

# Climate Action Plan sectors

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## Key

The objectives and associated actions are grouped into the following sectors:

- Buildings and Energy
- Land Use and Transportation
- Consumption and Solid Waste
- Health and Emergency Preparedness
- Food Systems
- Urban Forest and Watersheds
- Outreach and Education

## TERMINOLOGY

**“Vision”** = A broad statement that describes our desired position by 2050 within each sector.

**“Objectives”** = Steps towards achieving mitigation targets and adaptation goals by 2030.

**“Actions”** = Detailed policies, projects and activities to achieve our objectives.

**CO-BENEFITS** refer to the intended or unintended benefits for the local environment and community as a result of mitigation and adaptation actions that are directed at addressing climate change. The co-benefits column indicates the actions that have the potential for significant, direct co-benefits. For example, actions to reduce the number of cars on the road have environmental quality and health co-benefits because these actions will improve air quality in Anchorage. The co-benefits assessed in this plan include:

- High potential to support jobs and prosperity
- High potential to advance equity
- High potential to improve local environmental quality
- High potential to improve health

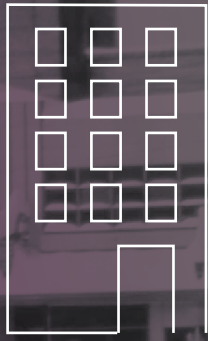
## PRIMARY MUNICIPAL LIAISON & POTENTIAL PARTNERS

To assist with implementation and accountability, primary municipal liaisons and potential partners are identified. For Municipality lead actions, the Primary Municipal Liaison is the primary entity responsible for initiating the implementation of the action and reporting on progress. For partner (university and other) lead actions, the Primary Municipal Liaison will be the main point of contact for the Municipality. Successful implementation will often require collaboration and coordination with other departments as well as public and private sector partners.

The full list of municipal departments included in the plan is included in the Appendix.

## IMPLEMENTATION TIMEFRAME

- **Near-term** = Plan adoption to June 2020
- **Mid-term** = 2020 to 2025
- **Long-term** = 2026 and beyond
- **Existing and/or ongoing** = currently underway
- **Uncertain** = depends on funding or other factors



# BUILDINGS & ENERGY

## Buildings and Energy

Alaska is third in energy use per capita in the U.S. While cold temperatures, dark winters, and remote communities contribute to this high energy use, there are many opportunities to decrease the state's energy footprint.

In Southcentral Alaska, three new natural gas plants have been completed since 2013, generating 86% of electricity in Anchorage with the remaining power from wind, hydropower, and landfill gas-to-energy. Heating is also sourced from natural gas through Enstar in Anchorage. These large investments in natural gas inhibit new renewable energy project developments as the energy capacity available on the grid exceeds current demand. Though the increased efficiency of the new plants reduces fuel usage, data-driven collaboration and regional planning with the utilities is critical to moving forward more efficiently.

As noted in the Land Use and Transportation sector, the rise in electric vehicles (EVs) that the Lower 48 is already experiencing will increase electric demand in the near future. The region must plan for that growth and should use this opportunity to increase renewable energy generation. A cleaner fuel mix will provide even greater carbon savings when switching to EVs.

Anchorage has an opportunity to invest locally in sustainable infrastructure, reduce our carbon impact, and attract innovation and investment. Buildings are responsible for nearly half of Anchorage's greenhouse gas emissions.<sup>36</sup> Reducing these emissions requires energy efficiency improvements as well as renewable energy generation.

Energy efficiency measures could save approximately \$34 million/year for homes and \$40 million /year for private commercial buildings<sup>37</sup>. Energy efficiency reduces energy use and costs, improves comfort, and increases the value of our homes and businesses. The necessary technology for reducing energy use is available today. Efficient building design can cost more up front, but with reductions in annual energy costs, energy efficiency has the fastest return on investment compared to any type of energy generation. Barriers to efficiency investments in commercial and residential buildings include lack of knowledge of the cost benefits of efficiency, lack of financing, and the owner/renter disconnect, which creates misaligned incentives. To address these barriers, Anchorage is currently exploring new and creative financing mechanisms such as On Bill Financing, Property Assessed Clean Energy, and a Green Bank.

Alaska has demonstrated the success of investing in energy efficiency and cleaner energy. Mayor Ethan Berkowitz launched the Energy Smart Lighting Initiative to retrofit Anchorage streetlights with LED fixtures. Municipal Maintenance and Operations (M&O) converted 12,000 lights with an estimated annual cost savings of \$780,000. Since 2008, state residential energy efficiency programs have assisted more than 40,000 households in becoming more energy efficient, saving residents an average of 30% on their home energy bills.

Investments in renewable energy will also be an important strategy for decreasing our energy-related greenhouse gas emissions. Solar and battery prices have dropped 80% in the last decade while the cost of wind power is down by more than half. Bradley Lake, a 120 MW hydroelectric project near Homer, was almost rejected due to its initial construction cost. Now, 28 years later, it is still generating electricity and is the lowest cost energy available on the Railbelt grid. The Railbelt refers to the electrical grid that runs from Fairbanks to Homer and includes Anchorage.

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<sup>36</sup> "Municipality of Anchorage Greenhouse Gas Inventory", August 2017 and "Anchorage Energy Landscape and Opportunity Analysis", May 2017

<sup>37</sup> Deerstone Consulting and Crimp Energy Consulting (2016), *Anchorage Energy Landscape and Opportunities Analysis*.

Equity considerations are a key factor for this sector to ensure lower-income residents are not unfairly burdened by changing energy costs or excluded from incentives for energy efficiency or renewable energy. Energy efficiency and renewable energy programs contribute to better air quality and respiratory health, lower energy costs for households and businesses, and result in more dollars reinvested in the local economy. However, if not carefully designed, energy efficiency and renewable energy programs may fail to serve low-income households. Programs need to be designed so that the cost of energy efficiency upgrades or purchasing renewable energy is not prohibitive for some Anchorage households. Similarly, it is important that the cost of home energy efficiency upgrades are not passed onto tenants through higher rental costs without the benefit of lower energy bills.

Some actions with the biggest impact on Anchorage's energy-related greenhouse gas emissions are beyond the jurisdiction of the Municipality of Anchorage. Other statewide developments on the horizon include the establishment of a Railbelt wide "Independent System Operator" (ISO) to lead regional planning efforts, ensure a level playing field for renewable energy generators, and plan for new generation and transmission assets in an efficient and transparent manner.

In order to make Anchorage an attractive place to live, work, and play, the Municipality must create a policy framework that supports clean energy investments. Without action on this front, Anchorage will lose resources to states that are attracting investment and businesses with affordable, reliable, clean energy.<sup>38</sup> Additionally, Anchorage will lose the potential savings from increased use of energy efficiency strategies and renewable energy.

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<sup>38</sup> *Big business sees the promise of clean energy*, The Economist, June 10, 2017, available at <https://www.economist.com/business/2017/06/10/big-business-sees-the-promise-of-clean-energy> (accessed June 23, 2018)

### **Case Study: Solarize Anchorage**

Solarize Anchorage is a community-based solution to reduce the upfront cost of solar photovoltaic (PV) power. The campaign brings neighborhoods together to purchase solar PV panels in bulk and receive a volume discount, making solar PV technology more accessible and affordable for customers. This is an exciting new community-driven program that empowers individuals to participate in clean energy solutions to climate change.

The Alaska Center and the Alaska Center for Energy and Power (ACEP) at the University of Alaska established this program and conducted the first phase of the campaign in the Airport Heights neighborhood in summer 2018. The campaign found great success and community support with 33 participating homeowners and 146 kW total installed capacity. The participants of the first phase of the campaign received the Solarize discount, federal tax credits, and savings through net-metering. The bulk of the savings came from the federal tax credits that are soon decreasing. It is estimated that with a 3kW solar installation will save homeowners \$16,000 over the 25 year projected life of the panels.

In 2019, the Alaska Center expanded the program in Anchorage to include more neighborhoods. Spenard, Turnagain, South Addition, and Rogers Park will all conduct campaigns in their neighborhoods over the summer and into the fall. With ample community interest, the Solarize steering committee is interested in expanding the program to commercial properties and more communities in Anchorage and beyond.

While the increase in solar PV installations is a positive climate action for Anchorage, this development also raises concerns about current *net metering* regulations. Net metering occurs when excess energy produced by a consumer goes back to the electrical grid, offsetting the cost of their energy. In Alaska, net metering is essentially comprised of solar PV installations, with only a handful of other distributed energy generation installations. Since the start of the net metering policy in January of 2010, over 2,200 kW of solar has been installed on the Railbelt grid.

Currently, net metering is allowed for installations up to 25 kW in size, and utilities are mandated by the Regulatory Commission of Alaska to allow net metering on installed capacities equivalent to 1.5% of their respective average loads. However, given current solar PV installation trends, Anchorage utilities are projected to meet this limit within the next several years.<sup>39</sup> While local utilities have not indicated a propensity to halt installations after this point, expanding net metering capacity would provide welcome security to both residents and installers alike, and continue to diversify the local energy generation portfolio.

### **Case Study: Cook Inlet Housing Authority High Efficiency Homes**

CIHA was established in 1974 with the goal of providing affordable housing to people in the Cook Inlet region of Alaska. After decades of successfully providing quality, affordable homes to Alaskan families, CIHA is committed to using efficient design and alternative energy systems in their developments for long-term sustainability. For example, one of the affordable senior housing developments is heated through geothermal ground-source heat-pump technology.<sup>40</sup>

<sup>39</sup> [http://acep.uaf.edu/media/260463/EEM-01255\\_SolarDesignManual\\_5thEd201805.pdf](http://acep.uaf.edu/media/260463/EEM-01255_SolarDesignManual_5thEd201805.pdf) (p.33)

<sup>40</sup> <http://www.cookinlethousing.org/who-we-are/our-story-timeline/>

## Buildings and Energy

**2050 Vision:** Buildings and infrastructure in Anchorage are safe, healthy, and affordable for all and our building practices demonstrate leadership in high latitude climates. Residents, businesses, and organizations have access to affordable clean energy.

### Objective 1. Reduce fossil fuel based energy consumption of buildings

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
1A	Explore incentives for energy and water efficiency, storage, and renewable energy (e.g. expedited and express permitting, rebates, property tax incentives, certifications, utility rebates and programs, neighborhood volume discounts such as Solarize and other mechanisms that help ease of purchase) for all residential, commercial, and municipal buildings.	environment, equity, jobs and prosperity	Office of Economic and Community Development (OECD), Office of Energy and Sustainability (OES)	Project Management & Engineering (PM&E), MOA Property Appraisal, Anchorage Home Builders Association (AHBA), Building Owners and Managers Association (BOMA), Anchorage School District (ASD), realtors, contractors, design and construction community, Development Services	Near-term and Ongoing
1B	Establish codes (T21 and T23) that improve energy efficiency and reach for best practices such as Living Building Challenge, Architecture 2030, LEED, Passive House, net zero, etc. for new residential, commercial, and municipal buildings.	equity, jobs and prosperity	OECD, Building Safety, OES, Maintenance and Operations (M&O), Development Services, Permitting, Real Estate Department	PM&E, Alaska Energy Authority (AEA), BOMA, AHBA, Alaska Housing Finance Corporation (AHFC), Cold Climate Housing Research Center (CCHRC), contractors, design community, labor unions, realtors, mechanical engineers	Mid-term
1C	Implement energy performance tracking and an annual reporting program for municipal buildings and commercial and multifamily buildings over 10,000 square feet. Support improved access to utility data for building owners and managers seeking to improve energy and water performance.		Innovation Team (i-Team), OES, M&O	MOA Finance Department, U.S. Department of Energy, AHFC, AEA, ASD, Anchorage electric and gas utilities	Mid-term
1D	Develop a program to facilitate cost-saving building tune-ups for commercial and municipal buildings in order to ensure optimal operation.	environment, jobs and prosperity	OECD	PM&E, MOA Finance Department, BOMA, ASD, design and construction community	Mid-term
1E	Work with community-based organizations on a workforce development program for high efficiency siting and building design and construction.	equity, jobs and prosperity	OECD	ASD, King Technical High School, UAA, Alaska Native Science & Engineering Program (ANSEP), Renewable Energy Alaska Project (REAP), Alaska Department of Labor and Workforce Development, Alaska Vocational Technical Center (AVTEC), design and construction community, labor unions, community centers	Mid-term

1F	Require energy audits and implementation of cost effective energy efficiency measures with MOA facilities with priority on highest energy consuming facilities.	environment, health, jobs and prosperity	OES, M&O, Municipal Manager	MOA Finance Department, MOA Office of Management and Budget (OMB), ASD, AHFC, AEA, BOMA	Mid-term
1G	Develop an energy and water use guide for Municipal employees.	environment, health	OES	M&O, AHFC, CCHRC	Near-term
1H	Finish changing out of all MOA streetlights / trail lights to LEDs and more efficient lighting controls.	environment	M&O, Parks and Recreation (P&R), Traffic Department, ML&P	Chugach Electric Association (CEA), Matanuska Electric Association (MEA), ASD, AHD	Near-term to Mid-term
1I	With a focus on low income households and renters, engage residents on low cost ways to save energy and money, such as installing programmable thermostats.	environment, health, equity, jobs and prosperity	OES, P&R, ML&P, Anchorage Health Department	CEA, MEA, ASD, AEA, AHFC	Near-term to Mid-term

**Objective 2: Expand local renewable energy generation and use.**

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
2A	Complete investigation of policy mechanisms to reduce emissions and provide specific recommendations (e.g., energy storage targets, tax incentives, etc.).		OES	OMB, MOA Finance Department, OECD	Near-term
2B	Per Action 2A, implement local policy recommendations and advocate for policy recommendations at the State level.	environment, health, equity, jobs and prosperity	Office of the Mayor, OES, OECD	Anchorage Assembly	Mid-term
2C	Establish a municipal level renewable energy and energy efficiency target so that the electricity and heating needs of the MOA and school district are supplied by specified percentages of renewable energy or energy efficiency mechanisms.	environment, health, jobs and prosperity	Office of the Mayor, OES, OECD, M&O	ASD, CEA, ML&P, MEA, Planning Department, Anchorage Assembly	Near-term
2D	Explore ways to incentivize distributed renewable energy generation and energy storage projects.	jobs and prosperity, environmental, health	OECD, OES	Private entities with high energy use, clean energy businesses	Mid-term
2E	Quantify potential cost savings and emissions reduction through electrification of sectors (conversion to ASHPs, Electric Vehicles, heat pump water heaters, etc.).		OES	AEA, AHFC, Anchorage electric utilities, builders and developers	Near-term
2F	Explore internal operational and efficiency and savings opportunities such as those outlined in the		Solid Waste Services (SWS)	AWWU, ML&P, M&O, ASD, OECD	Ongoing

	2017 Anchorage Energy Landscape and Opportunities Analysis, including heat recovery, waste to energy, gasification, landfill methane recovery, and combined heat and power.				
2G	Review the solar process including permitting, and planning, zoning and development regulations to identify and reduce barriers to installing solar through the National Solsmart designation program.	jobs and prosperity	OES	Planning Department, Permitting Department, OECD, solar installers, electric utilities	Ongoing

**Objective 3. Use existing and innovative financing mechanisms to encourage clean energy and energy efficiency within the municipality.**

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
3A	Establish Municipal-level financing mechanisms to encourage clean energy and water efficiency projects and programs. Identify and support financing mechanisms at the state and/or federal level (e.g. green bank, C-PACE, on-bill financing).		OECD, OES	AEA, American Institute of Architects (AIA), AHBA, Association of Alaska Housing Authorities, Connecticut Green Bank, lenders, private banks, Anchorage electric and gas utilities	Near-term
3B	Work with AHFC and other 3rd party commercial lenders to access currently available financing for public building energy retrofits.		OES, OECD	M&O, P&R, ASD, AHFC, Alaska Department of Transportation and Public Facilities (AK DOT&PF)	Near-term

**Objective 4: Establish a robust administrative structure to implement this plan reliably over time.**

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
4A	Work with the State of Alaska to create a Unified System Operator for the Railbelt to provide regional planning, improve system efficiency and increase opportunities for Independent Power Producers.	environment, health	Office of the Mayor	Regulatory Commission of Alaska (RCA), Alaska State Legislature, AEA, Railbelt electric utilities	Near-term
4B	Recommend that utilities allow all customers to opt in to pay for a higher percentage of renewable energy.		Office of the Mayor, OES	Office of the Mayor	Near-term
4C	Evaluate a carbon pricing mechanism to account for the externalities of fossil fuels.		Office of the Mayor, OES	State of Alaska, Alaska Energy Authority	Near-term
4E	Advocate for a Railbelt Renewable Portfolio Standard requiring a certain portion of energy to come from renewable energy sources in Alaska.		Office of the Mayor	REAP, Anchorage electric utilities	Near-term
4F	Explore and contribute input toward discussion of increasing the Railbelt net metering cap of 1.5% of utilities' average annual load.		Office of the Mayor	REAP, Anchorage electric utilities, renewable energy businesses	Near-term