

# Energy Performance Contract (EPC) for Putnam County, NY

*Presented by: The ECG Group*



SMITHTOWN, NY • RED HOOK, NY • DANBURY, CT  
MECHANICSBURG, PA • PRINCETON, NJ • FORT LAUDERDALE, FL

# Introduction to The ECG Group

- *Specialists* in Energy Savings Performance Contract (EPC) Owner's Representative Services
- 100+ EPC Projects in NY, CT, and PA. – All projects meeting & exceeding guaranteed energy savings
- Local clients include....



# Sampling of NY References

- Newburgh Enlarged CSD
- Bedford CSD
- Nyack (Phase II)
- Schenectady City SD
- Chappaqua (Ph I & II)
- Mahopac CSD (Ph I & II)
- Beacon City SD
- Pine Plains CSD
- Wallkill SD
- Highland SD
- Monroe Woodbury CSD
- Wappingers CSD
- Spackenkill
- New Rochelle SD (Ph I & II)
- New Paltz CSD
- Bethlehem CSD
- Pine Bush CSD (Ph I & II)
- Ramapo CSD (Ph I & II)
- Commack UFSD (Ph I & Ph II)
- Sachem UFSD (Ph I, II, & III)
- East Islip UFSD
- Half Hollow Hills UFSD
- Lindenhurst UFSD (Ph I & II)
- Center Moriches
- Floral Park UFSD (Ph I & II)
- Tuckahoe UFSD
- Valley Stream 13 UFSD (Ph II)
- Amityville UFSD
- Plainedge UFSD (Ph I & II)
- Kings Park CSD (Ph II)

# What Is An Energy Performance Contract (EPC)?

- Partnership between a Government Agency and Energy Services Company (ESCO)
- Make needed building improvements now and pay for them out of future, guaranteed energy savings the upgrades will yield
- ECG's model guarantees no out-of-pocket costs and no risk



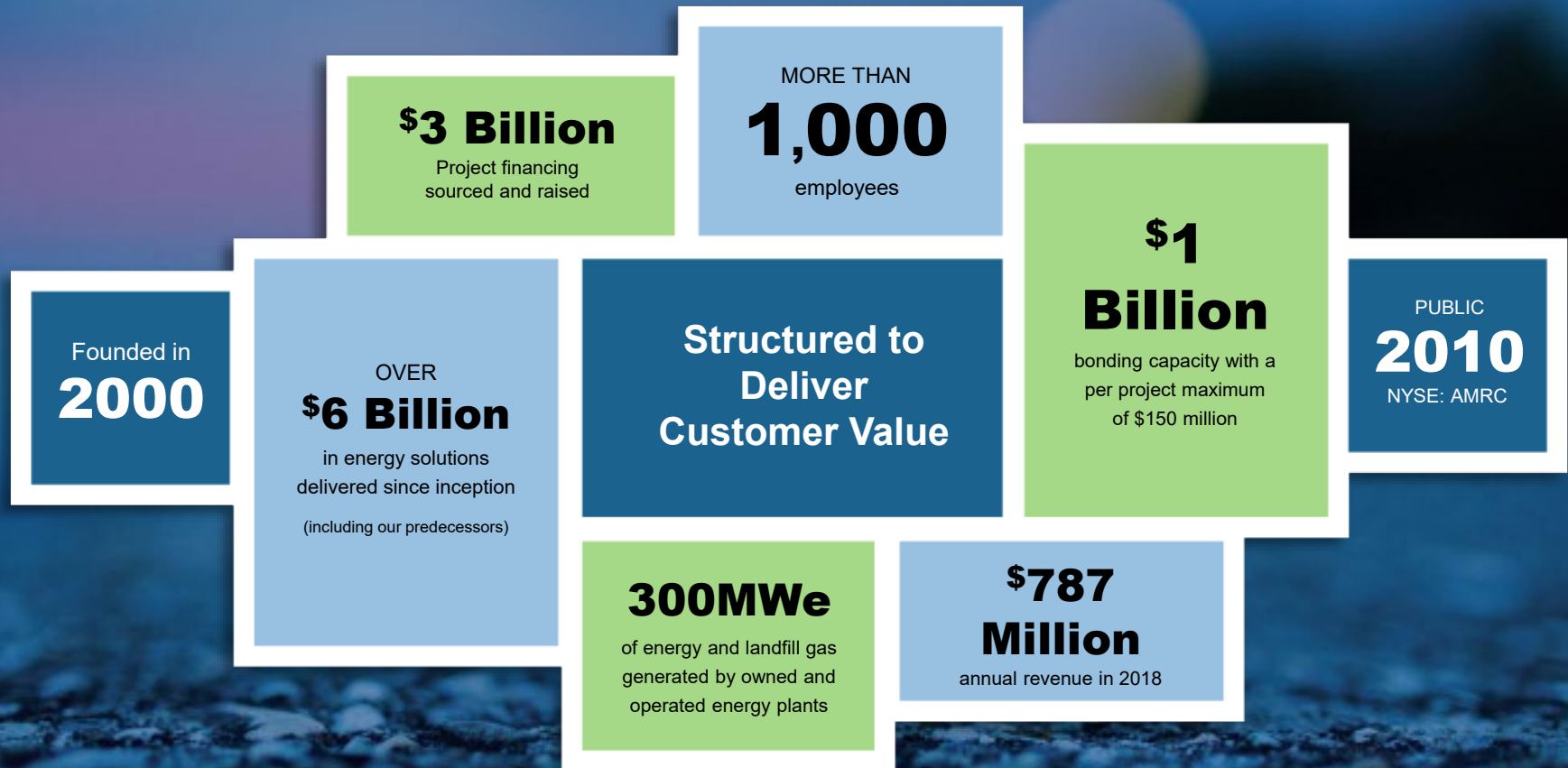
# Activity-to-date

- **Fall 2017- Spring 2018** – The ECG Group selected via RFQ to provide Engineering and Consulting Services
- **Summer 2018** – ECG & County issued Request for Proposals (RFP) to Energy Services Companies (ESCOs) & received (5) responses
- **Winter 2018-19** – ECG & Selection Committee evaluated responses and authorized **Ameresco** to proceed with Comprehensive Energy Audit (CEA)
- **Fall 2019** – Ameresco finalized CEA and submitted Scope, Costs, Savings to County and ECG for evaluation prior to contract execution
- **November 25<sup>th</sup>, 2019** – Informational presentation to provide overview of proposed CEA



# AMERESCO COMPANY OVERVIEW

# Ameresco Milestones



# PROPOSED SCOPE OF WORK

Facility	Putnam County NY Energy Conservation Measures (ECMs)																									
	1	2	3	4	5	6	8	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26			
Sheriff's Department/Correctional Facility	X	X	X				X	X	X	X		X							X					X		
New Putnam County Courthouse	X	X	X					X				X	X						X							
David D. Bruen County Office Building	X	X			X	X					X	X	X			X								X		
1812 Courthouse	X	X	X			X						X	X					X	X							
121 Main Street	X	X		X								X						X								
Putnam National Golf Club - Clubhouse	X	X		X								X	X		X		X				X	X				
Emergency Operations Center/TOPS	X	X	X				X	X				X	X					X								
Donald B. Smith Government Campus - Building 1																	X									
Donald B. Smith Government Campus - Building 2	X	X		X								X				X	X	X				X				
Donald B. Smith Government Campus - Building 3	X	X		X		X						X				X	X	X			X					
Kern Building - Health Dept/DMV/WIC	X	X		X								X				X		X					X			
William Koehler Senior Center	X	X		X				X		X		X	X				X							X		
Putnam Valley Senior Center	X	X		X								X	X													
Putnam Family & Community Services - 1808	X	X		X								X					X	X								
Highway Department - Building 1 Admin	X	X		X		X						X	X						X							
Highway Department - Building 2 Sign Shop	X	X		X								X														
Highway Department - Building 3 Dispatch/Garage	X	X		X								X		X												
Highway Department - Building 4 Garage	X	X		X								X														
Board of Elections	X	X		X								X														
Senator Vincent Leibell Veterans' Home	X	X											X													
Putnam Family & Community Services - 1816	X	X		X																						
Burchetta Building (Law Dept) - 48 Glencida	X	X		X								X	X													
Filly Foster Farm Building #8	X	X		X																						



# ECM BREAKDOWN

## Comfort Measures

- Infiltration Reductions
- Window Replacements
- Window Refurbishments
- AHU Replacements
- Roof Replacements

## Building Control Measures

- Recommission Energy Management Systems
- Web-enabled Programmable Thermostats
- Heat Timer & Thermostatic Radiator Valves
- Walk-in Refrigeration Controls

## Renewable Energy & Efficiency Measures

- Lighting System Improvements - Interior
- Lighting System Improvements - Exterior
- Fuel Oil to Natural Gas Conversion
- DHW Booster Heater Replacements
- Variable Frequency Drives For HW Pumps
- Premium Efficiency Motors
- Premium Efficiency Transformers
- Vending Misers
- Steam Trap Replacements
- Pipe Insulation
- Boiler Replacements
- Solar PV Array
- Plug Load Controllers

# FINANCIAL BENEFITS

- Total Implementation Costs: **\$7,908,435**
- Estimated NY-Sun Rebate: **\$166,140**
- NYSERDA & Utility Rebates: **\$123,742**
- Generated Cashflow: **\$2,078,881**

ECM #	ECM Name	Total Project Savings	Total Project Costs	SPB
1	Lighting System Improvements - Interior	\$ 100,831	\$ 1,168,714	11.59
2	Lighting System Improvements - Exterior	\$ 25,107	\$ 233,085	9.28
3	Recommission Energy Management Systems	\$ 61,230	\$ 274,503	4.48
4	Web-enabled Programmable Thermostats	\$ 37,006	\$ 104,869	2.83
5	Heat Timer & Thermostatic Radiator Valves	\$ 6,363	\$ 71,812	11.29
6	Fuel Oil to Natural Gas Conversion	\$ 9,925	\$ 420,230	42.34
8	Variable Frequency Drives For HW Pumps	\$ 4,307	\$ 47,811	11.10
10	Premium Efficiency Transformers	\$ 7,820	\$ 180,608	23.09
11	Vending Misers	\$ 105	\$ 945	8.97
12	Walk-in Refrigeration Controls	\$ 2,228	\$ 31,947	14.34
13	Steam Trap Replacements	\$ 2,844	\$ 49,555	17.42
14	Infiltration Reductions	\$ 10,356	\$ 116,002	11.20
15	Pipe Insulation	\$ 5,005	\$ 55,484	11.09
16	Boiler Replacements	\$ 766	\$ 76,947	100.43
17	Window Replacements	\$ 881	\$ 282,290	320.31
18	Solar PV Array	\$ 39,520	\$ 737,046	18.65
19	AHU Replacements	\$ 6,295	\$ 891,472	141.61
20	Plug Load Controllers	\$ 1,491	\$ 18,653	12.51
22	Chiller Replacement	\$ 3,878	\$ 171,559	44.24
23	Siding Replacement	\$ 294	\$ 254,840	867.69
24	Roof Replacement	\$ 1,539	\$ 1,801,208	1,170.25
25	Window Restoration	\$ 3,966	\$ 264,386	66.67
26	Move Register	\$ 721	\$ 9,733	13.50
X	Project Contingency	\$ -	\$ 644,736	-
		<b>\$ 332,479</b>	<b>\$ 7,908,435</b>	<b>23.79</b>

# INTERIOR LIGHTING IMPROVEMENTS

- State-of-the-art LED's will be installed throughout the County
- Over 150 different types of existing lighting systems have been identified
- Control systems will be customized to the individual spaces



*Figure 1.1: Our project will improve aesthetics and provide substantial energy savings.*

# WINDOW REPLACEMENTS/RESTORATION

- Replacement of inefficient windows will reduce air infiltration and solar radiation will greatly increase occupant comfort at all locations
- Window installations are commonly delayed for other projects in many municipalities
- Windows with failed opening mechanisms at the Bruen, Sheriff's Office, and Kern will be repaired



# SIDING REPLACEMENT

- Replacement of existing siding with new Hardie Board siding
- Existing brick are heavily weathered and will be covered with new siding
- Along with new windows and roofs, this measure will provide a new exterior for the Clubhouse



# RECOMMISSIONING OF EXISTING ENERGY MANAGEMENT SYSTEM

- The existing DDC systems will be recommissioned to effectively provide
  - Temperature Setpoints
  - Schedules
  - Sequences of Operation
  - Energy Saving Strategies
- Occupant adjustments over time compound building inefficiencies
- New sequences will allow better adherence to heating and cooling schedules

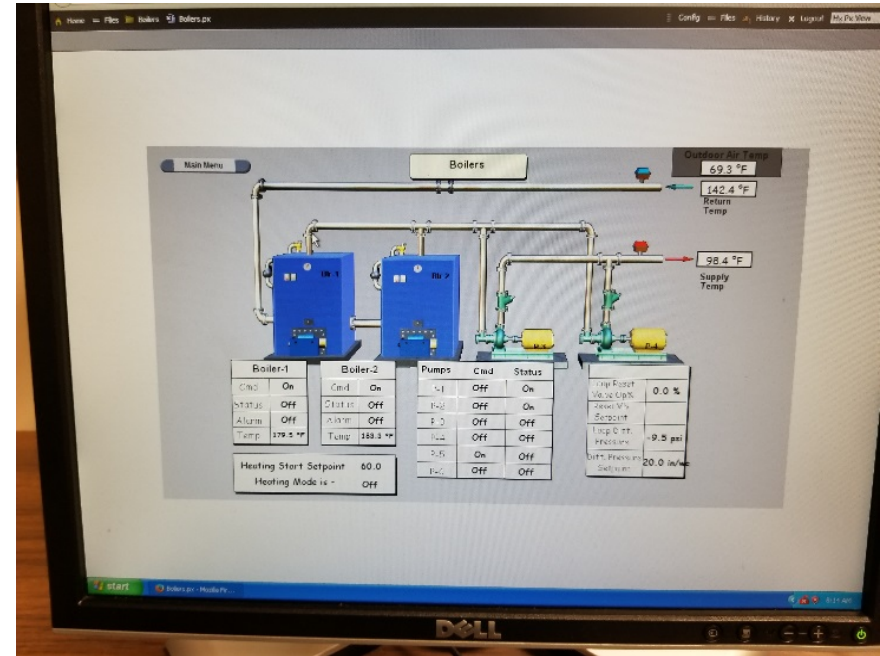


Figure 3.1: The recommissioned EMS will reuse existing control equipment such as this frontend at the New County Courthouse

# WEB-ENABLED PROGRAMMABLE THERMOSTATS

- 16 sites will be retrofitted with state-of-the-art thermostats
- Currently the County has several varieties of thermostats
  - Some do not have scheduling capabilities
  - Others do – but have been altered by occupants
- Only approved county personnel will have the ability to alter and change the setpoints and schedules
- Allow remote access



*Figure 4.2: Sample web-enabled programmable thermostat.*

# FUEL OIL TO NATURAL GAS CONVERSION

- Ameresco will convert the primary fuel source from No. 2 Fuel Oil to Natural Gas at
  - David D. Bruen C.O.B.
  - 1812 Courthouse
  - Donald B. Smith Government Campus Building 3
  - Highway Building 1
- Ameresco has included the costs of existing Oil tank removal at 1812 Courthouse and Government Building 3



*Figure 6.1: The existing boiler at the Smith Government Campus Building 3 will be upgraded with a new gas fuel train and burner.*



# ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM

- Developed 5 locations that are ideal for roof mounted PV systems totaling over 350 kW
- Each array will be a ballasted systems with **no roof penetrations – will not void warranties**
- Ameresco has included a maintenance program to provide services including:
  - Monitoring & Analytics
  - Alarms
  - Preventative Maintenance



*Figure 18.1:  
Example of a  
typical ballast  
mounted solar PV  
array*



# THANK YOU

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**Matthew Furdyna**

Account Executive

P: 508-598-3045

C: 518-598-7379

[mfurdyna@Ameresco.com](mailto:mfurdyna@Ameresco.com)

50 Front Street

Newburgh, NY 12550



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[ameresco.com](http://ameresco.com)