation mix. There is not a clear vision of how evolve to 2030, although some scenarios have been evaluated through Escenarios Energeticos 2030 (www.escenariosenergeticos.cl). Various values for the emission factor

are adopted in various studies and reports (IGES, CDM projects); in this report we have chosen the value of 0.428 kgtCO_2 as mentioned in the en.lighten country assessment, which is a conservative estimate.

- The future mix of 85% CFLs, 5% LEDs and 10% incandescent is fine but, given the problems of mercury when disposing of CFLs, a higher share of LEDs could be a good target to aim for. Leap-frogging to 90% LEDs would be innovative but probably impractical. In this light project proponents are advised to consider these targets and possibly revise them.

Response:

The alternative scenario calculated using the STAP model (GEF Energy Efficiency tool v1.0) presents a mix of 70% CFLs, 18% LEDs and 0% incandescents in the lighting market by 2020 (year when the standard and labels will be implemented and enforced). Markets cannot be changed overnight, the project aims to boost the LED market during the project period and obtain a higher LED market share than the one projected in the BAU scenario by 2017 (see Annex A, Objective and Outcome 3.2). It is assumed that LED will be put in newly added lighting points or replace CFLs when they stop working.

- It's not clear what will be measured/monitored in order to assess the project success (or otherwise). Could it be the number of CFLs/LEDs sold by a certain date? Or the number actually installed? Similar to point 2 above, robust M&E system for this project is highly desirable.

Response:

The market share of efficient technologies (CFL/LED) will be measured (activity 1.1.4), compared with the baseline and alternative market trajectories estimated by the GEF/STAP Energy Efficiency tool (Annex D) and the target indicators mentioned in Annex A, and fed into monitoring and evaluation reporting (see Annex G).

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[25]

A. provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: Lighting Chile				
Project Preparation Activities Implemented	GEF/LDCF/SCCF/NPIF Amount (US$)			
	Budgeted Amount	Amount Spent Todate	Amount Committed	Balance
Consultant 1 (National Efficient Lighting Expert)	16,700	7,325	9,375	0
Consultant 2 (Reviewer)	5,250	5,250	0	0
Communications	880	0	0	880
Total	**22,830**	**12,575**	**9,375**	**880**

[25]If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: ESTIMATES OF DIRECT AND INDIRECT GREENHOUSE GAS EMISSION REDUCTION

Project Information

Project Information

Project Title	Delivering the transition to energy efficient lighting in Chile
GEF ID Number	5150
Country	Chile
Region	LCR
GEF Agency	United Nations Environment Programme
Date of Submission of GHG Accounting	22-Apr-2015
Contact Name	Ruth Coutto
First Year of Project	2015
Year of Project Close	2017
GEF Grant Amount ($)	$2,485,713
Co-financing Amount ($)	$9,419,843

General Parameters	*Default*	*User-Specified*	*Notes*
Length of Analysis Period (Years After Project Close)	20	10	
First Post-project Year		2018	
Last Post-project Year		2027	
Maximum Technology / Measure Lifetime (Years)	20	20	

Fuels and Emission Factors	*Default*	*User-Specified*	*Notes*
Grid Electricity T&D Loss Rate (%)	10%	8%	
Grid Electricity Emissions (tCO2/MWh)	0.5219	0.4281	
Fuel: Click here to select from list	0.0000	0.0000	
Fuel: Click here to select from list	0.0000	0.0000	
Fuel: Click here to select from list	0.0000	0.0000	

Step 2: List Activity Components and Select Quantification Module

Activity Component	Sector/Subsector	Logframe Output	Module/Intervention Type
LEDs replacing HAL	Lighting / all subsectors		Standards and Labeling
LEDs replacing CFL	Lighting / all subsectors		Standards and Labeling
Stringent MEPS for High Intensity Discharge Lamps	Lighting / all subsectors		Standards and Labeling
Stringent MEPS for Tubular lamps	Lighting / all subsectors		Standards and Labeling
Distribution of LEDs	Lighting / Residential		Demonstration & Diffusion
Distribution of CFLs	Lighting / Residential		Demonstration & Diffusion

Overall Results

All Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	49,260	9,188	40,072	2,360	4,007	4,007	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	**177,335**	33,076	144,259	8,496	14,426	14,426	0
Direct GHG Emission Savings (tCO2)	**22,775**	4,248	18,527	1,091	1,853	1,853	0
Direct Post-project GHG Emission Savings (tCO2)	**15,567,841**		15,567,841			2,591,134	5,480,684
Indirect Bottom-up Emission Savings (tCO2)	**83,372**		83,372				
Indirect Top-down Emission Savings (tCO2)	**9,104,365**		9,104,365				

Standards & Labeling Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	0	0	0	0	0	0	0
Direct GHG Emission Savings (tCO2)	**0**	0	0	0	0	0	0
Direct Post-project GHG Emission Savings (tCO2)	**15,567,841**		15,567,841			2,591,134	5,480,684
Indirect Bottom-up Emission Savings (tCO2)							

Building Codes Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	0	0	0	0	0	0	0
Direct GHG Emission Savings (tCO2)	**0**	0	0	0	0	0	0
Direct Post-project GHG Emission Savings (tCO2)	**0**		0			0	0
Indirect Bottom-up Emission Savings (tCO2)							

Demonstration & Diffusion Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	49,260	9,188	40,072	2,360	4,007	4,007	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	177,335	33,076	144,259	8,496	14,426	14,426	0
Direct GHG Emission Savings (tCO2)	**22,775**	4,248	18,527	1,091	1,853	1,853	0
Direct Post-project GHG Emission Savings (tCO2)							
Indirect Bottom-up Emission Savings (tCO2)	**83,372**		83,372				

Financial Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	0	0	0	0	0	0	0
Direct GHG Emission Savings (tCO2)	**0**	0	0	0	0	0	0
Direct Post-project GHG Emission Savings (tCO2)	**0**		0				
Indirect Bottom-up Emission Savings (tCO2)	**0**		0				

Standards and Labeling Module

Project Information

Project Title	Delivering the transition to energy efficient lighting in Chile
Country	Chile
Contact Name	Ruth Coutto
First Year of Project	2015
Last Year of Project	2017

Results: Standards and Labeling Activity Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	0	0	0	0	0	0	0
Direct GHG Emission Savings (tCO2)	0	0	0	0	0	0	0
Direct Post-project GHG Emission Savings (tCO2)	15,567,841		15,567,841			2,591,134	5,480,684
Indirect Bottom-up Emission Savings (tCO2)							

Component 1: LEDs replacing HAL -- General Inputs

Technology Specifications

	Default	*User-Specified*	*Notes*
Target Technology	LED Lighting	LED Lighting	
Fuel Used	Electricity	Electricity	
Displaced Technology	Improved CFL	Halogen lamp	
Useful Technology Lifetime (years)	5	15	Lifetime of LEDs
Power Consumption: LED Lighting (W)	14	12	
Power Consumption: Halogen lamp (W)	15	68	

Annual Energy Consumption

User may enter either daily or annual energy information	*Default*	*User-Specified*	*Notes*
Daily Usage (hr/day)	8.0	4.1	This daily usage is a proportional average considering all sectors
Days Used Each Year (days/yr)	200	365	
Annual Energy Consumption: LED Lighting (kWh/yr)	22	18	
Annual Energy Consumption: Halogen lamp (kWh/yr)	24	102	
Percentage Energy Savings		82%	

Market Assumptions

	Default	*User-Specified*	*Notes*
Annual Sales in Year 2015		12,514,400	Total market of Halogens and 58% of LED market (because Halogen represents 58% of the market that can be replaced by LEDs). Calculated based on shipments from Comtrade in 2010 and estimating the 2015 with a 1.5% growth rate.
Annual Sales Growth Rate		1.5%	

Baseline Assumptions

	Default	*User-Specified*	*Notes*
Market Share of LED Lighting in Year 2015		4.7%	
Baseline Annual Increase in LED Lighting Market Share	5%	1%	
Annual reduction in energy consumption: LED Lighting	0%	0%	
Annual reduction in energy consumption: Improved CFL	1%	1%	

Standard/Labeling Program Effectiveness

	Default	*User-Specified*	*Notes*
Year Standard in Force		2020	
Percent New Sales Compliant with Standard		90%	

Component 2: LEDs replacing CFL -- General Inputs

Technology Specifications	Default	User-Specified	Notes
Target Technology	LED Lighting	LED Lighting	
Fuel Used	Electricity	Electricity	
Displaced Technology	Improved CFL	CFL	
Useful Technology Lifetime (years)	5	15	Lifetime of LEDs
Power Consumption: LED Lighting (W)	14	12	
Power Consumption: CFL (W)	15	18	

Annual Energy Consumption *User may enter either daily or annual energy information*	Default	User-Specified	Notes
Daily Usage (hr/day)	8.0	4.1	
Days Used Each Year (days/yr)	200	365	
Annual Energy Consumption: LED Lighting (kWh/yr)	22	18	
Annual Energy Consumption: CFL (kWh/yr)	24	27	
Percentage Energy Savings		33%	

Market Assumptions	Default	User-Specified	Notes
Annual Sales in Year 2015		9,207,600	Total maket of CFLs and 42% of LED market (because CFL represents 42% of the market that can be replaced by LEDs). Calculated based on shipments from Comtrade in 2010 and estimating the 2015 with a 1.5% growth rate.
Annual Sales Growth Rate		1.5%	

Baseline Assumptions	Default	User-Specified	Notes
Market Share of LED Lighting in Year 2015		4.7%	Share of LED/(LED+CFL) in BAU in 2015
Baseline Annual Increase in LED Lighting Market Share	5%	1%	
Annual reduction in energy consumption: LED Lighting	0%	0%	
Annual reduction in energy consumption: Improved CFL	1%	1%	

Standard/Labeling Program Effectiveness	Default	User-Specified	Notes
Year Standard in Force		2020	
Percent New Sales Compliant with Standard		30%	Share of LED/(LED+CFL) in GEF scenario in 2020

Component 3: Stringent MEPS for High Intensity Discharge Lamps -- General Inputs

Technology Specifications	Default	User-Specified	Notes
Target Technology	T-8 Fluor. Lamp	Efficient HID	
Fuel Used	Electricity	Electricity	
Displaced Technology	T-12 Fluor. Lamp	HID	
Useful Technology Lifetime (years)	5	4	
Power Consumption: Efficient HID (W)	28	120	
Power Consumption: HID (W)	40	150	

Annual Energy Consumption *User may enter either daily or annual energy information*	Default	User-Specified	Notes
Daily Usage (hr/day)	5.0	10.0	
Days Used Each Year (days/yr)	350	365	
Annual Energy Consumption: Efficient HID (kWh/yr)	49	438	
Annual Energy Consumption: HID (kWh/yr)	70	548	
Percentage Energy Savings		20%	

Market Assumptions	Default	User-Specified	Notes
Annual Sales in Year 2015		2,186,000	
Annual Sales Growth Rate		1.5%	

Baseline Assumptions	Default	User-Specified	Notes
Market Share of Efficient HID in Year 2015		19.9%	
Baseline Annual Increase in Efficient HID Market Share	5%	6%	
Annual reduction in energy consumption: Efficient HID	0%	0%	
Annual reduction in energy consumption: T-12 Fluor. Lamp	1%	1%	

Standard/Labeling Program Effectiveness	Default	User-Specified	Notes
Year Standard in Force		2020	
Percent New Sales Compliant with Standard		90%	

Component 4: Stringent MEPS for Tubular lamps -- General Inputs

Technology Specifications	Default	User-Specified	Notes
Target Technology	T-8 Fluor. Lamp	T-8 Fluor. Lamp	
Fuel Used	Electricity	Electricity	
Displaced Technology	T-12 Fluor. Lamp	T-12 Fluor. Lamp	
Useful Technology Lifetime (years)	5	6	
Power Consumption: T-8 Fluor. Lamp (W)	28	27	
Power Consumption: T-12 Fluor. Lamp (W)	40	36	

Annual Energy Consumption *User may enter either daily or annual energy information*	Default	User-Specified	Notes
Daily Usage (hr/day)	5.0	6.7	
Days Used Each Year (days/yr)	350	365	
Annual Energy Consumption: T-8 Fluor. Lamp (kWh/yr)	49	66	
Annual Energy Consumption: T-12 Fluor. Lamp (kWh/yr)	70	88	
Percentage Energy Savings		25%	

Market Assumptions	Default	User-Specified	Notes
Annual Sales in Year 2015		10,061,000	
Annual Sales Growth Rate		1.5%	

Baseline Assumptions	Default	User-Specified	Notes
Market Share of T-8 Fluor. Lamp in Year 2015		12%	
Baseline Annual Increase in T-8 Fluor. Lamp Market Share	5%	6%	
Annual reduction in energy consumption: T-8 Fluor. Lamp	0%	0%	
Annual reduction in energy consumption: T-12 Fluor. Lamp	1%	1%	

Standard/Labeling Program Effectiveness	Default	User-Specified	Notes
Year Standard in Force		2020	
Percent New Sales Compliant with Standard		90%	

Step 3: Model Activity Components

Demonstration/Diffusion Module

Project Information

Project Title	Delivering the transition to energy efficient lighting in Chile
Country	Chile
Contact Name	Ruth Coutto
First Year of Project	2015
Last Year of Project	2017

Results: Demonstration/Diffusion Activity Components

	Cumulative			Annual			
	Total	*2015-2017*	*2018-2027*	*2015*	*2017*	*2025*	*2035*
Direct Electricity Savings (MWh)	49,260	9,188	40,072	2,360	4,007	4,007	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
N/A	0	0	0	0	0	0	0
Direct Total Energy Savings (GJ)	177,335	33,076	144,259	8,496	14,426	14,426	0
Direct GHG Emission Savings (tCO2)	**22,775**	4,248	18,527	1,091	1,853	1,853	0
Direct Post-project GHG Emission Savings (tCO2)							
Indirect Bottom-up Emission Savings (tCO2)	**83,372**		83,372				

Component 1: Distribution of LEDs -- General Inputs

Component Specifications	*Default*	*User-Specified*	*Per Unit*	*Notes*
Annual Electricity Savings (MWh)		0.110		Annual savings for replacing one Incandescent lamp by one LED

Useful Lifetime of Investment	15	15		

Baseline Assumptions	*Default*	*User-Specified*	*Notes*
Percent of Activities Implemented in the Baseline	10%	0%	The current national distribution program only considers CFLs and not LEDs. The project will allow the Ministry of Energy to distribute LEDs as part of the efficient lamps distributions (part of this LED distribution procuredd directly using GEF grant (19,166 units) and part of it as cofinancing by the Ministery of Energy (17,263)).

Indirect Bottom-up Estimate	*Default*	*User-Specified*	*Notes*
Number of s Implemented During Project Period		36,429	
Number of Replications Post-project as Spillover		3	Replication factor
Total		109,287	

Component 1: Distribution of LEDs -- Annual Inputs and Calculations

		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
PROGRAMME	(s) in Year	21,454	4,189	10,786										
BASELINE	(s) in Year	0	0	0										
NET	Cumulative (s) in Place	21,454	25,643	36,429	36,429	36,429	36,429	36,429	36,429	36,429	36,429	36,429	36,429	36,429
DIRECT SAVINGS	Annual Electricity Savings (MWh)	2,360	2,821	4,007	4,007	4,007	4,007	4,007	4,007	4,007	4,007	4,007	4,007	4,007
---		0	0	0	0	0	0	0	0	0	0	0	0	0
---		0	0	0	0	0	0	0	0	0	0	0	0	0
---		0	0	0	0	0	0	0	0	0	0	0	0	0

TOTALS	Direct Energy Avoided 2015-2017 (GJ)	33,076	Direct GHG Avoided 2015-2017 (tCO2)	4,248
	Direct Energy Avoided 2018-2027 (GJ)	144,259	Direct GHG Avoided 2018-2027 (tCO2)	18,527
	Direct Post-project Energy Avoided 2018-2027 (GJ)	0	Direct Post-project GHG Avoided 2018-2027 (tCO2)	0

INDIRECT BOTTOM-UP SAVINGS	2018-2027	83,372	tCO2

Component 2: Distribution of CFLs -- General Inputs

Component Specifications	Default	User-Specified	Per Unit	Notes
Annual Electricity Savings (MWh)		0.100		Annual savings for replacing one Incandescent lamp by one CFL

Useful Lifetime of Investment	15	6		

Baseline Assumptions	Default	User-Specified	Notes
Percent of Activities Implemented in the Baseline	10%	100%	National distributions of CFL by the Ministry of Energy are already planned for the next years. However, a 0% influence of the project is considered a conservative approach, because the project might have an incluence on the quality of the ditributed CFLs.

Indirect Bottom-up Estimate	Default	User-Specified	Notes
Number of s Implemented During Project Period		0	
Number of Replications Post-project as Spillover		2	Replication factor
Total		0	

Component 2: Distribution of CFLs -- Annual Inputs and Calculations

		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
PROGRAMME	(s) in Year	564,594	563,168	567,453										
BASELINE	(s) in Year	564,594	563,168	567,453										
NET	Cumulative (s) in Place	0	0	0	0	0	0	0	0	0	0	0	0	0
DIRECT SAVINGS	Annual Electricity Savings (MWh)	0	0	0	0	0	0	0	0	0	0	0	0	0
---		0	0	0	0	0	0	0	0	0	0	0	0	0
---		0	0	0	0	0	0	0	0	0	0	0	0	0
---		0	0	0	0	0	0	0	0	0	0	0	0	0

TOTALS	Direct Energy Avoided 2015-2017 (GJ)	0	Direct GHG Avoided 2015-2017 (tCO2)	0
	Direct Energy Avoided 2018-2027 (GJ)	0	Direct GHG Avoided 2018-2027 (tCO2)	0
	Direct Post-project Energy Avoided 2018-2027 (GJ)	0	Direct Post-project GHG Avoided 2018-2027 (tCO2)	0

INDIRECT BOTTOM-UP SAVINGS	2018-2027	0 tCO2

Step 4: Calculate Indirect Top-Down Impacts

	User-Specified
Total Market Potential (tCO2)	18,208,730
Causality factor	50%
Indirect Top-Down Emission Reductions (tCO2)	9,104,365

Notes

Based on 100% new sales compliant with standards in 2020, and penetration of LEDs is doubled.

This is a conservative causality factor since Chile is already carrying on some initiatives to reduce GHG emissions within the framework of its National Efficient Lighting Strategy. Nevertheless, this GEF project will substantially contribute to implement key elements of this national strategy.

Standardized Suggestions for Causality Factor

The GEF contribution is…	Causality Factor
Level 5 - "critical"	100%
Level 4 - "dominating"	80%
Level 3 - "substantial but modest"	60%
Level 2 - "modest"	40%
Level 1 - "weak"	20%

ANNEX E: CONSULTANTS TO BE HIRED

The following table gives an overview of the international, national and subcontracts to be hired

Position Titles	$/ Person Week*	Estimated Person Weeks**	Total	Tasks To Be Performed
For Project Management				
Local				
Project Manager[1]	1 250	76	95 000	The PM will be responsible for the day-to-day project operations, financial accounts, periodic reporting to UNEP and the PSC and for allocation of the GEF grant according to the quarterly and annual work plans and budgets in coordination with UNEP and MoE. The PM will also act as secretary of the PSC. The PM will prepare, at the end of the project, the project Terminal Report.
Justification for travel, if any: Travel of Project coordinator UNEP to Chile; Participation on International specialized technical meetings, Lighting Fairs; Laboratory training for about 4 people - 5 days in Beijing (at GELC laboratory facilities); 5-day training course in the Ambilamp Academy (Madrid), including field trip to Bilbao, covering the following topics: international regulations, extended producer responsibility, CRSOs creation and operation, case studies, and hands-on activities for strategy development;				
For Technical Assistance				
Local				
Ntl Evaluate feasibility climate finance tools like NAMA or others	2800	15	41 620	Feasibility study for financing lighting projects through climate finance tools
Ntl ESM Specialist	2500	36	89 614	Local counterpart for the design of business plan for the CRSO
Ntl Study with proposal of unified labelling for lighting technologies	3250	20	64 818	Study with technical and market base for defining an existing unified or new label for LEDs
Ntl Design of demo program LEDs in selected consumer groups	2800	69	192 780	Selection and design of demo programs LEDS, in different sectors an with different partners
International				
Intl MEPS specialist	2500	12	29 342	Support the country in developing labels and/or MEPS for LED lamps; includes 3 working sessions with stakeholders, 5 days per session
Intl ESM-CRSO specialist	2500	32	78 842	Design the business plan for the CRSO, this includes national consultations (aprox 5 days), and training for CRSO operations (5 days, aprox 10 people)
Justification for travel, if any: Participation on International specialized technical meetings, Lighting Fairs; Laboratory training for about 4 people - 5 days in Beijing (at GELC laboratory facilities); 5-day training course in the Ambilamp Academy (Madrid), including field trip to Bilbao, covering the following topics: international regulations, extended producer responsibility, CRSOs creation and operation, case studies, and hands-on activities for strategy development;				

[1] *This table statesthe Project Manager salary that will be paid from the GEF grant, the amount of 95,000USD will cover 76 weeks of work of the PM. In addition, Fundacion Chile will contribute with 28,500USD of cofinance in order to complete the salary of the PM.*

Chile has requested UNEP / en.lighten to provide technical support in delivering certain activities such as: Assessment of the status of the existing national testing capacities, and proposal for strengthening labs and testing capacities; Assessment of the status of the existing lighting safety and efficiency tests in the national labs, and proposal for improvement; Design of an operational framework and strategy for collection, recycling and disposal of used lamps; Development of labels and/or MEPS for LED lamps; Trainings related to different elements of the three components of the project.A letter of request is attached to this project document.

ANNEX F: DETAILED GEF AND COFINANCING BUDGET

F.1 Detailed GEF grant budget

ANNEX F-1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US$)												
Project title:			Delivering the transition to energy efficient lighting in Chile									
Project number:			5150									
Project executing partner:			Fundación Chile									
Project implementation period:			2015 - 2017						*Insert actual year			
			Expenditure by project component/activity (provide description)						Add additional years as required			
			1. Strengthening monitoring, verification and enforcement (MVE) capacities to ensure an effective transition to efficient lighting markets	2. Ensuring an environmentally sound management and sustainable transition to efficient lighting	3. Lighting innovation: accelerating the use of solid state lighting (including light emitting diodes (LEDs) and controls	4. Project Management	5. M&E (Audit & External Evaluation)	Total	Expenditure by calendar year			
UNEP Budget Line									Year 1*	Year 2*	Year 3*	Total
10	**PERSONNEL COMPONENT**											
	1100	Project personnel										
	1101	Project Director				-		-				-
	1102	Project Manager				95,000		**95,000**	35,000	30,000	30,000	**95,000**
	1103	Secretariat Support				-		**-**	-	-	-	**-**
	1181	UNEP DTIE/en.lighten technical support	56,250	46,856	56,250			**159,356**	53,119	53,119	53,119	**159,356**
	1182	UNEP Technical Support						**-**				**-**
	1199	**Sub-total**	**56,250**	**46,856**	**56,250**	**95,000**	**-**	**254,356**	**88,119**	**83,119**	**83,119**	**254,356**
	1200	Consultants						**-**				**-**
	1201	Ntl Evaluate feasibility climate finance tools like NAMA or others	41,620					**41,620**	41,620			**41,620**
	1202	Ntl ESM Specialist		89,614				**89,614**		89,614		**89,614**
	1203	Ntl Study with proposal of unified labelling for lighting technologies			64,818			**64,818**		64,818		**64,818**
	1204	Ntl Design of demo program LEDs in selected consumer groups			192,780			**192,780**	90,000	102,780		**192,780**
	1281	Intl MEPS specialist			29,342			**29,342**		29,342		**29,342**
	1282	Intl ESM-CRSO specialist		78,842				**78,842**	-	78,842		**78,842**
	1299	**Sub-total**	**41,620**	**168,456**	**286,940**	**-**	**-**	**497,016**	**131,620**	**365,396**	**-**	**497,016**
	1300	Administrative Support						**-**				**-**
	1301							**-**				**-**
	1302							**-**				**-**
	1399	**Sub-total**	**-**	**-**	**-**			**-**	**-**	**-**	**-**	**-**
	1600	Travel on official business						**-**				**-**
	1681	Travels of enlighten staff	8,589	12,506	13,842			**34,937**	12,000	12,000	10,937	**34,937**
	1682	Travels national and intnl PM				20,000		**20,000**	10,000	5,000	5,000	**20,000**
	1699	**Sub-total**	**8,589**	**12,506**	**13,842**	**20,000**	**-**	**54,937**	**22,000**	**17,000**	**15,937**	**54,937**
1999	**Component total**		**106,459**	**227,818**	**357,032**	**115,000**	**-**	**806,309**	**241,739**	**465,515**	**99,056**	**806,309**

			Comp.1	Comp. 2	Comp. 3	PMC	M&E	**Total**	Year 1	Year 2	Year 3	**Total**
20	**SUB-CONTRACT COMPONENT**							**-**				**-**
	2100	Sub-contracts (MOUs/LOAs for cooperating agencies)						**-**				**-**
	2101							**-**				**-**
	2199	**Sub-total**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**
	2200	Sub-contracts (MOUs/LOAs for supporting organizations)						**-**				**-**
	2201	Technical Support Fundacion Chile Phase 1		120,000				**120,000**	50,000	50,000	20,000	**120,000**
	2202	Technical Support Fundacion Chile Phase 2			205,000			**205,000**	70,000	70,000	65,000	**205,000**
	2281	GELC - MVE specialists (technical support, trainings, travel costs)	114,052		61,684			**175,736**	60,000	60,000	55,736	**175,736**
	2299	**Sub-total**	**114,052**	**120,000**	**266,684**	**-**	**-**	**500,736**	**180,000**	**180,000**	**140,736**	**500,736**
	2300	Sub-contracts (for commercial purposes)						**-**				**-**
	2301	Disemination of campaign on collection and recycling		200,000				**200,000**		100,000	100,000	**200,000**
	2302	Consumer awareness and communication campaign			196,344			**196,344**	-	81,344	115,000	**196,344**
	2399	**Sub-total**	**-**	**200,000**	**196,344**	**-**	**-**	**396,344**	**-**	**181,344**	**215,000**	**396,344**
2999	**Component total**		**114,052**	**320,000**	**463,028**	**-**	**-**	**897,080**	**180,000**	**361,344**	**355,736**	**897,080**
								-				**-**
30	**TRAINING COMPONENT**							**-**				**-**
	3200	Group training						**-**				**-**
	3201	Training to Supertintendencia de Electricidad y Combustibles (SEC) and Customs professionals	29,250					**29,250**	10,000	19,250		**29,250**
	3281	MVE training logistics (catering, facilities,materials,translations)	12,500					**12,500**	12,500			**12,500**
	3282	Training with Ambilamp (fees, logistics and travels of trainees and trainers)		92,190				**92,190**	92,190			**92,190**
	3283	Training on CRSO (fees, logistics and travels of trainees and trainers)		31,000				**31,000**	31,000			**31,000**
	3284	Training on LED (fees, logistics and travels of trainer)			27,307			**27,307**		27,307		**27,307**
	3299	**Sub-total**	**41,750**	**123,190**	**27,307**	**-**	**-**	**192,247**	**145,690**	**46,557**	**-**	**192,247**
	3300	Meetings/Conferences						**-**				**-**
	3301	Assistance to International conferences	28,100					**28,100**	10,000	10,000	8,100	**28,100**
	3381	Workshops/Consultations on CRSO (fees and logistics)		54,000				**54,000**	54,000	-		**54,000**
	3382	Inception Workshop					1,500	**1,500**	1,500	-		**1,500**
	3399	**Sub-total**	**28,100**	**54,000**	**-**	**-**	**1,500**	**83,600**	**65,500**	**10,000**	**8,100**	**83,600**
3999	**Component total**		**69,850**	**177,190**	**27,307**	**-**	**1,500**	**275,847**	**211,190**	**56,557**	**8,100**	**275,847**

			Comp.1	Comp. 2	Comp. 3	PMC	M&E	**Total**	Year 1	Year 2	Year 3	**Total**
40	**EQUIPMENT AND PREMISES COMPONENT**							**-**				**-**
	4100	Expendable equipment						**-**				**-**
	4101	Implement demo programs (procure and install LFC/LEDs)			431,477			**431,477**	30,000	200,000	201,477	**431,477**
	4102	Other equipment				10,000		**10,000**	10,000	-	-	**10,000**
	4199	**Sub-total**	**-**	**-**	**431,477**	**10,000**	**-**	**441,477**	**40,000**	**200,000**	**201,477**	**441,477**
	4200	Non-expendable equipment						**-**				**-**
	4201	Other equipments				5,000		**5,000**	5,000	-		**5,000**
	4202							**-**				**-**
	4203							**-**				**-**
	4299	**Sub-total**	**-**	**-**	**-**	**5,000**	**-**	**5,000**	**5,000**	**-**	**-**	**5,000**
4999	**Component total**		**-**	**-**	**431,477**	**15,000**	**-**	**446,477**	**45,000**	**200,000**	**201,477**	**446,477**
								-				**-**
50	**MISCELLANEOUS COMPONENT**							**-**				**-**
	5299	**Sub-total**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**
	5300	Sundry						**-**				**-**
	5301	Audit					10,000	**10,000**	3,333	3,333	3,334	**10,000**
	5302							**-**				**-**
	5303							**-**				**-**
	5399	**Sub-total**	**-**	**-**	**-**	**-**	**10,000**	**10,000**	**3,333**	**3,333**	**3,334**	**10,000**
	5500	Evaluation						**-**				**-**
	5501	Terminal Evaluation					25,000	**25,000**			25,000	**25,000**
	5502	MTR/MTE					25,000	**25,000**		25,000		**25,000**
	5581							**-**				**-**
	5599	**Sub-total**	**-**	**-**	**-**	**-**	**50,000**	**50,000**	**-**	**25,000**	**25,000**	**50,000**
5999	**Component total**		**-**	**-**	**-**	**-**	**60,000**	**60,000**	**3,333**	**28,333**	**28,334**	**60,000**
								-				**-**
99	**GRAND TOTAL**		**290,361**	**725,008**	**1,278,844**	**130,000**	**61,500**	**2,485,713**	**681,262**	**1,111,749**	**692,703**	**2,485,713**

ANNEX G: M&E BUDGET AND WORK PLAN

M&E Activity	Description	Responsible Parties	Timeframe	Indicative GEF budget (USD)
Inception Workshop (IW) and Report	Report prepared immediately following the IW; it includes: Detailed Work Plan and budget for the first year, as well as an overview of AWPs for subsequent years, divided per output and inputs (budget lines). A more detailed narrative of roles of UNEP, PMU and PSC: institutional responsibilities, coordinating actions and feedback mechanisms Detailed Project Supervision and a M&E Plan	Execution: PMU, MoE, Fchile and UNEP	Immediately following, within 2 months of project start-up	Part of Project manager tasks GEF: 1,500
Half-yearly progress report; Quarterly financial reports;	Part of UNEP procedures for project monitoring. Quarterly financial: Detailed financial reports (in Excel), with justification of any change; Bi-annual progress: Analyzes project performance over the reporting period UNEP; Describes constraints experienced in the progress towards results and the reasons Describes Work Plan for the next period in an Annex and the detailed budget divided per output and inputs (budget lines)	Execution: UNEP Support : PMU	Two bi-annual reports for any given year (July 31 and January 31); Quarterly financial reports Last progress & financial Reports within 60 days of project closure of operations	GEF: Part of project manager tasks Co-fin: 5,000
Technical and thematic Reports; Communication of lessons learnt	Technical and thematic periodic reports could also be prepared to focus on specific issues or areas of activity covered by the project,	Execution: PMU Support: MoE	As necessary for the thematic reports	GEF: Part of project Components Co-fin: 10,000
Project Implementation Review (PIR)	Analyzes project performance over the reporting period UNEP; Describes constraints experienced in the progress towards results and the reasons Draws lessons and makes clear recommendations for future orientation in addressing the key problems in the lack of progress.	Execution: PMU Support: UNEP and government counterparts	Yearly, by 31 July latest	GEF: Part of project manager tasks Co-fin: 10,000
	The PIR is discussed at PSC meetings	Discussed and accepted at PSC (Project Steering Committee) meetings		

Medium-Term Evaluation /Medium-Term Review	The purpose of the Mid-Term Evaluation (MTE) or Mid-Term Review (MTR) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. Since for a short duration project, PIR can serve as the project Mid-Term Review (MTR), the need of a MTE or MTR for this project will be assessed according to the progress of the project.	Execution: independent consultants; Input: PMU, UNEP, MoE	One-three months prior to the end of the project	GEF: 25,000
Final Report	The project team will draft and submit a Project Final Report, with other docs (such as last PIR) can serve as Project Final Report to the UNEP, at least two weeks before the PSC meeting for their review and comments; this meeting decides whether any action is needed to achieve the sustainability of project results; and draws lessons to be captured into other projects; Comprehensive report summarizing all activities, achievements, lessons learned, objectives met or not achieved structures and systems implemented, etc. Lays out recommendations for any further steps that may need to be taken to ensure the sustainability and replication of project activities.	Execution: PMU; Input: Government counterparts; Support: UNEP	Final report at least two-three months of the project completion date;	GEF: Part of project manager tasks; Co-fin: 10,000
Terminal Evaluation	Looks at the impacts and sustainability of the results, including the contribution to capacity development and the achievement of global environmental goals.	Execution: independent consultants; Input: PMU, UNEP, MoE	One-three months prior to the end of the project	GEF: 25,000; Co-fin: 5,000
Audits	Financial audits	Execution: PMU	Annually	GEF: 10,000
TOTAL indicative COST **(Excluding project team staff time and UNEP staff and travel expenses)**				**GEF: USD 61,500** **Co-fin: USD 40,000**

ANNEX H: PROJECT IMPLEMENTATION ARRANGEMENTS

Project management and supervision

The Project is co-financed with funding from the Global Environment Facility (GEF) with the United Nations Environment Programme (UNEP) acting as the GEF Implementing Agency. UNEP as the GEF Implementing Agency will be responsible for the supervision of project execution to ensure consistency with GEF and UNEP policies and procedures, and will be responsible for overall project reporting. UNEP will formally participate in steering committees meetingsand terminal evaluations, clearance of half yearly and annual reports, technical review of project outputs, and additional technical assistance for the execution of the project as may be requested. UNEP will cooperate with Ministry of Energy. The Ministry of Energy will designate Fundación Chile as the executing body. Fundación Chile will be accountable to the Ministry of Energy, Government and UNEP/GEF for ensuring:

- Proper achievement of the objectives of the Project;
- Monitoring and evaluation of the project outputs and outcomes;
- Effective use of both international and national resources allocated to it;
- Timely availability of financing to support project implementation;
- Proper coordination among all project stakeholders; in particular national parties; and
- Timely submission of all project reports, including work plans and financial reports.

The project implementation arrangements comprise the following:

- National Project Director (NPD)
- Project Steering Committee (PSC)
- Project Implementation Unit (PMU)
- Technical Working Group (TWG)

National Project Director (NPD)

Within Ministry of Energy, responsibility will be with a high-ranking official, either the Vice Minister for Energy or the Chief of Energy Efficiency Division, or whom they assign with this job. He/She will act as National Project Director and thus assumes responsibility for the Project on behalf of the National Government.

Project Steering Committee (PSC)

The PSC is the highest decision-making authority of this project. The main role of the PSC is

- Guide and oversee the technical progress and performance of the Project, and
- Enhance and optimize the contributions of various partner organizations through coordination of all activities and inputs.

The PSC meetings will be formally called by the National Project Director (as Chairperson of the PSC) at least twice a year to discuss the project performance and provide future guidance. Extraordinary meetings will be held if deemed necessary by one of the PSC members.

The PSC is likely to include high level representatives from: MoE, MMA, ACHEE, Chilecompra, FCH, UNEP, Osram, Philips, NLTC, SEC and other stakeholders (e.g. main lamp representatives, NGOs) can be invited to attend meetings on an as-needed basis.

Project Management Unit (PMU)

The PMU will be formally headed by the National Project Director (in-kind contribution of MoE) and further consist of

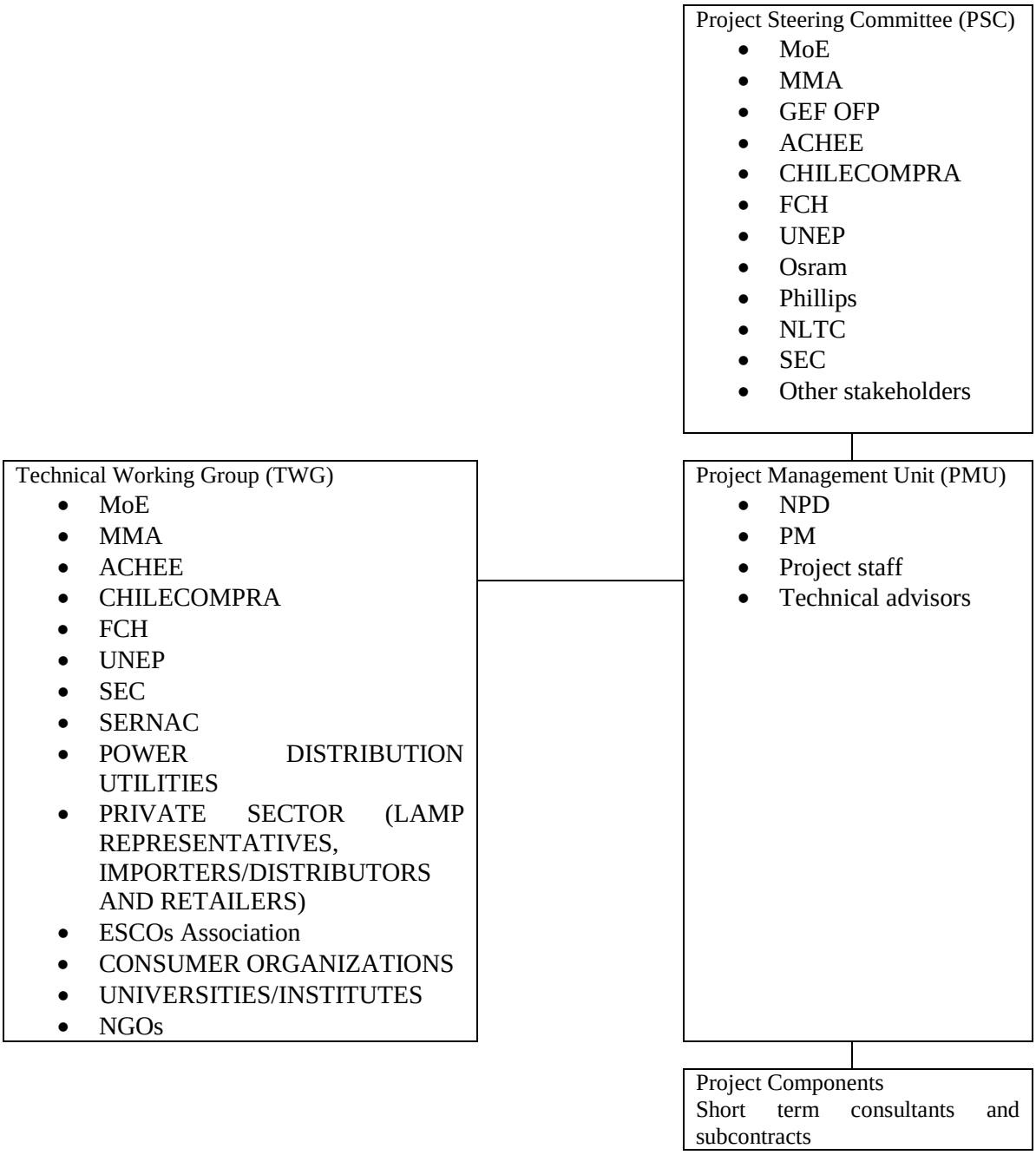
- Project Manager (PM, paid partially for with GEF funds and partially by EA) assisted by
- Technical Advisors (partly funded by GEF) that will be provide advice and guidance in selected project areas and financial support staff as well as
- Professional and support staff fully financed by MoE
- Consultants could act as Technical Advisors (TA) without being permanent staff

The PMU will be physically placed at MoE or as a small unit at other premises.

The PM will be responsible for the day-to-day project operations, financial accounts, periodic reporting to UNEP and the PSC and for allocation of the GEF grant according to the quarterly and annual work plans and budgets in coordination with UNEP and MoE. The PM will also act as secretary of the PSC. The PM will prepare, at the end of the project, the project Terminal Report.

Technical Working Group (TWG)

To interact with stakeholders at the institutional level, it is foreseen that a Technical Working Group (TWG) will be formed consisting of the government entities participating in PSC, power distribution utilities, ESCOs Association, private sector (lamp representatives, importers/distributors and retailers) as well as consumer organizations, universities/institutes and NGOs. The TWG will meet regularly during project implementation.


Project Steering Committee (PSC)
MoE
MMA
GEF OFP
ACHEE
CHILECOMPRA
FCH
UNEP
Osram
Phillips
NLTC
SEC
Other stakeholders
Technical Working Group (TWG)
MoE
MMA
ACHEE
CHILECOMPRA
FCH
UNEP
SEC
SERNAC
POWER DISTRIBUTION UTILITIES
PRIVATE SECTOR (LAMP REPRESENTATIVES, IMPORTERS/DISTRIBUTORS AND RETAILERS)
ESCOs Association
CONSUMER ORGANIZATIONS
UNIVERSITIES/INSTITUTES
NGOs
Project Management Unit (PMU)
NPD
PM
Project staff
Technical advisors
Project Components
Short term consultants and subcontracts

ANNEX I: WORK PLAN WITH DELIVERABLES AND BENCHMARKS

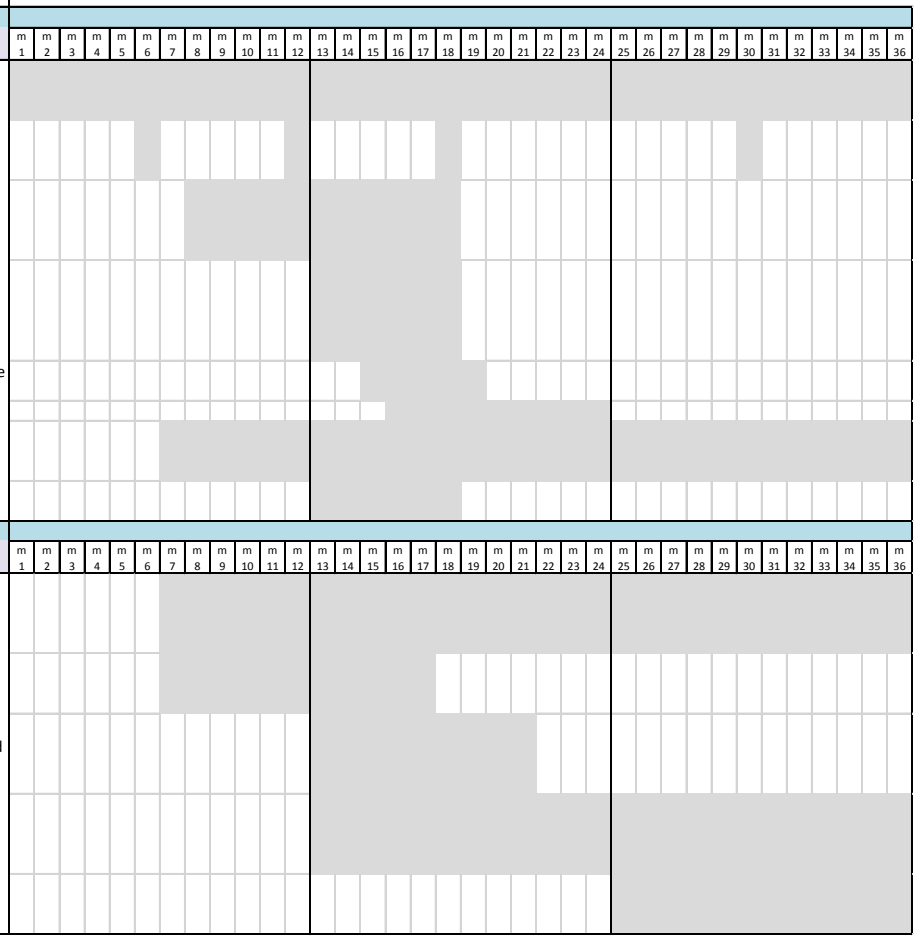
Key Deliverables

Energy savings and GHG emission reduction of alternative vs. baseline scenario:

	Total	*2015-2017*	*2018-2027*
Direct Electricity Savings (MWh)	49,260	9,188	40,072
N/A	0	0	0
N/A	0	0	0
N/A	0	0	0
Direct Total Energy Savings (GJ)	**177,335**	33,076	144,259
Direct GHG Emission Savings (tCO2)	**22,775**	4,248	18,527
Direct Post-project GHG Emission Savings (tCO2)	**15,567,841**		15,567,841
Indirect Bottom-up Emission Savings (tCO2)	**83,372**		83,372
Indirect Top-down Emission Savings (tCO2)	**9,104,365**		9,104,365

Work Plan and deliverables

Expected Component/Outcome/Output/Activity		Deliverables
1. Strengthening monitoring, verification and enforcement (MVE) capacities to ensure an effective transition to efficient lighting markets		
1.1 Capacities to Monitor, Verify and Enforce (MVE) for effective transition to efficient lighting markets are strengthened		
1.1.1 Defined and implemented legal and administrative processes to improve compliance with national standards	Activity a.0. Regular management of EE labelling and MEPS	- Complete system of administrative processes to improve compliance for lighting products - Reports on participations in regional and international events - Shared information with other countries on regional cooperation and harmonization of S&L for lighting products and MVE schemes - Data compilation to allow monitoring the process anually - Training to government authorities, lab technicians, and customs administrations - Lighting NAMA or other type of document to access climate finance funds - Report on the dianosis of testing labs in Chile and the recommendations for enhancing their national testing capacities and whether it makes sense to use other labs in the LAC region - Based on the diagnosis above, if recommended, improved/implemented ligting safety and efficiency test protocols
	Activity a.1. Participation on International specialized technical meetings, Lighting Fairs and/or visit to lighting test labs	
1.1.2 Technical support to government authorities and customs administrations	Activity a.2. Training by experts on international technology trends and specific technical aspects like: lifetime, luminous flux, beam opening angle, colour temperature and rate of colour reproduction.	
1.1.3 Strengthening of national laboratories to verify compliance with standards	Activity a.3. International expert diagnosis of testing labs in LA and Chile: business models, technical people, equipments and facilities and define/cost estimate of improvements alternatives at international, Latinamerican and national levels	
	Activity a.4. Improve/develop lighting safety and eficiency test protocols as required	
	Activity a.5.Learning by doing training to Labs technicians	
1.1.4 Monitoring, Reporting and Verification actions to assess progress in the transition to efficient lighting	Activity a.6. Checking and verifying the original baseline data and progress monitoring the transition to efficient lighting.	
	Activity a.7 Development of a lighting NAMA or other climate financial tools	
2. Ensuring an environmentally sound management and sustainable transition to efficient lighting		
2.1 Government of Chile is able to enact and enforce a national policy creating an extended producer responsibility framework and to influence user behavior		
2.1.1 National framework and strategy developed for environmentally sound management of lighting products	Activity b.1. Design of an operational framework and strategy to establish a collection scheme, recycling facilities and/or sound disposal systems, as appropriate, to ensure the sustainable end of life treatment of spent lamps	- Proposal for an operational framework and a strategy for environmentally sound management of lighting products - Training workshops to national public and private sector on environmentally sound management of lighting residues - Proposal of business base for a CRSO - Communication campaign on environmentally sound disposal of lamps
2.1.2 Training provided to governmental authorities, retailers and collection services	Activity b.2. Training on environmentally sound management of lighting residues	
2.1.3 Develop of CRSO business model for spent lamps, including international coordination for the environmentally sound export/import of lamp waste	Activity b.3. Developing of a business base for CRSO through a participative process and according to international conventions	
	Activity b.4. Secretary to Technical Working Group. Phase 1: Local counterpart for the design of business plan for the CRSO and local public or private initial investors identification	
2.1.4 Awareness raising and communication campaigns to promote collection and recycling of spent lamps	Activity b.5. Design and application of collection and recycling campaign	



3. Lighting innovation: accelerating the use of solid state lighting (including light emitting diodes (LEDs) and controls			m 1	m 2	m 3	m 4	m 5	m 6	m 7	m 8	m 9	m 10	m 11	m 12	m 13	m 14	m 15	m 16	m 17	m 18	m 19	m 20	m 21	m 22	m 23	m 24	m 25	m 26	m 27	m 28	m 29	m 30	m 31	m 32	m 33	m 34	m 35	m 36
3.1 Consensus by consumers and decision makers in government and private sector on the increased use of solid state lighting and lighting controls in the domestic, commercial/industrial and outdoor lighting applications																																						
3.1.1 Enhance National Efficient Lighting Strategy with more stringent MEPS, taking into account advanced lighting technologies and systems	Activity c.1.Develop training courses on advanced technologies and systems, including LEDs and controls to public and private sectors	- Technical study for estabishing new lighting MEPS for LED lamps and lighting controls (I'm adding this based on the bullet point below) - Proposal for labels and quality specifications and/or MEPS for LED lamps and lighting controls - Communication campaign materials, reports on campaign concept and impacts - Procurement and distribution of LEDs - Traning on advanced technologies and systems (e.g. LEDs and controls)																																						
	Activity c.2. Develop EE Labelling and quality specifications and/or MEPS for LED lamps and other efficient technologies as required.																																					
	Activity c.3. Secretary to Technical Working Group. Phase 2 ENIE - GEF coordination for accelerating the use of LEDs																																					
3.1.2 Supporting policies developed to increase user acceptance and demand for high efficiency products and systems	Activity c.4. Design and application of communication campaigns																																					
	Activity c.5. Study that proposes a unified energy label for all types of lighting technologies																																					
3.1.3. MVE scheme produced to ensure high quality products that will deliver the expected energy and GHG emission benefits.	Activity c.6. MVE of LEDs technologies in the market																																					
3.2. Consumers and decision makers are aware of the economic benefits of advanced lighting systems through demonstration programmes			m 1	m 2	m 3	m 4	m 5	m 6	m 7	m 8	m 9	m 10	m 11	m 12	m 13	m 14	m 15	m 16	m 17	m 18	m 19	m 20	m 21	m 22	m 23	m 24	m 25	m 26	m 27	m 28	m 29	m 30	m 31	m 32	m 33	m 34	m 35	m 36
3.2.1 Design and evaluation of a demonstration programme implemented for locally-appropriate LEDs and lighting controls among country selected stakeholder groups (i.e. low income residents).	Activity c.7. Design, bidding and evaluation of a demonstration program																																					
3.2.2 Energy efficient lamps procured and installed	Activity c.8. Procure and install CFLs (from cash cofinancing sources from Ministry of Energy)																																					
	Activity c.9. Procure and install LEDs and control systems																																					

ANNEX J: CLIMATE CHANGE TRACKING TOOL

Tracking Tool for Climate Change Mitigation Projects
(For CEO Endorsement)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **during the project's supervised implementation period**, totaled over the respective lifetime of the investments.
Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.
Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.
Please refer to the following references for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Revised Methodology for Calculating Greenhouse Gas Benefits of GEF Energy Efficiency Projects (Version 1.0)
Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Target at CEO Endorsement	Notes
Project Title	Delivering the transition to energy efficient lighting in Chile	
GEF ID	5150	
Agency Project ID	928	
Country	Chile	
Region	LCR	
GEF Agency	UNEP	
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)	2,485,713	
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cofinancing expected (US$)	9,419,843	

Objective 1: Transfer of Innovative Technologies		
Please specify the type of enabling environment created for technology transfer through this project		
National innovation and technology transfer policy	1	Yes = 1, No = 0
Innovation and technology centre and network	1	Yes = 1, No = 0
Applied R&D support	1	Yes = 1, No = 0
South-South technology cooperation	1	Yes = 1, No = 0
North-South technology cooperation	1	Yes = 1, No = 0
Intellectual property rights (IPR)	0	Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building	1	Yes = 1, No = 0
Other (please specify)	Mercury recollection	
Number of innovative technologies demonstrated or deployed	2	

Please specify three key technologies for demonstration or deployment		
National policy and regulations on energy efficient lighting	Energy_Efficiency	
bottom-up)	83 372	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	9 104 365	tonnes CO2eq (see Special Notes above)

ANNEX K: OFP ENDORSEMENT LETTER

Attached in a separate file

ANNEX L: CO-FINANCING COMMITMENT LETTERS

- Ministry of Energy
- Ministry of Environment
- Fundación Chile
- OSRAM
- Philips
- National Lighting Test Centre
- UNEP

ANNEX M: ENVIRONMENTAL AND SOCIAL SAFEGUARDS CHECKLIST

Project Title:	Delivering the transition to energy efficient lighting in Chile		
GEF project ID and UNEP ID/IMIS Number	***5150***	***Version of checklist***	**01**
Project status (preparation, implementation, MTE/MTR, TE)		***Date of this version:***	
Checklist prepared by (Name, Title, and Institution)	***Ana María Ruz, Fundación Chile***		

In completing the checklist both short- and long-term impact shall be considered.

Section A: Project location:
If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
- Is the project area in or close to -		
- densely populated area	NO	The project is an energy efficiency project, which aims at promoting the use of energy efficient lighting technologies. Therefore, the location of the project is not an issue.
- cultural heritage site	NO	
- protected area	NO	
- wetland	NO	
- mangrove	NO	
- estuarine	NO	
- buffer zone of protected area	NO	
- special area for protection of biodiversity	NO	
- Will project require temporary or permanent support facilities?	NO	
If the project is anticipated to impact any of the above areas an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.		

Section B: Environmental impacts, i.e.
If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
- Are ecosystems related to project fragile or degraded?	N.A.	
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No	
- Will project cause impairment of ecological opportunities?	No	
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	
- Will project cause air, soil or water pollution?	Yes	The Project will accelerate market transformation for energy efficient lighting products, in particular, to LEDs trying yo shorten the stage of CFLs. CFLs contain mercury and may cause mercury contamination when they are disposed of at the end of their operational life time unless appropriate mitigation measures are taken. However, the Project is expected to minimizeany mercury

		related contamination since project activities to recycle and safely dispose of discarded CFLs will be carried out in component 2, in order to prevent any mercury related contamination of the environment.
- Will project cause soil erosion and siltation?	No	
- Will project cause increased waste production?	No	
- Will project cause Hazardous Waste production?	Yes	The environmental impact assessment has identified the presence of mercury in CFLs as the main potential environmental threat as a result of the Project since the energy inefficient incandescent lamps that will be replaced, do not contain any mercury. During the lifetime usage of CFLs the mercury remains inside the lamp. However, when at the end of their operational lifetime CFLs are discarded, the mercury may be released if the glass of the lamp is broken and the mercury is emitted into the environment. The use of CFLs therefore also requires the establishment and operation of a good recycling and disposal system to effectively avoid the release of mercury in the environment. Such a system is being developed Chile and the Project Component 2support policy makers with regard to framing regulations and guidelines on recycling and safe disposal of the CFLs
- Will project cause threat to local ecosystems due to invasive species?	No	
- Will project cause Greenhouse Gas Emissions?	No	GHG emissions are reduced since less electricity needs to be generated and used when LEDs and other energy saving lamps (ESLs) are used for lighting. The Project will reduce the GHG emissions in comparison with the baseline situation.
- Other environmental issues, e.g. noise and traffic	No	
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.		

Section C: Social impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	Yes	
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	Yes	
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No	
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	Consultations with potential consumers are planned through national awareness raising campaigns that will be conducted by the executing agency, the Ministry of Energy (MoE), in close cooperation with other national agencies and private sector parties including representatives of lamp manufacturers and importers/retailers.
- Will the project affect the state of the targeted country's (-ies') institutional context?	Yes	The Project will promote the use of efficient lighting products LEDs with the aim to shorten the presence of CFL in the market. The Project will a) strengthen the institutional capacity of

		Ministries to promote energy efficiency; b) establish mandatory minimum energy performance standards (MEPS) and energy labeling for certain lighting products; and c) develop regulations/ guidelines for the removal and disposal of incandescent lamps and the recycling and safe disposal of mercury-containing CFLs and any other ESLs.
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	N.A.	
- Will the project cause technology or land use modification that may change present social and economic activities?	Yes	The Project will lead to the widespread adoption of high-quality LEDsin the local lighting market (thus replacing incandescent and CFLs lamps and avoiding the importation and use of low-performance LEDs
- Will the project cause dislocation or involuntary resettlement of people?	No	
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	No	
- Will the project cause increased local or regional unemployment?	No	
- Does the project include measures to avoid forced or child labour?	N.A	
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	N.A	
- Will the project cause impairment of recreational opportunities?	No	
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	
- Does the project include measures to avoid corruption?	Yes	A Project Management Unit (PMU) will be responsible for day-to-day operations of the Project. PMU staff to be recruited based on the qualifications of the candidates. Any procurement will be done in accordance with government regulations. Further, the PMU will be required to prepare and submit periodic financial reports in accordance to UNEP project implementation procedures.
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.		

Section D: Other considerations

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
- Does national regulation in affected country (-ies) require EIA and/or ESIA for this type of activity?	Yes	An environmental impact assessment should be conducted during the design phase of the Collection Recycling System Organization
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements	Yes	In Chile the Ministry of Environment (MMA) is responsible for monitoring implementation of EIA.

present in affected country (-ies)?		
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	No	
- Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	Yes	See previous comments.
- Is it possible to isolate the impact from this project to monitor E&S impact?	Yes	

ANNEX N: ACRONYMS AND ABBREVIATIONS

AChEE	Chilean Energy Efficiency Agency
ANESCO	Asociación Nacional de ESCOs Chile (ESCOs National Association)
AWP	Annual Work Plan
CC	Climate Change
CA	en.lighten Country Assessment
CCM	Climate Change Mitigation Results Framework (GEF)
CDM	Clean Development Mechanism
CHEM	Chemical Mitigation Results Framework (GEF)
CFL	Compact Fluorescent Lamp
CLA	Country Lighting Assessment
CRSO	Collection Recycling System Organization
EE	Energy Efficiency
ENIE	Estrategia Nacional de Iluminación Eficiente (National Efficient Lighting Strategy)
ESCO	Energy Service Company
ESL	Electron Stimulated Luminescence
FCH	Fundación Chile
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEFTF	Global Environment Facility Trust Fund
GELC	Global Efficient Lighting Centre
GW	Gigawatt
GWh	Gigawatt-hour
Hg	Mercury
hr	Hour
HID	High-Intensity Discharge lamp
HPS	High-Pressure Sodium lamp
INV	Investment
ktCO2	kiloton of carbon dioxide
kWh	kilowatt-hour
LA	Latin America
LCR	Latin America and Caribbean Region
LED	Light Emitting Diode
M&E	Monitoring and Evaluation
MEPS	Minimum Energy Performance Standards
MMA	Ministry of Environment Chile
MoE	Ministry of Energy Chile
MTS	UNEP Medium-Term Strategy
MVE	Monitoring, Verification and Enforcement
MW	Megawatt
NAMA	Nationally Appropriate Mitigation Action
NCRE	Non-Conventional Renewable Energy
NGO	Non-Governmental Organization
NLTC	National Lighting Test Center China
NPD	National Project Director
OFP	GEF Operational Focal Point
PCB	Poly Chlorinated Biphenyls
PIF	Project Identification Form
PM	Project Manager
PMC	Project Management Cost

PMU	Project Implementation Unit
PPEE	Programa País de Eficiencia Energética (Energy Efficiency National Program (2005 – 2010))
PPG	Project Preparation Grant
PSC	Project Steering Committee
PTR	Project Terminal Report
S&L	Standards and Labeling
SEC	Superintendencia de Electricidad y Combustibles Chile (Superintendency of Electricity and Fuels)
SERNAC	Servicio Nacional del Consumidor (Consumer National Agency)
STAP	Scientific and Technical Advisory Panel
tCO_2	ton of Carbon Dioxide (-equivalent)
TA	Technical Assistance
TJ	Terajoule
TL	Tubular Fluorescent Lamp
TWG	Technical Working Group
TWh	Terawatt-hour
UNDAF	United Nations Development Action Framework
UNDP	United Nations Development Programme
UNEA	First UN Environment Assembly
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollar
yr	year

ANNEX O: TABLE OF CONTENT