
**Re: In The Matter of the Application of)
Public Service Company of Colorado)
For Approval of its 2007 Colorado)
Resource Plan)
Docket No. 07A-447E)**

**Third Set of Discovery Requests
Of Ms. Glustrom
Served On Public Service Company**

March 7, 2008

DISCOVERY REQUEST LWG3-1:

With respect to the analysis of the High Section 123 Resources, please provide all workpapers, assumptions and conclusions involving analyses of the High Section 123 option without the IGCC plant.

RESPONSE:

The Company did not evaluate a High Section 123 Plan that did not include the IGCC plant.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-2:

With respect to Table 1.6-1, please identify how much of the cost of the High 123 plan is due to the construction and operation of the IGCC plant. Please break down the cost according to construction cost, fuel cost, CO2 management cost and other operating costs. Thank you.

RESPONSE:

To arrive at a value representative of the added cost to the High Section 123 Plan that results from inclusion of the IGCC Plant, it would be necessary to develop a High Section 123 Plan that does not include the IGCC (but something in its place) and then compare the two plans against one another. The Company has not developed a High Section 123 Plan that does not include a IGCC plant.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-3:

For each coal plant on the PSCo system, please provide the following:

- a) The amount of fly ash produced each year
- b) The chemical analysis of the fly ash
- c) The present disposition of the fly ash
- d) The capacity of any fly ash disposal site and when it is expected to be full
- e) The plans for disposal of the fly ash in 2010, 2015, 2020, 2025 and 2030, 2035 and 2040.

- f) The present cost for fly ash disposal for that plant
- g) Projected future costs for fly ash disposal for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.

RESPONSE:

- a) See Attachment LWG3-3 showing actual production amounts during 2006 and 2007 and projections for 2008, 2009 and 2010.

- b) Data that is current and uses consistent analytic techniques is not available for each of the various fly ashes.

- c) Attachment LWG3-3 provided in response to Request a) above indicates the proportion of ash production utilized in 2006 and 2007 and the portion forecasted to be utilized in 2008, 2009, and 2010. The remainder is disposed. Following are explanatory notes on each Station and its ash disposal requirements:

Arapahoe Station: Commercial facilities are utilized for the relatively small proportion of Arapahoe Station ash production requiring disposal. Commercial disposal is expected to continue for the approximately 5-year duration that coal will be used to fuel the Station.

RESPONSE TO DISCOVERY REQUEST LWG3-3 continued:

Cameo Station: On site disposal is expected to continue for the approximately 2-year duration that coal will be used to fuel the Station.

Cherokee Station: Commercial facilities are utilized for Cherokee Station ash that requires disposal. It is expected that access to commercial disposal will continue for the foreseeable future and at costs reflecting inflationary increases.

Comanche Station: Comanche Station's reliance on full utilization for management of its ash is expected to change with installation of emissions control improvements on Units 1 & 2 and with Unit 3 being placed into service in 2009. On-site disposal capacity has been authorized and will be utilized for the foreseeable future.

Hayden Station: On-site disposal is expected to continue at Hayden for the foreseeable future.

Pawnee Station: Full utilization of Pawnee Station ash is expected to continue for several years or until emissions control modifications are made. When those modifications are made, it is expected that use of Pawnee Station's on-site disposal facility will resume.

Valmont Station: The majority of ash currently produced at the Valmont Station is disposed in its on-site facility. This disposal facility is expected to achieve its permitted capacity in approximately 2015. Options for management of the Valmont Station ash past that point are being evaluated. Such options include commercial disposal or acquisition of property to permit and develop dedicated disposal.

d) See above response.

e) See response to c) above.

f) See Attachment LWG3-3 listing actual costs incurred in 2006 and 2007 and forecasted costs for 2008, 2009, and 2010.

g) Costs for future ash disposal at those Stations that continue to rely on coal as a fuel are expected to follow an inflationary trend for the foreseeable future. Potential future ash disposal costs at the Pawnee Station are expected to be similar to those forecasted for the Comanche Station, adjusted for the relative amount of ash to be disposed. Ash disposal costs at the Valmont Station in the post-2015 era are subject to the current evaluation.

Sponsor: Quinn Kilty

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-4:

For each coal plant on the PSCo system, please provide the following:

- a) The number of acre-feet of water consumed per year.
- b) The breakdown of what that water is used for.
- c) The source of the water.
- d) The cost of the water per year.
- e) The company's projections of the cost of the water for each year of the planning period.
- f) All analyses of the effects of climate change on this source of water for the planning period.

RESPONSE:

- a. 2007 data is presented below

Coal fired Station	Water Consumed	Water Source
Arapahoe	1,422 AF	South Platte River
Cameo	95 AF	Colorado River / Government Highline Canal
Cherokee	7,858 AF	South Platte River, Clear Creek
Comanche	6,921 AF	Arkansas River
Hayden	5,007 AF	Yampa River
Pawnee	5,011 AF	South Platte River alluvium
Valmont	2,459 AF	Boulder and South Boulder Creeks

RESPONSE TO DISCOVERY REQUEST LWG3-4 continued:

- b. Water is tracked based on total consumption by plant. There is no further breakdown
- c. See above.
- d. Provided as a response to LWG2-3, please reference LWG2-3 for data.
- e. There is no water cost projection out to 2046.
- f. There is no analysis of the effects of climate change out to 2046.

Sponsor: Loa Jansen

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-5:

For each coal plant on PSCo's system, please provide the following:

- a) Emissions of SO₂ for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040 and actual or estimated costs for SO₂ emissions for each of these years.
- b) Emissions of NO_x for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.
- c) Emissions of particulates for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.
- d) Emissions of volatile organic compounds for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.
- e) Emissions of carbon monoxide for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.
- e) Emissions of mercury for each year from 2003-2007 and estimated emissions for 2010, 2015, 2020, 2025, 2030, 2035 and 2040.
- f) Plans for controlling mercury emissions in 2010, 2015, 2020, 2025, 2030, 2035 and 2040, a description of the technology intended to be used for mercury control, whether the Company believes this control will qualify as Maximum Available Control Technology ("MACT") and the estimated cost of controlling mercury in each of these years.
- g) Pollution control equipment on each coal unit and approximate level of control achieved for each pollutant controlled by that equipment.

RESPONSE:

- a) Actual SO₂ emissions for **2003 – 2007** are contained in Attachment LWG3-5.A1. Actual costs for SO₂ control reagents at each plant with existing SO₂ controls are noted below.

RESPONSE TO DISCOVERY REQUEST LWG3-5 continued:

PSCo SO2 Annual Reagent Costs (\$/year)

Plant	2003	2004	2005	2006	2007
Arapahoe	708,976	383,030	523,082	768,875	674,478
Cherokee	3,400,369	1,761,878	2,825,260	3,491,971	3,532,892
Valmont	693,829	522,351	613,216	680,685	845,723
Hayden	1,054,895	1,315,588	1,534,912	1,819,243	2,076,201

b), c), d), e), f) See Attachment LWG3-5.A1 for **2003 - 2007** to question a) above regarding emissions of NOx, particulate, volatile organic compounds, carbon monoxide, and mercury.

f) The plans for controlling mercury on the PSCo units includes sorbent injection on all the Comanche units starting in late 2009 and on Pawnee Unit 1 starting in late 2011. Current Colorado mercury control regulations require some of our remaining units to begin controlling mercury in 2014. Specific compliance plans regarding the 2014 mercury control requirements have not been developed. The company does not know whether any of the proposed mercury controls will meet future Maximum Achievable Control Technology (MACT) requirements until EPA promulgates those rules. Future costs for mercury emission controls have not been developed at this time.

g) See Attachment LWG3-5.A1 for a list of the pollution control equipment on each unit and the approximate level of control.

a-f) **For future**, estimated emissions in parts a through f see Attachment LWG3-5.A2_future.xls for emissions levels for PSCo owned coal plants. The Strategist model does not provide SO2 emission cost output on a plant level, however aggregate SO2 emission costs in dollars for the PSCo owned coal plants were provided in response LWG1-10.xls (see worksheet "Annual_Estimated_Emission_Costs").

Sponsor: Gary Magno and Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-6:

For each coal plant on PSCo's system, please provide the following:

- a) The year the plant was commissioned.
- b) The original cost of the plant.
- c) The amount of the original cost that has been depreciated.
- d) The amount of the original cost that remains to be recovered.
- e) The expected retirement date for the plant.

RESPONSE:

See the chart below. The original cost does not include land costs.

Facility Name	Unit #	Commissioned Date (a)	Original Cost as of 1/1/2006 (b)	Accumulated Depreciation as of 1/1/2006 (c)	Net Plant as of 1/1/2006 (d)	Retirement Date (e) (06S-234EG)
Arapahoe	3	1951	\$17,169,365	\$15,663,320	\$1,506,045	2011
Arapahoe	4	1955	\$77,650,327	\$59,809,639	\$17,840,688	2015
Cameo	1	1957	\$11,107,350	\$8,894,237	\$2,213,113	2017
Cameo	2	1960	\$27,467,296	\$18,968,946	\$8,498,350	2020
Cherokee	1	1957	\$51,362,147	\$50,011,960	\$1,350,187	2017
Cherokee	2	1959	\$42,880,442	\$40,623,561	\$2,256,881	2019
Cherokee	3	1962	\$69,580,184	\$46,826,257	\$22,753,927	2022
Cherokee	4	1968	\$223,997,460	\$106,892,219	\$117,105,241	2028
Comanche	1	1973	\$162,142,598	\$76,117,471	\$86,025,127	2033
Comanche	2	1975	\$186,340,402	\$112,093,203	\$74,247,199	2035
Craig (4)	1	1980	\$59,116,627	\$22,873,340	\$36,243,287	2040
Craig (4)	2	1979	\$26,158,843	\$13,409,637	\$12,749,206	2039
Hayden (4)	1	1965	\$83,679,043	\$43,287,653	\$40,391,390	2025
Hayden (4)	2	1976	\$107,540,352	\$51,163,972	\$56,376,380	2036
Pawnee	1	1981	\$521,313,048	\$215,521,607	\$305,791,441	2041
Valmont	5	1964	\$121,808,243	\$53,303,476	\$68,504,767	2024

Sponsor: Lisa Perkett

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-7:

For each coal plant on PSCo's system, please provide the following:

- a) The amount of coal burned at the plant each year from 2003-2007 and the estimated amount of coal burned each year for the acquisition and planning periods.
- b) The actual or estimated cost of the coal for that plant for each of the years 2003-2007 and each year of the acquisition and planning periods.
- c) All analyses done on a mine-specific basis of future supplies of coal available for this plant.
- d) All analyses done on projected annual coal costs specifically for this plant.

RESPONSE:

- a) b) See Attachment LWG3-7ab.xls; See Attachment LWG3-7ab_future.xls
- c) PSCo has not performed any such analyses.
- d) The company's existing projected annual coal costs by plant are highly sensitive confidential information and will not be provided.

Sponsor: Kathryn Valdez and Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-8:

For each of the last 10 years and for each year of the planning period, please provide the following:

- a) Actual or estimated number of MWh produced with coal plants
- b) Actual or estimated number of MWh produced with natural gas plants
- c) Actual or estimated number of tons of coal used
- d) Actual or estimated cost of coal
- e) Actual or estimated number of MMBTUs of natural gas used
- f) Actual or estimated cost of natural gas

RESPONSE:

a-b) See Attachment LWG3-8ab.

c) See Attachment LWG3-8cd.

d) See Attachment LWG3-8cd.

e-f) See Attachment LWG3-8ef.

a-f) See Attachment LWG3-8a-f_future.xls for parts a through f for years beyond 2007.

Sponsor: a-b) Loa Jansen, c-d) Kathryn Valdez,
e-f) Tim Carter, a-f) Jim Hill - future

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DISCOVERY REQUEST LWG3-9:

Please provide a Load Duration Curve for 2007 and the projected Load Duration Curve for each of the following years: 2010, 2015, 2020, 2025, 2030, 2035, 2040.

RESPONSE:

The Company has not developed load duration curves for year 2007 or any of the future years cited.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-10:

Referring to the appropriate Load Duration Curves for the years 2000 to 2020, please provide an analysis of the power produced less than 10% of the year as follows:

- a) The plants and power purchases used or projected to meet the peak (i.e. demand that occurs less than 10% of the year.)
- b) The heat rate of the plants used or projected to meet the peak.
- c) The average cost of the power produced or purchased to meet the peak.
- d) All analyses done of the cost of using Concentrating Solar Power to meet the peak demand for the years 2008-2020.

OBJECTION: This request calls for the Company to conduct special studies. The Company is not required to perform special studies to respond to data requests.

RESPONSE:

The Company has not performed the requested analyses.

Sponsor: Jim Hill

As to the Objection: Paula Connelly

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DISCOVERY REQUEST LWG3-11:

Please provide all assumptions and analyses used to project future capacity factors for Concentrating Solar Power plants for the acquisition and planning periods.

RESPONSE:

For purposes of this response, we assume that the term “Concentrating Solar Power plants” refers to solar thermal facilities and does not include concentrating photovoltaic facilities. The Company has assumed a 35% annual capacity for large-scale solar thermal projects in the resource acquisition period and as a generic unit in the planning period. This is roughly equal to what NREL’s Solar Advisor Model estimates for a 2X solar multiple, trough plant with 6 hours of thermal storage with an Alamosa, CO TMY2 solar resource. Higher capacity factors are achievable with more thermal storage capacity.

Sponsor: Kent Scholl

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-12:

Please provide all qualitative and quantitative analyses done of the future potential of solar power towers for the acquisition and planning periods.

RESPONSE:

The Company has conducted no extensive analysis of solar power towers/central receivers versus any other grid-interconnected solar technology. The promise of central receivers versus other solar thermal technologies is higher steam operating temperatures and pressures and thus higher cycle efficiencies which should help lower the costs of solar-generated electricity. Given that the largest operating central receiver to date is 10 MW, the Company believes the technology to currently be pre-commercial on the multi-100 MW scale.

Sponsor: Kent Scholl

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-13:

Please provide all qualitative and quantitative analyses done of the future potential of Compact Linear Fresnel Reflector systems for the acquisition and planning periods.

RESPONSE:

The Company has conducted no extensive analysis of compact linear Fresnel reflector (“CLFR”) technology versus any other grid-interconnected solar technology. The advocates of CFLR systems point to the potential lower capital costs of the design versus other solar thermal systems as one of the technology’s benefits. Given that no CLFR system constructed to date has generated electricity and that no performance data on the CLFR lines that have been built are available, the Company believes the technology to currently be pre-commercial on the multi-100 MW scale.

Sponsor: Kent Scholl

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DISCOVERY REQUEST LWG3-14:

Please provide all qualitative and quantitative analyses done of the ability of Concentrating Solar Power technologies to displace natural gas plants during the acquisition and planning periods.

RESPONSE:

The Company has not performed an analysis that specifically examines the various assumptions that would need to be made in order for new Concentrating Solar Power technologies to displace or avoid new gas-fired technologies on the PSCo system.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-16:

Please provide all qualitative and quantitative analyses done of the possibility of replacing retired coal plants with Concentrating Solar Power plants instead of natural gas plants.

RESPONSE:

The Company has not performed an analysis that specifically examines the various assumptions that would need to be made in order for new CSP technologies to replace retired coal-fired plants on the PSCo system.

Sponsor: Greg Ford and Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-17:

Please provide all qualitative and quantitative analyses done of the possibility of using Concentrating Solar Power plants to serve as fuel savers with respect to coal plants during the acquisition or planning periods as discussed on page 2-120 of the Colorado Resource Plan.

RESPONSE:

We have had some verbal discussions with potential 3rd parties and have worked on possible interface criteria. I am not aware of any evaluation work that has been completed.

Sponsor: Greg Ford

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-18:

Please provide all qualitative and quantitative analyses done of the possibility of using Concentrating Solar Power plants to serve as fuel savers with respect to natural gas plants during the acquisition or planning periods as discussed on page 2-120 of the Colorado Resource Plan.

RESPONSE:

The Company is not aware of any analyses.

Sponsor: Greg Ford

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-19:

Please provide all analyses done of costs of the various plans with sensitivity analyses for the cost of coal.

RESPONSE:

Section 1.8 of the 2007 CRP describes the analyses performed on the Low, Medium, and High Section 123 Plans, which examined the cost impact of coal prices. See responses to OCC2-9 and WRA2-12.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-20:

Please provide all analyses done of coal plant retirements with sensitivity analyses for the cost of coal.

RESPONSE:

The Company's analysis of coal plant retirements is discussed in Section 2.4 of the 2007 CRP. This analysis was performed for the "base" coal forecast only.

Sponsor: Jim Hill

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DISCOVERY REQUEST LWG3-21:

Please provide a break down for each year of the planning period of the number of MW of each resource type included in the low, medium and high Section123 plans. Please include all resources (e.g. gas, wind, solar, nuclear biomass etc.).

OBJECTION: The Company is not required to conduct special studies or analyses to respond to discovery.

RESPONSE:

The Company has not performed the requested analysis.

Sponsor: Jim Hill

As to the Objection: Paula Connelly

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DISCOVERY REQUEST LWG3-22:

Please provide the projected cost of each of the low, medium and high Section 123 plans for each year of the planning period.

RESPONSE:

See Table 1.8-1 in Section 1.8 of the 2007 CRP.

Sponsor: Jim Hill

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DISCOVERY REQUEST LWG3-23:

Please provide the projected CO2 emissions for the low, medium and high Section 123 Plans for each year of the planning period.

RESPONSE:

Please see response to discovery request WRA3-15.

Sponsor: March 21, 2008

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-24:

Please provide the projected S02 and mercury emissions for the low, medium and high Section 123 Plans for each year of the planning period.

RESPONSE:

See response to LWG3-23.

Sponsor: Jim Hill

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DISCOVERY REQUEST LWG3-25:

Wind is given a 35% capacity factor (e.g. p. 1-55 and Table 2.9-11 on p. 2-263), but only a 10% capacity credit (e.g. Loads and Resources Tables on p.2-251 and 2-252). Was wind given a 35% capacity factor in the models? If so, why isn't it given a 35% capacity credit in the Loads and Resources Tables? Please provide all analyses of Xcel's experience with wind's capacity factor during the summer peak?

RESPONSE:

Wind was modeled to produce an amount of energy each year that is representative of a 35% capacity factor. Wind resources were given a capacity credit of 12.5% of nameplate in Tables 2.9-10 and 2.9-11 in accordance with the Company's Effective Load Carrying Capability (ELCC) analysis, which was filed with the Commission in March 2007 in Dockets 04A-214E, 215E, and 216E. Attachment LWG3-25 is the final ELCC report.

Sponsor: Jim Hill

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DISCOVERY REQUEST LWG3-26:

Please explain footnotes 2 and 3 in Table 2.9-11 on page 2-263. I do not understand how the capital costs for the central solar resources were derived. Thank you.

RESPONSE:

Levelized energy costs (“fully loaded cost”) include the required returns on and of invested capital, plus recapture of annual expenses including variable expenses over the asset life. Thus, given expected levelized energy costs, and an assumption of annual O&M expenses, book life, and capacity factor, the equivalent capital cost can be derived. See also the updated Table 2.9-11 in the February 22, 2008 Errata, and the answer to CPUC12-4.

Sponsor: Kent Scholl

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DISCOVERY REQUEST LWG3-27:

Footnote 2 in Table 2.9-10 appears to have been truncated. Please provide the full footnote.

RESPONSE:

The footnote should read 2) “The intermediate resources available to the model during the period 2013-2021 include two different generic CCs based on a GE 7FA 2x1 configuration. One version is simply a generic greenfield CC that could be constructed anywhere in the PSCo service territory. The second (a replacement unit) recognizes that some existing combined cycle contracts that currently exist on the PSCo system will expire and have some cost advantages of existing operation. The significant advantages include existing transmission delivery and interconnection as well as an existing gas supply. These additional cost adders were removed for a single unit that is available to the model in 2014 to reflect these advantages.”

Sponsor: Jim Hill

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
Public Service Company of Colorado)
For Approval of its 2007 Colorado)
Resource Plan)
)
)
Docket No. 07A-447E)**

**Third Set of Discovery Requests
Of Ms. Glustrom
Served On Public Service Company**

March 7, 2008

DISCOVERY REQUEST LWG3-28:

Did the models consider different values for electricity produced on peak and off-peak? If not why not? If so, how was this done? Please provide all workpapers and assumptions.

RESPONSE:

Yes. The modeling simulates the economic dispatch of the various dispatchable resources (some resources like wind and PV solar are not dispatchable) in a manner that meets the load requirements of the system at the lowest cost. When load is low the marginal unit might be a coal unit or a CC unit. When load is high the marginal unit is likely a peaking resource such as a CT.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-29:

In Table 2.9-2 (p. 2-252) why was CSP given a 68% capacity factor for the summer peak? How was this determined? In 2015, shouldn't the 200 MW CSP only be given a 68% capacity factor? It appears to have been given the full 200 MW.

RESPONSE:

Solar was given a 68% capacity credit, not capacity factor. The capacity credit for the 25 MW CSP in 2011 was based on the average hourly PV-Watts energy production shape during the hours of 1500-1700. The amount of energy produced during these hours is approximately 68 percent of the CSP nameplate capacity and aligns with the hours during which PSCo experiences its annual system peak. The 200 MW CSP project in 2015 has six hours of storage capability and can therefore deliver its full nameplate capacity during the PSCo system peak.

Sponsor: Jim Hill

Response Date: March 21, 2008

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)	
Docket No. 07A-447E)	March 7, 2008

DISCOVERY REQUEST LWG3-30:

On pages 2-253 and 2-254, why was CSP limited to 600 MW from 2026-2046? Please provide all analyses and workpapers analyzing the ability of CSP to displace natural gas plants in that period including all sensitivity analyses based on the cost of natural gas. What assumptions are made about future capital costs for CSP?

RESPONSE:

Please see response to CPUC6-47. See response to LWG3-15 regarding your question on CSP displacing gas plants. The year 2007 capital costs of generic solar resources in the Company's 2007 CRP are identified in Table 2.9-11. These 2007 capital costs were escalated at 1.99% annually to the future year in-services dates that were included in the resource plan.

Sponsor: Jim Hill

Response Date: March 21, 2008

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Docket No. 07A-447E)	March 7, 2008

DISCOVERY REQUEST LWG3-31:

Please provide all analyses of costs to Colorado's economy due to the effects of global warming. Please include all analyses of costs due to loss of forest cover, loss of snow pack and impacts on the ski industry, reduction in water supplies, effects of drought, effects of wildfire and impacts on tourism.

RESPONSE:

The Company has not done any analyses.

Sponsor: Frank Prager

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-32:

Please provide all analyses done of costs of air pollution on public health including costs of particulate emissions, carbon monoxide emissions, mercury and other hazardous pollutant emissions.

RESPONSE:

PSCo has not done any analyses of costs of air pollution on public health including costs of particulate emissions, carbon monoxide emissions, mercury and other hazardous pollutant emissions.

Sponsor: Frank Prager

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
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March 7, 2008

DISCOVERY REQUEST LWG3-33:

Please provide all analyses done of the economic costs of non-attainment status for ozone for the Denver Metro region.

RESPONSE:

PSCo has not done any analyses of the economic costs of non-attainment status for ozone for the Denver Metro region.

Sponsor: Frank Prager

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
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DISCOVERY REQUEST LWG3-34:

Please provide all analyses of the economic impacts (e.g. reduced income from fishing and tourism) resulting from acidification of high mountain watersheds due to acid deposition.

RESPONSE:

Except for studies that may have been performed by or on behalf of governmental entities or other parties and are already in the public record, PSCo has no analyses of the economic impacts resulting from the acidification of high mountain watersheds due to acid deposition.

Sponsor: Frank Prager

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
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March 7, 2008

DISCOVERY REQUEST LWG3-35:

Please provide all analyses done of the economic development impacts of concentrating solar power plants and CSP supply chain projects for Colorado's economy and state budget.

RESPONSE:

PSCo has not done any analyses of the economic development impacts of concentrating solar power plants and CSP supply chain projects for Colorado's economy and state budget.

Sponsor: Frank Prager

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
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DISCOVERY REQUEST LWG3-37:

Why does Table 1.7-2 (on p. 1-58) include IGCC but not CSP?

RESPONSE:

Table 1.7-2 was intended to contain information on generic resources that were optimized around the Section 123 resources (the timing and quantity of Section 123 Resources were locked down in the modeling of resource plans). The table indicates that the generic IGCC resource was hardwired into the Low Section 123 plan by constraining IGCC to a 2016 first and last year available, and allowing only a single facility in the plan. In hindsight, IGCC probably should not have been included in Table 1.7-2.

Sponsor: Jim Hill

Response Date: March 21, 2008

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DISCOVERY REQUEST LWG3-38:

Please list all combined cycle plants presently on the PSCo system, their size in MW and their heat rates.

RESPONSE:

See Attachment LWG3-38.xls. Note that the information provided shows units “as modeled”, for example Fort St. Vrain is three individual CTs with a Steam Turbine, however it is modeled as three segments of a CC unit. The actual heat rates for the tolling plants under contract to PSCo can be derived from publicly available data using the FERC website under the Electric Quarterly Report (EQR) for the total mwhs and at the links below for the gas volume consumed at each plant. http://www.eia.doe.gov/cneaf/electricity/2008forms/consolidate_923.html,
<http://www.eia.doe.gov/cneaf/electricity/page/eia423.html>

Sponsor: Jim Hill

Response Date: March 21, 2008

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Docket No. 07A-447E)	March 7, 2008

DISCOVERY REQUEST LWG3-39:

Please list all combustion turbines on the PSCo system, their size in MW and their heat rates.

RESPONSE:

See Attachment LWG3-38.xls. Note that the information provided shows units “as modeled”, for example Fort St. Vrain is three individual CTs with a Steam Turbine, however it is modeled as three segments of a CC unit.

Sponsor: Jim Hill

Response Date: March 21, 2008

**Re: In The Matter of the Application of)
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DISCOVERY REQUEST LWG3-40:

Why is the combined cycle plant for the Arapahoe facility assumed to be a 537 MW plant when it is noted (p. 1-54) that combined cycle plants can come in sizes from 100 MW to 700 MW.

RESPONSE:

The plant capacity listed in the Resource Plan was based on a generic 2X1 facility utilizing GE 7F combustion turbines, which was used to represent the Frame 7 2X1 combined cycle type of facilities for initial analysis purposes. As the project is developed in more detail and prepared for a CPCN filing more information will be established and the capacity is likely to change somewhat. The actual capacity of the facility will not be set until the major equipment is procured and the design is completed.

Sponsor: Greg Ford

Response Date: March 21, 2008