

## Ameren Missouri 5-Year Electric Customer-Focused Capital Investment Plan

§ - Thousands

Category 1	2019	2020	2021	2022	2023	Grand Total
Smart, Reliable Grid Operations	335,042	451,058	406,117	391,472	360,506	1,944,195
Smart Meter Program	30,034	54,870	51,966	55,995	52,117	244,982
Non-Nuclear Generation & Environmental	186,348	176,756	182,326	196,643	226,609	968,682
Nuclear Generation	74,684	65,896	61,411	76,451	73,984	352,426
Hydro Generation	34,825	33,627	43,395	33,499	14,955	160,301
Renewable & Gas Turbine Generation	11,948	21,782	20,104	25,732	19,339	98,905
Secure & Reliable Transmission	141,184	135,658	153,958	148,264	154,070	733,134
Cyber & Technology Upgrades	88,542	89,955	89,849	89,877	89,873	448,096
Operational & Customer Support Facilities	54,393	96,518	58,560	50,817	53,505	313,793
Innovative Opportunities	14,302	9,064	5,799	4,947	3,852	37,964
<b>Grand Total - Capital</b>	<b>971,302</b>	<b>1,135,184</b>	<b>1,073,485</b>	<b>1,073,697</b>	<b>1,048,810</b>	<b>5,302,478</b>

Wind Asset Acquisition (two sites)

1,000,000

1,000,000

**Grand Total, Including Wind**

**2,135,184**

**6,302,478**

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year	
Smart, Reliable Grid Operations	Distribution Operations	Circuit Performance Improvements	OC132 - ARV - Circuit Performance Imprvmnt			
			OC232 - NMD - Circuit Performance Imprvmnt			
				OC332 - CMD - Circuit Performance Imprvmnt		
				OC432 - MVD - Circuit Performance Imprvmnt		
				OC532 - GWY - Circuit Performance Imprvmnt		
				OC732 - SMO - Circuit Performance Imprvmnt		
			Circuit Performance Improvements Total		4,322	31,891
		Distribution Operations Total			4,322	31,891
	Grid Resiliency/Operating Flexibility	Distributed Solar & Energy Storage		J0J4N - Distr Solar Facility Land ██████		
				J0J4P - Distr Solar Facility Land ██████		
				J0J4Q - Distr Solar Facility Land ██████		
				J0J4R - Distr Solar Facility Land ██████		
				J0J4S - Distr Solar Facility Land ██████		
				J0K9X - Distr Solar Facility - ██████		
				J0K9Z - Distr Solar Facility - ██████		
		Distributed Solar & Energy Storage Total			6,009	89,141
Line Capacity Increases				J0GC5 - ██████		
				J0HKL - ██████ Feeder Ext		
			J0KD8 - ██████			
			J0KLT - ██████			
			J0KNB - ██████ Improve voltage			
			J0KNW - TDL 561-51 Momentary Outage			
	Line Capacity Increases Total			1,801	6,896	
Substation Capacity Increases			J0CH7 - ██████, New Cust Sub-UG-C			
			J0CKP - ██████ New Cust Sub-Sub-C			
			J0DBD - ██████ New Customer Sub			
			J0G5F - ██████ Cust Sub - UG - C			
			J0GC6 - ██████ Cust Sub - OH - C			
			J0GCJ - ██████ Add Capacitor			
			J0GX8 - ██████ E. 2nd Sub			
			J0H8G - ██████ Sub 34-12kV 2nd Sub			
			J0HF5 - ██████ Substation - ██████ Dr			
			J0HFG - ██████			
J0HJS - ██████ East Sub Line Work						
J0HLC - ██████ New Sub						
J0J24 - ██████ Line - C						
J0JKX - ██████ Sub UPGR W Unit						
J0KNG - ██████ PS3 Customer Sub-Line-C						
J0KS8 - ██████ Customer Sub-Sub-C						
J0KSC - ██████ Sub UPGR- Sub-C						
J0KSK - ██████ Sub-C						
	Substation Capacity Increases Total			18,258	116,492	

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year	
Smart, Reliable Grid Operations	Grid Resiliency/Operating Flexibility	Switches	J0JJB - UPGR of 34kV switching devices J0JX6 - Meta-UPGR 38kV Nulecs			
		Switches Total		937	5,486	
	Grid Resiliency/Operating Flexibility Total			27,005	218,015	
	Smart Grid	Cutout Recloser	J0JJ8 - UPGR Fuse with Tripsaver Recloser			
		Cutout Recloser Total		1,001	4,979	
		Distribution Automation	0A317 - DCD - UPGR Line Capacitor Controls 0A318 - DCD - DA Program J0GB1 - ██████████ Main-UPGR Recl J0GB2 - ██████████ - Add Intellinodes J0JBW - DA for ██████████ J0KP7 - ██████████ 3 Mile 656-55 WPC J0KPD - ██████████ -74 DA_TDL 561-51 Momentary Out J0KTK - ██████████ 34-12kV Conversion			
		Distribution Automation Total		8,151	45,989	
		Fault Circuit Indicators	J0JGS - DA Feeder backbone FCIs J0JG6 - DA Feeder terminal pole FCIs			
		Fault Circuit Indicators Total		1,898	9,459	
		Fiber/Wireless	J0JJG - Smartgrid fiber & wireless UPGR			
		Fiber/Wireless Total		5,021	40,022	
		LED Street Lighting	J09H1 - LED Streetlight Program			
		LED Street Lighting Total		7,771	38,519	
		Manhole Entry Program				
		Manhole Entry Program Total				305
		SCADA Upgrades				
	SCADA Upgrades Total				2,949	
	Smart Grid Total			23,842	142,222	
	Standardize 12kV	Convert 4kV to 12kV	J0HB4 - ██████████ Sec-Srv J0JD7 - ██████████ Sub 138-12kV-Line-C J0JDN - ██████████ Sub - Sub - C J0JDQ - ██████████ Sub Second Unit-Sub-C J0JDW - ██████████ Sub-UG-C J0JF6 - ██████████ Sub Second Unit-UG-C J0JF7 - ██████████ Sub 138-12kV-UG-C J0JGM - ██████████ 138-12kV-Site-C J0JJD - ██████████ Sub 138-12kV-Sub-C			
			Convert 4kV to 12kV Total		5,129	113,992
	Standardize 12kV Total			5,129	113,992	
	Substations - Condition Based Modernization	OCB Upgrades	J0GRQ - OCB ██████████ Pit UPGR 34kV P1 J0GRS - OCB - ██████████ UPGR 34kV POS 19 J0GRT - OCB ██████████ UPGR 34kV P3592			

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	Substations - Condition Based Modernization	OCB Upgrades	J0GRV - OCB █████ UPGR 34kV 318 J0GRW - OCB █████ UPGR 34kV P460 J0GS1 - OCB █████ UPGR 34kV P2 J0KR6 - OCB - █████ 34KV POS 03 J0KRN - OCB - █████ 161/34KV XFMR 1 J0KRR - OCB - █████ POS 11,15,20,25, BT 1-2 J0KS2 - OCB - █████ 138/34KV POS 04 XFMR 2		
		OCB Upgrades Total		1,355	23,543
		Relay Upgrades	J0B47 - █████ Sub-UPGR Rly Ckt J0FXV - █████ Sub New Feeder Pos J0G9T - █████ - UPGR 67 Relays J0GB0 - █████ - UPGR Relaying J0GCQ - █████ -UPGR Rly&Brkr J0JH - Relay UPGR █████ Sub1&73 J0JJ - Relay UPGR █████ Sub WARR-71 J0JV1 - Relay UPGR █████ Substation - NW and XF		
		Relay Upgrades Total		2,102	14,231
		Sub/Switchgear Upgrades	0A664 - SWO-Dist Sub-Con Based OR000 - SWO-DIST. SUBS - T&DD - E63 13917 - Customer Sub Projects 16016 - Substation Spare Eqpt UPGR 20783 - CBM █████ Sub UPGR J08GF - CBM █████ Sub-UG-C J08LM - CBM █████ Sub-Sub-C J0B9F - CBM █████ Sub-Line-C J0CBL - CBM █████ -Line-C J0CG1 - CBM █████ Sub-Line-C J0CGT - CBM █████, Site Purchase J0CH3 - CBM █████ Sub-C J0CH4 - CBM █████ Sub-C J0CHG - CBM █████ Sub-Sub-C J0CJW - CBM █████ Swgr 2-LINE-C J0CKH - CBM █████ Swgr 2-SUB-C J0CKM - CBM █████ Sub UPGR J0CKN - CBM █████ Sub-C J0CM3 - CBM █████ Swgr 2-UG-C J0FLQ - █████ New 34-12 kV Sub J0G26 - █████ Sub UPGR Ctl House J0G3G - █████ 145-51 Ext-Line-C J0G3L - █████ Sub CNTL House-OH-C J0G3M - CBM █████ Sub-Line-C J0G4X - █████ Cust Sub-UG-C		

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	Substations - Condition Based Modernization	Sub/Switchgear Upgrades	J0G5G - ██████ Sub-UG-C		
			J0G5H - ██████ Sub, 34kV-UG-C		
			J0GBZ - CBM ██████ Sub SWGR - Line C		
			J0GFW - ██████ Cust Sub-Sub-C		
			J0GGH - ██████ 69kV #1 XFMR Purchase		
			J0GGJ - ██████ 69kV #1 XFMR Purch		
			J0HB5 - ██████		
			J0HN5 - Spare XFMR Purchase ██████ #2)		
			J0HN7 - Spare XFMR Purch ██████ W)		
			J0HTN - ██████ Sub 34.5 Bus Mods		
			J0J46 - ██████ Cust Sub, Short Term Plan		
			J0J4C - ██████ Cust Sub, Long Term Plan		
			J0JDP - ██████ Cust Sub - Sub - C		
			J0JFX - CBM ██████ -UG-C		
			J0JTK - ██████ - UPGR XFMR #2		
			J0JZQ - ██████ Cus Sub UPGR		
			J0KGD - ██████ Sub UPGR II - Line C		
			J0KLL - Spare XFMR Purchase ██████		
			J0KLZ - ██████ UPGR-Line-C		
			J0KN7 - CBM ██████ -UG-C		
			J0KS9 - ██████ Bulk Sub-Sub34-C		
J0KSN - CBM ██████ - Sub - C					
J0KSP - CBM ██████ SUB-C					
J0KWQ - ██████ Sub - UG - C					
J0KWT - ██████ Cust Sub UPGR-UG-C					
J0KZ9 - ██████ #3 UPGR with spare					
J0KZB - ██████ Substation-Sub-C					
J0L0L - UPGR ██████ #7 XFMR w/ Spare					
Sub/Switchgear Upgrades Total				64,990	224,611
Substations - Condition Based Modernization Total				68,447	262,385
System Hardening	Subtransmission Upgrades	J0H6D - ██████ -73, New Circuit-Line ██████ C			
		J0J2S - ██████ -76 - Insulator UPGRs			
		J0JBV - ██████ - T1 and T2			
		J0JCH - ██████ 2nd 34kV Supply			
		J0JCL - ██████ 71, 72 and 74			
		J0JD8 - ██████ 76 OH Rebuild			
		J0JN5 - ██████ 059-71 Improv Circ Reliab			
Subtransmission Upgrades Total				10,912	118,452
System Hardening Total				10,912	118,452
UG Cable Upgrades	OH to UG	22931 - OTU ██████ 183-2, ██████			
		23273 - OTU ██████ 267-55, ██████			
		23412 - OTU ██████ 543-51, ██████			

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	UG Cable Upgrades	OH to UG	24089 - OTU █████ 258-58, █████ JOKDN - █████ 185-52 █████ JOKDP - █████ 572-54 █████		
		OH to UG Total		409	14,928
		UG Cable Upgrades	OA018 - UG Cable UPGR Program - E46 JOGCG - █████ 551-53 █████ Cable UPGR JOJ3K - █████ 169-57 █████ Cbl Ph2 JOJBD - Cable UPGR - █████ 3075 JOJBF - Cable UPGR - █████ 3082 JOJBG - Cable UPGR - █████ 3089 JOJBH - Cable UPGR - █████ 5049 JOJBJ - Cable UPGR - █████ 5053 JOJBK - Cable UPGR - █████ 5058 JOJBL - Cable UPGR - █████ Subd JOJBM - Cable UPGR - █████ Subd JOJBN - Cable UPGR - █████ 1 JOJBP - Cable UPGR - █████ 2 JOJBQ - Cable UPGR - █████ Subd JOJBZ - Cable UPGR - █████ JOJCO - Cable UPGR - █████ 51 JOJCI - Cable UPGR - █████ 52 JOJCI - Cable UPGR - █████ 53 JOJCI - Cable UPGR - █████ 54 JOJCI - Cable UPGR - █████ 52 JOJCI - Cable UPGR - █████ 53 JOJCD - Cable UPGR - █████ 52 JOJCV - Cable UPGR - █████ 3103 JOJCW - Cable UPGR - █████ 3107 JOJCX - Cable UPGR - █████ 3112 JOJCY - Cable UPGR - █████ 3116 JOJDO - Cable UPGR - █████ 5391 JOJDI - Cable UPGR - █████ 5395 JOJK7 - Cable UPGR - █████ JOJM1 - Cable UPGR - █████ 019-52 JOJM3 - Cable UPGR - █████ 561-53 JOJM5 - Cable UPGR - 3 Mile 656-55 50030 JOJM6 - Cable UPGR - 3 Mile 656-55 50034 JOJM7 - Cable UPGR - 3 Mile 656-55 50176 JOJM8 - Cable UPGR - 3 Mile 656-55 50179 JOJN7 - █████ 503-55 ECC Cable UPGR JOJP7 - Cable UPGR █████ 922-52 JOJP9 - Cable UPGR █████		

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	UG Cable Upgrades	UG Cable Upgrades	J01PK - Cable UPGR- [REDACTED] 949-55 [REDACTED]		
			J0KJ8 - Cable UPGR [REDACTED] P1		
			J0KZG - [REDACTED] 169-57 [REDACTED] Cbl Ph3		
	UG Cable Upgrades Total			27,257	190,390
	UG Cable Upgrades Total			27,666	205,318
	UG Revitalization	UG Revitalization	OA669 - UG-MH&VLT UPGR-SWO J000B - 0A321- [REDACTED] 9-12th-10th Con J02QN - UG-VLT UPGR [REDACTED] 508,510 & 514 J03P8 - 0A321 [REDACTED] J05BJ - UG-MH UPGR [REDACTED] J05BK - UG-MH UPGR [REDACTED] J05QX - UG-VLT UPGR [REDACTED] J0606 - UG-VLT UPGR [REDACTED] J06JR - UG-VLT UPGR Ceilings - [REDACTED] J06RB - UG-MH UPGR [REDACTED] J0723 - UG-VLT UPGR [REDACTED] J079Z - UG-MH UPGR [REDACTED] J08L8 - UG-MH UPGR [REDACTED] J09FN - UG-VLT UPGR [REDACTED] J09FP - UG-VLT UPGR [REDACTED] J09FQ - UG-VLT UPGR [REDACTED] J09FW - UG-VLT UPGR [REDACTED] J0B9J - UG-MH UPGR - [REDACTED] J0BRB - UG-MH UPGR - [REDACTED] J0BRD - UG-MH UPGR - [REDACTED] J0C3T - UG-MH UPGR- [REDACTED] J0C45 - UG-MH UPGR- [REDACTED] J0CC9 - 0A321- [REDACTED] J0CCD - 0A321- [REDACTED] -52-A5-6 [REDACTED] J0CCF - 0A321 [REDACTED] 54 [REDACTED] DA J0CCM - UG-MH UPGR- [REDACTED] J0CCQ - 0A321 [REDACTED] J0CD5 - UG-MH UPGR [REDACTED] J0CFF - 0A321- [REDACTED] J0CKS - UG-MH UPGR- [REDACTED] J0CL4 - UG-MH UPGR- [REDACTED] J0CLD - 0A321- [REDACTED] -51 [REDACTED] J0D3L - UG-VLT UPGR [REDACTED] J0D3M - UG-VLT UPGR [REDACTED] J0D3N - UG-VLT UPGR [REDACTED] J0D3P - UG-VLT UPGR [REDACTED] J0D3Q - UG-VLT UPGR [REDACTED]		

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	UG Revitalization	UG Revitalization	J0D3R - UG-VLT UPGR		
			J0D3S - UG-MH UPGR		
			J0D3V - UG-VLT UPGR		
			J0D3W - UG-VLT UPGR		
			J0D3X - UG-VLT UPGR		
			J0D3Z - UG-VLT UPGR		
			J0D43 - UG-VLT UPGR		
			J0D4Q - UG-MH UPGR		
			J0D4R - UG-MH UPGR		
			J0D4S - UG-MH UPGR -		
			J0D9K - UG-MH UPGR		
			J0D9L - UG-MH UPGR -		
			J0D9M - UG-MH UPGR -		
			J0DJT - UG-MH UPGR		
			J0F23 - UG-MH UPGR		
			J0F24 - UG-MH UPGR		
			J0F4R - UG-MH UPGR		
			J0F4V - UG-MH UPGR		
			J0F4Z - UG-MH UPGR- (108)		
			J0F77 - UG-MH UPGR-		
			J0F9B - 0A321-		
			J0FCS - 0A321-	DA-SWGR	
			J0FD5 - 0A321-	Con	
			J0FD6 - 0A321-	CAB	
			J0FFV -	-Con	
			J0FGT - 0A321-	Con	
			J0FK1 - 0A321-	Con	
			J0FK2 - 0A321-	Diversify	
			J0FK4 - 0A321-	Diversify	
			J0FZ7 - UG-MH UPGR-		
			J0FZW - UG-MH UPGR-		
			J0G2M - UG-MH UPGR-		
			J0G2N - UG-MH UPGR-		
			J0G2P - UG-MH UPGR-		
			J0G2Q - UG-MH UPGR-		
			J0G2R - UG-MH UPGR-		
			J0G2S - UG-MH UPGR-		
			J0G2T - UG-MH UPGR-		
			J0G2V - UG-VLT UPGR-		
			J0G2W - UG-VLT UPGR-		
J0G2X - UG-VLT UPGR-					
J0G2Z - UG-VLT UPGR-					



**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Smart, Reliable Grid Operations	UG Revitalization	UG Revitalization	J0GB9 - 0A321-████████ Diversify		
			J0GBB - 0A321-████████ Room		
			J0GBD - 0A321-████████ Conduit		
			J0GBG - 0A321-████████ Ref		
			J0GBJ - 0A321-████████ Conduit		
			J0GBK - 0A321-████████ Conduit		
			J0GBT - 0A321-████████ Conduit		
			J0GBV - 0A321-████████ Conduit		
			J0GBW - 0A321-████████ Conduit		
			J0GZB - GRAT ██████████ Line Ext		
			J0GZC - GRAT ██████████ Line Ext		
			J0GZT - UG-MH UPGR ██████████		
			J0GZV - UG-MH UPGR ██████████		
			J0GZW - UG-MH UPGR ██████████		
			J0GZX - UG-MH UPGR ██████████		
			J0GZZ - UG-MH UPGR ██████████		
			J0H00 - UG-MH UPGR ██████████		
			J0H01 - UG-MH UPGR ██████████		
			J0H0K - UG-MH UPGR ██████████		
			J0H3N - UG-VLT UPGR ██████████		
			J0H3P - UG-VLT UPGR ██████████		
			J0H3Q - UG-VLT UPGR ██████████		
			J0H3R - UG-VLT UPGR ██████████		
			J0H3S - UG-VLT UPGR ██████████		
			J0H3T - UG-VLT UPGR-████████ (N) (SC)		
			J0H4H - UG-MH UPGR-████████		
			J0H4J - UG-MH UPGR- NE Corner-████████		
			J0H51 - UG-MH UPGR ██████████		
			J0H52 - UG-MH UPGR ██████████		
			J0H53 - UG-MH UPGR ██████████		
			J0H54 - UG-MH UPGR ██████████		
			J0H55 - UG-MH UPGR ██████████		
			J0H77 - UG-MH UPGR-████████		
			J0H78 - UG-MH UPGR-████████		
			J0H79 - UG-MH UPGR-████████		
			J0H7B - UG-MH UPGR-████████		
			J0H8B - UG-MH UPGR ██████████		
			J0H8N - UG-MH UPGR ██████████		
			J0H8P - UG-MH UPGR ██████████		
			J0HB6 - UG-MH UPGR ██████████		
J0HB7 - UG-MH UPGR ██████████					
J0HBQ - UG-MH ██████████					

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

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Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year	
Smart, Reliable Grid Operations	UG Revitalization	UG Revitalization	J0HBR - UG-MH [REDACTED]			
			J0HC1 - UG-VLT UPGR [REDACTED]			
			J0HCL - UG-MH UPGR. [REDACTED]			
			J0HCX - 0A321-MLK NW3 DA [REDACTED]			
			J0HG2 - UG-MH UPGR [REDACTED]			
			J0HG3 - UG-MH UPGR [REDACTED]			
			J0HJ8 - UG-MH UPGR [REDACTED]			
			J0HNZ - 0A321 [REDACTED] NW-A4-A6 CAB UPGR			
			J0HP1 - 0A312-480V Spot-NW XFMR PTO UPGR			
			J0HP2 - 0A321-STL-Ntwk PROT Fiber			
			J0HP3 - 0A321 [REDACTED] Spot-NW 7FL			
			J0HWK - UG-MH UPGR [REDACTED]			
			J0HWL - UG-MH UPGR [REDACTED]			
			J0J8P - UG-MH UPGR [REDACTED]			
			J0J8Q - UG-MH UPGR [REDACTED]			
			J0J8S - UG-MH UPGR [REDACTED]			
			J0J8T - UG-MH UPGR [REDACTED]			
			J0J8V - UG-MH UPGR [REDACTED]			
			J0JDT - [REDACTED] Cable UPGR			
			J0JDZ - 0A321-Spot Network Vault			
J0JF2 - MH Sys Monitorng & Ventilation UPGR						
J0JF4 - 0A321 - Secondary Network UPGRs						
J0JV8 - UG-MH UPGR [REDACTED]						
J0JVF - UG-MH UPGR [REDACTED]						
J0JVG - UG-MH UPGR [REDACTED]						
UG Revitalization Total				25,353	177,132	
UG Revitalization Total				25,353	177,132	
<b>Smart, Reliable Grid Operations Total</b>				<b>192,676</b>	<b>1,269,407</b>	
Smart Meter Program	Smart Meter Program	Smart Meter Program	J0BJ7 - MO Smart Meter Program Phase 1			
			J0CZW - MO Smart Meter Program Shop UPGR			
Smart Meter Program Total				30,034	244,982	
Smart Meter Program Total				30,034	244,982	
<b>Smart Meter Program Total</b>				<b>30,034</b>	<b>244,982</b>	
Non-Nuclear Generation & Environmental	Grid Performance	Controls Upgrades for Faster Ramp Rates/Lower Minimums	J0K95 - SX Low Load Study			
		Controls Upgrades for Faster Ramp Rates/Lower Minimums Total			110	110
		Cyber Security Upgrades/New Technologies	20248 - SX 800xA HMI LIFECYCLE UPGR			
		Cyber Security Upgrades/New Technologies Total			571	4,236
		Exciter Upgrades	14350 - LBD U2 Excitation UPGR			
Exciter Upgrades Total			1,029	5,732		

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Non-Nuclear Generation & Environmental	Grid Performance	GSU Transformer Upgrades	J0C4X - LBD U1 XFMR Explosion Protection J0C51 - LBD U2 XFMR Explosion Protection		
		GSU Transformer Upgrades Total		1,082	2,472
	Grid Performance Total			2,792	12,550
<b>Non-Nuclear Generation &amp; Environmental Total</b>				<b>2,792</b>	<b>12,550</b>
Nuclear Generation	Grid Performance	Controls Upgrades for Faster Ramp Rates/Lower Minimums	11293 - CAL Turbine Controls Digital UPGR		
		Controls Upgrades for Faster Ramp Rates/Lower Minimums Total		11,228	14,570
		Switchyard Breaker/Relay Upgrades	J0CW9 - CAL MA104 Relay UPGR		
	Switchyard Breaker/Relay Upgrades Total		109	825	
Grid Performance Total			11,337	15,395	
<b>Nuclear Generation Total</b>				<b>11,337</b>	<b>15,395</b>
Hydro Generation	Grid Performance	Cyber Security Upgrades/New Technologies			
		Cyber Security Upgrades/New Technologies Total			82
		Exciter Upgrades			
		Exciter Upgrades Total			6,061
		GSU Transformer Upgrades			
		GSU Transformer Upgrades Total			11,629
		Pump Storage Reliability Enhancements	J04FV - TS U1 Wicket Gate Bushing UPGR J0GDG - TS U2 Wicket Gate Bushing UPGR		
		Pump Storage Reliability Enhancements Total		23,145	23,145
		Switchyard Breaker/Relay Upgrades	J0FJH - TS Switchyd Disconnect UPGR		
Switchyard Breaker/Relay Upgrades Total		279	279		
Grid Performance Total			23,424	41,196	
<b>Hydro Generation Total</b>				<b>23,424</b>	<b>41,196</b>
Renewable & Gas Turbine Generation	Grid Performance	Cyber Security Upgrades/New Technologies	J0JNG - Fleet Cyber UPGR		
		Cyber Security Upgrades/New Technologies Total		550	1,862
		Exciter Upgrades			
		Exciter Upgrades Total			5,374
		GSU Transformer Upgrades			
GSU Transformer Upgrades Total			191		
Grid Performance Total			550	7,427	
<b>Renewable &amp; Gas Turbine Generation Total</b>				<b>550</b>	<b>7,427</b>
Secure & Reliable Transmission	Grid Performance	Line Breaker Additions	J08XQ - ██████████ 2 Line In/Out J0FS8 - ██████████ (138kV) -Add 2 Line Brk J0G8Z - ██████████ XFMR UPGR and Brkr Addn J0G99 - ██████████ Brkr Add J0G9L - ██████████ Sub Add Line Breakers J0HXP - ██████████ -1 LN Brkr Add		
		Line Breaker Additions Total		1,028	11,634

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year	
Secure & Reliable Transmission	Grid Performance	Mobile Transformers	J0H64 - Mobile XFMR 345/138kV-UE			
		Mobile Transformers Total		6	7,689	
		Ring Bus Additions	J0HRD - Line Re-Route [REDACTED] Sub J0J30 - [REDACTED] Sub Line Work J0KW1 - [REDACTED] (161 kV) 6-Position Ring Bus			
		Ring Bus Additions Total		1,275	65,153	
		VAR Compensation	J0GXG - [REDACTED] Static VAR Sys.			
		VAR Compensation Total		299	34,398	
	<b>Grid Performance Total</b>				<b>2,608</b>	<b>118,874</b>
	Modernization	Breaker Upgrades	J08K6 - [REDACTED] Breaker UPGRs			
			J08XN - [REDACTED] BT-1-2 & BT-3-4 Brkr UPGR			
			J08XS - [REDACTED] BT-3-4 Brkr/Switch UPGR			
			J0C5L - [REDACTED] 345kV-UPGR V23 Brkr			
			J0C5M - [REDACTED] 345kV-UPGR V25 Brkr			
	J0C5Q - [REDACTED]-UPGR V35 Brkr					
	J0FSJ - [REDACTED]-2 Brkr UPGR					
	J0G94 - [REDACTED] UPGR Brkr/Switch/Relays					
	J0G9G - [REDACTED] Brkr/Bus UPGRs BT 1-2 3-4					
	J0HQR - UEC Capital Spare Sub Equip 2018					
	J0J7R - [REDACTED] Posn W Brkr UPGR					
	J0J80 - [REDACTED] BT Brkr UPGR					
	J0J82 - [REDACTED] 161kV BT Brkr UPGR					
J0JGT - [REDACTED] UPGR 161kV Brkr/Relays						
<b>Breaker Upgrades Total</b>				<b>7,402</b>	<b>16,873</b>	
Transformer Upgrades						
<b>Transformer Upgrades Total</b>					<b>14,774</b>	
<b>Modernization Total</b>				<b>7,402</b>	<b>31,647</b>	
Smart Grid	Intelligrid	J086S - Intelligrid Sub Trans. I/S 2020-MO				
		J086Z - Intelligrid Sub Dist.I/S 2019-MO				
		J09VF - Intelligrid Rush Island				
		J09VJ - INTG CORE MED [REDACTED]				
		J0B2Z - INTG Marshall [REDACTED]				
		J0B71 - INF C [REDACTED]				
		J0BZ0 - Intelligrid Core Med Holdg UEC				
		J0DKW - INTG CORE MED [REDACTED] GEN				
		J0DKX - INTG CORE MED [REDACTED]				
		J0DKZ - INTG CORE MED [REDACTED]				
		J0DL0 - INTG CORE MED [REDACTED]				
		J0DL1 - INTG CORE MED [REDACTED]				
		J0DL2 - INTG CORE MED [REDACTED]				
		J0DL3 - INTG CORE MED [REDACTED]				

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Secure & Reliable Transmission	Smart Grid	Intelligrd	JODL4 - INTG CORE MED ██████████		
			JODL5 - INTG CORE MED ██████████		
			JODL6 - INTG CORE MED ██████████		
			JODL7 - INTG CORE MED ██████████		
			JODL8 - INTG CORE MED ██████████		
			JODL9 - INTG CORE MED ██████████		
			JODLC - INTG CORE MED ██████████		
			JODLD - INTG CORE MED ██████████		
			JODLF - INTG CORE MED ██████████		
			JODLG - RELB ██████████		
			JODLH - RELB ██████████		
			JODLJ - INTG CORE MED ██████████		
			JODLK - INTG CORE MED ██████████		
			JODLL - INTG CORE MED ██████████		
			JODLM - RELB ██████████		
			JODLN - INTG CORE MED ██████████		
			JODLQ - INTG CORE MED ██████████		
			JODLR - INTG CORE MED ██████████		
			JODLS - INTG CORE MED ██████████		
			JODLT - INTG CORE MED ██████████		
			JODLV - INTG CORE MED ██████████		
			JODLW - INTG CORE MED ██████████		
			JODLX - INTG CORE MED ██████████		
			JODLZ - INTG CORE MED ██████████		
			JODM0 - INTG CORE MED ██████████		
			JODM1 - INTG CORE MED ██████████		
			JODM3 - INTG CORE MED ██████████		
			JODM4 - INTG CORE MED ██████████		
			JODM5 - INTG CORE MED ██████████		
			JODM6 - INTG CORE MED ██████████		
			JODM7 - INTG CORE MED ██████████		
			JODM8 - INTG CORE MED ██████████		
			JODM9 - INTG CORE MED ██████████		
			JODMB - RELB ██████████ - MO		
			JODMC - INTG CORE MED ██████████		
			JODMD - INTG CORE MED ██████████ 345 kV		
			JODMF - RELB ██████████		
			JODMG - INTG CORE MED ██████████		
			JODMH - INTG CORE MED ██████████		
			JODMJ - RELB ██████████		
JODMK - INTG CORE MED ██████████					
JODML - INTG CORE MED ██████████					

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Secure & Reliable Transmission	Smart Grid	Intelligrid	JODMM - INTG CORE MED ██████████		
			JODMN - RELB ██████████		
			JODMQ - RELB ██████████		
			JODMR - RELB ██████████		
			JODMS - RELB ██████████		
			JODNO - RELB ██████████		
			JODN5 - RELB ██████████		
			JODN9 - RELB ██████████		
			JODND - RELB ██████████		
			JODNH - RELB ██████████		
			JODNL - RELB ██████████		
			JODQ7 - RELB ██████████		
			JODQC - RELB ██████████		
			JODQG - RELB ██████████		
			JODQN - RELB ██████████		
			JODQQ - RELB ██████████		
			JODQR - RELB ██████████		
			JODQS - RELB ██████████		
			JODQV - RELB ██████████		
			JODQW - RELB ██████████		
			JODQZ - RELB ██████████		
			JODR0 - RELB ██████████		
			JODR1 - RELB ██████████		
			JODR2 - RELB ██████████		
			JODR6 - RELB ██████████		
			JODR7 - RELB ██████████		
			JODRB - RELB ██████████		
			JODRD - RELB ██████████		
			JODRF - RELB ██████████		
			JODRM - RELB ██████████		
			JODRX - RELB Sioux 345kV		
			JODRZ - RELB ██████████		
			JODS0 - RELB ██████████		
			JODS1 - RELB ██████████		
			JODSD - RELB ██████████		
			JODSG - RELB ██████████		
			JOF2J - RELB ██████████		
			JOFB5 - INTG Callaway ██████████		
			JOFB6 - INTG Callaway ██████████		
			JOFN2 - INTG ██████████		
JOFN3 - INTG ██████████					
JOFN4 - INTG ██████████					

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Secure & Reliable Transmission	Smart Grid	Intelligrid	J0FN6 - INTG ██████████		
			J0FNB - INTG ██████████		
			J0FNF - INTG ██████████		
			J0FNK - INTG ██████████		
			J0FNL - INTG ██████████		
			J0FNM - INTG ██████████		
			J0FNN - INTG ██████████		
			J0FNP - INTG ██████████		
			J0FNQ - INTG ██████████		
			J0FPL - RELB ██████ Trans		
			J0G7Q - INTG CORE MED - ██████████ 45		
			J0G7R - INTG CORE MED - ██████████ -47		
			J0G7S - INTG CORE MED - ██████████ -41		
			J0G7T - INTG CORE MED - ██████████ -42		
			J0G7V - INTG CORE MED - ██████████		
			J0G7W - INTG CORE MED ██████████ 43		
			J0G7X - INTG CORE MED ██████████		
			J0G7Z - INTG CORE MED ██████████		
			J0G80 - INTG CORE MED ██████████		
			J0G87 - INTG CORE MED IT Trans 2018 UEC		
			J0G88 - INTG CORE MED IT Trans 2019 UEC		
			J0G8M - INTG CORE MED TELECOM UEC 2018		
			J0G8P - INTG CORE MED TELECOM UEC 2019		
			J0G8K - INTG CORE MED ██████████ Sub		
			J0G8L - INTG CORE MED ██████████ Sub		
			J0HDG - INTG CORE MED ██████████		
			J0HR4 - INTG CORE MED TELE UEC 2019-SIOUX		
			J0HR5 - INTG C.MED TELECOM UEC MH MERAMEC		
			J0HVZ - INTG CORE MED TELECOM UEC 2019 -Location		
			J0HW6 - INTG CORE MED Trans UEC IS SEPT 19		
			J0KSW - INTG L- ██████ 3		
			J0KVC - INTG CM Callaway ██████		
			J0KWW - ██████ COMM EASE.- ██████████		
J0KWX - ██████ COMM EASEMENT ██████████					
J0KX1 - ██████ COMM LEAS. ADSS ██████████					
J0KX2 - ██████ COMM LEASING ADSS ██████████					
<b>Intelligrid Total</b>				47,165	106,106
		Relay Upgrades	J06FM - ██████ - UPGR 6 Relays		
			J09WS - ██████ Relay UPGRs		
			J0BZJ - Callaway PCB Relay UPGR V41/V43		
			J0G91 - ██████ Relay UPGR		
			J0G93 - ██████ Relay UPGR		

**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year		
Secure & Reliable Transmission	Smart Grid	Relay Upgrades	J0G95 - [REDACTED] Relay UPGR				
			J0G9B - [REDACTED] Relay Panel UPGRs				
			J0G9H - [REDACTED] Relay UPGR [REDACTED]				
			J0GXF - [REDACTED] Swyd UPGR Controls				
			J0HRF - [REDACTED] 345kv -Rly UPGR				
			J0HRG - [REDACTED] 345kv -Equip UPGR				
			J0J50 - [REDACTED] Relay UPGR for MSRP				
			J0J51 - [REDACTED] Sub Relay UPGR for MSRP				
			J0J52 - [REDACTED] Relay UPGR for MSRP				
			J0JGZ - [REDACTED] Relay UPGRs [REDACTED]				
J0JH1 - [REDACTED] Relay UPGRs [REDACTED]							
J0JH3 - [REDACTED] -6 Relay UPGR							
J0JH4 - [REDACTED] XFMR Brkr and Relay UPGR							
		Relay Upgrades Total		4,007	23,770		
	Smart Grid Total			51,172	129,876		
<b>Secure &amp; Reliable Transmission Total</b>				<b>61,182</b>	<b>280,397</b>		
Cyber & Technology Upgrades	Business & Corp Services	Enterprise System Upgrades	J0K40 - UPGR Security Camera - UEC				
		Enterprise System Upgrades Total		1,368	11,383		
	Business & Corp Services Total				1,368	11,383	
	Customer Support	Intelligrid	J04GT - Intelligrid Core High Holdg UEC J06K8 - Intelligrid Core Med 2019 UEC				
		Intelligrid Total		2,676	15,648		
	Work & Asset Mgmt System Upgrades	Work & Asset Mgmt System Upgrades		J0642 - GIS Electric UPGR - UEC J0DJ1 - ASPIRE P2 S&T AMO J0DJ5 - ASPIRE P2 S&T AMO HW J0DX2 - ASPIRE P3 E&G AMO J0GP5 - GIS Electric UPGR UEC Hardware J0GP7 - GIS Graphic Work Design UEC J0GPB - GIS Graphic Wrk Design Hardware UEC J0K6T - ADMS Annual UPGRs - UEC J0KWN - CYME Network Analysis Software - UEC			
		Work & Asset Mgmt System Upgrades Total			23,886	51,193	
		Customer Support Total			26,562	66,841	
		Run The Business	Network & Server Upgrades	J0KB5 - Cellular 3G Mod UPGR - UEC J0KB8 - Comm Tower UPGR - UEC			
			Network & Server Upgrades Total		2,112	11,415	
Run The Business Total			2,112	11,415			
<b>Cyber &amp; Technology Upgrades Total</b>				<b>30,042</b>	<b>89,639</b>		
Innovative Opportunities	Distributed Solar	Distributed Solar	J0B74 - Subscriber Solar Plant J0CDW - Distributive Gen Solar Partnership J0CZ0 - Subscriber Solar Software				



**Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Grid Modernization Projects**

\$ - Thousands

Category 1	Category 2	Category 3	2019 Project Detail	2019	5-Year
Innovative Opportunities	Distributed Solar	Distributed Solar	J0H7X - DG Solar Partnership Phase 2		
		Distributed Solar Total		5,796	5,796
	Distributed Solar Total			5,796	5,796
	Electrification Infrastructure	Electrification Infrastructure	J0KVD - Efficient Electrification Cap Equip		
		Electrification Infrastructure Total		752	7,510
	Electrification Infrastructure Total			752	7,510
	Grid Innovative Technologies	Grid Innovative Technologies	J0GJQ - Innovation UEC Projects J0KJ1 - Architect_Engineer UEC Resource Planning		
		Grid Innovative Technologies Total		1,991	11,669
	Grid Innovative Technologies Total			1,991	11,669
	<b>Innovative Opportunities Total</b>				<b>8,539</b>
<b>Grid Modernization Projects Total</b>				<b>360,576</b>	<b>1,985,968</b>

**NOTE:** Only 2019 projects are listed.

## Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Ongoing Operations

			\$ - Thousands		
Category 1	Category 2	Category 3	2019	5-Year	
Smart, Reliable Grid Operations	Distribution Operations	Circuit Inspection	18,247	62,672	
		Customer Requested	6,093	28,705	
		Device Inspection	582	2,918	
		Emergency Work	10,861	54,243	
		Emergent Business	29,305	160,137	
		Fleet	15,690	78,166	
		General Plant	572	2,841	
		Government Relocations	4,093	15,204	
		Office Furniture & Fixtures	30	152	
		Storms	3,852	19,654	
		Street Light Inspection	61	299	
		System Repair < \$100K	16,417	81,068	
		Transformers & Tools	25,828	106,821	
		UG Inspections	1,347	6,834	
		Worst Performing Circuits	4,080	22,008	
	Distribution Operations Total			137,058	641,722
	Grid Resiliency/Operating Flexibility		Line Capacity Increases	4,524	23,776
	Grid Resiliency/Operating Flexibility Total			4,524	23,776
	Substations - Condition Based Modernization		Substation Spill Control	168	4,585
	Substations - Condition Based Modernization Total			168	4,585
System Hardening		Brittle Conductor Replacements	616	1,410	
		Highway Crossings/Inaccessible		1,506	
System Hardening Total			616	2,916	
UG Revitalization		Indoor Rooms		1,789	
UG Revitalization Total				1,789	
<b>Smart, Reliable Grid Operations Total</b>			<b>142,366</b>	<b>674,788</b>	
Non-Nuclear Generation & Environmental	Modernization	Component/Material Upgrades	1,921	115,864	
		Controls/Communication Upgrades	334	12,860	
		Physical Security Upgrades	4,603	4,603	
	Modernization Total			6,858	133,327
	Reliability	Component Replacements	32,727	228,230	
		Major Planned Outage	53,567	370,147	
	Reliability Total			86,294	598,377
	Regulatory & Facilities	Facility Upgrades	500	12,358	
Regulatory Required		89,904	212,070		
Regulatory & Facilities Total			90,404	224,428	
<b>Non-Nuclear Generation &amp; Environmental Total</b>			<b>183,556</b>	<b>956,132</b>	

## Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Ongoing Operations

\$ - Thousands

Category 1	Category 2	Category 3	2019	5-Year
Nuclear Generation	Modernization	Component/Material Upgrades	4,860	77,603
		Physical Security Upgrades	109	3,180
	Modernization Total		4,969	80,783
	Reliability	Component Replacements	18,177	150,593
		Refuel	19,130	48,341
	Reliability Total		37,307	198,934
Regulatory & Facilities	Facility Upgrades	940	4,489	
	Regulatory Required	20,131	52,825	
Regulatory & Facilities Total		21,071	57,314	
<b>Nuclear Generation Total</b>			<b>63,347</b>	<b>337,031</b>
Hydro Generation	Modernization	Component/Material Upgrades	6,177	32,354
		Controls/Communication Upgrades		29,525
	Modernization Total		6,177	61,879
	Reliability	Component Replacements	4,857	49,569
		Reliability Total	4,857	49,569
	Regulatory & Facilities	Regulatory Required	367	5,364
Facility Upgrades			2,293	
Regulatory & Facilities Total		367	7,657	
<b>Hydro Generation Total</b>			<b>11,401</b>	<b>119,105</b>
Renewable & Gas Turbine Generation	Modernization	Component/Material Upgrades	1,269	22,302
		Controls/Communication Upgrades	436	19,488
	Modernization Total		1,705	41,790
	Reliability	Component Replacements	9,307	47,252
		Reliability Total	9,307	47,252
	Regulatory & Facilities	Facility Upgrades		1,204
Regulatory Required		386	1,232	
Regulatory & Facilities Total		386	2,436	
<b>Renewable &amp; Gas Turbine Generation Total</b>			<b>11,398</b>	<b>91,478</b>
Secure & Reliable Transmission	Grid Performance	Ring Bus Additions	302	1,871
		Grid Performance Total	302	1,871
	Modernization	Physical Security Upgrades	2,852	5,793
		Modernization Total	2,852	5,793
	Reliability	Condition Based Replacements	72,432	422,283
		Reliability Total	72,432	422,283
	Vehicles, Tools & Other	Vehicles, Tools & Other	4,416	22,790
		Vehicles, Tools & Other Total	4,416	22,790
<b>Secure &amp; Reliable Transmission Total</b>			<b>80,002</b>	<b>452,737</b>

## Ameren Missouri 1 & 5-Year Total Electric Customer-Focused Capital Investment Plan - Ongoing Operations

			\$ - Thousands		
Category 1	Category 2	Category 3	2019	5-Year	
Cyber & Technology Upgrades	Business & Corp Services	Department System Upgrades	2,439	2,698	
		Enterprise System Upgrades	16,996	113,259	
	Business & Corp Services Total		19,435	115,957	
	Customer Support	Customer System Enhancements	Intelligrid	15,445	89,567
			Work & Asset Mgmt System Upgrades	1,278	35,214
		Customer Support Total		16,723	128,515
	Cyber Security		Cyber Security Upgrades/New Technologies	4,749	20,731
	Cyber Security Total		4,749	20,731	
	Foundational Enablers	Analytics & Process Automation		1,332	12,683
		New Data Center & Facility Technologies		2,051	15,051
		New User Technologies		2,563	4,854
	Foundational Enablers Total		5,946	32,588	
	Run The Business	Network & Server Upgrades		7,386	48,173
User Technology Upgrades		4,261	12,493		
Run The Business Total		11,647	60,666		
<b>Cyber &amp; Technology Upgrades Total</b>			<b>58,500</b>	<b>358,457</b>	
Operational & Customer Support Facilities	Facilities	Facilities	54,393	313,793	
	Facilities Total		54,393	313,793	
<b>Operational &amp; Customer Support Facilities Total</b>			<b>54,393</b>	<b>313,793</b>	
Innovative Opportunities	Strategic Initiatives & Other		5,763	12,989	
	Strategic Initiatives & Other Total		5,763	12,989	
<b>Innovative Opportunities Total</b>			<b>5,763</b>	<b>12,989</b>	
<b>Ongoing Operations Total</b>			<b>610,726</b>	<b>3,316,510</b>	
<b>Grand Total - Grid Modernization Projects + Ongoing Operations</b>			<b>971,302</b>	<b>5,302,478</b>	

Wind Asset Acquisition (two sites)

1,000,000

**Grand Total, Including Wind****6,302,478**

## Ameren Missouri Electric Customer-Focused Capital Investment Plan - First Adds

Category 1	Category 2	Category 3	Project
Smart, Reliable Grid Operations	Grid Resiliency/Operating Flexibility	Line Capacity Increases	JOCBF - █████ 258-54 New Feeder
			JOGCM - █████ 32-55 █████ Add Phase
			JOGCR - █████ 161-56 █████ 557-53 Tie
			JOJQ6 - █████ 178-54 █████
			JOKD7 - █████ 982-51, Conductor UPGR
			JOKLW - █████ 505-51 █████ Reconductor
			JOKN9 - █████ 168-52 Improve voltage
		JOKNC - █████ 161-54_161-51 Recond-Tie	
		JOKNF - █████ 487-52 █████ 472-52 Fdr Tie	
		Substation Capacity Increases	JOJGC - █████ 12 kV Sub-Sub-C
JOJHX - █████ 138-12kV-Site-C			
JOKP9 - █████ 73, █████ -Line-C			
JOKSJ - █████ Sub Site Purchase-C			
Smart Grid	Distribution Automation	JOJG5 - DA █████	
	SCADA Upgrades	JOJJ4 - █████ - Add Scada	
Substations - Condition Based Modernization	OCB Upgrades	JOGRZ - OCB █████ UPGR 69kV P638	
		JOKQH - OCB UPGR 8 at █████ Sub-Sub-C	
		JOKQV - OCB - █████ 34KV POS 120	
		JOKR4 - OCB - █████ -34KV POS 14	
	Relay Upgrades	JOJG7 - RLY UPGR █████ SWGR-█████	
	Sub/Switchgear Upgrades	28715 - CBM █████ Sub-C	
		JOCBN - CBM █████ Unit W-Line-C	
		JOCGS - CBM █████ Sub Site	
		JOCH9 - CBM █████ -SUB-C	
		JOCKK - CBM █████ Unit W-SUB-C	
JOCLV - CBM █████ Unit W-UG-C			
JOCPK - CBM █████ -Line-C			
JOG9S - CBM █████ Site Purch			
JOGDT - CBM █████ UPGR HiSd-Sub-C			
JOGGG - █████ 69kV #1 XFMR Purchase			
JOJGK - █████ - Add Scada			
JOJJ9 - █████ - Add Scada			
JOJKN - █████ - Add Scada			

### Ameren Missouri Electric Customer-Focused Capital Investment Plan - First Adds

Category 1	Category 2	Category 3	Project	
Smart, Reliable Grid Operations	Substation - Condition Based Modernization	Sub/Switchgear Upgrades	J0JKQ - CBM █████ Sub -Sub-C J0JMS - CBM █████ Sub-Line-C J0JP4 - CBM █████ UPGR 34.5Kv-Line-C J0JDM - CBM █████ UPGR - Sub - C J0CHF - CBM █████ UPGR Swgr-Sub-C J0JGH - CBM █████ Mobile D	
		Substation Spill Control	26095 - SSC-Variou Subs-Unident. J08J3 - SSC-█████ Sub J08KW - SSC █████ Sub J08KX - SSC-█████ Sub J0GB5 - SSC █████ J0GC4 - SSC-█████	
	System Hardening	Subtransmission Upgrades	J0GJ6 - █████ 72 █████ Reconductor J0J2P - █████ 71 █████ -77,34KV Hardening J0JM4 - █████ 300-075 █████ J0JNF - █████ 72-73 J0JNX - █████ 898075 UPGR	
	UG Cable Upgrades	UG Cable Upgrades	J0JD2 - Cable UPGR - █████ J0JD3 - Cable UPGR - █████ J0JD4 - Cable UPGR - █████ J0JD5 - Cable UPGR - █████	
	UG Revitalization	UG Revitalization	J0GBC - 0A321-█████ Ntwk UPGR J0GBS - 0A321 █████ Conduit J0HM9 - 0A321-█████ In-Sub UPGR J0HMB - 0A321 █████ MH	
	Non-Nuclear Generation & Environmental	Grid Performance	Cyber Security Upgrades/New Technologies	J05HF - LBD U1-4 HMI LIFECYCLE UPGR
		Reliability	Component Replacements	J08MT - LBD - U1 Burner Assembly Repl J0JPR - LBD - Scraper Engine&Trans REPL J0K7X - SX U2 SUBFP
			Major Planned Outage	21257 - LBD-U2 Hor SH Long Lance Addn 21433 - LABADIE U2 125 V DC Redundancy and J0GL5 - LBD 2A/2D BCP Casing/Suction Vlv
		Regulatory & Facilities	Regulatory Required	J0HX2 - LBD Compressd Air System UPGR

## Ameren Missouri Electric Customer-Focused Capital Investment Plan - First Adds

Category 1	Category 2	Category 3	Project
Nuclear Generation	Modernization	Component/Material Upgrades	J0CW5 - CAL Chemistry Micro Max UPGR
	Reliability	Component Replacements	J0F60 - CAL Sally Port UPGR J0JKG - CAL B Intake Travelling Screen REPL
	Regulatory & Facilities	Facility Upgrades	J0D13 - CAL Tool Room RFID UPGR
Hydro Generation	Modernization	Component/Material Upgrades	29101 - KEO Install Driftwood Removal Rake
Renewable & Gas Turbine Generation	Modernization	Controls/Communication Upgrades	J0GDB - CTG PNK Chiller Control REPL
Secure & Reliable Transmission	Grid Performance	Line Breaker Additions	J0C65 - NERC ██████ - Add 3 Breakers
	Modernization	Breaker Upgrades	J0BZH - ██████ V45 V51 & V85 Brkr UPGR
			J0C8X - ██████ - UPGR Brkr H3 & H11
			J0J7Z - ██████ 345kV Brkr UPGRs 1 4
Reliability	Condition Based Replacements	J0HZH - ██████ Rebuild J0HZL - ██████ 4 rebuild J0J7Q - ██████ Bus 2 Pot XFMR REPL J0J8B - ██████ 4 Rbld Str 146-173 J0LOC - ██████ 1 J0KWR - ██████ - Switch REPL and Bus	
Smart Grid	Intelligrid	J0HVX - INTG CORE MEDTELE UEC 2019 IS DEC19 J0J87 - ██████ 6 Add OPGW	
Cyber & Technology Upgrades	Cyber Security	Cyber Security Upgrades/New Technologies	J0K7L - Intrusion Detect OT Networks - UEC J0K81 - Data Loss Prevention - UEC
	Foundational Enablers	Analytics & Process Automation	J0K8B - Modern Analytics Platform UEC
	Run The Business	User Technology Upgrades	J0K90 - Enterprise Lifecycle Mgmt - UEC

**NOTE:** "First Add" projects are ready to execute when unforeseen circumstances require in-budget project deferrals or cuts, or actuals costs are less than forecasted costs on executed projects. This allows budget and grid modernization investment targets to be achieved.

## Missouri Smart Energy Plan

### Project Name Acronym Guide

ADA - Americans with Disabilities Act  
 ADMS - Ameren Data Mgmt System  
 ADSS - All-Dielectric Self-Supporting (Cable)  
 ARV - Archview Division  
 BRKR - Breaker  
 CAB - Cable  
 CAL - Callaway Energy Center  
 CBM - Condition-Based Modernization  
 CMD - Central Missouri Division  
 COMM - Communication  
 CON / COND - Conduit  
 CTG - Combustion Turbine Generator  
 CTG AUD - Audrain CTG  
 CTG FGD - Fairgrounds CTG  
 CTG GCK - Goose Creek CTG  
 CTG KIN - Kinmundy CTG  
 CTG KRK - Kirksville CTG  
 CTG MER - Meramec CTG  
 CTG MEX - Mexico CTG  
 CTG MHT - Maryland Heights CTG  
 CTG MOB - Moberly CTG  
 CTG MOR - Moreau CTG  
 CTG PNK - Pinckneyville CTG  
 CTG PNO Peno Creek CTG  
 CTG RCK - Raccoon Creek CTG  
 CTG VEN - Venice CTGs  
 CTL - Control  
 DA - Distribution Automation  
 DCD - Distribution Control Dept  
 DER - Distributed Energy Resources  
 DG - Distributed Generation  
 EQPT - Equipment  
 EXT - Extension  
 FCI - Fault Circuit Indicator  
 GIS - Geographic Information System  
 GOB - General Office Building  
 GSU - Generator Step Up  
 GWY - Gateway Division  
 HISD - High Side  
 HMI - Human Machine Interface  
 IGC - Increased Ground Clearance  
 INF - Infrastructure  
 INTG - Intelligent

KEO - Keokuk Energy Center  
 LBD - Labadie Energy Center  
 LINE-C - Line Companion Project \*  
 MDI - Missouri Distribution  
 MER - Meramec Energy Center  
 MGO - Missouri Gas Division  
 MH - Manhole  
 MSRP - Metro South Reliability Project  
 MTCE - Maintenance  
 MVD - Meramec Valley Division  
 NMD - Northeast MO Division  
 NTWK - Network  
 OCB - Oil-filled Circuit Breaker  
 OH - Overhead  
 OPGW - Optical Ground Wire  
 OSG - Osage Energy Center  
 OTU - Overhead To Underground  
 POS - Position  
 PTO - Pressure, Temp, Oil Level Monitoring  
 REC OFA - O'Fallon Renewable Energy Ctr  
 RELB - Reliability Upgrade  
 REPL - Replace or Replacement  
 RI - Rush Island Energy Center  
 SITE-C - Site Companion Project \*  
 SMO - Southeast MO Division  
 SSC - Substation Spill Control  
 SSM - Sisters of St. Marys Hospitals  
 SUB-C - Substation Companion Project \*  
 SVC - Service  
 SWGR - Switchgear  
 SWO - Standing Work Order  
 SWYD - Switchyard  
 SX - Sioux Energy Center  
 T&DD - Transmission & Distribution Design  
 TDL - Terre Du Lac  
 TS - Taum Sauk Center  
 UG / UND - Underground  
 UG-C - Underground Companion Project \*  
 UPGR - Upgrade  
 VAR - Volt Amp Reactive  
 VLT - Vault  
 XF / XFMR - Transformer

\* **Companions** are individual projects that make up an over-arching project; by linking projects this way, administrative and executional efficiencies may be achieved.

Other acronyms and abbreviations not defined in this list are either geographical in nature, are common acronyms (e.g., "MO" = Missouri), are used industry-wide (e.g., "NERC" = North American Electric Reliability Corporation), or are easily recognized.