

Colerain Township  
Community Strategic Energy Plan  
Steering Committee Meeting  
1/11/18 5:30 pm

**AGENDA**

1. Facility Audit Options

Rob McCracken gave an analysis of a facility retro-commissioning report on the three main structures on the government services campus: the Administration Building, Senior and Community Center, and Public Works Building. The two central issues in the report are equipment that is nearing the end of its life-cycle and a lack of, or obsolete HVAC control systems. The lack of control and automation cause the buildings to function less efficiently than they otherwise could. Most spaces are not used for significant times of the day or on weekends. Automating control of the HVAC to reflect these use patterns would result in energy and cost savings.

The central control system in the Administration Building is original to the building and obsolete. A significant update to the software is necessary to enable the system to function more efficiently. The Senior Center and Services buildings lack central control systems or programmable thermostats. The report estimates annual savings of \$54,000 from the updating of the control systems in all three buildings.

Also noted was the issue of systems in the Administration and Senior Center buildings reaching the end of their life cycle. In the case of the Administration building, which employs a large chiller system, a breakdown of the system would require the Township to rent a replacement system while arrangements for a permanent system are made – a considerable expense. It is also noted that the systems in both buildings use R-22 as the refrigerant. Servicing these systems are considerably more expensive than modern systems. Therefore, it's a good idea to plan to replace these systems proactively rather than wait for a failure to occur.

The lighting retrofit project changed out lighting in the Administration building for higher efficiency LED lighting. Not all lighting was changed, but rather focused on the lighting in the office spaces. Due to generous Duke rebates (that are no longer available), the return on investment of the project was exceedingly short – less than six months.

With both the lighting and HVAC systems previously studied for the government center campus, it would be best for the Township to focus the energy facility audit on the handful of older fire stations in the community.

There was a question if occupancy sensors save energy and money. Rob answered that occupancy sensors shouldn't be used everywhere, but can be helpful in specific situations, like in restrooms. In other locations, such as offices, they can cause problems.

There was a question if the Township proactively updates its HVAC systems, are there the possibility of a buyback for the old system help defray the cost. Rob responded that the old systems would not be worth anything since they use the old refrigerant and are near the end of their useful life. The cost of installation of a system makes the reuse of these systems a non-starter.

## 2. Residential Efficiency Survey

Rob McCracken first presented a map of Colerain Township highlighting the predominant age of structures in each area of the township. He then noted that housing development occurred in several phases in different parts of the Township, beginning in the 1950's and 1960's. To understand what types of improvements are generally applicable to housing of different ages, he presented examples of houses built during different decades and the priority of issues typically addressed in energy efficiency improvements.

Houses from the 1950's and 1960's, when built, have low levels of, or no insulation, aluminum single-pane windows, leaky ducts. The typical priority for interventions would be air sealing cracks and leaks, attic insulation and duct sealing, and insulating cantilevers and garage ceilings.

Houses from the 1990's do include insulation and typically double paned windows. These homes also tend to feature bedrooms or bonus rooms over the garage. The HVAC systems in these homes, if they haven't been replaced yet, are very much at the end of their life cycle and not on par with modern energy-efficient systems. Again, air sealing, improving upon the attic insulation, and insulating the garage ceiling are top of the priority list. Also, installing an energy-efficient HVAC system and sealing duct work are recommended.

Houses built after 2000 will feature adequate levels of insulation. These homes also typically have can lights in many of the living spaces, which are a common source of drafts. The priorities for this age of house is to air seal the can lights, insulate the garage ceiling, and seal ductwork. Occasionally, because these homes are sealed so tight, addressing proper ventilation can be an issue.

There are a handful of programs meant to support residents in addressing these energy efficiency upgrades. Duke Energy maintains a program called "Home Energy House Call", where they send an energy efficiency consultant to customers' homes to do a walkthrough inspection and suggest areas and improvements that can save homeowners money and improve the comfort of their homes. The other Duke Energy program is the Smart Saver rebate program. Most of the rebates, especially on the residential side, have been reduced or eliminated, but there are still rebates available for some energy efficient upgrades. There are available through the Ohio Development Services Agency, the Home Weatherization Assistance Program which makes some energy efficiency improvements to the homes of low-income residents; and the Home Energy Assistance Program which helps to reduce the cost of low-income residents' bills. It was noted that both programs extend to renters, as well as home owners. The Home Energy Assistance Program is not an efficiency program, but the Home Weatherization Assistance Program is – and is currently the only program to offer direct energy efficiency improvements to

renters—a group we have identified as particularly difficult to reach. The point of this analysis is to be able to identify needs within the community and match those to existing programs and incentives. With that, the Township could help connect residents and businesses to the programs that most benefit them through an awareness campaign.

### 3. Urban Heat Island Analysis

Andy Meyer introduced the Urban Heat Island (UHI) analysis for the Township. First, a background of how urban heat islands are formed and their impact on energy efficiency was presented. UHIs cause more strain on cooling equipment, which contributes to higher building energy use through the summer. Analysis of the OKI Region's UHI shows a strong correlation between average surface temperature, a strong indicator of the impacts of urban heat island's impacts, and tree cover. The more trees a community has, the lower impacts from UHI is found – trees keep the community cool in the summer and saves energy. This is on top of all the aesthetic, health, and stormwater benefits also associated with trees. Looking at the UHI map of Colerain Township, it is noted the yellow, orange and red areas along Colerain Avenue indicating higher temperatures. The contributors to these higher temperatures are the large expanses of parking lots and large roofs of the commercial buildings that line either side of the road. Andy Meyer stated that the two best things to reduce the UHI impact is to choose light colored materials for roofs and to locate shade trees in and surrounding parking lots, preventing these surfaces from absorbing solar energy and heating up. The particular requirements of the current Township zoning code was discussed and it was determined that while trees are required within parking lots, ornamental trees are typically used to meet the requirement, rather than shade trees. It was decided that a goal of this plan should be to revisit these requirements to promote increased shading of parking lots.

### 4. Survey Questions & Public Meeting

Andy Meyer presented a draft of survey questions targeting residents and business owners in the Township. The questions are designed to gauge familiarity with the most relevant energy efficiency programs and also the popularity of certain energy efficient improvements one might make to a home or business. The idea is to use this information, together with the residential building survey Mr. McCracken presented and the efficiency programs available, to potentially inform a public information effort to link residents to programs that can be most effective at addressing and encouraging energy efficiency needs. It was mentioned to add a question about where the survey respondent is located and if they own or rent.

Andy Meyer updated the group on arrangements for the public open house meeting. The Groesbeck Library is only available 2/19 or 2/20. It was determined that neither of these dates were preferable. It was suggested to look into holding the meeting at Northgate Mall. It was reported that Duke Energy had been contacted about providing giveaways but did not respond. Mr. Meyer stated that he looked further into the possibility of offering a raffle prize for those who participate in the survey, and it is something that should be allowable. Mr. Meyer tossed out the idea of a Home Depot or Lowes gift card as the prize, as that is somewhat aligned with

the idea of energy efficient improvements to the home. Rachel McKinney offered to put together a gift basket with energy efficient products since she enjoys doing such things.

5. Next Meeting

The next meeting of the steering committee will be held January 31.