

Simple Things Every Township Should do for Climate Action



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Haverford Township Environmental Advisory Committee

Haverford Township's Experience in Addressing Climate Change

- “Early adapter” - 2005 energy use & greenhouse gas emissions baseline and 2008 Climate Action plan (ICLEI, Local Governments for Sustainability)
- Commissioners **UNANIMOUSLY** approved the 2008 Plan with a goal to reduce emissions 30% by 2020 vs. 2005 measured by periodic inventory
- Effort fizzled with no formal measurement of progress 2008 to 2016
- EAC did public outreach, made some recommendations
- Township Mgmt. and Board carried the torch and made modest progress
 - LEED Bronze Environmental/Recreation Center with Geothermal Heating
 - LEED Gold Township/Police Bldg just completed
 - LED lighting conversion underway

2017 Wake Up Call



- Backward Federal Government movement on law, goals, incentives
- Sideways or backward State movement on goals and incentives
- Clear manifestations of Climate Change
- Renewed public interest in Haverford - like in many communities

Haverford EAC faced with a choice:

- More delay to convince Township to hire a consultant (not budgeted, not likely to be budgeted in the following year)
- Do it ourselves with the help of a volunteer with an energy efficiency background

EAC Limitations



- Haverford EAC mission is to advise the Board of Commissioners and conduct outreach to the public.
- Not an “advocacy group” but can marshal in-house expertise and encourage board action by informing them of the issues and solutions.
- Advocacy groups with similar goals may be more effective in influencing public officials the public and getting them to act.
- Haverford and other “small government” operations do not spend much on consultants - so simple measures and county/regional plans that can be joined will increase participation.

Haverford EAC created a Climate Sub-committee to bootstrap developing recommendations, resolutions, recommendations and our own updated goals and Climate Action Plan Addendum

2017 Actions

- Township Board agreed to have EAC update Inventory and **UNANIMOUSLY** approved Resolution 2063-2017 in July 2017 .

Calling on President Donald J. Trump, United States Congress, Governor Tom Wolf and the General Assembly to Address Climate Change.

WHEREAS, the climate crisis is real;

WHEREAS, people caused it.

Now, therefore, be it here resolved, that the Board of Commissioners of Haverford Township calls on the United States Congress to take action now.

Resolved this 10th day of July, 2017.

- Oct 2017 and Feb. 2018: EAC Progress Report presented to Board of Commissioners using 2016-7 data and projected measures.

2017 EAC “Bootstrapped” Inventory

I. Municipal Government operations Trends

Streetlights, Transportation, Top 5 2005 Facilities (Skatium, Library, Police Station, Township Bldg, Public Works)

II. School District Trends

Transportation, Facilities

III. Township-Wide Trends (TOTAL Public and Private Users)

Energy Usage – ONLY Regional Power and Natural Gas Data, Transportation Not Available and Township level breakdown not available thru DVRPC

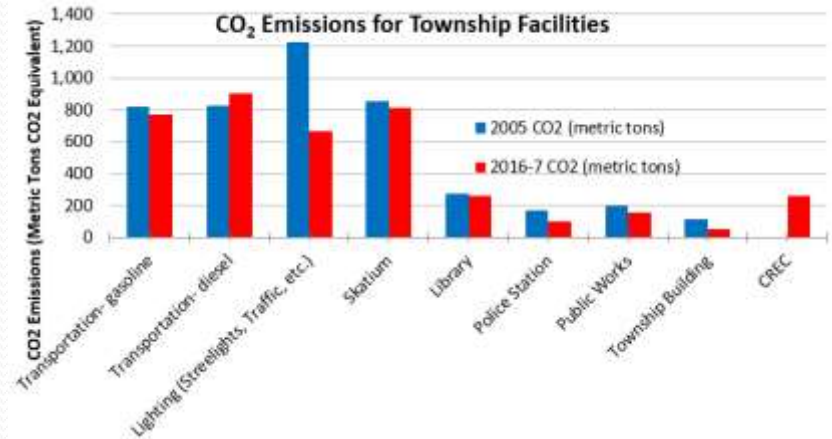
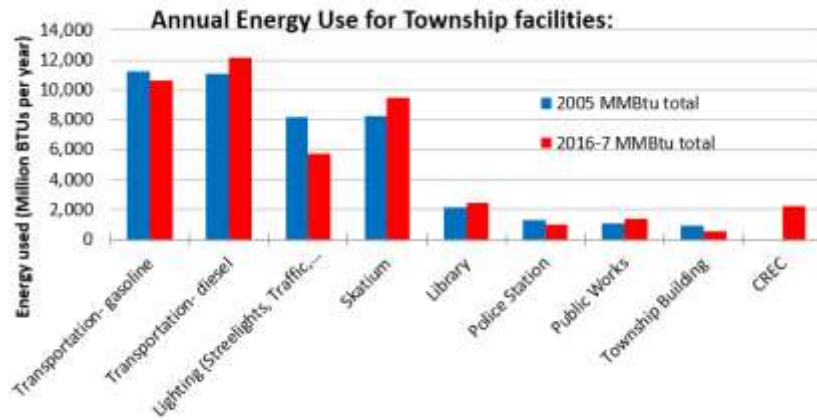
**Overall energy consumption in Haverford actually rose 2005 to 2017
Biggest effect on CO₂ Emissions/GHG – natural gas supplanting coal**

IV. Recommended Next Steps

Township Operations Trends

Nov 2017 Progress Update – “BEFORE”

Transport – No Change, Streetlights ↓ Skatium/Library ↑ New Env/Rec Center –higher than expected



CO₂ decrease is driven by cleaner electricity from the grid (natural gas & renewables replacing coal,)

	2005	2016-17 Avg	% Change
Total Energy (MMBTU)	44,321	45,167	2%
CO2 (Metric tons)	4,490	3,948	-12%

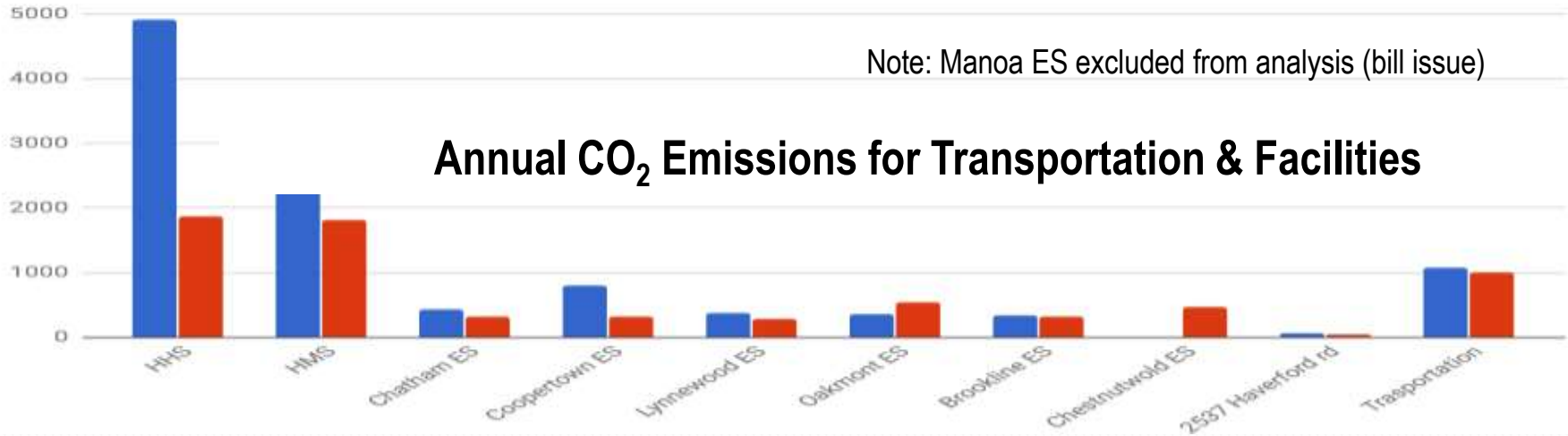
School District Emission Trends

Metric tons CO₂

■ 2005 CO₂ (metric tons) ■ 2016-7 CO₂ (metric tons)

Note: Manoa ES excluded from analysis (bill issue)

Annual CO₂ Emissions for Transportation & Facilities



Total Energy and CO₂

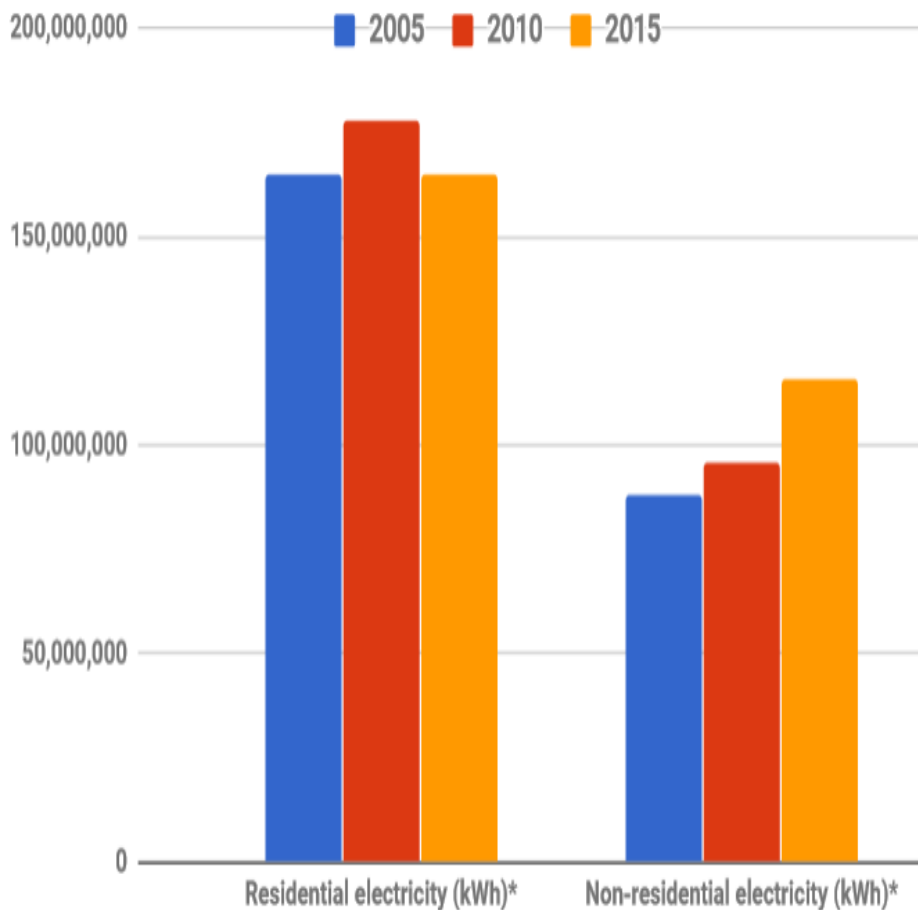
	2005	2016-2017 Avg	% Change
Total Energy (MMBTU)	85,555	81,284	-5%
CO₂ (Metric tons)	10,862	6,969	-36%

School District Not Advised by EAC but has Independently Made Minor Progress

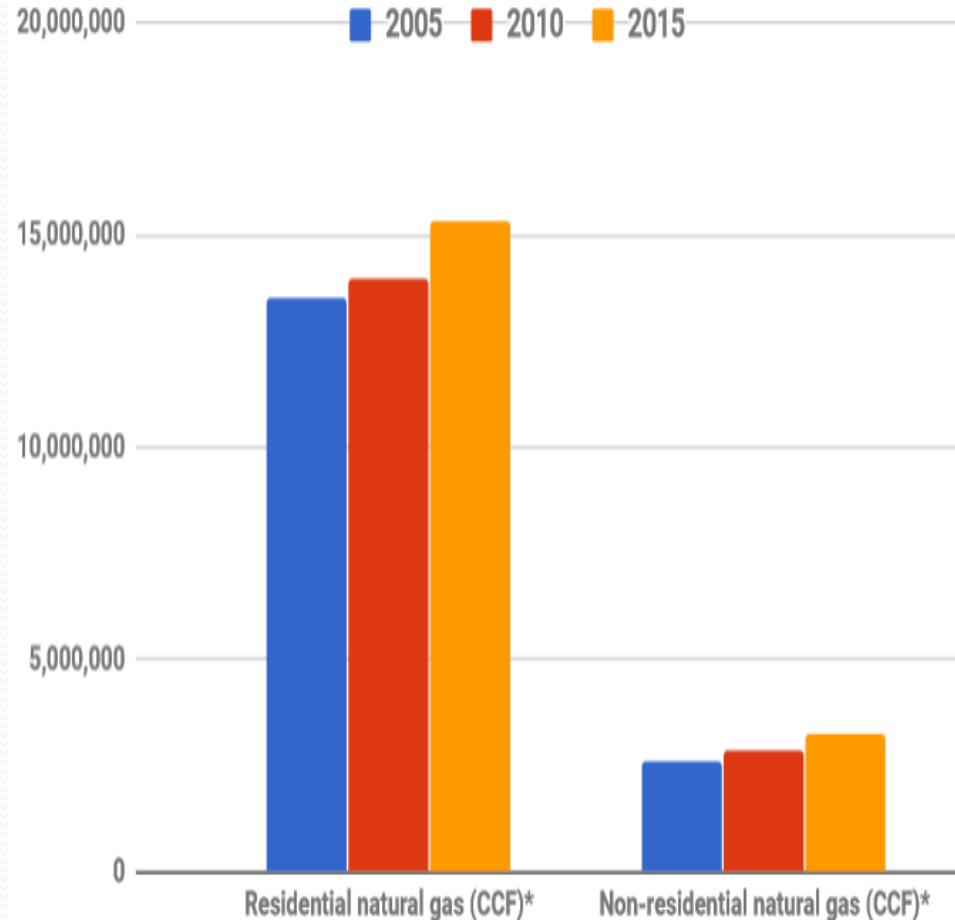
- High and Middle Schools renovated, 2 new replacement schools
 - Considered solar/geothermal, not implemented
 - Opted for improved energy efficiency and replaced fuel oil with gas
- Transportation evaluated alternative fuels / hybrids and have begun procuring and running Propane fueled buses
 - ~15% reduction in GHG for Propane vs. Diesel
 - Shorter payback in fuel use and maintenance than other options
- Small energy use reduction, -30% GHG due to CO₂/kWh Grid Mix
- Moderate future improvements by continuing Propane bus purchases

Total Public/Private Trends – Power and Natural Gas (DVRPC)

Electricity



Natural Gas



Total Public/Private Trends – Power and Natural Gas (DVRPC)

Big Surprise - 2005-2015 Energy Use UP

But CO₂ per kWh average on the Grid ↓ by 27%

Electricity generation fuel mix on the grid 2015 vs. 2005 is “cleaner”:

Cheap Natural Gas supplanting Coal

PA mandated Renewable Goals

Consumer Demand for Renewable Power

	2005	2010	2015	% Change
Natural gas & electricity energy (MMBTU)	2,501,912	2,644,720	2,848,527	13.9%
GHG Emissions (MTCO ₂ e)	229,134	225,319	215,081	-6.1%

Lower CO₂ per kWh from grid is offsetting higher overall electricity and natural gas use, trend continued in 2016, BUT regulatory driver ENDING

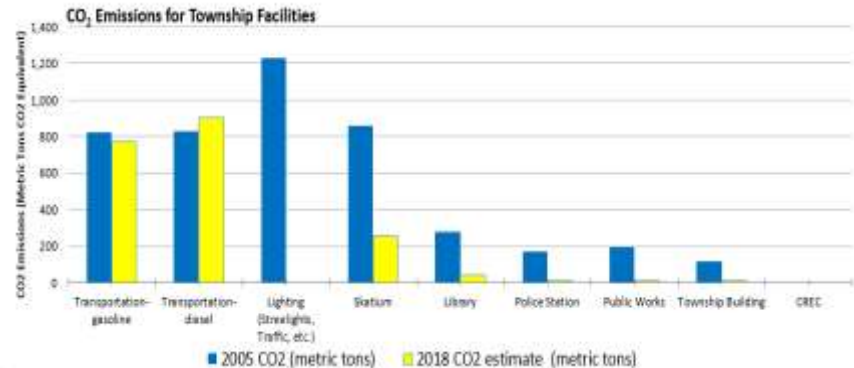
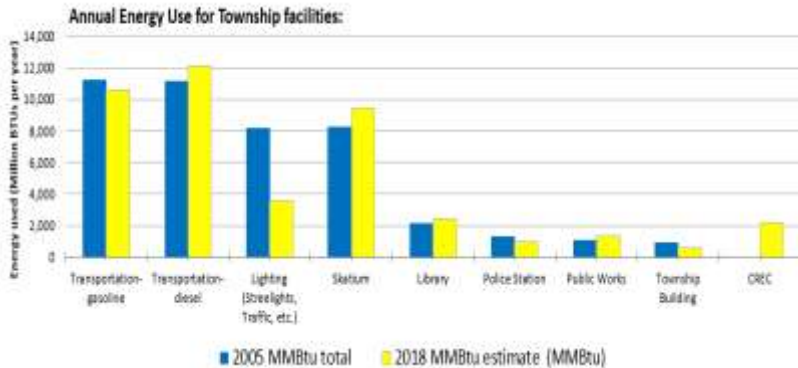
Transportation – No good data source to estimate before/after

2018 - Staff, Board and EAC Fully Engaged

- 1 Resolution seeking State/Federal action, 1 committing to:
 - 100% Electricity by 2035
 - 100% everything by 2050 (Ready for 100)
- Locked into power contract until 2021, but supplier offered 100% nuclear at no \$ change, staff accepted
 - 1 simple change has a dramatic effect on GHG emissions!
 - In 2021, will procure a renewable contract
- EAC identified unexpected high energy use at new Township Building and Env/Rec Center and old Skatium (a known opportunity)
- Staff and Board moved to accelerate LED streetlight conversion
- 2 Propane fueled light trucks in 2018, 1st EV in 2019

March 2018 Progress Update – “AFTER”

- 100% nuclear Electricity CO₂ reduction = 1,937 Metric Tons/y at ZERO COST
- LED streetlights accelerated - EST. SAVINGS = 634,267 kWh/y, \$53,150



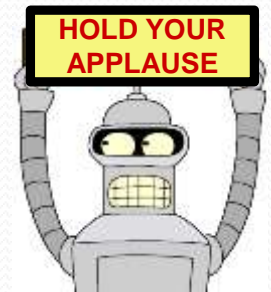
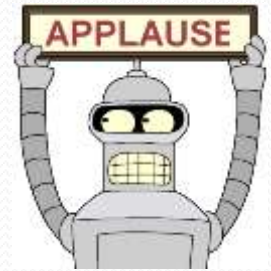
- Add'l 43 % CO₂ decrease driven by electricity contract amendment.
- Easy to replicate results by buying 100% Renewable Energy

	2005	2016-7	2016-7 change	2018 (estimated)	2018 estimated change
total energy (MMBTU)	44,321	45,167	2%	43,361	-2%
CO ₂ (Metric tons)	4,490	3,976	-11%	2,011	-55%

▪ Township operations – 2020 goal met and exceeded!

Conclusions on 2018 Progress

- School District CO₂ emission decreased by 35% from 2005 levels and Municipal projected decrease of 55%
 - Driven by converting oil to natural gas heating, HVAC and lighting upgrades and cleaner electricity
 - 30% reduction by 2020 goal has been met by gov't. operations!
- However...Township-wide energy use is up and GHG emissions are only down by 6% (based on region)
 - Private Sector emissions are ~100 x Township operations
 - Energy consumption rose significantly
 - Only lower CO₂/kWh Grid Mix has resulted in any reduction
- Much remains to be done even to meet our 30% reduction goal and grid-wide changes are having greater effect than local actions.



How Do We Get it Done?

- Requesting more action and more visible leading by example by the Township and School District
- Supporting Township/School District by identifying grants, actions, efficiencies
- Redoubling our efforts at outreach via workshops and use more effective social media and cable mechanisms
- Teaming with other EACs, County and Regional partnerships



Recent Progress

- Sustainable PA GOLD Certification (PA League of Municipalities)
- SolSmart application submitted, expect bronze until online permit system is in place
- EAC drafted Climate Action Plan Addendum reflecting new goals and short term actions.
- Installed 2 public / in-house EV charging stations at Twp Bldg/Skatium complex
- Purchased first EV – used Leaf for traffic enforcement

Recent Progress

- EAC worked with Ready for 100 (Sierra Club initiative) to launch Solarize SE PA
 - Prescreen home/business for adequate sun,
 - Qualified contractors,
 - Discount pricing,
 - Further discount “dividend” for volume targets.
- Co-Sponsored Climate Expo at Haverford College - redoubling our efforts at outreach via workshops and use more effective social media and cable mechanisms
- Teaming with other EACs, County and Regional partnerships





Climate Action Plan

Workshop Series



Wednesday, November 1st, 6:30 pm - 8:30 pm

BUYING CHEAP RENEWABLE POWER

Haverford Township Library, Community Room

Learn the easy way to reduce CO2 emissions while immediately saving money on your utility bill!



Saturday, October 14th, 9:00 am - 10:00 am

CONQUERING YOUR EV FEARS

CREC Conference Room & Parking Lot

Want to make the EV switch? Learn from your neighbors about Electric Vehicle ownership.



Monday, October 23rd, 6:30 pm - 8:30 pm

GOING SOLAR EXPERIENCE

Haverford Township Library, Community Room

Learn what you should expect when "Going Solar" as our guests take you through the Customer Journey.

Dates Shown are prior events, already completed

Universal Takeaways

- Government operations are an “easier lift” to get to 30% and beyond.
 - Lighting and energy efficiency *all have significant return on investment*
 - Buying Renewable Power can be *competitive*, even better with group purchasing!
- 100% is a heavy lift for Government because of Transportation and Heating
 - Even hybrid Refuse Trucks and Police Cars have made little inroads to date
 - Heating requires a basic technology shift
- With regional data only, unsure if outreach is moving the bar with the public - Only lower CO₂/kWh Grid Mix appears to have resulted in any GHG reduction
 - Haverford EAC booths at 3 events each year, EAC run Earth Day
 - Climate Workshop series– Science, EVs, Power Switch, Solar Home Conversion
- Federal and State regulations and economic drivers are having the most effect on emissions for our communities at large

State/Federal Action Can Help Most

- Renewable Power Gen laws and Natural Gas economic drivers have had the greatest effect on private/commercial emission progress
- Leading from the top will be more effective in driving progress.
 - Updating grid-wide renewable goals
 - Updating fuel efficiency standards and driving them into larger vehicles fleet-wide
 - Carbon tax creating a market driver for change, either:
 - CCL “Tax and Dividend” to overcome reluctance (56 + bipartisan Congress members currently supporting CCL proposal), OR
 - Just a tax or “User Fee”, in fairness, to pay for disaster relief/recovery and infrastructure hardening due to the effects of carbon emissions
- ***BUT, this problem is too big*** and the cost in life, disruption and \$ will be too high to wait if action remains stalled on the state and federal levels
- ***Lead from the bottom - and the middle - and anywhere we can***

EAC Outreach and Getting Started

- ***Solicit community volunteers who may have expertise*** (e.g., to help with baseline inventory, Sustainable PA and SolSmart certification, grant applications, etc.)
- Get Board support for and draft ***resolutions based on available*** model for Board approval
- Complete ***Baseline GHG Inventory***
- Complete ***Climate Action Plan***
- Implement, implement, implement



Or, Just Do It, You Really Know What to Do!
Everything has return on investment, no excuses!

Just Doing It – Short Term Wins

- Implement the no-brainer, the *high payback items* for Township and School District operations, such as:
 - Procure *renewable, zero GHG power* – easy, biggest reduction for level of effort, cost-competitive to a smart buyer.
 - *LED streetlight* and *building lighting conversion* (DVRPC program – ecompitello@dvrpc.org).
 - Proper *building management* – PECO energy traces, benchmark, correct programming problems .
 - *Energy audits*, assessments, *efficiency retrofits*.
 - Go big for *new construction – geothermal, solar, net-zero* .
 - *PHEV or EV* for all new vehicle purchases, where available for the need.

Power – Path Forward

- Possibly nuclear under current contract if PECO or subsidiaries
- Plan for future contract – renewable, zero carbon (possible multi-town)
- Join a regional solar Power Purchasing Agreement (PPA):
 - DVRPC planning (Liz Compitello), looking for funding for consultant
 - May include options:
 - “Virtual PPA” (similar to recent Philly 50 MW located in York County)
 - “Physical PPA” (to be built on gov’t owned structures).
- Or just build solar on government structures:
 - Tax law disadvantages government - no tax credit or depreciation
 - Longer payback – so what? We are not a business, we are stable, financially secure, have access to low cost borrowing, are not “selling” or going anywhere for centuries

Transportation – Path Forward

- All Electric – e.g., Used Nissan Leaf for ~\$12K for staff functions
- Propane powered trash, recycling and streets trucks - transitional:
 - Approximately 15% or greater GHG reduction
 - e.g., Ford 250 and 350 - OEM / aftermarket either dual fuel or propane only:
 - Watch out for aftermarket kits that have a bad history of reliability/support
 - Propane only vehicles are simpler, more reliable
 - Resources: DEP Grants, DEP “Drive Electric” initiative, EP-ACT
- Hybrid heavy truck start/stop systems – greater efficiency:
 - Pneumatic or Super-Capacitor or battery
 - Brief heyday in mid-2000s, stopped by cheaper fuel costs
 - New, still “startup”, trials underway in NYC and other locales
- All Electric – FUTURE: heavy trucks when available.

Transportation – Path Forward

- Zero Electric Police Motorcycle – available several years, lower up front and operating cost vs. Harley <https://www.zeromotorcycles.com/fleet/police/>
- Ford Police Responder Hybrid Sedan - Fusion base, Police Certified <https://www.ford.com/fordpoliceresponder/>
- 2020 Ford Police Responder AWD Utility – Explorer, Police Certified <https://www.ford.com/police-vehicles/police-interceptor/hybrid-utility/>
- “NEV” utilities, 25 mph top end, available/cheap, but 25 mph streets or require PennDOT permit for up to 35 mph state roads.
- Electric Utility and Pickups - Tesla, Workhorse, others “planning” to come to market <https://workhorse.com/pickup/>





Community – The Heavy Lift

- ***Be an example***, brag about it, table at community events
- Public education ***workshops*** – EAC led,
- ***Communicate*** – Township newsletters/Commissioner Emailers/ Social Media / Library/Continuing Education publicized events
- ***Team*** with civic associations/colleges/non-profits with the same goals
- ***Ask for volunteers***
- ***Help build the EV network*** – identify high travel corridor / commercial benefit locations (mall, highway exit) and sell owner on benefits
- ***Solarize*** – promote it, workshops
<https://solarizesoutheastpa.wordpress.com/>
- ***Moving the community requires MORE***

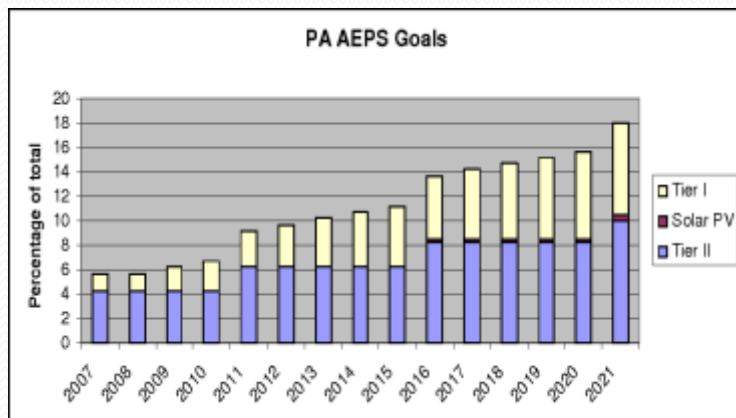


Our Regional/State Wish List

- Regional municipal renewable power purchasing or solar PPA
- State-wide “spec” and group purchase for PHEV and EV Police Responder and Pursuit (including SUV size vehicles) and Hydraulic and Electric Hybrid Refuse Trucks
- County or multi-municipal Energy Manager to improve building mgmt. system operation, conduct routine audits and identify efficiencies
- PA legislation:
 - Update/Increase renewable power targets
 - Legalize Community Choice and Community Solar
 - Ready for 100 goals for 2035/2050 and initiate planning
- Federal legislation:
 - Endless list, but start with leveling the field for government operations – provide the same incentives for Solar and Electric Vehicles (equivalent grant vs. tax credit)



Regional/State/Federal Wish List



Energy Innovation AND Carbon Dividend Act

THE BIPARTISAN CLIMATE SOLUTION

H.R. 763

This bill will drive down America's carbon pollution and bring climate change under control. It is:

EFFECTIVE	GOOD FOR PEOPLE	GOOD FOR THE ECONOMY	REVENUE NEUTRAL

AEPS expires in 2021, update tiny solar carve out

Lets Go! Ready to Partner

- Multi-municipal or county working groups
- Happy to share our workshops with your town or regionally
- Video for cable for Townships equipped to do so
- Your ideas!

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