

**Getting maximum hydroprocessing unit performance with minimum investment calls for experienced engineers, well-defined survey objectives, focused efforts, and a tight timeline.**



***Call on us.***

**Achieving multi-million dollar results does not need to cost millions of dollars in consulting fees. It just takes a focused effort by experienced Carmagen engineers – engineers who have done this before and know how to achieve maximum results from your investment.**

### **Objective**





The objective is to identify operational changes and low cost, high impact projects to achieve world-class hydroprocessing unit performance excellence. The specific objectives of the surveys are always set consistent with the requirements of refinery management.

### **Units Included in Surveys**

Hydroprocessing units treating alkylation plant feeds, reformer feeds, jet kerosene, diesel, heating oil, atmospheric and vacuum residua, and FCC feeds; hydrocracking units; and all other fixed-bed hydrotreating units.

### **Survey Methodology**

A small team of Carmagen Engineering, Inc. process and engineering technology specialists together with the refinery-designated contacts conduct a site survey. The survey builds on existing information such as equipment drawings, maintenance history, operational and reliability issues, catalyst performance data, hydrogen balances, and focuses on the following areas:

-  Product yield and quality improvements and low cost capacity expansion opportunities.
-  Operating cost reduction – hydrogen consumption, catalyst selection and replacement frequency, energy conservation opportunities, etc.
-  Reliability improvement – equipment fouling mitigation, catalyst contacting efficiency, hot spots, unit performance monitoring, etc.
-  Inter-process synergies – opportunities for optimizing FCCU and FCCU feed pretreatment operations, reformer and reformer feed pretreatment operations, etc.






*All the right people in all the right places.™*

**CARMAGEN**  
Engineering, Inc.



## Survey Results

A close out presentation is made to refinery management for final acceptance of the survey results. Final documentation of the results follows shortly thereafter and typically includes the following:

-  Specific action plans to implement improvements in product yields and qualities, including improvement targets and measures of success. Low cost capacity expansion opportunities.
-  Highest pay-out operating cost reduction opportunities including priority action plans.
-  Short-term and long-term steps for improving operations, reliability and maintenance. Specific hardware items where upgrades would be beneficial.
-  A strategy for capturing inter-process synergies.
-  Areas where Carmagen Engineering, Inc. could further contribute to hydroprocessing profitability.

## Survey Cost

The cost depends on the number and complexity of the hydroprocessing units to be surveyed. Generally, a two-week site visit is sufficient to achieve the survey objectives. We will work within your budget to ensure maximum results with minimum investment.

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4 West Main Street, Rockaway, NJ 07866  
Telephone: (973) 627-4455 • Fax: (973) 627-3133  
E-Mail: [carmagen@carmagen.com](mailto:carmagen@carmagen.com)

[www.carmagen.com](http://www.carmagen.com)