West Tisbury Energy Committee List of Work

Our Goal is to provide as much resilience as possible to the increasing impacts of climate change and to mitigate our contribution to climate change. A Town Resolution passed at Town Meeting in October of 2021 set a goal of 100% electric from renewable sources by 2040.

The CLEAR report that was prepared for the Town in March 2021, outlines a resilience plan for each of our municipal buildings. It suggests that a goal of 14 days of resilience to address prolonged power failure as the current standard and recommends a diversified approach: using fossil-fuel powered generators, solar arrays and battery storage to meet this goal.

In order to transition our town buildings and use energy as efficiently as possible, the buildings need to be as well insulated and tight as possible. The attached plan that has been laid out by the Energy Committee provides a good outline but to give you more information--

1. **The School,** our biggest energy user, and largest building at 61,000 sf, had an in-depth energy analysis done this year. Built from 1973-1994, the School has little insulation in some areas and an older boiler system that is kept running effectively by a very competent facilities manager. Some of the mechanical equipment in the School is already past its useful life and the School currently only has cooling in a few areas.

The goal of the analysis was to determine what would be needed to reach our stated decarbonization goals and provide a more comfortable learning environment that we hope would serve our students for the next 50 years. A thorough improvement of the comfort, air quality and energy performance of the School with both heating and cooling provided, might **cost on the order of $30,000,000** (including the cost of temporary classrooms).

After the energy analysis was done, Principal Donna Lowell Bettencourt laid out a lengthy list of improvements she thought the School needed. **This would add considerably to the cost** of the School renovation but perhaps result in a School that is better prepared for the decades to come. At last week's UIRSC meeting, Donna said the following would be her desired changes to the School:

1. Have 3000-4000 sf addition to the School that is linked to the existing School
2. Expand the existing cafeteria length by 20 feet.
3. Enclose the refrigeration and pantry units that have been added outside the kitchen area
4. Add a 12-14,000 sf addition that is a new gym with bathrooms that can be accessed in off hours at an entrance separate from the rest of the school.

Russ Hartenstine, our Emergency Manager, contributed notes as to what would be needed to improve the School to prepare it to be our town's emergency shelter for 150-300 people.

- a good place to shower and clean a large amount of people.
- adequate protection from the elements: improve its glass and safety to guarantee shelter inhabitants safe harbor from the storm.
- A minimum of 48 sf of space for a cot and space for each shelter inhabitant

- adequate EMERGENCY power to supply the following: heat, A/C, power to the kitchen and refrigerators, light and charging stations
- The shelter needs SPACE: Can it operate in an area and still hold school?
- Storage area for supplies and needed materials for the shelter-including large cots for handicapped and self-care kits, etc.
- Space to house animals as pets by law. Separate from living spaces. This also requires cages and food, etc for animals.

A copy of the Energy Analysis report is available on the Town website, Energy Committee section. A copy of the Principal's original list of requests is also available.

In order to further work on the School, a feasibility/schematic design phase would need to be done. Mark Friedman, School Business Administrator, has said that if we wanted to be part of the MSBA process, we would need to submit an application to the MSBA and be accepted before proceeding and that that could take some time. (possibly a number of years and we may or may not be chosen. We are not an Environmental Justice community.)

One of the challenges is that it seems that prices are continuing to rise and waiting to do the work will cost the Town more money. In addition, doing the work in a piecemeal fashion would make it hard to right-size the mechanical equipment as once all the areas are well-insulated and tight, the energy demand will be lower and the size of the equipment needed to heat and cool smaller. In addition, replacing current boiler equipment with the same would be a step in the wrong direction and waste town money.

We also recognize that there are other school projects underway or just beginning: the renovation or replacement of the High School, the Chilmark School conversion to all-electric. Both of these will add to our taxpayers' burden.

How does the Select Board recommend approaching this school project?

2. **The Public Safety Building** has two parts. The Police Station is already 100% electric and is the newer of the two parts. The Fire Station was built in the late 1990s. Chief Pachico has expressed a need to have dormitory space for fire personnel in the building. Space above the meeting room might be a possible option.
The building currently has an oil boiler to heat the apparatus bays where the fire trucks and ambulance are. It has heat pumps and the boiler to heat the office spaces and meeting room. The two systems are not controlled properly: so as to ensure that the heat pumps provide heat prior to the boiler supplementing.
It has been said by more than one consultant that using heat pumps to heat the apparatus bays would not be sufficient: that when fire trucks come back on a cold winter day, the amount of heat to bring them and their equipment back up to temperature is considerable.
Replacement of the oil boiler and water heater with more efficient ones, once building envelope improvements have been made, will improve the energy performance of the building. (the Howes House has a fairly new propane boiler. If this is no longer needed after the

renovation, one consideration might be to see if that boiler would be a good match for the PSB.)

A feasibility study is needed to determine how best to improve the building envelope—insulation and airtightness—and add the desired dormitory space.
Cost of this might be $7500-10,000. It would be desirable to have this on the 2023 warrant as the PSB is key to our resilience in extreme weather events and prolonged power failures.

Once this work is done, the Public Safety Building will be ready for solar and battery storage which can work in tandem with the onsite generator to provide resilience in the face of prolonged power failure to support our emergency personnel.

3. **The Library** is also 100% electric. It is also our town's designated cooling shelter. It is thought that as climate change increases, cooling shelters are going to be in greater demand. The CLEAR report that was done in 2020-21, noted that the Library's critical loads panel (which determines what loads are powered by the generator) did not have a heat pump tied into it.

The Library critical loads panel needs to be re-wired, preferably before Summer 2023.
There are currently challenges with the Library's heat pumps as well.
Cost for this work could be determined by Jen Rand and be on the Spring TM warrant.

Once the Library has made the above improvements, it is ready for solar and battery storage so as to be as resilient as possible during prolonged power failures and offer shelter during heat waves.

4. **The Town Hall** has propane for heat and hot water. Its ventilation system is perhaps not as efficient as it could be. Transitioning this building to all electric will require an energy analysis similar to that of the School. It does not have a good roof for solar. It does have a generator that can provide back-up power for a time—particularly if the goal was to provide power to portions of the building, not all.

Options for additional resilience include: tying into the VTA battery that may be located onsite for inductive charging of the electric buses OR making an arrangement with the Preservation Trust to put solar on the south roof of the Grange to provide supplementary power the Town Hall during prolonged power failure OR establishing a back-up server so that critical town functions could be performed at the Library or Howes House if need be.

5. **Fire Station One** houses fire trucks, other fire safety apparatus. It has some communications equipment but Captain Gould at the Communications Center says they no longer use this. It perhaps is used by the Emergency Managers but this is not confirmed.
It is one of our oldest buildings and could use increased insulation and airtightness. Once this is done, and its roofs re-shingled, it could be heated and cooled with heat pumps and have a good solar array and battery storage.
When this work can be done should be determined by the CIC.

6. **The Howes House** is currently being studied and a feasibility study is just beginning. Our hope is that the building committee makes sure that the building is as well insulated and airtight as possible, has a proper and efficient ventilation system and is 100% electric. *Careful attention should be paid to HVAC strategies and the consultants used to design them as if not done properly, they will result in an inefficient building.*

The current Howes House has no generator nor a good opportunity for solar. Current ideas for resilience have included: creating a microgrid to join the Library and Howes House together, putting a solar canopy on the north side of the parking area (deemed most palatable when discussed with the Historic Commission), and having the two buildings work together in times of prolonged power failure. Whether this approach is the best one will be determined once the Howes House design is finalized.

7. **The Landfill solar array** offers an opportunity for power supply during prolonged power failures if battery storage is added there. Currently, when the electrical grid is down, the solar array does not function. Battery storage could provide power for emergency personnel as needed as well as possibly offering a way for the public to recharge cell phones, laptops etc.. if needed.
There has been talk of moving the Dumptique to improve traffic flow into the drop off area. If this were done, preparing for the above might serve the town well.

There are companies now that offer battery storage systems. They get the tax credits and the value of adding battery storage to decrease peak demand on the electrical grid. This could be researched further.

8. **EV chargers.** At a recent Select Board meeting, one of the members suggested that more chargers be installed and asked the Energy Committee to look into it. The suggestion was made for a fast charger perhaps at the Public Safety Building and for chargers at the School.
We are currently looking into the costs of these additions and **would want them to be on the Spring TM warrant** if possible.

9. **The Highway Dept building** was not part of the CLEAR report nor has it been reviewed by the Energy Committee or the Cape Light Compact's energy audit program.

The CLEAR report did suggest it might be tied into the PSB generator. Also tying in the EV chargers that are in the back by the building would be key to resilience and having power for electric personnel vehicles once those become available.

10. Finally, we had requested before that any equipment replacements in the Town be checked with the Energy Committee first so as to ensure that we are moving towards greater efficiency. The CLEAR report highlighted some issues with generators being over-sized and thus susceptible to burn-out when used during emergencies.

How can we best communicate this message?