



### Service/Product Provider

#### ***Paulus, Sokolowski & Sartor (PS&S)***

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### Industrial Partner

#### ***Johnson & Johnson (J&J)***

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**PS&S conducts a Cogeneration Feasibility Study to help Johnson & Johnson improve their facilities' power reliability, reduce energy costs, and control greenhouse gas emissions.**

#### **Project Scope:**

This project was part of the design and engineering of a new facility at Johnson & Johnson's existing Gurabo, Puerto Rico site. For this new site, PS&S investigated the feasibility of incorporating cogeneration to reduce purchased energy and energy intensity.

#### **Project Summary**

PS&S considered diesel and gas turbine generators of 1 to 2 MW capacity to determine the economic viability and the greenhouse gas reduction potential of cogeneration. This consideration included analyses of local electric tariff structures and existing facility electric/steam loads. By using lifecycle cost analysis for each alternative, a design was selected that utilized two 1.6 MW diesel generators with both exhaust and jacket water heat recovery systems. The cogeneration plant will run parallel with the grid for reliability, supplemental power, and standby power during utility outages.

- **Energy Savings**  
229,000 gallons per year of fuel oil equivalent to \$275,000 per year
- **Investment**  
\$5.9 million initial capital investment partially offset by a cost avoidance of \$1.5 million for standby generator replacement
- **Financial Return**  
The 20-year lifecycle cost analysis produced an after tax internal rate of return (IRR) of 12.9%
- **Other Benefits**  
Increased reliability of energy supply and reduced carbon emissions

#### **Monitoring & Verifying Energy Savings**

PS&S used actual utility bills and fuel delivery receipts in the energy and cost calculations. Savings will be verified upon project completion.

#### **Distinguishing Value**

PS&S helped Johnson & Johnson to save 3500 tons/year of CO<sub>2</sub> to support Johnson & Johnson's commitment to reduce greenhouse gas emissions.