Ameren Missouri

Renewable Energy Standard Compliance Plan 2014-2016

Prepared in Compliance with 4 CSR 240-20.100

April 15, 2014

NP

Table of Contents

Reference Table

Introduction

The Missouri Renewable Energy Standard (RES) began as a public initiative and was placed on the Missouri ballot during the November 4, 2008 election. Labeled as Proposition C, it requires the three investor owned utilities (IOUs) in the state (Ameren Missouri, The Empire District Electric Company and Kansas City Power & Light Company) to provide renewable energy resources as a percentage of the total retail sales that each utility makes to its customers in the state.

After an extensive rulemaking process involving stakeholders from the Missouri Public Service Commission (Commission), the Commission Staff, the Office of the Public Council, the Missouri Industrial Energy Consumers, the Missouri Energy Development Association, the three IOUs, various wind, solar and biomass developers, etc., the Commission published final rules on July 7, 2010.

Section (7) (B) of the Commission's rule implementing the RES (4 CSR 240-2.100(7)(B)) requires that the IOUs file a plan that covers their intended compliance measures for the current year plus the immediately following 2 years.

There are two basic forms of compliance that are required under the RES. Compliance with what we term the “non-solar” RES relates to compliance using renewable energy credits (RECs) and/or actual energy that includes the RECs from all forms of qualified renewable generation resources (wind, hydro-electric, biomass, etc.) as certified by the Missouri Department of Natural Resources (DNR). In 2013, the group within DNR responsible for providing renewable certification was transferred from the DNR to the Missouri Department of Economic Development. There is a separate component, the “solar” RES that requires compliance which can only be met with solar RECs or actual energy that includes the RECs from solar generation resources.

There are also two basic means through which compliance is deemed to have been achieved. The first is based on providing enough RECs to meet the megawatt-hour (MWh) requirements as stated in the paragraph above. The other is related to the 1% rate cap calculation. Based on that calculation, a utility will be deemed to be in compliance with the RES once the cost of compliance is equal to or greater than the 1% calculation. Thus a utility could fall short of meeting the MWh requirement, but if the 1% calculation is met then the utility is deemed to be in full compliance.

The following table details the renewables percentage requirements of the retail electric sales for the non-solar and solar RES:

Time Period	Non-Solar	Solar*
2011-2013	2%	2%
2014-2017	5%	2%
2018-2020	10%	2%
2021-forward	15%	2%

*(Solar percentages are applied to the non-solar RES amounts)

As referenced above, the DNR is responsible for determining all eligible renewable resources that can be utilized by the IOUs in meeting the requirements of the RES. DNR rule 10 CSR 140-8.010 (2), contains the list of all eligible renewable resources which qualify to meet the compliance with the RES.

Ameren Missouri's compliance with the RES, as demonstrated in this report, includes only those renewable resources as currently defined by the above referenced rule.

In addition, the RES rules allow for the banking of RECs for up to a three year time period. This will allow for the use of eligible RECs generated from January 1, 2010 to the current time period in meeting the RES requirements for calendar year 2013.

Any generation and/or RECs from a Missouri renewable resource are entitled to a factor of 1.25 applied to each MWh.

The following information in this report will demonstrate the specific means through which Ameren Missouri intends to meet its obligations under both the non-solar and solar RES for the calendar years 2014-2016. A part of each section will address the necessary information required for each individual year.

Planned RES Compliance
Section (7) (B) 1 A

2014

Non-Solar RES

Ameren Missouri currently operates or has contracted for generation with the following eligible renewable resources:

- Keokuk Hydro-Electric Generation Station
- Horizon Pioneer Prairie Wind Farm
- Maryland Heights Renewable Energy Center (Landfill Gas)

The Ameren Missouri Keokuk Hydro-Electric Generation Station is located on the Mississippi River in Keokuk, Iowa. The station consists of 15 separate generators. The individual nameplate ratings range from 7.2 to 8.8 megawatts (MWs).

This generation facility is wholly owned by Ameren Missouri and has been operational since 1913.

In June, 2009 Ameren Missouri and Pioneer Prairie Wind Farm I LLC entered into a 15 year power purchase agreement. Ameren Missouri is purchasing 102.3 MWs of nameplate generation from the Pioneer Prairie Wind Farm consisting of 65 turbines, located in Northeast Iowa. The facility site covers approximately 10,000 acres of land located in Mitchell County, Iowa in Wayne and Stacyville Townships.

On June 16, 2012, Ameren Missouri's newest generating station, the Maryland Heights Renewable Energy Center (MHREC), became commercially operational. This facility burns methane gas produced by the IESI Landfill in Maryland Heights, MO in 3 Solar 4.9 MW Mercury 50 gas turbines to produce electricity.

This facility generated 62,678 MWhs in calendar year (CY) 2013. In the following years, this facility is expected to gradually increase generational capabilities, reaching approximately 96,400 MWhs annually.

Banked RECs

In accordance with 4 CSR 240-20.100 (3) (F), which requires utilities utilize a Commission-designated central third-party registry for REC accounting, the North American Renewable Registry (NAR) was selected to be utilized by the IOUs in Missouri.

RECs from the above referenced generators, covering the 2010-2013 time periods, were registered and placed in the Ameren Missouri account with NAR.

Ameren Missouri
NAR Account
REC Balance

Period of Generation	Keokuk	Pioneer Prairie	MHREC
1/1/10-12/31/10	499,148		
1/1/11-12/31/11	910,448	** [redacted] **	
1/1/12-12/31/12	754,125	** [redacted] **	37,450
1/1/13-12/31/13	738,833	** [redacted] **	62,678

During the CY 2014, Ameren Missouri anticipates that the Keokuk facility will add approximately 920,000 MWhs while Pioneer Prairie will add approximately ** [redacted] ** MWhs and the Maryland Heights Renewable Energy Center approximately 96,000 MWhs to the NAR account.

Planned Actions

For the 2014 compliance year, Ameren Missouri will utilize the generational output from the Keokuk and Pioneer Prairie facilities. Ameren Missouri will continue to place RECs into the NAR account associated with the actual 2014 generation from Keokuk, MHREC and the Pioneer Prairie facilities.

2014

Solar RES

During CY 2013, Ameren Missouri executed the following transactions adding to its solar bank:

Transaction	Vintage	Quantity S-RECs
3Degrees	2013	3,500
Gainesville Regional Utility	2012	6,500
Orlando Utilities	2011	2,288
Orlando Utilities	2012	6,537

The above quantities of solar RECs (S-RECs) have also been placed into Ameren Missouri's NAR account.

NP

In conjunction with the above purchases, in late 2010, Ameren Missouri completed the installation of approximately 100 kilowatts (kW) of solar generation capacity at its headquarters facility located in St. Louis.

This multi-technology installation produced 92 MWhs of solar generation in CY 2013. In accordance with Section 393.1030 RSMo, this generation is entitled to the 1.25 factor for a Missouri facility such that the S-RECs are equivalent to 115 MWhs. All generation from this facility will be utilized to meet the solar requirements of the RES.

In addition, Ameren Missouri filed a Standard Offer Contract (SOC) tariff with the Commission in November, 2011. This tariff became effective on January 1, 2012. Under the terms of the tariff, Ameren Missouri bought S-RECs from its electric customers who installed or are installing net metered solar facilities (100 kW or less) at their homes and/or businesses. The price per S-REC was $50 and the program was funded to a total of $2.0 million. The program was fully subscribed in 2012. Based on the success of the program a revised tariff was filed in November 2012 with additional funding of $1.0 million to continue the purchase of S-RECs from customers during the 2013 calendar year. Due to various factors influencing pricing for installations, the price per S-REC was reduced to $5. For systems 10 kW or larger installed prior to January 1, 2013, a five year contract was used but an additional meter was required and customers are paid based on actual production. For systems 10 kW or larger installed after January 1, 2013 and before August 28, 2013, the contract term was extended to 10 years. Due to the implementation of the provisions associated with Missouri House Bill 142 (HB 142), systems greater than 10 kW that are installed after August 28, 2013 no longer require a second meter and their generational output is determined in the same fashion as systems less than 10 kW, utilizing the PV Watts formula.

On August 28, 2013, due to the passage of HB 142, the RES law was amended. That amendment provided that if a customer accepts a solar rebate from the utility, the S-RECs transfer to the utility. Due to this change, the SOC program was discontinued and the $1.0 million SOC cap was not reached; $676,360 was actually paid to customers for S-REC purchases in 2013.

All S-RECs associated with the customer installed net metered systems, as well as the generation at the Ameren Missouri headquarters facility are entitled to the 1.25 factor as they represent Missouri based generation.

Through December 31, 2013 Ameren Missouri had acquired 15,920 S-RECs which will count as 19,900 due to the in-state factor.

Planned Actions

For the 2014 compliance year Ameren Missouri will use S-RECs that have been banked through purchases with Gainesville Regional Utilities, Orlando Utilities and 3 Degrees.

During CY 2014, Ameren Missouri will begin construction of its first utility scale solar generation project, the O'Fallon Renewable Energy Center. This 5.7 MW facility will be

located in O'Fallon, MO at the site of the Ameren Missouri O'Fallon substation. The annual output is estimated be about 7,800 MW starting in CY 2015. We are still evaluating a second utility scale solar project with a nameplate rating of approximately 10 MW that could be built as early as 2016. Further solar projects will continue to be evaluated based on cost, construction potential, siting and permitting requirements, etc., in order to determine future options in meeting the solar RES requirements.

2015
Non-Solar RES
Ameren Missouri will continue to generate renewable energy and bank the associated RECs from the Keokuk Hydro-electric Generation Station, the Maryland Heights Renewable Energy Center and the Horizon Pioneer Prairie Wind Farm.

Banked RECs
During CY 2015, in addition to the expected 96,400 MWhs of generation from the MHREC, Ameren Missouri anticipates that the Keokuk facility will add approximately 960,000 MWhs while Pioneer Prairie will add approximately ** [redacted] ** MWhs to the NAR account. All amounts associated with generation from the MHREC are eligible for the 1.25 factor as the generation comes from a Missouri resource.

Planned Actions
For the 2015 compliance year, Ameren Missouri will continue to draw upon its bank of RECs that it will have accumulated through the contributions from generation at the Keokuk, Pioneer Prairie and the MHREC.

2015
Solar RES
The combination of generation from its solar installation at the company headquarters, the soon to be constructed O'Fallon Solar Energy Center, along with customer procured S-RECs represents the basis by which Ameren Missouri intends to meet its solar compliance requirements for CY 2015.

2016
Non-Solar RES
In CY 2016, Ameren Missouri will be receiving full generation from the Keokuk Hydro-electric Generating Station, Pioneer Prairie Wind Farm and the MHREC landfill gas generating facility.

Banked RECs
During CY 2016, Ameren Missouri anticipates that the Keokuk facility will add approximately 1,056,000 MWhs, Pioneer Prairie will add approximately ** [redacted] ** MWhs and the MHREC will add approximately 96,400 MWhs of generation to the NAR account. The generation from the MHREC will have a factor of 1.25 applied since it is from a Missouri based resource.

NP

Planned Actions

For the 2016 compliance year, Ameren Missouri will continue to draw upon its bank of RECs that it will have accumulated through the contributions from generation at the Keokuk, Pioneer Prairie and the MHREC.

2016

Solar RES

During CY 2016, Ameren Missouri will continue to use S-RECs acquired from customers under the previously issued Standard Offer Contracts as well as generation from the solar installation located at its headquarters building and the soon to be constructed O'Fallon Solar Energy Center. Generation from all such means would be eligible for the 1.25 factor application as all the facilities would be located in Missouri.

List of Executed Contracts
Section (7) (B) 1 B

The following provides a basic summary of contracts which are being utilized by Ameren Missouri to procure certified RECs as well as RECs with associated energy.

Non-Solar RES

Ameren Missouri has executed only one third party contract (2009) associated with the purchase and delivery of renewable energy to the Ameren Missouri system that is being used to meet the non-solar RES compliance provisions. This is a 15 year power purchase agreement between Ameren Missouri and Horizon's Pioneer Prairie Wind Farm.

Solar RES

Ameren Missouri has executed purchase agreements during CY 2012-2013 with 3rd Parties whereby solar RECs have been procured to meet the 2012-2014 requirements.

Contracts have been executed with Gainesville Regional Utilities, 3 Degrees, Orlando Utilities, and Sun Edison.

Through the time period ending August 28, 2013, Ameren Missouri executed 82 agreements with its customers who have installed small scale solar net metered systems and have chosen to accept the terms and conditions of the Standard Offer Contract (SOC).

On August 28, 2013, due to the passage of HB 142, the RES law was amended. That amendment provided that if a customer accepts a solar rebate form the utility, the S-RECs transfer to the utility. Due to this change, the SOC program was discontinued and the $1.0 million SOC cap was not reached; $676,360 was actually paid to customers for S-REC purchases in 2013.

A contract summary of all currently executed agreements that are being utilized to meet compliance with the provisions of 4 CSR 240-20.100 is included in **Table 1** attached.

Projected Retail Sales
Section (7) (B) 1 C

The attachment in **Table 2** demonstrates the current forecasted total retail electric sales by year and the corresponding portfolio requirements in MWhs for both the non-solar and solar RES.

Comparison to Preferred Resource Plan
Section (7) (B) 1 D

The RES Compliance Plan detailed in this report, mirrors the renewables plan in the 2011 Integrated Resource Plan filed by Ameren Missouri on Feb. 23, 2011. The compliance actions listed in this RES Compliance Plan demonstrate the continuous planning addressed in the IRP regarding the potential for developing an Ameren Missouri owned solar generation facility.

During CY 2014, Ameren Missouri will begin construction on its first utility scale solar generation project, the O'Fallon Renewable Energy Center. This 5.7 MW facility will be located in O'Fallon, MO at the site of the Ameren Missouri O'Fallon substation. The annual output is estimated be about 7,800 MWh starting in CY 2015. Ameren Missouri is still evaluating a second utility scale solar project with a nameplate rating of approximately 10 MW that could be built as early as 2016. Further solar projects will continue to be evaluated based on cost, construction potential, siting and permitting requirements, etc., in order to determine future options in meeting the solar RES requirements.

RES Compliance Plan Cost
Section (7) (B) 1 E

The ability to utilize renewable resources that currently exist in rate base, places Ameren Missouri and its ratepayers in a unique position regarding compliance cost. As provided in the RES statute and rule, although the MWhs from these renewable resources can be utilized to meet the compliance requirements, some costs were incurred prior to implementation of the compliance requirements and are already included in the Company's rate base. Consequently, these particular renewable resources will result in no cost impact to the plan or the rate cap limitation of 1%.

The cost of the RES Compliance Plan for 2014 is therefore comprised of the following items:

Purchase of solar RECs from 3rd parties
Purchase of solar RECs from residential and commercial customers
Purchase of RECs and power from Horizon Wind (EDP)
Gas supply agreement with IESI
Cost to register RECs with the North American Renewable Registry

Details related to the cost of each component are included in **Table 3**.

3rd Party Solar REC Procurement

Ameren Missouri's procurement of 3rd party solar RECs at a price of $2-$2.75 (HC) per solar REC to meet the requirements of the RES represents the least cost basis for meeting the compliance requirements at the current time. Due to the change in the funding requirements based on HB 142 and the Stipulation and Agreement approved by the Commission, the number of customers installing solar has increased such that Ameren Missouri does not believe it will require any additional 3rd Party Solar RECs for the foreseeable future.

Standard Offer Contract

The price per REC ($5 per MWh) offered under the Ameren Missouri Standard Offer Contract was determined by taking into account the total cost to install solar in the region, the rebate required by statute and the eligibility for the Federal tax credit. Total funding for the 2013 program was capped at $1.0 million.

However, on Aug. 28, 2013, due to the passage of HB 142, the RES law was amended. That amendment provided that if a customer accepts a solar rebate from the utility, the S-RECs transfer to the utility. Due to this change, the program was discontinued and the $1.0 million SOC cap was not reached; $676,360 was actually paid to customers for S-REC purchases in 2013.

Solar Rebates

Solar rebates are required by statute at $2.00 per watt and are limited to an individual maximum of $50,000. The number of rebates issued through December 31, 2013 totals 682 at a cost of $21,147,892. Total rebates issued since the requirements began under the RES total $33,656,820 through December 31, 2013.

On November 26, 2013, Rider SR of the Solar Rebate Tariff was implemented. A $91.9 million rebate cap was agreed upon by Ameren Missouri, the Commission Staff and various stakeholders in a Stipulation and Agreement approved by the Commission. The cap encompasses all rebate applications received after Aug.1, 2012. On Dec. 17, 2013 the $91.9 million cap was reached based on applications received.

Ameren Missouri Headquarters-Solar Installation

Construction of a multi-technology solar array was completed in December, 2010. The primary objectives for this installation are to:

- Provide the Company and customers with accurate cost data for the various technologies
- Compare operational efficiencies between the technologies
- Familiarize Ameren Missouri personnel with operational information related to solar generation
- Utilize the generation to help meet the solar RES requirements

REC Registration Fees

In accordance with 4 CSR 240-20.100 (3) (F), utilities are to use a Commission designated common central third party registry for accounting for RECs used to comply with the RES requirements. The North Ameren Renewable Registry was selected by the Commission for this purpose.

Tracking and registration fees are charged by NAR for all RECs deposited and then retired from the utilities' accounts. This administration cost is detailed in **Table 3** attached.

The actual total operations and maintenance (O&M) and capital costs incurred for compliance with the RES during CY 2009-13 and projected for 2014-16 are detailed in **Table 3**.

During CY 2013, final capital costs associated with the Maryland Heights Landfill Gas project were incurred along with operational and maintenance costs. The gas delivery charges were also incurred in CY 2013. Those costs have been estimated for CY 2014 through CY 2016 and included in **Table 3**.

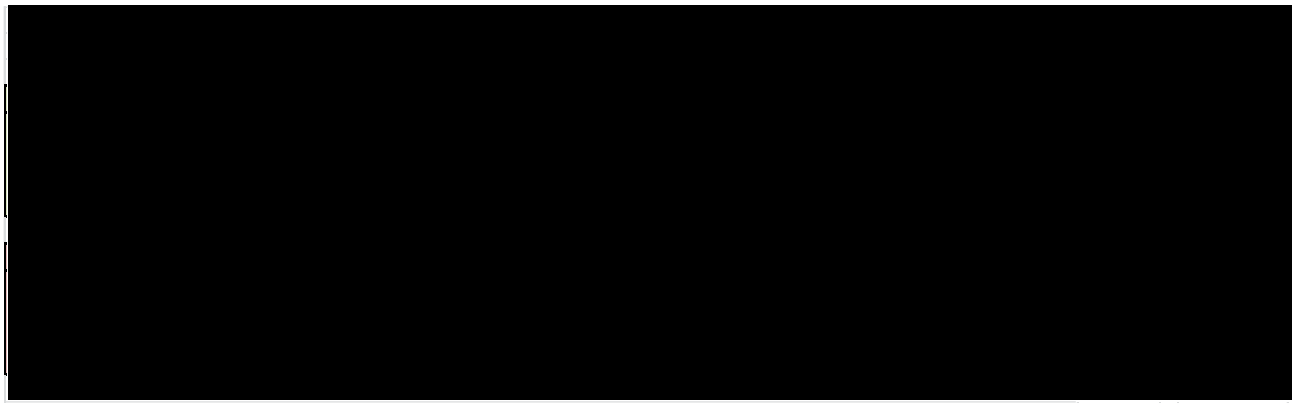
RES Retail Rate Impact
Section (7) (B) 1 F

The *2014 IRP RES Compliance Filing Model* (model) (provided to Staff and others as a workpaper to this filing) is designed to calculate the retail rate impact, as required by 4 CSR 240-20.100(5). The "Report" tab of the model sets forth the size and timing of the renewable resources that would be needed in the next ten years to fully meet the unconstrained Renewable Energy Standard (RES) requirements along with the size and timing of those renewable resources that can be built while meeting the rate cap limitation. The model includes the projection of generation, costs and benefits from existing resources including Keokuk hydropower, Maryland Heights landfill gas generation (LFG), Ameren Missouri's headquarters solar and Pioneer Prairie Wind in the "Existing Resources" tab. A detailed projection of the solar Renewable Energy Credits (REC) purchases from customer installed solar projects and third party purchases is shown in the "Cust$3rd Party Solar" tab. Additionally, many assumptions needed to develop RES compliance projections, including Ameren Missouri's projected revenue requirements (adjusted for Keokuk), market values for capacity and energy and costs for new wind and solar resources, are located in the "Assumptions" tab.

The "Term 1" tab in the spreadsheet is where a ten year sum of Ameren Missouri's annual costs for compliance are summarized to provide a framework to determine the amount of renewables that can be built to meet RES compliance and yet stay within the rate cap limitation. This tab summarizes annual ongoing costs, including administrative, solar rebate, REC and existing renewable generation resources. In addition, it summarizes assumptions regarding Phase 2 of the Maryland Heights LFG and the Ameren Missouri O'Fallon solar project. This tab also includes an interactive section that allows for assumed wind and solar projects in each of the ten years to determine the impact of adding additional renewable resources in the plan based on assumptions identified in the plan. This interactive section allows Ameren Missouri to input a compliance plan that shows the dollar impact to the rate cap limitation.

With this information, it is possible to develop an annual projection of the amount of wind and solar that can be built to meet the planning needs of the utility and yet remain within the limits of the renewable energy standard. In addition, there is a tab labeled "Test" that provides an overall view of year by year targets, how they are determined and how they will be met for both the solar and the non-solar REC requirements. These tabs are also repeated in the model for an unconstrained view of the amount of wind and solar generation that would be built to fully meet the RES if there were no rate cap limitations imposed. This model is used to provide a view on RES compliance and the amount of additional generation needed for both an unconstrained and constrained view of compliance. The results are summarized in the table below.

**



**

NP

Compliance with Air, Water or Land Use Requirements

Section (7) (B) 1 G

All generating facilities utilized by Ameren Missouri to meet the requirements of the Missouri Renewable Energy Standard have been certified by the Missouri Department of Natural Resources in accordance with 10 CSR 140-8.010 (4). In 2013, the group within DNR responsible for providing renewable certification was transferred from the DNR to the Missouri Department of Economic Development.

Table 1
List of Executed Contracts

**

Ameren Missouri						
Renewable Energy Compliance Plan						
2014-2016						
Executed Renewable Energy Contracts						
Contracting Party	Resource Type	Contract Type	Contract Duration	Time Period	Expected Amount	Terms
Horizon Pioneer Prairie	Wind	Energy & RECs	9/1/09-8/31/24	2014	[redacted] (HC)	Deliveries of energy and RECs began 9/1/09
				2015	(HC)	Term is 15 years with option to extend
				2016	(HC)	based on mutually acceptable terms and
						conditions.
3 Degrees	Solar	REC only	1 year	2014	3,500	Vintage 2013 solar RECs expected delivery
						on or before October 15, 2013
Gainesville Regional Utilities	Solar	REC only	1 year	2014	5,000	Vintage 2013 solar RECs expected delivery
						in 2013
Orlando Utilities	Solar	REC Only	1 year	2014	5,850	Vintage 2012 solar REC's
Various Residential	Solar	REC only	10 year	2014	49,991	2014 customer generation based on an estimated 40 MW of installs
and Commercial				2015	60,148	2015 and 2016 customer generation based on 49 MW of installs
Customers				2016	59,620	
Note: All S-RECS procured from customers are entitled to the additional factor of 1.25						

**

NP

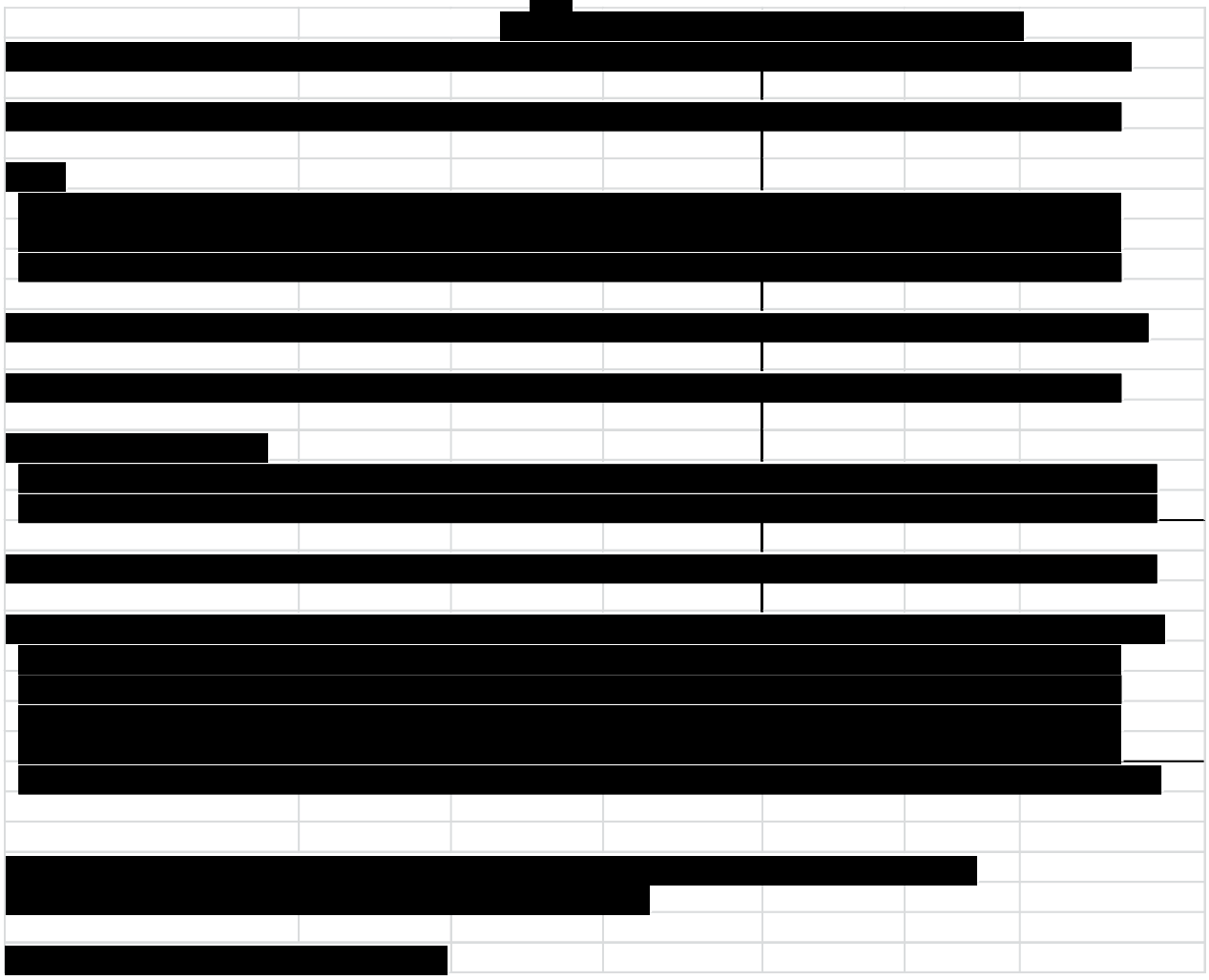
Table 2

Forecasted Retail Electric Sales
And RES Requirements

Ameren Missouri
Projected Retail Electric Sales
Missouri Renewable Energy Standard

Year	Customer Forecast (MWH) Total Load	Renewable Requirement (%)	Renewable Requirement (MWH)	Solar Requirement (%)	Non-Solar Renewables Requirement
2014	36,852,292	5	1,842,615	36,852	1,805,762
2015	36,829,018	5	1,841,451	36,829	1,804,622
2016	36,900,994	5	1,845,050	36,901	1,808,149

*



**

NP

Table 4

Preferred Resource Plan Summary
2014-2016

Year	Generation Resources	Resource Type	Solar Resources
2014	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party
2015	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party
2016	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party

Table 5
RES Compliance Plan Summary
2014-2016

Year	Generation Resources	Resource Type	Solar Resources
2014	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party
2015	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party
			Ameren Missouri
			O'Fallon Energy Center
2016	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	3rd party
			Ameren Missouri
			O'Fallon Energy Center