

## Executive Summary

The City of Missoula has been engaged and involved in conservation and climate action-related commitments, projects, work and planning for many years as part of Municipal Operations. Each step has been an important block to a solid foundation of reducing energy consumption, saving money and contributing to a healthy, clean environment. This Municipal Conservation & Climate Action Plan (MCCAP) is the synergy of these activities and will serve as the formal roadmap and latest iteration of City actions to achieve and maintain commitments, resolutions and goals. Milestones include: joining the Cities for Climate Protection Campaign (1996), signing the U.S. Conference of Mayors' Climate Protection Agreement (1996), and conducting Missoula's first Greenhouse Gas Inventory (2009).

The City of Missoula believes that it is uniquely positioned to act as a leader and catalyst for positive action in the community through conservation and climate action planning. Operating efficiently and saving money is a high priority for the City. Conservation and climate action planning is an effective way to identify strategies that reduce energy and fuel consumption, lean operations, save money and free up funds to allow for long-term stability and viability. Climate change is a present and growing risk to Missoula's environment, economy, quality of life, and community. The City of Missoula is committed to taking action to mitigate greenhouse gas emissions, acting as a steward to sustain natural resources and our environment for future generations through conservation.



## Emissions Inventory

In 2008, Missoula Mayor John Engen requested the assistance of University of Montana (UM) Environmental Studies professor Robin Saha and UM students in conducting a detailed municipal greenhouse gas (GHG) emissions inventory for Missoula. This inventory examines changes in emissions from fiscal years 2003 to 2008 to determine sectors and sources within sectors for which emissions are increasing, decreasing and remaining stable over time. 2008 was chosen as the “target year” because it was the most recent year for which an entire year's data could be obtained when the inventory began. Included in the inventory was a list of recommended actions that the City should take. One of them, and a logical next step, was to set a reduction target and develop a climate action plan. Municipal emissions for 2008 totaled 11,540 metric tons of Carbon Dioxide equivalents (mtCO<sub>2</sub>e). This value served as basis for the emissions targets and interim goals described in this document.

“ This plan, ambitious as it is, provides a solid foundation for a broader community climate action plan. It will no doubt catalyze Missoulians to craft a broader plan that sets us on the path to a sustainable and prosperous future, one that is fitting for this wonderful landscape and our children who will call it home. ”

- AMY CILIMBURG

## Emissions Reduction Targets and Goals

The greenhouse gas emissions target for the City of Missoula is to be carbon neutral by 2025. Carbon neutrality means that through conservation and reduction measures, along with the purchase of Carbon Offsets, the City's net greenhouse gas emissions will be zero. Achieving carbon neutrality requires the purchase of some form of Carbon Offsets<sup>1</sup> to account for emissions that remain after conservation and other forms of reduction have been fully explored. Short-term, interim goals were established to encourage beginning reduction activities as soon as possible and to help measure and track progress towards the overall carbon neutrality target. Those goals are:

Target:

**Carbon Neutral by 2025**

Interim Goal #1:

**10% Reduction from 2008 baseline by 2015**

Interim Goal #2:

**30% reduction from 2008 baseline by 2017**

Interim Goal #3:

**50% reduction by 2020**

## Task Force and Working Groups

In 2011, Mayor Engen appointed members from his Mayor's Advisory Group on Climate Change and Sustainability, the Greenhouse Gas Energy Conservation Team, and other key community members to form a task force charged with drafting a Conservation & Climate Action Plan. The Task Force developed plan objectives and outlined emissions reduction goals. They then identified three areas of focus to craft the MCCAP: Fleet and Facilities, Internal Policies and Practices, and Renewable Energy and Offsets. These were created with focus areas that would be complementary parts of a holistic approach to emissions reductions. Each area of focus became a formal subcommittee or Working Group, with Task Force members self-assigning themselves based on expertise and interest. Next, Task Force members suggested additional working group members from the community for recruitment. From there, strategy creation was executed at the Working Group level while the Task Force served as the overall vetting and advisory body, as well as Plan and Process architect. Overlap and collaboration among strategies was intended and will increase the positive effects of each.

## Strategies

The conservation and climate action strategies are the roadmap to reducing City energy consumption, costs, and emissions, and are steps to achieving conservation and climate action goals. In the Action Plan document, strategies include projected implementation costs, annual energy and dollar savings, and avoided emissions where possible. Estimates and projections are based on published research, case studies and best practices from established agencies, organizations and other municipalities, and are referenced in each strategy. Exact costs, savings, and avoided emissions will be tracked and reported after implementation where possible and will be evaluated on a case-by-case basis. Strategies included in this plan are intended to be the first in a series of Plan updates as we continually adjust to the changing realities of economics, technology, government policies, and our ecosystems. Table 0-1 below lists the strategies included in the Action Plan. They are organized alphabetically within each working group and subcategory.

<sup>1</sup> A Carbon Offset is one metric ton of carbon dioxide equivalent (CO<sub>2</sub>e) that is taken out of the atmosphere, or one metric ton of CO<sub>2</sub>e that is not emitted to the atmosphere. Carbon Offsets are generated by carbon sequestration or emissions reduction activities that are quantified, reported, verified, validated, and certified via the regulatory or voluntary market. ClearSky Climate Solutions: [www.clearskyclimatesolutions.com](http://www.clearskyclimatesolutions.com)

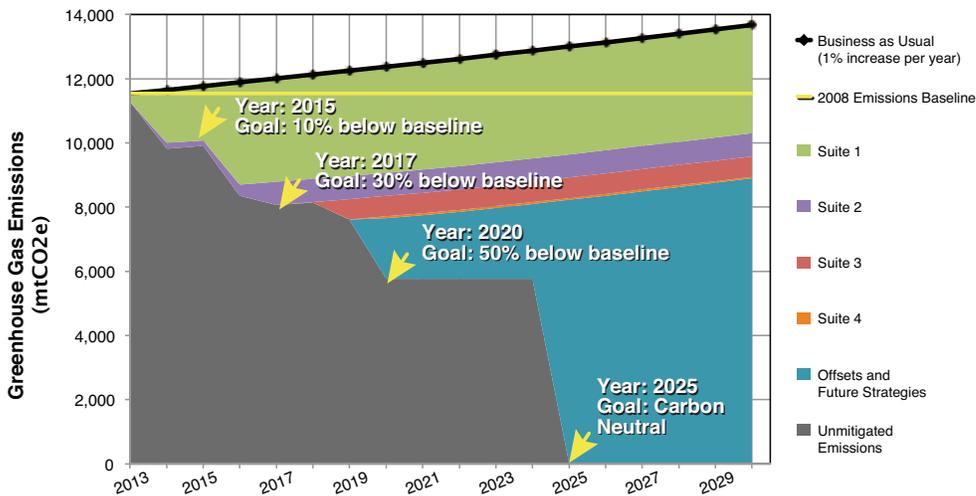


Figure 0-1: Impact of Implementing Strategy Suites on City of Missoula Greenhouse Gas Emissions, Showing Interim Goals

## Implementation

Using the tentative timeline established by the Task Force for implementation of each strategy, the City will achieve all of the interim goals and carbon neutrality target described in this Plan. However, in order to achieve them, progress must begin immediately. Below are crucial steps that should be taken as soon as possible to facilitate implementation.

### Establish a Full-time, Dedicated Staff

A dedicated, full-time staff member to oversee this Plan is needed to successfully implement recommended strategies across all departments and staff and produce the desired results and expected benefits. This staff person would take responsibility for the coordination of the City's conservation and climate action efforts. This would include strategy implementation and establishing timelines for review and updates to the City's Greenhouse Gas Emissions Inventory and Conservation & Climate Action Plan.

The importance of establishing a full-time, dedicated staff to oversee the City of Missoula's Conservation & Climate Action Plan and associated activities was recognized and approved in the budget for Fiscal year 2013 with an FTE. Specific job description, details and hiring will occur in Fiscal year 2013. Once hired, the FTE will interact and collaborate where appropriate with all levels of City government including the Mayor/Administration, Staff, City Council, Mayor's Advisory Group on Climate Change and Sustainability, Greenhouse Gas Energy Conservation Team and stakeholders to ensure success.

### Establish a Data Monitoring and Reporting System

Collecting data and reporting on the impacts of each strategy is essential to the Climate Action Planning process. Tracking and monitoring provides evidence of energy, fuel, water, and cost savings, feedback on project success, and progress toward goals. In addition, it provides sound reasoning and results to justify continued internal and external investment and funding.

### Establish a Budget and Financing Strategy

This plan presents a wide variety of strategies, and thus requires a robust mix of funding mechanisms. Many recommendations will require both financial and human investment. Below is a list of commonly used mechanisms to be included and used as appropriate and available.

- Integration and Inclusion in annual City Budget
- Grants
- Energy Savings Performance Contracts
- Bonds
- Revolving Loan Funds
- Utility Rebates and Incentives
- Reinvestment of Rebates, Incentives, and/or Energy Savings
- Public/Private Partnerships

**Table 0-1: Conservation and Climate Action Strategies**

**FLEET AND FACILITIES**

**• Fleet**

- Bike Fleet Infrastructure
- Eco Drivers Manual
- Efficient Fleet Vehicle Purchasing (Fuel economy)
- Expand Route Optimization Software/GPS
- Hybrid/Electric Vehicle Purchasing
- Sustainable Commute Infrastructure (Bike, etc.)
- Utilize Cleaner Fuels

**• Facilities**

- Continuous Building Retro and Re-commissioning for Existing Buildings
- Groundwater Cooling Systems
- LEED for Existing Buildings: Operations and Maintenance Policy (EBOM)
- Real-time Energy Monitoring Systems
- Shut Off/ Remove Water Fountain Cooling
- Water Wise Bathroom Features
- Water Wise Park Areas

**INTERNAL POLICIES AND PRACTICES**

**• Employee Commute**

- Employee Commuting Incentive Program
- Flexible Work Scheduling
- Rideshare Scheduling plan for Employees

**• Employee Culture**

- Conservation and Sustainability in Work Plans and Annual Review
- Fostering Sustainable Workplace
- Include Conservation and Sustainability in Job Descriptions
- Include Sustainability in Employee Orientation

**• Products, Procurement, & Facilities**

- Green Purchasing Policy
- LEED for New Construction and Major Renovations Policy
- Paper and Printing Policies
- Reduce Electronics Energy Use
- Waste Stream Reduction Policy

**RENEWABLE ENERGY AND OFFSETS**

**• Renewable Energy**

- Enhance Methane Utilization at Wastewater Treatment Plant (WWTP)
- Micro-hydropower Electricity Generation at WWTP
- Solar PV Installations on Municipal Buildings
- Solar Thermal Heating System and Thermal Pool Blanket at Splash Montana and Similar Energy Efficiency Improvements at Currents

**• Offsets**

- Carbon Offset Development
- Carbon Offset Purchasing

**• Carbon Sequestration**

- Missoula Open Space Portfolio
- Poplar Plantation near WWTP
- Urban Tree Planting and Maintenance

**RECOMMENDED ACTIONS**

**• Fleet and Facilities**

- Aeration blower retrofit
- Building De-Construction Policy
- Review Operation-and-Maintenance (O&M) Program for MCCAP Integration

**• Internal Policies and Practices**

- Incentives and Department Competitions

**• Renewable Energy and Offsets**

- Expansion of Solar Thermal at Fire Stations

**CONSERVATION DEMONSTRATION PROJECTS**

**• Fleet and Facilities**

- Compost
- Gray Water Systems (Purple Pipe)
- Green Roof
- Hydrogen Fleet Retrofits
- Native and Water Wise Garden around City Hall
- Permeable Surfaces

**• Renewable Energy and Offsets**

- AlgEvolve Pilot Project

**COMMUNITY CCAP PROJECTS**

**• Fleet and Facilities**

- Street Light Efficiency Retrofit
- Traffic Light Efficiency Retrofit

**• Internal Policies and Practices**

- Ride share on community level

**• Renewable Energy and Offsets**

- Community Solar PV Project
- Wetland Development and Riparian Enhancement