

# ECONOMIC EVALUATION OF PROSPECTS AND PRODUCING PROPERTIES

## **Course Instructor**

John Schuyler or Tim Nieman

## **Course Level**

Intermediate

## **Designed For**

Geologists, engineers, geophysicists, managers, and persons new to analysis and evaluation responsibilities

## **You Will Learn How To**

- Anticipate the range of geologic, geophysical, and engineering technology used in estimating the unrisked and risked volumes of recoverable hydrocarbons and in forecasting production.
- Incorporate quantitative assessments of risk and uncertainty in the evaluation: (e.g., chance of hydrocarbons, recovery, production, prices).
- Apply economic evaluation concepts, and a process for appraising petroleum resources and reserves (income method emphasis); recognize and understand issues with probabilistic reserves.
- Avoid tricks and traps in modeling projects, transactions, and property appraisals; Apply methods of good evaluation practice.

## **About the Course**

Property sales and acquisitions, lending, and joint ventures abound in the petroleum industry. The central information for decision making is the value of the subject asset. The evaluation model is the focal point for communicating among the project team members, managers, and partners.

Appraisal methods for upstream properties and related projects are discussed and experienced in this hands-on workshop. The learning objective is a process for delivering a credible and well-documented evaluation of reserves and economic worth. Participants to learn the tools and techniques of good evaluation practice. While not normally used in the course, personal computer spreadsheets and other software are discussed in detail. [Participants are welcome to bring a notebook computer to class. Those persons without computers are not impaired.]

Geologic and engineering information provide inputs to the production forecast model. Judgments about a variety of risks and uncertainties must be considered and incorporated into the analysis. Product pricing, various costs and taxes, inflation, and deal structure are added. The forecasting model translates the physical asset description into resource/reserves, production and cashflow forecasts and various decision criteria.

## **Course Format**

Over half of the class time is devoted to hands-on modeling experiences. Topic discussions and instructor demonstrations complete the days in this concentrated course. The sessions

are designed to be informal and participatory. Attendees are encouraged to bring non-proprietary decision problems for discussion or individual work.

Class exercises are designed to allow participants to discover and experience the important concepts. The course notebook includes exercises, discussion text, checklists, calculation routines, and small model listings. Additionally, participants receive three reference textbooks written or co-authored by John Schuyler.

## Course Content

- Physical Estimation: Overview of geologic, geophysical, and engineering technology used in estimating the volume of recoverable hydrocarbons and in forecasting production.
- Risk Analysis: Using probabilities (e.g., chance of hydrocarbons, political scenarios) and probability distributions (e.g., recovery, production decline, prices); principles and application of decision trees and Monte Carlo simulation; probabilistic reserves, aggregation, and issues in reserve classifications; multiple pay zones; statistics of field data.
- Economic Evaluation Concepts: project and cashflow modeling; projecting recovery and production rates; popular decision criteria; taxes, inflation and financing; auditing evaluations; optimizing decisions for project design and deal transaction structures; working with cross-discipline teams; presenting the analysis

## Examples

Participants are encouraged to bring examples from their work for discussion. Please contact OGCI Training if you wish to submit a problem in advance for possible use as a class exercise.

## About the Instructors (either would present the course)

**JOHN SCHUYLER**, CAM CCE CMA CMC CPIM PMP and PE, is a decision analyst, evaluation engineer, and investor. He founded his consulting practice, Decision Precision®, in 1988. He has over 33 years of experience in analysis, consulting, and management, primarily in the energy industry. He has presented over 220 courses in 33 countries since 1989. His focus has been in feasibility analysis, appraisals, corporate planning, and evaluation software development. He was vice president and petroleum engineer with Security Pacific National Bank, planning and evaluation analyst and (later) manager of business systems for Cities Service Co., and senior management consultant with a national accounting firm. John is a member in eight professional organizations and is a frequent author and speaker on modern analysis practices. He holds a BS and an MS in mineral-engineering physics from Colorado School of Mines and an MBA from the University of Colorado. John is the revision author of *Decision Analysis for Petroleum Exploration, 2nd ed.*, author of *Risk and Decision Analysis in Projects, 2nd ed.*, and has written over 40 articles and handbook chapters. His Web site is <http://www.maxvalue.com>.

**TIM NIEMAN** is President of Decision Applications, Inc., a San Francisco area based decision analysis consulting firm. His firm performs decision and risk analysis for various organizations facing complex decision problems. His recent oil and gas consulting work includes risk analysis of deepwater pipeline routing; portfolio analysis for budgeting E&P R&D portfolios; and development of methods for assessing new basin entry opportunities. Other recent work includes development of remediation and reuse strategies for impaired properties, including former refineries, manufacturing facilities and pipelines; numerous projects for the Yucca Mountain proposed nuclear waste repository; work for the US Geological Survey on mountain top coal mining; and cancer causation modeling for national health organizations. He teaches various courses on decision analysis and quantitative modeling.

Mr. Nieman was formerly Senior Decision Analyst for Geomatrix Consultants, an Oakland based geological and environmental consulting firm. Prior to that, he was Director of Operations for Lumina Decision Systems, a decision analysis consulting and software firm. And prior to that, he spent 14 years with Amoco as a geophysicist, economist, and risk and portfolio analyst. He has a B.S. in geology and an M.S. in geophysics from Michigan State University, and an MBA from Rice University.

### **In-House Presentations**

All courses are available for in-house presentation to individual organizations. In-house courses may be structured the same as the public versions or tailored to meet your requirements. Special courses on virtually any petroleum-related subject can be arranged specifically for in-house presentation. For further information, contact our In-House Training Coordinator at one of the numbers listed below.

Telephone           1-800-821-5933 *toll-free in North America*  
                           1-918-828-2500  
 Facsimile           1-918-828-2580  
 E-Mail               training@ogci.com

### **Public Course Presentations**

How to Contact OGCI Training, Inc.

Telephone           1-800-821-5933 *toll-free in North America or*  
                           1-918-828-2500  
 Facsimile           1-918-828-2580  
 E-Mail               registrations@ogci.com  
 World Wide Web   www.ogci.com  
 Address             P.O. Box 35448, Tulsa, Oklahoma 74153-0448 U.S.A.

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Management buy-in is essential for successfully applying decision analysis. Either instructor welcomes an opportunity to present an executive seminar if an hour with managers can be arranged sometime during the week. Managers are also welcome to visit the course during session. A one-half day Executive Workshop is available at moderate cost if company executives have time and interest. The key topics in these special sessions include essential concepts, corporate decision policy, how to interpret a decision analysis, and the manager's role in evaluation quality control.



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