# KCP&L GREATER MISSOURI OPERATIONS COMPANY INTEGRATED RESOURCE PLAN NOTIFICATION OF PREFERRED

**RESOURCE PLAN CHANGE** 

## \*\* HIGHLY CONFIDENTIAL \*\*



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# **SECTION 1: PREFERRED RESOURCE PLAN FILED IN 2013 ANNUAL UPDATE**

KCP&L Greater Missouri Operations Company ("GMO" or "Company") hosted an annual update workshop and filed a 2013 annual update report on June 20, 2013 in Case No. EO-2013-0538. The annual update workshop and report were completed pursuant to 4 CSR 240-22.080(3) Chapter 22 of the Code of State Regulations. The annual update report consisted of eight sections of material including the "2013 GMO Annual Update Preferred Plan" identified in "Section 7, Resource Acquisition Strategy" beginning on Page 85. Table 1 illustrates the 20-year plan that includes both generation additions and retirements as provided in the 2013 Annual Update.

**Table 1: 2013 Preferred Resource Plan** 

Year	CT's (MW)	Solar (MW)	Wind (MW)	MEEIA/RAP DSM (MW)	Convert to NG (MW)	Existing Capacity (MW)
2013	-			81		2,302
2014	-			97		2,147
2015	-			116		2,147
2016	-			165		2,147
2017	-			219		2,147
2018	-	10		275		2,147
2019	-		150	332	99	2,048
2020	-			387		2,048
2021	-	6	100	436		2,048
2022	-			482		2,048
2023	-	3		523		2,048
2024	-			560		2,048
2025	-		100	575		2,048
2026	-			586		2,048
2027	-			597		2,048
2028	-			607		2,048
2029	-			617		2,048
2030	-			624		2,048
2031	193			632		2,048
2032	-			640		2,048
2033	-			647		2,048

### **SECTION 2: PREFERRED RESOURCE PLAN CHANGE**

GMO's business plan or acquisition strategy has become materially inconsistent with the Preferred Resource Plan filed in the 2013 Annual Update. Therefore, pursuant to 4 CSR 240-22.080(12), the Company is making notification of the material inconsistency to the Commission and Parties to Case No. EO-2012-0324, the 2012 GMO triennial Integrated Resource Plan ("IRP"). The singular material change from the June, 2013 Preferred Resource Plan is with respect to wind resource additions, all other components including combustion turbine ("CT") additions, solar additions, DSM levels, and unit retirements remain consistent with the 2013 Annual Update Preferred Resource Plan.

## 2.1 <u>ATTRACTIVE WIND ENERGY PRICING</u>

In the Preferred Resource Plan filed in the 2013 Annual Update, 350 MW of wind additions were identified over the twenty-year planning period based upon current Missouri Renewable Portfolio Standard ("RPS") rule requirements. The first addition of a new wind resource was anticipated to be required in 2019 for the amount of 150 MW as shown in Table 1 above.

Due to the current assumption that the Internal Revenue Service Production Tax Credit ("PTC") will not be renewed after 2013, and market intelligence showing aggressive wind energy pricing, KCP&L issued a Request for Proposals ("RFP") on July 17, 2013 to obtain and evaluate wind project offers from wind developers. The RFP responses were such that the Company opted to pursue a wind facility in 2013 to lock-in the aggressive wind pricing offered in 2013 that may not be available in the future if the PTC is not renewed. The wind facility GMO obtained through a Power Purchase Agreement ("PPA") is for a 200 MW facility located in the State of Missouri. The PPA was executed on November 13, 2013 and has an expected Commercial Operating Date ("COD") of on or before December 31, 2015.

The Preferred Resource Plan submitted in the June, 2013 filing also included 100 MW of wind resources in 2021 and 2025. By adding a 200 MW wind resource in 2016, the revised Preferred Resource Plan's next wind resource addition is estimated to be beyond the 20-year planning horizon.

# SECTION 3: NON-SELECTION OF CONTINGENCY RESOURCE PLANS

Rule 4 CSR 240-22.080(12)(B) requires an explanation if none of the contingency plans identified in the last filing (the June, 2013 Annual Update) were chosen as the new Preferred Resource Plan. The contingency resource plans identified in the 2013 Annual Update were based upon the critical uncertain factors ("CUF") of load, natural gas prices, and CO<sub>2</sub> prices. Because the revision of the Preferred Resource Plan was not attributable to changes in the CUF metrics, none of the contingency plans identified in the Annual Update were appropriate to select.

### **SECTION 4: CURRENT PREFERRED RESOURCE PLAN**

Rule 4 CSR 240-22.080(12) requires that the utility shall identify all changes to the superseded Preferred Resource Plan and Resource Acquisition Strategy, and provide the impact on NPVRR and all other performance measures due to the new Preferred Resource Plan with respect to the superseded Preferred Resource Plan.

### 4.1 CHANGES TO THE PREFERRED RESOURCE PLAN

As outlined in Section 2:, changes to the Preferred Resource Plan filed in June, 2013 have occurred. The revised Preferred Resource Plan is shown in Table 2 below:

**Table 2: Current Preferred Resource Plan** 

Table 2: Guitelle Florida Rocculos Flair													
Year	CT's (MW)	Solar (MW)	Wind (MW)	MEEIA/RAP DSM (MW)	Convert to NG (MW)	Existing Capacity (MW)							
2013	-			81		2,302							
2014	-			97		2,147							
2015	-			116		2,147							
2016	-		200	165		2,147							
2017	-			219		2,147							
2018	-	10		275		2,147							
2019	-			332	99	2,048							
2020	-			387		2,048							
2021	-	6		436		2,048							
2022	-			482		2,048							
2023	-	3		523		2,048							
2024	-			560		2,048							
2025	-			575		2,048							
2026	-			586		2,048							
2027	-			597		2,048							
2028	-			607		2,048							
2029	-			617		2,048							
2030	-			624		2,048							
2031	193			632		2,048							
2032	-			640		2,048							
2033	-			647		2,048							

## 4.2 CHANGES TO THE RESOURCE ACQUISITION STRATEGY

The Resource Acquisition Strategy Implementation Plan in the 2013 Annual Update consisted of a draft schedule for environmental retrofits, a draft schedule of major milestones for a 2016 50 MW wind resource addition, and a Demand-Side Management program schedule. The singular item that is superseded by the new Preferred Resource Plan is the 200 MW wind resource addition schedule. Table 3 below, provides a draft schedule for the 200 MW wind PPA outlined in Section 2.1.

**Table 3: Wind Resource Addition Schedule** 

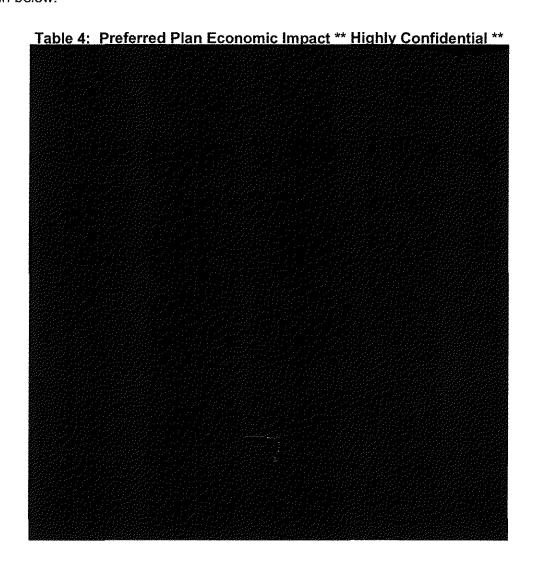
Milestone Description	Milestone Dates
Issue RFP	July 17, 2013
Proposals Due	August 12, 2013
Notify Responders of Status	September 12, 2013
Recommend Short List to Senior Leadership	September 23, 2013
Begin Contract Negotiations with Short Listed Responders	October 10, 2013
Conclude Contract Negotiations	November 12, 2013
PPA Executed	November 13, 2013
Engineering and Procurement Begins	1Q, 2014
Construction Begins	1Q, 2015
Commercial Operation	October 31, 2015 - December 31, 2015

## 4.3 <u>IMPACT ON NET PRESENT VALUE OF REVENUE REQUIREMENT</u> (NPVRR)

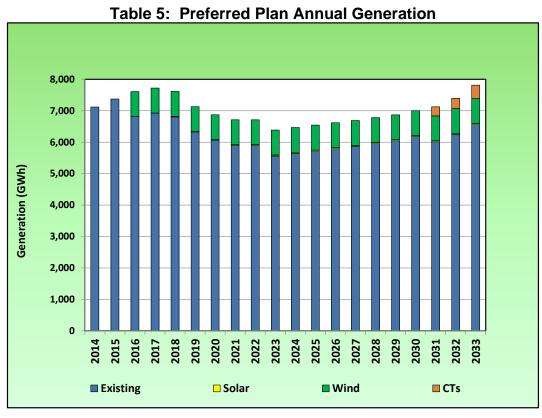
As identified in "Section 7, Resource Acquisition Strategy", Page 100, the expected value NPVRR across the twenty-seven endpoint tree for the Preferred Plan was \$11,703 Million. The new Preferred Plan has an expected value NPVRR of \$11,385 Million, a \$318 Million reduction due to the new wind resource addition over the 20-year planning period. It should be noted that the 2013 Annual Update assumed the wind generation cost that did not include a Production Tax Credit subsidy whereas the pricing obtained in the wind PPA executed in November, 2013 reflected the inclusion of the PTC. Therefore, a reduction in the 20-year NPVRR occurred.

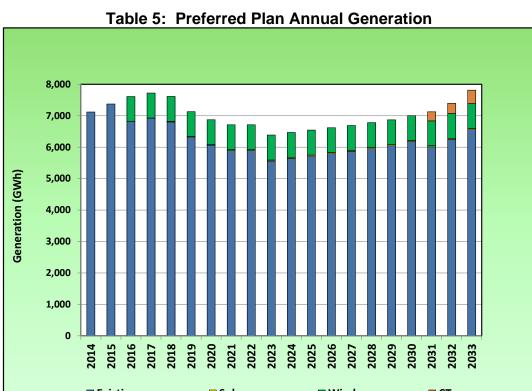
### 4.4 PERFORMANCE MEASURES

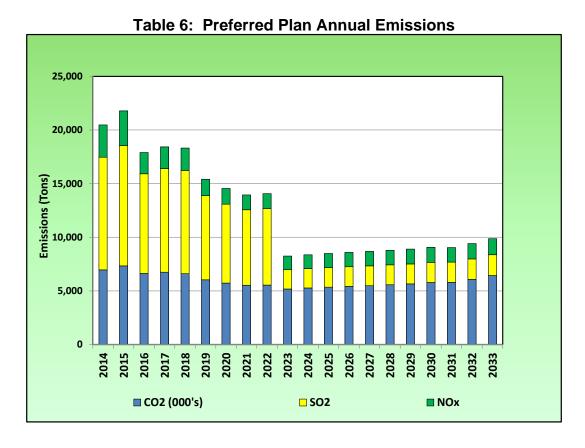
The Performance Measures in terms of economic impact, generation, and emissions on a per-year basis for the new Preferred Resource Plan are provided in below.











The Company performed an analysis to address the impact of the critical uncertain factors on the revised Preferred Plan. This analysis ranks how plans perform relative to the representation of the twenty-seven endpoint tree. The results of the analysis are represented in the following tables:

Table 7: Critical Uncertain Factor - High CO<sub>2</sub> Prices

HIG	H GAS	MID	GAS	LOW	/ GAS		HIGH	H GAS	MID	GAS	LOW	/ GAS		HIGH	I GAS	MID	GAS	LOW	V GAS
Endpoint	1	Endpoint	4	Endpoint	7		<b>Endpoint</b>	10	Endpoint	: 13	Endpoint	16		Endpoint	19	Endpoint	22	Endpoint	25
PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
AICGA	13,699	AICGA	13,316	AICGA	12,961		AICGA	12,871	AICGA	12,589	AICGA	12,318		AICGA	12,165	AICGA	11,964	AICGA	11,749
AICGW	13,888	AICGB	13,592	AICGB	13,242		AICGW	13,102	AICGB	12,885	AICGB	12,610		AICGW	12,415	AICGB	12,269	AICGB	12,052
AICGB	13,960	AICGW	13,602	AICGE	13,313		AICGB	13,155	AICGW	12,909	AFCGA	12,676		AICGB	12,461	AICGW	12,300	AEDGA	12,109
AICGE	13,977	AICGE	13,635	AFCGA	13,314		AEDGA	13,174	AEDGA	12,922	AEDGA	12,680		AEDGA	12,481	AEDGA	12,303	AFCGA	12,112
AEDGA	13,992	AEDGA	13,644	AICGW	13,319		AICGE	13,177	AICGE	12,930	AICGE	12,682		AICGE	12,483	AICGE	12,315	AICGE	12,125
AEEGA	-,	AFCGA	13,658		13,320		AEEGA	13,181	AEEGA	12,936	AEEGF	12,697		AEEGA	12,487	AEEGA	,-	AEEGA	12,129
AFCGA	7-	AEEGA	,	AEEGF	13,321		AFCGA	13,209	AFCGA	12,941	AICGW	12,698		AFCGA	12,507	AFCGA	1-,0-0	AEEGF	12,147
ACBGA	14,046	AEEGF	,		13,327		ACBGA	13,245	ACBGA	13,012	AEEGA	12,699		ACBGA	12,558	ACBGA	12,396	AICGW	12,147
ACCGA	7	AICGF	- /	AEEGA	13,346		ACCGA	13,267	AEEGF	- / -	AICGF	12,703		ACCGA	12,580	AEBGA	,	AICGF	12,156
AEEGF	14,069	ACBGA	13,728	FICGB	13,418	۵	AEBGA	13,292	AEBGA	13,027	AEBGA	12,776	۵	AEBGA	12,596	AEEGF	12,413	AEBGA	12,203
ACGGA	,	AEBGA	,	AEBGA	13,424	LOA	AEEGF	13,293		13,040	ACBGA	12,785	LOAD	AEEGF	12,616	ACCGA	12,425	ACBGA	12,213
AICGF	,	ACCGA	-,	ACBGA	13,438		ACGGA	13,310	ACCGA	13,041	FICGB	12,800		ACGGA	12,624	AICGF	12,436	ACCGA	12,246
AEBGA	,	ABBGA	-,	ACCGA	13,469	ΔM	ABBGA	13,321	ABBGA	13,080	ACCGA	12,817	ΝO	ABBGA	12,631	ABBGA	12,459	FICGB	12,251
ABBGA	,	ACGGA	- ,	AGBGA	13,471		AICGF	13,325	ACGGA	13,089	ABBGA	12,834	-	AICGF	12,642	ACGGA	12,473	ADBGA	12,253
CICGA	14,181	CICGA	,	ABBGA	13,484		CICGA	13,372	CICGA	13,117	ADBGA	12,835		CICGA	12,674	CICGA	12,500	ABBGA	12,265
AFBGA	14,216		-,	ADBGA	13,500		AFBGA	13,408	AFBGA	13,161	AGBGA	12,846		AFBGA	12,710	AFBGA	12,539	AGBGA	12,295
AAAGA	14,245		-,	CICGA	13,500		AAAGA	13,452	FICGB	13,174	CICGA	12,863		AAAGA	12,768	ADBGA	,	ACGGA	12,296
FICGB	,	FICGA		ACGGA	13,521		FICGB	13,515	ADBGA	13,209	ACGGA	12,868		FICGA	1-,000		,	CICGA	12,301
FICGA	,	AAAGA	- /	AFBGA	13,540		FICGA	13,521	FICGA	13,210	AFBGA	12,898		FICGB	12,830	FICGA	12,578	AFBGA	12,335
DICGA	,	ADBGA	13,995	FICGA	13,556		DICGA	13,597	AAAGA	13,240	FICGA	12,908		ADBGA	12,845		,	FICGA	12,335
ADBGA	14,510	AGBGA	14,053	AAAGA	13,674		ADBGA	13,606	AGBGA	13,314	AAAGA	13,017		DICGA	12,907	AGBGA	12,662	AAAGA	12,444
BEEGA	,	DICGA	,	DICGA	13,750		AGBGA	13,776	DICGA	13,356	DICGA	13,115		AGBGA	13,020	DICGA	12,743	DICGA	12,554
AGBGA	,	BEEGA	,	BEEGA	14,013		BEEGA	13,791	BEEGA	13,579	BEEGA	13,373		BEEGA	13,103	BEEGA	12,965	BEEGA	12,805
AHBGA	14,808	AHBGA	· · · · · · · · · · · · · · · · · · ·	XEEGA	14,174		AHBGA	14,018	AHBGA	13,804	XEEGA	13,512		AHBGA	13,332	XEEGA	-, -	XEEGA	12,925
XEEGA	15,014	XEEGA	14,575	AHBGA	14,228		XEEGA	14,156	XEEGA	13,823	AHBGA	13,574		XEEGA	13,428	AHBGA	13,186	AHBGA	13,001

Table 8: Critical Uncertain Factor - Low CO<sub>2</sub> Prices

													•						
HIG	H GAS	MID	GAS	LOW	/ GAS		HIGH	I GAS	MID	GAS	LOW	/ GAS		HIGH	I GAS	MID	GAS	LOW	GAS
Endpoint	3	Endpoint	6	Endpoint	: 9		<b>Endpoint</b>	12	Endpoint	: 15	Endpoint	18		Endpoint	21	Endpoint	24	Endpoint	27
PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
AICGA	11,251	AICGA	10,815	AICGA	10,399		AICGA	10,622	AICGA	10,319	AICGA	10,034		AICGA	10,076	AICGA	9,886	AICGA	9,714
ACBGA	11,528	AICGB	11,149	AICGB	10,764		ACBGA	10,917	AICGB	10,663	AICGB	10,406		ACBGA	10,380	AICGB	10,234	AICGB	10,088
ACCGA	11,534	AEDGA	11,164	AEDGA	10,803		AEEGA	10,922	AEDGA	10,671	AEDGA	10,438		AEEGA	10,383	AEDGA	10,242	AEDGA	10,120
ACGGA	11,543	AEEGA	11,168	AEEGA	10,814		ACCGA	10,923	AEEGA	10,675	AEEGA	10,450		ACCGA	10,386	AEEGA	10,246	AEEGA	10,131
AEEGA	11,544	ACBGA	11,197	AFCGA	10,816		AEDGA	10,927	ACBGA	10,711	AFCGA	10,454		AEDGA	10,388	AFCGA	10,282	AFCGA	10,134
AEDGA	11,549	AFCGA	11,206	AICGE	10,876		ACGGA	10,932	AFCGA	10,714	AICGE	10,520		ACGGA	10,395	ACBGA	10,284	AICGE	10,201
AICGB	11,553	ACCGA	11,211	ACBGA	10,881		AICGB	10,938	ACCGA	10,727	ACBGA	10,521		AICGB	10,396	ACCGA	10,299	ACBGA	10,204
AAAGA	11,598	AICGE	11,235	ACCGA	10,907		ABBGA	10,987	AICGE	10,752	ACCGA	10,547		AFCGA	10,448	AICGE	10,322	AEBGA	10,230
ABBGA	11,599	ACGGA	11,238	AEBGA	10,923		AFCGA	10,993	ACGGA	10,753	AEBGA	10,552		ABBGA	10,449	ACGGA	10,326	ACCGA	10,230
AICGE	11,612	ABBGA	11,269	ABBGA	10,948	٦	AAAGA	10,995	ABBGA	10,784	FICGA	10,575	۵	AICGE	10,459	ABBGA	10,357	FICGA	10,247
AFCGA	11,615	AEEGF	11,274	FICGA	10,950	LOAD	AICGE	11,001	AEEGF	10,797	ABBGA	10,588	LOAD	AAAGA	10,460	AEEGF	10,374	ABBGA	10,272
AEEGF	11,617	AEBGA	11,315	AEEGF	10,951		AEEGF	11,013	AEBGA	10,817	ACGGA	10,592		AEEGF	10,480	AEBGA	10,385	ACGGA	10,276
AICGW	11,655	AICGF	11,326	ACGGA	10,951	₽	AICGW	11,048	AICGF	10,844	AEEGF	10,600	NO.	AICGW	10,508	AICGF	10,417	AEEGF	10,286
AFBGA	11,685	AAAGA	11,344	FICGB	10,960	1-	AFBGA	11,070	AFBGA	10,863	FICGB	10,605	1-	AFBGA	10,527	AFBGA	10,433	FICGB	10,287
AICGF	11,706	AFBGA	11,348	AICGF	10,968		AICGF	11,097	AAAGA	10,867	AICGF	10,615		AEBGA	10,555	AAAGA	10,442	AICGF	10,298
AEBGA	11,724	AICGW	11,362	AFBGA	11,022		AEBGA	11,098	AICGW	10,881	AFBGA	10,665		AICGF	10,559	FICGA	10,450	AFBGA	10,347
CICGA	11,797	FICGB	11,379	CICGA	11,033		CICGA	11,181	FICGA	10,890	CICGA	10,676		CICGA	10,637	AICGW	10,452	CICGA	10,357
FICGB	11,818	FICGA	11,396	AICGW	11,088		FICGB	11,210	FICGB	10,899	AICGW	10,733		FICGA	10,670	FICGB	10,471	ADBGA	10,410
FICGA	11,861	CICGA	11,405	AAAGA	11,092		FICGA	11,223	CICGA	10,919	AAAGA	10,737		FICGB	10,671	CICGA	10,487	AICGW	10,415
DICGA	12,046	DICGA	11,673	ADBGA	11,182		DICGA	11,433	DICGA	11,188	ADBGA	10,764		DICGA	10,892	ADBGA	10,756	AAAGA	10,422
AHBGA	12,167	ADBGA	11,779	AGBGA	11,183		AHBGA	11,561	ADBGA	11,224	AGBGA	10,809		AHBGA	11,024	DICGA	10,759	AGBGA	10,474
BEEGA	12,209	AGBGA	11,820	DICGA	11,319		BEEGA	11,606	AGBGA	11,307	DICGA	10,963		BEEGA	11,065	AGBGA	10,852	DICGA	10,647
XEEGA	12,380	XEEGA	11,881	XEEGA	11,404		ADBGA	11,699	XEEGA	11,354	XEEGA	11,010		ADBGA	11,118	XEEGA	10,904	XEEGA	10,672
ADBGA	12,394	BEEGA	11,886	BEEGA	11,584		XEEGA	11,719	BEEGA	11,408	BEEGA	11,234		XEEGA	11,157	BEEGA	10,979	BEEGA	10,917
AGBGA	12,465	AHBGA	11,920	AHBGA	11,672		AGBGA	11,810	AHBGA	11,437	AHBGA	11,309		AGBGA	11,233	AHBGA	11,009	AHBGA	10,991

Table 9: Critical Uncertain Factor - High Load Growth

HIG	H CO2	MID	CO2	LOW	/ CO2		HIGI	1 CO2	MID	CO2	LOW	/ CO2		HIGH	1 CO2	MID	CO2	LOW	/ CO2
<b>Endpoint</b>	1	Endpoint	2	Endpoint	3		<b>Endpoint</b>	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
AICGA	13,699	AICGA	12,281	AICGA	11,251		AICGA	13,316	AICGA	11,854	AICGA	10,815		AICGA	12,961	AICGA	11,457	AICGA	10,399
AICGW	13,888	AICGB	12,560	ACBGA	11,528		AICGB	13,592	AICGB	12,165	AICGB	11,149		AICGB	13,242	AICGB	11,785	AICGB	10,764
AICGB	13,960	AEEGA	12,567	ACCGA	11,534		AICGW	13,602	AEDGA	12,196	AEDGA	11,164		AICGE	13,313	AEDGA	11,833	AEDGA	10,803
AICGE	,	AEDGA	12,570	ACGGA	11,543		AICGE	13,635	AEEGA	,	AEEGA	11,168		AFCGA	,	AFCGA	,	AEEGA	10,814
AEDGA	-,	AICGW	12,586	AEEGA	11,544		AEDGA	13,644	AFCGA	,	ACBGA	11,197		AICGW	13,319	AEEGA	11,846	AFCGA	10,816
AEEGA	-,	ACBGA	12,592	AEDGA	11,549		AFCGA	13,658	AICGE	, -	AFCGA	11,206		AICGF	13,320	AICGE	11,878		10,876
AFCGA	,	AICGE	12,599	AICGB	11,553		AEEGA	13,658	ACBGA	,	ACCGA	11,211		AEEGF	13,321	ACBGA		ACBGA	10,881
ACBGA	,	ACCGA	12,601	AAAGA	11,598		AEEGF	13,700	ACCGA	, -	AICGE	11,235		AEDGA	13,327	AEEGF	11,937	ACCGA	10,907
ACCGA	7	AFCGA	12,623	ABBGA	11,599		AICGF	13,727	AICGW	12,301	ACGGA	11,238		AEEGA	13,346	AEBGA	, , -	AEBGA	10,923
AEEGF	14,069	ACGGA	12,625	AICGE	11,612		ACBGA	13,728	AEEGF	12,310	ABBGA	11,269	S	FICGB	13,418	ACCGA	11,955	ABBGA	10,948
ACGGA	,	AEEGF	12,645	AFCGA	11,615	GAS	AEBGA	13,751	ACGGA	7-	AEEGF	11,274	GAS	AEBGA	13,424	AICGF	,	FICGA	10,950
AICGF	,	ABBGA	12,675	AEEGF	11,617	MID	ACCGA	13,755	AEBGA	7	AEBGA	11,315	NO	ACBGA	13,438	FICGB	,	AEEGF	10,951
AEBGA	,	AICGF	12,712		11,655	Σ	ABBGA	13,803	ABBGA	12,335		11,326	임	ACCGA	13,469	ABBGA	,	ACGGA	10,951
ABBGA	,	AEBGA	12,725	AFBGA	11,685		ACGGA	13,804	AICGF	,	AAAGA	11,344		AGBGA	13,471	ACGGA	,	FICGB	10,960
CICGA	, -	AAAGA	12,736	AICGF	11,706		CICGA	.0,000	CICGA	,	AFBGA	11,348		ABBGA	,	AICGW	12,010		10,968
AFBGA	, -	AFBGA	12,762	AEBGA	11,724		FICGB	13,863	AFBGA	,	AICGW	11,362		ADBGA	13,500	FICGA	,-	AFBGA	11,022
AAAGA	, -	CICGA	12,793	CICGA	11,797		AFBGA	13,880	FICGB	, -	FICGB	11,379		CICGA	13,500	CICGA	,	CICGA	11,033
FICGB	,====	FICGB	12,858	FICGB	11,818		FICGA	13,941	FICGA	· · · · · · · · · · · · · · · · · · ·	FICGA	11,396		ACGGA	13,521	AFBGA	,	AICGW	11,088
FICGA	,	FICGA	12,904	FICGA	11,861		AAAGA	13,958	AAAGA	,	CICGA	11,405		AFBGA	13,540	AGBGA	, -	AAAGA	11,092
DICGA	,	DICGA	13,029	DICGA	12,046		ADBGA	-,	DICGA	12,665		11,673		FICGA	13,556	ADBGA	,	ADBGA	11,182
ADBGA	,	BEEGA	13,196	AHBGA	12,167		AGBGA	14,053	ADBGA	7-	ADBGA	11,779		AAAGA	13,674	AAAGA	,	AGBGA	11,183
BEEGA	,	ADBGA	13,276	BEEGA	12,209		DICGA	14,066	AGBGA	,	AGBGA	11,820		DICGA	-,	DICGA	12,318		11,319
AGBGA	14,635	AHBGA	13,301	XEEGA	12,380		BEEGA	14,285	BEEGA	12,882	XEEGA	11,881		BEEGA	14,013	XEEGA	,	XEEGA	11,404
AHBGA	,	AGBGA	13,378	ADBGA	12,394		AHBGA	14,519	XEEGA	7	BEEGA	11,886		XEEGA	,	BEEGA	,-	BEEGA	11,584
XEEGA	15,014	XEEGA	13,479	AGBGA	12,465		XEEGA	14,575	AHBGA	13,031	AHBGA	11,920		AHBGA	14,228	AHBGA	12,728	AHBGA	11,672

Table 10: Critical Uncertain Factor - Low Load Growth

								LOW CO2 HIGH CO2											
HIG	H CO2	MID	CO2	LOW	/ CO2		HIGI	1 CO2	MID	CO2	LOW	/ CO2		HIGH	1 CO2	MIE	CO2	LOW	V 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
AICGA	12,165	AICGA	10,947	AICGA	10,076		AICGA	11,964	AICGA	10,765	AICGA	9,886		AICGA	11,749	AICGA	10,566	AICGA	9,714
AICGW	1_, 110	AEEGA	11,251	ACBGA	10,380		AICGB	12,269	AICGB	11,099	AICGB	10,234		AICGB	12,052	AICGB	10,910	AICGB	10,088
AICGB	12,461	AICGB	11,252	AEEGA	10,383		AICGW	12,300	AEDGA	11,119	AEDGA	10,242		AEDGA	12,109	AEDGA	10,942	AEDGA	10,120
AEDGA	12,481	AEDGA	11,254	ACCGA	10,386		AEDGA	12,303	AEEGA	, -	AEEGA	10,246		AFCGA	12,112	AEEGA	10,955	AEEGA	10,131
AICGE	12,483		11,294	AEDGA	10,388		AICGE	1-,010	AFCGA	11,144	AFCGA	10,282		AICGE	,	AFCGA	10,959	AFCGA	10,134
AEEGA	12,487	ACBGA	11,295	ACGGA	10,395		AEEGA	,-	AICGE	11,167	ACBGA	10,284		AEEGA	, -	AICGE	11,004	AICGE	10,201
AFCGA	,	AICGE	11,295	AICGB	10,396		AFCGA	,	ACBGA	, -	ACCGA	10,299		AEEGF	,	ACBGA	,	ACBGA	10,204
ACBGA	12,558	AFCGA	11,301	AFCGA	10,448		ACBGA	,	ACCGA		AICGE	10,322		AICGW	12,147	AEBGA	11,046	AEBGA	10,230
ACCGA	12,580	ACCGA	11,305	ABBGA	10,449		AEBGA	,	AEBGA	11,242	ACGGA	10,326		AICGF	12,156	ACCGA	11,066	ACCGA	10,230
AEBGA	12,596	ACGGA	11,329	AICGE	10,459	S	AEEGF		AICGW	11,248	ABBGA	10,357	S	AEBGA	12,203	AEEGF	11,080	FICGA	10,247
AEEGF	12,616		11,369	AAAGA	10,460	ğ	ACCGA	,	ACGGA	,	AEEGF	10,374	GAS	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272
ACGGA	12,624	ABBGA	11,380	AEEGF	10,480	ΩW	AICGF	,	ABBGA	, -	AEBGA	10,385	LOW	ACCGA	12,246	AICGF	11,098	ACGGA	10,276
ABBGA	,	AEBGA	11,403	AICGW	10,508	Σ	ABBGA	1-, 100	AEEGF	,	AICGF	10,417	2	FICGB	12,251	ACGGA	, -	AEEGF	10,286
AICGF	,	AICGF	11,423	AFBGA	10,527		ACGGA	, -	AICGF	,	AFBGA	10,433		ADBGA	12,253	FICGA	, -	FICGB	10,287
CICGA	,-	AAAGA	11,456	AEBGA	10,555		CICGA		CICGA	1	AAAGA	10,442		ABBGA	12,265	FICGB	11,121	AICGF	10,298
AFBGA	, -	AFBGA	,	AICGF	10,559		AFBGA	,	FICGA	,	FICGA	10,450		AGBGA	,	AICGW	, -	AFBGA	10,347
AAAGA	12,768	CICGA	11,479	CICGA	10,637		ADBGA	,	AFBGA	11,347	AICGW	10,452		ACGGA	12,296	ADBGA	11,147	CICGA	10,357
FICGA	, , , , , ,	FICGA	11,557	FICGA	10,670		FICGB	,	FICGB	,	FICGB	10,471		CICGA	12,301	CICGA	11,169	ADBGA	10,410
FICGB	12,830	FICGB	11,570	FICGB	10,671		FICGA	12,578	AAAGA	11,407	CICGA	10,487		AFBGA	12,335	AFBGA	11,178	AICGW	10,415
ADBGA	,	DICGA	,	DICGA	10,892		AAAGA	7 -	ADBGA	, -	ADBGA	10,756		FICGA	12,335	AGBGA	11,218	AAAGA	10,422
DICGA	12,907	ADBGA	11,830	AHBGA	11,024		AGBGA	,	AGBGA	1	DICGA	10,759		AAAGA	12,444	AAAGA	11,263	AGBGA	10,474
AGBGA	-,	BEEGA	,	BEEGA	11,065		DICGA	12,743		,	AGBGA	10,852		DICGA	,	DICGA	11,442	DICGA	10,647
BEEGA	,	AGBGA	11,981	ADBGA	11,118		BEEGA		BEEGA		XEEGA	10,904		BEEGA	12,805	XEEGA	11,594	XEEGA	10,672
AHBGA	-,	AHBGA	12,019	XEEGA	11,157		XEEGA	,	XEEGA	7	BEEGA	10,979		XEEGA	,	BEEGA	11,000	BEEGA	10,917
XEEGA	13,428	XEEGA	12,098	AGBGA	11,233		AHBGA	13,186	AHBGA	11,974	AHBGA	11,009		AHBGA	13,001	AHBGA	11,830	AHBGA	10,991

**Table 11: Critical Uncertain Factor - High Natural Gas Prices** 

HIG	H CO2	MID	CO2	LOV	V CO2		HIGH	1 CO2	MID	CO2	LOV	/ CO2		HIGH	1 CO2	MID CO2		LOW	/ CO2
<b>Endpoint</b>		Endpoint		Endpoint			<b>Endpoint</b>		Endpoint		Endpoint			Endpoint		Endpoint		Endpoint	
PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
AICGA	- 7	AICGA	, -	AICGA	11,251		AICGA	12,871	AICGA	,	AICGA	10,622		AICGA	12,165	AICGA	10,947	AICGA	10,076
AICGW	13,888	AICGB	12,560	ACBGA	11,528		AICGW	13,102	AEEGA	11,859	ACBGA	10,917		AICGW	12,415	AEEGA	11,251	ACBGA	10,380
AICGB	13,960	AEEGA	,	ACCGA	11,534		AICGB	13,155	AICGB	7	AEEGA	10,922		AICGB	, -	AICGB	11,252		10,383
AICGE	13,977	AEDGA	12,570	ACGGA	11,543		AEDGA	13,174	AEDGA	11,861	ACCGA	10,923		AEDGA	12,481	AEDGA	11,254	ACCGA	10,386
AEDGA	13,992	AICGW	12,586	AEEGA	11,544		AICGE	13,177	ACBGA	11,898	AEDGA	10,927		AICGE	12,483	AICGW	11,294	AEDGA	10,388
AEEGA	13,998	ACBGA	,	AEDGA	11,549		AEEGA	13,181	AICGW	11,900	ACGGA	10,932		AEEGA	12,487	ACBGA	11,295	ACGGA	10,395
AFCGA	14,024	AICGE		AICGB	11,553		AFCGA	13,209	AICGE	7	AICGB	10,938		AFCGA	12,507	AICGE	11,295	AICGB	10,396
ACBGA	14,046	ACCGA	12,601	AAAGA	11,598		ACBGA	13,245	ACCGA	,	ABBGA	10,987		ACBGA	12,558	AFCGA	11,301	AFCGA	10,448
ACCGA	,	AFCGA	,	ABBGA	11,599		ACCGA	-, -	AFCGA		AFCGA	10,993		ACCGA	12,580	ACCGA		ABBGA	10,449
AEEGF	,	ACGGA	12,625	AICGE	11,612	۵ ا	AEBGA	13,292	ACGGA	11,932	AAAGA	10,995	٥	AEBGA	12,596	ACGGA	11,329	AICGE	10,459
ACGGA	14,109	AEEGF	,	AFCGA	11,615	LOAI	AEEGF	13,293	AEEGF	11,965	AICGE	11,001	LOW LOA	AEEGF	12,616	AEEGF	11,369	AAAGA	10,460
AICGF	14,111	ABBGA	12,675	AEEGF	11,617	1 =	ACGGA	13,310	ABBGA	11,982	AEEGF	11,013	\	ACGGA	12,624	ABBGA	,	AEEGF	10,480
AEBGA	,	AICGF	,	AICGW	11,655	ΔM	ABBGA	- , -	AEBGA	7 -	AICGW	11,048	6	ABBGA	12,631	AEBGA	11,403		10,508
ABBGA	14,127	AEBGA	, -	AFBGA	11,685	-	AICGF	13,325		,	AFBGA	11,070	-	AICGF	, -	AICGF	11,423	_	10,527
CICGA	14,181	AAAGA	12,736	AICGF	11,706		CICGA	13,372	AAAGA	12,054	AICGF	11,097		CICGA	12,674	AAAGA	11,456	AEBGA	10,555
AFBGA	14,216		, -	AEBGA	11,724		AFBGA	13,408	_	,	AEBGA	11,098		AFBGA	,	AFBGA	11,459	AICGF	10,559
AAAGA	14,245	CICGA	12,793	CICGA	11,797		AAAGA	13,452	CICGA	12,092	CICGA	11,181		AAAGA	12,768	CICGA	11,479	CICGA	10,637
FICGB	14,299	FICGB	12,858	FICGB	11,818		FICGB	13,515	FICGB	12,173	FICGB	11,210		FICGA	12,806	FICGA	11,557	FICGA	10,670
FICGA	14,353	FICGA	12,904	FICGA	11,861		FICGA	13,521	FICGA		FICGA	11,223		FICGB	12,830	FICGB	11,570	FICGB	10,671
DICGA	14,401	DICGA	13,029	DICGA	12,046		DICGA	13,597	DICGA	,	DICGA	11,433		ADBGA	12,845	DICGA	11,724	DICGA	10,892
ADBGA	14,510	BEEGA	13,196	AHBGA	12,167		ADBGA	13,606	ADBGA	12,490	AHBGA	11,561		DICGA	12,907	ADBGA	11,830		11,024
BEEGA	14,581	ADBGA	13,276	BEEGA	12,209		AGBGA	13,776	BEEGA	12,509	BEEGA	11,606		AGBGA	13,020	BEEGA	11,903	BEEGA	11,065
AGBGA	14,635	AHBGA	13,301	XEEGA	12,380		BEEGA	-, -	AHBGA	12,620	ADBGA	11,699		BEEGA	13,103	AGBGA	11,981	ADBGA	11,118
AHBGA	14,808	AGBGA	13,378	ADBGA	12,394		AHBGA	14,018	AGBGA	12,636	XEEGA	11,719		AHBGA	13,332	AHBGA	12,019	XEEGA	11,157
XEEGA	15,014	XEEGA	13,479	AGBGA	12,465		XEEGA	14,156	XEEGA	12,732	AGBGA	11,810		XEEGA	13,428	XEEGA	12,098	AGBGA	11,233

**Table 12: Critical Uncertain Factor - Low Natural Gas Prices** 

HIG	H CO2	MIE	CO2	LOW	/ CO2		HIGH	1 CO2	MID	CO2	LOW	/ CO2		HIGH	I CO2	MID	CO2	LOW	/ CO2
Endpoint	7	Endpoint	: 8	Endpoint	9		Endpoint	16	Endpoint	17	Endpoint	18		Endpoint	25	Endpoint	26	Endpoint	27
PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR		PLAN	NPVRR	PLAN	NPVRR	PLAN	NPVRR
AICGA	12,961	AICGA	11,457	AICGA	10,399		AICGA	12,318	AICGA	10,980	AICGA	10,034		AICGA	11,749	AICGA	10,566	AICGA	9,714
AICGB	13,242	AICGB	11,785	AICGB	10,764		AICGB	12,610	AICGB	11,320	AICGB	10,406		AICGB	12,052	AICGB	10,910	AICGB	10,088
AICGE	13,313	AEDGA	11,833	AEDGA	10,803		AFCGA	12,676	AEDGA	11,355	AEDGA	10,438		AEDGA	12,109	AEDGA	10,942	AEDGA	10,120
AFCGA	13,314	AFCGA	11,844	AEEGA	10,814		AEDGA	12,680	AEEGA	11,369	AEEGA	10,450		AFCGA	12,112	AEEGA	10,955	AEEGA	10,131
AICGW	13,319	AEEGA	11,846	AFCGA	10,816		AICGE	12,682	AFCGA	11,372	AFCGA	10,454		AICGE	12,125	AFCGA	10,959	AFCGA	10,134
AICGF	13,320	AICGE	11,878	AICGE	10,876		AEEGF	12,697	AICGE	11,414	AICGE	10,520		AEEGA	12,129	AICGE	11,004	AICGE	10,201
AEEGF	13,321	ACBGA	11,927	ACBGA	10,881		AICGW	12,698	ACBGA	11,451	ACBGA	10,521		AEEGF	12,147	ACBGA	11,038	ACBGA	10,204
AEDGA	13,327	AEEGF	11,937	ACCGA	10,907		AEEGA	12,699	AEBGA	11,462	ACCGA	10,547		AICGW	12,147	AEBGA	11,046	AEBGA	10,230
AEEGA	13,346	AEBGA	11,944	AEBGA	10,923		AICGF	12,703	ACCGA	11,479	AEBGA	10,552		AICGF	12,156	ACCGA	11,066	ACCGA	10,230
FICGB	13,418	ACCGA	11,955	ABBGA	10,948	۵	AEBGA	12,776	AEEGF	11,482	FICGA	10,575	۵	AEBGA	12,203	AEEGF	11,080	FICGA	10,247
AEBGA	13,424	AICGF	11,958	FICGA	10,950	OAD	ACBGA	12,785	AICGF	11,503	ABBGA	10,588	OAD	ACBGA	12,213	ABBGA	11,097	ABBGA	10,272
ACBGA	13,438	FICGB	11,983	AEEGF	10,951		FICGB	12,800	ABBGA	11,514	ACGGA	10,592	1 –	ACCGA	12,246	AICGF	11,098	ACGGA	10,276
ACCGA	13,469	ABBGA	11,995	ACGGA	10,951	₽	ACCGA	12,817	FICGB	11,527	AEEGF	10,600	ŏ.	FICGB	12,251	ACGGA	11,115	AEEGF	10,286
AGBGA	13,471	ACGGA	12,004	FICGB	10,960		ABBGA	12,834	ACGGA	11,528	FICGB	10,605	-	ADBGA	12,253	FICGA	11,116	FICGB	10,287
ABBGA	13,484	AICGW	12,010	AICGF	10,968		ADBGA	12,835	FICGA	11,537	AICGF	10,615		ABBGA	12,265	FICGB	11,121	AICGF	10,298
ADBGA	13,500	FICGA	12,021	AFBGA	11,022		AGBGA	12,846	AICGW	11,551	AFBGA	10,665		AGBGA	12,295	AICGW	11,145	AFBGA	10,347
CICGA	13,500	CICGA	12,048	CICGA	11,033		CICGA	12,863	CICGA	,	CICGA	10,676		ACGGA	12,296	ADBGA	11,147	CICGA	10,357
ACGGA	13,521	AFBGA	12,069	AICGW	11,088		ACGGA	12,868	AFBGA	11,594	AICGW	10,733		CICGA	12,301	CICGA	11,169	ADBGA	10,410
AFBGA	13,540	AGBGA	12,120	AAAGA	11,092		AFBGA	12,898	ADBGA	11,598	AAAGA	10,737		AFBGA	12,335	AFBGA	,	AICGW	10,415
FICGA	13,556	ADBGA	12,124	ADBGA	11,182		FICGA	12,908	AGBGA	11,640	ADBGA	10,764		FICGA	12,335	AGBGA	11,218	AAAGA	10,422
AAAGA	13,674	AAAGA	12,159	AGBGA	11,183		AAAGA	13,017	AAAGA	11,678	AGBGA	10,809		AAAGA	12,444	AAAGA	11,263	AGBGA	10,474
DICGA	13,750	DICGA	12,318	DICGA	11,319		DICGA	13,115	DICGA	11,852	DICGA	10,963		DICGA	12,554	DICGA	11,442	DICGA	10,647
BEEGA	14,013	XEEGA	12,533	XEEGA	11,404		BEEGA	13,373	XEEGA	12,029	XEEGA	11,010		BEEGA	12,805	XEEGA	11,594	XEEGA	10,672
XEEGA	14,174	BEEGA	12,572	BEEGA	11,584		XEEGA	13,512	BEEGA	12,106	BEEGA	11,234		XEEGA	12,925	BEEGA	11,696	BEEGA	10,917
AHBGA	14,228	AHBGA	12,728	AHBGA	11,672		AHBGA	13,574	AHBGA	12,245	AHBGA	11,309		AHBGA	13,001	AHBGA	11,830	AHBGA	10,991

## **SECTION 5: SUMMARY**

The revised Preferred Plan outlined above reflects the Company's decision to enter into a 20-year PPA for a 200 MW wind facility. The 200 MW wind facility will be included in the 2014 Annual Update with a commercial operation date of 2016.