Implementation Project of High Efficiency Gas Equipment at Food and Beverage Factories in Mexico

New Energy and Industrial Technology Development Organization (NEDO)
RENOVA, Inc.
NEDO’s Feasibility Studies with the Aim of Developing a Joint Crediting Mechanism

Implementation Project of High Efficiency Gas Equipment at Food and Beverage Factories in Mexico
Implementing Agency: RENOVA, Inc.

By implementing world’s top class efficiency cogeneration system and small once-through boiler, the study aims to achieve significant increases in energy efficiencies of utilities such as factory’s electricity and heat supply and reductions of CO₂ emissions in the rapidly growing food and beverage industry across Mexico.

Summary
The survey examines optimal cogeneration system/boiler by using the original energy efficiency analysis simulator and identifies energy and CO₂ reductions under the factory’s optimized electricity and heat conditions.

Survey Items

1) Policies (Conformation of the host country’s policies, incentives, etc.)
2) Technologies Review (Project site’s energy-saving diagnosis and proposals)
3) Feasibility Evaluation (Estimated cost, payback period, finance)
4) Diffusion Possibilities (Seminars to promote technical understandings)
5) MRV Methodology (Eligibility criteria, GHG emission reduction calculations)

Partner/Site

Cuauhtémoc-Moctezuma Brewery / Orizaba, Mexico and others

Estimated Reduction Amount

Approx. 10 ktCO₂/year

<table>
<thead>
<tr>
<th>Reference Emission</th>
<th>CO₂Emission</th>
<th>Project Emission</th>
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</thead>
<tbody>
<tr>
<td>Electricity…National grid electricity</td>
<td>Grid electricity</td>
<td>Electricity…Cogeneration system</td>
</tr>
<tr>
<td>(Emission factor; 0.531tCO₂/MW)</td>
<td>Natural gas</td>
<td>Heat…High efficient boilers</td>
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<tr>
<td>Heat…Existing boilers</td>
<td></td>
<td>and cogeneration heat use</td>
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Approx. 10 ktCO₂/year
Gas Engine Cogeneration

- Gas engine cogeneration will be adopted.
- For systems as large as those required in large-scale breweries, Japan-made products realizes world’s top class efficiencies.
- Reduction of electricity costs is possible by converting from relatively expensive purchased electricity to inexpensive in-house gas-generated electricity.
- Waste heat will be utilized for hot water, steam, etc. within the factory.

Small Once-Through Boiler

- Small once-through boiler will be adopted.
- Smaller in size compared to former boilers. Energy efficient with little heat radiation loss.
- 10-20% more energy efficient compared to controlled operation of multiple units adjusting to the demand.
- Steam loss can be minimized even under environments with sharp fluctuation of steam consumption such as in breweries.