

Testimony before Senate Energy and Natural Resources Committee

by

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Chairman Bingaman, Ranking Member Murkowski, members of the Committee, thank you for inviting me to submit written testimony on smart grid provisions proposed by the Energy and Natural Resources Committee. The GridWise Alliance has testified before this committee on several occasions and sustains a positive working relationship with both majority and minority staff by providing unbiased information about smart grid.

The GridWise Alliance is a coalition of about 125 organizations advocating for a smarter grid for the public good. Our members broadly represent the nation's interest in smart grid, including leading utilities, independent system operators, large IT and communications companies, small technology companies, manufacturers, consultants, universities, and research organizations. We operate on a consensus basis and remain technology neutral, focusing on the policy issues surrounding the deployment of a smarter grid. We believe the market should determine which technologies prevail.

The passage of the American Recovery and Reinvestment Act serves as a watershed event in the history of the nation's electric grid. By providing over \$4 billion in grants for smart

grid projects, Congress effectively elevated the smart grid to a national priority. Utilities and state regulators have been quick to respond, submitting hundreds of projects for potential funding. Over 100 projects representing nearly every state were awarded federal grants. As a result, the transition to a smarter grid is well underway.

Now we need to turn our attention to the ultimate beneficiary of the smart grid – the consumer. The smart grid offers greater visibility into, and control over, electricity consumption, thereby enabling consumers to better manage their energy bills. To realize these benefits, however, consumers must have access to two critical suites of technologies – Home Area Networks (HAN) and smart appliances. Whereas Home Area Networks process communications between the grid and the home, smart appliances actually respond to consumer preferences and signals from the HAN or utility, system operator, aggregator, internet provider, or even microgrid. For example, consumers with variable rate plans can program smart appliances to operate when electricity prices are low, while utilities or other service providers can signal smart appliances to discretely alter operations during periods of peak demand. Smart appliances will be the next evolution of demand response.

To be sure, consumer participation in the smart grid is an evolutionary process. We at the GridWise Alliance believe that the pace of consumer participation will be determined by three underpinning efforts: (1) consumer education; (2) support for the smart appliance market; and (3) adoption of variable rate structures and financial incentives. Our members are collaborating with consumer advocates, utilities, and other service providers on the development of consumer outreach programs; I have spoken with many state utility commissioners on the need for rate

structures that allow consumers to benefit from their choices. However, the nascent smart appliance market is in urgent need of support, particularly as consumer spending remains at record lows and unemployment hovers just below 10%. For these reasons, Congress can play a crucial role in providing early support for the market and spurring successive rounds of investment in new technologies. Not all homes will purchase smart appliances right away, but support for this market will be a critical step toward encouraging consumer participation in the smart grid.

Smart appliances will be capable of interacting seamlessly within home systems to provide energy savings for consumers without inconveniencing household operations. For example, a smart refrigerator can cycle off its freezer defrost during peak periods of demand, thereby allowing the utilities to better manage overall load and providing consumers with opportunities to reduce their electric bill, depending on the available incentive programs. We believe that state rate structures and incentives should complement this technology to allow consumers to maximize their energy and bill savings. In a weak economy, a consumer's ability to understand and react to electric prices will be critical. Smart appliances will offer consumers the ability to simply and conveniently reduce demand without negatively impacting their lifestyles.

Smart appliances will also play an important function in maintaining grid stability. Appliance and chip manufacturers are developing technologies that can automatically react to conditions (or "perturbations") on the grid, even in the absence of signals from utilities. For example, if a substation transformer fails, a smart appliance could detect voltage sag and shut

down in order to shed load from the system. With a multitude of such appliances interacting with the grid, the system becomes much more stable and reliable. The appliance then becomes important not only to the consumer, but to the community.

Beyond the grid, the smart appliance market will create new opportunities for a range of manufacturers. Put simply, these opportunities can translate into economic growth and improved competitiveness within our domestic manufacturing base. We believe that traditional appliance manufacturers as well as innovative start-up companies should be able to participate in this new market. Although Congress has voiced its intent to place our country on a pathway to leadership in the global smart grid market, we must ensure the correct incentives are in place to realize this vision.

For this reason, we strongly support the provisions in this bill with expansion suggested in two areas—the consumer’s ability to participate and grid stability. Limiting the scope in paragraph (VII) to those smart appliances that "enable demand response or response to time-dependent energy pricing" puts the smart appliance industry and consumers at the mercy of utilities and regulators. As written, benefits would accrue only for smart appliances sold in service areas where regulators have put into place demand response and/or variable rate structures. A homeowner may choose to purchase a smart appliance because they have the capability to install a home energy management system from a third party to reduce home energy use without any utility demand response program or price signals. In addition, smart appliances should be able to detect and react to voltage sag and harmonic imbalances, improving grid stability regardless of utility signals. Both consumer choice and reliability are critical here;

including the words “consumer choice” and “grid stability” in the bill would strengthen that provision.

Given the importance of smart appliances to consumer choice, grid stability and manufacturing competitiveness, the GridWise Alliance strongly supports the Committee’s decision to include smart appliance language into the draft under discussion at this hearing. In conclusion, the GridWise Alliance supports smart appliance language in this bill as a means to prepare the market for consumer choice, reduce disruptions on our electric utility grid, and stimulate innovation and manufacturing in the US, providing economic stimulus and job growth.