City of Brisbane Environmental Action Plan



Access this report online at: www.brisbaneca.org

Acknowledgements

City Council

Open Space and Ecology Committee

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San Mateo City/County Association of Governments (C/CAG)

DNV-GL Energy and Sustainability Consultants

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1. Introduction

In 2006, the California state legislature made history by adopting AB 32, the Global Warming Solutions Act, which committed one of the world's largest economies to shrinking its climate-changing carbon emissions to 1990 levels by the year 2020 (a 15% reduction from "business as usual"). As the world's 12th largest emitter of the atmospheric carbon that has already measurably affected both global and local climates, California has a special responsibility to act. AB 32 is a down payment, and a substantial one. As it creates the policies and measures necessary to achieve the law's emissions reduction goals, California will act as a laboratory, setting examples that may ease the path of other states and regions.

The California Air Resources Board (CARB), the implementing agency for AB 32, recognizes that cities like Brisbane have been ahead of the curve with green building ordinances, retrofits, and improvements in municipal practices. The CARB calls local governments as "essential partners" in the effort to roll out AB 32, and calls on local governments to develop Climate Action Plans to reduce carbon emissions from government, business and residents within the framework provided by the law.

Brisbane's Environmental Action Plan is the product of a cooperative effort involving Brisbane City Council, staff, Consultant DNG VL through the support of C/CAG, and Council appointed citizen volunteer members of the Open Space and Ecology Committee. It…….

A climate emergency

Humans, especially those of us who live in the wealthier countries, are pouring vast quantities of heat-trapping gases, known as greenhouse gases (GHGs), into the atmosphere at increasing rates.[1] These GHGs, produced by fossil fuel extraction and burning, deforestation and land use changes, factory farming and landfilling of organic materials, have warmed the global average temperature of the Earth by .85 degrees C, or close to one and one-half degrees F, above pre-industrial temperatures. This apparently small increase has resulted in dramatic changes: rapid ice melt in the Arctic, Greenland, West Antarctica and glaciated regions worldwide[2]; sea level rise that has already led to chronic flooding in places from Norfolk, VA to Bangladesh; lethal,

[1] Global carbon dioxide emissions amounted to 36 billion tons in 2010. They are increasing at about 2.5% per year (www.co2now.org). Methane is an even more powerful GHG—up to 80 times more--than CO2. Annual global methane emissions are approximately 450-500 teragrams; a teragram is about 1.1 million tons.

[2] See Extreme Ice Survey (www.extremeicesurvey.org), *National Geographic's* photo essay "The Big Thaw" (June 2007, http://ngm.nationalgeographic.com/2007/06/big-thaw/big-thaw-text); "Greenland and Antarctic melting at "unprecedented rate," (Climate News Network September 2014, at http://www.rtcc.org/2014/09/01/greenland-and-antarctic-melting-at-unprecedented-rate/).

crop-killing summer heat waves on all continents,[3] longer, fiercer fire seasons, and extreme weather including drought, hurricanes and "extreme precipitation events," all of which present direct threats to human lives and livelihoods. Other climate-driven changes may have less immediate and dramatic effects on humans, but are likely to be just as significant for the human future, since we depend on well-functioning ecosystems and the goods and services they provide. Warming oceans are "bleaching" and eventually killing the corals that build reefs, the most productive ecosystems in the oceans. Closer to shore, when combined with nitrogen-rich runoff (that is, water contaminated with synthetic fertilizer or human or animal waste), the warming of surface waters encourages vast algae blooms, which may be themselves poisonous[4]--and which, when they die, remove the oxygen from the water, causing "dead zones" that cannot support marine life. Terrestrial ecosystems, too, are reeling from temperature changes that have altered the habitats of many species, as well as the timing of biological processes. Some caterpillars, for instance, no longer hatch in sync with the arrival of migratory birds, which consequently lack food for rearing their young. A 2014 Audubon Society study of 588 North American bird species found that 314 of them would be "climate-threatened" or "climate-endangered" by the end of the century.[5] Pests such as pine beetles are multiplying because mild winters allow them to breed all year, killing millions of acres of forest in the Western U.S. and Canada, while midwinter mild spells followed by a return to normal winter temperatures are devastating crops such as cherries.[6]

All of these changes have been brought about by a mere 1.5◦F temperature increase. If we do not act promptly and urgently to reduce all sources of greenhouse gas emissions, much worse is in store. The Intergovernmental Panel on Climate Change (IPCC), which is charged with evaluating and summarizing for policymakers thousands of peer-reviewed climate change research studies, recently (insert a date, rather than the word recently) issued its Fifth Assessment Report. If we continue emitting carbon dioxide, methane and other greenhouse gases on our present trajectory, the IPCC estimates temperature increases by the end of the century will be from 3.7 to 4.8◦ Celsius, or between about 6 and 9◦F. Positive climate

[3] European heat waves in 2003 and 2010 killed tens of thousands of people each. No particular event like this can be directly attributed to anthropogenic global warming, but rising average temperatures do make heat spikes more likely, according to climate researchers: increasing average temperatures is like loading the dice. See "European heat wave was warmest in 500 years," NBC Science, March 17, 2011, http://www.nbcnews.com/id/42139347/ns/technology_and_science-science/t/european-heat-wave-was-warmest-years/#.VLcXZXvo4c0.

[4] See "Driven by Climate Change, Algae Blooms Behind Ohio Water Scare are New Normal," in *National Geographic News* (August 4, 2014, http://news.nationalgeographic.com/news/2014/08/140804-harmful-algal-bloom-lake-erie-climate-change-science/).

[5] See www.climate.audobon.org.

[6] http://glenarborsun.com/will-climate-change-kill-the-michigan-cherry/

feedbacks, in which the consequences of warming lead to even more warming, could drive temperatures higher still. The most worrisome feedback scenario concerns methane frozen in Arctic soils and seabeds, which could melt and be released as a (greenhouse) gas into the atmosphere [needs footnote]. The potential for abrupt, non-linear changes that could throw the climate into a self-perpetuating trajectory beyond human control underline the need for *precaution* and reducing emissions as much as possible as quickly as possible.

2. Greenhouse gas inventory and forecast

- This section will consist of data from GHG emission inventories for municipal and community operations.
- For the current plan, GHG data from 2005 and 2010 will be included. Data from 2015 will be added when it becomes available.
- GHG emissions reports will be discussed in detail and broken up into the following sections:
    - Inventory Sources and Data Collection Process
    - Baseline Emission Inventory
        a. Electricity and Natural Gas
        b. Sustainable streets emissions
        c. Solid waste
        d. Municipal operations
    - Emission reduction targets
        a. Reduction from State-level actions
        b. The City of Brisbane target reductions
- Potential forecasts for greenhouse gas emissions for 2020 and 2035.

3. Environmental Action Plan measures

- **This section contains the actions that City of Brisbane will implement by 2020, With the goal of reaching GHG 1990 levels by 2020, which is generally agreed to be a 15% reduction below 2005 levels**

3.1 Energy

Community-wide Measures

A. Community Choice Aggregation (GHG savings- 1,407 Annual MT CO_2e)

- Continue to participate in feasibility study of a Community Choice Aggregation (CCA) Program.
- Enabled by California legislation (AB117), Community Choice Aggregation (CCA) allows local governments to purchase and generate power to sell to residential and business customers. Energy transmission, distribution, repair and customer service remain the responsibility of PG&E.
- Brisbane has elected to support the study of CCA and provide data needed to the Project Development Advisory Committee (PDAC), which will gather and analyze information, determine financial and technical feasibility, and assess levels of public support for establishing CCA in San Mateo County.

B. Participate in Energy Upgrade Program and similar residential rebate/incentive programs as they become available and promote existing rebates (PG&E, State, Federal) (GHG savings- 92 Annual MT CO_2e)

- City will encourage residential energy audits and the implementation of recommendations identified by audits and will promote existing energy efficiency financing options.
- The City will encourage the use of window curtains and reduced exterior lighting at night.
- The City will also provide a DIY Energy Toolkit available for checkout through the library.
- The City will also promote existing solar hot water rebates/tax credits and comply with AB 2188 by the deadline to streamline solar permitting.
- City will continue its current participation in CaliforniaFIRST efficiency financing.
- City participates in Peninsula SunShares.

C. Residential Green Building Ordinance (GHG savings- 28 Annual MT CO_2e)

- Residential Green Building Ordinance previously adopted with Build it Green requirements.
- The City proposes to implement a Residential Energy Conservation Ordinance (RECO) that would require certain energy upgrades to be installed prior to sale of residential buildings and potentially prior to new leases being signed for residential buildings. Disclosure of energy requirements. Audit before sale. The seller and buyer negotiate who performs upgrades.

D. Promote PG&E commercial and industrial energy efficiency/demand response programs (GHG savings- 16 Annual MT CO_2e)

- City will encourage commercial energy audits and the implementation of recommendations identified by audits and promote existing energy efficiency financing options.
- The City will encourage reduced commercial exterior lighting at night.
- The City will encourage planting of trees in commercial parking lots.
- The City will also comply with the state's Nonresidential Building Use Disclosure Program AB1103 - Disclosure of energy use to prospective buyers of buildings sized at 10,000 square feet or above.
- The City will also promote existing solar hot water rebates/tax credits.
- Consider passing legislation requiring that all buildings be recommissioned when changing ownership or undergoing major renovation.

Municipal Measures

A. Enroll in an offset program (GHG savings - 83 Annual MT CO_2e)

- The City will consider enrollment in an energy offset program to offset city GHG emissions from electricity and natural gas.

B. Environmental preferred purchasing policy (GHG savings - 23 Annual MT CO_2e

- That City will adopt an Environmental Procurement Policy that emphasizes recycled materials and ENERGY STAR equipment.

C. Energy efficient street lighting (GHG savings - 20 Annual MT CO_2e)

- The City will continue to replace existing street lights with LEDs.

D. Renewable energy installation on municipal property (GHG savings - 11 Annual MT CO_2e)

- The City will explore the potential for solar PV on City Hall and other facilities.

E. Energy efficiency in municipal buildings (GHG savings- 1.4 Annual MT CO_2e

- The City will continue to audit city facilities for energy efficiency opportunities and implement energy efficient retrofits.
- City participates in Energy Star U.S EPA program voluntary program which helps the city be energy efficient.
- Participation in Energy Performance Benchmarking Portfolio Manager from PG&E which tracks energy consumption of the building.
- Leverage other programs that provide funding.

3.2 Sustainable streets

Community-wide Measures

A. Public EV charging (GHG savings- N/A)

- The City will install public EV charging stations.

B. Incentivize local hiring (GHG savings- 60 Annual MT CO_2e)

- The City will provide discount business license fees for companies in Brisbane that hire locally.
- Modify business license fees whereby businesses receive an incentive for local employees. Program to include penalties for lower number of local employees and rewards for higher numbers of local employees.

Municipal measures

A. Adoption of low emissions government vehicles (GHG savings- 30.6 Annual MT CO_2e)

- Target purchase of new or conversion of existing government vehicles to more fuel efficient vehicles and vehicles with lower or zero emissions.

3.3 Water

A. Water conservation incentives (GHG savings- 6 Annual MT CO_2e)

- The City adopted the Brisbane Indoor Water Conservation and Water Conservation in Landscaping Ordinances in 2010 and will continue to apply the ordinances.
- The city will continue to promote existing and/or new rebates for water efficient appliances and fixtures through BAWSCA and promote CaliforniaFIRST water efficiency project financing for drip irrigation and artificial turf.
- The City will promote information/programs for water efficient landscaping and consider providing incentives for drought-resistant plants.
- Reduce landscape watering to 20%(?) of Brisbane total water footprint

3.4 Solid Waste

Community-wide Measures

A. Set higher diversion rate goal (GHG savings - 855 Annual MT CO_2e)

- The City will promote residential waste reduction and continue offering food scrap pickup through Waste Management. Additionally, the City will encourage community exchange of used items.
- Provide food composting to businesses in the future

B. Commercial recycling ordinance (GHG savings - 0 Annual MT CO_2e)

- The City will continue to support required commercial recycling and City staff/waste management staff will verify compliance.
- Reduce manufacturing waste by an average 80%

C. Create sustainable vendor policy at public events (GHG savings - 0 Annual MT CO_2e)

- The City will encourage residents to bring reusable plates, etc. to public events and require a waste attendant at public events to promote recycling and composting.

D. Yard waste ordinance (GHG savings - 0 Annual MT CO_2e)

- The City will adopt an ordinance requiring that all landscapers and landscape maintenance businesses recycle/divert yard waste. Provide residents and businesses with food scraps collection. Explore a ban on these organics from landfill.
- Explore banning gas powered lawn equipment citywide.

Municipal measures

A. Environmental preferred purchasing policy (GHG savings- N/A)

- Implement a sustainable purchasing policy that emphasizes recycled materials.

3.5 All Sector

A. Participate/ Develop in County Green Business program (GHG savings - 5 Annual MT CO_2e)

- Promote San Mateo County Green Business program and set goals for participation. (Voluntary program that allows businesses to brand themselves as green by following sustainable practices.)

4. Aspirational goals

- Aspirational goals are longer term and will be revisited in the future to determine feasibility as the plan is updated periodically.

4.1 Energy

A. Investigate district heating:
http://unep.org/energy/portals/50177/DES_District_Energy_Report_full_02_d.pdf

- Potential feasibility study. Collect heating and cooling requirements by gathering thermal data or natural gas use.

B. Consider a lottery to convert larger single family homes to duplexes.

C. Encourage businesses to install solar panels on roof tops and on carports in parking lots.

D. Investigate tidal power at the lagoon/bay waterway under Highway 101.

E. Investigate harnessing wind power without the use of windmills:
http://news.discovery.com/tech/alternative-power-sources/windpower-without-blades-101015.htm

F. Encourage the heating of a room with a heat grabber or cooling with a swamp cooler: http://www.motherearthnews.com/diy/heat-with-a-heat-grabber.aspx

G. Promote the use of storm windows

H. Plant shade trees on the southern sides of buildings having a significant cooling load.

I. Investigate ways to promote installation of PV on buildings under commercial leases. Consider legislation or a program to implement PV for commercial lease holders.

J. Generate electricity from turbines installed in-line in city water pipes.
http://magazine.good.is/articles/portland-pipeline-water-turbine-power

K. Set aspirational goal of 90% renewable energy by 2025

L. Solar farm on the Baylands

M. Require passive solar design for buildings undergoing major renovation and new construction

4.2 Sustainable streets

A. Expand the hours that the Brisbane shuttle is available or implement an on call service for residents & businesses to use.

B. Consider algae farms that eat pollution from the highways:
http://thespiritscience.net/2014/11/03/this-algae-farm-eats-pollution-from-the-highway-below/

C. Require businesses provide support of car pool programs

D. Investigate titanium dioxide pavement to reduce NOx:
http://www.dailytech.com/Titanium+Dioxide+in+Pavement+Could+Dramatically+Reduce+NOx+in+Air/article19003.htm

E. 50% of Brisbane's workforce living in Brisbane.

4.3 Water

A. Consider feasibility of Brisbane establishing its own sewer plant and capturing biogas for energy use.

B. Consider a drought resistant plant giveaway from Mission Blue Nursery, funded by the city.

C. Use the water savings from commercial landscaping to increase water allotments for edible gardens

4.4. Solid waste

A. Encourage community exchange of used items, or items that would otherwise enter the waste stream, through social media sites.

B. Partner with a non-profit like Urban Ore to salvage & resell materials.

C. Establish a goal of paper free city operations.

D. Government policy to achieve 95% diversion by 2020 for municipal facilities.

4.5. Miscellaneous aspirational goals

A. Encourage local food production to increase resilience through businesses such a food suppliers and encouraging edible garden at work.

B. Actively work towards a diverse business community. Currently Brisbane has a significant number of auto body, restaurants and freight forwarding companies. Bring in new services that Brisbane currently lacks, such as a shoe repair shop, movie theater, pharmacy, fitness studio, thrift store, etc.

C. Make the 1% for art funds available for installations on commercial property if they are a) visible, b) include a perspective on climate change.

5. Implementation

- This section will include: the prioritization of measures to be implemented, summary of measures, how decreased emission targets will be met, management of the strategy, public participation and a timeline.

Public participation and community engagement

- Summary of a plan for ongoing communication and education of residents and businesses.

A. Citizen implementation subcommittee

- This body will include underrepresented portions of the community, including youths. Plan will investigate whether students can obtain community service hours for participation.

B. Behavior change

- Carbon footprint
  - consumption, airline flights, general energy use.
- Actively Support Bike to Work day

C. Education and outreach

- Sea level rise display at City Hall and/or flags on Visitacion Ave. displaying informational art
- Letter from City Council to residents
- At community events, invite guest speakers that have done energy upgrades or installed solar panels on their homes. OSEC members at the booth at the Community Festival to tell people about their experiences and advice.
- Educate people about what rebates are currently available

- Work with school district to incorporate climate change into schools' curriculum. Cool Earth Program: http://www.cooltheearth.org/pages/our-programs/faqs-page

D. Make businesses partners in raising climate change awareness.

E. Perform outreach through Chamber of Commerce regarding the financial benefits of energy conservation

F. Website with a section targeted at business programs (rebates, low cost financing, energy audits, etc.)

G. Items for County lead

- Revolving fund to finance energy efficiency retrofits at residences and businesses
- Staff to do outreach and be available to answer energy/rebate related questions
- District heating (funds, apply for grants, feasibility studies etc.)
- In the future, include residential properties in the SMCo Energy Watch assessment program
- Residential energy conservation ordinance (RECO)
- County clearing house of information. Improve San Mateo County Energy Watch website
- Actively work with SamTrans to ensure sustained or increased bus service
- Pass legislation by 2016 requiring that all buildings be recommissioned when changing ownership or undergoing major renovation.
- Include green homes features in the Multiple Listing Services http://www.washingtonpost.com/news/energy-environment/wp/2015/05/28/how-to-make-the-real-estate-market-value-green-homes-for-what-theyre-really-worth/

6. Monitoring and improvement

- Ongoing monitoring to insure achievement of GHG emission goals.
- Staff to issue annual reports to City Council.
- GHG inventory to be completed every 5 years.

7. Conclusion

- Closing statement and appendices
    - Appendices to include: glossary, summary of funding sources, any other supplemental information, and attachments.