EVERGY METRO

RESOURCE ACQUISITION STRATEGY SELECTION

INTEGRATED RESOURCE PLAN

4 CSR 240-22.070

APRIL 2021

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VOLUME 7: RESOURCE ACQUISITION STRATEGY SELECTION

PURPOSE: This rule requires the utility to select a preferred resource plan, develop an implementation plan, and officially adopt a resource acquisition strategy. The rule also requires the utility to prepare contingency plans and evaluate the demand-side resources that are included in the resource acquisition strategy.

SECTION 1: PREFERRED RESOURCE PLAN

(1) The utility shall select a preferred resource plan from among the alternative resource plans that have been analyzed pursuant to the requirements of 4 CSR 240-22.060. The utility shall describe and document the process used to select the preferred resource plan, including the relative weights given to the various performance measures and the rationale used by utility decision makers to judge the appropriate tradeoffs between competing planning objectives and between expected performance and risk. The utility shall provide the names, titles, and roles of the utility decision–makers in the preferred resource plan selection process. The preferred resource plan shall satisfy at least the following conditions:

(A) In the judgment of utility decision makers, strike an appropriate balance between the various planning objectives specified in 4 CSR 240-22.010(2);

The Alternative Resource Plans (ARP) developed and analyzed under the requirements of 4 CSR 240-22.060 were designed to meet the objectives of 4 CSR 240-22.010(2). Demand-side resources - in conjunction with MEEIA - and growth of the renewable portfolio have been key components in the resource planning efforts of the company for over a decade.

(B) Invest in advanced transmission and distribution technologies unless, in the judgment of the utility decision-makers, investing in those technologies to upgrade transmission and/or distribution networks is not in the public interest;

These planning elements are discussed in 4 CSR 240-22.045 and in special contemporary issues.

(C) Utilize demand-side resources to the maximum amount that comply with legal mandates and, in the judgment of the utility decision-makers, are consistent with the public interest and achieve state energy policies; and

As indicated in section 1(A) above, demand-side resources are a key component of alternative resource plan development. Per 4 CSR 240-22.010(2)(A), demand-side resources, renewable energy, and supply-side resources are to be analyzed on an equivalent basis, subject to compliance with all legal mandates. Regarding demand-side resources, MEEIA provides the legal mandate structure that helps to translate the potential studies and other DSM tools into portfolios that are included in the alternative resource plans to be evaluated.

These planning elements are discussed in 4 CSR 240-22.050.

(D) In the judgment of the utility decision makers, the preferred plan, in conjunction with the deployment of emergency demand response measures and access to short-term and emergency power supplies, has sufficient resources to serve load forecasted under extreme weather conditions pursuant to 4CSR 240-22.030(8)(B) for the implementation period. If the utility cannot affirm the sufficiency of resources, it shall consider an alternative resource plan or modifications to its preferred resource plan that can meet extreme weather conditions.

The Preferred Plan MCGCU has been selected for Evergy Metro is shown in Table 1 below:

Table 1: Evergy Metro Preferred Plan

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2021	0			29	
2022	0			48	
2023	0			146	
2024	0		230	196	
2025	0	120		237	
2026	0	120		273	
2027	0			305	
2028	0		120	333	
2029	0		120	357	
2030	0		120	377	
2031	0		120	384	
2032	0		120	382	373
2033	0			380	
2034	0			379	
2035	0			377	
2036	0			376	
2037	0			376	
2038	0			378	
2039	0			379	821
2040	699			379	

The Preferred Plan includes the following renewable additions: 230 MW of solar generation in year 2024, and 120 MW of solar generation in each of the years 2028 – 2032. Additionally, 120 MW of wind generation in years 2025 and 2026. DSM resources are based upon a RAP- level which consists of a suite of eight residential and ten commercial programs five of which are demand response programs, three are demand side rates, and ten are energy efficiency programs.

The Preferred Plan was not the lowest cost plan from a Net Present Value of Revenue Requirement (NPVRR) perspective. On an expected value basis, the

lowest cost Alternative Resource Plan (ARP) was $47 Million lower over the twenty-year planning period. The single difference between the Preferred Plan and the lowest cost ARP was due to the difference in DSM assumptions between the plans. The Preferred Plan utilized the RAP- level of DSM programs whereas the lowest cost ARP, MCGDU utilizes MEEIA 3 programs only. While the selected Preferred Plan for Evergy Metro is the second lowest cost plan on an expected value basis over the 27 scenarios evaluated, the lowest cost plan for Evergy as a combined company, which is also our Preferred Plan for Evergy, includes the continuation of DSM programs in Evergy Missouri Metro service territory. This Preferred Plan not only shows a reduction in overall Evergy (all territories combined) revenue requirements, but it also maintains current customer program offerings and consistency across Evergy's Missouri service territories. Additional analysis will be conducted during the next Integrated Resource Planning process, DSM potential study and the next MEEIA application filing to minimize any negative impacts on Missouri Metro customers.

The Preferred Plan meets the fundamental planning objectives as required by Rule 22.010(2) to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies.

The Preferred Plan was reviewed and approved by David Campbell, President and Chief Executive Officer and Kevin Noblet, Vice President – Safety and Operations Planning.

The Forecast of Capacity Balance worksheet associated with the Evergy Metro Preferred Plan is shown in Table 2 below. The Capacity Balance shows that reserve obligations are met each year.

Table 2: Evergy Metro Forecast of Capacity Balance - Preferred Plan

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
A. System Generating Capacity (Evergy Metro share)																				
Base Capacity																				
Wolf Creek	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553	553
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	
Iatan II	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	373	373	373	373	373	373	373	373	373	373	373	373								
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	
Total Base Capacity	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,802**	**2,429**	**2,429**	**2,429**	**2,429**	**2,429**	**2,429**	**2,429**	**1,608**
Intermediate Capacity																				
Hawthorn 6 & 9	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
Total Intermediate Capacity	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**	**225**
Peaking Capacity																				
Hawthorn 7	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Hawthorn 8	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Northeast 16	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
New CT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	1,165
Total Peaking Capacity	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**935**	**1,168**	**2,100**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Total Accredited Intermittent Capacity	48	48	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Wind Additions					12	24	24	24	24	24	24	24	24	24	24	24	30	60	60	60
Solar Additions				115	115	115	115	175	235	247	259	271	271	271	271	271	271	271	271	271
Total Intermittent Capacity with Additions	48	48	30	145	157	169	169	229	289	301	313	325	325	325	325	325	331	361	361	361
Total Generation Capacity (TGC)	**4,009**	**4,009**	**3,991**	**4,106**	**4,118**	**4,130**	**4,130**	**4,190**	**4,250**	**4,262**	**4,274**	**4,286**	**3,913**	**3,913**	**3,913**	**3,913**	**3,919**	**3,949**	**4,182**	**4,293**
B. Capacity Transactions																				
Purchases:																				
Cimarron II (131.1 MW)	61	61	30	30	30	30	30	30	30	30	30	-	-	-	-	-	-	-	-	-
Spearville 3 (100.8 MW)	47	47	20	20	20	20	20	20	20	20	20	20	-	-	-	-	-	-	-	-
CNPPID Hydro PPA	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waverly (200 MW)	71	71	49	49	49	49	49	49	49	49	49	49	49	49	49	-	-	-	-	-
Slate Creek (150 MW)	78	78	49	49	49	49	49	49	49	49	49	49	49	49	49	-	-	-	-	-
Rock Creek (180 MW)	46	46	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	-	-	-
Osborn (120 MW)	16	16	22	22	22	22	22	22	22	22	22	22	22	22	22	22	-	-	-	-
Pratt (98 MW)	59	59	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	-	-
Prairie Queen (80 MW)	27	27	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	-
Ponderosa (100 MW)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
PPA Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	50	100	-	-
Total Capacity Purchases (P)	474	474	323	263	263	263	263	263	263	263	263	233	213	213	213	140	143	159	32	10
Sales:																				
City of Eudora	(323)	(325)	(328)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from Spearville 1 & 2)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PPA Sale	(100)	(100)	(89)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(98)	-	-	-	-	-
Total Capacity Sales (S)	(478)	(480)	(472)	(130)	(130)	(115)	(115)	(115)	(100)	(100)	(100)	(100)	(100)	(100)	(98)	-	-	-	-	-
Net Transactions (NT)	**(4)**	**(6)**	**(149)**	**133**	**133**	**148**	**148**	**148**	**163**	**163**	**163**	**133**	**113**	**113**	**115**	**140**	**143**	**159**	**32**	**10**
Total System Capacity (TSC)	**4,006**	**4,004**	**3,842**	**4,239**	**4,251**	**4,278**	**4,278**	**4,338**	**4,413**	**4,425**	**4,437**	**4,419**	**4,026**	**4,026**	**4,028**	**4,053**	**4,062**	**4,108**	**4,214**	**4,303**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,455**	**3,465**	**3,470**	**3,480**	**3,486**	**3,495**	**3,505**	**3,519**	**3,527**	**3,536**	**3,546**	**3,561**	**3,571**	**3,586**	**3,603**	**3,623**	**3,639**	**3,708**	**3,677**	**3,696**
Less DSM:																				
Demand Response	-	-	83	105	123	137	149	159	164	169	172	176	177	178	179	180	180	181	182	183
Energy Efficiency	-	-	22	46	66	84	98	111	122	132	140	146	149	149	146	145	145	147	148	149
MEEIA	29	48	40	41	41	41	40	39	40	40	32	18	10	8	7	6	5	5	3	1
Demand-Side Rates			1	4	7	12	18	25	31	36	40	42	44	45	45	45	46	46	46	46
Peak Forecast less DSM (PF)	**3,426**	**3,417**	**3,324**	**3,284**	**3,249**	**3,222**	**3,200**	**3,186**	**3,170**	**3,159**	**3,162**	**3,179**	**3,191**	**3,207**	**3,226**	**3,247**	**3,263**	**3,330**	**3,298**	**3,317**
Capacity Reserves (CR)	**580**	**587**	**518**	**956**	**1,002**	**1,056**	**1,078**	**1,153**	**1,244**	**1,267**	**1,275**	**1,241**	**835**	**820**	**802**	**806**	**800**	**779**	**917**	**986**
D. Capacity Needs																				
% Reserve Margin	17%	17%	16%	29%	31%	33%	34%	36%	39%	40%	40%	39%	26%	26%	25%	25%	25%	23%	28%	30%
% Capacity Margin	14%	15%	13%	23%	24%	25%	25%	27%	28%	29%	29%	28%	21%	20%	20%	20%	20%	19%	22%	23%
Required Capacity (RC)	**3,837**	**3,827**	**3,723**	**3,678**	**3,639**	**3,609**	**3,584**	**3,568**	**3,550**	**3,538**	**3,541**	**3,560**	**3,574**	**3,592**	**3,613**	**3,637**	**3,654**	**3,729**	**3,693**	**3,715**
Capacity Balance	**169**	**177**	**119**	**562**	**613**	**670**	**694**	**771**	**863**	**888**	**896**	**859**	**452**	**435**	**415**	**416**	**408**	**379**	**521**	**588**

The Preferred Plan was tested under extreme weather conditions as defined by Rule 240-22.030(8)(B). There is no unserved energy under this extreme condition.

SECTION 2: RANGES OF CRITICAL UNCERTAIN FACTORS

The utility shall specify the ranges or combinations of outcomes for the critical uncertain factors that define the limits within which the preferred resource plan is judged to be appropriate and explain how these limits were determined. The utility shall also describe and document its assessment of whether, and under what circumstances, other uncertain factors associated with the preferred resource plan could materially affect the performance of the preferred resource plan relative to alternative resource plans.

The ranges of critical uncertain factors are calculated by finding the value at which the critical uncertain factor needs to change in order for the Preferred Plan to no longer be preferred. The values of the NPVRR for the Preferred Resource Plan and the lowest cost plan under extreme conditions are compared and by using linear interpolation a crossover point value is found and expressed as a percent of the range of the critical uncertain factor. These percentages are superimposed on the high, mid and low forecasts for each critical uncertain factor to develop the resulting ranges.

All ARPs are ranked based upon the expected value of results from the twenty-seven scenario/endpoint decision tree represented in Figure 1 of Volume 6 Evergy Metro Integrated Resource Plan and Risk Analysis. These results are presented in Table 3 below:

Table 3: Expected Value Alternative Resource Plan Rankings

Rank (L-H)	Plan	NPVRR ($mm)	Delta	Rank (L-H)	Plan	NPVRR ($mm)	Delta
1	**MCGDU**	$18,655	$0	**9**	**MAABS**	$18,787	$132
2	**MCGCU**	$18,702	$47	**10**	**MCGCS**	$18,789	$134
3	**MCGBU**	$18,716	$61	**11**	**MAACS**	$18,795	$140
4	**MCGCT**	$18,724	$69	**12**	**MFFCS**	$18,840	$186
5	**MDDCS**	$18,728	$74	**13**	**MAACA**	$18,855	$201
6	**MBBCS**	$18,754	$99	**14**	**MEECS**	$18,908	$253
7	**MCCCS**	$18,774	$119	**15**	**MAAAS**	$19,058	$403
8	**MCGDS**	$18,784	$129				

The ARPs are also ranked by their sub-sets of results, representing a known state of CO_2. The first set of NPVRR results represent the nine endpoints assuming no future CO_2 tax. The second set of NPVRR results represent a mid-priced CO_2 tax scenario. The third set of NPVRR results represent a high-priced CO_2 tax scenario.

Table 4: Alternative Resource Plan Ranking Based upon CO_2 Assumptions

No CO_2			Mid CO_2			High CO_2		
Plan	NPVRR ($mm)	Delta	Plan	NPVRR ($mm)	Delta	Plan	NPVRR ($mm)	Delta
MCGDS	$17,441	$0	**MCGDU**	$18,535	$0	**MCGBU**	$20,034	$0
MCGCS	$17,505	$64	**MDDCS**	$18,552	$16	**MCGCU**	$20,052	$18
MDDCS	$17,552	$111	**MBBCS**	$18,578	$42	**MCGDU**	$20,111	$77
MCGDU	$17,557	$117	**MCGCT**	$18,597	$62	**MCGCT**	$20,245	$210
MCCCS	$17,564	$124	**MCGCU**	$18,597	$62	**MDDCS**	$20,435	$401
MBBCS	$17,565	$125	**MCCCS**	$18,601	$66	**MBBCS**	$20,470	$436
MAACA	$17,572	$131	**MCGDS**	$18,607	$71	**MFFCS**	$20,485	$451
MAACS	$17,572	$131	**MCGBU**	$18,616	$81	**MAABS**	$20,491	$457
MAABS	$17,580	$139	**MAABS**	$18,621	$86	**MCCCS**	$20,502	$467
MCGCT	$17,584	$143	**MAACS**	$18,624	$89	**MAACS**	$20,532	$498
MCGCU	$17,664	$224	**MCGCS**	$18,628	$93	**MEECS**	$20,537	$503
MCGBU	$17,697	$256	**MFFCS**	$18,664	$129	**MCGCS**	$20,557	$523
MFFCS	$17,724	$284	**MAACA**	$18,669	$134	**MCGDS**	$20,660	$626
MEECS	$17,828	$387	**MEECS**	$18,725	$190	**MAAAS**	$20,694	$660
MAAAS	$17,889	$448	**MAAAS**	$18,903	$367	**MAACA**	$20,698	$663

The lowest ranked ARPs by scenario/endpoint are provided in Table 5 below.

Table 5: Lowest NPVRR Alternative Resource Plan By Endpoint

Endpoint	ARP	Load Growth	Natural Gas	CO_2	Endpoint Probability
1	MCGBU	High	High	High	0.5%
2	MCGDU	High	High	Mid	1.4%
3	MCGDS	High	High	Low	0.5%
4	MCGBU	High	Mid	High	1.5%
5	MCGDU	High	Mid	Mid	4.5%
6	MCGDS	High	Mid	Low	1.5%
7	MCGBU	High	Low	High	1.1%
8	MDDCS	High	Low	Mid	3.2%
9	MDDCS	High	Low	Low	1.1%
10	MCGBU	Mid	High	High	1.5%
11	MCGDU	Mid	High	Mid	4.5%
12	MCGDS	Mid	High	Low	1.5%
13	MCGBU	Mid	Mid	High	5.0%
14	MCGDU	Mid	Mid	Mid	15.0%
15	MCGDS	Mid	Mid	Low	5.0%
16	MCGBU	Mid	Low	High	3.5%
17	MDDCS	Mid	Low	Mid	10.5%
18	MDDCS	Mid	Low	Low	3.5%
19	MCGBU	Low	High	High	1.1%
20	MCGDU	Low	High	Mid	3.2%
21	MCGDS	Low	High	Low	1.1%
22	MCGBU	Low	Mid	High	3.5%
23	MCGDU	Low	Mid	Mid	10.5%
24	MCGDS	Low	Mid	Low	3.5%
25	MCGBU	Low	Low	High	2.5%
26	MDDCS	Low	Low	Mid	7.4%
27	MDDCS	Low	Low	Low	2.5%

In the rankings above, the majority of the low ranking ARPs all share the same retirement scenarios - retiring Evergy Metro's 373 MW share of LaCygne-1 in 2032 which coincides with the book life retirement date for the Evergy Kansas Central share of the generating unit and extending the book life of Evergy Metro's 331 MW share of LaCygne-2 from 2029 to 2039. Additionally, Evergy Metro's 490 MW share of Iatan-1 is expected to be retired in 2039.

The following tables represent the sensitivities for the uncertain factors by scenario/endpoint.

Table 6: Uncertain Factors Sensitivities – High Load Growth Vs. Natural Gas and CO_2

	With CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
	Endpoint	1	Endpoint	2	Endpoint	3		Endpoint	4	Endpoint	5	Endpoint	6		Endpoint	7	Endpoint	8	Endpoint	9
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
HIGH GAS	MCGBU	21,802	MCGDU	19,233	MCGDS	17,842	MID GAS	MCGBU	21,714	MCGDU	19,471	MCGDS	17,995	LOW GAS	MCGBU	21,428	MDDCS	19,420	MDDCS	18,242
	MCGCU	21,830	MCGCU	19,270	MCGDU	17,877		MCGCU	21,735	MDDCS	19,525	MCGCS	18,052		MCGCU	21,440	MBBCS	19,473	MCGDS	18,246
	MCGDU	21,922	MCGBU	19,282	MCGCS	17,880		MCGDU	21,802	MCGCU	19,528	MCGDU	18,091		MCGDU	21,478	MFFCS	19,480	MBBCS	18,287
	MCGCT	22,078	MCGCT	19,307	MCGCT	17,912		MCGCT	21,942	MCGCT	19,538	MCGCT	18,120		MCGCT	21,592	MEECS	19,499	MCCCS	18,309
	MAABS	22,377	MCGCS	19,380	MCGCU	17,958		MDDCS	22,156	MBBCS	19,544	MCCCS	18,138		MDDCS	21,686	MCCCS	19,507	MAACA	18,322
	MBBCS	22,403	MCGDS	19,387	MCGBU	17,984		MBBCS	22,186	MCGBU	19,544	MAACS	18,141		MFFCS	21,740	MCGDS	19,533	MCGCS	18,327
	MDDCS	22,405	MAABS	19,403	MAACS	18,010		MAABS	22,203	MCCCS	19,567	MDDCS	18,146		MBBCS	21,743	MCGDU	19,534	MAACS	18,342
	MAACS	22,428	MAACS	19,416	MAABS	18,012		MFFCS	22,205	MCGDS	19,569	MAACA	18,146		MEECS	21,776	MAACS	19,554	MAABS	18,356
	MCCCS	22,430	MBBCS	19,430	MAACA	18,037		MCCCS	22,218	MAABS	19,579	MAABS	18,148		MCCCS	21,777	MAABS	19,560	MFFCS	18,388
	MFFCS	22,443	MCCCS	19,433	MCCCS	18,039		MAACS	22,246	MCGCS	19,582	MBBCS	18,149		MAABS	21,794	MAACA	19,576	MEECS	18,417
	MCGCS	22,453	MDDCS	19,446	MBBCS	18,071		MEECS	22,263	MAACS	19,587	MCGCU	18,192		MAACS	21,827	MCGCS	19,583	MCGDU	18,426
	MEECS	22,518	MAACA	19,489	MDDCS	18,098		MCGCS	22,272	MAACA	19,640	MCGBU	18,222		MCGCS	21,854	MCGCT	19,589	MCGCT	18,442
	MAAAS	22,560	MFFCS	19,598	MFFCS	18,301		MCGDS	22,381	MFFCS	19,661	MFFCS	18,328		MCGDS	21,934	MCGCU	19,619	MCGCU	18,550
	MCGDS	22,587	MAAAS	19,666	MAAAS	18,305		MAAAS	22,399	MEECS	19,737	MAAAS	18,452		MAACA	21,967	MCGBU	19,644	MCGBU	18,588
	MAACA	22,629	MEECS	19,714	MEECS	18,471		MAACA	22,420	MAAAS	19,852	MEECS	18,464		MAAAS	22,011	MAAAS	19,853	MAAAS	18,675

Table 7: Uncertain Factors Sensitivities – Low Load Growth Vs. Natural Gas and CO_2

	HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
	Endpoint	19	Endpoint	20	Endpoint	21		Endpoint	22	Endpoint	23	Endpoint	24		Endpoint	25	Endpoint	26	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
HIGH GAS	MCGBU	19,271	MCGDU	17,739	MCGDS	16,766	MID GAS	MCGBU	19,373	MCGDU	18,104	MCGDS	17,057	LOW GAS	MCGBU	19,370	MDDCS	18,247	MDDCS	17,495
	MCGCU	19,298	MCGCU	17,776	MCGDU	16,802		MCGCU	19,393	MDDCS	18,154	MCGCS	17,116		MCGCU	19,381	MBBCS	18,301	MCGDS	17,498
	MCGDU	19,385	MCGBU	17,788	MCGCS	16,806		MCGDU	19,458	MCGCU	18,159	MCGDU	17,154		MCGDU	19,415	MFFCS	18,308	MBBCS	17,539
	MCGCT	19,540	MCGCT	17,812	MCGCT	16,839		MCGCT	19,598	MCGCT	18,169	MCGCT	17,183		MCGCT	19,531	MEECS	18,325	MCCCS	17,562
	MAABS	19,843	MCGCS	17,885	MCGCU	16,885		MDDCS	19,813	MBBCS	18,174	MCCCS	17,201		MDDCS	19,627	MCCCS	18,334	MAACA	17,575
	MBBCS	19,870	MCGDS	17,892	MCGBU	16,911		MBBCS	19,844	MCGBU	18,175	MAACS	17,201		MFFCS	19,680	MCGDS	18,360	MCGCS	17,582
	MDDCS	19,871	MAABS	17,906	MAACS	16,933		MAABS	19,860	MCCCS	18,197	MDDCS	17,206		MBBCS	19,683	MCGDU	18,362	MAACS	17,595
	MAACS	19,893	MAACS	17,918	MAABS	16,933		MFFCS	19,864	MCGDS	18,202	MAACA	17,207		MEECS	19,715	MAACS	18,380	MAABS	17,608
	MCCCS	19,896	MBBCS	17,934	MAACA	16,960		MCCCS	19,875	MAABS	18,208	MAABS	17,208		MCCCS	19,717	MAABS	18,387	MFFCS	17,640
	MFFCS	19,911	MCCCS	17,936	MCCCS	16,964		MAACS	19,902	MCGCS	18,212	MBBCS	17,210		MAABS	19,734	MAACA	18,402	MEECS	17,668
	MCGCS	19,916	MDDCS	17,949	MBBCS	16,994		MEECS	19,921	MAACS	18,215	MCGCU	17,256		MAACS	19,766	MCGCS	18,410	MCGDU	17,679
	MEECS	19,985	MAACA	17,991	MDDCS	17,021		MCGCS	19,927	MAACA	18,268	MCGBU	17,286		MCGCS	19,792	MCGCT	18,417	MCGCT	17,697
	MAAAS	20,027	MFFCS	18,101	MFFCS	17,223		MCGDS	20,037	MFFCS	18,292	MFFCS	17,388		MCGDS	19,870	MCGCU	18,447	MCGCU	17,805
	MCGDS	20,050	MAAAS	18,175	MAAAS	17,230		MAAAS	20,057	MEECS	18,366	MAAAS	17,514		MAACA	19,905	MCGBU	18,470	MCGBU	17,844
	MAACA	20,094	MEECS	18,217	MEECS	17,392		MAACA	20,076	MAAAS	18,486	MEECS	17,525		MAAAS	19,951	MAAAS	18,682	MAAAS	17,929

Table 8: Uncertain Factors Sensitivities – High Natural Gas Vs. Load and CO_2

	HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
HIGH LOAD	Endpoint	1	Endpoint	2	Endpoint	3	MID LOAD	Endpoint	10	Endpoint	11	Endpoint	12	LOW LOAD	Endpoint	19	Endpoint	20	Endpoint	21
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGBU	21,802	MCGDU	19,233	MCGDS	17,842		MCGBU	20,020	MCGDU	18,188	MCGDS	17,100		MCGBU	19,271	MCGDU	17,739	MCGDS	16,766
	MCGCU	21,830	MCGCU	19,270	MCGDU	17,877		MCGCU	20,047	MCGCU	18,224	MCGDU	17,135		MCGCU	19,298	MCGCU	17,776	MCGDU	16,802
	MCGDU	21,922	MCGBU	19,282	MCGCS	17,880		MCGDU	20,136	MCGBU	18,236	MCGCS	17,140		MCGDU	19,385	MCGBU	17,788	MCGCS	16,806
	MCGCT	22,078	MCGCT	19,307	MCGCT	17,912		MCGCT	20,291	MCGCT	18,260	MCGCT	17,173		MCGCT	19,540	MCGCT	17,812	MCGCT	16,839
	MAABS	22,377	MCGCS	19,380	MCGCU	17,958		MAABS	20,593	MCGCS	18,333	MCGCU	17,219		MAABS	19,843	MCGCS	17,885	MCGCU	16,885
	MBBCS	22,403	MCGDS	19,387	MCGBU	17,984		MBBCS	20,620	MCGDS	18,342	MCGBU	17,244		MBBCS	19,870	MCGDS	17,892	MCGBU	16,911
	MDDCS	22,405	MAABS	19,403	MAACS	18,010		MDDCS	20,622	MAABS	18,355	MAACS	17,267		MDDCS	19,871	MAABS	17,906	MAACS	16,933
	MAACS	22,428	MAACS	19,416	MAABS	18,012		MAACS	20,644	MAACS	18,367	MAABS	17,268		MAACS	19,893	MAACS	17,918	MAABS	16,933
	MCCCS	22,430	MBBCS	19,430	MAACA	18,037		MCCCS	20,647	MBBCS	18,382	MAACA	17,294		MCCCS	19,896	MBBCS	17,934	MAACA	16,960
	MFFCS	22,443	MCCCS	19,433	MCCCS	18,039		MFFCS	20,662	MCCCS	18,385	MCCCS	17,297		MFFCS	19,911	MCCCS	17,936	MCCCS	16,964
	MCGCS	22,453	MDDCS	19,446	MBBCS	18,071		MCGCS	20,667	MDDCS	18,397	MBBCS	17,327		MCGCS	19,916	MDDCS	17,949	MBBCS	16,994
	MEECS	22,518	MAACA	19,489	MDDCS	18,098		MEECS	20,736	MAACA	18,439	MDDCS	17,355		MEECS	19,985	MAACA	17,991	MDDCS	17,021
	MAAAS	22,560	MFFCS	19,598	MFFCS	18,301		MAAAS	20,777	MFFCS	18,550	MFFCS	17,557		MAAAS	20,027	MFFCS	18,101	MFFCS	17,223
	MCGDS	22,587	MAAAS	19,666	MAAAS	18,305		MCGDS	20,801	MAAAS	18,623	MAAAS	17,563		MCGDS	20,050	MAAAS	18,175	MAAAS	17,230
	MAACA	22,629	MEECS	19,714	MEECS	18,471		MAACA	20,845	MEECS	18,666	MEECS	17,726		MAACA	20,094	MEECS	18,217	MEECS	17,392

Table 9: Uncertain Factors Sensitivities – Low Natural Gas Vs. Load and CO_2

	HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2			HIGH CO2		MID CO2		LOW CO2	
HIGH LOAD	Endpoint	7	Endpoint	8	Endpoint	9	MID LOAD	Endpoint	16	Endpoint	17	Endpoint	18	LOW LOAD	Endpoint	25	Endpoint	26	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGBU	21,428	MDDCS	19,420	MDDCS	18,242		MCGBU	19,983	MDDCS	18,599	MDDCS	17,729		MCGBU	19,370	MDDCS	18,247	MDDCS	17,495
	MCGCU	21,440	MBBCS	19,473	MCGDS	18,246		MCGCU	19,994	MBBCS	18,653	MCGDS	17,733		MCGCU	19,381	MBBCS	18,301	MCGDS	17,498
	MCGDU	21,478	MFFCS	19,480	MBBCS	18,287		MCGDU	20,031	MFFCS	18,660	MBBCS	17,773		MCGDU	19,415	MFFCS	18,308	MBBCS	17,539
	MCGCT	21,592	MEECS	19,499	MCCCS	18,309		MCGCT	20,146	MEECS	18,677	MCCCS	17,796		MCGCT	19,531	MEECS	18,325	MCCCS	17,562
	MDDCS	21,686	MCCCS	19,507	MAACA	18,322		MDDCS	20,241	MCCCS	18,686	MAACA	17,808		MDDCS	19,627	MCCCS	18,334	MAACA	17,575
	MFFCS	21,740	MCGDS	19,533	MCGCS	18,327		MFFCS	20,295	MCGDS	18,714	MCGCS	17,815		MFFCS	19,680	MCGDS	18,360	MCGCS	17,582
	MBBCS	21,743	MCGDU	19,534	MAACS	18,342		MBBCS	20,297	MCGDU	18,715	MAACS	17,828		MBBCS	19,683	MCGDU	18,362	MAACS	17,595
	MEECS	21,776	MAACS	19,554	MAABS	18,356		MEECS	20,329	MAACS	18,732	MAABS	17,843		MEECS	19,715	MAACS	18,380	MAABS	17,608
	MCCCS	21,777	MAABS	19,560	MFFCS	18,388		MCCCS	20,332	MAABS	18,739	MFFCS	17,874		MCCCS	19,717	MAABS	18,387	MFFCS	17,640
	MAABS	21,794	MAACA	19,576	MEECS	18,417		MAABS	20,348	MAACA	18,755	MEECS	17,901		MAABS	19,734	MAACA	18,402	MEECS	17,668
	MAACS	21,827	MCGCS	19,583	MCGDU	18,426		MAACS	20,381	MCGCS	18,763	MCGDU	17,914		MAACS	19,766	MCGCS	18,410	MCGDU	17,679
	MCGCS	21,854	MCGCT	19,589	MCGCT	18,442		MCGCS	20,407	MCGCT	18,769	MCGCT	17,930		MCGCS	19,792	MCGCT	18,417	MCGCT	17,697
	MCGDS	21,934	MCGCU	19,619	MCGCU	18,550		MCGDS	20,486	MCGCU	18,798	MCGCU	18,038		MCGDS	19,870	MCGCU	18,447	MCGCU	17,805
	MAACA	21,967	MCGBU	19,644	MCGBU	18,588		MAACA	20,520	MCGBU	18,824	MCGBU	18,077		MAACA	19,905	MCGBU	18,470	MCGBU	17,844
	MAAAS	22,011	MAAAS	19,853	MAAAS	18,675		MAAAS	20,566	MAAAS	19,034	MAAAS	18,163		MAAAS	19,951	MAAAS	18,682	MAAAS	17,929

Table 10: Uncertain Factors Sensitivities – High CO_2 Vs. Load and Natural Gas

	HIGH GAS		MID GAS		LOW GAS	
HIGH LOAD	Endpoint	1	Endpoint	4	Endpoint	7
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGBU	21,802	MCGBU	21,714	MCGBU	21,428
	MCGCU	21,830	MCGCU	21,735	MCGCU	21,440
	MCGDU	21,922	MCGDU	21,802	MCGDU	21,478
	MCGCT	22,078	MCGCT	21,942	MCGCT	21,592
	MAABS	22,377	MDDCS	22,156	MDDCS	21,686
	MBBCS	22,403	MBBCS	22,186	MFFCS	21,740
	MDDCS	22,405	MAABS	22,203	MBBCS	21,743
	MAACS	22,428	MFFCS	22,205	MEECS	21,776
	MCCCS	22,430	MCCCS	22,218	MCCCS	21,777
	MFFCS	22,443	MAACS	22,246	MAABS	21,794
	MCGCS	22,453	MEECS	22,263	MAACS	21,827
	MEECS	22,518	MCGCS	22,272	MCGCS	21,854
	MAAAS	22,560	MCGDS	22,381	MCGDS	21,934
	MCGDS	22,587	MAAAS	22,399	MAACA	21,967
	MAACA	22,629	MAACA	22,420	MAAAS	22,011

	HIGH GAS		MID GAS		LOW GAS	
MID LOAD	Endpoint	10	Endpoint	13	Endpoint	16
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGBU	20,020	MCGBU	20,066	MCGBU	19,983
	MCGCU	20,047	MCGCU	20,087	MCGCU	19,994
	MCGDU	20,136	MCGDU	20,153	MCGDU	20,031
	MCGCT	20,291	MCGCT	20,293	MCGCT	20,146
	MAABS	20,593	MDDCS	20,508	MDDCS	20,241
	MBBCS	20,620	MBBCS	20,539	MFFCS	20,295
	MDDCS	20,622	MAABS	20,554	MBBCS	20,297
	MAACS	20,644	MFFCS	20,559	MEECS	20,329
	MCCCS	20,647	MCCCS	20,570	MCCCS	20,332
	MFFCS	20,662	MAACS	20,597	MAABS	20,348
	MCGCS	20,667	MEECS	20,615	MAACS	20,381
	MEECS	20,736	MCGCS	20,622	MCGCS	20,407
	MAAAS	20,777	MCGDS	20,732	MCGDS	20,486
	MCGDS	20,801	MAAAS	20,752	MAACA	20,520
	MAACA	20,845	MAACA	20,771	MAAAS	20,566

	HIGH GAS		MID GAS		LOW GAS	
LOW LOAD	Endpoint	19	Endpoint	22	Endpoint	25
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGBU	19,271	MCGBU	19,373	MCGBU	19,370
	MCGCU	19,298	MCGCU	19,393	MCGCU	19,381
	MCGDU	19,385	MCGDU	19,458	MCGDU	19,415
	MCGCT	19,540	MCGCT	19,598	MCGCT	19,531
	MAABS	19,843	MDDCS	19,813	MDDCS	19,627
	MBBCS	19,870	MBBCS	19,844	MFFCS	19,680
	MDDCS	19,871	MAABS	19,860	MBBCS	19,683
	MAACS	19,893	MFFCS	19,864	MEECS	19,715
	MCCCS	19,896	MCCCS	19,875	MCCCS	19,717
	MFFCS	19,911	MAACS	19,902	MAABS	19,734
	MCGCS	19,916	MEECS	19,921	MAACS	19,766
	MEECS	19,985	MCGCS	19,927	MCGCS	19,792
	MAAAS	20,027	MCGDS	20,037	MCGDS	19,870
	MCGDS	20,050	MAAAS	20,057	MAACA	19,905
	MAACA	20,094	MAACA	20,076	MAAAS	19,951

Table 11: Uncertain Factors Sensitivities – Low CO_2 Vs. Load and Natural Gas

	HIGH GAS		MID GAS		LOW GAS	
HIGH LOAD	Endpoint	3	Endpoint	6	Endpoint	9
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGDS	17,842	MCGDS	17,995	MDDCS	18,242
	MCGDU	17,877	MCGCS	18,052	MCGDS	18,246
	MCGCS	17,880	MCGDU	18,091	MBBCS	18,287
	MCGCT	17,912	MCGCT	18,120	MCCCS	18,309
	MCGCU	17,958	MCCCS	18,138	MAACA	18,322
	MCGBU	17,984	MAACS	18,141	MCGCS	18,327
	MAACS	18,010	MDDCS	18,146	MAACS	18,342
	MAABS	18,012	MAACA	18,146	MAABS	18,356
	MAACA	18,037	MAABS	18,148	MFFCS	18,388
	MCCCS	18,039	MBBCS	18,149	MEECS	18,417
	MBBCS	18,071	MCGCU	18,192	MCGDU	18,426
	MDDCS	18,098	MCGBU	18,222	MCGCT	18,442
	MFFCS	18,301	MFFCS	18,328	MCGCU	18,550
	MAAAS	18,305	MAAAS	18,452	MCGBU	18,588
	MEECS	18,471	MEECS	18,464	MAAAS	18,675

	HIGH GAS		MID GAS		LOW GAS	
MID LOAD	Endpoint	12	Endpoint	15	Endpoint	18
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGDS	17,100	MCGDS	17,348	MDDCS	17,729
	MCGDU	17,135	MCGCS	17,407	MCGDS	17,733
	MCGCS	17,140	MCGDU	17,444	MBBCS	17,773
	MCGCT	17,173	MCGCT	17,475	MCCCS	17,796
	MCGCU	17,219	MCCCS	17,492	MAACA	17,808
	MCGBU	17,244	MAACS	17,493	MCGCS	17,815
	MAACS	17,267	MDDCS	17,497	MAACS	17,828
	MAABS	17,268	MAACA	17,499	MAABS	17,843
	MAACA	17,294	MAABS	17,499	MFFCS	17,874
	MCCCS	17,297	MBBCS	17,500	MEECS	17,901
	MBBCS	17,327	MCGCU	17,547	MCGDU	17,914
	MDDCS	17,355	MCGBU	17,576	MCGCT	17,930
	MFFCS	17,557	MFFCS	17,679	MCGCU	18,038
	MAAAS	17,563	MAAAS	17,805	MCGBU	18,077
	MEECS	17,726	MEECS	17,816	MAAAS	18,163

	HIGH GAS		MID GAS		LOW GAS	
LOW LOAD	Endpoint	21	Endpoint	24	Endpoint	27
	PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
	MCGDS	16,766	MCGDS	17,057	MDDCS	17,495
	MCGDU	16,802	MCGCS	17,116	MCGDS	17,498
	MCGCS	16,806	MCGDU	17,154	MBBCS	17,539
	MCGCT	16,839	MCGCT	17,183	MCCCS	17,562
	MCGCU	16,885	MCCCS	17,201	MAACA	17,575
	MCGBU	16,911	MAACS	17,201	MCGCS	17,582
	MAACS	16,933	MDDCS	17,206	MAACS	17,595
	MAABS	16,933	MAACA	17,207	MAABS	17,608
	MAACA	16,960	MAABS	17,208	MFFCS	17,640
	MCCCS	16,964	MBBCS	17,210	MEECS	17,668
	MBBCS	16,994	MCGCU	17,256	MCGDU	17,679
	MDDCS	17,021	MCGBU	17,286	MCGCT	17,697
	MFFCS	17,223	MFFCS	17,388	MCGCU	17,805
	MAAAS	17,230	MAAAS	17,514	MCGBU	17,844
	MEECS	17,392	MEECS	17,525	MAAAS	17,929

CO_2 Cost Uncertainty Ranges

Under all nine High CO_2 scenarios, plan MCGBU becomes lower cost than the Preferred Plan. Using the NPVRR results shown in the Table below, linear interpolation was used to determine the change in CO_2 prices necessary for MCGBU NPVRR to become lower than the Preferred Plan MCGCU NPVRR. As CO_2 costs increase from the Mid scenario towards the High scenario, MCGBU becomes the lowest cost plan.

From these results, CO_2 costs need to move 44.7% of the distance towards the High CO_2 cost scenario for MCGBU to become the lower cost plan.

CO2 and Mid Gas		
Plan	**Mid**	**High**
MCGCU	$ 18,568	$ 20,087
MCGBU	$ 18,585	$ 20,066
Percent	from Mid	
Upper %	44.7%	

Under all nine Low CO_2 scenarios, plan MCGCS becomes lower cost than the Preferred Plan. Using the NPVRR results shown in the Table below, linear interpolation was used to determine the change in CO_2 prices necessary for MCGCS NPVRR to become lower than the Preferred Plan MCGCU NPVRR. As CO_2 costs decrease from the Mid scenario towards the Low scenario, MCGCS becomes the lower cost plan.

From these results, CO_2 costs need to move 27.5% of the distance towards the Low CO_2 cost scenario for MCGCS to become the lower cost plan.

CO2 and Mid Gas		
Plan	**Mid**	**Low**
MCGCU	$ 18,568	$ 17,547
MCGCS	$ 18,621	$ 17,407
Percent	from Mid	
Upper %	27.5%	

Gas Price Uncertainty Range

Under the three Mid CO_2 with Low Gas price scenarios, plan MCGCS becomes lower cost than the Preferred Plan. Using the NPVRR results shown in the Table below, linear interpolation was used to determine the change in Gas prices necessary for MCGCS NPVRR to become lower than the Preferred Plan MCGCU NPVRR. As gas prices decrease from the Mid scenario towards the Low scenario, MCGCS becomes the lower cost plan.

From these results, gas prices need to move 60.2% of the distance towards the Low scenario for MCGCS to become the lower cost plan.

Gas and Mid CO2		
Plan	**Mid**	**Low**
MCGCU	$ 18,568	$ 18,798
MCGCS	$ 18,621	$ 18,763
Percent	from Mid	
Upper %	60.2%	

Load Forecast Uncertainty Range

Given that the Load forecast did not materially change plan rankings, the limits within which the Preferred Plan remains appropriate was not evaluated.

SECTION 3: BETTER INFORMATION

The utility shall describe and document its quantification of the expected value of better information concerning at least the critical uncertain factors that affect the performance of the preferred resource plan, as measured by the present value of utility revenue requirements. The utility shall provide a tabulation of the key quantitative results of that analysis and a discussion of how those findings will be incorporated in ongoing research activities.

The Company calculated the value of better information for the critical uncertain factors identified in the preliminary sensitivity test that affect the performance of the Preferred Plan. For each uncertainty, the Preferred Plan NPVRR for the specific uncertainty scenarios (or endpoints) was compared to the better plan under each extreme uncertainty condition. Baye's Theorem was applied to the endpoint probabilities to develop conditional probabilities for the calculation scenarios. The difference between the expected value of the Preferred Plan and the expected value of the plan with better information results is the expected value of better information.

These values represent the maximum amount the company should be willing to spend to study each of these uncertainties. It must be noted that should a Preferred Plan out-perform all alternatives across the range of a critical risk, the calculation for better information will yield a value of zero.

For Evergy Metro, Low CO_2 costs would cause plan MCGCS to become a lower cost plan than the Preferred Plan across all nine of the Low CO_2 scenarios modeled. Table 12 below represents the value of better information when evaluating these two plans having that knowledge.

Table 12: Better Information – Low CO_2 Costs

Preferred Plan	Scenario	Plan	NPVRR	Probability	Cond. Prob.	Expected Value
High Load/Low CO2/High Gas	3	MCGCU	$ 17,958	0.45%	2.25%	$ 17,665
High Load/Low CO2/Mid Gas	6	MCGCU	$ 18,192	1.50%	7.50%	
High Load/Low CO2/Low Gas	9	MCGCU	$ 18,550	1.05%	5.25%	
Mid Load/Low CO2/High Gas	12	MCGCU	$ 17,219	1.50%	7.50%	
Mid Load/Low CO2/Mid Gas	15	MCGCU	$ 17,547	5.00%	25.00%	
Mid Load/Low CO2/Low Gas	18	MCGCU	$ 18,038	3.50%	17.50%	
Low Load/Low CO2/High Gas	21	MCGCU	$ 16,885	1.05%	5.25%	
Low Load/Low CO2/Mid Gas	24	MCGCU	$ 17,256	3.50%	17.50%	
Low Load/Low CO2/Low Gas	27	MCGCU	$ 17,805	2.45%	12.25%	
Better Information	**Scenario**	**Plan**	**NPVRR**	**Probability**	**Cond. Prob.**	**Expected Value**
High Load/Low CO2/High Gas	3	MCGCS	$ 17,880	0.45%	2.25%	$ 17,505
High Load/Low CO2/Mid Gas	6	MCGCS	$ 18,052	1.50%	7.50%	
High Load/Low CO2/Low Gas	9	MCGCS	$ 18,327	1.05%	5.25%	
Mid Load/Low CO2/High Gas	12	MCGCS	$ 17,140	1.50%	7.50%	
Mid Load/Low CO2/Mid Gas	15	MCGCS	$ 17,407	5.00%	25.00%	
Mid Load/Low CO2/Low Gas	18	MCGCS	$ 17,815	3.50%	17.50%	
Low Load/Low CO2/High Gas	21	MCGCS	$ 16,806	1.05%	5.25%	
Low Load/Low CO2/Mid Gas	24	MCGCS	$ 17,116	3.50%	17.50%	
Low Load/Low CO2/Low Gas	27	MCGCS	$ 17,582	2.45%	12.25%	
Expected Value of Better Information:			$ 159.9	Million		

For Evergy Metro, High CO_2 costs would cause plan MCGBU to become a lower cost plan than the Preferred Plan across all nine of the High CO_2 cost scenarios modeled. The information below represents the value of better information when evaluating these two plans having that knowledge.

Table 13: Better Information – High CO_2 Costs

Preferred Plan	Scenario	Plan	NPVRR	Probability	Cond. Prob.	Expected Value
High Load/High CO2/High Gas	1	MCGCU	$ 21,830	0.45%	2.25%	$ 20,052
High Load/High CO2/Mid Gas	4	MCGCU	$ 21,735	1.50%	7.50%	
High Load/High CO2/Low Gas	7	MCGCU	$ 21,440	1.05%	5.25%	
Mid Load/High CO2/High Gas	10	MCGCU	$ 20,047	1.50%	7.50%	
Mid Load/High CO2/Mid Gas	13	MCGCU	$ 20,087	5.00%	25.00%	
Mid Load/High CO2/Low Gas	16	MCGCU	$ 19,994	3.50%	17.50%	
Low Load/High CO2/High Gas	19	MCGCU	$ 19,298	1.05%	5.25%	
Low Load/High CO2/Mid Gas	22	MCGCU	$ 19,393	3.50%	17.50%	
Low Load/High CO2/Low Gas	25	MCGCU	$ 19,381	2.45%	12.25%	
Better Information	**Scenario**	**Plan**	**NPVRR**	**Probability**	**Cond. Prob.**	**Expected Value**
High Load/High CO2/High Gas	1	MCGBU	$ 21,802	0.45%	2.25%	$ 20,034
High Load/High CO2/Mid Gas	4	MCGBU	$ 21,714	1.50%	7.50%	
High Load/High CO2/Low Gas	7	MCGBU	$ 21,428	1.05%	5.25%	
Mid Load/High CO2/High Gas	10	MCGBU	$ 20,020	1.50%	7.50%	
Mid Load/High CO2/Mid Gas	13	MCGBU	$ 20,066	5.00%	25.00%	
Mid Load/High CO2/Low Gas	16	MCGBU	$ 19,983	3.50%	17.50%	
Low Load/High CO2/High Gas	19	MCGBU	$ 19,271	1.05%	5.25%	
Low Load/High CO2/Mid Gas	22	MCGBU	$ 19,373	3.50%	17.50%	
Low Load/High CO2/Low Gas	25	MCGBU	$ 19,370	2.45%	12.25%	
Expected Value of Better Information:			$ 18.3	Million		

SECTION 4: CONTINGENCY RESOURCE PLANS

The utility shall describe and document its contingency resource plans in preparation for the possibility that the preferred resource plan should cease to be appropriate, whether due to the limits identified pursuant to 4 CSR240-22.070(2) being exceeded or for any other reason.

(A) The utility shall identify as contingency resource plans those alternative resource plans that become preferred if the critical uncertain factors exceed the limits developed pursuant to section (2).

Evergy Metro has identified two contingency plans under conditions where certain critical uncertain factors deviate significantly from the mid-case expectations. The contingency resource plans are shown in Table 14 below:

Table 14: Contingency Resource Plan

Plan Name	DSM Level	Retire	Renewable Additions Wind	Renewable Additions Solar	Generation Additions
MCGCS	RAP- + DSR (MO) /RAP- + DSR (KS)	LaCygne-1: Dec 31, 2032 LaCygne-2: Dec 31, 2039 Iatan-1: Dec 31, 2039		230 MW Solar (2024)	4 CT (932 MW) in 2040
MCGBU	RAP + DSR (MO) /RAP- + DSR (KS)	LaCygne-1: Dec 31, 2032 LaCygne-2: Dec 31, 2039 Iatan-1: Dec 31, 2039	120 MW Wind (2025, 2026)	230 MW Solar (2024) 120 MW Solar (2028, 2029, 2030, 2031, 2032)	2 CT (466 MW) in 2040

These contingency plans were identified through evaluation of the relative cost performance of each alternative resource plan under different combinations of the critical uncertain factors. The critical uncertain factor conditions under which the contingency plans are projected to be lower cost than the Preferred Plan are as follows:

Low CO_2 Costs

Under the low CO_2 scenarios, Alternative Resource Plan MCGCS is expected to have a lower 20-year NPVRR than the Preferred Plan. It also ranks 2nd out of the plans analyzed on an expected value basis under the nine low CO_2 cost scenarios. The highest ranked plan on an expected value basis over the nine low CO_2 cost scenarios, MCGDS, was not selected as the contingency plan under these conditions as it discontinues DSM programs after the current MEEIA cycle.

High CO_2 Costs

Under the high CO_2 scenarios, Alternative Resource Plan MCGBU is expected to have a lower 20-year NPVRR than the Preferred Plan. MCGBU is the lowest cost plan under all high CO_2 cost scenarios modeled.

(B) The utility shall develop a process to pick among alternative resource plans, or to revise the alternative resource plans as necessary, to help ensure reliable and low cost service should the preferred resource plan no longer be appropriate for any reason. The utility may also use this process to confirm the viability of contingency resource plans identified pursuant to subsection (4)(A).

The process used to select the contingency plans was derived from the analysis of risks imposed on the Evergy Metro portfolio in that they are generally high ranked plans under the conditions specified.

(C) Each contingency resource plan shall satisfy the fundamental objective in 4 CSR240-22.010(2) and the specific requirements pursuant to 4 CSR 240-22.070(1).

The contingency plans meet the considerations of Rule 240.22.010(2) as they are Alternative Resource Plans developed and conformed in the response to Rule 240-22.060(3) in Volume 6 of this filing.

As for concurrence with Rule 240.070(1), the plans conform by meeting Rule 240.010(2), utilizes DSM that conforms to legal mandates and demonstrates adequate access to emergency short-term power supply in that each of the Evergy Metro plans modeled indicated no unserved energy.

SECTION 5: LOAD –BUILDING PROGRAMS

Analysis of Load-Building Programs. If the utility intends to continue existing load building programs or implement new ones, it shall analyze these programs in the context of one (1) or more of the alternative resource plans developed pursuant to 4 CSR 240- 22.060(3) of this rule, including the preferred resource plan selected pursuant to 4 CSR240-22.070(1). This analysis shall use the same modeling procedure and assumptions described in 4 CSR 240-22.060(4). The utility shall describe and document—

(A) Its analysis of load building programs, including the following elements:

1. Estimation of the impact of load building programs on the electric utility's summer and winter peak demands and energy usage;

2. A comparison of annual average rates in each year of the planning horizon for the resource plan(s) with and without the load building program;

3. A comparison of the probable environmental costs of the resource plan(s) in each year of the planning horizon with and without the proposed load-building program;

4. A calculation of the performance measures and risk by year; and

5. An assessment of any other aspects of the proposed load-building programs that affect the public interest; and

(B) All current and proposed load-building programs, a discussion of why these programs are judged to be in the public interest, and, for all resource plans that include these programs, plots of the following over the planning horizon:

1. Annual average rates with and without the load-building programs; and

2. Annual utility costs and probable environmental costs with and without the load-building programs.

Evergy Missouri Metro does not currently have or plan to propose any load-building programs.

SECTION 6: IMPLEMENTATION PLAN

(6) The utility shall develop an implementation plan that specifies the major tasks, schedules, and milestones necessary to implement the preferred resource plan over the implementation period. The utility shall describe and document its implementation plan, which shall contain—

6.1 LOAD ANALYSIS - SCHEDULE AND DESCRIPTION

(A) A schedule and description of ongoing and planned research activities to update and improve the quality of data used in load analysis and forecasting;

Evergy plans to conduct its next Residential Appliance Saturation Survey during the next implementation period. The last survey was completed in 2019. The results were used to calculate appliance saturations and these saturations were used to calibrate DOE forecasts of appliance saturations for use in Evergy's load forecasting models. Evergy also plans to match the responses with the customers' billing records and to conduct a conditional demand study to measure the unit energy consumption (UEC) for each major appliance.

Evergy plans to look at conducting a price elasticity study during the implementation period.

Evergy will continue to develop and improve its framework of incorporating photovoltaic (PV) and electric vehicle (EV) impacts into the energy forecast to capture PV and EV energy impacts.

Evergy plans to look at developing a new industrial model that will allow the utility to create an industrial intensity index which would be calibrated to the Evergy service areas C&I survey data.

6.2 DEMAND-SIDE PROGRAMS – SCHEDULE AND DESCRIPTION

(B) A schedule and description of ongoing and planned demand-side programs and demand-side rates, evaluations, and research activities to improve the quality of demand-side resources;

The current schedules for ongoing and planned DSM programs are shown in Table 15 and Table 16 below:

Table 15: DSM Program Schedule – Existing Programs

Program Name	Program Type	Segment	Program Implemented	Annual Report	Program Duration	EM&V Completed and draft report available
Energy Saving Products	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Online Home Energy Audit	Educational	Residential	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Heating, Cooling & Home Comfort	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Income-Eligible Multi-Family	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	6-Years	1-Yr following Plan Year
Home Energy Report	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Residential Demand Response	Demand Response	Residential	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Business Standard	Energy Efficiency	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Business Custom	Energy Efficiency	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Business Process Efficiency	Energy Efficiency	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Online Business Energy Audit	Educational	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Business Smart Thermostat	Demand Response	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year
Business Demand Response	Demand Response	C&I	Jan., 2020	90-days following Plan Year	3-Years	1-Yr following Plan Year

Table 16: DSM Program Schedule – Planned Programs

Program Name	Program Type	Segment	Projected Tariff Filing Date	Projected Approval Date	Projected Implementation Date	Annual Report
Home Energy Report	Energy Efficiency	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Home Lighting Rebate	Energy Efficiency	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Income-Eligible Home Energy Report	Energy Efficiency	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Income-Eligible Multi-Family	Energy Efficiency	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Whole House Efficiency	Energy Efficiency	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Direct Load Control	Demand Response	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Smart Thermostat	Demand Response	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Time of Use	Demand Response Rates	Residential	February,2023	July, 2022	January, 2023	90-days following Plan Year
Block Bidding	Energy Efficiency	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Business EER - Custom	Energy Efficiency	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Business EER - Standard	Energy Efficiency	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Small Business Lighting	Energy Efficiency	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Strategic Energy Management	Energy Efficiency	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Smart Thermostat	Demand Response	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Thermal Storage	Demand Response	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Business Demand Response	Demand Response	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Direct Load Control	Demand Response	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Time of Use	Demand Response Rates	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year
Real Time Pricing	Demand Response Rates	C&I	February,2023	July, 2022	January, 2023	90-days following Plan Year

Additional detail regarding the implementation plan for the DSM Preferred Plan can be found in Volume 5. It includes the descriptions of the programs, the implementation strategy, a discussion of risk management, the incentive levels used for planning purposes, energy and peak demand savings goals, and budget estimates.

6.3 SUPPLY-SIDE – SCHEDULES AND DESCRIPTIONS

(C) A schedule and description of all supply-side resource research, engineering, retirement, acquisition, and construction activities, including research to meet expected environmental regulations;

The Preferred Plan also includes acquiring approximately 350 MW of company-owned solar generation reaching commercial operation by December 31, 2024. The 350 MW project would be allocated to both Evergy Metro and Evergy Missouri West, assigning 230 MW to Evergy Metro and 120 MW to Evergy Missouri West. If the solar project ultimately selected is larger or smaller than 350 MW, the allocations to the two utilities will be adjusted accordingly. It is expected that the project selected for 2024 commercial operation would be selected from the Request for Proposal (RFP) issued in February 2021 with updated pricing solicited from developers prior to contract execution. A draft schedule of the major milestones expected to be undertaken for the construction of a large-scale solar project is provided in Table 17 below:

Table 17: Solar Acquisition Milestones

Milestone Description	Expected Completion
Site Control Complete	October 2022
Environmental and Land Permitting Complete	December 2022
Development Complete	March, 2023
Design and Engineering	April 2023
EPC Agreement Execution	September 2023
Equipment Acquisition and Delivery	February 2024
Construction Complete	October 2024
Testing and Commissioning	October 2024
Commercial Operation	December 2024

There are also environmental retrofit projects continuing or expected to be initiated during the three-year implementation period. Table 18 below provides estimated dates for major projects currently expected.

Table 18: Environmental Retrofit Project Schedule

Milestone Description	Date Range
Hawthorn 5 - Intake Modification	2021 - 2024
Hawthorn 5 - Groundwater Monitoring Program	2021 - 2024
Hawthorn 5 - Outfall 008 Weir Box	2022
Hawthorn 5 - Outfall 009 Weir Box	2022
Iatan 1 - Landfill Phase 1B Cover	2021 - 2022
Iatan 1 - Landfill Phase 2 Cover	2022 - 2023
Iatan 1 - Ash Pond Closure	2021
Iatan 1 - Intake Modification	2021 - 2023
Iatan 2 - Landfill Phase 1B Cover	2021 - 2022
Iatan 2 - Landfill Phase 2 Cover	2022 - 2023
La Cygne 1 - Upper AQC Cover, Dewatering, Grading, Install	2021 - 2024
La Cygne 1 - Lower AQC Cover, Dewatering, Grading, Install	2021 - 2024
La Cygne 1 - Upper AQC Stormwater Reroute	2021
La Cygne 1 - Landfill Stormwater Reroute	2021
La Cygne 1 - Landfill Cover	2021 - 2024
La Cygne 2 - Upper AQC Cover, Dewatering, Grading, Install	2021 - 2024
La Cygne 2 - Lower AQCD Cover, Dewatering, Grading, Install	2021 - 2024
La Cygne 2 - Bottom Ash Pond Clean Closure	2021
La Cygne 2 - Upper AQC Stormwater Reroute	2021
La Cygne 2 - Landfill Stormwater Reroute	2021
La Cygne 2 - Landfill Cover	2021 - 2024

6.4 MILESTONES AND CRITICAL PATHS

(D) Identification of critical paths and major milestones for implementation of each demand-side resource and each supply-side resource, including decision points for committing to major expenditures;

Demand-side critical paths and milestones are provided in Section 6.2 above. Supply-side resource expenditures include environmental projects listed in Table 18 above, and are required to meet environmental regulations. Therefore, commitments are in place to ensure project completion.

6.5 COMPETITIVE PROCUREMENT POLICIES

(E) A description of adequate competitive procurement policies to be used in the acquisition and development of supply-side resources;

As referred to above, Evergy issued a RFP in February 2021. The RFP document is attached as Appendix 7A. Evergy retained 1898 & Co. to oversee distribution of the RFP and to collect and analyze respondent submittals.

6.6 MONITORING CRITICAL UNCERTAIN FACTORS

(F) A process for monitoring the critical uncertain factors on a continuous basis and reporting significant changes in a timely fashion to those managers or officers who have the authority to direct the implementation of contingency resource plans when the specified limits for uncertain factors are exceeded; and

Each critical uncertain factor is reviewed on an individual basis due to the varied nature of the information sources used in its review. This IRP analysis will be updated on an annual basis reflecting any changes to these critical uncertain factors. Results will be distributed to the Vice President, Safety and Operations Planning.

Critical Uncertain Factor: CO_2

CO_2 credit prices are reviewed on a continual basis. The data sources used are third party views predicting the price of the credits. Most of these third party studies are sparked by proposed legislation or are updated up to a quarterly basis. This review and update is conducted by the Fuels department with a full review conducted on an annual basis.

Critical Uncertain Factor: Load

Load forecasts are updated on an annual basis as part of the company's annual budgeting process.

Critical Uncertain Factor: Natural Gas

Natural Gas forecasts are updated weekly with executive updates provided on a monthly basis.

6.7 MONITORING PREFERRED RESOURCE PLAN

(G) A process for monitoring the progress made implementing the preferred resource plan in accordance with the schedules and milestones set out in the implementation plan and for reporting significant deviations in a timely fashion to those managers or officers who have the authority to initiate corrective actions to ensure the resources are implemented as scheduled.

6.7.1 DSM INITIATIVES

Evergy Metro has processes in place to monitor its Demand-Side Management programs and track and report their performance compared to the planned implementation schedule.

6.7.2 SOLAR INITIATIVE

Solar development is actively monitored by an internal team on an ongoing basis and will be receiving monthly progress reports from the solar developer(s) ultimately selected to develop ~350 MW of solar generation.

SECTION 7: RESOURCE ACQUISITION STRATEGY

The utility shall develop, describe and document, officially adopt, and implement a resource acquisition strategy. This means that the utility's resource acquisition strategy shall be formally approved by an officer of the utility who has been duly delegated the authority to commit the utility to the course of action described in the resource acquisition strategy.

7.1 RESOURCE ACQUISITION STRATEGY APPROVAL

The following statement is the formal approval by officers of Evergy Metro committing Evergy Metro to the course of action described in the resource acquisition strategy.

EVERGY METRO, INC.

INTEGRATED RESOURCE PLAN – 2021 TRIENNIAL FILING

CORPORATE APPROVAL AND STATEMENT OF COMMITMENT FOR

RESOURCE ACQUISITION STRATEGY

In accordance with Missouri Public Service Commission rules found in 4 CSR 240-22 and 4 CSR 240-22.080(3), Evergy Metro now officially adopts for implementation the resource acquisition strategy contained in this Triennial filing.

With the objective of providing the public with energy services that are safe, reliable, and efficient at just and reasonable rates, Evergy Metro is committed to the full implementation of the Resource Acquisition Strategy contained herein.

Kevin Noblet

Vice President Safety and Operations Planning

David Campbell

President and Chief Executive Officer

The officially adopted resource acquisition strategy shall consist of the following components:

7.2 PREFERRED RESOURCE PLAN

(A) A preferred resource plan selected pursuant to the requirements of section (1) of this rule;

The Preferred Resource Plan is outlined in Section 1 above per Rule 240-22.070(1).

7.3 IMPLEMENTATION PLAN

(B) An implementation plan developed pursuant to the requirements of section (6) of this rule; and

The Implementation Plan is outlined in Section 6 above per Rule 240-22.070(6).

7.4 CONTINGENCY RESOURCE PLANS

(C) A set of contingency resource plans developed pursuant to the requirements of section (4) of this rule and identification of the point at which the critical uncertain factors would trigger the utility to move to each contingency resource plan as the preferred resource plan.

The Contingency Resource Plans are outlined in Section 4 above per Rule 240-22.070(4).

SECTION 8: EVALUATION OF DEMAND-SIDE PROGRAMS AND DEMAND-SIDE RATES

The utility shall describe and document its evaluation plans for all demand-side programs and demand-side rates that are included in the preferred resource plan selected pursuant to 20 CSR 4240-22.070(1). Evaluation plans required by this section are for planning purposes and are separate and distinct from the evaluation, measurement, and verification reports required by 20 CSR 4240-3.163(7) and 20 CSR 4240-20.093(7); nonetheless, the evaluation plan should, in addition to the requirements of this section, include the proposed evaluation schedule and the proposed approach to achieving the evaluation goals pursuant to 20 CSR 4240-3.163(7) and 20 CSR 4240-20.093(7). The evaluation plans for each program and rate shall be developed before the program or rate is implemented and shall be filed when the utility files for approval of demand-side programs or demand-side program plans with the tariff application for the program or rate as described in 20 CSR 4240-20.094(3). The purpose of these evaluations shall be to develop the information necessary to evaluate the cost-effectiveness and improve the design of existing and future demand-side programs and demand-side rates, to improve the forecasts of customer energy consumption and responsiveness to demand-side programs and demand-side rates, and to gather data on the implementation costs and load impacts of demand-side programs and demand-side rates for use in future cost-effectiveness screening and integrated resource analysis.

Evergy Missouri Metro will engage an EM&V contractor(s) to conduct process and impact evaluations of the DSM programs and demand-side rates that are approved by the Commission. The EM&V Contractor will meet with Evergy program staff to discuss evaluation objectives, establish a schedule of deliverables and set up a communications protocol. The EM&V Contractor will develop a high-level timeline of evaluation activities and reporting.

EM&V Process Evaluation

The scope of work will require that the Vendor conduct a process evaluation pursuant to requirements of 20 CSR 4240-22.070 (8) (A) and require the Vendor to provide answers to questions 1 through 5 of this rule sections in the EM&V final report ("Report").

EM&V Impact Evaluation

The scope of work will require that the Vendor conduct the impact evaluation pursuant to requirements of 20 CSR 4240-22.070 (8) (B) and require the Vendor to provide answers to questions 1 and 2 of this rule section in the Report.

EM&V Data Collection

The scope of work will require that the Vendor collect EM&V participation rate data, utility cost data, participant cost data and total cost data pursuant to requirements of 20 CSR 4240-22.070 (8) (C).

EM&V Reporting Requirements

The scope of work will also require that the Vendor perform, and report EM&V of each commission-approved demand-side program in accordance with 20 CSR 4240-3.163 (7).

Evergy Missouri Metro will provide the Missouri Public Service Commission ("Commission") Staff and other stakeholders with an opportunity to review and comment on the EM&V scope of work.

An EM&V for all demand-side programs and demand-side rates that are included in Evergy Missouri Metro's Preferred Plan will begin after the completion of each program year.

The EM&V scope of work will require the vendor to evaluate and prepare an annual program performance report. Preliminary EM&V reports will be available 90 days following the program year. Commission Staff and stakeholders will be provided with an opportunity to review, and comment on the preliminary report. The final

EM&V report will be available 180 days following the completion of each program year.

EM&V Schedule and Budget

The EM&V budget shall not exceed five percent (5%) of the total budget for all approved demand-side program costs. A tentative EM&V schedule is shown in Table 19 below. This schedule will be updated if/as needed for each program year under MEEIA 3.

Table 19: Evaluation Schedule[i]

1st Annual EM&V Begins	Day 1 of PY 1
1st Annual Draft Report	90 days after the end of PY 1
1st Annual Program Report	180 days after the end of PY 1
2nd Annual EM&V Begins	Day 1 of PY 2
2nd Annual Draft Report	90 days after the end of PY 2
2nd Annual Program Report	180 days after the end of PY 2
3rd Annual EM&V Begins	Day 1 of PY 3
3rd Annual Draft Report	90 days after the end of PY 3
3rd Annual Program Report	180 days after the end of PY 3

8.1 PROCESS EVALUATION

(A) Each demand-side program and demand-side rate that is part of the utility's preferred resource plan shall be subjected to an ongoing evaluation process which addresses at least the following questions about program design.

1. What are the primary market imperfections that are common to the target market segment?

See the response to Section 8, above.

2. Is the target market segment appropriately defined, or should it be further subdivided or merged with other market segments?

See the response to Section 8, above.

3. Does the mix of end-use measures included in the program appropriately reflect the diversity of end-use energy service needs and existing end-use technologies within the target market segment?

See the response to Section 8, above.

4. Are the communication channels and delivery mechanisms appropriate for the target market segment?

See the response to Section 8, above.

5. What can be done to more effectively overcome the identified market imperfections and to increase the rate of customer acceptance and implementation of each enduse measure included in the program?

See the response to Section 8, above.

8.2 IMPACT EVALUATION

(B) The utility shall develop methods of estimating the actual load impacts of each demand-side program and demand-side rate included in the utility's preferred resource plan to a reasonable degree of accuracy.

1. Impact evaluation methods. At a minimum, comparisons of one (1) or both of the following types shall be used to measure program and rate impacts in a manner that is based on sound statistical principles:

A. Comparisons of pre-adoption and post-adoption loads of program or demand-side rate participants, corrected for the effects of weather and other intertemporal differences; and

See the response to Section 8, above.

B. Comparisons between program and demand-side rate participants' loads and those of an appropriate control group over the same time period.

See the response to Section 8, above.

2. The utility shall develop load-impact measurement protocols that are designed to make the most cost-effective use of the following types of measurements, either individually or in combination:

A. Monthly billing data, hourly load data, load research data, end-use load metered data, building and equipment simulation models, and survey responses; or

See the response to Section 8, above.

B. Audit and survey data on appliance and equipment type, size and efficiency levels, household or business characteristics, or energy-related building characteristics.

See the response to Section 8, above.

8.3 DATA COLLECTION PROTOCOLS

(C) The utility shall develop protocols to collect data regarding demand-side program and demand-side rate market potential, participation rates, utility costs, participant costs, and total costs.

See the response to Section 8, above.

[i] Dates are estimated based on a December 2019 Commission approval of MEEIA 3 programs, and the approval of updated EM&V Plans in February 2021.