ESI ECONSULT SOLUTIONS INC.

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Economic Analysis of the Ameren Missouri MEEIA 2019-24 Filing before the Missouri Public Service Commission

Submitted to

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1. MEEIA 2019-24 Non-Electric Economic Impact Assessment - Overview

Econsult Solutions, Inc. (ESI), a nationally respected economic consulting company with a particular expertise in modelling the impact projects have on regional economies, was retained by Ameren Missouri to assess the non-electric economic impacts on Ameren Missouri's service territory of MEEIA 2019-24 proposed energy efficiency and demand response program. ESI notes that these economic impacts would be shared by all of Ameren Missouri's customers, regardless of program participation status. Although impossible to assign the economic impacts to individual customers by class or participation status, ESI finds that these effects should be shared across all classes of customers proportionally based upon metrics such as number of customers and size of business.

ESI used the annual net effect that the proposed program has on Ameren Missouri's customers' discretionary spending capacity as inputs to its IMPLAN regional economic analysis. ESI calculated a total regional economic impact in addition to the direct electric benefits of $2,528.30 million nominal and $1,067 million NPV. Included in the additional economic activity and the direct net benefits are 42,000 job years.

All assumptions of the proposed program's electric direct costs and benefits, and the allocation and timing of the costs and benefits were provided by Ameren Missouri to ESI. ESI has not performed any independent assessment of Ameren Missouri's program evaluations or input assumptions other than to assure that major inputs were properly defined, consistent with best economic modelling practices, and avoided double counting.

2. ESI Regional Economic Impact Model

ESI has used its proprietary regional economic impact model to estimate the economic impact of both increased discretionary spending capacity and net direct employment changes. Using an input-output methodology, this model (IMPLAN) provides output of regional economic product. This effort is designed to capture some of the economy-wide benefits of Ameren Missouri's proposed MEEIA 2019-24 plan.

1.1 Input-Output Methodology

Economic impact estimates are generated by utilizing input-output models to translate an initial amount of direct economic activity into the total amount of economic activity that it supports, which includes multiple waves of spillover impacts generated by spending on goods and services and by spending of labor income by employees. This section summarizes the methodologies and tools used to construct, use, and interpret the input-output models needed to estimate this project's economic impact in the Ameren Missouri service territory.

In an inter-connected economy, every dollar of new direct spending generates additional impacts in the environment. When businesses have net new discretionary spending, some portion of that is spent on good and services from local vendors in the Ameren Missouri service territory. In addition, when households have new discretionary spending or household income due to lower utility bills or new employment, they spend a portion of this new income on various goods and services, on items like groceries and haircuts, which further stimulates the local economy.

The role of input-output models is to determine the linkages across industries in order to model out the magnitude and composition of spillover impact to all industries of a dollar spent in any one industry. Thus, the total economic impact is the sum of its own direct economic footprint plus the indirect and induced effects generated by that direct footprint.

1.2 Input-Output Model Mechanics

To model the impacts resulting from direct expenditures, Econsult Solutions, Inc. developed a customized economic impact model using the IMPLAN input/output modeling system. IMPLAN represents an industry standard approach to assess the economic and job creation impacts of economic development projects, the creation of new businesses, and public policy changes within its surrounding area. IMPLAN has developed a social accounting matrix (SAM) that accounts for the flow of commodities through economies. From this matrix, IMPLAN also determines the regional purchase coefficient (RPC), the proportion of local supply that satisfies local demand. These values establish the types of goods and services supported by an industry or institution. This assessment determines the multiplier basis for the local and regional models created in the IMPLAN modeling system. IMPLAN takes the multipliers and divides them into 536 industry categories in accordance to the North American Industrial Classification

System (NAICS) codes. The IMPLAN modeling system also allows for customization of its inputs which alters multiplier outputs. A multiplier captures the ratio of a direct impact's broader impact in an area.

The increased discretionary spending available to Ameren Missouri's retail customers, both business and residential, receive from lower bills not only directly improves their spending capacity, but also has a multiplier effect throughout the Missouri economy. By injecting more money into the region's economy, these households and businesses enrich local vendors, and therefore support local jobs and generate local tax revenues.

The input-output methodology identifies incremental changes in jobs/employment compensation as a sub-portion of the economic activity generated by the program.

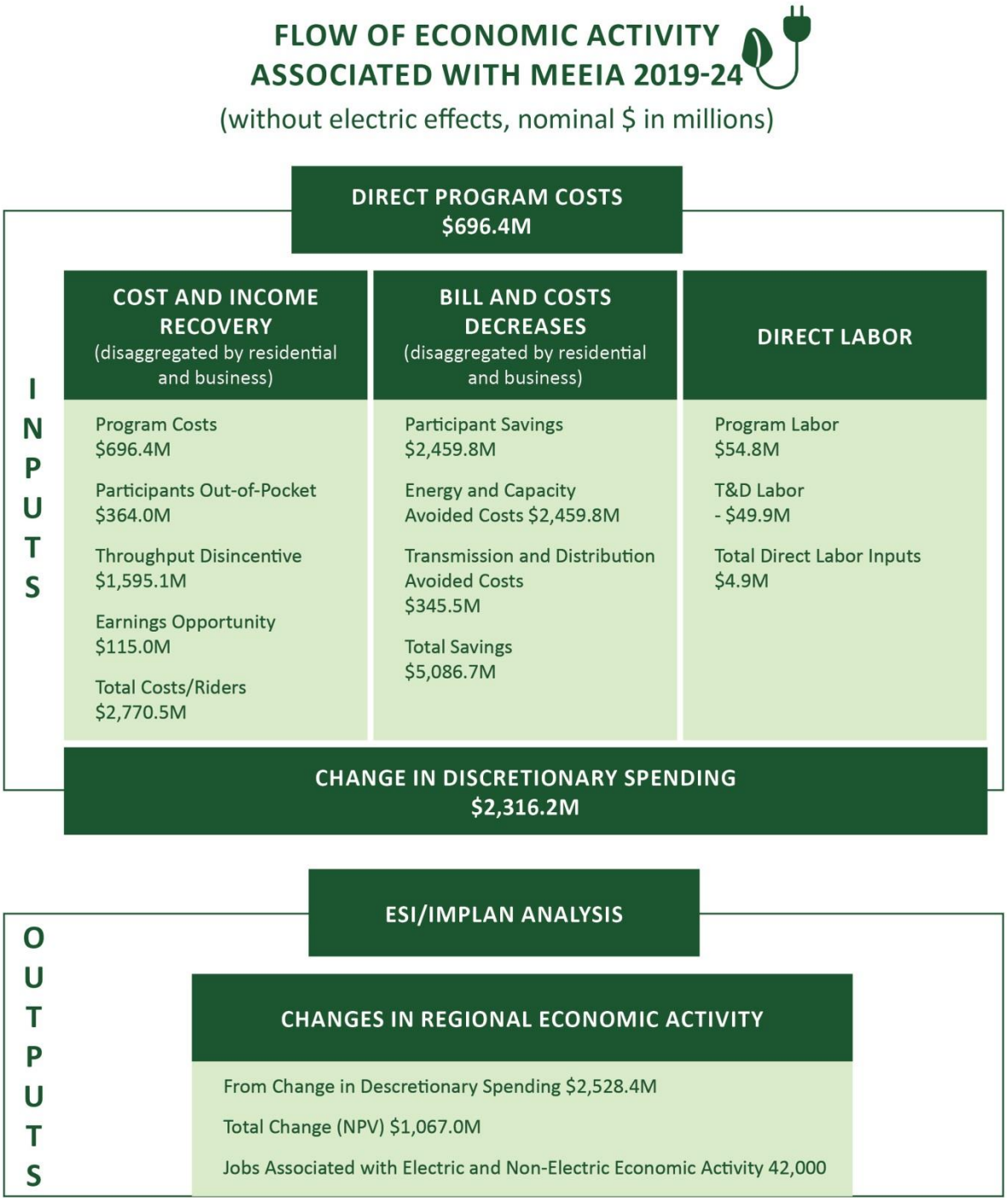
3. The Key Inputs

To calaculate the regional economic effect of MEEIA 2019-24 demand-side program proposal, ESI used several key inputs. The major drivers of ESI's economic analysis are:

- The economic impact of change in its retail customers' discretionary spending capability, disaggregated by residential and business, and
- The economic impact of changes in direct local employment associated with this program.

ESI worked closely with Ameren Missouri to obtain these inputs needed for the ESI model. Diagram 1 shows the general approach ESI used in this analyisis. The inputs are summarized in the following tables and discussed below.

Diagram 1 – General Methodoligical Approach for Analysis



3.1 Economic Impact of Discretionary Spending Capacity

To develop a change in net discretionary spending capability for households and businesses, ESI asked Ameren Missouri to provide on an annual basis a compilation by customer type (residential and business)[1] of the following components. Appendix A provides summary tables of the underlying components, including:

- Change in participant bills associated with the change in billing metrics (energy and demand) multiplied by the current rates.
- Change in participants' capital expenditures to partake in the program. This includes energy related capital outlays that would not have not occurred except for the program's incentives.
- Benefits all Ameren Missouri retail customers receive from MISO for the extra energy and capacity these proposed programs have to the grid. Ameren Missouri refers to these values as Avoided Costs. As noted below, Ameren Missouri did not include any cash flow savings associated with the deferral of future supply-side resources. All the energy and capacity is valued at Ameren Missouri's estimate of MISO's market clearing prices. The energy and capacity benefits reduce all retail customers fuel adjustment clause and thus their bills, increasing the discretionary spending capability for participants and non-participants. Additionally, Ameren estimated savings to customers associated with its deferred T&D investments associated with reduced capacity requirements.
- Recovery assumed by Ameren Missouri for program costs, throughput disincentive adjustment for lost income, and foregone earnings opportunity adjustment.
- IMPLAN assumes that all new household income is taxed. We therefore inflated the net costs by customers so that the outputs would be treated as net new discretionary spending after taxes.

The inputs provided by Ameren were aggregated to determine the annual net cost to both residential and business customers from 2019-2044 and the following methodology was applied to determine total regional economic impact:

- A change in household electricity costs will result in a change in household discretionary spending. As households re-allocate spending away from electricity expenses and toward other activities, an impact is generated. Residents can use this new discretionary spending on goods and services throughout the service territory, on items including groceries, clothing, and health care. It is assumed that households will also put a portion of this new money into savings. An IMPLAN model based on the spending habits of the median household in Ameren's market area was applied to

[1] Ameren Missouri provided Residential as a class including low-income customers. Although disaggregating low-income customers was the original target so as to allow ESI to model the low-income economic impact separately, ESI and Ameren Missouri determined to use a category of all residential customers for the following reasons.

- Ameren Missouri does not have accurate income data on customers that do not participate in low-income programs.
- All customers share in the economic impacts modelled by ESI, regardless of income.
- The total economic impact will not vary greatly given ESI's approach to use an economic multiplier that is weighted by regional demographic distributions.

estimate the total regional induced impact of the this change in discretionary spending by residential customers.[2]

- A change in electricity costs will also effect business spending. Reduced utility bills enable businesses to re-allocate revenue to other activities and expenses including increased employment, additional purchases from local vendors, and increased proprietor income, resulting in economic impacts. In order to estimate this impact, an IMPLAN model was designed to replicate the overall distribution of business by sector in the Ameren market area.[3] Next, the stream of change in discretionary spending (nominal dollars) to business customers was applied to the IMPLAN model to estimate total regional economic impact of new discretionary spending to Ameren Missouri's business customers.
- Finally, ESI calculated the total net present value of the annual economic impacts from residential and business customers measuring the economic impact of discretionary spending capacity.

3.2 Economic Impact of New Employment

Ameren Missouri delivered data on the estimated number of Full Time Equivalents (FTEs) that will be added under the MEEIA 2019-24 demand-side programs. To roll out the program, Ameren Missouri expects to add a total of 104.6 FTE in Years One – Three (2019-2021) and 111.6 FTEs in Years Four – Seven (2022-2025). These FTEs were categorized into six broad job types: energy auditor, clerk, energy educator, installer, and back office professional. The data provided by Ameren Missouri breaks out these positions by residential and business programs.

Table 4 - New Employment by Job Type (2019-2025)

Position	Residential Demand Response	Business Demand Response	Residential Energy Efficiency	Business Energy Efficiency	Evaluation	Total
Energy Auditor	0	1.33	2	2	1.6	6.93
Clerk	0	0	9	2	0	11
Energy Educator	0	1.33	7	12	0	20.33
Installer	7*	1.33	39	0	0	40.33+
Back Office Professional	0	0	16	10	0	26
Total	**+**	**4**	**73**	**26**	**1.6**	**104.6+**

*Starting in 2022

+ Totals exclude the Residential Demand Response positions that start in 2022.

Source: Ameren Missouri (2018)

In order to estimate the labor costs associated with this new employment, we used Bureau of Labor Statistics (BLS) Wage Data to identify the average salary for each of these occupations in Missouri. The

[2] The spending pattern of the median household in Ameren Missouri's market area earning $56,019 was applied to the IMPLAN household spending model. The median income of Ameren Missouri's service area was determined using Esri Business Analyst.

[3] The distribution of businesses in Ameren Missouri's market area was determined using Esri Business Analyst.

wages per position were applied to the estimated FTEs by job type to calculate the estimated new wages. To estimate nominal compensation in future years, we assumed an inflation rate of 2.0%. Starting in Year Four (2022) we added the addition seven installer jobs per conversation with Ameren Missouri.

Table 5 - Employee Compensation Calculations 2019

Position	Total FTE	Average Salary	Employee Compensation Multiplier	Aggregate Employee Compensation
Energy Auditor	6.93	$75,000	1.358773195	$706,222
Clerk	11	$39,000	1.358773195	$582,914
Energy Educator	20.33	$60,360	1.358773195	$1,667,376
Installer	40.33	$57,000	1.358773195	$3,665,712
Back Office Professional	26	$35,000	1.358773195	$1,236,484
Total	**104.6**	**-**	**-**	**$7,858,708**

Source: Ameren Missouri (2018), Bureau of Labor Statistics (2018)

Table 6 - Employee Compensation by Year

	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Aggregate New FTEs	105	105	105	112	112	112	112
Aggregate New Employee Compensation	$7,316,557	$7,462,888	$7,612,146	$7,858,708	$8,015,882	$8,176,200	$8,339,724

Source: Ameren Missouri (2018), Bureau of Labor Statistics (2018)

Ameren Missouri also finds that the implementation of the proposed demand-side programs will defer the need for transmission and distribution (T&D) investments. Ameren Missouri estimates that 18% of planned capital expenditures would go towards external regional labor compensation. We, therefore, assessed the net impact of the direct increased employee compensation from the MEEIA 2019-24 program administrator job creation compared to the direct decreased employee compensation due to the deferred T&D capital investments. As the table below demonstrates, these two direct employment impacts nearly offset each other and therefore the resulting economic impacts will be negligible.

Table 2 - Direct Job Changes in Employee Compensation (Nominal) ($M)

Year	Program Administration Jobs	T&D Jobs	Total
2019	$7,316,557	($5,277,156)	$2,039,401
2020	$7,462,888	($5,155,424)	$2,307,464
2021	$7,612,146	($11,849,622)	($4,237,476)
2022	$7,858,708	($7,608,610)	$250,098
2023	$8,015,882	($8,437,574)	($421,692)
2024	$8,176,200	($8,999,207)	($823,007)
Total	**$46,442,381**	**($47,327,593)**	**($885,212)**

Source: Ameren Missouri (2018)

3.3 Other Modeling Assumptions

The general escalator is 2% and 1.65% for the retail price of electricity, per Ameren Missouri. The net present value (NPV) of the stream of net costs to residential and business customers from 2019-2044 was calculated using a 5.95% discount rate.

4. Findings of Economic Activity

The MEEIA 2019-24 demand-side programs create economic impacts primarily by increased discretionary spending. Over 26 years, ESI estimates based upon the factors provided by Ameren that there will be a $975 million total increase in nominal discretionary spending. The repurposed spending associated with the changes in discretionary spending will generate an estimated $2,528 million in additional nominal economic output in the Ameren Missouri service area.

Table 7 – Economic Impact from New Discretionary Spending

	Residential	Business	Total
Nominal Output	$1,516.5	$1,011.8	$2,528.4
NPV Output	$633.5	$433.5	$1,067.0

Source: Ameren Missouri (2018), IMPLAN (2015)

The input-output model measures the indirect impacts in job years over the life of the project. Using the total electric effects and the non-electric effects of changes in regional activity, IMPLAN calculated that the program shall create 42,240 additional job years or on average 1,625 jobs per year. As the program matures, annual jobs reach 2,610 in 2025, peak at 2,830 jobs in 2028-2029, remain at about 2,000 jobs or greater through 2037 and are still above 1,000 jobs at the end of the study period. See Appendix C. Note that this is an extraction from the output of additional economic activity and not an additional benefit.

5. Summary

ESI estimates that Ameren Missouri's proposed Energy Efficiency MEEIA 2019-24 before the Missouri Public Service Commission will generate in the Ameren Missouri service territory at least $1,067 million in additional economic activity state in net present value at a 5.95% discount rate.

Based upon the flow of costs and benefits provided by Ameren to ESI, ESI anticipates that there will be an initial negative change in consumers' discretionary income capacity, both residential and business, during the first four years of the program. The net negative of this input is driven by the initial recovery of program costs and other related charges designed to encourage demand-side resources in Ameren Missouri's resource mix. Starting in Year 5 (2022) for residential customers and Year 6 (2023) for business customers, the available net discretionary spending for customers will be positive.

Changes in discretionary spending have a similar economic effect on the regional economy as a tax decrease. Based upon the annual inputs for the above factors in nominal dollars, ESI calculated a nominal total economic output for the study period of $2,528 million which converts to NPV of $1,067 million. See table 11 below.

Table 11: Additional Impact on Regional Economy in Millions

	Nominal $	NPV - 5.95%
Discretionary Spending - Residential	$1,516.5	$633.5
Discretionary Spending – Business	$1,011.8	$433.5
Total	**$2,528.30**	**$1,067.00**

ESI also estimates that the investment in MEEIA 2019-24 will produce over 42,000 job years or an average of 1625 jobs per year.

Appendix A: Summary Tables of Underlying Inputs

Table A-1. Underlying Inputs – Residential (Includes Low Income Customers)

Year	Avoided Energy & Capacity ($M)	Avoided T&D ($M)	Utility Revenue Lost ($M)	Utility Revenue Recovered ($M)	Program Costs Paid ($M)	Foregone Earnings Recovered ($M)	Participant Net Out of Pocket Cost ($M)	Net Cost to All Customers ($M)
2019	$6.6	$1.2	$12.7	($10.3)	($33.2)	$0.0	($20.3)	($43.4)
2020	$13.4	$2.5	$24.0	($19.2)	($36.9)	$0.0	($22.4)	($38.7)
2021	$22.3	$5.2	$35.6	($28.4)	($40.7)	($1.6)	($23.1)	($30.6)
2022	$34.3	$7.0	$46.6	($36.9)	($45.1)	($3.6)	($23.9)	($21.7)
2023	$49.8	$9.1	$57.6	($45.2)	($49.1)	($4.8)	($24.9)	($7.6)
2024	$67.6	$11.3	$69.0	($54.1)	($53.4)	($5.9)	($25.1)	$9.5
2025	$69.9	$11.1	$64.8	($49.8)	($14.6)	($6.4)	$0.0	$75.0
2026	$73.5	$11.2	$63.8	($48.6)	($13.9)	($6.7)	$0.0	$79.2
2027	$76.4	$11.2	$62.8	($47.5)	($13.3)	($3.6)	$0.0	$86.1
2028	$78.2	$11.3	$61.6	($46.1)	($12.6)	$0.0	$0.0	$92.4
2029	$77.6	$10.9	$58.6	($43.4)	($12.0)	$0.0	$0.0	$91.7
2030	$74.8	$10.3	$55.1	($40.1)	($11.0)	$0.0	$0.0	$89.0
2031	$73.7	$8.7	$53.3	($38.0)	($10.0)	$0.0	$0.0	$87.7
2032	$66.3	$8.0	$50.8	($36.3)	($7.9)	$0.0	$0.0	$80.9
2033	$58.4	$7.2	$48.1	($34.5)	($5.7)	$0.0	$0.0	$73.5
2034	$49.3	$6.1	$45.2	($32.3)	($3.2)	$0.0	$0.0	$65.0
2035	$41.7	$4.9	$44.6	($31.8)	$0.0	$0.0	$0.0	$59.4
2036	$41.8	$4.5	$44.9	($32.0)	$0.0	$0.0	$0.0	$59.2
2037	$37.4	$3.7	$40.6	($28.8)	$0.0	$0.0	$0.0	$52.9
2038	$30.3	$2.8	$32.5	($23.0)	$0.0	$0.0	$0.0	$42.6
2039	$22.7	$1.7	$23.9	($16.8)	$0.0	$0.0	$0.0	$31.5
2040	$15.2	$1.3	$15.5	($10.9)	$0.0	$0.0	$0.0	$21.1
2041	$8.4	$0.8	$8.4	($5.9)	$0.0	$0.0	$0.0	$11.8
2042	$1.9	$0.4	$1.9	($1.3)	$0.0	$0.0	$0.0	$2.9
2043	$1.4	$0.2	$1.3	($0.9)	$0.0	$0.0	$0.0	$2.0
2044	$2.9	$0.2	$2.8	($1.9)	$0.0	$0.0	$0.0	$3.9
Total	**$1,095.9**	**$152.7**	**$1,025.9**	**($764.1)**	**($362.7)**	**($32.6)**	**($139.8)**	**$975.2**

Source: Ameren (2018)

Table A-2. Underlying Inputs – Business

Year	Avoided Energy & Capacity ($M)	Avoided T&D ($M)	Utility Revenue Lost ($M)	Utility Revenue Recovered ($M)	Program Costs Paid ($M)	Foregone Earnings Recovered ($M)	Participant Net Out of Pocket Cost ($M)	Net Cost to All Customers ($M)
2019	$3.7	$1.5	$5.5	($4.1)	($24.3)	$0.0	($15.0)	($32.8)
2020	$11.5	$3.2	$16.4	($12.1)	($39.3)	$0.0	($29.7)	($50.1)
2021	$25.5	$6.6	$31.5	($23.1)	($53.0)	($3.3)	($39.5)	($55.3)
2022	$41.3	$8.9	$48.8	($35.5)	($58.4)	($8.9)	($44.9)	($48.7)
2023	$60.5	$11.5	$67.0	($47.9)	($58.5)	($12.6)	($47.7)	($27.8)
2024	$81.4	$14.3	$85.7	($60.8)	($58.7)	($15.0)	($47.4)	($0.6)
2025	$89.3	$14.1	$87.1	($60.3)	($7.5)	($16.3)	$0.0	$106.4
2026	$95.4	$14.1	$88.3	($60.6)	($7.5)	($17.1)	$0.0	$112.6
2027	$100.7	$14.2	$89.3	($60.6)	($7.5)	($9.1)	$0.0	$127.0
2028	$105.3	$14.3	$90.0	($60.2)	($7.5)	$0.0	$0.0	$141.8
2029	$105.5	$13.8	$89.8	($59.3)	($6.3)	$0.0	$0.0	$143.5
2030	$103.7	$13.1	$87.5	($56.5)	($5.0)	$0.0	$0.0	$142.7
2031	$92.3	$11.1	$83.1	($51.9)	$0.0	$0.0	$0.0	$134.5
2032	$86.6	$10.1	$77.6	($48.6)	$0.0	$0.0	$0.0	$125.7
2033	$80.8	$9.1	$72.3	($45.4)	$0.0	$0.0	$0.0	$116.8
2034	$72.2	$7.6	$63.9	($39.8)	$0.0	$0.0	$0.0	$103.9
2035	$62.8	$6.1	$54.8	($33.9)	$0.0	$0.0	$0.0	$89.9
2036	$51.9	$5.6	$44.7	($27.4)	$0.0	$0.0	$0.0	$74.7
2037	$39.2	$4.6	$32.9	($20.0)	$0.0	$0.0	$0.0	$56.6
2038	$25.2	$3.4	$20.5	($12.3)	$0.0	$0.0	$0.0	$36.8
2039	$9.6	$2.1	$6.8	($4.0)	$0.0	$0.0	$0.0	$14.6
2040	$7.5	$1.6	$4.9	($2.7)	$0.0	$0.0	$0.0	$11.2
2041	$5.7	$1.0	$3.4	($1.9)	$0.0	$0.0	$0.0	$8.3
2042	$4.1	$0.5	$2.5	($1.3)	$0.0	$0.0	$0.0	$5.7
2043	$2.2	$0.3	$1.3	($0.7)	$0.0	$0.0	$0.0	$3.1
2044	($0.0)	$0.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.2
Total	**$1,363.9**	**$192.8**	**$1,255.5**	**($831.0)**	**($333.7)**	**($82.4)**	**($224.2)**	**$1,340.9**

Source: Ameren (2018)

Table A-3. Underlying Inputs – Total

Year	Avoided Energy & Capacity ($M)	Avoided T&D ($M)	Utility Revenue Lost ($M)	Utility Revenue Recovered ($M)	Program Costs Paid ($M)	Foregone Earnings Recovered ($M)	Participant Net Out of Pocket Cost ($M)	Net Cost to All Customers ($M)
2019	$10.3	$2.7	$18.2	($14.4)	($57.6)	$0.0	($35.3)	($76.1)
2020	$24.8	$5.7	$40.3	($31.3)	($76.2)	$0.0	($52.1)	($88.8)
2021	$47.8	$11.8	$67.1	($51.5)	($93.7)	($4.9)	($62.6)	($85.9)
2022	$75.6	$15.9	$95.4	($72.4)	($103.6)	($12.6)	($68.8)	($70.4)
2023	$110.3	$20.5	$124.5	($93.1)	($107.6)	($17.4)	($72.6)	($35.3)
2024	$149.0	$25.5	$154.7	($114.8)	($112.1)	($20.9)	($72.5)	$8.8
2025	$159.2	$25.2	$151.9	($110.1)	($22.2)	($22.7)	$0.0	$181.4
2026	$168.9	$25.3	$152.1	($109.2)	($21.5)	($23.8)	$0.0	$191.8
2027	$177.1	$25.5	$152.1	($108.1)	($20.8)	($12.7)	$0.0	$213.1
2028	$183.4	$25.6	$151.7	($106.3)	($20.2)	$0.0	$0.0	$234.2
2029	$183.0	$24.8	$148.4	($102.7)	($18.3)	$0.0	$0.0	$235.3
2030	$178.5	$23.4	$142.5	($96.6)	($16.0)	$0.0	$0.0	$231.7
2031	$166.1	$19.8	$136.3	($89.9)	($10.0)	$0.0	$0.0	$222.3
2032	$152.9	$18.1	$128.4	($84.9)	($7.9)	$0.0	$0.0	$206.6
2033	$139.2	$16.3	$120.5	($80.0)	($5.7)	$0.0	$0.0	$190.3
2034	$121.5	$13.7	$109.1	($72.1)	($3.2)	$0.0	$0.0	$168.9
2035	$104.6	$11.0	$99.4	($65.7)	$0.0	$0.0	$0.0	$149.3
2036	$93.7	$10.0	$89.6	($59.4)	$0.0	$0.0	$0.0	$133.9
2037	$76.6	$8.3	$73.6	($48.9)	$0.0	$0.0	$0.0	$109.6
2038	$55.6	$6.2	$53.0	($35.3)	$0.0	$0.0	$0.0	$79.4
2039	$32.4	$3.8	$30.7	($20.8)	$0.0	$0.0	$0.0	$46.1
2040	$22.8	$2.9	$20.4	($13.7)	$0.0	$0.0	$0.0	$32.3
2041	$14.1	$1.9	$11.8	($7.8)	$0.0	$0.0	$0.0	$20.1
2042	$6.0	$0.8	$4.4	($2.7)	$0.0	$0.0	$0.0	$8.6
2043	$3.6	$0.5	$2.6	($1.6)	$0.0	$0.0	$0.0	$5.1
2044	$2.9	$0.4	$2.8	($1.9)	$0.0	$0.0	$0.0	$4.1
Total	**$2,459.8**	**$345.5**	**$2,281.4**	**($1,595.1)**	**($696.4)**	**($115.0)**	**($364.0)**	**$2,316.1**

Source: Ameren (2018)

Appendix B: Annual Impacts for New Discretionary Spending

Table A-4 Annual Impacts from Discretionary Spending (Nominal) and Total (NPV)

Year	From Residential Spending	From Business Spending	Total Economic Output from Discretionary Spending
2019	($67.4)	($24.7)	($92.1)
2020	($60.1)	($37.8)	($98.0)
2021	($47.5)	($41.7)	($89.3)
2022	($33.8)	($36.7)	($70.5)
2023	($11.8)	($20.9)	($32.8)
2024	$14.7	($0.5)	$14.3
2025	$116.7	$80.3	$196.9
2026	$123.2	$85.0	$208.1
2027	$133.9	$95.8	$229.7
2028	$143.7	$107.0	$250.7
2029	$142.6	$108.3	$250.9
2030	$138.5	$107.7	$246.1
2031	$136.4	$101.5	$238.0
2032	$125.8	$94.9	$220.6
2033	$114.2	$88.1	$202.4
2034	$101.0	$78.4	$179.4
2035	$92.3	$67.8	$160.2
2036	$92.0	$56.4	$148.4
2037	$82.3	$42.7	$125.0
2038	$66.2	$27.8	$94.0
2039	$48.9	$11.0	$59.9
2040	$32.8	$8.5	$41.3
2041	$18.3	$6.2	$24.6
2042	$4.5	$4.3	$8.8
2043	$3.1	$2.3	$5.4
2044	$6.0	$0.2	$6.2
Nominal Total	**$1,516.5**	**$1,011.8**	**$2,528.4**
NPV	**$633.5**	**$433.5**	**$1,067.0**

Appendix C: Employment Impacts by Year

Table A-5 – Total and Average Annual Jobs

Year	Total Annual Jobs	Employee Compensation
2019	-560	-$39.1
2020	-580	-$40.5
2021	-640	-$44.7
2022	-830	-$58.0
2023	1,050	-$73.4
2024	1,370	$95.8
2025	2,610	$182.4
2026	2,540	$177.5
2027	2,690	$188.0
2028	2,830	$197.8
2029	2,830	$197.8
2030	2,790	$195.0
2031	2,740	$191.5
2032	2,620	$183.1
2033	2,500	$174.7
2034	2,340	$163.6
2035	2,220	$155.2
2036	2,140	$149.6
2037	1,990	$139.1
2038	1,780	$124.4
2039	1,550	$108.3
2040	1,420	$99.3
2041	1,300	$90.9
2042	1,190	$83.2
2043	1,170	$81.8
2044	1,180	$82.5
Total	**42,240**	**$3,318.1**
Average	**1,625**	**$79,000**

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