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Xcel Energy										
PROJECT/ANALYSIS PARAMETERS										
GENERAL PARAMETERS	UNITS	AMI-Electric	NOTES	INPUT OWNER	COST BASIS	INPUT EXPLANATION	CALCULATION METHODOLOGY	EXAMPLE CALCULATION	REFLECTED IN BUDGET?	MECHANISM
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Meter Install Start Year		2022	Installation starts in this year	PROTECTED DATA BEGINS		Communication and system installation begin this year in conjunction with meters shoit	replaced by contractor in 2024 at no additional Company or customer's cost		Yes	PROTECTED DATA BEGINS
Number of Meter Installations - Initial Count 2019 filing	count	1,313,206	Actual meter population base				For C&A, NGM will have all meter outages depreciated by the end of 2019. Company does not track individual meter depreciation, but depreciates a mass asset.		Yes	
AMR Retirement/Future rate	%	1.01%	Based on current average meter retirement rate			Based on current average meter retirement rate from 2014 to 2018.			Yes	
AMR Meter Failure Rate	%	0.50%	Vendor's estimate, same as PSCs			Vendor estimate based on experience, same as PSCs.	Percentage of meter failure.	PROTECTED DATA BEGINS	Yes	No failure rate tested or benchmarking done with other companies because other don't have the same configuration.
AMR Average Blended (Residential) AMR Meter Cost (meter only) TDU	\$/unit	PROTECTED DATA BEGINS	Price per contract. Includes overheads, taxes and fixed costs 2019-2020			Price per contract. Includes overheads, taxes and fixed costs. For period 2021-2024, price doesn't require escalation.	Cost includes complete HAN hardware (cable and certificates) in field, but does not include complete HAN deployment, including associated software and other costs.	PROTECTED DATA BEGINS	Yes	
AMR Average Blended (Res. and Com.) AMR Meter Cost (meter only) Year 21 and Beyond	\$/unit		Meter price including taxes and overheads. Price to be escalated, based on PSC's AMR estimate			Mis price of residential and commercial customers			Yes	
AMR Average blended meter cost	\$/unit		Per contract, installation costs (residential). Includes Warehousing, disposal, and overheads.			Per contract, fixed price not to be escalated during TDU period			Yes	
AMR Average Blended (Residential) Meter Installation Costs TDU	\$/unit		Per contract, Blended installation costs (residential and commercial) includes Warehousing, disposal, and overheads.			Per contract, fixed price not to be escalated during 2021-2024 deployment time			Yes	
AMR Average Blended (Res. and Com.) Meter Installation Costs/ Year 21 and Beyond	\$/unit		Project Management estimated average installation cost			Based on existing meters we have purchased.	Scaled labor install avg cost to replace AMR meters today.		Yes	
AMR Meter Initial Labor Cost- Blended (Res-Com)	\$/unit	PROTECTED DATA BEGINS	Project Management estimated average installation cost			Company depreciation meters by outages not by a single meter.	Disposal for the meters that will be coming out. High level		Yes	
AMR Meter Disposal CAP	\$/unit	0.0	Cost per meter. Separate from meter price						Yes	
AMR Meter Disposal C&A	\$/unit	0.0	Cost per meter. Separate from meter price						Yes	
Common Corporate Business System development Allocation										PROTECTED DATA BEGINS
Common Corporate Business System development Allocation	\$	11,427,379	Not Financial Accounting, cost allocated as "Updated model FY01-1511" 100000042920- S&C-AMR Head End SW-Strakeout-AMR-1-1002						Yes	
BENEFIT REPORTS										
AMI Benefits (Discontinued)										
100%										
CUST BENEFIT Reduction in bad debt write-off	\$	14,044,398	Prevent additional outage on accounts that are overdue.			Average of 2014-2018 with an 8% benefit (scaled at 8 different large utilities had debt and cost on 8% reduction). No current status in MN that would allow us to get credit	Benefit from remote disconnect	This benefit should not start until 2023 and is contingent on remote disconnection.	Company's analysis looked for bad debt write-off in 8 utilities pre post deployment and they averaged 8% improvement to the total dollar volume. Some of these utilities are comparable to Xcel and others not. Even though NGM is low, there is still opportunity	
OBM Costs savings from remote disconnect capability	\$	26,474,490	Assume 10% of electric meter disconnections can be performed remotely and 95% of reconnections. This is an estimate of the number of meters that are non-communicative, not our customers and			Reduction in labor costs for field collection. Trouble and meter groups anticipate efficiency gains (fixed, labor)	Includes reconnect benefits. Do not factor in 1 charged to Ameren business case and PSCs	Avoidance of trips	Currently 10-15% of all customers are eligible for remote disconnection. With AMR, company will propose to move up to 20%. There are still questions regarding rates in MN. Maybe separate benefit, disconnected/Connect?	
OBM Reduction in okay on arrival trips associated with outages	\$	8,369,248	Reduction in cost associated with Okay on Arrival. 50% reduction due to AMR.			Average count of fix of outages and no outages on arrival jobs by hour (0-23) and day of the week (M-S) from 2014-2018.			Sum of average trips per year and multiply by cost per trip. Cost per trip includes dispatch, trouble man, and transportation costs.	
OBM Reduction in trips associated with Customer equipment damage	\$	2,014,115	50% reduction in field trips associated with customer equipment damage			Savings of dispatch labor and transportation costs. Ameren Illinois Business case 50%			Total customer equipment orders average 1,796 from 2014-2018. Cost for trip \$126, includes dispatch cost, trouble man, and transportation cost.	
OBM Savings from reduction in Theft	\$	55,425,202	More conservative than PSCs. What has been shown from other utilities.			Based on 5 year average 2014-2018 Residential and small C&I. Estimate 50% benefit for the first year- 2024				
CUST BENEFIT Reduced consumption on inactive meters	\$	22,898,044	Manual disconnects to prevent outage on accounts that have had their service stopped.			Savings from being able to use data and analytics from AMR meters (identify tampering and theft)			Ability to disconnect meters between tenants. "Unknown user" not in work paper.	
OBM Reduced field trips for voltage investigations	\$	4,621,130	50% reduction in field trips associated with voltage investigations.			This is reduced to 20% as compared to PSCs at 50% due to Winter Moratorium.			Average of 2058 trips. Estimate a cost of \$ 182 per trip. Assume 50% reduction	
CAP Outage management efficiency (Storm Spend) - Capital	\$	19,371,883	50% benefit in 2024			Avoided trips			Estimate 10% savings associated with storm spend due to AMR	
OBM Outage management efficiency (Storm Spend) - O&M	\$	77,275	10% of capital spend savings associated with storm spend. 50% benefit in 2024 and 25% in 2023.						Estimate 5-10% savings associated with storm spend due to AMR	
CUST BENEFIT Reduced outage duration benefit for customers	\$	21,904,346	15% of O&M storm spend associated with storms sound			Benefit to the customer. Based on ICE calculator from LBNL (Lawrence Berkeley National Lab)	Anticipated benefits associated with reduced outages and reduced outage duration (benefit to customer)			
CAP Efficiency gains in distribution management of reliability, asset health and capacity projects - Capital	\$	12,388,883	Assumed 1% capital benefit will be achieved in reducing capital expenditures through more efficient installation and replacement of distribution assets			The Company's 1% estimated benefit is in alignment with the Ameren Illinois Business case	Efficiency gain associated with distribution reliability and asset health			
OBM Efficiency gains in distribution management of reliability, asset health and capacity projects - O&M	\$	71,382	0.1% of O&M spend. 50% Benefit in 2024							
OTHER AMR DRIVE BY COSTS REPORTS										
Capital cost of vehicles (C&A) 2000 units	\$	28,000	Estimated used for the AMR drive-by system							PROTECTED DATA BEGINS
C&A/AM-1517-1512 (both) Total 17	\$	371,883	Estimated used for the AMR drive-by system			PROTECTED DATA BEGINS				

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