

List of Acronyms and Abbreviations

°F	degrees Fahrenheit
AB	Assembly Bill
ARB	California Air Resources Board
B2B Project	City of Petaluma’s Biomass-to-Biofuel Project
BAAQMD	Bay Area Air Quality Management District
BAU	business-as-usual
BCM	Basin Characterization Model
C&D	construction and demolition
CA2020	Climate Action 2020
CAP	Climate Action Plan
CCA	Community Choice Aggregation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH ₄	methane
CNG	compressed natural gas
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CWD	climatic water deficit
E3	Energy + Environmental Economics
ESD	Energy and Sustainability Division
EV	electric vehicle
FOG	fats, oils and grease
GBO	Green Building Ordinance
GGE	gallons gas equivalent
GHG	greenhouse gas
GWP	Global Warming Potential
HSW	high strength waste

IPCC	International Panel on Climate Change
kWh	kilowatt hours
LCFS	Low-Carbon Fuel Standard
LED	light-emitting diode
MMTCO ₂ e	million metric tons of carbon dioxide equivalent
MT	metric ton
MTC	Metropolitan Transportation Commission
MTCO ₂ e	metric tons of carbon dioxide equivalent
MUP	Multi-Use Path
N ₂ O	nitrous oxide
NBCAI	North Bay Climate Adaptation Initiative
NQ	not quantified
NSCAPCD	Northern Sonoma County Air Pollution Control District
PACE	Property Assessed Clean Energy
PAYS	Pay As You Save
PG&E	Pacific Gas & Electric Company
PPA	power purchase agreement
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PV	photovoltaic
PWRPA	Power and Water Resources Pooling Authority
RCPA	Regional Climate Protection Authority
RMDZ	Recycling Market Development Zone Program
RPS	Renewable Portfolio Standard
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCEIP	Sonoma County Energy Independence Program
SCEW	Sonoma County Energy Watch
SCP	Sonoma Clean Power

SCT	Sonoma County Transit
SCTA	Sonoma County Transportation Authority
SCWA	Sonoma County Water Agency
SCWMA	Sonoma County Waste Management Agency
SMART	Sonoma-Marin Area Rail Transit
SR	State Route
SSURGO	Soil Survey Geographic
SWG	Staff Working Group
TDM	Transportation Demand Management
TOD	transit-oriented development
TRO	trip reduction ordinance
UC	University of California
UGB	Urban Growth Boundary
VMT	vehicle miles traveled
WWTP	wastewater treatment plant

Glossary of Terms

Assembly Bill (AB) 32. Assembly Bill 32 is commonly known as the California Global Warming Solutions Act of 2006. The bill requires the California Air Resources Board to develop and enforce regulations for the reporting and verification of statewide greenhouse gas emissions and develop and implement measures to reduce greenhouse gas (GHG) measures. The heart of the bill is the requirement that statewide greenhouse gas emissions must be reduced to 1990 levels by the year 2020, or about 15% from today's levels.

Assembly Bill 32 Scoping Plan (AB 32 Scoping Plan). The AB 32 Scoping Plan outlines a range of greenhouse gas reduction actions for achieving the statewide emissions limit set forth by Assembly Bill 32. These strategies include direct regulations, compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan presently includes measures to meet the 2020 target in AB 32. The most recent update (in 2013) described potential measures to reduce GHG emissions out to 2020. Executive Order S-15-30 requires ARB to update the Scoping Plan to meet the 40% below 1990 level by 2030.

Association of Bay Area Governments (ABAG). ABAG was created by local governments to meet their planning and research needs related to land use, environmental and water resource protection, disaster resilience, energy efficiency, and hazardous waste mitigation and to provide risk management, financial services, and staff training to local counties, cities, and towns.

Bay Area Air Quality Management District (BAAQMD). The Bay Area Air Quality Management District is the local agency responsible for managing and regulating air quality in the San Francisco Bay Area. It is made up of nine counties in California: San Mateo, San Francisco, Santa Clara, Alameda, Contra Costa, Marin, Napa, and portions of Solano and Sonoma. The District establishes emissions limits and provides guidance for evaluating air quality and climate change impacts of new development projects.

Bay Area Regional Energy Network (BAYREN). BayREN is a collaboration of the 9 counties that make up the San Francisco Bay Area. Led by ABAG, BayREN implements effective energy-saving programs on a regional level and draws on the expertise, experience, and proven track record of Bay Area local governments to develop and administer successful climate, resource, and sustainability programs. BayREN is funded by California utility ratepayers under the auspices of the California Public Utilities Commission. One of only two Regional Energy Networks in the state, BayREN represents 20% of the state's population.

Business-As-Usual (BAU). Business-as-usual represents a future scenario that does not consider the possible reduction of greenhouse emissions that may result from any legislation or regulation that would go into effect after the baseline year. The business-as-usual projections are estimates of future emissions based on current energy and carbon intensity in the existing economy without

considerations of any federal, state, or local reduction measures designed to reduce greenhouse gas emissions.

California Department of Transportation (Caltrans). Caltrans manages more than 50,000 miles of California’s highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans carries out its mission of providing a safe, sustainable, integrated, and efficient transportation system to enhance California’s economy and livability, with six primary programs: Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center.

California Environmental Quality Act (CEQA). The California Environmental Quality Act is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

CEQA Document. Document required by the California Environmental Quality for all projects involving state or local agencies. The document discloses potential impacts that a proposed project may have on the natural and human environmental. Some projects are categorically or statutorily exempt. There are two classes of environmental documents: negative declarations, and environment impact reports.

California Air Resources Board (ARB). The California Air Resources Board is a part of the California Environmental Protection Agency. Its mission is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants, while recognizing and considering the effects on the economy of the state.

California Energy Commission (CEC). The California Energy Commission is the state’s primary energy policy and planning agency. Established by the Legislature in 1974 and located in Sacramento, seven core responsibilities guide the Energy Commission as it sets California energy policy:

1. Forecasting future energy needs;
2. Promoting energy efficiency and conservation by setting the state’s appliance and building energy efficiency standards;
3. Supporting energy research that advances energy science and technology through research, development and demonstration projects;
4. Developing renewable energy resources;
5. Advancing alternative and renewable transportation fuels and technologies;
6. Certifying thermal power plants 50 megawatts and larger; and
7. Planning for and directing state response to energy emergencies.

California Public Utilities Commission (CPUC). CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. CPUC serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy. CPUC regulates utility services, stimulates innovation, and promotes competitive markets, where possible.

Carbon Dioxide Equivalent (CO₂e). A measure for quantifying the potential impact a greenhouse gas may have on global warming using the functionally equivalent amount or concentration of carbon dioxide as a reference.

Carbon Sequestration. Carbon sequestration is the process of increasing the carbon content of a reservoir other than the atmosphere.

Center for Climate Protection (CPC). Formerly known as the Climate Protection Campaign, the Center for Climate Protection's mission is to inspire, align, and mobilize action in response to the climate crisis. The Center for Climate Protection works with business, government, youth and the broader community to advance practical, science-based solutions for significant greenhouse gas emission reductions.

Community Choice Aggregation (CCA). CCA is a policy that enables local governments to aggregate electricity demand within their jurisdictions in order to procure alternative energy supplies while maintaining the existing electricity provider for transmission and distribution services.

Community Climate Action Plan (CAP). A community Climate Action Plan quantifies greenhouse emissions within a jurisdiction and outlines strategies for mitigating and avoiding future emissions under the influence of the local jurisdiction. In order for a CAP to qualify for tiering under State CEQA Guidelines Section 15185, it must be adopted through a public process and include a monitoring and reporting protocol.

Community Inventory. The community inventory includes greenhouse gas emissions occurring in association with the land uses within a jurisdictional boundary, and generally consists of sources of emissions that a community can influence or control. The inventory includes emissions that occur inside and outside the jurisdictional boundary, but only to the extent that such emissions are due to land uses within the jurisdiction.

County of Sonoma Energy and Sustainability Division (ESD). ESD is responsible for the planning, evaluating and administering the countywide Energy Management and Sustainability Program. Services include long- and short-range energy and green procurement strategies, effective and efficient energy use and sustainability practices, and County employee commute reduction planning.

County of Sonoma Permit & Resource Management Department (PRMD). PRMD's mission is to serve the people of Sonoma County by providing a customer-focused process for the orderly development of real property, balanced with resource stewardship under the general policy

direction of the Board of Supervisors, and to develop and maintain standards that protect the health and safety of the public.

County of Sonoma Agricultural Preservation & Open Space District. County department that uses a sales tax for the purchase of conservation easements to protect agricultural lands and preserve open space.

Cost Effectiveness Analysis. The cost effectiveness analysis examines the costs and savings of implementing individual greenhouse gas reduction measures. The analysis can assist jurisdictions in evaluating the financial requirements of a climate action plan. The analysis can also outline co-benefits and uncover additional consequences of implementing a particular reduction measure.

Global Warming. Global warming is a phenomenon created by rising atmospheric concentrations of GHGs in excess of natural levels. The additional GHG concentrations exacerbate the natural greenhouse gas effect (see below), resulting in increasing global surface temperatures.

Global Warming Potential (GWP). The Global Warming Potential, or GWP, is used to compare GHGs based on their potential to trap heat and remain in the atmosphere. Some gases can absorb more heat than others and thus have a greater impact on global warming. For example, CO₂ is considered to have a GWP of 1, whereas N₂O has a GWP of 265. This means that N₂O is 265 times more powerful than CO₂.

Emissions Type. Greenhouse gas emissions can be defined as either direct (emissions that occur at the end use location, such as natural gas combustion for building heating) or indirect (emissions that result from consumption at the end use location but occur at another location, such as emissions that occur at the power plant itself but result from residential electricity use of in-home appliances or other uses). The climate action plan addresses both types of emissions.

Greenhouse Gas (GHG). Greenhouse gases trap longwave infrared radiation emitted from the earth's surface, which would otherwise escape to space. This fundamental process causes the greenhouse gas effect. The primary greenhouse gases include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), halogenated chlorofluorocarbons (HCFCs), ozone (O₃), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).

Greenhouse Gas Effect. The greenhouse gas effect keeps the atmosphere near the Earth's surface warm enough for the successful habitation of humans and other life forms. It is created by sunlight that passes through the atmosphere, some of which is absorbed by the Earth and converted to heat, which warms the surface.

Greenhouse Gas Emissions Inventory. A greenhouse gas inventory is a quantification of greenhouse gas emissions and sinks within a selected physical and/or economic boundary over a specified time. Greenhouse gas inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person).

Greenhouse Gas Emissions Reduction Goal. The greenhouse gas emissions reduction goal identifies a target for reducing greenhouse gas emissions by a particular date. For example, the California statewide emissions reduction goal is 1990 emissions levels by 2020.

High Global Warming Potential (GWP) GHGs. High global warming potential GHGs are primarily composed of three types of gases: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). These compounds are the most potent greenhouse gases and typically have extremely long atmospheric lifetimes, resulting in irreversible accumulation in the atmosphere once emitted.

Intergovernmental Panel on Climate Change (IPCC). The Intergovernmental Panel on Climate Change is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO). Its primary function is to review and assess the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. The Intergovernmental Panel on Climate Change does not conduct any research nor does it monitor climate related data or parameters.

Metropolitan Transportation Commission (MTC). Created by the state Legislature in 1970, MTC is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area. Over the years, the agency's scope has grown, and it is now three agencies in one, functioning as MTC as well as the Bay Area Toll Authority (BATA) and the Service Authority for Freeways and Expressways (SAFE).

National Resources Conservation Service (NRCS). NRCS helps America's farmers, ranchers, and forest landowners conserve the nation's soil, water, air, and other natural resources. All programs are voluntary and offer science-based solutions that benefit both the landowner and the environment.

North Bay Climate Adaptation Initiative (NBCAI). NBCAI is a coalition of natural resource managers, policy makers, and scientists committed to working together to create positive solutions to the problem of climate adaptation for the ecosystems and watersheds of Sonoma County. NBCAI implements effective climate adaptation strategies that sustain ecological and human communities of North San Francisco Bay watersheds. NBCAI's vision is that the San Francisco North Bay has resilient, biologically diverse natural systems that provide lasting ecosystem functions and services.

Northern Sonoma County Air Pollution Control District (NSCAPCD). The Northern Sonoma Air Pollution Control District is the local agency responsible for managing and regulating air quality in the northern and western parts of Sonoma County. The NSCAPCD establishes emissions limits and provides guidance for evaluating air quality and climate change impacts of new development projects.

Property Assessed Clean Energy (PACE). The PACE finance program is intended to finance energy and water improvements within a home or business through a land-secured financing, and funds are repaid through property assessments. Municipalities are authorized to designate areas

where property owners can enter into contractual assessments to receive long-term, low-interest financing for energy and water efficiency improvements and renewable energy installation on their property.

Pacific Gas & Electric Company (PG&E). PG&E is a utility providing electricity and natural gas service to Sonoma County. The company delivers natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California.

Regional. This plan uses the term regional to refer to the county-wide approach that Sonoma County will use to reduce greenhouse gas emissions, except where noted. Regional entities are cross-jurisdictional agencies that can provide some services and resources on behalf of communities in the county, more efficiently than individual communities can on their own. Regional entities and programs may be operating through the county, but may not cover each jurisdiction. This plan highlights the approach that, by working together through regional initiatives, goals, and targets, Sonoma County's communities can achieve greater GHG reductions, and do it more efficiently than if each city and County acted on their own.

Regional Climate Protection Authority (RCPA). The Regional Climate Protection Authority was created in 2009 to improve coordination on climate change issues and establish a clearinghouse for efforts to reduce greenhouse gas emissions. The agency is made up of the same Board of Directors as the Sonoma County Transportation Agency and includes representatives from each of the nine cities in Sonoma County and the Board of Supervisors.

Regional Targets Advisory Committee (RTAC) “accounting rules”. The Regional Targets Advisory Committee was established to provide recommendations on factors to be considered and methodologies to be used in the target setting process, as required under Senate Bill 375. One of the “accounting rules” refer to a method for accounting the three following types of vehicle trips: 1) trips that originated and terminated within a jurisdiction; 2) trips that either originated or terminated (but not both) within a jurisdiction; and 3) trips that neither originated nor terminated within a jurisdiction. The “accounting rules” specify that trips of type 1, 2, and 3 should be weighted by 1, 0.5, and 0 respectively when developing estimates of jurisdiction-generated vehicle miles traveled.

Sonoma Resource Conservation District (Sonoma RCD). The Sonoma RCD is a grassroots conservation delivery system that identifies local conservation problems and guides solutions on a voluntary basis. The Sonoma RCD covers 919,000 acres, or over 85% of Sonoma County, and includes the Russian River, Petaluma River, Sonoma Creek, Stemple Creek, and Gualala River Watersheds.

Sonoma Clean Power (SCP). SCP is official electricity provider in Sonoma County, providing cleaner power at a competitive price from sources like solar, wind, geothermal and hydropower. SCP is a community choice aggregation non-for-profit agency, independently run by Sonoma County and the participating cities of Cloverdale, Cotati, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, unincorporated Sonoma County and the Town of Windsor. SCP will be the

lead for seeking to increase the renewable portfolio for electricity generated to serve the county. As SCP gathers momentum and capacity, the members will fund local energy efficiency programs as well as local renewables for CleanStart and EverGreen revenue.

Sonoma County Energy Independence Program (SCEIP). SCEIP is a County of Sonoma Energy and Sustainability Division program that serves county residents and businesses as a central clearinghouse of information about energy efficiency, water conservation, and renewable energy generation. The program is designed to assist property owners and tenants find the information, resources, rebates, contractors, and financing that fits their situation.

Sonoma County Energy Watch (SCEW). SCEW is a local government partnership between the County of Sonoma and PG&E designed to help save money and energy while reducing harmful impacts on the climate. SCEW provides energy efficiency services to local governments, nonprofit organizations, small businesses, and special districts in the County of Sonoma who are served by either PG&E or Sonoma Clean Power.

Sonoma County Transportation Authority (SCTA). The Sonoma County Transportation Authority serves as the coordinating and advocacy agency for transportation funding for Sonoma County. The SCTA prioritizes, coordinates, and maximizes funding available for transportation projects and provides comprehensive, county-wide planning.

Sonoma County Winegrowers (SCW). The Sonoma County Winegrape Commission, also known as Sonoma County Winegrowers (SCW), was established in 2006 as a marketing and educational organization dedicated to the promotion and preservation of Sonoma County as one of the world's premier grape growing regions. SCW has oversight by California Department of Food and Agriculture, which supports producer regions. With more than 1,800 growers, SCW's goal is to increase awareness and recognition of the quality and diversity of Sonoma County's grapes and wines through dynamic marketing and educational programs targeted to wine consumers around the world.

Sonoma County Water Agency (SCWA). The mission of the Sonoma County Water Agency is to effectively manage water resources for the benefit of people and the environment through resource and environmental stewardship, technical innovation, and responsible fiscal management. SCWA provides an array of services including, but not limited to, naturally filtered drinking water, flood protection services, distribution of recycled water, recreational opportunities, and wastewater treatment.

Sonoma County Waste Management Authority (SCWMA). The Sonoma County Waste Management Agency is a joint powers authority whose mission is to implement waste diversion programs as required by state law AB 939. SCWMA informs local residents and businesses of ways they can help reduce, reuse, and recycle their solid waste and properly dispose of hazardous materials.

Sustainable Communities Strategy (SCS). Under the Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008), ARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, ARB

established these targets for 2020 and 2035 for each region covered by one of the state's metropolitan planning organizations (MPO).

Each of California's MPOs must prepare a sustainable communities strategy as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region.

Sonoma-Marin Area Rail Transit (SMART). Sonoma-Marin Area Rail Transit (SMART) is a passenger train and bicycle & pedestrian pathway project located in San Francisco's North Bay. SMART will provide rail service along 70 miles of the historic Northwestern Pacific Railroad alignment, connecting urban and rural residents of the two counties with jobs, education, and health care services in the region. The project revives the long-dormant but publicly owned railroad right-of-way, serving stations from Cloverdale in Sonoma County to the San Francisco-bound ferry terminal in Larkspur, Marin County.

Vehicle Miles Traveled (VMT). Total miles travelled on roads and highways by motor vehicles in a particular jurisdiction.

Waste-To-Energy (WTE). WTE is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste. WTE is a form of energy recovery. Most WTE processes produce electricity and/or heat directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol, or synthetic fuels.

U.S. Environmental Protection Agency (USEPA). The mission of the USEPA is to protect human health and the environment by developing and enforcing regulations. The USEPA also gives grants to state environmental programs, non-profits, educational institutions, and others; studies environmental issues; and provides education on the environment.

Zero Net Energy. A zero net energy (ZNE) building is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site. These buildings consequently do not increase the amount of greenhouse gases in the atmosphere.