



Webinar on the Joint Crediting Mechanism (JCM) Implementation in Costa Rica – Utilizing the JCM during the COVID-19 Period

Introduction of High Efficiency Chiller and Exhaust Heat Recovery System at the Wyndham Hotel

March 9, 2021





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.

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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

ENERGY EFFICIENCY

Commercial Efficiency

Hotels, hospitals, shopping malls, fast food chains, universities, yacht clubs.

*Target large buildings and apply multiple measures

Air conditioning, high efficiency lighting, high efficiency steam boilers and water heaters, solar water heating, control and automation.

Municipal Efficiency

Street lighting.

*Street lighting is one of the largest expenses of municipalities.

*50% + savings with LED lights.

High efficiency LED street lighting.

Industrial Efficiency

Food and beverage (biogas to energy), agro-industry (biomass to energy), cement, glass, steel (waste heat to energy).

*Larger size and greatest savings potential, both in electric and thermal energy.

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.

Distributed Generation/Hybrid

Hotels, hospitals, supermarkets, shopping centers, TV stations.

*Seek opportunities in countries with a clearly defined regulatory framework and attractive retail/commercial electricity prices.
*Establish portfolios of projects.

Solar photovoltaic (PV) generation for self-consumption.

Renewable Energy: Investment Types, Strategy and Technologies



RENEWABLE ENERGY

Biogas to Energy

Landfill gas or biogas used as fuel for electricity or steam generation.

Select innovative opportunities with interesting exit strategies.

Utility Scale Solar

Generation of solar photovoltaic (PV) energy for sale to the grid.

Enter projects with high potential at early stages to add value to local developers and achieve higher returns

Small Hydro Power

Early stage investments in hydro generation (small scale) and rehabilitation of hydroelectric plants.

Select opportunities in situations with no compromising social and/or environmental concerns .

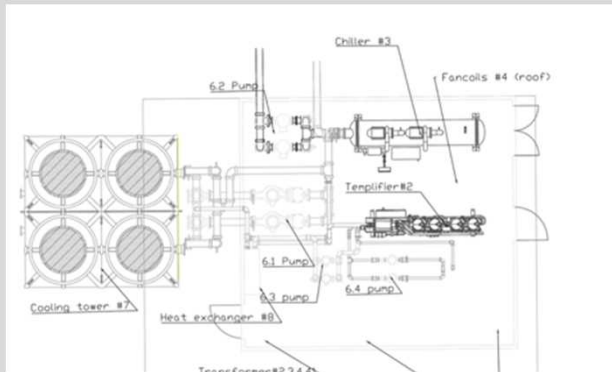
MGM Innova Group – JCM Experience

- Pionner in JCM in Latin America
- Implemented the first projects in Costa Rica, Mexico and Chile
- 5 JCM projects approved to date
- 4 projects fully implemented and 1 to start implementation
- List of projects:
 - High Efficiency Chiller and the Exhaust Heat Recovery System in San Jose, **Costa Rica Wyndham Hotel** (100% Implemented) - 2016
 - 5MW Solar Power Project in Belen, **Costa Rica Coopeguanacaste** (100% implemented) - 2016
 - 1.2MW Power Generation with Methane Gas Recovery System in **Mexico, Energreen** (100% implemented) - 2016
 - 992kWp Rooftop Solar Power System in **Chile University Federico Santa Maria** (100% implemented) - 2016
 - 2MWp Solar Power and 4MWh Storage Battery Project in San Pedro de Atacama, **Chile CAPRA** (to be implemented) - 2018




★ **JCM Wyndham** Energy Efficiency Project

Wyndham Hotel – Chiller Efficiency and Heat Recovery



Chiller Efficiency	Old Centrifugal New Efficient Magnetic
Hot Water System Efficiency	Bunker Oil Boiler Templifier Heat Recovery
Contract type and Term	Leasing w/ Service – 10 years
Annual Electricity Savings (MWh/yr)	1,116
Annual Bunker Oil savings (liters/yr)	185,682
Financial Savings	Up to 40%
Expected GHG Emission Reductions (tCO2e/yr)	500
JCM Subsidy	40%
Japanese Representative Partner	NTT Data

 [Link to YouTube Video](#)



Wyndham Hotel – Chiller Efficiency

High Efficiency Chiller

- Objective – Retrofit of old AC infrastructure
- 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

BEFORE



AFTER



Wyndham Hotel – Heat Recovery

BEFORE



AFTER



Heat Recovery

- Objective – Hot water supply for bedrooms, kitchen and laundry (eliminate use of existing bunker boiler)
- 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

JCM Project Structure - Participants

International Consortium



NTT Data

Representative Company

- Support MRV for GHG emission reduction
- Report to GEC



Project Developer

- Investment
- Project Development & Implementation
- Support MRV



WYNDHAM

Project Partner

- Operations & Maintenance
- Project monitoring and reporting



DAIKIN

EPC

- Engineering
- Procurement
- Equipment Supply
- Construction
- Maintenance & technical support

Utilizing the JCM during the Covid-19 Period



Covid-19 has been challenging to all our JCM projects. Most affected projects are the ones related with tourism (Wyndham, SPV + Batteries Chile).

Wyndham has suffered significantly due to travel restrictions which affected hotel occupancy. Workforce has to be reduced to a minimum to minimize financial impacts. Current occupancy continues very low oscillating between 2% and 10%, with an average of 5%.

AC and Hot Water systems have been shut down or operating at minimum capacity for many months. Payments to MGM Innova have been temporarily suspended to support recovery and resume normal operations ASAP.

Hotel management has implemented sanitary, health & safety precautions to protect personnel and guests from contagious. To date no guests have been reported sick and no hotel employees have tested positive while at work.

Monitoring and testing of hotel personnel as well as sanitation of rooms and common areas continue to be done regularly to minimize health risks and ensure operations continuity.

JCM is an important mechanism to support the post-pandemic recovery. Promotion of high efficiency sustainable technology and Japanese subsidy are critical to help with economic recovery and increased resiliency.

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Gracias !

Thank you !