Agenda Item #3.2
For Council Meeting of October 23, 2018

CITY OF SANTA ROSA
CITY COUNCIL

TO: MAYOR COURSEY AND CITY COUNCIL

FROM: ERIC GAGE, CITY PLANNER
PLANNING AND ECONOMIC DEVELOPMENT

SUBJECT: CLIMATE ACTION PLANNING UPDATE

AGENDA ACTION: RECEIVE REPORT

RECOMMENDATION

It is recommended by the Planning and Economic Development Department that Council receive a report on (1) the Citywide 2015 greenhouse gas inventory, (2) the City's Climate Action Plan implementation, (3) all-electric building codes, (4) Sonoma Clean Power's advanced energy rebuild program, (5) and local energy efficiency retrofit programs.

EXECUTIVE SUMMARY

At the meeting of May 15, 2018, Council members requested an update on Climate Action Plan activities and preliminary research on all-electric building codes.

In 2005, the City Council adopted a resolution establishing Citywide greenhouse gas (GHG) emission reduction targets in response to state goal setting. Since then, the City has adopted a Communitywide Climate Action Plan (CCAP) and a Municipal Climate Action Plan (MCAP) (collectively, the Climate Action Plans or CAPs). This study session will review City activities taken in support of the Climate Action Plans. Staff will also present information on all-electric building codes, and Sonoma Clean Power will present a report on the Advanced Energy Rebuild rebate program serving the residential rebuild effort. The Regional Climate Protection Authority will present the data developed for the Citywide 2015 greenhouse gas inventory, and local energy efficiency retrofit programs.

BACKGROUND

On June 1, 2005 the State of California established three GHG reduction targets for the State:

1. To reduce GHG emissions to 2000 levels by 2010;

2. To reduce emissions to 1990 levels by 2020; and

3. To reduce emissions to 80 percent below 1990 levels by 2050.

The State has more recently set, by executive order, an interim emission reduction target of 40 percent below 1990 emission levels by 2030.

The City and County responded to the State's 2005 legislation by taking a leadership role in local climate protection policy. The County and the nine cities set a voluntary goal for the region to reduce community GHG emissions to 25 percent below 1990 levels by 2015, and the City adopted a voluntary GHG reduction target of 20 percent below 2000 levels by 2010 for all municipal operations.

Beginning in 2009, City staff and consultants launched the development of two Climate Action Plans. The Municipal Climate Action Plan (MCAP) focused on the GHG emissions associated with municipal facilities and operations. The MCAP identified emission reduction measures that City departments could pursue to contribute to emission reduction goals. A Communitywide Climate Action Plan (CCAP) was also developed to guide the City's GHG gas reduction policies and activities at the community level. The City Council adopted the CCAP on June 5, 2012 and the MCAP on August 6, 2013.

In October 2014, an interdepartmental team was established to prioritize and coordinate the implementation of the measures and programs in the Climate Action Plans. Implementation meetings were held quarterly beginning in December of 2015.

On May 15, 2018, the City Council requested a study session to report on activities supporting the Climate Action Plans and on the subject of all-electric building codes.

ANALYSIS

The following is a discussion of climate planning topics beginning with the city-specific data from a countywide GHG inventory for 2015, prepared and presented by , the Regional Climate Protection Authority (RCPA) staff. City staff will present a report detailing the activities supporting each Climate Action Plan. The Citywide Climate Action Plan focuses on Citywide activities and programs, and the Municipal Climate Action Plan focuses on City facilities and operations. The discussion of all-electric building codes will provide background of the CALGreen building code, the voluntary Tier 1 standards, all-electric building standards, and the procedure for adopting a local energy efficiency building code. Sonoma Clean Power (SCP) staff will present information of the Advanced Energy Rebuild Program, a rebate program to incentivize resilient, energy- efficient residential rebuilds in the Tubbs Fire area. RCPA staff will also present information on local energy efficiency retrofit incentive programs.

1. City 2015 Greenhouse Gas Inventory

RCPA was formed in 2009 to coordinate Countywide climate planning efforts for Sonoma County jurisdictions, governed by a Board of Directors comprised of council members from each jurisdiction, as well as County Supervisors.

RCPA prepared a 2010 and a 2015 GHG inventory for the City of Santa Rosa. The emission sectors calculated in the inventories included building energy, transportation and land use, solid waste, water and wastewater.

It is important to note that essential communitywide data take additional time to become available or may only be available on a multiyear cycle. For example, electric utilities take over a year to establish regional carbon intensity factors for electricity usage, and to quantify community-level electricity deliveries for a target year.

The Countywide annual emissions totals for 2010 and 2015 are very similar, at 3,601,000 and 3,618,000 metric tons CO2e respectively, with reductions in building energy being balanced out by increases in transportation emissions.

The City of Santa Rosa has exhibited a decline in GHG emissions from 1,321,100 metric tons CO2e in 2007, to 1,065,200 in 2010 and 1,002,800 in 2015. The 2015 total is calculated as 11 percent below 1990 levels. Overall emissions have declined, but the proportion contributed by the various activity sectors has also changed. Emissions from building energy have decreased from 41 percent in 2010 to 29 percent in 2015, which is generally attributed to the change in utility provider to Sonoma Clean Power. Transportation, the largest emission sector, increased as a percentage of total emissions from 52 percent in 2010 to 60 percent in 2015, and in absolute quantities from 557,198 annual metric tons in 2010 to 603,523 metric tons in 2015. Solid waste also increased by approximately 3 percent over the 5-year period.

2. Communitywide Climate Action Plan

The CCAP is divided into two main sections. The first is the Citywide sector-based emissions inventory, which is an accounting of GHG emissions from various activities in a given year. The inventory separates activities that generate GHG emissions into categories including vehicle transportation, building energy usage, water delivery systems and others. The ultimate purpose of the inventory is to estimate a GHG emissions total for comparison to the proposed emission reduction targets. The second section is the implementation measures, activities and policies to reduce GHG emissions from the identified emission sectors.

a. Emissions Inventory

In order to estimate the City's communitywide total baseline emissions, a sector-

based emissions inventory for the year 2007 was prepared with the CCAP, and a separate inventory was prepared with the MCAP for emissions generated by municipal facilities and activities for 2007. The CCAP contains emission reduction measures organized into nine categories:

- Energy Efficiency
- Renewable Energy Usage
- Parking and Land Use
- Alternative Transportation Opportunities
- Optimized Vehicular Travel
- Solid Waste
- Water and Wastewater Efficiency
- Local Food Systems
- Off-road Emissions

The 2007 inventory constitutes a baseline from which progress can be measured. However, the CCAP did not include fully developed methods for tracking activities and quantification of the GHG emission reduction measures. The measures also vary widely and in many cases are not readily quantifiable. As a result, progress toward emission reduction targets is estimated by preparing a communitywide inventory update, after implementation of the measures. Based on California Air Resources Board estimates, the 1990 emission level that reduction targets are based on, is approximately 15 percent lower than the 2007 levels. A reduction target of 25 percent below 1990 levels would therefore be equivalent to an approximate 37 percent reduction below 2007 levels. The general activity sectors evaluated in the Citywide inventory included energy, transportation, solid waste, water and wastewater, off-road equipment and agricultural activity.

The Regional Climate Protection Authority (RCPA), the agency that coordinates climate planning efforts for all Sonoma County jurisdictions, has recently completed a countywide emissions inventory update for 2015 and tentatively plans to develop emission inventories for County jurisdictions on an ongoing basis.

b. Energy Efficiency

The goal of energy efficiency policy is to conduct the same operations using less energy, like replacement of incandescent bulbs with LED bulbs which use less electricity. Some energy efficiency policies in the CCAP are indirect, aimed at changing behavior and reducing the demand for certain energy-intensive activities.

Energy efficiency efforts are incorporated in the everyday activities of several City departments through higher standards for new construction, support for retrofits of existing buildings, and conservation activities. The Building Division implements the California Building Code, known as Title 24 of the California Code of Regulations. CALGreen, the first state-mandated green building standards code, is a portion of Title 24. It contains mandatory requirements, and more rigorous optional standards known as Tier 1 standards. The Tier 1 optional standards include five subparts: energy efficiency, water conservation, planning and design, material conservation, and environmental quality.

In November 2016, the City of Santa Rosa adopted the 2016 building code and all Tier 1 subparts except for the energy efficiency standards, which must be shown to be cost effective and approved by the California Energy Commission. Based on preliminary analysis by Building Division staff, the cost-effectiveness of Tier 1 energy efficiency standards could not be demonstrated.

The 2016 building code and adopted Tier 1 standards currently include green construction such as water-efficient fixtures, recycled content requirements, electrical infrastructure readiness for electric vehicle charging in new single-family residential, and others.

Conservation efforts that increase shade and reduce the need for building cooling are part of the permitting process for new development. New development is encouraged to include street trees through the City's Design Guidelines, and tree planting in parking areas is required by the Zoning Code.

The goal of reducing energy usage can also be achieved in part by reducing the need for building cooling. The localized increase in ambient temperature due to the paved urban environment is known as the heat island effect and contributes to higher electricity usage for building cooling. In order to reduce the heat island effect produced by black asphalt, City staff will pursue lighter color street paving requirements through the next Street Standards update anticipated to begin in 2019.

c. Renewable Energy Generation and Usage

Policies in the CCAP aim to facilitate the implementation of renewable energy in buildings and vehicles. The CCAP policies are supported in part by the building code. For example, the building code currently requires that new single-family residential dwellings be solar ready (indicating roof space for future installations, providing a pathway for future wiring, and reserving space in the main electrical service panel) and electric vehicle charging capable (providing a pathway for future electrical wiring). Solar panels will become mandatory in the 2019 code cycle for residential.

Sonoma Clean Power (SCP) is a regional electric utility provider that was formed through a Joint Powers Agreement to serve the cities and unincorporated area of Sonoma County and now Mendocino County jurisdictions. The vast majority of the electricity that Santa Rosa uses is provided through SCP's CleanStart program, ensuring that a minimum of 45 percent of the electricity used by municipal facilities is from renewable sources and 87 percent is from carbon-free sources. The percentage of renewable energy provided by the CleanStart program is gradually increasing and is on pace to achieve the California Renewable Portfolio Standard legislation goal requiring 50 percent renewable energy from public utilities by 2030. Sonoma Clean Power also offers an EverGreen program, sourced from 100 percent renewable local (within the SCP service territory) power sources.

In advance of State mandated requirements for solar PV permitting, Santa Rosa building division created a streamlined process to approve certain solar permit applications over the counter, provided an online process for scheduling and responding to inspection requests, installed solar PV on local facilities, and provided Property Assessed Clean Energy (PACE) financing for eligible properties. Santa Rosa was designated "SolSmart Gold" by the U.S. Department of Energy in 2016 for encouraging solar market growth.

d. Parking and Land Use

Transportation and the use of gas powered vehicles remains the largest percentage of community GHG emissions. Reducing vehicle dependence and usage reduces the GHG emissions from gas-powered vehicles. The City's various land use policies in the General Plan and Zoning Code support reducing traffic and increasing residential densities downtown and near transit centers. The City's urban growth boundary, the Downtown and North Santa Rosa Station Area Plans establish limits on development and provide density incentives to focus new, mixed use residential development near the Sonoma Marin Area Rail Transit (SMART) rail stations, transit providers, and complementary commercial uses. Policy development is ongoing to increase developer incentives for high density housing in these downtown and transit-oriented locations.

Through the land use entitlement process, City staff encourage implementation of project features and operational procedures that may indirectly reduce vehicle travel. Staff may encourage large employers to have complementary commercial services onsite such as dining and retail, or to include unbundled parking as part of their project. "Unbundled parking" is when a parking space, typically in higher density or mixed-use areas, is rented separately from a residential unit, incentivizing fewer vehicles and providing financial benefits to households without vehicles.

A demand-based pricing system for public parking was implemented in January of 2018. In this context, the pricing structure increases the price of street parking in high parking demand areas like the core downtown. The goal of the pricing strategy is to improve access to short-term parking, thereby increasing convenience to business patrons, reducing circling and related traffic hazards. Demand based pricing may indirectly incentivize carpooling and transit ridership.

Residential parking permits are offered in six specific residential neighborhoods to improve access to street parking for residents in these areas during certain times of day. These restrictions place a limit on the number of vehicle permits available per household, and indirectly incentivize alternative transportation by deterring spillover parking of vehicles from adjacent activity centers.

e. Alternative Transportation

The City supports the development of a multi-modal transportation system by encouraging transit, bicycling, walking and other forms of alternative transportation. New bike lane and pedestrian improvements are routinely installed as part of large-scale new development through the permitting process, and through development of capital improvement projects.

City staff conduct activities that improve pedestrian infrastructure, making pedestrian travel more safe and convenient. Periodic analysis of pedestrian infrastructure is conducted by the Traffic Engineering Division. A crosswalk analysis was most recently conducted in 2014. Consultants with direction from City staff evaluated pedestrian and vehicle traffic, existing pedestrian facilities, and other metrics, and used the information to identify the optimal location for new crosswalks. The study identified, prioritized, and estimated costs of pedestrian improvements throughout the City. These are implemented through the City's capital improvement program (CIP).

Transportation planning staff maintain and implement the Bicycle and Pedestrian Master Plan, which identifies pedestrian and bicycle infrastructure projects and provides prioritization criteria for their completion. Staff began the process of updating the Plan in Fall 2017 and outreach is ongoing, with a draft Plan anticipated in Fall 2018.

Through implementation of the CIP, bike and pedestrian projects constructed in 2017 include installing Class II bike lanes on segments of 3rd Street, and Montecito Boulevard Class II bike lanes. In addition to local efforts, the Sonoma County Transportation Authority (SCTA) in partnership with other agencies is developing a bike-share program with four locations in Santa Rosa.

Improvement to the City's transit system is an essential priority for reducing vehicle miles traveled, as transit typically shoulders the largest modal share of the alternative transportation modes, second only to single occupant vehicles. Starting in May 2017, City Transit staff implemented Phase I of a comprehensive re-design known as Reimagining CityBus.

Reimagining CityBus was a result of a two-year Comprehensive Operational Analysis (COA) that included over 100 public outreach events with rider, bus driver, and stakeholder consultations and route design meetings with City Council. Reimagining CityBus serves as the roadmap for the development of the transit system in Santa Rosa and provides a framework and a set of priorities for transit system changes and investments for the next ten years.

Phase I implementation included all new routes and schedules, new bus stops, pedestrian facility improvements to existing bus stops, more direct routes with bi-directional service, improved connectivity to other regional transit providers (Sonoma

County Transit, Golden Gate Transit, SMART and Mendocino Transit Authority), start of an institutional pass program with the Santa Rosa Junior College and the City's first 15-minute service on Mendocino Ave and Sebastopol Ave. Providing 15-minute frequency is a critical threshold for supporting high density transit-oriented development.

Some elements of Phase I require additional funding to implement, including expanded Sunday service, night service, further bus stop and pedestrian access infrastructure improvements, expansion of institutional pass programs, and expanded commuter service. The longer-term recommendations, Phase II of Reimagining CityBus, will require additional resources. Phase II recommendations anticipate growth and development in Santa Rosa and include further expanded hours of operation (nights and weekends), increased fleet and staff to support increased frequency and route expansion, implementation of technology-based on-demand services (TNC's), and dedicated transit infrastructure (lanes, signals, queue jumps).

The City's Transit Division is also collaborating with Santa Rosa Junior College on an initiative to provide unlimited access to CityBus for students. The pilot program was launched for the 2017 fall semester, averaging about 2,500 rides per week, and 3,500 rides per week in the spring 2018 semester.

The Transit Division coordinates the Free Ride project, a grant-funded incentive program that reduces single-occupant vehicle trips. The program works with large employers in the City by providing discounted bus passes and incentives for employees who walk, bike or carpool to work, and providing participants with a guaranteed ride home in the event of an emergency. In 2017, 1,500 participants in 290 organizations were enrolled in the program.

f. Optimized Vehicular Travel

Electric vehicle infrastructure has been installed in public parking facilities and at numerous City offices. Eleven public electric vehicle chargers are located throughout the City with 7 more planned for installation.

The City also participates in the electric vehicle rebate program, Drive EV, which is administered by Sonoma Clean Power, and provides substantial reductions in total cost for purchasers or leasers of electric passenger vehicles. Sonoma Clean Power reports that the program has incentivized the purchase of 445 electric vehicles in the City of Santa Rosa, and provided residential EV chargers to 712 Santa Rosa residents over the last two years. The third cycle of the program is available through November 14, 2018.

SCTA is implementing a regional car-sharing program in partnership with Sonoma County jurisdictions. SCTA and the City Parking Division have established a pilot car-sharing location for two vehicles in Santa Rosa through August 2019.

g. Solid Waste Disposal

In 2017, the City of Santa Rosa conducted a competitive procurement process for selecting a new hauler for solid waste and recycling collection and processing services. Recology, Inc. was awarded an exclusive franchise agreement with the City and began operations on December 24, 2017.

The Recology mission represents a fundamental shift from traditional waste management to resource recovery. Recology strives to achieve high landfill diversion rates and meet sustainability goals. Under the Solid Waste Collection Services Agreement with the City, Recology is required to progressively increase waste diversion from our local landfill over the next ten years, with a diversion rate of 60 percent required by 2029. In contrast, the previous waste hauler's diversion rate hovered around 37 percent. A major component of this diversion plan is the introduction of the green waste or organics can for all Santa Rosa residents. According to CAL Recycle, organic waste accounts for more than a third of the material in California's waste stream. GHG gas emissions caused by the decomposition of organic material in landfills contribute to global climate change.

Recology has introduced new 2017-18 model year collection vehicles to service the City in full compliance with applicable local, state and federal clean air requirements. The vehicles are also fueled with renewable diesel. This vehicle upgrade represents a significant reduction in GHG gas emissions and related exhaust pollutants within our community.

In addition, the agreement with Recology delivers sustainability resources that will assist Santa Rosa in meeting state mandated diversion requirements (AB 939, AB 341, AB 1826, SB 1383). Recology's "Waste Zero" team is devoted to providing public education and outreach programs to further support the City's diversion and waste reduction goals. Recology has conducted 39 trainings and presentations, attended 17 outreach events, and conducted 159 site audits through August 2018.

City of Santa Rosa is currently performing community outreach and analysis to develop a Citywide Zero Waste Plan. Santa Rosa staff define a Zero Waste goal as one that is quantifiable, reasonable, and impactful locally. City staff are working with R3 Consulting, Inc. to establish the Zero Waste goal, followed by development of the Zero Waste Plan.

On a more regional level, in 2014, the City and other regional partners of the Sonoma County Waste Management Agency implemented a countywide ban on single-use plastic bags for retail and grocery stores and established a surcharge for the purchase of paper bags. The result is an ongoing reduction of plastic in the City's solid waste stream, and less plastic litter.

h. Water and Wastewater Efficiency

The City continues to be a leader in implementing innovative water efficiency programs. Water efficiency and demand management are an integral part of the City's water management strategy; moreover, they reduce GHG emissions by reducing or eliminating the energy required to move and treat water used by residents and businesses.

The City offers technical support, education, information and incentives to single-family residential, multi-family residential, commercial, industrial, and institutional customers. Water efficiency programs include, but are not limited to, replacement of toilets with ultra-low-flow and high-efficiency toilets, conversion of high-water-use landscapes to climate appropriate landscapes, a rainwater harvesting rebate program, a graywater reuse ("laundry-to-landscape") rebate program, a hot water recirculation pump incentive, and sustained reduction rebate programs. The City's sustained annual water savings from water use efficiency programs are 1.64 billion gallons.

Water efficient landscape requirements have existed in the City since 1992, but were most recently updated in 2015 in compliance with State law. As part of the permitting process for new development, City staff implements the Water Efficiency Landscape Ordinance (WELO). All new and modified landscaping work associated with a building permit may not exceed a calculated water allowance.

Improved water use tracking can help residents and businesses monitor their water usage, increase their water efficiency, and save money. The Water Department is in the early stages of deploying "smart" water meters that track water usage in real-time. The roll-out is phased so that all conventional water meters are expected to be replaced by 2021.

i. Local Food Systems

The City has made efforts to support local food systems as opportunities arise. Several farmers markets operate in the City both seasonally at the downtown Wednesday night market, and year-round at the Luther Burbank Center and Veterans Memorial Building. Community gardens are featured in new neighborhood parks including Finali and Bayer parks. Opportunities for establishing community gardens in existing public parks are evaluated through the Park Master Plan update process. The Zoning Code was updated in 2012 to allow hens on single-family residential lots of a minimum size. The City also implements the building code requirements for outdoor electrical outlets on residential construction that can encourage the use of all electric landscaping equipment.

j. Off-Road Emissions

Ongoing City programs reduce emissions from off-road equipment and vehicles

associated with landscape maintenance. Parks Department vehicles and equipment are inspected and maintained regularly to ensure optimal performance. Parks Department staff also periodically review the policy limiting idling for equipment and vehicles. Residential building code requirements for outside electric outlets also facilitate the use of electric gardening equipment. Additionally, standard conditions of approval for new entitlements include restrictions on the operation of construction equipment. The previously mentioned Water department rebates for turf replacement also reduce the use of gas-powered gardening equipment.

3. Municipal Climate Action Plan

In 2013, following the approval of the CCAP, the City prepared and adopted the MCAP. The plan is a companion document to the CCAP to address GHG emissions from the City's municipal operations. The MCAP identifies activities and programs that contribute to a reduction in GHG emissions for municipal facilities and operations, with some overlap between the measures in the CCAP and MCAP.

The MCAP contains emission reduction measures organized into five categories:

- Municipal Wastewater Treatment Activities
- City Buildings and Facilities
- Vehicle Fleet
- Public Lighting
- Solid Waste

a. Wastewater Treatment Facility

The City's wastewater treatment facility serves the entire City and several nearby communities. The treated water produced at the plant is transported through a 40-mile pipeline to the Geysers geothermal plant where it is used to generate electricity. The Laguna Treatment Plant (LTP) has been upgraded to achieve emission reductions from its processes. In 2014, the LTP installed a high-efficiency cogeneration system that used methane produced by the treatment process to fuel facility equipment, generating approximately 7.8 million kilowatt hours (kWh) of electricity annually. Additionally, a high strength waste receiving station was completed in 2016 and a microgrid system including a 125kW solar system, 2-MW battery, and selective catalytic converters, is under construction. The facility has also upgraded to high efficiency lighting and automatic shutoffs where practicable, and additional energy efficiency measures continue to be implemented. An Energy Optimization Plan currently being prepared by the Water Department will serve as a roadmap for strategically and systematically optimizing energy use in Santa Rosa Water's Subregional System.

b. City Buildings and Facilities

Several energy efficiency upgrades to City buildings identified in the MCAP have been completed. These include installation of a small cogeneration system at the

Finley Swim Center. A high efficiency boiler has been installed at the Ridgeway Pool Center, reducing the energy and cost associated with heating the facility. When replacement of existing building roofs is needed, the roof replacement includes a reflective “cool roof” coating, reducing the need for indoor heating and cooling. The City Facilities Division developed a comprehensive facilities assessment, completed earlier this year, that inventoried facility assets and outlines priorities for future facility upgrades anticipated to further increase facility energy efficiency.

The City also generates renewable energy at 10 existing solar panel arrays on various Water Department facilities, totaling 461 kW of solar electricity generation capacity. In 2018, Parking Division staff completed installation of rooftop solar arrays at four public parking facilities totaling 319 kW, increasing the renewable generation capacity of City facilities by approximately 60 percent. The parking structure solar panels offset the electricity needs at the sites, making them effectively net-zero energy buildings.

The Water Department is currently preparing an Energy Optimization Plan for Water Operations, which will serve as a roadmap for strategically and systematically optimizing energy use in water pump stations, sewer lift stations, reservoirs, and all other water facilities and infrastructure. Various renewable energy, energy storage, and energy efficiency opportunities continue to be evaluated by the Water Department and throughout the City.

As previously discussed, the electricity provider for City facilities has changed to Sonoma Clean Power, resulting in less indirect GHG emissions from power generation. The City receives virtually all of the electricity used in municipal facilities through Sonoma Clean Power’s CleanStart program. The program features a 45 percent mix of renewable electricity including geothermal power from the nearby geyser plant.

Santa Rosa has repeatedly received awards from the Institute for Local Government for greenhouse gas reduction and energy savings:

- 2013 Silver Agency 8% GHG Reduction Award
  Silver Best Practices Award
- 2014 Gold Best Practices Award
- 2015 Silver Agency 8% Energy Savings Award
- 2018 Community 21% GHG Reduction
  Natural Gas 5% Savings Award

c. <u>Vehicle Fleet and Transportation</u>

The City’s vehicle fleet is upgraded through the regular replacement of vehicles as funding is available and vehicles reach replacement age. The City currently operates 66 hybrid vehicles and four electric vehicles.

The City currently owns ten diesel hybrid transit buses in the transit fleet. The City

of Santa Rosa was awarded the FY17 Bus and Bus Facilities Competitive Program 5339(b) funding from the Federal Transit Administration for $1.2 million dollars to purchase two 40' battery-electric buses and charging infrastructure. According to the Department of Transportation bus research, each diesel bus that is replaced by an electric bus eliminates 1,690 tons of CO2 over its 12-year lifespan, which is equivalent to taking 27 cars off the road. It will also eliminate 10 tons of nitrogen oxides and 350 pounds of diesel particulate matter per bus that is replaced. The study also states that there is a substantial cost savings in maintenance for electric buses, and they run much quieter throughout the service area than conventional buses.

In 2018 the California Air Resources Board, through an effort called the Innovative Clean Transit (ICT), set a goal to transition to a zero-emission transit system by 2040. Transit agencies will be required to submit a transition plan. Additionally, the California Public Utilities Commission approved investments in charging infrastructure to support the deployment of electric buses, trucks and cars. This investment is to support the deployment of electric buses, trucks and cars. Transit agencies in the service jurisdictions of Pacific Gas & Electric (PG&E) will be eligible to benefit from these funds. These funds will be available through PG&E's Fleet Ready Program and are expected to fully fund the construction and installation of the electric vehicle (EV) service connection and supply infrastructure –often referred to as "make-ready" infrastructure – which is required for the installation of an electric bus charger. As part of this investment, PG&E will also offer transit agencies rebates for the purchase of electric bus chargers.

The City also continues to administer a Citywide trip reduction program to encourage employees to walk, bike, carpool, or take transit to work. The Free Ride program currently partners with 290 organizations and has 1510 participants including City staff.

d. Public Lighting

City public lighting facilities, primarily street lights, have undergone significant upgrades. Public lighting fixtures have been replaced from sodium lamps to LED lights or gas induction lights, technologies that consume significantly less electricity. Roughly 10,000 cobra head lights have been replaced in the completed first phase of the project. The second phase of the project to retrofit decorative streetlights with LEDs has commenced and is scheduled to be completed in 2019.

e. Solid Waste

As discussed above, the City continues to support curbside recycling, green waste disposal, and improved waste diversion through progressive service agreements with the City's new waste hauler. Related to solid waste reduction goals, the City continues to implement a minimum recycled content purchasing policy.

4. All Electric Building Codes

The following section discusses background and preliminary research about the mandatory 2016 CALGreen Code, Tier 1 and all-electric building standards, and the procedure for adopting code requirements more aggressive than the mandatory state requirements.

a. CALGreen Background

The California Building Code is Title 24 of the California Code of Regulations. It is updated every three years by the California Building Standards Commission (CBSC). The most recent version of the Code, referred to as the 2016 Building Code, became effective in 2017. The 2019 version of the Code will be published in 2019 and be effective January 2020.

Energy efficiency is addressed in two parts of Title 24, the CALGreen Code (Title 24 Part 11) and the Building Energy Efficiency Standards (Title 24 Part 6). In combination, they address five subparts of building construction: planning and design, energy efficiency, water conservation, material conservation, and environmental quality.

b. 2016 Building code and Tier 1 standards

The CALGreen Code includes both mandatory requirements and voluntary standards. The 2016 mandatory requirements for single-family residential include electric vehicle charging potential, insulation and lighting requirements and others. Every three-year cycle the mandatory requirements become more stringent. The residential building code became 28 percent more energy efficient in 2016 from the previous version, and the 2019 code is anticipated to increase efficiency 7 percent over the current version.

The current CALGreen Code voluntary standards are often referred to as Tier 1 and Tier 2 standards. In the 2016 code cycle, Tier 1 is considered 15 percent more efficient than the mandatory requirements, and Tier 2 is 30 percent more efficient. The Tiers are not synonymous with an all-electric standard, although there may be overlap between the sets of standards. An all-electric standard would be generally defined as standards to eliminate the use of natural gas in the building, with additional measures such as energy efficiency to achieve cost-effectiveness.

The 2016 Tier 1 standards consist of a suite of more rigorous standards than the mandatory requirement, achieving 15 percent higher energy efficiency. The Tier 1 standards are also established by the CBSC in the triennial update of the building Code, so some Tier 1 standards may become mandatory standards in the 2019 Code updates. The 2019 Tier 1 standards are still in development and will not be available until approximately the beginning of 2019.

c. Process for adoption of Tier 1 EE or All-Electric standard

All-electric residential construction means that energy needs are met without the use of natural gas and no gas pipes or infrastructure. An all-electric home would include electric cooking, electric clothes dryer, a heat pump water heater, a mini-split heat pump for space heating and cooling and could include an optional electric fireplace, electric vehicle (EV) charging station and a photovoltaic (PV) system.

All-electric ready residential construction would include the infrastructure required for future all-electric uses, such as breaker box capacity, wire size, and conduit necessary for 240-volt outlets for the above appliances and systems, and would still include gas infrastructure.

Adoption of a more rigorous energy efficiency building standard such as Tier 1, all-electric ready, or all-electric standard is voluntary and initiated by the participating jurisdictions. These are often called “reach” codes. The Tier 1 standards that correspond to the subcategories of planning design, water conservation, material conservation, and environmental quality do not require coordination with State agencies to adopt. However, the adoption of Tier 1 energy efficiency standards requires approval by the California Energy Commission (CEC), and a study must be conducted to demonstrate that the more stringent energy efficiency standards are cost effective over the 30-year life of the building. Because the mandatory building code is revised every three years, a voluntary energy efficiency code and its corresponding cost-effectiveness analysis would need to be re-adopted in each three-year Code cycle.

At the time of adoption of the 2016 Building Code, the City also adopted the 2016 Tier 1 standards for all subcategories except energy efficiency. Building Division staff conducted a preliminary assessment of energy efficiency code requirements and cost effectiveness, determining that cost effectiveness was infeasible at that time.

Eight California local governments have adopted voluntary energy ordinances requiring more stringent energy requirements than those set by the 2016 Codes. To date no California jurisdiction has adopted an all-electric standard. The City of Healdsburg adopted Tier 1 energy efficiency requirements for new residential development over 3,000 square feet and for non-residential over 10,000 square feet. The City of Novato adopted Tier 1 energy efficiency requirements for single-family and low-rise multifamily residential. Both cities adopted these standards in early 2017, corresponding generally with the effective date of the 2016 Building Code.

d. Cost of all-electric construction

As mentioned above, all-electric construction is not the same as any CALGreen Code or Tier 1 standards, but in order to meet the CEC cost effectiveness requirement, all-electric measures may be combined in an overall package with

other voluntary measures. In a study prepared in partnership with California utility providers and published in October 2017, the cost of all-electric construction was evaluated, including measures like insulating windows, doors, cool roofs, and attic insulation. The study concluded that in the Santa Rosa climate zone, the additional cost of the single-family residential construction was estimated at $10,000. However, with an annual energy savings of approximately $1,000, the initial incremental costs would be paid back within ten years. These calculations only compare all-electric construction to the 2016 Title 24 mandatory requirements, which will change substantially in 2019, at which time a new cost-effectiveness study would be required to meet the CEC criteria for approval of an all-electric building code.

With the 2019 Title 24 Code still in development and the CALGreen Tier 1 standards trailing by approximately six months, a cost comparison between all-electric and the 2019 mandatory and voluntary codes cannot be completed before 2019. It can be assumed that the cost of construction under the 2019 CALGreen Code would increase with new mandatory requirements such as rooftop solar panels and high-performance insulation requirements. These newly mandated requirements could not then be used as part of an all-electric cost-effectiveness analysis, and a more in-depth study would be needed to develop a cost-effective package of energy efficiency measures.

e. Path to adoption

As mentioned above, voluntary building standards need to be re-approved in every three-year Code cycle. If a voluntary standard were approved prior to the new 2019 codes taking effect at the beginning of 2020, it would need to be re-approved with a new cost-effectiveness study based on the 2019 Title 24 Code. Assuming that an all-electric code would take approximately a year to develop and approve, it would only be effective for a few months before it would need to be re-evaluated and re-approved. Of the fifteen local governments adopting voluntary energy efficiency codes for the 2016 code cycle, the majority did so in late 2016 or early 2017, aligning with the January 2017 effective date of the 2016 Building Code.

If the City Council elects to pursue the adoption of an all-electric voluntary code, the most resource-efficient approach would be to prepare it to closely follow the effective date of the 2019 Title 24 Code at the beginning of 2020. Other options would be to evaluate other energy-efficiency elements such as “all-electric ready” construction, cool roofs, or electric space and water heating. Any option would require the preparation of a cost-effectiveness study.

The initial step of a Code development process would be to prepare a cost-effectiveness study. The necessary staff time and financial resources are undetermined at this time and would need to be evaluated.

Such a study would be based on the recently released draft 2019 Code, and a regional effort could be coordinated with RCPA and interested member jurisdictions

to share the cost of the study. Such a study would be based on climate zones, with most of the County being in Climate Zone #2, with coastal areas in Climate Zone #1. Upon completion of a cost-effectiveness study, City staff would prepare staff report materials for adoption of the building code, and submit the application materials to the CEC.

5. Sonoma Clean Power Advanced Energy Rebuild Program

Sonoma Clean Power (SCP) is a local public electricity provider serving Sonoma and Mendocino counties. SCP replaces PG&E's electric generation service with more renewable, low-emission electricity. SCP also administers programs to incentivize the purchase of electric passenger vehicles, EV charging infrastructure, small scale solar electricity generation, and energy efficient construction.

The Advanced Energy Rebuild program is a collaboration between Sonoma Clean Power, Pacific Gas and Electric Company (PG&E), and the Bay Area Air Quality Management District to help homeowners effected by the October 2017 firestorms build energy efficient, sustainable homes. As of August 7, 2018, 105 homes have submitted applications for the Advanced Energy Rebuild program.

The program is the first of its kind to offer additional incentives for homeowners choosing to rebuild all-electric homes that help meet Climate Action Plan goals. As of August 7, 2018, 50 percent of program applicants have chosen to rebuild all-electric homes. On average, homes meeting the requirements of Advanced Energy Rebuild are 26 percent more energy efficient than a standard Title 24 compliant home. The average home participating in the program is also expected to save approximately $650 annually on their utility bills compared with a Title 24 compliant home.

6. Local Energy Efficiency Retrofit Programs

Building code enhancements address energy usage in new construction. There are also local incentive programs to retrofit existing buildings and make them more energy efficient. Energy used by existing buildings to heat, cool and light spaces is the second largest source of emissions. Programs in Santa Rosa offer opportunities for existing buildings to save money while reducing greenhouse gas emissions. BayREN is a collaboration of the nine counties that make up the San Francisco Bay Area, led by the Association of Bay Area Governments (ABAG). They provide regional-scale energy efficiency programs, services, and resources and promotes healthy and energy efficiency buildings for both single family and multifamily residents.

Home Upgrade is a BayREN retrofit incentive program for homeowners of single-family homes and 2-4 unit buildings. Home Upgrade offers rebates up to $5,500 for bundling energy efficiency improvements such as high efficiency furnaces and cooling systems, duct sealing and insulation, building air sealing, attic insulation, hot

water systems, wall insulation, and more. A complete list of eligible measures can be found at bayareaenergyupgrade.org. Home Upgrade has a network of specially trained Participating Contractors in the Bay Area who have undergone specialized training in order to help homeowners identify the most cost-effective improvements. A Home Energy Advisor will provide unbiased assistance to help homeowners understand all the available energy efficiency options, select a contractor who is right for the project, review estimates or bids, and help navigate project installation and financing processes. Home Upgrade projects can be financed through local property assessed clean energy (PACE) financing, such as the Sonoma County Energy Independence Program (SCEIP), or statewide financing offerings.

The BayREN Bay Area Multifamily Building Enhancements program offers cash rebates and no-cost energy consulting for multifamily properties that undertake energy and water upgrades. The program assists in planning energy saving improvements designed to save 15 percent or more of a building's energy and water usage and provides $750 per unit in rebates to help pay for the upgrade. The program is open to multifamily buildings with five or more attached dwelling units. Improvements can include heating & cooling systems, water heating systems, lighting & appliances, building sealing & insulation, windows & more. More information on the program can be found at bayareamultifamily.org.

FISCAL IMPACT

This item does not have a fiscal impact on the General Fund.

ENVIRONMENTAL IMPACT

The study session on the Citywide 2015 greenhouse gas inventory, the implementation of the Climate Action Plans, all-electric building codes, Advanced Energy Rebuild program, and local energy efficiency retrofit incentive programs is exempt from CEQA. These reports and discussion items are not projects which have a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, pursuant to CEQA Guidelines section 15378.

BOARD/COMMISSION/COMMITTEE REVIEW AND RECOMMENDATIONS

Not applicable.

NOTIFICATION

Not applicable.

ATTACHMENTS

- Attachment 1 – Sonoma County GHG Inventory Update 2015
- Attachment 2 – “2016 Energy Efficiency Ordinance Cost-Effectiveness Study: All Electric Non-Preempted
- Attachment 3 – MCAP/CCAP Summary of Implementation

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