

# Multilateral Investment Fund (MIF)



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I. Climate Change : Challenges and Opportunities

II. What is the MIF?

III. Energy Efficiency Case Studies and ESCOS

IV. Our projects

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## Climate Change : The Challenges

- 85 million people in Latin America and the Caribbean (LAC) use inefficient, dirty, and dangerous sources of energy
- 31 million people lack access to electricity
- Climate change is already impacting economic development in the region due to increasing droughts, floods, melting glaciers, and severe storms
- LAC's contribution to global warming is less than industrialized countries, but is growing quickly
- The region demands more energy, but prices of fossil energy sources such as gas and petroleum are high, volatile, and uncertain
- Costs of adapting Latin America to a 2°C warmer world by 2050 could range from \$16.8 - 21.5 billion per year (World Bank, 2009).



## Climate Change : The Opportunities

- In 2010 Latin America had the largest increase in new investments in renewable energy in the world: +39% to USD 13.1 billion
- The SME sector has been mostly excluded from these large investment flows
- In a recent interview published in The Financial Times: 90% of the consumers in the LAC region have stated that they are worried about global warming
- Many countries in the region are currently increasing incentives to promote renewable energy and energy efficiency



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## The MIF is . . .

- A multilateral institution focusing on **private sector development** with SMEs, MFIs, and NGOs
- A development laboratory to experiment, innovate, and assume risk with the goal of testing and supporting new and successful business models
- Committed to rigorously measuring and evaluating results and impact, and to disseminating knowledge generated by its projects so that the most promising solutions are shared, replicated, and brought to scale.
  
- The MIF has **three Access Areas:**

Access to Finance

Access to Basic Services

Access to Markets and Capabilities



## The Climate Change Team

### Access to Clean and Efficient Energy

- Promote market mechanisms to expand access to clean and efficient energy for individuals and MSMEs in Latin America

### Access to Carbon Markets/ Carbon Value

- Bring the benefits of the carbon markets to MSMEs and low-income individuals. Increase ability of MSMEs to take advantage of low-carbon premiums.

### Climate Change Adaptation

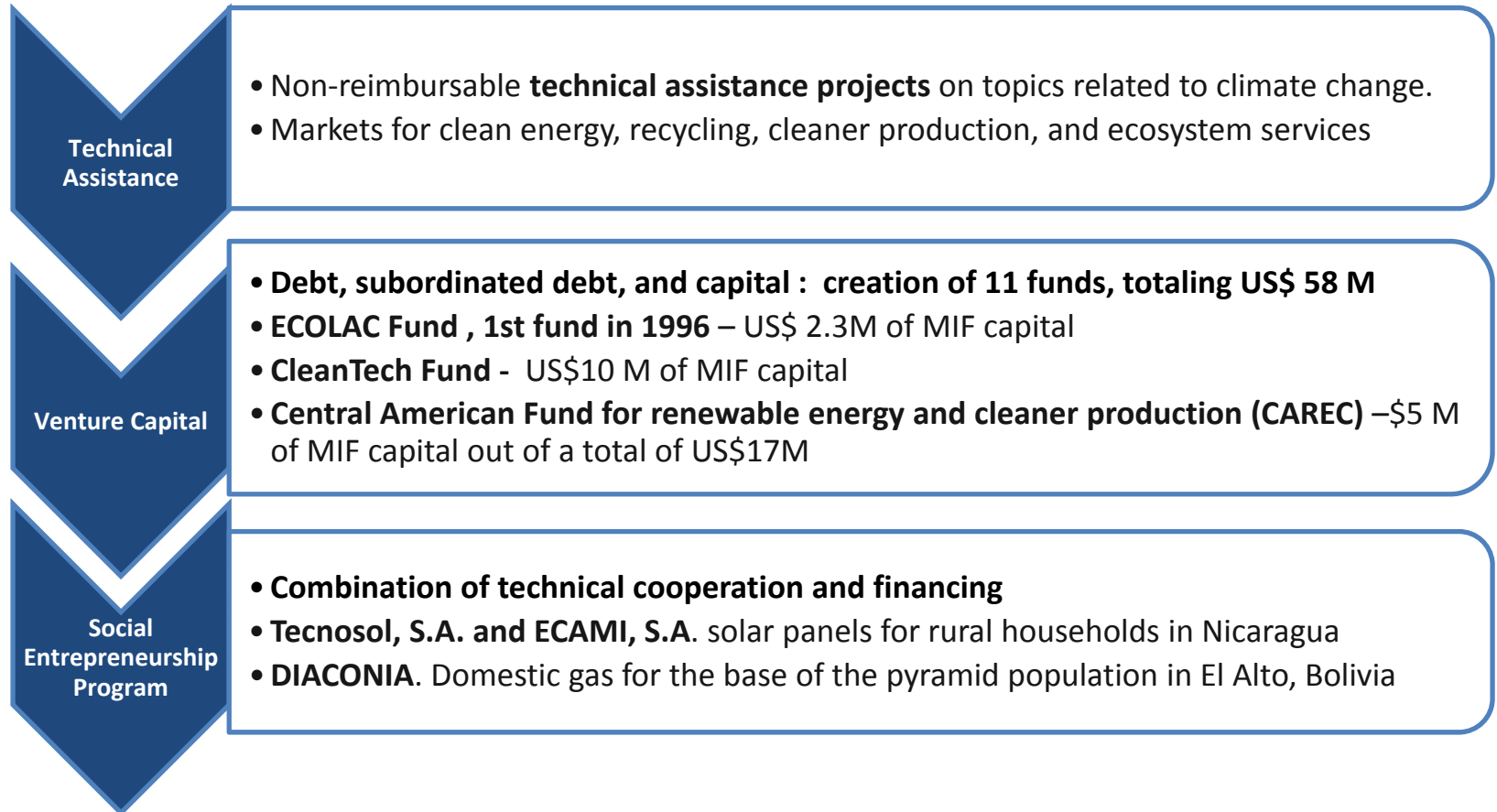
- Help MSMEs to analyze their vulnerability to climate change, understand and mitigate climate risks, and adjust their business plans, if necessary.





# Instruments

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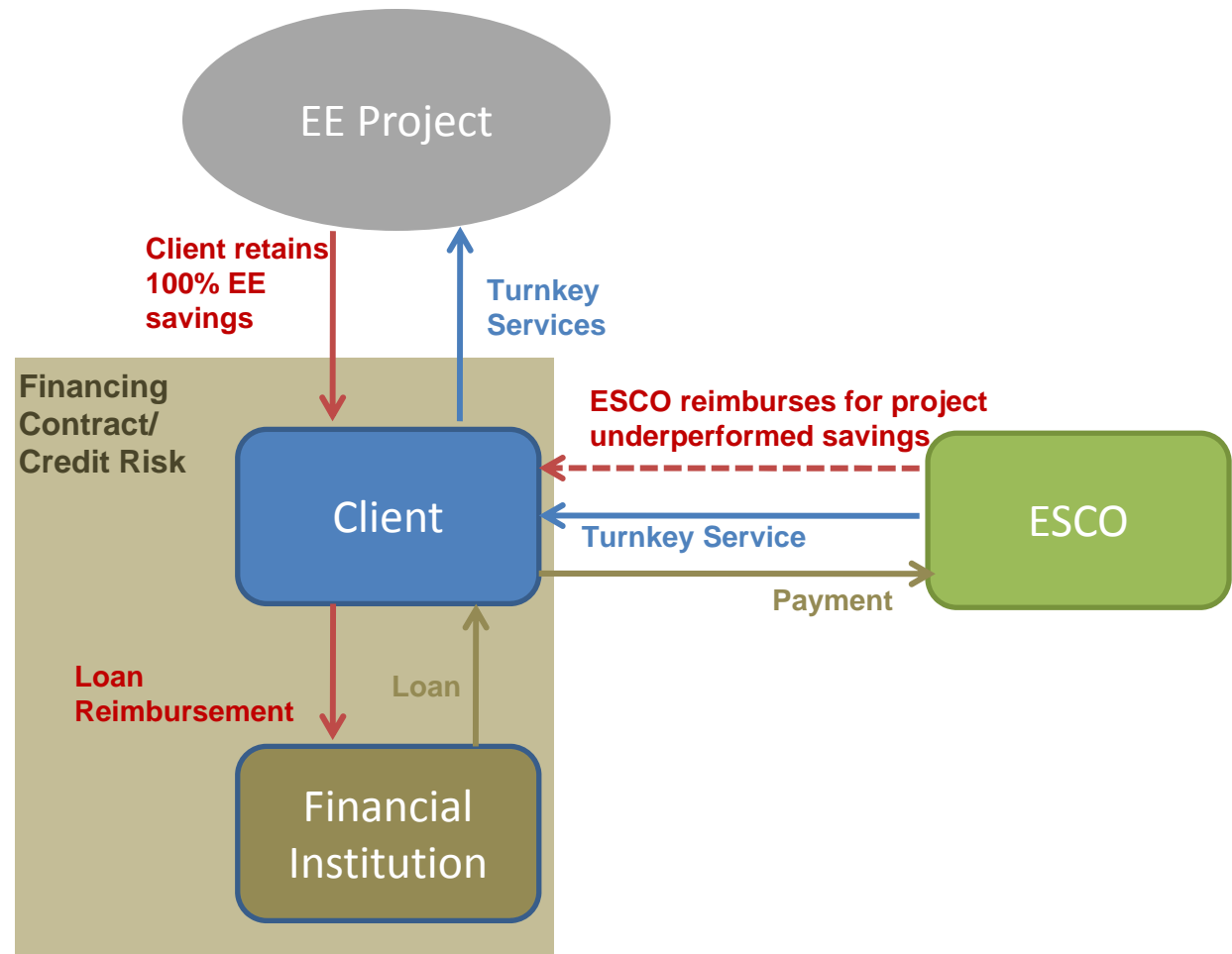


## ESCOs

- Energy Efficiency (EE) is recognized as **the best solution** to address the issue of climate change in terms of costs/benefits.
- **Benefits for end users include:**
  - Private Sector: cost optimization, increased competitiveness and product quality, green image.
  - Public Sector: rehabilitation of infrastructure, reduced need of importing fuels and environmental benefits.
- **Energy Service Company (ESCO):** business that develops and builds projects for efficient energy use for public or private clients. The project is paid for over time through future energy costs reduction.
- **Barriers to full development of ESCOs:**
  - Financing
  - Awareness
  - Sustainability over time of the client business
- **Three main modalities of payment:**
  - Guaranteed savings
  - Shared savings
  - Third party financing

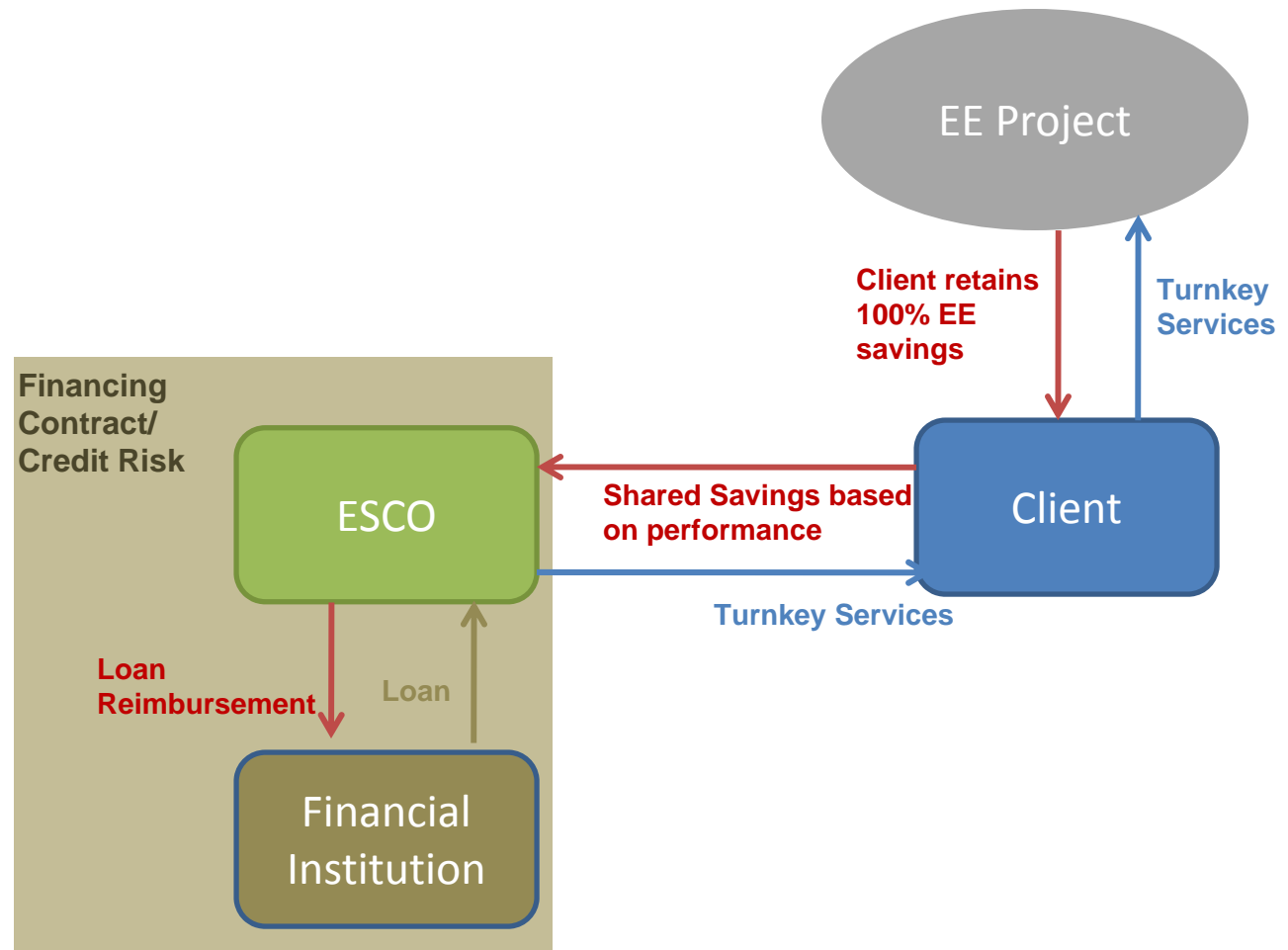
# ESCOs: Guaranteed Savings

- ESCO provides turnkey services.
- Client pays to the ESCO with future savings.
- ESCO provides guarantees to offset underperforming savings.
- Client assumes credit risk.
- Model applied in non-OECD countries.



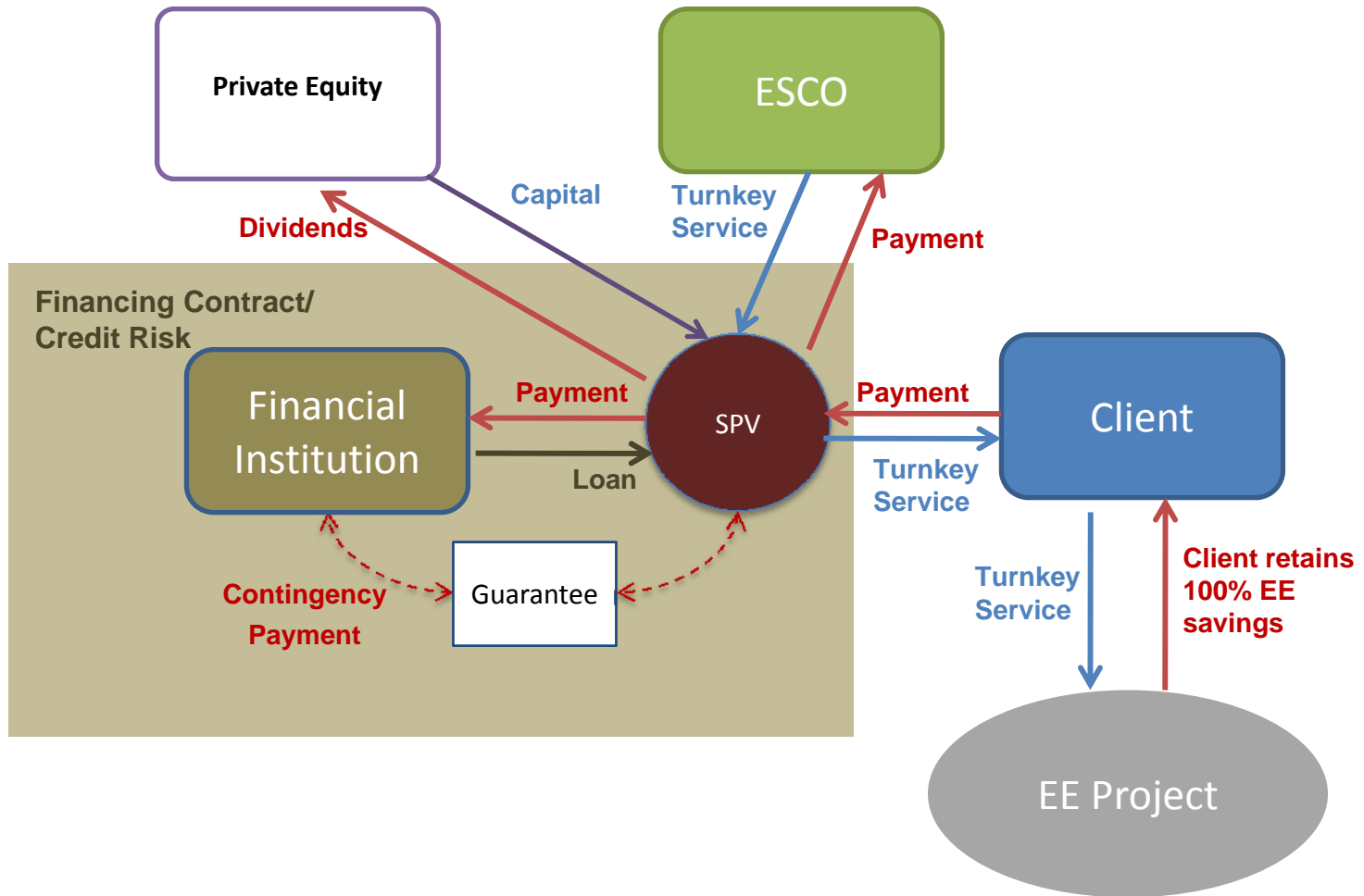
# ESCOs: Shared Savings

- ESCO is the financial intermediary.
- Client's figures of CAPEX and OPEX are not affected.
- Client transfers risk to ESCO.
- OECD model.
- In LAC, tighter financial regulations prevent shared savings model development.



# ESCOs: Third Party Financing

- Departing from shared savings model: SPV with third party capital.
- Credit risk lies in SPV
- ESCO revenue = % energy savings.
- ESCO Revenue < PE revenue.



## ESCOs: Conclusions

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- In developed countries, ESCOs follow the guaranteed savings model. In developing countries the shared savings model is more popular.
- Financial regulations might be a stumbling block to ESCO development i.e. Colombia.
- Brazil counts with the highest number of active ESCOs. Uruguay and Chile are also developing markets.
- In illiquid markets, Private Equity or third party funds can prove to be crucial for ESCOs development.

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# FOMIN Project (CH-M1009)

## “Promotion of Clean Energy Market Opportunities”



Executing Agency of 10 “clean energy” projects in sectors such as:

- Tourism
- Construction
- Industry
- Real estate



Supported:

- Various studies on ESCOs, markets, financing options.
- Energy audits and engineering solutions
- Monitoring and Verifying of savings
- Technical training of consultants
- Help to energy businesses to develop business plans



- Energy efficiency savings of more than **\$680,000 USD in 9 projects**
- CO<sub>2</sub> emissions reductions of more than **1,500 tons per year**
- Average payback period of **2.5 years**
- **Creation of an ESCO Association, ANESCO CHILE**

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## Residential Buildings in Santiago



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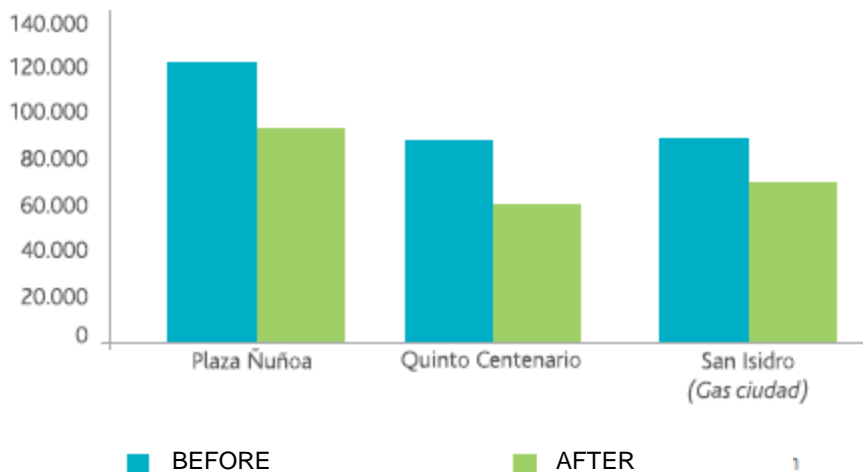
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# CASE STUDY: Residential Buildings in Santiago under an ESCO Model

	PLAZA ÑUÑO A	QUINTO CENTENARIO	SAN ISIDRO
Start	June 2009	August 2009	June 2009
Investment	\$30,400	\$31,600	\$40,600
Annual Savings	\$35,600	\$31,200	\$32,600
Return on Investment	10 months	12 months	15 months

Natural gas consumption (m<sup>3</sup> per year)



## Summary:

- Energy Tracking , S.A. = ESCO
- Demand-response automation of natural gas power stations (heat and hot water) in 20 residential buildings
- Case study looks at results from 3 buildings

## Actions:

- BEP = Building Energy Program
- Reengineering of heat exchange systems
- Real time heating of hot water (elimination of hot water tanks)
- Energy management training for building personnel
- Energy efficient lighting
- Water efficiency installations

## Achievements:

- 25% reduction in natural gas per year
- 10% reduction in water consumption per year
- 1-2 year return on investment
- 40-80 tons/year CO<sub>2</sub> emissions reduced



## Hotel Explora, San Pedro de Atacama



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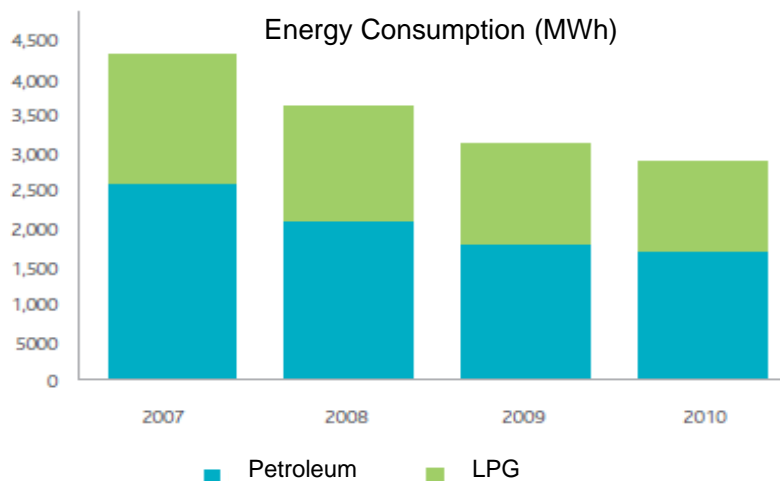
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# CASE STUDY: Hotel Explora, San Pedro de Atacama

	INITIAL INVESTMENT (USD)	POTENTIAL SAVINGS (USD per year)	RETURN ON INVESTMENT (years)
Cogeneration of electricity and hot water in real time generators	\$122,000	\$59,000	2.1
Efficient lighting system	\$12,000	\$28,200	0.4
Solar hot water heating	\$120,000	\$16,200	7.5
Automated hot water pumps	\$4,800	\$11,800	0.4
Air extraction	\$2,000	\$4,000	0.5



## Summary:

- Luxury hotel in the Chilean Andes
- Annual energy costs of \$339,000 USD in 2007
- Hotel is off-grid and generates all its energy from petroleum, natural gas, and LPG

## Actions:

- 2 new petroleum electricity generators installed (200 kVA)
- Comprehensive new energy metering system
- New boiler system with better controls
- Renovation of reverse osmosis water treatment system
- Lighting fixtures replaced (T5 to T10 fluorescent bulbs)

## Achievements:

- \$120,000 USD in savings
- 1-3 year return on investment
- 140 tons/year of CO<sub>2</sub> reduced

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## Hotel Atton El Bosque



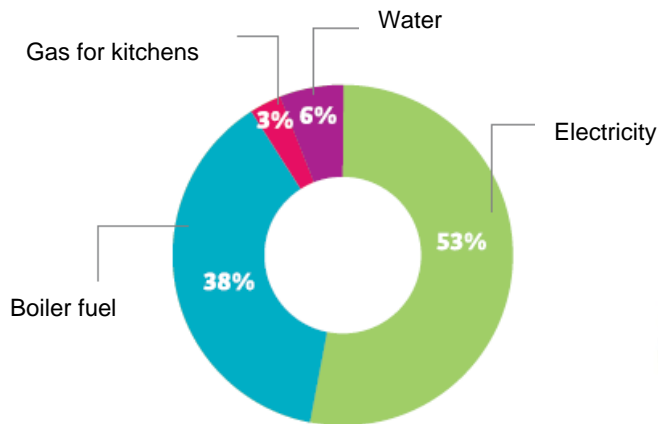
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# CASE STUDY: Hotel Atton El Bosque

Energy and water costs, 2008



Energy Costs



\* only 6 months (Jan-June)

## Summary:

- Hotel in Santiago, 18 floors, 240 rooms
- High energy costs associated with lighting for public spaces and gas for hot water and heating

## Actions:

- Formal energy management system adopted
- Energy efficient lighting installed (50W Halogens, 3W LEDs and 9W CFLs)
- Solar thermal water heating installed on the roof of the hotel
- Water heating improvements

## Achievements:

- Annual savings of \$80,000 USD
- Cut lighting energy used by 80% (from 37 kW to 8 kW)
- Cost of hot water reduced by 22%, gas consumption down 6% per year
- 1-5 year return on investment
- 150 ton/year CO2 emissions reduced





## Hogares Alemanes



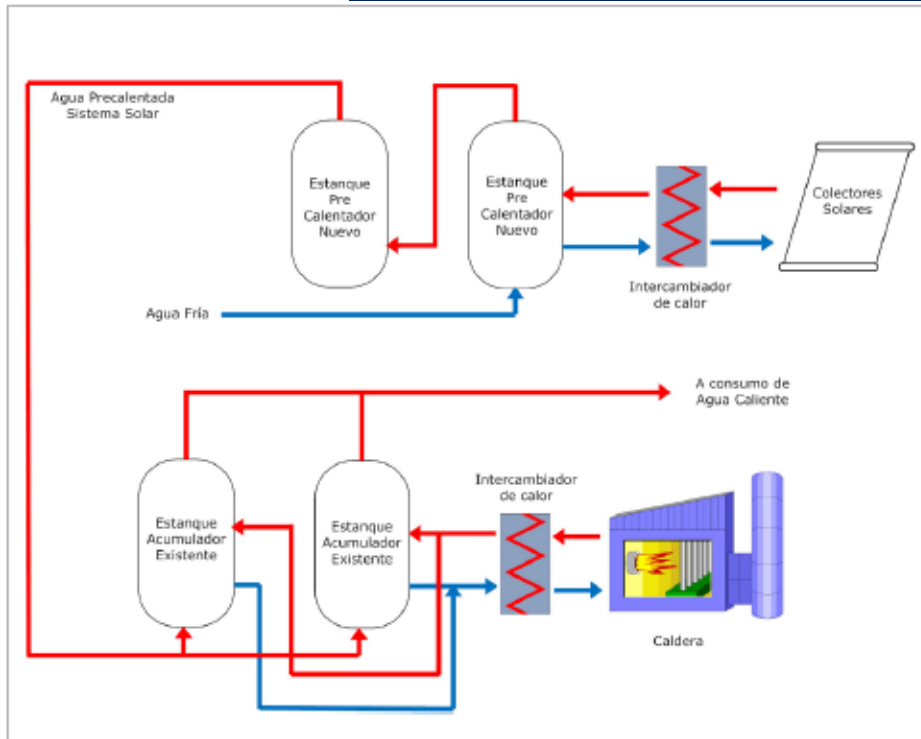
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# CASE STUDY: Hogares Alemanes



Solar thermal panel



Boiler room

## Summary :

- **Hogares Alemanes** = Builder of homes for the elderly
- 178 residents, 200 employees
- \$240,000 USD in energy costs at baseline
- 66% of energy costs went to natural gas for heating, hot water, and residential cooking

## Actions:

- Solar thermal installation
- Installation of hot water storage tanks to keep solar-heated water hot
- Implementation of an M & V system to compare savings to those predicted

## Achievements:

- \$ 15,000 USD in annual savings
- 7 year return on investment
- 7% per year reduction in natural gas
- 30 tons per year of CO<sub>2</sub> reduced.





## Teatro del Lago, Frutillar



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# CASE STUDY: Teatro del Lago, Frutillar

SYSTEM	OPTIMIZATION OPPORTUNITY	POTENTIAL SAVINGS (USD per year)
Insulate building (walls, exteriors, roofs, picture windows, floors)	Increase building thermal insulation levels	32%
Artificial lighting	Reduce the power needed through project improvements	60%
Climate Control (heating and air conditioning)	Improvements in ventilation systems and incorporation of more efficient equipment	64%

### Summary:

- 10,000 m<sup>2</sup> amphitheater and event space on Lake Llanquihue
- Opened in 2010 after 12 years of construction
- Redesigned to be more energy efficient before construction was completed
- No baseline since diagnostic took place before building was completed

### Actions:

- Thermal insulation of the building installed to prevent heat loss
- Efficient lighting and climate control systems installed
- Centralized climate control system

### Predicted Achievements :

- Predicted 20% savings on heating costs
- Predicted 46% savings in lighting energy (excluding amphitheater and exterior lighting)
- Project redesign eliminated 2 boilers, instead employing heat pumps using lake water and exterior air to heat and cool the building



Heat pump equipment which utilizes lake water



Building climate control system

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## Current Climate Change Projects

### Climate Change Adaptation with SMEs in the Caribbean

- Bringing together SMEs in tourism, agriculture, fishing, and crafts to discuss changing weather patterns and decide whether to adjust their business plans or launch new business models in Barbados, Bahamas, Belize, and Jamaica (CARIBSAVE)

### Energy efficiency with manufacturers In Guyana

- Working with manufacturing and service sector companies such as in textiles, food processing, wood products and mineral products to reduce energy costs and increase diffusion of efficient technology (GMSA)

### Green Remittances for Haiti

- Leveraging remittances to increase access to renewable energy for low-income individuals in Haiti
- Generating sustainable and replicable financing models (ARC Finance)

### Energy efficiency in Milk Production in Uruguay

- Energy efficiency with milk cooperatives to reduce energy used in refrigeration, transportation, and operations (CONAPROLE)

# Micro Carbon Development Fund MCD<sup>2</sup>F

- **Increasing access to carbon markets**
  - The fund will act as a catalyst for the private sector to help SMEs access the carbon markets
  - Its objective includes benefitting low-income people, communities, and municipalities.
- **\$50 Million in capital targeted**
  - \$5 million from FOMIN
  - \$45 from private investors and multi/bi-lateral entities
  - 7-10 investment projects that will mobilize at least \$8.00 for each \$1.00 invested by FOMIN
- **CDM Program of Activities**
  - Focused on energy efficiency demand
  - Up to 15% of the capital is committed to investments in forests and land use change
  - Return on investments will come from carbon credit revenues
- **Technical Assistance for MSMEs**
  - \$2 million in grants dedicated to SME training to integrate them into the carbon market value chain
  - Sharing of knowledge and development of carbon offset projects



Thank you for your attention!



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