



MEMORANDUM

P.O. Box 4100 ♦ FRISCO, COLORADO 80443

TO: MAYOR AND TOWN COUNCIL
FROM: HILARY SUEOKA, ENVIRONMENTAL PROGRAMS MANAGER
RE: RENEWABLE ENERGY MITIGATION PROGRAM DISCUSSION

DATE: MARCH 26, 2024

Summary and Background: Town Council adopted the Summit Community Climate Action Plan (CAP) in 2019. This plan outlines a series of strategies and recommendations to achieve 80% greenhouse gas reductions by 2050 across major sectors (commercial buildings, residential buildings, transportation, and waste). Energy use for buildings in Frisco accounts for 72% of our community’s greenhouse gas emissions, split nearly evenly between commercial (50%) and residential (48%) energy use (municipal energy use makes up the remaining 2%). The CAP further reinforced the Town’s goals of achieving 100% renewable electricity across the community by 2035 and began the conversation around net zero construction and decarbonization of heating sources. The most prevalent heating source in Frisco is natural gas which is primarily comprised of methane, and when burned, emits carbon dioxide.

In Spring 2020 the Town adopted an updated Sustainable Building Code to address building sector energy use. For residential construction, the code requires certification by the Department of Energy’s Zero Energy Ready Home Program. For commercial construction, the code requires a 10% efficiency standard above the most recent commercial energy requirements. During the 18-month stakeholder process for the Sustainable Building Code, one of the overwhelming comments from the group was “what do we do to reduce excessive outdoor energy use?”

The Town regulates energy use indoors via the adopted International building and energy conservation code and Summit Sustainable Building Code. These codes do not address outdoor energy efficiency. Renewable Energy Mitigation Program (REMP) is designed to reduce excessive outdoor energy use through economic incentives and direct on-site mitigation by renewable energy. As a policy priority listed in the Summit Community Climate Action Plan, REMP has been under development and discussion since 2020. The REMP Steering Committee, comprised of representatives from local governments, energy professionals, designers, builders, and businesses met 6 times between December 2020 and September 2021. Breckenridge Town Council started discussing REMP in summer 2021 and following several more work sessions and additional public outreach, adopted the policy in summer 2023. For ease of community and contractor understanding, the policy presented at this March 26th work session will be the same as the policy implemented in Breckenridge.

Analysis: The following describes the Renewable Energy Mitigation Program as it could be adopted in Frisco. All elements (excluding potential location of code language) are the same as the program as currently adopted in Breckenridge.

Policy Provisions: The language will reside in Frisco's Town Code, Chapter 180 Unified Development Code. An additional ordinance would establish the special REMP fund where revenues from the program would be restricted for energy and greenhouse gas reduction purposes.

For simplicity, the language below is drafted for the residential program and commercial variances are [bracketed in red] where appropriate.

Title. Establishes the Renewable Energy Mitigation Program (REMP). All exterior energy use as defined below shall be designed and comply with the mandatory requirements of the Frisco Renewable Energy Mitigation Program.

Scope. This section establishes criteria for compliance with the Frisco Renewable Energy Mitigation Program (REMP). The scope of this program includes exterior energy uses and energy production to offset exterior energy use.

Mandatory Requirements. Compliance with this section requires that the provisions of this section be followed for all exterior energy use. Compliance with this section will be documented via a free Public Domain tool similar to the "Breckenridge REMP Calculation Sheet" (Attachment 2) in the most current version at the time of building permit application. Projected energy use, associated energy offset required, fees and credits are defined within this tool.

Credits for on-site renewable energy. The payment-in-lieu option is voluntary. Applicants interested in exterior energy use systems can alternatively choose to produce on-site renewable energy with renewable energy systems such as solar photovoltaics and/or solar hot water, wind, or micro-hydro. The energy efficient technology of ground source heat pumps is also allowed for supplemental on-site energy.

Exterior energy uses. Residential exterior energy uses (per list below) may be installed only if the supplemental energy meets the requirements of the Renewable Energy Mitigation Program. This applies to all installations for which an application for a permit is filed or is by law required to be filed. This does not apply to work on existing systems that were permitted prior to this code.

1. Snowmelt (i.e. driveways, patios, walkways, etc.)
2. Exterior pools
3. Exterior hot tubs and spas
4. Permanent natural gas or electric systems or appliances for heating or cooking outdoor residential spaces.

On-site renewable credit calculation. Credits for renewable energy production will be

calculated and applied per a tool similar to the “Breckenridge REMP Calculation Sheet” for energy generated on-site. Renewable energy methods listed in the calculator include: solar photovoltaic, solar thermal, ground source heat pumps, hydroelectric and wind power. Provision for alternative method calculations is also provided, but it will require specific review and approval by the Building Official.

Snowmelt systems.

1. R-10 insulation shall be installed under all areas to be snowmelted.
2. Required snowmelt controls. All systems are required to have automated controls to limit operation to when moisture is present, outdoor air temperature is below 40F and above 20F, and the slab temperature sensing. Idling of residential slabs is not permitted. [Idling of commercial slabs is allowed where public safety is a factor.]
3. Snowmelt heating appliances will have a minimum efficiency of 92% AFUE. Electric resistance and heat pump heaters will be allowed. Where condensing boilers are used, the boiler supply water temperature shall be a maximum of 130F to allow for efficient boiler operation.
4. Up to 100 square feet of snowmelt continuous to a residential building is exempt for safety. [Up to 100 square feet of snowmelt per emergency egress pathway is exempt.]

Exterior pools.

1. Pool covers are required for all pools, with a minimum R-value of 2.
2. Pool heating appliances will have a minimum efficiency of 92% AFUE. Electric resistance and heat pump heaters will be allowed. Where condensing boilers are used, the boiler supply water temperature shall be a maximum of 130F to allow for efficient boiler operation.

Exterior hot tubs and spas.

1. Hot tub and spa covers are required for all spas, with a minimum R-value of 12.
2. Packaged hot tubs and spas less than 64 square feet are exempt. [Not applicable for commercial]
3. A maximum of 1 hot tub or spa per residential property is exempt. For residential HOAs with individual ownership, 64 square feet of hot tub or spa space is exempt for every 10 residential units. [Not applicable for commercial]
4. Hot tub and spa heating appliances will have a minimum efficiency of 92% AFUE. Electric resistance and heat pump heaters will be allowed. Where condensing boilers are used, the boiler supply water temperature shall be a maximum of 130F to allow for efficient boiler operation.

Other permanent natural gas or electric heating or cooking elements.

1. A combined 200,000 BTU [350,000] budget is allowed for permanent natural gas or electric heating or cooking elements at a reduced renewable offset requirement.

Gas fireplace, firepit, firetable controls. Residential outdoor natural gas fireplaces, firepits, or firetables shall include timers required to limit the run time of the system. Controls and switching shall be configured so as not to allow continuous operation.

Electric heat tape controls. Electric roof and gutter deicing systems shall include automatic controls capable of shutting off the system when outdoor temperature is above 40F and below 25F, and which limit the use of the system to daylight hours by means of a programmable timer or automated clock, or moisture detection sensors.

Renewable energy mitigation payment. A permit shall not be valid until all fees as in effect at the time of permit submittal are paid in full, or the renewable energy system is proposed for on-site credit. Nor shall a change order to the permit be released until the additional fees, if any, have been paid. REMP compliance will be verified at Certificate of Occupancy or Certificate of Completion according to the proposed plans. C.O. can be withheld if the project is non-compliant.

Pre-existing systems. Pre-existing systems, for which a permit was applied for and granted prior to the effective date of this code, are exempt from this program. Additions or expansions of existing systems that require a permit will require compliance with this program.

Pre-existing systems for which a prior REMP payment was paid and which seek to be replaced shall receive a pro-rated credit calculated by the number of years since prior REMP payment divided by 20 years. For example, a REMP payment made for a system permitted 10 years prior to the current replacement being sought will receive credit for ½ of the prior REMP payment and that amount shall be deducted from the REMP payment owed on the replacement. For renewable systems installed on site, full credit will be given for up to 20 years after the date of installation. Credits will only be applied to properly permitted and functioning systems within the scope of the adopted Energy Code and applicable Mechanical and Electrical Codes. Systems installed prior to 20 years before the date of permit application are not eligible for pro-ration of system credits.

Upgrades to existing mechanical equipment (boilers, heat pumps, HVAC equipment, etc.) or renewable energy systems will not require submittal to the REMP program. Additional square footage on existing systems will be subject to REMP.

Solar photovoltaic systems. System designer and installer must be certified by Colorado Solar Energy Industries Association (COSEIA) or North American Board of Certified Energy Practitioners (NABCEP), or a licensed Professional Engineer in the State of Colorado.

Solar thermal. The size of solar hot water systems is limited to 500 square feet of collector area absent approval by the Building Official. Systems larger than this limit will be considered, but will require documentation showing year-round utilization of the system.

Ground source heat pumps. In order to use ground source heat pumps for on-site renewable credit, the GSHP system must supply at least 20% of the peak load for heating the exterior energy uses. Each GSHP shall be tested and balanced and the design engineer shall certify in

writing that it meets or exceeds a design coefficient of performance (COP) of 3.0 inclusion for source pump power. Design conditions for determining COP will be 30F ground loop temperature measured at the GSHP inlet, and 110F GSHP load side outlet.

Hardship. Applicant may apply to the Building Official for a full or partial variance of the requirements of this above code program. Applicant must show undue hardship and that the requirements of the program disproportionately burden the Applicant if applied to a specific piece of property and typical on-site methods of energy generation are not feasible. The Building Official shall evaluate the application for waiver of requirements and shall only approve a variance where application of this above code program will cause undue hardship upon the owner of such property which cannot be mitigated, and the granting of relief from the strict applications of this code will not cause substantial detriment to the public good and will not substantially impair the intent and purpose of the Frisco Town Code. Applicant may appeal any denial under this section to the Board of Appeals.

Although REMP does not change any existing energy use, adoption of REMP would impact future development and any additions or expansions of existing systems that require a permit. Pursuing REMP has the following benefits:

- better align Frisco's building code with Breckenridge's, which would provide clarity for contractors working throughout the community.
- continue to educate local contractors and public about renewable energy options and energy efficient construction practices
- work towards Town goal of 100% renewable electricity by 2035 through support for community renewable energy and energy efficiency
- work towards Building Energy Use goals in the Summit Community Climate Action Plan

High Country Conservation staff will present Town-specific examples of outdoor energy use and associated onsite renewable energy required to offset under REMP.

Financial Impact: No financial impact at this time. If Council supports REMP and directs staff to implement the program, a special REMP fund would be created to collect revenue from fee-in-lieu payments. This fund would be restricted to the following uses:

- To reduce fossil-fuel generated energy consumption by supporting community renewable energy and energy efficiency improvements in the community;
- To administer the Renewable Energy Mitigation Program;
- To educate the development industry and public about methods of energy efficient construction and benefits of energy conservation; and,
- To achieve energy goals as written in Town of Frisco-inclusive plans including but not limited to the Summit Community Climate Action Plan, Town of Frisco Energy Action Plan, Climate Equity Plan, and Council Strategic Plan.

Alignment with Strategic Plan: Pursuing REMP is supported by the following strategic objective and associated pillar: Core Services: Environmental stewardship and reducing the effects of climate change.

Environmental Sustainability: REMP fulfills goals of energy and GHG emissions reduction and is identified as a strategy under the building energy section in the Summit Community Climate Action Plan, adopted by Council in 2019.

Staff Recommendation: Staff recommends the Council request any desired changes to REMP, and that they direct staff to bring REMP policy for first reading. Staff can facilitate additional public outreach if desired.

Approved By:

Diane McBride, Assistant Town Manager
Tom Fisher, Town Manager
Leslie Edwards, Finance Director

Attachments:

Attachment 1 – Summit Community Climate Action Plan
Attachment 2 – Breckenridge Renewable Energy Mitigation Program ordinance
Attachment 3 – Breckenridge REMP Calculation Sheet