



OFFICE OF THE CITY MANAGER

November 19, 2001

**To:** City Council

**From:** City Manager

**Subject:** **Pasadena Water and Power's Strategic Resource Plan; budget amendment for additional capital expenditures and 1 new FTE; and amendments to professional services contract to accelerate local repowering projects.**

During their November 15, 2001 special meeting, the Municipal Services Committee (MSC) moved that the subject agenda report be presented to City Council on November 19, 2001 with the following modifications:

For Item 1, "Adopt the Pasadena Water and Power (PWP) Strategic Resource Plan for power resources (Plan)":

- Elimination of the Broadway 2 emissions control retrofit project; and,
- Acceleration of the local generation repowering projects to support a summer 2003 operations date for two new 45MW Combustion Turbines (CTs), rather than phasing in the second CT in FY2006.

For Item 2, "Amend the Light and Power Fund Fiscal Year 2002 Capital Improvement Project (CIP) budget...":

- The changes will reduce the estimated five-year CIP to \$81,781,324, but will increase capital expenditures in FY2003 by approximately \$37million.

The impacts of these recommendations on the Plan and additional details are summarized in Attachment 1. The changes recommended by MSC do not affect the other recommendations (Items 3-6) in the agenda report.

The MSC recommended these modifications to the Resource Plan in order to reduce the risk of local generation capacity shortages in 2003 as PWP revises and appeals the denial of its local generation emissions compliance plan, described below. These changes will also eliminate the approved FY2002 capital expenses associated with retrofitting Broadway 2 with emissions controls.

***Emissions Compliance Plan***

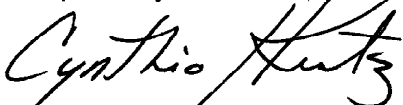
The South Coast Air Quality Management District (SCAQMD) adopted Rule 2009 in May 2001. Rule 2009 states that all steam boiler generation units must be retrofitted with the Best Available Retrofit Control Technology (BARCT) or surrender operating permits by January 1, 2003. Selective catalytic reduction NOx controls (SCR) are generally accepted as BARCT. In addition, all generators must demonstrate that they will not exceed their NOx emission allocations starting in year 2005. The rule required that all generation facilities submit an Emissions Compliance Plan (Compliance Plan) by September 1, 2001.

PWP's initial Compliance Plan included a number of optional scenarios to either retrofit with SCR equipment, repower with new generating units, or retire Broadway steam units 1 and 2 and the Glenarm Gas Turbines (GTs) as required by Rule 2009. Despite the fact that each scenario demonstrated compliance with Rule 2009, the SCAQMD rejected this plan on September 21, 2001. SCAQMD staff indicated that they would not accept a Compliance Plan with multiple options. PWP submitted a revised Compliance Plan on October 18, 2001 that included a single scenario with SCR retrofits for Broadway Units 1 and 2 and the Glenarm Gas Turbines (GTs).

Despite the fact that PWP's revised Compliance Plan demonstrated an 80-85% reduction in NOx emissions rates and compliance with annual emissions limits for local generators, the SCAQMD rejected it on November 8, 2001. In their denial, SCAQMD staff indicated that they would not accept PWP's Compliance Plan unless the Broadway units could demonstrate emissions levels of 5ppm to meet the their interpretation of BARCT requirements, as a gas unit in Huntington Beach has demonstrated this emissions level using SCR. Because of their design characteristics, this emission level is not technically feasible for the Broadway units and therefore does not represent BARCT for these units.

Although PWP disagrees with the SCAQMD's interpretation of BARCT and plans to appeal this decision, the SCAQMD's denial of the plan forces the delay of the Broadway 2 emission control retrofit project by a year. Furthermore, Pasadena will not be able to operate the Broadway units beyond January 1, 2003 unless it prevails in the appeal process or obtains a permit "variance" for these units.

Respectfully submitted,



CYNTHIA J. KURTZ  
City Manager

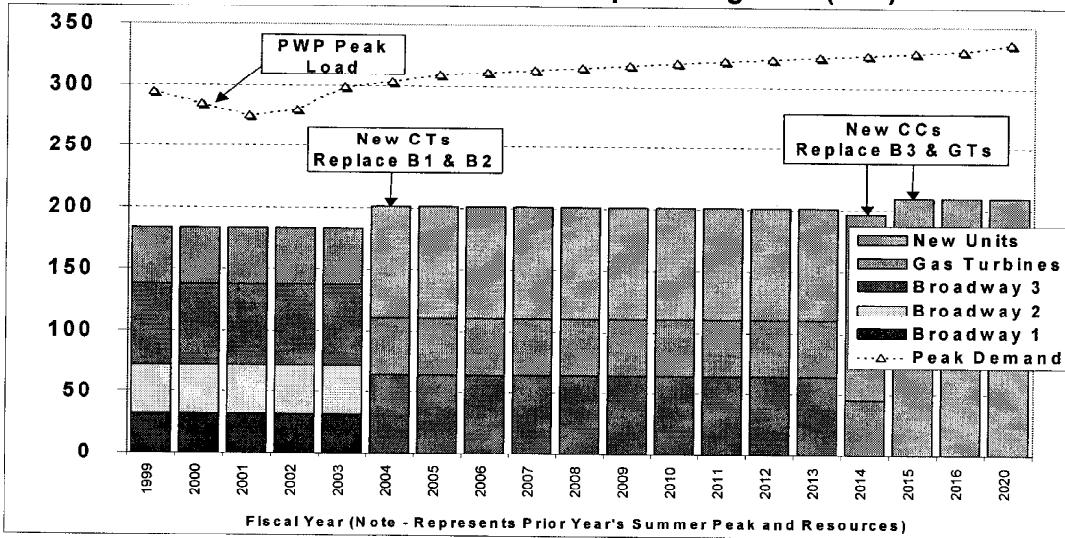
# Attachment 1

## Impacts on the Strategic Resource Plan

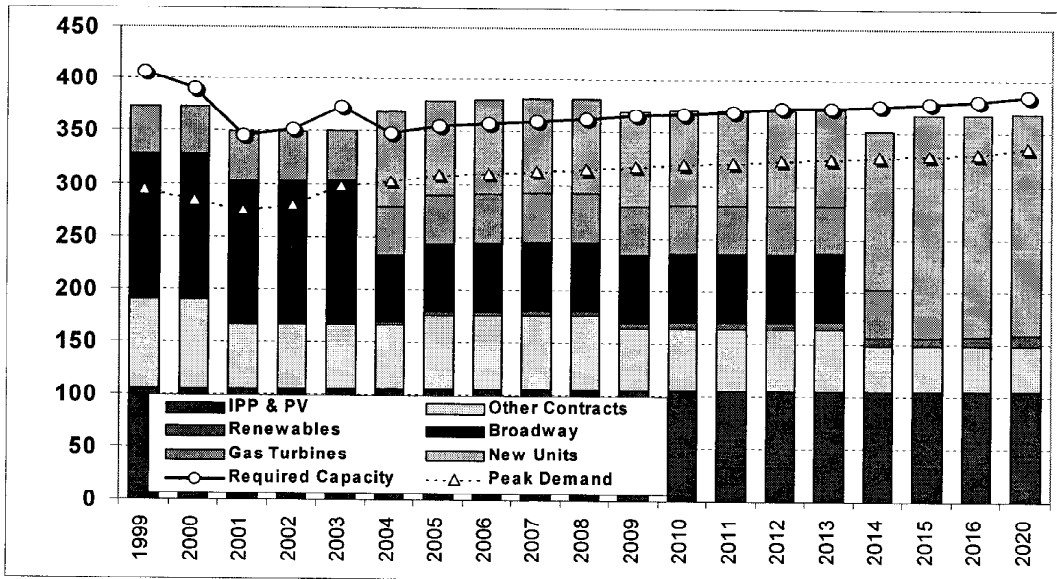
### Modified Resource Plan

The modified Resource Plan eliminates the Broadway 2 emissions control retrofit, reducing FY2002 capital expenditures by approximately \$2-3million, and instead includes repowering both Broadway 1 and 2 with two new 45MW combustion turbines (CTs) by summer 2003. The longer-term projects were not changed. The following graphs depict changes in local generation resources and in the overall portfolio requirements and resources over the planning horizon.

### Modified Local Generation Repowering Plan (MW)



### Load and Resource Balance (MW)



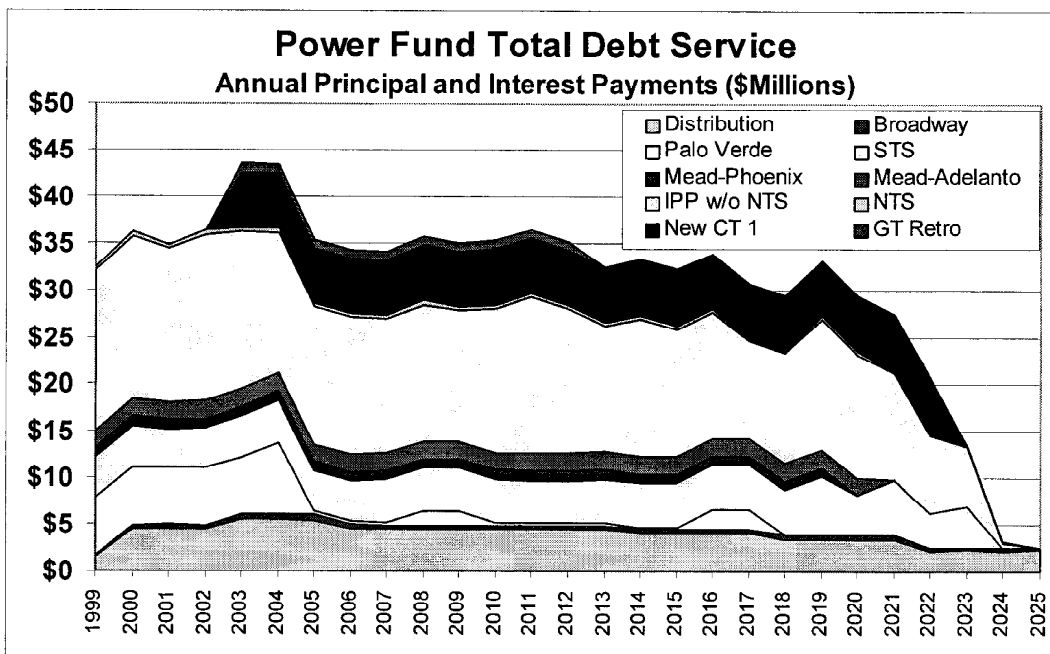
## Impacts on the Strategic Resource Plan

### Capital Budget

The modified budget for of \$81,781,324 is approximately \$4,000,000 less than that of the original phasing plan due to elimination of cost escalation for the second CT to year 2006. PWP expects that there will be additional savings resulting from simultaneous procurement and construction of the new CTs. As noted earlier, the FY2002 capital expenditures for the Broadway 2 Retrofit project included in the approved FY2002 CIP will not be incurred.

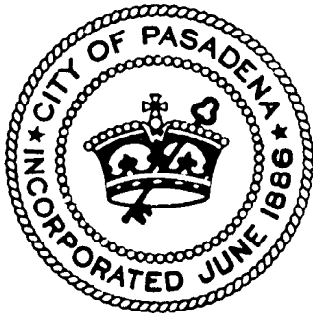
### Debt and Debt Service

As a result of accelerating the second CT projects, PWP will incur an additional \$37million in debt and debt service beginning FY2003, as shown. The annual debt service calculations assume a constant payment for the CT and GT project financing. The brief spike in debt service for FY2003 and 2004 can be reduced through alternative payback schedules that help levelize annual costs.



### Site Redevelopment

PWP continues to work with City Planning and Development staff to finalize site layouts and phasing plans that can accommodate future redevelopment of portions of the Glenarm site without adverse impacts on service reliability or project cost. PWP met with City Planning and Development and Art Center representatives on November 9, 2001 to discuss the site plan, and is currently developing more detailed drawings for various project phases.



# Agenda Report

November 19, 2001

**To:** City Council  
Through Municipal Services Committee

**From:** City Manager

**Subject:** Pasadena Water and Power's Strategic Resource Plan;  
Budget Amendment for Additional Capital Expenditures  
and 1 new FTE; and Amendments to Professional Services  
Contract to Accelerate Local Repowering Projects.

## RECOMMENDATION:

It is recommended that the City Council:

- 1) Adopt the Pasadena Water and Power ("PWP") Strategic Resource Plan for power resources ("Plan"), described in Attachment I, which includes recommendations for energy portfolio management and repowering PWP's local electric generators;
- 2) Amend the Light and Power Fund Fiscal Year 2002 Capital Improvement Project (CIP) budget to include a new project entitled "Local Generation Repowering" with an estimated cost of \$85,781,324 over then next 5 years;
- 3) Appropriate \$781,324 to the new CIP project from the unappropriated Light and Power Fund fund balance for anticipated FY 2002 expenditures;
- 4) Amend the Fiscal Year 2002 Operating Budget to include the addition of one new FTE (Engineering Manager) in the Power Supply Business Unit to manage the construction and repowering projects in the Plan;
- 5) Increase the not to exceed amount of the following contracts: contract number 17494, with R. W. Beck in the amount of \$50,000 for a new not to exceed amount of \$195,000; contract 14166 with Parsons Engineering in the amount of \$70,000 for a new not to exceed amount of \$144,900; Contract number 14116, with CH2Mhill in the amount of \$75,000 for a new not to exceed amount of \$99,350, and contract 14063 with Air Kinetics Inc., in the amount of \$25,000 for a new not to exceed amount of \$49,750; and

- 6) Grant exemptions from the competitive selection process of the Affirmative Action in Contracting Ordinance, pursuant to P.M.C. Section 4.09.060, contracts for which the City's best interests are served, for contract number 14116 with CH2Mhill and contract number 14063 with Air Kinetics Inc.

**BACKGROUND:**

***Strategic Resource Plan***

In response to recent regional power shortages, energy price volatility, and stricter emissions control requirements recently adopted by the South Coast Air Quality Management District (SCAQMD), Pasadena Water and Power (PWP) has developed a new Strategic Resource Plan (Plan) as a guide for the City's long-term portfolio of power supply and transmission resources (Portfolio). Careful portfolio planning and risk management are essential to meet PWP's goals of reliable service, stable rates, and competitive energy pricing.

The Strategic Resource Plan (Attachment I) includes a local generation repowering plan, participation in the Magnolia power project, and improved risk management practices. PWP staff developed the Plan based on the RW Beck Strategic Resource Plan study performed for PWP (Attachment II).

The Plan includes the following near-term local generation projects:

- Retrofit Broadway 2 with emissions controls to meet SCAQMD requirements at a cost of approximately \$2-3million;
- Replace Broadway 1 with a new 45MW combustion turbine (CT) by summer 2003, at an estimated cost of \$35-37million;
- Retrofit Glenarm Gas Turbines (GTs) with emissions controls by summer of 2004 at an estimated cost of \$6-7million.

If the Council supports this plan, PWP will commit staff and contract resources to lay the necessary groundwork leading to the Plan's ultimate implementation. The recommendations in this Agenda Report will provide PWP with the resources to get the process started.

The Plan also includes longer term projects, including a second CT to be completed in 2-5 years as a replacement for Broadway 2, and the eventual replacement of Broadway 3 and the GTs with new combined cycle generation

units in a 10-15 year time frame.

Financing the repowering projects is expected to cost about \$8million/year, including participation in the Magnolia project and the second CT. However, PWP's total and average debt service will not increase from current levels because the debt service associated with the IPP and Palo Verde is declining over the next few years. Any withdrawals from Pasadena's Reserve for Stranded Investment (SIR) for IPP and Palo Verde debt defeasance will further decrease PWP's total debt service and lower PWP's electric rates.

Approximately 60-65% of Pasadena's energy needs are being met by importing 166MW from contractual resources (primarily the Intermountain Power Project in Utah, and the Palo Verde Nuclear Plant in Arizona), with the remainder being generated at the power plant and/or purchased on the spot market. Imports are limited to about 200MW by the capacity of cross-town transmission lines. Energy markets can be volatile as demonstrated over the past 18 months.

Implementation of the plan will provide PWP with the options needed to protect its customers from market price exposure while limiting the risk of carrying high fixed costs or excess energy that must be sold at a potential loss. With the new resources in place, it is projected that total energy costs will be approximately 0.5-0.7¢/kWh less than they would be with current resources, saving PWP customers about \$70 million over 20 years, based on the March 2001 market forecast provided by Henwood Energy Services, Inc. The savings will be achieved by replacing old generation equipment with units that are more efficient and environmentally cleaner.

### ***Timing***

Because of new rules adopted by the SCAQMD in May 2001, PWP's options have been severely constrained. Starting January 1, 2003, Broadway Units 1 and 2 cannot be run unless they are retrofit with new emissions controls, and the Glenarm Gas Turbines must be retrofit by January 1, 2004. If nothing is done to repower or extend the life of these units, PWP will face increased dependence on an uncertain spot market and will have insufficient local generation resources to support reliable power operations by summer 2004, if not earlier.

Each of the local projects faces a number of engineering, regulatory (permitting), and financial issues that must be addressed before construction can begin. For example, an RFP has been issued for the Broadway 2 retrofit project. However, the process is currently on hold as PWP responds to concerns raised by

SCAQMD regarding the potential level of NOx reduction. The GT retrofit project could face similar concerns and delays. Additional preliminary design, siting, and environmental permitting support effort will be required prior to developing an RFP for construction of a new CT to replace Broadway 1. As procurement and construction alone will take 14-18 months, an aggressive schedule will be required for the new CT project to meet the desired summer 2003 commissioning date.

### **Capital Budget**

PWP anticipates capitalizing costs associated with planning, development, and construction of the local generation repowering and retrofit projects. The "Local Generation Repowering" budget will be used for applicable in-house labor and contract services that further the development and implementation of the Plan. The requested \$781,324 budget includes \$220,000 for contract extensions, \$62,324 for balance of year costs associated with the new FTE, and \$500,000 for additional contract services that are anticipated to be needed.

The budget for the Local Generation Repowering project consists of the following items:

Project Planning	FY02	\$781,324
Combustion Turbine #1	FY03	\$37,000,000
Glenarm GT Retrofit	FY03	\$7,000,000
Combustion Turbine #1	FY06	\$41,000,000
<b>Total Estimated Cost</b>		<b>\$85,781,324</b>

The \$3,000,000 capital expenditures for the Broadway 2 Retrofit project are included in the approved FY2002 CIP.

### **Staff Request**

PWP is requesting an additional FTE in the Power Supply Business Unit to manage the construction and repowering projects in the Plan. The new FTE will be an Engineering Manager position, reporting to the Director of Power Supply. For FY2002, the associated labor expenses will be charged to the "Local Generation Repowering" capital budget, and are included in the \$781,324 budget requested for the project.



**Approval of Contract Amendments**

PWP has contracts in place with several vendors that have demonstrated proficiency in various aspects of the immediate groundwork that must be covered. Expanding the work scope and increasing the maximum expenditure levels of these contracts will serve the city's interests in terms of schedule and cost effectiveness. The following table summarizes the current and proposed expenditure levels for these contracts.

Vendor (Contract No.)	Description of Services	Current Limit	Additional Amount	Proposed Limit
RW Beck (17,494)	Economic, financing & engineering feasibility studies	\$145,000	\$50,000	\$195,000
Parsons Engineering (14,166)	Detailed environmental analysis and related assistance for the permitting process	\$74,900	\$70,000	\$144,900
CH2Mhill (14,116)	Preliminary engineering feasibility, layout and design, emission control analysis	\$24,350	\$75,000	\$99,350
Air Kinetics (14,063)	Base line air emissions testing	\$24,750	\$25,000	\$49,750
<b>Total</b>		<b>\$269,000</b>	<b>\$220,000</b>	<b>\$489,000</b>

The additional expenditures will be charged to the Local Generation Repowering capital budget, and are included in the requested \$781,324 budget.

**RW Beck** was retained by PWP, pursuant to a Request for Proposals (RFP) process, to develop recommendations that form the basis of PWP's Strategic Resource Plan. Over the last year, market conditions and the regulatory environment have been volatile, and have changed dramatically since RW Beck ran the economic models. PWP recommends that the economic models be refined using the latest market forecasts, which were updated in October 2001 by Henwood Energy Services, Inc. In addition to updated market information, the models will also need to reflect site-specific operating and timing details as they become available. By extending this contract, PWP will be better able to assess the feasibility and cost impacts of various layout and phasing plans. Given their familiarity with PWP in general, and the specifics of the Plan, RW Beck is also uniquely situated to provide additional project design and financial planning assistance.

**Parsons Engineering** was retained by PWP, pursuant to a Request for Proposals (RFP) process, to perform a preliminary evaluation of environmental compliance issues and requirements for the local generation projects. Having completed the high level screening, additional detail work is required for each of the specific locations and equipment options under consideration. In addition to the work completed thus far for PWP, Parsons has performed similar work for other local utilities that have successfully permitted similar projects, thus, it is in the City's best interest to extend this contract to complete the work for PWP.

**CH2Mhill** is assisting PWP with site design and technical analysis for the SCAQMD emissions compliance plan. They have developed a number of attractive layout options and provided valuable assistance based on experience in preparing detailed site designs for similar projects. They were instrumental in helping resolve SCAQMD issues that delayed the Broadway 2 retrofit project. CH2Mhill's general experience with similar projects and familiarity with PWP's local resources uniquely position them to provide additional site design and emissions analysis necessary to proceed with project implementation.

**AirKinetics** has satisfactorily provided emissions monitoring services as required to meet SCAQMD requirements for a number of years. The additional baseline monitoring required for the permitting process is a logical extension of their existing contract.

#### ***Anticipated Additional Services***

PWP anticipates that it will return to Council in the coming months to request approval of additional contracts for services, including:

- Additional civil, mechanical, and electrical design studies
- Independent engineers report
- Financial consulting
- Permit preparation

The requested additional \$781,324 CIP for FY2002 includes \$500,000 to cover any work associated with these additional services for the current Fiscal Year. At this time, PWP does not anticipate significant design or planning expenditures for the near-term local generation retrofit and repowering projects after FY2002.

***Site Development***

Portions of the Glenarm property, excluding the location of the existing gas turbines, were declared surplus to PWP needs in October 1998 and the City has studied various options for redevelopment of this property. PWP is working with City Planning and Development staff to develop layouts for the new generating units involving both the Broadway and Glenarm parcels and phasing plans that can accommodate future redevelopment of some portions of the plant site without adverse impacts on service reliability or project cost.

***Project Commencement***


Once the prerequisite studies, design work, and financing arrangements have been completed, PWP anticipates that it will return to Council seeking authorization to enter into contracts with one or more vendors for:

- Detailed engineering design
- Major equipment procurement
- Demolition of existing structures and site preparation
- Civil, mechanical, and electrical construction

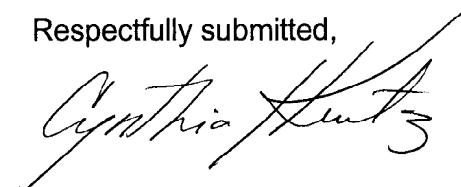
**FISCAL IMPACT**

An estimated total of \$781,324 in additional expenses may be incurred in the Light and Power fund Fiscal Year 2002 capital budget as a result of these recommendations, including the additional FTE and contract services. The additional FTE will result in a fully burdened additional expenditure of \$122,649/year that will be charged to Local Generation Repowering project budget in FY2002. The proposed \$220,000 combined total increase in contract service expenditures will also be charged to the capital project. Funds are available in the unappropriated Light and Power Fund fund balance. It is anticipated that these funds may be recovered through a debt financing when the repowering projects are approved for construction. Implementation of the Strategic Resource Plan is expected to save customers \$5-10million per year in reduced fuel, emissions, and spot market power purchase costs.

Prepared by:

  
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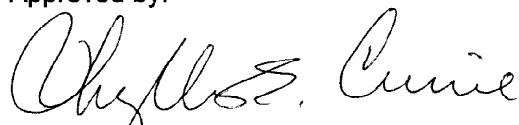
Respectfully submitted,

  
CYNTHIA J. KURTZ  
City Manager

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PHYLLIS E. CURRIE  
General Manager