County of Fairfax, Virginia

MEMORANDUM

DATE: May 13, 2021

TO: Board of Supervisors

FROM: Bryan J. Hill
County Exec

SUBJECT: Recommended Energy Service Company Measures for the Park Authority

The Board of Supervisors (Board) was last updated about the Energy Service Company (ESCO) pilot in an October 20, 2020 memorandum and an accompanying presentation during the October 27, 2020 Environmental Committee meeting. This memorandum provides an update on the progress that has been made since then and discusses energy conservation measures (ECMs) recommended for Fairfax County Park Authority (FCPA) facilities.

Summary

The Board set aside carryover funding in FY2019 and FY2020 for the Office of Environmental and Energy Coordination (OEEC) to seed the ESCO pilot. OEEC continues to work with FCPA, the Facilities Management Department (FMD), the Sheriff's Office, Fairfax County Public Library, and two ESCOs to implement energy efficiency improvements in county buildings. OEEC and FCPA are prepared to act on $3.6 million in ESCO improvements to the Cub Run and South Run RECenters. The selected ECMs will reduce energy use at the two facilities by 30% and 15%, respectively.

Of the $3.6 million for RECenter improvements, $2.5 million is for capital replacement of mechanical equipment at or beyond its expected useful life, but not yet in capital improvement plans. Expected annual energy savings of nearly $130,000 produce an estimated payback of 8.6 years for all of the ECMs combined. The county is finalizing plans with the ESCO for the work at the two RECenters, with construction expected to begin in spring 2022.

OEEC anticipates using $2.6 million to fund ESCO projects at FMD buildings. The Board will be updated on FMD ESCO projects later this year. OEEC also continues to work with FMD and FCPA to fund in-house energy efficiency projects. For example, OEEC has allocated $730,000 for an LED lighting upgrade at the Juvenile Detention Center.

Background

On October 26, 2020, the county signed Memorandums of Understanding with two ESCOs – CMTA and NORESCO – to perform Investment Grade Audits (audits) at county buildings. CMTA was assigned Cub Run RECenter, Lee District RECenter, South Run RECenter, and

Office of the County Executive
12000 Government Center Parkway, Suite 552
Fairfax, VA 22035-0066
703-324-2531, TTY 711, Fax 703-324-3956
www.fairfaxcounty.gov

Fairfax City Library. NORESCO was assigned the Adult Detention Center. A summary of the ESCO process can be found in Attachment 1. Additional background information can be found in the following previous memorandums which are provided as Attachments 2 and 3:

- Energy Service Company Status Update, dated October 20, 2020 and
- Energy Service Company Review and Analysis, dated September 30, 2019.

CMTA Status

CMTA submitted its audit report on January 22, 2021. The report includes detailed building profiles, utility analysis, ECM descriptions, and projected ECM costs and savings. In total, CMTA provided 24 different ECM options for the four buildings audited, with some ECMs recommended for more than one building. If all of the ECMs in the report were implemented, the project cost would be $16.3 million and the energy savings would be 27.8 million kBtu, for an overall energy savings of 40%. The ECMs investigated include LED lighting, new Building Automation Systems (BAS), enhanced BAS sequences, HVAC upgrades, hot water plant renovations, pool area upgrades, water efficiency upgrades, building envelope improvements, bi-polar ionization, and solar panels. In addition to saving energy, many of the measures address deferred maintenance and capital improvement. More information about each of the RECenter ECMs is provided in Attachment 4. OEEC staff worked with FCPA staff to evaluate CMTA's report and the proposed ECMs for the three RECenters. A copy of the audit report will be provided via a Sharefile link upon request.

NORESCO Status

In January, a COVID outbreak at the Adult Detention Center delayed NORESCO's onsite assessment. NORESCO now anticipates completing its audit report in June. NORESCO has indicated that the primary measures in the report will be LED lighting and water efficiency upgrades. After the audit report is complete, OEEC staff will work with FMD and Sheriff's Office staff to evaluate the report and proposed ECMs.

FCPA Project Recommendations

FCPA staff evaluated the ECMs in CMTA's audit report based on facility needs, equipment age, energy savings, project cost, and the way the ECMs interact with one another. OEEC staff worked with FCPA staff to select the best possible ECMs for the first round of ESCO funding given OEEC's budget and interest in return on investment. Based on these discussions, OEEC and FCPA staff selected the seven ECMs in the Figure 1 on the following page. Figure 1 shows the annual electric, natural gas, total energy, emissions, water, and cost savings for each measure. **The recommended ECMs are expected to reduce energy use at Cub Run by 30% and at South Run by 15%, at a cost of $3.6 million. The 11.5 million in kBtu savings equals 44% of the annual energy efficiency goal in the Operational Energy Strategy.**

Figure 1: Annual Savings for Each Recommended ECM

Facility	ECM Description	Annual Savings					
		Electric (kWh)	Natural Gas (Therm)	Total Energy (kBtu)	Emissions (MT, CO2e)	Water (Gallons)	Cost Savings ($)
Cub Run	1. Cooling Tower Sewer Credit						$9,923
	2. Hot Water Plant Renovation		33,053	3,305,250	175		$23,137
	3. Pool Heat Recovery Upgrades	-40,006	47,392	4,602,740	227	621,600	$38,370
	4. BAS Enhanced Energy Sequences	360,058	3,578	1,586,318	241		$24,520
South Run	5. Pool Dehumidification System Renovation	77,552	1,846	449,207	58		$10,132
	6. AHU/RTU Equipment Replacement	86,169	3,776	671,609	73		$12,101
	7. DDC System with Advanced Energy Strategies & Demand Response	104,633	5,664	923,408	94		$11,682
	Total	**588,406**	**95,309**	**11,538,531**	**868**	**621,600**	**$129,864**

Detailed Analysis

FCPA was already in the process of implementing some energy efficiency upgrades at the RECenters before the ESCO pilot started. For example, FCPA installed LED lighting at the RECenters in the fall of 2020. Figure 2 on the following page shows how the energy savings at each RECenter affect its total energy use per square foot, also known as energy use intensity or EUI. To account for the energy reductions from the FCPA-implemented projects, Figure 2 shows the EUI in three ways – original EUI (blue bar), FCPA Projects EUI (yellow bar), and FCPA & ESCO EUI (green bar). The combination of the FCPA and ESCO projects is expected to reduce the EUI at Cub Run by 33% and at South Run by 17%.

Figure 2: EUI Reduction at South Run and Cub Run

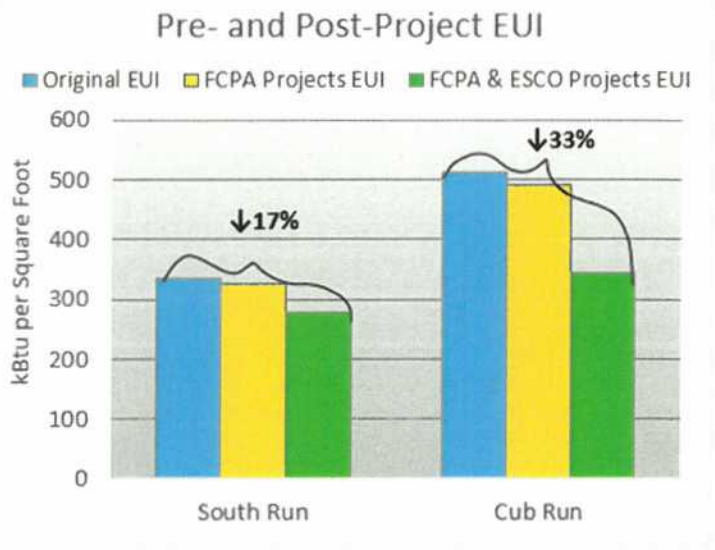

Figure 3 on the following page shows the ESCO cost for each ECM as well as the estimated FCPA cost if FCPA were to replace the existing equipment as a capital improvement project. Most of the equipment is past the end of its useful life and needs to be replaced soon, but none of the equipment is part of a bond or planned capital improvement project. Figure 3 also shows the incremental project costs, which are the ESCO project costs minus the FCPA capital improvement project costs. When these ECMs are evaluated based on incremental costs, the ESCO becomes a cost-effective tool for adding energy efficiency upgrades to equipment – upgrades that FCPA might not be able to include if it were to replace this equipment on its own.

Figure 3: Project Costs and Simple Payback Comparison[a]

Facility	ECM Description	ESCO Project Cost ($)	FCPA Capital Improvement Project Cost ($)	Incremental Project Cost ($)	ESCO Cost Simple Payback (Years)	Incremental Cost Simple Payback (Years)
Cub Run	1. Cooling Tower Sewer Credit	$6,340	N/A[1]	N/A[1]	0.6	N/A[1]
	2. Hot Water Plant Renovation	$687,561	$758,100	-$70,539	N/A[2]	0.0
	3. Pool Heat Recovery Upgrades	$622,905	N/A[1]	N/A[1]	16.2	N/A[1]
	4. BAS Enhanced Energy Sequences	$118,875	$99,750	$19,125	N/A[2]	0.8
South Run	5. Pool Dehumidification System Renovation	$736,213	$665,000	$71,213	N/A[2]	7.0
	6. AHU/RTU Equipment Replacement	$986,916	$943,635	$43,281	N/A[2]	3.6
	7. DDC System with Advanced Energy Strategies & Demand Response	$419,890	N/A[1]	N/A[1]	35.9	N/A[1]
	Total	**$3,578,701**	**$2,466,485**	**$63,081**	**17.5**	**0.9**

[1]Not capital improvement

[2]Capital improvement with energy efficiency features

The last two columns of Figure 3 show the ESCO cost simple payback and the incremental cost simple payback. For the FCPA equipment that needs to be replaced, the incremental cost simple payback is a more accurate representation of the project's cost effectiveness than ESCO cost simple payback. The estimated paybacks for capital improvement projects, non-capital improvement projects, and all projects combined are summarized in Figure 4 below.

Figure 4: Simple Paybacks for Capital Improvement, Non-Capital Improvement, and All Projects

Project Type	ECMs	Simple Payback Type	Simple Payback (Years)
Not Capital Improvement	#1,3,7	ESCO Cost	17.5
Capital Improvement	#2, 4, 5, 6	Incremental Cost	0.9
All Projects	#1-7	Mix of Incremental and ESCO Cost	8.6

The actual payback will likely be faster since utility costs are predicted to rise over time.

[a] ECM 1 has no incremental cost because it is not an equipment replacement; it is an adjustment to how FCPA pays its utility bills. ECM 2 has a 0-year simple payback because FCPA staff estimated that it would cost more to replace the existing equipment with standard models than for CMTA to install a more efficient design. ECMs 3 and 7 have no incremental cost because they are not existing equipment that needs to be replaced; these ECMs involve installing new equipment that will make existing equipment more efficient.

Next Steps

To keep the ESCO process moving as quickly as possible, OEEC split the ESCO work between FCPA and FMD, as FCPA is ready to move forward with the ECMs recommended at Cub Run and South Run RECenters. The next step is for the county to begin negotiating a contract with CMTA. Construction will likely begin in spring 2022.

FMD is still evaluating CMTA's proposed measures for the Fairfax City Library, and NORESCO is still finalizing the audit report for the Adult Detention Center. The Board can expect another memo later this year describing ECMs for FMD buildings.

OEEC plans to move forward with the ECMs recommended in this memo on Wednesday, June 2nd. Please contact OEEC Director Kambiz Agazi (kambiz.agazi@fairfaxcounty.gov) by Tuesday, June 1st with any concerns. Please contact OEEC Senior Energy Analyst Jessica Lavender (jessica.lavender@fairfaxcounty.gov) with questions or to request a copy of CMTA's audit report.

Attachment 1: Process Summary
Attachment 2: Energy Service Company Status Update Memo
Attachment 3: Energy Service Company Review and Analysis Memo
Attachment 4: CMTA RECenter ECM Summaries

cc: Joseph Mondoro, Chief Financial Officer
Rachel Flynn, Deputy County Executive
Sara Baldwin Director, Fairfax County Park Authority
Jose Comayagua, Director, Facilities Management Department
Kambiz Agazi, Director, Office of Environmental and Energy Coordination

Attachment 1: Process Summary

The Virginia Department of Mines Minerals and Energy (DMME) process and the status of each step are summarized below. Completed steps are green and steps not yet started are gray. NORESCO is at the blue step, and CMTA is at the yellow step.

	DMME Process Step	Fairfax County Status
1	A Request for Proposal (RFP) is issued to the pre-qualified ESCOs, and all ESCOs are invited to a kick-off meeting.	An RFP was issued on February 10, 2020 to the 15 pre-qualified ESCOs. Eight ESCOs attended a kick-off meeting at the Fairfax County Government Center on the same day.
2	Interested ESCOs perform a Back of the Envelope assessment of one or more buildings at no charge to identify energy saving opportunities.	Five ESCOs performed Back of the Envelope assessments from February 25 to March 5, 2020 at the Adult Detention Center and Cub Run RECenter.
3	The jurisdiction reviews the proposals, which include the Back of the Envelope assessment findings.	On May 29th, the county received five proposals. A Selection Advisory Committee (SAC) reviewed the proposals from June to August 2020.
4	The jurisdiction selects one or more ESCOs to work with and establishes a Memorandum of Understanding (MOU) with them.	The SAC selected two ESCOs to work with and notified them on September 8, 2020. OEEC staff coordinated with the Department of Procurement and Material Management (DPMM), the County Attorney's Office, FMD, FCPA, the Sheriff's Office, FCPL, DMME, and the ESCOs to finalize the MOU language.
5	The selected ESCOs perform an Investment Grade Audit at desired facilities, which is a more detailed and accurate version of the Back of the Envelope assessment.	Investment Grade Audits started in November at the following facilities: Adult Detention Center Cub Run RECenter Fairfax City Library Lee District RECenter South Run RECenter
6	Based on the Investment Grade Audit, the jurisdiction selects projects to implement.	OEEC is working with FMD, FCPA, and FCPL to select projects to implement from the CMTA report. OEEC will work with FMD and the Sheriff's Office to select projects to implement once NORESCO finishes the Adult Detention Center report.
7	The ESCOs and the county negotiate a contract.	OEEC will work with the agencies listed in Step 4 to negotiate a contract with each ESCO.
8	The ESCOs implement the selected measures by installing new equipment, adjusting building management systems, or performing other types of upgrades.	Construction will likely start in early 2022.
9	After projects are complete, the ESCOs typically perform annual measurement and verification (M&V) to ensure that the guaranteed savings are achieved.	M&V arrangements will be project-specific.

Attachment 2: Energy Service Company Status Update Memo

County of Fairfax, Virginia

MEMORANDUM

DATE: October 20, 2020

TO: Board of Supervisors

FROM: Bryan J. Hill
County Executive

SUBJECT: Energy Service Company Status Update

In the September 30, 2019 memorandum to the Board titled *Energy Service Company Review and Analysis*, the County Executive directed staff in the Office of Environmental and Energy Coordination (OEEC) to do the following:

- Pilot the Department of Mines, Minerals, and Energy's (DMME's) Energy Service Company (ESCO) contract at select county facilities.
- Work with other county agencies to select pilot facilities.
- Use a portion of the FY2019 Carryover funding to seed the pilot.

The Board was last updated on the ESCO pilot during the February 4, 2020 Environmental Committee meeting. This memorandum provides an update on the progress that has been made since then.

Background

ESCOs offer comprehensive energy saving solutions by performing building assessments, identifying energy saving upgrades, calculating guaranteed savings, implementing selected upgrades, and verifying the savings. The DMME ESCO contract offers a streamlined procurement process, document templates, technical assistance, and pre-qualified ESCOs. More background information about the DMME contract or ESCOs in general can be found in the 2019 *Energy Service Company Review and Analysis* memorandum.

Since the FY2018 Carryover, the Board has allocated $4.5 million in carryover funding each September for energy efficiency projects that help achieve the targets in the Board's Operational Energy Strategy. OEEC set aside $2.4 million from FY2019's Carryover funding and the entire $4.5 million from FY2020's Carryover funding for the pilot of this program. In total, $6.9 million will be used to pay for the ESCO pilot projects.

Status

The DMME process and the status of each step are summarized on the following page. Completed steps are green, steps in progress are yellow, and steps not yet started are gray.

Office of the County Executive
12000 Government Center Parkway, Suite 552
Fairfax, VA 22035-0066
703-324-2531, TTY 711, Fax 703-324-3956
www.fairfaxcounty.gov

	DMME ESCO Process Step	Fairfax County Status
1	A Request for Proposal (RFP) is issued to the pre-qualified ESCOs, and all ESCOs are invited to a kick-off meeting.	An RFP was issued on February 10, 2020 to the 15 pre-qualified ESCOs. Eight ESCOs attended a kick-off meeting at the Fairfax County Government Center on the same day.
2	Interested ESCOs perform a Back of the Envelope assessment of one or more buildings at no charge to identify energy saving opportunities.	Five ESCOs performed Back of the Envelope assessments from February 25 to March 5 at the Adult Detention Center and Cub Run RECenter.
3	The jurisdiction reviews the proposals, which include the Back of the Envelope assessment findings.	On May 29, the county received five proposals. A Selection Advisory Committee (SAC) reviewed the proposals from June to August.
4	The jurisdiction selects one or more ESCOs to work with and establishes a Memorandum of Understanding (MOU) with them.	The SAC selected two ESCOs to work with and notified the ESCOs on September 8. OEEC staff are coordinating with the Department of Procurement and Material Management, the County Attorney's Office, the Facilities Management Department (FMD), the Fairfax County Park Authority (FCPA), the Sheriff's Office, Fairfax County Public Library, DMME, and the ESCOs to finalize the MOU language.
5	The selected ESCOs perform an Investment Grade Audit at desired facilities, which is a more detailed and accurate version of the Back of the Envelope assessment.	Investment Grade Audits should start in November at the following facilities: Adult Detention Center Cub Run RECenter Fairfax City Library Lee District RECenter South Run RECenter
6	Based on the Investment Grade Audit, the jurisdiction selects projects to implement and negotiates a contract with the ESCOs.	ESCOs have 90 days to complete the Investment Grade Audit and submit a report to the county. OEEC will work with FMD, FCPA, the Sheriff's Office, and Fairfax County Public Library to select projects totaling $6.9 million. Projects will be selected based on cost effectiveness and equipment needs.
7	The ESCO and the county negotiate a contract based on the DMME template.	OEEC will work with the agencies listed in Step 4 to negotiate a contract with each ESCO.
8	The ESCOs implement the selected projects by installing new equipment, adjusting building management systems, or performing other types of upgrades.	OEEC staff aim to have construction start in the summer.
9	After projects are complete, the ESCOs typically perform annual measurement and verification (M&V) to ensure that the guaranteed savings were achieved.	M&V arrangements will be project-specific.

As the table shows, the ESCO program is currently at Step 4, establishing an MOU. An MOU will likely be signed with each ESCO in late October or early November. After the pilot projects are complete, OEEC staff will coordinate with FMD, FCPA, the Sheriff's Office, and Fairfax County Public Library to assess the projects and evaluate the success of the pilot. Assuming a positive evaluation, OEEC plans to initiate additional phases of work in the future.

Please contact OEEC's Senior Energy Analyst, Jessica Lavender, at 571-585-7905 or Jessica.Lavender@fairfaxcounty.gov with questions about the ESCO pilot.

cc: Joseph Mondoro, Chief Financial Officer
Rachel Flynn, Deputy County Executive
Kirk Kincannon, Director, Fairfax County Park Authority
Jose Comayagua, Director, Facilities Management Department
Kambiz Agazi, Director, Office of Environmental and Energy Coordination

Attachment 3: Energy Service Company Review and Analysis Memo

County of Fairfax, Virginia

MEMORANDUM

DATE: SEP 30 2019

TO: **Board of Supervisors**

FROM: **Bryan J. Hill**
County Executive

SUBJECT: **Energy Service Company Review and Analysis**

This memo first summarizes Energy Service Companies, or ESCOs, in general, and then discusses a Virginia Department of Mines, Minerals, and Energy (DMME) contract available to Fairfax County. This memo was prepared in response to the February 5th Fairfax Green Initiatives Board Matter that directed the County Executive to report to the Board of Supervisors Environmental Committee (BOSEC) on "a process for contracting with an energy savings performance contractor (ESPC), or recommend other such initiatives that produce a similar outcome and timeframe." At the June 18th BOSEC meeting, the Director of the Office of Environmental and Energy Coordination presented a Fairfax Green Initiatives Completed Actions Matrix that described the process for working with an ESCO. At that meeting, the Board's Committee asked county staff to investigate using the DMME ESCO contract. This memo fulfills that request.

General Background

ESCOs offer comprehensive energy saving solutions by performing building assessments, identifying energy saving upgrades, estimating potential savings, implementing the upgrades, and verifying the savings. ESCOs can be an attractive option for customers with limited resources to identify, implement, and evaluate projects. ESCOs perform Investment Grade Audits (IGAs) that provide customers with valuable information such as a detailed record of their facility and the energy efficiency improvements that could be made. The IGA can be used to identify priorities and guide capital improvement decisions. After projects are complete, ESCOs train facility staff on how to maintain new equipment. In addition to verifying that savings are achieved, ESCOs contractually guarantee the savings.

ESCOs can be attractive from a financial perspective as well. Financial arrangements appear flexible, but include paying for the entire project upfront, obtaining a loan for the entire project cost, or paying for a portion of the project upfront while financing the rest.

Office of the County Executive
12000 Government Center Parkway, Suite 552
Fairfax, VA 22035-0066
703-324-2531, TTY 711, Fax 703-324-3956
www.fairfaxcounty.gov

Some contracts align monthly loan payments with guaranteed monthly energy savings, thereby making the project "budget neutral." However, due to interest payments necessitated by obtaining a loan, paying for an entire project upfront is the least expensive option.

In 2001, Virginia's General Assembly passed the Energy and Operational Efficiency Performance-Based Contracting Act to promote the use of ESCOs by public bodies. Chapter 6.1, added to Title 11, includes a number of mandatory ESCO contract provisions such as requiring that projects be cost effective, requiring the contractor to provide a 100 percent performance guarantee bond, requiring the contractor to provide an annual reconciliation of the guaranteed savings, and requiring that the contract terms be annual so that they do not constitute a debt.

From 2001-2006, Facilities Management Department (FMD) staff participated in an ESCO contract, completing $18 million of work at 31 buildings – about $15 million for capital projects and $3 million for fluorescent lighting upgrades.

A table of pros and cons for using an ESCO is provided below. This table applies to any ESCO, regardless of the contract mechanism used.

General Pros and Cons of Using an ESCO

ESCO Pros	ESCO Cons
• Expertise and experience identifying, designing, and implementing energy projects and measuring their savings. • A turnkey solution; customers can coordinate with one company for energy project needs. • Can include financing so there is no upfront cost. • Monitoring and verification of savings after projects are complete. • Can help secure rebate dollars from PJM's Demand Side Management Program.	• Contracts are long term – usually 10 or more years. • Contracts are complicated, involving verification of savings and refunds when savings aren't achieved. • An ESCO contract would require coordination across multiple agencies. • ESCO use of sub-contractors makes projects more expensive than working with a lighting contractor directly. • ESCO will need to be managed – not necessarily less work than managing a project in-house. • As with any contract, disputes over performance can lead to litigation. • Project financing may be viewed as debt, forcing projects to be paid for up front.

DMME Contract

The Energy and Operational Efficiency Performance-Based Contracting Act also directs DMME to assist local governments that wish to pursue an ESCO contract. Since 2001, DMME staff have managed a rideable ESCO contract and have provided technical assistance to local governments, state agencies, institutions of higher education, and public bodies. DMME's contract documents are located in eVA, and over 250 projects have been completed. City of Fairfax, Prince William County, and at least 18 other local governments have used the contract. The current contract has

a 10-year term that expires November 30th, 2019. DMME staff are planning to issue a new 10-year contract immediately with a seamless transition between contracts.

DMME advisors facilitate coordination between customers and ESCOs and provide a streamlined procurement process with model contract documents. Under the DMME process, DMME staff estimate that it takes 30-60 days to issue a Request for Proposal (RFP), 30-45 days to have Back of the Envelope building assessments performed, 30 days to select a contractor, 30-90 days to complete an Investment Grade Audit, and 30-120 days for construction to begin. DMME pre-qualified fifteen contractors based on experience, references, bonding, insurance, whether the business is SWaM (small, woman-owned, or minority-owned), and other criteria. See Appendix A for a detailed description of the contract process and a complete list of contractors.

In June, DMME staff launched a new program option called Solar-Enhanced Energy Performance Contracting. Program participants can use cost savings achieved from implementing energy efficiency measures to fund solar projects at the same location. DMME will fund any shortfall in funding up to 40% of the solar project cost. One million dollars is available to local governments and public bodies on a first come, first served basis. It is unlikely that Fairfax County would use this program since the county is already pursuing solar for government facilities through the recently released Solar Power Purchase Agreement Services RFP.

Pros and cons for using the DMME contract are provided in the table below.

Pros and Cons of Using DMME's ESCO Contract

DMME Pros	DMME Cons
• DMME staff provide expert technical assistance. • Contractors are vetted and pre-approved. • Contractors must provide detailed documentation of savings estimates. • The procurement process is streamlined; there is no need to create the RFP. • Change orders are not allowed. • Customers can still make decisions regarding equipment type, equipment manufacturer, and subcontractors. • Contractors must provide a training plan for building operators after the equipment is installed. • Solar projects can be included, and partial funding is available.	• Procedural and reporting requirements can prolong contract negotiations. • Customers must advertise to all 15 pre-qualified contractors and take all contractors on building tours if requested. • Scope of work (SOW) is rigid. If the customer wants to add new buildings to the SOW, the customer must start the process again with a new contract. • Contractors do not provide financing. Customers must use a third party.

To prepare this memo, county staff interviewed the DMME contract representative, an approved contractor (NORESCO), Virginia Beach's Energy Manager, Fairfax County Department of Procurement and Materials Management (DPMM) staff, and Brad Melton, the current Director of the Wastewater Design and Construction Division in Capital Facilities and the Energy

Manager for FMD when the previous ESCO work was completed. Virginia Beach used the contract five years ago for four buildings and is in the process of selecting a contractor to use the contract again for five more buildings. Virginia Beach found the technical assistance provided by DMME to be particularly helpful.

Recommendation

Fairfax County is currently implementing a successful Operational Energy Strategy program. OEEC staff selected 25 energy projects for FY2019 Carryover funding, as shown in Appendix B.[1] ESCOs are a viable option for achieving energy savings that could be incorporated into the current program to supplement existing efforts. After careful review, I am directing county staff to pilot DMME's ESCO contract at select county facilities unless otherwise directed by the Board. I recommend using a portion of the Operational Energy Strategy FY2019 Carryover funding to seed this ESCO pilot. I've directed OEEC staff to lead the ESCO process and work with other county agencies to select pilot facilities that would benefit from an ESCO Investment Grade Audit.

Attachment A: DMME Contract Process and Pre-Qualified Contractor List
Attachment B: FY 2019 Carryover Funding Energy Projects

cc: Joseph Mondoro, Chief Financial Officer
Rachel Flynn, Deputy County Executive
Kirk Kincannon, Director, Fairfax County Park Authority
Jose Comayagua, Director, Facilities Management Department
Kambiz Agazi, Director, Office of Environmental and Energy Coordination

[1] OEEC staff performed a rigorous review of FMD and Fairfax County Park Authority (FCPA) energy efficiency projects that were submitted for FY2019 Carryover funding. OEEC staff met with FMD and FCPA staff multiple times to estimate project costs, energy savings, cost avoidance, payback, and equipment life. OEEC staff reviewed detailed project descriptions and lighting audits when available to analyze cost effectiveness and additional project benefits.

Appendix A

DMME Contract Process

1. Interested customers inform DMME of their intent to proceed.
2. DMME helps the customer advertise to the pre-qualified ESCOs.
3. DMME hosts a Back of the Envelope kick off meeting.
4. Interested ESCOs perform a Back of the Envelope audit of one or more buildings at no charge.
5. The customer reviews the Back of the Envelope audit findings and interviews the ESCOs it is interested in.
6. The customer selects two or more ESCOs and signs a Memorandum of Understanding for an Investment Grade Audit. There is a fee for the Investment Grade Audit if no upgrades are performed as a result.
7. The ESCO performs the Investment Grade Audit, which is a detailed audit to identify energy saving projects.
8. Based on the Investment Grade Audit, the customer selects projects to implement and negotiates an energy performance contract with the ESCO.
9. The ESCO implements the selected projects by installing new equipment, adjusting building management systems, or performing some other type of upgrade.
10. After projects are complete, the ESCO performs annual measurement and verification to reconcile the results with the expected savings. ESCOs are required to document this information in an online Department of Energy database called eProject Builder.

Pre-Qualified Contractor List

- ABM Building Services
- AECOM
- AMERESCO
- Clark Energy Group
- CMTA Inc.
- CONSTELLATION NEWENERGY
- Energy Systems Group
- Honeywell Building Solution
- Johnson Controls
- NORESCO
- Schneider Electric
- Siemens
- Southland Industries of Virginia
- Trane U.S. Inc.
- Wendel Energy Services

Appendix B

FMD FY2019 Carryover Funding Energy Projects

Facility Name	Project Type	Project Cost
Government Center	Lighting Control	$400,000
Chantilly Regional Library	Lighting Retrofit	$220,000
Centerville Regional Library	Lighting Retrofit	$160,000
Fairfax City Library	Lighting Retrofit	$420,000
Herndon Fortnightly Library	Lighting Retrofit	$180,000
Kings Park Library & Gov. Center	Lighting Retrofit	$176,177
Newington DVS	Lighting Retrofit	$220,000
Oakton Library	Outdoor Lighting	$17,000
Southgate Community Center	Outdoor Lighting	$37,000
Mott Community Center	Outdoor Lighting	$30,000
James Lee Community Center	Outdoor Lighting	$30,000
	Total:	$1,890,177

FCPA FY2019 Carryover Funding Energy Projects

Facility Name	Project Type	Project Cost
Lee District RECenter	Lighting Retrofit	$185,350
Oak Marr RECenter	Lighting Retrofit	$106,750
South Run RECenter	Lighting Retrofit	$106,750
Spring Hill RECenter	Lighting Retrofit	$141,250
Providence RECenter	Lighting Retrofit	$39,900
George Washington	Lighting Retrofit	$16,000
Frying Pan Farm Park	Lighting Retrofit	$40,000
	Total:	$636,000

Attachment 4: CMTA ECM Summaries

Cub Run RECenter ECM List										
ECM No.	ECM Description	Annual Electric Savings (kWh)	Annual Fuel Savings (Therm)	Annual Total Energy Savings (MT, CO2e)	Annual Water Savings (Gallons)	Year 1 Energy/Water Savings	Year 1 O&M Savings	ECM Cost	Simple Payback (Yrs.)	Equipment Life Expectancy (Yrs.)
U1	Utility Rate Switch			N/A	N/A	Varies	N/A	N/A	N/A	-
E1	LED Lighting Upgrades					$ -	$ -	$ -		
E2	LED Lighting Controls					$ -	$ -	$ -		
E3.a	Solar Photovoltaic - Option A	105,033		65		$ 4,249.13	$ (600.00)	$ 160,671.60	44.0	25-30
E3.b	Solar Photovoltaic - Option B	567,614		349		$ 22,397.64	$ (1,000.00)	$ 976,743.90	45.6	25-30
H1	Pool Dehumidification System Renovation					$ -	$ -	$ -		
H2	AHU/RTU Equipment Replacement					$ -	$ -	$ -		
H3	Geothermal Wellfield					$ -	$ -	$ -		
H4	Gymnasium AHU Replacement					$ -	$ -	$ -		
H5	Hot Water Plant Renovation		33,052.5	175		$ 23,136.72	$ -	$ 687,561.11	29.7	20-25
H6	Pool Heat Recovery Upgrades	-40,006	47,392.4	227	621,600	$ 38,369.63	$ -	$ 622,905.00	16.2	20-25
H7	Pool Heat Exchanger Replacement					$ -	$ -	$ -		
H8	Condenser Coil Refurbishment					$ -	$ -	$ -		
H9	Bi-Polar Ionization					$ -	$ -	$ 36,225.18		-
C1	New DDC System with Advanced Energy Strategies & Demand Response					$ -	$ -	$ -		
C2	BAS Enhanced Energy Sequences	360,058	3,578.0	241		$ 24,519.89	$ -	$ 118,875.00	4.8	-
C3	Variable Speed Pumping	71,725		44		$ 3,769.66	$ -	$ 50,720.00	13.5	-
P1	Solid Pool Cover	42,808	11,371.5	87	60,852	$ 10,103.96	$ 649.30	$ 191,544.08	17.8	-
P2	Liquid Pool Cover	7,786	7,914.1	47	81,435	$ 6,676.37	$ (6,075.00)	$ 31,113.55	51.7	-
P3	Solar Thermal		13,360.0	71		$ 9,352.00	$ -	$ 792,500.00	84.7	-
P4	Water Efficiency Upgrades		170.0	1	147,000	$ 1,678.67	$ -	$ 51,686.85	30.8	-
P5	Cooling Tower Sewer Credit					$ 9,922.64	$ -	$ 6,340.00	0.6	-
G1	Building Envelope Improvements	2,462	879.8	6		$ 701.98	$ -	$ 15,453.75	22.0	-
G2	Solar PV Roof Improvements					$ -	$ -	$ 1,250,000.00		20-40
Facility Total (Project Option #1)		**394,238**	**84,903**	**693**	**621,600**	**$ 100,420.51**	**$ -**	**$ 1,501,854.86**	**15.0**	
Facility Total (Project Option #2)		**437,046**	**96,444**	**780**	**829,452**	**$ 112,203.13**	**$ 649.30**	**$ 1,745,085.79**	**15.5**	
Facility Total (Project Option #3)		**1,004,660**	**96,444**	**1,130**	**829,452**	**$ 134,600.78**	**$ (350.70)**	**$ 4,008,054.87**	**29.9**	

South Run RECenter ECM List

ECM No.	ECM Description	Annual Electric Savings (kWh)	Annual Fuel Savings (Therm)	Annual Total Energy Savings (MT. CO2e)	Annual Water Savings (Gallons)	Year 1 Energy/Water Savings	Year 1 O&M Savings	ECM Cost	Simple Payback (Yrs.)	Equipment Life Expectancy (Yrs.)
U1	Utility Rate Switch			N/A	N/A	Varies	N/A	N/A	N/A	-
E1	LED Lighting Upgrades	5,494		3		$ 192.29	$ 389.76	$ 25,296.60	43.5	-
E2	LED Lighting Controls					$ -	$ -	$ -		
E3.a	Solar Photovoltaic - Option A	178,118		110		$ 7,210.07	$ (600.00)	$ 282,911.81	42.8	25-30
E3.b	Solar Photovoltaic - Option B	961,487		592		$ 38,909.54	$ (1,500.00)	$ 1,457,327.70	39.0	25-30
H1	Pool Dehumidification System Renovation	77,552	1,846	58		$ 5,615.73	$ 4,516.70	$ 736,213.48	72.7	15-20
H2	AHU/RTU Equipment Replacement	86,169	3,776	73		$ 8,215.72	$ 3,884.88	$ 986,916.26	81.6	15-20
H3	Geothermal Wellfield	-24,620	2,308	-3		$ 753.74	$ -	$ 430,803.00	571.6	50
H4	Gymnasium AHU Replacement					$ -	$ -	$ -		
H5	Hot Water Plant Renovation					$ -	$ -	$ -		
H6	Pool Heat Recovery Upgrades					$ -	$ -	$ -		
H7	Pool Heat Exchanger Replacement		566	3		$ 396.51	$ -	$ 105,158.16	265.2	24
H8	Condenser Coil Refurbishment	3,737		2		$ 130.80	$ -	$ 12,521.50	95.7	-
H9	Bi-Polar Ionization					$ -	$ -	$ 22,493.79		-
C1	New DDC System with Advanced Energy Strategies & Demand Response	104,633	5,664	94		$ 11,682.27	$ -	$ 419,890.28	35.9	15-20
C2	BAS Enhanced Energy Sequences					$ -	$ -	$ -		
C3	Variable Speed Pumping	23,908		15		$ 1,466.43	$ -	$ 100,330.50	68.4	20.0
P1	Solid Pool Cover	45,992	10,610	85	66,277	$ 9,739.98	$ 745.70	$ 250,252.48	23.9	-
P2	Liquid Pool Cover	5,110	6,673	39	52,324	$ 5,405.04	$ (5,265.00)	$ 14,859.38	106.1	-
P3	Solar Thermal		4,732	25		$ 3,312.44	$ -	$ 310,660.00	93.8	-
P4	Water Efficiency Upgrades				67,000	$ 710.87	$ -	$ 16,816.85	23.7	-
P5	Cooling Tower Sewer Credit					$ -	$ -	$ -		
G1	Building Envelope Improvements	2,030	725	5		$ 578.73	$ -	$ 12,006.38	20.7	-
G2	Solar PV Roof Improvements					$ -	$ -	$ 650,000.00		20-40
Facility Total (Project Option #1)		**192,832**	**10,166**	**173**	**0**	**$ 20,476.72**	**$ 3,884.88**	**$ 1,418,812.91**	**58.2**	
Facility Total (Project Option #2)		**340,284**	**23,189**	**332**	**133,277**	**$ 38,406.24**	**$ 9,147.29**	**$ 2,627,584.37**	**55.3**	
Facility Total (Project Option #3)		**1,282,645**	**25,497**	**925**	**133,277**	**$ 78,261.81**	**$ 8,037.05**	**$ 5,213,505.47**	**60.4**	

Lee District RECenter ECM List

ECM No.	ECM Description	Annual Electric Savings (kWh)	Annual Fuel Savings (Therm)	Annual Total Energy Savings (MT, CO2e)	Annual Water Savings (Gallons)	Year 1 Energy/Water Savings	Year 1 O&M Savings	ECM Cost	Simple Payback (Yrs.)	Equipment Life Expectancy (Yrs.)
U1	Utility Rate Switch			N/A	N/A	Varies	N/A	N/A	N/A	-
E1	LED Lighting Upgrades					$ -	$ -	$ -		
E2	LED Lighting Controls					$ -	$ -	$ -		
E3.a	Solar Photovoltaic - Option A	105,908		65		$ 4,286.05	$ (600.00)	$ 162,010.53	44.0	25-30
E3.b	Solar Photovoltaic - Option B	480,087		295		$ 19,428.64	$ (1,000.00)	$ 787,036.91	42.7	25-30
H1	Pool Dehumidification System Renovation	102,932	4,427.4	87		$ 8,800.62	$ 7,708.12	$ 942,263.48	57.1	15-20
H2	AHU/RTU Equipment Replacement	36,761	1,503.7	31		$ 3,178.73	$ -	$ 451,725.00	142.1	15-20
H3	Geothermal Wellfield					$ -	$ -	$ -		
H4	Gymnasium AHU Replacement					$ -	$ -	$ 624,394.90		15-20
H5	Hot Water Plant Renovation	23,908	7,518.3	55		$ 6,729.23	$ -	$ 694,307.35	103.2	20-25
H6	Pool Heat Recovery Upgrades									
H7	Pool Heat Exchanger Replacement		910.5	5		$ 637.38	$ -	$ 44,579.33	69.9	24
H8	Condenser Coil Refurbishment	10,665		7		$ 373.28	$ -	$ 34,077.50	91.3	-
H9	Bi-Polar Ionization					$ -	$ -	$ 35,305.88		-
C1	New DDC System with Advanced Energy Strategies & Demand Response	196,061	5,179.3	148		$ 17,332.18	$ -	$ 486,357.25	28.1	15-20
C2	BAS Enhanced Energy Sequences					$ -	$ -	$ -		
C3	Variable Speed Pumping					$ -	$ -	$ -		
P1	Solid Pool Cover	60,335	14,097.8	112	109,114	$ 13,137.83	$ 1,230.00	$ 333,341.35	23.2	-
P2	Liquid Pool Cover	6,546	8,034.4	47	86,143	$ 6,767.15	$ (6,480.00)	$ 19,020.00	66.2	-
P3	Solar Thermal		3,459.4	18		$ 2,421.61	$ -	$ 228,240.00	94.3	-
P4	Water Efficiency Upgrades		133.0	1	135,000	$ 1,525.45	$ -	$ 51,541.03	33.8	-
P5	Cooling Tower Sewer Credit					$ -	$ -	$ -		
G1	Building Envelope Improvements	3,701	1,322.3	9		$ 1,055.12	$ -	$ 14,502.75	13.7	-
G2	Solar PV Roof Improvements					$ -	$ -	$ 1,122,000.00		20-40
Facility Total (Project Option #1)		**199,762**	**6,502**	**157**	**0**	**$ 18,387.30**	**$ -**	**$ 500,860.00**	**27.2**	
Facility Total (Project Option #2)		**386,937**	**33,589**	**416**	**244,114**	**$ 49,217.82**	**$8,938.12**	**$2,566,892.54**	**44.1**	
Facility Total (Project Option #3)		**903,785**	**35,092**	**742**	**244,114**	**$ 71,825.19**	**$ 7,938.12**	**$ 5,587,355.22**	**70.0**	