

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of)
Ohio Power Company for Authority to)
Establish a Standard Service Offer) Case No. 16-1852-EL-SSO
Pursuant to Section 4928.143, Revised Code,)
in the Form of an Electric Security Plan)

In the Matter of the Application of)
Ohio Power Company for Approval of) Case No. 16-1853-EL-AAM
Certain Accounting Authority)

**OHIO POWER COMPANY'S APPLICATION
TO AMEND ITS ELECTRIC SECURITY PLAN**

**WORKPAPERS
For
David R. Gill**

Rate / Typical Bill Assumptions

<u>Description</u>		<u>Current</u>	<u>Proposed</u>	
	Base Distribution Rates	Rates as of 11/1/2016	Revenue Neutral Residential Redesign	1/
USF	Universal Service Fund Rider	Rates as of 11/1/2016	No change	
BDR	Bad Debt Rider	Rates as of 11/1/2016	No change	
kWh Tax	kWh Tax Rider	Rates as of 11/1/2016	No change	
RDCR	Residential Distribution Credit Rider	Rates as of 11/1/2016	No change	
PTBAR	Pilot Throughput Balancing Adjustment Rider	Rates as of 11/1/2016	No change	2/
DAPIR	Deferred Asset Phase-In Rider	Rates as of 11/1/2016	No change in 2017; Expires in 2019	3/
GENE	Generation Energy	Rates as of 11/1/2016	GENE Estimate	4/
GENC	Generation Capacity	Rates as of 11/1/2016	GENC Estimate	4/
ACRR	Auction Cost Reconciliation Rider	Rates as of 11/1/2016	No change	5/
ETR	Electronic Transfer Rider	Rates as of 11/1/2016	No change	
PPA	Power Purchase Agreement Rider	Rates as of 11/1/2016	Replaced	
N/A	Pilot Demand Response Rider	Rates as of 11/1/2016	No change	
EE/PDR	Energy Efficiency/Peak Demand Reduction	Rates as of 11/1/2016	EE/PDR Estimate	6/
ESRR	Enhanced Service Reliability	Rates as of 11/1/2016	ESRR Estimate	7/
gridSMART@ 1	gridSMART Phase 1 Rider	Rates as of 11/1/2016	No change	
gridSMART@ 2	gridSMART Phase 2 Rider	Rates as of 11/1/2016	No change	
RSR	Retail Stability Rider	Rates as of 11/1/2016	No change in 2017; expires in 2018	8/
DIR	Distribution Investment Rider	Rates as of 11/1/2016	DIR Estimate	9/
SDRR	Storm Damage Cost Recovery Rider	Rates as of 11/1/2016	No change	
AER	Alternative Energy Rider	Rates as of 11/1/2016	No change	
PIRR	Phase-In Recovery Rider	Rates as of 11/1/2016	No change in 2017; Expires in 2019	10/
IRP	Interruptible Power Rider	Not shown	Not shown	11/
BTCR	Basic Transmission Cost Rider	Rates as of 11/1/2016	BTCR Estimate	12/
EDR	Economic Development Cost Recovery Rider	Rates as of 11/1/2016	EDR Estimate	13/
ACR	Automaker Credit Rider	N/A	Not shown	11/
CIR	Competition Incentive Rider	N/A	CIR Estimate	14/
SSOCR	SSO Credit Rider	N/A	SSOCR Estimate	14/
RGR	Renewable Generation Rider	N/A	Not shown	15/
SR	Submetering Rider	N/A	Not shown	15/
DTR	Distribution Technology Rider	N/A	DTR Estimate	16/

1/ See Exhibit DRG-6 for revenue neutral residential rate redesign.

2/ PTBAR Energy Revenue Target will reduce pursuant to Exhibit DRG-7; this change is not modeled in the typical bills.

3/ DAPIR is currently set to expire as designed in Case No. 12-1969-EL-ATS.

4/ See WP DRG-6 for estimate of GENE and GENC rates.

5/ No basis exists to project proposed ACRR rates that are different than current.

6/ See WP DRG-3 for estimate of proposed EE/PDR rates.

7/ See WP DRG-2 for restatement of ESP III spend estimate and estimate of proposed ESP III extension rates.

8/ RSR is currently projected to expire in February 2018.

9/ See WP DRG-2 for restatement of ESP III caps (as of 10-1-2016) and estimate of ESP III extension rates.

10/ PIRR is currently set to expire as designed in Case No. 11-4920-EL-RDR.

11/ IRP and ACR credits are not applicable to "typical" customers.

12/ See WP DRG-7 for application of County Fair Transmission Supplement to BTCR.

13/ See WP DRG-4 for estimate of proposed EDR rates.

14/ See Exhibits DRG-3 and DRG-4 for estimates of proposed CIR and SSO CR rates.

15/ RGR and SR are placeholders, so no basis exists to project rates.

16/ See Exhibit DRG-5 for estimate of proposed DTR rates.

ESRR and DIR Rate Estimates

Enhanced Service Reliability Rider Rate Estimate

	Year	Annual Capital	Cumulative Capital	Carrying Charge	Carrying Costs	O&M	Total	Base D**	Rate
ESP I	2009	\$ 5,000,000	\$ 5,000,000	14.19%	\$ 354,750	\$ 26,000,000	\$ 26,354,750		
	2010	\$ 7,000,000	\$ 12,000,000	14.19%	\$ 1,206,150	\$ 28,000,000	\$ 29,206,150		
	2011	\$ 8,000,000	\$ 20,000,000	14.19%	\$ 2,270,400	\$ 30,000,000	\$ 32,270,400		
ESP II	2012	\$ 5,000,000	\$ 25,000,000	14.19%	\$ 3,192,750	\$ 30,000,000	\$ 33,192,750		
	2013	\$ 5,000,000	\$ 30,000,000	14.19%	\$ 3,902,250	\$ 34,000,000	\$ 37,902,250		
ESP III	2014	\$ 5,000,000	\$ 35,000,000	14.19%	\$ 4,611,750	\$ 34,000,000	\$ 38,611,750		
	2015	\$ 1,000,000	\$ 36,000,000	15.02%	\$ 5,332,100	\$ 25,000,000	\$ 30,332,100		
	2016	\$ 1,000,000	\$ 37,000,000	15.02%	\$ 5,482,300	\$ 25,000,000	\$ 30,482,300		7.34119% ***
Amended ESP III	2017	\$ 1,000,000	\$ 38,000,000	15.02%	\$ 5,632,500	\$ 25,000,000	\$ 30,632,500	\$ 633,702,536	4.83389%
	2018	\$ 1,162,863	\$ 39,162,863	15.84% *	\$ 6,111,299	\$ 26,467,382	\$ 32,578,681	\$ 633,702,536	5.14101%
	2019	\$ 1,282,674	\$ 40,445,537	15.84%	\$ 6,304,985	\$ 27,643,327	\$ 33,948,312	\$ 633,702,536	5.35714%
	2020	\$ 1,405,481	\$ 41,851,019	15.84%	\$ 6,517,887	\$ 28,848,670	\$ 35,366,557	\$ 633,702,536	5.58094%
	2021	\$ 1,531,358	\$ 43,382,377	15.84%	\$ 6,750,485	\$ 30,084,148	\$ 36,834,633	\$ 633,702,536	5.81261%
	2022	\$ 1,660,381	\$ 45,042,758	15.84%	\$ 7,003,271	\$ 31,350,512	\$ 38,353,782	\$ 633,702,536	6.05233%
	2023	\$ 1,792,630	\$ 46,835,388	15.84%	\$ 7,276,749	\$ 32,648,535	\$ 39,925,284	\$ 633,702,536	6.30032%
	2024	\$ 1,928,186	\$ 48,763,574	15.84%	\$ 7,571,438	\$ 33,979,008	\$ 41,550,446	\$ 633,702,536	6.55677%

* From Exhibit MDK-5, using 9.29% Return component that results from the 12.5% ROE ceiling, supported by Company witness Kyle, in modification of WACC calculation in Exhibit MDK-3

** Calendar year 2015 actual

*** 2016 ESRR rate is actual 11/1/2016 rate

Distribution Investment Rider Rate Estimate

Year	Revenue Cap	Base D	Rate
2016*			29.13302%
2017	\$ 190,000,000	\$ 633,702,536	29.98252%
2018**	\$ 226,000,000	\$ 633,702,536	35.66342%
2019	\$ 312,000,000	\$ 633,702,536	49.23446%
2020	\$ 343,000,000	\$ 633,702,536	54.12634%
2021	\$ 373,000,000	\$ 633,702,536	58.86042%
2022	\$ 401,000,000	\$ 633,702,536	63.27890%
2023	\$ 427,000,000	\$ 633,702,536	67.38177%
2024	\$ 444,000,000	\$ 633,702,536	70.06442%

* 2016 DIR rate is actual 11/1/2016 DIR rate

** 2018 DIR rate is the sum of the DIR cap for the first five months of 2018 approved in Case No. 13-2385-EL-SSO plus the cap for the last seven months of 2018 as proposed in this proceeding

Energy Efficiency and Peak Demand Reduction Rider Rate Estimate

November 1, 2016 Rates (Case No. 13-1201-EL-RDR):

Tariffs	Program	Shared	Total	Rider	2013-2014	Forecasted	EE&PDR Rider	Revenue	2009-2011	IRP Portion	EE&PDR Rider	EE&PDR Rider
	Costs	Savings		Revenue	Costs	Metered Energy		Verification	Rider True-Up	EE&PDR Rider		
	(\$)	(\$)	(\$)			(kWh)	(\$/kWh)	(\$)	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)
RS	\$ 120,828,016	\$ 37,209,147	\$ 158,037,163	\$ 41,803,243	\$ 116,233,920	28,926,410,940	0.0040183	116,233,920	0.0000419	\$ 0.000506	0.0045666	
All Other C&I	\$ 119,823,996	\$ 51,110,254	\$ 170,934,250	\$ 50,917,786	\$ 120,016,464	38,166,532,976	0.0031445	120,016,464	(0.0003120)	\$ 0.000506	0.0033390	
GS4/IRP	\$ 12,563,563	\$ 5,358,584	\$ 17,922,147	\$ 4,956,945	\$ 12,965,202	26,311,221,470	0.0004928	12,965,202	(0.0000459)	\$ 0.000506	0.0009533	
Total	\$ 253,215,574	\$ 93,677,985	\$ 346,893,559	\$ 97,677,974	\$ 249,215,585	93,404,165,386		249,215,586				

Tariffs	IRP Credits	Forecasted Metered Energy	IRP Portion EE&PDR Rider	Revenue Verification
	(\$)	(kWh)	(\$/kWh)	(\$)
RS	\$ 14,648,951	28,926,410,940	\$ 0.000506	14,648,951
All Other C&I	\$ 19,328,346	38,166,532,976	\$ 0.000506	19,328,346
GS4/IRP	\$ 13,324,564	26,311,221,470	\$ 0.000506	13,324,564
Total	\$ 47,301,862	93,404,165,386		47,301,862

Estimated Implementation Month Rates:

Tariffs	Program	Shared	Total	Rider	Adjusted	Forecasted	EE&PDR Rider	Revenue	2009-2011	IRP Portion	EE&PDR Rider	EE&PDR Rider
	Costs	Savings		Revenue	2013-2014	Metered Energy		Verification	Rider True-Up	EE&PDR Rider		
	(\$)	(\$)	(\$)		Costs	(kWh)	(\$/kWh)	(\$)	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)
RS	\$ 120,828,016	\$ 37,209,147	\$ 158,037,163	\$ 41,803,243	\$ 116,233,920	28,926,410,940	0.0040183	116,233,920	0.0000419	\$ 0.000304	0.0043642	
All Other C&I	\$ 119,823,996	\$ 51,110,254	\$ 170,934,250	\$ 50,917,786	\$ 116,092,742	38,166,532,976	0.0030417	116,092,742	(0.0003120)	\$ 0.000304	0.0030338	
GS4/IRP	\$ 12,563,563	\$ 5,358,584	\$ 17,922,147	\$ 4,956,945	\$ 6,482,601	26,311,221,470	0.0002464	6,482,601	(0.0000459)	\$ 0.000304	0.0005046	
Total	\$ 253,215,574	\$ 93,677,985	\$ 346,893,559	\$ 97,677,974	\$ 238,809,262	93,404,165,386		238,809,263				

Tariffs	IRP Credits*	Forecasted Metered Energy	IRP Portion EE&PDR Rider	Revenue Verification	Cost Adjustment Factors		
	(\$)	(kWh)	(\$/kWh)	(\$)	2015 Billed Rider Revenue, Less RS and GS4/IRP		
					Sec/Pri	Sub/Tran	Total
RS	\$ 8,795,752	28,926,410,940	\$ 0.000304	8,795,752	\$ 60,806,429	\$ 4,254,072	\$ 65,060,500
All Other C&I	\$ 11,605,427	38,166,532,976	\$ 0.000304	11,605,427	93%	7%	
GS4/IRP	\$ 8,000,542	26,311,221,470	\$ 0.000304	8,000,542			
Total	\$ 28,401,721	93,404,165,386		28,401,721			

* Total equal to \$47,301,862 divided by \$8.21/kW, that quotient added to twice 275 MW, that sum multiplied by \$8.21/kW, and then that product divided by two

Estimated June 1, 2018 Rates:

Tariffs	Program	Shared	Total	Rider	Adjusted	Forecasted	EE&PDR Rider	Revenue	2009-2011	IRP Portion	EE&PDR Rider	EE&PDR Rider
	Costs	Savings		Revenue	2013-2014	Metered Energy		Verification	Rider True-Up	EE&PDR Rider		
	(\$)	(\$)	(\$)		Costs	(kWh)	(\$/kWh)	(\$)	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)
RS	\$ 120,828,016	\$ 37,209,147	\$ 158,037,163	\$ 41,803,243	\$ 116,233,920	28,926,410,940	0.0040183	116,233,920	0.0000419	\$ 0.000333	0.0043935	
All Other C&I	\$ 119,823,996	\$ 51,110,254	\$ 170,934,250	\$ 50,917,786	\$ 116,092,742	38,166,532,976	0.0030417	116,092,742	(0.0003120)	\$ 0.000333	0.0030631	
GS4/IRP	\$ 12,563,563	\$ 5,358,584	\$ 17,922,147	\$ 4,956,945	\$ 6,482,601	26,311,221,470	0.0002464	6,482,601	(0.0000459)	\$ 0.000333	0.0005338	
Total	\$ 253,215,574	\$ 93,677,985	\$ 346,893,559	\$ 97,677,974	\$ 238,809,262	93,404,165,386		238,809,263				

Tariffs	IRP Credits**	Forecasted Metered Energy	IRP Portion EE&PDR Rider	Revenue Verification
	(\$)	(kWh)	(\$/kWh)	(\$)
RS	\$ 9,642,115	28,926,410,940	\$ 0.000333	9,642,115
All Other C&I	\$ 12,722,149	38,166,532,976	\$ 0.000333	12,722,149
GS4/IRP	\$ 8,770,387	26,311,221,470	\$ 0.000333	8,770,387
Total	\$ 31,134,651	93,404,165,386		31,134,651

** Total equal to \$28,401,721 divided by \$8.21/kW then that quotient multiplied by \$9/kW

Economic Development Cost Recovery Rider Rate Estimate

<u>November 1, 2016 Rates (Case No. 16-1684-EL-RDR)</u>		<u>Estimated Implementation Month Rates</u>		<u>Estimated June 1, 2018 Rates</u>	
6 mos. Delta Revenue and CCs	\$ 3,354,329	Annual Delta Revenue and CCs	\$ 6,708,658	Annual Delta Revenue and CCs	\$ 6,708,658
Half Sub/Tran EE/PDR Costs	\$ -	Half Sub/Tran EE/PDR Costs*	\$ 10,406,323	Half Sub/Tran EE/PDR Costs*	\$ 10,406,323
Half IRP Credits	\$ -	Half IRP Credits*	\$ 28,401,721	Half IRP Credits*	\$ 31,134,651
Automaker Credits	\$ -	Automaker Credits **	\$ 500,000	Automaker Credits**	\$ 500,000
Total Revenue Requirement	\$ 3,354,329	Total Revenue Requirement	\$ 46,016,702	Total Revenue Requirement	\$ 48,749,632
Half Base Distribution Revenue	\$ 316,851,268	Base Distribution Revenue	\$ 633,702,536	Base Distribution Revenue	\$ 633,702,536
Rate (% of base d)	1.05864%	Rate (% of base d)	7.26156%	Rate (% of base d)	7.69283%

* See WP DRG-3

** Equal to annual maximum

Bill Impact Table for Testimony

Columbus Southern Power Rate Zone				
	SSO Monthly Bills			Tariff
	Current	Proposed	Change	
Household				
1,000 kWh usage	\$134	\$135	1.2%	R-R Bill
2,000 kWh usage	\$254	\$250	-1.8%	R-R Bill
4,000 kWh usage	\$495	\$478	-3.5%	R-R Bill
Small Business				
1,000 kW demand and 100,000 kWh usage	\$15,349	\$15,353	0.0%	GS-2 Primary
1,000 kW demand and 350,000 kWh usage	\$33,108	\$32,674	-1.3%	GS-3 Primary
Industrial Business				
20,000 kW demand and 8 million kWh usage	\$552,042	\$528,806	-4.2%	GS-4
20,000 kW demand and 12 million kWh usage	\$791,094	\$756,216	-4.4%	GS-4
Ohio Power Rate Zone				
	SSO Monthly Bills			Tariff
	Current	Proposed	Change	
Household				
1,000 kWh usage	\$142	\$143	1.1%	RS Bill
2,000 kWh usage	\$271	\$266	-1.7%	RS Bill
4,000 kWh usage	\$527	\$510	-3.2%	RS Bill
Small Business				
1,000 kW demand and 100,000 kWh usage	\$16,933	\$16,963	0.2%	GS-2 Primary
1,000 kW demand and 300,000 kWh usage	\$32,692	\$32,370	-1.0%	GS-2 Primary
Industrial Business				
20,000 kW demand and 8 million kWh usage	\$608,677	\$585,416	-3.8%	GS-4 Transmission
20,000 kW demand and 12 million kWh usage	\$876,246	\$841,343	-4.0%	GS-4 Transmission

Calculation of Capacity Revenue Requirement in \$/MWh

<u>Line</u>	<u>Description</u>	<u>2017/2018</u>			
		<u>Secondary</u>	<u>Primary</u>	<u>Sub/Tran</u>	<u>Total</u>
1	SSO Load - 5 CP at Meter	2,515	32	161	2,708 MW
2	Transmission and Distribution Losses	1.09	1.06	1.03	
3	5 CP at Generator (1) x (2)	2,749	34	166	2,950 MW
4	Days in Period				365
5	MW-days (3) x (4)				1,076,597
6	Zonal Capacity Price*				\$173.08 /MW-day
7	Capacity Revenue Requirement (5) x (6)				\$ 186,338,589

<u>Line</u>	<u>Description</u>	<u>Secondary</u>	<u>Primary</u>	<u>Sub/Tran</u>	<u>Total</u>
8	Energy at Meter (MWh)	11,804,747	223,573	1,665,605	13,693,925
9	Transmission and Distribution Losses **	1.0604	1.0235	1.0031	
10	Energy for PJM Settlement (MWh) (8) x (9)	12,517,801	228,837	1,670,730	14,417,368
11	Capacity Revenue Requirement (\$/MWh) (7) / (10)				\$ 12.92

* Zonal Capacity Price consists of:

RPM Auction Clearing Price***	\$151.26 /MW-day
Zonal Scaling Factor***	1.04413
Forecast Pool Requirement***	1.0959

** Loss Factors reduced by 3% for marginal loss deration

*** Reflects Second Incremental Auction results

Calculation of Generation Capacity Rider Rates

2017/2018

<u>Line</u>	<u>Description</u>	<u>Total</u>	<u>Residential</u>	<u>GS Non Demand Secondary</u>	<u>GS Secondary</u>	<u>GS Primary</u>	<u>GS Sub/Tran</u>	<u>Lighting</u>
1	SSO Load - 5 CP at Meter	2,708	2,138	57	321	32	161	-
2	Transmission and Distribution Losses		1.0932	1.0932	1.0932	1.0552	1.0341	1.0932
3	5 CP at Generator (1) x (2)	2,950	2,337	62	350	34	166	-
4	Capacity Revenue Requirement on (3)	\$ 186,338,589	147,630,000.22	3,929,654	22,135,211	2,155,177	10,488,547	-
5	Energy at the Meter (MWh)	13,693,925	9,555,176	342,327	1,794,745	223,573	1,665,605	112,498
6	Capacity Rate (\$/MWh) (4) / (5)		\$ 15.45	\$ 11.48	\$ 12.33	\$ 9.64	\$ 6.30	\$ -
7	Tax Gross-up*		1.00435	1.00435	1.00435	1.00435	1.00435	1.00435
8	Rider GENC (\$/MWh) (6) x (7)		\$ 15.52	\$ 11.53	\$ 12.39	\$ 9.68	\$ 6.32	\$ -
9	Generation Capacity Rider Rate (¢/kWh)		1.55200	1.15300	1.23900	0.96800	0.63200	0.00000

* Tax Gross-up includes: CAT Tax, PUCO and OCC Assessments

Generation Capacity Rider Design for Time-of-Day Rates

CSP Rate Zone - RLM

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
Winter Season							
First 750 kWh per Month	277,398	\$ 0.024344	\$ 6,753	\$ 0.015520	\$ 4,305	\$ 0.0215282	\$ 5,972
Next 150 kWh per kW Over 5 kW per Month	1,090,206	\$ 0.013174	\$ 14,363	\$ 0.015520	\$ 16,920	\$ 0.0116503	\$ 12,701
All Additional kWh per Month	1,381,854	\$ 0.015407	\$ 21,291	\$ 0.015520	\$ 21,446	\$ 0.0136251	\$ 18,828
Summer Season							
First 750 kWh per Month	126,228	\$ 0.024344	\$ 3,073	\$ 0.015520	\$ 1,959	\$ 0.0215282	\$ 2,717
Next 150 kWh per kW Over 5 kW per Month	454,573	\$ 0.023126	\$ 10,512	\$ 0.015520	\$ 7,055	\$ 0.0204506	\$ 9,296
All Additional kWh per Month	600,445	\$ 0.021638	\$ 12,992	\$ 0.015520	\$ 9,319	\$ 0.0191352	\$ 11,490
Total			\$ 68,984		\$ 61,005		\$ 61,004

CSP Rate Zone - RS-ES / RS-TOD

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
On-Peak kWh	30,565	\$ 0.030371	\$ 928	\$ 0.015520	\$ 474	\$ 0.0268578	\$ 821
Off-Peak kWh	54,955	\$ 0.010419	\$ 573	\$ 0.015520	\$ 853	\$ 0.0092141	\$ 506
Total			\$ 1,501		\$ 1,327		\$ 1,327

CSP Rate Zone - Experimental RS-TOD2

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
High Cost Hours	1,589,576	\$ 0.175869	\$ 279,557	\$ 0.015520	\$ 24,670	\$ 0.1555259	\$ 247,220
Low Cost Hours	18,387,409	\$ 0.003864	\$ 71,040	\$ 0.015520	\$ 285,373	\$ 0.0034166	\$ 62,822
Total			\$ 350,597		\$ 310,043		\$ 310,043

CSP Rate Zone - RS-CPP

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
Winter Season							
First 800 kWh	6,400	\$ 0.016017	\$ 103	\$ 0.015520	\$ 99	\$ 0.0141643	\$ 91
Over 800 kWh	2,172	\$ -	\$ -	\$ 0.015520	\$ 34	\$ -	\$ -
Critical Peak Hours	28	\$ 0.387317	\$ 11	\$ 0.015520	\$ 0	\$ 0.3425158	\$ 10
Summer Season							
Low Cost Hours	2,289	\$ 0.003873	\$ 9	\$ 0.015520	\$ 36	\$ 0.0034252	\$ 8
Medium Cost Hours	1,082	\$ 0.012144	\$ 13	\$ 0.015520	\$ 17	\$ 0.0107392	\$ 12
High Cost Hours	892	\$ 0.024824	\$ 22	\$ 0.015520	\$ 14	\$ 0.0219526	\$ 20
Critical Peak Hours	184	\$ 0.387317	\$ 71	\$ 0.015520	\$ 3	\$ 0.3425158	\$ 63
Total			\$ 229		\$ 202		\$ 202

CSP Rate Zone - RS-RTP

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing

Generation Capacity Rider Design for Time-of-Day Rates

Fixed Energy Charge	14,595	\$	21.35	\$	256	\$ 0.015520	\$	227	\$	18.88	\$	227
Total					\$	256		\$	227		\$	227

CSP Rate Zone - GS-2-LMTOD / GS-2-TOD

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				General Service Non Demand Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
On-Peak kWh	1,973,797	\$ 0.038071	\$ 75,144	\$ 0.011530	\$ 22,758	\$ 0.0345092	\$ 68,114
Off-Peak kWh	3,974,408	\$ 0.000130	\$ 517	\$ 0.011530	\$ 45,825	\$ 0.0001179	\$ 469
Total			\$ 75,661		\$ 68,583		\$ 68,583

OP Rate Zone - RS-ES / RS-TOD

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
On-Peak kWh	2,046,613	\$ 0.036343	\$ 74,380	\$ 0.015520	\$ 31,763	\$ 0.0321391	\$ 65,776
Off-Peak kWh	5,102,322	\$ 0.010012	\$ 51,084	\$ 0.015520	\$ 79,188	\$ 0.0088538	\$ 45,175
Total			\$ 125,464		\$ 110,951		\$ 110,951

OP Rate Zone - RDMS

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				Residential Service Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
(No Data, Use RS-ES / RS-TOD Scaling)							
Winter Season kWh > 400 times billing demand	-	\$ 0.020158	\$ -	\$ 0.015520	\$ -	\$ 0.0178259	\$ -
First 500 on-peak kWh	-	\$ 0.025186	\$ -	\$ 0.015520	\$ -	\$ 0.0222727	\$ -
Over 500 on-peak kWh	-	\$ 0.018756	\$ -	\$ 0.015520	\$ -	\$ 0.0165869	\$ -
All Additional kWh per Month	-	\$ 0.005710	\$ -	\$ 0.015520	\$ -	\$ 0.0050494	\$ -
Total			\$ -		\$ -		\$ -

OP Rate Zone - GS-1-ES

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				General Service Non Demand Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
On-Peak kWh	95,196	\$ 0.026019	\$ 2,477	\$ 0.011530	\$ 1,098	\$ 0.0235846	\$ 2,245
Off-Peak kWh	179,823	\$ 0.005680	\$ 1,021	\$ 0.011530	\$ 2,073	\$ 0.0051484	\$ 926
Total			\$ 3,498		\$ 3,171		\$ 3,171

OP Rate Zone - GS-2-ES / GS-TOD

Description	Generation Capacity Rider Rate Design Usage (kWh)	Jan-May 2015 Generation Capacity Rider Rates	Billing	June 2017 - May 2018			
				General Service Non Demand Generation Capacity Rider	Billing	Generation Capacity Rider	Billing
On-Peak kWh	18,875,479	\$ 0.020841	\$ 393,380	\$ 0.011530	\$ 217,634	\$ 0.0188911	\$ 356,579
Off-Peak kWh	27,663,099	\$ 0.007179	\$ 198,591	\$ 0.011530	\$ 318,956	\$ 0.0065073	\$ 180,012
Total			\$ 591,971		\$ 536,590		\$ 536,591

Calculation of Generation Energy Rider Rates

2017/20178

Blended Competitive Bid Price	\$ 51.71 /MWh
Capacity Revenue Requirement	\$ 12.92 /MWh
Residual Energy Price	\$ 38.79 /MWh

Rate Schedule	Season	Factors		RIDER GENE***	Generation Energy Rider Rate (¢/kWh)
		Loss**	Season		
		1.00435			
Residential	Summer	1.0604	1.00	\$ 41.31	4.13100
	Winter	1.0604	1.00	\$ 41.31	4.13100
PIPP Residential	Summer	1.0604	1.00		
	Winter	1.0604	1.00		
GS Non Demand Secondary	Summer	1.0604	1.00	\$ 41.31	4.13100
	Winter	1.0604	1.00	\$ 41.31	4.13100
GS Secondary	Summer	1.0604	1.00	\$ 41.31	4.13100
	Winter	1.0604	1.00	\$ 41.31	4.13100
GS Primary	Summer	1.0235	1.00	\$ 39.88	3.98800
	Winter	1.0235	1.00	\$ 39.88	3.98800
GS Sub/Tran	Summer	1.0031	1.00	\$ 39.08	3.90800
	Winter	1.0031	1.00	\$ 39.08	3.90800
Lighting	Summer	1.0604	1.00	\$ 41.31	4.13100
	Winter	1.0604	1.00	\$ 41.31	4.13100

* Tax Gross-up includes: Commercial Activities Tax and PUCO and OCC Assessments

** Loss Factors reduced by 3% for marginal loss deration

*** Residual Energy Price x Tax Gross-up x Loss Factor x Seasonal Factor

Current (as of November 1, 2016) Methodology - Case No. 15-1105-EL-RDR				Implement County Fair Transmission Supplement			
Ohio Power Company Class Contribution to NSPL				Ohio Power Company Class Contribution to NSPL			
Class	Metered		At Generation	Class	Metered		At Generation
	Class MW	Loss Factor	Class MW		Class MW	Loss Factor	Class MW
Residential	2,907	1.0932	3,178.27	Residential	2,907	1.0932	3,178.27
GS Non Demand Secondary	120	1.0932	131.31	GS Non Demand Secondary	120	1.0932	131.59
GS Non Demand Primary				GS Non Demand Primary	1	1.0552	1.32
GS Secondary	1,849	1.0932	2,021.87	GS Secondary	1,849	1.0932	2,021.60
GS Primary	797	1.0552	841.21	GS Primary	796	1.0552	839.89
GS Sub/Tran	1,243	1.0341	1,285.61	GS Sub/Tran	1,243	1.0341	1,285.61
Lighting	11	1.0932	11.90	Lighting	11	1.0932	11.90
EHG	7	1.0932	7.22	EHG	7	1.0932	7.22
Total	6,934.8		7,477.4	Total	6,934.8		7,477.4

Class	Metered		Loss	Units @ Secondary	Class	Metered		Loss	Units @ Secondary
	Energy	Demand	Factor	Energy		Energy	Demand	Factor	Energy
Residential	14,225,492,718	-	1.0000	14,225,492,718	Residential	14,225,492,718	-	1.0000	14,225,492,718
GS Non Demand Secondary	789,208,983	-	1.0000	789,208,983	GS Non Demand Secondary	791,665,805	-	1.0000	791,665,805
GS Non Demand Primary					GS Non Demand Primary	13,182,110	-	0.9652	12,723,895
GS Secondary	11,665,976,600	34,121,449	1.0000	11,665,976,600	GS Secondary	11,663,519,778	34,095,784	1.0000	11,663,519,778
GS Primary	6,221,462,006	13,649,825	0.9652	6,005,201,892	GS Primary	6,208,279,896	13,545,696	0.9652	5,992,477,997
GS Sub/Tran	10,451,543,324	21,277,569	0.9459	9,886,517,519	GS Sub/Tran	10,451,543,324	21,277,569	0.9459	9,886,517,519
Lighting	217,033,547		1.0000	217,033,547	Lighting	217,033,547		1.0000	217,033,547
EHG	19,740,746	98,920	1.0000	19,740,746	EHG	19,740,746	98,920	1.0000	19,740,746
Total	43,590,457,923	69,147,763		42,809,172,004	Total	43,590,457,923	69,017,969		42,809,172,004

Forecast	Demand	Demand Cost	Loss Adjusted kWh Energy	Energy Cost	Total Cost	Forecast	Demand	Demand Cost	Loss Adjusted kWh Energy	Energy Cost	Total Cost
	Residential	3,178.3	\$ 177,638,527	14,225,492,718	\$ 5,461,697.63		\$ 183,100,225	Residential	3,178.3	\$ 177,638,527	14,225,492,718
GS Non Demand Secondary	131.3	\$ 7,339,290	789,208,983	\$ 303,006.79	\$ 7,642,297	GS Non Demand Secondary	131.6	\$ 7,354,565	791,665,805	\$ 303,950.05	\$ 7,658,515
GS Non Demand Primary						GS Non Demand Primary	1.3	\$ 73,721	12,723,895	\$ 4,885.18	\$ 78,606
GS Secondary	2,021.9	\$ 113,005,566	11,665,976,600	\$ 4,479,003.85	\$ 117,484,570	GS Secondary	2,021.6	\$ 112,990,291	11,663,519,778	\$ 4,478,060.59	\$ 117,468,352
GS Primary	841.2	\$ 47,016,533	6,005,201,892	\$ 2,305,621.15	\$ 49,322,154	GS Primary	839.9	\$ 46,942,812	5,992,477,997	\$ 2,300,735.97	\$ 49,243,548
GS Sub/Tran	1,285.6	\$ 71,854,922	9,886,517,519	\$ 3,795,803.09	\$ 75,650,725	GS Sub/Tran	1,285.6	\$ 71,854,922	9,886,517,519	\$ 3,795,803.09	\$ 75,650,725
Lighting	11.9	\$ 664,959	217,033,547	\$ 83,327.28	\$ 748,286	Lighting	11.9	\$ 664,959	217,033,547	\$ 83,327.28	\$ 748,286
EHG	7.2	\$ 403,448	19,740,746	\$ 7,579.21	\$ 411,027	EHG	7.2	\$ 403,448	19,740,746	\$ 7,579.21	\$ 411,027
Total	7,477.4	\$ 417,923,245	42,809,172,004	\$ 16,436,039	\$ 434,359,284	Total	7,477.4	\$ 417,923,245	42,809,172,004	\$ 16,436,039	\$ 434,359,284

Class	Costs		Billing Units		Rates		Class	Costs		Billing Units		Rates	
	Demand Cost	Energy Cost	KW	kWh	Demand	Energy		Demand Cost	Energy Cost	KW	kWh	Demand	Energy
Residential	\$ 177,638,527	\$ 5,461,698	-	14,225,492,718		\$ 0.0128713	Residential	\$ 177,638,527	\$ 5,461,698	-	14,225,492,718		\$ 0.0128713
GS Non Demand Secondary	\$ 7,339,290	\$ 303,007	-	789,208,983		\$ 0.0096835	GS Non Demand Secondary	\$ 7,354,565	\$ 303,950	-	791,665,805		\$ 0.0096739
GS Non Demand Primary							GS Non Demand Primary	\$ 73,721	\$ 4,885	-	13,182,110		\$ 0.0059631
GS Secondary	\$ 113,005,566	\$ 4,479,004	34,121,449	11,665,976,600	\$ 3.31	\$ 0.0003839	GS Secondary	\$ 112,990,291	\$ 4,478,061	34,095,784	11,663,519,778	\$ 3.31	\$ 0.0003839
GS Primary	\$ 47,016,533	\$ 2,305,621	13,649,825	6,221,462,006	\$ 3.44	\$ 0.0003706	GS Primary	\$ 46,942,812	\$ 2,300,736	13,545,696	6,208,279,896	\$ 3.47	\$ 0.0003706
GS Sub/Tran	\$ 71,854,922	\$ 3,795,803	21,277,569	10,451,543,324	\$ 3.38	\$ 0.0003632	GS Sub/Tran	\$ 71,854,922	\$ 3,795,803	21,277,569	10,451,543,324	\$ 3.38	\$ 0.0003632
Lighting	\$ 664,959	\$ 83,327	-	217,033,547	\$ 0.0034478		Lighting	\$ 664,959	\$ 83,327	-	217,033,547	\$ 0.0034478	
EHG	\$ 403,448	\$ 7,579	98,920	19,740,746	\$ 1.66	\$ 0.0125281	EHG	\$ 403,448	\$ 7,579	98,920	19,740,746	\$ 1.66	\$ 0.0125281
Total	\$ 417,923,245	\$ 16,436,039	69,147,763	43,590,457,923			Total	\$ 417,923,245	\$ 16,436,039	69,017,969	43,590,457,923		

Distribution Technology Rider Rate Estimates

Monthly Charge (\$)		
	Residential	Non-Residential
2017	0.11	0.49
2018	0.61	2.59
2019	1.20	5.11
2020	1.75	7.48
2021	2.08	8.88
2022	2.10	8.95
2023	2.03	8.66
2024	1.96	8.36

2017

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 2,228,961		\$ 2,228,961
Capital - EV Charging, Account 398		\$ 15,219	\$ 15,219
Capital - Microgrid, Account 363		\$ 93,336	\$ 93,336
Capital - Microgrid, Account 371		\$ 68,959	\$ 68,959
Capital - Smart Lighting, Account 371		\$ 55,287	\$ 55,287
Capital - Smart Lighting, Account 373		\$ 53,423	\$ 53,423
Capital - NextGen UCS, Account 397		\$ 236,525	\$ 236,525
Capital - Substation, Account 362		\$ 73,619	\$ 73,619
Total			\$ 2,825,328
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 2,851,840
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 1,752,390
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 1,099,450
		Residential Customers	1,276,366 1.37
		Non-Residential Customers	187,702 5.86
		Residential Customers	Monthly Rate \$ 0.11
		Non-Residential Customers	Monthly Rate \$ 0.49

2018

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 3,851,434		\$ 3,851,434
Capital - EV Charging, Account 398		\$ 287,441	\$ 287,441
Capital - Microgrid, Account 363		\$ 1,744,629	\$ 1,744,629
Capital - Microgrid, Account 371		\$ 1,283,224	\$ 1,283,224
Capital - Smart Lighting, Account 371		\$ 1,018,742	\$ 1,018,742
Capital - Smart Lighting, Account 373		\$ 991,150	\$ 991,150
Capital - NextGen UCS, Account 397		\$ 4,422,282	\$ 4,422,282
Capital - Substation, Account 362		\$ 1,386,826	\$ 1,386,826
Total			\$ 14,985,727
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 15,126,347
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 9,294,791
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 5,831,556
		Residential Customers	1,276,366
		Non-Residential Customers	187,702
		Residential Customers	Monthly Rate \$ 0.61
		Non-Residential Customers	Monthly Rate \$ 2.59

2019

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 5,609,297		\$ 5,609,297
Capital - EV Charging, Account 398		\$ 710,186	\$ 710,186
Capital - Microgrid, Account 363		\$ 3,861,040	\$ 3,861,040
Capital - Microgrid, Account 371		\$ 2,822,156	\$ 2,822,156
Capital - Smart Lighting, Account 371		\$ 2,072,848	\$ 2,072,848
Capital - Smart Lighting, Account 373		\$ 2,037,548	\$ 2,037,548
Capital - NextGen UCS, Account 397		\$ 9,366,918	\$ 9,366,918
Capital - Substation, Account 362		\$ 3,102,366	\$ 3,102,366
Total			\$ 29,582,359
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 29,859,947
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 18,348,248
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 11,511,699
		Residential Customers	1,276,366 14.38
		Non-Residential Customers	187,702 61.33
		Residential Customers	Monthly Rate \$ 1.20
		Non-Residential Customers	Monthly Rate \$ 5.11

2020

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 6,928,640		\$ 6,928,640
Capital - EV Charging, Account 398		\$ 1,244,918	\$ 1,244,918
Capital - Microgrid, Account 363		\$ 5,873,926	\$ 5,873,926
Capital - Microgrid, Account 371		\$ 4,263,904	\$ 4,263,904
Capital - Smart Lighting, Account 371		\$ 2,961,378	\$ 2,961,378
Capital - Smart Lighting, Account 373		\$ 2,943,933	\$ 2,943,933
Capital - NextGen UCS, Account 397		\$ 14,322,740	\$ 14,322,740
Capital - Substation, Account 362		\$ 4,774,947	\$ 4,774,947
Total			\$ 43,314,385
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 43,720,829
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 26,865,440
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 16,855,389
		Residential Customers	1,276,366 21.05
		Non-Residential Customers	187,702 89.8
		Residential Customers	Monthly Rate \$ 1.75
		Non-Residential Customers	Monthly Rate \$ 7.48

2021

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 7,239,483		\$ 7,239,483
Capital - EV Charging, Account 398		\$ 1,757,818	\$ 1,757,818
Capital - Microgrid, Account 363		\$ 7,689,951	\$ 7,689,951
Capital - Microgrid, Account 371		\$ 5,539,508	\$ 5,539,508
Capital - Smart Lighting, Account 371		\$ 3,731,976	\$ 3,731,976
Capital - Smart Lighting, Account 373		\$ 3,755,289	\$ 3,755,289
Capital - NextGen UCS, Account 397		\$ 15,363,478	\$ 15,363,478
Capital - Substation, Account 362		\$ 6,330,949	\$ 6,330,949
Total Revenue Requirement			\$ 51,408,452
Tax Gross Up Rate			<u>100.938%</u>
Total Revenue Requirement			<u><u>\$ 51,890,847</u></u>
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 31,885,728
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 20,005,119
		Residential Customers	1,276,366
		Non-Residential Customers	187,702
		Residential Customers	Monthly Rate \$ 2.08
		Non-Residential Customers	Monthly Rate \$ 8.88

2022

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 7,475,204		\$ 7,475,204
Capital - EV Charging, Account 398		\$ 1,793,400	\$ 1,793,400
Capital - Microgrid, Account 363		\$ 7,844,493	\$ 7,844,493
Capital - Microgrid, Account 371		\$ 5,572,622	\$ 5,572,622
Capital - Smart Lighting, Account 371		\$ 3,731,505	\$ 3,731,505
Capital - Smart Lighting, Account 373		\$ 3,835,183	\$ 3,835,183
Capital - NextGen UCS, Account 397		\$ 14,973,700	\$ 14,973,700
Capital - Substation, Account 362		\$ 6,604,403	\$ 6,604,403
Total Revenue Requirement			\$ 51,830,511
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 52,316,866
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 32,147,507
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 20,169,359
		Residential Customers	1,276,366 25.19
		Non-Residential Customers	187,702 107.45
		Residential Customers	Monthly Rate \$ 2.10
		Non-Residential Customers	Monthly Rate \$ 8.95

2023

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 7,688,495		\$ 7,688,495
Capital - EV Charging, Account 398		\$ 1,666,948	\$ 1,666,948
Capital - Microgrid, Account 363		\$ 7,430,392	\$ 7,430,392
Capital - Microgrid, Account 371		\$ 5,183,883	\$ 5,183,883
Capital - Smart Lighting, Account 371		\$ 3,469,239	\$ 3,469,239
Capital - Smart Lighting, Account 373		\$ 3,663,681	\$ 3,663,681
Capital - NextGen UCS, Account 397		\$ 14,583,922	\$ 14,583,922
Capital - Substation, Account 362		\$ 6,432,564	\$ 6,432,564
Total Revenue Requirement			\$ 50,119,124
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 50,589,420
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 31,086,031
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 19,503,389
		Residential Customers	1,276,366 24.36
		Non-Residential Customers	187,702 103.91
		Residential Customers	Monthly Rate \$ 2.03
		Non-Residential Customers	Monthly Rate \$ 8.66

2024

Calculation of Distribution Technology Rider

Incremental Investment	O&M Spending	Capital Carrying Charge	Revenue Requirement
O&M	\$ 7,908,184		\$ 7,908,184
Capital - EV Charging, Account 398		\$ 1,540,495	\$ 1,540,495
Capital - Microgrid, Account 363		\$ 7,016,291	\$ 7,016,291
Capital - Microgrid, Account 371		\$ 4,795,145	\$ 4,795,145
Capital - Smart Lighting, Account 371		\$ 3,206,973	\$ 3,206,973
Capital - Smart Lighting, Account 373		\$ 3,492,178	\$ 3,492,178
Capital - NextGen UCS, Account 397		\$ 14,194,144	\$ 14,194,144
Capital - Substation, Account 362		\$ 6,260,725	\$ 6,260,725
Total Revenue Requirement			\$ 48,414,135
Tax Gross Up Rate			100.938%
Total Revenue Requirement			\$ 48,868,433
Residential Base Distribution	\$ 389,395,583	Residential Revenue Requirement	\$ 30,028,524
Non-Res Base Distribution	\$ 244,306,952	Non-Res Revenue Requirement	\$ 18,839,909
		Residential Customers	1,276,366 23.53
		Non-Residential Customers	187,702 100.37
		Residential Customers	Monthly Rate \$ 1.96
		Non-Residential Customers	Monthly Rate \$ 8.36

Distribution Technology Investment Plan Spending

O&M - Direct	2017	2018	2019	2020	2021	2022	2023	2024	Sum
EV Charging	125,000	293,000	534,000	775,000	798,250	822,198	846,863	872,269	5,066,580
Public charging station usage	2,367	45,921	121,263	227,086	336,883	365,526	365,526	365,526	1,830,098
Microgrid	375,000	750,000	1,125,000	1,500,000	1,545,000	1,591,350	1,639,091	1,688,263	10,213,704
Smart Lighting	657,424	1,142,224	1,627,024	2,111,824	2,175,179	2,240,434	2,307,647	2,376,877	14,638,632
NextGen UCS	333,000	333,000	334,000	-	-	-	-	-	1,000,000
Substation	100,000	200,000	300,000	400,000	412,000	424,360	437,091	450,204	2,723,654
	1,592,791	2,764,145	4,041,287	5,013,910	5,267,312	5,443,868	5,596,218	5,753,139	35,472,669

O&M - Loaded	2017	2018	2019	2020	2021	2022	2023	2024	Sum
EV Charging	175,000	410,200	747,600	1,085,000	1,117,550	1,151,077	1,185,609	1,221,177	7,093,212
Public charging station usage	2,367	45,921	121,263	227,086	336,883	365,526	365,526	365,526	1,830,098
Microgrid	525,000	1,050,000	1,575,000	2,100,000	2,163,000	2,227,890	2,294,727	2,363,569	14,299,185
Smart Lighting	920,394	1,599,114	2,277,834	2,956,554	3,045,250	3,136,608	3,230,706	3,327,627	20,494,085
NextGen UCS	466,200	466,200	467,600	-	-	-	-	-	1,400,000
Substation	140,000	280,000	420,000	560,000	576,800	594,104	611,927	630,285	3,813,116
	2,228,961	3,851,434	5,609,297	6,928,640	7,239,483	7,475,204	7,688,495	7,908,184	48,929,697

Capital - Direct	2017	2018	2019	2020	2021	2022	2023	2024	Sum
EV Charging	1,111,000	1,429,780	1,928,673	1,932,684	-	-	-	-	6,402,137
Microgrid	12,967,500	12,967,500	12,967,500	12,967,500	-	-	-	-	51,870,000
Smart Lighting	8,873,490	7,257,490	6,868,495	6,868,495	-	-	-	-	29,867,970
NextGen UCS	24,150,000	20,700,000	24,150,000	-	-	-	-	-	69,000,000
Substation	7,500,000	7,500,000	7,500,000	7,500,000	-	-	-	-	30,000,000
	54,601,990	49,854,770	53,414,668	29,268,679	-	-	-	-	187,140,107

Capital - Loaded	2017	2018	2019	2020	2021	2022	2023	2024	Sum
EV Charging	1,488,740	1,915,905	2,584,422	2,589,796	-	-	-	-	8,578,864
Microgrid	17,376,450	17,376,450	17,376,450	17,376,450	-	-	-	-	69,505,800
Smart Lighting	11,890,477	9,725,037	9,203,783	9,203,783	-	-	-	-	40,023,080
NextGen UCS	32,361,000	27,738,000	32,361,000	-	-	-	-	-	92,460,000
Substation	10,050,000	10,050,000	10,050,000	10,050,000	-	-	-	-	40,200,000
	73,166,667	66,805,392	71,575,656	39,220,029	-	-	-	-	250,767,743

Annual Investment Carrying Charges
Distribution Technology Rider

	EV Charging	Microgrid	Microgrid	Smart Lighting	Smart Lighting	NextGen UCS	Substation
Account Title	Miscellaneous Equipment	Storage Battery Equipment	Installations on Customer Premises	Installations on Customer Premises	Street Light and Signal Systems	Communication Equipment	Station Equipment
Account	398.XX	363	371	371	373	397	362
Return % (1)	11.75	11.75	11.75	11.75	11.75	11.75	11.75
Depreciation % (2)	10.00	6.67	9.63	9.63	5.40	2.86	2.90
Property Taxes % (3)	<u>2.99</u>	<u>2.99</u>	<u>2.99</u>	<u>2.99</u>	<u>2.99</u>	<u>2.99</u>	<u>2.99</u>
Total %	24.74	21.41	24.37	24.37	20.14	17.60	17.64

(1) Source: Exhibit MDK-3 WACC calculation plus 75 basis point addition to ROE supported by Company witness Moore

(2) Source: 10% EV Charging rate based on testimony of Scott Osterholt, other rates as approved in Case No. 11-351-EL-AIR

(3) Source: Exhibit MDK-5

AEP OHIO
CASE No. 13-2385-EL-SSO AND CASE No. 13-2386-EL-AAM
Cost of Capital
(\$000)

Date of Capital Structure: December 31, 2015

Line No.	Class of Capital	(\$) Amount	% of Total	(% Cost	Weighted Cost (%)	Pre-Tax Weighted Cost (%)
1	Long-Term Debt	\$ 1,950,000	49.54%	6.01%	2.98%	2.98%
2	Short-Term Debt	\$ -	0.00%	0.00%	0.00%	0.00%
3	Common Equity	<u>1,986,600</u>	<u>50.46%</u>	<u>11.16% *</u>	<u>5.63%</u>	<u>8.78%</u>
4	Total Capital	<u>\$ 3,936,600</u>	<u>100%</u>	<u> </u>	<u>8.61%</u>	<u>11.75%</u>

* 11.16% equal to 10.41% from Exhibit MDK-3 plus 75 basis points as supported by Company witness Moore

OHIO POWER COMPANY
Computation of Gross Revenue Conversion Factor
For The Twelve Months Ending December 31, 2015

Line No.	Description		<u>% of Incremental Gross Revenues</u>
(A)	(B)	(C)	(D)
1	Operating Revenues		100.000%
2			
3	Less:		
4	Uncollectible Accounts Expense	0.670%	
5	Commercial Activities Tax	0.260% [A]	
6			<u>0.930%</u>
7			
8	Income Before Income Tax (Line 1- Line 7)		99.070%
9			
10	Gross Revenue Conversion Factor (100% / 99.070366%)		100.938%

Notes:

[A] Statutory rate

Ohio Power Company Balances for 12 Months Ending December 2015

Retail Sales	\$	2,757,997,591.00
Bad Debt Expense	\$	18,468,493.00

Estimated Capitalization %s of Microgrid and Smart Lighting Assets

Microgrid	FERC Account	<u>363</u>	<u>371</u>	sum
	Cost	\$ 2,430,000	\$ 1,580,000	\$ 4,010,000
	Allocation %	60.6%	39.4%	
Smart Lighting	FERC Account	<u>371</u>	<u>373</u>	sum
	Bulbs	121,118	141,244	262,362
	Allocation %	46.2%	53.8%	

Estimated Electricity Bills for EV Charging Stations

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>sum</u>
Deployment: L2	30	50	85	85	0	0	0	0	250
DCFC	5	6	7	7	0	0	0	0	25
Bills*: L2	15	295	852.5	1767.5	2745	3000	3000	3000	14675
DCFC	2.5	48	117.5	198.5	279	300	300	300	1545.5
Pricing: L2	\$ 1,018.65	\$ 20,033.45	\$ 57,893.28	\$ 120,030.93	\$ 186,412.95	\$ 203,730.00	\$ 203,730.00	\$ 203,730.00	\$ 996,579.25
DCFC	\$ 1,348.30	\$ 25,887.36	\$ 63,370.10	\$ 107,055.02	\$ 150,470.28	\$ 161,796.00	\$ 161,796.00	\$ 161,796.00	\$ 833,519.06
total	<u>\$ 2,366.95</u>	<u>\$ 45,920.81</u>	<u>\$ 121,263.38</u>	<u>\$ 227,085.95</u>	<u>\$ 336,883.23</u>	<u>\$ 365,526.00</u>	<u>\$ 365,526.00</u>	<u>\$ 365,526.00</u>	<u>\$ 1,830,098.31</u>

* Assumes, as in depreciation table, that one-twelfth of the annual amount goes into service per month, starting with October of the given year.

**Ohio Power Company
Columbus Southern Power Rate Zone
GS-1 Bundled Service* for single L2 charger**

Billing Parameters

Metered kWh Usage: 510 kWh

Bill Calculation

			Rates					Billing			
			Generation	Transmission	Distribution	Total		Generation	Transmission	Distribution	Total
Customer Charge					6.47	\$ 6.47				\$ 6.47	
Energy Charge; (First 1000 kWh)	510 kWh	x			\$ 0.0147707	\$ 0.0147707	/kWh			\$ 7.53	\$ 7.53
(Over 1000 kWh)	0 kWh	x			\$ 0.0147707	\$ 0.0147707	/kWh			\$ -	\$ -
Base Charges									\$ 14.00	\$ 14.00	

Riders

Universal Service Fund (first 833,000 kWh)	510 kWh	x			\$ 0.0059258	\$ 0.0059258	/kWh			\$ 3.02	\$ 3.02
Universal Service Fund (in excess of 833,000 kWh)	0 kWh	x			\$ 0.0001830	\$ 0.0001830	/kWh			\$ -	\$ -
kWh Tax (first 2000 kWh)	510 kWh	x			\$ 0.00465	\$ 0.00465	/kWh			\$ 2.37	\$ 2.37
kWh Tax (next 13,000 kWh)	0 kWh	x			\$ 0.00419	\$ 0.00419	/kWh			\$ -	\$ -
kWh Tax (in excess of 15,000 kWh)	0 kWh	x			\$ 0.00363	\$ 0.00363	/kWh			\$ -	\$ -
Pilot Throughput Balancing Adjustment Rider	510 kWh	x			\$ 0.0007517	\$ 0.0007517	/kWh			\$ 0.38	\$ 0.38
Deferred Asset Phase-In Rider	\$14.00	Base (Dist)	x		7.7300%	7.7300%				\$ 1.08	\$ 1.08
Generation Energy Rider	510 kWh	x			\$ 0.0466600	\$ 0.0466600	/kWh	\$ 23.80			\$ 23.80
Generation Capacity Rider	510 kWh	x			\$ 0.0076300	\$ 0.0076300	/kWh	\$ 3.89			\$ 3.89
Auction Cost Reconciliation Rider	510 kWh	x			\$ 0.0019232	\$ 0.0019232	/kWh	\$ 0.98			\$ 0.98
Basic Transmission Cost Rider	510 kWh	x			\$ 0.0096835	\$ 0.0096835	/kWh		\$ 4.94		\$ 4.94
Energy Efficiency and Peak Demand Reduction Cost Recovery	510 kWh	x			\$ 0.0033390	\$ 0.0033390	/kWh			\$ 1.70	\$ 1.70
Economic Development Cost Recovery	\$14.00	Base (Dist)	x		1.05864%	1.05864%				\$ 0.15	\$ 0.15
Enhanced Service Reliability	\$14.00	Base (Dist)	x		7.34119%	7.34119%				\$ 1.03	\$ 1.03
gridSMART Phase 1 Rider	Month				\$ 4.22	\$ 4.22				\$ 4.22	\$ 4.22
Retail Stability Rider	510 kWh	x			\$ 0.0034143	\$ 0.0034143	/kWh			\$ 1.74	\$ 1.74
Distribution Investment Rider	\$14.00	Base (Dist)	x		29.13302%	29.13302%				\$ 4.08	\$ 4.08
Alternative Energy Rider	510 kWh	x			\$ 0.0010472	\$ 0.0010472	/kWh	\$ 0.53			\$ 0.53
Riders Total								\$ 29.20	\$ 4.94	\$ 18.03	\$ 53.91
Base + Rider Total										\$ 67.91	

* Rates current as of 11-1-2016

Ohio Power Company
Columbus Southern Power Rate Zone
GS-2 Secondary Bundled Service* for single DCFC

Billing Parameters

	Metered	Adjusted
On-Peak Demand:	50.0	50.0 kW
Off-Peak Demand:	0.0	0.0 kW
kWh Usage:	842	842 kWh
 Metered Voltage Adjustment:	 1.00	

Bill Calculation

	Rates					Billing			
	Generation	Transmission	Distribution	Total		Generation	Transmission	Distribution	Total
Customer Charge			\$ 9.04	\$ 9.04				\$ 9.04	\$ 9.04
Energy Charge	842 kWh	x			/kWh				
Demand Charge	50.0 kW	x	\$ 4.033	\$ 4.033	/kW			\$ 201.65	\$ 201.65
Off-Peak Excess Demand Charge	0.0 kW	x	\$ 4.033	\$ 4.033	/kW			\$ -	\$ -
Base Charges								\$ 210.69	\$ 210.69

Riders

Universal Service Fund (first 833,000 kWh)	842 kWh	x	\$ 0.0059258	\$ 0.0059258	/kWh			\$ 4.99	\$ 4.99
Universal Service Fund (in excess of 833,000 kWh)	0 kWh	x	\$ 0.0001830	\$ 0.000183	/kWh			\$ -	\$ -
kWh Tax (first 2000 kWh)	842 kWh	x	\$ 0.00465	\$ 0.00465	/kWh			\$ 3.91	\$ 3.91
kWh Tax (next 13,000 kWh)	0 kWh	x	\$ 0.00419	\$ 0.00419	/kWh			\$ -	\$ -
kWh Tax (in excess of 15,000 kWh)	0 kWh	x	\$ 0.00363	\$ 0.00363	/kWh			\$ -	\$ -
Deferred Asset Phase-In Rider	\$210.69 Base (Dist)	x		7.73000%				\$ 16.29	\$ 16.29
Generation Energy Rider	842 kWh	x	\$ 0.0466600	\$ 0.0466600	/kWh	\$ 39.26			\$ 39.26
Generation Capacity Rider	842 kWh	x	\$ 0.0082000	\$ 0.0082000	/kWh	\$ 6.90			\$ 6.90
Auction Cost Reconciliation Rider	842 kWh	x	\$ 0.0019232	\$ 0.0019232	/kWh	\$ 1.62			\$ 1.62
Basic Transmission Cost Rider	842 kWh	x	\$ 0.0003839	\$ 0.0003839	/kWh		\$ 0.32		\$ 0.32
Basic Transmission Cost Rider	50.0 kW	x	\$ 3.31	\$ 3.31	/kWh		\$ 165.50		\$ 165.50
Energy Efficiency & Peak Demand Reduction Cost Recovery	842 kWh	x	\$ 0.0033390	\$ 0.0033390	/kWh			\$ 2.81	\$ 2.81
Economic Development Cost Recovery	\$210.69 Base (Dist)	x	1.05864%	1.05864%				\$ 2.23	\$ 2.23
Enhanced Service Reliability	\$210.69 Base (Dist)	x	7.34119%	7.34119%				\$ 15.47	\$ 15.47
gridSmart Phase 1 Rider	Month	x	\$ 4.22	\$ 4.22				\$ 4.22	\$ 4.22
Retail Stability Rider	842 kWh	x		\$ 0.0033897	/kWh				\$ 2.85
Distribution Investment Rider	\$210.69 Base (Dist)	x	29.13302%	29.13302%				\$ 61.38	\$ 61.38
Alternative Energy Rider	842 kWh	x	\$ 0.0010472	\$ 0.0010472	/kWh	\$ 0.88			\$ 0.88
Riders Total						\$ 48.66	\$ 165.82	\$ 111.30	\$ 328.63

Base + Rider Total

\$ 539.32

* Rates current as of 11-1-2016

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RR Tariff: 013	Residential Service							
<u>Distribution Charges</u>								
Customer Charge:								
Bills		5,627,434		\$8.40	\$47,270,446	\$13.40	\$75,407,616	\$28,137,170
Energy Charge - Winter								
First 800 kWh per month			2,500,491,683	\$0.0182747	\$45,695,837	\$0.0134246	\$33,568,101	-\$12,127,737
All Excess kWh per month			1,586,334,371	\$0.0182747	\$28,989,849	\$0.0134246	\$21,295,904	-\$7,693,945
Total Energy Charge - Winter					\$74,685,686		\$54,864,005	-\$19,821,681
Energy Charge - Summer:								
First 800 kWh per month			1,535,578,135	\$0.0182747	\$28,062,292	\$0.0134246	\$20,614,522	-\$7,447,770
All Excess kWh per month			1,118,894,019	\$0.0182747	\$20,447,498	\$0.0134246	\$15,020,705	-\$5,426,793
Total Energy Charge - Summer					\$48,509,790		\$35,635,227	-\$12,874,563
Water Heating Energy Charge			37,346,141	\$0.0182747	\$682,491	\$0.0134246	\$501,357	-\$181,134
Total RR Revenues before Riders		<u>5,627,434</u>	<u>6,778,644,349</u>		<u>\$171,148,413</u>		<u>\$166,408,205</u>	<u>-\$4,740,209</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RR1 Tariff: 014	Residential Small Use Load Management Service 14							
<u>Distribution Charges</u>								
Customer Charge: Bills		2,218,108		\$8.40	\$18,632,107	\$13.40	\$29,722,647	\$11,090,540
Energy Charge - Summer: First 700 kWh per month			235,269,047	\$0.0182747	\$4,299,481	\$0.0134246	\$3,158,393	-\$1,141,088
Energy Charge - Winter: First 700 kWh per month			584,306,088	\$0.0182747	\$10,678,042	\$0.0134246	\$7,844,076	-\$2,833,967
For the next 100 kWh per month			20,481,755	\$0.0182747	\$374,299	\$0.0134246	\$274,959	-\$99,339
All Excess kWh per month			140,025,233	\$0.0182747	\$2,558,925	\$0.0134246	\$1,879,783	-\$679,142
Total Energy Charge - Winter					\$13,611,266		\$9,998,818	-\$3,612,448
Water Heating Energy Charge			8,441,238	\$0.0182747	\$154,261	\$0.0134246	\$113,320	-\$40,941
Total RR1 Revenues before Riders		<u>2,218,108</u>	<u>988,523,361</u>		<u>\$36,697,115</u>		<u>\$42,993,178</u>	<u>\$6,296,063</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RLM Residential Optional Demand Service Tariff: 019								
<u>Distribution Charges</u>								
Customer Charge:								
Bills		846		\$8.90	\$7,529	\$13.90	\$11,759	\$4,230
Energy Charge - Winter:								
First 750 kWh			430,162	\$0.0182747	\$7,861	\$0.0134246	\$5,775	-\$2,086
Next 150 kWh in excess of 5 kW demand			1,710,752	\$0.0182747	\$31,264	\$0.0134246	\$22,966	-\$8,297
Excess kWh			2,030,550	\$0.0182747	\$37,108	\$0.0134246	\$27,259	-\$9,848
Total Energy Charge - Winter					\$76,232		\$56,000	-\$20,232
Energy Charge - Summer:								
First 750 kWh			206,781	\$0.0182747	\$3,779	\$0.0134246	\$2,776	-\$1,003
Next 150 kWh in excess of 5 kW demand			837,934	\$0.0182747	\$15,313	\$0.0134246	\$11,249	-\$4,064
Excess kWh			1,151,493	\$0.0182747	\$21,043	\$0.0134246	\$15,458	-\$5,585
Total Energy Charge - Summer					\$40,135		\$29,483	-\$10,652
Demand Charge			22,341	\$0.00	\$0	\$0.00	\$0	\$0
Storage Water Heating Energy Charge			3,687	\$0.0182747	\$67	\$0.0134246	\$49	-\$18
Total RLM Revenues before Riders		<u>846</u>	<u>6,371,359</u>		<u>\$123,964</u>		<u>\$97,292</u>	<u>-\$26,672</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue Less Gas or Fuel Cost Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-ES Residential Energy Storage Tariff: 032								
<u>Distribution Charges</u>								
Customer Charge:		24		\$9.25	\$222	\$14.25	\$342	\$120
Energy Charge:								
On-Peak			7,314	\$0.0182747	\$134	\$0.0134246	\$98	-\$35
Off-Peak			9,550	\$0.0182747	\$175	\$0.0134246	\$128	-\$46
Total					<u>\$308</u>		<u>\$226</u>	<u>-\$82</u>
Total RS-ES Revenue Before Riders		<u>24</u>	<u>16,864</u>		<u>\$530</u>		<u>\$568</u>	<u>\$38</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue Less Gas or Fuel Cost Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-TOD Residential Time of Day Tariff: 030								
<u>Distribution Charges:</u>								
	Customer Charge	76		\$9.25	\$703	\$14.25	\$1,083	\$380
Energy Charge:								
	On-Peak		20,738	\$0.0182747	\$379	\$0.0134246	\$278	-\$101
	Off-Peak		44,301	\$0.0182747	\$810	\$0.0134246	\$595	-\$215
	Total				<u>\$1,189</u>		<u>\$873</u>	<u>-\$315</u>
	Total RS-TOD Revenue Before Riders	<u>76</u>	<u>65,039</u>		<u>\$1,892</u>		<u>\$1,956</u>	<u>\$65</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS Residential Service Tariffs: 001, 003, 004, 005, 007, 008, 015, 017, 022, 038, 062								
<u>Distribution Charges</u>								
Customer Charge:								
		7,207,281		\$8.40	\$60,541,160	\$13.40	\$96,577,565	\$36,036,405
Energy Charge:								
	First 800 kWh		4,620,925,075	\$0.0182747	\$84,446,208	\$0.0134246	\$62,034,071	-\$22,412,137
	All Excess kWh		2,980,891,915	\$0.0182747	\$54,475,027	\$0.0134246	\$40,017,282	-\$14,457,745
	Total Energy Charge				\$138,921,234		\$102,051,352	-\$36,869,882
	Storage Water Heater Energy Charge		139,400,516	\$0.0182747	\$2,547,508	\$0.0134246	\$1,871,396	-\$676,112
	Total RS Revenue Before Riders	<u>7,207,281</u>	<u>7,741,217,506</u>		<u>\$202,009,903</u>		<u>\$200,500,314</u>	<u>-\$1,509,589</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-TOD	Residential - Time of Day Service							
Schedule RS-ES	Residential - Energy Storage							
Tariffs: 030, 032, 034								
<u>Distribution Charges</u>								
Customer Charge:								
	Bills	4,902		\$9.25	\$45,344	\$14.25	\$69,854	\$24,510
Energy Charge:								
	On-Peak		2,696,466	\$0.0182747	\$49,277	\$0.0134246	\$36,199	-\$13,078
	Off-Peak		6,657,564	\$0.0182747	\$121,665	\$0.0134246	\$89,375	-\$32,290
	Total				\$170,942		\$125,574	-\$45,368
	Total RS-TOD, ES Revenue Before Riders	4,902	9,354,030		\$216,286		\$195,428	-\$20,858

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RR Tariff: 013	Residential Service							
<u>Distribution Charges</u>								
Customer Charge:								
Bills		5,627,434		\$8.40	\$47,270,446	\$18.40	\$103,544,786	\$56,274,340
Energy Charge - Winter								
First 800 kWh per month			2,500,491,683	\$0.0182747	\$45,695,837	\$0.0085745	\$21,440,466	-\$24,255,371
All Excess kWh per month			1,586,334,371	\$0.0182747	\$28,989,849	\$0.0085745	\$13,602,024	-\$15,387,825
Total Energy Charge - Winter					\$74,685,686		\$35,042,490	-\$39,643,196
Energy Charge - Summer:								
First 800 kWh per month			1,535,578,135	\$0.0182747	\$28,062,292	\$0.0085745	\$13,166,815	-\$14,895,478
All Excess kWh per month			1,118,894,019	\$0.0182747	\$20,447,498	\$0.0085745	\$9,593,957	-\$10,853,541
Total Energy Charge - Summer					\$48,509,790		\$22,760,771	-\$25,749,019
Water Heating Energy Charge			37,346,141	\$0.0182747	\$682,491	\$0.0085745	\$320,224	-\$362,267
Total RR Revenues before Riders		<u>5,627,434</u>	<u>6,778,644,349</u>		<u>\$171,148,413</u>		<u>\$161,668,272</u>	<u>-\$9,480,142</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RR1 Tariff: 014	Residential Small Use Load Management Service 14							
<u>Distribution Charges</u>								
Customer Charge: Bills		2,218,108		\$8.40	\$18,632,107	\$18.40	\$40,813,187	\$22,181,080
Energy Charge - Summer: First 700 kWh per month			235,269,047	\$0.0182747	\$4,299,481	\$0.0085745	\$2,017,314	-\$2,282,166
Energy Charge - Winter: First 700 kWh per month			584,306,088	\$0.0182747	\$10,678,042	\$0.0085745	\$5,010,133	-\$5,667,910
For the next 100 kWh per month			20,481,755	\$0.0182747	\$374,299	\$0.0085745	\$175,621	-\$198,678
All Excess kWh per month			140,025,233	\$0.0182747	\$2,558,925	\$0.0085745	\$1,200,646	-\$1,358,278
Total Energy Charge - Winter					\$13,611,266		\$6,386,400	-\$7,224,866
Water Heating Energy Charge			8,441,238	\$0.0182747	\$154,261	\$0.0085745	\$72,379	-\$81,882
Total RR1 Revenues before Riders		<u>2,218,108</u>	<u>988,523,361</u>		<u>\$36,697,115</u>		<u>\$49,289,281</u>	<u>\$12,592,165</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RLM Residential Optional Demand Service Tariff: 019								
<u>Distribution Charges</u>								
Customer Charge:								
Bills		846		\$8.90	\$7,529	\$18.90	\$15,989	\$8,460
Energy Charge - Winter:								
	First 750 kWh		430,162	\$0.0182747	\$7,861	\$0.0085745	\$3,688	-\$4,173
	Next 150 kWh in excess of 5 kW demand		1,710,752	\$0.0182747	\$31,264	\$0.0085745	\$14,669	-\$16,595
	Excess kWh		2,030,550	\$0.0182747	\$37,108	\$0.0085745	\$17,411	-\$19,697
Total Energy Charge - Winter					\$76,232		\$35,768	-\$40,464
Energy Charge - Summer:								
	First 750 kWh		206,781	\$0.0182747	\$3,779	\$0.0085745	\$1,773	-\$2,006
	Next 150 kWh in excess of 5 kW demand		837,934	\$0.0182747	\$15,313	\$0.0085745	\$7,185	-\$8,128
	Excess kWh		1,151,493	\$0.0182747	\$21,043	\$0.0085745	\$9,873	-\$11,170
Total Energy Charge - Summer					\$40,135		\$18,831	-\$21,304
Demand Charge			22,341	\$0.00	\$0	\$0.00	\$0	\$0
Storage Water Heating Energy Charge			3,687	\$0.0182747	\$67	\$0.0085745	\$32	-\$36
Total RLM Revenues before Riders		846	6,371,359		\$123,964		\$70,621	-\$53,344

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue Less Gas or Fuel Cost Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-ES Residential Energy Storage Tariff: 032								
<u>Distribution Charges</u>								
Customer Charge:		24		\$9.25	\$222	\$19.25	\$462	\$240
Energy Charge:								
	On-Peak		7,314	\$0.0182747	\$134	\$0.0085745	\$63	-\$71
	Off-Peak		9,550	\$0.0182747	\$175	\$0.0085745	\$82	-\$93
	Total				<u>\$308</u>		<u>\$145</u>	<u>-\$164</u>
Total RS-ES Revenue Before Riders		<u>24</u>	<u>16,864</u>		<u>\$530</u>		<u>\$607</u>	<u>\$76</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue Less Gas or Fuel Cost Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-TOD Residential Time of Day Tariff: 030								
<u>Distribution Charges:</u>								
	Customer Charge	76		\$9.25	\$703	\$19.25	\$1,463	\$760
Energy Charge:								
	On-Peak		20,738	\$0.0182747	\$379	\$0.0085745	\$178	-\$201
	Off-Peak		44,301	\$0.0182747	\$810	\$0.0085745	\$380	-\$430
	Total				\$1,189		\$558	-\$631
	Total RS-TOD Revenue Before Riders	<u>76</u>	<u>65,039</u>		<u>\$1,892</u>		<u>\$2,021</u>	<u>\$129</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS Residential Service								
Tariffs: 001, 003, 004, 005, 007, 008, 015, 017, 022, 038, 062								
<u>Distribution Charges</u>								
Customer Charge:								
		7,207,281		\$8.40	\$60,541,160	\$18.40	\$132,613,970	\$72,072,810
Energy Charge:								
	First 800 kWh		4,620,925,075	\$0.0182747	\$84,446,208	\$0.0085745	\$39,622,122	-\$44,824,086
	All Excess kWh		2,980,891,915	\$0.0182747	\$54,475,027	\$0.0085745	\$25,559,658	-\$28,915,369
	Total Energy Charge				\$138,921,234		\$65,181,780	-\$73,739,455
	Storage Water Heater Energy Charge		139,400,516	\$0.0182747	\$2,547,508	\$0.0085745	\$1,195,290	-\$1,352,219
	Total RS Revenue Before Riders	<u>7,207,281</u>	<u>7,741,217,506</u>		<u>\$202,009,903</u>		<u>\$198,991,040</u>	<u>-\$3,018,863</u>

Current Rates with Billing Units from Case No. 11-351-EL-AIR Schedule E-4.1

Revenue-neutral Rate Redesign

Rate Code (1)	Class/ Descript. (2)	Customer Bills (3)	Sales KW / KWH (4)	Current Rate (5)	Current Annualized Revenue (6)	Proposed Revenue Neutral Rate (7)	Proposed Revenue (8)	Difference from Current Revenue (9)
Schedule RS-TOD	Residential - Time of Day Service							
Schedule RS-ES	Residential - Energy Storage							
Tariffs: 030, 032, 034								
<u>Distribution Charges</u>								
Customer Charge:								
	Bills	4,902		\$9.25	\$45,344	\$19.25	\$94,364	\$49,020
Energy Charge:								
	On-Peak		2,696,466	\$0.0182747	\$49,277	\$0.0085745	\$23,121	-\$26,156
	Off-Peak		6,657,564	\$0.0182747	\$121,665	\$0.0085745	\$57,085	-\$64,580
	Total				\$170,942		\$80,206	-\$90,736
Total RS-TOD, ES Revenue Before Riders		<u>4,902</u>	<u>9,354,030</u>		<u>\$216,286</u>		<u>\$174,570</u>	<u>-\$41,716</u>

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

11/23/2016 2:17:26 PM

in

Case No(s). 16-1852-EL-SSO, 16-1853-EL-AAM

Summary: Text - Workpapers of David Gill of Ohio Power Company electronically filed by Mr. Steven T Nourse on behalf of Ohio Power Company