Peter Fuller
NRG Energy, Inc.
804 Carnegie Center
Princeton, New Jersey 08540

April 7, 2017

Brinda Westbrook-Sedgwick
Public Service Commission of the District of Columbia Secretary
1325 G Street, N.W., Suite 800
Washington, D.C. 20005

Re: Modernizing the Energy Delivery System for Increased Sustainability Staff Report

Dear Ms. Westbrook-Sedgwick:

NRG Energy, Inc. ("NRG") appreciates the opportunity to comment on the Staff Report ("Report") to the Commission's Modernizing the Energy Delivery System for Increased Sustainability ("MEDSIS") initiative. The outcome of this initiative will allow consumers to harness the power of innovation and choice to achieve greater energy efficiency, resiliency and affordability, and to shape the energy future for residents of the District. NRG supports the Report's approach to ensuring that the underlying regulations are clear and will facilitate consumer and third party investments and actions to implement distributed energy resources ("DER"). NRG commends the Public Service Commission Staff ("Staff") for its efforts to unleash innovation in DERs through third party development and ownership. NRG supports the proposed pilot project grant program, and is pleased to provide several suggestions to improve the program's ability to establish a sustainable basis for market-funded DERs.

I. Background of the MEDSIS proceeding

The Public Service Commission of the District of Columbia ("PSC" or the "Commission") opened the MEDSIS proceeding, "Formal Case No. 1130, in the Matter of the Investigation into Modernizing the Energy Delivery System for Increased Sustainability, Order 17912" on June 12, 2015. The purpose of the proceeding is "[T]o identify technologies and policies that can modernize our energy delivery system for increased sustainability and will make our system more reliable, efficient, cost-effective and interactive." Toward that goal, the Commission invited the public to file initial comments on the scope of the proceeding.[1]

The PSC held a kick-off workshop on October 1, 2015, followed by two more workshops on November 19, 2015 and April 28, 2016. As a key component of this proceeding, the PSC will identify projects that are eligible to receive grants funded through a provision of the PHI-Exelon merger case that allocated $21.55 million "to be used to support pilot projects related to energy delivery system modernization under consideration in Formal Case No. 1130."[2]

On January 25, 2017 the PSC issued the Report and held a MEDSIS Town Hall Meeting on

[1] *Formal Case No. 1130*, Order No. 17912, rel. June 12, 2015. Available at: http://www.dcpsc.org/PSCDC/media/PDFFiles/HotTopics/orderno_17912_FC1130.pdf

[2] *MEDSIS Staff Report*, January 25, 2017, page 90. Available at: http://www.dcpsc.org/getmedia/6048d517-1d9d-4094-b0f4-384f19a11587/MEDSISStaffReport.aspx

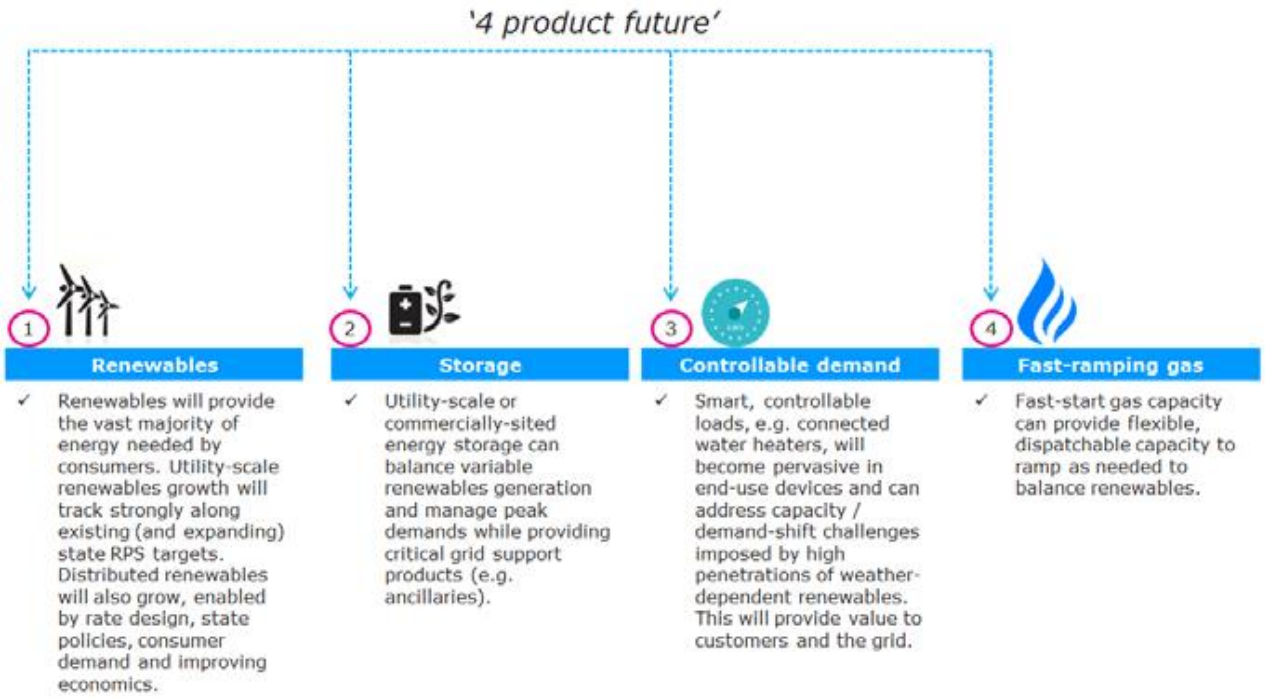
February 28, 2017 to accept public comment and provide an overview of the Report. Stakeholder comments to the Report were initially requested by March 27, 2017. This deadline was later extended to April 10, 2017.

II. Introduction to NRG Energy

NRG is at the forefront of changing how people think about and use energy, and is deeply involved in a number of proceedings across the country designed to examine the costs and benefits of distributed generation. NRG is the nation's largest independent power producer, with a diverse resource mix that includes approximately 50,000 megawatts of both renewable and conventional generation, including approximately 15,000 megawatts located in the PJM Interconnection. NRG affiliates also aggregate over 1,000 megawatts of demand response in PJM. NRG's retail businesses serve nearly three million customers across more than a dozen states, including in the District of Columbia, where NRG Home, NRG Business, Green Mountain Energy Company, and EnergyPlus Holdings LLC are licensed to provide electricity service. By giving customers access to the latest tools to better monitor and manage their energy usage, NRG is also a pioneer in enabling customers to make smarter and more sustainable energy choices.

The "Four-Product" Future of the Electricity Grid

NRG envisions the electric grid of the future as comprising four major elements, depicted in the graphic below. *First*, the foundation of the clean energy grid is renewables, such as wind and solar, to provide the vast majority of the energy needs of the system with no emissions. *Second*, storage, both at grid scale and in distributed applications, will store renewable energy when renewable production exceeds that needed to serve demand and to serve demand when renewable energy production is not sufficient. *Third*, pervasive load management at the end-user level, in the form of dispatchable behind-the-meter generation as well as load-shifting and other load-shaping strategies, will greatly enhance the ability to match demand to variable supply. *Finally*, a complement of flexible and fast-responding peaking plants will provide the additional balancing capability for short-term ramping and contingency needs.



The MEDSIS initiative is a positive step toward this "four-product" future, by focusing on the ability of consumers to deploy DERs, including demand management strategies, localized renewable energy generation, and energy storage. MEDSIS ultimately is about applying technology and private innovation within a regulatory and commercial framework that rewards actions that contribute to more efficient use of the electric grid and greater deployment of localized renewable energy sources. This enhanced ability to control and shape the demand for delivery of electricity across the grid is a foundational element of the energy system that will be needed as we progress into the twenty-first century.

III. Utility Ownership of DER

a. Staff Report's Statements on Utility Ownership of DER

In the Report,[3] Staff provides an overview of the legal background of restructuring and the 1999 Act that introduced competition to the retail sale of electricity in the District. Staff discusses that as a central provision of the Act, Pepco was required to divest itself of generation plants, including its Benning Road and Buzzard Point Generating Facilities. As a result, Pepco no longer owns generation facilities in the District for the purpose of selling electricity. The Report notes that, "with the proliferation of DER in the District an emerging issue is whether Pepco should be able to own generation sourced from DERs. While some commenters assert that Pepco should not be able to own its generation, Pepco argues that it should."[4] Pepco's assertion is predicated on the argument that its generation facilities will be used to reduce substation service requirements. Pepco also asserts that in relationship to microgrid deployment, it is appropriate for Pepco to own

[3] *MEDSIS Staff Report*, pages 62 - 63
[4] Ibid, page 63

generation through its role as the Standard Offer Service Administrator or through an affiliate. Staff concludes that the 1999 Act explicitly limits Pepco's ability to own generation to a narrow condition: "[S]o long as the electricity generated by such facilities is not sold but is instead used by Pepco to support the reliable operation of the distribution system".[5]

b. NRG Comments on Utility Ownership of DERs

The Report correctly concludes that utility ownership of DERs should be extremely limited. As a competitive supplier of electricity and supplier/aggregator of DER solutions, NRG has seen firsthand that the competitive market is uniquely positioned to offer innovative customer solutions. These solutions are often deployed to satisfy individual electricity customer needs with a high degree of customization and differentiation among customers. This is not the place for the monopoly utility. Utility service is intended to be broadly available and non-discriminatory, and utility cost-recovery is designed to spread costs among customers.

From a competitive standpoint, it is also clear that utilities do not belong in the DER market. The District's statutory and regulatory basis for this policy recognizes that the presence of the rate-regulated utility in the marketplace offering products and services that are also being provided by competitive entities would have both immediate and long-term negative effects. From a consumer and competitive market perspective, it would be extremely difficult to ensure that the incumbent utility, with its high name recognition and ability to leverage internal resources funded by regulated rates, would be competing on an equal footing with competitive entrants. It is also inappropriate for utility-affiliated competitive suppliers to compete for DER projects. That prospect would make it highly likely that some potential competitors would forego the District's electricity marketplace altogether, diminishing the range of choices available to customers and thwarting the potential for MEDSIS to achieve its objectives.

In addition, as the use of DER expands, it will become even more important for the utility to focus on its chief task of distribution. As DERs grow, utility sales on a volumetric and peak demand basis will naturally be reduced as consumers use on-site energy sources or simply become more efficient, and as consumers manage their peak demands to lower their costs and improve the utilization of the grid. As this occurs, it will become more and more difficult for the utilities to maintain revenue sufficiency without increasing rates. With this inevitable dynamic on the horizon, the most prudent course for the District and its regulated utilities is to be extremely careful to deploy utility investment only toward those functions that are uniquely and specifically related to the mission of the regulated monopoly delivery service, and to encourage consumers and third parties to provide the investment in DERs and other services that competitive suppliers are capable and eager to provide.

IV. Pilot Project Grant Program

a. Staff Statements on Pilot Project Grant Program

As a result of the PHI-Exelon Merger, the MEDSIS Pilot Project Fund Subaccount was funded with $21.55 million. This fund is intended "to identify technologies and policies that can

[5] *MEDIS Staff Report*, pages 63 - 64

modernize our energy delivery system for increased sustainability and will make our system more reliable, efficient, cost-effective and interactive."[6]

The Report explains that the MEDSIS Pilot Project Fund will require a framework that allows the local distribution companies to work with third party developers and the Commission to plan for and demonstrate technologies, policies and business models. This framework will "ensure that (1) distribution companies support innovative projects, and (2) any interconnection and related costs for regulated utilities are made explicit. Staff recommends that interconnection costs be recovered in full from the Pilot Project entity, consistent with current Small Generator Interconnection Rules."[7]

Grants are to be applied to "pilot projects," in which a small-scale trial is used to determine whether a larger application is worthwhile and "demonstration projects" that will showcase solutions via an agency waiving particular regulatory requirements that are otherwise a hindrance to development. Pilot Projects eligible for grants include, but are not limited to, the following types of distributed energy resources: "[A]dvanced control systems, cogeneration systems, demand management, electric vehicles, energy storage, fuel cells, microgrids, photovoltaic systems ("PV"), smart inverters, voltage regulation, and district heating and cooling. …. The Fund may also support projects that address planning, integration, or interconnection issues related to higher levels of DER penetration in the District."[8]

Staff recommends that three types of projects not be eligible for grant funding: unproven technologies; energy efficiency programs, which have funding set aside already separately; and projects proposed and led by unregulated subsidiaries and affiliates of regulated utilities. Staff has proposed a sample grant project evaluation structure, consisting of twelve categories that require extensive information from potential projects including the thoroughness of project planning as well as potential outcomes and impacts of deploying the specific DER projects.

Staff has also outlined a pilot project grant funding process and timeline. The first phase is a "Request for Qualifications", which entails a written application. Projects that are approved in this first step will be invited to the second phase. The second phase, "Feasibility Study Development & Completion", is a feasibility study supported by grant funds. The completed feasibility study is intended to support project applicants in showcasing their projects and securing outside matching funding. In phase three, "Project Selection", the governing body will make recommendations to the Commission for certain projects to advance. In phase four, "Design and Engineering", MEDSIS will partially fund the cost of design, engineering, IT development and other communications expenditures, though Staff recommends that most of the costs should be funded by the Applicant. In stage five, "Siting, Permitting, & Construction", MEDSIS will provide partial funding for the cost of siting, permitting, and building the Pilot Project including related IT-software/hardware system and communication system expenditures. Ongoing operations and maintenance costs will be the sole responsibility of the Applicant.

---

[6] *Formal Case No. 1130*, Order No. 17912, 1, rel. June 12, 2015
[7] *MEDSIS Staff Report*, page 91
[8] Ibid, pages 91 - 92

b. NRG Comments on Pilot Project Grant Program

NRG supports the Report's proposed pilot project grant program as a means to encourage near-term deployment of a variety of DER technologies and business models in a variety of use cases to ensure that utilities, technology providers, third-party investors, integrators and operators, and customers all can gain experience with DERs and their interactions with the grid, with markets, and with end-use customer demand. The experience gained by third parties and by the financial community will be extremely valuable in supporting the evolution to a voluntary, market-based environment for DERs in future years.

Pilot/Demonstration Projects as the Basis for Market-Based DERs

As currently structured, the proposed grant program appears to impose a heavy regulatory and reporting burden on projects, which may deter some project proponents, and will lead to unnecessarily high costs. For example, the twelve categories of information, the five-step sequential process, and the extensive reporting requirements will create a very high degree of overhead and a focus on satisfying the regulatory needs as opposed to responding to customer needs. NRG recommends that the final grant program design be more carefully calibrated to ensure that it contains only the minimal regulatory oversight and data reporting needed, and that any incremental costs associated with satisfying grant requirements that would not occur in a commercial project are covered by grant funding, in keeping with the intent that projects funded through this program are intended to be the basis for market-based expansions going forward, which will be governed by commercial agreements among counterparties as opposed to being subject to a highly regulated structure.

Path to Commercialization

NRG recommends that the final grant program include an explicit recognition that the objective of all pilot projects should be to expand and become self-sufficient market-based DER offerings. As such, the grant program should require all projects to identify regulatory or other barriers that need to be addressed to enable the demonstrated DER and its associated business model to fully monetize their capabilities and be successful on a commercial basis. The PJM wholesale markets provide a significant source of long-term value and revenue. The grant program should generally favor projects that will access PJM markets as a means to earn revenues, as these projects are more likely to find a near-term path to financial sustainability.

The Commission should also include in the structure of the grant program consideration of how project proponents will be able to scale the projects up beyond the initial demonstrations, and that the Commission will facilitate regulatory changes identified by project proponents to enable that scaling. In order to attract the most credible and innovative pilot proposals, it will be critical that developers and financiers have confidence that the end state will support additional market expansion.

"Unproven Technologies"

The Staff Report recommends that three types of projects not be eligible for MEDSIS Pilot Project grant funding:

- Unproven technologies;
- Energy efficiency; and
- Projects proposed and led by unregulated subsidiaries and affiliates of regulated utilities.

NRG supports the exclusion of energy efficiency and utility-sponsored projects from the grant program, for the reasons articulated by Staff in the Report. However, while NRG understands some potential concerns about funding "unproven technologies" in the grant program, the Report does not clarify what constitutes "unproven technology" or why technologies that have not been extensively proven in commercial application should be excluded. While it makes sense that initial technology prototypes and other extremely early-stage technology experiments should more appropriately be tested by others, it is precisely the nature of a pilot/demonstration program to test things that have not been done before, or not done at scale or in commercial application.

NRG is aware of numerous technologies that are at or near the stage of commercialization that, while not fully proven in commercial settings, have tremendous promise as DERs. The Commission should clarify what constitutes an "unproven" technology, and ensure that late-stage developmental technologies that have been proven on the bench but not necessarily in commercial operation are able to participate. One example of language that might be considered is from a recent RFP in Massachusetts for energy storage demonstration projects: "[T]echnology must be UL-listed or certified by another nationally recognized testing lab at the system component level and meet all appropriate and applicable codes and certifications at the whole system level."[9] This type of objective distinction between "proven" and "unproven" technologies would ensure that proposed DER devices and systems meet safety and other basic requirements, while not precluding innovative applications of technologies that are not yet in common use.

Cost-sharing

The Report recommends that in the feasibility study phase, MEDSIS funding could be up to $150,000 per project, with no apparent limit on the total study cost, or requirements for sponsor funding at this stage. In the Engineering & Design and Implementation phases, the Staff Report recommends that "a majority" of the project costs be provided by the sponsor or other outside sources. The Commission should clarify and specify its requirements for sponsor funding at each stage, including whether there is a requirement for sponsor funding in the Feasibility Study phase, and whether the specification of "a majority" require that 50.1% of the project costs in the later stages is sponsor-funded.

In addition to the grant funding, NRG recommends that the Commission consider facilitating additional support that these early-stage demonstrations may require in order to secure financing and proceed to implementation. While the Report suggests that grants will only be available to fund up to 50% of a project, there may be very promising DER proposals that will not be able to proceed absent additional support, for example in the form of additional funding or an off-take agreement with the utility to provide sufficient revenue certainty to enable cost-effective

[9] Massachusetts Clean Energy Center, RFP No. FY2017-ACES-01: Advancing Commonwealth Energy Storage Program, March 9, 2017

financing of projects. Especially where the ability of a DER project to monetize its attributes is currently limited, such additional support may enable very promising projects to proceed and contribute to the District's modernization.

Finally, though the Report appears to be silent on the matter, NRG recommends that scheduling and dispatch control of the pilot project DERs rest with the project proponent, subject to voluntary agreement with the utility or a third-party aggregator. Commercial viability of DERs in the long-run will rely on access to both wholesale and local markets and revenue streams, and the pilot program should acknowledge and encourage business model demonstrations that include customer or developer control of scheduling and dispatch.

V. Rulemakings

a. Staff Report's discussion of NOPRs

In the Report, Staff discusses the legal and regulatory frameworks for DERs, identifies challenges in light of the existing framework, and discusses Staff Recommended Actions ("RAs") to address challenges.[10] In this quickly evolving industry, regulatory challenges may result from the expansion of DER technologies and technical definitions relevant to efficient operation of the grid. Staff concludes that it is appropriate to adopt a "broad definition" of DER instead of a narrow one that will not accommodate continued advancements. Staff recommends that the Commission issue a Notice of Proposed Rulemaking ("NOPR") to adopt a broad definition of DER in the District and attach a draft NOPR containing the Staff's proposed definition.

b. NRG Comments on Rulemakings

NRG supports the District's deliberate approach to ensuring definitions and existing regulations, including interconnection procedures, are adequate and will enable and facilitate DERs. The careful review of the terms in the Commission's regulations, and the treatment of competitive entities as distinctly different from "electric companies" in terms of applicable regulations is extremely important to ensure that the MEDSIS initiative can actually achieve its stated goals. Specifically, NRG supports the recommendation of Staff to issue Notices of Proposed Rulemaking to adopt definitions for the various types of DERs that are pertinent to the District's grid modernization efforts.[11] NRG also supports the recommendation of Staff to clarify that the definition of "Electrical Company" found in D.C. Code S34-207 will "expressly exclude any person or entity distributing electricity from a behind-the-meter generator to a single retail customer behind the same meter."[12] NRG further supports the Report's recommendation that the Commission issue a NOPR to amend the definition of "Electricity Supplier,"[13] and to clarify the definition of a "sale" of energy, especially as it relates to "Electricity Suppliers". NRG looks forward to engaging in future rulemakings, and will offer specific comments on definitions as appropriate in those proceedings.

[10] *MEDSIS Staff Report*, page 27
[11] Ibid, page 45
[12] Ibid, page 64
[13] Ibid, pages 68 - 69

In structuring those future proceedings, NRG recommends the Commission consider the following initial feedback on the definitions proposed in Appendix E of the Staff Report. NRG recommends the following principles in developing new definitions, in order to maximize commercial interest in developing projects and minimize confusion among stakeholders:

- Seek consistency between DC PSC and PJM definitions;
- Seek internal consistency across DC PSC documents; and
- Seek flexibility within definitions to avoid overly narrow provisions that preclude otherwise viable technologies or strategies.

For example, the proposed language in Appendix E defines "Demand Response" as, "A reduction in the consumption of electric energy by customers from their expected consumption in response to either an increase in the price of electric energy or to incentive payments designed to induce lower consumption of electric energy". On the other hand, PJM defines Demand Response on its website Glossary of Terms but does not define Demand Response in its governing documents. Therefore, the term "Demand Response" does not have legal authority in the eyes of PJM. Rather, PJM uses the term "Demand Resource", which "shall mean a resource with the capability to provide a reduction in demand."[14] While the Commission should not be entirely constrained by the PJM language when crafting its definitions, there should be a deliberate consideration of how PJM defines and treats similar terms and the legal implications of such terms.

As an example of unnecessarily restrictive language, the Report proposes a definition of Behind the Meter Generator in Appendix E as, "A renewable on-site generator that is located behind a retail customer's meter such that no electric company-owned transmission or distribution facilities are used to deliver the energy from the generating unit to the on-site load." (Emphasis added.) In order to avoid restricting DERs, the Commission should remove the word "renewable" from the definition, to read: "An on-site generator that is located behind a retail customer's meter such that no electric company-owned transmission or distribution facilities are used to deliver the energy from the generating unit to the on-site load."

Additionally, the Report's proposed definition in Appendix E of the term "Distributed energy resource" or "DER" appears to be overly narrow. Several elements of the proposed definition are underlined and discussed below:

> "A resource sited close to the customer's load that can provide all or some of the customer's energy needs and can also be used by the system to either reduce demand (such as demand response) or increase supply to satisfy the energy or ancillary service needs of the distribution system. The resources, if providing electricity or thermal energy, are small in scale, connected to the distribution system, and close to the load. Types of DER include, but are not limited to: photovoltaic solar, wind, cogeneration, energy storage, demand response, electric vehicles, microturbines, and energy efficiency."

Instead, the Commission should consider a more general definition of DER, such as:

[14] *Open Access Transmission Tariff*, PJM, February 14, 2017, ER17-565-000, page 12

> "Distributed Energy Resources are either sources or sinks of power and energy that are located on the distribution system, any subsystem thereof, or behind a customer meter. These resources may include, but are not limited to, electric storage resources, distributed generation, thermal storage, and electric vehicles and their supply equipment."

The implication that DERs will be used "by the system" may create an inappropriate expectation that PJM or the host utility will have extensive, if not exclusive, control over the operation of DERs. In a well-functioning distributed energy system, host customers or their suppliers can and should have the ability to manage their DER operations for their own benefit, and should also be able to respond to system needs based on price or other signals that communicate system needs to the DER operator. The definition also should not limit the products or services that DERs can provide. For example, DERs currently participate in the PJM capacity market, and many DER use cases envision the deferral of transmission and distribution infrastructure upgrades, in addition to energy and ancillary services.

VI. Complementary Initiatives

In addition to the pilot project grant program to support DER projects by independent project developers, the Commission should continue to engage with the utilities, PJM and other stakeholders to ensure that DER projects are able to efficiently interconnect to the grid, to effectively participate in markets for the multiple products that DERs can provide, and to monetize the other values that DER provides to the grid (e.g., through the deferral of transmission and distribution investment). Among the priorities in this regard are accessible and granular maps or similar documentation from the utilities describing high-value areas for storage and other DERs - such as areas with high penetration of renewables and areas with particularly high peak demands relative to average loading - and refined PJM market rules that facilitate participation by aggregated DER resources in the wholesale markets and fully value the flexibility and responsiveness of storage. These foundational elements will need to be firmly in place and well-understood by the development and financing communities to enable an effective transition to a market-based environment for DER, independent of grants or other District-backed financial support.

VII. Conclusion

NRG appreciates the opportunity to provide these comments and will continue to engage and support the Public Service Commission as the District of Columbia pursues a modernized electricity system. Please feel free to contact me with any additional questions.

Sincerely,

Peter D. Fuller

Peter D. Fuller
Vice President
NRG Energy, Inc.