

# Energy Economics

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## Courses in Energy Economics & Markets

- Masters-Level Courses aimed at graduate students in economics, engineering, sciences and public policy
- Research-level material offered through UC Davis Department of Economics
- Professional- level material offered at UC Berkeley Haas School of Buisness
- Practitioner-level material offered through short courses at ISOs and UC campuses
- Energy Strategy games offered through similar classes at several campuses

## Objectives

- Instruct future energy industry professionals and researchers on the economics of energy markets.
- Convey hands-on experience blending advance micro-economic concepts and energy-industry case-studies and simulations.
- Develop and refine interactive learning tools such as the Electricity Strategy Game.
- Provide exposure to the leading economic research on the organization, regulation, and operation of energy markets.

## Energy Markets: Economics and Organization

### Motivation

### Provide Energy Professionals

- With tools to judge the drivers of energy prices and market performance
- With tools to analyze impact of policy and regulation on energy markets
- With a framework for valuing the interaction of energy reliability and security with market outcomes

### Provide Energy Researchers

- With understanding of what factors drive technology success or failure in markets
- With techniques for assessing the competitiveness of energy markets
- With theoretical tools for optimizing the design of energy and environmental markets

## Experiential Learning: Electricity Strategy Game

- 1.Teams evaluate and purchase generation portfolios
- 2.Portfolios are bid into daily “spot” markets
- 3.Teams experience impacts of market design elements
  - Transmission Congestion Pricing
  - Auction design and rules
  - Cap-and-trade emissions markets
  - Forward contracting and futures markets

Classroom and Web-based implementation under development

## Course Topics

- Natural monopoly and regulation
- Dynamics of exhaustible resource extraction
- Liberalization and deregulation of energy markets
- Vertical integration, efficiency and competition
- Network economics and network externalities
- Regulation, Anti-trust, and competition policy
- Environmental externalities and market-based environmental regulation
- Storage and commodity price behavior
- Transportation infrastructure and energy markets



PUBLIC MARKET DATA		PRIVATE FIRM OUTCOMES				BID FORM				HOME	
Status: <b>LOGGED IN</b>		Welcome Team 1.								Logout	
Round 4 Bid Form										Game: BA212-A	
Unit Name	Loc.	MW	Fuel Cost	Var O&M Cost	Var O&M/Day	Cost/Start	Hour 1	Hour 2	Hour 3	Hour 4	
COOLWATER	South	650	29.00	0.50	29.50	2,000	3,000	34.12	34.12	29.50	29.50
ELLWOOD	South	300	52.00	0.50	52.50	0	0	52.50	52.50	52.50	52.50
ETIWANDA 1-4	South	850	28.50	1.50	30.00	8,000	4,000	34.17	34.71	30.00	30.00
ETIWANDA 5	South	150	42.50	1.50	44.00	1,000	0	44.00	44.00	44.00	44.00
MANDALAY 1-2	South	300	26.00	1.50	27.50	1,000	1,000	30.83	27.50	27.50	27.50
MANDALAY 3	South	150	35.00	1.50	36.50	1,000	0	36.50	36.50	36.50	36.50
ORMOND BEACH 1	South	700	26.00	0.50	26.50	7,000	3,000	30.80	26.51	26.51	26.51
ORMOND BEACH 2	South	700	26.00	0.50	26.50	7,000	3,000	30.79	26.50	26.50	26.50
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