

**2018 Update to Arlington’s Community Energy Plan
Comments and Staff Replies**

Commenter	Goal Area	Comment	Staff Response
General Public	Overarching / Potpourri	<p>With a more responsive Virginia State Legislature a number of new initiatives for financing for solar arrays, passively efficient homes, etc., stricter standards for Dominion Energy to phase out coal-fired energy plants, capture and recycle of heat released in power generation, etc. should be coordinated with the Arlington legislative delegation. In particular, a new requirement might be created that all street lights owned by Dominion be converted to LED systems and equipped with computer controls to cycle through evening and night time programs to save energy.</p>	<p>The CEP Implementation Framework notes the importance of identifying regulatory and/or legislative changes needed from the State to increase energy efficiency and reduce energy waste in Arlington. We will continue those efforts.</p>
Energy Committee	Overarching / Potpourri	<p>Deciding what aspects of the CEP need to be updated and how they should be updated is a recurring and cross-cutting issue. The EC found it helpful to consider several questions in providing its recommendations: -What revisions are needed due to changes in energy-related science, technology, economics and policy? Where significant changes have occurred, changes to the corresponding elements of the CEP are likely to be necessary. A related consideration is what energy modeling specific to Arlington suggests about what is feasible under different scenarios. This Energy Committee review is being conducted in advance of results of Arlington’s energy modeling work. -What can Arlington learn from similar jurisdictions? The EC has made efforts to learn from recently adopted plans of similar jurisdictions and from the Metropolitan Washington Council of Governments (MWCOC). -What changes will help advance Arlington County’s reputation as an energy leader? Arlington has spent years building a reputation as an energy leader that benefits the County in many ways. The CEP review is an opportunity to extend the County’s reputation and ensure that the CEP is held in high regard within the energy policy community.</p>	<p>We agree that these are important factors to consider in the CEP update.</p> <p>County staff are working with consultants to address these and other considerations for the update. Several steps are being taken to ensure the updated version of the Community Energy Plan is the best path forward possible: -The Community Energy Plan modelling effort to re-estimate the steps needed to achieve the 2050 CEP goal, broken down by sector -Working with consultants to ensure the CEP factors in technology improvements, lessons learned from peers, and energy sector changes -Working interdepartmentally and with elected officials and other stakeholders to highlight successes to date and maintain momentum towards the 2050 goal -Incorporating implementation lessons AIRE and other county staff have learned in five years of implementation to-date</p>
Energy Committee	Overarching / Potpourri	<p>2. Whether to revise the overall 2050 CEP target for greenhouse gas reduction: The existing 2050 greenhouse gas reduction target was developed in 2011 and adopted along with the rest of the CEP by the County Board in 2013. Whether to leave this target in place for another 5 years is one of the most important questions involved in the CEP review. A strengthened target would require the CEP to achieve greater greenhouse gas emission reductions over time, thereby requiring upward revision of many of the milestones within the plan. The EC recommends that the overall target should be reconsidered and raised to a level that is ambitious and achievable based on the criteria described in Section 1 above, including GHG inventory and modeling data not yet available to the EC. EC comments based on those criteria include the following: What can Arlington learn from similar jurisdictions? Energy plans adopted or updated by local jurisdictions in recent years uniformly adopt GHG emission goals that are significantly higher than Arlington’s goal of 3 metric tons of CO₂e per capita. At a minimum, local and state authorities have shifted to goals that are at least equivalent to an 80% absolute reduction in GHG emissions by 2050, based on a 2005 baseline, consistent with the U.S. commitment under the Paris Agreement. Arlington’s current goal is equivalent to a reduction of approximately 65% on an absolute basis, based on a higher 2007 baseline. While per capita goals are unusual, many jurisdictions, including the state of Virginia, have adopted a goal of 2 metric tons per capita as part of the Under2 Coalition, which considers that goal to be compatible with the Paris Agreement. For Arlington County, an 80</p>	<p>Staff are working with consultants to ensure the GHG emissions reductions target is in step with what the community expects with CEP implementation. We look forward to community feedback on the draft updated CEP, including GHG emissions targets, as part of the public review process.</p>

	<p>percent absolute reduction would be equivalent to approximately 1.72 metric tons per capita, assuming 50 percent population growth.</p> <p>A sample of locally relevant targets includes: Virginia (statewide): 80-95% below 1990 levels, or 2 metric tons per capita MWCOG: 80% below 2005 levels by 2050 region-wide Alexandria: 80% below 2005 levels by 2050 Falls Church: 80% below 2005 levels by 2050 Montgomery County: 100% reduction by 2035 Washington, DC: Carbon neutral by 2050 Arlington: 3 MT per capita, equivalent to 65% below 2007 levels by 2050</p>	
<p>Energy Committee</p> <p>Overarching / Potpourri</p>	<p>What revisions are needed due to changes in energy science, technology, economics and policy? Potentially relevant examples of new information in this category include:</p> <ul style="list-style-type: none"> • Advances in the scientific understanding of the scope and speed of change needed to avoid triggering catastrophic climate change, in particular the International Panel on Climate Change (IPCC) Fifth Assessment Report (2014). • The Paris Agreement. • The Arlington County Board’s commitment to “advance action in accordance with the goals outlined in the Paris Agreement.” (Climate Action Resolution, June 20, 2017) • The emergence of renewable electricity as the lowest-cost source of new electricity in Virginia, and the expectation of continued declines in the cost of renewable energy, storage and electric vehicles. • Extensive research showing that the natural gas supply chain is responsible for at least 60% more greenhouse gas emissions than the estimates currently used by EPA and most energy modeling protocols. <p>What changes will help advance Arlington County’s reputation as an energy leader? Strengthening the target probably would advance Arlington’s reputation as an energy leader. Retaining the current target through 2023 may cause Arlington’s plan to appear outdated.</p> <p>What revisions are needed due to changes in energy science, technology, economics and policy? Potentially relevant examples of new information in this category include:</p> <ul style="list-style-type: none"> • Advances in the scientific understanding of the scope and speed of change needed to avoid triggering catastrophic climate change, in particular the International Panel on Climate Change (IPCC) Fifth Assessment Report (2014). • The Paris Agreement. • The Arlington County Board’s commitment to “advance action in accordance with the goals outlined in the Paris Agreement.” (Climate Action Resolution, June 20, 2017) • The emergence of renewable electricity as the lowest-cost source of new electricity in Virginia, and the expectation of continued declines in the cost of renewable energy, storage and electric vehicles. • Extensive research showing that the natural gas supply chain is responsible for at least 60% more greenhouse gas emissions than the estimates currently used by EPA and most energy modeling protocols. <p>What changes will help advance Arlington County’s reputation as an energy leader? Strengthening the target probably would advance Arlington’s reputation as an energy leader. Retaining the current target through 2023 may cause Arlington’s plan to appear outdated.</p>	<p>As noted in a previous comment, County staff are working with consultants to address these and other considerations for the update.</p>

Energy Committee	Overarching / Potpourri	<p>The EC requests public disclosure of assumptions and methods used in modeling future energy use in Arlington, with special attention to challenging issues caused by, for example, gaps in data or high levels of uncertainty regarding some assumptions. The EC believes that openness will lead to greater understanding of the strengths and limitations of the modeling and greater credibility for the CEP as a whole.</p> <p>The EC found it limiting to provide these comments prior to learning the results of the greenhouse gas inventory or modeling work. In the future, it would be ideal if more time could be provided between the production of data that will inform the review and the actual in-house drafting of the CEP review, to allow for more informed community input prior to drafting.</p> <p>The EC understands the desirability of completing this review during calendar year 2018. However, the EC supports allowing more time in order to conduct a broader review than originally planned.</p>	<p>Agreed that an open process is a better process. Staff will share results of the CEP modeling effort and other consultant work, public comments and our responses, and drafts of the updated CEP when they are available. We will allow a reasonable amount of time to review these materials.</p>
Energy Committee	Overarching / Potpourri	<p>The EC notes that some peer jurisdictions, and MWCOG, include significant discussion and goals in their energy and sustainability plans addressing environmental justice considerations in energy planning and the needs of vulnerable and underserved populations. The EC recommends that the CEP should devote greater attention to these issues, including consideration of developing a new goal area to address them.</p>	<p>The CEP update process will provide an opportunity for the community to offer feedback on how energy equity could be woven into the long-term community energy plan. We recognize and agree with the goal of ensuring all community members experience the benefits of CEP implementation.</p>
Energy Committee	Overarching / Potpourri	<p>The phrase “climate change” is not used in the section devoted to the environmental benefits of the CEP. The EC understands the reasons for the reluctance to use the phrase, but recommends that it be used freely in a document such as this.</p>	<p>We will include in the update information on how the discussion about climate change has changed during the past five years. We will also note that Arlington's continued environmental commitment is a way our community strives to address the challenges posed by climate change.</p>
Energy Committee	Overarching / Potpourri	<p>The text should be updated to reflect current knowledge regarding the lifecycle greenhouse gas emissions and other environmental and health harms of natural gas production, distribution and use.</p>	<p>The CEP update will take into account the latest peer-reviewed information related to lifecycle greenhouse gas emissions and environmental and health effects related to different energy supplies.</p>
Energy Committee	Overarching / Potpourri	<p>A large part of a community’s carbon footprint is attributable to the imbedded carbon cost of the goods and services purchased and the investments made. The EC recommends expansion of the CEP to address Scope 3 in a future update. Until then, it may be helpful as a matter of public education to explain the importance of Scope 3 and the desirability of including it in a future update.</p>	<p>We will review the greenhouse gas emissions report and energy modeling efforts to determine to what extent the CEP could include this level of detail.</p>
General Public	Buildings	<p>There might be more incentives given in site plan zoning approvals for more “smart building” technology to switch off lights with card systems in hotels, with motion sensors in buildings, and escalators with start/stop user switches, and dozens of other similar technologies.</p>	<p>The County currently encourages energy savings through the Green Building Bonus Density Program. Developers receive bonus density for implementing energy-savings measures like these.</p>
General Public	Buildings	<p>The commercial PACE financing plan for energy efficiency upgrades might be accelerated and a PACE program for citizens might be also considered for earlier introduction as soon as 2019.</p>	<p>Arlington's commercial PACE (C-PACE) program has been launched.</p> <p>A residential PACE program would be welcome, but Virginia does not currently offer a path to implement one.</p>
Energy Committee	Buildings	<p>The CEP and associated forecasting should include County projections for economic development, building code revisions, and other relevant forecasts that the government already uses, or could use, in managing and forecasting government operations.</p>	<p>Agreed.</p>
Energy Committee	Buildings	<p>When updating GHG emissions projections, the County should require that modeling assumptions are more transparent than the initial modeling. A summary of modeling principles should be included in the analysis that, at a minimum, includes a summary of which variables have the largest and smallest impact on the forecasted</p>	<p>The results of the energy modeling effort, including key assumptions, will be made public and transparent.</p>

		<p>values. This will allow the County to strategically focus resources on the areas that have the largest impact.</p> <p>The GHG emissions modeling should occur the year prior to the CEP review and update. This will allow the CEP review process to use performance data to make recommendations.</p>	<p>Agreed on the timing of conducting a GHG inventory and CEP updates.</p>
Energy Committee	Buildings	<p>A majority of Arlington’s solar and renewable potential is on buildings. There was debate in the group about whether renewable energy should be integrated into the Buildings section, but we felt that it made sense to keep as a separate section due to its unique nature and ability to power transportation.</p>	<p>Agreed.</p>
Energy Committee	Buildings	<p>The E2 committee felt that the wording and intent of policy #3 should be clarified for the following reasons:</p> <ul style="list-style-type: none"> • It’s not clear how to quantify progress. • The energy reduction component of this goal is redundant with Building policies 1 and 2 • The carbon reduction is somewhat redundant to the DE in Goal 2 and solar in Goal 3. • This goal explicitly supports natural gas heating systems over electric heat. Other Climate Action Plans, including New York City, call for the electrification of some heating systems because that is required to achieve their carbon reduction goal because renewables can produce electricity. <p>Below are a few options to re-phrase or re-contextualize the policy, but they need additional refinement because they should have some type of quantitative measurement, otherwise it’s impossible to achieve them:</p> <ol style="list-style-type: none"> 1. Include an additional word: “Reduce the amount of carbon produced from energy use from buildings, using source energy carbon production as the standard. 2. Refine the statement: Decarbonize energy production by XX%, as measured by source energy use. 3. This policy is inherently cross cutting because it affects all forms of energy use, including transportation. It should be addressed in the introductory section of the CEP as an important aspect of how the CEP measures energy use. <p>There are some elements of this policy area that are easy to track, such as the carbon intensity of the grid fuel mix. There are other areas (e.g. solar hot water heat; electric or fuel oil to gas conversions) that are difficult to track but are specifically called out in the policy.</p> <p>The irony of this policy is that the area that is the easiest to track and (probably?) has the largest impact is the one that the County has the least influence over—the grid’s fuel mix. And the other areas affected by this policy the County could influence, though maybe not control, the County has no way of tracking performance. Thus, it’s not clear what this policy in its current state is accomplishing.</p>	<p>This policy was initially intended to encourage switching to lower-carbon fuel options at the building level (like natural gas), rather than at grid-scale where the county has little influence.</p> <p>Agreed that it should be revisited given the current movement towards electrification.</p> <p>We’re leaning towards eliminating the policy, but recognizing the value of considering carbon impact of building-level decisions (like heating source).</p>
Energy Committee	Buildings	<p>The County should be thoughtful about mentioning specific technologies. The CEP should be performance based and technology agnostic, and while anecdotes can be helpful to the reader, the County risks inadvertently making recommendations that are not economical for residents or businesses, or ones that do not further CEP goals as much as other technologies.</p>	<p>Agreed.</p>
Energy Committee	Buildings	<p>There is a delicate balance between being technology agnostic and setting attainable GHG reduction goals and establishing appropriate policies. Short term goals cannot be prudently set (and accomplished!) without modeling the economics and technical feasibility of off-the-shelf technologies. This is particularly relevant for County policies inside of the implementation framework.</p>	<p>Agreed.</p>

Energy Committee	District Energy	Could the CEP Update show two energy model scenarios - one with District Energy and one without?	Arlington is not moving forward with district energy implementation in the foreseeable future due to the results of the feasibility studies in Crystal City/Pentagon City and Courthouse neighborhoods. Therefore, the CEP modeling effort won't show greenhouse gas savings as a result of district energy, though It will look at combined heat and power's possible contributions.
General Public	District Energy	The currently proposed implementation of new District Energy Systems in the CEP has not yet worked out for Crystal City/Pentagon City or at any other location in the County. The economics associated with such systems do not seem sufficient for the retrofit of established commercial areas, but perhaps if urged for any significant new commercial development in the County at the outset this might still be possible for future projects.	<ul style="list-style-type: none"> • The County's Crystal City/Pentagon City and Courthouse Integrated Energy Master Plans' results did not point to path forward for district energy in the near-term • The Crystal City/Pentagon City and the Courthouse Square Integrated Energy Master Plans (IEMPs) have been completed. Based on the results from these in-depth feasibility studies, staff did not recommend moving forward with district energy implementation in either study area at that time. This recommendation reflects the modest economic savings offered by a district energy system in either study area compared to business-as-usual. However, staff did recommend that a district energy system should be re-evaluated when the County redevelops Court Square West, due to the rapid and ongoing changes that are occurring in the utility industry.
Energy Committee	District Energy	<p>Comments:</p> <ul style="list-style-type: none"> o Based on findings from the Courthouse and Crystal City Integrated Energy Master Plans, the County opted not to pursue district energy in those areas, calling into question the County's ability to meet the original District Energy goals. o Technology advances have led to prevalence and cost-competitiveness of other community-level solutions, including microgrids, energy storage, and on-site generation. Possibility to expand the scope of this goal to incorporate such technologies. <p>Recommendations:</p> <ul style="list-style-type: none"> o Rename goal area title from "District Energy" to "Regional Energy" o Revise goal description to "Increase local energy supply and distribution efficiency in Arlington using regional energy solutions including microgrids, energy storage, community renewable energy, and district heating." 	<p>Based on Integrated Energy Master Plan study results, the CEP District Energy Goal Area will expand in scope to include multiple paths toward increasing resilience in Arlington.</p> <p>This goal area will be significantly reworked and renamed, focusing on additional local generation options and resilience. We expect renewable energy to remain as its own goal area and not double-counted in the new, reworked Goal Area (formerly District Energy).</p>
Energy Committee	District Energy	<ul style="list-style-type: none"> • EC Review Comments: o Quantitative goals should be revisited based on modeling results given feasibility of district energy systems as well as other generation technologies. • Recommendation: o Revise to "Facilitate the installations and use of regional energy solutions including microgrids, community renewables, and district energy in areas with the highest need for resilient and reliable energy with a goal of X [estimate to be based on additional analysis and modeling] megawatts (MW) of District Energy, Combined Heat and Power (CHP), Microgrids, and Community Solar by 2050." 	<p>Based on Integrated Energy Master Plan study results, the CEP District Energy Goal Area will expand in scope to include multiple paths toward increasing resilience in Arlington.</p> <p>This goal area will be significantly reworked and renamed, focusing on additional local generation options and resilience. We expect renewable energy to remain as its own goal area and not double-counted in the new, reworked Goal Area (formerly District Energy).</p>
Energy Committee	District Energy	<p>Comments:</p> <ul style="list-style-type: none"> o Large scale district energy may require capital-intensive infrastructure improvements and upgrades, therefore planning efforts should be emphasized. o Future assessments should include discussions of other strategies, particularly microgrid deployments. <p>• Recommendation:</p>	<p>Based on Integrated Energy Master Plan study results, the CEP District Energy Goal Area will expand in scope to include multiple paths toward increasing resilience in Arlington.</p> <p>This goal area will be significantly reworked and renamed, focusing on</p>

		o Revise to “Plan and build infrastructure in appropriate locations to facilitate and integrate microgrids, community grids, and district energy distribution, including future connections.”	additional local generation options and resilience. We expect renewable energy to remain as its own goal area and not double-counted in the new, reworked Goal Area (formerly District Energy).
Energy Committee	District Energy	<ul style="list-style-type: none"> • If this goal includes quantitative distributed generation goals, ensure that renewable energy is not double counted in both categories. • Ensure that carbon reduction savings from district energy systems are not double counted in the buildings section. • To what extent should policies encourage/discourage fossil fuel-based on-site generation? • Consider joining district energy or energy resiliency planning organizations for support. One such organization is the UN-sponsored “Global District Energy in Cities.” • Consider addition of grid-level policies, including demand response and ancillary services. 	<p>Based on Integrated Energy Master Plan study results, the CEP District Energy Goal Area will expand in scope to include multiple paths toward increasing resilience in Arlington.</p> <p>This goal area will be significantly reworked and renamed, focusing on additional local generation options and resilience. We expect renewable energy to remain as its own goal area and not double-counted in the new, reworked Goal Area (formerly District Energy).</p>
Energy Committee	District Energy	<p>Suggested policy language:</p> <ul style="list-style-type: none"> • “While district energy systems allow for the efficient use of the heat from local CHP generation, greatly reducing the fuel waste normally associated with making electricity, microgrids integrate multiple generation, storage, along with management software to insure operability. As shown previously in Figure 3, approximately 65% of the energy involved in electric generation and distribution is lost before it arrives at a home or commercial building.” • “By using district energy to share hot and cold water created as a by-product of locally created electricity, Arlington County strives to increase its energy system efficiency in areas with DE from 30% to 80% or better. By using regional energy solutions, Arlington would get more energy per dollar than relying on the conventional electric grid. It would also benefit from redundant, reliable sources of energy. This regional energy trifecta has the potential to provide a net global and regional reduction in GHG emissions, vs. the conventional grid, by increasing the local production of electricity. (It should be noted, however, that local energy production has some may have emissions associated with it.) • There are a few buildings in Arlington County that are connected in order to share electric generation or heating and cooling resources. However, Arlington County’s goal is to accelerate regional energy solutions, such as microgrids, community renewable energy, and district energy, at a broad scale. To facilitate this, many things need to occur. For instance, a local district energy entity (DEE) is needed to operate and maintain local district energy systems (DES). There are many possible forms of DEE ownership in the Commonwealth of Virginia including 100% public, 100% private, or a public-private arrangement, and it remains to be seen what the Arlington DEE ownership structure would look like. Microgrids may need some waivers on crossing property lines or between buildings. Community solar projects would need state legislative approval. • “District energy systems require pipes to be installed underground to convey hot and cold water to customer buildings. The County is in a unique position to plan and coordinate pipe installation or powerlines rights-of-way with other County projects. This plan, and the installation of pipes underground and wires, will help facilitate the creation and installation of distributed energy systems in Arlington.” 	We appreciate the suggested language, and we’ll factor it in when writing the reworked write-up for this goal area.
General Public	Renewables	To date the installation of solar photovoltaic systems for the County have been less than hoped. The Schools have installed far more than the County in this regard. As the cost of PV systems continue to become more competitive the pace of installations at commercial, County and Federal Government installations might be significantly encouraged and increased—both for new and established facilities.	Agreed.
General Public	Renewables	EPA has sponsored the development of new micro-hydro-generators that might be installed on an experimental basis in Four Mile Run, Pimmit Run, etc.	Agreed, this is worth considering.

General Public	Renewables	<p>As I've seen with my home state of California, the rapid growth of solar has led to problems with what energy experts call the "Duck curve"-- too much power supply at peak sunlight and too little at night. Utility scale battery storage, along with other types of storage like Concentrated Solar Thermal Power, and going to be key to evening out our solar power supply as we expand it. I'm disappointed that Dominion doesn't even have an online comment option to suggest this. I highly recommend the book: Taming the Sun: Innovations to Harness Solar Energy and Power the Planet (MIT Press)</p>	<p>Renewable generation is currently capped at 1% of state-wide demand. Advocates are pushing legislators to increase that cap, but until they do, renewables won't substantively affect the electricity demand curve.</p>
Energy Committee	Renewables	<p>When originally written, the vision was to increase locally generated energy supply through use of renewables. The goal was geographically limited to Arlington County and positioned ARL as a leader in solar electricity deployment (Policy 1 – P3.1). The goal now seems out of step with market & political changes and could be ripe for extensive revision. New tools are now available in VA to advance renewable energy, and jurisdictions across the US are transitioning to 100% renewable electricity.</p> <p>Recommendation: The EC recommends that staff revisit the text, scope of, and performance targets for G3 with the following in mind:</p> <ul style="list-style-type: none"> – Retain the goal of making Arlington a leader in the space; update the specifics accordingly. – Consider a new title of “Transition to Renewable Energy.” – Consider adding a utility scale goal e.g., offset non-renewable electricity use in Arlington with renewable electricity generated outside Arlington. – Consider adding text to support state legislative & regulatory actions that advance Arlington goals. 	<ul style="list-style-type: none"> – While we do envision multiple transitions and transformations in the coming years, we will keep the title as it is. – We anticipate adding a section recognizing that off-site renewable purchases (along with on-site renewables) can make a significant contribution to the Community Energy Plan goal. – Supporting state legislative & regulatory actions is an important part of implementation.
Energy Committee	Renewables	<p>Current Policy 1 (P3.1) Text: Become a solar leader with installation and use of 160 megawatts (MW) of solar electricity by 2050.</p> <p>EC review findings: There's been significant change in the market and political arenas since original drafting of the CEP in 2013, and the EC questions whether achieving the existing goal will make Arlington a leader.</p> <p>Recommendation: The EC recommends staff explore a more aggressive MW goal for installations of solar electricity within Arlington's geographical boundary that will make it a solar leader.</p>	<p>We appreciate the desire for more aggressive solar goals. 160 MW is still an ambitious goal, and we will continue to evaluate our ability to meet and/or exceed that goal in future revisions to the CEP.</p> <p>The opportunity to do offsite renewables appears to be the best bang-for-buck way to go beyond 160 MW. We anticipate using this additional way to deploy solar to go well beyond 160 MW total solar capacity.</p>
Energy Committee	Renewables	<p>Current Policy 2 (P3.2) Text: Increase the use of renewable energy technologies in the public, private, and non-profit sectors.</p> <p>Recommendation: The EC recommends staff revise this policy as necessary, in accordance with other revisions to GA3.</p>	
Energy Committee	Renewables	<p>Recommendation: The EC recommends staff consider development of new policies as it considers revisions to G3:</p> <ul style="list-style-type: none"> – More aggressive RE target with %-based goal (e.g., transition to X% of energy supply from renewables by 2050). – Transition to net 100% renewable electricity by 2035 (note: E2C2, CivFed, Sierra Club, ACE, and many other civic groups have asked the County to adopt this goal). – Is there potential for an Arlington-based Renewable Portfolio Standard? – Develop and maintain strong standards for investments in offsite renewable energy (e.g., renewable energy certificates, virtual power purchase agreements, etc.) and carbon offsets, such that these investments lead to significant reductions in net greenhouse gas emissions. Only investments that meet these standards may be used to offset Arlington's CO2 emissions as a means of implementing CEP policies. 	<p>These are good suggestions that note the fast-changing solar PV market. We do plan changes to this chapter to reflect additional ways solar PV systems inside and outside Arlington's borders can help us reach our goals. We also like the idea of making the goals more understandable, relatable to the average person.</p>

General Public	Transportation	Fairfax County Government guidelines for telework are currently more encouraging than in Arlington County. More effort might be undertaken to increase telework in private enterprise, local county government and federal government jobs. This effort might be strengthened by expanded programs to note the economic and productivity gains that can come with telework for governmental, industry and commercial sectors.	Teleworking is one strategy for reducing vehicle miles traveled. It's an implementation item. The overall energy use (in buildings, transportation, home office) with increased telecommuting is unclear.
Energy Committee	Transportation	The language used in Goal 4 is vague and does not convey an energy-related goal. We suggest changing the language of CEP Goal 4 to: "Move more people with fewer greenhouse gas emissions." This appears to capture the transportation goal and would align with the language used in Goal 2 of the Master Transportation Plan: "Move more people without more traffic."	Agreed - we will revisit Goal Area 4 title accordingly.
Energy Committee	Transportation	In Arlington's "2012 Community Greenhouse Gas Inventory" published in 2013, transportation emissions appear to be 4.1 mt CO2e per capita in 2007. [Population: 206,800; Transportation emissions: 841,599 mt CO2e] See: https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/13/2015/08/2012-ArCo-Community-Report-Final.pdf Is 3.7 mt CO2e per capita the correct baseline? If not, how would the higher baseline impact the CEP?	3.7 mt CO2e per capita was the estimate from the 2007 greenhouse gas inventory. The 2012 inventory also updated the 2007 greenhouse gas inventory and revised the 2007 transportation estimate to 4.1 mt CO2e per capita. This was predominantly the result of updated greenhouse gas inventory methodologies. The ongoing energy modeling effort will provide insight on the glide path needed to achieve CEP goals based on the updated information we now have, compared to what was known when the baseline was established.
Energy Committee	Transportation	These numbers appear to add up to a 68% reduction, short of 73%. (For instance, if the latter two numbers were correct, vehicles would need to drive roughly 30% less.) The numbers should be adjusted in any revision.	Transportation emissions going from 3.7 to 1.0 mt CO2e per capita represents a 73% decrease. That's a reduction of 2.7 mt CO2e, and 2.7 is 73% of 3.7. With the revised baseline of 4.1 mt, we will revise our numbers accordingly to reflect the policy.
Energy Committee	Transportation	It's probably difficult for most people to visualize what these targets mean for their everyday lives— since most people think about their own personal environmental impact in terms of miles per gallon, not carbon emissions. (Few people know what their transportation related carbon emissions are.) To make Policy 1 easier to interpret, it would be helpful to include a statement like "To achieve the target in 2030, the average vehicle driving within or through the County would need to have an emissions rate equivalent to a vehicle that gets X miles per gallon."	We agree that metric tons per capita is difficult to visualize. The shortcoming of using miles per gallon is that it doesn't capture the other two "levers" for reducing emissions: reducing vehicle miles travelled, and using cleaner fuels. The sentence "This may seem like an ambitious target, but if vehicles drove 20% less, were 75% more fuel efficient, and used fuels that produced 30% less carbon by 2050 it could be achieved" attempts to make the overall target more understandable. In addition, the County's overall multimodal approach encourages people to get out of their cars.
Energy Committee	Transportation	The "Demand and System Management Element" of the Master Transportation Plan pre-dates the CEP, and presumably it will be updated soon. We hope the AIRE and Transportation Department teams work together and develop performance measures that are consistent with the CEP milestones. For example, the County should aim to reduce both peak and non-peak vehicle-miles traveled per capita. Ideally, these performance measures should be agreed upon before the CEP Update is complete.	Agreed. AIRE staff are coordinating with our colleagues in transportation.
Energy Committee	Transportation	The descriptive language in the Transportation section of the CEP should be updated to discuss opportunities and risks posed by relatively new or emerging technologies, such as autonomous vehicles, electric vehicles (EVs), and ride-sharing apps.	Agreed. The transportation sector has evolved rapidly since the CEP was adopted in 2013, and the updated CEP will discuss those changes.

Energy Committee	Transportation	The County should track progress toward electrification of Arlington’s transportation sector and the percentage of Arlington households and businesses that have reliable access to electric charging infrastructure using the Arlington Resident Travel Survey (https://mobilitylab.org/research/arlington-county-2015-resident-travel-survey/) or other methods.	Agreed. The CEP and Implementation Framework will reference the shift toward electrification.
Energy Committee	Transportation	The outlook for electric vehicle sales has improved since the CEP was developed, with some market analysts projecting EVs to comprise slightly more than half of new car sales by 2040 (See Bloomberg New Energy Finance, “Electric Vehicle Outlook 2017,” https://about.bnef.com/electric-vehicle-outlook/). We ask that the County examine the extent to which this improved outlook should lead to a more ambitious CEP target for transportation emissions. We would appreciate a brief description from the energy modelers explaining the extent to which EV market projections have impacted the CEP Update findings.	As alluded to in the comment, the energy modeling effort is examining the glide path that transportation emissions will take between now and 2050. Electric vehicles will surely play a significant factor in reducing emissions. We will share the results of this effort with the energy committee and the public. We will look at possibly adding to the Implementation Framework initiatives that support increased usage of EVs.
Energy Committee	Transportation	The County should consider adding a policy along the lines of: “Promote the use of electric vehicles and the expansion of electric vehicle charging infrastructure in Arlington and regionally. Lack of charging infrastructure should not be a barrier to any resident who wishes to own or use an electric vehicle.”	AIRE staff will coordinate with Transportation Bureau staff to determine if we should create multiple policies to separate and address cleaner fuels, vehicle efficiency, and VMT. We will aim to reduce GHGe while at the same time reduce the number of vehicles on the roads.
Energy Committee	Transportation	As soon as possible, Arlington County should develop an appropriate plan to electrify each fleet of vehicles under its control. This plan should include a strategy for deploying and managing electric vehicle supply equipment and infrastructure. To the extent possible, the County should seek to coordinate its planning and procurement activities with regional governments and partners to achieve cost savings and economies of scale	Agreed that the county should coordinate regionally. The county currently has an electric vehicle policy, stating "County supports the use of electric vehicles (EVs) in the County fleet."
Energy Committee	Government	Goal 5 of the Community Energy Plan is currently: “Integrate CEP goals into all County Government activities.” This language is substantively the same as Policy 2: “Integrate Community Energy Plan policies into County planning, policy development, and other activities.” We suggest changing the language of Goal 5 to: “Ensure that the County Government leads by example in achieving CEP goals.”	This goal area is not just about leading by example with our own facilities, but also integrating the CEP into County planning, practices, etc. We agree that the phrase "lead by example" is missing. We'll update policy 1 to include "lead by example".
Energy Committee	Government	The County government should be as ambitious as possible in terms of cutting its own emissions. We ask that the energy consultants suggest revisions to Policy 1 based on their analysis of what is feasible.	The modeling effort is on the community scale, so it doesn't specifically focus on government emissions. The County Government Operations Plan and related milestones will be revisited following the CEP update. We hear and appreciate the desire to be as ambitious as possible.
Energy Committee	Government	Policy 2 says: “Integrate Community Energy Plan policies into County planning, policy development, and other activities.” In the spirit of Policy 2, we recommend adding another policy to Goal 5 that directs the County government to develop a plan to electrify its fleets: “As soon as possible, Arlington County should develop an appropriate plan to electrify each fleet of vehicles under its control. This plan should include a strategy for deploying and managing electric vehicle supply equipment and infrastructure. To the extent possible, the County should seek to coordinate its planning and procurement activities with regional governments and partners to achieve cost savings and economies of scale.”	We will add a sentence to the CEP defining county government activities as including fleet, buildings, etc. Electrifying the fleet is an implementation of the CEP, so it's an appropriate addition to the Implementation Framework. We also anticipate a portion of the revised CEP will discuss the broader trend of electrification. The county is currently working to electrify our fleet. Since the adoption of the CEP, an interdepartmental team created a county Electric Vehicle policy in the spirit of "integrating CEP policies into County policy development". That effort concluded that there was "County support for use of electric vehicles (EVs) in the County fleet". The county has since invested in and installed EV charging stations and electric vehicles.

Energy Committee	Government	Policy 3 says: "Take advantage of CEP implementation to ensure Arlington's long term economic competitiveness." Add "Form strong relationships and partnerships between AIRE and the private sector to collaborate and find areas of overlap in pursuing CEP goals. Utilize AIRE staff in coordination with the Arlington Economic Development office to aid in the promotion of the CEP. Technical information should be available in response to business inquiries and in recruiting and retaining companies in Arlington."	We agreed that the policy should include partnerships. We'll revise Policy 3 as follows: "Ensure Arlington's long term economic competitiveness by collaborating and partnering with the private sector, universities, and other stakeholders."
General Public	Education & Behavior	The CEP team might prepare and distribute to all home owners a clear economic analysis that show breakeven for home solar installation and cost savings from home energy efficiency upgrades. This might be done on the basis of four different case studies based on roof size, tree blockage, orientation to the sun, etc. There are also computer programs available that can do a rough calculation as to whether solar makes sense. This might be offered in the energy check-out program.	These are good concepts to consider including and/or adding to the Implementation Framework. We recognize the importance of educating homeowners and building owners on the costs and benefits of energy efficiency and addition of renewable energy measures.
Energy Committee	Education & Behavior	Goal 6 reads: "Advocate and support personal action through behavior changes and effective education." Suggest inserting ", commercial and institutional" after personal.	We take the spirit of this suggestion and will edit policy 1 to read "Advocate and support residents and businesses taking action to reduce their energy usage."
Energy Committee	Education & Behavior	Goal 6, Policy 1 reads: "Engage and empower individuals to reduce energy use." Suggest combining, or adding 6.1b: Engage and facilitate personal, commercial and institutional entities to reduce energy use, by available means such as PACE financing.	We've taken the previous comment and added businesses to policy 1. Strategy 4 in the Implementation Framework's Buildings section notes the use of incentives, such as the use of PACE financing, to reduce energy use in buildings.
Energy Committee	Education & Behavior	Goal 6, Policy 2 reads: "Enhance level of professional expertise and workforce in the community related to energy." Suggest starting with Increase instead of Enhance. Suggest adding "Such as add learning opportunities for trades, facility managers, and design/research professionals."	We will change Enhance to Increase. We will ensure the Implementation Framework includes the additional language and ideas about learning opportunities for the various groups.
Energy Committee	Education & Behavior	Suggest a new policy, "Engage Arlington Public Schools and universities with a presence in Arlington to develop or add curriculum specific to professional fields related to energy. Include engagement with trade schools and local unions to reach diverse potential pathways to a career in energy and sustainability."	We will add a new policy that includes the essence of the first sentence: "Partner with educational institutions to raise energy literacy in the community." The second sentence relates to the "how" we intend to get there and is a good addition to the Implementation Framework. We'll keep this in mind when we do the Implementation Plan update.
Energy Committee	Education & Behavior	"Ensure recognition of extraordinary efforts made to help the community reach CEP goals." Add: Such as develop annual awards for personal, commercial and institutional achievement recognition.	We will keep the policy as it is and ensure the examples provided are included in the Implementation Framework.
Energy Committee	Education & Behavior	In general, this goal and its supporting policies should be focused on connection and interaction with as many entities as possible to reach as many constituents as possible sharing the mission, methodology and progress of the county towards the goals of the CEP, including those listed above, and; <ul style="list-style-type: none"> • Engage and partner with neighborhood civic associations. • Engage and partner with Business Improvement Districts. 	We agree that connections and partnerships are necessary to achieving our CEP goals. These are all great steps that we will continue to or should start taking, and they're appropriate for the Implementation Framework.

- Engage facility managers.
- Enlist County Board and County Manager to regularly engage in discussions and publicly support these goals.