



**Vermont Energy & Climate Summit**  
***“Meeting Vermont’s 2025 Energy & Climate Goals”***

**\*\*\*Pitch Submission Form\*\*\***

*Let your ideas be heard!*

*This is your chance to get your energy or climate pitch  
in front of 200 of Vermont’s energy leaders and the Governor’s Climate Action Commission*

**Vermont has a bold goal:** to meet 90% of our energy needs through increased efficiency and renewables by 2050. We have also joined leading states across the country in a bi-partisan commitment to adhere to the Paris Climate Accord goals. Where are we now on achieving those goals and what can we do to bend the curve toward 2025 milestones along that path?

- **Energy:** The first milestone of Vermont’s Comprehensive Energy Plan is to meet 25% of Vermont’s total energy needs from renewable sources by 2025. The most recent status estimates put us at around 16% across heat, electricity and transportation (2016).
- **Climate:** The Paris Accord goal seeks a reduction in greenhouse gas (GHG) emissions of 26-28% from 2005 levels by 2025. Vermont’s own statutes are even more ambitious: 50% reduction from 1990 levels by 2028. As of 2013, Vermont’s GHG emissions decreased 11% from 2005 levels and actually *increased* 4% from 1990 levels.

**Pitch Invitation**

***We have a lot of work to do over the next 8-10 years.*** That is why we want to ***hear your pitch*** for promising opportunities to help Vermont meet its 2025 goals. What will help bend the curve?

Selected proposals will be invited to present at the Vermont Energy and Climate Summit co-hosted by [Energy Action Network](#) (EAN) and the [VT Climate Pledge Coalition](#) (VCPC) on November 8<sup>th</sup> at Champlain College in Burlington. Please submit your pitch by using the form below and emailing completed proposals to [jduval@eanvt.org](mailto:jduval@eanvt.org) by **Friday October 20<sup>th</sup>**.

(NOTE: Regardless of whether you are invited to present on Nov.8<sup>th</sup> -- notification will come by Wed. Oct. 25 -- *all submitted and complete proposals will be included in a full compilation to be submitted to the Governor’s Climate Action Commission and the Vermont Legislature.*)

## Vermont Energy & Climate Summit **Pitch Submission Form**

**Guiding Criteria:** EAN’s mission is to end Vermont’s reliance on fossil fuels *and* to create efficient, clean, affordable, and secure electric, heating, and transportation systems for the 21st Century. The VT Climate Pledge Coalition is seeking pledges to reduce GHG reductions that will help Vermont meet Paris climate commitments. Together, we support the criteria outlined in Gov. Scott’s Executive Order creating the **Vermont Climate Action Commission**, specifically that solutions must:

- Spur economic activity, inspire and grow Vermont businesses, and put Vermonters on a path to affordability;
- Engage all Vermonters, so no individual or group of Vermonters is unduly burdened; and
- Collectively provide solutions for all Vermonters to reduce their carbon impact and save money.

With these goals and criteria in mind, please answer the questions below. Questions 8-12 can be answered individually or in one comprehensive narrative. (Total pitch submission **no more than 3 pages**).

**1. Pitch Submitted By (Your Name or Organization):**

Adam Kane, Executive Director  
Fairbanks Museum & Planetarium

**2. Contact Email Address:**

[akane@fairbanksmuseum.org](mailto:akane@fairbanksmuseum.org)

**3. Contact Phone Number:**

(802) 748-2372

**4. Pitch Title: (one line)**

Fairbanks Museum’s Renewable Energy Campus

**5. Pitch Summary: (one paragraph)**

In 2018, the Fairbanks Museum & Planetarium, a 125 year-old institution, is moving from fossil fuels to 90% renewables. The Fairbanks Museum’s Renewable Energy Campus will strengthen the institution’s financial and environmental resilience, while leveraging its educational mission to encourage its visitors to undertake their own renewable energy projects.

**6. What energy sector(s) does this Pitch apply to? (Check all that apply):**

- Energy Efficiency
- Electricity
- Transportation
- Thermal Heating &/or Cooling
- All (Total Energy)

- None: Non-energy related carbon reduction proposal

**7. Which criteria category(ies) does it address? (Check all that apply):**

- Economic Activity
- Affordability
- Vulnerable Vermonters
- Other (Education and Outreach)

**8. Scale of impact on Vermont's energy and climate goals:** If this proposal came to fruition, how might it move the needle in helping to meet Vermont's energy and climate goals by 2025 and/or 2050? Please outline assumptions and, if available, provide calculations.

The Fairbanks Museum will obtain 90% of its energy from renewables and leverage the project as an educational tool and tourism driver. The Renewable Energy Campus will model a sustainable and resilient facility while leading by example in Vermont's local and distributed energy future.

The Renewable Energy Campus is a significant undertaking for which we have assembled a team of organizations to support our effort. Our partners include:

- Guidance and Support: Green Mountain Power, Efficiency Vermont, Energy Action Network
- Efficiency and Engineering Support: Commons Energy and Vermont Mechanical
- Solar Photovoltaic: Solaflect
- New Market Tax Credit Allocation and Support: Vermont Rural Ventures
- New Market Tax Credit Legal Support: Downs, Rachlin, Martin

Transitioning to renewables will require the following facilities improvements:

- Solar PV: 60kW of off-site solar to cover electrical usage through Solaflect in a solar park in St. Johnsbury
- Fairbanks Museum (15,000 sq ft): Efficiency upgrades and air source heat pump system
- McGuire Center (4800 sq ft): Efficiency upgrades and air source heat pump system
- Balch Preschool (2000 sq ft): Ground source heat pump system
- Collections Center (3500 sq ft): Air source heat pump system

The combined energy production, heat pumps, and efficiency investments will allow the Museum to secure 90% of its energy from renewable sources, and will provide a net energy savings to the Museum of \$37,000 to \$65,000 annually (fluctuation based on the cost of fuel oil).

Importantly, the improvements through the use of heat pumps will provide humidity control for our buildings. This is particularly critical in the Museum building and the Collections Center. These buildings house the Museum's collections which should be curated in a humidity controlled environment to ensure their long-term preservation. Providing a humidity controlled environment for our collections has been a goal of the Fairbanks Museum for decades.

The Renewable Energy Campus also has a significant public outreach and exhibit component. These components include a series of interactive STEM-based exhibit stations and take-home information to assist our visitors in undertaking their own renewable energy or efficiency projects. Exhibit stations include:

- Heat Pump Station: Hand-powered heat pump demonstrating the physics behind heat pumps
- Energy Tracker: Energy kiosk to show the Museum's real-time energy production and usage

- Thermal Imaging: A station using thermal imagers understand infrared light
- Take-home Information: Renewable energy information for homeowners

**9. Benefits/costs of this proposal for Vermont and Vermonters:** Including, where possible, economic, financial, social, and environmental.

Project Goals include 1) providing an economic benefit to the Fairbanks Museum while greening its operations, 2) encouraging Museum visitors to support and undertake renewable energy projects, and 3) increase Museum visitation.

The Renewable Energy Campus is designed to provide economic benefit to the Museum, and the local and regional economy. We estimate an annual savings on heat and electricity of \$37,000 to \$65,000. The installation of hands-on, energy-related exhibits will drive increased museum admissions. Based on our previous installations, we conservatively estimate these exhibits will yield a 5% visitation increase. Using the *Benchmark Study of the Impact of Visitor Spending on the Vermont Economy: 2013* we estimate that increase adds \$80,000 to the local economy.

**Indicator(s) of Success**

Outcome 1: Fairbanks Museum's energy consumption meets or exceeds 90% renewables.

This goal has been established because it aligns with Vermont's 90% renewables by 2050 goal as per the Public Service Board's *Comprehensive Energy Plan 2015*. This outcome will be measured by analyzing the Museum's energy expenses between August 2018 and July 2019. Specific measures will include: 1) the number of space heating BTUs supplied from fossil fuels versus those supplied through heat pumps, and 2) solar production versus usage.

Outcome 2: Fairbanks Museum's admissions increase by 5%.

In light of the interactive, STEM-based exhibits to be installed and our internal data showing their demand, general admissions to the Museum in calendar year 2018 will be 5% above those for 2017. That data will be measured by the Museum's point-of-sale system comparing calendar years 2017 and 2018.

Outcome 3: Surveyed Fairbanks Museum visitors have an increased understanding of the steps they can undertake at their home to improve energy efficiency and employ renewable energy strategies.

Each Saturday for the 6 months following the exhibit installation, visitors will be asked to participate in a survey about how their attitudes and understanding of renewable energy and efficiency have changed after visiting the Museum. This will be an online survey accessed via a postcard handed to each adult visitor with participants receiving a free membership to the Fairbanks Museum.

**10. Decision-makers necessary for this proposal to be adopted or move forward (e.g., Legislature, Governor, a regulatory agency, a business, organization, media outlet, or financing institution, etc.)**

This project is moving forward. Its scale, particularly heat pump installations in the Museum building, are dependent of additional funding. Regulatory approval will be needed from the Vermont Division for Historic Preservation.

**11. Strategy and key considerations:** Outline the overall strategy, including gaps, barriers and opportunities for moving this proposal forward.

The project involves a four-part strategy:

- 1) **Efficiency Upgrades:** Under the guidance of energy efficiency contractors, Green Mountain Power and Efficiency Vermont, the Museum will undertake efficiency upgrades to decrease its electrical and heating demand.
- 2) **Solar Purchase:** The Fairbanks Museum currently has a 12.5kW onsite solar array, and does not have space for an additional solar installation. We will purchase 60kW of offsite solar through a third-party community solar organization (Solaflect).
- 3) **Facilities Upgrades:** The Museum's four buildings will have either ground or air-source heat pump systems installed in order to move their heating BTU source from heating fuel to electricity.
- 4) **Installation of renewable energy exhibits and information** in the Museum to provide a public outlet for the work we are doing, and how individuals can undertake similar projects at their homes or workplaces.

Project Gaps:

- 1) **Funding.** The project requires an \$800,000 investment of which half has been raised from private and foundation donors. The balance of the project is dependent of additional fundraising and the Fairbanks Museum executing a New Market Tax Credit.
- 2) **Solar Capacity.** The current project budget supports the purchase of solar PV to offset the Fairbanks Museum's current electrical usage. This amount of net-metering will be insufficient when the bulk of the Museum's heating BTUs are moved to the electric grid.
- 3) **Renewable Energy Exhibits.** Additional partners would be beneficial in designing the outreach and exhibit programs.

Project Barriers:

- 1) **Solar Tax Credits.** Not a barrier, per se, but the Museum's inability as a non-profit to reap the federal tax credit for its solar investment diminishes the amount of solar PV it can purchase.

Opportunities:

- 1) **Inspiring Others.** The Fairbanks Museum has four buildings, none of which are less than 100 years old. If this institution can move to 90% renewables, anyone can.

**12. Timeline:** To meet our 2025 goals, we need some proposals that can be implemented in the next couple of years as well as some "game changers" that will bend the curve even further out. What timeline do you foresee for your proposal to be developed and implemented?

*Solar Photo-Voltaic*

Purchase 60kW Offsite Solar, October 2017 (completed, installation grid-tied solar park by 12/13/17)

*Energy Efficiency*

Blower Door Test of All Buildings, September 22, 2017 (completed)  
Order Interior Storm Windows for McGuire Center, October 2017  
Order Interior Storm Windows for the Museum, May 2018

*Building Upgrades*

Hire Commons Energy as Energy Services Company, October 2017 (completed)  
Approve plans for non-Museum buildings, January 2018  
Bid Process of non-Museum buildings, February 2018  
Undertake Construction on non-Museum buildings, April-August 2018  
Approve Plans for Museum, April 2018  
Bid Process for Museum, May 2018  
Undertake Energy Improvements in Museum, August-October 2018

*Energy Exhibits*

Planning for Exhibits, September-October 2017  
Exhibit Fabrication and Ordering, November-December 2017  
Exhibit Installation, January 2018

*New Market Tax Credits*

Close NMTC, March 2018

**Suggested Reference Documents:**

[Vermont's Comprehensive Energy Plan, 2016](#)

[Vermont's Total Energy Study, 2014](#)

[Vermont Agency of Natural Resources Climate Dashboard](#)

[EAN Annual Report, 2016](#)

[90% Renewable by 2050: Exploring Vermont's Efficiency & Renewable Energy Pathways, 2013](#)