Session 3

Overview - EAI Generation Supply Plan Requirements for 2014 Operations and Provisioning Plan Alternatives

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Session 3 Overview

- **This presentation addresses the resource requirements and supply arrangements that EAI must provide as part of its Transition Plan for First Day (2013-2014) operations**

- **Any party that believes that it has resources or supply arrangements that should be considered by EAI in the development of its Transition Plan can notify EAI of its interest and provide details of the resource and/or supply arrangement alternative such that EAI can assess whether the resource alternative can effectively and economically complement EAI portfolio of resources**

- **In the Transition Plan, EAI currently is planning only for the needs of EAI's retail customers**

- **Potential wholesale customers who seek arrangements with EAI during the 2014-2023 period should begin a dialog with EAI to clarify how joint interests should be considered in the Transition Plan**

Session 3 Overview (continued)

- **Our planning assumes that EAI's existing agreements with wholesale customers remain in place through their expiration (earliest termination date) and that both EAI and counterparties honor the existing terms and conditions of the agreements**

- **Today's discussion will describe types of generation and purchased power products that EAI will seek in its 2010-2013 planning and procurement activities to support EAI's 2014-2023 operations**

- **The focus today will be on the generation products that must be arranged to support First Day operations**

Under all strategic options, EAI's Generation Supply Plan for the 2014-2023 must provide additional generation to support the following supply roles

- **"Flexible generation" for following daily load variations**
- **"Flexible generation" for regulation (to balance supply and demand in real-time)**
- **"Flexible generation" for on-line operating reserves**
- **"Flexible generation" for "contingency reserves" (supplemental reserves (off-line) that can be made available quickly**
- **"Replacement Power" – supply arrangements to replace base load generation during maintenance and extended outages**
- **Planning reserves – peaking/intermediate generation that can be made available if necessary for peak period reliability**

Preliminary Summary of EAI 2014 Timeframe Portfolio Performance Capability Requirements

Capability or Performance Required for EAI Generation	Requirements	Assumptions/ Additional Possible Requirements
2014 Total Capacity Requirement for Peak Period Reliability	**5,795 to 6,127 MW**	Reserve requirements depends upon reliability group arrangements – EAI will plan for range of 13.8% to 20%. Baseline scenario will assure capability for 20% if needed
2014 Total Additional Generation Required Above Current Plan	**About 1,200 MW to 1,630 MW depending on required reserve margin**	Range expected to be met with flexible plans for up to 430 MW of additional planning reserves from short-term purchases or legacy gas/oil units
Unit Commitment Requirements for Operating Reserves for Contingencies	**150 MW within 15 minutes**	Assumes EAI participates in SPP Reserve Sharing Program. Transition Plan will include contingency plan for operating reserves
Additional Unit Commitment Required for Load Regulation	**50% of hrs < about 50 MW** **90% of hours < about 75 MW**	Assumes no NUCOR. Including NUCOR increases requirement through 2018 by about 50-100MW
Max Daily Load Following Range	**About 1,500 MW winter** **About 2,250 MW summer**	Based on EAI's load analyses
Ramp Rate Required for Control Area Requirements	**About 15-20 MW/minute**	Reflects NUCOR in load Coal unit provide 22-23 MW/minute Typical conventional Gas Unit provide 7-12 MW/minute

For 2013-2014 operations EAI must secure about 1,200-1,630 MW of generation capacity beyond its current resources for peak period reliability

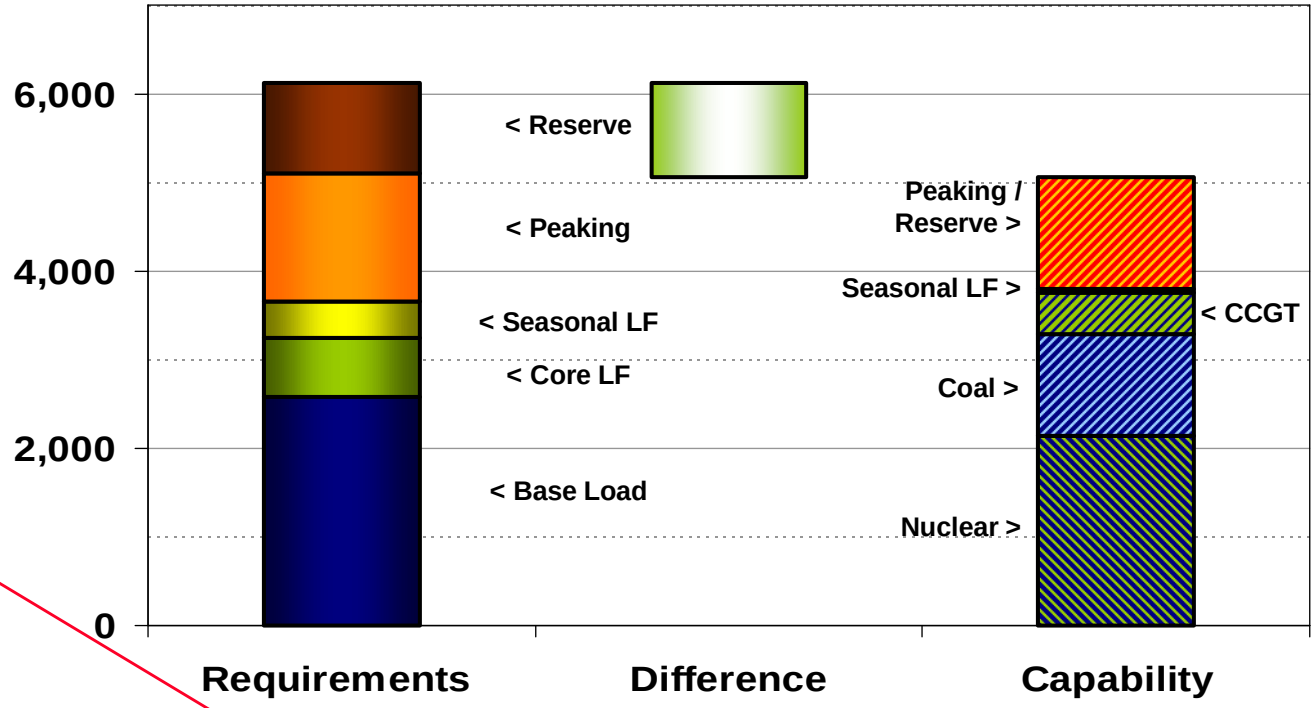
EAI Resource Requirements and Capability for 2014

Assuming Upper-end of Reserve Range - 20% Reserve Margin (Loss of Largest Unit)

Capacity (MW)

A minimum of one additional 500-600 MW CCGT is targeted for load following…

2009 RFP is evaluating offers for long-term CCGT capacity



	Base Load	Core LF	Seasonal LF	Peaking	Reserve	Total
Capability	3,286	475	38	700	-	**4,499**
Requirements	2,579	666	408	1,452	1,021	**6,127**
Difference	707	(191)	(307)	(752)	(1,021)	**(1,628)**

Assuming one additional 500-600 MW CCGT, an additional 600-1130 MW of additional resources will be needed – from a combination of flexible generation and planning reserves

Baseline Scenario – Resource Supply Plan

- **EAI is developing a Baseline Scenario supply plan for First Day (2013-2014) operations** that is robust (*i.e.,* portfolio will meet required performance capabilities under all possible outcomes for scenarios regarding strategic options and the RTO/ICT decision)

- The Baseline Scenario for First Day operations may not be optimum for the entire 2014-2023 period

- The Baseline Scenario will also be developed for the remaining planning years (*i.e.,* 2017, 2019, 2023)

- As EAI finalizes the Transition Plan over the 2010-2011 period, the Baseline Scenario will be updated as EAI finalizes the supply plan for 2014-2023

- The Baseline Scenario will consider “seasonal” supply plan needs for power supply and sales/purchase transactions to make effective use of EAI resources

EAI's Load Shape will determine the resource supply requirements for the Generation Supply Plan that will be defined in EAI's final Transition Plan

- **EAI's load requirements currently consist of EAI's retail load and the AECC load served from EAI's transmission facilities**
  - Flexible capacity is needed to serve the load shape
  - Flexible capacity must provide regulation, online operating reserves, and contingency reserves is an important factor

- **EAI serves AECC load from its transmission facilities under an EAI-AECC agreement known as the Power Coordination Interchange Transmission Service Agreement ("PCITSA")**
  - AECC must provide resources needed to serve the AECC/EAI load and reserve requirements
  - EAI's operator determines which AECC resources are committed and dispatched to serve the combined EAI and AECC load
  - Contractual provisions allow the termination of the agreement as early as December 2018, assuming EAI provides AECC with 5 years notice of EAI's intention to terminate the agreement

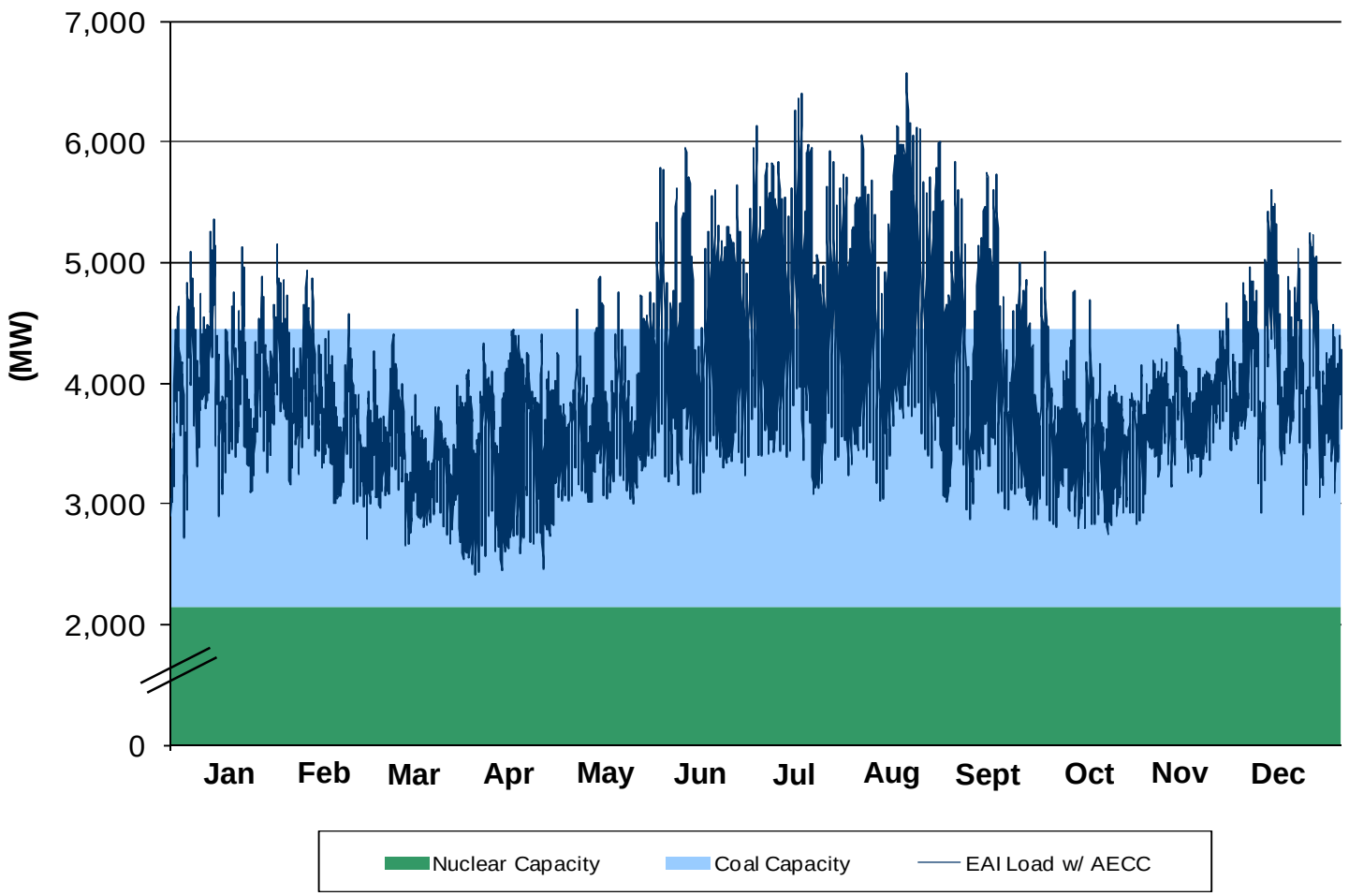
EAI's Load Shape will determine the Flexible Generation Needed for Daily Load Variations (Operating Range for Load Following)

- The following slides show the load shapes that must be served with a generation supply portfolio
  - The combined 2014 EAI and AECC/EAI load that must be served from the combined EAI and AECC/EAI generation resources
  - The 2014 EAI only load that would be served from EAI's generation resources if EAI was operating without serving the AECC/EAI load
- As seen from the following slides for EAI only**, EAI needs a supply plan and commitment and dispatch plan that can provide flexible capacity with a minimum operating range of about**
  - **2,800 MW in the summer season**
  - **2,200 MW in the winter peak season**
  - **2,000 MW in the shoulder/maintenance period season**
- **For EAI and AECC/EAI load, the amount of flexible capacity discussed above increases by about 500 – 800 MW depending on season**
- The options for providing this flexible capacity operating range are discussed later

EAI 2014 Firm Load With AECC Compared to Base Load Capability

Flexible Capacity will supply only a small portion of EAI w/ AECC Energy Requirements

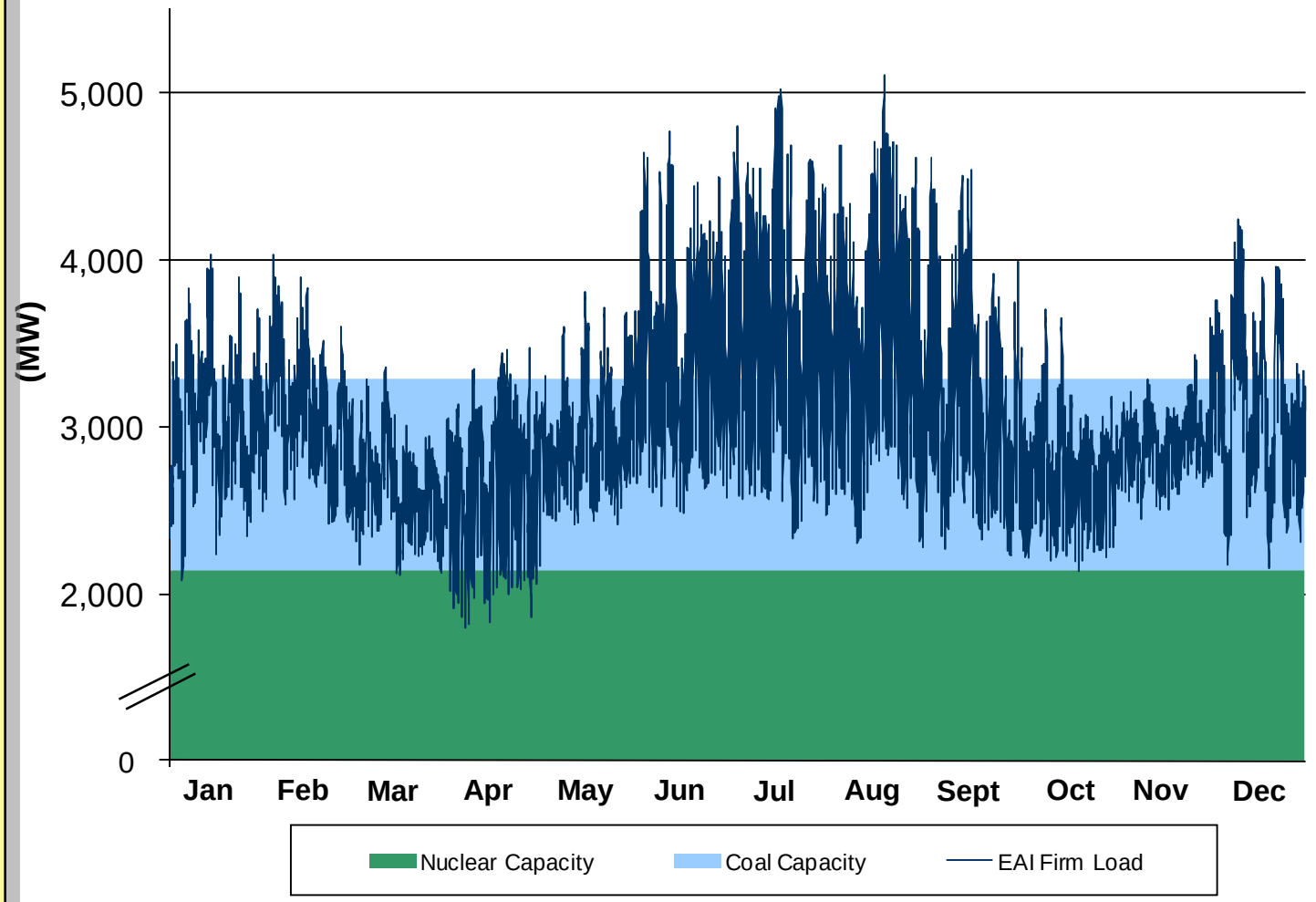
- **Base load capacity could provide over 97% of the 2014 annual energy requirements for EAI with AECC**
- **The load variation above the base load capability is 2,120 MW and represents only 3% of annual energy requirements**
- **Does not account for nuclear unit refueling and coal unit planned maintenance**
- **This analysis provides general guidelines for portfolio planning purposes without consideration of practical operational requirements**



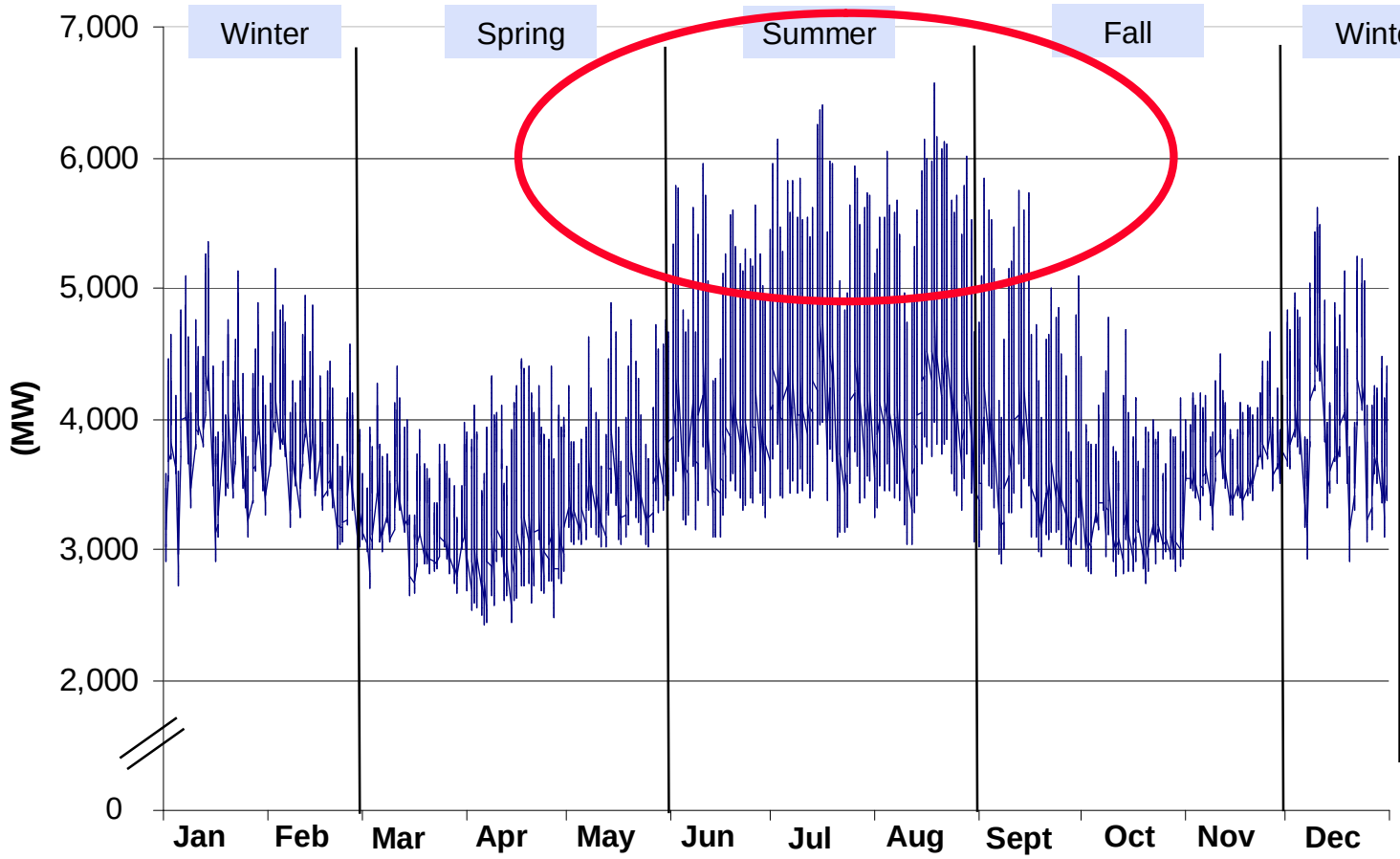
EAI only 2014 Firm Load Without AECC Compared to Base Load Capability

Flexible Capacity will supply only a small portion of EAI Energy Requirements

- **Base load capacity could provide over 95% of the 2014 annual energy requirements for EAI only**
- **The load variation above the base load capability is 1,820 MW and represents only 5% of annual energy requirements**
- **Does not account for nuclear unit refueling and coal unit planned maintenance**
- **This analysis provides general guidelines for portfolio planning purposes without consideration of practical operational requirements**



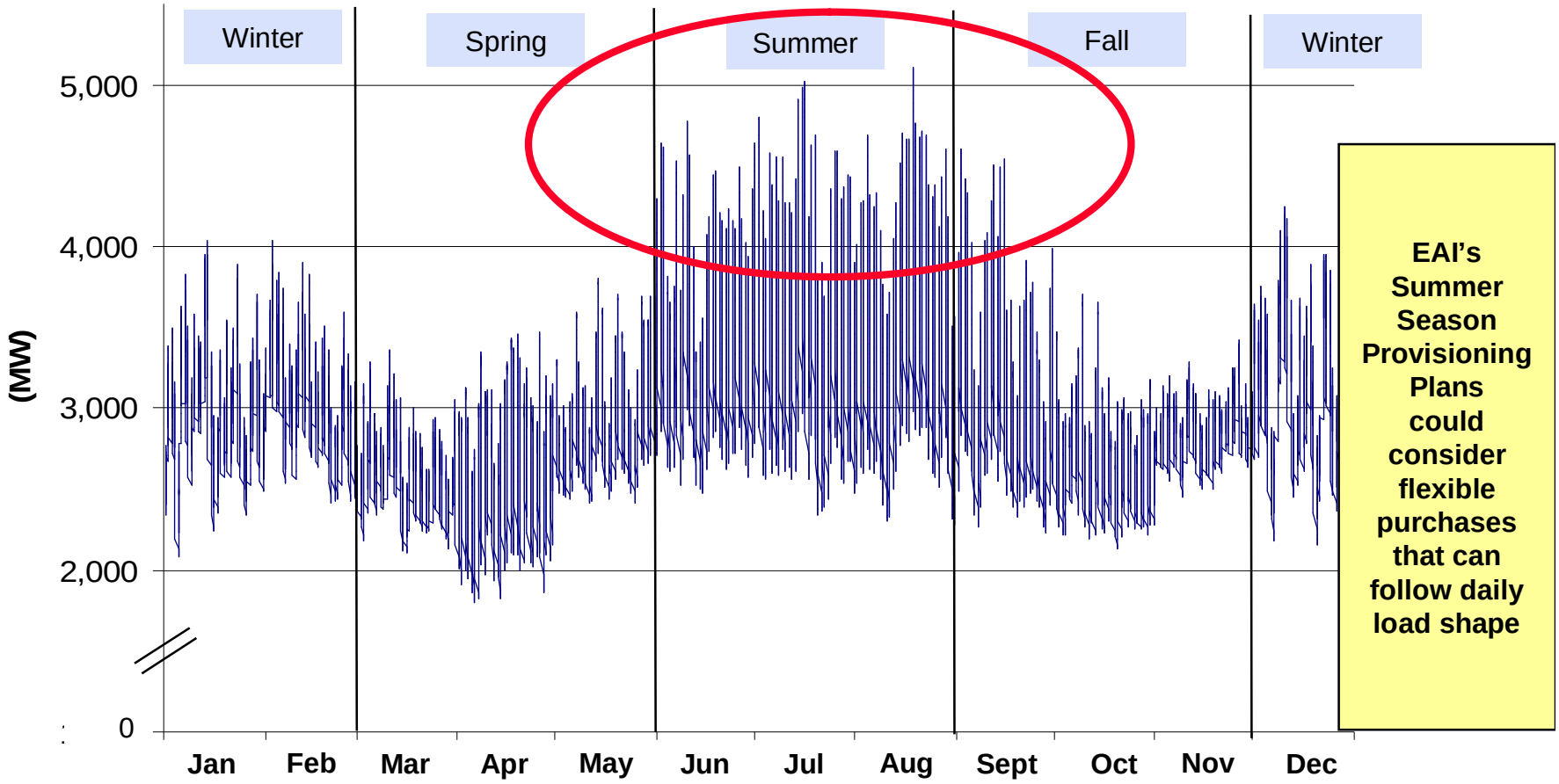
EAI Firm Load Including AECC - Hourly Forecast for 2014
EAI w/AECC Supply Plan May Include Summer Purchases of Flexible Generation



With AECC load EAI's Summer Season Provisioning Plans could consider flexible purchases that can follow daily load shape

Season	Winter	Spring	Summer	Fall
Max (MW)	5,600	4,900	6,600	5,800
Min (MW)	2,700	2,400	3,000	2,700
Swing (MW)	**2,900**	**2,500**	**3,600**	**3,100**

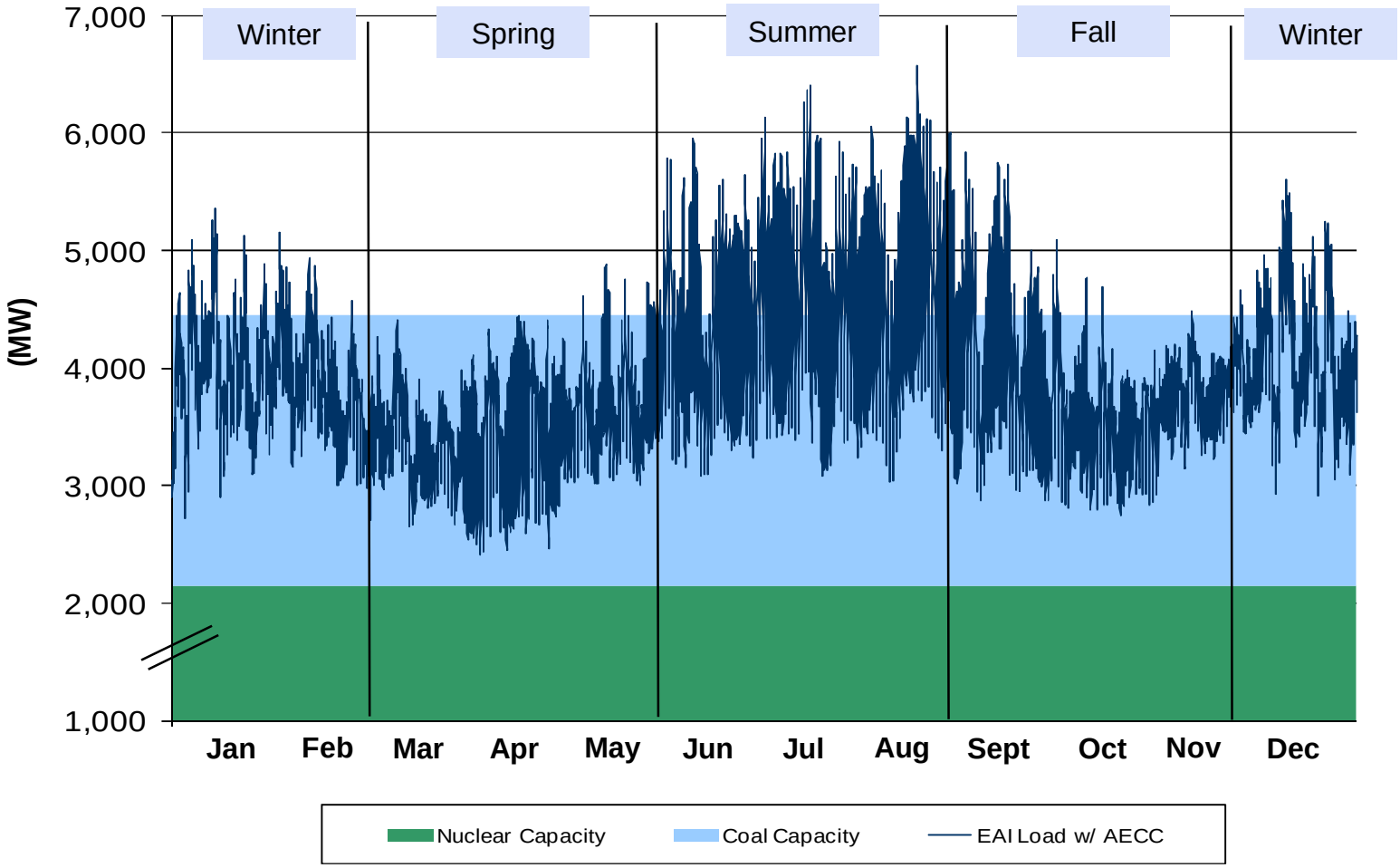
EAI Firm Load Excluding AECC - Hourly Forecast for 2014
EAI only Supply Plan May Include Summer Purchases of Flexible Generation



Season	Winter	Spring	Summer	Fall
Max (MW)	4,200	3,800	5,100	4,600
Min (MW)	2,000	1,800	2,300	2,100
Swing (MW)	**2,200**	**2,000**	**2,800**	**2,500**

EAI 2014 Firm Load With AECC and Base Load Capability

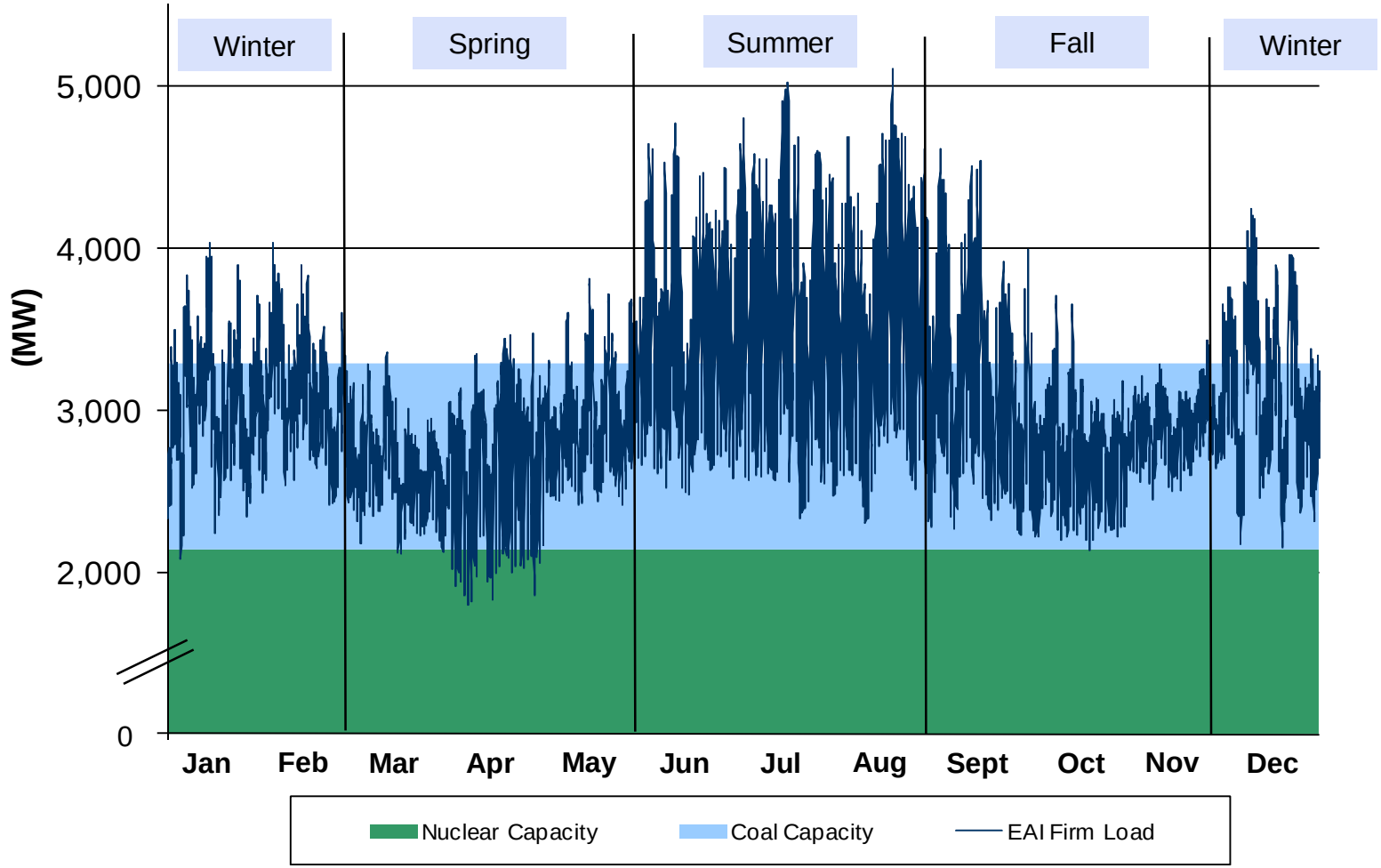
EAI Needs about 2,120 MW of Summer On-Peak Flexible Capacity above Base Load Generation Capability – Less in other Seasons



Load Variation Above Base Load	Winter	Spring	Summer	Fall
Swing (MW)	1,157	426	2,120	1,383

EAI only 2014 Firm Load Without AECC and Base Load Capability

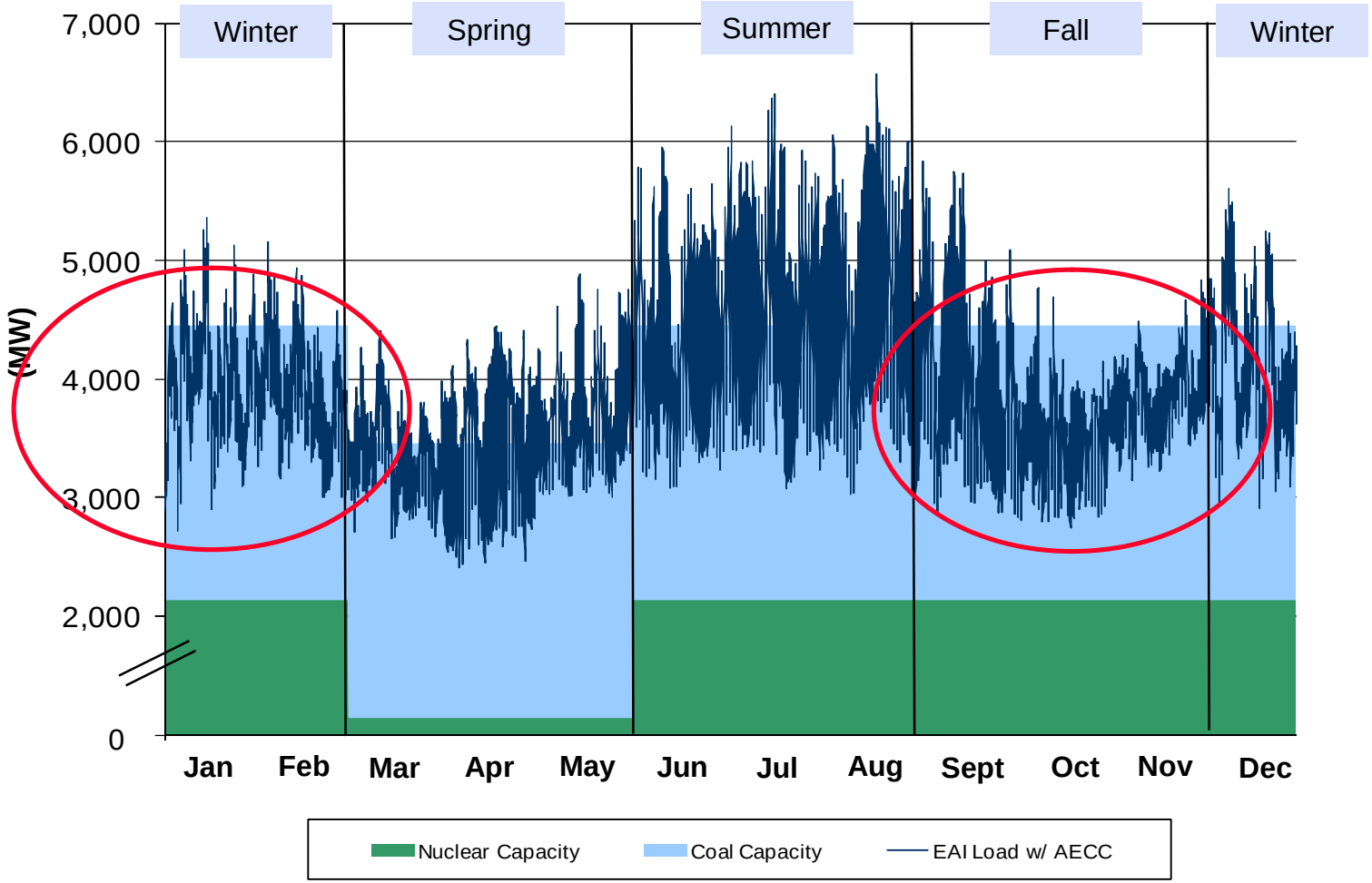
EAI Needs about 1,820 MW of Summer On-Peak Flexible Capacity above Base Load Generation Capability – Less in other Seasons



Load Variation Above Base Load	Winter	Spring	Summer	Fall
Swing (MW)	955	522	1,820	1,320

EAI 2014 Firm Load With AECC Compared to Base Load Capability with Unit Maintenance

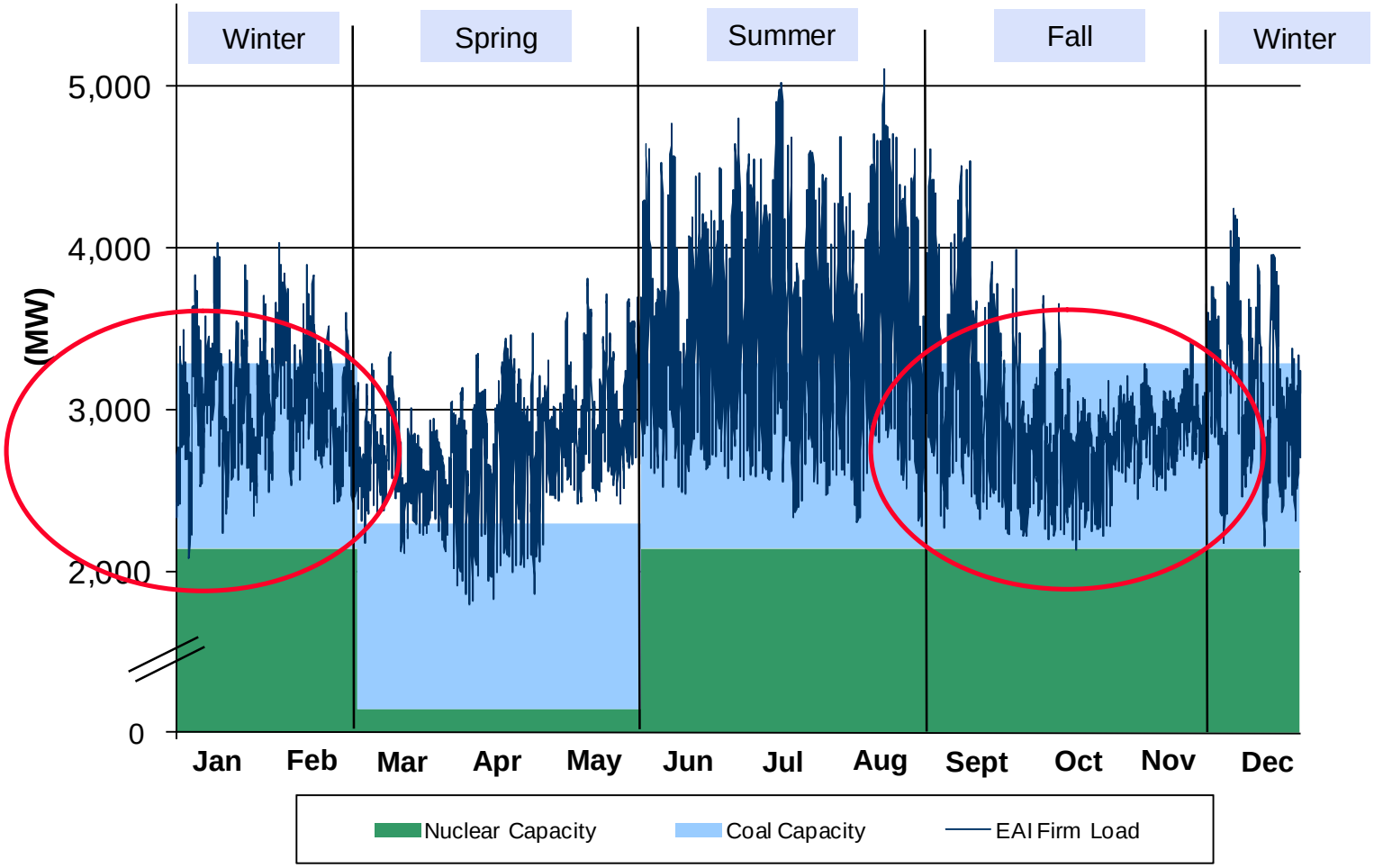
EAI May Make Seasonal Sales Transactions During Off-peak Seasons



Load Variation Above Base Load	Winter	Spring	Summer	Fall
Swing (MW)	1,157	1,419	2,120	1,383

EAI only 2014 Firm Load Without AECC Compared to Base Load Capability with Unit Maintenance

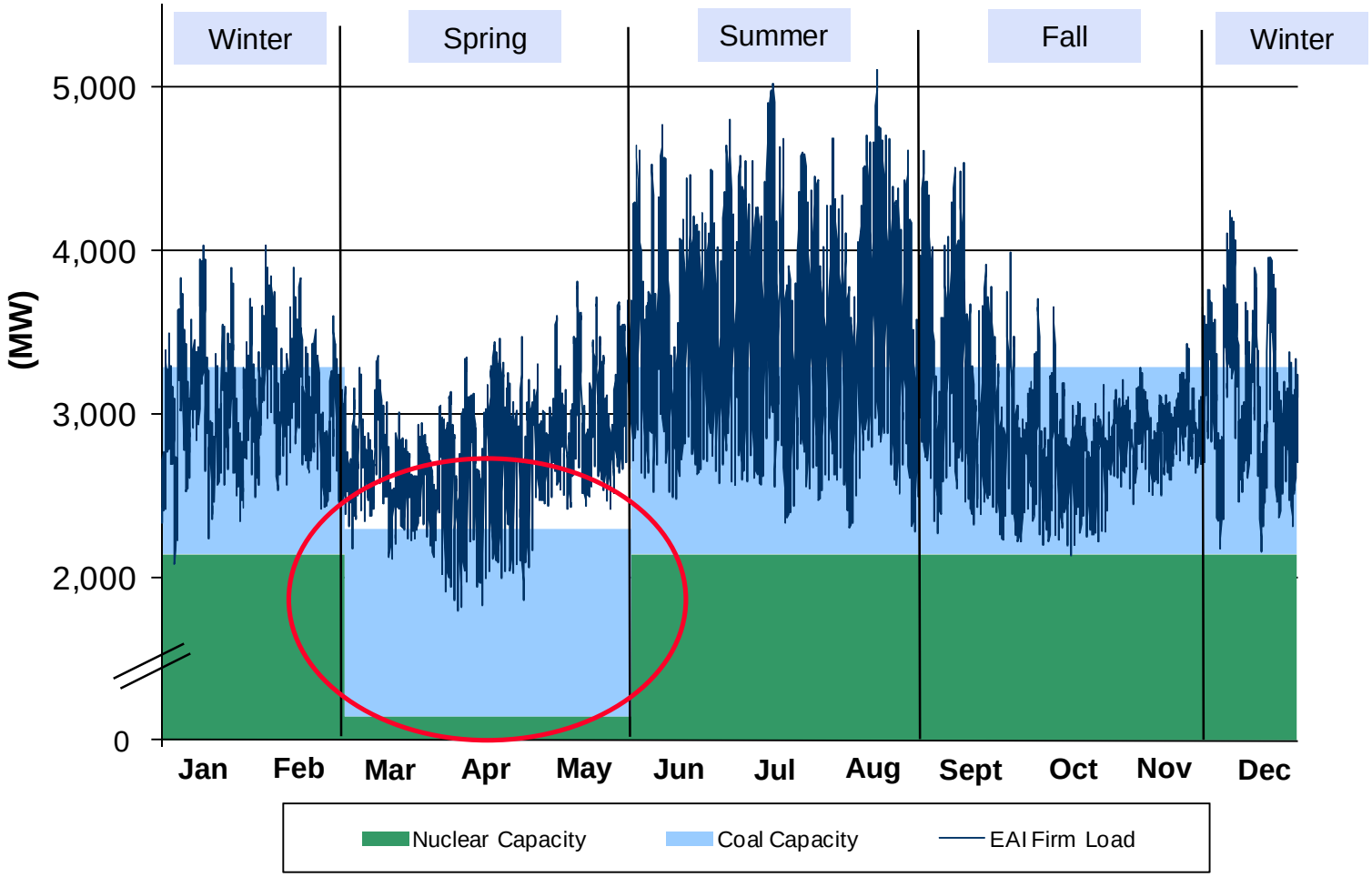
EAI May Make Seasonal Sales Transactions During Off-peak Seasons



Load Variation Above Base Load	Winter	Spring	Summer	Fall
Swing (MW)	955	1,515	1,820	1,320

EAI only 2014 Firm Load Without AECC and Base Load Capability & Illustrative Unit Maintenance

EAI May Need Replacement Energy During Times of High Maintenance



Load Variation Above Base Load	Winter	Spring	Summer	Fall
Swing (MW)	955	1,515	1,820	1,320

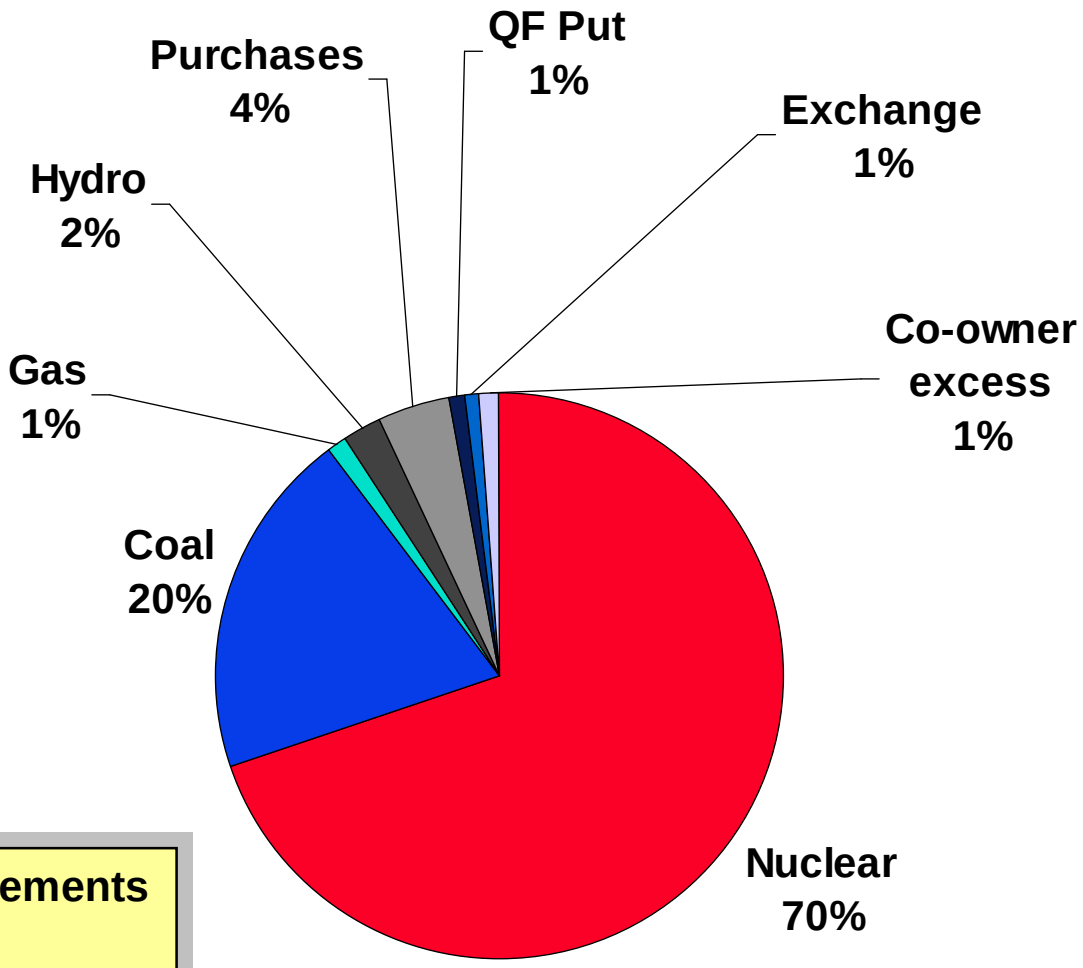
EAI's existing generation portfolio and generation supply plan for 2014-2023 will identify resources that cap production costs – EAI may use market purchases and/or coordination agreements to achieve additional savings

2009 Actual Data and Potential for Production Cost Savings from Purchased Power

- Base load resources in 2009 provided 90% of the combined EAI annual kWh requirements
- EAI 2009 average fuel costs for this coal energy was less than a CCGT with 6000 Btu/kWh heat rate at $4 gas and average RTO LMP prices
- EAI has been successful operating in the current regional market to secure purchased power from 3rd party resources. In 2009:
  - EAI's generation supply included 983 GWH of non-affiliated purchased energy representing about 4% of EAI's energy requirements
  - The average on-peak purchase was 270 MWh with a maximum of 1,200 MWh
- These 3rd party purchases were priced at an average costs of about $36/MWh. This equates to a weighted average heat rate of approximately 9,100 Btu/kWh based on the 2009 Average Henry Hub First of the Month Gas Price of $3.99/mmBtu

2009 Energy Sources Indicate Limited Reliance on Purchased Power

- **EAI's baseload resources supplied about 90% of EAI's energy requirements for 2009**
- **3rd party purchases were used to serve about 4% of EAI's energy requirements for 2009**
- Hydro and gas generation combined supplied about 3% of EAI's energy requirements for 2009
- QF Put, Exchange energy from other Entergy Operating Companies and Co-owner excess energy combined supplied about 3% of EAI's energy requirements for 2009



93% of EAI's 2009 energy requirements were supplied by EAI owned or controlled resources and 4% were supplied by 3rd party purchases

Process for Development of Supply Plan for EAI Transition

- Over the coming months, EAI will develop more detailed provisioning plans for flexible generation requirements (and other requirements that are discussed later) that will describe the resources EAI plans to use and the operational and implementation plans associated with the provisioning strategy

- EAI will develop multiple scenarios, reflecting both various strategic options, but also various assumptions regarding major uncertainties such as the Entergy RTO/ICT Decision, carbon legislation, *etc.*

Flexible Capability Is Needed for EAI Supply Plan for EAI Transition Under All Potential Strategies and Outcomes of Entergy RTO/ICT Decision

- **EAI's need for flexible generation is robust for all strategic options and all outcomes regarding the RTO/ICT decision**
  - **Successor Arrangements Strategic Option**: A Flexible Capability supply obligation is expected to be part of the Successor Arrangements, as is a Flexible Capability exchange
  - **Self-Provide Strategic Option:** EAI's current portfolio does not have adequate flexible generation for the flexible capability requirement
    - » EAI's gas generation flexible capability of 757 MW compared to EAI's maximum summer daily operating range of 2,238 MW

Gas Generation	Resource Type	Maximum (MW)	Minimum (MW)	Flexibile (MW)
Lake Catherine 4	Gas	532	45	487
Lynch Diesel	Quick Start	5	5	5
Mabelvale	Quick Start	56	56	56
Ouachita	CCGT	513	320	193
Ritchie 3	Quick Start	16	16	16
Total		1,122	442	757

  - **3rd Party Strategic Option:** Same as above, but new coordinating arrangements could reduce overall requirements

Flexible Capability Is Needed for EAI Supply Plan for EAI Transition Under All Potential Strategies and Outcomes of Entergy RTO/ICT Decision (continued)

- **Our need for flexible generation is "robust" for all strategic options and all outcomes regarding the RTO/ICT decision:**
  - RTO/ICT outcome: RTOs and ICTs may provide opportunities for production cost savings from regional commitment and dispatch decisions, but do not provide assured capacity for reliability or for managing a member's overall production costs. Further, members could incur costs for zonal reliability commitments and ancillary services that must be considered, including the cost of hedging this exposure by an appropriate amount of flexible capacity located in the same operating/reliability commitment zone as the member's load

"No Regrets" Implementation Steps to Arrange Flexible Generation Resources

- **Planning and implementation steps to enhance the supply of flexible capability included in EAI's generation portfolio is a "no regrets" strategy and EAI intends to begin appropriate activities in 2010-2011**

- EAI seeks to manage price risks by avoiding total dependence on the short-term market for this supply requirement, and thus EAI will develop an annual plan for flexible capability that will address this requirement (and the other drivers of flexible capacity) through some combination of EAI-owned flexible generation, purchased flexible capacity such as CCGT/CT units, and purchased power

- A later slide will illustrate the "provisioning options" that EAI will be considering for this flexible capability

"No Regrets" Implementation Steps to Arrange Flexible Generation Resources (continued)

- **Planning and implementation steps to enhance the supply of flexible capability included in EAI's generation portfolio is a "no regrets" strategy and EAI intends to begin appropriate activities in 2010-2011**

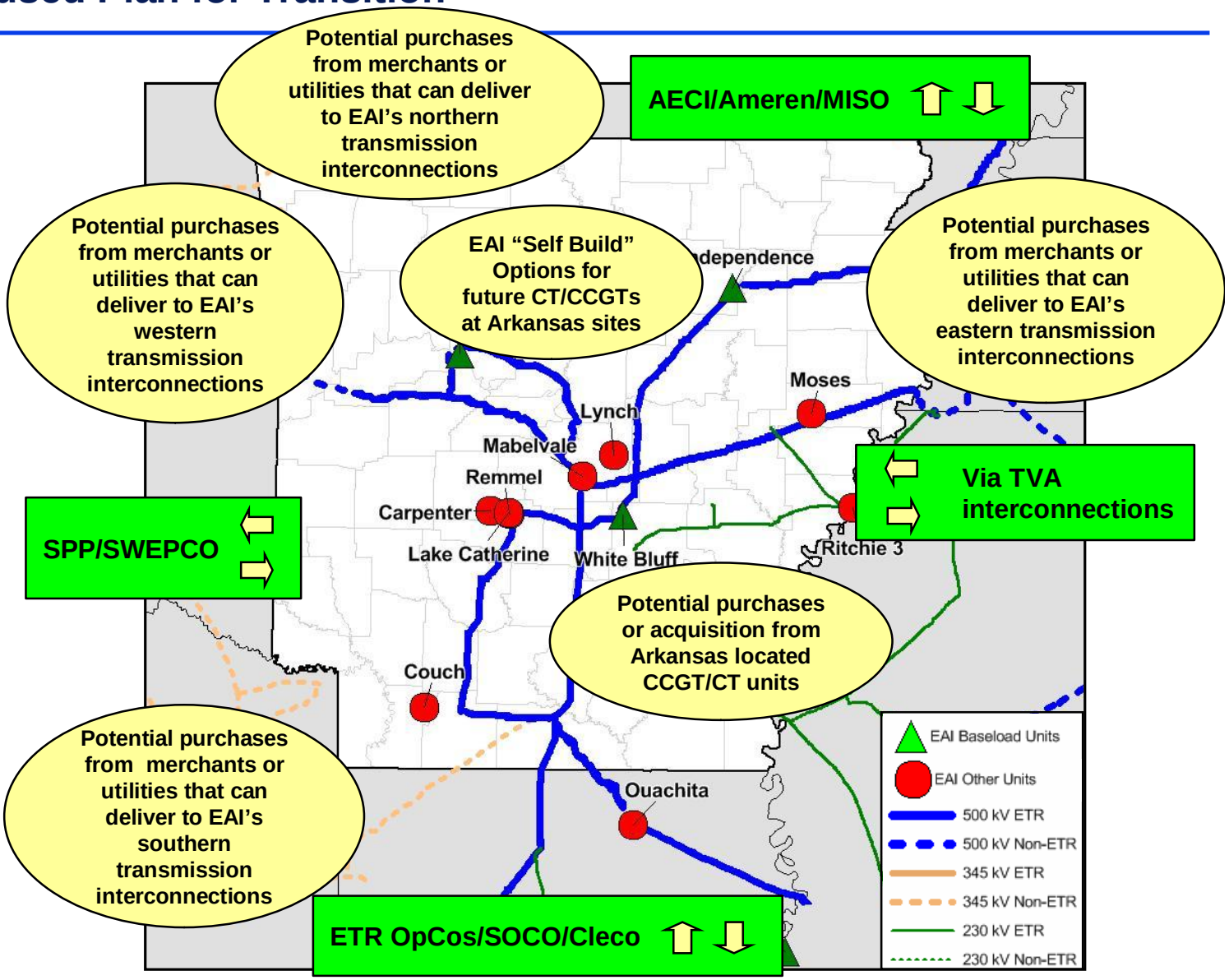
- EAI has not determined our targeted mix of these products – but anticipate a reasonable reliance on short–term and limited-term purchases supplied by merchants or 3rd parties

- EAI expects to distribute and diversify these purchase transactions over several suppliers considering resources both within Arkansas and those available through EAI's interconnections

- Until EAI has determined better options, it expects to retain the flexibility to use its legacy units with large operating ranges and dual fuel (gas/oil) capability as part of this provisioning plan

EAI's Transition Supply Plan will be Consistent with an "Arkansas and Customer Focused Plan for Transition"

- EAI has EHV transmission interconnections with several adjacent electric systems
- Transfer capability across these interfaces should be considered in both reliability planning and for possible economy power transactions
- Resource supply availability and transmission deliverability from adjacent systems will need to be assessed



Opportunities for EAI Resource Supply Additions

- EAI may have the opportunity to add some long-term CCGT capacity to its portfolio as a result of the Summer 2009 RFP
- EAI will be discussing supply options with adjacent utilities and Arkansas located resource owners during the next 12 months
- EAI will be exploring new fuel supply arrangements for EAI's flexible generation resources
- EAI will have options to provide this flexible capability and over the 2010-2011 period will refine its plans for providing and procuring these resources
- EAI expects the procurement to be spread over several RFPs – probably into late 2011 and early 2012

Illustrative Resource Needs for EAI's 2014 Timeframe Transition Plan Relative to Potential Alternative Products that may be used to fill those needs

Resource Needs	Potential Alternative Products
Aggregate EAI Portfolio Additions	CCGT Acquisitions
Peak Season Contingency for Planning Reserve	CCGT Long-term PPA
Daily Use Flexible Generation	CT Acquisition
Operating Contingency Peaking Capacity	CT Long-term PPA
Contingency Replacement Power	CCGT Block Call Option PPA 1 – 3 years
Maintenance Period Replacement Power	CT Call Option PPA 1 – 3 years
	Seasonal CCGT Block Call Option PPA 1 – 3 years
	Seasonal CT Block Call Option PPA 1 – 3 years

Near Term EAI Generation Supply Plan "No Regrets" Activities

- **EAI's near term activities in the EAI Generation Portfolio Supply Track of its schedule will include the following "no regrets" activities:**
  - As mentioned earlier, EAI will request its Fossil organization to **assess the viability and costs of including EAI's gas/oil steam generation in the flexible capability provisioning plan**
  - EAI also will pursue **enhanced fuel supply arrangements** for flexible generation included in our provisioning plans
  - EAI will **identify project sites and project schedules for possible future CCGT and CT generation units** that could be considered in its future provisioning plans
    - » At this time EAI has **no definitive plans to build such generation**, given the availability of purchased power in the near term
    - » However, **for the 2014-2023** period, **EAI must develop and maintain these flexible generation CCGT/CT generation options** so **that they can be deployed when and if needed in the future**
    - » Until better options are identified, EAI's baseline provision plan scenarios may include such future units at some point in its forecast