In the Matter of The Empire District Electric	**)**	
Company's 2013 Triennial Compliance Filing	**)**	**EO-2013-0547**
Pursuant to 4 CSR 240-22	**)**	

MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT,
DIVISION OF ENERGY COMMENTS IN RESPONSE TO
THE EMPIRE DISTRICT ELECTRIC COMPANY'S 2013 TRIENNIAL
COMPLIANCE FILING PURSURANT TO 4 CSR 240-22

December 2, 2013

**This document contains information that is considered Highly Confidential pursuant to Commission Rule 4 CSR 240-2.135

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The Missouri Department of Economic Development – Division of Energy[1] (Division of Energy), submits these Comments on The Empire District Electric Company's 2013 Triennial Compliance Filing, pursuant to 4 CSR 240-22.80(8).

The Division of Energy's Comments consist of two parts; the report of our regulatory consultant, GDS, is under separate cover from the report prepared by internal staff. These comments are limited in scope and coverage due to staffing limitations; however, a number of deficiencies and concerns have been identified and described herein, along with suggested remedies per 4 CSR 240-22.080(8). The Division of Energy will work diligently with Empire and other parties to reach "a joint agreement on a plan to remedy the identified deficiencies and concerns" with Empire's IRP. However, in the event the deficiencies identified are not resolved in the process set out in 4 CSR 240-22.080(9), it is the Division of Energy's position that Empire's Integrated Resource Plan is not in compliance with the requirements of Chapter 22.

[1] The Division of Energy was transferred from the Department of Natural Resources (DNR) to the Department of Economic Development (DED) on August 29, 2013 by Executive Order 13-03. The Executive Order transfers "[A]ll authority, powers, duties, functions, records, personnel, property, contracts, budgets, matters pending, and other pertinent vestiges of the Division of Energy from the Missouri Department of Natural Resources to the Missouri Department of Economic Development…"

Deficiency #1: Compliance with alternative Missouri renewable energy standard (RES).

Empire realized "risk factors associated with Empire's Missouri RES compliance" due to some efforts over the past years to either modify certain provisions in the current RES law or propose a new RES law. However, the IRP does not sufficiently discuss compliance with the potentially modified or newly proposed RES.

Rule Citation

4 CSR 240-22.010, 4 CSR 240-22.020(28), 4 CSR 240-22.040(2)

Discussion

In its IRP analysis, Empire considers a number of renewable options, including wind, solar and biomass, in the supply side analysis. In order to meet RES requirements, some renewable options could be passed on to the integrated resource analysis regardless of their costs. Over past few years, a number of legislative bills had been introduced in the General Assembly to either modify the existing RES law or propose a new RES. In addition, a new ballot initiative was proposed by Renew Missouri in 2012 to change several provisions in the current RES. Although most efforts so far have failed due to various reasons, it remains a possibility that the RES law may be subject to additional changes beyond HB 142 sometime in the IRP planning horizon. As one of an array of uncertain factors, future potential changes in the RES, such as changes in the definition of eligible renewable energy resources, compliance timeline, percentage requirements of particular energy resources (including the possibility that the solar carve-out would be applied to Empire as well) and geographic sourcing, would have significant impacts on renewable energy resources selection and acquisition, with the associated costs. The selection of a preferred plan and contingent plans in the integrated resource planning process would also be affected.

Potential remedy

Empire should investigate the impact of at least one alternative RES by modeling a scenario based on recent Missouri legislative proposals or Renew Missouri's 2012 ballot initiative in its 2014 annual update.

Concern #1: Compliance with potential EPA carbon pollution regulation of existing power plants

EPA will issue proposed carbon pollution standards and guidelines for modified and existing power plants by June 2014. Empire only included a general discussion of greenhouse gas regulation in the IRP analysis. Empire should closely monitor EPA's upcoming rulemaking process on carbon regulation on existing power facilities and develop corresponding compliance plans in subsequent years.

Rule Citation

4 CSR 240-22.010, 4 CSR 240-22.040(2)

Discussion

Pursuant to the Presidential Memorandum issued in June, 2013, EPA was ordered to issue proposed carbon pollution standards for modified and existing power plants by June, 2014 and to issue final standards by June, 2015. EPA is working closely now with states' electric utility regulators, energy offices and environmental permitting agencies to survey existing state programs and to develop some fundamentals for the proposed standard. It is understandable that Empire did not perform a detailed analysis to comply with carbon emission regulations considering the uncertainty of a number of climate bills in the Congress over past years. However, EPA's coming carbon regulations appear likely to be implemented in the foreseeable future despite possible regulatory and legal challenges, and new state regulations will be developed and implemented on an accelerated schedule as well. The new regulations will likely have significant impacts on both supply-side and demand-side resource planning. Empire should closely monitor this rule-making process and make and adjust compliance plans accordingly. Some information regarding program design and primary technical parameters would likely be available in early 2014 when Empire prepares its 2014 annual IRP update. Empire should address this carbon compliance issue in greater detail in its 2014 and 2015 annual IRP updates.

Potential remedy

In subsequent annual updates, Empire should collect available information on EPA's carbon pollution regulation standards and guidance, and Missouri's carbon pollution regulations, and conduct a thorough analysis on how to comply with the proposed regulation for its existing generation facilities.

Deficiency #2: Inadequate exploration of certain renewable energy generation options

Empire examined a range of alternative and renewable generation options in its supply-side analysis. However, the treatment of those options, in particular, biomass, is very limited. The IRP lacked a detailed analysis to explore more usage of abundant biomass resources like agricultural wastes/residues and poultry waste in Empire's service territory.

Rule Citation

4 CSR 240-22.010, 4 CSR 240-22.020(50), 4 CSR 240-22.040(4)

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Discussion

In its renewable generation options, Empire examined a range of renewable resources, including wind, various types of biomass and solar. Empire has been burning over ** [redacted] ** equivalent passenger tires (EPTs) as fuel in its Asbury station. However, it appears that the amount of tire-derived fuel (TDF) burned has been declining over the past three years with none reported as utilized in 2012. By working with environmental organizations and other entities, Empire should explore more opportunities to utilize additional TDF for both economic and environmental benefits. As indicated in the IRP analysis, even though Empire's service territory may not include the most desirable site for utility-scale wind projects, some suitable resources may exist in the Ozark Plateau. Empire should perform the more detailed resource analysis for potential large wind projects in that region. Analysis for small wind should be conducted in selected areas as well. Biomass included in Empire's renewable resource options were "chicken/turkey waste, landfill gas and others". However, the level of the analysis is extremely limited. For instance, unlike southeastern Missouri, Empire's service territory may not have a large supply of woody biomass. However, considerable agricultural residues and byproducts are available in that area for potential co-firing. This option could become more promising due to the more stringent environmental regulations like Cross-State Air Pollution Rule (CSAPR) and coming carbon regulations on existing power plants. Meanwhile, overcoming the technical difficulties and market barriers of using abundant poultry waste for energy production in southwestern Missouri is of significant importance for both Empire and local communities. Thus, Empire should perform a more detailed analysis of agricultural residues and poultry waste on issues such as resource availability, energy potential, technologies and barriers. Empire also should investigate the electricity potential for at least a few selected major landfill gas sites in its service territory. The LandGEM model developed by EPA's Landfill Methane Outreach Program is available for use for this preliminary analysis.

Potential remedy

Empire should investigate indigenous wind resources in its service territory and the utilization of agricultural residues, poultry waste and landfill gas in greater detail in its 2014 annual update. The resource availability and existing barriers should be identified and addressed in detail.

Deficiency #3: Inadequate exploration of distributed generation technologies in screening supply-side resources.

Empire lacked a detailed analysis of various distributed generation technologies, in particular combined heat and power (CHP), residential/commercial solar and small wind, in its screening analysis of potential supply-side resources.

Rule Citation

4 CSR 240-22.020(15), 4 CSR 240-22.040(1), 4 CSR 240-22.040(4)

Discussion

As the advancement of distribution technologies accelerates, they play more and more important roles in both resource acquisition and demand side management during the 20-year planning horizon. While Empire did mention distributed generation technologies in its supply-side screening analysis, it only included characteristics of one generic distribution technology as shown in Table 4-24. However, it should be recognized that technical and market features of various distribution technologies vary significantly from one to another. Therefore, it may not be proper to use a generic distribution technology to represent many types of technologies. Though Empire has provided limited discussion of certain distribution technologies in demand-side resource candidates, it should perform a detailed discussion in the supply side screening analysis. Multiple distributed technologies exist at both commercial and near-commercial stages, such as small wind, fuel cell, microturbines, and internal combustion engines. Considering the price of natural gas, more natural gas fuelled microturbines and internal combustion engines might be cost-effective at the commercial and institutional levels. In particular, the feasibility of combined heat and power (CHP) installations, using either fossil fuels (most likely natural gas) or renewables (solid biomass or biogas from wastewater treatment facilities) should be analyzed more fully, especially in CHP's additional role as a demand side resource.

Potential remedy

In its annual update, Empire should provide a more detailed analysis of the market status of a number of distribution technologies as well as their potential impacts. Empire should also explore more opportunities with customer-side CHP.

Deficiency #4: Inadequate exploration of power plant energy efficiency improvements

Empire's existing power plant updates and committed resources include installation of new pollution control systems (scrubber, SCR, fabric filter and ACI) and conversion of Riverton Unit 12 from combustion turbine (CT) to combined cycle (CC). However, Empire did not include an analysis of possible measures/updates to improve the plant energy efficiency.

Rule Citation

4 CSR 240-22.040(1)

Discussion

The IRP rule requires that the supply-side options include "…generating plant efficiency improvements which reduce the utility's own use of energy...". Even though retrofitting an existing coal-fired plant to burn natural gas could be the most economically feasible approach

with less capital investment in the short term, it is vulnerable to the potentially volatile price of natural gas and likely more stringent carbon standards for natural gas fired generation facilities in the long term. An alternate approach, such as employing more efficient auxiliary system technology and reducing parasitic power consumption can result in multiple benefits that include emissions reductions, extra delivered power and delayed addition of capacity. This effort can also buy utilities substantial time while the future direction of generation technologies and regulations is determined in the technical, political and economic arenas. Various plant efficiency improvement technologies, in particular auxiliary system efficiency improvement technologies (such as resizing and replacement of motors, innovative power factor response mechanisms, efficient cooling system and feedwater heat exchanger), have advanced rapidly over the years. In addition to installing emission control equipment and consideration of retrofitting its coal-fired fleet to natural gas, Empire should conduct a thorough study of possible plant efficiency improvement measures at its existing generation facilities to determine which measures may be economical.

Potential remedy

In its next annual update, Empire should provide, at a minimum, a screening analysis of plant efficiency improvement measures. If some measures appear favorable, Empire should develop plans for implementing those measures in subsequent annual updates and Empire's next triennial IRP filing.