MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

APPENDIX 3

Other Staff Schedules

UNION ELECTRIC COMPANY,
d/b/a Ameren Missouri

CASE NO. ER-2019-0335

Jefferson City, Missouri
December 2019

Solar Electrical Generator

In-Service Test Criteria

1. All major construction work is complete.

2. All preoperational tests have been successfully completed.

3. Facility successfully meets contract operational guarantees that are necessary for satisfactory completion of all other items in this list.

4. Upon observation of the facility for 72 consecutive hours the facility will have demonstrated that when sunlight was shining on it during that period it produced power in a standard operating mode.

5. Facility shall meet at least 95% of the guaranteed capacity (in MW AC) based on the Capacity Test in Exhibit 1. The Capacity Test shall determine the facility's Corrected Capacity at the Design Point Conditions.

6. Sufficient transmission/distribution interconnection facilities shall exist for the total plant design net electrical capacity at the time the facility is declared fully operational and used for service.

7. Sufficient transmission/distribution facilities shall exist for the total plant design net electrical capacity into the utility service territory at the time the facility is declared fully operational and used for service.

Exhibit 1

Definitions:

"Corrected Capacity" means the most recent actual tested Capacity, in MW, corrected to Design Point Conditions (DPC) as described herein.

"Design Point Conditions" (DPC) means a set of ambient reference conditions, which include a solar irradiance of 1050 watts per meter square, module cell temperature of forty-five degrees (45°) Celsius, atmospheric air mass of 1.5 or less and wind speed of one (1) meter per second.

"POA" means plane of array irradiance.

The Capacity Test shall determine the Corrected Capacity at the Design Point Conditions. Capacity Test will be based on the relevant environmental conditions in the field at the time of such test, including field irradiance and temperature. The measured Capacity shall then be "corrected" to the Design Point Conditions and the resulting Corrected Capacity shall be compared to the Guaranteed Capacity as set forth herein.

The Capacity Test data shall consist of a minimum of 50, 15 minute blocks of average Plane of Array Irradiance (POA) solar irradiance data; where POA is at least 500 W/m2.

a. **Calculations Procedures:**

(1) $T_{cell} = T_{module} + 1.5$

(2) $W_{COR} = Wmeas * (IRR_{DPC} / IRR\ ) * (1/(1 + TCOEFF(Tcell - T_{DPC})))$

(3) $Wguar = \frac{W_{COR}}{W_{GUAR}}$

Where…

- W_{MEAS} = Measured AC capacity in [MW]
- W_{COR} = Corrected AC capacity at Design Point Condition (DPC) in [MW]
- IRR_{DPC} = Direct normal irradiance at DPC (1050 W/m^2) in [W/m^2]
- IRR = Measured irradiance in [W/m^2]
- TCOEFF = Temperature coefficient of maximum power of installed panel (-0.0044/°C) [/°C]

- T_{module} = Measured module temperature in [°C]
- T_{cell} = Measured cell temperature in [°C]
- T_{DPC} = Temperature at DPC (45°C) in [°C]
- W_{GUAR} = Guaranteed AC capacity of the system (4.5 MW-AC) in [MW]

Note: Cell temperature is calculated based on the module temperature readings taken from a T-type thermocouple placed on the underside and center of the DUT. A correction factor of 1.5°C is assumed for backsheet to cell temperature as per the standard practice of glass and backsheet constructed c-Si modules.

Depreciable Group		Probable Retirement Year	Average Life	Net Salvage Rate Percent	Depreciation Rate
	Steam Production Plant				
	Meramec Steam Production Plant				
311	Structures and Improvements	Sep-22	90	0	6.09
312	Boiler Plant Equipment	Sep-22	55	(1)	8.43
314	Turbogenerator Units	Sep-22	60	0	6.44
315	Accessory Electric Equipment	Sep-22	75	0	8.57
316	Miscellaneous Power Plant Equipment	Sep-22	40	0	16.85
316.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
316.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
316.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
	Sioux Steam Production Plant				
311	Structures and Improvements	Sep-33	90	(1)	3.74
312	Boiler Plant Equipment	Sep-33	55	(3)	4.57
314	Turbogenerator Units	Sep-33	60	(1)	4.32
315	Accessory Electric Equipment	Sep-33	75	(1)	4.88
316	Miscellaneous Power Plant Equipment	Sep-33	40	0	6.34
316.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
316.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
316.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
	Labadie Steam Production Plant				
311	Structures and Improvements	Sep-42	90	(2)	3.04
312	Boiler Plant Equipment	Sep-42	55	(6)	3.39
312.03	Boiler Plant Equipment - Aluminum Coal Cars		30	25	0.39
314	Turbogenerator Units	Sep-42	60	(2)	2.78
315	Accessory Electric Equipment	Sep-42	75	(2)	2.70
316	Miscellaneous Power Plant Equipment	Sep-42	40	0	4.02
316.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
316.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
316.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
	Rush Island Steam Production Plant				
311	Structures and Improvements	Sep-45	90	(1)	2.52
312	Boiler Plant Equipment	Sep-45	55	(7)	3.00
314	Turbogenerator Units	Sep-45	60	(3)	2.70
315	Accessory Electric Equipment	Sep-45	75	(2)	2.42
316	Miscellaneous Power Plant Equipment	Sep-45	40	0	4.14
316.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
316.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
316.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00

Depreciable Group		Probable Retirement Year	Average Life	Net Salvage Rate Percent	Depreciation Rate
	Common - All Steam Plants				
311	Structures and Improvements	Sep-42	90	(2)	2.69
312	Boiler Plant Equipment	Sep-42	55	(6)	2.70
315	Accessory Electric Equipment	Sep-42	75	(2)	2.72
316	Miscellaneous Power Plant Equipment	Sep-42	40	0	3.54
	Nuclear Production Plant				
	Callaway				
321	Structures and Improvements	Oct-44	90	(1)	1.54
322	Reactor Plant Equipment	Oct-44	50	(6)	2.95
323	Turbogenerator Units	Oct-44	50	(4)	2.66
324	Accessory Electric Equipment	Oct-44	75	(1)	2.05
325	Miscellaneous Power Plant Equipment	Oct-44	35	0	4.71
325.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
325.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
325.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
	Hydraulic Production Plant				
	Osage Hydraulic Production Plant				
331	Structures and Improvements	Jun-47	125	(2)	3.24
332	Reservoirs, Dams, and Waterways	Jun-47	150	(1)	2.80
333	Water Wheels, Turbines, and Generators	Jun-47	95	(8)	2.80
334	Accessory Electric Equipment	Jun-47	65	(1)	3.12
335	Miscellaneous Power Plant Equipment	Jun-47	50	0	4.50
335.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
335.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
335.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
336	Roads, Railroads, and Bridges	Jun-47	50	0	0.00
	Taum Sauk Hydraulic Production Plant				
331	Structures and Improvements	Jun-89	125	(5)	1.36
332	Reservoirs, Dams, and Waterways	Jun-89	150	(3)	2.59
333	Water Wheels, Turbines, and Generators	Jun-89	95	(26)	1.95
334	Accessory Electric Equipment	Jun-89	65	(3)	1.82
335	Miscellaneous Power Plant Equipment	Jun-89	50	0	2.43
335.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
335.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
335.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
336	Roads, Railroads, and Bridges	Jun-89	50	0	1.39

Depreciable Group		Probable Retirement Year	Average Life	Net Salvage Rate Percent	Depreciation Rate
	Keokuk Hydraulic Production Plant				
331	Structures and Improvements	Jun-55	125	(3)	2.28
332	Reservoirs, Dams, and Waterways	Jun-55	150	(1)	1.64
333	Water Wheels, Turbines, and Generators	Jun-55	95	(10)	2.60
334	Accessory Electric Equipment	Jun-55	65	(1)	2.62
335	Miscellaneous Power Plant Equipment	Jun-55	50	0	3.04
335.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
335.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
335.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
336	Roads, Railroads, and Bridges	Jun-55	50	0	1.13
	Other Production Plant				
341	Structures and Improvements		40	(5)	2.41
342	Fuel Holders, Producers, and Accessories		45	(5)	2.05
344	Generators				
	Other CTS		45	(5)	1.66
	Maryland Heights Landfill CTG		8	40	1.86
	Solar		20	0	4.19
345	Accessory Electric Equipment		40	(5)	2.12
346	Miscellaneous Power Plant Equipment		22	0	3.30
346.21	Miscellaneous Power Plant Equipment - Office Furniture		20	0	5.00
346.22	Miscellaneous Power Plant Equipment - Office Equipment		15	0	6.67
346.23	Miscellaneous Power Plant Equipment - Computers		5	0	20.00
	Transmission Plant				
352	Structured and Improvements		65	(5)	1.95
353	Station Equipment		60	(5)	1.70
354	Towers and Fixtures		70	(40)	2.32
355	Poles and Fixtures		60	(100)	3.39
356	Overhead Conductors and Devices		60	(25)	2.11
359	Roads and Trails		70	0	0.00

Depreciable Group		Probable Retirement Year	Average Life	Net Salvage Rate Percent	Depreciation Rate
	Distribution Plant				
361	Structures and Improvements		60	(5)	1.85
362	Station Equipment		60	(10)	1.86
364	Poles and Fixtures		50	(150)	4.54
365	Overhead Conductors and Devices		50	(50)	2.97
366	Underground Conduit		70	(50)	2.28
367	Underground Conductors and Devices		57	(40)	2.55
368	Line Transformers		42	5	2.21
369.1	Overhead Services		47	(200)	5.13
369.2	Underground Services		60	(90)	2.78
370	Meters		28	(5)	3.57
371	Installations on Customers' Premises		30	0	0.00
373	Street Lighting and Signal Systems		38	(35)	2.95
	General Plant				
390	Structures and Improvements				
	Miscellaneous Structures - Old		45	(10)	2.86
	Large Structures		50	(10)	2.24
390.05	Structures and Improvements - Training Assets		5	0	0.00
391	Office Furniture and Equipment - Furniture		20	0	5.00
391.2	Office Furniture and Equipment - Personal Computers		5	0	20.00
391.3	Office Furniture and Equipment - Equipment		15	0	6.67
392	Transportation Equipment		11	15	7.05
392.05	Transportation Equipment - Training Assets		5	0	0.00
393	Stores Equipment		20	0	5.00
394	Tools, Shop, and Garage Equipment		20	0	5.00
394.05	Tools, Shop, and Garage Equipment - Training Assets		5	0	20.00
395	Laboratory Equipment		20	0	5.00
396	Power Operated Equipment		15	15	6.27
397	Communication Equipment		15	0	6.67
397.05	Communication Equipment - Training Assets		5	0	0.00
398	Miscellaneous Equipment		20	0	5.00

SCHEDULE LMF-d1

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rail transportation fuel surcharges. These hedges are tied to the prices of on-highway diesel as reported by the Energy Information Administration, an independent statistical agency of the U.S. Department of Energy (DOE). Finally, Staff included all railcar-related costs as a component of the accounting coal price used in the production cost model.

Staff Expert/Witness: Lisa M. Ferguson

ii. Fly Ash

Staff accepted the test year amount of expenses in its revenue requirement cost of service to account for the lower amount received by Ameren Missouri through the sale of its fly ash for concrete production. Coal refinement that is currently ongoing at many of the coal energy centers has made the fly ash unsellable. This amount must be included as an increase to Staff's production cost model results, which are based on the amount of fly ash produced which varies in relationship to the amount of coal burned. If the fly ash is not sold, it creates a cost for disposal for Ameren Missouri.

Staff Expert/Witness: Lisa M. Ferguson

b. Nuclear Fuel Prices

i. Nuclear Fuel Rod Assembly Prices

Uranium is a naturally slightly radioactive metal that represents the raw material that undergoes a complex three-stage process, involving conversion, enrichment and fabrication, in order to transform the metal into fuel rod assemblies (long metal tubes filled with precisely fashioned small fuel pellets) that are placed in the Callaway reactor as its source of fuel. The nuclear fuel price represents the cost of all of the fuel rod assemblies that are loaded in the reactor. Staff used in its case forecasted nuclear fuel prices for the period ending December 2014 as provided by Company in its response to Staff Data Request No. 0097. Staff will re-examine the actual nuclear fuel prices at year-end 2014 as part of its true-up audit and will reflect those costs once they are available.

ii. Spent-Fuel Costs

The Nuclear Regulatory Commission separates wastes into two broad classifications: high-level or low-level waste. High-level radioactive waste consists of "irradiated" or used nuclear reactor fuel (i.e., fuel that has been used in a reactor to produce electricity). The used reactor fuel is in a solid form consisting of small fuel pellets in long metal tubes. Used reactor

fuel is commonly referred to as "spent fuel." High level and low level waste will be discussed at length in the next sections of this Report.

In this rate case, Staff has not included costs associated with the disposal of spent nuclear fuel as a component of the overall nuclear fuel price that was used as an input for Staff's production cost model. In the past, a spent-fuel fee component was incorporated in the nuclear fuel prices used for input into the production cost model. However, earlier this year the DOE was ordered by the United States Federal Court to discontinue the collection of this fee effective May 16, 2014. Because of this recent development, Staff has excluded this component of nuclear fuel cost from inclusion in the cost of service calculation. Staff also points out that the reduction in the nuclear waste fee passes through Ameren Missouri's FAC mechanism. Therefore, the reduction in cost is passed on to electric customers.

iii. Spent Fuel and DOE Breach of Contract Settlements with Ameren Missouri

The following provides a narrative synopsis of the origination of the spent-fuel fee that was designed to remove and store high-level radioactive waste and the developments which led to the eventual discontinuance of the fee, as well as lawsuits filed by Ameren Missouri against the government for breach of contract associated with the spent-fuel fee. At the end of this section, a chart is presented which summarizes the settlements Ameren Missouri has received to date related to the spent-fuel fee as well as the Company's accounting treatment of these settlements.

In 1982, the United States Congress enacted the Nuclear Waste Policy Act (NWPA), which was signed into law by President Reagan on January 7, 1983. This legislation defined the federal government's responsibility to provide permanent disposal in a deep geological repository for spent fuel and high-level radioactive waste from commercial and defense activities. Under the NWPA, Ameren Missouri and all other utilities that own and operate those energy centers were responsible for paying the disposal costs to the federal government. A spent-fuel fee was developed to address the disposal of the spent nuclear fuel at one mill, or one-tenth of one cent, for each kilowatt-hour of electricity that each electric utility nuclear energy center generates and sells. The NWPA also required the DOE to review the nuclear waste fee against the cost of the overall nuclear waste disposal program and to propose to the United States Congress any fee adjustment necessary to offset the costs of the program.

Consistent with the NWPA, Ameren Missouri entered into a contract with the DOE on March 6, 1984. Ameren Missouri's contract provided that it would pay the government fees that, together with the fees paid by all other utilities under similar contracts, would be sufficient for DOE to implement and operate a program for the prompt removal of the spent nuclear fuel from Ameren Missouri's Callaway Plant and all other nuclear power plants nationwide. The contract terms required the DOE to commence removal of spent nuclear fuel no later than January 31, 1998. The DOE failed to commence removing spent nuclear fuel by January 31, 1998. The United States Court of Appeals for the Federal Circuit held that this failure to commence removal of spent nuclear fuel in 1998 constituted a breach of the government's contractual obligation to the nuclear utilities that signed contracts with DOE pursuant to the NWPA.

In February 2002, after many years of studying its suitability, DOE recommended to President George W. Bush that a site at Yucca Mountain, Nevada, be developed as a long-term geologic repository for high-level waste. On June 3, 2008, the DOE submitted a license application to the U.S. Nuclear Regulatory Commission ("NRC"), seeking authorization to construct a deep geologic repository for disposal of high-level radioactive waste at Yucca Mountain. On March 3, 2010, the DOE filed a motion with the Atomic Safety and Licensing Board ("Board") seeking permission to withdraw its application for authorization to construct a high-level waste geological repository at Yucca Mountain. The Board denied that request on June 29, 2010, in LBP-10-11, and the parties filed petitions asking the Commission to uphold or reverse this decision. On October 1, 2010, the NRC began orderly closure of its Yucca Mountain activities. The federal government took steps to terminate the Yucca Mountain program, while acknowledging its continuing obligation to dispose of utilities' spent nuclear fuel.

Because of the federal government's efforts to terminate the Yucca Mountain program, the Nuclear Energy Institute, a number of individual utilities, and the National Association of Regulatory Utility Commissioners sued the DOE in the United States Court of Appeals for the District of Columbia Circuit, seeking the suspension of the one mill nuclear waste fee, alleging that the DOE failed to undertake an appropriate fee adequacy review reflecting the current unsettled state of the nuclear waste program. In a June 2012 decision, the court ruled that the DOE's fee adequacy review was legally inadequate and remanded the matter to the DOE. Although the court ruled it has the power to direct the DOE to suspend the fee, the court decided

that it was premature to do so. Instead, the court ordered the DOE to provide within six months a revised assessment of the amount that should be collected. In January 2013, the DOE issued the revised assessment required by the court. The DOE determined that *"neither insufficient nor excess revenues are being collected,"* and it proposed no adjustment to the one mill nuclear waste fee. In November 2013, the court rejected the DOE's revised assessment and ordered the DOE to submit a proposal to the United States Congress to reduce the fee to zero. Effective May 16, 2014, the spent-fuel fee was reduced to zero.

There are currently two acceptable storage methods for spent fuel after it is removed from the reactor core: (a) Spent-Fuel Pools - where most spent nuclear fuel is safely stored in specially-designed pools at individual reactor sites and (b) Dry Cask Storage – which represents an alternative storage once the spent-fuel pool capacity is reached.

As a result of the DOE's failure to begin to dispose of spent nuclear fuel and to fulfill its contractual obligations, in 1999 Ameren Missouri increased the capacity of Callaway's spent-fuel storage pool from its original designed storage capacity of 1,340 spent-fuel assemblies to approximately 2,360 spent-fuel assemblies. This expansion was accomplished by "re-racking," which involved replacing the existing storage racks with new racks having additional storage capacity. In addition, Ameren Missouri has begun construction of a dry cask storage facility. Ameren Missouri and other nuclear energy center owners sued the DOE to recover costs incurred for re-racking spent-fuel pools, as well as for dry cask storage and other ongoing costs associated with storing spent fuel. Ameren Missouri's lawsuit to recover damages associated with the re-racking was filed in 2004. The case was formally stayed until early 2010, in order to allow Ameren Missouri to take advantage of rulings obtained in other earlier spent-fuel cases. Ameren Missouri was required to document its damages claim by August 31, 2010. Ameren Missouri had several discussions with the U.S. Department of Justice ("DOJ"), which represents the DOE in spent-fuel litigation, and Ameren Missouri obtained a very good understanding of the terms on which the DOJ would be willing to settle individual cases. The spent-fuel settlement would cover both past and future damages. Essentially, by settling with DOJ, the settling utilities' past costs are paid by the government when the settlement agreement is signed, and the agreement establishes an administrative claims process pursuant to which the utility may submit claims for ongoing damages annually, for evaluation and payment outside the judicial process.

In June 2011, Ameren Missouri entered into a settlement agreement that provides for recovery for its re-racking expenditures in 1999 and other related costs as well as all annual recovery of additional spent-fuel storage and related costs incurred from 2010 through 2013, with the ability to extend the recovery period as mutually agreed to by the parties. The parties have agreed in principle to extend the recovery period through 2016.

To date, Ameren Missouri has received the following reimbursements:

July 2011	$ 10,551,468
October 2012	$ 818,692
November 2013	$ 6,227,978

The July 2011 reimbursement was for re-racking that was completed in 1999, O&M expenses incurred in years prior to 2011, and costs incurred on the new dry cask storage project. For the portion of the settlement received for the re-racking project, Ameren Missouri reduced the plant-in-service and depreciation reserve balances for the applicable plant-in-service accounts by the amount of the proceeds. The prior year O&M reimbursement was recorded below-the-line as miscellaneous non-operating revenue and the reimbursement for the costs incurred on the new dry cask storage project were recorded as a reduction to the Construction Work in Progress balance at that time for that item. The reimbursements received in 2012 and 2013 were related to the new dry cask storage project and Construction Work in Progress was reduced for these reimbursements.

The following summarizes how the Company recorded these transactions on their books:

Debt (DR)	Credit (CR)	
July 2011		
DR Acct 131	Cash	9,117,418
CR Acct 322	Reactor Plant in Service	(9,117,418)
DR Acct 322	Reactor Plant (Reserve)	2,522, 188
CR Acct 403	Depreciation Expense	(2,522,188)
DR Acct 131	Cash	1,360,156
CR Acct 421	Miscellaneous Non-Operating Revenue	
	(Reimbursement of O&M)	(1,360,156)
DR Acct 131	Cash	73,894
CR	CWIP	(73,894)

October 2012			
DR	Acct 131	Cash	818,692
CR		CWIP	(818,692)
November 2013			
DR	Acct 131	Cash	6,227,978
CR		CWIP	(6,227,978)

Staff does not agree with the Company's treatment of the $1.36 million of reimbursements it received in July 2011 that related to a reimbursement of prior period O&M costs. By recording the $1.4 million as miscellaneous non-utility operating revenue in a below-the-line account, Ameren Missouri pocketed the refund and made no attempt to return any of these proceeds to the ratepayers that funded these O&M activities. Based upon advice from counsel, attempting to recover this cost during this rate case would constitute retroactive ratemaking, thus Staff does not propose an adjustment. However, Staff recommends that the Commission order the Company to return all future refunds that stem from settlements that Ameren Missouri has reached with DOE to ratepayers Staff believes without such protection from the Commission that unjust and unreasonable rates would result. Staff does agree with the Company's treatment of the remainder of the settlement in amounts received during 2011. Staff also agrees with the Company with regard to the 2012 and 2013 settlements since the investment costs of the dry cask project will not be charged to ratepayers.

In March 2014, Ameren Missouri submitted additional costs to the DOE for reimbursement under the settlement agreement. Ameren Missouri expects to receive a cost reimbursement of approximately $14.9 million during the fourth quarter of 2014 from this submission. Included in these reimbursements are costs related to a dry spent-fuel storage facility Ameren Missouri is constructing at its Callaway Energy Center. Ameren Missouri intends to begin transferring spent-fuel assemblies to this dry spent-fuel storage facility in 2015. Until the facility is completed, Ameren Missouri will apply for reimbursement from the DOE for the cost to construct the dry spent-fuel storage facility along with related allowable costs. Ameren Missouri has indicated that it intends to record these reimbursements in the same way that the reimbursements that were received in 2012 and 2013 were recorded on the Company's books. Staff intends to monitor this settlement in order to ensure that ratepayers are made whole for the proceeds that are returned to Ameren Missouri.

In January 2013, the DOE issued its plan for the management and disposal of spent nuclear fuel. The DOE's plan calls for a pilot interim storage facility to begin operation with an initial focus on accepting spent nuclear fuel from shutdown reactor sites by 2021. By 2025, a larger interim storage facility would be available, co-located with the pilot facility. The plan also proposes to site a permanent geological repository by 2026, to characterize the site and to design and to license the repository by 2042, and to begin operation by 2048.

Staff Expert/Witness: Lisa M. Ferguson

c. Natural Gas Cost

i. Variable Natural Gas Cost

Staff analyzed natural gas prices over a three-year period ending in July 31, 2014, using data provided in response to Staff Data Request No. 0089 and data submitted by Ameren Missouri as per the 4 CSR 240-3.190 Reporting Requirements for Electric Utilities and Rural Electric Cooperatives rule. Staff calculated the average system price per month using the three years of monthly data ending July 31, 2014. Staff calculated the three-year average natural gas price by month and used these three-year averages for inputs to the fuel model. Staff will continue to review natural gas prices through the true-up period ending December 31, 2014, and will make adjustments as necessary.

Staff Expert/Witness: Erin L. Maloney

ii. Fixed Natural Gas Cost

Staff has included the fixed demand cost of gas for the twelve months ending September 30, 2014, in its recommended revenue requirement. This amount must be added to Staff's production cost model results, which are based on only the variable commodity cost of gas in order to determine total net fuel and purchased-power expense. Staff will also examine this cost through the true-up cut-off date in this case.

Staff Expert/Witness: Lisa M. Ferguson

d. Fuel Oil Prices

Fuel oil plays a very small part in the total fuel costs of Ameren Missouri. It is mainly used for start-up and auxiliary purposes at the generating stations. The fuel oil price recommended by Staff was calculated from the monthly average fuel oil prices Ameren Missouri

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