



Peninsula Advanced Energy Community (PAEC)

Task 2.12: Final Model Ordinances for San Mateo County

Prepared for
California Energy Commission
1516 Ninth St., MS-51
Sacramento, CA 95814

Prepared by
DNV GL
155 Grand Ave #500
Oakland, CA 94612
www.dnvgl.com

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About DNV GL

DNV GL is a global energy and climate consulting practice serving government, utility and private sector clients with 15,000 employees in more than 100 countries. DNV GL – Energy’s 2,300 experts offer a broad range of energy consulting services spanning all links in the energy value chain including renewable and conventional power generation, power and natural gas transmission and distribution, smart cities and smart grids, sustainable energy use, and energy markets and regulations.

Visit us online at www.dnvgl.com

About the Clean Coalition

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise.

The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

Visit us online at www.clean-coalition.org.

Legal Disclaimer

This document was prepared as a result of work sponsored by the California Energy Commission. It does not necessarily represent the views of the Energy Commission, its employees, or the State of California. Neither the Commission, the State of California, nor the Commission's employees, contractors, nor subcontractors makes any warranty, express or implied, or assumes any legal liability for the information in this document; nor does any party represent that the use of this information will not infringe upon privately owned rights. This document has not been approved or disapproved by the Commission, nor has the Commission passed upon the accuracy of the information in this document.

I. Introduction

The Clean Coalition's Peninsula Advanced Energy Community (PAEC), supported by numerous local governments and PG&E, will accelerate the planning, approval, and deployment of an Advanced Energy Community (AEC) within a diverse community in the southern portion of San Mateo County. The core PAEC region encompasses the cities of Atherton, East Palo Alto, Menlo Park, and Redwood City as well as surrounding unincorporated areas. The PAEC region -largely built-out yet also experiencing enormous commercial and residential growth pressure - is representative of similar regions throughout California, ensuring that the PAEC's success can be replicated statewide. The PAEC project will include the key components necessary to define an AEC: abundant solar electricity, energy storage, and other Distributed Energy Resources (DER,) low or zero net energy (ZNE) buildings, Solar Emergency Microgrids (SEM) for power management and islanding of critical loads during outages, and charging infrastructure to support the rapid growth in electric vehicles.

AEC projects can provide significant energy, environmental, economic, and security benefits, but significant barriers too often impede their planning and deployment. Finding viable sites, securing project financing, and connecting AEC projects to the grid all represent significant challenges. The PAEC project is designed to overcome these barriers and establish a replicable model that can be used by other communities across California and beyond. The results of the PAEC will inform future action by policymakers, municipalities and other governmental agencies, utility executives, and other relevant audiences.

The goals and objectives of this project are to:

- Incentivize and accelerate the planning, approval, financing, and deployment of AECs
- Reduce the time, cost, and uncertainty associated with permitting and interconnecting commercial-scale solar and other DER
- Leverage ZNE, efficiency, local renewables, energy storage, and other DER to reduce 25 MW of peak energy across San Mateo County, which will strengthen the grid
- Reduce use of natural gas, and minimize the need for new energy infrastructure
- Create a model project and project elements that can be replicated throughout California and beyond



II. Purpose

As part of Task 2 of the PAEC project, DNV GL worked with key stakeholders to identify AEC ordinances of interest that can be scalable to other cities in the County and statewide.

The final ordinances presented below were developed through a stakeholder-driven process that included a focus group of jurisdictions across the southern part of San Mateo County, including the cities of Redwood City, East Palo Alto and Menlo Park and the unincorporated County. A set of draft ordinances were vetted during a stakeholder workshop held on May 23rd, and attended by 8 cities, County of San Mateo, Peninsula Clean Energy (PCE) and numerous local stakeholders including neighboring jurisdictions and Build It Green.

During the workshop, stakeholders elected to focus on providing input on implementation challenges and opportunities related to three of the draft model ordinances. Stakeholders felt that Policy 2-EV-NC which focused on electric vehicle fast-charging requirements was likely to be the least controversial, and elected to focus discussions on the remaining three model ordinance concepts.

As part of the PAEC project, two additional follow-on workshops are planned in 2017 to advance local progress on AEC permitting and approval across San Mateo County and beyond.

a. List of Model Ordinances

In the final model ordinances below, example language is provided for each ordinance. **Yellow highlighted** content are areas identified specifically for customization by each local jurisdiction, pertaining to their specific municipal, administrative or building code:

- Policy 1-EV-MF. Electric Vehicle Charging Station Ordinance for Cost-Share in Leased Buildings.
- Policy 2-EV-NC. Electric Vehicle Fast Charger Ordinance for New Large Retail Buildings.
- Policy 3-PV. Ordinance for Solar Photovoltaic Carports on New Parking
- Policy 4-HP. Ordinance for Renewable Space and Water Heating

During the stakeholder workshop, some cities expressed concerns related to Policy 1-EV-MF and that the requirements for landlord cost-share might be too burdensome for smaller multi-family building owners. One city mentioned that it had a many 4-8 unit multi-family buildings and that the ordinance was likely to face significant opposition from the building owners. A minimum threshold of 10 unit multi-family buildings was considered for Policy 1-EV-MF, but lacking data on the distribution of different multi-family building sizes across

San Mateo County, it was determined to leave it up to individual cities to determine whether a minimum dwelling unit size threshold should be applied.

Please see Workshop #1 notes for more information and detail on specific feedback.

III. Conclusion

To achieve the ultimate vision of the PAEC requires innovation and leadership from our local jurisdictions. Based on the research-conducted to-date, integrated clean energy technology opportunities are expanding rapidly and at a much faster rate than policy innovation. A key challenge is to develop appropriate policy levers that realize the overall societal benefits without over-burdening specific stakeholders including building owners, renters, and real estate agents. Next steps for this task are to continue to utilize the attached model ordinances to engage and challenge stakeholders to explore new opportunities for innovation in policy and identify near-term priorities for local policy adoption across California, and beyond.

IV. References

2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6, and Associated Administrative Regulations in Part 1), CEC-400-2015-037-CMF

City of Berkeley Mandatory Requirements for the Installation of Photovoltaic Solar Energy Systems (September 27, 2016 Draft)

City of Palo Alto EVSE Ordinance (June 16, 2014)

City of San Francisco EV Ready Ordinance as Introduced February 28, 2017

City of San Francisco Better Roof Requirements for Renewable Energy Facilities

City of San Mateo Ordinance Amending Title 23 Building and Construction of the San Mateo Municipal Code

Oakland City Council Ordinance Adopting Local Amendments to Section 4.106.4 and 5.106.5.3 of the 2016 Edition of the California Green Building Standards

Sample 1: Ordinance Language

ELECTRIC VEHICLE CHARGING STATION ORDINANCE FOR COST-SHARE IN LEASED BUILDINGS

Ordinance No. XXXXX

An uncodified ordinance of the City Council/Board of Supervisors of the City/County of [JURISDICTION] approving adoption of Chapter NUMBER (Electric Vehicle Charging Station Cost-share in Retrofit Projects) of the [JURISDICTION] [Municipal/Administrative/Building/Other] to establish a requirement for cost-share of installation of electric vehicle charging infrastructure in multi-unit dwellings.

The Council/Board of the City/County of [JURISDICTION] does ORDAIN as follows:

SECTION 1. Findings and Declarations.

California Assembly Bill (AB) 2565 provides that for a residential lease executed, extended, or renewed after July 1, 2015, “a lessor of a dwelling shall approve a written request of a lessee to install an electric vehicle charging station at a parking space allotted for the lessee that meets the requirements of this section and complies with the lessor’s procedural approval process for modification to the property.” The law assumes that the lessee pays the full cost of the charging station installation,

Promoting the use of electric vehicles is needed to meet the requirements of climate change and the city’s/county’s climate action plan. Split incentives are a market failure for leased properties related to a range of energy efficiency and clean energy project, including electric vehicle charging stations. Therefore, this ordinance seeks to overcome one of the most significant barriers to EV charging stations in leased property through requiring a cost-share by the lessor and lessee.

SECTION 2. Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building...] Code is hereby amended by adopting a new Chapter NUMBER to read as follows:

(A) DEFINITIONS

ELECTRIC VEHICLE CHARGING STATION. Electric vehicle charging station” or “charging station” means a station that is designed in compliance with Article 625 of the National Electrical Code, as it reads on the effective date of this section, and delivers electricity from a source outside an electric vehicle into one or more electric vehicles. An electric vehicle charging station shall meet applicable health and safety standards and requirements imposed by state

and local authorities as well as all other applicable zoning, land use, or other ordinances, or land use permit requirements.

LEVEL 1 CHARGING STATION. Level 1 outlets used for PEV charging should be National Electrical Manufacturers Association (NEMA) commercial grade outlets that meet National Electric Code (NEC) requirements. These outlets are 110-120V and on a dedicated circuit, preferably rated for 20 amps. Using a ground fault circuit interrupter (GFCI) outlet with an outlet cover is required for outdoor use or anywhere the outlet could get wet. Electric Vehicles come equipped from the manufacturers with portable Level 1 chargers.

LEVEL 2 CHARGING STATION. Level 2 outlets used for PEV charging should be National Electrical Manufacturers Association (NEMA) commercial grade outlets that meet National Electric Code (NEC) requirements. These outlets are 220-240V and on a dedicated circuit, preferably rated for 40 amps.

REASONABLE COSTS. “Reasonable costs” includes, but is not limited to, costs associated with those items specified in the “Permitting Checklist” of the “Zero-Emission Vehicles in California: Community Readiness Guidebook” published by the Office of Planning and Research.

(B) PURPOSE AND INTENT

In line with state policy, it is the policy of the **City/County** to promote, encourage, and remove obstacles to the use of electric vehicle charging stations. While AB 2565 requires a lessor of a dwelling to approve a written request of a lessee to install an electric vehicle charging station at a parking space allotted for the lessee, there is a split-incentive problem that discourages investment in charging stations for leased property. The cost of the installation is born entirely by the lessee even though significant components of the charging station are permanent modifications to the lessor’s property. As such, the purpose of this ordinance is to address the split-incentive problem, by requiring a cost-share by the lessor for the installation of charging stations at the leased property.

(C) APPLICABLE PROJECTS

The provisions of this Chapter shall apply to both residential and commercial tenancies.

Consistent with AB 2565, this ordinance does not apply to residential rental properties where:

- i. Electric vehicle charging stations already exist for lessees in a ratio that is equal to or greater than 10 percent of the designated parking spaces.
- ii. Parking is not provided as part of the lease agreement.
- iii. A property where there are less than five parking spaces.

- iv. A dwelling that is subject to the residential rent control ordinance of a public entity.

Consistent with AB 2565, this ordinance does not apply to any of the following:

- v. A commercial property where charging stations already exist for use by tenants in a ratio that is equal to or greater than two available parking spaces for every 100 parking spaces at the commercial property.
- vi. A commercial property where there are less than 50 parking spaces.

(D) REQUIREMENT *(EDIT RELEVANT CONTENT)*

Consistent with AB 2565, for any lease executed, extended, or renewed on and after July 1, 2015, a lessor of a dwelling shall approve a written request of a lessee to install an electric vehicle charging station at a parking space allotted for the lessee that meets the requirements of this section and complies with the lessor’s procedural approval process for modification to the property.

SECTION X-1. Cost-share

For any lease executed, extended or renewed on or after July 1, 2017, this ordinance extends the requirement of AB 2565 to obligate the lessor to provide, at the request of the tenant, 100% cost for Level 1 charging station or a 50% cost-share for Level 2 charging station and its infrastructure, including all reasonable costs associated with the installation of the charging station and its infrastructure. The reasonable costs associated with modifications and improvements shall include, but are not limited to, the cost of permits, supervision, construction, and, solely if required by the contractor, consistent with its past performance of work for the lessor, performance bonds.

For applicable residential rental properties, at the request of the tenant, the lessor shall incur 100% cost for Level 1 charging or a 50% cost-share for Level 2 charging, including upgrading the rental unit such that it is lessee has on-site access to overnight charging within 5 feet of the parking space. Acceptable access to overnight charging includes:

- a) **For Level 1 charging:**
 - a. **NEMA compliant 120V, 12A outlet connected to the tenant meter**
 - b. **NEMA compliant 120V, 12A outlet connected to the landlord meter, with reasonable capture of charging cost to landlord by tenant.**
- b) **For Level 2 charging:**
 - a. **NEMA compliant 220V, 40A outlet connected to the tenant meter**

- b. NEMA compliant 220V, 40A outlet connected to the landlord meter, with reasonable capture of charging cost to landlord by tenant.
- c. Full Level 2 (220V) charging station installation

The cost-share does not extend to the lessee's payment for the costs associated with the electrical usage of the charging station, and cost for damage, maintenance, or repair of the charging station.

SECTION X-2. Financial Analysis

The lessee will provide a complete financial analysis and scope of work regarding the installation of the charging station and its infrastructure.

SECTION 3 – Effective Date. This ordinance shall become effective and be in full force on and after either **MONTH DATE, 2017**.

SECTION 4 - Posting. The City Clerk shall certify to the passage of this ordinance and shall cause it to be published according to legal requirements.

Sample 2: Ordinance Language

ELECTRIC VEHICLE FAST CHARGER ORDINANCE FOR NEW LARGE RETAIL BUILDINGS

Ordinance No. XXXXX

Ordinance of the City Council/Board of Supervisors of the City/County of [JURISDICTION] Amending Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building/Other] Code, California Building Standards Code, 2016 Edition, and Local Amendments and Related Findings.

The Council/Board of the City/County of [JURISDICTION] does ORDAIN as follows:

SECTION 1. Findings and Declarations.

Governor Brown's Executive Order of March 2012, directs state government to support and facilitate the rapid commercialization of zero-emission vehicles (ZEVs), with a target of having 1.5 million ZEVs on California roadways by 2025. To meet this goal and in order for electric vehicles to proliferate, it is important that early consumers have a positive experience and that facilities be readily available to provide convenient charging stations for the electric vehicles.

Promoting the use of electric vehicles is needed to meet the requirements of climate change and the city's/county's climate action plan. California Health & Safety Code section 17958.7 provides that before making any changes or modifications to the California Building Standards Code and any other applicable provisions published by the State Building Standards Commission, including, but not limited to, green building standards, the governing body must make an express finding that each such change or modification is reasonably necessary because of specified local conditions, and the findings must be filed with the State Building Standards Commission before the local changes or modifications can go into effect.

The City Council/Board of Supervisors expressly declares that the following amendments to the [JURISDICTION] Green Building Code are reasonably necessary because of local climatic, topological, and geological conditions as listed below. Failure to address and significantly reduce greenhouse gas emissions could result in rises to sea level, heat waves, wildfire risk and health impacts that could put at risk [JURISDICTION] homes and businesses, and public facilities. The aforementioned conditions create hazardous conditions for which departure from California Green Building Standards Code is required.

Use of electric vehicles benefits the health, welfare, and resiliency of San Francisco and its residents.

[JURISDICTION]'s green building standards are contained in the [JURISDICTION]'s Building Code. In this Ordinance, [JURISDICTION] incorporates Sections 5.106.5.3 of the 2016 California Green Building Standards Code into the [JURISDICTION] Building Code with local amendments to Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building/Other] Code.

SECTION 2. Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building...] Code is hereby amended as follows:

(E) DEFINITIONS

ELECTRIC VEHICLE CHARGING STATION. Electric vehicle charging station” or “charging station” means a station that is designed in compliance with Article 625 of the National Electrical Code, as it reads on the effective date of this section, and delivers electricity from a source outside an electric vehicle into one or more electric vehicles. An electric vehicle charging station shall meet applicable health and safety standards and requirements imposed by state and local authorities as well as all other applicable zoning, land use, or other ordinances, or land use permit requirements.

ELECTRIC VEHICLE (EV) FAST CHARGER. Off-board charging equipment with a minimum direct current or alternating current power output of 24 kW, for the purpose of providing an electric vehicle charge in significantly less time than a Level 1 or Level 2 rated Electric Vehicle Charging Station.

FULL CIRCUIT. Required full circuits shall be installed with 40-Amp 208/240-Volt capacity including raceway, electrical panel capacity, overprotection devices, wire and termination point such as a receptacle at the time of construction. The termination point shall be in close proximity to the proposed EV charger location. Where a single EV parking space is required, the raceway shall not be less than trade size 1 (nominal 1-inch inside diameter).

INACCESSIBLE RACEWAY. Construction documents shall indicate wiring schematics, raceway methods, the raceway termination point and proposed location of future EV spaces and EV chargers. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

ELECTRICAL PANEL CAPACITY. Electrical panels shall be installed with capacity to support one 40-Amp 208/240-Volt circuit for each parking space specified in 4.106.4.2 under "Electrical Panel Capacity". Construction documents shall verify that the electrical panel service capacity

and electrical system including any on-site distribution transformers, have sufficient capacity to simultaneously charge all EVs at all required EV spaces at 40-Amps.

RETAIL BUILDING. A building that is Occupancy Group M, where the use of the building includes the display and sale of merchandise involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. For the purposes of this ordinance, mercantile occupancy shall include department stores, drug stores, markets, retail or wholesale stores and sales rooms.

REASONABLE COSTS. “Reasonable costs” includes, but is not limited to, costs associated with those items specified in the “Permitting Checklist” of the “Zero-Emission Vehicles in California: Community Readiness Guidebook” published by the Office of Planning and Research.

(F) PURPOSE AND INTENT

In line with state policy, it is the policy of the City/County to promote, encourage, and remove obstacles to the use of electric vehicle charging stations. Electric vehicles depend upon convenient access to charging, and the ability to serve electric vehicles in existing buildings is commonly limited by 1) the electrical system capacity of the building and 2) the cost to install the necessary conduit and wiring from the panel to the charging station. Consequently, the most cost-effective time to prepare a given building for electric vehicle charging station(s) is during construction particularly when the electric service is installed or upgraded and when otherwise inaccessible conduit pathways are available, because workers are already on-site, trenches are open, concrete/asphalt has not been poured, utility service upgrade costs are lower, permitting and administrative costs are lower, and it is more cost-effective to include such systems in existing construction financing.

Furthermore, while workplace and residential EV charging infrastructure is critical for EV owners, there remains gaps in EV charging infrastructure for public charging. This ordinance seeks to increase the availability of public charging infrastructure to support longer vehicle trips that may be outside of normal commute patterns and reduce EV owner “range anxiety.”

NOTE: Additions to code are *in italics*

Deletion to code are in ~~strikethrough~~

SECTION 2. The Green Building Code is hereby amended by revising Section 5.106.5.3.3 to read as follows:

SEC.5.106.5.3.3 EV charging space calculation [N]

With the exception of Group M occupancy buildings, Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.

SECTION 3. The Green Building Code is hereby amended by revising Section 5.106.5.3 to add a new Section 5.106.5.3.3.1 as follows:

5.106.5.3.3.1 Electric vehicle (EV) fast charging requirement for new retail

Table 5.106.5.3.3.1 shall apply to newly-constructed Group M occupancy buildings over 50,000 square feet, and to major alterations to existing Group M occupancy buildings over 50,000 square feet where electrical service to the building will be upgraded.

TABLE 5.106.5.3.3.1 Group M Occupancy EV Charging Requirements¹

Total Number of Actual Parking Spaces	Full Circuit	Inaccessible Raceway	EV Fast Chargers	Electric Panel Capacity ²
0-9	Not applicable to this building large retail building type			
10-25	Not applicable to this building large retail building type			
26-50	Not applicable to this building large retail building type			
51-75	10% of total	20% of total	1	Sufficient to supply 20% of spaces
76-100	10% of total	20% of total	1	Sufficient to supply 20% of spaces
101-150	10% of total	20% of total	1	Sufficient to supply 20% of spaces
151-200	10% of total	20% of total	2	Sufficient to supply 20% of spaces
201 and over	10% of total	20% of total	2	Sufficient to supply 20% of spaces

1. Calculation for spaces shall be rounded up to the nearest whole number
2. Electric panel capacity for Level 2 EV charging, in addition to the required EV Fast Charger

As required by Table 5.106.5.3.3.1, EV Fast Chargers consists of off-board charging equipment with a minimum direct current or alternating current power output of 40 kW, for the purpose of

providing an electric vehicle charge in significantly less time than a Level 1 or Level 2 Electric Vehicle Charging Station.

The electrical panel board(s) provided at each parking level served by EV Fast Chargers shall have sufficient capacity to supply each EV Fast Charger with a minimum of 40 kW AC in addition to the capacity required to serve current and future Level 2 charger requirements.

SECTION 3. The Green Building Code is hereby amended by revising Section 5.106.5.3.4 to read as follows:

5.106.5.3.4 Identification ~~[N]~~

The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV READY” for full circuits and otherwise “EV CAPABLE.”. The raceway termination location or receptacle shall be permanently and visibly marked as “EV READY” for full circuits and otherwise “EV CAPABLE” until such time as EV supply equipment are installed.

SECTION 3 – Effective Date. This ordinance shall become effective and be in full force on and after either **MONTH DATE, 2017**.

SECTION 4 - Posting. The City Clerk shall certify to the passage of this ordinance and shall cause it to be published according to legal requirements.

Sample 3: Ordinance Language

ORDINANCE FOR SOLAR PHOTOVOLTAIC CARPORTS IN NEW PARKING

Ordinance No. XXXXX

Ordinance of the City Council/Board of Supervisors of the City/County of [JURISDICTION] Amending Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building/Other] Code, California Building Standards Code, 2016 Edition, and Local Amendments and Related Findings.

The Council/Board of the City/County of [JURISDICTION] does ORDAIN as follows:

SECTION 1. Findings and Declarations.

California AB 32 and SB 350 mandate reductions in greenhouse gas emissions across the state. In order to reduce greenhouse gas emissions due to electricity in buildings, as well as heat island effects related to impermeable surfaces, cities across the state need to take steps to reduce energy consumed by buildings and produce renewable, low-carbon electricity to reduce pollution, benefit biodiversity, improve resilience to climate change by reducing localized heat islands and reduce the global warming effects of energy consumption.

California Health & Safety Code section 17958.7 provides that before making any changes or modifications to the California Building Standards Code and any other applicable provisions published by the State Building Standards Commission, including, but not limited to, green building standards, the governing body must make an express finding that each such change or modification is reasonably necessary because of specified local conditions, and the findings must be filed with the State Building Standards Commission before the local changes or modifications can go into effect.

The City Council/Board of Supervisors expressly declares that the following amendments to the [JURISDICTION] Green Building Code are reasonably necessary because of local climatic, topological, and geological conditions as listed below. Failure to address and significantly reduce greenhouse gas emissions could result in rises to sea level, heat waves, wildfire risk and health impacts that could put at risk [JURISDICTION] homes and businesses, and public facilities. The aforementioned conditions create hazardous conditions for which departure from California Green Building Standards Code is required.

SECTION 2. Chapter **NUMBER** of the **[JURISDICTION] [Municipal/Administrative/Building...]** Code is hereby amended by adopting a new Chapter **NUMBER** to read as follows:

(G) DEFINITIONS

SURFACE PARKING SPACES. A parking space for motor vehicle where there is no gross building area or roof above it, which includes the uppermost levels of parking structures that are otherwise uncovered. Area occupied by small, permanent building, such as booths used by parking attendants, is not parking area.

NEW CONSTRUCTION. A newly constructed building (or new construction) is a building that has never been used or occupied for any purpose and does not include additions, alterations or repairs.

NEW PARKING SPACES. New parking spaces included in building plans submitted for new construction permits.

SOLAR PHOTOVOLTAIC (PV) CARPORT. A carport is a covered structure used to offer limited protection to vehicles, primarily cars, from the elements. A solar photovoltaic carport consists of solar photovoltaic (PV) panels/modules that are designed to be on this covered structure and span to structural supports. The structure can either be free standing or attached to a wall, and shall comply with the minimum fire/roof classification requirements for roof covering as required by CRC Section R902.

(H) PURPOSE AND INTENT

Requiring solar photovoltaics at the time of new construction is more cost-effective than installing the equipment after construction because workers are already on-site, permitting and administrative costs are lower, and it is more cost-effective to include such systems in existing construction financing. Surface level parking lots contribute to urban heat island effect, increasing energy use in buildings and vehicles. Larger parking lots represent opportunities for significant renewable energy generation.

SECTION 2. The Building Energy Efficiency Standards for Residential and Non-residential Buildings, 2016 Edition, Title 24, Part 6 of the California Code of Regulations, as adopted and amended by the State of California, hereinafter called "Energy Code," are adopted as the rules, regulations and standards within this City as to all matters therein except as hereinafter modified or amended;

Section XX.XX.XXX. Local Amendment for Mandatory Solar Installations

All newly constructed buildings with more than 50 new surface parking spaces which apply for a building permit on or after January 1, 2017 shall install solar PV carports covering at least 50% of the parking spaces.

Solar PV carport systems: The total nameplate capacity of photovoltaic collectors shall be at least 10 Watts_{DC} per square foot of PV collector. Solar PV carport systems shall be installed in accord with all applicable state and local code requirements, manufacturer's specifications.

Exception: As an alternative, buildings may meet the solar PV carport requirement through a combination of building rooftop solar PV and solar PV carport. Up to 100% of the solar PV carport may be met with a rooftop solar PV system. The total nameplate capacity of photovoltaic collectors shall be at least 10 Watts_{DC} per square foot of PV collector and installed in accord with all applicable state and local code requirements, manufacturer's specifications.

SECTION 3 – Effective Date. This ordinance shall become effective and be in full force on and after either **MONTH DATE, 2017**.

SECTION 4 - Posting. The City Clerk shall certify to the passage of this ordinance and shall cause it to be published according to legal requirements.

Sample 4: Ordinance Language

RENEWABLE ENERGY THERMAL SYSTEMS ORDINANCE

Ordinance No. XXXXX

Ordinance of the City Council/Board of Supervisors of the City/County of [JURISDICTION] Amending Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building/Other] Code, California Building Standards Code, 2016 Edition, and Local Amendments and Related Findings.

The Council/Board of the City/County of [JURISDICTION] does ORDAIN as follows:

SECTION 1. Findings and Declarations.

California AB 32 and SB 350 mandate reductions in greenhouse gas emissions across the state. In order to reduce greenhouse gas emissions due to electricity in buildings, cities across the state are mandating energy efficiency strategies coupled with renewable energy requirements. However, due to the lack of biogas available in the market, there is no viable way to eliminate fossil fuel emissions due to natural gas use in buildings.

The predominant use of natural gas in the California building stock is for space heating systems, followed by water heating systems. In the past, utilizing gas for space and water heating systems was an understandable choice due to the lower operating cost and the relatively high emissions associated with grid-supplied electricity. This is no longer the case. Improvements in heat pump technology have reduced the operating cost of electric heating systems, while the uptake of renewable energy in California's grid has made grid-supplied electricity the cleanest choice available. It has become clear that reducing carbon emissions in new building stock will depend on choosing electric solutions over natural gas solutions wherever possible.

Promoting the use of space and water heating systems which are capable of running on 100% zero greenhouse emission energy sources is needed to meet the requirements of climate change and the city's/county's climate action plan. California Health & Safety Code section 17958.7 provides that before making any changes or modifications to the California Building Standards Code and any other applicable provisions published by the State Building Standards Commission, including, but not limited to, green building standards, the governing body must make an express finding that each such change or modification is reasonably necessary because of specified local conditions, and the findings must be filed with the State Building Standards Commission before the local changes or modifications can go into effect.

The City Council/Board of Supervisors expressly declares that the following amendments to the [JURISDICTION] Green Building Code are reasonably necessary because of local climatic, topological, and geological conditions as listed below. Failure to address and significantly reduce greenhouse gas emissions could result in rises to sea level, heat waves, wildfire risk and health impacts that could put at risk [JURISDICTION] homes and businesses, and public facilities. The aforementioned conditions create hazardous conditions for which departure from California Green Building Standards Code is required.

[JURISDICTION]'s green building standards are contained in the [JURISDICTION]'s Building Code. In this Ordinance, [JURISDICTION] incorporates Sections 4.508 and 5.508 of the 2016 California Green Building Standards Code into the [JURISDICTION] Building Code with local amendments to Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building/Other] Code.

SECTION 2. Chapter NUMBER of the [JURISDICTION] [Municipal/Administrative/Building...] Code is hereby amended as follows:

(I) DEFINITIONS

THERMAL SYSTEMS: Thermal systems as referenced in this ordinance include space heating and water heating systems.

ZERO CARBON THERMAL SYSTEMS. Zero carbon thermal building systems are those which are capable of running on a power or fuel source that is defined as renewable energy.

RENEWABLE ENERGY. Acceptable renewable energy to be used in zero carbon thermal systems includes: on-site renewable electricity, grid-sourced renewable electricity, solar thermal, non-SOx-producing biofuels, and renewably-produced hydrogen from water or biomass conversion.

(J) PURPOSE AND INTENT

In line with state policy, it is the policy of the City/County to reduce greenhouse gas emissions associated with buildings. This requires the reduction of energy use in buildings coupled with the capability of supplying the remaining energy use via renewable sources. The most cost-effective time to create a building incorporating zero carbon thermal systems is during design and construction, because the incremental capital cost of choosing zero carbon thermal systems is negligible at this time. In comparison, the costs of retrofitting installed fossil fuel systems with zero carbon thermal systems at a later time is much higher due to space and electrical infrastructure constraints.

SECTION 2. The Green Building Code is hereby amended by revising Section 4.508 Outdoor Air Quality (Residential) Section 5.508 Outdoor Air Quality (Nonresidential) to include the following additional subsections:

SEC.4.508.1 Zero carbon thermal systems [N]

For all new residential construction, all building thermal systems (space and water heating) must utilize renewable energy through any combination of the following measures:

- a) On-site renewable electricity;
- b) Grid-sourced renewable electricity;
- c) Solar thermal;
- d) Non-SO_x-producing biofuels;
- e) Renewably-produced hydrogen from water or biomass conversion.

If the intent is to utilize a utility-supplied renewable energy source (renewable electricity, renewable gas) it must be proven that the renewable energy source is available from the local utility at the time of construction.

If the intent is for liquid or gas fuel to be stored on-site due to inability to source from the utility, a tank must be included in the building design and meet all applicable codes and standards.

SEC.5.508.3 Zero carbon thermal systems [N]

For all new nonresidential construction, all building thermal systems (space and water heating) must utilize renewable energy through any combination of the following measures:

- a) On-site renewable electricity;
- b) Grid-sourced renewable electricity;
- c) Solar thermal;
- d) Non-SO_x-producing biofuels;
- e) Renewably-produced hydrogen from water or biomass conversion.

If the intent is to utilize a utility-supplied renewable energy source (renewable electricity, renewable gas) it must be proven that the renewable energy source is available from the local utility at the time of construction.

If the intent is for liquid or gas fuel to be stored on-site due to inability to source from the utility, a tank must be included in the building design and meet all applicable codes and standards.

Exceptions:

1. Hospitals may utilize non-renewable water heating equipment due to the high hot water demand in this building type

SECTION 3 – Effective Date. This ordinance shall become effective and be in full force on and after either MONTH DATE, 2017.

SECTION 4 - Posting. The City Clerk shall certify to the passage of this ordinance and shall cause it to be published according to legal requirements.