ESPC Experiences

Virginia Department of Energy
Energy Performance Savings Contract Summit

May 20, 2025

Keith Snyder, Energy Branch Manager
Fairfax County Park Authority

OVERVIEW

- Background
- FCPA/County History
- Energy Usage
- Why ESCO's
- Project History
- Results
- Project Details

Spring Hill Rec Center Pool Unit

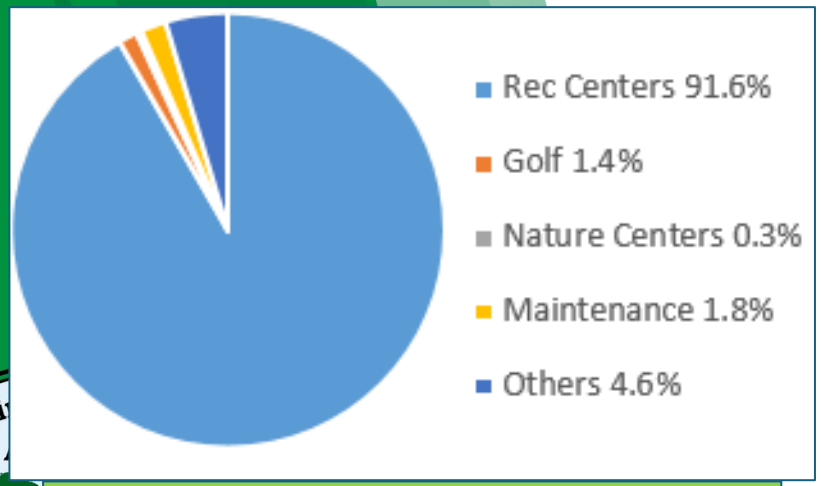
BACKGROUND

- Keith Snyder – Energy Branch Manager
  - Joined Fairfax County August 2018
  - Energy Manager at LyondellBasell, LaPorte, TX
  - Energy Consultant at DuPont/Chemours, Houston TX
  - Reliability and Utilities at DuPont, Fayetteville, NC
  - Process Engineer at DuPont, Deepwater, NJ

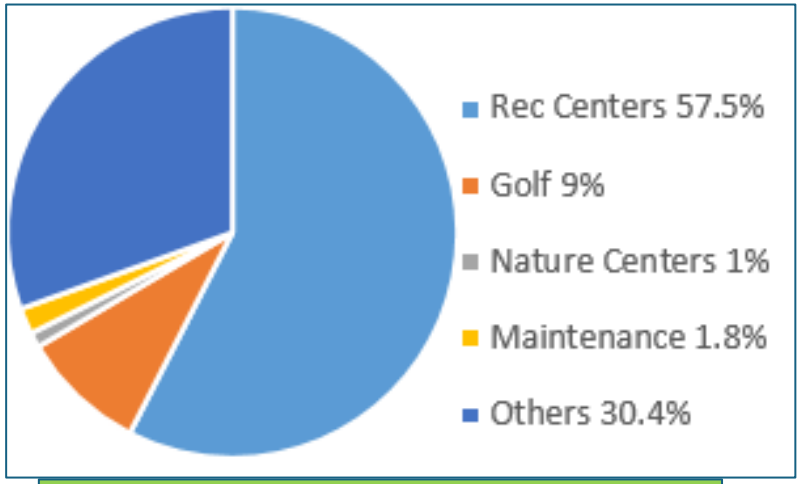
- FCPA
  - Largest Landowner in Fairfax County
  - 420 parks and counting
  - 9 Recreation centers, 7 golf courses, 7 area maintenance shops, 4 nature centers, historic properties, fields, courts, etc

FCPA/COUNTY ENERGY

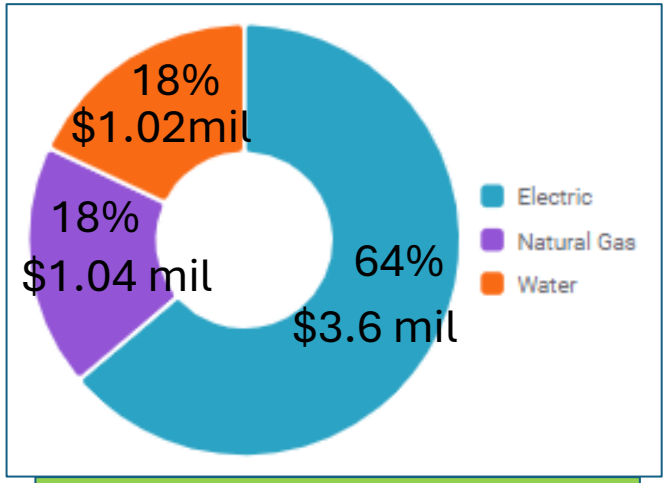
FUEL TYPE	UNITS	FY 2018 ENERGY USE	EQUIVALENT HOMES POWERED	EQUIVALENT PASSENGER VEHICLES	FCPA USAGE	% OF COUNTY
Electricity	kWh	262,073,761	10,706	19,317	31,164,260	11.9%
Natural Gas	Therms	4,706,577	3,009	5,430	957,793	20.4%
Total	kBTU	1,364,329,225	28,225	50,928	202,049,440	14.8%



FY2018 FCPA Natural Gas Usage by Facility



FY2018 FCPA Electric Usage by Facility

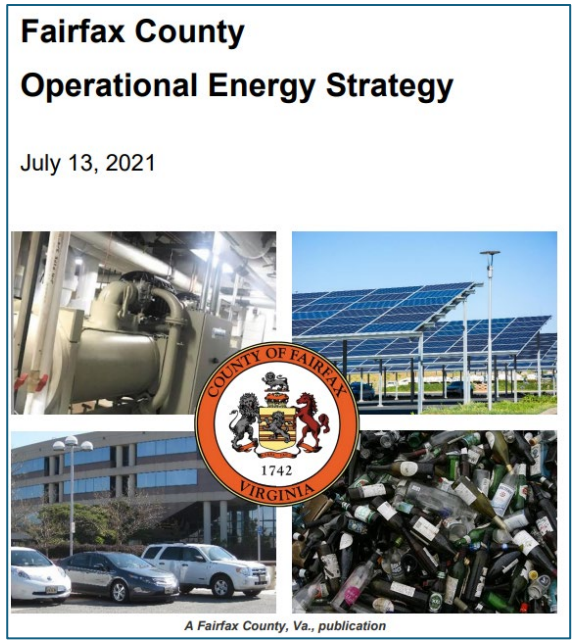


FY2018 FCPA Energy Cost by Utility

FCPA/COUNTY ENERGY

2021 County Operational Energy Strategy

- Energy Use Reduction
  - 2030: 25%;
  - 2040: 50%
- Carbon Emissions
  - 2030: 50%;
  - 2040: Carbon Neutral
- Renewable Energy
  - 2030: 25%,
  - 2040: 50%



*All from FY2018 baseline

- OES Link: https://www.fairfaxcounty.gov/environment-energy-coordination/operational-energy-strategy/energy-use-efficiency

CHALLENGES FACED

Spring Hill Rec Center - Old Boiler

- Major facilities between 25 and 40 years old
  - Original equipment – Boilers
  - End of life equipment:
    - Air handlers
    - Pool Units
    - Chillers
    - Cooling Towers
- Constant building operation
  - 4:30 am until ~9 pm
- Limited Building Automation
- Funding

WHY ESCO'S?

- Expert review and analysis of process systems
- Pricing stability from audit to PO
- Replacements/upgrades at the same time
- Guaranteed savings and performance

PROJECT HISTORY

		FUNDING			
PHASE	REC CENTERS	CARRYOVER (OEEC-OES)	FCPA CIP / BOND / REVENUE	FCPA ARPA	TOTAL
I	CUB RUN REC CENTER	$1,241,320			$1,241,320
I	SOUTH RUN REC CENTER	$2,337,142			$2,337,142
II	SPRING HILL REC CENTER	$6,281,170	$994,000	$1,202,222	$8,477,392
III	FRANCONIA REC CENTER	$906,054	$2,797,235	$1,368,632	$5,071,921
III	OAKMONT REC CENTER	$1,000,000	$2,000,000	$2,323,460	$5,323,460
IV	PROVIDENCE REC CENTER	$3,074,399			$3,074,399
TOTAL		**$14,840,085**	**$5,791,235**	**$4,894,314**	**$25,525,634**

Total Cost of each project phase

PHASE	REC CENTERS	GUARANTEED SAVINGS	MAINTENANCE SAVINGS	ADDITIONAL SAVINGS	TOTAL SAVINGS
I	CUB RUN REC CENTER	$95,948	$26,546	$67,163	$189,657
I	SOUTH RUN REC CENTER	$25,515	$7,060	$17,861	$50,436
II	SPRING HILL REC CENTER	$67,118	$18,104	$21,478	$106,700
III	FRANCONIA REC CENTER	$58,226	$17,963	$3,494	$79,682
III	OAKMONT REC CENTER	$31,651	$20,429	$1,899	$53,979
IV	PROVIDENCE REC CENTER	$18,441	$7,750	$0	$26,191
TOTAL		**$246,807**	**$69,673**	**$109,995**	**$426,475**

Annual Savings from each project phase

- Boiler replacements
- Hot Water System Separation
- Air Handlers
- Pool Dehumidification Units
- Solar Arrays
- Pool Heat Recovery Units
- Building Automation Systems

EQUIPMENT HISTORY

Phase	Rec Center	Boilers	Hot Water System	Pool Heat Recovery	Geothermal HVAC	Solar Array	Pool Units	HVAC Units	BAS	LED Lighting	Water Efficiency	Pump Optimizations	Building Envelope	Transformer Upgrades
I	CUB RUN REC CENTER	4	1	1					1		1			
I	SOUTH RUN REC CENTER			1	1		2		1					
II	SPRING HILL REC CENTER	2	1	1	1	1	2		1	1	1	1	1	
III	FRANCONIA REC CENTER	3	1				2	6	1					
III	OAKMONT REC CENTER	3					3	6	1		1		1	1
IV	PROVIDENCE REC CENTER	2					2							
TOTAL EQUIPMENT		**14**	**3**	**3**	**2**	**1**	**11**	**12**	**5**	**1**	**3**	**1**	**2**	**1**

- Original building boilers
- Equipment at or beyond end of life
- Diverse range of equipment replacement

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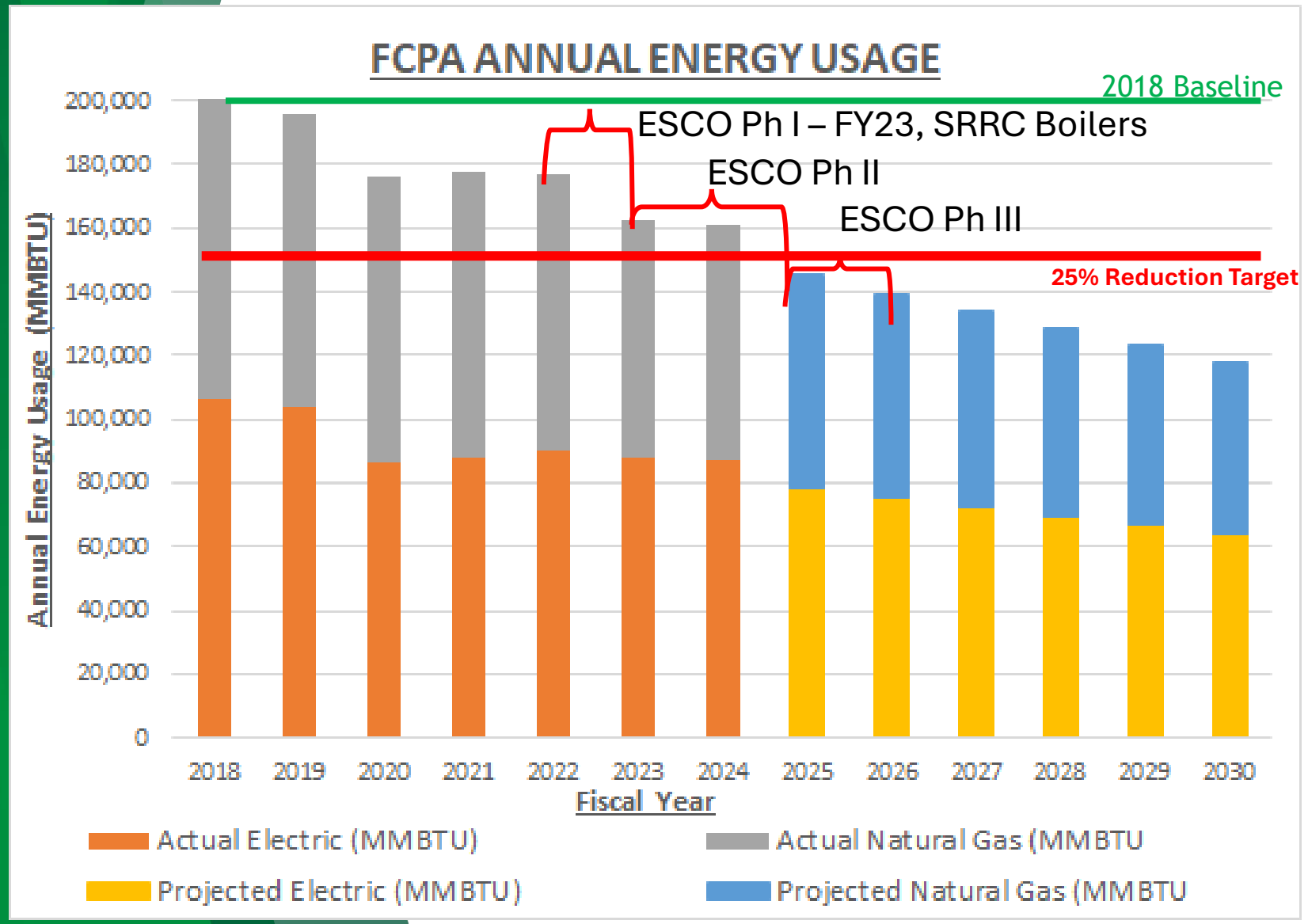
ENERGY USAGE TREND



AWARDS AND RECOGNITIONS

- 2023 Virgina Energy Efficiency Council Leadership Award for ESCO Phase I at Cub Run and South Run Recenters
- ASHRAE 2025 Technology Award –
  - Cub Run Rec hot water system renovation
  - Decoupling domestic and building hot water
  - Pool Unit heat recovery
- 2025 DOE Better Buildings Award
  - Spring Hill Rec Center Renovation

HOW TO START

- Determine the need
  - Audit you building portfolio energy usage, EUI, and equipment age
- Find the budget
  - Equipment cost +30%
  - Bond, budget, pay with savings
- Communicate the need
  - Involve leadership
  - Input from facility users
- Inclusion
  - Involve site staff, building maintenance, upper management, etc.

CUB RUN REC CENTER

Cub Run Rec Heated Water Pumps

Cub Run Rec Boilers

Cub Run Rec Pool Heat Recovery Chiller

SOUTH RUN REC CENTER

South Run Rec Air Handlers

South Run Rec Air Handlers and Pool Dehumidification Units

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SPRING HILL REC CENTER

Spring Hill Rec Center Solar Array

Spring Hill Rec Center Well Field

Spring Hill Rec Center Crane Lift

Authority

SPRING HILL REC CENTER

Spring Hill Rec Solar Array

Spring Hill Rec Pool Dehumidification Units

SPRING HILL REC CENTER

Spring Hill Rec Center WSHPs

Spring Hill Rec Center DOAS and WSHPs

SPRING HILL REC CENTER

Spring Hill Rec Boiler and Heat Recovery Unit

Spring Hill Rec Heated Water System

SPRING HILL REC CENTER

Spring Hill Rec DOAS #2

Spring Hill Rec Domestic Water Boiler

OAKMONT OUTAGE

OAKMONT REC CENTER

Oakmont Rec New Air Handlers and Pool Units

QUESTIONS/COMMENTS?

Spring Hill Rec Center Geothermal Wellfield

Oakmont Rec Center Pool Unit Setting April 2025