

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-100, SUB 141**

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<b>In the Matter of:</b>	)	
<b>2014 Smart Grid Technology</b>	)	<b>REPLY COMMENTS</b>
<b>Plans</b>	)	
	)	

**REPLY COMMENTS OF NCSEA AND EDF**

Pursuant to Rule R8-60.1(d), the North Carolina Sustainable Energy Association ("NCSEA") and the Environmental Defense Fund ("EDF") jointly submit the following reply comments on the smart grid technology plans submitted pursuant to Rule R8-60.1(b) by Duke Energy Carolinas, LLC ("DEC"), Duke Energy Progress, Inc. ("DEP"), and Dominion North Carolina Power ("DNCP").

**INTRODUCTION**

On 9 January 2015, NCSEA and EDF filed initial comments on the smart grid technology plans submitted by DEC, DEP, and DNCP pursuant to Rule R8-60.1. The only other party to the docket to file comments was the Public Staff. The comments of the Public Staff primarily focused on recommendations for improvements for future smart grid technology plans.

**ARGUMENT**

While NCSEA and EDF do not take issue with any of the recommendations made by the Public Staff for future smart grid technology plans, NCSEA and EDF believe the Commission should require the utilities improve the smart grid technology plans filed in this docket. These reply comments set forth the following arguments: first, that the Commission should ensure that the filed plans strictly adhere to the requirements of Rule R8-60.1; second, that the filed plans fail to adequately address the requirements of

Rule R8-60.1(c)(7) and (8) regarding customer and third-party access to energy consumption data; and finally, that the filed plans fail to adequately address the requirements of Rule R8-60.1(c)(4) regarding cost-benefit analyses.

**I. THE COMMISSION SHOULD ENSURE THE FILED PLANS STRICTLY ADHERE TO THE REQUIREMENTS OF RULE R8-60.1.**

In their comments, the Public Staff noted that:

The Public Staff conducted a general review of each Smart Grid Plan, rather than focusing on strict adherence to the nine requirements of Rule R8-60.1(c). . . . Using this standard of review, the Public Staff believes each Smart Grid Plan is in general compliance with Commission Rule R8-60.1.<sup>1</sup>

Rather than ensuring “general compliance” with the rule, the Commission should ensure the smart grid technology plans filed by the utilities strictly adhere to each of the requirements of Rule R8-60.1. Because these are the initial smart grid technology plans, there is no precedent for how the Commission should evaluate them. The review of the filed plans is especially important because it will serve as precedent for the review of all future smart grid technology plans.

As discussed in detail below, the smart grid technology plans filed by the utilities fail to comply with several of the requirements of Rule R8-60.1. *See infra* Argument Sections II and III. Because the filed plans did not include all information required by the rule, or adequately explain the absence of information required by the rule, they do not strictly adhere to the requirements of Rule R8-60.1. Accordingly, NCSEA and EDF reiterate the request made in their initial comments that the Commission require the utilities

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<sup>1</sup> *Public Staff’s Comments on Smart Grid Technology Plans*, p. 16, Commission Docket No. E-100, Sub 141 (9 January 2015) (hereinafter “*Public Staff Comments*”).

to file supplemental information in this docket so that the filed plans strictly adhere to the requirements of Rule R8-60.1.

**II. THE FILED PLANS FAIL TO ADEQUATELY ADDRESS THE REQUIREMENTS OF RULE R8-60.1(c)(7) AND (8) REGARDING CUSTOMER AND THIRD-PARTY ACCESS TO ENERGY CONSUMPTION DATA.**

The smart grid technology plans filed by the utilities fail to address the requirements of Rule R8-60.1(c)(7) and (8) regarding access by customers and third-parties to energy consumption data. Because of this failure, NCSEA and EDF reiterate the request made in their initial comments that the Commission require the utilities to file supplemental information so that the filed plans strictly adhere to the requirements of the rule. Furthermore, based on the lack of access to data that the filed plans appear to evidence, and beyond ensuring simple compliance with the reporting requirements in the existing rule, NCSEA and EDF reiterate the request made in their initial comments that the Commission open a rulemaking docket to address the issue of data access.

**A. THE REQUIREMENTS OF RULE R8-60.1(c)(7) AND (8)**

Rule R8-60.1(c)(7) directs the utilities to include in their smart grid technology plans “A description, if applicable, of how the utility intends the technology to transfer information between it and the customer while maintaining the security of that information.” While some of the information required by the rule was obtained through data requests, the fact remains that the information was not included in the smart grid technology plans filed by the utilities, and accordingly, the filed plans fail to adhere to the requirements of Rule R8-60.1(c)(7).

Related to the above requirement, Rule R8-60.1(c)(8) directs the utilities to include “A description, if applicable, of how third parties will implement or utilize any portion of the technology, including transfers of customer-specific information from the utility to third parties, and how customers will authorize that information for release by the utilities to third parties.” As with the requirement for consumer data access, the smart grid technology plans filed by the utilities fail to address third-party data access, and therefore fail to adhere to this requirement of the rule. Thus, even with the requirements of Rule R8-60.1(c)(8), the Commission still does not have adequate information about how third-parties can access data so that they too can empower customers to manage their energy consumption and decrease their energy costs.

**B. DATA ALLOWS CUSTOMERS TO MANAGE THEIR  
ENERGY CONSUMPTION AND DECREASE THEIR  
ENERGY COSTS**

It is undisputed that access to detailed energy consumption data allows customers to manage and control their energy consumption, and thereby reduce their energy costs. In their comments, the Public Staff noted that the smart grid technology plans filed by the utilities fail to discuss the benefits of advanced metering infrastructure (“AMI”) to customers. The Public Staff commented that the provision of energy consumption data to customers is one such benefit provided by AMI, and that the Public Staff “encourages the utilities to continue to seek cost-effective ways to provide customers with more detailed usage data and enhance customers’ ability to use this information to manage and control their energy consumption.”<sup>2</sup> This assertion from the Public Staff has been echoed in

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<sup>2</sup> *Public Staff Comments*, p. 23.

numerous other filings with the Commission from the Public Staff, intervenors, and the utilities, as well as in statements by the utilities made outside of Commission proceedings.

DEC and DEP have acknowledged in filings with the Commission that data access results in improved energy management and reduced energy consumption, although the acknowledgement has mainly been limited to circumstances where they are the entity providing customers with access to energy consumption data. For residential customers, DEC has stated that:

[The DEC] MyHER program is not and was never intended to be a solicitation, but rather the provision of specific information to help customers understand their energy use and empower them to take control of their usage. . . . *[C]ustomers have expressed their appreciation of the report, have become engaged in evaluating their energy usage and have become more energy efficient due to the MyHER program, which empowers them to take control of their energy usage.*<sup>3</sup>

Similarly, DEP has stated that:

*The purpose of [the DEP My Home Energy Report] Program is to provide comparative usage data for similar residences in the same geographic area to motivate customers to better manage and reduce energy usage. The Program will assist residential customers in assessing their energy usage and provide recommendations for more efficient use of energy in their homes. The Program will also help identify those customers who could benefit most by investing in new energy efficiency measures, undertaking more energy efficient practices and participating in DEP programs.*<sup>4</sup>

In essence, DEC and DEP assert that by providing residential customers with access to their energy consumption data, their respective My Home Energy Report Programs allow customers to reduce their energy consumption. Other data access programs, such as the

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<sup>3</sup> DEC's *Advance Notice of MHER Program Changes*, p. 2, Commission Docket No. E-7, Sub 1032 (7 November 2014) (emphasis added).

<sup>4</sup> DEP's *Proposed My Home Energy Report Program*, p. 1, Commission Docket No. E-2, Sub 989 (3 October 2014).

Smart Energy in Offices program, provide similar data to benefit different customer classes:

*The purpose of the Smart Energy in Offices programs is to provide participating occupants and managers of commercial buildings with in-depth information on their energy consumption and data on aggregate community energy performance to change behavior to create energy savings within the community. . . . Participants will be provided with detailed information on their building's energy use, support to launch energy saving campaigns, information to make comparisons between their building's energy performance and others within their community and actionable recommendations to improve their energy performance.*<sup>5</sup>

The Smart Energy in Offices program confirms the soundness of the concept behind data access programs, which is that providing customers with access to data will result in reduced energy consumption. The Smart Energy in Offices program is essentially the system-wide implementation of a former pilot project. The pilot transformed into the system-wide program when it saved customers money and generated positive responses.

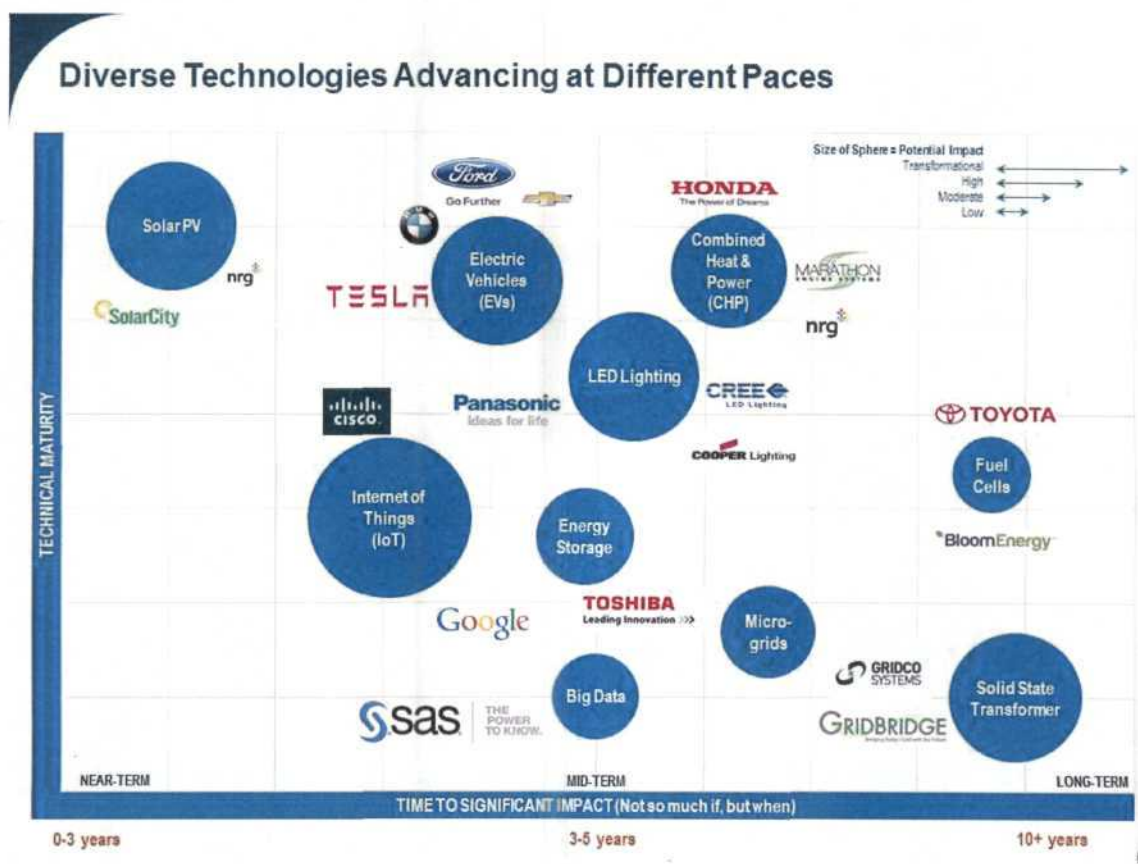
Duke Energy has also noted in other forums that data access, by way of the internet of things, will likely be transformational for electric utilities. The internet is, at its core, a tool for the delivery and exchange of data, and the phrase “the internet of things” refers to the interconnection of household devices for the exchange of data. In the utility realm, the internet of things connects devices such as smart appliances and internet-enabled thermostats to enable customers to reduce their energy consumption and save money. As shown in Figure 1, *infra*, Rob Caldwell, Senior Vice President for Distributed Energy Resources for Duke Energy, indicated that the internet of things will have a transformational impact on electric utilities within the next five years. Despite this

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<sup>5</sup> DEC's Proposed Smart Energy Office Program (Redacted), pp. 1-2, Commission Docket No. E-7, Sub 961 (13 May 2014).

impending transformation, our State is ill-prepared for the change. The smart grid technology plans filed by the utilities do not include adequate information about data access to inform customers, third-parties, and the Commission about our State's readiness for this impending transformational change, nor does our State have a comprehensive regulatory regime addressing data access issues.

Figure 1<sup>6</sup>



Given that data access will likely be transformational for the utilities within the next five years and the clear, demonstrable, and undisputed customer-empowering benefits that accompany data access, NCSEA and EDF reiterate the request made in their initial

<sup>6</sup> *The Future of Distributed Energy*, p. 6, Rob Caldwell, Senior Vice President of Distributed Energy Resources, Duke Energy, 12 November 2014. The full presentation is attached as **Exhibit A**.

comments that the Commission require the utilities to, at a minimum, supplement their filed plans with more robust explanations of how they intend to provide customers and third-parties with access to energy consumption data. Additionally, even if the Commission requires the utilities to provide such supplemental information, it is clear from the lack of response to Rule R8-60.1(c)(7) and (8) in the filed plans that the time has come for our State to have standards and requirements for the provision of energy consumption data to customers and third-parties, and NCSEA and EDF reiterate the request made in their initial comments that the Commission initiate rulemaking to establish such regulations.

### **III. THE FILED PLANS FAIL TO ADEQUATELY ADDRESS THE REQUIREMENTS OF RULE R8-60.1(c)(4) REGARDING COST-BENEFIT ANALYSES.**

In their comments, the Public Staff noted that the smart grid technology plans filed by the utilities did not include cost-benefit analyses. Rule R8-60.1(c)(4) requires the utilities to include in their smart grid technology plans “Cost-benefit analyses for installations that are planned to begin within the next five years[.]” The filed plans fail to comply with Rule R8-60.1 because they do not include cost-benefit analyses for smart grid technology projects.

The Public Staff noted that DEC and DEP did not provide any cost-benefit analyses because “none [of their projects] have progressed [past] their respective ‘commit gates.’”<sup>7</sup> The utilities appear to rely on a strained interpretation of what the Commission is seeking from the requirement in Rule R8-60.1(c)(4) that the smart grid technology plans include cost-benefit analyses for projects “planned to begin” within the next five years. The

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<sup>7</sup> *Public Staff Comments*, p. 20.

utilities appear to interpret this requirement to apply only to projects that have precisely planned installation dates that will occur in the next five years. This interpretation is unreasonable. In adopting Rule R8-60.1, the Commission stated that it “agrees with the Public Staff’s recommendation that the Commission adopt an additional smart grid rule, Rule R8-60.1[.]”<sup>8</sup> In this recommendation, the Public Staff wrote that:

Smart grid technology is evolving, and the Public Staff acknowledges that uncertainty exists as to the types of technologies that will be coming online in even the near future. . . . In addition, the utilities routinely forecast events with varying degrees of certainty, and . . . [t]hese events, like smart grid technologies and their impacts, should be based on informed judgments.<sup>9</sup>

It makes no sense to interpret the Commission’s adoption of the Public Staff’s recommendation to mean that the Commission expects the utilities to include in their plans cost-benefit analyses for only firmly-planned installations. Instead, the rule should be read to require cost-benefit analyses for installations based on reasonable forecasts.

In their comments, the Public Staff noted that cost-benefit analyses for some of the projects listed in the smart grid technology plans filed by the utilities have been filed in other dockets. As noted in the initial comments of NCSEA and EDF, presumably cost-benefit analyses for other projects in the plans exist. There is no reason that these cost-benefit analyses could not have been compiled and included in the filed plans, or for the filed plans to have included specific citations to cost-benefit analyses for projects that have been filed in other dockets. It is clearly the intent of Rule R8-60.1(c)(4) to present these cost-benefit analyses in a single forum: the smart grid technology plans.

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<sup>8</sup> *Order Amending Commission Rule R8-60 and Adopting Commission Rule R8-60.1*, p. 9, Commission Docket No. E-100, Sub 126 (11 April 2012).

<sup>9</sup> *Public Staff’s Reply Comments*, pp. 2-3, Commission Docket No. E-100, Sub 126 (26 March 2010).

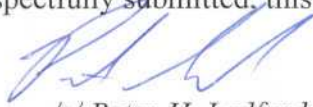
### **RELIEF REQUESTED**

As discussed above and in the initial comments of NCSEA and EDF, there are numerous instances where the smart grid technology plans filed by the utilities fail to adhere to the requirements of Rule R8-60.1. Because of these failings, NCSEA and EDF reiterate the request made in their initial comments that the Commission require the utilities to file supplemental information in the current docket to bring their filed plans into compliance with the rule. Further, given that the benefits of data access are undisputed and the likelihood that data access will be transformational to the utilities within the next five years, NCSEA and EDF reiterate the request made in their initial comments that the Commission open a rulemaking docket on the issue.

### **CONCLUSION**

It is beyond dispute that data access enables customers to manage and reduce their energy consumption. It appears that the only issue in dispute is how to provide customers and third-parties with access to energy consumption data. The smart grid technology plans filed by the utilities were supposed to address data access, but did not. Similarly, the filed plans were supposed to provide cost-benefit analyses for smart grid investments, but did not. Accordingly, NCSEA and EDF request that the Commission require the utilities to file additional information in the current docket to bring their filed plans into compliance with Rule R8-60.1 and open a rulemaking docket on the issue of data access.

Respectfully submitted, this the 29th day of January, 2015.

  
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**CERTIFICATE OF SERVICE**

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing Comments by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 29th day of January, 2015.

/s/ Peter H. Ledford

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# Exhibit A



## The Future of Distributed Energy

Nov. 12, 2014 | Raleigh, N.C.

Rob Caldwell | senior vice president | Distributed Energy Resources



## Duke Energy Distributed Energy Resources Beliefs



**Distributed Resources** will co-exist with central station generation. An **Integrated Grid** is required for system optimization.



**Technology Development** advancing at unprecedented rate. Innovations in telecom, OT and IT to driver further evolution.



**Customer Choice** and expectations are growing. Needs and expectations can be met by utility.

# Distributed Energy Resources Defined

*Resources that can be deployed to meet the energy and reliability needs of the customer through...*

## Supply Side Resources

*Distributed Generation -  
generation located near final  
point of consumption*

## Integrating Resources

*Distributed Storage/ Distributed Intelligence – technology which  
enables the system to use energy smarter/more efficiently while  
enhancing system functionality*

## Demand Side Resources

*Efficiency/Distributed Intelligence  
- technology/behavioral changes  
to meet differentiated customer  
energy demands*

*Utility-Scale Solar PV  
Renewable Generation  
Combined Heat and Power  
Rooftop Solar PV*

*Storage –  
Thermal/  
Battery*

*Plug-In  
Electric  
Vehicles*

*Smart  
Inverters*

*Integrated Grid  
OT – IT &  
Communication*

*Micro-grids*

*Partial  
Requirement  
Rate Design*

*Next  
Generation  
Demand  
Response*

*Home Area  
Networks  
&  
Smart  
Devices*

*Big Data*

*Energy Efficiency  
Demand Response  
Dynamic Pricing  
Distributed Generation*

## Drivers: Policy, Technology, Consumer

### US planned utility-scale solar projects in advanced development or under construction



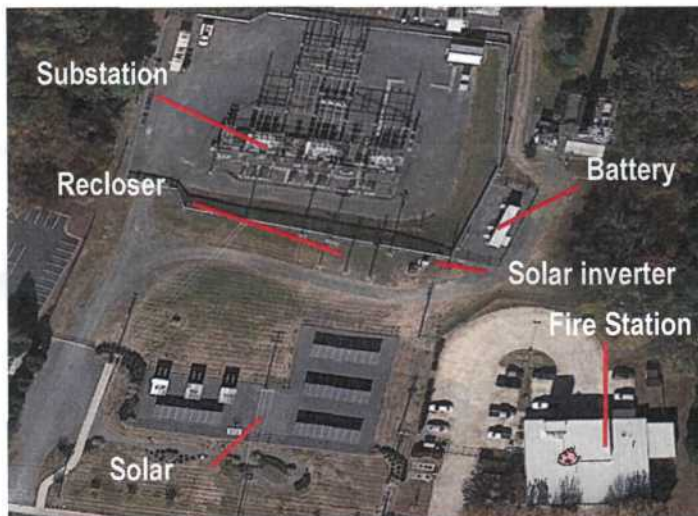
Source: SNL Energy  
August 20, 2014  
Map credit: Alip Artates

# Technology Sites: McAlpine and Marshall

## McAlpine Demonstration

50 kW  
Solar

500 kWh/200 kW  
Battery



### Demonstrating the Integrated Grid

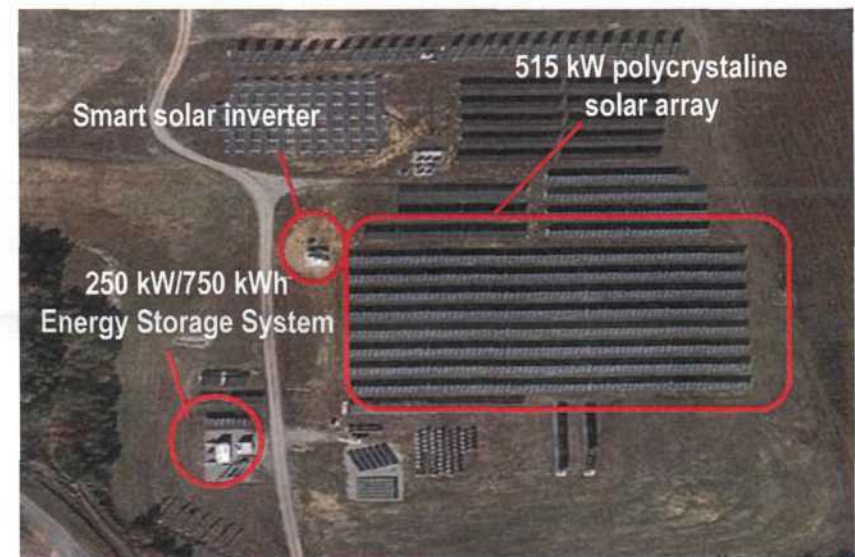
- Optimization of distributed intelligence, microgrid, energy storage and solar
- Islanding, circuit resiliency/reliability, voltage reduction, demand response and intermittency

## Marshall Solar Farm

1 MW  
Capacity

17 Separate  
Arrays

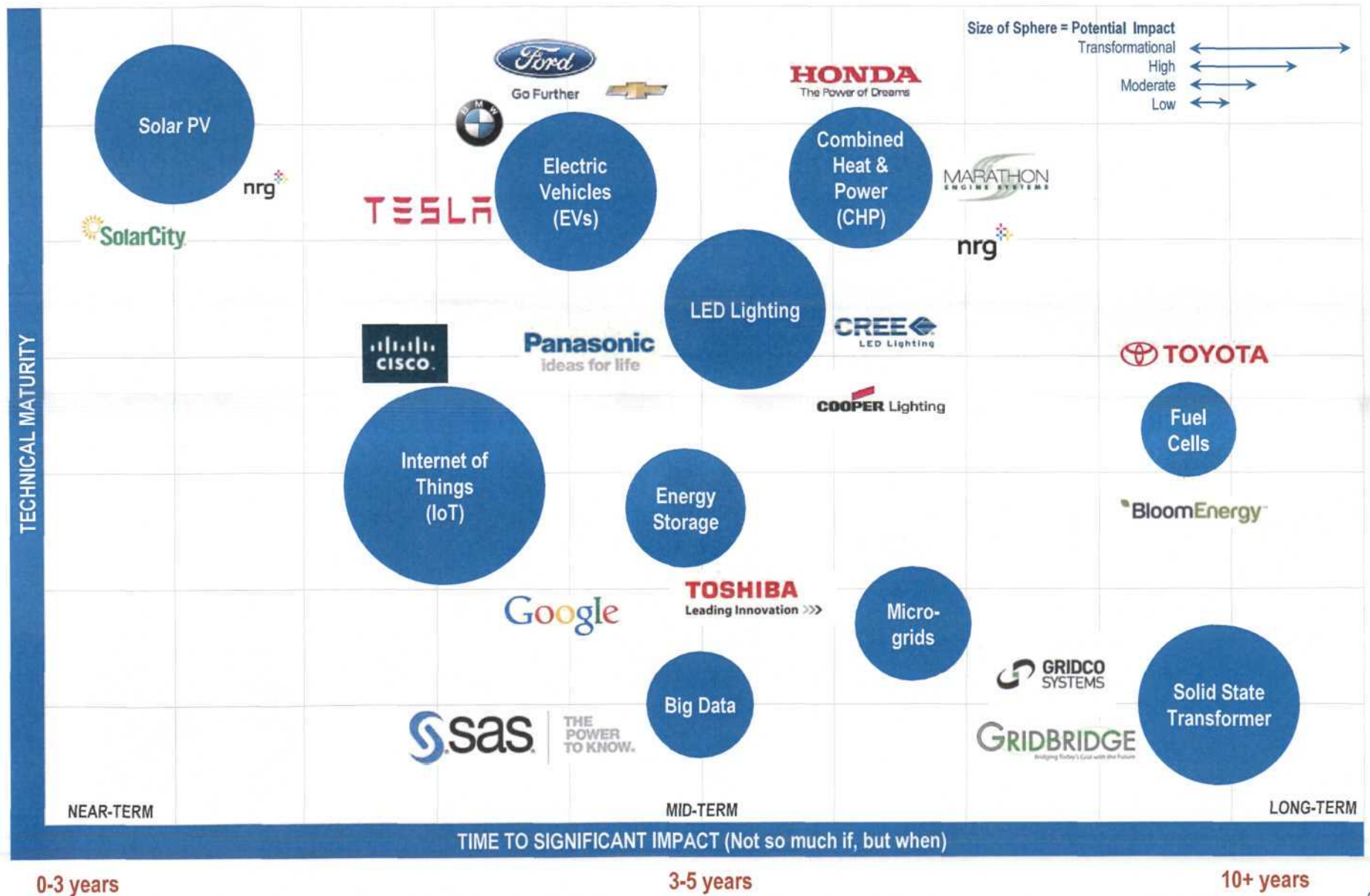
Southern Energy  
Management



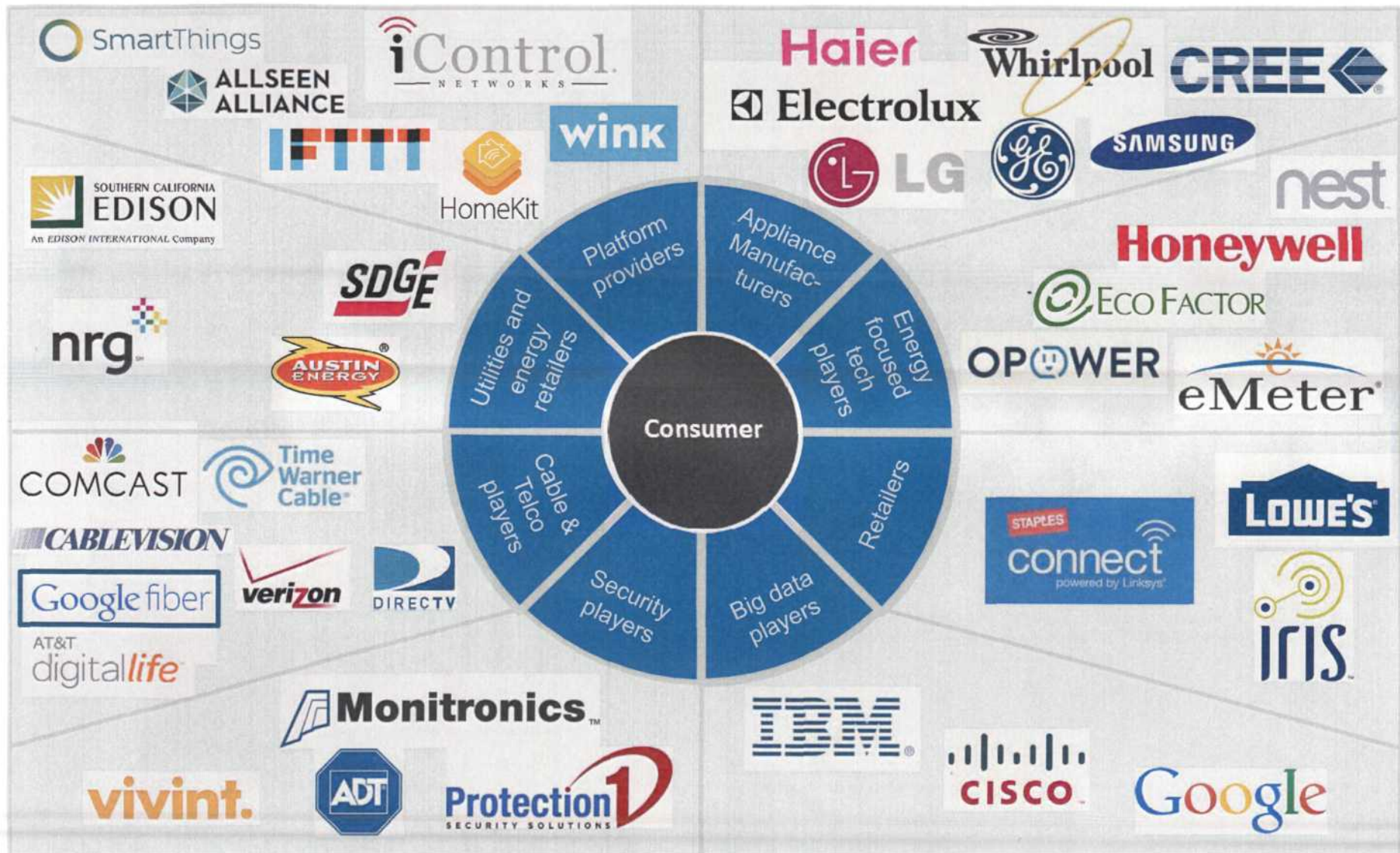
### Solar and Energy Storage

- Management of system intermittency
- Testing of solar technologies in concert with energy storage
- 12 different solar module types

# Diverse Technologies Advancing at Different Paces



# Customers Navigating an Increasingly Complex Marketplace



## Balancing Consumer Expectations



### Prefer traditional communications

- More than 50% of Duke Energy's baby boomers still prefer bill inserts
- Only 13% have contacted utility online

### Lower likelihood to invest in renewable technology (i.e. – solar panels)

- Customers in the Carolinas over the age of 65 are least likely to consider installing solar panels.

### Prefer mobility

- More than 72% of Duke Energy's millennial customers use mobile device to call utility.

### Embrace technology

- 57% are interested in energy management systems.
- Males under the age of 50 are most likely to install solar panels



## Shaping our Distributed Energy Resources Future

- **Drivers** – Technology and policy
- **Technology** – R&D required to test assumptions, prove out technology and inform strategy
- **Consumer** - expectations and choices are evolving at an ever increasing rate

