

**MEETING DATE:** 07/16/07

**AGENDA ITEM:** Introduction of an Ordinance Establishing a Mandatory 1 Kw  
Solar Photovoltaic Requirement for Each 10,000 Square Feet  
of Gross Floor Area of New Construction.

**ATTACHMENTS**

|                               | <u>Pages</u> |
|-------------------------------|--------------|
| 1. June 18, 2007 Staff Report | 1-6          |
| 2. Proposed Ordinance         | 7-10         |
| 3. CEC Application            | 11-17        |

# ATTACHMENT 1

## City of Culver City, California City Council Agenda Item Report

|                                                                                                                                                                                                                                         |  |                                                                                   |                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|--------------------------------------------------|
| Meeting Date: 06/18/07                                                                                                                                                                                                                  |  | Item Number: A-3                                                                  |                                                  |
| <b>AGENDA ITEM: Introduction of an Ordinance Establishing a Mandatory 1 Kw Solar Photovoltaic Requirement for Each 10,000 Square Feet of New Multifamily or Commercial Construction, Pending California Energy Commission Approval.</b> |  |                                                                                   |                                                  |
| Contact Person/Dept.: Craig Johnson                                                                                                                                                                                                     |  | Phone Number: 253-5802                                                            |                                                  |
| Fiscal Impact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                      |  | General Fund: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |                                                  |
| Public Hearing: <input type="checkbox"/>                                                                                                                                                                                                |  | Action Item: <input checked="" type="checkbox"/>                                  | Attachments: <input checked="" type="checkbox"/> |
| Public Notification: Master Notification List (06/14/07)                                                                                                                                                                                |  |                                                                                   |                                                  |
| Legal Notification: Not Required                                                                                                                                                                                                        |  |                                                                                   |                                                  |
| Non Legal Notification: Planning discretionary review applicants                                                                                                                                                                        |  |                                                                                   |                                                  |
| Department Approval:<br>Sol Blumenfeld (06/13/07)                                                                                                                                                                                       |  | City Attorney Approval:<br>Carol Schwab (by H. Iker) (06/13/07)                   |                                                  |
| City Controller Approval:<br>Marlee Chang (06/14/07)                                                                                                                                                                                    |  | City Manager Approval:<br>Jerry B. Fulwood (06/14/07)                             |                                                  |

### Executive Summary:

The Culver City Building Safety Division has prepared a cost effective approach to address the City Council's desire to promote sustainability, exceeding the 2005 Energy Standards, while working within current staffing levels. The proposed program is focused on requiring solar photovoltaic systems for all new commercial and multifamily residential construction (of three or more residential units). Existing plan check and field inspection staff can accommodate the proposed code change since it is focused exclusively upon commercial and multifamily development.

### RECOMMENDATION:

Staff recommends the City Council introduce an ordinance (Attachment 1) establishing a mandatory 1 kw solar photovoltaic requirement for each 10,000 square feet of new multifamily or commercial construction, pending California Energy Commission (CEC) approval.

### BACKGROUND:

Culver City has often been a leader in the west side of Los Angeles County, including the area of environmental consciousness and sustainability. The following paragraphs highlight some of the recent actions undertaken by the City to provide information on alternative building processes and to generally support a sustainable environment.

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In 2004, the Building Safety Division provided two voluntary informational green building handouts available to the public: 1) *Top 20 Low or No Cost Green Building Strategies*; and 2) *Recommended Sustainable Building Measures*.

In February 2005, the Building Safety Division provided a green building tour to the Culver City Council and Culver City Planning Commissioners and also presented a green building discussion item to the City Council, which provided many options regarding potential green building programs in Culver City. The City Council was generally supportive of an option that would require two additional City staff members to manage the program. Unfortunately, due to budget constraints those positions were not able to be included in the approved budget for FY 2005/2006.

In April 2005, the Building Safety Division provided two sustainable building presentations to the Culver City Planning Commission: "Green Building in Southern California", and "Photovoltaic Power". In March 2006, the Building Safety Division presented a discussion item to the City Council of a proposed mandatory solar photovoltaic initiative for new construction in Culver City and also proposed a small capital improvement budget for a modest solar photovoltaic system to be installed on a City facility.

In October 2006, a staff working group was formed with the goal of implementing an overall Sustainable Culver City program. And in November 2006, the Sustainable Culver City team brought a Sustainable City discussion item to the City Council which tentatively identified five major goal areas: (1) Resource Conservation, (2) Environmental and Public Health Protection, (3) Solid Waste Diversion and Recycling, (4) Open Space and Land Use, and (5) Community Education and Participation. The City Council also approved City staff applying to the American Institute of Architects (AIA) to be a study City of the AIA Sustainable Design Assessment Team (SDAT) Program.

In December 2006 Culver City was notified as being accepted by the SDAT Program as one of seven U.S Cities to be evaluated in 2007.

In March 2007 two Building Safety staff members attended a seminar on standardized guidelines for the field inspection of solar photovoltaic systems. The guidelines are intended to educate building inspectors and the public, and to establish consistency among various jurisdictions, on the inspections of solar photovoltaic systems.

In February 2007 the Culver City Sustainable City Team hosted two representatives of the SDAT for their initial scoping visit to Culver City.

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The full SDAT Team visit took place the second week of May 2007; the final SDAT Team recommendations for Culver City are expected in summer 2007. Tonight's proposed solar photovoltaic initiative is one part of an overall Sustainable Culver City Program.

**DISCUSSION:**

Over the last year staff has been working with the staff of the California Energy Commission regarding the proposed Culver City mandatory solar photovoltaic requirement. Local energy plans must be approved by the California Energy Commission prior to taking effect. California Energy Commission staff has conceptually approved the proposed Culver City mandatory solar photovoltaic initiative, and has requested Culver City staff to present the item for City Council's approval prior to the plan being considered by the California Energy Commission.

The simplest solar photovoltaic systems are called "net metering" or "grid intertie" systems. Such systems do not require any storage batteries. The proposed Culver City solar photovoltaic initiative will accept solar grid intertie systems.

Most states in the nation, including California, have a "net metering" or "grid-intertie" law in place. The law in California, similar to other states, requires all electrical utilities to buy back energy produced by consumers at the same rate the consumer is charged for the energy.

A typical grid-intertie system works the following way:

- A solar photovoltaic panel is installed on the roof of a structure.
- A connection to an inverter is usually located close to the main electrical panel.
- A connection is made from the inverter to a disconnect and then a connection from the disconnect to the main electrical panel is made.

All power from a utility to a consumer, including power from self generation (a solar photovoltaic system), is routed through a consumer's individual power meter. When the consumer uses more power than they are generating, the power meter turns normally, though more slowly. When a consumer generates more power than they are consuming, the meter runs backward.

Efforts to lower electricity use are particularly important; approximately 5% of all electricity produced in the United States is wasted due to transmission losses.

Staff proposes the following mandatory solar photovoltaic requirements for the City:

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**A mandatory grid-intertie system requirement for new construction:**

- This would require a 1 kilowatt grid-intertie solar photovoltaic system for each 10,000 square foot of new multifamily residential or new commercial construction, or fraction thereof.
- The requirement would apply only to new gross occupiable floor area under roof, not parking garages.
- The requirement would not apply to new or remodeled single family homes or duplexes. The requirement would not apply to remodeled or renovated multifamily or commercial construction.
- A 1 kilowatt solar photovoltaic grid-intertie system requires approximately 80 square feet of roof area, and has a current total installed cost of approximately \$11,000. A \$1,500 federal tax credit is available.
- The California legislature also passed a solar subsidy plan in January 2006. The plan establishes subsidies to promote the installation of 3,000 megawatts of solar power in California over the next 11 years. The plan currently offers system installation rebates of \$2.50 per watt. The CEC rebate would be approximately \$2,500. The total estimated installed cost of a 1 kw solar photovoltaic system after tax credits and state rebates is estimated at \$7,000. Please note that tax credits and rebates may change and the same levels of each may not always be available.
- The added cost to the consumer for this requirement is estimated to not exceed 1/2 of 1% of the overall cost of construction.
- The requirement may be waived or modified by Building Safety staff or a majority vote of the City Council upon finding that the intent of the requirement has been satisfied in some other manner.
- If the requirement is not able to be satisfied due to the configuration of the proposed project, the developer has the option of paying an amount equivalent to the cost of the solar photovoltaic system required (but not able to be installed) into a City fund. This City fund will be used to fund solar photovoltaic design and installations on City facilities.

At current power rates a 1 kilowatt solar photovoltaic system in the Culver City area will generate approximately \$380 worth of electricity per year. The same system will also result in a reduction of approximately 3,000 pounds of carbon emissions to the environment each year.

Private construction projects in Culver City that propose new construction of 10,000 or greater square feet generally must complete a discretionary review procedure by the Culver City Planning Division prior to applying for construction permits. Staff proposes that if the solar requirement is made mandatory for applicable new

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construction, each applicant involved in a Planning discretionary review be given an informational handout defining the solar system requirements that would apply.

Staff is proposing that the mandatory solar photovoltaic requirement be applied to all construction permits applied for after the CEC approval and after the official Culver City adoption date. No additional personnel would be required to administer a mandatory solar requirement for new construction in Culver City.

A mandatory solar requirement for new construction in Culver City would reduce energy use in Culver City, would contribute to a cleaner environment, and can be administered by the current Building Safety Division staff.

**A mandatory empty 2" electrical conduit to be installed in all new freestanding structures in Culver City:**

This requirement is for all new freestanding structures in Culver City for the future installation of solar equipment wiring for solar photovoltaic systems. This requirement is for a minimum of one new empty electrical conduit only; not any solar photovoltaic equipment.

This requirement may be waived or altered by Culver City Building Safety Division staff when in their judgment the requirement is adequately met through other means or is impractical.

**Next Steps**

The draft "Revised Locally Adopted Energy Standards by the City of Culver City Building Safety Division" (Attachment 2) has been reviewed and approved by the staff of the California Energy Commission as a locally adopted standard.

If the City Council chooses to introduce the Ordinance, Building Safety Division staff will then inform the California Energy Commission staff that they may proceed with presenting the item at their earliest convenience for approval by the California Energy Commission.

**FISCAL ANALYSIS**

Please note that solar installations would reduce the utility tax revenue to the City of Culver City, but the reduction is difficult to identify at this time.

**ATTACHMENTS:**

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- 1) Proposed Ordinance
- 2) Draft copy of the Culver City Application to the California Energy Commission for a Revised Locally Adopted Energy Standard by the City of Culver City Building Safety Division.

**MOTIONS:**

That the City Council:

Introduce an Ordinance establishing a mandatory 1 kw solar photovoltaic requirement for each 10,000 square feet of new multifamily or commercial construction, pending California Energy Commission (CEC) approval.

# ATTACHMENT 2

ORDINANCE NO. 2007-\_\_\_\_\_

AN ORDINANCE OF THE CITY OF CULVER CITY, CALIFORNIA, AMENDING CHAPTER 15.02 OF THE CULVER CITY MUNICIPAL CODE TO ADD SUBCHAPTER 15.02.1000, *et seq.*, ESTABLISHING A MANDATORY 1KW SOLAR PHOTOVOLTAIC REQUIREMENT PER 10,000 SQUARE FEET OF GROSS FLOOR AREA OF NEW CONSTRUCTION.

**WHEREAS**, California Health and Safety Code §13146 requires local jurisdictions to enforce the California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code; and

**WHEREAS**, California Health and Safety Code § 17958(a) allows local jurisdictions to establish more restrictive building standards than those contained in the California Building Standards Code, if the amendment is reasonably necessary because of local climatic, geological, or topographical conditions; and

**WHEREAS**, California Public Resources Code §25402.1 states that a local agency may adopt more restrictive energy standards when they are cost-effective and approved by the California Energy Commission; and

**WHEREAS**, energy efficiency is an important part of a sustainable Culver City, and Culver City is part of the greater Los Angeles Basin, which climate and topography are known to trap air pollutants that are known to be harmful to human health; and

**WHEREAS**, solar photovoltaic power generation consumes no fossil fuels, generates no air pollution and will therefore increase energy efficiency and will reduce air pollution in the Los Angeles Basin and Culver City; and

**WHEREAS**, the City Council of the City of Culver City desires to establish a

1 mandatory 1kw solar photovoltaic requirement per 10,000 square feet of new commercial  
2 or new multifamily residential construction.

3                   **NOW THEREFORE**, the City Council of the City of Culver City, California,  
4 **DOES HEREBY ORDAIN** as follows:

5                   **SECTION 1.** Based on the foregoing recitations and findings, Chapter 15.02  
6 of the Culver City Municipal Code is hereby amended to add subchapter 15.02.1000, *et*  
7 *seq.* as follows:

8                                   **SOLAR PHOTOVOLTAIC SYSTEMS**

9                   §15.02.1000           Definitions.

10                  §15.02.1005           Requirement.

11                  § 15.02.1010           Exceptions.

12                  § 15.02.1015           Building Permit Fees and Inspections.

13  
14                   **§ 15.02.1000           DEFINITIONS.**

15                   Terms defined herein shall have the following meanings when used in  
16 this Subchapter:

17                   ***Building Official*** shall mean the Building Official of the City of Culver  
18 City or his or her designee.

19                   ***California Energy Efficiency Standards*** shall mean the California  
20 Energy Efficiency Standards set forth in Title 24, Part 6 of the California Code  
21 of Regulations.

22                   ***City*** shall mean the City of Culver City.

23                   ***Solar Photovoltaic System*** shall mean a system that generates  
24 electricity from the sun.

25                   **§ 15.02.1005           REQUIREMENT.**

26                   All new buildings, excluding one and two family residences, parking  
27 structures, garages, and additions to existing buildings, shall be equipped  
28

1 with a 1kw solar photovoltaic system per each 10,000 square feet of gross  
2 floor area, or fraction thereof.

3 **§ 15.02.1010 EXCEPTIONS.**

4 A. *Exceptions to Section 15.02.1005.A.* If the applicant is unable  
5 to install the required solar photovoltaic system due to the configuration of the  
6 proposed construction project, then the project applicant shall pay an in lieu  
7 fee in an amount equal to the cost of a solar photovoltaic system installed in  
8 a comparable project. Fees generated from in lieu payments pursuant to this  
9 subsection, shall be appropriated and disbursed only for solar photovoltaic  
10 designs and installations on City properties or facilities. The accounting and  
11 return of in lieu fees required by this subsection shall be similar to those  
12 established in Sections 15.06.030 and 15.06.050 of this Code.

13 B. *Exception to Section 15.02.1005.B.* The requirement set forth  
14 in Section 15.02.1005.B may be waived by the Building Official, in his or her  
15 discretion, if the requirement is satisfied through other means or is unduly  
16 burdensome or impractical.

17 **§ 15.02.1015 BUILDING PERMIT FEES AND INSPECTIONS.**

18 A. All plan check and permit fees shall be waived for solar  
19 photovoltaic installations.

20 B. The value of the required solar photovoltaic system shall not be  
21 required to be included in the overall construction valuation of the project for  
22 the purposes of determining building permit fees.

23 C. No final inspection shall be approved for a construction project  
24 subject to the requirements of this Subchapter, nor shall a temporary or final  
25 certificate of occupancy be issued for such project, prior to the installation of  
26 the solar photovoltaic system being completed, inspected and fully  
27 operational, unless otherwise excepted pursuant to Section 15.02.1010.  
28

1                   **SECTION 2.** Pursuant to Section 619 of the City Charter, this Ordinance  
2 shall take effect thirty (30) days after the date of its adoption. Pursuant to Sections 616  
3 and 621 of the City Charter, prior to the expiration of fifteen (15) days after the adoption,  
4 the City Clerk shall cause this Ordinance, or a summary thereof, to be published in the  
5 Culver City News and shall post this Ordinance or a summary thereof in at least three  
6 places within the City.

7                   **SECTION 3.** The City Council hereby declares that, if any provision, section,  
8 subsection, paragraph, sentence, phrase or word of this ordinance is rendered or declared  
9 invalid or unconstitutional by any final action in a court of competent jurisdiction or by  
10 reason of any preemptive legislation, then the City Council would have independently  
11 adopted the remaining provisions, sections, subsections, paragraphs, sentences, phrases  
12 or words of this ordinance and as such they shall remain in full force and effect.

13  
14                   **APPROVED AND ADOPTED** this \_\_\_\_ day of \_\_\_\_\_, 2007.

15  
16  
17  
18                   \_\_\_\_\_  
ALAN CORLIN, Mayor  
City of Culver City, California

19  
20                   ATTEST:

APPROVED AS TO FORM:

21  
22  
23                   \_\_\_\_\_  
CHRISTOPHER ARMENTA, City Clerk

24                   \_\_\_\_\_  
CAROL A. SCHWAB, City Attorney

# ATTACHMENT 3

Application for:

Revised Locally Adopted Energy Standards by the City of Culver City  
Building Safety Division

Establishing a mandatory 1kw solar photovoltaic system (or as an alternate an equivalent solar water heating system) for new commercial construction of 10,000 s.f. or greater and new multifamily construction of 10,000 s.f. or greater in Accordance with Section 10-106 of the California Code of Regulations, Title 24, Part 1

April \_\_\_\_, 2007

From:  
Craig Johnson, Building Official  
Culver City Building Safety Division  
2nd Floor City Hall  
9770 Culver Blvd.  
Culver City, CA, 90232  
310-253-5802  
Email: [craig.johnson@culvercity.org](mailto:craig.johnson@culvercity.org)

## **Executive Summary**

The City of Culver City Building Safety Division has researched and reviewed the feasibility and cost effectiveness of building permit applicants exceeding the performance requirements of the 2005 Energy Efficiency Standards.

The current and projected staffing level of the Culver City Building Safety Division will not support an additional energy efficiency program which requires a large amount of additional plan check staff time or additional field inspection staff time. The existing Building Safety Division staff will be able to implement and manage this proposed solar photovoltaic initiative.

Having established local energy efficiency criteria contained in the language of draft Resolution #\_\_\_\_ (included as attachment #1 to this document). The City would like to implement its resolution at the earliest convenient date following approval by the California Energy Commission.

As stated in the resolution application, the proposed local energy efficiency standards and implementation have been designed with several key criteria in mind. These include:

- Consistency with the structure, format, and calculation methods of the 2005 Title 24 Energy Efficiency Standards;
- Simplicity and clarity for Building Safety Division enforcement for both energy plan review and field inspection;
- Meeting the local energy compliance requirements as defined by the resolution which exceed the 2005 Title 24 standards; and;
- The provision of flexibility by allowing construction permit applicants to meet the new requirement by one or more design approaches: (a) a solar photovoltaic system; and/ or (b) a solar hot water heating system; and/ or (c) paying an equivalent amount into a City fund to pay for solar systems on City owned facilities or other local non-profit entities.

This application to the California Energy Commission conforms to the requirements laid out in Section 10-106 of the California Code of Regulations, Title 24, Part 1, *LOCALLY ADOPTED ENERGY STANDARDS*. The proposed Culver City resolution shall take effect only after the Commission has reviewed and formally approved the proposed local energy standards as meeting all requirements of Section 10-106.

**Statement per Section 10-106(b)3.** The proposed resolution requires that all new commercial and multifamily residential construction shall be designed to consume no more TDV energy than permitted by Title 24, Part 6. The main features of the proposed resolution are that:

1. New commercial or multifamily construction shall be required to install 1kw of solar photovoltaic power per each new 10,000 square feet of construction, or fraction thereof.
2. If the geometry of the new project doesn't permit compliance with the requirement, the construction permit applicant may pay an equivalent amount into a City fund to pay for solar systems on City facilities or other local non-profit entities.
3. This requirement will reduce the demand for offsite electricity for new commercial and multifamily buildings in Culver City.
4. It is expected that builders will consider enlarging the photovoltaic systems beyond the 1kW requirement,

With respect to any technical questions concerning the development, methodology, descriptions, or implementation outlined in this application, please contact Craig Johnson at Culver City Building Safety.

### **Estimated solar photovoltaic energy result of the Proposed Resolution**

The resolution proposes a mandatory 1kw solar photovoltaic system per 10,000 square feet of new commercial or multifamily construction; with an equivalent solar water heating system as an acceptable alternate, or if the geometry of the proposed project won't permit compliance with the resolution the permit applicant may pay an equivalent amount into a City fund to pay for solar systems on City facilities or other local non-profit entities.

It is expected that complying with the resolution will allow participating buildings to exceed the 2005 California Energy Efficiency Standards.

Note: the resolution makes it clear that all new buildings must comply with the California Title 24 Energy Standards in effect at the time of permit application. The resolution is in addition to the California Title 24 Energy Standards.

Participating buildings wishing to determine the energy value of photovoltaic installations in comparison to the total energy use calculated by using a California Energy Commission approved compliance program may follow the methodology provided below to convert kW installed PV to Time Dependant Valuation in kTDV/sf-yr.

$$1151 \text{ kWh} \times 3.414 \text{ Btu/Wh} \times 4.98 \times .88 = 17,186 \text{ kTDV/yr}$$

1151 kWh/year – assumed generation per year for a 1 kW system

3.414 Btu/Wh: = conversion from watts to British thermal units

4.98 = the average annual average TDV energy multiplier during daylight hours for Culver City.

0.88 = multiplier per the New Solar Homes PV Calculation for dirt and a modest percentage of non-working PV collectors

The value is then divided by the conditioned floor area of the building to calculate the kTDV/sf-yr.

For example; a 1 kw PV system on a new 10,000 sf commercial or multifamily building in Culver City:

$$\frac{17,186 \text{ TDV kBtu/yr}}{10,000 \text{ s.f.}} = 1.72 \text{ kTDV/sf-yr}$$

### Simple Time Dependant Cost Benefit Analysis

|                                        | Estim. cost<br>of constr.    | Estim. cost<br>of 1 kw PV<br>system | Estimated<br>CEC rebate      | Estim.<br>Fed. tax<br>credit | Final 1 kw<br>system<br>cost | Final System<br>cost as a<br>percentage of<br>constr. cost | Estim. annual<br>dollar value of<br>energy produced | Estim.<br>simple<br>payback<br>time |
|----------------------------------------|------------------------------|-------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------------------------------------|-----------------------------------------------------|-------------------------------------|
| 10,000 s.f.<br>commercial<br>building  | \$1,500,000<br>(\$150/ s.f.) | \$11,000                            | \$3,176<br>(\$2.50/<br>watt) | \$1,564                      | \$6,260                      | .4% (.0041)                                                | \$380 (\$.3/ kWh)                                   | <u>16 1/2<br/>years</u>             |
| 10,000 s.f.<br>multifamily<br>building | \$1,700,00<br>(\$170/ s.f.)  | \$11,000                            | \$3,176<br>(\$2.50/<br>watt) | \$1,564                      | \$6,260                      | .3% (.0036)                                                | \$380 (\$.3 kWh)                                    | <u>16 1/2<br/>years</u>             |

### Estimated cost of each 1 kw PV system if financed as part of the overall Building

Estimated 30 year finance costs as of April 2007 of \$1,000: \$4.50 per month or \$54 per year.

A final 1 kw solar PV cost of \$6,260 finance cost would be \$28 per month or \$336 per year.

A final 1 kw solar PV cost of \$6,260 would produce an energy value of \$31 per month or \$380 per year.

Financing as part of the overall building a 1 kw solar PV system may result in a positive cash flow of approximately \$3 per month or \$34 per year.

### Estimated Carbon Emissions Reduction of a 1 kW solar PV system

Each 1 kw solar PV system is reasonably expected to generate 1,151 kWh annually.

Based on a carbon dioxide emission factor of 818 pounds per Mwh a 1 kW PV system would save approximately 940 lbs of carbon dioxide emissions per year.

### **Implementation Plan**

The proposed Culver City solar initiative would only apply to the larger commercial and multifamily residential construction projects in Culver City. Culver City is approximately 98% built out. There are approximately 2,400 construction permits, including plumbing, electrical, and mechanical permits, issued in a typical year in Culver City. The vast majority of them are for small residential or commercial remodel and/ or addition projects.

The proposed Culver City solar initiative would apply to approximately 6 - 12 projects per year, obviously varying each year.

All medium to large proposed Culver city development projects are required to complete a City Planning Division discretionary review prior to any construction permit applications.

If the solar initiative is put into effect each project applying for a discretionary review would receive an informational handout; describing the program and listing further sources of information, system installers, etc.

All qualifying projects applying for construction permits will again be informed of the requirement at the time of permit application.

All projects the solar initiative applies to that apply for construction permits would be required to supply the standard energy forms and information on the plans indicating compliance with the 2005 California Energy Efficiency Standards. There will be no changes to the energy forms or the field inspection of qualifying projects, other than the plan review and field inspections of the required solar PV systems.

Culver City Building Safety staff have attended a training seminar on field inspecting solar PV systems, given by Mr. Bill Brooks of Brooks Engineering.

Required solar PV systems will be field inspected concurrently with the overall building construction. The overall building construction will not receive a final inspection nor will it receive a certificate of occupancy until all building systems, including the solar PV systems, are completed and operating.

January 2007

**Culver City proposed mandatory 1 kw solar photovoltaic system per 10,000  
s.f. of new commercial or multifamily construction**

Cost/ benefit analysis of a 1kw solar photovoltaic system installed on a 10,000  
s.f.

**COSTS**

Estimated installed cost of a 1kw solar photovoltaic grid intertie system (not  
including any rebates):

\$12,000.00

Estimated Operation and Maintenance Costs over 30 years

\$4700.00

Total Costs over life of System

\$16,700.00

**SAVINGS**

Energy Savings Over 30 Year Life Expectancy

\$24900.00

Federal Tax Credit

\$2700.00

Federal Depreciation

\$40.00

State Depreciation

\$200.00

Income Tax on Electricity Savings

\$(10100.00)

Income Tax on Rebates

\$(200.00)

Total Savings over life of System

\$17500.00

Payback  
years

29

Craig Johnson  
Building Official  
Culver City Building Safety Division