**Attachment A – Town of Shutesbury Competitive Grant Application Narrative, 2022 Block 2**

**<u>Project A: Weatherization and Insulation of Shutesbury Municipal Buildings</u>**

*Summary of Projects Completed in Previous Grant Cycles:*

Shutesbury was designated as a Green Community in July 2011. With designation grant funds, the town completed the following projects:

- Installed a 15 kW pole-mounted solar PV system at the Fire Station;
- Hired a contractor to complete an in-depth energy audit of the Fire Station and install the recommended measures;
- Completed an HVAC upgrade at the Town Hall; upgraded interior lighting;
- Installed air sealing, fan controls, and variable frequency drives at the Elementary School;
- Upgraded an old furnace with efficient propane heaters in bays and heat pumps in office areas; installed water heater and upgraded interior lighting at the Fire Station;
- Installed air sealing, and fans, at the Highway Garage; and
- Installed air sealing, and sealed air leaks at the Town Hall.

Shutesbury recognizes the need to continue to upgrade its buildings to reduce overall greenhouse gas emissions. In FY21, the town reduced its overall energy use by 7% and building energy use by 13% compared to the baseline year. Further insulating buildings and upgrading lighting will help the town get closer to its 20% energy reduction goal.

*Justification of Projects Applied for in the 2022 Grant Cycle:*

This is Shutesbury's first application for a Green Communities Competitive Grant. Our Energy Audit of Town Buildings was done in 2009. Shutesbury completed the last project recommended by the Energy Audit in 2018. Heat pumps were not on the market in 2009. The town engaged in a lengthy successful process gaining approval to install heat pumps at the fire station. The last project recommended by the Energy Audit was an upgrade of the boiler at Town Hall. This project was the subject of a lengthy internal disagreement. It was finally completed in 2018 weeks ahead of the close out of our designation grant.

Shutesbury is eager to participate in the competitive Green Communities grant. We have a new Energy and Climate Committee to support the work and analysis as we continue to strive for the 20% energy reduction from our base year in Mass Energy Insight (MEI) of 2009. We are committed to expediting the projects. A lot has been done but we have continued needs as outlined in the LED and Building Envelop reports that follow. The Fire Department staff converted their station to LEDs, but we are behind on converting to LEDs at the Elementary school.

A Building Envelope Inspection Report prepared by Energy Conservation, Inc. in October 2022 noted all five of the municipal buildings are leaky, primarily due to failing weather stripping and sealants. Although the buildings are well-maintained by staff, they are all old buildings in need of upgrades. Shutesbury proposes to complete the following projects related to weatherization and insulation, if awarded competitive grant funds from the DOER:

| Building | Proposed Upgrades to the Building Envelope |
|---|---|
| Shutesbury Elementary School | ▪ Weatherstrip the nonstandard-sized exterior doors, total 13 doors<br>▪ Weatherstrip nonstandard-sized exterior double doors, total 4 double-door sets/8 door slabs<br>▪ Build, frame, and install new insulated, dammed, and weatherstripped 2' x 2' attic hatch(es), total 3 hatch(es)<br>▪ Seal the frame-to-wall/trim junctures, total 4,408 LF<br>▪ Air-seal the roof-wall junctures, elevation change, metal decking, and any framing penetrations, total 932 LF |
| Fire Station | ▪ Weatherstrip the standard-sized 3' x 7' exterior doors, total 3 doors<br>▪ Build and install new insulated and weatherstripped 2' x 3' attic hatch panel with frame to mount weatherstrip, total 1 hatch<br>▪ Weatherstrip the sectional-type overhead door(s), total 5 door(s)<br>▪ Seal the sheetrock joint at the top of the knee wall, 1-line, total 100 LF |
| DPW | ▪ Weatherstrip the standard-sized 3' x 7' exterior doors, total 2 doors<br>▪ Weatherstrip the standard-sized exterior double doors, total 1 double-door sets/2 door slabs<br>▪ Weatherstrip the sectional-type overhead door(s), total 3 door(s)<br>▪ Air seal the foil-faced barrier, total ½ crew day |
| Library | ▪ Install sweep only, total 1 sweep<br>▪ Weatherstrip the nonstandard-sized rear double doors, total 1 double-door sets/2 door slabs |
| Town Hall | ▪ Weatherstrip the nonstandard-sized exterior doors, total 4 doors<br>▪ Seal the frame-to-wall juncture, total 2,046 LF<br>▪ Replace the balances where broken (left and right side), total 1 window/2 balances |

Town of Shutesbury FY21 annual energy consumption in MMBTU according to MEI data:

- Buildings: 2,759 MMBTUs
- Street/Traffic Lights: 28 MMBTUs
- Vehicles: 1,460 MMBTUs
- Total FY21 Energy Consumption: 4,248

FY21 energy use by buildings included in the weatherization and insulation project:

| Building | Heating Oil (Gallons) | Propane (Gallons) | Electricity (kWh) | MMBTUs (Total) |
|---|---|---|---|---|
| Shutesbury Elementary School | 9,000 | - | 198,480 | 1,928 |
| Fire Station | - | 1,310 | 6,980 | 197 |
| DPW | 945 | - | 11,719 | 171 |
| Library | - | 421 | 7,248 | 63 |
| Town Hall | 1,468 | 331 | 31,866 | 389 |

*Equipment Specifications:*

Specification sheets for the municipal weatherization project can be found in the Attachments.

*Purpose*

The primary purpose of weatherizing and insulating the municipal buildings in Shutesbury is to decrease the town's dependence on fossil fuels. The town is moving away from reliance on propane and heating oil for heat. We are beginning to shift our systems to heat pumps. Once the buildings are properly weatherized, they will be eligible for further energy efficiency upgrades such as heat pumps. Better weatherization and insulation will also decrease the amount of electricity required for cooling. The condition of each municipal building, as noted in the Building Envelope Inspection Report, is detailed below.

- The Elementary School was initially built in 1972. The last renovation done was 1993. The main part of the building has wood framing and an asphalt shingle roof. The gym is cinder block and metal beam construction. The EPDM roof was replaced this year. The gym roof was leaking badly prior to replacement. The school is in fair condition and well-maintained by staff. The building envelope is quite leaky, due to failing weatherstrip and sealants, as well as construction framing details along several sections of the structure.
- The Fire Station was built in in the 1970s. It has wood framing and an asphalt shingle roof. It is in fair condition and well-maintained by staff. The building envelope is somewhat leaky, due to failing weatherstrip and sealants, as well as construction framing details along several sections of the structure.
- The DPW was built in the 1970s. It has wood framing. It is in fair condition and well maintained by staff. The building envelope is moderately leaky, due to failing weatherstrip and sealants, as well as construction framing details along several sections of the structure.
- The library was built in 1902. It has had energy efficiency upgrades over the years. It is in very good condition and well-maintained by staff. The building envelope is slightly leaky, due to failing weatherstrip. The Town has approved funding of a new library. But the Town plans to continue using this building.
- The Town Hall is an older building originally built as a school in 1950. It has had water and mold issues over the years that have been aggressively addressed. It has wood framing and an asphalt shingle roof. It is in very good condition and well-maintained by staff. The building envelope is somewhat leaky, due to failing weatherstrip and sealants.

*Benefits*

This project will result in energy and cost savings to the town, a reduction in greenhouse gas emissions, and improved comfort for building occupants.

*Timeline*

If awarded Green Communities funding, the Town plans to proceed as quickly as possible to continue working with a National Grid project expediter as allowed under MGL Ch. 25A.

*Procurement required and status*

Due to recent changes to MGL Ch. 25A, the Town will be able to work with a project expediter as the total cost for the weatherization and lighting projects (lighting project described below) falls under $300,000.

*Anticipated impact, qualitatively and quantitatively*

Estimated fuel savings for weatherization at all of Shutesbury's municipal buildings are 1,864 gallons of fuel oil, 410 gallons of propane, and 1,883 kWh of electricity. When this project is completed, the town is projected to save $8,020 on heating fuel alone. This project will result in significant cost savings to the Town and reduce the amount of fossil fuels the town purchases on an annual basis.

*How the project supports the municipality's five-year Energy* Reduction *Plan and the Commonwealth's*

The weatherization and insulation projects are anticipated to reduce the Town's energy consumption by 310 MMBTUs and reduce emissions by 25 tons of $CO_2$, which is a 7% reduction in total energy use from the baseline year. The Commonwealth has committed to achieving net zero emissions by 2050, with one of the primary components of the plan being to reduce emissions from energy demand through electrification. Fully weatherizing all of the Town's buildings is a necessary step before pursuing any fuel switching projects or projects that would decrease the Town's dependency on fossil fuels, such as installing heat pumps.

*Why grant funding is required to complete the project*

Grant funding is required for this project because Shutesbury is a small, rural community with a limited municipal budget. Although the Town is committed to reducing energy use when possible, full funding is not readily available for all energy efficiency projects. Shutesbury's 2022 property taxes are the fourth highest in the state at 21.83/1000.

In 2020 Shutesbury's tax rate was the second highest in the state, at 24.04/1000, only behind Longmeadow, a noted wealthy community. Grant funding is critical to reducing energy costs and maintaining a viable financial base. Reaching a $25/1000 tax rate means freezing municipal budgets. While other municipalities can continue to increase their budgets by 2 1/2% a municipality at 25/1000 no longer can. Shutesbury is more dependent on grant funding to achieve efficiencies than other municipalities because of this dire circumstance. Not only does the town not want to burden residents by raising their taxes any higher, the town's ability to raise property taxes is severely limited by the 25/1000 cap of prop 2 1/2.

Funding from the Green Communities program will allow the Town to pursue projects necessary to mitigate climate change.

*Identify any and all permits required and the status of each*

Local permits will be needed to complete the project. Shutesbury is a member of the Franklin County Cooperative Inspection Program. The hired contractor will be responsible for applying for all necessary permits.

*Identify any other approvals required, e.g., local, state, federal, and the status of each*

This item is not applicable to Shutesbury's project.

*Opportunities for education and outreach and a concrete plan to accomplish them*

Shutesbury will give updates about the municipal building weatherization project in the town newsletter and on the town website. The Energy and Climate Action Committee (ECAC) will also utilize the town email list-serv for residents, which currently has over 600 subscribers, to give project updates and report energy impact.

*Provide a description of how project(s) would benefit EJ populations in your community, as identified through the Massachusetts EJ Map Viewer.*

This item is not applicable to Shutesbury's project, as there are no EJ populations in the community.

**Project Budget**

- Total material and installation cost: $85,681.88
- Total utility incentives: $5,427.22
- **Total Green Communities funding request: $79,254.67**

National Grid confirmed the following application numbers for utility incentives:

- Shutesbury Elementary School: #13869228
- Fire Station: #13869229
- DPW: #13869230
- Library: #13869231
- Town Hall: #13869232

**Applicant and Project Team:**

The Shutesbury Town Administrator, Becky Torres, will act as the day-to-day project manager and will provide general project coordination and oversight. The Town Administrator will complete all required project reporting.

The Town will enter into a contract with a qualified contractor to complete the municipal weatherization project.

**ATTACHMENTS:**

- Shutesbury Building Inspection Report 10-3-22.pdf
- Shutesbury Weatherization Supporting Calculations 10-3-22.xls
- Shutesbury Elementary School Weatherization Cut Sheets.pdf
- Shutesbury DPW Weatherization Cut Sheets.pdf
- Shutesbury Fire Department Weatherization Cut Sheets.pdf
- Shutesbury Library Weatherization Cut Sheets.pdf
- Shutesbury Town Hall Weatherization Cut Sheets

**Project B: LED Lighting Upgrade at the Shutesbury Elementary School**

*Background*

The Town of Shutesbury proposes to complete an LED lighting upgrade at the Elementary School. The School is the largest energy user in town. Replacing all of the light fixtures at the school is a large undertaking, so this project is a proposal for the first phase of replacements and will primarily focus on interior lighting.

*Summary of Projects Completed in Previous Grant Cycles*

In previous grant cycles fan controls and variable frequency drives were installed at the Elementary School. Lighting upgrades at the school were done in 2008, pre-LED. Pre-LED lighting projects were done at the other municipal buildings before 2014. A full list of projects that were completed with Shutesbury's designation grant funding is included in the narrative under Project A.

*Justification of Projects Applied for in the 2022 Grant Cycle*

The Phase 1 LED lighting project at the Elementary School will reduce the building's electric use by 16%.

Town of Shutesbury FY21 annual energy consumption in MMBTU according to MEI data:

- Buildings: 2,759 MMBTUs
- Street/Traffic Lights: 28 MMBTUs
- Vehicles: 1,460 MMBTUs
- Total FY21 Energy Consumption: 4,248

FY21 Shutesbury Elementary School Energy Use

| Building | Heating Oil (Gallons) | Propane (Gallons) | Electricity (kWh) | MMBTUs (Total) |
|---|---|---|---|---|
| Shutesbury Elementary School | 9,000 | - | 198,480 | 1,928 |

*Equipment Specifications:*

Cut sheets for the LED lighting project can be found in the Attachments.

*Purpose*

The primary purpose of the lighting project at the Elementary School is to decrease the amount of electricity the school consumes each year. Ideally, the building will eventually receive the majority of its electricity from renewable sources, and using the least amount of energy possible will reduce strain on the electric grid and municipal funds.

*Benefits*

Benefits include reduced GHG emissions, reduced electrical costs to the town, and reduced maintenance costs.

*Timeline*

The town plans to proceed as quickly as possible to continue working with a project expediter as allowed under MGL Ch. 25A.

*Procurement required and status*

As noted above under the weatherization project narrative, due to recent changes to MGL Ch. 25A, the Town will be able to work with a project expediter as the total cost for the weatherization and lighting projects falls under $300,000.

*Anticipated impact, qualitatively and quantitatively*

Estimated annual savings are 31,662 kWh of electricity, which comes to an annual cost savings of $5,699. Upgrading the lights inside the building will also lead to less maintenance needs.

*How the project supports the municipality's five-year Energy Reduction Plan and the Commonwealth's*

This project is anticipated to save the Town 108 MMBTUs and 11 tons of $CO_2$, which is a 2.5% decrease in total energy use from the baseline year. As explained above, Shutesbury is supportive of the Commonwealth's goals to achieve net zero emissions by 2050. Any step taken to reduce municipal energy use will put the State closer to its goal.

*Why grant funding is required to complete the project*

As noted above under the weatherization project narrative, grant funding is required for this project because Shutesbury is a small, rural community with a limited municipal budget. Although the Town is committed to reducing energy use when possible, full funding is not readily available for all energy efficiency projects. Shutesbury's 2022 property taxes are the fourth highest in the state at 21.83/1000.

In 2020 Shutesbury's tax rate was the second highest in the state, at 24.04/1000, only behind Longmeadow, a noted wealthy community. Grant funding is critical to reducing energy costs and maintaining a viable financial base. Reaching a $25/1000 tax rate means freezing municipal budgets. While other municipalities can continue to increase their budgets by 2 1/2% a municipality at 25/1000 no longer can. Shutesbury is more dependent on grant funding to achieve efficiencies than other municipalities because of this dire circumstance. Not only does the town not want to burden residents by raising their taxes any higher, the town's ability to raise property taxes is severely limited by the 25/1000 cap of prop 2 1/2. Funding from the Green Communities program will allow the Town to pursue projects necessary to mitigate climate change.

*Identify any and all permits required and the status of each*

Local permits will be needed to complete the project. Shutesbury is a member of the Franklin County Cooperative Inspection Program. The hired contractor will be responsible for applying for all necessary permits.

*Identify any other approvals required, e.g., local, state, federal, and the status of each*

This item is not applicable to Shutesbury's project.

*Opportunities for education and outreach and a concrete plan to accomplish them*

Shutesbury will give updates about the municipal building weatherization project in the town newsletter and on the town website. The Energy and Climate Action Committee (ECAC) will also utilize the town email list-serv for residents, which currently has over 600 subscribers, to give project updates and report energy impact.

*Provide a description of how project(s) would benefit EJ populations in your community, as identified through the Massachusetts EJ Map Viewer.*

This item is not applicable to Shutesbury's project, as there are no EJ populations in the community.

**Project Budget**

- Total material and installation cost: $116,960.00
- Total utility incentives: $17,712.00
- **Total Green Communities funding request: $99,248.00**

National Grid confirmed the following application numbers for the utility incentive for the lighting project: 13869233.

**ATTACHMENTS:**

- Shutesbury Elementary School Lighting Savings Summary Phase 1.pdf
- Shutesbury Elementary School Lighting Cut Sheets.pdf