DEPARTMENT OF CITY PLANNING
RECOMMENDATION REPORT

CITY PLANNING COMMISSION

DATE: May 25, 2017
TIME: after 8:30 a.m.*
PLACE: Van Nuys City Hall
Council Chamber, 2nd Floor
14410 Sylvan Street,
Van Nuys, CA 91401

CASE NO: None
CEQA NO.: Not Applicable
PLAN AREA: All

SUMMARY: A recommendation to amend Chapter 9 (Building Code) of the Los Angeles Municipal Code (LAMC) to require solar photovoltaic (PV) systems on specified building types citywide based on the State's Model Ordinance.

RECOMMENDED ACTION:

1. Endorse the State's Model Ordinance as a template for a proposed solar ordinance for the City of Los Angeles.

2. Support Department staff's work with the Mayor's Office, LADBS, LADWP, Fire and others to collaborate on amending the LAMC to require that solar PV systems be installed on specified building types.

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ADVICE TO PUBLIC: *The exact time this report will be considered during the meeting is uncertain since there may be several other items on the agenda. Written communication may be mailed to the Commission Secretariat, 200 North Spring Street, Room 532, Los Angeles, CA 90012 (Phone No. 213/978-1300). While all written communications are given to the Commission for consideration, the initial packets are sent a week prior to the Commission's meeting date. If you challenge these agenda items in court, you may be limited to raising only those issues you or someone else raised at the public hearing agendized herein, or in written correspondence on these matters delivered to this agency at or prior to the public hearing. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability, and upon request, will provide reasonable accommodation to ensure equal access to these programs, services, and activities. Sign language interpreters, assistive listening
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A. Summary of Solar Roof Ordinances in Select Cities
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Summary

With an interest in expanding renewable energy usage citywide, the Department conducted a review of other local and State solar ordinances to recommend a direction for the City to expand the use of solar energy on private property. After convening a working group of relevant City departments, reviewing municipal solar ordinances, and analyzing the State’s Draft Model Local Solar Ordinance (State’s Model Ordinance), the Department recommends that the Los Angeles Municipal Code (LAMC) be amended to require solar photovoltaic (PV) systems on all new single family and low-rise residential structures, similar to that of the State’s Model Ordinance.

Background

Los Angeles has the greatest amount of installed solar capacity in the country and has been a leader in local solar power usage. This accomplishment has significantly reduced the City’s reliance on fossil fuels and has lowered the City’s greenhouse gas emissions. The City Planning Commission (CPC) has championed this effort by regularly mandating solar panel installation in many of the projects it approves. However, since most development projects are neither conditioned by the CPC or other decision makers, the installation of solar PV systems on the majority of new construction projects is done on an ad hoc basis.

Over the years, various City departments (including the Department of City Planning (DCP), Department of Water and Power (LADWP), the Department of Building and Safety (DBS), the Fire Department and the Mayor’s Office) have collaborated on multiple initiatives to advance the City’s solar power capacity. Examples include LADWP’s streamlined process for issuing solar permits and rebates; DCP’s amendments to reduce the required length and width of parking stalls to facilitate the construction of structures which support solar energy systems; and DCP’s creation of a Master Conditional Use Permit (CUP) for solar power generating plants (required when energy is generated for off-site use). The Master CUP allows many solar projects to be approved administratively instead of being subject to CUPs for every individual solar power generating plant.

Although the LAMC currently requires that most new buildings be “solar ready”, there is no requirement for solar systems to be installed. In order to further solar energy generation and use, it is recommended that the City mandate solar PV installation for specified types of newly constructed buildings.

Discussion

Local Solar Ordinances

To continue the progress that has been made in expanding the use of solar energy, the Department has prepared a study of best practices, gathering input from other cities.
Staff reviewed the solar ordinances of Culver City, Lancaster, San Francisco, Santa Monica, and Fremont (Exhibit A). These local ordinances were written between 2007 and 2017 and require the installation of solar PV systems on newly constructed buildings. All of the ordinances reviewed are flexible, describing exceptions and alternatives to the solar PV system requirements. With the exception of Culver City’s ordinance, all of the ordinances are located in the Building Code, either in the Energy Code section or the Green Building section.

Amongst the reviewed cities, there is a wide range of building types required to install solar PV systems. San Francisco and Santa Monica require installations on all types of buildings. Fremont requires installations on all residential buildings. Culver City requires solar installations on multifamily and commercial, while Lancaster only requires them on single family buildings.

In determining the amount of watts that must be generated, the cities mostly use a prescriptive versus performance based method. Culver City, Lancaster, and Santa Monica require that the amount of watts for a solar PV system be based on floor area or building footprint. San Francisco requires that the amount of watts be based on square feet of “solar-ready” area, which refers to the square feet of roof area which the California Building Standards requires be reserved for the installation of solar panels. Fremont also uses a prescriptive method for buildings with less than 4,500 square feet of floor area, however it calls for a performance method for larger buildings.

**State’s Model Ordinance**

The California Energy Commission (CEC) is the State’s energy policy and planning agency. In April 2017, the CEC released a model ordinance (Exhibit B) that cities can use to require solar PV systems on single family buildings and low-rise residential (three stories or less and no more than two dwelling units) structures. The amount of solar PV is determined by the building floor area square footage. For buildings with less than 4,500 sf of floor area, energy production is required per square foot of floor area. For buildings with floor area of 4,500 sf or more, a performance method determines the size of the required solar PV system.

The CEC is charged with developing and updating Building Energy and Appliance Efficiency Standards for California. They have established the goal that new building standards achieve Zero Net Energy levels by 2020 for residences and by 2030 for commercial buildings. Every three years when the California Building Standards are updated, the Energy Efficiency Standards are strengthened, and will ultimately lead to the aforementioned Zero Net Energy levels. Cities are encouraged to stay ahead of the Building Standards update cycle by adopting Reach Codes, or local ordinances which exceed the State’s Energy Code requirements. A solar PV system requirement for Los Angeles would be approved as a Reach Code by the CEC because it would require a higher level of energy efficiency than the State’s Building Standards.
The Department recommends that the working group begin drafting a Reach Code based on the State’s model ordinance. The model ordinance can serve as a starting point for the working group, who can then tailor ordinance requirements to meet the City’s needs. The proposed ordinance would then be transmitted as a Building Code amendment from the LADBS to the City Council for Council and Mayor consideration.

Using the State’s Model Ordinance as a template is recommended because it would provide the City with a head-start in preparation for impending Zero Net Energy requirements in 2020. Additionally, the prescriptive method outlined in the State’s Model Ordinance is transparent and easy to implement. If applied in Los Angeles, an ordinance based on this model would apply to 82% of all buildings that were permitted by DBS in 2016.

**Conclusion**

The Department recognizes the importance of expanding the City’s generation and use of renewable energy. After reviewing local ordinances and the State’s Model Ordinance, staff recommends that DCP continue to coordinate the interdepartmental working group and prepare a Reach Code based on the CEC’s State’s Model Ordinance.
<table>
<thead>
<tr>
<th>City</th>
<th>Single Family</th>
<th>Two Family</th>
<th>Multifamily</th>
<th>Commercial</th>
</tr>
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<tbody>
<tr>
<td>Culver City</td>
<td></td>
<td></td>
<td>New bldgs. With 10,000 sf of floor area shall install a 1 kw PV system for each 10,000 sf (.1 watt per sf for each 10,000 sf of floor area)</td>
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<tr>
<td>Lancaster</td>
<td>New bldgs. shall install a PV system, 2 watts per sq of floor area (2 watts per sf of floor area)</td>
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<td>San Francisco</td>
<td>New bldgs. of 10 floors (max) shall install a PV system in all of the solar ready area, (10 watts per sf of solar ready area) - 250 sf</td>
<td>New bldgs. of 10 floors (max) shall install a PV system in all of the solar ready area, (10 watts per sf of solar ready area) – 15% of roof.</td>
<td>New bldgs. of 10 floors (max) shall install a PV system in all of the solar ready area, (10 watts per sf of solar ready area) - 15% of roof.</td>
<td>New bldgs. of 10 floors (max) and 2000 sf floor area shall install a PV system in all of the solar ready area, (10 watts per sf of solar ready area) - 15% of roof.</td>
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<td>Santa Monica</td>
<td>New bldgs. shall install a PV system, (1.5 watts per sf of floor area)</td>
<td>New bldgs. shall install a PV system, (1.5 watts per sf of floor area)</td>
<td>New bldgs. shall install a PV system, (2 watts per sf of bldg. footprint)</td>
<td>New bldgs. shall install a PV system, (2 watts per sf of bldg. footprint)</td>
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<tr>
<td>Fremont</td>
<td>New bldgs. with less than 4,500 sf of habitable space install a PV system, (1.5-3.5 kw, depending on sf of habitable space). New bldgs. with 4,500 sf or more of habitable space must meet a min % of bldg.’s TDV energy budget with solar energy.</td>
<td>New bldgs. with less than 4,500 sf of habitable space shall install a PV system, (1.5-3.5 kw, depending on sf of habitable space). New bldgs. with 4,500 sf or more of habitable space must meet a min % of bldg.’s TDV energy budget with solar energy.</td>
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MANDATORY REQUIREMENTS FOR THE INSTALLATION OF PHOTOVOLTAIC SOLAR ENERGY SYSTEMS [DRAFT]

(A) DEFINITIONS

LOW-RISE RESIDENTIAL STRUCTURE is a building that is of Occupancy Group R and is three stories or less.

MODULE NAMEPLATE OUTPUT is the nameplate DC power rating of the solar module, measured under Standard Test Conditions.

NEWLY CONSTRUCTED BUILDING is a building that has never been used or occupied for any purpose.

R-3 RESIDENTIAL OCCUPANCIES where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-2.1, R-3.1, R-4 or I, including:
  - Buildings that do not contain more than two dwelling units.
  - Townhouses not more than three stories above grade in height with a separate means of egress.
  - Adult facilities that provide accommodations for six or fewer persons of any age for less than 24-hours. Licensing categories that may use this classification include, but are not limited to:
    - Adult Day Programs.
  - Child care facilities that provide accommodations for six or fewer persons of any age for less than 24-hours. Licensing categories that may use this classification include, but are not limited to:
  - Day-care Center for Mildly III Children, Infant Care Center and School Age Child Day-care Center.
  - Family Day-care Homes that provide accommodations for 14 or fewer children, in the provider's own home for less than 24-hours.
  - Congregate living facilities or congregate residences with 16 or fewer persons.

SINGLE-FAMILY BUILDING is a single dwelling unit of occupancy group R-3, as defined in the California Building Code, which stands separate and unattached from other dwelling units but may have an attached garage.

STEEP-SLOPED ROOF has a ratio of rise to run of greater than 2:12

TDV is time dependent valuation.

(B) PURPOSE AND INTENT

It is the purpose and intent of this section to provide standards for builders and developers of newly constructed single-family buildings and low-rise residential structures to install solar photovoltaic systems
at the time of construction in an effort to achieve energy savings and increase deployment of renewable energy technology.

(C) REQUIREMENT

Newly constructed buildings that are single-family buildings of group R-3 occupancy or low-rise residential structures in [NAME OF CITY OR COUNTY] constructed on or after [DATE] shall:

(1) Be designed to include the green building measures specified as mandatory under the California Green Building Standards Code (CalGreen) section [4.201] and the efficiency requirements of section [A4.203.1.1.2] with the following amendments to section [4.201];

(2) Have a solar photovoltaic system installed. The minimum system requirement shall be satisfied using either of two methods, prescriptive or performance:

   (a) Prescriptive Method. The method shall be applicable to those buildings less than 4,500 square foot of conditioned floor space. The nameplate system size shall be calculated as the sum of each solar module’s nameplate output. The minimum capacity shall be:

   Table 1: Minimum Nameplate System Size (kW DC) Required [SAMPLE CZ12]

<table>
<thead>
<tr>
<th>Conditioned Space (ft²)</th>
<th>Minimum kW (DC) Required</th>
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</thead>
<tbody>
<tr>
<td>Less than 1000</td>
<td>1.5</td>
</tr>
<tr>
<td>1000 - 1499</td>
<td>1.9</td>
</tr>
<tr>
<td>1500 - 1999</td>
<td>2.3</td>
</tr>
<tr>
<td>2000 - 2499</td>
<td>2.7</td>
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<tr>
<td>2500 - 2999</td>
<td>3.1</td>
</tr>
<tr>
<td>3000 - 3499</td>
<td>3.4</td>
</tr>
<tr>
<td>3500 - 3999</td>
<td>3.8</td>
</tr>
<tr>
<td>4000 - 4499</td>
<td>4.2</td>
</tr>
</tbody>
</table>

   (b) Performance Method. Install a solar photovoltaic system sized to meet the minimum percentage of the building’s total TDV energy on an annual basis, as defined in Table 2. The system sizing requirement shall be based upon total building TDV energy use including both conditioned and unconditioned space in and calculated using modeling software or other methods approved by the Building Official. Buildings with 4,500 square foot or greater of conditioned floor area must use the performance method.

Table 2: Minimum Percent Reduction of Total Annual TDV Energy Use by Climate Zone

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>PV % Total TDV</th>
</tr>
</thead>
</table>

2
(3) The system shall be located on-site;

(4) Fixed orientation systems located on a steep-sloped roof shall be oriented between 110 degrees and 270 degrees of true north. There is no tilt requirement for the solar photovoltaic system;

(5) All systems must meet the minimal shading criterion to satisfy the installation requirement. The minimal shading criterion requires that no obstruction is closer than a distance “D” of twice the height “H” of the obstruction (the distance “D” must be at least two times greater than the height “H”). All obstructions that project above the point on the array that is closest to the obstruction must meet this criterion for the array to be considered minimally shaded. Obstructions that are subject to this criterion include:

(a) Any vent, chimney, architectural feature, mechanical equipment, or other obstruction that is on the roof or any other part of the building.
(b) Any part of the neighboring terrain.
(c) Any tree that is mature at the time of installation of the photovoltaic system.
(d) Any tree that is planted on the building lot or neighboring lots or planned to be planted as part of the landscaping for the building (the expected shading must be based on the mature height of the tree).
(e) Any existing neighboring building or structure.
(f) Any planned neighboring building or structure that is known to the applicant or building owner.
(g) Any telephone or other utility pole that is closer than 30 feet from the nearest point of the array;

(6) Solar energy systems that are leased by the end-use customer (tenant or owner) or that supply electricity to the end-use customer through a power purchase agreement (PPA) may be used to satisfy the requirement provided the system meets all other requirement criteria; and

(7) Shall comply with the 2016 Title 24 Building Energy Code without claiming the solar compliance credit described in Section 2.2.3 of the 2016 Title 24, Part 6, Residential Alternative Calculation Method.

(D) EXCEPTIONS

(1) The Building Official may exempt a covered building from the provisions of this Chapter if the Official determines there are sufficient practical challenges to make satisfaction of the
requirements infeasible. Practical challenges may be a result of the building site location, limited rooftop availability, or shading from nearby structures, topography or vegetation. The applicant is responsible for demonstrating requirement infeasibility when applying for an exemption.

(2) The building Official may exempt a covered building from the provisions of this Chapter if the Official determines the building has satisfied the purpose and intent of this provision through the use of alternate on-site renewable systems such as wind energy systems.