BEFORE THE ENERGY COMMISSION
OF THE STATE OF CALIFORNIA

April 9, 2012

In the Matter of:
Rulemaking to Consider Modification of Regulations Establishing a Greenhouse Gases Emission Performance Standard For Baseload Generation of Local Publicly Owned Electric Utilities

Docket No. 12-OIR-1

REPLY COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL AND SIERRA CLUB TO CALIFORNIA ENERGY COMMISSION'S NOTICE OF RULEMAKING WORKSHOP

The Natural Resources Defense Council (NRDC) and Sierra Club respectfully submit these reply comments on the California Energy Commission (Commission) Notice of Rulemaking Workshop in the above captioned proceeding.

The Emissions Performance Standard (EPS) is intended to wean California from greenhouse gas intensive energy sources by prohibiting California utilities from entering into new energy contracts with coal-fired generation facilities and making long-term non-routine investments in existing plants that would extend their life by five years or more. Accordingly, in implementing the EPS the Public Utilities Commission (PUC) recently prohibited Southern California Edison (SCE) from continued investment in the Four Corners power plant. As a result, SCE recently divested from the Four Corners plant, a step that brings the PUC close to ending investor owned utility (IOU) reliance on coal as a fuel source[1] (SDG&E retains a contract for energy from the Boardman coal plant in Oregon through next year).

In contrast to the IOUs, publicly owned utilities (POUs) continue to rely on and invest heavily in existing coal-fired generation with no state scrutiny. Indeed, not a single POU has submitted any compliance filing or request for review for potentially covered procurements at existing non-complaint power plants. For this reason, NRDC and the Sierra Club petitioned the Commission to both clarify the types of investments in existing non-EPS compliant facilities that are prohibited under the EPS and ensure compliance and statewide transparency though a reporting requirement. With the potential for significant POU investment in pollution control

[1] CPUC D. 12-03-134, March 22, 2012, *available at:* http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/163052.htm

equipment at existing coal plants in the near future,[2] additional guidance and transparency is needed to ensure compliance with the EPS and avoid unlawful investments that needlessly prolong California's reliance on greenhouse gas intensive energy sources.

Rather than assist the Commission by providing information necessary to evaluate the need for reporting and additional guidance on permissible investments, the POUs appear more intent in their response to the Commission's Notice of Rulemaking on dismantling the EPS to allow for unrestricted procurement of high-emissions coal-generated energy. Indeed, the POUs double-down on coal by first arguing for the termination of emission performance standards.[3]

The POUs also claim through a handful of anecdotes that their investments to date are routine and do not warrant scrutiny. Yet the entire purpose of this rulemaking is to gather information to allow the Commission to make an informed decision on the need for reporting requirements and additional regulatory clarity on the types of investments that constitute covered procurements. Simply accepting POU assertions at face value would prejudge the outcome of this rulemaking by forcing the Commission to reach conclusions absent a full and independent examination underlying data.

To ensure compliance with the EPS and a meaningful rulemaking process, NRDC and the Sierra Club reiterate the request in our opening comments that the Commission requires the POUs to disclose:

1) All past and planned investments from POUs at non-compliant power plants;
2) Any and all information on alternative investment options considered or under consideration, including alternative investments at the non-compliant plants and alternative energy and capacity supply options; and
3) A full review of all obligations, options, and opportunities for California POUs under their existing contracts at non-compliant plants should the POUs claim that they are contractually bound to make investments at the non-compliant power plants.

This information is a prerequisite to an informed and transparent rulemaking process. With this data available, the Commission can then determine the extent and nature of future reporting requirements and provide additional guidance on covered procurement. At this early stage in the rulemaking process, we are simply gathering information to better evaluate the need

[2] *See, e.g.*, Staci Matlock, PRC debates coal plant retrofit, Santa Fe New Mexican (Mar. 27, 2012), *available at* http://www.santafenewmexican.com/Local%20News/PRC-debates-coal-plant-retrofit.

[3] "Upon reevaluation, EPS regulation should be revised to include a sunset provision that terminates the regulation when the CARB's cap-and-trade declining cap starts to be enforced on January 1, 2013." SCPPA, , p. 2 (March 26, 2012); "The LADWP supports the nullification of the EPS regulation upon adoption of an enforceable emissions cap under AB 32," LADWP, p. 15 (March 26, 2012); "M-S-R believes that with the implementation of the Cap-and-Trade Program Regulation on January 1, 2012, and with the imposition of penalties for non-compliance commencing on January 1, 2013, that the EPS Regulation should be revised to specifically include a sunset provision on that same date," M-S-R, p. 4 (March 26, 2012); "IID also supports SCPPA's recommendation that the Commission revise the EPS regulation to include a section that provides for the regulations to sunset as of January 1, 2013." Imperial Irrigation District, p. 2 (March 26, 2012).

for any potential future reporting and guidance. Accordingly, we urge the Commission require the POUs to disclose the requested information.

To the extent the POUs have recommendations to reasonably limit this request; those recommendations should be a topic of conversation at the upcoming workshop—and would be far more productive than requests to sunset the EPS. We have initiated informal dialogue with the POU stakeholders in this rulemaking to discuss joint recommendations for focusing the rulemaking in a mutually-agreed direction. While no final agreement has yet materialized, we will continue to pursue a dialogue and hope to come to consensus recommendations.

Specific responses to POU Opening Comments are set forth below.

I. The Review requested in the NRDC/Sierra Club Petition should proceed

Evaluation of additional reporting requirements and criteria is timely and should proceed expeditiously. The POUs are clearly making investments[4] and evaluating future investments at the three coal plants in which they participate. All three of the non-conforming facilities with which the POUs contract are or will soon be under obligation to meet improved air quality and pollution standards. Owners, participants, and state policy makers are currently debating the options at each of these facilities, ranging from significant new investment to gas conversion, to sale or divestment.[5] A better understanding of the implications of EPS compliance on California energy supply and greenhouse gas emissions gained from this rulemaking is necessary for any legitimate reevaluation of the EPS upon operation of a cap and trade regime.

Information on planned POU investment in non-complaint facilities will inform the CEC on the need for additional guidance and ensure transparent and consistent compliance with the EPS. For example, the Commission has made clear that SB 1368 does not allow "exemptions for 'legally or regulatory required' expenditures, except for the limited circumstances surrounding pre-existing multi-party commitments" or provide an exemption for expenditures to achieve

[4] For example the Intermountain Power Plant is apparently undergoing significant repair and currently operating at far less than planned capacity, at significant cost to California utilities. John Hollenhorst, "Breakdown crippling central Utah power plant, damaging local businesses," *KSL.com, Utah* (February 17. 2012). *available at* http://www.ksl.com/?nid=148&sid=19270085

[5] *See, e.g.,* Staci Matlock, PRC debates coal plant retrofit, *Santa Fe New Mexican* (Mar. 27, 2012), *available at* http://www.santafenewmexican.com/Local%20News/PRC-debates-coal-plant-retrofit; Billy Hesterman, "Sens. Bramble, Valentine work on deal to save power plant," *Daily Herald* (March 4, 2012) *available at* http://www.heraldextra.com/news/local/govt-and-politics/legislature/sens-bramble-valentine-work-on-deal-to-save-power-plant/article_00f3ce19-151b-5134-b1a1-6cea614b5582.html; Attachment 1, Transcript of Ron Nichols testimony at LA City Council E2 meeting, April 4, 2004; James A. Hewlett, Intermountain Power Agency Annual Report, December 7 2010. *available at* http://www.ipautah.com/data/upfiles/newsletters/Jim%202010%20Speech%20Slides%20(4).pdf;
Attachment 2: Public Service of New Mexico, "San Juan Generating Station Units 1-4 Harvesting Assessment Study," February 15, 2011.

environmental improvements.[6] The California legislature could have provided for such an exception, but chose not to.[7]

Nor is our petition's use of the term "ownership" to describe ongoing contractual purchase and investment agreements relevant to the importance of this proceeding.[8] The Emissions Performance Standard disallows new long-term financial commitments- which are possible under a contractual or ownership structure. The CEC should not be dissuaded from undertaking analysis of how to ensure of compliance with the EPS based on this issue. We recognize that the California POUs have a range of contractual and ownership relationships to the non-compliant power plants and out-of-state partners. For this reason we recommend a full analysis of the implications of those relationships in this proceeding.

II. A Reevaluation of Emission Performance Standards is Premature and Contrary to SB 1368 and Achievement of California's Emission Reduction Objectives

Contrary to the suggestion of the POUs, it is not appropriate at this juncture to reevaluate the EPS. Section 1341(f) directs the Commission to "reevaluate and continue, modify, or replace the greenhouse gases emission performance standard when an enforceable greenhouse gases emissions limit is established and in operation." Under the terms of the statute, this reevaluation would not commence until such time as an enforceable limit is in place – an event not currently scheduled to occur until 2013. Given that cap and trade is a complex and untested system, reevaluation of the EPS would not be prudent until such time as the cap and trade system is actually in operation and can be observed to inform any decision to continue, modify or replace the current EPS.

Even if the Commission is inclined to reevaluate the EPS at this early juncture, the POU suggestion to terminate the EPS once cap and trade is operational is both contrary to SB 1368 and a perilous step backward in California's efforts to reduce global warming pollution and move to cleaner sources of energy. SB 1368 does not call for cap and trade to supersede the EPS. Rather Section 8341(f) provides that the Commission, in conjunction with the Air Resources Board, will determine whether to "continue, modify, or replace" the EPS once cap and trade is operational. The elimination or sunset of the EPS is not contemplated.

Moreover, while cap and trade does set a cap on total statewide emissions, we do not yet know the system's operational effectiveness in achieving emissions reductions. By directly limiting emissions at their source, the EPS provides a critical backstop for the cap and trade system. More troubling, the POUs' effort to scrap an EPS would allow for a long-term extension

[6] California Energy Commission, Final Statement of Reasons for Adoption of Regulations Establishing and Implementing a Greenhouse Gas Emission Performance Standard for Local Publicly Owned Electric Utilities, Docket No. 06-OIR-1 at 14.
[7] Washington state also has an emissions performance standard for CO_2, but while the standard is similar in many ways, it includes an exception to allow for the costs of pollution control equipment.: Under the Washington EPS: ""Upgrade" does not include … installation of emission control equipment." Wash. Rev. Code § 80.80.010
[8] LADWP, p. 7 (March 26, 2012).

in procurement from high emission coal facilities. AB 32 only sets a statewide emissions cap through 2020 and while we fully expect the state to continue emissions reductions programs beyond that date, several CA POUs have ownership or contractual commitment to non-compliant facilities beyond that date. Without the EPS, some POUs may decide to recommit to high emission coal plants with the expectation that no emissions reductions will be required after 2020.[9] Such an outcome is flatly inconsistent with California's environmental and energy objectives and should not be countenanced.

III. Additional Informational and Guidance in Needed to Ensure Consistent Application of the EPS

The POU's have responded to the need for additional guidance on SB 1368 implementation by providing a few anecdotes of investment decisions and a request to the Commission to trust their analysis without further review or transparency. Indeed, the POUs seem so certain of the legality of their continued investments that they have not once asked the Commission to evaluate a prospective procurement for EPS compliance. The Commission should require more than a set of anecdotes on past investments to make a determination on the need and scope of reporting and additional regulatory guidance. While it is comforting to hear that at least one investment has been rejected for EPS compliance,[10] a single example does not suffice. Without further review, it will be impossible to determine whether the POUs have or plan to apply the same standard, or whether that standard is appropriate.

IV. Conclusion

We appreciate the opportunity to comment in this important manner. The EPS is critical to meeting the state's emission reduction mandates. We hope the Commission will take the steps necessary to ensure consistent, transparent and meaningful compliance with the EPS by all California utilities.

[9] As shown in Attachment 3, because LADWP received such a generous allocation of free allowances under AB 32, its own analysis shows it will have a relatively small compliance obligation through 2020, even if it retains significant commitments to high-emissions coal power.
[10] SCPPA rejected the opportunity for new ownership investment at San Juan pursuant to section 2901 (j) of the EPS regulation. SCPPA, p. 17.

Respectfully Submitted,

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Attachment 1

LA City Council E2 Hearing Transcript
Questions to Ron Nichols
April 4, 2011

Q: Also Solar for Business and homes, how does the solar impact any of these? We talked about that before. A lot of businesses are going solar. Westfield for example. A number of schools are going solar. Public and private. How does this impact when they go solar?

Nichols: In terms of our budget it's built into our budget and there's two components of that – one that's active right now was our solar incentive program, and that's included as part of that Renewable Energy piece…When we are looking at the Power Supply Replacement Program, the Renewable Energy Piece is a piece of that. $716 million – solar incentive program is a slice of that…a relatively small slice budgeted for, consistent with the requirements under Senate Bill 1. In fact we are actually a little bit ahead of Senate Bill 1 in doing more per year than is obligated under that program. But, we're doing it in a matter that is actually reducing the cost to our customers that pay our rates by financing our rebate…that rebate goes to the customers to help lower the overall cost to their installed solar.

Q: How are doing on coal? Based on what we've budgeted – are we moving towards our goals of getting beyond coal at the time that we would hope?

Nichols: We are. And, in fact, as we have discussed…by law we need to be out of, no longer taking power from our Navajo coal project in Arizona, which we are a 21% owner of a 2,250 MW 3 unit coal plant…all other owners being non-CA entities. By law we would need to be out by the end of 2019. Our plans right now are to be out by 2015 because we believe that it is in the best interest…not only is in the best environmental interest, we actually believe it's in the best interest of our customers who pay our rates in terms of the cost…that doesn't have a direct impact on this upcoming year fiscal budget other than the fact that our increases in EE and our ramp up on RE is a start towards the replacement of a portion of that power that is produced by coal. If we ramp up on that and get out of coal, we are balancing our resources in a more environmentally appropriate way.

Q: SoCal Edison has recently announced that it is divesting from its remaining coal plant by the end of the year and I think that was to avoid something like $700 million in costs for implementing the CAA. Are we under the same obligations? Are we going to have to face those kinds of increases while we still hold on to our coal plants?

Nichols: The requirements in respect to their plant and our plant are different, the timing in the rules are different and they apply to different issues. The issue in respect to the Navajo Generating Station is not a health related standard. It's a standard yet to be applied (by the way). It's been discussed, but not applied by the Environmental Protection Agency related to contribution of regional haze on the Grand Canyon and other areas surrounding the Navajo plant. We do anticipate there will be some future requirements for reducing emissions…it is separate and distinct to what applies to the Edison Plant.

Q: I take it…we will not have an ownership interest in that plant by the time that is implemented?

Nichols: that would be our preference.

Q: There was a shutdown of IPP…where we get some of our power from…according to the report, it is only running at half capacity and it is having to buy additional short term power to cover this loss of generation. Would that impact us in any way in terms of our budget and how much we will pay for our power?

LA City Council E2 Hearing Transcript
Questions to Ron Nichols
April 4, 2011

Nichols: That does not impact next year's budget. We did have a failure of a generator (something) on one of the units. It is under repair now and in meantime we are purchasing power from the market to make it up where we need to, where we can't make it up with our other plants.

Q: It's not affecting our budget?

Nichols: It's come at a time that not only helpful that it is Spring and the late Winter period where our energy requirements are lower. And, in addition we have had lower natural gas prices…lower market prices in the short term…to replace that energy, the overall price has not been significant and any impact that it has on the current year budget will not have on the budget we just talked about for the next fiscal year.

Attachment 2

PUBLIC SERVICE OF NEW MEXICO

SAN JUAN GENERATING STATION UNITS 1-4

HARVESTING ASSESSMENT STUDY

SL-010561
Draft

February 15, 2011
Project 11278-026

Prepared by

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LEGAL NOTICE

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EXECUTIVE SUMMARY

Public Service of New Mexico (PNM) requested Sargent & Lundy, L.L.C. (S&L) to prepare a high level review of major repair activities required for economical and reasonable operations for the next seven years for San Juan Generating Station (SJGS) Units 1-4. This "harvesting" assessment study incorporates the following:

- Observations and assessments consistent with a high-level major equipment condition review.
- Review of PNM's Five-Year Project Plan (Plan) and Capital Budget Items (CBI) with a list recommending changes for only seven years of remaining operation for each unit.
- Review of available main equipment condition assessment reports and National Electrical Reliability Council North American Electric Reliability Corporation / Generating Availability Generating System (NERC/GADS) data for use in reviewing PNM's Plan and CBIs. PNM provided this information based on requests made by S&L.
- Applicable information developed by S&L for previous PNM studies and projects was included.
- S&L's experience from previous similar assessments was a widely used source of information for this study. S&L did not contact any contractors or suppliers for input to this study and did not prepare any detailed evaluations, calculations, or cost estimates for this high-level review.

Major general findings of this study are:

- PNM's Plan and CBIs and equipment inspection and nondestructive examination (NDE) reports were reviewed and found to be suitable information for this assessment.
- Generally, the SJGS units have provided reliable operation and are capable of continued service.
- An important general concept is that certain inspections and repairs need to be provided for economical, reasonably reliable, and safe operation, even with the short remaining operating duration being considered.
- S&L's overview and recommendations, as summarized in this report, for PNM budgeting are based on safety, environmental compliance, and projects needed to prevent a major decrease in operating reliability.
- PNM developed the Plan for SJGS to improve current plant performance and to allow for operation of the units for the indefinite future, which is much different than a harvesting strategy. The results of the harvesting study are valid only if the plant is going to be completely decommissioned at the end of the current coal contract in 2017. If it is decided to run the plant after the 2017 time frame, all the items in the existing PNM Plan should be completed during the time frame shown to avoid the possibility of high forced outage rates.

Table ES-1 summarizes the results of this assessment.

Table ES-1. Summary of Assessment Results

	PNM Plan Cost	Harvesting Study Cost
Unit 1	$69,271	$37,305*
Unit 2	$70,967	$48,965*
Unit 3	$59,859	$21,318
Unit 4	$94,041	$28,742
Units 1&2 Common	$12,303	$4,848
Units 3&4 Common	$14,507	$5,976
Plant Common	$43,250	$18,029
Switchyard	$9,062	$2,025

*Waiting for additional information

1. INTRODUCTION

San Juan Generating Station (SJGS) is located 15 miles west of Farmington, New Mexico, and comprises Units 1 and 2 (350 MW each) and Units 3 and 4 (550 MW each). All four units fire coal produced in an adjacent mine. The steam generating units for Units 1 and 2 were manufactured by Foster Wheeler Corporation and the steam generating units for Units 3 and 4 were manufactured by The Babcock & Wilcox Company. All four steam turbine generators were originally manufactured by General Electric Company (GE). Unit 1, Unit 3, and Unit 4 turbines were upgraded by GE, and Unit 2 was upgraded by Siemens.

All four units employ electrostatic precipitators (ESPs), powdered activated carbon (PAC) injection systems, pulse jet fabric filters, and wet flue gas desulfurization (FGD) systems.

1.1 STUDY PURPOSE

In preparation for strategic planning efforts, PNM requested Sargent & Lundy, L.L.C. (S&L) to conduct a high-level engineering review to identify the necessary steps to safely operate SJGS Units 1-4 through December 31, 2017, at or near their current performance level with minimum capital and O&M expenditures. This scenario is commonly referred to as a “harvesting” strategy.

This evaluation, as presented in this report, includes identifying which components are risks to the units’ ability to operate for the next seven years. The review provides recommendations to keep unit reliability and equipment failure risk at acceptable levels.

1.2 STUDY METHODOLOGY

Applicable information developed by S&L for previous studies for PNM and projects was utilized. S&L’s experience from similar assessments and knowledge of plant life-cycle costs was used extensively in this study. S&L did not contact any contractors or suppliers for input to this study and did not prepare any detailed evaluations, calculations, or cost estimates for this high-level review.

Scheduling of major repairs and replacements would be coordinated with unit outage schedules. For example, boiler tube section replacement expenditures are shown during the currently scheduled major unit outages.

SJGS shared its Five-Year Project Plan (Plan), as shown in Attachment A, with S&L for the purpose of utilizing it as a major source of information in this review. SJGS developed the Plan with an undetermined retirement date for the units. The Plan encompasses projects with several different types of justifications. Many line items are for the replacement of either obsolete or high maintenance cost components; many are efforts to improve the reliability of the current systems, and many are justified for safety or environmental compliance.

Again, it is important to note that this Plan was developed to improve current plant performance and to allow for operation of the units for the indefinite future, which is much different than a harvesting strategy. The results of the harvesting study are valid only if the plant is going to be completely decommissioned at the end of the current coal contract in 2017. If it is decided to run the plant after the 2017 time frame, all the items in PNM's existing Plan should be completed during the time frame shown to avoid the possibility of high forced outage rates.

Most of the line items in the Plan are detailed in a Capital Budget Item (CBI) document. The CBI presents a description of the proposed work, costs associated with the work, alternatives to performing the work, the justification for the work, and a net present value (NPV) of the proposed project.

Industry experience has shown that each unit's life is dependent on numerous factors, including but not limited to, capital and O&M expenditures and how many startups the unit has experienced. Generally, unit costs follow the two curves shown below (developed from EIS data). Non-fuel O&M costs from the EIS database portray a declining maintenance spending in years 40-47, at a unit's economic end-of-life. This is also the period with declining capital expenditures, subjecting the unit to both reduced maintenance and capital expenditures. Relative to this study, these curves convey the basic concept that within a 5- to 10-year span, reduced capital and O&M expenditures will result in lower unit reliability. However, implementation of the seven-year remaining operating life scenario defined by PJM should not incur a significant change in unit operating reliability based on the ages and overall current condition of these units and the expenditures identified by S&L in the cost tables provided in this report. S&L bases this opinion on the review of the major equipment inspection reports and experience from other studies and activities. Reliability calculations were not prepared by S&L as part of this study as PNM requested a high-level, overview assessment only.

Figure 1-1. Operating Capital Costs vs. Unit Age

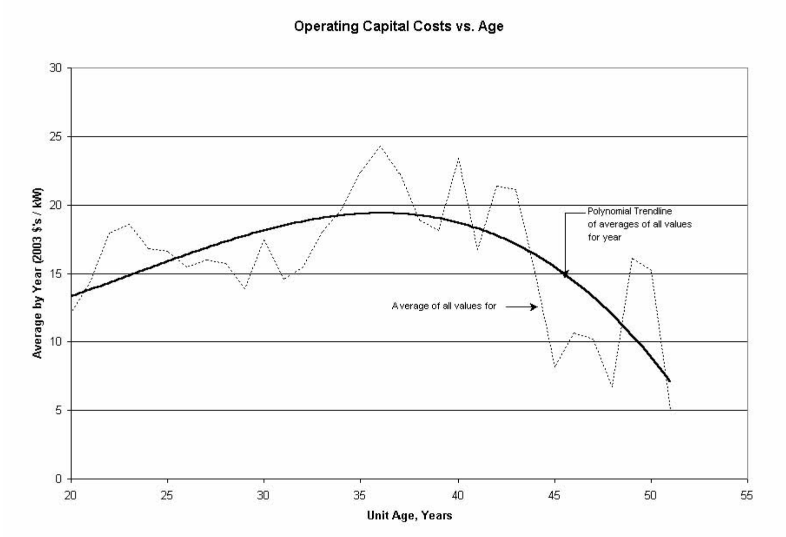
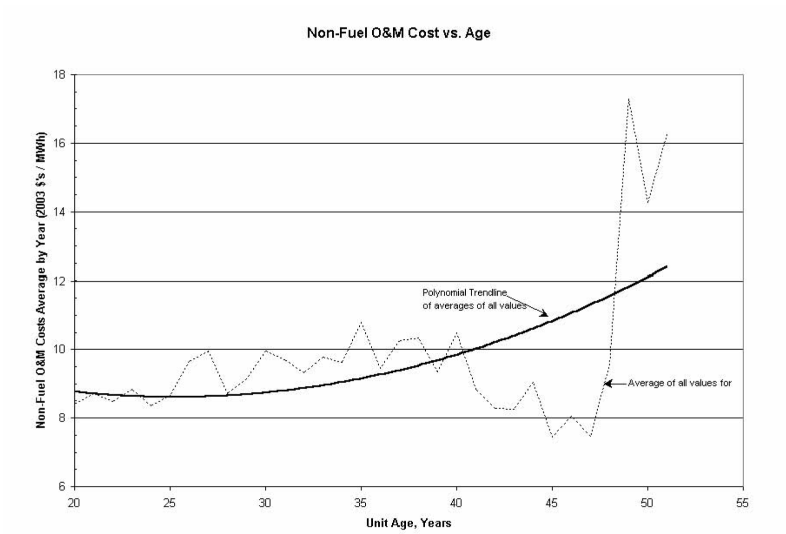


Figure 1-2. Non-Fuel O&M Costs vs. Unit Age



The approach taken to assess the performance of the SJGS units was for a multi-disciplined team of S&L technical experts to review unit availability and forced outage data and plant design data, including piping and instrumentation diagrams (P&IDs), maintenance and testing reports, and previous condition assessment reports. S&L also reviewed past and planned major repair and replacement activities and the units' outage schedules.

The following outlines the activities S&L executed in preparing this study:

- "Key" documents were requested and received by S&L for review, including:
  - NERC/GADs (North America Electrical Reliability Council / Generating Availability Data System) data for the units.
  - PNM's five-year capital expenditure plan; i.e., the Plan and associated CBIs.
  - Latest inspection reports for major equipment including, boiler, steam turbine generator, transformers, etc.
- Weekly PNM and S&L telephone meetings were held to present progress on the study and to facilitate obtaining the information needed for S&L's review.
- S&L reviewed this data and based on past experience identified areas of potential risk that may impact the safe and reasonably reliable operation of each unit through the seven-year end-of-life projected period established by PNM.

Table 1-1 was used as a checklist when reviewing the Plan and CBIs. This table presents the major components typically considered in an equipment condition assessment or life extension study, and the potential actions required to maintain or improve component reliability.

Table 1-1. Equipment Typically Covered in Plant Condition Assessments

Equipment	Possible Required Action
Boiler:	
Superheater	Replace sections
Reheater	Replace sections
Economizer	Replace
Wall tubes	Replace selected panels
Burners	Refurbish
Turbine:	
Rotor	Replace
Blades	Replace
Valves and bodies	Replace
Shell and casings	Replace

Equipment	Possible Required Action
Generator:	
Rotor	Rewind
Stator	Rewind
Exciter/voltage regulator	Upgrade to current state of the art
Condenser	Retube
Combustion air/flue gas:	
Expansion joints	Replace
Air Heater	Basket replacement
Fuel Handling:	
Mills	Refurbishment
Conveyor system	Refurbishment
Silos	Liner replacement
Coal piping	Replacement
Feedwater System:	
Heaters	Retube/replace/bypass
Deaerator	Replace
Electrical:	
Transformer	Replace
Switchgear and MCC	Replace

The following sections of this report present the major findings of the completed review.

2. PERFORMANCE INDICATORS

S&L requested five years of data from the SJGS North American Electric Reliability Council's (NERC) database of availability information for generating stations. The database is referred to as the Generating Availability Database System (GADS) and contains unit-specific information on outages. More specifically, GADS addresses outage type, duration, derated capacity, and cause, and summarizes the outage data into several standard indicators, such as Equivalent Availability Factor (EAF) and Equivalent Forced Outage Rate (EFOR). The EAF is an indication of the percentage of time that a unit can generate electricity without a derating or being taken out of service, regardless of whether it is dispatched. Forced, scheduled, and maintenance outages all affect EAF. EFOR is an indication of the degree to which a unit has a forced outage or is operating with less than full-rated capacity (derating) due to an unplanned component failure or another condition requiring the unit to be removed from service immediately or before the next weekend.

S&L's review of the data produced the following observations:

- The average capacity factors of the four units are very similar. The plant average is 77.4% over the five years.
- The average EAFs of the four units range between 79.01% and 82.56%. Based on previous benchmarking of coal-fired plants of this size and age, the units' EAFs are below the industry mean.
- Each unit had a year when its EAF dropped below 70%. Contributing factors were the scheduled outage durations in that year, the penthouse riser tube failures on Unit 1 and the subsequent operating derating for Unit 2, and lost megawatt hours subsequent to the environmental upgrades due to issues with the new equipment.
- Since the units are base-loaded, the EAF and EFOR trend together for the units.

S&L graphed the EAF data to determine trends in SJGS unit performance, as shown in Figure 2-1 (Units 1 and 2) and Figure 2-2 (Units 3 and 4).

Figure 2-1. Units 1 and 2 Equivalent Availability Factors

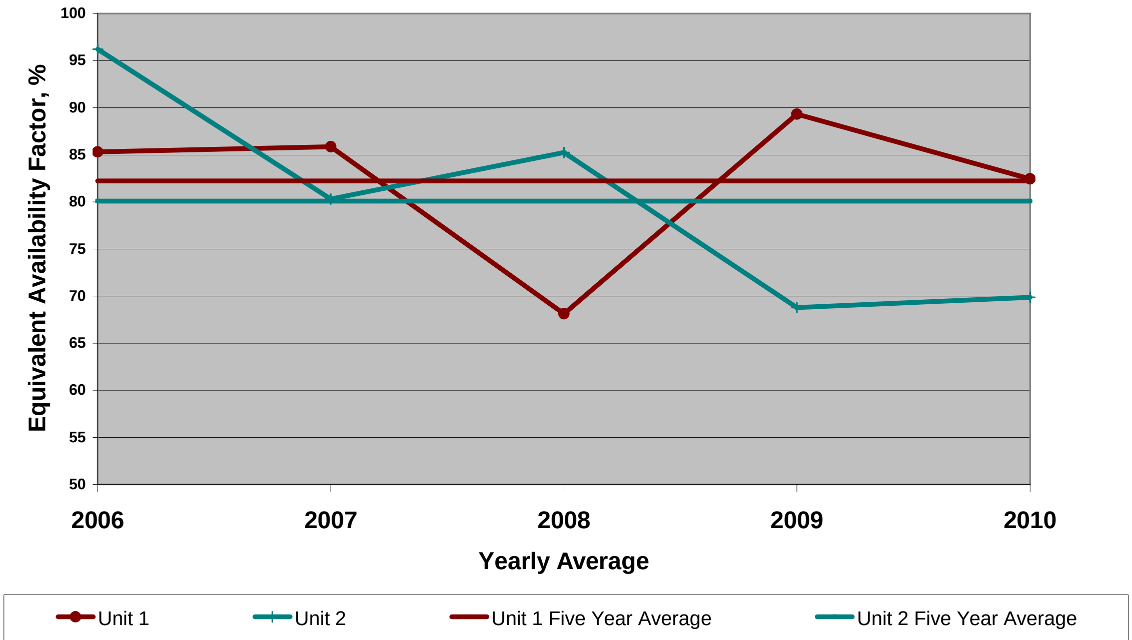
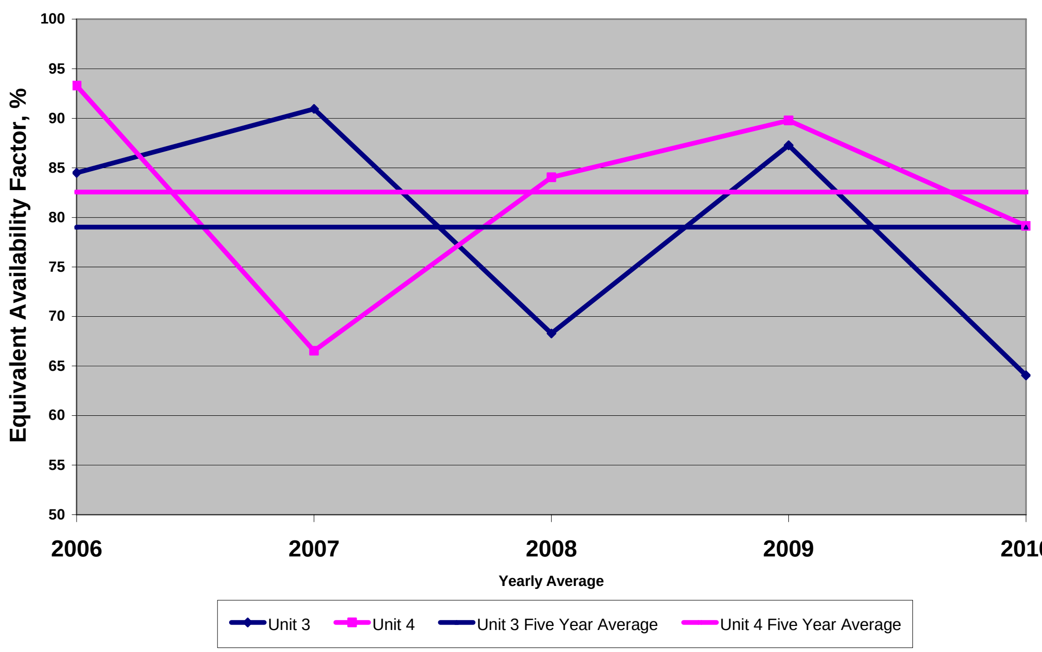


Figure 2-2. Units 3 and 4 Equivalent Availability Factors



These graphs indicate that EAF trends have been downward since 2006, when the EAF was approximately 90%. Also indicated is that continued capital and maintenance expenditures are required to keep unit reliability and equipment failure risk at acceptable levels through 2017.

3. UNIT 1 EVALUATION

3.1 UNIT 1 OVERVIEW

Unit 1 had a major overhaul in 2008. Among the major work completed was an overhaul of the HP and IP sections of the steam turbine, including the installation of a "dense pack" turbine rotor to increase unit output and efficiency.

Unit 1 currently is scheduled for overhauls in 2011, 2013, and 2015. The unit typically receives a major overhaul every two years. The PNM Plan for the unit shows $98M in expenditures planned for the 2011-15 time frame. The large majority of the projects in the plan require an overhaul to complete. Of that total amount, $29M is authorized for the overhaul that commenced in late January 2011. Therefore, the 2011 expenditures are not evaluated in this report.

3.2 UNIT 1 CAPITAL BUDGET ITEMS

S&L's review of NERC/GADS data, including cause codes for all deratings and unit outages, the CBI justifications, and equipment inspection reports indicates that several of the 2012-13 projects are justified for the harvesting strategy for safe and reliable operation of the unit. Considering that the unit will operate for 4+ years subsequent to the 2013 overhaul, it is prudent to complete the following projects on PNM's Plan for 2012-13:

Table 3-1. Unit 1 Projects Recommended for 2012-13 Time Frame

Project	Cost ($1000)	Assessment
Ash conveying replacement	1,101	Necessary to maintain current performance.
Broken and undersized hanger replacement	1,033	Safety and equipment integrity issue.
Complete secondary superheater replacement	Decrease from 3,755 to 1,000	Replacement of tubes with shorter remaining life.
Primary superheater	10,734*	
Reheat outlet header	6,789*	
Seal trough replacement	1,057	High maintenance costs justify new equipment.
Weld overlay	Decrease from 1,223 to 500	Necessary to mitigate corrosion on waterwalls due to reduced atmosphere with low-NO_X burners.
MCC cubicle buckets replacements	553	Safety issue. Replacement of obsolete equipment.

Project	Cost ($1000)	Assessment
Motor rewinds	552	Necessary to maintain current performance.
Synchronous relay	33	Replacement of obsolete equipment; reduces risk of failed operation and potential major equipment damage.
Head for DA	325	Safety and equipment integrity issue.
Circulating water booster pumps	245	Necessary to maintain current performance.
Cooling tower structural improvements	997	Necessary to maintain current performance and ensure structural integrity.
Exciter – voltage regulator	5,663	Replacement of obsolete equipment.
Turbine trip block	427	Equipment upgrade to provide operators with system status and to avoid false unit trips.
Absorber mist eliminator replacement	300	Necessary to maintain current performance.
Expansion joint replacement	1,341	Eliminate fugitive dust emissions from positive pressure joints.
Outage emergent projects	1,788	Necessary to address outage issues.
Transformer fire protection	210	Safety issue.

*Waiting for additional information

Unit 1 should not require another overhaul after 2015 for a harvesting strategy. Based on the work completed in 2008 and 2011, and planned for 2013, no major expenditures should be required on the unit in 2015. A few repetitive maintenance projects should be maintained. Subsequent to this final overhaul, equipment can be repaired during forced outages and yet the unit can still operate at target availability.

The following line items would be maintained from the 2014-15 plan:

Table 3-2. Unit 1 Items Maintained from 2014-15 Plan

Project	Cost ($1000)	Assessment
MCC cubicle buckets replacements	350	Safety issue. Replacement of obsolete equipment.
Motor rewinds	Decrease from 308 to 100	Necessary to maintain current performance.
Expansion joint replacement	1,705	Eliminate fugitive dust emissions from positive pressure joints.
Outage emergent projects	Decrease from 1,593 to 500	Necessary to address outage issues.

The review of NERC/GADS data and equipment inspection reports did not reveal any major reliability issues that are not already covered by projects in PNM's Plan.

A revised expenditure projection based on the above assessments follows:

Table 3-3. Unit 1 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2012	9,025	6,763*
2013	36,044	27,887*
2014	2,541	49
2015	21,661	2,606
5-Year Total	**69,271**	**37,305***

*Waiting for additional information

4. UNIT 2 EVALUATION

4.1 UNIT 2 OVERVIEW

Unit 2 had a major overhaul in the spring of 2009. Among the work completed was an upgrade of the steam turbine. The upgrade included the installation of new HP-IP and LP rotors, and HP-IP and LP inner cylinders. A partial generator inspection was performed. The generator had been rewound in 2003.

Unit 2 currently is scheduled for overhauls in 2012 and 2014. The unit typically receives a major overhaul every two years. PNM's Plan for the unit shows $71M in expenditures planned for the 2011-15 time frame. The large majority of the projects in the plan require an overhaul to complete.

4.2 UNIT 2 CAPITAL BUDGET ITEMS

S&L's review of NERC/GADS data, including cause codes for all deratings and unit outages, the CBI justifications, and equipment inspection reports indicates that several of these 2011-12 projects are justified for the harvesting strategy for safe and reliable operation of the unit. Considering that the unit will operate for 5+ years subsequent to the 2012 overhaul, it is prudent to complete the following projects on PNM's Plan for 2011-12:

Table 4-1. Unit 2 Projects Recommended for 2011-12 Time Frame

Project	Cost ($1000)	Assessment
Ash conveying replacement	1106	Necessary to maintain current performance.
New hangers and snubbers	1,077	Safety and equipment integrity issue.
Bullnose structural repairs	1,823	Safety and equipment integrity issue.
Division wall trailing edge tubes	1,106*	
Primary superheat	2,392*	
Seal trough replacement	991	High maintenance costs justify new equipment.
DCS operator workstation replacement	912	Replacement of obsolete equipment.
Digital generator protection relay	157	Replacement of obsolete equipment; reduces risk of catastrophic failure and potential major equipment damage.
MCC cubicle buckets replacements	450	Safety issue. Replacement of obsolete equipment

Project	Cost ($1000)	Assessment
Motor rewinds	308	Necessary to maintain current performance.
Remote racking absorber area	189	Safety issue. Upgrade of existing equipment.
Synchronous relay	78	Replacement of obsolete equipment; reduces risk of catastrophic failure and potential major equipment damage.
Burner barricade damper replacement	291	Safety issue. Replacement of worn out equipment
Coal piping replacement	323	Safety issue. Replacement of worn out equipment.
Bearing cooling water heat exchangers	305	Necessary to maintain current performance.
Circulating water booster pumps	243	Necessary to maintain current performance.
Circulating water line coatings	1,490	Repair damaged lines to avoid catastrophic failure.
Cooling tower structure	4,840	Necessary to maintain current performance and ensure structural integrity.
Absorber header replacement	550	Necessary to maintain current performance.
Absorber mist eliminators	100	Necessary to maintain current performance.
Baghouse outlet damper access platforms	595	Safety issue.
Expansion joint replacement	1,758	Eliminate fugitive dust emissions from positive pressure joints.
Outage emergent projects	1,657	Necessary to address outage issues.
Roof refurbishment	497	Safety issue.
Cooling tower fire protection	135	Safety issue.
Transformer fire protection	224	Safety issue.
Turbine underlagging and bearing fire protection	257	Safety issue.

*Waiting for additional information

Furthermore, it is recommended Unit 2 have only one more overhaul after 2012 and that it focus on core maintenance work and boiler repairs. Replacement projects should be minimized. Based on the work completed in 2009, no further major expenditures should be required on the turbines or generator. It is also recommended that consideration be given to planning the final overhaul in late 2014 or early 2015. Subsequent to this final overhaul, equipment can be repaired during forced outages and yet the unit can still operate at target availability. A few repetitive maintenance projects should be maintained for the 2014/2015 overhaul.

The following line items would be maintained from the 2013-15 plan:

Table 4-2. Unit 2 Items Maintained from 2013-15 Plan

Project	Cost ($1000)	Assessment
Complete secondary superheater replacement	7,845*	
Primary superheat	9,467*	
Waterwall replacement panels	3,955*	
Bottom ash control system modification	132	Replacement of obsolete equipment.
PA/FD supervisory instrumentation	94	Replacement of obsolete equipment; reduces risk of failed operation and potential major equipment damage.
MCC cubicle buckets replacements	450	Safety issue. Replacement of obsolete equipment.
Motor rewinds	Decrease from 311 to 100	Necessary to maintain current performance.
Circulating water line coatings	596	Repair damaged lines to avoid catastrophic failure.
Absorber mist eliminators	200	Necessary to maintain current performance.
Expansion joint replacement	1,624	Eliminate fugitive dust emissions from positive pressure joints.
Outage emergent projects	Decrease from 1,502 to 500	Necessary to address outage issues.

*Waiting for additional information

The review of NERC/GADS data and equipment inspection reports did not reveal any major reliability issues that are not already covered by projects in PNM's Plan.

A revised expenditure projection based on the above assessments follows:

Table 4-3. Unit 2 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	9,317	7,144*
2012	25,400	16,709
2013	17,266	14,528*
2014	17,231	10,358*
2015	1,753	226
5-Year Total	**70,967**	**48,965***

*Waiting for additional information

5. UNIT 3 EVALUATION

5.1 UNIT 3 OVERVIEW

Unit 3 had a major overhaul in the spring of 2010. Among the major work completed was an overhaul of the HP and IP sections of the steam turbine, including the installation of a "dense pack" turbine rotor to increase unit output and efficiency. The generator stator was rewound.

The unit typically receives a major overhaul every two years, with overhauls currently planned for 2012 and 2014. PNM's Plan for the unit shows $60M in expenditures planned for the 2011-15 time frame. The large majority of the projects in the plan require an overhaul to complete.

5.2 UNIT 3 CAPITAL BUDGET ITEMS

S&L's review of NERC/GADS data, including cause codes for all deratings and unit outages, the CBI justifications, and equipment inspection reports indicates that several of these 2011-12 projects are justified for the harvesting strategy for safe and reliable operation of the unit. Considering that the unit will operate for 5+ years subsequent to the 2012 overhaul, it is prudent to complete the following projects on PNM's Plan for 2011-12:

Table 5-1. Unit 3 Projects Recommended for 2011-12 Time Frame

Project	Cost ($1000)	Assessment
Clinker grinder modification	351	High maintenance costs and lost production justify new equipment.
Fly ash blower compressor	822	Necessary to maintain current performance.
Economizer outlet duct	495	Eliminate combustion gas leaks from positive pressure ductwork.
New hangers, snubbers, and support steel	1649	Safety and equipment integrity issue.
New outlet reheater	Decrease from 3,700 to 1,000	Replacement of tubes with shorter remaining life.
Waterwall weld overlay north wall	Decrease from 2,445 to 500	Necessary to mitigate corrosion on waterwalls due to reduced atmosphere with low-NO_X burners.
Waterwall weld overlay south wall	Decrease from 2,445 to 500	Necessary to mitigate corrosion on waterwalls due to reduced atmosphere with low-NO_X burners.

Project	Cost ($1000)	Assessment
Digital generator protection relay	158	Replacement of obsolete equipment; reduces risk of catastrophic failure and potential major equipment damage.
MCC cubicle buckets replacements	450	Safety issue. Replacement of obsolete equipment.
Boiler feed pump trip block oil conditioning	493	To prevent false unit trips and potential equipment damage.
Circulating water line	842	Replace damaged lines to avoid catastrophic failure.
Turbine trip block	427	Equipment upgrade to provide operators with system status and to avoid false unit trips.
Absorber mist eliminator	248	Necessary to maintain current performance.
Absorber recirculation pump gear drive	220	High maintenance costs justify new equipment.
Lower absorber header replacement	550	Necessary to maintain current performance.
Baghouse damper drive access modification	717	Safety issue.
Baghouse elevator installation	204	Improve maintainability and work safety at baghouse.
Expansion joint replacement	2129	Eliminate fugitive dust emissions from positive pressure joints.
Motor rewinds	361	Necessary to maintain current performance.
Outage emergent projects	Decrease from 1,706 to 1,200	Necessary to address outage issues.
Roof repairs	250	Safety issue.
Transformer fire protection	198	Safety issue.
Turbine underlagging and bearing fire protection	256	Safety issue.

Furthermore, it is recommended Unit 3 have only one more overhaul after 2012 and that it focus on core maintenance work and boiler repairs. Replacement projects should be minimized. Based on the work completed in 2010, no further major expenditures should be required on the turbines. It is also recommended that consideration be given to planning the final overhaul in late 2014 or early 2015. Subsequent to this final overhaul, equipment can be repaired during forced outages and yet the unit can still operate at target availability. A few other repetitive maintenance projects should be maintained for the 2014/2015 overhaul.

The following line items would be maintained from the 2013-15 plan:

Table 5-2. Unit 3 Items Maintained from 2013-15 Plan

Project	Cost ($1000)	Assessment
Secondary superheater replacement	Decrease from 5,614 to 1,000	Replacement of tubes with shorter remaining life.
PA/FD supervisory instrumentation	47	Replacement of obsolete equipment; reduces risk of failed operation and potential major equipment damage.
MCC cubicle buckets replacements	350	Safety issue. Replacement of obsolete equipment.
Absorber mist eliminator	116	Necessary to maintain current performance.
Absorber recirculation pump gear drive	460	Currently high maintenance costs.
Sieve tray replacement	329	Necessary to maintain current performance.
Expansion joint replacement	1710	Eliminate fugitive dust emissions from positive pressure joints.
Motor rewinds	Decrease from 361 to 100	Necessary to maintain current performance.
Outage emergent projects	Decrease from 1,898 to 500	Necessary to address outage issues.

The review of NERC/GADS data and equipment inspection reports uncovered additional areas of concern that could affect Unit 3 reliability significantly. These concerns are the current condition of the generator rotor and the generator step-up (GSU) transformer.

GE recommended a complete rewind of the generator field during the next major outage due to the damage to some of the field-turn insulation. However, Unit 3 passed all electrical tests completed during the outage. S&L recommends that the generator field be electrically tested and the data trended at all outages.

The NASS report from 2010 indicates that the GSU transformer has experienced gassing problems since 1994. NASS estimated a remaining life of 7.4 years. This transformer will require degasification and careful monitoring in the future.

A revised expenditure projection based on the above assessments follows:

Table 5-3. Unit 3 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	14,761	7,339
2012	24,087	9,414
2013	2,854	300
2014	12,941	3,805
2015	5,216	460
5-Year Total	**59,859**	**21,318**

6. UNIT 4 EVALUATION

6.1 UNIT 4 OVERVIEW

Unit 4 had its last major overhaul in the spring of 2010. Among the major work completed was an overhaul of the HP and IP sections of the steam turbine, including the installation of a “dense pack” turbine rotor to increase unit output and efficiency. The generator stator was rewound.

The unit typically undergoes a major overhaul every two years, with overhauls currently planned for 2013 and 2015. The 5 Year Project Plan for the unit shows $94M in expenditures planned for the 2011-15 time frame. The large majority of the projects in the plan require an overhaul to complete.

6.2 UNIT 4 CAPITAL BUDGET ITEMS

S&L’s review of NERC/GADS data, including cause codes for all deratings and unit outages, the CBI justifications, and equipment inspection reports indicates that several of these 2011-13 expenditures are justified for the harvesting strategy for safe and reliable operation of the unit. Considering that the unit will operate for 4+ years subsequent to the 2013 overhaul, it is prudent to complete the following projects on PNM’s Plan for 2011-13:

Table 6-1. Unit 4 Projects Recommended for 2011-13 Time Frame

Project	Cost ($1000)	Assessment
Ash conveying replacement	805	Necessary to maintain current performance.
Bottom ash drain replacement	350	Necessary to maintain current performance.
Economizer outlet duct	498	Eliminate combustion gas leaks from positive pressure ductwork.
Furnace WW weld overlay	Decrease from 5,644 to 1,000	Necessary to mitigate corrosion on waterwalls due to reduced atmosphere with low-NO_X burners.
New hangers, snubbers, and support steel	2,606	Safety and equipment integrity issue.
New outlet reheater	Decrease from 5,550 to 1,000	Replacement of tubes with shorter remaining life.
DCS operator workstation replacement	480	Replacement of obsolete equipment.

Project	Cost ($1000)	Assessment
Digital generator protection	155	Replacement of obsolete equipment; reduces risk of relay failure and potential major equipment damage.
MCC cubicle buckets replacements	353	Safety issue. Replacement of obsolete equipment.
Boiler feed pump trip block oil conditioning	492	To prevent false unit trips and potential equipment damage.
Boiler feed pump valve chest replacement	691	Replace cracked component which is beyond repair; safety issue.
Circulating water line	1220	Replace damaged lines to avoid catastrophic failure.
Cooling tower structure	8624	Necessary to maintain current performance and ensure structural integrity.
Turbine trip block	446	Equipment upgrade to avoid false unit trips and to provide operators with system status.
Absorber recirculation pump gear drive	671	High maintenance costs justify new equipment.
Lower absorber header replacement	550	Necessary to maintain current performance.
Sieve tray replacement	330	Necessary to maintain current performance.
Baghouse outlet damper access platforms	717	Safety issue.
Expansion joint replacement	1872	Eliminate fugitive dust emissions from positive pressure joints.
Motor rewinds	360	Necessary to maintain current performance.
Outage emergent projects	Decrease from 3,494 to 1,000	Necessary to address outage issues.
Roof refurbishment	516	Safety issue.
Cooling tower fire protection system	240	Safety issue.
Transformer fire protection	198	Safety issue.
Turbine underlagging and bearing fire protection	257	Safety issue.

Furthermore, it is recommended Unit 4 have only one more overhaul after 2013 and that it focus on core maintenance work and boiler repairs. Replacement projects should be minimized. Based on the work completed in 2010, no further major expenditures should be required on the turbines. It is also recommended that the final overhaul be completed in late 2015 or early 2016. Subsequent to this final overhaul, equipment can be repaired during forced outages and yet the unit can still operate at target availability. A few other repetitive maintenance projects should be maintained for the 2015/2016 overhaul.

The following line items would be maintained from the 2014-15 plan:

Table 6-2. Unit 4 Items Maintained from 2014-15 Plan

Project	Cost ($1000)	Assessment
MCC cubicle buckets replacements	371	Safety issue. Replacement of obsolete equipment.
Sieve tray replacement	330	Necessary to maintain current performance.
Expansion joint replacement	1793	Eliminate fugitive dust emissions from positive pressure joints.
Motor rewinds	Decrease from 360 to 100	Necessary to maintain current performance.
Outage emergent projects	Decrease from 1,915 to 500	Necessary to address outage issues.

The review of NERC/GADS data and equipment inspection reports uncovered additional areas of concern that could affect Unit 4 reliability significantly. These concerns are the current condition of the generator rotor and the GSU transformer.

The GE report recommended a complete rewind of the generator field during the next major outage. The cracks in the #1 coil ground wall insulation should be re-inspected to determine if a rewind is necessary for operation through 2017. Since cracks were found in a previous examination, there is a good chance this will require a complete rewind of the generator field.

The NASS report from 2010 indicates that the GSU transformer is experiencing gassing problems and that there may have been some movement of the Phase A windings. The internal windings of this transformer should be examined and any necessary repairs should be made. If the Phase A windings have moved from the original manufactured location, any fault seen by this transformer may cause the windings to move farther and this could cause a catastrophic failure of the transformer.

A revised expenditure projection based on the above assessments follows:

Table 6-3. Unit 4 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	9,802	9,465
2012	10,370	5,583
2013	30,562	10,528
2014	11,903	79
2015	31,414	3,087
5-Year Total	**94,041**	**28,742**

7. PLANT COMMON EVALUATION

7.1 OVERVIEW

Power plants have many systems and components that support operation of more than one unit. These systems typically provide services such as fuel and ash handling, water, air, auxiliary power, waste disposal, and other environmental controls. PNM's Plan includes line items to maintain reliability of these important components. The Plan presents these line items in the following categories:

- U1&U2 Common
- U3&U4 Common
- All Units Common
- Switchyard

Also, S&L reviewed each of the line items in PNM's Plan for prudency in context with a harvesting strategy for the entire site. The assessments for each of the categories are presented below.

7.2 U1&U2 COMMON CAPITAL BUDGET ITEMS

The Plan mainly contains several refurbishment / repair projects for aging equipment and systems. It also contains budgets for purchasing spare common components to minimize equipment outage time upon those components' failure. None of these common spares items are considered necessary for a harvesting strategy.

The following line items should be maintained from the 2011-15 Plan:

Table 7-1. U1&U2 Items Maintained from 2011-15 Plan

Project	Cost ($1000)	Assessment
Ash water switchgear modification	150	Safety issue. Replacement of obsolete equipment.
SO_2 transformer capacity improvement	582	Equipment upgrade to provide adequate auxiliary power.
5A tripper belt replacement	121	Necessary to maintain current performance.
5B tripper belt replacement	119	Necessary to maintain current performance.
Absorber area sump	528	Environmental issue; replacement of degraded system.
HVAC system replacement	628	Necessary to maintain current performance.
Lining of the coal pile runoff basin	628	Environmental issue; replacement of degraded system.
Sootblowing air compressor replacement	1,472	Necessary due to increased slagging with low-NO_X burners.
Turbine deck exhaust fans	121	Equipment upgrade to provide adequate ventilation.
Tripper deck fire protection system	499	Safety issue.

A revised expenditure projection based on the above assessment follows:

Table 7-2. U1&U2 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	5,532	2,230
2012	562	0
2013	1,224	1,224
2014	1,364	866
2015	3,622	528
5-Year Total	**12,303**	**4,848**

7.3 U3&U4 CAPITAL BUDGET ITEMS

Similar to the U1 & U2 Common Plan, the U3 & U 4 Common Plan mainly contains refurbishment / repair projects for aging equipment and budgets for purchasing spare common components. Only one of these common spares items is considered necessary for a harvesting strategy.

The following line items should be maintained from the 2011-15 Plan:

Table 7-3. U3&U4 Items Maintained from 2011-15 Plan

Project	Cost ($1000)	Assessment
SO_2 transformer	1,852	Equipment upgrade to provide adequate auxiliary power.
5C tripper belt replacement	120	Necessary to maintain current performance.
5D tripper belt replacement	118	Necessary to maintain current performance.
Absorber area sump	730	Environmental issue; replacement of degraded system.
Lining of the coal pile runoff basin	2,545	Environmental issue; replacement of degraded system.
Tripper deck fire protection	496	Safety issue.
Burner barrel spares	115	Necessary to maintain current performance.

A revised expenditure projection based on the above assessment follows:

Table 7-4. U3&U4 Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	5,721	115
2012	4,163	3,041
2013	238	238
2014	571	0
2015	3,813	2,582
5-Year Total	**14,507**	**5,976**

7.4 ALL UNITS COMMON CAPITAL BUDGET ITEMS

The Plant Common Plan addresses issues that involve safety and environmental compliance as well as equipment condition and spare components. The proposed budget is the largest of the four common categories.

The following line items should be maintained from the 2011-15 Plan:

Table 7-5. All Units Common Items Maintained from 2011-15 Plan

Project	Cost ($1000)	Assessment
Brine concentrator 5-body replacement	523	Equipment integrity issue.
Brine concentrator feedwater line replacement	140	High maintenance costs justify new equipment.
Cathodic protection replacement	376	Equipment integrity issue.
CD landfill addition	299	Environmental issue.
CO_2 inerting system installation	260	Safety and equipment integrity issue.
Lake station switchgear	351	Replacement of obsolete equipment.
LOTO safety equipment purchase	187	Safety issue.
MCC cubicle buckets replacement	Decrease from 1,241 to 1,100	Safety issue. Replacement of obsolete equipment.
N1 pond remediation	495	Environmental issue.
Plant conveyor fall protection	188	Safety and equipment integrity issue.
Potable water system replacement	850	Replacement of obsolete equipment.
Process pond decant pit	940	Environmental issue.
Reline pond C	345	Environmental issue.
Remote racking north side wastewater	195	Safety issue. Upgrade of existing equipment.
Replace 4B plant conveyor	191	Necessary to maintain current performance.
Replace underground cables	Decrease from 4,541 to 1,500	Equipment integrity issue.
River station switchgear	163	Replacement of obsolete equipment.

Project	Cost ($1000)	Assessment
River to lake line	8,921	Equipment integrity issue.
Roof renovation for administration building	Decrease from 2,164 to 400	Safety issue.
Tube bender	565	Necessary to maintain current performance.
Units 2&3 breezeway gantry crane controls	125	Replacement of obsolete equipment.

A revised expenditure projection based on the above assessment follows:

Table 7-6. All Units Common Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	17,000	13,948
2012	5,551	2,126
2013	11,491	1,549
2014	5,204	0
2015	4,004	405
5-Year Total	**43,250**	**18,029**

7.5 SWITCHYARD CAPITAL BUDGET ITEMS

The Switchyard Plan consists of three components. It essentially is a multi-year plan to refurbish and/or replace the switchyard components. Although it is recognized that the switchyard equipment is nearing the end of useful life, a harvesting strategy cannot justify total replacement of this equipment. Consequently, necessary work in the switchyard must be carefully prioritized and emphasis placed on diligently implementing the switchyard preventive maintenance program and developing a spare parts strategy for repairing the original equipment as necessary. An allowance of 20-25% of the original cost estimates was allocated to maintain the systems in functional condition, yet allow for some equipment replacement if necessary.

The following line items should be maintained from PNM's 2011-15 Plan:

Table 7-7. Switchyard Items Maintained from 2011-15 Plan

Project	Cost ($1000)	Assessment
Breakers	Decrease from 5,283 to 1,200	Safety and equipment integrity issue.
Grounding improvements	Decrease from 2,299 to 500	Safety and equipment integrity issue.
Relays and meters	Decrease from 1,482 to 300	Safety and equipment integrity issue.

A revised expenditure projection based on the above assessment follows:

Table 7-8. Switchyard Revised Expenditure Projection

Year	PNM Plan ($1,000)	S&L Plan ($1,000)
2011	1,999	475
2012	2,117	475
2013	2,202	475
2014	1,343	3,000
2015	1,400	300
5-Year Total	**9,062**	**2,025**

ATTACHMENT A.
PNM'S FIVE-YEAR PROJECT PLAN

2011

761 - SAN JUAN UNIT 1	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ASH																		
ASH CONVEYING REPLACEMENT														$ 401	$ 701			$ 1,101
BOTTOM ASH CONTROL SYSTEM MODIFICATION	$ 48	$ 48	$ 48	$ 48	$ 48								$ 241					$ 241
DRAG CHAIN CONVEYING INSTALLATION																$ 960	$ 5,550	$ 6,510
PRECIPITATOR MODIFICATION																	$ 5,627	$ 5,627
BOILER																		
ACOUSTIC LEAK DETECTION														$ 92	$ 145			$ 237
ADDITIONAL SOOTBLOWER INSTALLATION (CARRY OVER)	$ 275	$ 276	$ 216										$ 767					$ 767
BROKEN & UNDERSIZED HANGER REPLACEMENT														$ 519	$ 514			$ 1,033
COMPLETE SECONDARY SUPERHEATER REPLACEMENT														$ 847	$ 2,908			$ 3,755
DIVISION WALL RISER TUBE REPLACEMENT (CARRY OVER)	$ 257	$ 618	$ 217										$ 1,092					$ 1,092
DIVISION WALL TRAILING EDGE TUBES (CARRY OVER)	$ 264	$ 528	$ 205										$ 998					$ 998
PENTHOUSE PRESSURIZATION CONTROL															$ 159			$ 159
PERMANENT GAS GRID INSTALLATION		$ 37	$ 37	$ 14									$ 88					$ 88
PRIMARY SUPERHEATER														$ 907	$ 9,828			$ 10,734
REHEAT OUTLET HEADER														$ 748	$ 6,041			$ 6,789
SEAL TROUGH REPLACEMENT														$ 200	$ 857			$ 1,057
SECONDARY AIR VENTURI PLATFORMS														$ 55	$ 250			$ 305
WATERWALL REPLACEMENT PANELS (CARRY OVER)	$ 550	$1,780	$1,855										$ 4,185					$ 4,185
WELD OVERLAY															$ 1,223			$ 1,223
CONTROL SYSTEMS																		
DCS OPERATOR WORKSTATION (CARRY OVER)	$ 200	$ 150	$ 150	$ 50	$ 50								$ 599					$ 599
PA/FD SUPERVISORY INSTRUMENTATION (CARRY OVER)	$ 53	$ 93	$ 93	$ 19	$ 3								$ 261					$ 261
REPLACEMENT OF FIELD INSTRUMENTATION		$ 290	$ 291	$ 126	$ 55								$ 762					$ 762
ELECTRICAL																		
DIGITAL GENERATOR PROTECTION (CARRY OVER)	$ 26	$ 31	$ 11										$ 67					$ 67
MAIN & AUXILIARY TRANSFORMER RELAYS															$ 79			$ 79
MCC CUBICLE BUCKETS REPLACEMENT	$ 168	$ 2	$ 2	$ 199	$ 27								$ 398	$ 50	$ 503	$ 49	$ 301	$ 1,301
MOTOR REWINDS	$ 102	$ 102	$ 102										$ 306		$ 552		$ 308	$ 1,166
RELAY PROTECTION	$ 136	$ 36											$ 172		$ 198			$ 370
REMOTE RACKING ABSORBER AREA	$ 123		$ 26	$ 22									$ 171					$ 171
SYNCHRONOUS RELAY	$ 2	$ 21		$ 27									$ 50		$ 33			$ 84
FEEDWATER																		
BOILER FEED PUMP VIBRATION MONITORING (CARRY OVER)	$ 51	$ 53	$ 54										$ 158					$ 158
HEAD FOR DA														$ 83	$ 242			$ 325
RETUBE CONDENSER																$ 800	$ 4,214	$ 4,814
FUEL																		
700HP PULVERIZER MOTORS MILLS A-D														$ 394				$ 394
BURNER BARRICADE DAMPER REPLACEMENT		$ 136	$ 112	$ 35									$ 284					$ 284
CLASSIFIER BLADE REPLACEMENT		$ 494	$ 327	$ 174									$ 995					$ 995
COAL PIPING REPLACEMENT	$ 93	$ 145	$ 85										$ 324					$ 324
PRIMARY AIR FLOW VENTURI INSTALLATION (CARRY OVER)	$ 149	$ 345	$ 109	$ 40									$ 643					$ 643
PULVERIZER 1A COAL SAMPLING PORTS														$ 93	$ 104			$ 198
PULVERIZER MILLS														$ 927	$ 2,364	$ 932	$ 2,364	$ 6,586
CIRCULATING WATER																		
CIRC WATER BOOSTER PUMPS															$ 245			$ 245
CIRCULATING WATER LINE COATING	$ 250	$ 499	$ 499	$ 250									$ 1,498					$ 1,498
CIRCULATING WATER VALVES		$ 65	$ 65	$ 30	$ 20								$ 180					$ 180
COOLING TOWER STRUCTURAL IMPROVEMENTS		$ 899	$ 898	$ 900	$ 600	$ 600	$ 600	$ 600	$ 550				$ 5,647	$ 997				$ 6,645
RETUBE 1C BCW HEAT EXCHANGER (CARRY OVER)	$ 61	$ 80	$ 77										$ 218					$ 218
TURBINE/GENERATOR																		
EHC PUMP MODIFICATION (CARRY OVER)	$ 206	$ 236	$ 113										$ 555					$ 555
EXCITER- VOLTAGE REGULATOR														$ 1,766	$ 3,897			$ 5,663
GENERATOR BUSHING REPLACEMENT (1 to 6)	$ 327	$ 211	$ 108										$ 646					$ 646
GENERATOR LINKS EXPANSION JOINTS	$ 29	$ 53	$ 27										$ 109					$ 109
GENERATOR TIL 1292	$ 639	$ 626	$ 314										$ 1,578					$ 1,578
STATOR COOLING MODIFICATION	$ 108	$ 162	$ 162	$ 52									$ 483					$ 483
TURBINE LUBE OIL PURIFIER														$ 119				$ 119
TURBINE TRIP BLOCK														$ 148	$ 279			$ 428
ABSORBER AREA																		
ABSORBER CELL ISOLATION GATE INSTALLATION														$ 134	$ 1,402			$ 1,536
ABSORBER HEADER REPLACEMENT		$ 200	$ 200	$ 150									$ 549					$ 549

761 - SAN JUAN UNIT 1	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ABSORBER MIST ELIMINATOR REPLACEMENT															$ 300			$ 300
MISCELLANEOUS																		
BAGHOUSE OUTLET DAMPER ACCESS PLATFORMS				$ 100	$ 100	$ 100	$ 100	$ 100	$ 95				$ 595					$ 595
EXPANSION JOINT REPLACEMENT (CARRY OVER)	$ 399	$ 618	$ 615	$ 70	$ 35	$ 5							$ 1,742		$ 1,341		$ 1,705	$ 4,787
HVAC SYSTEM REPLACEMENT															$ 425			$ 425
OUTAGE EMERGENT PROJECTS		$ 730	$ 824	$ 137	$ 24								$ 1,714	$ 544	$ 1,244		$ 1,593	$ 5,095
FIRE PROTECTION																		
COOLING TOWER FIRE PROTECTION				$ 113	$ 113	$ 113							$ 340					$ 340
TRANSFORMER FIRE PROTECTION															$ 210			$ 210
TURBINE UNDERLAGGING FIRE PROTECTION		$ 60	$ 50										$ 110					$ 110
761 - SAN JUAN UNIT 1 TOTAL	$4,515	$9,622	$7,892	$2,556	$1,075	$ 818	$ 700	$ 700	$ 645	$ -	$ -	$ -	$ 28,523	$ 9,025	$ 36,044	$ 2,541	$ 21,661	$ 97,794
PNM	$2,260	$4,818	$3,960	$1,278	$ 538	$ 409	$ 350	$ 350	$ 323	$ -	$ -	$ -	$ 14,285	$ 4,585	$ 18,022	$ 1,278	$ 10,972	$ 49,142
TEP	$2,255	$4,804	$3,932	$1,278	$ 538	$ 409	$ 350	$ 350	$ 323	$ -	$ -	$ -	$ 14,238	$ 4,440	$ 18,022	$ 1,263	$ 10,689	$ 48,652

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

762 - SAN JUAN UNIT 2	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ASH																		
ASH CONVEYING REPLACEMENT												$ 349	$ 349	$ 757				$ 1,106
BOILER																		
ACOUSTIC LEAK DETECTION SYSTEM INSTALLATION										$ 92			$ 92	$ 145				$ 237
ADDITIONAL SOOTBLOWERS									$ 330				$ 330	$ 711				$ 1,041
NEW HANGERS AND SNUBBERS												$ 515	$ 515	$ 562				$ 1,076
BULLNOSE STRUCTURAL REPAIRS												$ 275	$ 275	$ 1,548				$ 1,823
COMPLETE SECONDARY SUPERHEATER REPLACEMENT															$ 3,230	$ 4,814		$ 7,845
DIVISION WALL RISER TUBE REPLACEMENT (CARRY OVER)	$ 4	$ 4	$ 4								$ 98	$ 101	$ 210	$ 1,390				$ 1,601
DIVISION WALL TRAILING EDGE TUBES												$ 219	$ 219	$ 886				$ 1,106
PERMANENT GAS GRID INSTALLATION										$ 26			$ 26	$ 56				$ 83
PRIMARY SUPERHEAT														$ 2,392	$ 9,467			$ 11,860
SEAL TROUGH REPLACEMENT									$ 198				$ 198	$ 793				$ 991
SECONDARY AIR VENTURI PLATFORM										$ 55			$ 55	$ 220				$ 275
WATERWALL REPLACEMENT PANELS															$ 1,431	$ 2,524		$ 3,955
CONTROL SYSTEMS																		
BOTTOM ASH CONTROL SYSTEM MODIFICATION																	$ 132	$ 132
DCS OPERATOR WORKSTATION REPLACEMENT										$ 108	$ 108	$ 108	$ 323	$ 589				$ 912
PA/FD SUPERVISORY INSTRUMENTATION																	$ 94	$ 94
REPLACEMENT OF FIELD INSTRUMENTATION														$ 691				$ 691
ELECTRICAL																		
DIGITAL GENERATOR PROTECTION											$ 36	$ 54	$ 90	$ 67				$ 157
MAIN & AUXILIARY TRANSFORMER RELAYS														$ 121				$ 121
MCC CUBICLE BUCKETS REPLACEMENT							$ 2	$ 111	$ 110	$ 90	$ 88		$ 400	$ 50	$ 400	$ 50		$ 899
MOTOR REWINDS														$ 308		$ 311		$ 619
RELAY PROTECTION									$ 96	$ 2			$ 98	$ 98	$ 103	$ 94		$ 393
REMOTE RACKING ABSORBER AREA														$ 189				$ 189
SYNCHRONOUS RELAY	$ 5	$ 19		$ 27									$ 51	$ 27				$ 78
FEEDWATER																		
BOILER FEED PUMP SUPERVISORY INSTRUMENTATION																	$ 59	$ 59
RETUBE CONDENSER															$ 1,703	$ 3,289		$ 4,992
FUEL																		
700HP PULVERIZER MOTORS MILLS A-D														$ 392				$ 392
BURNER BARRICADE DAMPER REPLACEMENT										$ 22			$ 22	$ 269				$ 291
Pulled CLASSIFIER BLADE REPLACEMENT										$ 164			$ 165	$ 796				$ 961
COAL PIPING REPLACEMENT														$ 323				$ 323
PRIMARY AIR FLOW VENTURI INSTALLATION										$ 164			$ 165	$ 455				$ 620
Pulled PULVERIZER MILLS				$ 206			$ 258	$ 1	$ 1	$ 258	$ 2	$ 208	$ 933	$ 2,408	$ 932	$ 2,427	$ 932	$ 7,632
CIRCULATING WATER																		
BEARING COOLING WATER HEAT EXCHANGERS											$ 75		$ 75	$ 230				$ 304
CIRCULATING WATER BOOSTER PUMPS														$ 243				$ 243
CIRCULATING WATER LINE COATINGS														$ 1,490		$ 596		$ 2,086
COOLING TOWER STRUCTURE		$ 700	$ 698	$ 700	$ 350	$ 350	$ 350	$ 350	$ 350				$ 3,848	$ 992				$ 4,840
TURBINE/GENERATOR																		
EHC PUMP MODIFICATION														$ 566				$ 566
GENERATOR GROUTING							$ 20	$ 20	$ 20	$ 20	$ 20		$ 100	$ 299				$ 399
STATOR COOLING CONTROL MODIFICATION																	$ 206	$ 206
TURBINE LUBE OIL PURIFIER														$ 119				$ 119
ABSORBER AREA																		
ABSORBER CELL ISOLATION GATE INSTALLATION																	$ 332	$ 332
ABSORBER HEADER REPLACEMENT														$ 550				$ 550
ABSORBER MIST ELIMINATORS														$ 100		$ 200		$ 300
MISCELLANEOUS																		
BAGHOUSE OUTLET DAMPER ACCESS PLATFORMS				$ 100	$ 100	$ 100	$ 100	$ 100	$ 95				$ 595					$ 595
EXPANSION JOINT REPLACEMENT												$ 49	$ 49	$ 1,709		$ 1,624		$ 3,382
HVAC SYSTEM REPLACEMENT														$ 223				$ 223
OUTAGE EMERGENT PROJECTS													$ -	$ 1,657		$ 1,502		$ 3,160
ROOF REFURBISHMENT														$ 497				$ 497
FIRE PROTECTION																		
COOLING TOWER FIRE PROTECTION		$ 55	$ 50	$ 30									$ 135					$ 135
TRANSFORMER FIRE PROTECTION														$ 224				$ 224
TURBINE UNDERLAGGING & BEARING FIRE PROTECTION														$ 257				$ 257
762 - SAN JUAN UNIT 2 TOTAL	$ 10	$ 777	$ 752	$1,063	$ 450	$ 450	$ 729	$ 582	$1,199	$1,002	$ 426	$1,878	$ 9,317	$ 25,400	$ 17,266	$ 17,231	$ 1,753	$ 70,967
PNM	$ 7	$ 390	$ 379	$ 532	$ 225	$ 225	$ 365	$ 292	$ 600	$ 502	$ 215	$ 941	$ 4,673	$ 12,787	$ 8,681	$ 8,844	$ 882	$ 35,868
TEP	$ 2	$ 386	$ 373	$ 531	$ 225	$ 225	$ 364	$ 291	$ 599	$ 500	$ 211	$ 937	$ 4,644	$ 12,613	$ 8,584	$ 8,387	$ 871	$ 35,100

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

763 - SAN JUAN UNIT 3 TOTAL	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ASH																		
CLINKER GRINDER MODIFICATION												$ 162	$ 162	$ 189				$ 350
ECONOMIZER ASH REMOVAL SYSTEM												$ 560	$ 560	$ 545				$ 1,105
FLY ASH BLOWER COMPRESSOR												$ 247	$ 247	$ 576				$ 822
PADDLE MIXER															$ 199			$ 199
SURGE TANK CONTROLLER																	$ 46	$ 46
BOILER																		
BOILER BLOWDOWN MODIFICATION												$ 51	$ 51	$ 124				$ 176
ECONOMIZER OUTLET DUCT														$ 495				$ 495
FURNACE EXIT GAS TEMPERATURE PROBE										$ 55			$ 55	$ 105				$ 160
NEW HANGERS, SNUBBERS AND SUPPORT STEEL				$ 422	$ 258	$ 258	$ 156	$ 2	$ 2	$ 3	$ 3	$ 3	$ 1,107	$ 542				$ 1,649
NEW OUTLET REHEATER												$1,850	$ 1,850	$ 1,850				$ 3,700
PERMANENT GAS GRID INSTALLATION											$ 26		$ 26	$ 58				$ 84
SCAD FLOW NOZZLES										$ 175			$ 176	$ 2,040				$ 2,218
SECONDARY SUPERHEATER REPLACEMENT															$ 1,424	$ 4,190		$ 5,614
WATERWALL WELD OVERLAY NORTH WALL									$ 605	$ 1	$ 2	$ 2	$ 609	$ 1,836				$ 2,445
WATERWALL WELD OVERLAY SOUTH WALL									$ 605	$ 1	$ 2	$ 2	$ 609	$ 1,836				$ 2,445
WRAPPER TUBES ON SECONDARY SUPERHEATER												$ 462	$ 462	$ 760				$ 1,223
CONTROL SYSTEMS																		
PA/FD SUPERVISORY INSTRUMENTATION																	$ 47	$ 47
ELECTRICAL																		
DIGITAL GENERATOR PROTECTION RELAY												$ 36	$ 36	$ 122				$ 157
MAIN & AUXILIARY TRANSFORMER RELAYS														$ 79				$ 79
MCC CUBICLE BUCKETS REPLACEMENT							$ 2	$ 111	$ 101	$ 99	$ 88		$ 400	$ 50	$ 300	$ 50		$ 799
RELAY PROTECTION											$ 97	$ 2	$ 98	$ 82	$ 61	$ 39		$ 280
FEEDWATER																		
BOILER FEED PUMP TRIP BLOCK OIL CONDITIONING											$ 25		$ 25	$ 468				$ 492
CONDENSATE POLISHER	$ 34	$ 217	$ 65	$ 64	$ 65	$ 5	$ 695	$ 2	$ 3	$ 276	$ 277	$ 278	$ 1,981	$ 349	$ 871			$ 3,201
RETUBE CONDENSER																	$ 4,028	$ 4,028
FUEL																		
ORIFICE BOX INSTALLATION										$ 143			$ 143	$ 479				$ 622
ROTATING AIR PORTS			$ 117	$ 110	$ 110								$ 336	$ 338				$ 674
CIRCULATING WATER																		
CIRCULATING WATER LINE														$ 842				$ 842
COOLING TOWER		$ 799	$ 798	$ 800	$ 800	$ 400							$ 3,598	$ 2,480				$ 6,078
TURBINE/GENERATOR																		
EXCITER-VOLTAGE REGULATOR														$ 2,808		$ 3,035		$ 5,842
TURBINE TRIP BLOCK										$ 49	$ 100		$ 149	$ 278				$ 425
ABSORBER AREA																		
ABSORBER ISOLATION INSTALLATION																	$ 332	$ 332
ABSORBER MIST ELIMINATOR														$ 248		$ 116		$ 364
ABSORBER RECIRCULATION PUMP GEAR DRIVE										$ 30			$ 30	$ 190			$ 460	$ 680
LOWER ABSORBER HEADER REPLACEMENT														$ 550				$ 550
SIEVE TRAY REPLACEMENT																$ 329		$ 329
MISCELLANEOUS																		
AIR HEATER DAMPER																	$ 303	$ 303
BAGHOUSE DAMPER DRIVE ACCESS MODIFICATION				$ 117	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100			$ 717					$ 717
* BAGHOUSE ELEVATOR INSTALLATION						$ 68	$ 136						$ 204					$ 204
EXPANSION JOINT REPLACEMENT										$ 412	$ 413	$ 54	$ 878	$ 1,251		$ 1,710		$ 3,839
MOTOR REWINDS														$ 361		$ 361		$ 722
OUTAGE EMERGENT PROJECTS														$ 1,706		$ 1,898		$ 3,605
ROOF REPAIRS							$ 100	$ 100	$ 50				$ 250			$ 1,212		$ 1,462
FIRE PROTECTION																		
TRANSFORMER FIRE PROTECTION														$ 198				$ 198
TURBINE UNDERLAGGING & BEARING FIRE PROTECTION														$ 256				$ 256
763 - SAN JUAN UNIT 3 TOTAL	$ 34	$1,016	$ 980	$1,513	$1,333	$ 832	$1,189	$ 316	$1,466	$1,343	$1,031	$3,709	$ 14,761	$ 24,087	$ 2,854	$ 12,941	$ 5,216	$ 59,859
PNM	$ 17	$ 509	$ 491	$ 757	$ 667	$ 417	$ 596	$ 160	$ 736	$ 676	$ 522	$1,862	$ 7,411	$ 12,193	$ 1,466	$ 6,604	$ 2,621	$ 30,295
SCPPA	$ 14	$ 425	$ 409	$ 632	$ 556	$ 347	$ 496	$ 130	$ 610	$ 557	$ 426	$1,544	$ 6,145	$ 9,943	$ 1,160	$ 5,298	$ 2,169	$ 24,715
TRI STATE	$ 3	$ 83	$ 80	$ 124	$ 109	$ 68	$ 97	$ 26	$ 120	$ 109	$ 84	$ 303	$ 1,205	$ 1,951	$ 228	$ 1,039	$ 426	$ 4,848

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

764 - SAN JUAN UNIT 4 TOTAL	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ASH																		
ASH CONVEYING REPLACEMENT	$ 1	$ 1	$ 1		$ 200	$ 200	$ 200	$ 200					$ 805					$ 805
BOTTOM ASH DRAIN REPLACEMENT				$ 100	$ 100	$ 100	$ 50						$ 350					$ 350
DRAG CHAIN CONVEYING INSTALLATION																$ 1,035	$ 5,447	$ 6,482
ECONOMIZER ASH REMOVAL SYSTEM														$ 560	$ 1,105			$ 1,665
FLY ASH COMPRESSOR														$ 247	$ 576			$ 823
PADDLE MIXER															$ 199			$ 199
PRECIPITATOR DECOMMISSIONING PROJECT																	$ 5,200	$ 5,200
SURGE TANK CONTROLLER															$ 156			$ 156
BOILER																		
BOILER BLOWDOWN MODIFICATION																$ 82	$ 82	$ 165
ECONOMIZER OUTLET DUCT															$ 498			$ 498
FLOW NOZZLES FOR SCADS														$ 177	$ 2,027			$ 2,204
FURNACE EXIT GAS TEMPERATURE PROBE														$ 55	$ 126			$ 181
FURNACE WW WELD OVERLAY														$ 929	$ 4,715			$ 5,644
NEW HANGERS, SNUBBERS AND SUPPORT STEEL					$ 411	$ 267	$ 257						$ 935	$ 515	$ 1,156			$ 2,606
NEW OUTLET REHEATER														$ 1,850	$ 3,700			$ 5,550
PERMANENT GAS GRID INSTALLATION															$ 77			$ 77
PLATEN SUPERHEATER REPLACEMENT																$ 2,018		$ 2,018
SECONDARY SUPERHEAT																$ 2,581	$ 7,783	$ 10,364
WRAPPER TUBES ON SECONDARY SUPERHEATER														$ 462	$ 1,223			$ 1,685
CONTROL SYSTEMS																		
DCS OPERATOR WORKSTATION REPLACEMENT														$ 480				$ 480
ELECTRICAL																		
DIGITAL GENERATOR PROTECTION														$ 36	$ 119			$ 155
MCC CUBICLE BUCKETS REPLACEMENT														$ 55	$ 293	$ 72	$ 299	$ 719
RELAY PROTECTION															$ 191		$ 39	$ 230
FEEDWATER																		
BOILER FEED PUMP TRIP BLOCK OIL CONDITIONING											$ 25		$ 25	$ 467				$ 492
BOILER FEED PUMP VALVE CHEST REPLACEMENT					$ 134	$ 556							$ 691					$ 691
CONDENSATE POLISHER														$ 426	$ 2,602			$ 3,028
RETUBE CONDENSER																$ 3,252	$ 4,587	$ 7,839
FUEL																		
BURNER LINE ORIFICE BOXES														$ 144	$ 465			$ 609
ROTATING AIR PORTS	$ 117	$ 110	$ 110										$ 337	$ 336				$ 673
CIRCULATING WATER																		
CIRCULATING WATER LINE															$ 1,220			$ 1,220
COOLING TOWER STRUCTURE		$ 899	$ 898	$ 800	$ 700	$ 500	$ 500	$ 500	$ 400	$ 400	$ 75		$ 5,672	$ 2,952				$ 8,624
TURBINE/GENERATOR																		
EXCITER-VOLTAGE REGULATOR																$ 2,856	$ 2,785	$ 5,641
TURBINE TRIP BLOCK														$ 150	$ 296			$ 446
ABSORBER AREA																		
ABSORBER ISOLATION INSTALLATION														$ 150	$ 1,341			$ 1,491
ABSORBER RECIRCULATION PUMP GEAR DRIVE									$ 30				$ 30	$ 180	$ 461			$ 671
LOWER ABSORBER HEADER REPLACEMENT															$ 550			$ 550
SIEVE TRAY REPLACEMENT															$ 330		$ 330	$ 660
MISCELLANEOUS																		
AIR HEATER DAMPER															$ 628			$ 628
BAGHOUSE OUTLET DAMPER ACCESS PLATFORMS				$ 117	$ 100	$ 100	$ 100	$ 100	$ 100	$ 100			$ 717					$ 717
EXPANSION JOINT REPLACEMENT															$ 1,872	$ 7	$ 1,786	$ 3,666
MOTOR REWINDS															$ 360		$ 360	$ 719
OUTAGE EMERGENT PROJECTS															$ 3,494		$ 1,915	$ 5,409
ROOF REFURBISHMENT															$ 516		$ 800	$ 1,316
FIRE PROTECTION																		
COOLING TOWER FIRE PROTECTION SYSTEM (PHASE II)				$ 100	$ 100	$ 40							$ 240					$ 240
TRANSFORMER FIRE PROTECTION														$ 198				$ 198
TURBINE UNDERLAGGING & BEARING FIRE PROTECTION															$ 257			$ 257
764 - SAN JUAN UNIT 4 TOTAL	$ 118	$ 1,010	$ 1,009	$ 1,117	$ 1,746	$ 1,764	$ 1,107	$ 800	$ 530	$ 500	$ 100	$ -	$ 9,802	$ 10,370	$ 30,552	$ 11,903	$ 31,414	$ 94,041
PNM	$ 46	$ 390	$ 390	$ 430	$ 671	$ 678	$ 426	$ 308	$ 204	$ 192	$ 39	$ -	$ 3,773	$ 4,030	$ 11,786	$ 4,732	$ 12,361	$ 36,681
COF	$ 10	$ 85	$ 85	$ 95	$ 148	$ 150	$ 94	$ 68	$ 45	$ 42	$ 8	$ -	$ 830	$ 873	$ 2,584	$ 988	$ 2,624	$ 7,899
MSR	$ 34	$ 290	$ 290	$ 322	$ 503	$ 508	$ 319	$ 231	$ 153	$ 144	$ 29	$ -	$ 2,821	$ 2,967	$ 8,782	$ 3,356	$ 8,916	$ 26,842
LAC	$ 8	$ 73	$ 72	$ 80	$ 126	$ 127	$ 80	$ 58	$ 38	$ 36	$ 7	$ -	$ 705	$ 742	$ 2,196	$ 839	$ 2,229	$ 6,711
ANA	$ 12	$ 101	$ 101	$ 112	$ 175	$ 177	$ 111	$ 80	$ 53	$ 50	$ 10	$ -	$ 983	$ 1,034	$ 3,062	$ 1,170	$ 3,108	$ 9,358
UAMPS	$ 8	$ 71	$ 71	$ 79	$ 123	$ 124	$ 78	$ 56	$ 37	$ 35	$ 7	$ -	$ 688	$ 724	$ 2,143	$ 819	$ 2,176	$ 6,550

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

765 - SAN JUAN UNIT 1 & 2 TOTAL	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ASH																		
ASH SYSTEM COMMON CONTROLS														$ 393				$ 393
ASH WATER SWITCHGEAR MODIFICATION (LOAD CENTER)	$ 66	$ 74		$ 10									$ 150					$ 150
DEWATERING BIN CONTROLS														$ 169				$ 169
HP ASH WATER ADDITIONAL SETTLING TANK																	$ 1,474	$ 1,474
ELECTRICAL																		
SO2 TRANSFORMER CAPACITY IMPROVEMENT (CARRY OVER)	$ 213	$ 212	$ 157										$ 582					$ 582
FUEL																		
5A TRIPPER BELT REPLACEMENT									$ 61	$ 61			$ 121					$ 121
5B TRIPPER BELT REPLACEMENT																$ 119		$ 119
ABSORBER AREA																		
ABSORBER AREA SUMP																	$ 528	$ 528
MISCELLANEOUS																		
HVAC SYSTEM REPLACEMENT	$ 49		$ 49		$ 48	$ 97	$ 242	$ 143					$ 628					$ 628
LINING OF THE COAL PILE RUNOFF BASIN				$ 33	$ 263	$ 70	$ 132	$ 130					$ 628					$ 628
ROOF REFURBISHMENT																$ 498	$ 1,428	$ 1,926
SOOTBLOWING AIR COMPRESSOR REPLACEMENT															$ 725	$ 747		$ 1,472
TURBINE DECK EXHAUST FANS			$ 39	$ 38	$ 38	$ 6							$ 121					$ 121
FIRE PROTECTION																		
TRIPPER DECK FIRE PROTECTION SYSTEM															$ 499			$ 499
COMMON SPARES																		
SPARE BOILER FEED PUMP	$2,498												$ 2,498					$ 2,498
SPARE CIRCULATING WATER PUMP MOTOR												$ 463	$ 463					$ 463
SPARE ID FAN MOTOR											$ 340		$ 340					$ 340
SPARE PLANT AIR COMPRESSOR MOTOR																	$ 191	$ 191
765 - SAN JUAN UNITS 1 & 2 TOTAL	$2,826	$ 285	$ 245	$ 81	$ 349	$ 173	$ 375	$ 273	$ 61	$ 61	$ 340	$ 463	$ 5,532	$ 562	$ 1,224	$ 1,364	$ 3,622	$ 12,303
PNM	$1,415	$ 144	$ 124	$ 41	$ 175	$ 86	$ 187	$ 137	$ 30	$ 30	$ 170	$ 232	$ 2,770	$ 284	$ 622	$ 705	$ 1,811	$ 6,192
TEP	$1,411	$ 142	$ 121	$ 41	$ 175	$ 86	$ 187	$ 137	$ 30	$ 30	$ 170	$ 232	$ 2,762	$ 278	$ 602	$ 659	$ 1,810	$ 6,111

766 - SAN JUAN COMMON - ALL UNITS	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ADDITIONAL PHONE AND LAN LINES			$ 45	$ 55									$ 100					$ 100
BENTLEY NEVADA CONSOLIDATION															$ 301			$ 301
BRINE CONCENTRATOR 5 BODY REPLACEMENT		$ 97				$ 242	$ 144	$ 17	$ 17	$ 7			$ 523					$ 523
BRINE CONCENTRATOR FEEDWATER LINE REPLACEMENT	$ 80	$ 40	$ 20										$ 140					$ 140
CATHODIC PROTECTION REPLACEMENT	$ 170			$ 6	$ 6	$ 3							$ 185	$ 191				$ 376
CD LANDFILL ADDITION																	$ 299	$ 299
CO2 INERTING SYSTEM INSTALLATION		$ 80	$ 80	$ 80	$ 20								$ 260					$ 260
HEAT TRACE POND TRANSFER LINE				$ 57	$ 46	$ 47	$ 47	$ 43					$ 240					$ 240
JOINT ROOM CONTROL										$ 62	$ 597	$ 598	$ 1,257	$ 2,219	$ 3,710			$ 7,186
LAKE STATION SWITCHGEAR					$ 2	$ 2	$ 66	$ 186	$ 26	$ 71			$ 351					$ 351
LOTO SAFETY EQUIPMENT PURCHASE	$ 82	$ 82	$ 22										$ 187					$ 187
MCC CUBICLE BUCKETS REPLACEMENT			$ 2	$ 2	$ 2		$ 110	$ 99	$ 88		$ 153		$ 454		$ 454		$ 334	$ 1,241
N1 POND REMEDIATION														$ 495				$ 495
NEW STATION POTABLE WATER LEAK														$ 96				$ 96
NORTH SIDE WASTEWATER PRODUCT LINE REPLACEMENT																$ 655		$ 655
OXIDATION BLOWER CONTROLS																	$ 486	$ 486
PI INSTALLATION														$ 414	$ 399	$ 2		$ 815
PLANT CONVEYOR FALL PROTECTION						$ 188							$ 188					$ 188
PLANT CONVEYOR SPARE MOTOR															$ 411			$ 411
POTABLE WATER SYSTEM REPLACEMENT				$ 200	$ 200	$ 200	$ 200	$ 50					$ 850					$ 850
PROCESS POND DECANT PIT														$ 940				$ 940
PROTECTION RELAY REPLACEMENT (CARRY OVER)						$ 65	$ 6	$ 6	$ 8	$ 8	$ 8		$ 102	$ 96	$ 44			$ 242
RADIO REPEATER INSTALLATION (CARRY OVER)	$ 77												$ 78					$ 78
RECLAIM FEEDER GATE REPLACEMENT																	$ 1,117	$ 1,117
RELINE POND 3C							$ 149	$ 148	$ 47				$ 345					$ 345
REMOTE RACKING NORTH SIDE WASTEWATER															$ 195			$ 195
REPLACE 4B PLANT CONVEYOR								$ 96	$ 96				$ 191					$ 191
REPLACE UNDERGROUND CABLES		$ 27	$ 24	$ 249		$ 1	$ 1	$ 249	$ 168	$ 176	$ 172	$ 3	$ 1,069	$ 1,100	$ 1,214	$ 1,158		$ 4,541
RIVER STATION FIBER/VIDEO SURVEILLANCE INSTALLATION					$ 155	$ 155	$ 155	$ 78	$ 78				$ 619					$ 619
RIVER STATION SWITCHGEAR							$ 126	$ 2		$ 35			$ 163					$ 163
RIVER TO LAKE LINE (CARRY OVER)	$ 992	$ 995	$1,000	$1,463	$1,471	$1,480	$1,520						$ 8,921					$ 8,921
ROOF RENOVATION FOR ADMINISTRATION BUILDING															$ 400	$ 396	$ 1,368	$ 2,164
SOUTH SIDE BRINE CONCENTRATOR RECOMMISSIONING															$ 3,038	$ 2,994		$ 6,033
SOUTH SIDE WASTEWATER FIRE PROTECTION															$ 149			$ 149
SOUTH SIDE WASTEWATER TRANSFER LINE REPLACEMENT															$ 931			$ 931
SPARE BALL MILL GEARBOX																	$ 210	$ 210
SPARE LIMESTONE CONVEYOR MOTOR																	$ 129	$ 129
SPARE LIMESTONE GRIZZLY CONVEYOR MOTOR																	$ 60	$ 60
THERMAL IMAGING CAMERA				$ 16	$ 44	$ 27							$ 88					$ 88
TUBE BENDER	$ 290	$ 275											$ 565					$ 565
UNITS 2&3 BREEZEWAY GANTRY CRANE CONTROLS	$ 2	$ 62	$ 62										$ 125					$ 125
WAREHOUSE MODIFICATION															$ 245			$ 245
766 - SAN JUAN - COMMON ALL UNITS TOTAL	$1,692	$1,660	$1,255	$2,128	$1,945	$2,409	$2,523	$ 973	$ 526	$ 358	$ 930	$ 601	$ 17,000	$ 5,551	$ 11,491	$ 5,204	$ 4,004	$ 43,250
PNM	$ 785	$ 771	$ 585	$ 986	$ 901	$1,116	$1,168	$ 451	$ 244	$ 167	$ 432	$ 281	$ 7,888	$ 2,681	$ 5,421	$ 2,508	$ 1,854	$ 20,351
TEP	$ 334	$ 328	$ 247	$ 421	$ 385	$ 477	$ 499	$ 192	$ 104	$ 70	$ 183	$ 118	$ 3,360	$ 1,058	$ 2,238	$ 994	$ 793	$ 8,443
COF	$ 43	$ 42	$ 32	$ 54	$ 50	$ 62	$ 65	$ 25	$ 13	$ 9	$ 24	$ 15	$ 434	$ 137	$ 289	$ 128	$ 102	$ 1,091
MSR	$ 147	$ 144	$ 109	$ 185	$ 169	$ 210	$ 219	$ 85	$ 46	$ 31	$ 81	$ 52	$ 1,476	$ 465	$ 983	$ 437	$ 348	$ 3,710
TRI-STATE	$ 42	$ 41	$ 31	$ 53	$ 48	$ 60	$ 63	$ 24	$ 13	$ 9	$ 23	$ 15	$ 423	$ 133	$ 281	$ 125	$ 100	$ 1,062
LAC	$ 37	$ 36	$ 27	$ 46	$ 42	$ 52	$ 55	$ 21	$ 11	$ 8	$ 20	$ 13	$ 369	$ 116	$ 246	$ 109	$ 87	$ 927
ANA	$ 52	$ 51	$ 39	$ 66	$ 60	$ 75	$ 78	$ 30	$ 16	$ 11	$ 29	$ 18	$ 526	$ 166	$ 350	$ 156	$ 124	$ 1,322
SCPPA	$ 215	$ 210	$ 159	$ 270	$ 247	$ 306	$ 321	$ 123	$ 67	$ 45	$ 118	$ 76	$ 2,157	$ 679	$ 1,437	$ 638	$ 509	$ 5,420
UAMPS	$ 37	$ 36	$ 27	$ 46	$ 42	$ 52	$ 55	$ 21	$ 11	$ 8	$ 20	$ 13	$ 368	$ 116	$ 245	$ 109	$ 87	$ 925

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

767 - SAN JUAN COMMON - UNITS 3 & 4	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
ELECTRICAL																		
SO2 TRANSFORMER																	$ 1,852	$ 1,852
FUEL																		
5C TRIPPER BELT REPLACEMENT															$ 120			$ 120
5D TRIPPER BELT REPLACEMENT															$ 118			$ 118
CIRCULATING WATER																		
AUXILIARY COOLING WATER LINE		$ 300	$ 199		$ 300	$ 300	$ 400	$ 500	$ 182				$ 2,180					$ 2,180
REDUNDANT AUXILIARY COOLING LINE-U4 COOLING TOWER																$ 571	$ 1,231	$ 1,802
ABSORBER AREA																		
ABSORBER AREA SUMP																	$ 730	$ 730
MISCELLANEOUS																		
LINING OF THE COAL PILE RUNOFF BASIN														$ 2,545				$ 2,545
FIRE PROTECTION																		
TRIPPER DECK FIRE PROTECTION SYSTEM														$ 496				$ 496
COMMON SPARES																		
ADDITIONAL AIR COMPRESSOR	$ 8	$ 17	$ 405	$ 1	$ 1	$ 1	$ 282	$ 81	$ 2	$ 2	$ 2	$ 2	$ 802	$ 1,123				$ 1,924
BURNER BARREL SPARES	$ 115												$ 115					$ 115
SPARE CIRC WATER PUMP MOTOR (Carry over)								$ 876					$ 876					$ 876
SPARE PULVERIZER GEARBOX	$1,499												$ 1,499					$ 1,499
SPARE PULVERIZER MOTOR												$ 250	$ 250					$ 250
767 - SAN JUAN UNITS 3 & 4 TOTAL	$1,622	$ 317	$ 604	$ 1	$ 301	$ 301	$ 682	$1,456	$ 184	$ 2	$ 2	$ 252	$ 5,721	$ 4,163	$ 238	$ 571	$ 3,813	$ 14,507
PNM	$ 716	$ 140	$ 267	$ 1	$ 133	$ 133	$ 301	$ 643	$ 82	$ 2	$ 2	$ 112	$ 2,532	$ 1,864	$ 105	$ 253	$ 1,708	$ 6,462
COF	$ 69	$ 13	$ 26	$ -	$ 13	$ 13	$ 29	$ 62	$ 8	$ -	$ -	$ 11	$ 243	$ 175	$ 10	$ 24	$ 160	$ 612
MSR	$ 233	$ 46	$ 87	$ -	$ 43	$ 43	$ 98	$ 209	$ 26	$ -	$ -	$ 36	$ 822	$ 592	$ 34	$ 82	$ 543	$ 2,073
TRI STATE	$ 66	$ 13	$ 25	$ -	$ 12	$ 12	$ 28	$ 60	$ 7	$ -	$ -	$ 10	$ 234	$ 169	$ 10	$ 23	$ 154	$ 590
LAC	$ 59	$ 11	$ 22	$ -	$ 11	$ 11	$ 25	$ 53	$ 7	$ -	$ -	$ 9	$ 206	$ 149	$ 9	$ 21	$ 136	$ 520
ANA	$ 82	$ 16	$ 31	$ -	$ 15	$ 15	$ 35	$ 74	$ 9	$ -	$ -	$ 13	$ 289	$ 209	$ 12	$ 29	$ 191	$ 730
SCPPA	$ 339	$ 66	$ 126	$ -	$ 63	$ 63	$ 142	$ 304	$ 38	$ -	$ -	$ 52	$ 1,193	$ 860	$ 50	$ 119	$ 787	$ 3,009
UAMPS	$ 58	$ 11	$ 21	$ -	$ 11	$ 11	$ 24	$ 52	$ 6	$ -	$ -	$ 9	$ 203	$ 146	$ 8	$ 20	$ 134	$ 511

779 - SWITCHYARD	DOLLARS SHOWN IN THOUSANDS																	
PROJECT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Forecast Total
SWITCHYARD																		
BREAKERS - 2011	$ 23	$ 350	$ 351	$ 240									$ 964					$ 964
BREAKERS - 2012														$ 1,062				$ 1,062
BREAKERS - 2013															$ 1,103			$ 1,103
BREAKERS - 2014																$ 1,053		$ 1,053
BREAKERS - 2015																	$ 1,101	$ 1,101
GROUNDING IMPROVEMENTS	$ 1	$ 1	$ 1	$ 63	$ 81	$ 104	$ 154	$ 164	$ 164				$ 735	$ 764	$ 800			$ 2,299
RELAYS AND METERS - 2011		$ 34	$ 44	$ 1	$ 55	$ 1	$ 55	$ 1	$ 55		$ 56		$ 300					$ 300
RELAYS AND METERS - 2012														$ 292				$ 292
RELAYS AND METERS - 2013															$ 300			$ 300
RELAYS AND METERS - 2014																$ 291		$ 291
RELAYS AND METERS - 2015																	$ 299	$ 299
779 - SAN JUAN SWITCHYARD TOTAL	$ 25	$ 385	$ 396	$ 304	$ 135	$ 105	$ 209	$ 165	$ 219	$ -	$ 56	$ -	$ 1,999	$ 2,117	$ 2,202	$ 1,343	$ 1,400	$ 9,062
PNM	$ 14	$ 194	$ 200	$ 152	$ 68	$ 53	$ 104	$ 83	$ 110	$ -	$ 28	$ -	$ 1,004	$ 1,102	$ 1,101	$ 700	$ 700	$ 4,607
TEP	$ 11	$ 191	$ 196	$ 152	$ 68	$ 53	$ 104	$ 83	$ 110	$ -	$ 28	$ -	$ 995	$ 1,015	$ 1,101	$ 644	$ 700	$ 4,455

NOTE - PROJECTS SHADED ORANGE ARE OUTAGE RELATED

Attachment 3


AB32 Cap and Trade Program
12/6/11 Update
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Presentation Outline

AB32 Program

LADWP Emission Credit Allocation

Projected Emissions for LADWP

Market Participation

Outstanding Issues: Early Coal Transition & Covering other POUs

CARB Forward Schedule

AB32 CARB Measures Impacting LADWP

Cap and Trade/Mandatory Reporting - Covers 85% of California's emissions

Low Carbon Fuel Standard - Requires 10% reduction in carbon intensity by 2020

Energy Efficiency Audits for Industrial Facilities - New rule in 2012 to reduce GHG emissions from existing facilities within California

SF6 Leak Reduction in Electrical Appliances - Requires utilities to reduce leakage from electrical equipment to less than 1%

Refrigerant Management Program - Mandates additional monitoring/repairs of leaks from large cooling systems

AB 32 Overview

Goal: To reduce California greenhouse gas (GHG) emissions to 1990 emissions level by 2020

Cap and Trade Program
CARB strategy to reduce GHG emissions statewide

2013, start date for electric sector and large industrial facilities

2015, start date for distributors of transportation fuels, natural gas and other fuels

LADWP's Position

- Every dollar spent to reduce GHG emission should be **invested in the transformation** of the generation portfolio transformation, not in carbon market
- California Coal Transition, Renewable Portfolio Standard, and Energy Efficiency laws all result in reduced emissions or "command and control" approach to emission reductions

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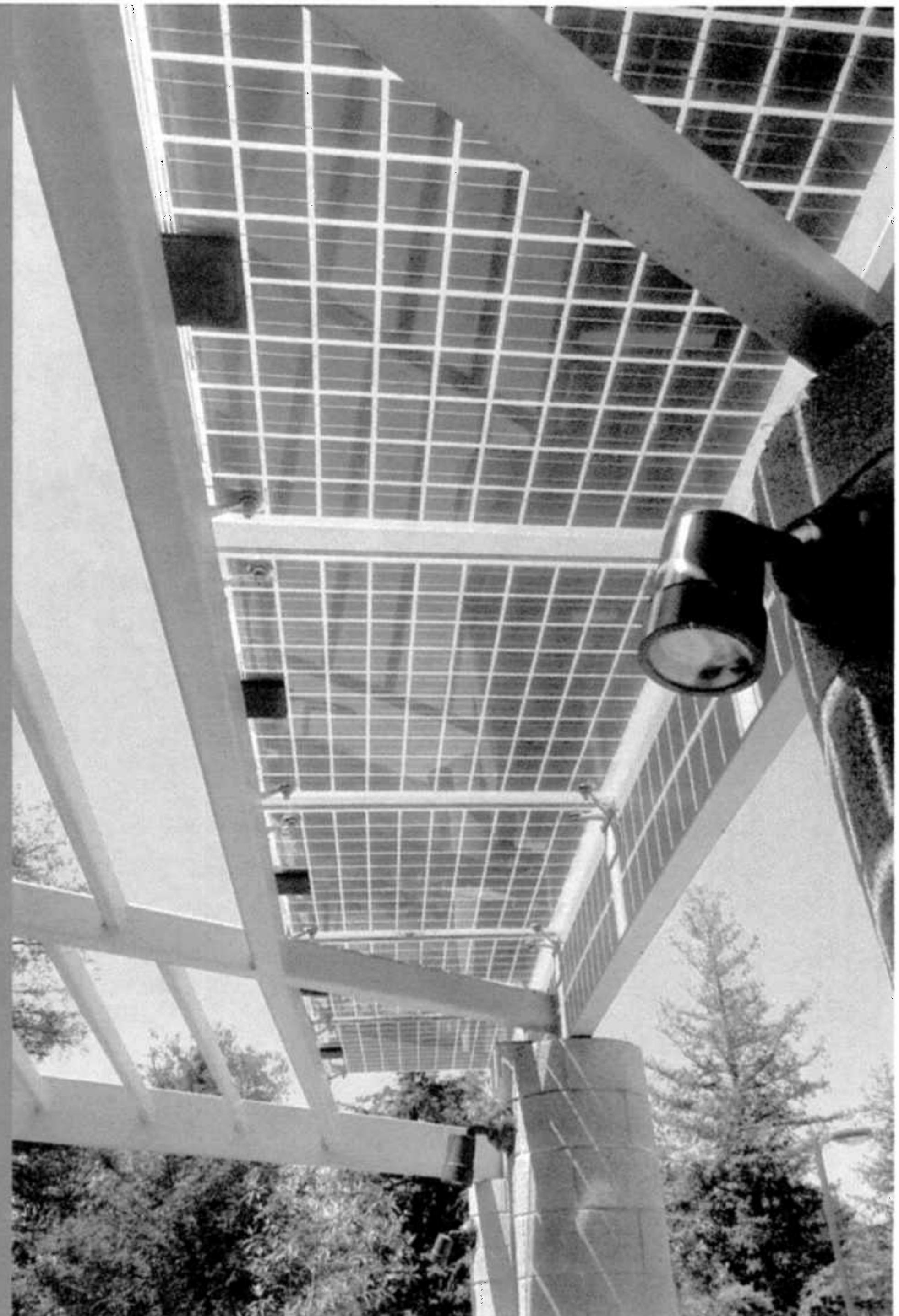

Cap and Trade Design Elements

Banking of allowances is allowed for future years

4% of allowances will be held in a strategic reserve to contain costs

Multi-year compliance periods (2013-2014; 2015-2017; 2018-2020) are used to account for annual variations

Offsets generated from emission reduction projects can be used to meet 8% of annual emissions

Each year, allowances must be turned in for 30% of the previous year's emissions. The remainder of the allowances are surrendered at the end of each compliance period

If a deadline is missed or there is a shortfall, 4 allowances must be surrendered for each metric ton not covered

LADWP's Share of Free Emission Allowances

	Compliance Period 1		Compliance Period 2			Compliance Period 3			
Projections in million metric tons	2013	2014	2015	2016	2017	2018	2019	2020	Total
Projected LADWP GHG Emissions Subject to AB32 (excluding biogas emissions/ 10-19-11 model run)	13.70	13.65	13.55	13.35	13.18	12.99	12.87	11.05	**104.34**
Final CARB Allowance Allocation to LADWP	13.594	13.350	12.920	13.045	13.216	13.258	12.704	11.680	**103.77**
Allowance Allocation Surplus or Shortfall	-0.11	-0.30	-0.63	-0.31	0.04	0.27	-0.17	0.63	**-0.57**

Original allowance formula proposed by CARB staff, PG&E and SMUD

Resulted in much lower allocations to LADWP

Estimated $800 M cost to purchase additional allowances

Large over allocation to PG&E, SMUD and SCE creates opportunity for those utilities to sell excess credits to LADWP

LADWP assumes allowance price of $24 -$45/ton (will vary based on supply and demand)

Over the 8-year compliance period, average annual cost to LADWP will be less than $10 M

Minimal carbon exposure is achievable via LADWP's heavy investment in renewable energy and replacement of a portion of coal-fired generation

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Factors Impacting Emission Levels

How the CARB measures emissions

How much energy LADWP takes from IPP under contract

Amount of EE achieved annually

Whether bio gas is treated as carbon neutral; 2012 carbon adder for bio gas

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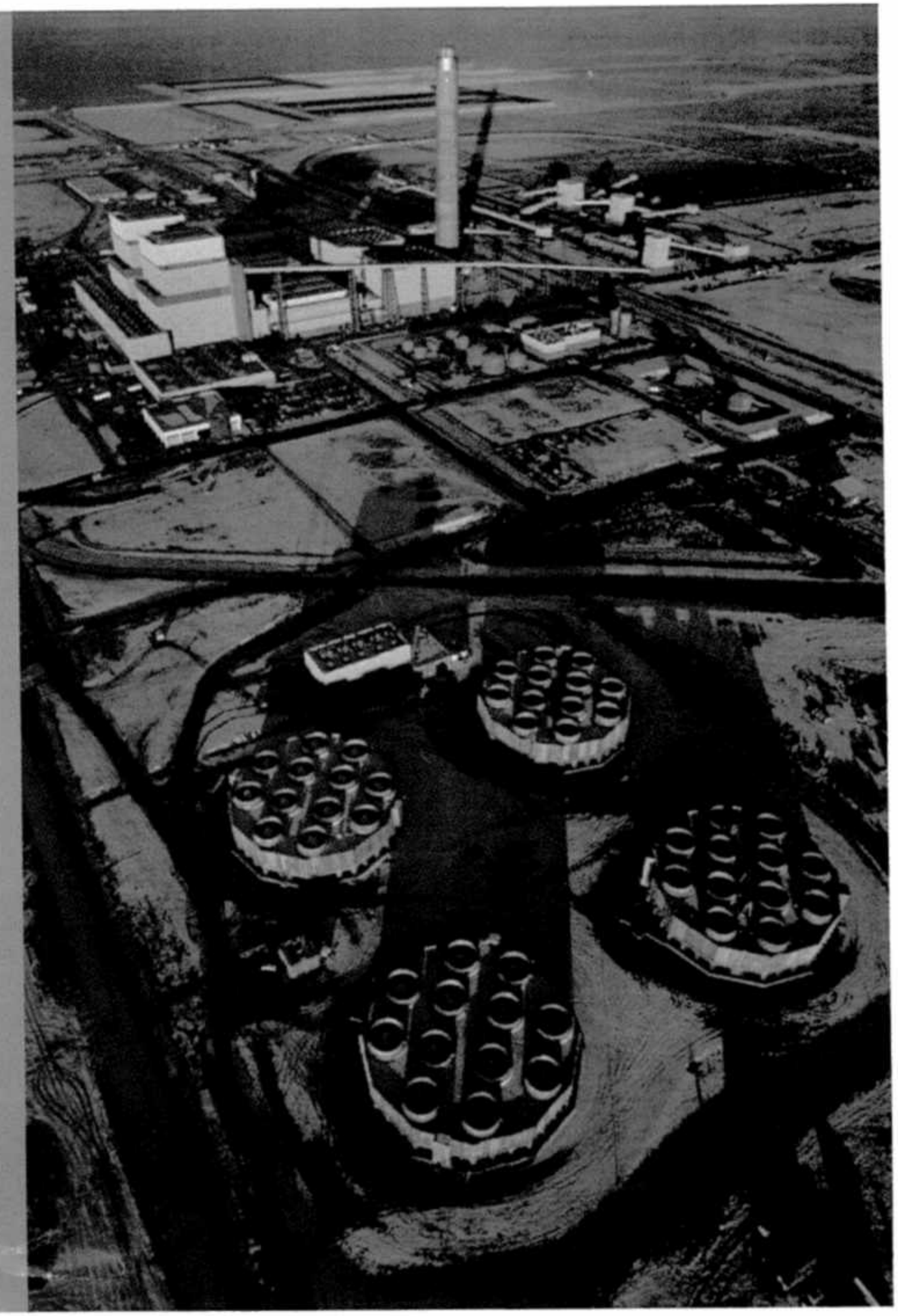


Outstanding Issues

Early Coal Transition Disincentive

Sale of Navajo Generating Station in 2015 would reduce LADWP's emissions 2 million metric tons per year through 2019

CARB's final regulation prohibits *Resource Shuffling,* selling a coal unit early and replacing it with another resource to realize emission reductions

- LADWP may required to account for the emissions from Navajo Generating Station after the sale *<u>and</u>* the emissions from the replacement energy resource

On October 20, 2011, CARB directed staff to modify the definition of resource shuffling to:

- "provide appropriate incentives for accelerating divestiture of high-emitting resources by recognizing that these divestitures can further the goals of AB32"

Outstanding Issues

Transmission System Operators and Electric Delivery

Last minute change to require schedulers of electricity into California be responsible for all emissions

LADWP ***may*** now be responsible for Burbank and Glendale's share of emissions from Intermountain Power Plant, without corresponding free allowances awarded

CARB directed staff to:

"…work with the CPUC, CEC, CAISO and other stakeholders to evaluate requirements for first jurisdictional deliverers of electricity and to report back to the Board in the summer of 2012. . ."

ARB Schedule

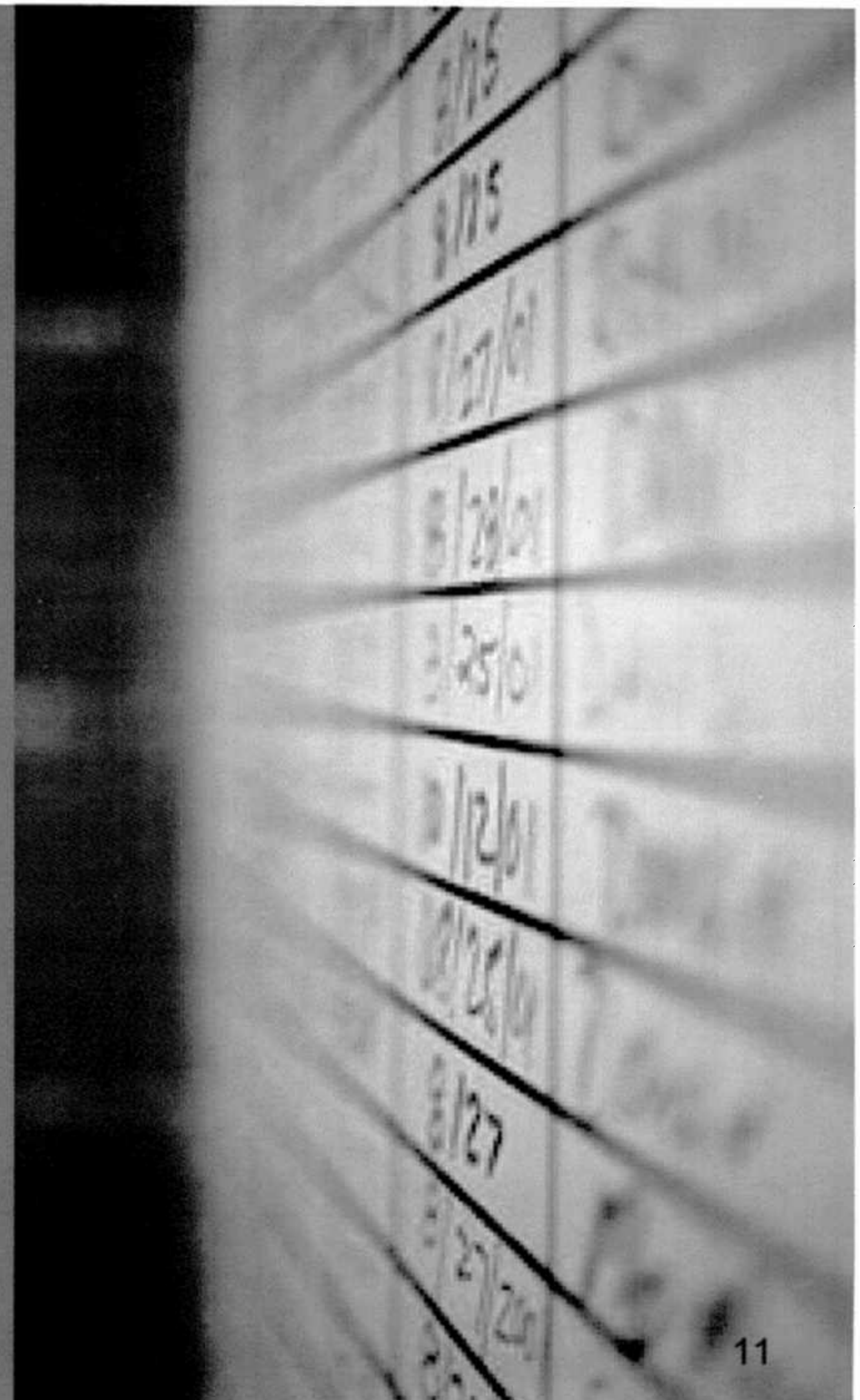
October 20 – CARB Board adopted final cap-and-trade regulation

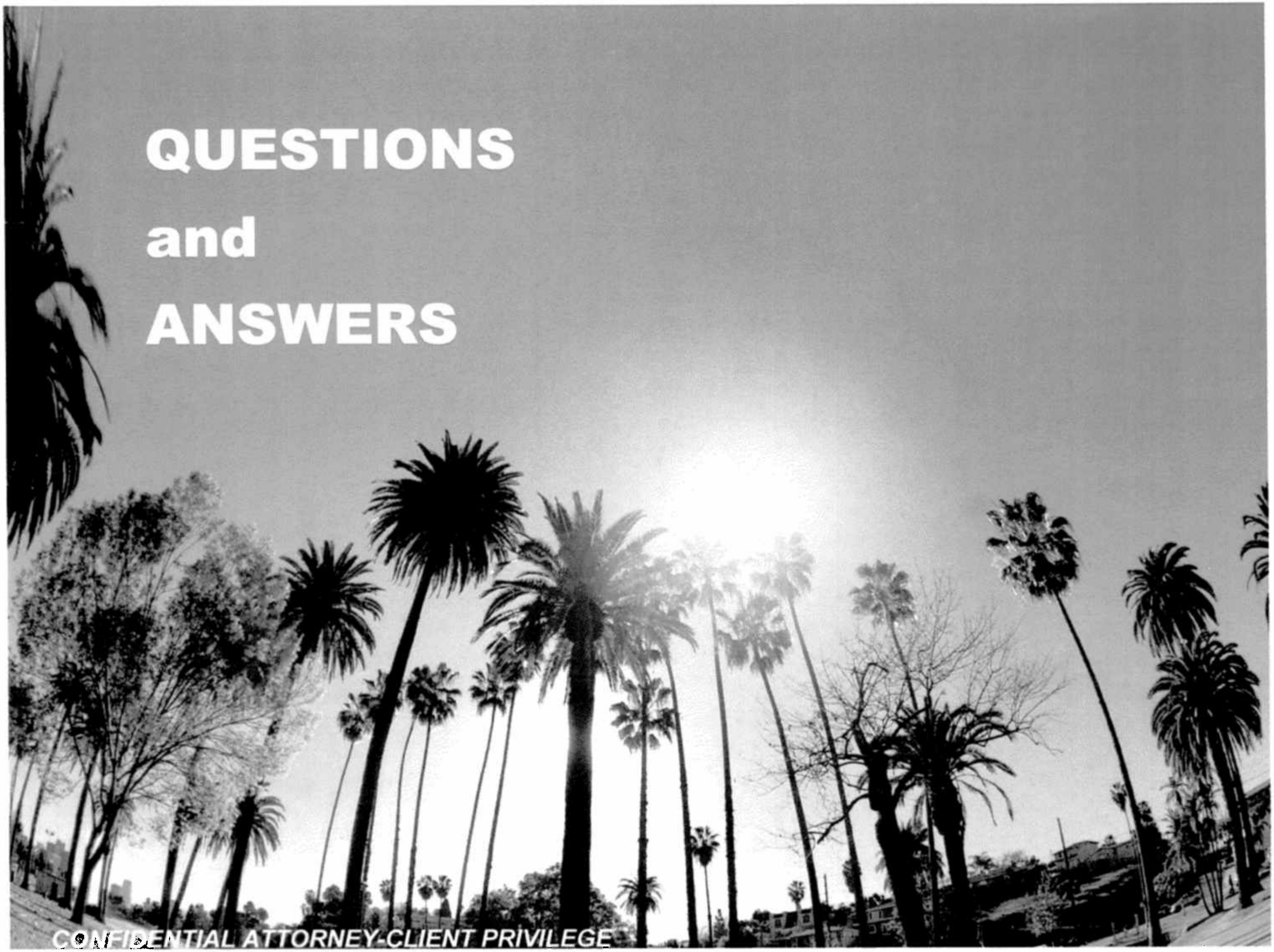
October 28 – Final Statement of Reasons submitted to OAL

December 13 – Deadline for OAL to approve or disapprove the regulation

First Quarter 2012 – CARB awards contract for cap and trade auction program

Third Quarter 2012 – CARB begins auction for 2013




QUESTIONS
and
ANSWERS
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