

Seminar on the Joint Crediting Mechanism (JCM) Implementation in Chile Accelerating Promotion of Environmental Infrastructure through JCM MGM Innova Gruop – JCM Projects in Latin America

Intercontinental Hotel, Santiago Chile, August 29th, 2019

MGM INNOVA

MGM Innova Energy Services LLC is a

project development firm focusing on the identification, design, technical and financial structuring, implementation, operation and monitoring of energy efficiency and renewable energy projects, as well as through the provision of energy services.

The firm serves as the energy services arm of the MGM Innova Group.



MGM Innova Capital LLC is a private equity and green infrastructure investment firm focusing on socially responsible, triple bottom line (financial, social and environmental) investments in energy efficiency and renewable energy in Latin America and the Caribbean.

The firm serves as the financial arm of MGM Innova Group

MSEF

MSEF II

MGM Innova Consulting specializes in the design, development, promotion and implementation of innovative solutions that enable their clients to incorporate sustainable and climate change practices in their products, projects, services, operations and corporate strategies.

The firm serves as the climate change consultancy arm of the MGM Innova Group.

Energy Efficiency: Investment Types, Strategy and Technologies

FNFRGY	FFFICI	FNCY

Commercial Efficiency	Municipal Efficiency	Industrial Efficiency	Distributed Generation/Hybrid	
Hotels, hospitals, shopping malls, fast food chains, universities, yacht clubs.	Street lighting.	Food and beverage (biogas to energy), agro-industry (biomass to energy) , cement, glass, steel (waste heat to energy).	Hotels, hospitals, supermarkets, shopping centers, TV stations.	
*Target large buildings and apply multiple measures	*Street lighting is one of the largest expenses of municipalities. *50% + savings with LED lights.	*Larger size and greatest savings potential, both in electric and thermal energy.	*Seek opportunities in countries with a clearly defined regulatory framework and attractive retail/commercial electricity prices. *Establish portfolios of projects.	
Air conditioning, high efficiency lighting, high efficiency steam boilers and water heaters, solar water heating, control and automation.	High efficiency LED street lighting.	Energy cogeneration systems, waste heat recovery to generate electricity (Organic Rankine Cycle), steam and hot air, biogas from wastewater treatment to generate electricity (biogas-powered internal combustion engines), steam and hot water (efficient boilers), high efficiency motors.	Solar photovoltaic (PV) generation for self-consumption.	



Renewable Energy: Investment Types, Strategy and Technologies





MGM Innova Group – JCM Experience

- Pionner in JCM in Latin America
- Implemented the first projects in Costa Rica, Mexico and Chile
- 5 JCM projects approved to date
- 3 projects fully implemented, 1 partially implemented and 1 to start implementation
- List of projects:
 - 5MW Solar Power Project in Belen, Costa Rica Coopeguanacaste (100% implemented) - 2016
 - High Efficiency Chiller and the Exhaust Heat Recovery System in San Jose, Costa Rica Wyndham Hotel (100% Implemented) 2016
 - 2.4MW Power Generation with Methane Gas Recovery System in Mexico, Energreen (partially implemented) 2016
 - IMW Rooftop Solar Power System in Chile University Federico Santa Maria (100% implemented) 2016
 - 2MW Solar Power and 4MWh Storage Battery Project in San Pedro de Atacama, Chile (to be implemented) 2018



★ Costa Rica Projects

Juanilama 5MW SPV in Belen









SMA Inverters - 2.2 MW



Panasonic HIT Panels



Installed PV capacity (kWp)	5,000
Inverter power (kW AC)	4,400 (2 x 2.200)
HIT 325 Wp Modules	15,456
Annual Electricity (MWh)	9,680
Expected GHG Emission Reductions (tCO ₂ e/yr)	2,504
JCM Subsidy	40%
Japanese Representative Partner	NTT Data

19.7% module efficiency

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Plant Layout: Subsidized Items



Costa Rica 5MW SPV Belen – Aerial View



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Wyndham High Efficiency Chiller and the Exhaust Heat Recovery





Chiller Efficiency	Old Centrifugal Efficient Magnectic
Hot Water System Efficiency	Bunker Oil Boiler Templifier Heat Recovery
Annual Electricity (MWh/yr)	1,116
Annual Bunker Oil savings (liters/yr)	185,682
Financial Savings	Up to 40%
Expected GHG Emission Reductions (tCO ₂ e/yr)	402
JCM Subsidy	40%
Japanese Representative Partner	NTT Data



High Efficiency Chiller and Heat Recovery

BEFORE











High Efficiency Chiller

- Capacity 400TR
- Electricity Savings 769,184 kWh/year
- Financial savings 95,665 US\$/year
- Expected Emission Reductions 71.45 tCO2/year
- Technology Daikin Magnetic Chiller
- Model WMC 400DC



Exhaust Heat Recovery

BEFORE





AFTER







Exhaust Heat Recovery

- Capacity 1,088 MBH
- Bunker Oil Savings 185,682 liters/year
- Financial savings 55,286 US\$/year
- Expected Emission Reductions 330.67 tCO2/year
- Technology Daikin Templifier
- Model TGZ 060B



★ Mexico Project

Energreen LFG to Energy Mexico









Landfill gas recovery and power generation systems in 2 landfills in Mexico:

2 Landfills in Mexico State	Atizapan (operational) Mextepec (in progress)
Installed capacity (MW)	2,4
Nominal capacity (MW)	2,0
Fuji Eletric / 2G Gensets - 1,2 MW (units)	2
Annual Electricity (MWh/year)	28,400
Expected GHG Emission Reductions (tCO ₂ e/yr)	185,000 estim.
JCM Subsidy	40%
Japanese Representative Partner	NTT Data



Atizapan Landfill – 1,2 MW Installed Capacity



Atizapan Landfill

- Begining of commercial operations August 2019
- Regimen Sale of Electricity to CFE grid
- Installed capacity 1,2 MW
- Nominal capacity 1,0 MW
- Annual generation 12,000 MWh/year
- Expected Emission Reductions 80,000 tCO2/year (est.)
- Technology 2G Gensets (Germany) by Fuji Electric
- Model AVUS 1200



Mextepec Landfill – 1,2 MW in progress







1MW Rooftop Solar Power system to University













PV power (kWp)	992
Inverter power (kW AC)	974
HIT 325 Modules	3.054
Annual Electricity (MWh)	1.628
Emission Factor (tCO2/MWh)	0,314
Expected GHG Emission Reductions (tCO2/yr)	511
Japanese Representative Partner	Waseda

19.7% module efficiency

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2MW Solar Power and 4MWh Storage Battery Project



SPV and Storage Battery Project in Chile (Mining, Hotel and Utility)

Project under design and contract negotaiations phase

Project Location	1 Site in Tarapacá Region 2 Sites in Antofagasta
PV Power (kWp)	2,000
Battery capacity (kWh)	3,300
Sharp 370 Wp Modules (Japan) and Qinous Batteries (Germar	וע)
Annual Electricity (MWh/year)	4,491
Expected GHG Emission Reductions (tCO ₂ e/yr)	185,000 estim.
Japanese Representative Partner	Liberal Solutions



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Thank you