STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	**Docket No. 13-IEP-1D**
2013 Integrated Energy Policy Report	**Workshop re: Electricity Infrastructure Planning/Reliability**

DUKE ENERGY CORPORATION'S COMMENTS ON THE JOINT WORKSHOP ON ELECTRICITY INFRASTRUCTURE ISSUES RESULTING FROM SONGS CLOSURE

Allison C. Smith
Stoel Rives LLP
500 Capital Mall, Suite 1600
Sacramento, CA, 95814
Telephone: (916) 447-0700
Facsimile: (916) 447-4781
Email: acsmith@stoel.com

July 29, 2013

Attorneys for Duke Energy Corporation

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	**Docket No. 13-IEP-1D**
2013 Integrated Energy Policy Report	**Workshop re: Electricity Infrastructure Planning/Reliability**

DUKE ENERGY CORPORATION'S COMMENTS ON THE JOINT WORKSHOP ON ELECTRICITY INFRASTRUCTURE ISSUES RESULTING FROM SONGS CLOSURE

I. INTRODUCTION

Pursuant to the Notice of the Joint Workshop of the California Energy Commission ("Energy Commission") and the California Public Utilities Commission ("Public Utilities Commission" or "PUC") on Electricity Infrastructure Issues Resulting from SONGS Closure ("Workshop"), Duke Energy Corporation ("Duke") submits the following comments related to Workshop presentations and stakeholder comments.

II. ROLE FOR ENERGY STORAGE IN MEETING SOUTHERN CALIFORNIA'S ELECTRICAL SYSTEM NEEDS

A. Duke's Knowledge Base in Energy Storage.

Duke develops and owns energy storage projects in the United States. Duke completed a 36 megawatt ("MW") battery storage project at its 153 MW Notrees wind farm in Texas in 2013. The Notrees project is currently the largest battery storage system in North America to be integrated with a renewable energy facility. Duke has undertaken several energy storage pilot projects, including in 2012 three energy storage systems as part of the Electric Power Research

Institute's Smart Grid Demonstration. Among the Smart Grid Demonstration projects, a 402 kilowatt ("kW") battery system at the Rankin Substation in Mount Holly, North Carolina smoothes fluctuation in generation from a nearby 1.2 MW solar facility.

Duke has gained an understanding of the unique advantages of integrating storage into the grid from its development of these projects. Because of its interest in energy storage in California, Duke is participating in the PUC's Assembly Bill 2514 implementation proceeding, R.10-12-007.

B. Electrical System Needs Created by the Retirement of SONGS.

The presentations and stakeholder comments at the Workshop highlighted that the retirement of SONGS creates a need for generation capacity, as well as other capabilities provided by the facility, such as voltage support and dynamic reactive power. Energy storage provides capacity, voltage support, and dynamic reactive power and can therefore help fulfill a critical gap created by the closure of SONGS.

The local capacity analyses conducted by the California Independent System Operator ("Cal-ISO") pursuant to Assembly Bill ("AB") 1318 found that there will be a need for new generation and dynamic reactive support in both the Los Angeles ("L.A.") Basin and San Diego. (Workshop Presentation "AB 1318: ISO Analysis of Local Capacity and Renewable Integration Needs," Dennis Peters, p. 6.) Total generation need in the L.A. Basin is estimated at 3,300 to 4,615 MW, with 400 to 1,700 MW of new generation needed. (*Ibid*.) For San Diego, Cal-ISO's local capacity studies showed a total generation need of 820 to 1,120 MW, with 300 MW of new generation necessary. (*Ibid*.) The studies estimated that the L.A. Basin would require 500 to 1,000 MVAR and San Diego would need 960 MVAR. (*Ibid*.)

In its presentation at the Workshop, the Public Utilities Commission noted that any resource authorization to replace SONGS capacity must provide for a balance of resources to replace the various capabilities of SONGS, including capacity, availability on-peak, dispatchability, inertia, and reactive power support. (Workshop Presentation, Noushin Ketabi, Senior Analyst, Energy Division, Public Utilities Commission ("PUC Presentation"), p. 13.) Of the different resources examined, only combined heat and power ("CHP"), natural gas peaker combustion turbines, natural gas combined cycle facilities, and energy storage provide reactive power support.[1] (*Ibid*.) As the presentation explains, energy storage is also dispatchable and available on-peak. (*Ibid*.) Gas-fired facilities and CHP likewise have these capabilities,[2] but as discussed below, energy storage has distinct advantages over these resources. (*Ibid*.)

C. Energy Storage's Distinct Advantages.

Energy storage has distinct advantages over gas-fired and CHP facilities and can therefore play a role in meeting southern California's electrical system needs, along with these resources. Storage provides both real and reactive power, as gas-fired and CHP resources do, but energy storage is twice as flexible, responds much faster, and has significant permitting and environmental advantages. As compared with these conventional resources, energy storage's only disadvantage is that its energy capacity is of limited duration.

In comparison with gas-fired and CHP resources, energy storage projects have a shorter development timeline, a less contentious permitting process, and less significant environmental

[1] The PUC Presentation noted that energy storage may provide reactive power support. However, Duke's Notress energy storage project provides full four-quadrant power from 0 to 36 MVA in all directions, both real and reactive.

[2] The PUC Presentation provided that CHP may be dispatchable.

impacts. First, energy storage facilities are likely to be permitted in less time, and with less opposition, than conventional resources. Natural gas-fired and CHP generating resources that could provide capacity and reactive power have a long permitting horizon, averaging seven to nine years. (PUC Decision 13-02-015 at p. 122.) New transmission lines or upgrades can face similar permitting delays. Because of its smaller scale and lighter environmental footprint, an energy storage system is likely to take significantly less time to permit, compared with these other alternatives. An energy storage project is also likely to face less opposition during the permitting phase because of its small scale and lesser impacts, which contributes to shortening the permitting process.

Second, not only will an energy storage project be permitted more quickly on average, but it is also likely to be implemented in a more timely fashion. Where a project faces opposition, even if the project successfully obtains its entitlements, it can nevertheless face litigation challenging those entitlements. Developers, and financing institutions, have less tolerance to move forward with development of a permitted project if the validity of the facility's permits remains in question under a cloud of pending litigation.

Finally, energy storage systems have significantly lower environmental impacts than conventional resources providing real and reactive power. Energy storage systems typically have a smaller footprint, as well as a lower visual profile, than natural gas-fired or CHP facilities. With the modular nature of many energy storage systems, they can be housed in any kind of structure and designed to blend into the surrounding area.

Energy storage systems also have little or no air emissions associated with operation.[3]

[3] Limited emissions of criteria pollutants and greenhouse gases may be derived from mobile sources associated with routine maintenance and operation activities.

Aside from demand response, of the resources cited by the Public Utilities Commission as providing dispatchability, 100% availability on-peak, and reactive power support, the Commission noted that only energy storage has no greenhouse gas emissions. (PUC Presentation, p. 13) Of even greater importance for southern California, the operation of energy storage systems produces no criteria pollutant emissions. The South Coast Air Basin has issues with attainment of National Ambient Air Quality Standards for several criteria pollutants. (Workshop Presentation "Overview of Southern California Electricity Infrastructure Issues," Michael Jaske, p. 11.) New infrastructure to meet the needs arising from SONGS closure must satisfy air quality standards. (*Id*. at p. 13.) Electric storage is positioned to provide on-peak capacity and energy, dispatchability, voltage support, and reactive power without emissions of criteria air pollutants or greenhouse gases.

IV. CONCLUSION

Duke respectfully submits the above comments for the consideration of the Energy Commission and Public Utilities Commission and requests that the solutions that energy storage can provide be integrated into the discussion of infrastructure needs in the wake of Songs' retirement.

DATED this 29th day of July, 2013, at Sacramento, California.

Respectfully submitted,

_____

Allison C. Smith
Stoel Rives LLP
500 Capital Mall, Suite 1600
Sacramento, CA, 95814
Telephone: (916) 447-0700
Facsimile: (916) 447-4781
Email: acsmith@stoel.com