

Act 129 Update Climate Change Advisory Committee

December 19, 2023

Act 129 Overview

- Act 129 of 2008 was signed into law on October 15, 2008 and became effective on November 14, 2008.
- Charged PUC with establishing an energy efficiency and conservation program (EE&C Program) by January 15, 2009 that was applicable to all electric distribution companies (EDCs) with at least 100,000 customers
- Required the Commission by November 30, 2013, and every five years thereafter, to assess the cost-effectiveness of the EE&C Program and set additional incremental reductions in electric consumption if the EE&C Program's benefits exceed its costs.

Phase IV Planning - Market Potential

EE Savings	Economic Potential		Achievable Potential		Program Potential	
	Incremental Savings (GWh)	Savings as % Sales	Incremental Savings (GWh)	Savings as % Sales	Incremental Savings (GWh)	Savings as % Sales
Statewide	20,535.00	14.00%	8,898.60	6.10%	4,375.40	3.00%

Peak Demand Savings	Economic Potential		Achievable Potential		Program Potential	
	Incremental Savings (MW)	Savings as % Sales	Incremental Savings (MW)	Savings as % Sales	Incremental Savings (MW)	Savings as % Sales
Statewide	4,120.70	15.50%	1,597.60	6.00%	861.6	3.20%

Cost-Effectiveness	Economic Potential			Program Potential		
	Costs (\$MM)	Benefits (\$MM)	TRC Ratio (X:1)	Costs (\$MM)	Benefits (\$MM)	TRC Ratio (X:1)
Statewide	\$5,593	\$13,927	2.49	\$1,798	\$2,970	1.65

Phase IV Planning - Market Potential

EDC	Acquisition cost (\$/MWh)	Budget (\$MM)	TRC costs (\$MM)	TRC benefits (\$MM)	Net TRC benefits (\$MM)	TRC benefit - cost ratio (X:1)	GWh (Ann. Incr.)
PECO	\$309.51	\$427	\$639	\$1,019	\$379	1.59	1,381
PPL	\$245.97	\$308	\$513	\$912	\$399	1.78	1,250
Duquesne Light	\$281.57	\$98	\$137	\$197	\$60	1.44	347
FE: Met-Ed	\$268.42	\$124	\$190	\$301	\$110	1.58	463
FE: Penelec	\$262.46	\$115	\$188	\$303	\$115	1.61	438
FE: Penn Power	\$258.31	\$33	\$46	\$65	\$19	1.42	129
FE: West Penn Power	\$233.32	\$118	\$180	\$277	\$97	1.54	505
Statewide	\$271.01	\$1,223	\$1,894	\$3,073	\$1,178	1.62	4,513

Phase IV EE Targets

EDC	Portfolio-level Target (MWh)	Low-Income Target (MWh)
Duquesne Light	348,126	18,566
PECO	1,380,837	80,089
PPL	1,250,157	72,509
FE: Met-Ed	463,215	26,866
FE: Penelec	437,676	25,385
FE: Penn Power	128,909	7,477
FE: West Penn Power	504,951	29,287
Statewide	4,513,871	260,179

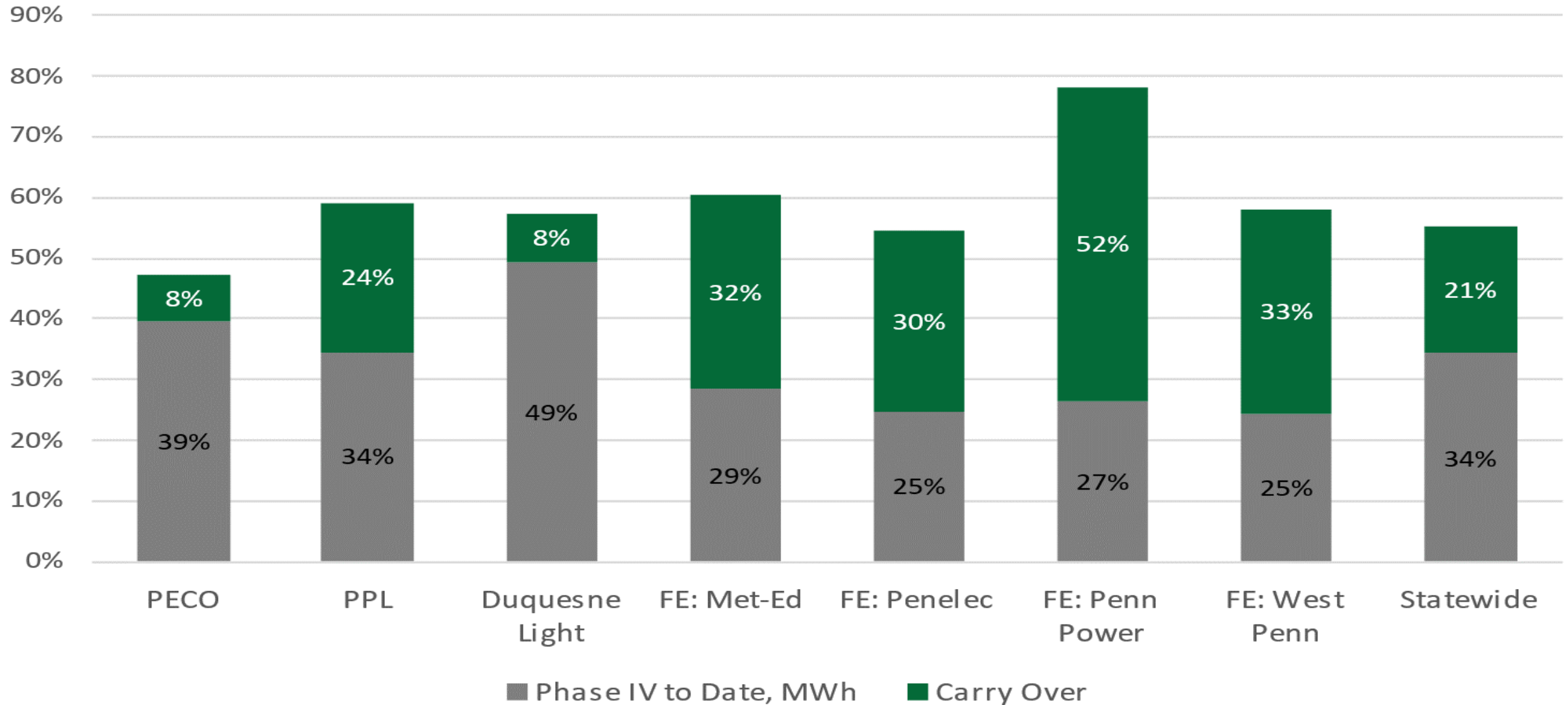
Peak Demand Reductions

- Phase IV focuses on Peak Demand Reductions (PDR) vs Dispatchable Demand Response (DDR)
- PDR via EE provides the following benefits:
 - EE provides greater cumulative, lasting benefits (year-round, for about 10+ years)
 - Addresses winter peaking issues, too
 - \$35M net benefit vs. dispatchable DR
 - Revenue recycling reduces need for cost recovery

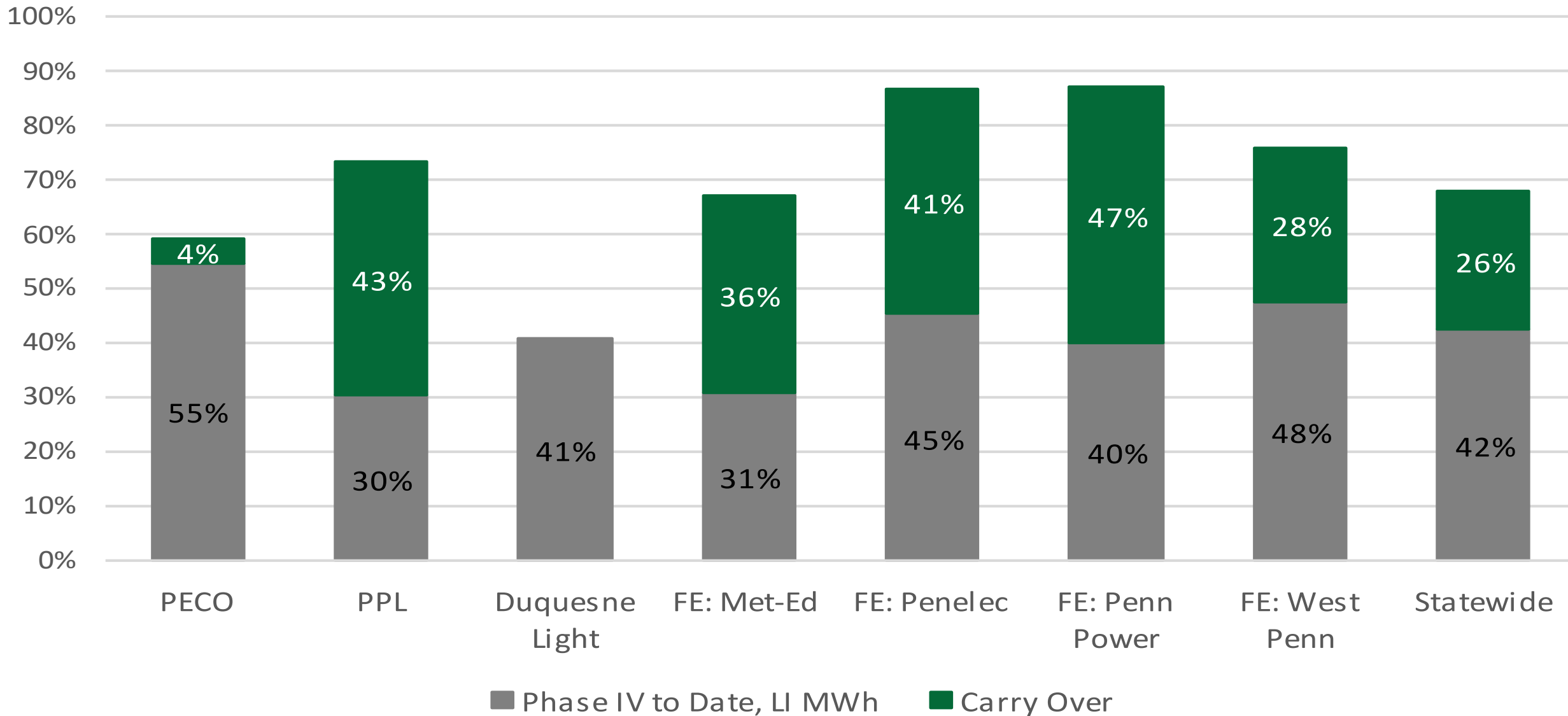
Phase IV PDR Targets

EDC	MW
Duquesne Light	62
PECO	256
PPL	229
FE: Met-Ed	76
FE: Penelec	80
FE: Penn Power	20
FE: West Penn Power	86
Statewide	809

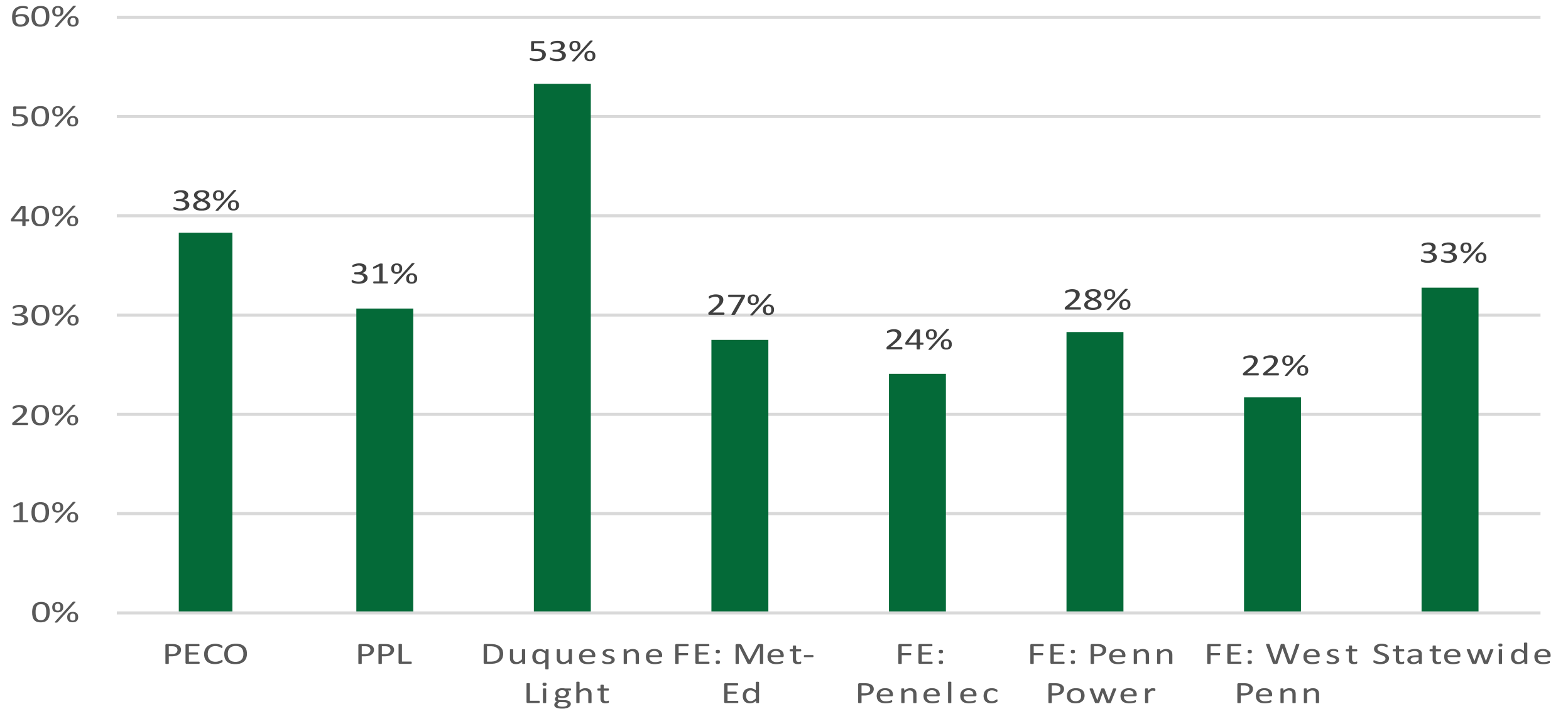
Phase IV-to-Date Portfolio-level Compliance



Phase IV-to-Date LI Compliance



Phase IV PDR Compliance



PY14 Cost-effectiveness

EDC	Gross Benefits (\$1000)	Gross Costs (\$1000)	Gross TRC
PECO	\$186,032	\$184,858	1.01
PPL	\$183,600	\$112,762	1.63
Duquesne Light	\$71,507	\$36,614	1.95
FE: Met-Ed	\$46,369	\$30,831	1.50
FE: Penelec	\$47,473	\$24,986	1.90
FE: Penn Power	\$10,799	\$9,091	1.19
FE: West Penn Power	\$46,857	\$28,970	1.62
Statewide	\$592,637	\$428,112	1.38

¹ Totals may not equal sum of column or row due to rounding.

Phase IV Residential Baseline Study

Example of Trends and Analysis

	2011	2013	2018	2023
Lighting				
CFL Saturation (Interior)	17%	22%	20%	7%
LED Saturation (Interior)	1%	2%	20%	60%
LED Penetration (Interior)	9%	17%	74%	99%
Appliances (Percent ENERGY STAR)				
Refrigerator	20%	31%	31%	48%
Freezer	7%	15%	10%	19%
Clothes Washer	24%	26%	40%	52%
Clothes Dryer	--	--	4%	27%
Dishwasher	38%	44%	57%	70%
Dehumidifier	--	--	83%	90%
Room AC	21%	26%	33%	32%

Phase IV Residential Baseline Study

Example of Trends and Analysis

	PECO	PPL	DLC	Met-Ed	Penelec	Penn Power	West Penn
Lighting							
LED Saturation	59%	59%	48%	71%	62%	53%	58%
CFL Saturation	5%	5%	10%	6%	6%	11%	6%
LED Penetration	98%	98%	100%	100%	100%	100%	98%
Appliances (Percent ENERGY STAR)							
Refrigerator	44%	56%	45%	62%	51%	51%	37%
Freezer	6%	30%	27%	23%	28%	29%	25%
Clothes Washer	58%	53%	46%	55%	61%	56%	47%
Clothes Dryer	36%	28%	17%	27%	31%	36%	31%
Dishwasher	67%	67%	74%	84%	80%	86%	89%
Dehumidifier	87%	93%	80%	90%	92%	91%	80%
Room AC	42%	27%	17%	18%	43%	57%	31%



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Extra Slides



Phase IV Portfolio-level Targets and Compliance to Date, by EDC

EDC	VTD (MWh/yr)	Phase III CO	VTD + CO (MWh/yr)	% of Goal	Phase IV Compliance Target (MWh/yr)
PECO	545,045	106,218	651,263	47%	1,380,837
PPL	430,558	306,275	736,833	59%	1,250,157
Duquesne Light	171,735	28,137	199,872	57%	348,126
FE: Met-Ed	132,211	147,303	279,514	60%	463,215
FE: Penelec	108,366	130,025	238,391	54%	437,676
FE: Penn Power	34,218	66,577	100,796	78%	128,909
FE: West Penn Power	123,808	168,480	292,288	58%	504,951
Total	1,545,943	953,015	2,498,958	55%	4,513,871

¹Totals may not equal sum of column or row due to rounding.

Phase IV LI Targets and Compliance to Date, by EDC

EDC	LI VTD (MWh/yr)	Phase III CO	VTD + CO (MWh/yr)	% of Goal	Phase IV Compliance Target (MWh/yr)
PECO	43,865	3,452	47,317	59%	80,089
PPL	22,022	31,089	53,111	73%	72,509
Duquesne Light	7,553	-	7,553	41%	18,566
FE: Met-Ed	8,284	9,782	18,067	67%	26,866
FE: Penelec	11,529	10,466	21,995	87%	25,385
FE: Penn Power	2,996	3,504	6,500	87%	7,477
FE: West Penn Power	13,914	8,270	22,184	76%	29,287
Total	110,163	66,563	176,726	68%	260,179

¹ Totals may not equal sum of column or row due to rounding.



Phase IV PDR Targets and Compliance to Date, by EDC

EDC	VTD (MW/yr)	% of Goal	Phase IV Compliance Target (MW/yr)
PECO	97.77	38%	256
PPL	70.22	31%	229
Duquesne Light	33.02	53%	62
FE: Met-Ed	20.89	27%	76
FE: Penelec	19.27	24%	80
FE: Penn Power	5.65	28%	20
FE: West Penn Power	18.57	22%	86
Total	265.39	33%	809

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Cost-effectiveness of Act 129

- Cost-effectiveness measured using Total Resource Cost (TRC) test.

Total Resource Cost Analysis	
Phase	TRC Ratio
Phase I	2.4
Phase II	1.7
Phase III	1.40
Phase IV (PY13)	1.29
Phase IV (PY14)	1.38