

**EXHIBIT NO. \_\_\_(EMM-11HC)  
DOCKET NO. UE-06\_\_\_/UG-06\_\_\_  
2006 PSE GENERAL RATE CASE  
WITNESS: ERIC M. MARKELL**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY, INC.,**

**Respondent.**

**Docket No. UE-06\_\_\_  
Docket No. UG-06\_\_\_**

**TENTH EXHIBIT (HIGHLY CONFIDENTIAL) TO THE  
PREFILED DIRECT TESTIMONY OF  
ERIC M. MARKELL  
ON BEHALF OF PUGET SOUND ENERGY, INC.**

**REDACTED  
VERSION**

**FEBRUARY 15, 2006**

**PUGET SOUND ENERGY, INC.**  
**MINUTES OF THE**  
**BOARD OF DIRECTORS' MEETING**  
**JULY 13, 2004**

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Pursuant to notice duly given on July 7, 2004 (a copy of which is filed with these minutes), a meeting of the Board of Directors of Puget Sound Energy was held in Puget Sound Energy's Board Room on the 12<sup>th</sup> Floor of the PSE Building, beginning at 10 a.m. on Tuesday, July 13, 2004.

The following Directors were present:

D. P. Beighle  
C. W. Bingham  
P. J. Campbell  
C. W. Cole  
R. L. Dryden  
S. E. Frank  
T. Moriguchi  
K. P. Mortimer  
S. G. Narodick  
S. P. Reynolds

being more than a quorum.

Also present were:

Puget Energy and PSE Management

J. W. Eldredge, Corporate Secretary and Chief Accounting Officer  
D. E. Gaines, Vice President Finance and Treasurer  
J. L. O'Connor, Vice President and General Counsel  
B. A. Valdman, Senior Vice President Finance and CFO

PSE Management

K. J. Harris, Vice President Regulatory & Government Affairs  
E. M. Markell, Senior Vice President Energy Resources  
W. L. Robinett, Director Resource Planning

Perkins Coie

M. A. Quehrn

Mr. Beighle presided and Mr. Eldredge kept the records of the meeting.

Harris advised the Board that PSE had briefed the Washington Commission on the amendment before entering into the contract revision and that the Commission was in agreement with the amendment.

#### **PSE RATE CASE UPDATE**

Mr. Beighle then asked Ms. Harris to give the Board an update on PSE rate case matters. Ms. Harris then reviewed with the Board an order issued on May 19, 2004 by the Washington Commission establishing the intervening parties and the Commission's procedural schedule for PSE's pending electric and gas general tariff rate cases filed with the Commission on April 5, 2004. A copy of the Commission's order is filed with the minutes of this meeting.

Ms. Harris then discussed orders issued by the Washington Commission during the second quarter of 2004 to PSE in connection with its power cost only rate case.

#### **PSE ENERGY RESOURCES ACQUISITION UPDATE**

Mr. Beighle then asked Mr. Robinett, PSE Director Resource Planning, to join the meeting and asked Mr. Markell to give the Board an update on PSE energy resource acquisition matters. Mr. Markell then reviewed with the Board a report he had prepared covering an update on PSE's strategies to obtain new electric energy resources through its "All-Source" request for power resource proposals and its wind energy resource request for proposals and the PSE analysis performed to date on resource acquisition alternatives. A copy of Mr. Markell's report was furnished the Board in advance of this meeting and is filed with the minutes. After Mr. Markell's report, Mr. Robinett left the meeting.

# **Resource Acquisition Update to Board of Directors**

*Eric M. Markell  
Senior Vice President Energy Resources  
July 13, 2004*

# Resource Acquisition

## Update Overview

- Electric Resource Strategy
- RFP Process & Analysis
- Key Analytical Updates
- Implications for Resource Strategy
- Stage 2 Process & Analysis
- Short List Review
  - ◆ [REDACTED]
  - ◆ RES - Hopkins Ridge
  - ◆ Zilkha - Wild Horse
  - ◆ ORMAT - Sumas Recovered Heat
  - ◆ [REDACTED] - 10-yr PPA
  - ◆ [REDACTED] - 22-yr PPA
  - ◆ APS - 2-yr PPA
- Other Potential Resources
- Next Steps

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WAC 480-07-160

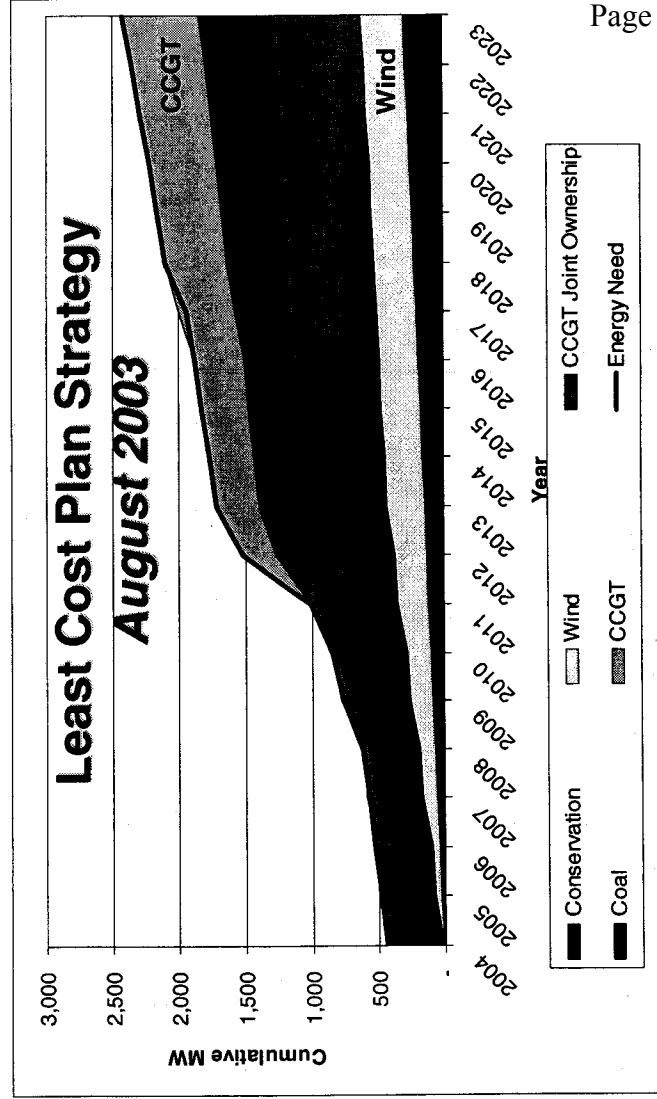
□ Exhibit No. \_\_\_\_ (EMM-11HC) □  
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# Electric Resource Strategy

## 2003 Least Cost Plan

- Published April 2003
  - Diversified mix of resources
  - 10% renewable resources target
  - "B2" Energy Standard: add resources to meet energy needs in highest deficit month
  
- Updated August 2003
  - Continuous process of contemporaneous analysis & documentation
  - Included comprehensive assessment of available conservation resources
  - Fully integrated portfolio analysis that evaluated conservation & supply resources on equal basis



# **Electric Resource Strategy**

## **“B2” Planning Standard Energy Need**

	Highest Deficit Month for 2005 - 08	595 aMW
Less	Conservation Savings	117 aMW
Less	Frederickson 1 Acquisition (125 MW Capability)	123 aMW
	Remaining Need	355 aMW

*Note: All calculations based on “B2” planning standard in 2003 LCP*

# **Electric Resource Strategy**

## ***Timeline***

- August 2003:** Filed draft Wind RFP, consistent with LCP, as first step to meet 355 aMW need
- November 2003:** WUTC approved Wind RFP  
Issued Wind RFP  
Filed draft All-Source RFP
- December 2003:** Filed draft Energy Efficiency RFP
- January 2004:** WUTC approved All-Source & Energy Efficiency RFPs
- February 2004:** Issued All-Source & Energy Efficiency RFPs

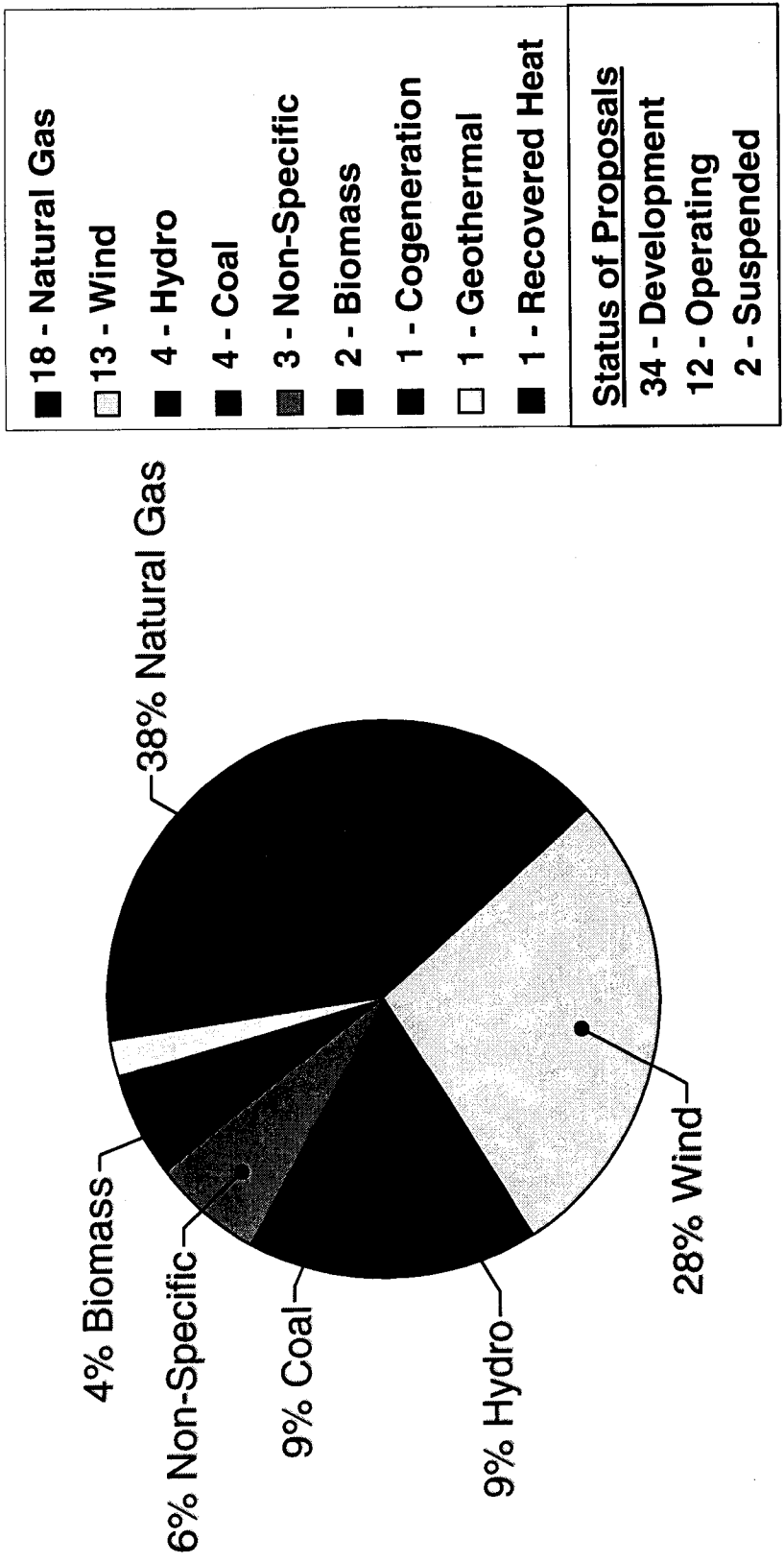


# RFP Process & Analysis

## Summary of Proposals

### Wind RFP & All Source RFP

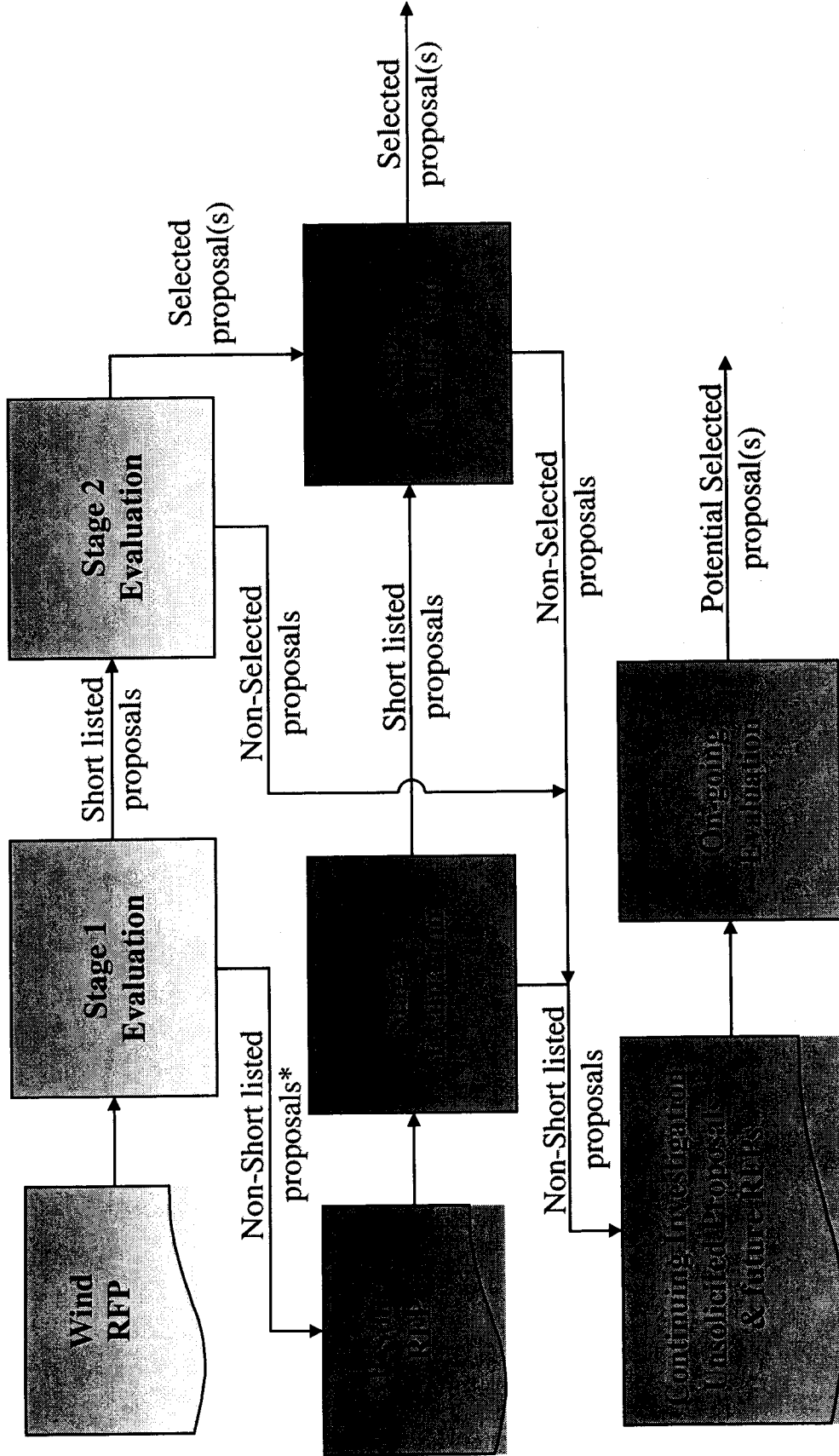
48 - Proposals with options for PPA, Ownership and/or Hybrid  
 40 - Owners/Developers



*Summary is based on initial draft figures from bid opening.  
 All figures are not final and subject to change and revision at any future date.*

# RFP Process & Analysis

## Wind & All-Source RFP Process Merge

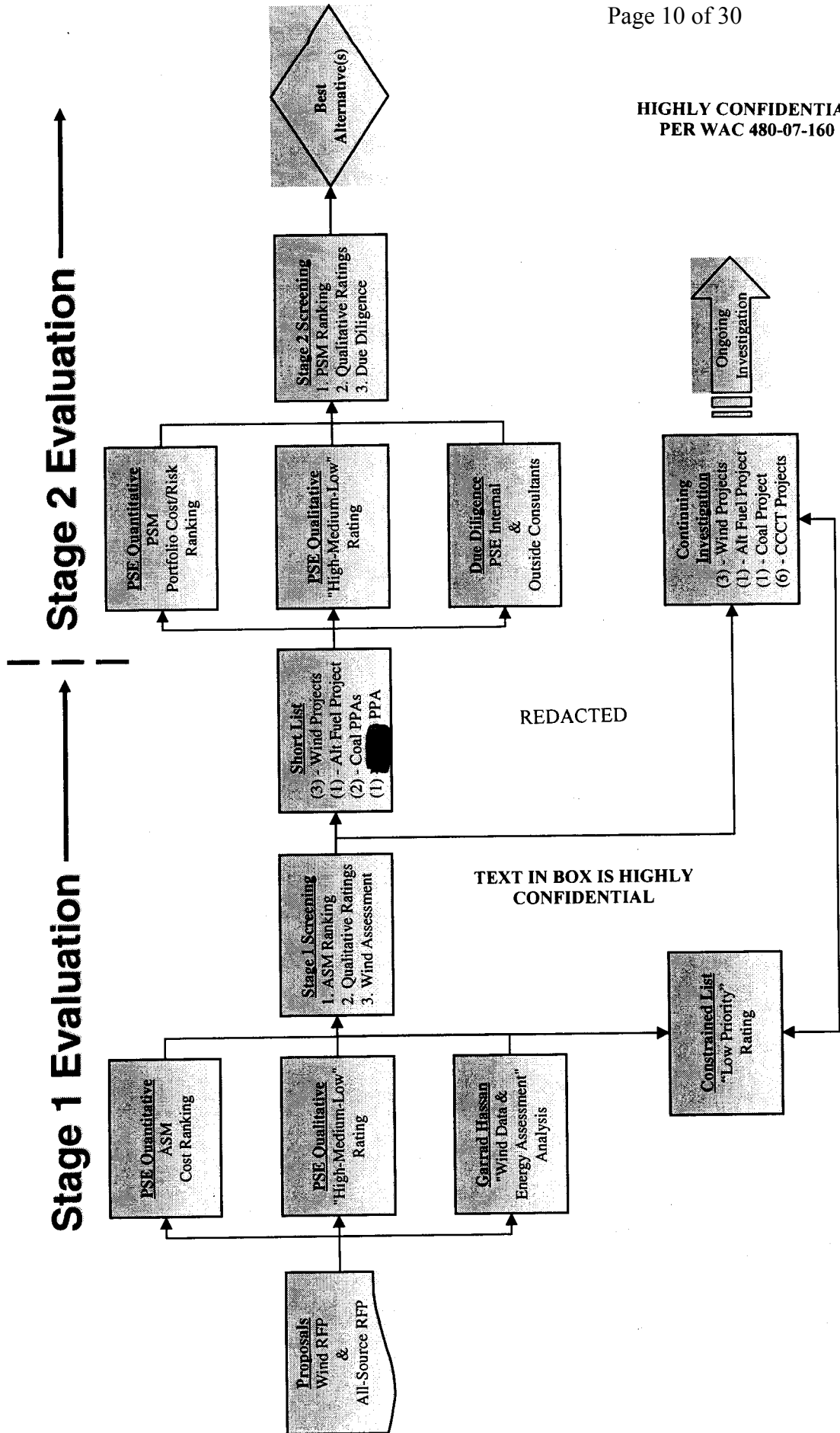


\* - All but two Non-Short listed as well as all of the Short listed proposals wind projects were officially resubmitted in the All-Source, some with revisions.

\*\* - Non-Short listed all-source proposals and Non-Selected proposals may be revised on an on-going basis to better meet PSE's Least Cost Planning needs and strategies.

# RFP Process & Analysis

## Evaluation Process Flow Chart



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# RFP Process & Analysis

## Stage 1: Short List Selection

- Short listed proposals were identified through the integrated assessment of quantitative and qualitative criteria (including potential risks) that led to natural groupings
- Short listed proposals ranged from \$42 to \$48 /MWh
- [REDACTED] seasonal on-peak PPA merited further analysis
- The diversified mix of proposals selected to the short list include:
  - ◆ (1) Alternate Fuel (recovered heat from gas compressors)
  - ◆ (2) Coal PPAs (10-yr & 2-yr terms)
  - ◆ (1) [REDACTED] PPA (22-yr seasonal on-peak)
  - ◆ (3) Wind Projects (3 of 4 from Wind RFP)
- Given forecasted high natural gas prices, no CCGT proposals were selected to the short list

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# **RFP Process & Analysis**

## ***Stage 1: Continuing Investigation List***

- Stage 1 analysis shows some proposals as attractive but currently face obstacles
- Current and forward natural gas prices render the gas-fired CCGT proposals uneconomic as compared to other short listed resources
- Will be analyzed through the Portfolio Screening Model (PSM)
- Continue to monitor the status of proposals as Stage 2 progresses
- Depending on negotiations with short list, it's possible "continuing investigation list" proposals could advance

# RFP Process & Analysis

## Stage 1: Short List Evaluation Summary

PROPOSAL		STAGE 1 EVALUATION RATINGS										
Owner/Developer/Project Name	Location	Status	MW	COD	ASM8 Levelized Cost * (\$/MWh)	Business/ Commercial	Fuel Supply	Transmission	Technical	Real Estate	Environmental	Community
<b>POWER PRODUCING ASSETS</b>												
APS - 2-yr PPA	Centralia, WA	Operating	85	Jan-05	[REDACTED]	HIGH	HIGH	VERY HIGH	HIGH	N/A	MEDIUM-HIGH	HIGH
[REDACTED]	[REDACTED]	Operating	[REDACTED]	Jan-05	[REDACTED]	HIGH	HIGH	VERY HIGH	N/A	N/A	MEDIUM-HIGH	HIGH
[REDACTED]	[REDACTED]	Operating / Development	[REDACTED]	Jan-05	[REDACTED]	HIGH	N/A	MEDIUM	N/A	N/A	MEDIUM-HIGH	N/A
<b>ALTERNATE FUEL</b>												
ORMAT - Sumas Recovered Heat	Sumas, WA	Development	4.5	Apr-06	[REDACTED]	MEDIUM	HIGH	LOW-MEDIUM	HIGH	LOW	HIGH	HIGH
<b>WIND</b>												
RES - Hopkins Ridge	Columbia Co, WA	Development	150	Dec-05	[REDACTED]	HIGH	MEDIUM	LOW	HIGH	MEDIUM	HIGH	HIGH
Zikha - Wild Horse	Kittitas Co, WA	Development	150	Apr-06	[REDACTED]	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	HIGH	HIGH
[REDACTED]	[REDACTED]	Development	[REDACTED]	Dec-05	[REDACTED]	HIGH	MEDIUM	MEDIUM-HIGH	MEDIUM	MEDIUM	HIGH	MEDIUM

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Notes:  
 \*Using Mid-year MACRS instead of 1Q MACRS to compare with non-wind bids.  
 \*PTC error in year 10 corrected.  
 \*\*Based on \$59 flat price.

# **Key Analytical Updates**

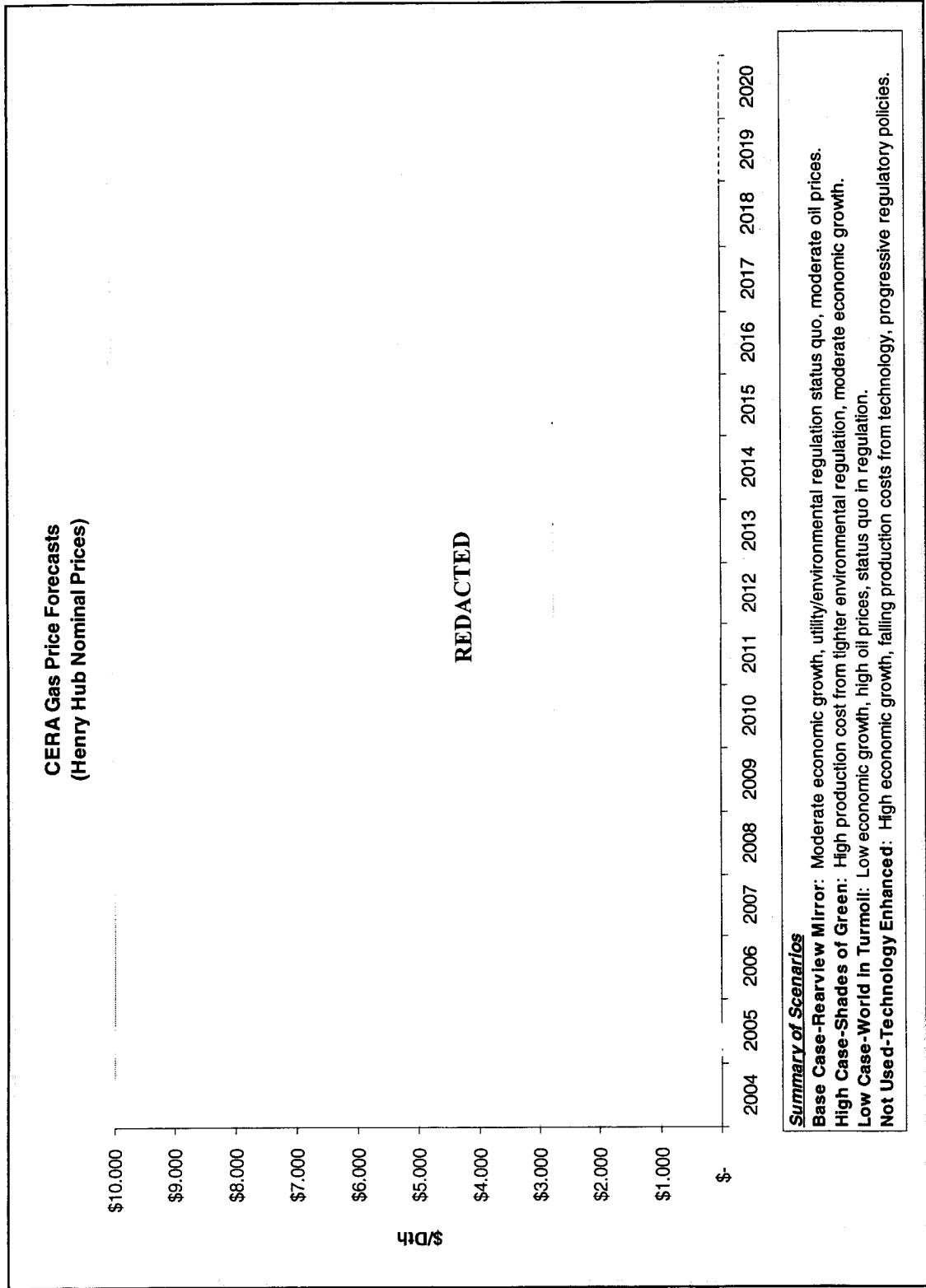
## ***Resource Planning Assumptions***

- Higher natural gas price forecast
- Updated wholesale electric price forecast
- Increased imputed debt risk factor per S&P
- Higher generic technology costs reflective of RFP proposals
- Electric and natural gas price volatility in modeling refined to better reflect market
- Updating self-build option

# Key Analytical Updates

## Natural Gas Price Forecast

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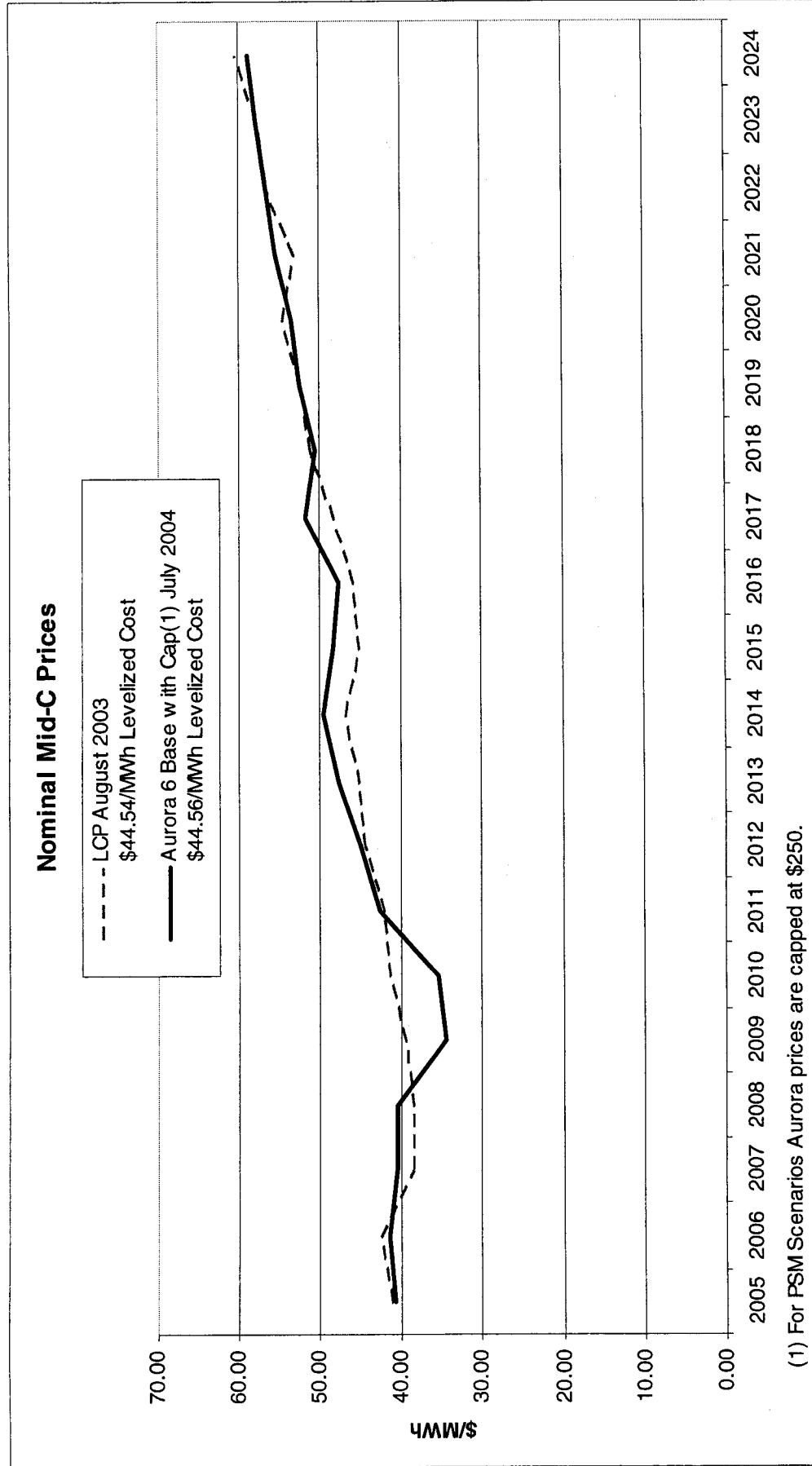


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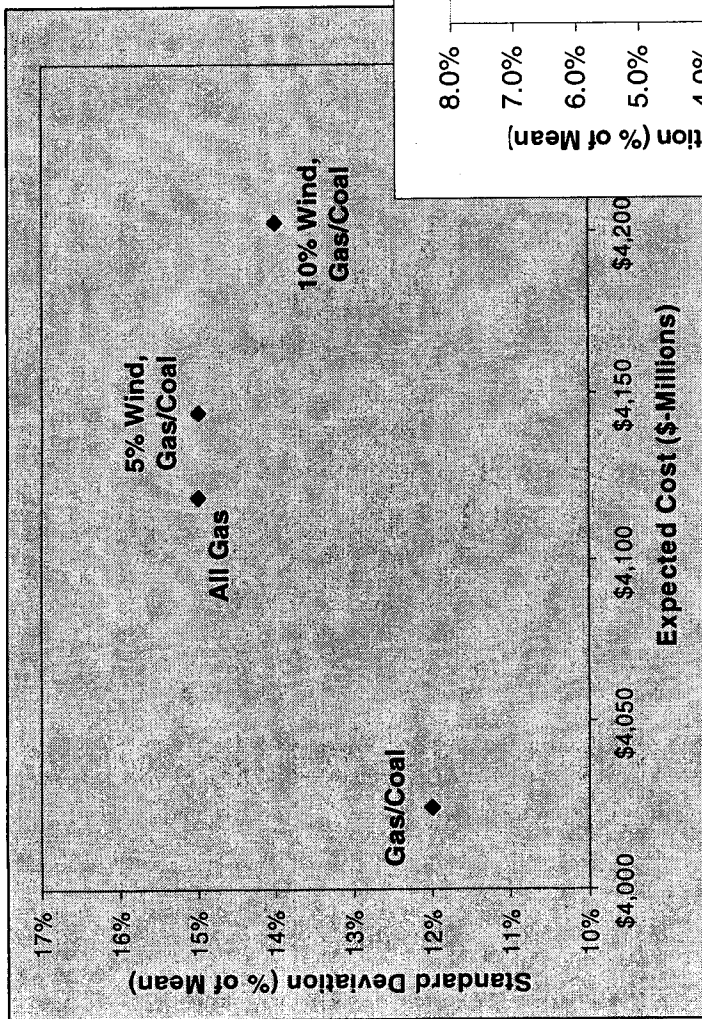
# Key Analytical Updates

## Electric Power Price Forecast



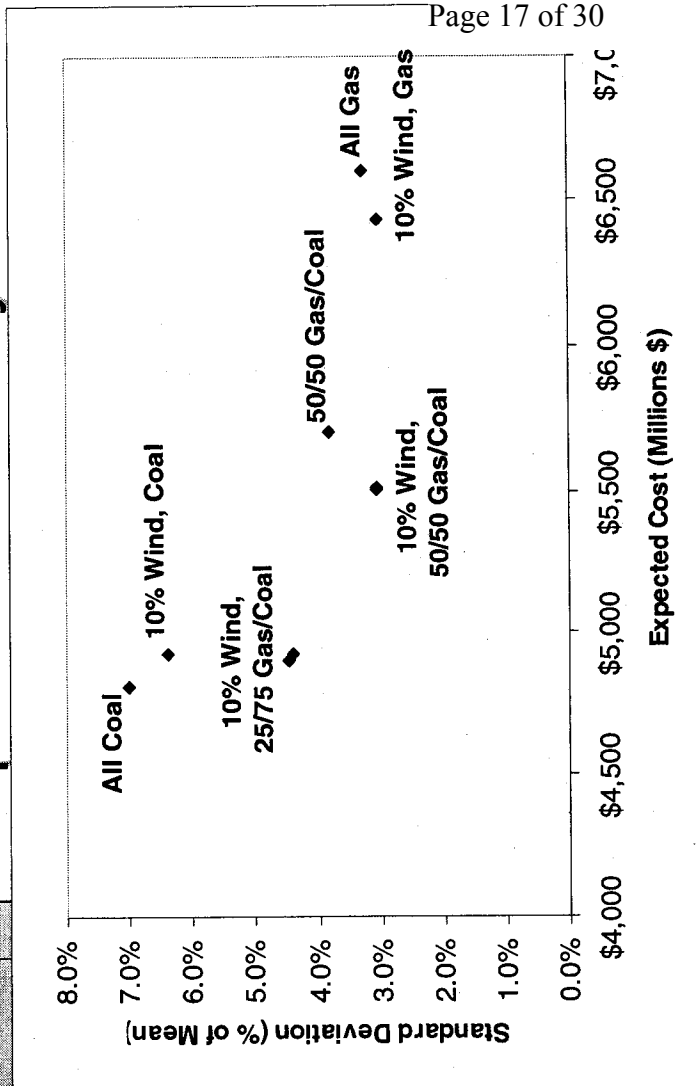
# Key Analytical Updates

## Portfolio Costs and Volatility



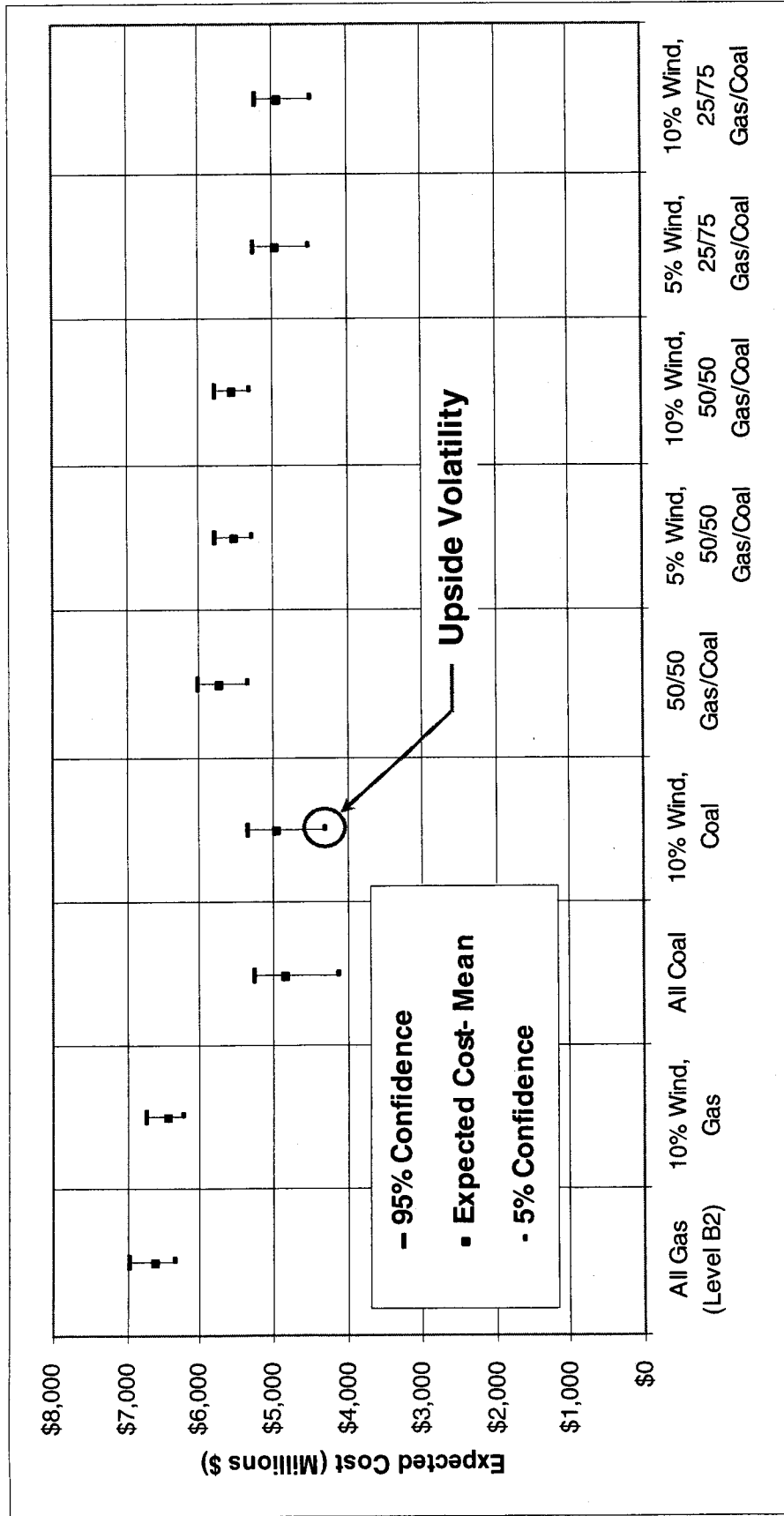
2003 Least Cost Plan

Updated as of July 2004



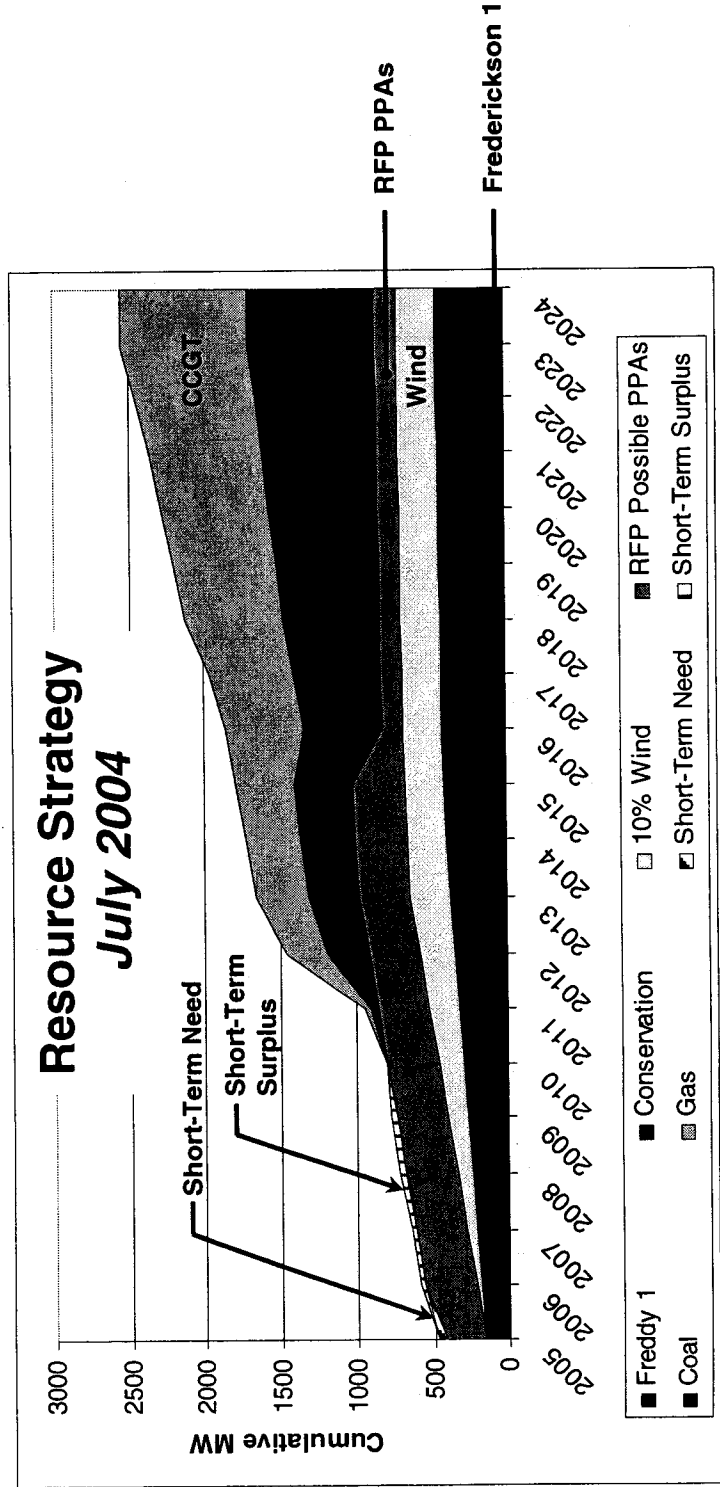
# Key Analytical Updates

## Portfolio Costs and Volatility (cont.)



# Implications for Resource Strategy

- Updated assumptions and portfolio analysis suggest potential modifications to resource strategy:
  - ◆ Consider increasing renewable acquisition goal and target
  - ◆ Less reliance on natural gas-fired generation
  - ◆ Increased interest in coal-fired generation
- Formally update resource strategy in 2005 LCP process



# Stage 2 Process & Analysis

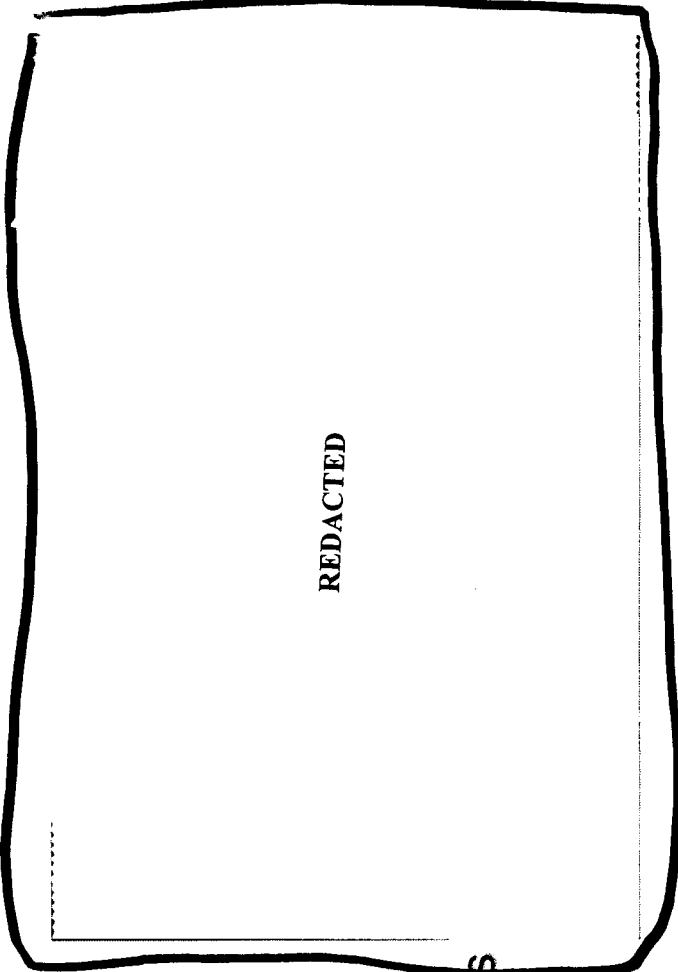
## *Next Steps*

- Update Portfolio Screening Model (PSM) and assumptions to include specific project information
- Continue due diligence of short listed proposals
- Continue negotiations and discussions including PPA credit issues
- Revisit “continuing investigation list” proposals
  - ◆ Representative gas-fired CCGT proposals will be analyzed in PSM
  - ◆ Gas-fired CCGT proposals may be reconsidered if PSM analysis indicate CCGTs comprise all or a portion of the least cost portfolio in near term

# Short-List: Ownership Project



- Location: [Redacted]
- [Redacted] based on GE 1.5MW WTG
- [Redacted]
- Best Case COD - December 2005
- No Community Opposition
- Permitting via [Redacted] Process
- Likely Opposition Appeal
  - ◆ Appeals venues to both Superior Court and Growth Management Hearings Board




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# Short-List: Ownership RES - Hopkins Ridge Project

- Location: Columbia County, WA
- 150 MW based on GE 1.5MW WTG
- 
- Best Case COD - December 2005
- Difficult interconnection and transmission issues
  - ◆ West of McNary
- Enjoys community support
- Potential direct connection to PacifiCorp system may make project more attractive to them



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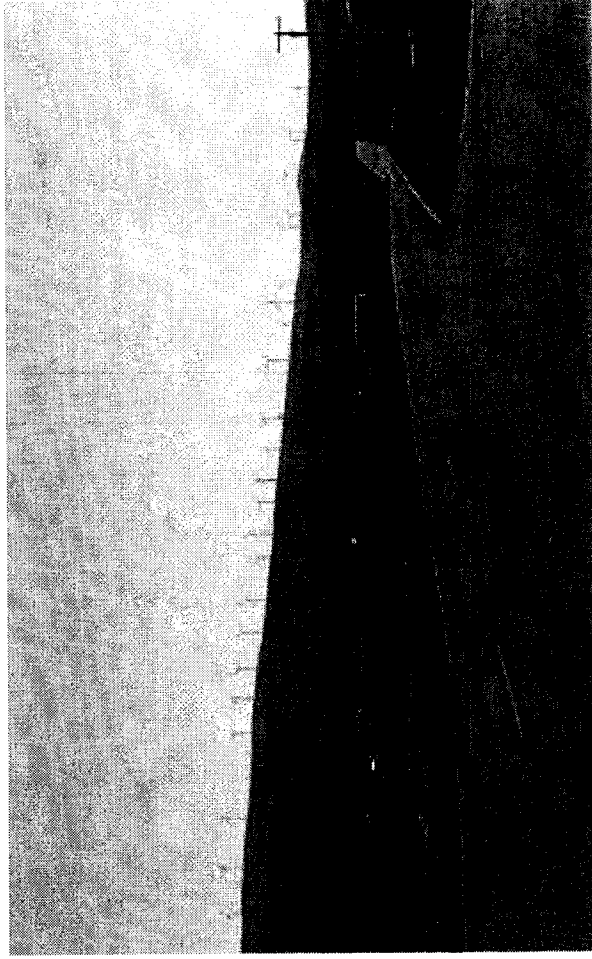
# Short-List: Ownership

## Zilkha - Wild Horse

- Location: Kittitas County, WA
- 150 MW based on GE 1.5MW WTG
- [REDACTED]
- Best Case COD - April 2006
- Organized Community Opposition
- Upgrades to IP line required
  - ◆ New Columbia River crossing and connection to Wanapum Substation
- Permitting via Washington EFSEC
  - ◆ Preemption request likely based on KV project

■ Likely County Appeal:

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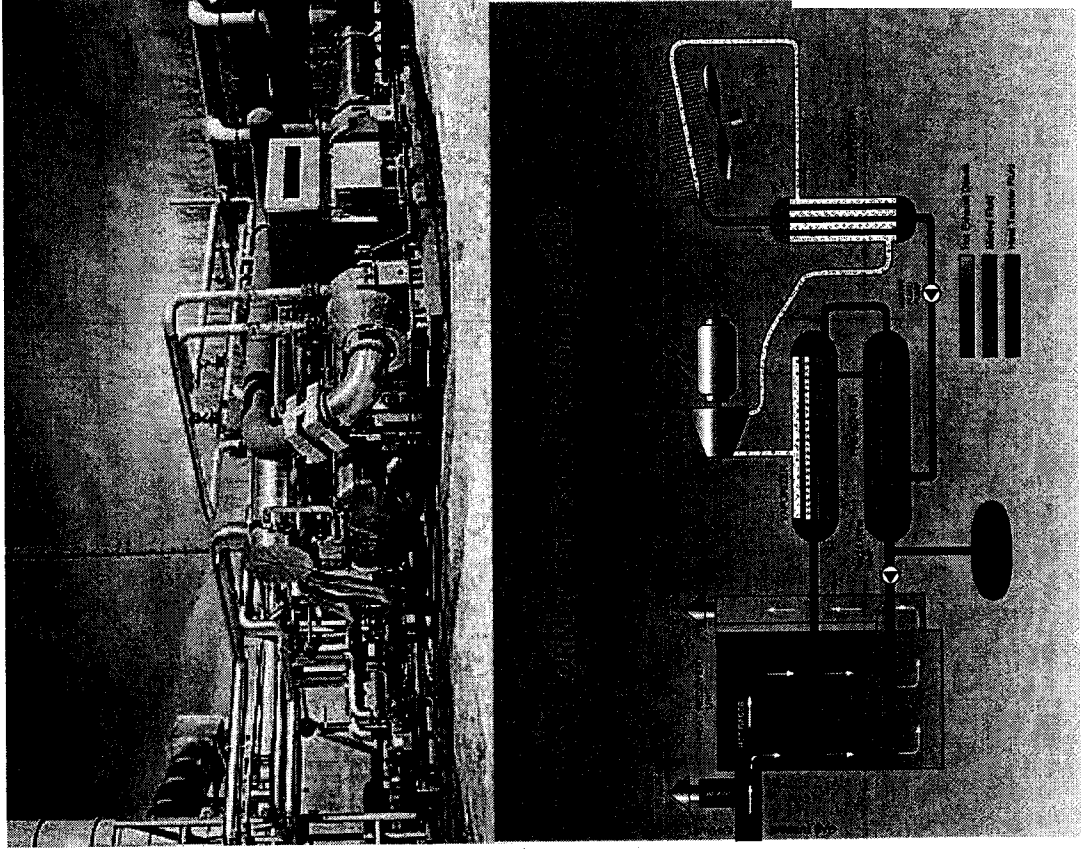
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# Short-List: Ownership

## ORMAT - Sumas Recovered Heat Project

- Location: Sumas, WA
- 4.5 MW Net
- Recovered heat from gas turbine using Organic Rankine Cycle (ORC) technology
- Host: Northwest Pipeline Sumas Compressor Station
- Best Case COD: April 2006
- Extension of existing PSE transmission facilities to Sumas
- Permitting via amendments to existing site permits

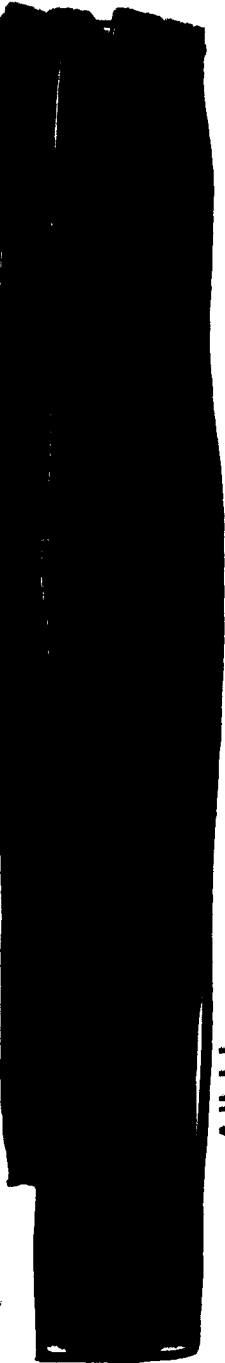


# Short-List: PPA



- Term: 10-year + 3 months (Jan 2005 to Mar 2015)
- Product: Firm Energy Contingent Upon Unit Availability
- Hourly Quantity: 100 MW (2005); 200 MW (2006-15)

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- Schedule: All Hours
- Price: [REDACTED] /MWh
- Delivery Point: [REDACTED]
- Event of Default: WSPP - Liquidated damages for any event or default
- Credit Terms: Pending
- Due Diligence: Pending

REDACTED


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Note: Execution not contingent upon WUTC review and approval

# Short-List: PPA



Stage 1 analysis does not adequately capture the value of seasonal on-peak offer. Recommended to short list based on its expected cost to serve load. Will continue analysis through Stage 2.

■ <u>Term:</u>	22-year (Jan 2005 to Dec 2026)
■ <u>Product:</u>	Seasonal Firm Energy Purchase
■ <u>Hourly Quantity:</u>	50 - 100 MW (2005-06); 140 - 240 MW (2007-26)
■ <u>Schedule:</u>	On-Peak Hours (September-March)
■ <u>Price:</u>	 MWh <span style="float: right;">REDACTED</span>
■ <u>Delivery Point:</u>	
■ <u>Event of Default:</u>	PPA - Liquidated damages for failure to deliver or receive
■ <u>Credit Terms:</u>	Pending
■ <u>Due Diligence:</u>	Pending

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Note: Execution not contingent upon WUTC review and approval

# Short-List: PPA Arizona Public Service Company (APS)

Executed PPA on June 25, 2004 following June 2, 2004 RMC approval

■ <u>Term:</u>	2-year (Jan 2005 to Dec 2006)
■ <u>Product:</u>	Firm Energy
■ <u>Hour Quantity:</u>	85 MW
■ <u>Price:</u>	DJ Mid-C* less [REDACTED] MWh
■ <u>Delivery Point:</u>	PSE System / CW Paul
■ <u>Event of Default:</u>	WSPP - Liquidated damages for any event or default
■ <u>Credit Terms:</u>	None
■ <u>Benefits:</u>	<ol style="list-style-type: none"><li>1) Provides needed baseload energy</li><li>2) Below market resource</li><li>3) Provides reliability</li><li>4) Reduced Mid-C wheeling/losses</li><li>5) Index can be swapped for fixed financial to convert to a fixed price product</li><li>6) Minimal credit exposure with index product</li><li>7) Potential bridge to new resource(s)</li></ol>

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\*Dow Jones Mid-Columbia Electricity Price Index for on and off peak hours

# Other Potential Resources

## Continuing Investigation List

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PROPOSAL	ASMB			
Owner/Developer Project Name	Levelized Cost (\$/MWh)			
Proposal Option	Location	Status	MW	COD
[REDACTED]	[REDACTED]	Development	[REDACTED]	Oct-05
100% Ownership	[REDACTED]	Development	[REDACTED]	Dec-05
30-yr PPA + 50% Ownership	[REDACTED]	Development	[REDACTED]	Dec-05
100% Ownership	[REDACTED]	Development	[REDACTED]	Dec-05
[REDACTED]	[REDACTED]	Development	[REDACTED]	late 2008
100% Ownership	[REDACTED]	Development	[REDACTED]	late 2008
[REDACTED]	[REDACTED]	Operating	[REDACTED]	Aug-02
100% Ownership + 10-yr 100MW PPA	[REDACTED]	Development	[REDACTED]	Dec-05
10.2% Ownership	[REDACTED]	Suspended	[REDACTED]	Nov-05
100% Ownership	[REDACTED]	Suspended	[REDACTED]	late 2005
100% Ownership	[REDACTED]	Development	[REDACTED]	Sep-07
100% Ownership	[REDACTED]	Operating	[REDACTED]	Oct-03
[REDACTED]	[REDACTED]	Development	[REDACTED]	May-06
Joint Venture w/ PSE	[REDACTED]	Development	[REDACTED]	May-06

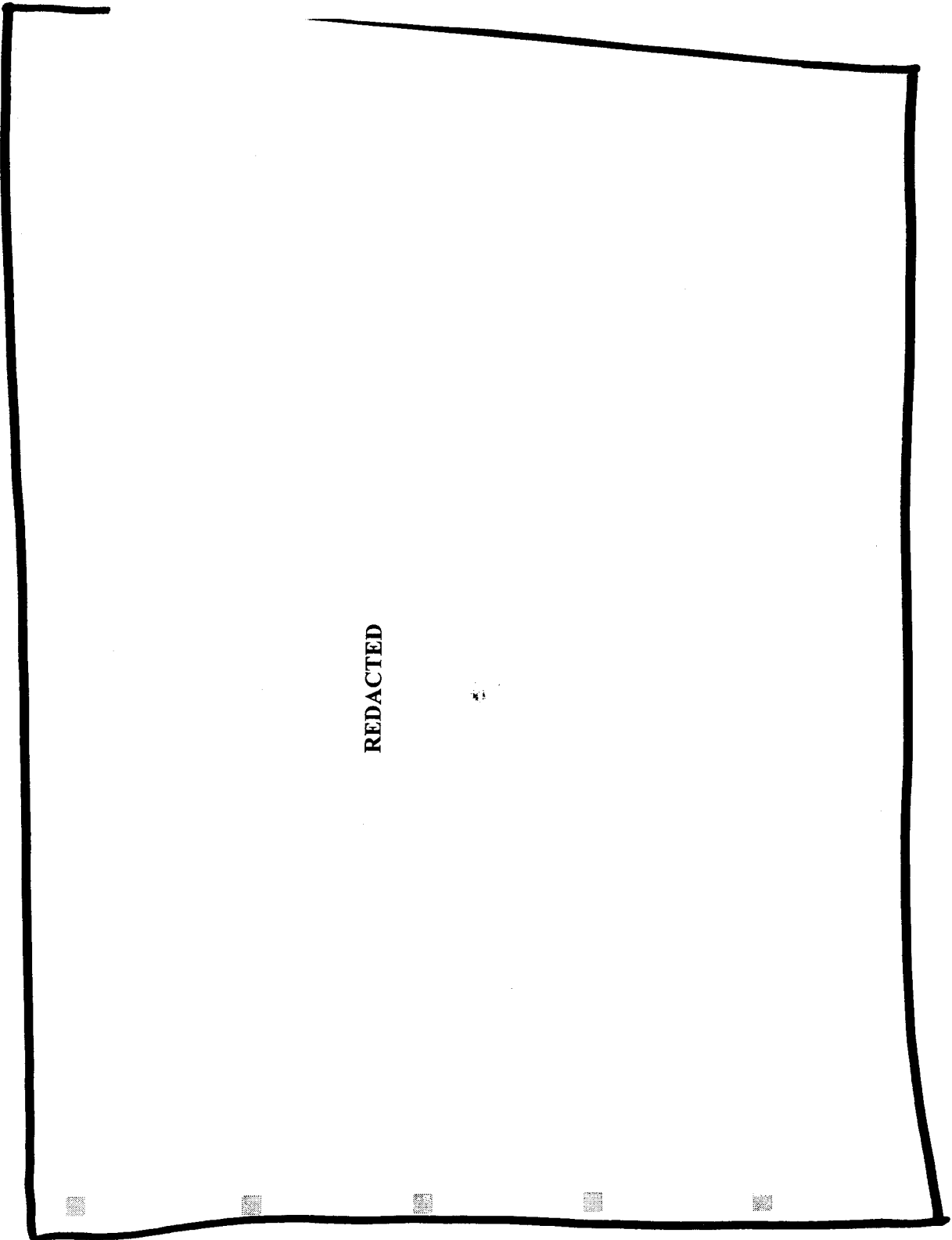
ALTERNATIVE FUEL

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# Other Potential Resources Post 2008 - Coal-fired Generation

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# Next Steps

- Complete Portfolio Screening Model (PSM) runs
- Complete RFP Stage 2 Analysis
- Execute LOI with best alternative(s) from short list selection
- Resolve credit issues and finalize commercial terms with selected power purchase agreement(s)
- Consider approach to coal project
  - ◆ Special screening RFP
  - ◆ Regional consortium