



# FUNDAMENTALS OF REFINING ECONOMICS

## Two-Day Course

**Purvin & Gertz, Inc.** presents a two-day course on the *Fundamentals of Refining Economics*. This course is designed to teach the fundamentals of refining economics to non-refiners or to those newly introduced to refining. A technical background is not necessary to understand course materials and the course should be useful to financing or marketing individuals who have some involvement with refining or petroleum products. Similarly, a marketing background is not critical and the course may be helpful to refinery engineers who would like to understand how world markets affect their refineries and why other types of refineries exist.

### KEY TOPICS TO BE COVERED

- Overview of Petroleum Products
- Crude Oil and Products Pricing
- Processing Margin Calculations
- Nature of Crude Oils
- Petroleum Products Quality
- Products Manufacturing Technology
- Refinery Complexity
- Refinery Yields
- Operating Costs
- Refined Products Supply/Demand
- Products Trade and Transport
- Refinery Assets Value – Case Studies

**April 15-16, 2010**

**Hyatt Regency, Downtown Houston**

Course Instructors:

Alfred L. Luaces

Stephen L. Jones

By attending the *Fundamentals of Refining Economics* course, you will gain valuable industry insight to successfully:

- Understand how refineries' profit depends on location, configuration, and crude feedstock.
- Evaluate the economic strength of competing refinery installations.
- Understand what governs the success or failure of new refinery ventures.
- Find out how refinery configurations affect petroleum product prices worldwide.
- Improve your perceptiveness of the value of refinery investments.
- Learn how to interpret published information on the refining industry and refining companies.
- Understand how obvious technology differences affect refinery strength.
- Discover how refineries can be modified to become more profitable.
- Learn why refineries prefer different types of crude oils.
- Find out how trends in petroleum demand force refineries to invest in upgrading capacity.



# FUNDAMENTALS OF REFINING ECONOMICS

## Two-Day Course

This course is designed to increase the understanding of petroleum products markets and how they interact with the refining industry and crude oil markets. It is of importance to:

- Refiners
- Financial Analysts
- Bankers
- Crude Oil Marketers
- Petroleum Analysts
- Regulators/Government
- Refinery Finance Executives
- Technology Suppliers
- Project Developers
- Commercial Business Analysts
- Crude and Products Managers
- Products Supply and Distribution Executives
- Strategic/Business Development Managers
- Financial Institutions/Energy Lenders
- Investment Analysts
- Insurers
- E&C Firms/Economic Feasibility Analysts
- Crude Producers

All participants who successfully complete the 2-day course will receive a Certificate of Completion.

**Purvin & Gertz Inc.**  
600 Travis, Suite 2150  
Houston, TX 77002  
Phone: 713.331.4000  
[www.purvingertz.com](http://www.purvingertz.com)

### Registration

(Deadline: April 7, 2010)

**Thursday - Friday, April 15- 16, 2010**

**FUNDAMENTALS OF REFINING ECONOMICS**  US\$ 1595.00

**2nd AND SUBSEQUENT DELEGATES**  US\$ 1495.00

Family/Last Name \_\_\_\_\_

First Name \_\_\_\_\_

Company \_\_\_\_\_

Title/Position \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Telephone \_\_\_\_\_

Fax \_\_\_\_\_

Email Address \_\_\_\_\_

### Payment

- Check payable to Purvin & Gertz, Inc.
- Charge my credit card below for Course Fee

Cardholders' Name \_\_\_\_\_

Card Number \_\_\_\_\_

Expiration date: \_\_\_\_\_

#### Fax Registration

832.209.4449

#### Email Registration

[glperez@purvingertz.com](mailto:glperez@purvingertz.com)

**Cancellation Policy:** The registration fee will be refunded only if a written request is received by March 19, 2010. No refunds will be made after this date. A substitute delegate from the same company may be made at any time.

For more information on the Fundamentals of Refining Economics course, please contact Talia Szymanski at [ts@purvingertz.com](mailto:ts@purvingertz.com)

### INTRODUCTION TO REFINING

- Products
  - Identity of key refining products
  - Small volume/specialty products
- Yields
  - Yield Vector
  - Material Balance
- Operating Costs
  - Fixed Costs
  - Variable Costs
- Margins
  - Measure of profitability
  - Parameters Influencing Margins
- Capital Costs
  - Cost versus size

### CRUDE AND PRODUCTS PRICING

- Levels of Trade
  - Spot Cargo
  - Contract
  - Wholesale (Rack or Posted Price)
  - Retail
- Price Reporting
  - Limitations on Accuracy
  - Use of Quotations
  - Methods for Determination
  - Review of Sources

### REFINERY MARGIN CALCULATIONS

- Definitions of Margins
  - Gross
  - Variable
  - Net
- Steps in Calculating Refinery Margin
- Usefulness and Limitations of Margin Calculations
- Points of Confusion – Margins and the Press
- Workshop

### NATURE OF CRUDE OILS

- General Quality Parameters
- Different Types of Crude Oils
- Simplified Crude Oil Assays
  - Distillation Curve
  - Sulfur Levels
- Quality of Crude Oil Cuts
- Value of Crude Oil Versus Quality
  - Simplification of API/Sulfur

- Examples of Actual Crudes
- Exceptions to the Rule
- Other Important Characteristics
- Extremes of Quality

### REFINED PRODUCTS: QUALITY

- Specifications Versus Run of the Mine Quality
- Gasolines
- Distillates
- Fuel Oils
- Lubes/Asphalts/Specialties

### REFINING TECHNOLOGY

- Separation Processes
- Conversion Processes
- Upgrading Processes
- Focus on Conversion
- Focus on Upgrading
- Focus on Reformulated/ULS Fuels

### REFINING COMPLEXITY

- Historical Definition
- Usefulness
- Limitations

### SIMPLE AND COMPLEX REFINERIES

- Topping/Hydroskimming, Cracking and Full Conversion
- Flow Diagrams of Model
- Breakdown of Western Hemisphere Refineries by Type
- Profitability of Refineries by Type
- Flow Diagrams of Actual Refineries Versus Ideal

### REFINING YIELDS

- Relationship to Configuration
- Relationship to Crude Assay
- Methods of Estimating
- Variation Opportunities
  - Gasoline/Distillate Swing
  - Kero/Diesel Swing
  - Seasonal Factors

### OPERATING COSTS

- Capital Costs of Process Equipment
  - Economy of Scale
  - Estimation Models

- Quality of Capital Cost Estimates
- Location Factor
- Operating Costs
  - Fixed Operating Costs
  - Variable Operating Costs
  - Estimation Techniques
  - Variation with Location

### REFINED PRODUCTS SUPPLY/DEMAND

- Refined Product Applications
  - Sectoral Consumption
  - Pricing Sensitivity of Consumption
- Historical Consumption by Product in Western Hemisphere
  - Breakout by Sector
  - Breakout by Major Region
- Historical Supply by Product in Western Hemisphere
  - Historical Trade Requirements
- How Supply/Demand Affects Pricing
  - Regional Pricing
  - Import/Export Parity

### MARKET SETTING CONFIGURATION

- Three Tests
  - Crude Runs Versus Refinery Types
  - Refinery Margins
  - Crude Oil Values
- Implications of Market Setting Configuration
  - Crude Oil Markets
  - Product Markets
- Petroleum Product Price Forecasting
  - Degrees of Freedom
  - Role of the Market Setting Refinery
  - Importance of Conversion Returns
  - Lesser Relationship Among Light Products
  - Specialties

### LIGHT/HEAVY DIFFERENTIAL

- Definitions/Manifestations of Light/Heavy Differential
  - In Crudes
  - In Products
- How Different Manifestations Track Each Other
- Implications for Refineries
  - Returns to Conversion
  - Influence on Investment

- Relationship to Profitability/Margins

### REFINED PRODUCTS TRADE AND TRANSPORT

- Import and Export Markets
- Petroleum Shipping
  - Ship Sizes and Types
  - Shipping Costs
  - Worldscale
- Shipping Crude Versus Products
- Implications for Regional Products Pricing
- Effects on Refinery Profitability
- Effects on Refinery Investment and Operations

### VALUE OF REFINING ASSETS

- Definitions of Value
  - Replacement Cost
  - Fair Market Value
- Means of Determining Value
  - Comparable Sales
  - Cost-based
  - Income-based
- Influence of Margin on Value
  - Qualitative Information
  - Historical Data
  - Implications for Investment

### GLOBAL PETROLEUM MARKET OUTLOOK

- Energy Demand
- Crude Oil Demand
- Crude Oil Price
- Environmental Specifications
- Light/Heavy Differential
- Regional Margins
- Trade Flows
- Investment

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