

EXHIBIT NO. _____ (EMM-14C/HC)
DOCKET NO. _____
2003 POWER COST ONLY RATE CASE
WITNESS: ERIC M. MARKELL

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

Docket No. _____

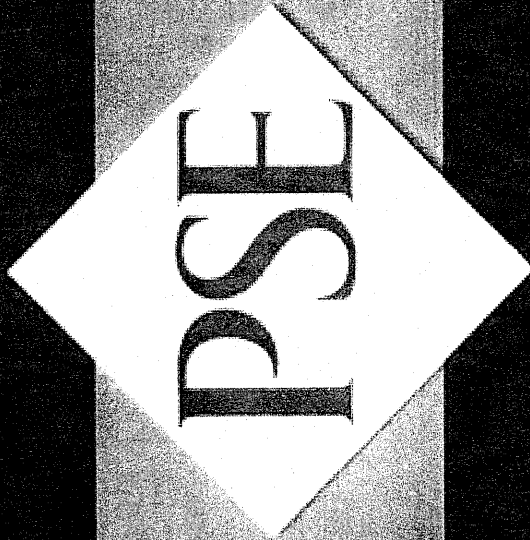
v.

PUGET SOUND ENERGY, INC.,

Respondent.

**DIRECT TESTIMONY OF
ERIC M. MARKELL
ON BEHALF OF PUGET SOUND ENERGY, INC.**

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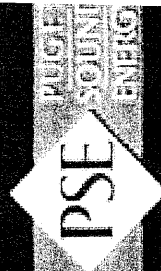
PUGET
SOUND
ENERGY

Resource Planning and Acquisition Update To The PSE Board Of Directors

March 7, 2003

Topics

- **Portfolio Planning Standards**
- **Portfolios Mixes of Various Resource Technologies**
- **Acquisition Opportunity Update**



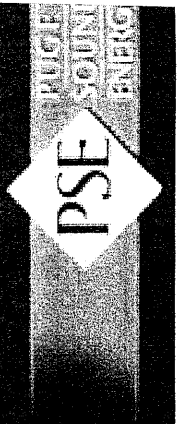
Least Cost Planning requires analysis and judgment

Modeling analysis allows us to evaluate costs and risks, but the results depend heavily upon the input assumptions

- Because the current base case market price forecast is lower than the cost of “generic” new resources, focusing just on expected cost might point to a generally too short portfolio

However, the Company must address a range of real-world considerations

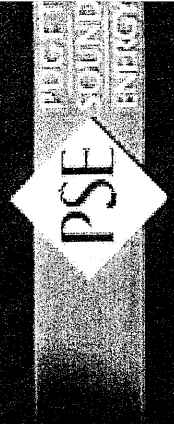
- High market price / regional under-build scenarios
- State Energy Strategy
- Contribution to regional load-resource balance



Summary recommendation

Given alternate analytical scenarios and other regulatory and policy considerations, PSE's recommended planning standard (B2) is to maintain a balance of loads and resources to avoid exposure to market purchases or sales

- Meets 100% of customer energy need in all months; Assumes seasonal shaping to avoid large monthly energy surpluses
- Meets capacity requirement for 16° F hour at SEA-TAC
- Adds 400 MW baseload capacity in 2004 and 1,600 MW by end of 2013



How we applied judgment to reach the recommended B2 planning standard

B2

Additional Resources in 2004

- 400 MW energy
- 1050 MW capacity
- Meets 16 ° F day standard
- Seek lower cost alternatives to CT's (e.g. seasonal transactions)

B1

Additional Resources in 2004

- 400 MW energy
- 675 MW capacity
- Meets 23 ° F day standard
- Considers policy issues
 - State Energy Strategy
 - Meets energy loads in each month
 - Contributes to regional balance
- Reduces risk of:
 - Regional under-build scenario
 - High market prices

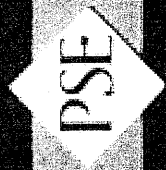
A1

Additional Resources in 2004

- 275 MW energy
- 25 MW capacity
- Maintain current capacity deficit
- Lower expected cost under base case assumptions

Input assumptions are critical to the analytical results

Assumption	Why It's Significant
<p>Resource Cost and Market Prices</p> <ul style="list-style-type: none"> - Cost for generic new resources and cost of debt and equity - Regional response to market, regulatory, and environmental signals 	<ul style="list-style-type: none"> • Power price forecast is based on the assumption that resources are added as needed to maintain a balanced market
<p>Natural Gas Prices</p>	<ul style="list-style-type: none"> • Gas prices are extremely volatile and drive the underlying risk and economics of most options • Higher gas prices would emphasize the benefits of a diversified portfolio

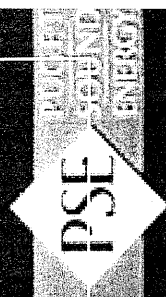


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The recently updated Washington State Energy Strategy provides the following guidance*

Guiding Principle	Detailed Annotation
<p>#1 Encourage all load-serving entities to adopt and implement resource plans to ensure they have adequate resources to meet their obligation to serve their customers' projected long term energy and capacity needs</p>	<p>"... underscore the continuing obligation that the state's utilities have to serve their customers' load requirements and to acquire the resources necessary to do so." "... Recognize that current and future electricity markets are likely to experience greater price volatility, and supply risk than has historically occurred prior to 2000."</p>
<p>#2 Encourage the development of a balanced, cost-effective and environmentally sound resource portfolio that includes conservation, renewables (e.g. wind, geo, hydro, biomass, and solar) and least-cost conventional resources</p>	
<p>#4 Preserve and promote Washington's cost-based energy system to benefit the end use consumer by providing reliable power and reduce the consumers' vulnerability to supply shortage and price volatility. At the same time, the state should promote policies that harness market forces in the wholesale energy market to reduce customer costs and increase reliability while protecting the environment</p>	<p>"... Washington continues to be extremely cautious about increasing its reliance on market forces to provide for its electric supply.....the main question for Washington is the extent to which our load-serving utilities rely on market purchases or their own resources to serve their loads."</p>



* Comments reflect selected excerpts from 3 of the 13 Guiding Principles

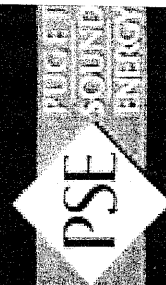
Additional analysis has now been completed since last discussions

- **Defined and evaluated additional planning standards**
- **Considered alternate scenarios such as regional- under build**
- **Identified the recommended portfolio planning standard**
- **Considered a range of potential technology mixes**

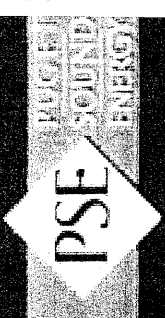
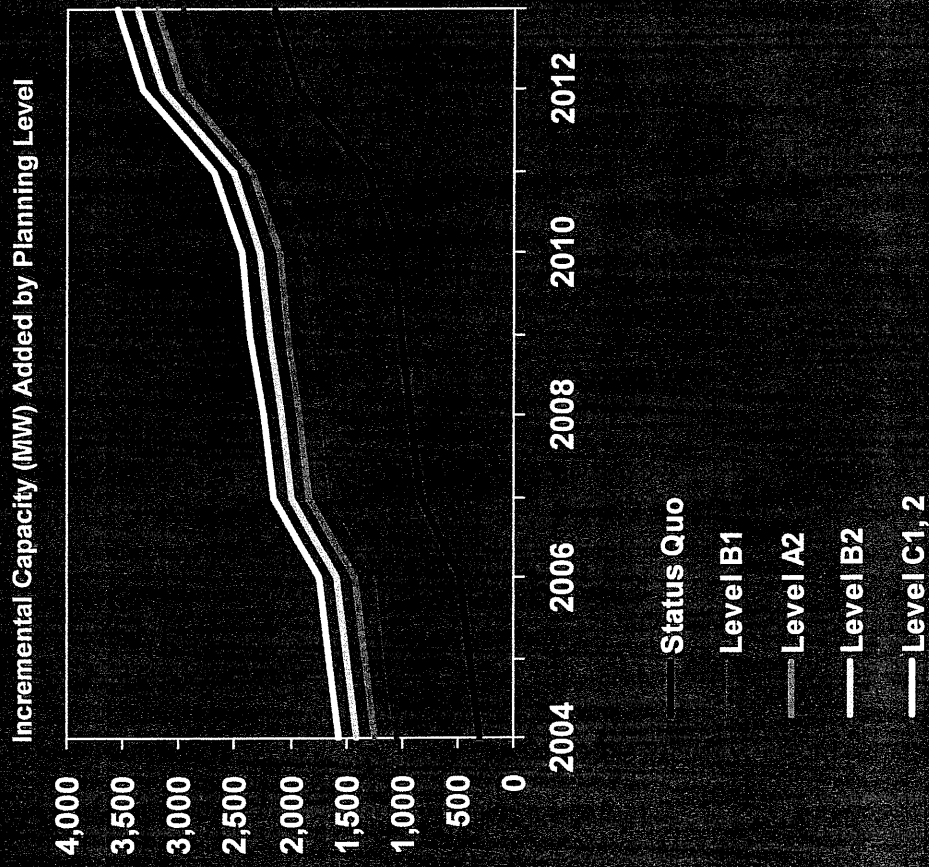
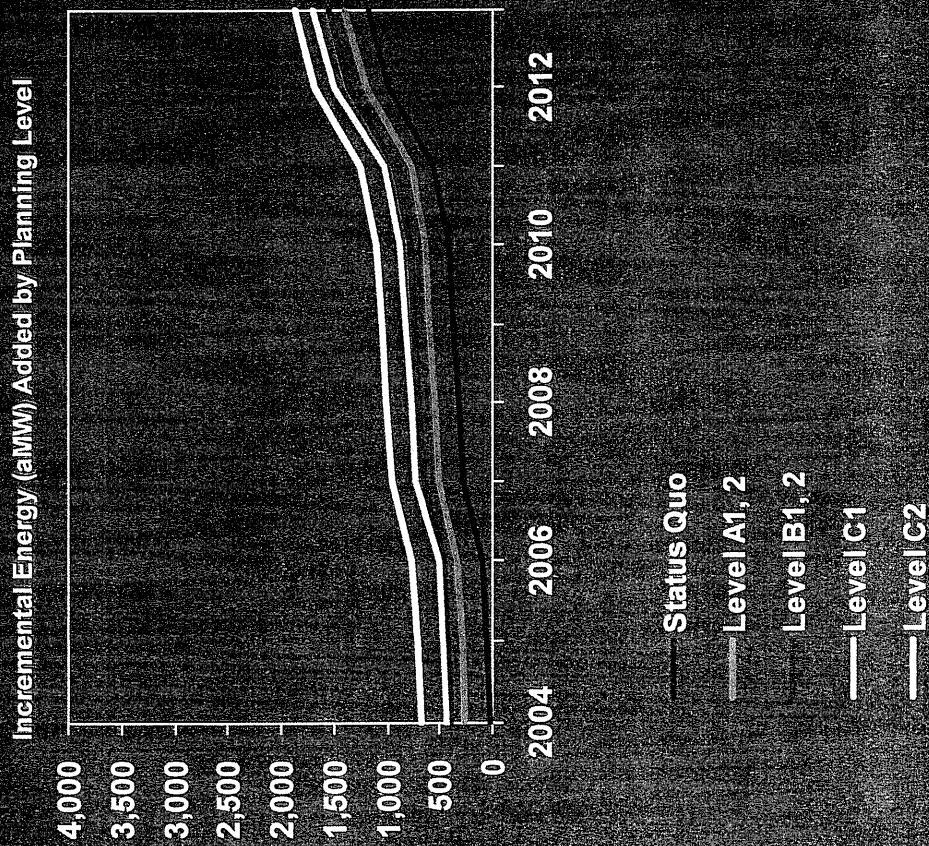
A spectrum of planning levels have been considered

Planning Standard	Energy	Capacity
Do Nothing	Current deficit grows with demand	Current deficit grows with demand
Status Quo	2003 deficit level maintained	Deficit is maintained at 2003 level
Level A1	Meets Nov-Feb customer needs	Deficit is maintained at 2003 level
Level A2	Meets Nov-Feb customer needs	Meets 19 Degree F hour at SEA-TAC
Level B1	Meets highest deficit month needs	Meets 23 Degree F hour at SEA-TAC
Level B2	Meets highest deficit month needs	Meets 16 Degree F hour at SEA-TAC
Level C1	Meets 110% of highest deficit month needs	Meets 13 Degree F hour at SEA-TAC
Level C2	Meets 110% of highest deficit month needs	Meets 13 Degree F hour at SEA-TAC

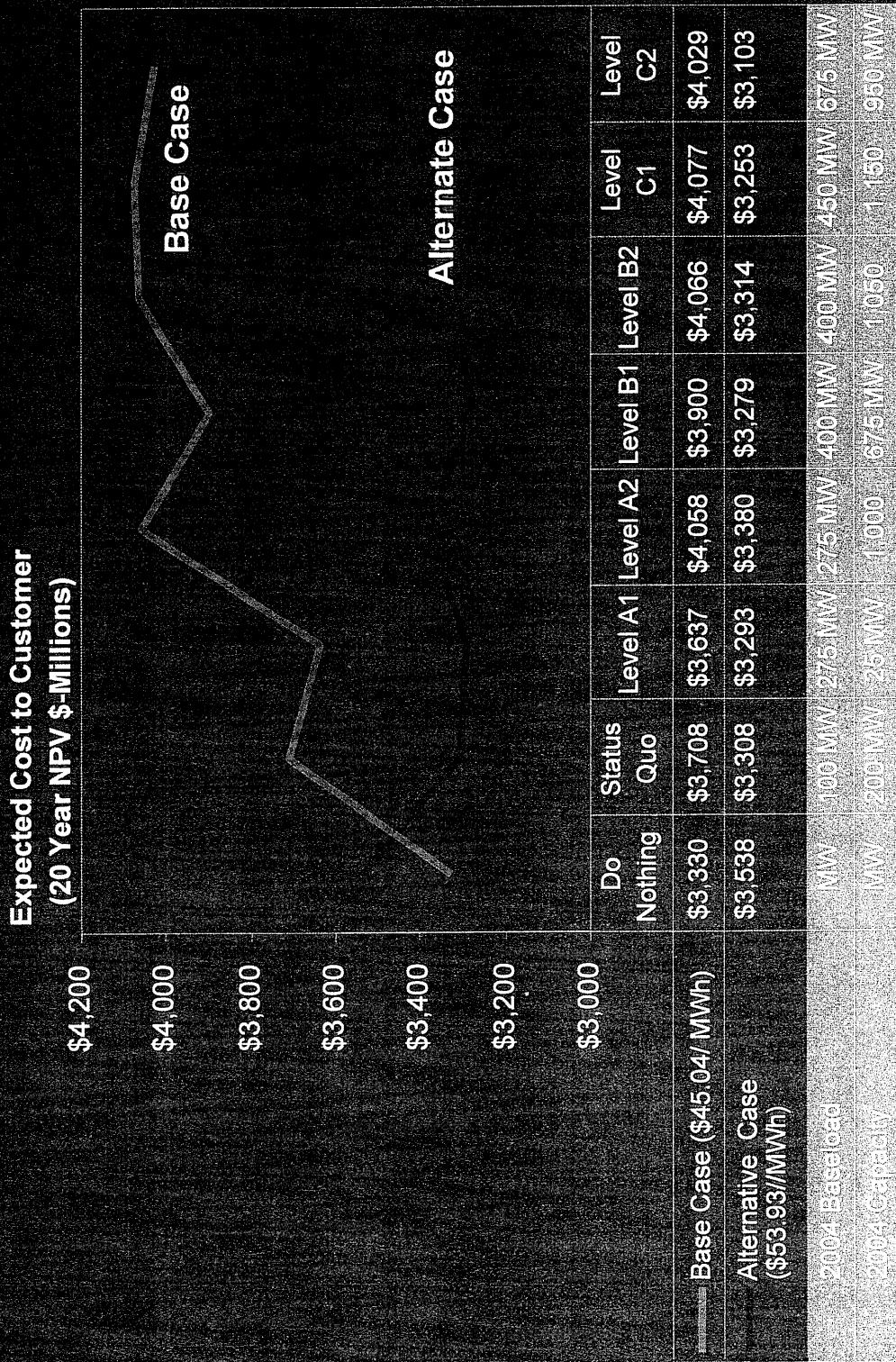
Notes: Green shaded planning levels were presented last session as levels A, B, and C.



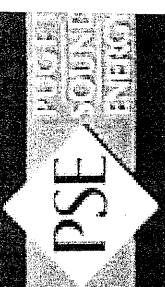
Resource additions for capacity and energy needs vary at each planning standard



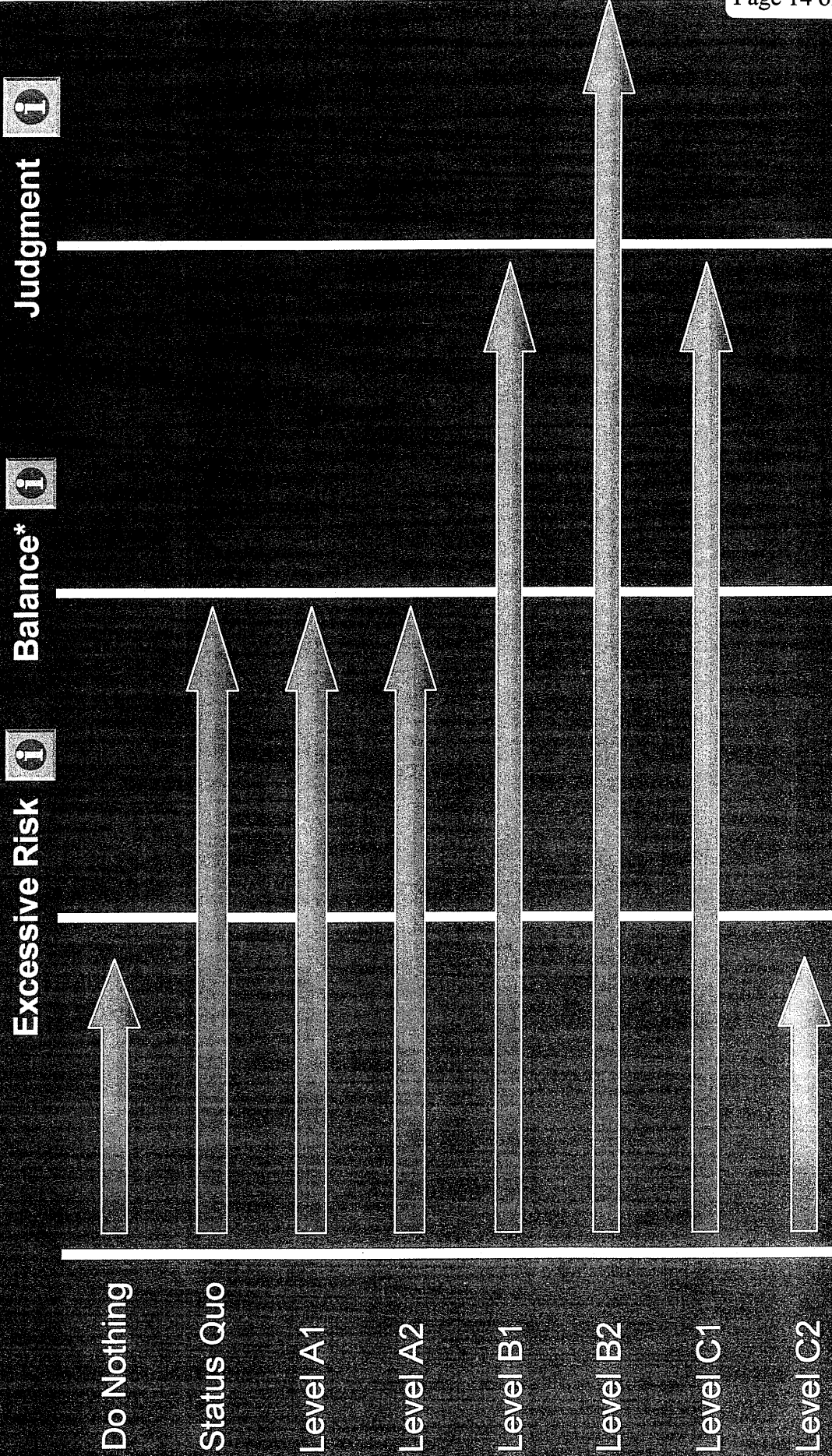
Market price scenario impact on expected cost to customers



Note: Reflects estimated cost impact to different planning standards under alternate price forecast where regional participants also decide to defer new construction



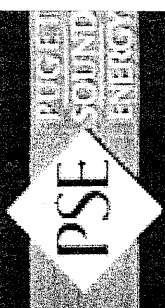
Narrowing the field of planning levels



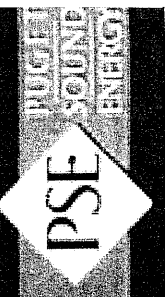
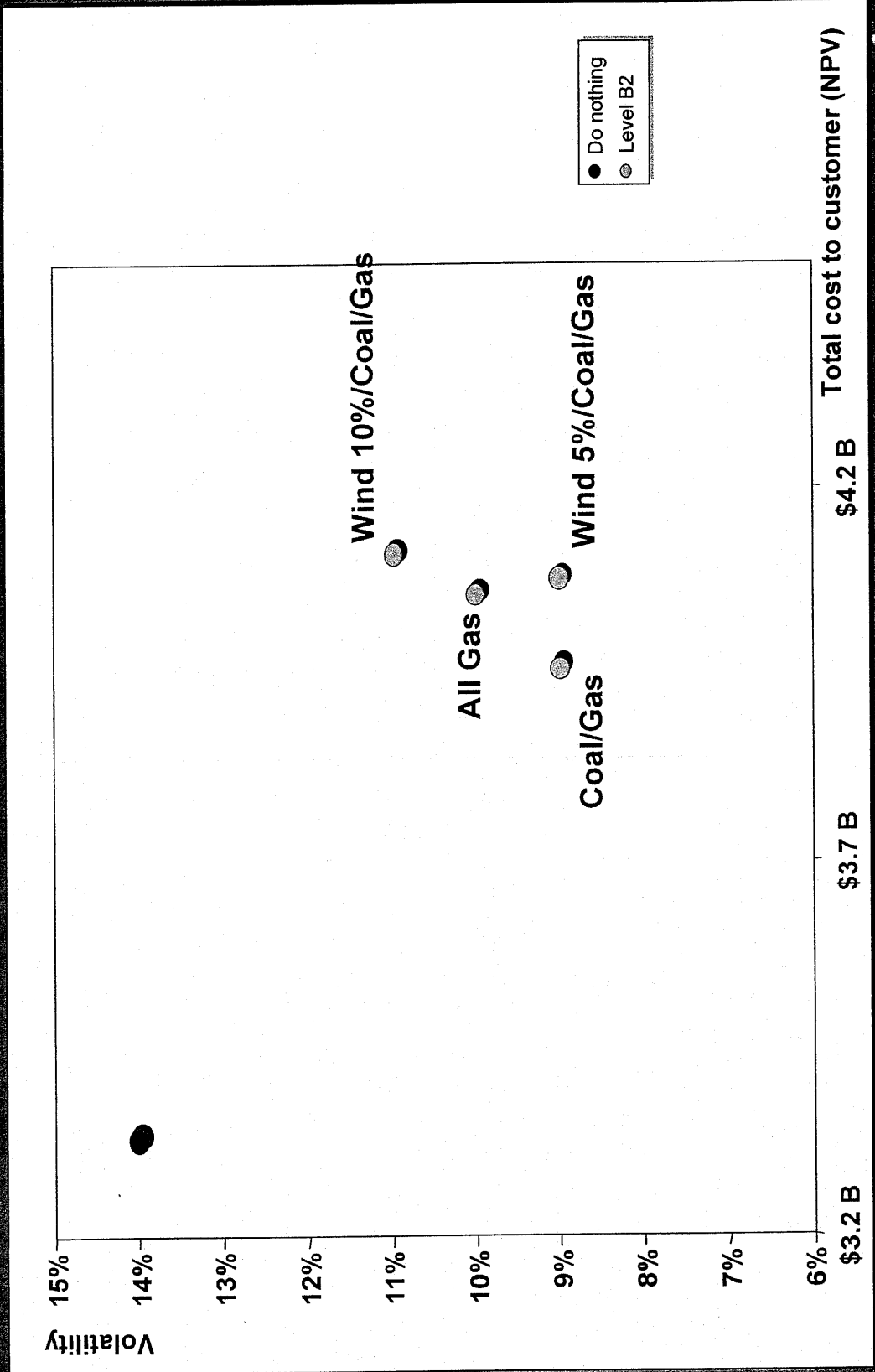
* On a monthly basis, loads and resources balance

We looked at portfolios which considered four technology mixes

<p>All Gas</p> <p>Energy portfolios are made up of gas and coal. Remaining capacity needs are made up with gas and coal.</p>	<p>Gas & Coal Mix</p> <p>Energy portfolios are made up of gas and coal. Remaining capacity needs are made up with gas and coal.</p>	<p>5% Wind, Gas & Coal Mix</p> <p>Energy needs are met with enough wind to comprise 5% of the 2013 energy load with the remainder of energy need made up with gas and coal. Remaining capacity needs are made up with gas and coal.</p>	<p>10% Wind, Gas & Coal Mix</p> <p>Energy portfolios are made up of gas and coal with enough wind to comprise 10% of the 2013 energy load with the remainder of energy need made up with gas and coal. Remaining capacity needs are made up with gas and coal.</p>
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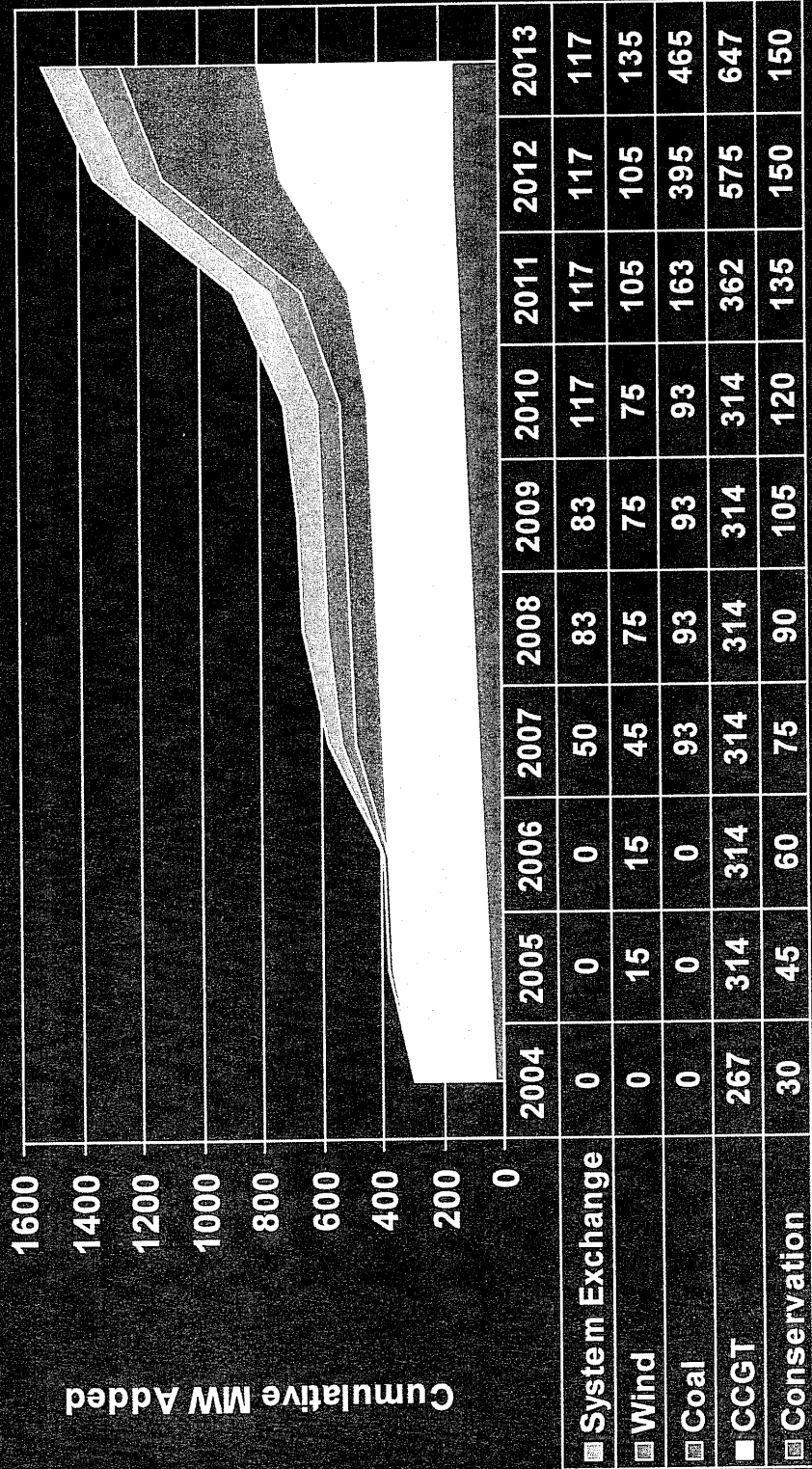


Four portfolios to meet the B2 planning standard



Implications of a diversified mix of resources to meet the recommended portfolio planning standard

Plant Additions on aMW Basis



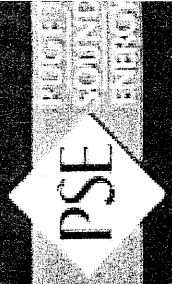
Total 297 374 389 577 655 670 719 882 1342 1514



Least Cost Planning requires analysis and judgment

The Least Cost Plan's resource strategy is to:

- Meet the B2 capacity planning standard
- Develop a diversified portfolio of resource technologies
- Pursue lower cost peaking capacity alternatives
- Pursue lower risk alternatives to allow higher percentage of wind in portfolio



Generation acquisition update

Discussions continue with candidates regarding pricing, schedule and deal structure

Term sheets issued or in draft stage for short listed candidates; continuing to keep all candidates as viable options

Recent internal PSE discussions focusing more benefits of hybrid portfolio approach

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Potential hybrid portfolio package number one

Package One Components

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- acquisition of [REDACTED] project (operating) with seasonal shaping agreement

- 100 MW (nameplate) Wind project with COD end of 2004*

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- Seasonal shaping agreement

Represents 400 MW capacity (notional), but with seasonal shaping attributes

* Wind project size would be primarily driven by site-specific project economics

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Potential hybrid portfolio package number two

Package Two Components

- 125 MW acquisition of Frederickson 1 project (operating)
- 100 MW (nameplate) Wind project with COD end of 2004*
- [REDACTED] with [REDACTED] with [REDACTED]

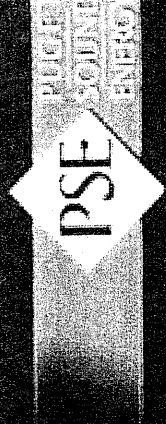
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Seasonal shaping agreement

Represents 400 MW capacity (notional), but with seasonal shaping attributes

* Wind project size would be primarily driven by site-specific project economics



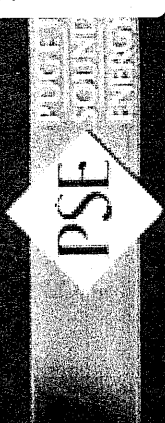
Potential gas plant package number three

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Package Three Components

- [redacted] / acquisition of [redacted] project (construction) [redacted] year round [redacted] output
- Off take agreement for [redacted] to take back [redacted] to take total [redacted]
- Seasonal shaping agreement for [redacted] during summer months

[redacted] capacity (notional), but with seasonal shaping attributes



A range of levelized revenue requirements are evident for available options.

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Summary

LCP analysis and the evaluation of acquisition opportunities are proceeding on a consistent basis

- **using common assumptions and analytical methods**
- **results point toward a diversified mix of new resources to balance risks and manage costs**

