

Ten Actions a City Can Take to Reduce its GHG Emissions and Recommended Processes

League of Women Voters United States

National Climate Action Plan Committee

Subcommittee on Best Practices

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Introduction

This committee (The League of Women Voters National Committee on Climate Action Plans' Subcommittee on Best Practices in Climate Action Plans) has reviewed dozens of Climate Actions Plans (CAPs) from cities and counties throughout the country to understand what actions they propose to reduce Greenhouse Gas Emissions (GHGs). We worked from the period of February 2021 to June 2021. In summary, we found that:

- CAPs are plans for measures that a *city or county government* can take to reduce locally generated GHGs. They commonly set “**goals**” for reduction of GHGs emanating from their localities and also plan periodic “**inventories**” to measure progress towards the goals. The CAPs follow a fairly consistent format of describing broad “**strategies**” (e.g. transportation strategy, water strategy, urban greening strategy), followed by “**actions**” that are described as steps that the city/county will take in order to achieve the GHG emission reduction goals.
- The opportunities available to cities for taking action to reduce GHGs at the local level are potentially significant and effective.
- CAPs are generally prepared by private consultants hired by the cities, paid from varying budgetary sources, and a final draft is approved by local city councils or other governmental authorities after public consultation.
- The actions set forth in the CAPs are not self-executing and, in order to come into force, they must be voted on by the City Council or County Board of Supervisors or otherwise effectuated by governmental actions.
- In reading the CAPs, it was challenging to find specific actions and/or commitments to actions. Many of the bullets described as “actions” were

statements of intent to “explore,” “consider,” “discuss,” “invite to join,” conduct a feasibility study, make plans, or include actions in existing plans or revisions thereto. Some CAPs refer to educational or community outreach programs to persuade citizens to take private action. Some plans address strategies for adaptation to the effects of GHG emissions (“resilience”), as well for reduction GHG emissions. Some items listed as actions refer to processes for community engagement, social or racial inclusion and education.

- Many of the CAPs are lengthy documents, full of photos of diverse and active adults, seniors and children.
- Many of the CAPs omit actions that cities have authority to take and that are commonly accepted as important in GHG reduction, such as incentives for distributed or community solar energy, transitioning renewable energy in municipal buildings and vehicles, and terminating fossil fuel contracts.
- Although the CAPs generally acknowledge that the greatest reduction in GHG emissions *by far* comes from transitioning to non-fossil fuel energy sources in transportation and buildings, some of the CAPs focus on actions with *relatively* minor impact on GHG emissions.
- In some states, local planning departments are authorized in certain contexts to use CAPs to “streamline” environmental impact analysis in the permitting processes for new construction.
- Some CAPs describe plans or actions that cannot be implemented because of budgetary constraints or for other reasons.
- There is lack of clarity in the public and among policy makers about the difference between *actions* that are likely to reduce GHG emissions and *processes* for community engagement.

- Many cities have implemented actions to reduce GHG emissions independently of CAPs.

Given these findings, our committee decided that it would be useful for us to focus on identifying specific and effective actions that a city or county may choose to include in a CAP or to take independently of a CAP. In the “Examples” section of this report, we included both actions mentioned in CAPs and in other strategic documents.

At first, we sought to define “best practices,” but gradually decided that state and local policy and practical differences made it difficult to qualitatively describe actions as “best.” Instead, we sought to define specific actions that city and county governments can choose to take to reduce locally generated GHGs. Based on our research, we identified ten **categories of actions**, each of which has variations. A short form of the actions list is set forth as a chart, for easy reference, on p. 7 of this report.

We also found that **processes** that cities use to develop and implement their plans for reducing GHG emissions are different than actions but are also important. For that reason, we identified 10 processes that cities can follow in order to make their plans for GHG reduction effective. A short form of the processes list is set forth as a chart, for easy reference, on p. 14 of this report.

TEN ACTIONS that cities can take to reduce their GHGs

1. Terminate fossil fuel *purchase contracts* and enter only into renewable energy contracts.
2. Permit *new construction* only without fossil fuel energy.
3. Retrofit or build *municipal structures* for renewable energy supply and energy efficiency. Install solar PV systems.
4. Require, or create incentives for, retrofit of *private buildings* for renewable energy supply and energy efficiency.
5. Offer incentives for and facilitate residential, neighborhood and commercial *rooftop solar*.
6. Offer *community solar* programs to enable renters/low-income persons to enjoy benefits.
7. Replace fossil fuel *municipal vehicles* with renewable energy powered vehicles.
8. Install, or incentivize the installation of, *EV charging* stations in public and private parking lots and convenient locations.
9. Offer incentives and rebates for *EV and electric appliance* purchases.
10. Reduce vehicle miles travelled (*VMT*) within a city by planning measures and incentives to use public transportation.

TEN PROCESSES for local GHG reduction planning

1. Set annual GHG reduction *goals*.
2. Take *inventory* and use SMART metrics.
3. Establish *consequences* for failure to meet goals.
4. Clarify *specific actions* to be taken.
5. Assign *authority and budget*.
6. Link GHG reduction plans to *workforce development*.
7. Link GHG reduction plans to affordable *housing and utility* bills.
8. Integrate climate action with *building codes*.
9. Embrace public *transparency* at all stage of planning
10. Use Climate Action Plans (CAPs) for their intended *purpose of GHG emissions reduction*.

A. TEN ACTIONS LIST

The largest greenhouse gas (GHG) emissions come from the production of energy from fossil fuel and the use of that energy in transportation and buildings, so, these two areas offer the best opportunities for reduction. Here is a more detailed list of specific actions that local governments can take to reduce GHG emissions.

1. *Terminate fossil fuel purchase contracts and enter only into renewable energy contracts.* In cities where the utility is owned and managed by the city, accelerate transition to 100% renewable energy purchase contracts. (This may mean enacting local “REACH codes” that exceed state law requirements.) Publish transition plans with dates. Terminate fossil fuel contracts and publish the text of fossil fuel supply contracts for transparency. In cities served by investor-owned utilities (IOU’s), offer Community Choice Aggregators (CCAs) and require them to publish data on their use of renewable energy. In IOU cities with no CCA’s, implement a Green Tariff program, by which the city negotiates with an IOU to require the city to buy renewable energy.
2. *Permit new construction only without gas or other fossil fuel energy.* Require all electric energy (no gas, coal or other fossil fuel) in new residential, multi-family residential, commercial, school and municipal construction. Where permitted, implement REACH building codes.
3. *Retrofit or build municipal buildings/structures for renewable energy and energy efficiency.* Retrofit to all-electric in existing municipal buildings (offices, warehouses, schools, libraries, parking structures, transit stations and

other publicly owned buildings). Install solar PV arrays (panels) and/or green roofs. Install LED lighting. Implement energy efficiency measures.

4. *Require, or create incentives for, retrofit of privately owned buildings for renewable energy supply and energy efficiency.*
 - Require energy retrofitting whenever title is transferred.
 - Require collection and disclosure of energy use benchmarking data to potential commercial renters/lessees/buyers in buildings over 20,000 square feet and to potential buyers of residences.
 - Offer “tariffed” payment plans on utility bills so that property owners can spread out the cost of energy retrofit investment over a long term.
 - Offer rebates and incentives for non-fossil fuel appliances, including heat pumps and water heaters, and LED lighting.
5. *Offer incentives for and facilitate residential, neighborhood and commercial rooftop solar.* Expedite permits and reduce city administrative costs for residential, neighborhood and commercial roof top solar. Offer incentives, rebates, discounts and financing plans so that citizens can afford to install solar energy systems and are motivated to do so. Cities can take advantage of their purchasing and aggregating power to negotiate a lower price with vendors of renewable energy systems (whether for solar photovoltaic, solar thermal, heat pumps, or other renewable technologies) and host bulk purchasing programs to lower consumer cost. Eliminate barriers and burdens on roof top solar such as solar surcharges or caps on net metering. Assess the short and long term environmental and economic aspects of distributed energy supply and microgrids as opposed to purchased energy transmission over distances.

6. *Offer community solar programs to enable renters/low-income persons to enjoy benefits of solar or other renewable energy.* Community solar projects, or shared solar energy plants, are solar developments whose electricity is shared by multiple commercial, municipal, school or non-profit entities. They are a hybrid between “behind the meter” and “utility-scale” solar. They are often subscription based, where a household can subscribe to a community solar project with no upfront fees and typically pay a lower price for electricity. This is distinct from “green power programs” where a utility company offers ratepayers an option to purchase from renewable energy sources. Virtual net metering (VNM) may be used to allow households to receive credits associated with a renewable energy project.
7. *Replace fossil fuel municipal vehicles with renewable energy powered vehicles.* Replace municipal passenger cars and bus fleets with EV’s on a schedule, completing transition by a fixed date. Replace other vehicles in fleet, including light and heavy trucks, with ZEVs and LEVs.
8. *Install, or incentivize the installation of, EV charging stations in public and private parking lots and convenient locations.* Require, or incentivize the installation of, EV charging stations in parking lots for new or modified commercial and multi-family residential buildings. Install EV charging stations in publicly owned buildings, parking lots and convenient locations. Streamline permitting processes to make it easy and fast for property owners to install EV charging stations. Reduce or waive the cost of permits.
9. *Offer incentives and rebates for EV and electric appliance purchases.* Offer incentives and rebates to residents to purchase or lease EVs, such as premium location parking in public lots, discounted charging, rebates, and discounted vehicle programs with local dealers.

10. *Reduce vehicle miles travelled (VMT) within a city by planning measures and incentives.* Reduce vehicle miles travelled within the city by providing free or low-cost public transportation passes to residents and workers, offering incentives for carpools such as free carpool lots, and improving bike lanes. Prioritize VMT impact in permitting new construction.

B. TOP TEN PROCESSES

1. *Set annual GHG reduction goals.* Commit to a specific GHG emissions reduction goals for every year. Goals should decline on an annual percentage basis, which front loads the reductions in GHG emissions and avoids passing difficult steps to future generations.
2. *Take inventory annually and use SMART metrics.* Measure or estimate GHG emissions every year and conduct full inventory every other year. Develop internal staff capacity to measure in order to reduce cost and gain staff engagement. Clarify the baseline for measurement. Use SMART metrics that are:
 - Specific
 - Measurable
 - Achievable
 - Relevant
 - Time bound
3. *Establish consequences for failure to meet goals.* For any year when the city did not meet its emissions goal, implement corrective action proportional to the magnitude of the gap between the goal and actual emissions. Include meeting emissions goals in evaluation criteria for *all* senior city personnel, not only those with direct responsibility for climate action measures.
4. *Clarify actions to be taken.* Distinguish actions for GHG emission reduction from other valid environmental objectives that have a relatively less significant impact on GHG reductions like creating shade structures for

adaptation to heat and composting. Avoid plans to plan and aspirational verbs (explore, consider, discuss, reach out, partner, etc.) when describing actions to reduce GHG. Distinguish values (e.g. social inclusion, diversity, community outreach, democracy) from actions that will reduce GHG emissions.

5. *Assign authority and budget.* A sustainability director, responsible for GHG emissions programs, should report to the City Manager and provide monthly public updates to the City Council. He/she should have budgetary authority appropriate for achievement of the GHG emission actions. GHG reduction actions must be prioritized in city budgeting or at least evaluated publicly so that trade-offs can be considered. When budgeted funding is inadequate to implement climate actions, seek additional funding from state and federal programs, local taxes or bonds, foundations and private sector sources.
6. *Link GHG reduction to workforce development.* Train youth, unemployed and underemployed area residents in skills needed for solar installation, retrofit of buildings and other GHG reducing actions. Work with labor unions and employers where applicable to achieve employment and training objectives in skills and jobs related to GHG emission reduction.
7. *Link GHG reduction to affordable housing and utility bills.* Build GHG reduction goals and actions into plans and development of affordable housing. Emphasize the economic value of low carbon energy and lowered utility bills to developers and residents.
8. *Integrate climate action with building codes.* Adopt REACH Codes when needed to exceed state building codes. Build GHG emission reduction into building codes and review climate action annually (not every 5 years).

9. *Embrace public transparency.* Publish GHG emission reduction goals, metrics and inventory results where the public can easily view them. Utilities should publish monthly disclosure of % of total city energy use that is renewable and specific plans for achieving GHG emission goals, as inserts to bills and post in public locations. Contracts with consultants and energy suppliers should be published where citizens can see them easily. Consultants' draft recommendations and reports should be public. The City Council, City Manager and the Mayor should place reports on GHG reduction actions and status on the agenda of regular public meetings.
10. *Use Climate Action Plans (CAPs) for their intended purpose of GHG emissions reduction.* Don't use vague CAPs to streamline environmental compliance for development projects.

C. EXAMPLES of ACTIONS THAT CITIES/COUNTIES HAVE COMMITTED TO OR IMPLEMENTED

ACTION 1. Terminate fossil fuel purchase contracts; enter into renewable energy contracts only.

Houston, TX

Houston has committed to purchasing 100% renewable energy through a renewed partnership with NRG Energy as the City's retail electric provider. The City will power *all municipal* operations with renewable energy and realize \$65 million in savings over the 7-year contract. <http://greenhoustontx.gov/index.html>

Aspen, CO

Aspen's 2007 CAP committed to 100% renewable energy. In 2015, the goal was achieved and has been maintained since then. The city partnered with the National Renewable Energy Laboratory (NREL) to develop the conversion strategy. The energy sources are wind (53%), hydroelectric (46%) and landfill gas (1%). Aspen Electric, a municipally owned energy company, sources its energy supply by contract with a non-profit wholesale energy organization, the Municipal Energy Agency of Nebraska. <https://www.100-percent.org/aspen-colorado-usa/>

Burlington, VT

In 2014 Burlington achieved 100% renewable energy supply relying on hydroelectric, wind, solar and biomass.

<https://www.politico.com/magazine/story/2016/11/burlington-what-works-green-energy-214463/>

San Diego, CA

San Diego Community Power (SDCP) is a non-profit Community Choice Aggregator (CCA), formed in 2020 by community leaders to benefit customers. It purchases renewable energy and feeds it into the electricity grid. SDG&E delivers that power to all SDCP customers and maintains the lines.

Northern California Community Choice Aggregators.

In 2019, the latest year for which data is available, two CCAs in Northern California -- Silicon Valley Clean Energy and Central Coast Community Energy -- procured 100% of their electricity from GHG-free sources according to their official Power Content Label. Three other CCAs were more than 95% GHG-free: Redwood Coast Energy Authority, Sonoma Clean Power and CleanPower SF.

For a good resource on many cities worldwide that have either achieved or committed to achieving 100% renewable energy, and *how they did it*, see the 100% Atlas: <https://www.100-percent.org/country-island/> For US only, see: <https://www.100-percent.org/tag/united-states>

ACTION 2. Permit new construction only without gas or other fossil fuel energy.

San Jose, CA

Implementing their 2018 Climate Smart plan, and their 2019 state of climate emergency resolution, in October 2019 the City Council approved a natural gas infrastructure prohibition covering single-family, detached Accessory Dwelling Units (ADUs), and low-rise multifamily buildings up to three stories, supplementing the already adopted Reach Code. In December, the City Council voted a further ban on gas construction. The ban goes into effect August 1, 2021. A city official stated:

"Transitioning to all-electric buildings not only reduces CO2 emissions, but in most cases all-electric buildings cost less to build when accounting for the service and piping costs associated with natural gas infrastructure," said Rosalynn Hughey, director of the department of Planning, Building, and Code Enforcement. "The natural gas ban thus not only supports our Climate Smart goals but also the construction of affordable housing. Buildings without natural gas piping are also safer during earthquakes. We can look forward to multiple benefits associated with expanding our natural gas ban."

<https://www.mercurynews.com/2020/12/02/san-jose-adopts-historic-natural-gas-ban-but-with-a-controversial-exemption/>

[https://www.sanjoseca.gov/Home/Components/News/News/2210/4699#:~:text=\(December%2016%2C%202020\)%20%2D,the%20natural%20gas%20prohibition%20ordinance.&text=%E2%80%9CThe%20natural%20gas%20ban%20thus,are%20also%20safer%20during%20earthquakes.](https://www.sanjoseca.gov/Home/Components/News/News/2210/4699#:~:text=(December%2016%2C%202020)%20%2D,the%20natural%20gas%20prohibition%20ordinance.&text=%E2%80%9CThe%20natural%20gas%20ban%20thus,are%20also%20safer%20during%20earthquakes.)

Berkeley, CA.

In the summer of 2019 the city of Berkeley, California banned the use of natural gas in new buildings.

<https://www.sfchronicle.com/bayarea/article/Berkeley-becomes-first-U-S-city-to-ban-natural-14102242.php>

Los Gatos, CA

Requires all newly constructed single family and low-rise multifamily building to be all electric. <https://www.sierraclub.org/articles/2021/06/californias-cities-lead-way-gas-free-future>

Sacramento, CA

Requires all new buildings under 3 stories to be all-electric by 2023 and extends the mandate to all new construction by 2026.
<https://www.sierraclub.org/articles/2021/06/californias-cities-lead-way-gas-free-future>

San Francisco, CA

All new construction must be all electric after June 1, 2021.
<https://www.sierraclub.org/articles/2021/06/californias-cities-lead-way-gas-free-future>

<https://www.sfchronicle.com/business/article/Bay-Area-natural-gas-bans-spread-in-2020-15854587.php>

ACTION 3. Retrofit or build public buildings/structures for renewable energy and energy efficiency. Install solar on public buildings.

New York City, NY

<https://www1.nyc.gov/site/dcas/agencies/energy-efficient-retrofit-projects.page>

Houston, TX

City of Houston Building Retrofit Program:

http://www.greenhoustontx.gov/reports/Energy_Efficiency_Building_Retrofit_Case_Study-

Tranche2.pdf

Raleigh, NC

Energy efficiency, energy conservation and renewable energy projects in Raleigh NC to reduce energy costs in city owned buildings are listed here:

<https://raleighnc.gov/environment/content/AdminServSustain/Articles/RenewableEnergy.html> New municipal buildings over 10,000 square feet must be certified at least at LEED Silver levels (an international certification system for energy efficiency and environmental design). The City will also seek LEED Gold or Platinum Certifications where practical and when funding is available.

<https://raleighnc.gov/environment/content/AdminServSustain/Articles/RenewableEnergy.html>

Asheville, NC

As part of its 100% Renewable Initiative, in October 2020, Asheville switched on its new solar PV array at the renovated city transit station. The city is under contract to add solar PV to seven more existing or new city facilities within the next 3 years.

<https://www.ashevillenc.gov/news/city-of-asheville-flips-the-switch-on-solar-panels-at-renovated-transit-center/>

Asheville has also installed 10,000 LED streetlights and implemented building automation software for energy efficiency.

[https://climatemayors.org/wp-content/uploads/2020/12/Cities Climate Action Compendium 180105-1.pdf](https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compndium_180105-1.pdf)

Philadelphia, PA

The large retrofit at the Philadelphia Museum of Art includes LED bulb and fixture lighting replacements, upgrades to heating systems, and new chilled water systems, among other major investments. The total cost of the project is \$11.4 million dollars and the project will be paid for with the savings it generates. The project will boost the City's Municipal Energy Master Plan goals by reducing carbon emissions by about 2,400 MT of CO₂e, reducing electricity use 4.8 million kWh, and lowering steam use by nearly 18,400 MMBTU.

https://www.phila.gov/media/20210309131759/MunicipalEnergyMasterPlan_2020Update_3.5.2021.pdf

Philadelphia, PA

Philadelphia is converting the city's more than 100,000 streetlights to LED lighting. In 2020, the Energy Office has worked with PECO to ensure that an LED streetlighting project works for both City government and the utility. In PECO's

most recent distribution rate case with the Pennsylvania Public Utility Commission (PA PUC), the company proposed a new current rate for Smart Street Lighting, which the City and PECO developed together. Now, with final approval by the PA PUC, this new rate will benefit the City by allowing new LED Streetlights to be metered and controlled remotely, while reducing costs to City government. With the new rate in place, the Energy Office together with the Philadelphia Energy Authority, Streets Department and Office of Innovation and Technology have begun the procurement for a Citywide LED Streetlighting and controls project.
https://www.phila.gov/media/20210309131759/MunicipalEnergyMasterPlan_2020Update_3.5.2021.pdf

Washington, DC

Washington, D.C.'s CAP plans deep energy retrofits followed by net-zero retrofits with 30% reduction in energy & emissions in 9% of municipal square footage during 2021-24. (see page 131 of CAP)

https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf

Burlingame, CA

Retrofitted all of City's street lights, over 800, with LEDs.

https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compendum_180105-1.pdf

Portland, OR

LED street light conversion program.

<https://www.portlandoregon.gov/transportation/66147>

See also: <https://carbonneutralcities.org/cities/portland/>

Providence, RI

The Southern Sky Renewable Energy RI completed a 3.9 MW solar array in Johnston – built on a former landfill – which will power over half of Providence’s municipal buildings with local solar electricity. According to Southern Sky, the renewable energy produced by the array will yield environmental benefits equivalent to taking 770 vehicles off the road while powering 538 households annually. Another 29 MW facility is currently under construction in Cranston and these two sites combined will offset approximately 60% of the City’s electricity needs. Clean energy sourced from renewables is just one part of Providence’s upcoming Climate Action Plan. <https://www.wpri.com/news/former-landfill-transformed-into-solar-array-powers-both-johnston-providence/>

West Hartford, CT

Town of West Hartford participates in a Virtual Net Metering program for 2.4 megawatts (MW) of solar. Renewable, solar energy is produced off-site (50 miles away) and “virtually” net metered against eight municipal buildings and schools, which serve as “beneficial accounts” for the credits associated with the solar generation. See page 8: <https://we-ha.com/wp-content/uploads/2020/12/2020-Mayors-Climate-Protection-Awards-Report.pdf>

Cincinnati, OH

Cincinnati’s Clean Energy program is ambitious and has multiple parts including: offsite solar for 25% of city government operations; a CCA program with a new

contracting model, 10 city facilities powered by on site solar, and 24 facilities with energy retrofit for lighting and HVAC. See page 10, <https://we-ha.com/wp-content/uploads/2020/12/2020-Mayors-Climate-Protection-Awards-Report.pdf>

ACTION 4. Require or create incentives for retrofit of private buildings and energy efficiency.

Oklahoma City

Green Home Loan Program: provides low interest rate (3% fixed) loans of up to \$15,000 for energy-efficiency retrofit projects. Homeowners can install new energy-efficient windows or doors, add insulation, and improve heating and cooling systems among other options. The loans are available to homeowners within the city limits who have incomes below \$100,000.

<https://www.okc.gov/departments/planning/programs/sustainability/green-home-loan>

Boulder, CO

Boulder Energy Smart Program : provides energy-efficiency advice, rebates for retrofit projects, and financing through local lenders to help businesses and homeowners finance energy-efficiency retrofits. Eligible projects include insulation, heating and cooling systems and windows and do not have income restrictions.

<https://energysmartyes.com/>

Honolulu, HI

Honolulu Solar Home Loan Program: provides financing for low-income homeowners interested in installing solar hot water heaters and photovoltaic systems. The loans can be used by owners of single-family homes and

condominiums. The loans carry 0% interest, have either 10 or 20 year terms, and are secured by a lien for amounts over \$10,000.

<https://www.honolulu.gov/cms-dcs-menu/site-dcs-sitearticles/1852-cad-solar-loan.html>

Longwood, FL

REEP Program: provides homeowners rebates of varying amounts up to \$500

which help offset the costs of energy-efficiency improvements. Energy-efficiency projects include HVAC upgrades, solar panels and hot water heaters, insulation and roof replacement. Homeowners are required to use local contractors which supports local jobs as well as energy-efficiency. The program imposes income restrictions.

<https://www.longwoodfl.org/172/Raising-Energy-Efficiency-Program-REEP>

New York City, NY

The City enacted the Climate Mobilization Act of 2019 which comprises a slate of laws including Local laws 92 and 94 which require all new buildings and buildings undergoing major roof renovations to be covered with solar panels, green roofs, or some combination of the two; Local Laws 33 and 95 which requires building benchmarking and public display of energy efficiency scores and grades; Local Law 88 which requires large non-residential buildings to upgrade lighting and install electrical sub-meters for each large non-residential tenant space and provide monthly energy statements; Local Law 96 which authorizes long-term, low-interest rate PACE financing; and Local Law 97 which requires all buildings greater than 25,000 square feet to meet ambitious carbon reduction targets.

<https://www1.nyc.gov/site/sustainability/legislation/legislation.page>

New York City, NY

Community Retrofit in Central Brooklyn and Southern Queens helps building owners and residents invest in energy and water efficiency upgrades. This works with the NYC Green Housing Preservation Program which offers low or no interest loans to small to medium sized apartment building owners up to \$50,000 per residential unit. <https://www1.nyc.gov/site/communityretrofitnyc/green-housing/green-housing-preservation-program.page>

Grand Rapids, MI

The city works with a non-profit, Zero Cities Project, to offer the Energy Assistance Program, provides energy benchmarking for buildings and financial counseling regarding retrofitting to small businesses, churches, and schools.

<https://www.2030districts.org/grandrapids/zero-cities-project>

Chicago, IL

Through the voluntary Retrofit Chicago program, have completed energy efficiency retrofits in 23,000 homes and 132 buildings spanning over 70 million square feet, saving nearly \$17 million/year and over 91,000 metric tons of avoided GHG emissions.

<https://www.chicago.gov/city/en/sites/retrofitchicago/home.html>

Silicon Valley area

Gas water heaters produce a large percentage of a home's GHG emissions. Silicon Valley Clean Energy has been running [incentive programs](#) since 2018 to promote replacement of gas water heaters with all-electric Heat Pump Water Heaters.

Seattle, WA

Building Seattle Better

<https://www.seattle.gov/environment/climate-change/buildings-and-energy>

Boston, MA

For benchmarking, the Building Energy Reporting and Disclosure Ordinance (BERDO) requires large buildings to report their annual energy and water use to the City. Beginning in 2017 and continuing every year thereafter, the requirements apply to all non-residential buildings greater than 35,000 square feet, residential buildings that are 35,000 square feet or larger or have 35 or more units, and any parcel with multiple buildings that sum to 100,000 square feet or 100 units.

<https://data.boston.gov/dataset/building-energy-reporting-and-disclosure-ordinance>

ACTION 5. Offer incentives for and facilitation of residential, neighborhood and commercial rooftop solar.

Chicago, IL

“Chicago Solar Express” – The City of Chicago is accelerating solar energy by cutting fees, reducing time-in-line, and streamlining and standardizing permitting and zoning processes. A bulk purchasing program is also available.

https://www.chicago.gov/city/en/progs/env/solar_in_chicago.html

Boulder, CO

City of Boulder’s “Solar Rebate Ordinance” supplies funds for solar installation:

<https://bouldercolorado.gov/solar/solar-rebate-and-solar-grant-programs>

Boulder’s “How to Go Solar” provides step by step information for going solar

<https://bouldercolorado.gov/solar/solar-programs>

Southern California area

Beginning in 2007, the [California Solar Initiative](#) (also known as the “[Million Solar Roofs](#)” program) offered incentives for both residential and commercial solar PV and for solar thermal water heating systems. Cities that operated municipal electric utilities were required to participate, as were investor-owned utilities like Southern California Edison, San Diego Gas & Electric, and Pacific Gas & Electric. Structured as a 10-tier “declining block” rebate program, the incentives started high and declined step by step based on the cumulative number of megawatts of systems installed.

Los Altos Hills, Monte Sereno, Hillsborough, Belmont, Foster City, Cupertino, CA

Reduction or elimination of permit fees for commercial and residential rooftop solar systems. <https://www.mercurynews.com/2009/04/24/solar-permit-fees-vary-greatly-among-cities/>

Ann Arbor, MI

PACE funding adopted and resourced for energy retrofits including solar.

https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compendium_180105-1.pdf

Seattle, WA

Seattle's owned utility, City Light, offers Net Metering as an incentive for residential solar PV. All solar installations that connect to the City Light power grid are required to have an Interconnection Agreement. If the consumer installs a net meter and generates more electricity than he consumes, City Light will credit the electric bill for every kWh of electricity sent back to the power grid. Excess generation occurs when a solar energy system generates more kWh of electricity than a home consumes. This is measured in real-time by a City Light billing meter.

https://energysolutions.seattle.gov/wp-content/uploads/2018/01/Net_Metering_FAQ.pdf

Milwaukee, WI

Milwaukee has streamlined the permitting process, created a solar zoning ordinance, reduced solar permit fees, and begun providing low-interest solar loans for homeowners through a partnership with a community credit union.

<https://city.milwaukee.gov/eco/MilwaukeeShines>

Denver, CO

The City and County of Denver, partnering with Solar United Neighbors, launched

the Denver Solar Co-op, to leverage bulk-purchasing power, while still signing individual contracts and getting unbiased, installer-neutral support.

The City and County will also host up to 15MW of community solar gardens on municipal rooftops, over parking lots, and vacant land for those who don't own their home, don't have a well-suited location or don't want solar on their

property <https://coops.solarunitedneighbors.org/coops/denver-solar-co-op/>

Boulder, CO

City of Boulder's "Solar Rebate Ordinance" supplies funds for solar installation:

<https://bouldercolorado.gov/solar/solar-rebate-and-solar-grant-programs>

Boulder's "How to Go Solar" provides step by step information for going solar

<https://bouldercolorado.gov/solar/solar-programs>

ACTION 6. Offer community solar programs to enable renters/low-income persons to enjoy benefits.

For general information on Community Solar, how it works and its benefits, see: <https://www.energy.gov/eere/solar/community-solar-basics>

South Pasadena, CA

Committed to adopting a PV (Solar) Ordinance requiring newly constructed and majorly renovated multi-family and commercial buildings to install PV systems with an annual output greater or equal to 25% of buildings electricity demand.

Sacramento, CA

Since 2020 California has required new residential buildings of 3 stories or less to include rooftop solar. One innovative program in Sacramento allows the solar energy to come from a large off-site solar system, which is less expensive than putting a PV system on every rooftop.

Washington DC

Washington, DC's Affordable Solar Program (completed in 2016) installed solar panels at no cost to income-qualified District homeowners or renters.

Washington state cities

Washington funds the Solar Deployment Grant Program Clean Energy Fund. Seattle, Olympia and other cities to initiate community solar programs to deploy solar in low income housing and to reduce tenants' utility costs. <https://www.commerce.wa.gov/growing-the-economy/energy/clean-energy-fund/clean-energy-fund-solar-program/>

State of Colorado cities

The first “solar for all” program was launched in Colorado in 2010 and today the state is a leader in community solar. Individuals and families can subscribe to receive a share of the electricity from a “[solar garden](#).” This lets them offset some or all of their electric bill.

<https://energyoffice.colorado.gov/community-solar>

San Francisco, CA

The City offered a rebate (through the San Francisco Public Utilities Commission) of \$500 to \$2,800, depending on the system size, and more if the user can qualify as low-income or use a city-based installer. Currently, only the low income rebate program remains in collaboration with a non-profit, Grid Alternatives.

<https://sfpuc.org/accounts-services/sign-up-for-savings/gosolarsf#:~:text=To%20propel%20the%20City%20of,shrinks%20the%20City's%20carbon%20footprint>.

<https://gridalternatives.org/what-we-do/program-administration/dac-sash>

<https://gridalternatives.org/what-we-do/energy-for-all/single-family-solar>

ACTION 7. Replace fossil fuel municipal vehicles with renewable energy powered vehicles.

San Diego, CA

In 2019 the City put into service 19 Chevrolet Bolt EVs supporting the general-purpose fleet. In 2020 the City purchased its first electric street sweeper. This vehicle has been cleaning San Diego's streets since August 2020. In 2021 San Diego started a pilot program for charging multiple vehicles using solar panels mounted on an "umbrellas" each of which has 5 charging ports that can charge any EV model and are independent of the grid.
<https://www.sandiegouniontribune.com/business/story/2021-04-22/san-diego-launches-pilot-program-to-charge-the-citys-fleet-of-electric-vehicles>

Fremont, CA

The city conducted a study to evaluate the safety, efficacy and cost effectiveness of Tesla EVs for police vehicles and reported that the results were highly satisfactory.

<https://www.fremontpolice.gov/home/showpublisheddocument/370/637413766532800000>

Columbus, OH

Smart Columbus is a program to replace fossil fuel powered city vehicles with EV. Out of a goal of 265, the city has so far procured at least 125 EVs for municipal use.
<https://smart.columbus.gov/projects/fleet-electric-vehicle-adoption>

Los Angeles and the Nationwide EV Purchasing Collaborative

Climate Mayors Electric Vehicle Purchasing Collaborative is a project of Climate Mayors cities across the country to leverage their collective buying power and accelerate the conversion of municipal fleets to electric.

<https://climatemayors.org/ev-purchasing-collaborative/>

<https://driveevfleets.org/>

Winter Park, FL

A case study dated June 2020 on Winter Park's purchase and use of EVs in its municipal fleet.

<https://driveevfleets.org/wp-content/uploads/2018/09/Winter-Park-New-Case-Study-Final-12.30.2020.pdf>

ACTION 8. Install EV charging stations in public and private parking lots and convenient locations.

Honolulu, HI

New building construction must include infrastructure to support EV charging stations and new parking lots must have 25% of stalls wired and ready to support chargers. <https://hawaiiapacificsolar.com/city-law-promotes-charging-stations/#:~:text=Hawaii%20moved%20a%20step%20closer,and%20ready%20to%20support%20chargers.>

San Mateo County, CA

Peninsula Clean Energy, a CCA serving San Mateo County, offers EV incentive programs, recently expanded to include [incentives](#) for the purchase of used EVs by income qualified residents and EV chargers. <https://www.peninsulacleanenergy.com/about-evs/>

Chicago, IL

Chicago passed an ordinance that "requires all new construction of residential buildings, with five or more units, and onsite parking and commercial properties, with 30 or more parking spaces, to have 20% of any supplied parking spaces Electric Vehicle Supply Equipment (EVSE) ready. Additionally, for all applicable properties, at least one of the EVSE-ready spaces must be accessible to people with disabilities." https://www.chicago.gov/city/en/depts/cdot/provdrs/conservation_outreachgreenprograms/news/2020/april/chicago-city-council--approves-ordinance-to-increase-chicago-s-e.html

St. Louis, MO

"Beginning January 1, 2022, certain new construction and major renovations of residential, multi-family, and commercial buildings will be required to be EV ready by including accommodations for easy installation of EV charging capacity. Similar requirements will begin to apply to major rehabs of single-family units beginning January 1, 2024."

<https://www.stlouis-mo.gov/government/departments/planning/sustainability/documents/upload/EV-Ordinances-Overview-final.pdf>

ACTION 9. Offer incentives and rebates for purchase of EVs and electric appliances

Honolulu, HI

The city offers free parking for EVs at government parking lots and metered stalls, exclusive stalls in large parking lots.
<https://www.govtech.com/fs/infrastructure/new-hawaii-law-could-help-boost-ev-charging-access.html>

Denver, CO

The Denver EV Action Plan adopts a goal that by 2025 14% of driver registrations will be EVs. It estimates that Denver will need 10 times the current number of charging ports over the next 10 years. Over 4,000 public charging ports—with nearly 750 DCFC ports and 3,300 L2 charging ports—will be needed to support the target EV population in 2030. The Action Plan includes multiple actions to increase EV charging infrastructure such as putting charging stations on public property.

<https://www.denvergov.org/files/assets/public/climate-action/denvervehicleelectrificationactionplan.pdf>

San Joaquin, CA

“Drive Clean in San Joaquin”, a program to help low income facilities purchase EVs, including an income based subsidy
<https://www.valleyair.org/drivecleaninthesanjoaquin/replace/>Video here:
<https://www.youtube.com/watch?v=zPYFxSvhypU>

San Diego, CA

San Diego Charging Stations Program. The California Energy Commission granted the city \$500,000 in 2014 to install city-owned charging stations at highly trafficked locations around the city, such as sports fields, libraries, and other recreation

centers <https://www.sdge.com/businesses/customer-service/property-management/ev-charging-station-program>

Pasadena, CA.

Discount on EV's of \$1500 off sticker price when purchasing or leasing an EV through California Clean Fuel Reward Program. In addition to rebates offered by Pasadena Water and Power. www.PWPweb.com/EV.

Sonoma, CA.

Sonoma Clean Power is a CCA that offers financial incentives for the purchase of EVs by its customers. As of 2019, [more than 1200](https://sonomacleanpower.org/programs/drive-ev) EVs had been purchased from local car dealers by participants in the “Drive EV” program. <https://sonomacleanpower.org/programs/drive-ev>

Columbus, OH

In 2018, Columbus introduced a rebate program for taxis and other transportation service providers. The Smart Columbus Transportation Service Provider Battery Electric Vehicle Rebate Program, which provided 40 incentives of \$3,000 each to transportation service providers who purchased new, fully electric vehicles. Recipients included taxis, carsharing services and individual ride-hailing drivers—high mileage vehicles that can also serve to educate our residents on EVs.

See: <https://smart.columbus.gov/playbook-assets/electric-vehicle-consumer-adoption/best-practices-for-creating-ev-rebate-programs-at-businesses>

Tacoma, WA

Tacoma offers an incentive program for private property owners to install publicly available EV charging stations with enhanced incentives if the project is located in an “historically underinvested area:

- Up to 80% or \$16,000 of the project installation and equipment costs (maximum of two EVSE ports)

- Up to 100% or \$25,000 of utility infrastructure upgrade costs
- And up to \$2,000 for each additional EV charging port

<https://www.mytpu.org/community-environment/clean-renewable-energy/electric-vehicles/public-electric-vehicle-charging/>

Denver, CO

Denver has a detailed and thorough plan to promote EVs in Denver.

<https://www.denvergov.org/files/assets/public/climate-action/denvervehicleelectrificationactionplan.pdf>

For an excellent overview of policies to encourage EV adoption, see:

“AchiEVe: Model Policies to Accelerate Electric Vehicle Adoption Presented by the Sierra Club, Plug In America, FORTH, and the Electrification Coalition”
<https://www.sierraclub.org/sites/www.sierraclub.org/files/program/documents/AchiEVeModelToolkit2020.pdf>

ACTION 10. Reduce vehicle miles travelled (VMT) within a city by planning measures and incentives.

Seattle, WA

The city has reduced driving by light rail and bus networks funded by a vehicle registration fee and a .1% sales tax hike and also by intensive marketing. Only 24% of downtown workers drive alone despite growth in jobs. <https://usa.streetsblog.org/2019/02/08/minneapolis-and-seattle-have-achieved-the-holy-grail-for-sustainable-transportation/>

Minneapolis, MN

Minneapolis has reduced vehicular traffic despite growth in number of residents by a combination of light rail, biking (5% of commuters) and encouraging walking. <https://usa.streetsblog.org/2019/02/08/minneapolis-and-seattle-have-achieved-the-holy-grail-for-sustainable-transportation/>

Columbus, OH

Under its Smart Mobility program, the city is creating “smart mobility hubs,” centralized locations with access to different transportation options to help residents get where they need to go without the need for a car. <https://smart.columbus.gov/about>

For examples cities that are implementing VMT plans, see:

<https://sharedusemobilitycenter.org/shared-mobility-planning/>

D. EXAMPLES of or STUDIES about PROCESSES for developing and implementing climate action.

PROCESS 1. Set SMART annual GHG reduction goals

Mountain View, CA

In November of 2009, and subsequently amended through the Climate Protection Roadmap (CPR) the city adopted voluntary, absolute GHG reduction targets for the community as a whole, with the ultimate goal of reducing GHG emissions 80% of 2005 levels by 2050. These targets were amended in December 2019 to adopt a steeper reduction curve.

<https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=32290>

For a list of cities and GHG goals, see the Climate Mayor's Compendium of GHG Reduction Goals

https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compendium_180105-1.pdf

PROCESS 2. Take inventory to assess whether goals have been met.

Boulder, CO

Beginning in 2015, the city conducts annual GHG inventories.

C-40 Resource Center

<https://resourcecentre.c40.org/resources/measuring-ghg-emissions>

See: The Greenhouse Gas Protocol which was developed by the World Resources Institute, C40 Cities Climate Leadership Group and ICLEI – Local Governments for Sustainability (ICLEI) <https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities>

But see the 2021 critical study in Nature on Underreporting of GHG Emissions in U.S. Cities.

<https://www.nature.com/articles/s41467-020-20871-0>

PROCESS 3. Establish consequences for failure to meet goals.

We did not find examples of cities that have established professional or disciplinary consequences for failure to meet GHG reduction goals.

San Diego, CA.

The City Auditor for San Diego conducted a Performance Audit of the City's Climate Action Plan in 2021. The February 2021 audit report found that the city "has fallen behind on some of its CAP actions." The report finds that the Sustainability Department does not currently have authority or mechanisms to hold departments accountable for CAP implementation...." It also found: "Despite several attempts, the City has not yet developed a fiscal planning document to project the future costs of implementing the actions necessary to meet CAP targets." The Auditor makes 6 recommendations for improving accountability, one of which was to require CAP-related City departments to annually provide CAP workplans to the Sustainability department for review and approval.

https://www.sandiego.gov/sites/default/files/21-009_cap.pdf

The recent Court of Appeals decision in California striking down San Diego County's CAP and holding that San Diego County could not approve housing in fire prone areas by purchasing carbon offsets because it would undercut strategy to reduce GHG emissions.

<https://www.latimes.com/california/story/2019-11-11/san-diego-county-carbon-offsets-greenhouse-gases-xavier-becerra>

PROCESS 4. Clarify specific actions to be taken and avoid aspirational statements.

The Climate Mayor's Cities Climate Action Compendium lists specific actions that cities have taken to reduce GHG emissions.

https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compendium_180105-1.pdf

By contrast, a recent study by the Sierra Club claimed that GHG reduction goals announced by utility companies were overstated and constituted “greenwashing.” This underscores the importance of specific and verifiable actions in CAPs.

<https://coal.sierraclub.org/the-problem/dirty-truth-greenwashing-utilities>

PROCESS 5. Assign authority and budget for implementation of actions.

Mountain View CA

The city engaged a consultant to study of why certain sustainability actions were not being implemented. The report stated:

“Our review indicates that many staff do not have clear prioritization guidance for sustainability projects to help them justify devoting additional energy to new initiatives or learning and operationalizing new, more sustainable ways of conducting current responsibilities. This observation applies to managers and department heads, to varying degrees depending on the department and the job function. Therefore, a central strategy in the sustainability strategic plan should be to elevate and make explicit the importance of sustainability in city operations.”

p.29

<https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=29728>

Cities with sustainability directors and staff include:

Denver, CO <https://www.denvergov.org/Government/Departments/Climate-Action-Sustainability-Resiliency>

Madison, WI <https://www.cityofmadison.com/news/mayor-soglin-announces-first-sustainability-program-coordinator#:~:text=Madison%20Mayor%20Paul%20Soglin%20today,the%20City's%20first%20Sustainability%20Coordinator.>

Houston, TX <http://www.greenhoustontx.gov/>

San Diego, CA <https://www.sandiego.gov/sustainability>

Santa Monica, CA <https://www.smgov.net/departments/ose/>

For more information on sustainability offices, see the website of ICLEI, Local Governments for Sustainability.

<https://www.iclei.org/>

PROCESS 6. Link GHG reduction to workforce development and other policies.

Cincinnati, OH

All projects in the city's Clean Energy Program include a Project Labor Agreement that insures good wages and benefits for local workers. It also has inclusion goals requiring participation by local minority- and women-owned businesses. Finally, there is a partnership with Cincinnati State, the local community college, to help train workers. See page 10:

<https://we-ha.com/wp-content/uploads/2020/12/2020-Mayors-Climate-Protection-Awards-Report.pdf>

Austin, TX

Green Jobs and Entrepreneurship Program.

<https://www.austintexas.gov/news/community-grant-program-aims-increase-fair-access-austins-green-jobs>

Denver, CO. Workforce development integrated into 2020 “Denver Climate Action Task Force: Draft Long-Term Outcomes”

“a. By 2025 date 30% of climate action workforce is from minority and vulnerable communities and neighborhoods in mitigation, development, adaptation, and resiliency projects.

b. By 2025 date training centers in most impacted communities available to help work force transitions based off community-identified needs

c. By 2025 date, 25% climate action construction and infrastructure project hours are performed by apprentices, focusing first on Department of Labor registered apprenticeships for most impacted communities”

<https://www.denvergov.org/files/assets/public/climate-action/documents/climate-action-task-force/meeting6agendaandsummary.pdf>

Portland OR

Program to train day laborers in green jobs.

https://www.portland.gov/sites/default/files/2019-08/voz-climate-justice_oct2017.final101017.pdf

July 5, 2021

PROCESS 7. Link GHG reduction to affordable housing and utility bills.

Ann Arbor, MI

Largest city facility solar installation (42 kW) on major affordable housing site
a2energy Revolving Loan Fund for Rental Housing created.
https://climatemayors.org/wp-content/uploads/2020/12/Cities_Climate_Action_Compendium_180105-1.pdf

Boulder CO

SmartRegs: Starting in 2019, a new rental housing license requires proof of energy efficiency standards compliance at time of application submittal.
<https://bouldercolorado.gov/plan-develop/smartregs>

Toledo, OH

Case Study Building Affordable Energy Star HUD Homes:

https://www.energystar.gov/sites/default/files/asset/document/NeighborWorks%20Affordable%20Case%20Study_Final_508.pdf

Tacoma WA

EVs for low income housing communities. The city of Tacoma, Tacoma Housing Authority, Puget Sound Clear Air and neighborhood groups are working together to investigate the possibility of a low-income EV car share program. Residents of low income housing projects would have the option to rent an on-site electric vehicle at an inexpensive rate. Our partnership would increase clean mobility options for people with few transportation alternatives.

PROCESS 8. Integrate climate action with building codes and update climate related sections.

Washington DC

Washington, D.C.'s CAP commits to establish path to phased adoption of net zero building codes for commercial and residential between 2021-26 starting with new single family and small multifamily units. (p. 65) In the short-term, plan to offer net zero incentive package to drive market. Incorporate EV readiness into building code. (p. 196)

[https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report 0.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report%200.pdf)

The DC CAP explains: "Building codes are the single most powerful tool that cities have at their disposal to require higher levels of building performance. In general, codes tend to increase in stringency using small percentage improvements that occur at regular intervals. For example, several cities and states across the country have adopted ASHRAE's 90.1 building standard as a basis for their energy codes, and it is updated every three years. ASHRAE also recently created the ASHRAE Standard 189.1-2014, which supplements 90.1 with a higher performance green building standard. Provisions in this code offer an excellent resource for more aggressive energy improvements. If the District is to achieve its emission-reduction targets, it will need to make immediately and more aggressively update its building code." (p. 65)

Examples of what state and local governments are doing to tie energy efficiency with building codes.

<http://bcapcodes.org/policy-action-toolkit/energy-code-reform/>

Stretch and Reach Codes Explained with Case Studies

[http://bcapcodes.org/beyond-code-portal/stretch-and-reach-codes/#:~:text=Unlike%20stretch%20codes%20\(which%20allow,of%20the%20state's%20mandatory%20codes](http://bcapcodes.org/beyond-code-portal/stretch-and-reach-codes/#:~:text=Unlike%20stretch%20codes%20(which%20allow,of%20the%20state's%20mandatory%20codes)

California Health and Safety Code Sections 17958.7 and 18941.5 provide that local jurisdictions may enact more restrictive building standards than those contained in the California Building Code, provided that the local jurisdictions make express findings that each change or modification is reasonably necessary because local climate, geologic, or topographical conditions and that the local jurisdictions file the local amendments and required findings with the California Building Standards Commission before the local changes or modifications can go into effect

PROCESS 9. Embrace public transparency

Portland, OR

The city conducted a performance audit of the CAP and issued a report in Feb. 2021, with two critical findings and six recommendations for improvement.

<https://www.portland.gov/bps/climate-action/history-and-key-documents#toc-climate-action-plans>

San Diego, CA

Performance Audit of the City's Climate Action Plan

https://www.sandiego.gov/sites/default/files/21-009_cap.pdf

Del Mar, CA

Updated in 2019, the CAP Implementation Plan includes new information about responsible departments, costs, schedules, and specific CAP tasks.

<https://www.delmar.ca.us/DocumentCenter/View/6979/CAP-Implementation-Plan-and-Monitoring-Report-Staff-Report---July-2020?bidId=>

Houston, TX

The Houston CAP commits to engaging citizens in implementation working groups for various aspects of the plan, including “transportation, energy transition, building optimization, materials management, equity, and youth engagement”. The City maintains a web site for the Office of Sustainability that provides current information on all aspects of implementation of the CAP. The City hosted Houston Climate Week--A week-long virtual event to launch the implementation of the Houston Climate Action Plan September 14-18, 2020.

Boston, MA

The city publishes a user-friendly website for its 2019 CAP, as well all of its previous CAPs with updates and clear images showing what has been done and what is incomplete. <https://www.boston.gov/departments/environment/boston-climate-action>

Boston also publishes an annual Climate Action Report detailing progress towards plan completion. <https://patch.com/massachusetts/boston/boston-releases-fiscal-year-2020-climate-action-report>

PROCESS 10. Use Climate Action Plans (CAPs) to achieve GHG emissions reduction objectives, not as a way to use offsets to gain expedited review of development projects.

In June 2020, the Court of Appeal in San Diego ruled in response to a lawsuit brought against the County of San Diego by the Sierra Club, the Climate Action Campaign, and the Center for Biological Diversity. The ruling rejected the county's latest adopted Climate Action Plan, which enabled residential developments to buy their way out of by purchasing offsets.

<https://sdchamber.org/2020/06/sd-county-cap/>

<http://www.growthsandiegoway.com/blog/entries/2020/06/18/background-on-sierra-club-ruling-why-it-matters/>

DEFINITIONS

“Behind the Meter” solar refers to solar energy production and storage systems that directly supply homes and buildings with electricity (as opposed to community solar or utility scale solar). Most behind-the-meter solar energy systems are still grid-tied, which means they maintain a connection to the electrical grid.

Climate Action Plans are supposed to be comprehensive roadmaps that set forth goals, strategies and actions that local or regional governments will take to reduce GHG emissions generated within their areas. CAPs generally include an inventory of existing emissions, and targets for reduction over specified time periods. In some states, the laws permit CAPs to be used by planning departments to expedite permitting of development projects.

Community choice aggregation (CCA), also known as municipal aggregation, are programs that allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider. CCAs are currently authorized in California, Illinois, Ohio, Massachusetts, New Jersey, New York, and Rhode Island.

Community solar is a solar installation whose electricity is shared by more than one property. Community solar allows people to go solar even if they do not own their property/roof, making it an attractive option for renters or those who live in shared buildings. Community solar is a solar photovoltaic (PV) installation that can provide both solar energy and financial benefits to community members through a voluntary program. Various approaches to community solar have been deployed across the country allowing individuals, businesses, and anyone with an electricity bill to benefit from the solar power generated by a community solar installation. . Business and ownership models vary based on local and state policies, utility structures, and other market related issues. Participants typically receive a

commensurate credit applied to their electricity bill. As a result, subscribers may see reduced electricity rates for as long as 25 years.

Commercial property-assessed clean energy (C-PACE) is a financing structure in which building owners borrow money for energy efficiency, renewable energy, or other projects and make repayments via an assessment on their property tax bill. The financing arrangement then remains with the property even if it is sold, facilitating long-term investments in building performance. C-PACE may be funded by private investors or government programs, but it is only available in states with enabling legislation and active programs.

Energy Benchmarking is a method used to determine whether a building is using more or less energy than its peer facilities with similar occupancies, climates, and sizes.

Energy Retrofitting is the process of upgrading an existing building that reduces the GHG emissions of that building. Common approaches include improving the energy efficiency of the HVAC and other mechanical systems, improving insulation, windows, roofing and lighting.

Green Banks help secure low-cost capital for clean energy projects at favorable rates and terms to both traditional and otherwise challenging market segments. Green banks typically offer reduced interest rates, extended term lengths, and low or no money down financing. States with green banks include Connecticut, New York, California, Rhode Island, Hawaii and also Montgomery County, MD.

Greenhouse Gases or GHGs are gases that contribute to climate change by absorbing infrared radiation and thereby trapping heat in the earth's atmosphere. They include carbon dioxide, nitrous oxide, methane and ozone.

Greenhouse Gas Emissions Inventory is a list of GHG emissions sources and the associated emissions quantified using standardized methods. At the national and international level, they are required as part of treaty obligations and use

consistent tools and metrics as set out in ISO 14064. At the local level, they are performed to enable businesses to assess compliance with environmental laws and to enable local governments to implement strategies to reduce locally generated GHG emissions.

LEV means low-emission vehicles, including battery electric vehicles, plug in hybrids and fuel cell vehicles.

Net Metering is a billing process used by utility companies with customers that have solar roofs or other forms of renewable energy. The customer's bill is determined by their consumption minus the renewable energy they produce. If the energy produced is more than the energy used, the customer receives a credit on the bill.

PACE financing means property assessed clean energy financing. C-PACE is commercial and R-PACE is residential. PACE programs are set up by states and local governments to allow a property owner to finance the up-front cost of energy improvements on a property and then pay the costs back over time through a voluntary assessment usually through property taxes. The assessment is attached to the property rather than an individual and obligation to pay passes to the new property owner if the property is sold. PACE financing for clean energy projects is generally based on an existing structure known as a "land-secured financing district," often referred to as an assessment district, or a local improvement district. The advantage of PACE financing is that it avoids a large up front-payment and the property owner may qualify for lower interest rate financing because of the property tax secured repayment. Complaints have been made about some PACE programs related to lack of transparency about loan terms.

Pay As You Save (PAYS) uses a utility investment model. The utility invests in cost-effective energy upgrades at customer sites, such as building energy efficiency upgrades or rooftop solar. The customer pays nothing upfront. Instead, the utility pays the installer. The utility puts a fixed charge on the customer's monthly bill that is less than the estimated savings generated by the upgrade. Until the investment

is recovered, the tariff for the PAYS charge automatically transfers to future customers at that site.

Public Transparency refers to the government's obligation to share information with citizens so that citizens may hold public officials accountable for their actions or failure to take actions.

Reach or stretch code is a local building energy code that "reaches" beyond the state minimum requirements for energy use in building design and construction. Many cities in California, New York, and Massachusetts have adopted stretch codes.

Retrofit accelerators (or just accelerators) are private, often non-profit organizations, that work in partnership with cities to offer free, personalized advisory services to help building owners measure, benchmark, plan, pay for and streamline the process of improving energy and water efficiency.

SolSmart is a national program led by the [International City/County Management Association](#) and [The Solar Foundation](#), along with a [team of partners](#). All cities, counties, and regional organizations are eligible to join SolSmart and receive no-cost technical assistance from a team of experts who evaluate programs and practices that impact solar markets and identify high-prospect opportunities for improvement. Communities can earn designations of SolSmart Gold, Silver, and Bronze.

Utility green tariffs are optional programs offered by utilities that allow customers to buy bundled renewable electricity from one or more renewable generating facilities through a special utility tariff rate.

Vehicle Miles Travelled (VMT) is a measurement of total annual miles of vehicle travel divided by the total population of a state or urbanized area. Various methodologies and software tools are used

Zero energy buildings (ZEB or NetZero or NZE buildings) combine energy efficiency and renewable energy generation to consume only as much energy as can be produced onsite through renewable resources over a specified time period.

