

Overview of EAI Generation Supply Requirements and Supply Procurement Plans

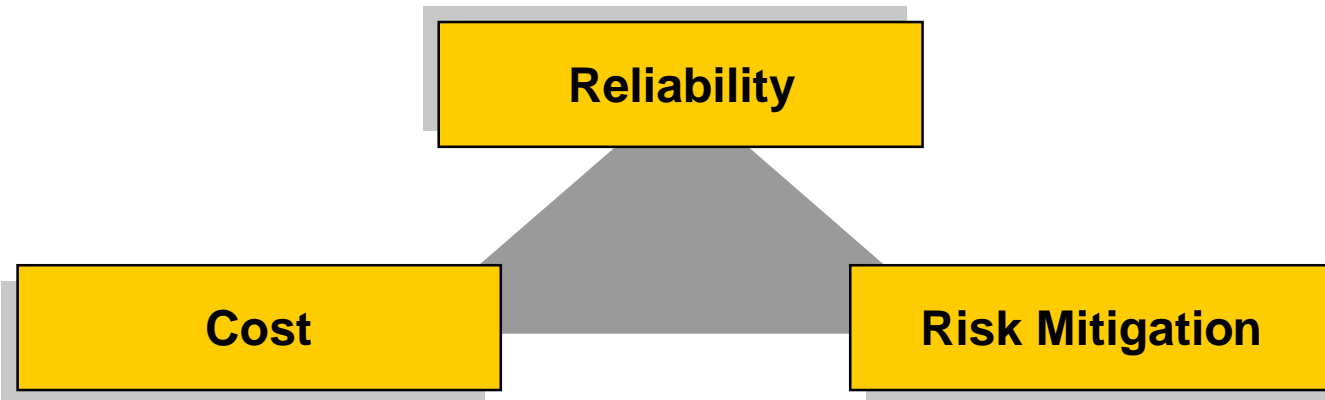
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May 5, 2010

Summary – Functional Requirements for “EAI Generation Supply Portfolio”

- **A critical component of EAI’s Transition Plan will be the plan to provide the additional supply resources that will be needed for EAI to operate reliably and economically in the 2013 – 2016 timeframe.**
- **EAI will need up to 1,200 – 1,600 MW of additional supply resources to provide the capacity required for reliable peak period operations in the 2013 – 2016 timeframe.**
- **A large portion of this new generation capacity must be provided from “flexible capacity”, generation that can be operated as needed to follow the daily and hourly changes in EAI customer demand.**
- **EAI must develop plans to procure these supply resources by December 2013, which will likely require multiple resource procurement and resource development activities in the 2010 – 2013 timeframe, including multiple RFPs for purchased power resources.**
- **EAI must make new gas/oil fuel supply arrangements to support the operation of its flexible generation resources.**
- **These additional resources will not be reduced significantly even if EAI joins an RTO.**

Long-Term Planning Objectives

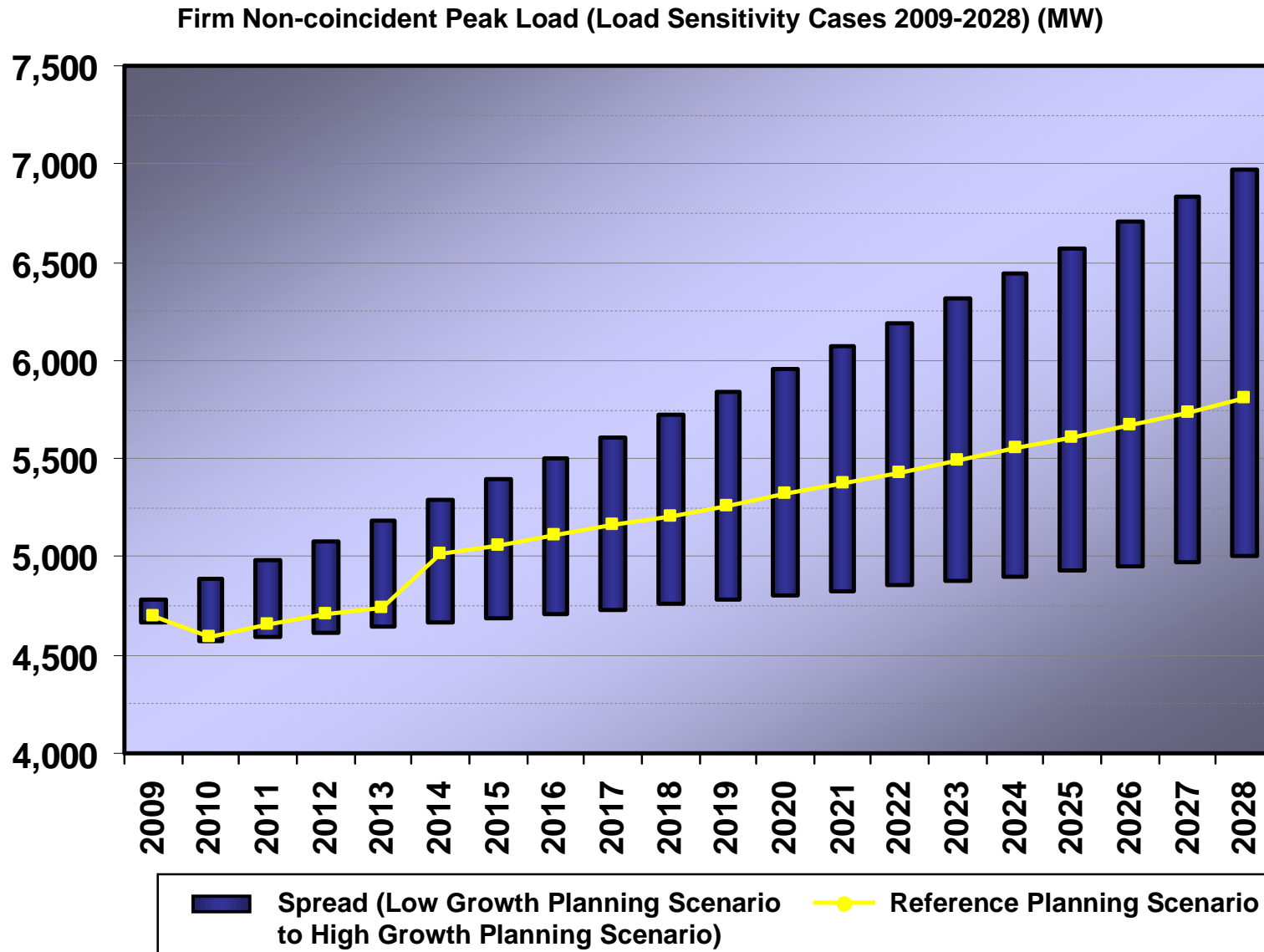
In designing a portfolio of resources to meet customer needs, EAI seeks to balance a set of supply objectives including reliability, cost, and risk mitigation. The overall objective is to meet customer needs reliably at the lowest reasonable cost. However, determining what is reasonable necessitates consideration of risk.



Basic Resource Supply Objectives

- **Reliability** – provide adequate resources to meet customer peak demands with adequate reliability.
- **Base Load Production Costs** – provide low-cost base load resources to serve base load requirements, which are defined as the firm load level that is expected to be exceeded for at least 85% of all hours per year.
- **Flexible Capability and Load-Following Production Costs** – provide efficient, dispatchable, load-following resources to serve the time-varying load shape levels that are above the base load supply requirement and provide sufficient flexible capability to respond to factors such as load volatility caused by changes in weather or by inherent characteristics of industrial operations, the need for meeting energy imbalances caused by independent power producers, and the need to absorb energy that may be put by cogenerators.
- **Generation Portfolio Enhancement** – provide a generation portfolio that is more efficient than the current fleet and avoids an over-reliance on aging resources.
- **Price Stability Risk Mitigation** – mitigate the exposure to price volatility associated with uncertainties in fuel and purchased power costs.
- **Supply Diversity Risk Mitigation** – mitigate the exposure to major supply disruptions that could occur from specific risks such as outages at a single generation facility.

EAI Load Responsibility Forecast

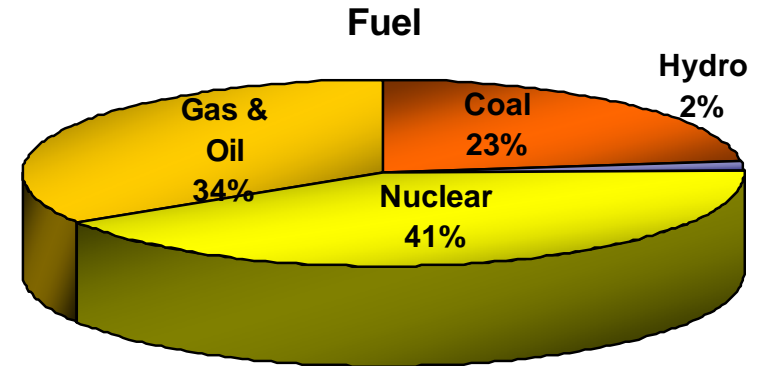
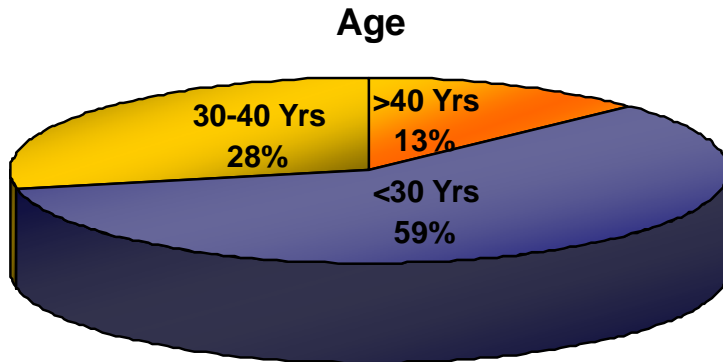


EAI Current Owned and Long Term Resources

Unit	Supply Role	Fuel	Age	2008 Summer Capacity (MW)
ANO 1	Nuclear & Coal	Nuclear	34	843
ANO 2	Nuclear & Coal	Nuclear	29	996
Blakely	Peaking	Hydro	n/a	11
Carpenter 1	Peaking	Hydro	77	29
Carpenter 2	Peaking	Hydro	77	30
Cecil Lynch 3	Peaking	Gas	55	110
Cecil Lynch 4	Peaking	Oil	42	5
DeGray	Peaking	Hydro	37	10
Grand Gulf	Nuclear & Coal	Nuclear	24	410
Hamilton Moses 1	Peaking	Gas	58	70
Hamilton Moses 2	Peaking	Gas	58	70
Harvey Couch 2	Peaking	Gas	55	125
Independence 1	Nuclear & Coal	Coal	26	263
Lake Catherine 1	Peaking	Gas	59	47
Lake Catherine 2	Peaking	Gas	59	45
Lake Catherine 3	Peaking	Gas	56	96
Lake Catherine 4	Peaking	Gas	39	532
Mabelvale 1	Peaking	Gas	39	14
Mabelvale 2	Peaking	Gas	39	14
Mabelvale 3	Peaking	Gas	39	14
Mabelvale 4	Peaking	Gas	39	14
Ouachita	Core Load Following	Gas	7	536
Rommel	Peaking	Hydro	84	11
Robert Ritchie 3	Peaking	Gas	39	16
White Bluff 1	Nuclear & Coal	Coal	29	465
White Bluff 2	Nuclear & Coal	Coal	28	479
WBL	Nuclear & Coal		n/a	(220)

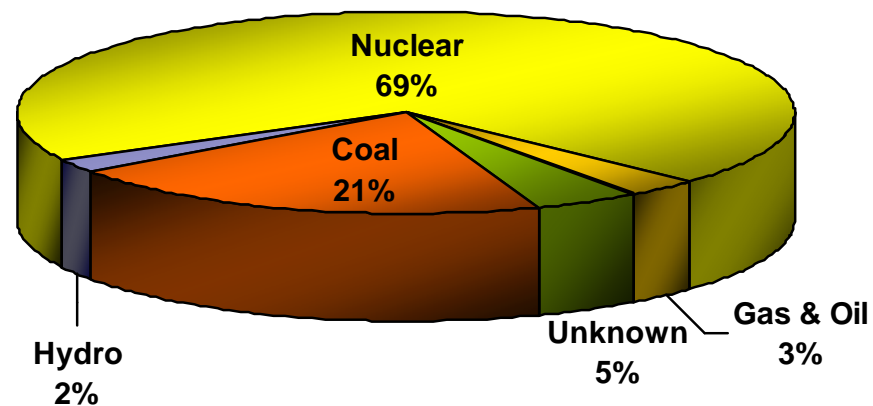
Current Characteristics of EAI Resource Portfolio

Capacity (2009)



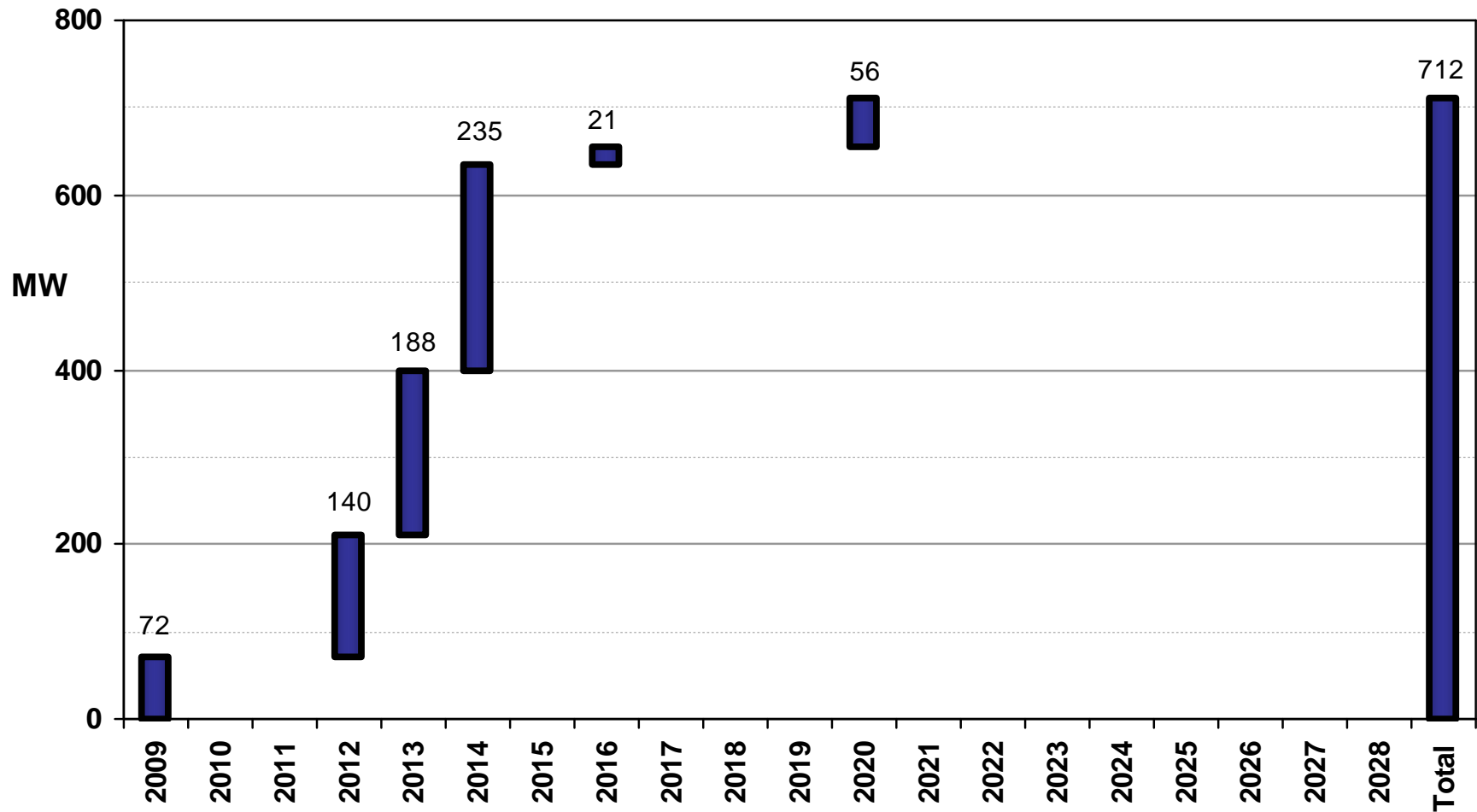
Energy (2009)

Fuel



•Includes Owned and Long Term Resources for 2009

EAI Potential Generating Unit Deactivations



Note:

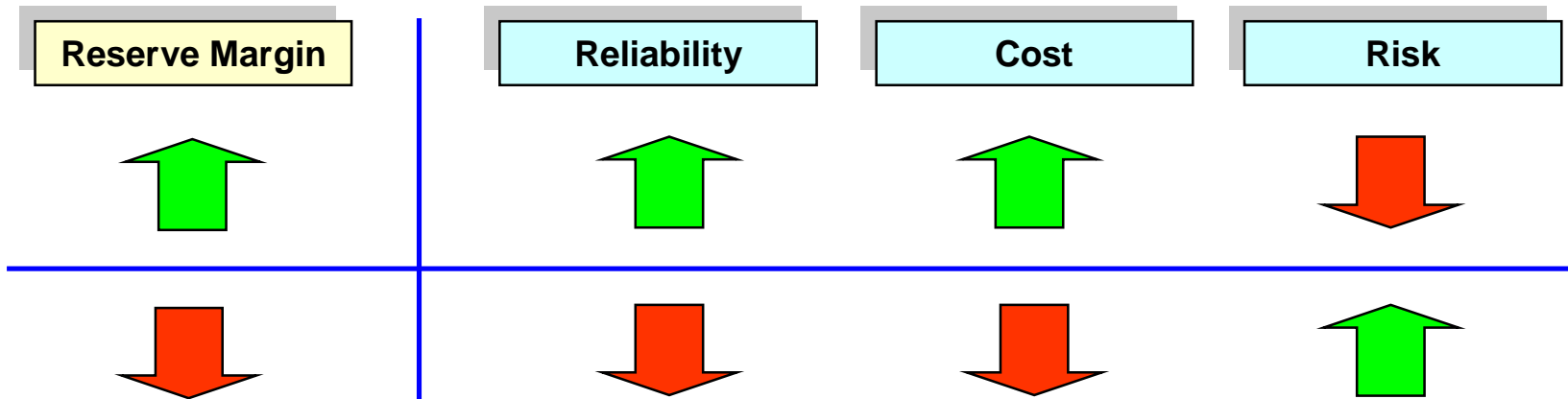
This assumption is for long term capacity replacement planning purposes only and should not be interpreted as a retirement schedule for existing generating units

Reserve Margin Concepts

- **EAI must have adequate resources to meet customer needs reliably.**
- **Resources are measured in terms of peak load plus an adequate provision for planning reserves.**
- **If resources are sufficient to meet peak demand, then resources are typically sufficient to meet demand throughout the remainder of the year when customer demand is lower.**
- **Both customer demand and the availability of resources within the portfolio to meet demand are uncertain. The ability to serve load can be affected by unknown events, such as:**
 - Unusually hot summer weather
 - Unplanned outage of generating units
- **To protect against the consequences of unknown events, an additional amount of resources above the projected peak demand is needed. This additional amount of resources is referred to as a reserve margin.**
- **A number of factors influence the level of planning reserves that are required to provide reliability and a key factor is the size of the generating units in the portfolio relative to the peak load.**

Planning Reserve Margin Requirements

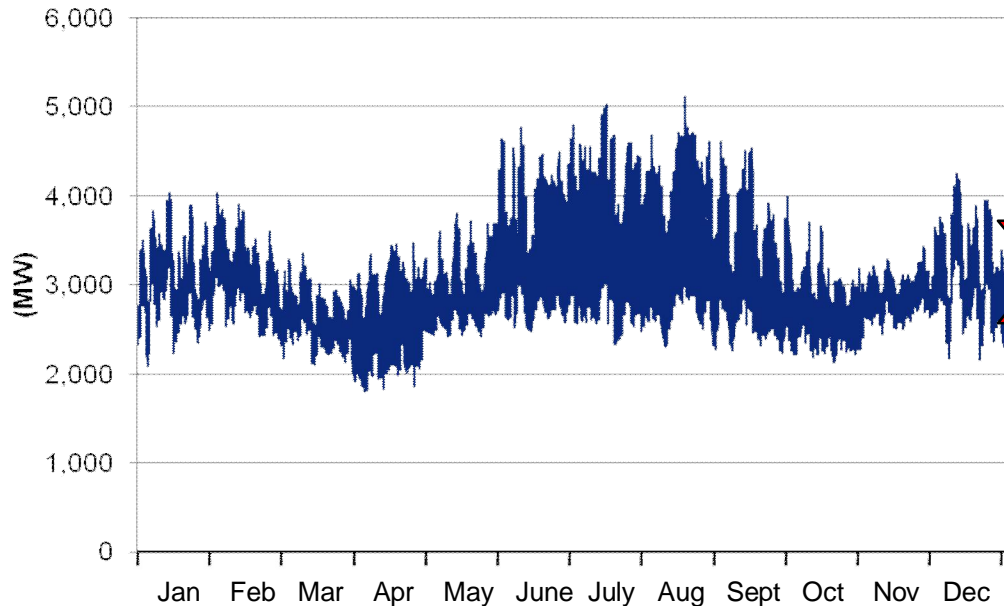
- Determining a target reserve margin requires balancing the supply objectives of reliability, cost, and risk.



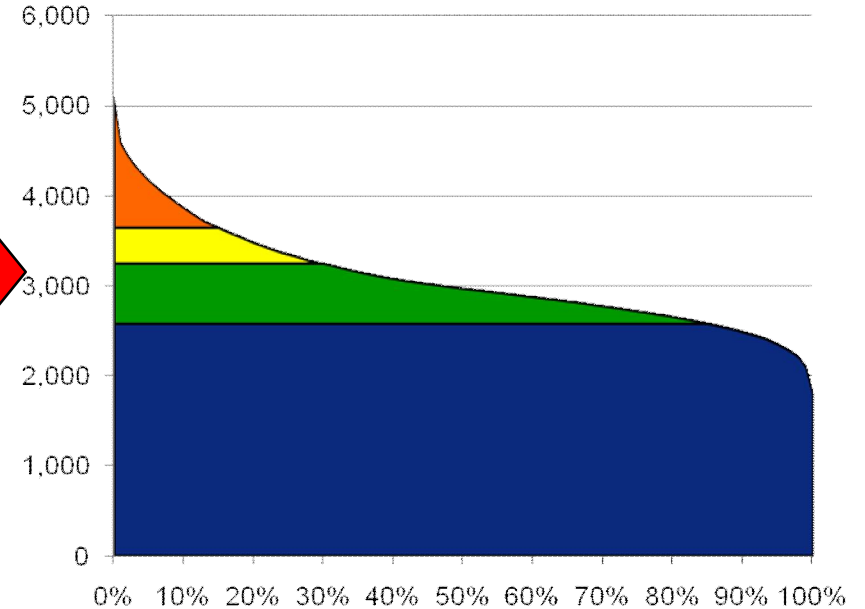
- Some NERC Regional Entities have established minimum reserve margin requirements, while others have not. Regardless, each load serving entity is responsible for determining an appropriate reserve margin for their customers based on their portfolio of resources.
 - SPP has established a minimum reserve margin of 13.6% for their members
 - SERC has not established a minimum reserve margin requirement for their members
- For EAI on a stand alone basis and planning to cover loss of the largest generating unit results in a planning reserve margin of about 20%.
- Applying loss of load probability reliability assessments would likely result in planning reserve margin requirements of 24% or more.

Load Duration Curve Description of EAI 2014 Time Varying Chronological Customer Demand





EAI 2014 Firm Hourly Load Curve



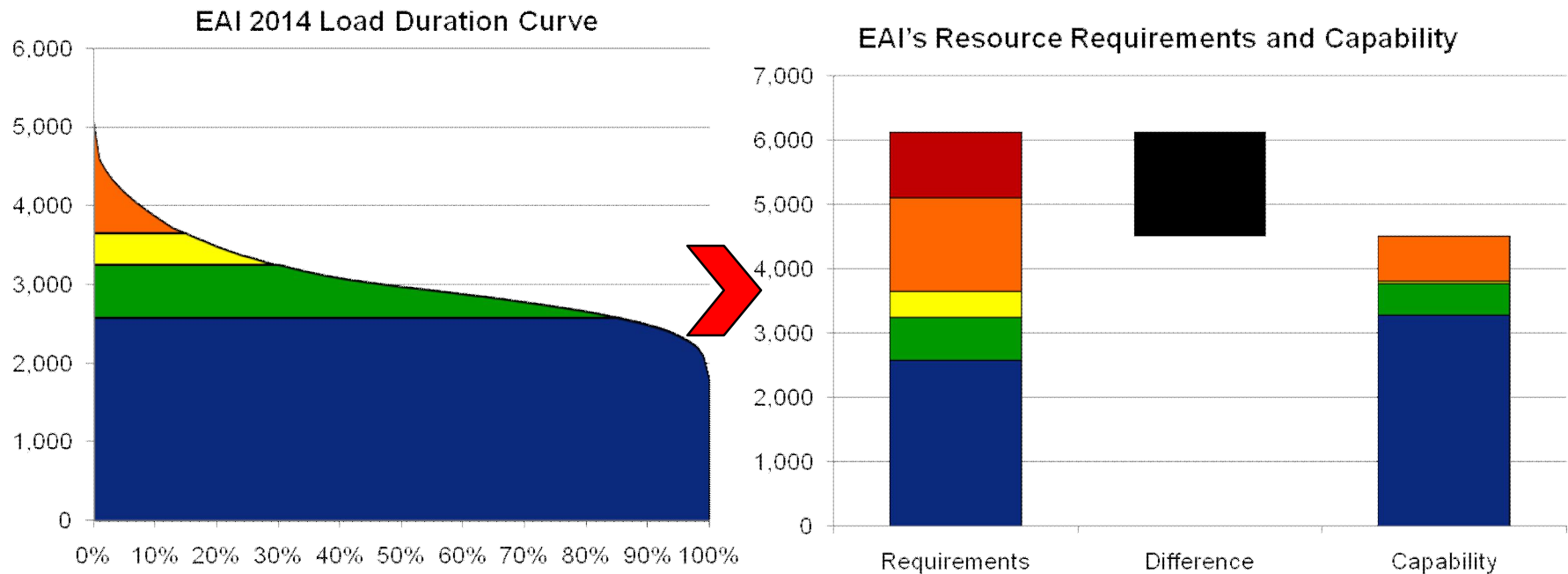
EAI 2014 Load Duration Curve



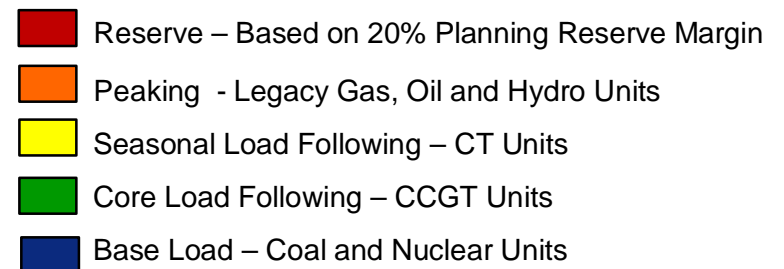
- **Load shape determines the functional requirements of the portfolio of resources needed to serve customer demand.**
- **Points along the load duration curve indicate the amount and type of capacity needed for generalized supply roles.**
- **This analysis provides general guidelines for portfolio planning purposes without consideration of practical operational requirements.**

-  **Peaking** – Load level exceeded 15% of hours
-  **Seasonal Load Following** – Load level exceeded more than 15% and less than 30% of hours
-  **Core Load Following** – Load level exceeded more than 30% and less than 85% of hours
-  **Base Load** – load level exceeded 85% of hours

Load Duration Curve Characterization of EAI 2014 Supply Requirements



- The results of load duration curve are used to describe the resource needs and for assessing how well resources are matched to load shape requirements.
- In assessing existing resources relative to load shape requirements, each unit has been assigned within a specific supply role; however, the distinction between supply roles is neither sharp or static.



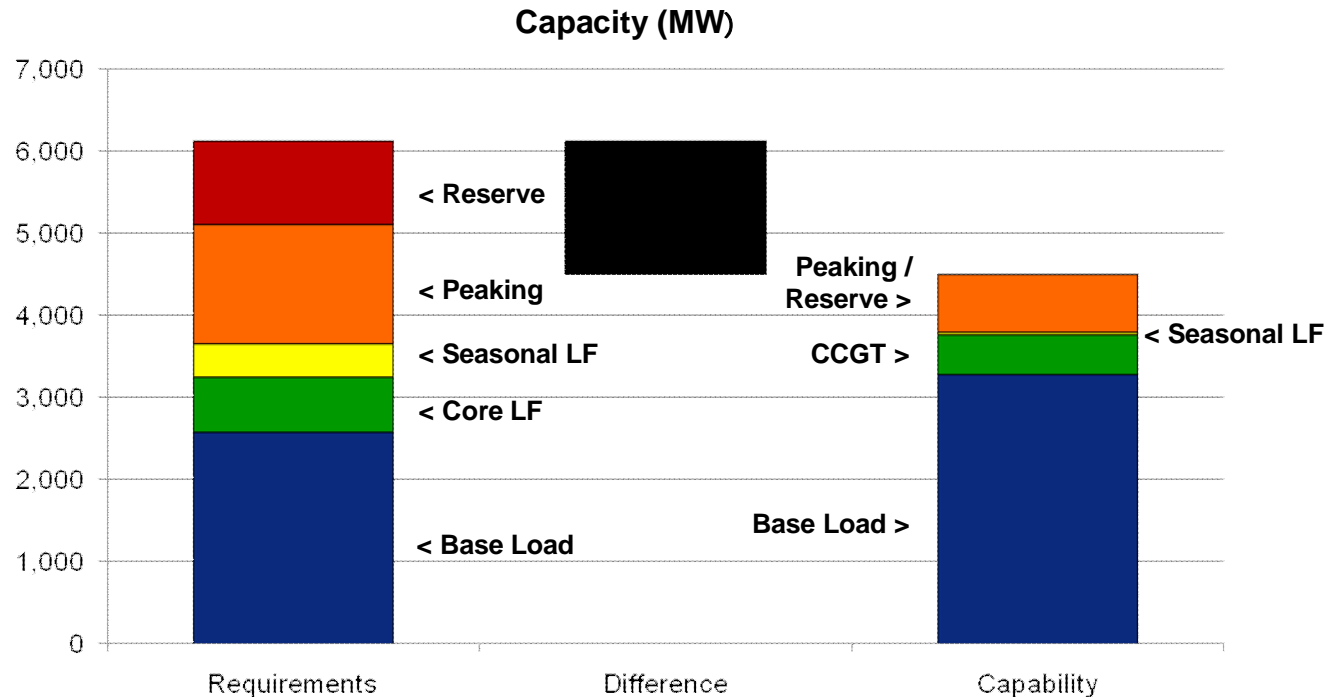
Resource Needs by Supply Role for Stand Alone Operation beginning 2014

Even with a 12- 15% planning reserve margin EAI will need about 1,200 – 1,400 MW of additional resources.

Procuring 1,200 – 1,600 MW of resources will likely require multiple RFPs for long-term capacity and 1 – 5 year limited-term purchase power contracts.

At least one additional CCGT is needed for load following.

EAI Resource Requirements and Capability for 2014
20% Planning Reserve Margin (Loss of Largest Unit)

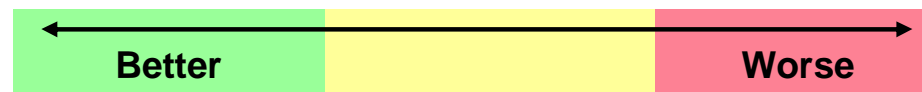


	Base Load	Core LF	Seasonal LF	Peaking	Reserve	Total
Capability	3,285	475	38	700		4,498
Requirements	2,579	666	408	1,452	1,021	6,127
Difference	705	(191)	(370)	(752)	(1,021)	(1,630)

Generating Unit Attributes Relative to Supply Role

- A cost-effective portfolio recognizes that the time-varying nature of customer demand calls for a mix of generating resources to meet differing supply roles.
- Since the cost and performance characteristics of generating technologies differ, no single technology or generation type economically meets all supply roles.
- Assumes that adequate fuel supply is available to support flexible operation if necessary and adequate transmission service is available to deliver power.

Unit Type	Base Load	CCGT	CT	Existing Gas
Fixed Cost (\$/kW)	High	Medium	Low	Low
Variable Cost (\$/MWh)	Low	Medium	High	High
Operating Range	Narrow *	Medium	Wide	Wide
Ramp Rate	Low *	Medium	High	Medium
Daily Cycling	No	Yes	Yes	No
Preferred Supply Role	Base load	Load Following	Peaking	Peaking



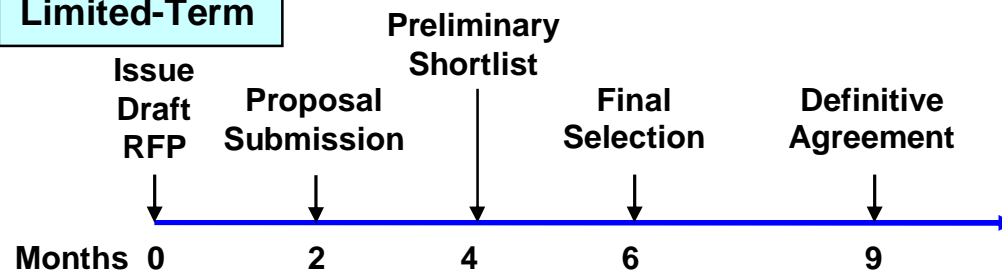
* Some base load units have wide operating ranges and high ramp rates; however, their most economic operation is achieved by maximizing their production.

Request For Proposals (RFP) Process Time Requirements

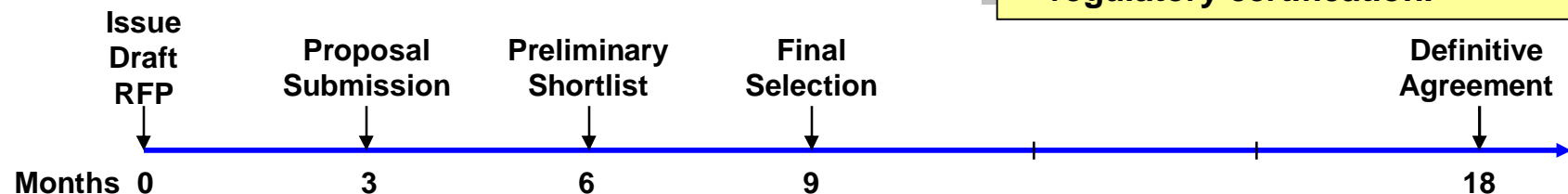
- Procuring 1,200 – 1,600 MW of resources will likely require multiple RFPs.
- The current Summer 2009 RFP for long-term resources is underway and may yield resources that are appropriate for EAI needs.

Illustrative RFP Timelines

Limited-Term



Long-Term



- Limited-Term RFPs for purchase power contracts with 1 – 5 year terms will likely require about 9 months to complete.
- Long-Term RFPs for 10 year – Life-of-unit resources will likely require about 18 months to complete.
- Additional time is required before to draft the RFP documents and after for regulatory certification.

Typical RFP Attributes

Overall Objective:

Solicit competitive proposals to provide EAI with flexible and cost-effective load-following generating resources to meet customers' needs in a reliable and economical manner.

RFP Type	Limited-Term	Long-Term *
Term	1 – 5 years	10 years – Life-of-unit
Typical Proposal Size	100 – 500 MW	100 – 500 MW
Contract Type	PPA	PPA and Acquisitions
Availability	Unit Contingent	Unit Contingent
Products Solicited	<ul style="list-style-type: none"> ● Flexible Load Following ● Peaking 	<ul style="list-style-type: none"> ● Flexible Load Following ● Peaking
Time Requirements	9 months	18 months

* May include a self-supply option for purposes of market testing relative to competitive proposals.

Typical RFP – Illustrative Proposal Evaluation Process

