

THE REPORT OF THE INDEPENDENT MONITOR ON THE STATUS OF THE ENERGY EFFICIENCY STAKEHOLDER PROCESS

As directed by Chapter 397 of the 2019 Virginia Acts of the Assembly,
as required by § 56-585.1 of the Code of Virginia



2019

JUNE 28, 2019

TO:

The Honorable Ralph S. Northam
Governor, Commonwealth of Virginia

The Honorable Glen Sturtevant, Jr.
Acting Chairman, Senate Committee on Commerce and Labor

The Honorable Terry G. Kilgore
Chairman, House Committee on Commerce and Labor

The Honorable Judith Williams Jagdmann
Chairman, State Corporation Commission

The Honorable Mark C. Christie
Commissioner, State Corporation Commission

The Honorable Patricia L. West
Commissioner, State Corporation Commission

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Respectfully Prepared and Submitted by:



The Model for Results that Matter

Ted Kniker, Independent Monitor
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GLOSSARY OF TERMS

AC	Alternating current
APCo	Appalachian Power Company
BEM	Building Energy Management
C&I	Commercial and Industrial
Chapter 296	Chapter 296 of the 2018 Virginia Acts of Assembly
Chapter 397	Chapter 397 of the 2019 Virginia Acts of Assembly
Code	Code of Virginia
Commission	Virginia State Corporation Commission
CSP	Competitive Service Provider
DC	Direct Current
DER	Distributed Energy Resources
DEV	Dominion Energy Virginia Virginia
DHCD	Department of Housing and Community Development
DI	Digital Input
DMME	Department of Mines, Minerals and Energy
DR	Demand Response
DSM	Demand Side Management
EE	Energy Efficiency
EM&V	Evaluation, Measurement and Verification
General Assembly	Virginia General Assembly
GTSA	Grid Transformation and Security Act, Chapter 296 of the 2018 Acts of Assembly
HSE	Health, Safety, and Environment
IPA	IMPACT Paradigm Associates, LLC
IRP	Integrated Resource Plan
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light Emitting Diode
LI	Low-income
LMI	Low-Moderate Income
LMP	Locational Marginal Prices
MF	Multi-family
MW	Megawatt
RFP	Request for Proposals
ROE	Return on Equity
ROI	Return on Investment
RPM	Reliability Pricing Model
RPS	Renewable Energy Portfolio Standard
SCC	State Corporation Commission
SF	Single Family
SIR	Savings to Investment Ratio
SMB	Small to Medium Business
TOU	Time of Use
TRM	Transmission Reliability Margin
VA	Virginia
WAP	Weatherization Assistance Program
VES	Virginia Energy Sense, a State Corporation Commission consumer education program



EXECUTIVE SUMMARY

During the 2018 General Assembly session, legislation was approved relating to electric utility regulation, grid modernization and energy efficiency requiring Appalachian Power (APCo) and Dominion Energy Virginia (DEV) to each develop a proposed program of energy conservation measures. Each utility is required to utilize a stakeholder process to gather and receive input and feedback for the development of proposed energy efficiency programs to be filed with the State Corporation Commission (SCC) for review and approval. The intended result is to have petitions that are filed with the SCC for its review, that have included the knowledge, expertise, and buy-in of the energy efficiency stakeholders so that implementation will contribute to the desired energy conservation goals of the state.

Chapter 397 of the 2019 Virginia Acts of the Assembly, as directed by § 56-585.1 of the Code of Virginia, mandates that the process must be facilitated by an independent monitor, to ensure representation of stakeholders, progress toward obtaining input and feedback, and to report on the stakeholder process objectives, stakeholder recommendations, the status of the recommendations, and status of petition filings. This report by the independent monitor is submitted in accordance with Chapter 397.

Stakeholder Process

Between January 1 and July 1, 2019, two stakeholder groups have been established, have met, and provided input and feedback on proposed energy efficiency programs. The APCo stakeholder group has 95 current members and the DEV stakeholder has 168 members. Each group represents over 15 different stakeholder affiliations, including the utilities, SCC, Department of Mines and Minerals and Energy (DMME), local government, energy conservation and efficiency groups. Each stakeholder group has held three out of four proposed meetings. During the meetings, stakeholders had multiple opportunities to provide input on areas of focus for energy efficiency programs, specific conservation measures, prioritize their recommendations, and offer feedback on initial proposed programs from each utility. The fourth meetings, to be scheduled in late July or August, will give stakeholders opportunity to review and provide feedback on proposed petition filings and set direction for the next year. To maintain ongoing communication meeting notes have been provided to stakeholders and a collaborative online site that houses all documents has been created for each group.

Stakeholder Objectives

The primary objectives of the stakeholder groups for the first year of the stakeholder process were:

- Develop trust among stakeholders and create an environment for open information sharing and constructive discussion between stakeholders.
- Ensure stakeholder awareness and clarity about the stakeholder process objectives and timeline for the short and long-term.

- Obtain input and prioritization for the development of the utilities' 2019 proposed energy efficiency programs/petition filings and facilitate ongoing feedback and discussion about conservation measures.
- Establish a foundation for stakeholder group development and focus to address energy efficiency in Virginia in subsequent years.

Program Recommendations

Each utility stakeholder group provided recommendations for proposed energy efficiency programs. The APCo stakeholder group provided 37 program or measure recommendations and 63 program specifications and the DEV stakeholder group proposed 23 program or measure recommendations and 78 program specifications. Both groups proposed programs and measures for low-income, elderly customers, residential customers including single and multi-family housing, non-residential customers, including commercial and industrial, and programs related to finance and incentives. Detailed information about the recommended ideas is provided in the report. In addition, the DEV stakeholder group, due to meeting timing, also used the stakeholder process to offer initial input for development of energy efficiency programs for the recently passed House Bill 2789. The stakeholder groups prioritized the recommendations as to those that could likely be included and implemented in the 2019 petition filing; those that were expansions of existing programs, need some refinement, or are better served through a supplemental processes; and those that require further study and analysis or additional input by the stakeholder groups. The recommendations that utilities proceeded with were the ones deemed clear and implementable, if approved by SCC, within the year.

Status of Recommendations

Each of the utilities has incorporated the stakeholder ideas and recommendations into the development of proposed energy efficiency programs. APCo developed draft program templates for its anticipated 2019 petition filing that it shared with its stakeholder group for review. APCo has consolidated the prioritized ideas and recommendations into three program offerings: 1) An extended low-income single family weatherization program to supplement its existing residential low-income weatherization program that started in 2015; 2) a low-income multi-family weatherization program that will also include a consumer education component; and 3) an ENERGY STAR manufactured housing program to grow the market for ENERGY STAR homes through incentives. These three programs cover the top three priority recommendations proposed by the APCo stakeholder group.

Dominion Energy Virginia released an RFP for energy efficiency programs based upon the recommendations of the stakeholder group. The RFP focused on 16 program areas, primarily divided



between residential and non-residential programs. The program areas in the RFP contain specific suggestions from the stakeholder group, including home retrofits, programs for multi-family units, manufactured housing, electric vehicles, and consumer education and behavioral programs. To encourage innovation, DEV included a new program category to allow proposals for programs not identified in its DSM portfolio or RFP. A list of the 16 areas is provided below with more details in the report.

Residential

- Home Retrofit
- New Construction
- Home Energy Management Systems
- Multi-family Targeted
- Manufactured housing
- Energy Efficiency Kits
- Electric Vehicles
- Enhanced Behavioral

Non-Residential

- Behavioral
- Targeted Sector
- Upstream and Midstream Efficient Products
- New Construction
- Strategic Energy Management
- Agricultural Energy Efficiency
- New Programs

DEV received 43 proposals from the RFP, which are under review. Selection of proposals will inform the petition filing. The DEV stakeholder group will provide feedback on the anticipated filing at the fourth stakeholder group meeting.

Status of Petition Filings

Filing of petitions for 2019 will occur after the submission of this report. Petitions are expected to be filed by APCo in September 2019 and by DEV in October 2019. Determinations and program status for the calendar year 2019 petitions will be reported in the 2020 Annual Report.

Next Steps

In the first six months, the stakeholder groups have made progress toward providing input and review of APCo's and DEV's proposed energy efficiency programs. The stakeholder groups have expressed great interest and supplied recommendations to strengthen and enhance the stakeholder process. Based upon the input from the stakeholders, and a review of similar groups in other states, the independent monitor suggests that the stakeholder groups undertake the following best practices as next steps:

- 1) **Develop a stakeholder group vision and strategic or guiding plan.** This will help define the roles and responsibilities of the group, what it is trying to achieve, and a way to focus on the activities and outcomes that are most important and pressing to promote energy efficiency in Virginia.
- 2) **Establish working groups to address multiple issues simultaneously.** Given the complexity and scope of energy efficiency issues, other states' have adopted workgroup, or sub-group, formats so that multiple issues can be worked on simultaneously to make the group more effective and efficient. There are sufficient additional ideas and objectives that have been raised by each utility stakeholder group to warrant consideration of a sub-group approach.

- 3) **Develop stakeholder group written policies and procedures.** To further define and codify member roles and responsibilities, group decision-making, and meeting logistics. In order to continue to drive interest, participation, and support for the stakeholder process, it is important to give members larger roles and responsibilities in the process yet have commonly agreed upon approaches and operations.
- 4) **Implement a stakeholder recommendation tracking process.** In the first year the focus of obtaining input and recommendations was on generation of ideas to inform the utilities in their development. As the stakeholder process and groups and programs mature, more detailed capturing of recommendations will be important. To build greater transparency in the process as well as trace ideas to results, a recommendation tracking process, used by other similar groups, will help to demonstrate usage of recommendations and the direct outcomes from those ideas.



INTRODUCTION

Legislative Requirements

Chapter 296 [SB 966] of § 56-585.1 of the Code of Virginia established the use of a stakeholder process, facilitated by an independent monitor, to provide input and feedback on the development of a proposed program of energy conservation measures. Any program shall provide for the submission of a petition or petitions for approval to design, implement, and operate energy efficiency programs pursuant to subdivision A 5 of § 56-585.1 of the Code of Virginia. The legislation specifically states:

- At least five percent of such energy efficiency programs shall benefit low-income, elderly, and disabled individuals.
- The projected costs for the utility to design, implement, and operate such energy efficiency programs, including a margin to be recovered on operating expenses, for the period beginning July 1, 2018, and ending July 1, 2028, including any existing approved energy efficiency programs, shall be no less than an aggregate amount of:
 - \$140 million for APCo – Appalachian Power (APCo)
 - \$870 million for DEV – Dominion Energy Virginia (DEV)

For the energy efficiency stakeholder process, Chapter 296 directs that the process shall include representatives from:

- Each utility – APCo and DEV,
- The State Corporation Commission (SCC),
- The Office of Consumer Counsel of the Attorney General,
- The Department of Mines, Minerals and Energy (DMME),
- Energy efficiency program implementers,
- Energy efficiency providers,
- Residential and small business customers, and
- Any other interested stakeholder who the independent monitor deems appropriate for inclusion in such process.

The initial legislation did not provide details on how often the stakeholder groups meet or processes for obtaining the input and feedback into the development and/or review of key issues and the proposed energy efficiency programs. The legislation leaves discretion to the SCC, the utilities, the stakeholders and the independent monitor to determine meeting schedules, times, and operational procedures.

Report on the Status of the Energy Efficiency Stakeholder Process

Chapter 397 [H 2293] amended Chapter 296 to direct the independent monitor to:

- Convene meetings of participants in the stakeholder process not less frequently than twice each calendar year during the period beginning July 1, 2019 and ending July 1, 2028.
- Provide a status report of the energy efficiency program stakeholder process to the Governor, the State Corporation Commission, and the Chairmen of the House and Senate Commerce and Labor Committees beginning on July 1, 2019, and annually thereafter through July 1, 2028.

The energy efficiency stakeholder process report shall include the status of:

- (i) the objectives established by the stakeholder group during this process related to programs to be proposed,
- (ii) recommendations related to programs to be proposed that result from the stakeholder process, and
- (iii) the status of those recommendations, in addition to the petitions filed and the determination thereon.

¹ <https://lis.virginia.gov/cgi-bin/legp604.exe?181+sum+SB966>

² <http://lis.virginia.gov/cgi-bin/legp604.exe?191+ful+CHAP0397+hil>



STAKEHOLDER PROCESS

The Virginia Energy Efficiency Stakeholder Process began on October 1, 2018 after award by the SCC of the independent monitor contract to IMPACT Paradigm Associates, LLC (IPA), a Virginia-based woman-owned small business. To compile list of participants for the stakeholder process, the independent monitor reached out to the SCC, Appalachian Power and Dominion Energy Virginia to provide current stakeholder contact lists. A few stakeholder groups, including the Virginia Energy Efficiency Council (VAEEC) and the American Council for an Energy-Efficient Economy (ACEEE) contacted the independent monitor to offer recommendations for additional stakeholder process participants. Several interested individuals also contacted the independent monitor to be included as participants. The independent monitor established a policy of open inclusion to the process, so all who have expressed interest or been recommended by current stakeholders have been added to the contact list for the appropriate utility. As the process has progressed, more participants have been added over time.

STAKEHOLDER PARTICIPATION

The stakeholder participation for each utility represented over 15 types of stakeholder groups, including those cited in the legislation. Table 1 below depicts the number of stakeholder participants as of the writing of this report and the average participation rate throughout the process by organizational affiliation.

Table 1: Representation by Stakeholder Group		
Affiliation	APCo	DEV
Current Number of Stakeholder Process Participants	95	168
Utility Company	17.4%	16.1%
Government - State	12.9%	15.4%
Government – Local Municipality	5.3%	11.5%
Government – Federal	0.0%	1.1%
Energy Service Organization	--	8.2%
Energy Conservation Interest Group	3.4%	6.8%
Low Income Advocacy Group	3.1%	4.6%
Residential Customer Organization/Association	2.1%	1.2%
Business Customer Organization/Association	4.1%	1.6%
Program Implementer	13.6%	10.1%
Weatherization Provider	20.0%	5.7%
Environmental Organization	7.7%	8.3%
Law Firm	0.0%	1.9%
School or University	0.6%	1.3%
Health Organization	0.0%	0.0%
Hospital	0.0%	0.0%
Interested Individual	3.1%	0.7%
Other	7.7%	6.8%
TOTAL PERCENTAGE	101.0%	101.3%

³ <https://rga.lis.virginia.gov>

⁴ Representation percentage is based upon average meeting attendance rates across three meetings. Affiliation is based upon the group with which stakeholders self-identify.



MEETING SCHEDULE AND PARTICIPATION

For the period of October 1, 2018 to September 30, 2019, the independent monitor proposed a series of four meetings for each utility stakeholder group according to the general schedule and purpose described in Table 2.

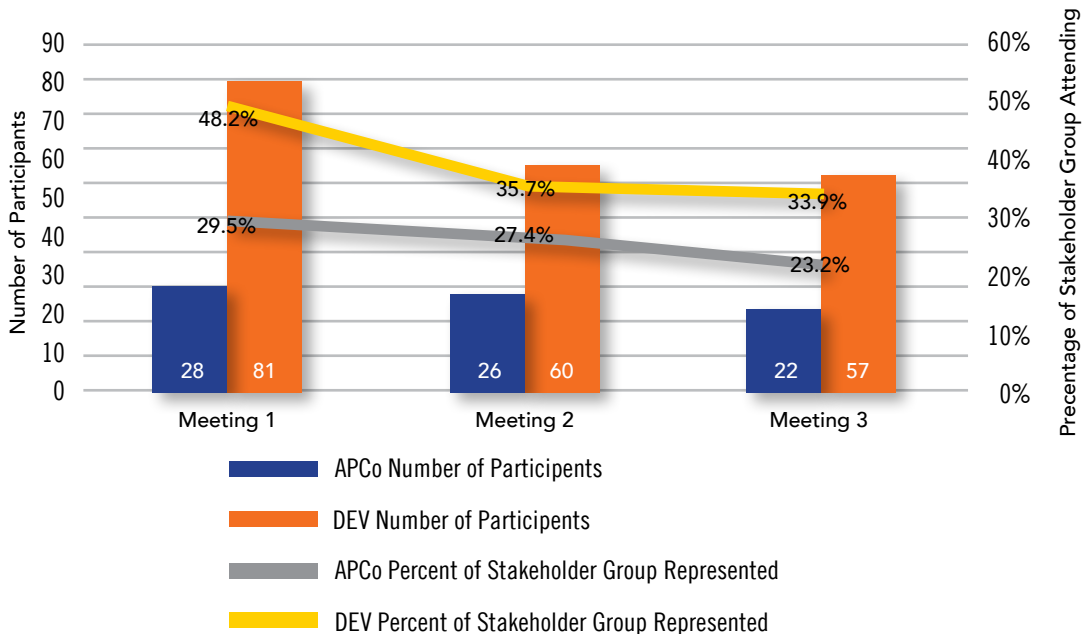
Table 2: Stakeholder Process Meeting Schedule and Dates				
Meeting Number	General Meeting Purpose	Independent Monitor Proposed Timing	Actual APCo Meeting Date	Actual DEV Meeting Date
1	<ul style="list-style-type: none"> • Provide stakeholders with overview of the process, timeline • Provide stakeholders with forum to express their most important issues and needs for the process and proposed programs. 	December 2018 – January 2019	January 18, 2019	January 3, 2019
2	<ul style="list-style-type: none"> • Generate ideas for new programs; enhance existing programs. • Prioritize focus areas for proposed programs. Identify criteria for prioritization. 	February – March 2019	February 13, 2019	February 1, 2019
3	<ul style="list-style-type: none"> • Utilities communicate initial draft proposed program ideas based on stakeholder input. • Obtain feedback from stakeholders on proposed programs. Provide opportunity for revisions. 	Late April – May 2019	April 30, 2019	May 29, 2019
4	<ul style="list-style-type: none"> • Review utility filing plans and information; obtain any missing information, ideas • Build stakeholder support and consensus for petition filings 	July – August 2019	To Be Scheduled	To Be Scheduled

⁵ Percentage over 100 based upon use of average rate of participation and rounding.

For the three meetings that have occurred for each utility, stakeholder attendance and affiliation representation remained relatively consistent. Figure 1 shows the attendance rates for each utility. The chart is not meant to compare one utility to the other as each has a different set of stakeholders, meeting locations, and scope of coverage.



Figure 1: Stakeholder Meeting Attendance Over Time



To maintain transparency in the stakeholder process and to share information with all stakeholders, the independent monitor established a collaborative website for each stakeholder group using Trello.com. Each collaborative site includes information about the process, meeting schedules, agendas and notes, program ideas and recommendations, and allows stakeholders to post suggestions and have online discussions. The site allows stakeholders unable to participate in the meetings to keep updated on the progress of the process. The sites are public and anyone interested may join by using the links below.

APCo Trello Collaborative Website:

<https://trello.com/invite/b/byDis70H/0e1db0a2e8bc981c447ffd4f64196acf/apco-energy-efficiency-stakeholder-group>

DEV Trello Collaborative Website:

[https://trello.com/invite/b/mdnEciZk/9489778105354f9c17bffb8856c46f5d/Dominion Energy Virginia-energy-efficiency-stakeholder-group](https://trello.com/invite/b/mdnEciZk/9489778105354f9c17bffb8856c46f5d/Dominion%20Energy%20Virginia-energy-efficiency-stakeholder-group)

STAKEHOLDER FEEDBACK ABOUT THE PROCESS

To evaluate each meeting and provide additional opportunity for stakeholder input, the independent monitor administers an online survey for meeting participants to gauge their satisfaction with the productiveness of the meeting and the overall process. Results of the surveys are included for all participants in the meeting notes. Suggestions and recommendations from the meeting are incorporated into future meetings. Based upon the most recent set of evaluations:

- 89.5 percent of stakeholders are either satisfied or very satisfied with the meetings.
- 92.2 percent of stakeholders report the meetings as either productive or very productive.
- 90.6 percent of stakeholders agree or strongly agree that the “stakeholder process allows stakeholders to provide input into the energy efficiency process for the utility.
- 60.1 percent of the stakeholders agree or strongly agree that the stakeholder process so far “has improved the energy efficiency measures development process for the energy efficiency areas I work in.”
- 77.4 percent agree or strongly agree that based on the information up to this point, they “believe the stakeholder process will lead to better energy efficiency conservation within Virginia.”

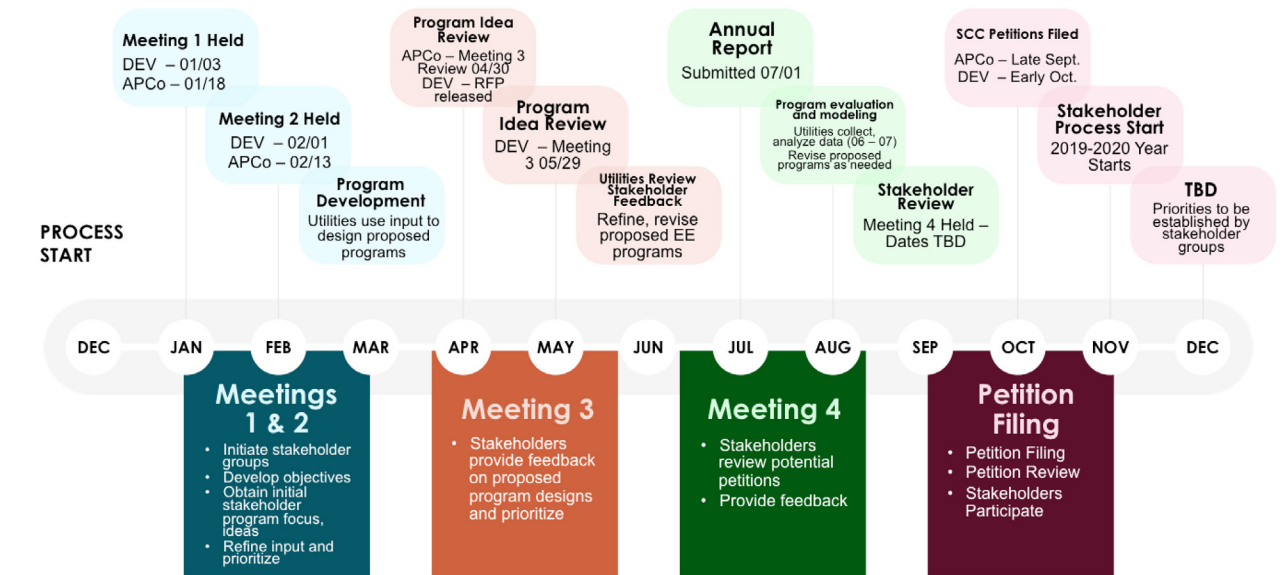
⁶ Data provided is based upon aggregated average ratings between APCo and DEV and is not weighted.



STAKEHOLDER OBJECTIVES

(i) the objectives established by the stakeholder group during this process related to programs to be proposed

Figure 2: Virginia Energy Stakeholder Process Timeline
Chapter 397 of Virginia Code



During the current year stakeholder process, the stakeholder group for each utility followed two simultaneous courses of action. The first was to identify objectives and recommendations for the calendar year 2019 petition filing for each utility - to ensure that the utilities included stakeholder input for the development of the first set of proposed energy efficiency programs under the Chapter 296 legislation for review by the SCC. The second path was to develop objectives to guide the direction and topics for the stakeholder group to address over the next 10 years (2019 – 2028). The second path was to develop objectives to guide the direction and topics for the stakeholder group in the development of program recommendations to address over the next 10 years (2019 – 2028). This second approach was designed to assist the stakeholder groups in moving forward together for the remaining years with program ideas and to improve widespread support and approval for energy efficiency programming in Virginia.

Several members have expressed that with the combined talent, expertise and dedication in each group, the stakeholder groups should explicitly work additionally on macro level issues as well as the program-specific improvements to further advance energy efficiency.

CURRENT YEAR OBJECTIVES (2018 - 2019)

Each stakeholder group discussed similar objectives for calendar year 2019. Moving forward, the independent monitor recommends the stakeholder groups revisit these to turn them into guiding principles for the groups. The first-year objectives may be summarized as follows:

- Develop trust among stakeholders and in the stakeholder process.
- Create an environment for open information sharing and constructive discussion.
- Ensure stakeholder awareness and clarity about the stakeholder process objectives and timeline for the short and long-term.
- Inform stakeholders about the utilities' current and past energy efficiency programs and petition filing requirements.
- Generate stakeholder input and prioritization for the development of the utilities' 2019 proposed energy efficiency programs/petition filings.
- Obtain stakeholder feedback about energy efficiency needs and priorities and facilitate ongoing feedback and discussion for proposed energy efficiency programs and conservation measures.
- Keep stakeholders updated and aware of the process and other useful information to promote and improve energy efficiency in Virginia.
- Monitor use of stakeholder input and feedback in the development of the utilities' proposed energy efficiency programs.
- Set the foundation for stakeholder group development and focus in subsequent years.



SUBSEQUENT YEAR OBJECTIVES (2019 – 2028)

Many stakeholders expressed the need to have the stakeholder groups look at the long-term focus of the legislation as well and to strengthen the process and effects of the group through developing a long term, high level, shared vision for what the group could achieve and how it could improve energy efficiency planning and programming in Virginia. Each group had the opportunity to recommend objectives for their respective stakeholder group for the years 2019 – 2028. Throughout the stakeholder group discussions a few themes emerged. These included:

- Build upon the strength of the groups and initial process by focusing the groups on strategic and systemic issues, which can be

accomplished through working groups.

- Expand participation to include more direct customers.
- Define and measure success for the group, including direct tracing and tracking of recommendations use and outcomes.
- Review and revise approval criteria, including cost-effectiveness test assumptions and calculations, to ensure they are keeping up with emerging technologies and social needs.

These set of objectives, as well as the range described below, will need to be further discussed by the groups in future year meetings to prioritize over the duration of the stakeholder process.

Table 3: Stakeholder Process Proposed Objectives (2019 - 2028)

Objective Category	APCo Stakeholder Objectives	DEV Stakeholder Objectives
Program Development	<ul style="list-style-type: none"> • Continue to reach out to stakeholders for ideas on program design • Continue to generate potential program ideas • Prioritize focus on cost-effectiveness • Actually meet 10% voluntary goal to reduce energy use, or make it mandatory. • Exceed proposed program targets (\$140M, \$870M) • A maintenance program for multifamily housing to help maintain installed energy efficiency measures – 2 year/5 year/10 year. • Advanced planning and education for consumers on how to keep costs down as peak usage pricing changes come into play. How to ride the “wave.” • Review and expand C&I programs. • Incorporation of Smart Home Technology with increased availability of consumer usage data to weather agencies. • Coordinate with economic development. 	<ul style="list-style-type: none"> • A continued pipeline of program ideas and existing programs. • Improve stability, consistency and comprehensiveness of DEV energy efficiency portfolio to maximize savings and participation. • Continued collaboration – great feedback for RFPs. • DEV could take a clean slate approach to its 2030 grid redesign that would include both DER and existing housing retrofits and the value proposition to overall grid. • Identify new programs & methods using developing technology. • Develop programs to drive electricity use to how we want it to be in the future. • Include approaches for addressing how pilot programs could be incorporated – particularly for local governments. Pilot programs of today become the broad programs of tomorrow. Many counties would like to do pilot programs to innovate. • Become a national leader in integrating delivery of energy efficiency and aging in place response and modifications, based on statute: “enhance the health and safety of residents.”
Stakeholder Process Improvement	<ul style="list-style-type: none"> • Stakeholders provide support/data during filing process. • Majority support for the proposals developed by APCo. • Continue the practice of pre-read/homework. • Improve/expand stakeholder understanding of processes, protocols, and limitations of stakeholder process. 	<ul style="list-style-type: none"> • Use stakeholder process to develop long-term DSM strategic plan to inform individual program design. • Long-term planning of how the \$870M will be spent over 10 years – stakeholders could participate in that scope. • Smaller working groups – specialty areas. • Targeted sub-committees. • Sub-committees focused on specific program design requests • Form smaller working groups on specific issues/program design. • Topic-specific working groups (i.e. sub-committees). • Continue with focus sub-groups on specific barriers, legislation, regulatory, participation • More contributions from regulatory entities/participants during stakeholder meetings. • Regular rhythm/cadence for new process – informs programs, RFPs, filings • Educate on new programs, inform new and existing programs. • Schedule stakeholder meetings with more advanced notice. • Meeting notice further out. • More convenient meeting location/parking. • Move meeting location around central Virginia to allow for better participation and parking. • Move meeting location around central Virginia to allow for better participation and parking.



Objective Category	APCo Stakeholder Objectives	DEV Stakeholder Objectives
Program Review and Evaluation	<ul style="list-style-type: none"> • Measure and report energy savings. • Continue getting feedback from the program implementers (example WAP providers) on how the program is working. 	<ul style="list-style-type: none"> • Identify program gaps for the future. • Gap assessment by group to enhance overall portfolio. • Metrics for success – how does this group measure success? • Assess programs’ ability to provide sustained savings as a platform for meeting 10-year investment targets. • Retro look to make adjustments or terminate programs. • Review program effectiveness.
Program Revision Ideas	<ul style="list-style-type: none"> • Remove deposit requirement when transferring from deceased account holder to another family member. • Deeper look/redesign EM&V protocols (maybe a VA TRM) 	<ul style="list-style-type: none"> • Input into retrospective review process – stakeholder group knows what’s working or not. • Allow stakeholder group to look at other, more cost-effective avenues of energy efficiency: code (upgrade, building code). • Allow energy efficiency programs to run longer than 3-year cycles. This will save money because biggest costs are start-up costs at beginning of a program. • More defined role for government/non-jurisdictional customers. • Piggy-back energy efficiency through grants to organizations delivering other services in low-income housing.
Participation – Outreach (External)	<ul style="list-style-type: none"> • Stakeholder process to continue and include the current wide variety of stakeholders. • Create a mechanism for end users (not implementers) to participate in program development (“focus group”) • Partner with Carilion and similar groups including health departments • Include higher education: Campus stakeholders and health care providers of the region. • Encourage landlord participation. 	<ul style="list-style-type: none"> • How to invite others to the table, incorporate other voices? • Customer engagement is a challenge, residential, SMB, etc. • More community input • Greater participation from program implementers, especially weatherization service providers. • Evaluate what is limiting participation – time/place/lack of clarity of purpose, etc. • Better outreach to program implementers. • Greater participation from consumers/consumer advocates. • Greater participation heaviest users of energy in Virginia, specific invitations.
Participation – In-reach (among members)	<ul style="list-style-type: none"> • Expand inter-stakeholder relationships. 	<ul style="list-style-type: none"> • A listing of services provided by each stakeholder. • Facilitate stronger relationships between large and small businesses for building teams to implement projects. • Trust/buy-in by tracing back to stakeholder input. • Make it easier for work group members to contact one another – Trello is not sufficiently two-way. • Opportunities for informal interactions (e.g. lunch and/or happy hour?) • Remove utility lawyers from the room. • Consider limiting to 1 representative from each organization. • Survivor program – vote people off/ensure conversation is relevant even as it incorporates other perspectives.



Objective Category	APCo Stakeholder Objectives	DEV Stakeholder Objectives
Regulatory/External Factors and Constraints	<ul style="list-style-type: none"> • Revise current cost-effectiveness tests to more accurately reflect full value of energy efficiency to Virginians. • Create “policy” sub group to address the regulatory and/or legislative obstacles that are currently in place preventing wider/deeper energy efficiency program implementation. • Restructure electricity pricing system so utilities earn more money by reducing energy demands. 	<ul style="list-style-type: none"> • Develop framework to influence/change policy that negatively impacts objectives of GTSA \$870M goal – for instance, 500 kw exemption with LGS customers that significantly caps potential of non-residential programs. • Address over 500 kw exclusion for commercial customers. • Are alternatives to same process possible? • Focus on results of energy saved, not money spent.
Communication	<ul style="list-style-type: none"> • Maximize SCC approval of proposed energy efficiency programs. • Updates on program success or challenges and identification of ways to overcome challenges. • Receive updates on program approvals from the SCC. • Have more open conversation between, SCC, utilities, and other stakeholders. 	<ul style="list-style-type: none"> • Two-way communication on what might/might not pass cost-effectiveness tests and how to get them to pass. • Link back to RFP process. • Inform stakeholders on SCC process, annual cycles, etc. • Stakeholders provide feedback on needs, provide opportunities for stakeholders to benefit. • Need an overall perspective on DEV operations so that we can see where our contribution fit. • Greater transparency in SCC calculations. • Greater transparency in program vendor costs
Education, Marketing, Messaging	<ul style="list-style-type: none"> • Elevate energy efficiency as a valued “energy resource” cheaper than other energy sources. • Continued awareness of energy efficiency across utilities, communities, etc. It needs to become the “cool” thing to do! • Include climate change in messaging. • Coordinate/utilize Virginia Energy Sense (VES) for marketing and outreach of programs. 	<ul style="list-style-type: none"> • To become aware of energy efficiency resources available to low-income home owners. • Better marketing/awareness of programs. • Publicize work and accomplishments of the group.

PROGRAM RECOMMENDATIONS

(ii) recommendations related to programs to be proposed that result from the stakeholder process

For the inception year of the energy efficiency stakeholder process each utility stakeholder group worked as a large group, with no sub-committees or working groups. Due to the large sizes of the groups, the independent monitor structured each meeting similarly to obtain as much feedback and participation as possible. Meetings generally started with welcome and introductions, followed by presentations informational presentations, and then stakeholder exercises to generate input and feedback. The stakeholder groups were divided into table groups, usually between 4 to 10 people. To accommodate different communication styles and adult learning principles, each stakeholder group was instructed to first reflect as an individual on a set of questions and write individual responses. Then share and discuss the ideas in the small group table setting. Next, as a group synthesize ideas and then present ideas to the larger group. All ideas were retained and provided in meeting notes. To prioritize ideas, the independent monitor employed various proven group multi-voting techniques.

Overall, each stakeholder group provided a significant amount of input for the utilities. Input was based upon creating new programs that currently don't exist, extending or expanding current or recently expired successful programs, or revisiting previously rejected program proposals for revision.



STAKEHOLDER RECOMMENDATIONS FOR APPALACHIAN POWER

The APCo stakeholder group initially proposed 19 program focus areas (Categories) and 78 program/measures recommendations. A copy of the raw data is provided in Appendix I. The stakeholder group consolidated and prioritized the list to five program focus areas, 37 program/measure recommendations and 63 program specifications. The list below was based upon the program/measure recommendations that were prioritized as sufficiently developed and clear for immediate action for the 2019 petition filing.

Table 3: Stakeholder Recommendations for APCo

Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
Expand Low-Income Programs	<ul style="list-style-type: none"> Expand low income programs to include non-electrically heated homes 	<ul style="list-style-type: none"> LI homeowners NOT heating with electric Reduce electric bills through efficient use of electrical energy Use same program already implemented for LI customers Adding low middle income to programs
	<ul style="list-style-type: none"> Deeper energy savings per household and treating HSE/building as a system 	<ul style="list-style-type: none"> Objective: Maximize EE savings for each home and each individual measure by implementing as a whole house system, weighting the total S.I.R. as the primary score objective over the individual measurement score.
	<ul style="list-style-type: none"> Educate on maintenance on ventilation fans HVAC/range hoods 	<ul style="list-style-type: none"> Objective: Prolong effectiveness of EE measures installed allowing for true savings Additional health/societal savings for individuals and families
	<ul style="list-style-type: none"> Expand health and safety to include smoke/CO detectors 	<ul style="list-style-type: none"> Objective: Look at hard-wired smoke detector systems installations Implemented with EE measures Installed by qualified professional
Improve Multi-Family Energy Efficiency	<ul style="list-style-type: none"> (Resistance baseboard heating upgrade) 	<ul style="list-style-type: none"> LMI home energy audit – low cost = broad reach; - educational and direct install measures Expand eligibility to elderly and veterans Require customers to enroll in WX if they receive assistance
	<ul style="list-style-type: none"> Home energy use data after weatherization/energy efficiency installs. For implementers: 12 months pre and post 	



Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
	<ul style="list-style-type: none"> • Low-income energy audit and custom measures <ul style="list-style-type: none"> o MF heat pump replacement program o Resistance baseboard heating o MF direct sealing rebate o Design to couple with WAP o MF insulation rebate o Resistance baseboard heating o MF direct sealing rebate o Design to couple with WAP o MF insulation rebate 	<ul style="list-style-type: none"> • Objective: Generate energy savings by promoting and adopting EE technologies in multi-family properties • Program description and eligible measures: Holistic, customized program that is geared towards maximizing energy savings for occupants; Energy audit, HVAC replacement/upgrade and tune-ups, insulation, air sealing and design to complement Federal WAP • Incentive strategy: all measures provided for free to eligible customers • Target market: Active low-income residential customers served by the company with existing residential multi-family attached housing; owner-occupied and non-owner occupied • Marketing strategy: Utilize WAP network, partner with local governments, non-profit, social service providers, co-branding materials with providers, website – landing page with providers listed, marketing through company customer service – referrals to providers, bill inserts • Implementation strategy: Utilize local weatherization providers to install EE measures; provide walk-through and intensive audits to develop detailed work scope • Budget: Total \$5 million annual • EMV: Impact and process evaluation reports by independent third party • Include opportunity to educate residents about EE • Connect e-saving measures to fire and life safety to maximize benefits and budgets
	<ul style="list-style-type: none"> • Multi-family common area program <ul style="list-style-type: none"> o Cross-market with commercial lighting program o Commercial program for master meter multi-family properties 	<ul style="list-style-type: none"> • Objective: Promote EE measures in commonplace MF locations • Target market: MF properties • Program description: Program will provide rebates for the installation of EE measures at MF properties. Utilize C&I network. • Incentive strategy: provide incentives that help offset the barrier to participation (e.g. upfront costs) • Implementation strategy: Utilize and expand existing C&I trade ally network and coordinate with weatherization network to ensure work is happening simultaneously to minimize disruption to occupants • Marketing strategy: Cross-market with low-income mf programs, Property management education/engagement, Bill inserts, Printed collateral • Eligible measures: exterior lighting, Boiler/chiller upgrades, interior common space lighting, attic insulation and air sealing • Networked lighting controls



Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
Increase Market Rate Incentives	<ul style="list-style-type: none"> • Expand eScore offerings/Rebates – electrical products <ul style="list-style-type: none"> o Rebates for insulation and weatherization o Tiered rebates o More measures o Systems approach 	<ul style="list-style-type: none"> • Parameters: Tiered rebate structure, quality control inspections, option to develop energy action plan • Intended outcomes: more measures installed per home; more savings per home; more measures available; larger contractor network; higher public regard • Target audience; Single family residential and contractor network; landlords • Measures: appliances expanded insulation offerings; tiered air sealing rebate; tune up program; recharging heat pump; EE kit (free); multi-measure bonus
	<ul style="list-style-type: none"> • Marketplace for EE products 	<ul style="list-style-type: none"> • Intended outcomes: easy access to measures-single location; ease of utility administration • Measures: showerheads, aerators, light bulbs, weatherstripping, appliances • Target audience: all residential (includes MF) condos • Parameters: streamlined process to purchase EE products • Instant rebate
	<ul style="list-style-type: none"> • Demand response <ul style="list-style-type: none"> o Water heater and thermostats 	<ul style="list-style-type: none"> • Intended outcome: increased grid capacity, higher incentive per customer • Measures: waterheaters, thermostats • Target audience: all residential • Parameters: electric waterheater, investigate winter peak • On demand waterheater
	<ul style="list-style-type: none"> • Behavioral program 	None provided
EV Integration	<ul style="list-style-type: none"> • Residential Charging <ul style="list-style-type: none"> o Single family, new build o Multi-family o Single family retrofit 	<ul style="list-style-type: none"> • Objective: Public/Private – Increase charging availability in the market – “Alleviate range anxiety”; Residential: Existing SF: Demystify and transform market; New construction (same as above) • Market: Public/Private: Gov’t, institutional and private communities. SF: SF homeowners, home buyers, home builders • Parameters/Approach: Public/Private: Market research, marketing plan, outreach, incentive strategy, partner with charging OEM; SF: market research, marketing plan, partner with car dealerships, outreach to builders, building operators, incentive strategy • Service upgrade incentives Broad customer uptake and empowerment
	<ul style="list-style-type: none"> • Charging Infrastructure <ul style="list-style-type: none"> o Public o State Locality • Private Locations <ul style="list-style-type: none"> o Grocery stores o Gas Stations 	<ul style="list-style-type: none"> • None provided, but similar to above



Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
C & I Installation	<ul style="list-style-type: none"> • Building Energy Management System/Retro Commissioning 	<ul style="list-style-type: none"> • BEMS: <ul style="list-style-type: none"> o Outcome: help customers control consumption o Target: combination of square footage and consumption o Parameters: new installations o Other program specifications: control lighting, HVAC, customer education • Retro Commissioning <ul style="list-style-type: none"> o Outcome: help customers control consumption o Target: Already have a BMS o Parameters: How building is currently used o Other important: Will allow you to find malfunctioning equipment • Include refrigeration • Employee education on EE
	<ul style="list-style-type: none"> • Expansion of Existing Programs <ul style="list-style-type: none"> o Efficient building lighting controls 	<ul style="list-style-type: none"> • Objective: Increase funding • Target: Current C & I customers and residential customers • Parameters: Understanding lifespan of effective measures • Program specification; model existing programs • Other important: customer education, example: CFL change to LED • Consideration of introducing advanced lighting controls as accepted measures/projects • Develop engineered/planned measure specifications • Rebate for audit/free audit • Consideration of CHP measured at industrial facilities • Cross-promotion with MF programs • Landlord incentives to upgrade building envelope and systems.

STAKEHOLDER RECOMMENDATIONS FOR DOMINION ENERGY VIRGINIA

The DEV stakeholder group initially proposed 31 program focus areas (Categories) and 250 program/measures recommendations. A copy of this list is provided in Appendix II. Dominion Energy Virginia organized the initial stakeholder recommendations into a list of 14 program focus areas and 146 program/measures recommendations with an initial prioritization rubric for the stakeholder group to delineate between 1) program concepts that appear to be sufficiently developed and sufficiently clear for immediate action or inclusion in DEV’s upcoming 2019 RFP; 2) suggestions that may be applicable to demand-side management (DSM) programs or as expansions of existing programs and may be further developed for inclusion in a subsequent RFP with some refinement; and 3) suggestions that may be either out of scope for the DSM stakeholder group or for which significant further study/analysis may be appropriate. A copy of the Dominion Energy Virginia consolidated list is provided in Appendix III. From the Dominion Energy Virginia consolidated list, the stakeholder group prioritized the recommendations into five program focus areas and 23 program/measures recommendations and 78 program specifications. The list below was based upon the program/measure recommendations that were prioritized as a (1), or sufficiently developed and clear for immediate action for the 2019 petition filing.



Table 5: Stakeholder Recommendations for Dominion Energy Virginia

Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
Energy Efficiency – Residential, Low-Income/Elderly	<ul style="list-style-type: none"> On-bill financing for savings and subsidized (deep energy retrofits) 	Problem: people know they need upgrades, can't afford. Offer bill-based financing for insulation, equipment, etc. <ul style="list-style-type: none"> Link with additional social services Outreach seminars Remove income restriction regionally Low-income and minority outreach Air sealing Broad and deep as possible Replace baseboard and window with mini-split Real energy analysts, not just checking boxes, developing cost-effective upgrades Outcome: Deeper savings, customer access to funds that don't have access
	<ul style="list-style-type: none"> Couple/scale program with DHCD weatherization 	<ul style="list-style-type: none"> Low admin, burden Replace baseboard heat with high efficiency mini-splits Include health and safety upgrades Built-in tech install specifications and quality control
	<ul style="list-style-type: none"> Multi-family education and upgrade 	<ul style="list-style-type: none"> Convene landlord consortium Create customer advocacy group and train them in EE measures to advocate and education their community High usage customers, low-income
	<ul style="list-style-type: none"> Develop volunteer program Targeted energy assessment, direct installs, education 	<ul style="list-style-type: none"> Green job training Energy masters Focus on using local workforce in rural areas to implement Volunteer based rebuilding together
	<ul style="list-style-type: none"> Home retrofits 	<ul style="list-style-type: none"> Existing 1-4 unit properties Total home health – custom Audit, blower, DI post-audit measures Cross-promotion of other available programs Outcomes <ul style="list-style-type: none"> Improve contractor network energy savings Programs we like: Home Performance with Energy Star
	<ul style="list-style-type: none"> Multi-family 	<ul style="list-style-type: none"> 5+ units Overcome split-incentive with privately-owned multi-family Treat common areas and in-unit (comprehensive, whole-building retrofits) Energy savings, increased health, comfort affordability Programs we like: <ul style="list-style-type: none"> Xcel/Centerpoint – jointly delivered (one application for owner) Gas/electric program available to market rate and affordable. Incentives for LI/affordable are doubled.



Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
	<ul style="list-style-type: none"> • New home • Advanced home technologies 	<ul style="list-style-type: none"> • Incentives tied to extent to which homes exceed code • Base on Energy Star new home program • Market signals, TOU, DR incorporation, education/access to data on consumption behavior • Every customer • Program parameters: has to have energy to grid, financial savings to the customer; customer receives energy data electronically and in real time
	<ul style="list-style-type: none"> • Small business direct install 	<ul style="list-style-type: none"> • Small business direct install <100kw • More savings • Expanded measures • Increase participation • Include demand limits (other customer eligibility requirements) • Advanced light control systems
Energy Efficiency – Non-Residential	<ul style="list-style-type: none"> • Upstream/mid-stream program to incentivize HP Water Heater, HVAC and Other Products 	<ul style="list-style-type: none"> • Upstream/mid-stream wider penetrations more cost effectively • Incentives for more high efficiency (and less low efficiency) • Importance of front-end customer education • Product categories must be defined
	<ul style="list-style-type: none"> • Building optimization (Retro-commercial) 	<ul style="list-style-type: none"> • Audience limited to non-business facilities with existing automated systems • Purpose is to make sure existing systems are being used for EE to drive savings • Enhanced data feedback to DEV • Submetering?
	<ul style="list-style-type: none"> • Incentivize building (new) automation and energy management systems 	<ul style="list-style-type: none"> • New automation • Larger commercial • Enhanced data feedback for utility • (admin different from retro-commercial)
Energy Efficiency – Engagement, Education, Behavioral	<ul style="list-style-type: none"> • Consumer app – enable voluntary response to critical peaks • Small business direct feedback • Direct feedback behavioral • Direct feedback (i.e. customized home E report) 	<p>Direct Feedback Programs</p> <ul style="list-style-type: none"> • Broad customer uptake and empowerment • Residential and small commercial and medium commercial • Multi-channel communication (paper, digital, careful focus regarding frequency) • Customer identifies value in program
	<ul style="list-style-type: none"> • Redesign bill – 1S rate savings 	<p>Bill redesign/Rate education</p> <ul style="list-style-type: none"> • Review applicability of Dominion Energy Virginia practice in North Carolina for Schedule 1P residential time of use demand-based Schedule 1P rate. • Shadow billing 1 option • Rate comparison another option • Shift customers to rates that conserve energy • Commercial and residential • Communication channels • Avoid base rate dynamic



Program Focus Area	Program/Measure Recommendations	Program Characteristics/Specifications
	<ul style="list-style-type: none"> • Enhance customer access to data • Enhance customer access to data • Adherence to national standards for customer data access 	<p>Enhance customer data access</p> <ul style="list-style-type: none"> • Customer empowerment – make own changes, work with 3rd parties • Residential and commercial • Parameters: <ul style="list-style-type: none"> o Privacy and security o Info portal – tech, much costs, C/B balance • Adherence to national data sharing standards
	<ul style="list-style-type: none"> • Educational programs: <ul style="list-style-type: none"> o K-12 o Faith-based o Community outreach o Phone-based o (EM&V question) 	<p>Educational programs</p> <ul style="list-style-type: none"> • General customer awareness of efficiency measures = increased uptake • (K-12) residential – [sector based] • Demo ROI/EM&V challenge – crosswalking • Potential energy efficiency kits
<p>Energy Efficiency – Residential and Non-Residential Financing</p>	<ul style="list-style-type: none"> • VA EE Financing Program 	<ul style="list-style-type: none"> • Applies to: <ul style="list-style-type: none"> o Residential o Commercial o Multi-family o Institutional (jurisdictional) • How funded <ul style="list-style-type: none"> o DMME RGGI Fund o Can rate base \$ go to lender to buy-down % rate? o Performance-based green bonds o Private sector (C-PACE) • How implemented: <ul style="list-style-type: none"> o Revolving fund o 3rd party lending o On-bill? o Specific metrics/EM&V o Mixed climate o Green mortgage • Intended Outcome <ul style="list-style-type: none"> o Drive uptake in low to moderate income markets o Stimulate public-private partnerships and new actions in financing /investment o Promote financing as pathway to increase EE participation o Promote green appraisals and better valuation of homes with EF o Promotes beyond code upgrades and installations • Partners <ul style="list-style-type: none"> o Banks, lenders, investment trusts, state agencies, large scale manufacturers and retail (such as Home Depot) • Other details <ul style="list-style-type: none"> o Some locational flexibility in defining “low income” o Energy/environmental scoring of buildings and homes (benchmarking)



HB 2789 FEEDBACK AND RECOMMENDATIONS

During the stakeholder process, the Virginia Assembly passed House Bill (HB) 2789, a bill requiring a petition be submitted to the SCC for approval of a program that would consist of two components:

- Component #1: Would provide incentives to low income, elderly, and disabled individuals for the installation of measures that reduce residential heating and cooling costs and enhance the health and safety of residents.
- Component #2: Would provide incentives to participants of Component #1 for the installation of solar generating equipment.

As part of the third DEV stakeholder meeting, the group used the opportunity to discuss possible approaches DEV could undertake regarding the goals and requirements of HB 2789. Specifically, the stakeholder group was asked to provide feedback on the structure of the heating and cooling / health and safety component (Component 1), with the understanding that a DEV response for the solar installation component would be forthcoming at a later time. DEV's objective was to obtain input from stakeholders to inform and shape an additional RFP to solicit proposals for additional energy efficiency programs to be submitted in the company's October 2019 filing petition. Since this was a first review early in the process, the feedback from stakeholders is presented as suggestions prompted by six questions posed to the group by the independent monitor. The full set of responses is provided in Appendix IV. The overarching recommendations are to have programs be consistent with existing and newly proposed programs, while using the opportunity to reach additional audiences as possible and feasible. Specific recommendations for conservation measures related to HVAC, air quality, duct sealing and insulation, thermostats, and appliance management. Stakeholders have raised questions about eligibility requirements, noting that they may be too restrictive in certain parts of the state. Some stakeholders have suggested that income thresholds should be based on a median value specific to the customer's area as opposed to the state median income. In the RFP, Dominion Energy Virginia is seeking additional input by asking respondents to provide perspectives on the appropriateness of the current eligibility thresholds and any alternatives that respondents wish to recommend.



RECOMMENDED PROGRAM SELECTION CRITERIA

Recognizing that the utilities may not be able to propose and/or implement all of the recommendations in the first-year petition filing, each stakeholder group also provided a prioritized list of criteria for the respective utility to use in determining which recommendations to pursue. The stakeholder groups encouraged the utilities to use these criteria in reaching out to potential vendors and partners for the programs and suggested that these may also be criteria that could be put into consideration by the SCC in reviewing proposed programs.

Table 6: Recommended Program Selection Criteria

Criteria in priority order	Proposed by APCo Stakeholders	Proposed by DEV Stakeholders
Breadth of Participation (equitable portfolio, customer reach, customer segmentation, # of customers that can participate)	X	X
Energy Savings & Potential Energy Savings (kwh savings per HH or customer, verifiability of savings)	X	X
Cost Effectiveness & Efficiency (reduced overhead, savings to investment ration, best utilization of dollars, all energy resources used effectively)	X	X
Customer Value and Satisfaction (utility of the program, new, useful, impactful, specific to service territory, impact on satisfaction)	X	X
Market Transformation (change energy consuming culture, fill a current market gap)	X	X
Energy Burden Reduction (greatest energy burden reduction, reduce load growth)	X	X
Societal/Community Benefit (impact on customers in most need, greatest societal benefits)	X	X
Ease of Deployment (ease of implementation within existing framework)	X	X
Expandability/Adaptability (flexibility in new technology, scalability, cross-benefit to grid transformation)	X	X
Economic Effect (Duration of savings over time, economic development impact)	X	X
Diversity of Measures (not reliant on one type of measure)		X
Environmental Benefits (greatest reduction in greenhouse gases)		X
Marketability (overall marketability for utility public image)	X	

⁷Stakeholder input from each utility group has been combined and ranked based upon total number of stakeholder group votes by small group tables.



STATUS OF RECOMMENDATIONS

(iii) the status of those recommendations, in addition to the petitions filed and the determination thereon

Each utility has taken the stakeholder feedback its received and incorporated it into its initial program planning for the 2019 energy efficiency program petition filing. Initial proposed programs or program areas were also coordinated with existing utility programs to avoid duplication. Recommendations not included in the 2019 petition filings will be discussed and prioritized in subsequent years by the stakeholder groups.

Appalachian Power

APCo provided the stakeholder group with draft program templates to review for three programs it anticipates filing in 2019. The templates included information on the programs' objectives, target market, description, incentive strategy, eligible measures, implementation strategy, marketing strategy, evaluation, measurement and verification plan (EM&V), estimated program impacts, program budget, and cost effectiveness test results. The stakeholder group provided feedback on how to strengthen the programs and enhance the proposals. The three anticipated programs meet the priority recommendations of the stakeholder group.

- **Low Income Single Family (LISF).** The objective of the Extended Low Income Single Family (LISF) Program is to deliver targeted, cost-effective measures to residential low income customers through evaluation and implementation of energy saving improvement opportunities. The LISF Program will be implemented to supplement Appalachian Power's (APCo) existing Residential Low Income Weatherization Program that has been implemented since 2015. The LISF Program is designed to provide home energy services to APCo's Virginia customers with limited income to assist them in reducing their electric energy usage and to manage their utility costs. The LISF Program will help facilitate the implementation of cost-effective electric energy-saving measures in residential low income households. These services would be provided at no cost to qualifying participants.
- **Low Income Multifamily (LIMF).** The objective of the Low Income Multifamily (LIMF) Program is to deliver targeted, cost-effective measures to income-qualified multifamily households and properties. The program will also educate and motivate owners to participate in additional programs offered by APCo in Virginia. The LIMF Program will also include an education component for participating customers on ways to most effectively manage their energy usage. The LIMF Program will reduce energy consumption by educating residential customers about the energy and money saving benefits associated with energy efficiency in the home. All customers participating in this program will receive educational materials and an opportunity to discuss ways that they can continue to conserve and maintain the efficiency of their home after the services have been performed. All services will be provided at no cost to the customer.
- **ENERGY STAR Manufactured Housing (ESMH).** The objective of the ENERGY STAR Manufactured Housing Program ("ESMH") is to grow the market for ENERGY STAR homes in the Virginia service territory of APCo by providing manufactured homes producers, sellers and HVAC industry partners with an incentive to promote and facilitate the completion of new ENERGY STAR certified manufactured homes. The ESMH Program will pay incentives in the form of rebates for electrically heated manufactured homes that qualify for the ENERGY STAR label as defined by the U.S. Environmental Protection Agency. ENERGY STAR compliance requires the use of a package of envelope and equipment measure that in combination result in performance that is more energy efficient than comparable homes built to the federal Manufactured Home Construction and Safety Standards, commonly referred to as the HUD code.

Based upon the feedback provided by the stakeholder group to the templates, APCo is making revisions and currently conducting data analysis to prepare for the filing. The independent monitor is preparing to convene a fourth meeting in late July or early August with the stakeholder group to provide additional feedback, discussion, and coordinated preparation for the petition filing.



Dominion Energy Virginia

DEV solicited proposals through an RFP for program designs based on concepts developed from the stakeholder group meetings. The proposal request was based on compilation of stakeholder recommendations and selection of those that were readily developed into DSM programs. Programs involving low-income customers and more complex or non-traditional areas were held for a later round of RFPs to mesh with contract expiration dates. DEV prioritized the recommendations to avoid delaying issuance of RFP. Program concepts that have been held for later round of RFPs include those involving already existing programs, financing, energy storage, sub / micro grids, distributed energy, ISO standards, and electric rates. DEV plans to include requests for low-income program proposals in 2020 RFP.

The released RFP targeted 16 program areas, including an option for new programs for vendor proposals. These were:

- **Residential Energy Efficiency – Home Retrofit.** This program would incentivize retrofit of participating customer homes using measures that may extend beyond what would be considered a typical measure in a home energy assessment program. The program could encourage retrofit measures using either (1) a menu-based approach, which would provide rebates or incentives associated with specific retrofit items, or (2) a “standards” approach which would encourage participants to perform retrofits to achieve specific energy efficiency standards, such as EnergyStar, Passive House, specific HERS ratings, or retrofits that meet/exceed specific numerical energy consumption thresholds.
- **Residential New Construction.** This program would encourage the use of energy efficient materials and practices in new home construction through a combination of incentives and education.
- **Residential Energy Efficiency – Home Energy Management System.** This program would encourage the installation of energy management systems in existing homes.
- **Residential Energy Efficiency – Multi-Family Targeted.** This program would identify and target multi-family residences with incentives and measures specifically designed to take advantage of energy-saving opportunities in this type of residence. For the purpose of this program, the assumption is that a multi-family residence is defined as a residence with a shared envelope, wall or floor/ceiling, with no specific limitation on the number of residences within a given structure.
- **Residential Energy Efficiency - Manufactured Housing.** This program would offer incentives for the installation of energy efficiency measures designed specifically for manufactured and modular housing.
- **Residential Energy Efficiency Kits.** This program would provide energy efficiency kits to customers as a welcome gift or in response to requests under specific conditions.
- **Residential Energy Advisor / Energy Education Program.** This program would provide staffing and subject matter experts to interact with customers directly by phone, e-mail, and/or social media to provide energy efficiency advice on request. The program may also include staffing to provide experts at public events and meetings of local organizations.
- **Residential Electric Vehicle Program.** This program would encourage efficient charging of electric vehicles and shifting of electric vehicle charging load to off-peak periods. The incentive may be constructed such that it encourages a combination of purchase of higher efficiency/communicating charging equipment and/or load reduction using communicating charging equipment or by other means. Creativity in terms of the form of the incentive is welcomed in order to maximize cost-effectiveness. The program is not seeking proposals for a time-of-use electric rate or tariff as part of this program.
- **Residential Enhanced Behavioral Program.** This program would provide incentives, education, and/or information that would encourage customers to reduce electrical usage in general or at specific times. A demand response component may be included in the program design in order to maximize value of the program. Note carefully that, if a demand response component is included in the program design in addition to an energy efficiency component, the demand response component must be provided with separate cost, participation, and load shape information from the energy efficiency component due to the requirements of our cost-effectiveness modeling system.
- **Non-Residential Behavioral Program.** This program would provide incentives, education, and/or information that would provide customers with specific suggestions for reducing electrical usage based on historical usage patterns and other information provided by the customer. A demand response component may be included in the program design in addition to an energy efficiency component in order to maximize value of the program. Note carefully that, if a demand response component is included in the program design, that it must be provided with separate cost, participation, and load shape information) due to the requirements of our cost-effectiveness modeling system.



- **Non-Residential Targeted Sector Program.** This program would encourage through incentives and education application of energy efficiency measures specific to targeted non-residential customer sectors.
- **Non-Residential Upstream and Midstream Efficient Products Incentives.** A companion program to a proposed residential efficient products program that would take advantage of additional savings opportunities that could be realized through upstream and midstream incentives applied to energy efficient products but targeted at non-residential customers. The proposed residential program includes incentives for the following items: A-Lines, Reflectors, Decoratives, Globes, Lighting Retrofit Kit and Fixture, Freezer, Refrigeration, Clothes Washer, Dehumidifier, Energy Star Air Purifier, Clothes Dryer, and Dishwasher.
- **Non-Residential New Construction.** This program would encourage the use of energy efficient materials and practices in new construction through a combination of incentives and education.
- **Non-Residential Strategic Energy Management.** This program would provide incentives to customers to engage in strategic energy management in a way that is measurable and verifiable.
- **Agricultural Energy Efficiency.** This program would provide incentives to apply energy efficiency measures associated with measures applicable to agricultural, silvicultural, or aquacultural activities or interests.
- **New Programs.** New DSM programs not identified by Dominion Energy Virginia in the RFP.

DEV has received 43 proposals from eleven different firms. Proposals addressed the following categories:

Residential

- Home Retrofit
- New Construction
- Home Energy Management Systems
- Multi-family Targeted
- Manufactured housing
- Energy Efficiency Kits
- Electric Vehicles
- Enhanced Behavioral

Non-Residential

- Behavioral
- Targeted Sector
- Upstream and Midstream Efficient Products
- New Construction
- Strategic Energy Management
- Agricultural Energy Efficiency
- Code Compliance

There was significant interest in various types of electric vehicle programs, agricultural programs, and non-residential mid- and upstream products programs. No proposals were received for the energy advisor / education category.

As of the end of May 2019, proposals were under review. DEV has issued an RFP for evaluation, measurement & verification services and used the stakeholder process to gather input on a possible approach to the recently enacted HB 2789 requiring a petition be submitted for approval of a program that would consist of two components:

- Component #1: Would provide incentives to low income, elderly, and disabled individuals for the installation of measures that reduce residential heating and cooling costs and enhance the health and safety of residents.
- Component #2: Would provide incentives to participants of Component #1 for the installation of solar generating equipment.

DEV would like to issue an RFP in parallel for the component 1 (Heating & Cooling / Safety & Health) and explore possibility of dovetailing this program with existing income-qualifying programs. It expects to include a proposed program in the next DSM petition filing. A subsequent RFP for component 2 for a solar program will come later.

The DEV will use the successful proposals to develop its DSM petition filing. The utility plans to obtain stakeholder feedback on the draft filing in the late summer of 2019 as well as planning to gather stakeholder input on the next round of DSM programs.

HB 2789

DEV recently issued an RFP in parallel for Component 1 (Heating & Cooling / Safety & Health) using input from the stakeholder process with the intent to dovetail this program with existing income-qualifying programs. It expects to include a proposed program in its next DSM petition filing. A subsequent RFP for Component 2 for a solar program will come later. DEV will use the successful proposals to develop its DSM petition filing. The utility plans to obtain stakeholder feedback on the draft filing in the late summer of 2019 as well as planning to gather stakeholder input on the next round of DSM programs. It should be noted; however, that there is still much work to be done regarding HB 2789 and development of potential program filings, including separate meetings with solar advocates and providers.



STATUS OF FILED PETITIONS

Filing of petitions for 2019 will occur after the submission of this report. Petitions are expected to be filed by Appalachian Power in September 2019 and by Dominion Energy Virginia in October 2019. Determinations and program status for the calendar year 2019 petitions will be reported in the 2020 Annual Report.

ISSUES FOR FURTHER EXPLORATION

Throughout the stakeholder process, the independent monitor collected ideas raised by members that were relevant for the stakeholder group, but either did not meet specific objectives of the meeting or were deemed outside of the scope of the first year. The ideas and suggestions raised by stakeholder members represent additional information for the stakeholder group, including the utilities and the SCC, for consideration. A few of the ideas are repeated from the subsequent year stakeholder process objectives. The independent monitor has grouped the ideas into five themes: additional program ideas and actions, review/revise testing requirements, revise filing process/legislation, marketing/outreach, and the stakeholder process/participation. After the good first steps of the stakeholder groups, there are now opportunities for the groups to become more effective by focusing on these additional issues through the development of a group vision and long-term plan.

Additional Program Ideas and Actions

Expand program parameters

- Can foundation funds be used to overcome barriers to entry for participation in regulated programs?
- Guide grants to be more intentional, e.g. Mid-Am energy funds, Treekeeper program, it's charity but also lowers peak demand.
- Need to consider the role of Direct Current across the board
- Transactive energy – blockchain
- Renewable energy and net metering
- Firm service with load management built in should be the basic (default) service. Can opt out.
- APCo: Engage with Carlilion around indoor air quality as program's next step.
- Roof issues:
 - o 30-40% are deferred. Include durability (roofs) as part of allowable repair.
 - o How much e-waste is fundamentally a roof issues as a barrier?

Customer Based Tools

- Create a signal capability that customer owned demand control devices could use to supplement the existing TOU demand periods – allowing the services to go “on peak” whenever utility needed it.
 - o Develop process to reward the behavior
- Develop “free” app for customers that provides alert during control peak periods that would allow customers to take normal action to reduce demand. App could include money ideas and customer on EE/DR options available.
- For low-income households – a priority code for when the electric line to the house has to be disconnected for say an electric panel breaker box change out for a weatherization client so that the needed work can be completed without delay.

21st Century Grid

- Integration of existing building stock (deep energy retrofit) into design – 21st century grid
- Could Dominion Energy Virginia commission a study of a “clean slate” design for a 21st century grid given what current needs are?

Benchmarking/Best Practices

- Virginia scored 0 on ACEEE 2018 EE Scorecard for CHP, focus on improvement
- Leverage best practices of energy efficiency innovations from pioneering countries like Germany.

⁸ <https://lis.virginia.gov/cgi-bin/legp604.exe?191+sum+HB2789>



Review/Revise Testing Requirements

- Cost -effectiveness: Should be addressed at the program or portfolio level not at the measure level. The stakeholder group should discuss with the SCC what it would take for the SCC to approve/feel comfortable with this.
- Review of cost tests
- Increase transparency of inputs and assumptions for cost-tests between SCC and utilities.
- Review of tests used as criteria for selection. Are there other criteria that should be considered by the SCC?
- Continue to use the 4 cost-effectiveness tests (as required by law) BUT calculate external and non-energy benefits as part of the Benefits/Cost ration.

Revise Filing Process/Legislation

- Increase stakeholder member understanding of what broader processes or practices are roadblocks to Dominion Energy Virginia and APCo’s deployment of their required EE spending? E.g. Cost effectiveness tests, program development and approval cycles, politics at SCC.
- Standardized filing materials for both electric utilities and to the extent feasible, the gas utilities
- Recommend that the stakeholders express a proposal that has focus on energy efficiency, kwh reduction, to the exclusion of DR, peak reduction, be amended. Whether legislated or SCC policy, there should be programs that address both of these objectives.
- Carve out a part of grant funding to further efficiency goals. More flexibility to test ideas, encourage entrepreneurs etc. This would also generate goodwill.
- In addition to program recommendations, draft joint statement or propose legislation to reform process. Unprecedented chance to have united voice of utility, muni’s, non-profits, etc. in support of common goal.
- Need legislative remedy to SB966 limiting energy efficiency program cost recoup (recovery) to customers under 500 kw. Lift the 500 kw cap to 5 mw.

Marketing/Outreach

- Utilize local governments to reach customers.
- Marketing tools
 - o Co-branding materials
 - o Partnerships with trusted sources (e.g. local government)
- Define the role of Virginia Energy Save with Utility Energy Efficiency Programs, increase collaboration?

Stakeholder Process/Participation

- Increase inclusion of citizens/rate payers who are not affiliated with an advocacy group, government, utility, etc.? The average everyday ratepayer should be represented.
- Stakeholder list should include local governments and large customers.
- Look to other state stakeholder processes to enhance the Virginia process.
- How should the stakeholder group look beyond program design feedback to other issues?

Next Steps

The stakeholder groups identified accomplishments they each would like to achieve in the next year of the energy efficiency stakeholder process to improve energy efficiency in Virginia. The accomplishments are categorized and shown for each group.

2019 – 2020 ACCOMPLISHMENT GOALS
Table 7: 2019-2020 Accomplishment Goals

Accomplishment Area	APCo Accomplishments	DEV Accomplishments
Proposed programs as catalysts for other benefits	<ul style="list-style-type: none"> • Expansion of the energy efficiency framework • Influence and impact the state of next generation energy efficiency programs • Utilize programs to help economic development 	<ul style="list-style-type: none"> • Regulatory innovation: Modernize the way we assess the value of DERs and in particular the flexibility of electric vehicles and charging infrastructure. Load shifting and managed EV charging can provide value to the grid and customers beyond energy efficiency and peak showing and should get credit for that. • Consider customer rebate/kicker for home energy retrofit customer does with private financing (e.g. \$500 rebate for \$5000 job).



Accomplishment Area	APCo Accomplishments	DEV Accomplishments
Increase program participation	<ul style="list-style-type: none"> • Expand programs to target groups • Comprehensive – something for all customers • Engage with customer experience to be more aware of customer needs • Expand low-income programs, touch more homes in new ways • Ideas and programs meet the needs of specific SWVA customers 	<ul style="list-style-type: none"> • Whole-building multifamily energy efficiency program that includes affordable housing. • Expand energy efficiency access to low-income groups. • Establish residential programs that were just recently passed by SCC. 6 new programs is 300% more than what has been available the last 2 years. • Increase access and participation in energy efficiency programs for low-income and renters. • Expanded measures and eligibility for low-income and elderly residential programs to adopt AMI. • Expand eligibility criteria for new and existing programs <ul style="list-style-type: none"> o Types of housing o Commercial and industrial o Government
Changes for the energy efficiency program process	<ul style="list-style-type: none"> • Be funded with utility funds • Continued funding for programs • Maximize actual accepted programs • Expand scope and partners • Science-based approach to evaluate success • Utilities comfortable proposing new, revising continuing programs • SCC comfortable approving programs • Develop wide array of innovative programs • Use funds for non-electrically heated homes 	<ul style="list-style-type: none"> • Have a streamlined process to adjust approved, active programs for improved effectiveness. • Eliminate gap between program terms. • Set a 10-year strategy for the \$870 million investment (e.g. energy savings goal) • Develop a process to develop an integrated strategic plan that encompasses energy efficiency, DR in IRP, DSM and grid modification. • Identify clear long-term goals and integrate into annual stakeholder report. • Energy savings goals to guide energy efficiency spending (over next 8 years) • Adoption of latest International Energy Conservation Code (IECC) energy efficiency standards. • Continue to bring forward a diverse set of programs.
Improved/Increased collaboration, relationships, and partnerships	<ul style="list-style-type: none"> • More collaborative relationship with both the utilities for approved programs and also non-regulated entities • Work together to achieve cost-effective portfolio 	<ul style="list-style-type: none"> • Increase participation of mid-size commercial and small government agencies in energy improvement projects. • Encourage more customer representation in meetings; and/or some entity to represent the customers' interests.
Increase energy efficiency outcomes	<ul style="list-style-type: none"> • Maximize effectiveness of the programs • Maintenance program where people have to do little but it helps prolong life • Energy used in community is equitable for people and environment • Reduced energy demands • Maximize benefit to customers • Programs that do real work, not politicized, but working for people – unanimous support 	<ul style="list-style-type: none"> • Advance combined heat and power technology in Virginia.



Accomplishment Area	APCo Accomplishments	DEV Accomplishments
Use of technology and data	<ul style="list-style-type: none"> • Better data collection and tracking/measurement 	<ul style="list-style-type: none"> • Expand deployment of automated demand control technology for residential and small business, ultimately with real-time pricing and signaling of peak time. • Benchmarking data collection, data transparency, consistent methodology. • Encourage automated load management in solar installation in order to provide enhanced equipment functionality within constraint of solar max capacity. • Benchmarking – we need better data to determine where things are at now so we can: 1) figure out where we can go, and 2) measure progress.

Stakeholder Group Evolution

The first year of the stakeholder groups was primarily focused on bringing stakeholders together to provide input for the development of proposed energy efficiency programs and ongoing feedback as the proposed programs are developed and shared for the APCo and DEV. The intended result is to have petitions that are filed with the SCC for its review, that have included the knowledge, expertise, and buy-in of the energy efficiency stakeholders so that implementation will contribute to desired energy conservation goals of the state. As the groups are making progress with the first-year objectives, several stakeholder members have suggested the groups continue and evolve for the remaining 10 years.

In reviewing similar stakeholder processes in other states and jurisdictions such as Arkansas, the District of Columbia, and Illinois, there are three characteristics these groups demonstrate that the APCo and DEV stakeholder groups could assume and that the independent monitor could facilitate. These characteristics are:

- 1) ***A stakeholder group developed vision and strategic or guiding plan.*** Other states’ stakeholder groups, which have been in existence longer, have developed strategic plans, or guiding plans, and generally have a wider range of responsibilities, including development of common performance metrics and review of performance toward goals, development of energy efficiency manuals, and review of existing programs. The idea of a stakeholder strategic plan has been raised by a few members in each utility stakeholder group. Virginia could adopt these additional responsibilities within the current framework of the stakeholder group.
- 2) ***Working groups to address multiple issues simultaneously.*** Given the complexity and scope of energy efficiency issues, other states’ have adopted workgroup, or sub-group, formats so that multiple issues can be worked on simultaneously to make the group more effective and efficient. There are sufficient additional ideas and objectives that have been raised by each utility stakeholder group to warrant consideration of a sub-group approach. In other examples, each sub-group has its own charter and schedule of meetings and reporting. A few stakeholder members, including one of the utilities, have also voiced the idea of workgroups as a next step. Virginia could adopt this practice within the current stakeholder framework.
- 3) ***Stakeholder group written policies and procedures*** for member roles and responsibilities, group decision-making, and meeting logistics. In order to continue to drive interest, participation, and support for the stakeholder process, it is important to give members larger roles and responsibilities in the process yet have commonly agreed upon approaches and operations. Other stakeholder groups have had stakeholders develop charters, policy and procedures documentation to establish more inclusion. Virginia could adopt this practice within the current framework.

In its first year, the stakeholder groups have made progress toward providing input and review of APCo and DEV proposed energy efficiency programs. As Virginia heads into its second year, enough of a foundation has been set to have the stakeholder groups become even more successful through expanding the members’ roles within the groups and to begin using the promising and best practices of similar processes.



Appendix I: Initial Stakeholder Recommendations for Appalachian Power

Program Focus Area	Program/Measure Recommendations
Improve multi-family EE	<ul style="list-style-type: none"> • Low income program targeted at multi-family housing families, similar measures as SF • Market rate multi-family EE programs • Market rate multi-family housing EE program with incentives • Low-income multi-family program
Increase single family EE	<ul style="list-style-type: none"> • Increase single family EE • Energy efficient manufactured housing • Existing low-income program expanded – more funding and HH's • LMI Solar/EE Program – Pilots with single family LMI homes that utilities EE programs to address energy usage; solar install to meet new energy usage needs. Yes, financing would need to be creative... • Residential HVAC rebates for high efficiency equipment
Increase C&I Programs Non-Categorized	<ul style="list-style-type: none"> • Voluntary benchmark program with incentives • C&I building envelope assessment • Low-income multifamily retrofit and weatherization expansion • Targeting low-income and minority communities • Convene landlord consortium to address legal incentives for energy use by apartment dwellers • EV Charging – EE guidelines
Maximizing benefits to residential customers thru deeper EE measures	<ul style="list-style-type: none"> • Deeper energy savings per household, and treating the entire house/building as a system • Low income direct install • Efficient products: start an online marketplace to (residential and commercial) help customers purchase efficient products and appliances; connect customers who recycled appliances to this marketplace. (Dominion Energy Virginia has similar program). • Residential heat pump rebate • Residential weatherization rebates • Residential Energy Star Appliances
Addressing commercial energy use	<ul style="list-style-type: none"> • Strategic Energy Management (SEM) for C&I customers • Program to address split incentive for commercial tenants who don't pay electricity bills • Expand eScore to commercial customers • C&I custom does not fall into typical measure
Helping underserved customers	<ul style="list-style-type: none"> • Program for rural, low-income renters and owners • Agricultural energy efficiency programs • Multi-family comprehensive EE program – implement lessons learned from past multi-family pilots • Small business education
Promoting energy-efficient residential behavior	<ul style="list-style-type: none"> • Residential behavioral program • Residential online tools for evaluating energy use
New Building Stock	<ul style="list-style-type: none"> • Program to improve EE of new buildings during construction – certification that can be valued by potential buyers
Considering non-energy benefits	<ul style="list-style-type: none"> • Health and safety measures in addition to energy saving measures • A subgroup including APCo, SCC and interested stakeholders to discuss inputs to cost-effectiveness tests and how to quantify non-energy benefits like health and safety



Program Focus Area	Program/Measure Recommendations
Expand low-income program	<ul style="list-style-type: none"> • Use AMI • Expand low income WX to include non-electrically heated homes • Low income weatherization program – expand to all low income Appalachian Power customers even if they don't heat with electricity • Low income weatherization with health and safety • Low income multi-family program
Increase market rate incentives program	<ul style="list-style-type: none"> • Market rate incentive program • Program for mid-income customers (who don't qualify for low income program) to offer help/rebates? On replacing inefficient heat systems <ul style="list-style-type: none"> • Incentives for non-electrically heated home upgrades • Window and door program – rebates or incentives for everyone • Electrical upgrade incentives/assistance • Refrigeration replacement for anybody • Market rate rebate/incentive program for customers that want to switch to electric heat • Veterans WX program – not low income – just either be a veteran or receive veteran benefits
Educate customers	<ul style="list-style-type: none"> • Educational program for customers to understand usage
C&I Installation	<ul style="list-style-type: none"> • C&I performance contracting program • C&I duct sealing • HVAC upgrades for commercial accounts and residential • Commercial retro commissioning program • Air sealing and insulating measures for commercial buildings • New construction energy efficiency C&I • C&I lighting controls
Data Management	<ul style="list-style-type: none"> • Commercial energy master planning program • Strategic energy management • Home automation program • AMI feedback TCD to eScore • Home energy management <ul style="list-style-type: none"> o Customer insight into usage o Home automation
C&I Data Management	<ul style="list-style-type: none"> • C&I Energy Star scoring and benchmarking • Small business controls program • Small commercial energy management solutions • Small business energy management • C&I electrification • Small business demand response
Commercial/Resident Product Marketplace	<ul style="list-style-type: none"> • Online marketplace for EE measures • Retail products program <ul style="list-style-type: none"> o Beyond lighting o Instant rebate • Water heater measures for residential/commercial
Low income residential/multi-family installation	<ul style="list-style-type: none"> • Multi-family direct install • Low income multi-family • Expanded low income weatherization, single family • Low income multi-family custom (not just D.I.) • Extend low-income residential program • Low-income multi-family program
EV Integration	<ul style="list-style-type: none"> • EV Driver Program • Integrate electric vehicles with the grid • Electric vehicles <ul style="list-style-type: none"> o Home charging o Consumer education o EV tariff



Appendix II: Initial DEV Stakeholder Recommendations

Program Focus Area	Program/Measure Recommendations
Customer engagement: elevate why they should care and engage	<ul style="list-style-type: none"> • Easy to use education and outreach, program materials • Customer education and engagement series: <ul style="list-style-type: none"> o Community forums o Webinars o Individual assessment (home/business) on energy usage o Workshops on reducing energy consumption (programs available) • Make all EM&V data as public as possible • Community/consumer education programs on smarter energy efficiency
Public awareness of usage and what that means	<ul style="list-style-type: none"> • Pilots to try out different program ideas • Address free riders
Split incentive programs for building owner/tenant for small to mid-size communities	<ul style="list-style-type: none"> • Instant rebate technology that allow consumer to get their Dominion Energy Virginia rebate at time of checkout at Home Depot, Lowe's, etc. • Multi-family incentive program to overhaul multi-family high energy users to help reduce consumption • Identify/target highest users • Incentives for lower energy use – bill credit for using less than average amount for either customer class or size of space, etc. • Bill-assessed efficiency financing
Split incentive programs for building owner/management firm for low income	<ul style="list-style-type: none"> • Low-income multifamily retrofit and weatherization expansion • Targeting low-income and minority communities • Convene landlord consortium to address legal incentives for energy use by apartment dwellers
Low income new construction, replacement of housing stock	<ul style="list-style-type: none"> • Train volunteers to install EE devices in low-income apartments. “Energy Masters” of Arlington style • Focus on industrial customers • MF low-income “Energize” • Comprehensive retrofits • Direct-install for other savings measures • Tie-in to community solar for further bill reduction • Incentive goes to owner, benefits to residents • Green job training/scholarship for low-income youth to access career path in EE/RE • Program for low-income up to 200% of poverty to put in place best practices, up to \$X (possibly \$8K or some limit) without restrictions on fixes to enable implementation such as roof repair, etc. to reduce energy consumption and bills by 30% (at least) • Incentive programs that reach more low-income households in a faster more cost-effective than traditional weatherization programs. • Focus on local government programs and school systems energy use/conservation • Program to implement EE in public housing and Section 8 housing stocks • Multifamily residential offerings: HVAC tune-ups, direct install measures • Low-income program for multi-family/families • High use program for high residential or other customer class users – implementation of best most impactful EE measures to bring users in line with average use • Low income residential program/focus on manufactured and mobile housing



Program Focus Area	Program/Measure Recommendations
Demand management programs that are customer-focused	<ul style="list-style-type: none"> • Residential lighting (lightbulbs, etc.) • DIY energy efficiency kits for all customers • Duct test and sealing • Small business direct install • Different energy options for energy access: <ul style="list-style-type: none"> ◦ Pay as you go option ◦ Better pricing for off-peak usage • Residential direct install
Rewards for customers achieving conservation	<ul style="list-style-type: none"> • Contractors rewarded (paid) for energy saved, not widgets replaced • Data center custom efficiency with combined heat and power efficiency • C&I Competition – incentives for wholistic retrofits/upgrades, further rewards to customers who reduce most (bill credits) • PR • Tie-in to business recruitment through VEDP and SOCT's office • Capture reductions from upgrade recommendations, not direct install only • Smart meter approval and deployment plus time of use rates and education • Bill credit for low energy consumption customers • Recording kwh usage of users vs. non-users (opt-in vs. not) • Large industrial customers heavy users that have been seeing increase of energy consumption
HVAC System replacement: remove barrier for fuel neutrality	<ul style="list-style-type: none"> • Non-residential offerings for customers > 500kw (but less than 10 mw), lighting systems and controls, HVAC, duct test and seal • On-bill finance for residential retrofits • Utility/finance partner offer loans to customers to be paid back on-bill with savings • Energy Star/EE improvements per existing residential customers • Rebates for Energy Star Appliances and products • Residential offerings for home audits w/ direct install and major measures • Benchmarking/competition for commercial industrial • O Power-type information, competition for residential • Self customer audit, i.d. existing appliances in home by customer • Use data analytics to monitor for improved efficiency offering • Residential energy data/energy usage program paired with rooftop solar • SMART Home Program – EV, PV, STAT, TOU Optimization and orchestration • Hotel key card (use key to turn on lights, heat, etc.) • Water heater blankets • Motion sensors for all lighting (residential and commercial)
Increase transparency of Dominion Energy Virginia data	<ul style="list-style-type: none"> • Pervasive education campaign on benefits and means of implementing EE in residences • Process transparency • Program implementer is independent of utility...reports to SCC, DMME, GA • Cheap and easy phone apps that allow customers to see how much they have spent to date on energy. A helpful budgeting tool/with AMI meters
Regulatory Approval: Improved such that the gap between programs is eliminated	<ul style="list-style-type: none"> • All DEV programs are designed to harmonize with other utilities' (gas, too) programs and government incentives • Residential program contractors must be licensed energy analysts • Create reliable, long-term program to maximize buy-in • Education programs: <ul style="list-style-type: none"> ◦ Elementary ◦ Middle ◦ High School



Program Focus Area	Program/Measure Recommendations
Non-Categorized ideas	<ul style="list-style-type: none"> • Policy subgroup that addresses how utilities earn profits to shift from capital asset investments to services/quality and other areas (planning, implementation, delivery, reliability, innovating, customer engagement/satisfaction, etc.) • EM&V stakeholder group to develop stronger and effective protocols that values EE appropriately, moving towards EE as “generation” resource. Shifting EE language from \$\$ spent to energy saved
Overall program design elements and needs	<ul style="list-style-type: none"> • Dominion Energy Virginia walk the talk on its own facilities • Incentivize heat pump water heaters • Efficient appliance rebates • Offer program for new residential construction • Continued upstream lighting • Efficient product rebates • Residential behavioral program • Incentives for LED lighting • Focus Groups of customers, program service providers, tech UX specialists to gather key elements needed to improve and ease program uptake • Using AMI hourly data ...to develop customized rate schedules for groups of like-energy users and communicate to those consumers how a specific new rate would save them money like time of use, peak time rebate, demand rate, etc. based on usage • Prioritize energy efficiency programs over demand response programs • Gamification/competition among groups (customers) • Survey customers who want energy audits and then goal of 10 a week for instance for those who filled out survey • Re-design bill • Promote customer incentives • Layer B tier EE improvements w/in DVP funding • Match and consider other EE funding program eligibility/document requirements • Design programs to leverage and supplement each other
Residential	<ul style="list-style-type: none"> • Residential rebates • Low income and elderly direct install programs • Market rate residential (e.g. above low-income) • Low-income energy efficiency bill reductions (Program design focus)
Single Family	<ul style="list-style-type: none"> • Expand and further support LEAP • WiFi thermostat rebate • Custom residential program that begins with home energy audit and blower door test • Equity programs for EE in LI communities • Healthy building materials in home retrofits • Active target of EE opps for all customer classes



Program Focus Area	Program/Measure Recommendations
Multifamily	<ul style="list-style-type: none"> • Low income multi family • Multifamily • Market-based multifamily • LED lighting upgrades (rebates or incentives) • Program designed specifically for multifamily buildings and the clients served <ul style="list-style-type: none"> o Client education o Health and safety o HVAC efficiency that may include fuel switching and electrification o Weatherization o Direct install measures • Multifamily (low income) • Expand multifamily EE program measures • Multifamily common area improvements/upgrades
Large commercial/industrial	<ul style="list-style-type: none"> • Create equivalent of a feed-in tariff to support heat/cooling convergence for data centers and commercial/residential development • Offer strategic energy management (SEM) program • Incentivize building operation optimization (commercial building) • Commercial lighting • Just replace all commercial lighting • Data center as an energy resource – serve to coordinate data centers in communities as heat/cool resource as EE opportunity • Commercial rebates • Open the process to consumers to engage and actively be part of energy reduction (some ideas) <ul style="list-style-type: none"> o Using apps o Focus groups o Funding for replacement of high consumption appliances (expand use) • Commercial and industrial demand response <ul style="list-style-type: none"> o Untapped PR capacity o Allow customers to save on demand charges o Potentially offset of capital investments infrastructure o Leverage for emergency or for economic reasons
Renewables and Energy Technology (Batteries, EVs)	<ul style="list-style-type: none"> • Expand renewable energy focus – consider solar install in multi-family (even common meter property) • Have program that also helps maintain solar equipment (funding to help LMI clients) • Assist small businesses in solar options • Batteries – fully use the economic benefit of batteries (and value their uses to the grid) • Provide solar flexibility studies • Distributed energy resources – value and integrate distributed energy resources for their full potential and benefits <ul style="list-style-type: none"> • Distributed energy resource programs: Leverage customer assets (battery storage, CHPs, etc.) for reliability and also create new revenue streams (bid into market); incentivize solar and battery • EE/RE package – each unit of EE comes with an (word – official?) offset by RE • Renewable energy, such as solar to include education on implementation
Government	<ul style="list-style-type: none"> • Run benchmarking programs on behalf of communities • Deep retrofits multi-unit housing • Free home energy audits
Data Tools	<ul style="list-style-type: none"> • Improved data access ease for customers (to view and API for 3rd party apps) • Customer app with wage data and tips on saving \$ • Online tools for customers to learn about energy use



Program Focus Area	Program/Measure Recommendations
EV Programs and Tariffs	<ul style="list-style-type: none"> • Electrification • Veh-2-grid as EE resource • Support of transition to electric vehicles • Electric vehicles • Electric vehicles
Home Energy Management	<ul style="list-style-type: none"> • Home energy management (AMI enabled) • Time of use rates with robust feedback from smart residential meters • Online audits/usage reports • Leverage advanced metering infrastructure (AMI) to provide customers with more energy data (preferably electronically, via green button connect) then connect customers to appropriate EE programs
Continuous personalized communications	<ul style="list-style-type: none"> • Utilize and make public customer data in aggregated forms to provide context for individual customers (ex. By Census Block group and residential or commercial so customers can gauge if they are high users) • Collaborate and combine outreach efforts with provider and locality outreach efforts – create opportunities for campaigns of joint effort • Create customer advocate group and train them in energy efficiency measures to advocate and educate in their community • Better (e.g. proactive) use of DVP customer data to inform outreach to recommend customers potential for improvements • Community EE hubs with local govs and university (“extension” programs) led by utilities • Incentives for school and government customers
Finance	<ul style="list-style-type: none"> • Reduced energy project financing rates/costs • Reduced energy project financing qualifications • HE equipment upgrade purchase as a maintenance item • On-bill finance • Pay for EE and RE (generally or locally) to minimize new facility investments • Demand response
TOU Rates	<ul style="list-style-type: none"> • Program with TOU rates for DR technology • Electrification to displace fossil fuels consumption to reduce CO2 – high efficiency heat pumps, EV, etc. • Communication of Energy TOU rates through Internet/BAS



Program Focus Area	Program/Measure Recommendations
Residential	<ul style="list-style-type: none"> • Expand/enhance low-income options and energy education • Multi-family residential program – Property energy audit to focus appropriate investment • EE incentives for <ul style="list-style-type: none"> o Weatherization/insulation o HVAC o DHW o Appliance o Lighting • EE Check-up to whole home efficiency audit (Blower door, duct-testing) • Multi-family EE – insulating, lighting, windows, etc. • Multi-family rental units: incentives for builders and landlords to improve insulation and energy-efficient appliances in rental units • Rural low-income – train local workforce to implement EE for rural low-income housing • Focus on Southwest VA to revitalize economy • Window film for residential • New/existing insulation/envelope program • Programs for military families • Program for residential appliance household management • Programs for disabled • Electric vehicle program • Programs for low-income area schools • Residential heat pump water heaters (midstream) • Midstream HVAC – C&I, Res • How to advance measurable results in EE for low income communities • Program focused on large absentee corporate landlords • In addition to low income/elderly programs, have program for veterans
Consumer Education	<ul style="list-style-type: none"> • Consumer education on EE • On demand response/behavior • Residential consumer education • Integrate customer education/engagement • Education programs in schools about energy and EE • Customer-focused incentive: lower rates/kwh for lower E use. Higher rates/kwh for higher tiers of E use <ul style="list-style-type: none"> • Education: how to make a good energy decision • Stakeholder access to savings data • Energy education • Behavioral DSM Program • Energy data availability/accessibility • Energy benchmark (O power like customer communication) • Durable solutions rather than informational or behavioral • Rebates, discounts on bill finance to address
Industrial	<ul style="list-style-type: none"> • Adopt ISO 50001 “Ready Program” • EE/DR/DER program integration • SMB targeted programs • Energy audits for commercial and industrial facilities • Strategic energy management – large C&I • Reward zero-net energy construction • C&I linear LED with integrated controls



Program Focus Area	Program/Measure Recommendations
Microgrid Ops/Control thru Internet	<ul style="list-style-type: none"> • The value proposition of microgrids needs to be fully examined especially with respect to energy poverty • Because of increasing use of power electronics and distributed energy resources, the return of DC should be evaluated • Buildings become the focus of the core unit of future grid • Deep energy retrofits of existing building should be a part of the utilities rates structure • Aggregation roles in DER's needs higher visibility • Building codes – quality construction based on minimized heating/cooling loads
Expansive Measures	<ul style="list-style-type: none"> • Add on measures to assist weatherization assistance organizations to drive deeper EE for low income • Utilization of actual savings data • Rebates on kwh saved versus measures installed • Utility assisted outreach • No gaps in program terms • Full program years
Technology	<ul style="list-style-type: none"> • Substitute LEDs for all other lighting ASAP; incandescent lights first • Smart thermostat integrated EE and DR with property/alerts to encourage participation in other programs • Demand response with water heaters • Water heater load control program • DSM to temporarily turn off select appliances (especially resistance heat) as the customer default – for CO2 and price benefits • Demand response using EV batteries
Misc. (uncategorized)	<ul style="list-style-type: none"> • Program for public lighting • Governmental programs • Strategic electrification – residential compliance program combining RE, efficient heat pumps, and weatherization • Building automation implementation/assist residential and commercial • Benchmark buildings > 50,000 (symbol) with energy density goals by building types • Address split incentive for tenant businesses: EE programs that lower E demand for tenants that do pay own electric bills, and for those who don't pay own electric bills • Enable state-wide energy benchmarking of facilities – broader access to energy data • Monetize energy savings (EE certificates/transactive energy savings) • Free nest or equivalent device for households and commercial customers • Custom/personalized EE tips and program recommendations • Offer in-person energy use advice



APPENDIX III: CONSOLIDATED DRAFT COMPILATION OF RECOMMENDATIONS

The following initial draft consolidated list was organized by Dominion Energy Virginia based upon the input and feedback from the January 3, 2019 stakeholder meeting. The list was provided as a structure for the stakeholder group to review and revise during the February 1 meeting.

**Compilation and Initial Assessment of Program Concepts / Ideas from January 3, 2019 Stakeholders Meeting
January 30, 2019 – Straw Man**

Operational definitions for this compilation:

Focus Area: General program area or program concept summarized from suggestions presented at January 2019 meeting

Program Characteristics: Specific details about a program if available

Initial Review: Initial review of concept, possible values, and challenges

Suggested Action: Suggestion based on initial review to either immediately address or include in upcoming RFP, explore for next round of programs, or hold for further exploration / refinement

Priority:

1. On initial review, those concepts that appear to be sufficiently developed and sufficiently clear for immediate action or inclusion in the upcoming 2019 RFP
2. Those suggestions that may be applicable to DSM programs or as expansions of existing program and may be further developed for inclusion in a subsequent RFP with some refinement
3. Those suggestions that may be either out of scope for the DSM stakeholder group or for which significant further study/analysis may be appropriate

Energy Efficiency - Residential

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
In-home professional assessment with direct installation and provisions for “after-audit” installation of certain measures	Lighting Duct testing and sealing HVAC tune-ups Water heater blankets Motion / presence sensors Heat pump water heaters Include whole home efficiency / blower door Window film Window attachments Insulation Envelope Blower door test Whole home assessment Target incandescent replacement	Program currently proposed	Explore possible expansion	2



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Include education component in audits	Provide individualized energy saving suggestions based on audit but not necessarily associated with a measure included in the audit; provide additional educational materials	Education included in currently proposed program; may be able to expand	Explore possible opportunities for expansion of existing / proposed programs	2
Include education component in audits	Provide individualized energy saving suggestions based on audit but not necessarily associated with a measure included in the audit; provide additional educational materials	Education included in currently proposed program; may be able to expand	Explore possible opportunities for expansion of existing / proposed programs	2
Thermostat rebate / optimization		Program currently proposed	Explore possible expansion	3
Energy management system	Provide incentive to use/install energy management system	Need to refine concept	Explore possibilities as future program	2
Multi-family targeted – incentive options	Consider split incentives between owner and residents Consider all incentive to owner with residents receiving bill benefit Include incentives for landlord to make improvements	Concept is reasonably clear and actionable	Consider for immediate inclusion in upcoming 2019 RFP	1
Multi-family targeted	Include HVAC tune-ups and direct install measures Expand EE program measures Multi-family common area improvements / upgrades	Concept is reasonably clear and actionable	Consider for immediate inclusion in upcoming 2019 RFP	1
Market-based multi-family		Concept needs refinement	Define market-based concept and assess bill impacts; consider for possible future program	3
Energy Star / efficient products / in-store discount		Program currently proposed	Explore possible future expansion	2
Midstream program to incentivize HP water heaters, HVAC, and other products		May require careful consideration of how to integrate with existing / proposed incentive and EE products program	Explore possible future expansion	2
Home retrofits		Concept is reasonably clear and actionable	Consider for immediate inclusion in upcoming 2019 RFP	1



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Deep energy retrofits		Concept is reasonably clear and actionable; concept of “deep-energy” should be refined somewhat	Consider for immediate inclusion in upcoming 2019 RFP	1
Deep energy retrofits for multi-family		Concept is reasonably clear and actionable; concept of “deep-energy” should be refined somewhat	Consider for immediate inclusion in upcoming 2019 RFP	1
New home construction		Concept is reasonably clear and actionable; challenged by the need to set an incentive that is sufficient to induce action but small enough to be cost-effective	Consider for immediate inclusion in upcoming 2019 RFP	1
Energy kits	DIY kits for all customers DIY kits for new customers DIY kits for customers on request	Concept is reasonably clear and actionable	Consider for immediate inclusion in upcoming 2019 RFP	1
Manufactured housing targeted		Concept is reasonably clear and actionable; challenged by the need to set an incentive that is sufficient to induce action but small enough to be cost-effective		1
Customer self-audit			Recommend holding discussion until SCC rules on currently proposed customer engagement program	3
Smart home program – connecting EV, PV, Tstat, TOU		Concept needs refinement	Explore possible future program options	3
Upstream lighting / LEDs		Program currently proposed	Explore possible future expansion to address suggestions	3
Custom residential program which begins with audit and blower door test		Residential program currently proposed; discussion of need for blower door test and other measures would be helpful; challenge in terms of cost-effectiveness by blower door test	Explore possible expansion opportunities and specific need for blower door test	2
Focus on healthy materials in retrofits		Reasonably clear and actionable	Include requirement of use of healthy materials in retrofit programs in upcoming 2019 RFP	1



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Include health and safety upgrades	Provide upgrades to residences that may not be tied directly to energy savings	Current EnergyShare weatherization program includes health and safety upgrades; challenged in terms of cost-effectiveness by lack of clear tie to energy savings	Consider opportunities for future expansion	2
Allow fuel switching for high efficiency HVAC units		Regulatory restrictions prohibit incentivizing fuel switching		3
Target absentee multi-family landlords		Suggestion needs refinement	Refine suggestion to clarify action item	3
Focus on durable solutions rather than informational or behavioral		Multiple perspectives have been offered by various stakeholders; there are energy savings opportunities associated with both durable solutions and behavioral approaches	Discuss with stakeholders; Dominion Energy Virginia's preference is to use both approaches to the extent practical in order to maximize the range of opportunities	3



Energy Efficiency - Residential - Low Income / Elderly

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Professional in-home assessment / direct install		Program currently proposed	Consider expansion of existing offering	1
Include education component in audits		Program currently proposed	Consider expansion of existing offering	1
Provide educational seminars on request		Program currently offered in EnergyShare	Consider expansion of existing offering	1
Multi-family retrofit and weatherization	Target multi-family residences Expand retrofit options; consider comprehensive retrofit Expand weatherization options for deeper EE savings	Program currently offered; multi-family included in EnergyShare program but not targeted	Consider for inclusion in upcoming RFP	1
Multi-family targeted	Target multi-family residences Expand retrofit options; consider comprehensive retrofit Expand weatherization options for deeper EE savings	Program currently offered; multi-family included in EnergyShare program but not targeted	Consider for inclusion in upcoming RFP	1
Manufactured / mobile/ modular housing targeted	Measures targeted at manufactured housing	Manufactured / mobile / modular housing not excluded from current and proposed programs	Consider for inclusion in upcoming RFP	1
Split incentive for low-income multi-family			Consider for inclusion in upcoming RFP	1
Low-income and minority communities targeted	General program suggestion			
Convene landlord consortium to address legal incentives for energy use by apartment dwellers		Needs further development / clarification	Assign to parking lot until further refined	3
Train volunteers to install EE devices in low-income apartments. (Energy Masters of Arlington style)		Important to ensure that all participants receive professional level services; low-income customers deserve the same level of professionalism that other customers receive; all service providers should be professionals or have professional certifications		3



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Green job training / scholarships for low-income customers		Out of scope for DSM programs but may provide value	Assign to parking lot for later consideration	3
Consider setting eligibility threshold to 200% of poverty level up to a certain total dollar limit without restrictions on repairs		Current practice for low-income programs is to use state-approved criteria for participation	Consider ramifications of using eligibility thresholds that differ from state standard; consider for later iteration of low-income programs	3
Target a minimum of 30% energy consumption reduction		The amount of energy savings per residence varies widely across participants; it is challenging to set a specific target threshold for each residence; setting a hard target may not be realistic	Consider possibility of setting a soft target design average across all participants, but important to recognize that the amount of savings will vary substantially across participants;	2
Incentive programs that reach more low-income households in a faster more cost-effective way than traditional weatherization programs		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion	3
Public and Section 8 housing targeted program		Challenged by lack of a cost recovery mechanism for governmental accounts	Review options to identify possible actions	3
Target high-usage customers		Reasonably clear and actionable	Incorporated into currently proposed and implemented programs; explore possibilities for expanding	1
Equity program for low-income communities		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion	3
Focus on healthy materials in retrofits		Reasonably clear and actionable	Incorporate discussion of the emphasis on healthy materials in upcoming RFP	1
Include health and safety upgrades		Currently included in DEV EnergyShare program	Include emphasis in next RFP; explore possibilities for expansion	1
Allow fuel switching for high efficiency HVAC units		Challenged by requirement to avoid inducing customers to switch fuels	Assign to parking lot	3



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Deep energy retrofits		Reasonably clear and actionable	Incorporate in upcoming RFP	1
Deep energy retrofits for multi-family		Reasonably clear and actionable	Incorporate in upcoming RFP	1
Focus on using local workforce in rural areas to implement		Current programs use local workforce to provide services	Continue to emphasize use of local work	1
Determine value of microgrids with respect to energy poverty		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion	2

Energy Efficiency – Residential – Engagement / Education / Behavioral

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Direct feedback behavioral		Program currently proposed	Explore possible future expansion to address suggestions	2
General education – indirect feedback		Program currently implemented through Energy Share	Explore possible future expansion	2
General educational materials	Community forums Webinars Workshops on reducing energy consumption Easy to use information materials Programs / presentations on request	Program currently implemented through Energy Share	Explore possible future expansion	2
Easy to use phone apps that allow customers to see how much they have spent to date on energy – helpful budgeting tool with AMI meters		Consideration in progress at DEV; challenges by ability to quantify energy/demand savings as a DSM program	Consult with other business units at DEV to assess status of related projects	3
School targeted education programs		Challenged by lack of non-jurisdictional cost recovery mechanism; Commission has previously rejected general education programs	Explore possible options	2



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Gamification / Competition program		Customer engagement program already proposed	Review options for expanding customer engagement with stakeholder group	2
Re-design bill		Possibly out of scope for stakeholder group	Gather suggestions from stakeholder group and pass to billing unit at DEV	3
Enhance customer access to data		Customer engagement program already proposed; activity beyond DSM possibly out of scope for stakeholder group	Review contents of current proposal; Gather suggestions from stakeholder group and pass to customer service unit at DEV	3
Make customer data public in aggregated forms		Customer privacy, even with regard to data in aggregated form, is extremely sensitive issue	Review options, but carefully consider aDEVrse impacts of making data public	3
Outreach programs targeted to localities		Challenge in quantifying energy/demand savings and in obtaining approval of general education program	Review options with stakeholder group	2
Create customer advocate group and train them in energy efficiency measures to advocate and educate in their community		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion	3
Enhance use of customer data to inform outreach		Customer engagement program already proposed	Consider areas where outreach can be expanded based on use of customer data; identify action items that would address this suggestion	2
Extension programs with local governments and universities led by utilities		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion	3
Enhance communication of rate options		Possibly out of scope for DSM stakeholder group	Gather suggestions and pass to communications group at DEV	3
Offer in-person or telephone energy use advice		Challenged by cost-effectiveness but reasonably clear and actionable	Review options and include discussion in next RFP	1
Enable statewide benchmarking of facilities		Concept needs development in order to identify specific action items	Identify specific action items that would address this suggestion; carefully consider customer privacy issues	3



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
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Energy Efficiency – Non-residential

Small business direct install		Program currently offered	Explore expansion to address suggestions	2
Data center custom efficiency with combined heat and power		Challenged by existing 500 kW limit; data centers generally > 500 kW		3
Data center targeted prescriptive program focused on heating / cooling		Challenged by existing 500 kW limit; data centers generally > 500 kW		3
C&I competition – incentives for wholistic retrofits/upgrades, further rewards to customers who reduce most (bill credits)		Reasonably clear; would benefit from review of other similar programs and development of details	Discuss options with stakeholder group	2
Tie-in to business recruitment through VEDP and SOCT's office		Needs further clarification	Assign to parking lot for now	3
Capture reductions from upgrade recommendations, not direct install only		Recommendations are provided but not currently captured as savings; reasonably clear and actionable; challenged by need to quantify savings	Discuss with stakeholder group areas where this approach can be implemented or expanded; can be included in next RFP	1
Targeted program for >500kW and <10 MW	Lighting systems and controls HVAC Duct test and seal	Challenged by existing 500 kW limit; data centers generally > 500 kW	Assign to parking lot for now	3
Direct feedback / general engagement program		Program currently proposed	Explore possible future expansion to address suggestions	2
Energy use improvements at DEV facilities		Out of scope for DSM stakeholder group	Pass suggestion to appropriate business unit as DEV for consideration	2
Hotel targeted	Lights / heat activation by key card or presence sensors	Hotels eligible but not currently targeted; reasonable clear and actionable	Consider for inclusion in next RFP	1
Offer strategic energy management program		Needs some clarification; reasonably clear and actionable	Discuss with stakeholder group for inclusion in subsequent RFP	2



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Offer building optimization program		Needs some clarification; reasonably clear and actionable	Discuss with stakeholder group for inclusion in subsequent RFP	2
Midstream program to incentivize HP water heaters, HVAC, and other products		Limited optimization currently offered to small businesses	Explore possible future expansion to address suggestions Review options with stakeholders	2 2
Incentivize building automation / energy management systems		Challenged by need to measure energy/demand savings	Explore expansion to additional energy management systems	2
Layer B tier EE improvements within DEV funding		Lighting system automation program component proposed Needs clarification	Assign to parking lot for now	3

EM&V

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Develop stronger and effective protocols that values EE appropriately, moving towards EE as a generation resource. Shifting EE language from \$\$ spent to energy saved.		Candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3
Use actual savings data		Needs clarification; actual savings data is reported annually		3



Rates

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Incentives for lower energy use	General suggestion			3
Offer time of use rates		Development of rates may be out of scope for DSM stakeholder group; Development of rates may be out of scope for DSM stakeholder group;	Pass suggestions to appropriate business unit at DEV; consider options that achieve same goal but can be proposed as DSM programs; assign to parking lot for now	3
Offer time of use rate for DR technology		Development of rates may be out of scope for DSM stakeholder group;	Pass suggestions to appropriate business unit at DEV; consider options that achieve same goal but can be proposed as DSM programs; assign to parking lot for now	3
Better pricing for off-peak usage		Complex issue – needs careful consideration of unintended negative consequences to low-income customers	Pass suggestions to appropriate business unit at DEV; consider options that achieve same goal but can be proposed as DSM programs; assign to parking lot for now	3
Pay as you go option		Would require restructuring of rate(s); not immediately applicable to next RFP	Assign to parking lot for now; if considered by stakeholders ensure consideration of all impacts	3
Smart meter approval and deployment plus time of use rates and education		Development of rates may be out of scope for DSM stakeholder group; not immediately applicable to next RFP	Assign to parking lot for now	3
Bill credit for low energy consumption customers		Development of rates may be out of scope for DSM stakeholder group; candidate for future rate development, but not an immediate program option	Assign to parking lot for now	3
Use AMI data to create customized rate schedules for groups of like-energy users and communicate to those consumers how a specific new rate would save them money like time of use, peak time rebate.		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Market rate for residential (above low-income) customers		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3
Feed-in tariff to support heating / cooling convergence for data centers, non-residential, and residential customers		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3
Offer savings on demand charges for EE or DR		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3
Rate to support electrification		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option; challenged by prohibitions on incentives that encourage fuel-switching	Assign to parking lot for now	3
Electric vehicle rate		Development of rates may be out of scope for DSM stakeholder group; candidate for further refinement, but not an immediate program option;	Assign to parking lot for now	3
Vehicle-to-grid as resource		Candidate for further refinement, but not an immediate program option	Assign to parking lot for now	3



Renewables

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Tie DSM to community solar for greater bill reduction		Candidate for further refinement; bill reduction may not equate to a reduction in energy consumption; Need to consider whether solar incentives would be more appropriate for a separate EE/DR program?	Consider whether appropriate for subsequent RFP	2
Audit program tied to rooftop solar		Candidate for further refinement ; bill reduction does not equate to a reduction in energy consumption; Need to consider whether solar incentives would be more appropriate for a separate EE/DR program?	Consider whether appropriate for subsequent RFP	2
Smart home program – connecting EV, PV, Tstat, TOU		Needs clarification; candidate for further refinement to determine specific offerings, but not an immediate program option	Assign to parking lot for now	3
Solar incentives for multi-family (individual and common area meters)		Needs clarification; candidate for further refinement to determine specific offerings	Consider to determine if appropriate for next RFP	2
Solar incentives for small business		Needs clarification; candidate for further refinement to determine specific offerings	Consider to determine if appropriate for next RFP	2
Solar flexibility study		Candidate for further refinement to determine specific offerings	Assign to parking lot until specifics identified	3



Battery Storage / Distributed Energy / Microgrids

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Incentivize use of grid-connected battery storage		Candidate for further refinement to determine specific offerings	Assign to parking lot until specifics identified	3
Value distributed energy resources / incentivize integration into grid		Candidate for further refinement to determine specific offerings	Assign to parking lot until specifics identified	3
Determine value of microgrids		Candidate for further refinement to determine specific offerings	Assign to parking lot until specifics identified	3

Industrial

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Industrial energy audit program		Challenged by 500 kW restriction, but possibly applicable to very light industry / assembly	Assign to parking lot for now; suggest applying principle to non-residential program offerings where possible	3
Targeted industrial program		Challenged by 500 kW restriction, but possibly applicable to very light industry / assembly	Assign to parking lot for now; suggest applying principle to non-residential program offerings where possible	3
Targeted high energy user program		Challenged by 500 kW restriction, but possibly applicable to very light industry / assembly	Suggest applying principle to non-residential program offerings where possible	2
Incentivize net-zero construction		Challenged by 500 kW restriction, but possibly applicable to very light industry / assembly	Suggest applying principle to non-residential program offerings where possible	2
Incentivize ISO 50001 "Ready Program"		Needs clarification to determine which customers would be eligible; challenged by 500 kW restriction, but possibly applicable to very light industry / assembly	Assign to parking lot for now; review options with stakeholders	3



Energy Efficiency – Residential & Non-Residential – Financing

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Bill-assessed energy financing / on-bill financing		Needs clarification and consideration as to whether appropriate for DSM program	Assign to parking lot for now; review options with stakeholders	3
Financing incentives for EE projects or installation of high efficiency equipment	Low interest or other incentive Use financing partner	Needs clarification and consideration as to whether appropriate for DSM program	Assign to parking lot for now; review options with stakeholders	3

Energy Efficiency – Governmental (SCC non-jurisdictional)

Refers to program concepts applicable to governmental customers which are not under the jurisdiction of the SCC in Virginia. These customers receive electric service by contract and must agree contractually to DSM offerings.

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Local government and school system targeted program		Challenged by lack of non-jurisdictional recovery mechanism	Ask local government organization(s) if interested	3
EE incentives for school and government customers		Challenged by lack of non-jurisdictional recovery mechanism	Ask local government organization(s) if interested	3
Program for public lighting	Incentivize higher efficiency lighting Target “day-burners” Target low quality / low efficiency lighting	Challenged by lack of non-jurisdictional recovery mechanism	Ask local government organization(s) if interested	3



Demand Response – Residential

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Peak time rebates		Reasonably clear and actionable, but development of specific program design is complex, based on past experience	Review options and consider for inclusion in subsequent RFP	2
Harmonize programs / maximize leverage	General suggestion			
Water heater load control program	Provides demand response resource for power frequency regulation	Needs clarification and assessment of practicality in light of PJM rules for DR programs	Review options with stakeholders	3
Demand response applied to selected appliances (especially resistance heat)		Needs clarification and assessment of practicality in light of PJM rules for DR programs	Review options with stakeholders	3
Demand response using EV batteries		Needs clarification and assessment of practicality in light of PJM rules for DR programs	Review options with stakeholders	3



Demand Response – Non-Residential

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Offer commercial DR program		Challenged by well-developed options offered by PJM and challenged by difficulty in establishing appropriate incentive level; will require market assessment to establish incentive level	Review candidate approaches with energy supply specialists, perform market assessment, and consider for inclusion in future RFP	2
Incentivize solar for DR		Candidate suggestion for identification of specific program options	Explore near-term options; assign to short-term parking lot	2
Incentivize battery storage for DR		Candidate suggestion for identification of specific program options	Explore near-term options; assign to short-term parking lot	2
Incentivize CHP for DR		Candidate suggestion for identification of specific program options	Explore near-term options; assign to short-term parking lot	2
Leverage DR for emergency or economic reasons	General program suggestion			
Allow customers to save on reduced demand charges		This would be a component of a DR program; may not be allowed per PJM rules	Assign to parking lot	3
Consider program that incentivizes maintenance of solar equipment		Candidate suggestion for identification of specific program options	Identify value of incentivizing value of maintenance as opposed to installation of solar equipment	3



General / Unclassified

Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Pilots to try out ideas	Offer specific limited scope pilot programs; use response data to develop full programs	Logical approach; regulatory restrictions disallow recovery of funding that does not result in full program; discourages broad use of pilot programs	Given current regulatory structure, recommend using pilot sparingly when clear need is identified	3
Address free riders	General strategy consideration	Concept needs additional refinement		3
Licensing – ensure residential program contractors must be licensed energy analysts	General strategy consideration	Important concept to ensure that all participants, including low-income customers, receive services that meet recognized standards of professional quality	Continue to implement and expand implementation as needed in current and future programs	1
Identify / target high energy users	General strategy consideration	This strategy is generally applied in all non-residential programs; could be expanded in this area and applied to residential	Include concept in upcoming 2019 RFP as an element of proposed programs	1
Contractors rewarded (paid) for energy saved, not widgets replaced		Since payments for devices installed are tied to energy saved, this concept is already applied, but could be enhanced in proposed programs; note that actual energy saved is determined sometimes years after the fact, so payment must be tied to a rapidly measureable quantity, such as customer participation or devices installed	Include concept in upcoming 2019 RFP as an element of proposed programs	1
Smart meter approval and deployment plus time of use rates and education		Concept needs further refinement; partially incorporated in currently proposed customer engagement program	Consider for possible inclusion in future programs	3
Process transparency	General strategy consideration	Need to define action item needed to address this suggestion		
Program implementer independent of utility	Implementer managed by SCC, DMME, GA			3



Focus Area	Program Characteristics	Initial Review	Suggested Action	Suggested Priority for Discussion (1 / 2 / 3)
Harmonize with gas programs and government incentives	General strategy consideration	Challenged by restrictions on providing incentives that induce fuel-switching and inability to take credit for gas savings, but may have merit	Define action items to address suggestion	3 2
Create long-term, reliable programs	General strategy consideration			2
Address how utilities earn profits		Out of scope for stakeholder group		3
Focus group of customers, program service providers, tech specialists to gather key elements need to improve and ease program uptake		Stakeholder process is appropriate for much of this, but expanded information on program marketing would be useful	Define action items to address suggestion	
Prioritize EE over DR programs	General strategy consideration	This will happen automatically under current legislation; greater incentives / targets for EE		
Expand and further support LEAP		Specific to one service provider; out of scope for stakeholder group		
Focus on southwest Virginia for economic development	General strategy consideration	DEV has focused on southwest Virginia for generation assets, but does not have retail customers in SWVA		
Review the value of DC applications for EE	Incentivize use of DC where practical and where provides EE benefit	Need to identify situations where DC can provide EE benefit	Consider for possible program options	
Use actual savings data	General strategy consideration	Actual savings data is collected and reported annually		
No gaps in program years	General strategy consideration			
Use full program years				
Consider attempting to influence building codes		Challenged by need to quantify energy/demand savings for DSM program; likely out of scope for stakeholder group		



**APPENDIX IV:
DOMINION ENERGY VIRGINIA STAKEHOLDER FEEDBACK ON HB 2789**

1. How do you believe the HB 2789 Program should work with existing programs operated by Dominion Energy Virginia and DHCD?
 - HB 2789 is a new subset of existing programs
 - Tightly preferred – don't reinvent the wheel
 - One application process/one eligibility process – align for efficiency
 - Don't want customers to try and figure out which program they qualify for – one application and then implementer helps them decide what they are eligible for
 - Gap between people who participated in previous iterations of the program and eligibility for new program
 - GAP: No customer engagement – property owners and managers, provide, no PPP for customer education – only leave behinds
 - Fund for outreach? Currently no live item for marketing; could Dominion Energy Virginia request in filing money for outreach, separate from implementation?
 - Current ESWS – shareholder program also exists
 - Design, Develop and Deliver expanded low-income single family and multifamily low-income programs averaging \$5,000/home-family
 - IAQH merging with solar would be difficult
 - Grant-based with review
 - Public-facing building
 - Incorporate financing for remaining energy efficiency upgrades or solar system costs
 - Use EnergyShare money for health and safety upgrades and pay energy efficiency incentives through this new rate payer funded program
 - What is the incentive structure? Rebates, performance-based incentives?
 - Align with solar company incentives (per watt basis!)
 - ESWS – eligibility gas/other heat is okay; master metered okay
 - IAQ – all electric, ind. Meters; limited scope – aerators, showerheads, attic insulation, LEDs, pipe insulation
 - Maybe Dominion Energy Virginia should look at the problem from a health and safety perspective and keep the energy efficiency on the back end.
 - DHCD income and how does that apply to high-income areas (NOVA). Discuss with DCHD WRX, identify gaps/including/target need populations.
 - Not able to work with public housing? HUD/Sec. 8
 - Also look at Richmond City Health District – “RVA Childhood Asthma Collaborative,” “Lead Safe and Health Homes,” Grant Healthy Homes process, evaluation, delivery
 - DCHD sets eligibility – ½ of service Dominion Energy Virginia provides – with state median income
 - Multi-family billing portfolio – 75% of households property
 - 18K participants in LI program, 27K collectively in LI or EnergyShare (go back to households and replace heating system)
 - 95% households have been multi-family; need to serve single family
 - There is overlap between LI and Federal WAP – whole building retrofit IAQ EnergyShare
 - Braid research – , can you use the \$ for stuff not covered by Fed?
 - WAP, LI -coordination with other measures, programs, etc. To what extent are programs coordinating feeding into other funding?
 - Existing IAQ – limited measures – don't want to duplicate
 - Regulated program just approved last year – may need to refile to incorporate heating/cooling
 - Dominion Energy Virginia publicity of these programs – rate payer \$ - balance of education and incentives
 - Component 2: Primary challenge for LI installation of solar – roof repair and/or replacement
 - Challenge with solar – MF housing stack – renters, solar installation – building owner; where in the commercial space?

2. Are there specific criteria that should be used to evaluate program proposals?
 - Households touched and spending
 - Customers reached
 - Households to be targeted. Multi-family
 - Look at APCo design as it made it through SCC \$3,200 per house
 - Energy efficiency required before solar
 - Compliments other programs (DEV IAQ and DHCD)
 - Energy savings



- Health and safety demonstration (how to address) and increase – what % of budget
- Solar feasibility
- Experience
- Details on rollout plan
- 3 groups to evaluate:
 - Income, elderly and disabled
 - E savings
 - Health/Safety

3. Describe the heating & cooling / health & safety measures that you believe should be addressed through the HB 2789 Program and any experiences that would be helpful to the process of program design

- Heat pumps, ducts, thermostats, appliance management, duct sealing
- Anything necessary to improve the environment for efficient HVAC
- Maintenance that relates to either health and safety or energy efficiency
- Envelope improvements, insulation
 - Make building envelope as efficient as possible
- System replacement that doesn't add or use
- All measures currently in ESWS
- Mold/mildew
- Old wiring
- Focus on HVAC equipment
- Consider fuel switching for HVAC component
- Electric baseboard change out
- Comprehensive HVAC work
- HVAC upgrades, especially mini splits
- HVAC tune-ups/HPs and ACs
- Duct sealing
- Duct insulation
- Window film
- Air sealing
- Air quality control
- Floor installation
- Health and safety – minor roof repairs, stop CO leaks
- HP water heater
- Smart stats – EE purchase (Free stat?) and system optimization
- Thermostat replacement (digital)
- No DR?
- Program stat instead (free stat?)
- New roof for health and safety
- Assessments/evaluations of measures
- GAP: Restricted to 5 measures; DI measures – pipe , furnace, lightbulbs, aerator; Comprehensive air sealing, HVAC tune-ups
- Could fund duct work insulation, HVAC upgrades not currently part of program
- Health and safety – envelope and air sealing, dehumidifier and HVAC ventilation
- More substantial interventions – roof repair

4. Are there any red flags that would signal a major problem in the Program?

- Don't "draw a box" around the program
- If program gets over/under utilized right away, something not well defined or too stringent
- Low participation
- Sub-optimized spend
- Slow rollout
- Savings from energy efficiency and solar for multi-family and rentals must be passed on to renter. Landlord is not intended beneficiary of lower energy bills
- DHCD income guidelines are overly limiting to affordable housing. Programs should use area median income not state median income.

- Multifamily split incentive, access to housing potential liability for landlord



- Program sounds too good to be true, sounds like a scam – Need customer education
- Ventilation
- Housing – overlap with gas
- Utilities and appliances when touch building envelope need to check indoor air quality, conduct combust appliances
- How do you differentiate impacts? – HVAC vs. other measures?
- Does implementation of heating/cooling require different installation contractor? HVAC at least 2 households...

5. What would make the program Even Better If...

- Ensuring that all customers who need this are eligible
- Component 1 process should look toward Component 2 and not do something that would preclude participation
- Full HVAC system improvements and upgrades allowed
- Clarification on staggering
- More money (\$) toward energy efficiency
- Solar can include an energy storage component
- Guaranteed for net metering regardless of net metering cap
- Define health and safety broadly to include fire safety, fall safety, , and ventilation
- Reach beyond energy-only delivery systems to funded organizations working in low-income housing to add energy efficiency
- Fund housing authorities, which qualify as “organizations that assist low-income individuals”
- Take maximum advantage of flexibility offered by statutory language “on to organizations that assist low-income, elderly, and disabled individuals”
- Health and safety – incorporate roof repair into Component 1
- Coordination with gas utilities?

6. What else, if anything, will be needed to make the program as effective for customers and stakeholders as possible?

- Add all measures currently in ESWS but not IAQ and fully system improvement/upgrade
- Fuel switching eligible
- What is the impact of adding solar on property taxes? Be mindful if the goal of this program is affordability.
- Include roof assessment in Component 1?
- Ensure ability to borrow forward
- Questions:
 - Eligibility – would non-housing authority operated multi-family qualify?
 - Metering arrangement
 - Rooftop solar only? Or, would community solar or ground mounted qualify?
 - What about new construction or properties recently upgraded? Can they participate in solar?
- Provide low-cost materials to non-profit organizations implementing EE measures
- How to create programs filed separately but delivered as 1 program to customers?
- Scaling the Program
 - Challenge to scale, saving to investment measure must equal 1 or greater; 500 energy models a year is doable, scale to 6,000 is hard
 - With increased money do you do a deeper dive per household vs. increased participation.
- Labor shortage – there is a pipeline of subcontractors/installers – Trade ally network
- How to ensure programs and legislation work together and don’t compete

