



CITY OF BEVERLY HILLS STAFF REPORT

Meeting Date: November 5, 2008
To: Honorable Mayor & City Council
From: Allen Rubenstein, Project Manager *AR*
Subject: Solar Energy for the 331 Foothill Road Office Building
Attachments: None

INTRODUCTION

On August 5, 2008, the City Council awarded a contract to Bayley Construction to build the 331 Foothill Road Office Building. Although the building was designed prior to the new City Green Building Ordinance, it anticipated the desire for solar panels. The bid included a design-build solar panel alternative, which pursuant to staff's recommendation, was not accepted by the Council at that time in order to allow staff to evaluate the submission as well as other alternatives. This report discusses staff's analysis and recommendation.

It should be noted that staff is concurrently preparing a much broader general review of sustainable energy alternatives for presentation in a white paper in January.

DISCUSSION

Current Solar Technology

The current energy crisis has significantly renewed interest in utilizing the sun to generate electricity and many new approaches are on the horizon. However, currently there are two main types of solar systems that are commercially proven and available. These are silicon glass panels and integrated thin film technology.

Silicon glass panels have a track record of more than two decades. They generally require direct sunlight to operate efficiently, so that they are generally installed in unshaded areas on racks sharply tilted toward the south or west. These racks have to be attached to the roof structure because of wind uplift.

Integrated thin film panels are made of flexible, rubber-like composite materials that are directly adhered to a compatible roofing material. They are light weight and are walkable. Thin film panels have the advantage of being sensitive to a wider range of the sunlight spectrum than glass modules, but are half as efficient, so they need approximately twice the area to generate the same power.

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The net result is that, the installed cost of both technologies is approximately the same today for the same amount of electrical energy generated.

Systems Studied for 331 Foothill Road Office Building

The roof of this building is on two levels and is covered by a significant amount of air conditioning equipment and duct work. It is also shaded by parapets and screens that are code required for safety and aesthetic reasons.

Three solar panel systems were studied for feasibility, including an all silicon glass panel design, an all thin film design, and a system that combines both. These studies took into account the building orientation, the varied roof heights, the complexity of the rooftop equipment and conditions, future maintenance, the methods of installation, walk areas, technical issues, and the resulting available sunlit and shaded areas.

The minimum power generation that was considered acceptable was 28,850 kwh (AC), which represents 2.5% of the building energy cost. This is both the LEED and the City's Green Ordinance threshold.

An analysis showed that the all thin film design could not generate enough power to meet the required power level. The all glass panel could meet the requirements, but the cost of the installation and other technical requirements made it the second choice.

The recommended alternative is the combination system that contains both panel types. This design provides tilted silicon on racks where direct west/south sunlight is available and thin film modules on the upper roof where the parapet is not high enough to shield the panels.

The estimated electrical generation of the combined system is 34,390 kwh (AC), or approximately 3.0% of the energy cost. This is the highest electrical generation of the alternatives studied. The 331 Foothill Road Office Building will be the first City building with photovoltaic panels for electrical power generation, if approved by the City Council.

FISCAL IMPACT

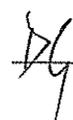
The proposed solar panel system will cost \$332,271. As a comparison, the contractor's price for the solar alternative that was initially submitted with their bid was \$486,000.

A contingency of \$44,000 is recommended for unanticipated conditions.

The cost of this work is part of the FY 08-09 Capital Improvement Program (CIP) budget approved by the City Council for the 331 Foothill Road Office Building Project #0888.

RECOMMENDATION

Staff recommends that the City Council approve the solar panel option that combines both silicon glass and thin film panels to provide solar energy for the 331 Foothill Road Office Building. Subject to the Council's acceptance, Change Order No. 1 to the contract with Bayley Construction, in the amount of \$332,271, and a contingency of \$44,000 will be submitted as part of the formal City Council agenda on November 5, 2008.



David D. Gustavson

Approved By

10/22/2008