Transforming the energy efficiency culture within refineries

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Reimagine tomorrow.

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Nexant is a globally recognized leader that offers extensive consulting services in the areas of demand management, demand response, grid management, and renewables.

Our dedicated Utility Services business unit provides technical services that include: Turnkey Program Design and Implementation, Program Marketing and Outreach, Regulatory Support and Consulting, Facility Energy Assessments and Audits, RCx and Cx, and Business Processing services.

Currently in CA, Nexant implements:

- PG&E Customer Energy Solutions
- Core RCx Program
- Large Integrated Audits
- Customized Retrofit-DR
- Customized New Construction-DR
- PG&E Industrial RCx Program
- PG&E Refinery Energy Efficiency Program
- PG&E Light Industrial Energy Efficiency Program
- SCE Enhanced RCx Program
- LADWP Comprehensive Energy Audit and Cx Support
- Boeing Implementation Support
- SMUD EE Consulting for Educational Institutions
OUTLINE: Transforming the energy efficiency culture within refineries

- Unique Aspects of Serving the Refining Marketplace
- Changing the Mindset of Refinery Customers
- Refinery Energy Efficiency Program (REEP)
OUTLINE: Transforming the energy efficiency culture within refineries

Unique Aspects of Serving the Refining Marketplace

Market Barriers

- Changing the Mindset of Refinery Customers
- Refinery Energy Efficiency Program (REEP)
### Complexities of Serving Large Multi-Site Refineries

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<tr>
<th>Each refinery consists of more than 50 relatively independent plants</th>
<th>Significantly larger than typical facilities</th>
<th>Total amount of energy consumption</th>
<th>Number of energy consuming equipment</th>
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<tr>
<td>Investment capital constraints</td>
<td>Lack of standards and perceptions for new technologies</td>
<td>High turnaround</td>
<td>Market uncertainty</td>
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NARROW WINDOWS FOR MEASURE INSTALLATION

Refineries operate at 97% “up” time, placing time constraints and very narrow windows of opportunity for installations.

Regulatory constraints.
LONG PROJECT INSTALLATION LEAD TIMES

Long lead times for project development and installation

- 1 year: 25%
- 2 years: 40%
- 3 years: 27%
- >3 years: 8%

Long lead times due to permits approvals, design and equipment procurement lead times, lawsuits, budgeting, and EE regulatory requirements
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- Unique Aspects of Serving the Refining Marketplace

Changing the Mindset of Refinery Customers

*Integrating Energy Efficiency into Projects and Daily Processes*

- Refinery Energy Efficiency Program (REEP)
In 2006, prior to having a dedicated refinery offering, there were only 2 installed energy efficiency projects in 3 Northern California refineries.
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- Unique Aspects of Serving the Refining Marketplace
- Changing the Mindset of Refinery Customers

Refinery Energy Efficiency Program (REEP)

Consistently contributing and achieving major savings and cost effectiveness goals for PG&E’s program portfolio
### REEP DESIGNED TO FOCUS ON:

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<th>Description</th>
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<td>1</td>
<td>Employing refinery experts who understand refinery systems to develop a project pipeline</td>
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<td>2</td>
<td>Understanding the nuances of working at large multi-site facilities with multiple contacts and decision makers</td>
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<td>3</td>
<td>Maintaining and building program success through long-term relationships</td>
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<td>4</td>
<td>Providing continuous and complete turnkey support from project inception to incentive processing</td>
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<td>5</td>
<td>Work to develop a pipeline of projects with continuous payoffs</td>
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Program started in 2006. This is the 11th year of program implementation.

Provides free technical services to identify and quantify energy efficiency opportunities

Capital assistance by offering incentives to cover part of the project cost

Targeted studies to identify potential in different plants
SIGNIFICANT IMPACTS ON PG&E’S PROGRAM PORTFOLIO:

- Refinery projects account for over 12% of PG&E’s annual therms savings, representing 76% of their total third-party portfolio therm savings goals.

- One of the most successful in terms of cost of energy savings.

- Average 750,000 kWh in energy savings and 600,000 therms in gas savings.
To date, Nexant has implemented 64 refinery projects with verified energy reductions of more than 40 million kWh and 20 million therms with peak demand reductions of 4.9 MW.
THANK YOU

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