Chapter 1 - Appendix A
Supplemental Information

Company Description

Ameren Missouri has been providing electric and gas service for more than 100 years, and the company's electric rates are among the lowest in the nation. Ameren Missouri's mission is to power the quality of life for its 1.2 million electric and 127,000 natural gas customers in central and eastern Missouri. The company's service area covers 64 counties and more than 500 communities, including the greater St. Louis area. For more information, visit Ameren.com/Missouri or follow us at @AmerenMissouri or Facebook.com/AmerenMissouri.

Existing Demand-Side Programs

Demand-Side Management (DSM) program implementation was initiated for the Company's current programs in early 2016 based on the three-year program plan approved by the PSC in File No. EO-2015-0055. The table below summarizes the programs included in the approved plan along with the estimated budget allocation and estimated energy and demand savings associated with each program. Programs are currently being implemented for the period April 2016 – March 2019.

Ameren Missouri Residential Program Designs for MEEIA Cycle 2 03-02-17	Net Incremental Energy Savings @ Meter (MWh)			Net Incremental Demand Reductions @ Meter (MW)			Total Program Costs** ($ Millions)		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Lighting	24,923	10,266	9,943	3.7109	1.5334	1.4852	$ 7.07	$ 3.69	$ 3.52
Efficient Products	4,760	4,760	4,760	1.3993	1.6124	1.2351	$ 1.72	$ 1.76	$ 1.58
HVAC	31,399	22,320	22,320	20.0315	14.2450	14.1925	$ 9.70	$ 7.82	$ 7.76
Learning Thermostats*	2,087	2,087	2,087	1.9809	1.9816	1.9744	$ 1.29	$ 1.31	$ 1.28
Low Income	5,399	5,013	4,298	1.2608	1.1551	1.0037	$ 3.77	$ 3.59	$ 3.39
EE Kits	6,194	6,214	6,228	1.0170	1.0459	1.0463	$ 1.37	$ 1.41	$ 1.37
Home Energy Reports	33,750	33,750	33,750	15.7200	15.7737	15.7140	$ 1.45	$ 1.45	$ 1.40
Res EE Portfolio Total	108,513	84,410	83,386	45.1205	37.3470	36.6513	$ 26.38	$ 21.03	$ 20.30

* Learning thermostats will be incorporated into the Efficient Products and HVAC programs instead of being implemented as a separate program
** An additional cost of $1.5 million for Research & Development is not reflected in this table but was included in the Stipulation & Agreement

Ameren Missouri Business Program Designs for MEEIA Cycle 2 03-02-17	Net Incremental Energy Savings @ Meter (MWh)			Net Incremental Demand Reductions @ Meter (MW)			Total Program Costs** ($ Millions)		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Standard	28,652	32,462	34,350	5.5441	6.2786	6.6313	$ 6.63	$ 7.51	$ 7.89
Custom	59,269	89,061	93,229	13.2944	15.0732	15.9356	$ 13.67	$ 18.71	$ 19.61
Retro-commissioning	6,742	7,639	8,129	1.5281	1.7379	1.8461	$ 2.09	$ 2.37	$ 2.46
New Construction	4,980	5,642	6,016	1.6427	1.8614	1.9788	$ 1.46	$ 1.65	$ 1.70
SBDI	6,000	11,400	12,600	1.1359	2.1508	2.3781	$ 1.98	$ 3.70	$ 4.04
Biz EE Portfolio Total	105,643	146,204	154,324	23.1452	27.1019	28.7699	$ 25.83	$ 33.94	$ 35.70
MEEIA EE Portfolio Total	214,156	230,615	237,709	68.2657	64.4489	65.4212	$ 52.21	$ 54.97	$ 56.01

Existing Purchase Power Arrangements

In June 2009, Ameren Missouri and Pioneer Prairie Wind Farm I LLC entered into a 15 year power purchase agreement. Ameren Missouri is purchasing 102.3 MWs of generation from the Pioneer Prairie Wind Farm consisting of 65 turbines, located in Northeast Iowa. The facility site covers approximately 10,000 acres of land located in Mitchell County, Iowa in Wayne and Stacyville Townships.

Uncertain Factors

The following uncertain factors have been considered in our planning analysis and the selection of the preferred resource plan:

- Natural gas prices
    - Approximately $2.50 to $5.00 per MMBtu in today's dollars.
- Eastern U.S. market load changes
    - Annual decline of 0.4%.
- Nationwide coal-fired energy center retirements
    - Expected to reduce total capacity by about half, leaving 128-174 GW of capacity remaining in the U.S. in 2035.
- Carbon dioxide emissions price
    - Approximately $3 per ton of CO_2 beginning in 2025.
- Coal prices
    - A range of delivered prices
- Cost and performance of demand side programs
    - A range of levels of performance and the cost of inducing customer participation at those levels.

Implementation

The following key steps will be part of our implementation of the preferred resource plan over the next three years:

- Acquisition of 700 MW of wind resources, including project selection, contract negotiation, regulatory approvals, and construction.
- Approval and implementation of our portfolio of energy efficiency and demand response programs to begin in 2019.
- Identification and evaluation of potential sites and options for new solar generation.
- Preparation for the retirement of Meramec Energy Center by the end of 2022, including construction of transmission infrastructure needed to ensure ongoing grid reliability.
- Implementation of environmental projects at our coal-fired energy centers to ensure compliance with state and federal regulations.

Ameren Missouri Base Load Forecasts

Without DSM

Average Annual Class Energy Forecast

Annual Energy Sales Forecast by Rate Class (MWh)

Year	ResGen	ComSGS	ComLGS	ComSPS	ComLPS	IndSGS	IndLGS	IndSPS	IndLPS	Lighting	Total
2018	12,815,082	3,262,832	7,004,742	2,409,126	1,571,819	112,906	874,109	1,200,029	2,260,122	125,240	31,636,007
2019	12,830,283	3,280,072	6,959,465	2,391,849	1,559,671	125,945	864,013	1,205,836	2,269,782	125,240	31,612,156
2020	12,838,817	3,303,894	6,950,752	2,396,216	1,559,919	142,238	866,432	1,209,302	2,269,106	125,240	31,661,916
2021	12,780,998	3,310,940	6,924,865	2,396,602	1,556,253	157,505	867,007	1,210,175	2,253,749	125,240	31,583,334
2022	12,806,233	3,336,791	6,934,536	2,411,461	1,565,813	172,434	871,797	1,219,042	2,246,418	125,240	31,689,765
2023	12,836,764	3,355,995	6,940,373	2,426,671	1,575,268	186,885	875,905	1,227,136	2,239,939	125,240	31,790,176
2024	12,915,409	3,388,435	6,962,341	2,447,955	1,597,003	201,992	886,200	1,249,427	2,239,471	125,240	32,013,473
2025	12,903,028	3,390,919	6,943,669	2,455,931	1,597,588	215,205	886,609	1,251,854	2,228,434	125,240	31,998,477
2026	12,942,436	3,401,935	6,942,255	2,470,861	1,607,528	228,251	887,721	1,256,343	2,223,548	125,240	32,086,118
2027	12,992,186	3,418,169	6,943,025	2,487,500	1,618,621	237,354	893,043	1,269,350	2,219,847	125,240	32,204,335
2028	13,099,959	3,445,171	6,969,942	2,513,798	1,630,116	243,931	896,672	1,273,966	2,222,976	125,240	32,421,771
2029	13,132,133	3,466,911	6,980,532	2,536,705	1,645,596	252,018	908,619	1,285,783	2,217,655	125,240	32,551,192
2030	13,191,771	3,500,135	6,997,663	2,565,988	1,663,393	260,570	924,051	1,300,637	2,218,955	125,240	32,748,403
2031	13,254,637	3,533,793	7,007,939	2,593,510	1,679,416	268,499	948,320	1,315,166	2,220,291	125,240	32,946,811
2032	13,382,294	3,553,551	7,024,421	2,620,526	1,688,150	275,681	952,891	1,321,350	2,225,744	125,240	33,169,848
2033	13,430,776	3,556,220	7,014,184	2,636,558	1,690,525	283,195	956,447	1,326,798	2,221,293	125,240	33,241,236
2034	13,524,756	3,573,778	7,030,797	2,661,145	1,698,965	292,576	960,768	1,332,358	2,222,722	125,240	33,423,105
2035	13,612,872	3,590,684	7,041,665	2,682,764	1,704,235	301,443	962,387	1,336,757	2,223,416	125,240	33,581,463
2036	13,741,133	3,617,087	7,069,014	2,709,672	1,732,705	310,729	964,232	1,340,966	2,229,892	125,240	33,840,670
2037	13,778,798	3,621,303	7,058,078	2,721,360	1,734,411	318,747	964,135	1,345,246	2,225,693	125,240	33,893,011

Without DSM

Forecasted Total Demand at the time of Annual System Peak

Forecast of Class Demand at the Time of Annual System Peak (MW)

	RES	ComSGS	ComLGS	ComSPS	ComLPS	INDSGS	INDLGS	INDSPS	INDLPS	Lighting	Total
2018	3,618	724	1,554	512	304	20	143	192	314	0	7,381
2019	3,622	726	1,541	507	300	21	137	189	318	0	7,361
2020	3,618	730	1,538	508	300	24	138	191	312	0	7,359
2021	3,614	733	1,537	509	300	27	141	193	314	0	7,367
2022	3,614	739	1,542	514	304	30	141	194	316	0	7,393
2023	3,631	744	1,547	518	307	32	132	189	309	0	7,411
2024	3,645	747	1,538	516	311	34	140	195	312	0	7,437
2025	3,655	748	1,544	524	314	36	132	191	306	0	7,450
2026	3,661	745	1,535	524	316	38	142	198	307	0	7,466
2027	3,668	745	1,532	527	320	40	145	202	309	0	7,490
2028	3,688	752	1,540	533	322	42	135	196	306	0	7,514
2029	3,704	752	1,535	536	326	43	148	205	309	0	7,559
2030	3,740	755	1,534	540	331	44	146	203	311	0	7,604
2031	3,769	763	1,542	549	338	44	141	200	305	0	7,652
2032	3,786	759	1,531	550	338	47	154	210	309	0	7,684
2033	3,811	761	1,533	555	340	49	154	211	312	0	7,726
2034	3,854	765	1,539	561	342	50	145	206	307	0	7,770
2035	3,872	764	1,533	563	341	51	157	213	310	0	7,805
2036	3,900	766	1,533	566	350	53	157	213	310	0	7,848
2037	3,932	766	1,531	569	351	54	153	210	312	0	7,877

With DSM

Average Annual Class Energy Forecast

Annual Energy Sales Forecast by Rate Class (MWh)[1]

Year	ResGen	ComSGS	ComLGS	ComSPS	ComLPS	IndSGS	IndLGS	IndSPS	IndLPS	Lighting	Total
2018	12,815,082	3,262,832	7,004,742	2,409,126	1,571,819	112,906	874,109	1,200,029	2,260,122	125,240	31,636,007
2019	12,699,227	3,202,059	6,945,669	2,355,323	1,541,549	111,966	861,541	1,199,291	2,266,535	125,240	31,308,400
2020	12,569,239	3,132,788	6,920,494	2,316,103	1,520,173	115,365	861,680	1,196,720	2,262,864	125,240	31,020,666
2021	12,388,998	3,036,753	6,876,379	2,268,226	1,492,562	115,267	859,538	1,190,399	2,243,938	125,240	30,597,300
2022	12,268,951	2,962,318	6,868,316	2,236,130	1,478,827	116,821	861,963	1,193,004	2,233,500	125,240	30,345,069
2023	12,120,970	2,890,691	6,858,090	2,208,813	1,467,182	118,131	863,747	1,194,945	2,223,968	125,240	30,071,777
2024	12,054,723	2,840,783	6,865,496	2,191,541	1,469,789	120,474	871,785	1,211,260	2,220,535	125,240	29,971,625
2025	11,887,245	2,767,686	6,833,459	2,164,129	1,452,817	120,939	869,939	1,207,718	2,206,537	125,240	29,635,709
2026	11,785,841	2,706,211	6,819,226	2,145,118	1,445,918	121,270	868,803	1,206,254	2,198,697	125,240	29,422,578
2027	11,697,277	2,651,112	6,807,382	2,128,359	1,440,441	117,638	871,873	1,213,298	2,192,038	125,240	29,244,659
2028	11,678,284	2,609,352	6,822,139	2,122,462	1,435,964	111,569	873,266	1,211,993	2,192,230	125,240	29,182,498
2029	11,600,365	2,566,359	6,821,282	2,115,061	1,436,407	107,261	883,021	1,218,007	2,184,029	125,240	29,057,031
2030	11,561,240	2,540,692	6,827,999	2,116,770	1,440,524	103,909	896,348	1,227,287	2,182,564	125,240	29,022,573
2031	11,529,784	2,533,184	6,830,995	2,125,018	1,446,984	100,832	918,670	1,236,663	2,181,344	125,240	29,028,714
2032	11,566,054	2,517,387	6,841,190	2,135,387	1,447,460	97,363	921,358	1,237,860	2,184,323	125,240	29,073,623
2033	11,528,136	2,488,881	6,825,440	2,136,823	1,442,593	94,462	923,072	1,238,432	2,177,452	125,240	28,980,532
2034	11,540,942	2,490,483	6,839,231	2,153,939	1,447,326	98,904	926,520	1,241,679	2,177,734	125,240	29,041,999
2035	11,551,298	2,496,460	6,848,167	2,170,441	1,450,058	104,541	927,568	1,244,566	2,177,678	125,240	29,096,016
2036	11,603,976	2,516,617	6,874,411	2,194,425	1,477,077	112,260	929,135	1,248,041	2,183,790	125,240	29,264,972
2037	11,558,282	2,498,356	6,859,500	2,195,589	1,473,562	112,986	927,749	1,248,908	2,177,897	125,240	29,178,069

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[1] The DSM Potential Study is not performed at the rate class level; therefore, allocation factors were used to attribute RAP energy efficiency impacts to the classes reported.

With DSM

Forecasted Total Demand at the time of Annual System Peak

Forecast of Class Demand at the Time of Annual System Peak (MW)[2]

Year	Residential	ComSGS	ComLGS	ComSPS	ComLPS	IndSGS	IndLGS	IndSPS	IndLPS	Lighting	Total
2018	3,618	724	1,554	512	304	20	143	192	314	0	7,381
2019	3,545	701	1,537	496	294	18	137	188	317	0	7,233
2020	3,419	668	1,528	484	288	19	137	189	311	0	7,042
2021	3,227	619	1,520	471	281	17	139	189	312	0	6,775
2022	3,092	574	1,518	463	279	16	138	189	313	0	6,582
2023	3,005	536	1,517	455	276	14	128	182	306	0	6,419
2024	2,953	501	1,503	442	274	13	135	187	308	0	6,314
2025	2,891	465	1,503	438	272	11	126	181	302	0	6,188
2026	2,831	428	1,489	428	269	9	135	187	302	0	6,079
2027	2,774	394	1,481	421	268	8	137	190	303	0	5,976
2028	2,731	368	1,484	417	265	7	126	182	300	0	5,881
2029	2,702	350	1,476	411	264	5	139	190	302	0	5,839
2030	2,692	333	1,472	405	265	3	136	187	303	0	5,797
2031	2,682	325	1,477	407	268	1	131	183	297	0	5,769
2032	2,660	311	1,464	403	265	2	144	192	300	0	5,740
2033	2,658	298	1,463	401	264	2	143	192	303	0	5,723
2034	2,664	296	1,468	403	264	1	134	186	297	0	5,714
2035	2,649	290	1,461	403	262	1	146	193	300	0	5,705
2036	2,680	264	1,456	393	265	4	146	193	300	0	5,701
2037	2,681	251	1,452	390	262	3	142	189	302	0	5,671

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[2] The DSM Potential Study is not performed at the rate class level; therefore, allocation factors were used to attribute RAP energy efficiency impacts to the classes reported.

Economic Assumptions

Several economic indicators were used as independent variables (independent variables in the forecasting models are often referred to as "drivers") in our energy forecasting process.

- For the residential class, income, population, and the number of households in the service territory were used as drivers. These drivers are consistent with drivers used in all recent IRP forecasts.
- For the four classes of commercial sales (small general service, large general service, small primary service, large primary service), GDP for one or more of four sectors of the economy were used as drivers. Those four sectors were Retail Trade, Information Services, Financial Services, and Education/Health Services, and these four sectors account for almost all of the non-manufacturing and non-government entries in the top employers list. These drivers are consistent with drivers used in all recent IRP forecasts except to the extent that a different sector may have been included for a particular rate class as compared with a previous forecast, only if the analysis of historical correlation of that driver to the historical loads indicated a better relationship between the two.
- For the four classes of industrial sales (same classes as in commercial listed above), one or more of the following drivers were used: GDP, Manufacturing GDP, Employment, and Manufacturing Employment. These variables are consistent with past load forecast drivers for the industrial class.
- The table below illustrates these drivers and their expected growth over the IRP horizon.

Growth Rates of Select Economic Drivers

	2017-2037 Compound Growth Rate
Households	0.43%
Population	0.24%
Real Personal Income	4.15%
GDP Retail	1.69%
GDP Info	2.13%
GDP Financial	1.12%
GDP Education /Health	1.51%
GDP Total	1.49%
GDP Manufacturing	1.58%
Employment Total	0.57%
Manufacturing Employment	-0.51%

As in prior IRPs and IRP Annual Updates, the economic forecasting firm Moody's Analytics was used as the source for the forecasts of these economic drivers. Moody's Analytics is a highly reputable firm in the macroeconomic forecasting arena with a specialized competency in doing this work, and Ameren Missouri has extensive history using their forecasts and has consistently found them to be credible. Their forecasts are done for individual counties and Ameren Missouri aggregates those counties that make up its service territory. The forecasting models used by Moody's are proprietary and not available to Ameren Missouri.

Performance Measures – Preferred Resource Plan

Annual Revenue Requirements and Rates **

CONFIDENTIAL

Financial Measures[3]

CONFIDENTIAL

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[3] The table includes an adjusted debt/adjusted capitalization ratio.