TO:            CITY COUNCIL

ATTENTION:    POLICY AND SERVICES COMMITTEE

FROM:         CITY MANAGER        DEPARTMENT: UTILITIES

DATE:         APRIL 13, 2004

SUBJECT:     COMPREHENSIVE FEASIBILITY STUDY ON LOCAL ELECTRIC POWER GENERATION ALTERNATIVES

REQUEST

Staff and the Utilities Advisory Commission (UAC) recommend that the City Council direct the Utilities Department recommendation to undertake a comprehensive study, as part of the Long-Term Electric Acquisition Plan, to explore the feasibility of constructing electric generation facilities capable of serving a portion of Palo Alto’s total electric load. The proposed study includes (1) developing the parameters that would be required for feasible sites, (2) evaluating the technical, economic, and environmental feasibility of and community support for such facilities, (3) identifying and contrasting potential Palo Alto power generation sites with other alternatives and outside of Palo Alto, and (4) reporting findings and recommendations to UAC and Council.

BACKGROUND

In order to develop a diversified electric supply portfolio that addresses the shortfall and increased variability of electric energy supplies faced by the City starting in 2005, staff has evaluated and Council has approved specific objectives, guidelines and implementation plans (see “Policy Implications”). One portfolio strategy includes evaluating development of new natural gas-fired electric generating facilities, which are the cleanest, cost-effective dispatchable electric generation technology available today. This effort is a key element of a multi-faceted portfolio approach to meet the City’s long-term electricity needs, and complements increasing renewable energy resources to 20% by 2015, diversified generic market resources, and energy efficiency investments.
The configuration of the state’s electric transmission and generation network renders the San Francisco Peninsula particularly susceptible to electric service interruptions and significant increases in transmission costs. Also, electricity resources that can increase or decrease output to follow the changing electric load are required to maintain a real-time energy balance, or else face financial penalties from the California Independent System Operator (CAISO). Locally-sited power generation would enable the City to address these issues, enhance reliability, reduce transmission and CAISO charges, decrease dependence on distant supply resources, and limit the export of environmental impacts to another area.

Available Bay Area generation alternatives were explored through CPAU participation in a Request For Proposal (RFP) jointly with Northern California Power Agency (NCPA) for thermal generation resources. Representatives from NCPA presented a summary of the responses to the RFP to the UAC at the January 14, 2004 meeting. The presentation is included in the attached February 11, 2004 UAC Report. The results indicate that there are significant potential reliability and economic advantages of a modern gas-fired power plant located within an NCPA member’s territory. NCPA staff recommended initiating an internal Palo Alto decision process to evaluate such alternatives.

In order to make an informed recommendation with respect to the City’s best strategy regarding power generation alternatives, staff proposes to conduct comprehensive economic and environmental studies of power generation alternatives capable of serving a portion of Palo Alto’s total electric load. The study will consider advanced state-of-the-art technologies. It will contrast generation facilities located inside Palo Alto with those outside of Palo Alto. The study will engage Council and the public early and throughout the process. Staff will provide the results of these studies to Council for discussion and possible action, depending on recommendations and alternatives resulting from the analysis. The study will be conducted in two phases, with Council approval to progress to Phase 2 depending on findings from Phase 1. This recommendation does not authorize the utility to initiate or undertake generation facilities project development at any specific site either inside or outside of Palo Alto.

Numerous evaluation criteria are already clearly defined in environmental review process regulations such as CEQA and California Energy Commission generator certification, in codes and regulations ranging from building code to zoning, and in City policies and long-term plans for the City and for specific parcels within the City. This feasibility study aims to educate the public on the reasons to consider local generation alternatives, to thoroughly evaluate the advantages and issues of different approaches, and in turn to educate staff and Council on additional community concerns about and comfort with
possible solutions that open discourse with the community would provide. The results of the feasibility study will be evaluated in light of the findings from these parallel efforts in developing a recommendation for Council.

**BOARD/COMMISSION REVIEW AND RECOMMENDATIONS**
The comprehensive feasibility study recommendation was presented and discussed at the February 11, 2004 UAC meeting. The presentation consisted of two parts. Part 1 described the need for and intent of the proposed feasibility study, presented by Utilities staff. Part 2, presented by Paul Richins, Energy Facility Licensing Manager for the California Energy Commission (CEC), described the process the CEC employs in scrutinizing license applications for thermal generation facilities 50MW or greater in size, for which the CEC acts as lead agency.

Key UAC questions and comments are summarized below, with responses from the presenters.

1. **What is the relationship between this effort and the NCPA thermal generation RFP effort? Are they coordinated so that we can compare the results?**

The Purpose of the NCPA RFP was to determine whether electric generation was available in the greater Bay Area that could be utilized to meet a portion of Palo Alto and other NCPA member load requirements. The NCPA RFP was open to all possible thermal generation offers, leaving it open to respondents to propose thermal generation, or its contractual equivalent, without limiting the location. The RFP results indicate that local generation in any NCPA member’s service territory appears significantly financially attractive to that member relative to the RFP responses and relative to generic long-term market resources. The efforts are intertwined, as the NCPA effort provides a calibrated benchmark against which local generation alternatives may be compared. The information from the RFP will serve as key information to contrast with local generation alternatives.

2. **How much has been spent on the NCPA RFP?**

Mostly staff time to develop and issue the RFP, review and analyze responses, visit potential sites, and summarize the results. Staff costs, mostly NCPA staff time, are estimated to be approximately $40,000.
3. **Do the market energy purchases currently being employed go away?**

To the extent that power is available from thermal generation to serve Palo Alto load, market transactions would get smaller, but would still be an active component of the overall portfolio approach to secure supplies in time periods where there are deficits, diversify resources, and manage risks.

4. **Does CEC evaluate the business case?**

(CEC RESPONSE): The CEC no longer has responsibility to determine need. Financial evaluation is left to the entity proposing the project. The fundamental CEC role is to ensure that thermal generation plants that are 50 MW or larger comply with all applicable laws, ordinances, and regulations, and to act as lead agency for CEQA for such projects.

5. **What percent of applications result in success?**

(CEC Response): The CEC representative provided an estimate in the meeting, but offered to follow-up after the meeting. In the follow-up response, CEC staff explained that this question does not have a simple answer. Since 1998 (beginning of deregulation), the CEC has approved 46 projects. Seven projects are currently being reviewed by the CEC and four others have been suspended for several months to a year at the request of the developer. An additional 23 projects have been withdrawn by the developer for various reasons. Since 1998, no projects that successfully completed the licensing process were denied or rejected by the CEC.

6. **What are the issues arising from being located in the Bay Area relating to air quality? How do emissions offsets work and how do they reduce air pollution?**

As part of the CEC licensing process, a project proposer would also submit an application to the Bay Area Air Quality Management District (BAAQMD) for a license and it would begin processing that concurrently with the CEC’s process. The two agencies coordinate very closely. The BAAQMD, in its process, ensures that its regulations are followed and there are certain requirements such as the best available control technology to control emissions to the lowest level possible; for those emissions that remain, there is a requirement to purchase air quality offsets so that there is no net increase in air pollution from the facility. The CEC and BAAQMD staff employ sophisticated models to determine what control
technologies are required and the quantity of offsets needed to mitigate the project’s air emissions so that there are not significant impacts.

The BAAQMD maintains what it calls a bank of offsets that it has reviewed having certified that are tradable or purchasable. Someone needing to secure offsets would go to that bank and identify holders of those offset certificates and enter into a negotiation process to purchase the adequate number of offsets for the nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter (PM-10) and other emissions requiring offsets.

Each air district is required to develop and implement an improvement plan. These are called a Federal Improvement Plan (FIP) and a State Improvement Plan (SIP). Part of an Improvement Plan is to encourage the shutting down of dirty, inefficient sources of emissions. The air districts have developed the protocol and process for closing these emission sources and then “banking” those emissions. The idea is that on an air district wide basis the air quality improves, due to slowly closing down inefficient higher polluting processes and encourages the development of new more efficient less polluting processes.

7. A recent Wall Street Journal article on power plants hints at cheap power plants. Any whispering or discussions with investment bankers?

The article is entitled “Electrical-Plant Watchdogs Open Door to Private-Equity Players (February 9, 2004). The article highlights the interest being exhibited by large financial investors, “taking advantage of the industry’s capacity glut to buy power plants and utilities across the U.S.” The article suggests that “dozens of power plants are expected to be up for grabs next year,” and hints that the U.S. may be reaching the bottom of a cycle on power plants and that attractively-priced assets may be available at this time. However, at this time, most of the “bargain” power plants are not on the west coast, and were not evident in the NCPA RFP responses, which went to virtually every supplier in California.

8. What is the approach to conducting the feasibility plan? Will the work be conducted by staff or by consultants, and how much in each phase?

The work will be conducted utilizing a combination of staff and industry expert professionals. The proposed high-level plan is indicated in the chart below. Estimated cost for Phase 1 is $100,000-$150,000, and for Phase 2 $200,000-
$350,000.

The original estimated time schedule allowed approximately 6 months to complete each phase, or 12 months overall. Further review of the initial plan indicates that this estimate was optimistic. Given some of the expected lead times, time and resources required to carry out this study as thoroughly and comprehensively as possible, and allow for contingencies, staff estimates that the study will require 12 months for each phase, or 24 months overall. There is no change in the estimated cost to complete the feasibility study, only the timeline.

9. **Will this feasibility study effort detract from other work?**

The feasibility study effort is a complement to, rather than competitor with the other elements of LEAP, such as renewable energy procurement, energy efficiency programs, diversifying credit and market risk, managing hydro risk, ensuring reliable and cost effective transmission, or maintaining the portfolio independent of Western. CPAU plans to leverage its own staff resources with expertise provided by NCPA as well as assistance for leading experts in the field.

10. **Where do the resources that used to be used for “firming” the existing Western contract go? Can PG&E offer the old services at an attractive price?**

PG&E has expressed no interest doing further integration or extending the contract between itself and Western. PG&E also did not respond to CPAU’s RFP to establish standard Master Agreements, which would be needed for such a service. Staff is always scouting for good opportunities, and should integration opportunities arise that are attractively priced, staff will respond accordingly. Resources utilized for firming are estimate to comprise ~2% of California’s state load, and those under PG&E’s control are likely to be used to meet PG&E load requirements, and the rest to continue to be available on the market.

**RESOURCE IMPACT**

The initial comprehensive study is estimated to cost $300,000 to $500,000. The FY04-05 Utilities Department budget will be adjusted to include the initial comprehensive study costs. At this time it is not known what percentage of this budget will be spent directly by Palo Alto and what percentage will be spent through NCPA. Portions of the proposed evaluation may be conducted as part of a Member Services Agreement, or Phase 2 agreement, with NCPA.
POLICY IMPLICATIONS

Pursuing power plant investments is consistent with the Council-approved Utilities Strategic Plan Key Strategy #2 to “Preserve supply cost advantage compared to market prices” and the following elements of the Council-approved Long-Term Electric Acquisition Plan (“LEAP”) Objectives, Guidelines, and Implementation Plan (the LEAP objectives, guidelines, and implementation plan are summarized in Attachment A):

- LEAP Primary Portfolio Planning Objectives:
  - Objective 1: “Ensure low and stable electric supply rates for customers.”
  - Objective 2: “Provide superior financial performance to customers and the City by maintaining a supply portfolio cost advantage compared to market cost and the retail supply rate advantage compared to PG&E.”
  - Objective 3: “Enhance supply reliability to meet City and customer needs by pursuing opportunities including transmission system upgrades and local generation.”
  - Objective 4: “Balance environment, local reliability, rates and cost impacts when considering renewable resource and energy efficiency investments.”

- LEAP Guidelines
  - LEAP Guideline 1 – Electric Portfolio Dependence on Western: “… manage a supply portfolio independent of Western beyond the Base Resource Contract.”
  - LEAP Guideline 2b: “Diversifying to renewable and/or fossil generation technologies;”
  - LEAP Guideline 3b – Market Risk Management: “Targeting thermal plant ownership/investment commitment at ~25 MW, but in no event greater than 50 MW;”
  - LEAP Guideline 5 – Local Generation: “Explore the potential of local generation options to meet customer needs, improve local reliability, minimize congestion and wheeling charges, and stabilize or reduce costs”.

- LEAP Implementation Plan
  - LEAP Implementation Plan 5: “While continuing to monitor opportunities for participation in gas-fired generation as they arise through staff’s contacts in the market and at NCPA, prepare an RFP to formally announce to the market Palo Alto’s interest in investing in thermal generation resources or its “look alike” (i.e. tolling contracts).”
  - LEAP Implementation Plan 6: “Monitor technology costs and opportunities for smaller renewable technologies, cogeneration and gas-fired generation that can be located within Palo Alto and/or at customer..."
sites. A study funded by the California Energy Commission, Palo Alto, and other municipal utilities is currently underway to identify sites within Palo Alto that have high value to the electrical distribution system.”

The Comprehensive Plan also contains Energy and Natural Hazards Goals and Policies that are relevant to power plant investment. As natural gas is the cleanest currently practical dispatchable supply resource, a gas-fired generation facility meets the directive embodied in Goal N-9 (Energy): “A clean, efficient, competitively-priced energy supply that makes use of cost effective renewable resources”; and is consistent with:

- Policy N-44: Maintain Palo Alto’s long-term supply of electricity and natural gas while addressing environmental and economic concerns; and
- Policy N-46: Retain the ability to purchase supplemental gas and electric power from other potential providers to remain competitive in the marketplace.

ATTACHMENTS
A: Feb 11, 2004 UAC Report
B: Feb 11, 2004 Staff Presentation
C: Feb 11, 2004 CEC presentation
D: Minutes from UAC Meeting Feb 11, 2004
E. DRAFT Feasibility Study proposed schedule

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