Communication from Public

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Comments for Public Posting: Please see attached memo.

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MEMORANDUM

To: Office of the City Clerk
City of Los Angeles

Date: 11/11/2022
From: Adams, Michael
cc: Stern, Brian – Glumac
Stewart, Gordon – Glumac
Gallucci, Nick – Glumac
Eshaghof, Manuel - Glumac

Subject: **Item #22-0151 – New Construction Building Electrification**

Glumac is a full-service mechanical, electrical & plumbing design engineering firm and work on millions of square feet of new construction projects within the city of Los Angeles.

We commend the city council in proposing this ordinance and taking this step in addressing climate change. We support the proposed ordinance, with the exception of a recommendation for alternate for Item A.1.b.

Proposed Amendments

The current language recommended for Council action is –

b. Require all new hotel, motel, and residential buildings over a number of units to be determined to install a solar thermal water heating system for a portion of the domestic hot water demand if they have a flat roof and central domestic water heating system.

i. Except that new hotel, motel, and residential buildings that implement greywater and/or dual plumbing systems shall be exempt from the solar thermal water heating system requirement.

We propose an additional exception (ii) –

ii. Except that new hotel, motel, and residential buildings that implement a heat pump domestic hot water heater system with solar photovoltaic array capable of using equivalent or less energy than system described/calculated in A.1.b.

This will provide project teams with great design flexibility without any negative environmental impacts to the City.

Technical Considerations

We have compared installing Solar Thermal versus Heat Pump Water Heaters + Solar PV on multiple projects in Southern California and have found there are instances where there are benefits for a heat pump + PV system.

Energy Generation Utilization
Solar thermal systems generate hot water. If there is limited domestic hot water demand on a given day, excess solar thermal hot water cannot be stored and needs to be dissipated back into the atmosphere. Solar PV systems can provide energy to other building systems (lights, plugs, air conditioning, etc.) or feed back into the local grid to serve other buildings (with a $/kWh from utility).

- Energy Source (Electricity/Gas)
  - Historically, solar thermal systems offset natural gas boilers (big reduction in EUI & greenhouse gas emissions) to generate domestic hot water. For UC System, all new construction space heating & domestic hot water heating systems are required (some exceptions) to utilize fully electric systems. Solar thermal systems will offset electricity usage (from heat pump water heater). Solar PV systems can generate more usable electricity and provide higher ROI & savings to ownership over the lifetime of the system.
- Future Proof

    - As buildings electrify (new construction & existing), a building that can provide assistance to grid operational needs (flexibility, harmonization, demand response) will be needed to maintain efficient utility costs in operation. Buildings with distributed energy resources (DER) that can alleviate strain on grid conditions will provide financial & operational benefits for owners.
- Maintenance
    - Solar PV can be ballasted to roofs at low profiles (0 - 15 degrees S-facing) without losing much efficiency, minimizing penetrations through the roof membrane. Solar thermal needs to be angled significantly higher (30 degrees + S-facing) which requires structural support needed for wind/mounting. Solar thermal systems also require distributed piping infrastructure to the roof and through the systems, connecting with the buildings domestic hot water system.
- Location
    - Solar thermal needs to be located near the water heater. Solar PV can be anywhere on the site
- Overall Efficiency
    - Due to increased PV efficiency, heat pump efficiency, and improved controls/storage for these domestic water heating systems – solar PV + heat pump will use less energy than solar thermal + heat pump or gas water heater.