

QUARTERLY SAVINGS MEMO

DATE: April 22, 2019

BY: Daniel Nadolny, P.E., Reynolds Energy Services, Inc.

RE: Centennial School District- Klinger MS, Log College MS, and Bus Depot
Guaranteed Energy Savings Agreement (GESA) and Amendment 2
Measurement and Verification (M&V) Year 1, 1st Quarter

Avoided Energy Savings Summary

Installation savings and contracted guarantee values were shown in the report provided in February 2019. The figure below outlines the energy and operational and costs savings from the installation period as well as the first quarter performance period of January 2019 through March 2019.

	Electricity		Nat. Gas	Diesel	Propane	Water/ Sewer	TOTAL	
	kWH	kW	CCF	Gal.	Gal.	Gal.	\$	
*INSTALL SAVINGS	(18,553)	674	25,087	5,550	(12,012)	789	\$ 44,118	A
*PERFORMANCE PERIOD Q1	(13,928)	127	12,884	4,518	(9,891)	252	\$ 15,552	B
Q2	-	-	-	-	-	-	\$ -	C
Q3	-	-	-	-	-	-	\$ -	D
Q4	-	-	-	-	-	-	\$ -	E
PERFORMANCE SAVINGS	(13,928)	127	12,884	4,518	(9,891)	252	\$ 15,552	F = (B+C+D+E)
SAVINGS (INSTALL + PERFORMANCE)	(32,481)	801	37,971	10,068	(21,903)	1,042	\$ 59,669	G = A + F
CONTRACTED SAVINGS (TOTAL)	120,876	135	7,346	13,360	(23,269)	920	\$ 44,208	H
% ACHIEVED (PERFORMANCE)	-12%	94%	175%	34%	43%	27%	35%	F/H
% ACHIEVED (TOTAL)	-27%	593%	517%	75%	94%	113%	135%	G/H

* Install savings includes O&M savings shown in GESA contract and amendments. Performance period value shown reflects quarterly analysis of the annual amount of Stipulated/O&M savings. For example, every quarter reflects 1/4 of the annual amount in the GESA and amendments.

The summary table above shows that we have **achieved 35%** of the annual estimated goal, and when we include installation savings we've exceeded our annual goal for the district. The summary table below provides individual building and account summaries for this period.

First Quarter Performance Period Savings - January 2019 through March 2019										
Building	Electric			Nat. Gas	Diesel	Propane	\$	Water/Sewer	\$	Total \$
	kWh	kW	\$	CCF	Gallons	Gallons		kGal.		
Klinger MS	35,688	20	\$ 2,556	7,877			\$ 5,435	121	\$ 1,736	\$ 9,727
Log College MS	(49,616)	107	\$ (2,732)	5,008			\$ 3,355	132	\$ 1,342	\$ 1,965
Propane Bus Station	Not Tracked				4,518	(9,891)	\$ (1,785)	Not Tracked		\$ (1,785)
Stipulated/O&M Savings										\$ 5,645
District Total	(13,928)	127	\$ (176)	12,884	4,518	(9,891)	\$ 7,005	252	\$ 3,077	\$ 15,552

As stated in the installation report, the majority of energy savings will occur in the school session occupied months. Reynolds recommends that CSD remain active in trying to optimize the building automation and new equipment capabilities to maximize energy savings as we finish the 2018-2019 school year.

The results shown in this quarterly memo reflect weather only adjusted baseline values and current rates. Please note that these results are approximations and are for informational purposes only. The final results will be provided in the annual report.

The next four pages outline the electric and fuel usage and savings for each school on a monthly basis. The final page provides the Reynolds analysis of the propane bus data provided by Centennial School District.

Account Name:	Centennial School District - Klinger Middle School
Provider:	PECO/EPD 100-500kW
Utility:	Electricity
Account Number:	16830-00241 (previously 83202-01207)
Meter Number:	020710357
Rate Tariff:	PECO/EPD 100-500kW

Utility Information Obtained from 12/19/2018 to Dec '19

PRE - PROJECT BASELINE				
Read Date	kWH	kW	kVAR	Cost
Jan	84,800	223		\$ 7,448
Feb	74,000	220		\$ 6,712
Mar	73,200	218		\$ 6,639
Apr	66,800	264		\$ 6,609
May	80,400	336		\$ 8,108
Jun	90,400	348		\$ 8,866
Jul	57,600	260		\$ 5,971
Aug	52,800	260		\$ 5,656
Sep	72,000	360		\$ 7,758
Oct	69,200	356		\$ 7,540
Nov	71,600	327		\$ 7,456
Dec	78,800	218		\$ 7,014
TOTALS	871,600	3,390	-	\$ 85,777

CURRENT YEAR DATA				
Read Date	kWH Billed	kW billed		Calculated Cost
1/22/2019	66,298	206		\$ 6,158
2/20/2019	65,303	218		\$ 6,191
3/21/2019	64,711	217		\$ 6,143
Apr '19	-	-		\$ -
May '19	-	-		\$ -
Jun '19	-	-		\$ -
Jul '19	-	-		\$ -
Aug '19	-	-		\$ -
Sep '19	-	-		\$ -
Oct '19	-	-		\$ -
Nov '19	-	-		\$ -
Dec '19	-	-		\$ -
TOTALS	196,312	641		\$ 18,492

ADJUSTED BASELINE				
	kWH	kW	kVAR	Calculated Cost
Jan	84,800	223	-	\$ 7,541
Feb	74,000	220	-	\$ 6,791
Mar	73,200	218	-	\$ 6,717
Apr	-	-	-	\$ -
May	-	-	-	\$ -
Jun	-	-	-	\$ -
Jul	-	-	-	\$ -
Aug	-	-	-	\$ -
Sep	-	-	-	\$ -
Oct	-	-	-	\$ -
Nov	-	-	-	\$ -
Dec	-	-	-	\$ -
TOTALS	232,000	661	-	\$ 21,048

AVOIDED ENERGY COSTS				
	kWH Saved	kW Saved		\$ Saved
Jan	18,502	17		\$ 1,383
Feb	8,697	2		\$ 599
Mar	8,489	1		\$ 574
Apr	-	-		\$ -
May	-	-		\$ -
Jun	-	-		\$ -
Jul	-	-		\$ -
Aug	-	-		\$ -
Sep	-	-		\$ -
Oct	-	-		\$ -
Nov	-	-		\$ -
Dec	-	-		\$ -
TOTALS	35,688	20		\$ 2,556

CONTRACT VALUES				
	kWH	kW	kVAR	\$
BASELINE	871,600	3,390	-	\$ 85,777
SAVINGS	63,636	135		\$ 5,548
	7%	4%		6%

SAVINGS VALUES TO DATE				
	kWH	kW	kVAR	\$
CALCULATED	35,688	20	-	\$ 2,556
	56%	15%		46%

Environmental Benefits Achieved			
Decrease in Greenhouse Gases (CO ₂)	142,864	lbs	
Decrease in Nitrogen Oxides (NO _x)	182	lbs	
Decrease in Sulfur Dioxides (SO ₂)	965	lbs	
Equivalent Trees Planted	714	Qty.	
Equivalent Cars removed from Highways	32	Qty.	

CONTRACTED RATES:		
Energy (kWH):	\$ 0.0670	per kWh
Demand:	\$ 8.3300	per kW

Notes:

Account Name:	Centennial School District - Klinger Middle School
Provider:	GS Commercial - Distribution
Utility:	Natural Gas
Account Number:	46033-01003, 64455-00809
Meter Number:	044348580, 027771908/027614095
Rate Tariff:	GS Commercial - Distribution

Utility Information Obtained from 12/19/2018 to Dec '19

	PRE-PROJECT BASELINE			Baseline HDD	CURRENT YEAR DATA			
	Normalized	Normalized	Calculated		Ccf	Ccf	Calculated	
	Ccf	Ccf	Cost		Purchased	Purchased	Cost	
Jan	10,800	721	\$ 8,173	1,160	1/24/2019	2,816	0	\$ 1,943
Feb	10,050	636	\$ 7,584	1,219	2/20/2019	6,134	0	\$ 4,232
Mar	8,500	2,116	\$ 7,570	904	3/21/2019	5,862	0	\$ 4,045
Apr	4,500	2,440	\$ 4,979		Apr '19	-	-	\$ -
May	1,460	1,098	\$ 1,897		May '19	-	-	\$ -
Jun	-	718	\$ 595		Jun '19	-	-	\$ -
Jul	-	404	\$ 361		Jul '19	-	-	\$ -
Aug	-	377	\$ 341		Aug '19	-	-	\$ -
Sep	10	545	\$ 458		Sep '19	-	-	\$ -
Oct	70	736	\$ 622		Oct '19	-	-	\$ -
Nov	4,020	919	\$ 3,527		Nov '19	-	-	\$ -
Dec	7,500	507	\$ 5,692		Dec '19	-	-	\$ -
TOTALS	46,910	11,217	\$ 41,799	3,283	TOTALS	14,812	0	\$ 10,220

	ADJUSTED BASELINE			Actual HDD	AVOIDED ENERGY COSTS			
	Estimated	Estimated	Calculated		Ccf	Ccf	\$ Saved	
	Ccf	Ccf	Cost		Saved	Saved		
Jan	3,343	721	\$ 2,804	365	Jan	527	721	\$ 861
Feb	8,297	636	\$ 6,164	914	Feb	2,163	636	\$ 1,932
Mar	7,575	2,116	\$ 6,687	834	Mar	1,713	2,116	\$ 2,642
Apr	-	-	\$ -	-	Apr	-	-	\$ -
May	-	-	\$ -	-	May	-	-	\$ -
Jun	-	-	\$ -	-	Jun	-	-	\$ -
Jul	-	-	\$ -	-	Jul	-	-	\$ -
Aug	-	-	\$ -	-	Aug	-	-	\$ -
Sep	-	-	\$ -	-	Sep	-	-	\$ -
Oct	-	-	\$ -	-	Oct	-	-	\$ -
Nov	-	-	\$ -	-	Nov	-	-	\$ -
Dec	-	-	\$ -	-	Dec	-	-	\$ -
TOTALS	19,216	3,473	\$ 15,655	2,113	TOTALS	4,404	3,473	\$ 5,435

	CONTRACT VALUES		
	Ccf	Ccf	\$
BASELINE	46,910	11,217	\$ 41,799
SAVINGS	5,160	-	\$ 3,628
			9%

	SAVINGS VALUES TO DATE		
	Ccf	Ccf	\$
CALCULATED	4,404	3,473	\$ 5,435
			\$ -
	153%		150%

Notes:

- Billing data is missing for gas account 64455-00809. It is unclear if this account is active.

CONTRACTED RATES:	
Distribution:	\$ 0.3300 per Ccf
Commodity:	\$ 0.3600 per Ccf

Account Name:	Centennial School District - Log College Middle School
Provider:	PECO/Prim. Dist. 100-500kW
Utility:	Electricity
Account Number:	86294-00102
Meter Number:	1757051
Rate Tariff:	PECO/Prim. Dist. 100-500kW

Utility Information Obtained from 12/27/2018 to Dec '19

Read Date	PRE - PROJECT BASELINE			
	kWH	kW	kVAR	Cost
Jan	83,600	280		\$ 8,582
Feb	82,800	280		\$ 8,464
Mar	81,200	320		\$ 8,696
Apr	69,600	322		\$ 7,978
May	79,800	372		\$ 8,935
Jun	87,400	376		\$ 8,750
Jul	66,000	288		\$ 6,856
Aug	65,600	302		\$ 6,464
Sep	88,200	380		\$ 8,145
Oct	82,000	374		\$ 7,689
Nov	80,600	344		\$ 8,683
Dec	87,200	280		\$ 8,980
TOTALS	954,000	3,918	-	\$ 98,222

Read Date	CURRENT YEAR DATA			
	kWH Billed	kW billed		Calculated Cost
1/24/2019	92,544	257		\$ 8,259
2/22/2019	99,072	261		\$ 8,744
3/25/2019	105,600	255		\$ 9,159
Apr '19	-	-		\$ -
May '19	-	-		\$ -
Jun '19	-	-		\$ -
Jul '19	-	-		\$ -
Aug '19	-	-		\$ -
Sep '19	-	-		\$ -
Oct '19	-	-		\$ -
Nov '19	-	-		\$ -
Dec '19	-	-		\$ -
TOTALS	297,216	773		\$ 26,162

Read Date	ADJUSTED BASELINE			
	kWH	kW	kVAR	Calculated Cost
Jan	83,600	280	-	\$ 7,792
Feb	82,800	280	-	\$ 7,736
Mar	81,200	320	-	\$ 7,902
Apr	-	-	-	\$ -
May	-	-	-	\$ -
Jun	-	-	-	\$ -
Jul	-	-	-	\$ -
Aug	-	-	-	\$ -
Sep	-	-	-	\$ -
Oct	-	-	-	\$ -
Nov	-	-	-	\$ -
Dec	-	-	-	\$ -
TOTALS	247,600	880	-	\$ 23,430

Read Date	AVOIDED ENERGY COSTS			
	kWH Saved	kW Saved		\$ Saved
Jan	(8,944)	23		\$ (467)
Feb	(16,272)	19		\$ (1,007)
Mar	(24,400)	65		\$ (1,258)
Apr	-	-		\$ -
May	-	-		\$ -
Jun	-	-		\$ -
Jul	-	-		\$ -
Aug	-	-		\$ -
Sep	-	-		\$ -
Oct	-	-		\$ -
Nov	-	-		\$ -
Dec	-	-		\$ -
TOTALS	(49,616)	107		\$ (2,732)

	CONTRACT VALUES			
	kWH	kW	kVAR	\$
BASELINE	954,000	3,918	-	\$ 98,222
SAVINGS	57,240	-	-	\$ 3,302
	6%	0%		3%

	SAVINGS VALUES TO DATE			
	kWH	kW	kVAR	\$
CALCULATED	(49,616)	107	-	\$ (2,732)

Environmental Benefits Achieved			
Decrease in Greenhouse Gases (CO ₂)	16,161	lbs	
Decrease in Nitrogen Oxides (NO _x)	(70)	lbs	
Decrease in Sulfur Dioxides (SO ₂)	27	lbs	
Equivalent Trees Planted	81	Qty.	
Equivalent Cars removed from Highways	4	Qty.	

CONTRACTED RATES:		
Energy (kWH):	\$ 0.0700	per kWH
Demand:	\$ 6.9300	per kW

Notes:
- There is excess electric usage from the baseline. Reynolds and district have been in communication to evaluate BAS operation and other possible causes.

Account Name:	Centennial School District - Log College Middle School
Provider:	PECO/Constellation
Utility:	Natural Gas
Account Number:	18189-00504, 61363-00600
Meter Number:	171000050, 3 meters
Rate Tariff:	PECO/Commercial Distribution

Utility Information Obtained from 12/27/2018 to Dec '19

PRE-PROJECT BASELINE				CURRENT YEAR DATA				
	Normalized Ccf	Normalized Ccf	Calculated Cost	Baseline HDD		Ccf Purchased	Ccf Purchased	Calculated Cost
Jan	10,375	1,141	\$ 8,468	1,001	1/25/2019	8,860	647	\$ 6,370
Feb	9,550	1,234	\$ 7,868	792	2/25/2019	8,720	615	\$ 6,254
Mar	7,335	1,012	\$ 6,364	695	3/26/2019	6,430	634	\$ 4,733
Apr	3,365	929	\$ 3,263		Apr '19	-	-	\$ -
May	1,140	1,388	\$ 1,963		May '19	-	-	\$ -
Jun	610	794	\$ 1,125		Jun '19	-	-	\$ -
Jul	195	199	\$ 354		Jul '19	-	-	\$ -
Aug	20	61	\$ 117		Aug '19	-	-	\$ -
Sep	75	577	\$ 524		Sep '19	-	-	\$ -
Oct	165	675	\$ 649		Oct '19	-	-	\$ -
Nov	3,600	779	\$ 3,046		Nov '19	-	-	\$ -
Dec	7,285	1,032	\$ 5,983		Dec '19	-	-	\$ -
TOTALS	43,715	9,820	\$ 39,725	2,487	TOTALS	24,010	1,896	\$ 17,357

ADJUSTED BASELINE				AVOIDED ENERGY COSTS				
	Estimated Ccf	Estimated Ccf	Calculated Cost	Actual HDD		Ccf Saved	Ccf Saved	\$ Saved
Jan	10,358	1,141	\$ 7,704	1,096	Jan	1,498	494	\$ 1,334
Feb	9,547	1,234	\$ 7,223	1,013	Feb	827	619	\$ 969
Mar	7,622	1,012	\$ 5,785	816	Mar	1,192	378	\$ 1,052
Apr	-	-	\$ -	-	Apr	-	-	\$ -
May	-	-	\$ -	-	May	-	-	\$ -
Jun	-	-	\$ -	-	Jun	-	-	\$ -
Jul	-	-	\$ -	-	Jul	-	-	\$ -
Aug	-	-	\$ -	-	Aug	-	-	\$ -
Sep	-	-	\$ -	-	Sep	-	-	\$ -
Oct	-	-	\$ -	-	Oct	-	-	\$ -
Nov	-	-	\$ -	-	Nov	-	-	\$ -
Dec	-	-	\$ -	-	Dec	-	-	\$ -
TOTALS	27,527	3,387	\$ 20,712	2,925	TOTALS	3,517	1,491	\$ 3,355

CONTRACT VALUES		
	Ccf	\$
BASELINE	43,715	\$ 39,725
SAVINGS	2,186	\$ 1,468
		4%

SAVINGS VALUES TO DATE		
	Ccf	\$
CALCULATED	3,517	\$ 3,355
		\$ -
	229%	229%

Notes:

- Savings are exceeding expectations.

CONTRACTED RATES:	
Distribution:	\$ 0.3300 per Ccf
Commodity:	\$ 0.3400 per Ccf

PROPANE BUS DATA ANALYSIS

Bus	Quarter 1 - Gallons Consumed (Propane)			Total Gallons (2019)
	19-Jan	19-Feb	19-Mar	
16	226.44	198.36	195.57	620.37
30	320.29	284.34	133.78	738.41
32	187.21	237.39	363.95	788.55
40	324.16	244.70	348.86	917.72
41	303.90	259.77	265.72	829.39
42	239.74	191.45	242.62	673.81
43	281.81	209.94	337.49	829.24
44	346.02	287.62	396.16	1,029.80
45	382.65	317.57	431.63	1,131.85
46	253.05	227.26	312.50	792.81
47	332.27	240.62	132.79	705.68
48	298.32	246.41	288.91	833.64
Total Propane Gallons	3,495.86	2,945.43	3,449.98	9,891.27

Bus	Quarter 1 - Miles Driven			Total Miles
	19-Jan	19-Feb	19-Mar	
16	1,178	980	954	3,112
30	1,225	1,031	493	2,749
32	872	1,112	1,554	3,538
40	1,311	997	1,359	3,667
41	1,188	965	1,006	3,159
42	801	577	789	2,167
43	1,090	860	1,197	3,147
44	1,284	981	1,385	3,650
45	1,350	1,040	1,401	3,791
46	910	749	1,060	2,719
47	1,183	792	967	2,942
48	1,029	753	1,076	2,858
Total Miles Driven	13,421	10,837	13,241	37,499

First Quarter Propane Bus Fuel Savings Analysis		
Actual Propane Gallons	9,891.27	
Actual Miles Driven	37,499	
Diesel Bus Avg. (MPG)	8.30	
Equivalent Diesel Gallons	4,518	
Calculated Diesel Cost	\$ 8,403.39	\$ 10,007.26
Calculated Propane Cost	\$ 10,188.01	\$ 10,188.01
Savings	\$ (1,784.62)	\$ (180.74)
	GESA	Actual

Rates	Contracted	Actual
\$/Prop. Gal	\$ 1.03	\$1.03
\$/Diesel Gal.	\$ 1.86	\$2.22