

Overview of EPRI's Electric Generation Expansion Analysis System (EGEAS) Version 10

Adam Diamant
Technical Executive

Program 178b Webcast
April 16, 2015

NEW Conference Call Number:
1-888-236-5213; PIN 2644004



Webcast Information

Conference Call:
1-888-236-5213;
PIN 2644004

- Time: 11:00–12:30 pm Pacific (2:00–3:30 pm Eastern)
- Please mute your phone when not talking (*6 to mute; #6 to unmute).
- Do not put your phone on “hold.”
- This webcast is being recorded. If you do not consent to being recorded, please end your participation now.
- Webcast presentation:
 - EPRI will send out a pdf after the webcast
 - Available on the P178b web cockpit here:
<https://membercenter.epri.com/programs/069228/Pages/default.aspx>

2015 EPRI Events of Interest



■ P178b Events

- **May 19, 2015** — **Webcast:** *“Can Agent-Based Models Play a Role in Price Forecasting?”* with David Young of EPRI.
- **August 25, 2015** — Fall 2015 **P178b Advisors Meeting** and **NGIG Meeting**, The Drake Hotel, Chicago, IL

■ Related EPRI Events

- May 12-14, 2015 — EPRI ENV-Vision Conference, Doubletree Hilton, Crystal City, VA.
- Sept 29-30, 2015 — 15th Annual EPRI-IEA-IETA GHG Emissions Trading Workshop, Paris, France.

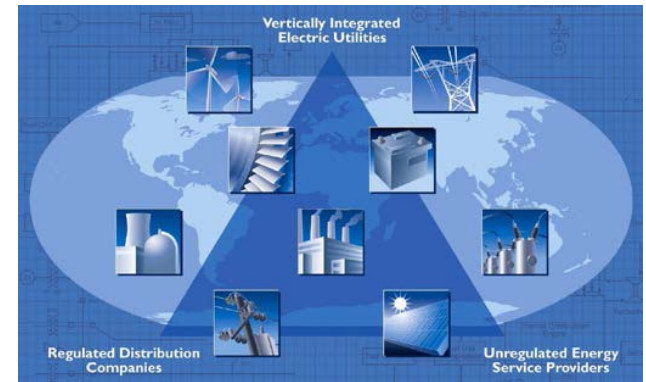
Today's Agenda

- **Introduction & Overview** – Adam
- **EGEAS Version 10** – Wah Sing Ng
 - Resource Planning Overview
 - EGEAS Overview
 - Example EGEAS analysis conducted by MISO
 - EGEAS Live Demonstration
 - **Q&A**



Overview of EPRI's Electric Generation Expansion Analysis System (EGEAS)

- EGEAS is a state-of-the-art modular production costing and generation expansion software package.
- EGEAS is used by electric company planners and others to develop and evaluate integrated resource plans, avoided costs, plant life management plans, and environmental compliance plans.
- EGEAS accommodates dispatchable generation sources (e.g., coal, gas, nuclear), demand-side management (DSM) and renewable energy sources.
- EGEAS was the forerunner of the current generation planning simulation and optimization models, and continues to be used today by a number of electric companies and regional planning organizations (e.g., MISO).
- To learn more about EGEAS, please visit EPRI.com here: <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=00000000001016192> and here: <http://eea.epri.com/models.html#tab.=3>



Short History of EGEAS

- EPRI originally developed EGEAS in 1983 as a research project. Key contractors included Stone & Webster Engineering Corp. and the MIT Energy Lab.
- In the 1990s, Stone & Webster Management Consultants Inc. developed a graphic user interface (GUI) to ease data input.
- EPRI released current updated version 10.0 in April, 2014.
 - P178 / P178b members can license EGEAS at no additional cost.
 - Non-member license costs \$25,000 (\$5,000 to upgrade from v9.02).
- EGEAS v11.0 now is being developed by NG Planning
 - Financial support provided by MISO
 - Expected to be released by EPRI in Q3, 2015.

EGEAS Versions and Key Features

- Version 1 – 1983 Initial release
- Version 2 – 1985 Storage optimization, Must-run, Spinning reserve
- Version 3 – 1986 Purchase & sale contracts, Incremental costs
- Version 4 – 1989 Financial constraints
- Version 5 – 1990 Fuel constraints, Multi-area modeling
- Version 6 – 1990 Emission Constraints, System average rate
- Version 7 – 1993 Revenues, Avoided costs, Risk analysis
- Version 8 – 1996 Multi-Parameter Gamma method
- Version 9 – 1997 Bid-based pricing
- Version 9.02 – 2007 Cost and Revenues report; Ability to change measurement units; increase # of plant types and load blocks
- 2013 Reactivated by EPRI
- Version 10.0 – 2014 Integrated GUI and underlying EGEAS code; removed Finance + and RISKMIN
- Version 11.0 – 2015* Added “dump energy “ penalty and State RPS

Today's Webcast Speaker



Wah Sing Ng
President, NG Planning LLC

Mr. Ng is an electrical engineer with an extensive background in power system planning for domestic and international electric utilities.

He holds BSEE and MSEE degrees, and an MBA degree, and has many years of experience conducting technical and financial feasibility analysis of generation and transmission projects for investor-owned and state-owned utilities, independent power producers and financial institutions.

Mr. Ng has been associated with the development and use of the EGEAS program since its inception in the early 1980's. He is the President of NG Planning LLC, an independent consulting firm established in 2005.

Contact Information



Together...Shaping the Future of Electricity

Adam Diamant

Technical Executive

Energy & Environmental Analysis

510-260-9105

adiamant@epri.com

Wah Sing Ng

President

NG Planning LLC

(732) 834-0458

wahsing.ng@ngplanning.com