Discussion Draft Addressing Energy Reliability and Security

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The Energy and Power Subcommittee of the House Committee on Energy and Commerce has released discussion draft language, to be included in the committee's Architecture of Abundance energy legislation, which intends to ensure the security, resiliency, and reliability of our nation's energy infrastructure. Southern Company applauds the Committee's leadership in proposing the discussion draft language.

In particular, Southern Company supports Section 1204's facilitation of industry-government coordination and information sharing to address threats to the availability of reliable electricity. Section 1204 also recognizes that such authority is best utilized if the industry is consulted, to the extent possible, prior to a directive's issuance. As the principal liaison between the electric sector and the federal government for coordinating preparation and response to national-level disasters or threats, the Electricity Sub-sector Coordinating Council (ESCC) provides a ready conduit to allow for such consultations, and should be added to any legislative list of entities to be consulted with prior to the issuance of emergency orders.

Southern Company also supports the proposed exemption from disclosure under the Freedom of Information Act for critical electric infrastructure security information, as well as increased critical infrastructure sector access to classified information. Southern Company encourages ongoing Congressional efforts to pass broad information sharing legislation applicable to all critical infrastructure sectors.

Southern Company supports Section 1207 as a reasonable first step to promote efforts to ensure that vital baseload generation continues to serve customers' energy needs for decades to come. Baseload generation is vital to ensuring the continued supply of clean, safe, reliable and affordable electricity to American families and businesses.

Finally, as the nation's generation fleet faces new EPA regulations that could jeopardize the reliability of the bulk electric system, Section 1202's proposed reliability analysis requirement for new rulemakings fills a significant regulatory gap by ensuring that a proposed or new rule's effects are assessed in a timely manner by FERC and the Electric Reliability Organization, or ERO.

Congressional Testimony

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Testimony before the
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Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, thank you for inviting me to testify today. My name is Tom Fanning, and I am the chairman, president, and chief executive officer of Southern Company. With 4.5 million customers and approximately 46,000 megawatts of generating capacity, Southern Company is a leading U.S. producer of clean, safe, reliable, and affordable electricity. Providing reliable electric service is Southern Company's core business, and mitigating risks to reliability is vital to keeping the lights on for the customers we are privileged to serve. I am also a chair of the Electricity Sub-Sector Coordinating Council, or "ESCC." The ESCC is the principal liaison between the electric sector and the federal government for coordinating efforts to prepare for, and respond to, cyber threats, physical terrorism and natural disasters that imperil critical infrastructure. The ESCC is where the most senior leadership in the industry and government come together to improve the security, resiliency, and responsiveness of the industry and by extension, the nation. In that regard, I would like to thank the American Public Power Association and the NRECA for their collaboration in the ESCC.

While a chair of ESCC, I am speaking in my capacity as CEO of Southern Company. I am here today to talk primarily about the security, baseload protection, and reliability analysis provisions found, respectively, at Sections 1204, 1207, and 1202 in the Committee's recently released discussion draft on Energy Reliability and Security, part of the Committee's Architecture of Abundance energy legislation. The Committee is demonstrating leadership by proposing the discussion draft language to enhance system security and resiliency, retain the reliability and economic benefits provided by baseload generation, and protect electric reliability. I would like to respectfully offer a few items for the Committee's consideration to further strengthen the effectiveness of this legislation.

Section 1204. Critical Electric Infrastructure Security

The electric sector is increasingly confronted by emerging and constantly evolving electronic and physical threats to the provision of reliable electric service. Southern Company takes these threats very seriously, just as it has in mitigating many other threats to the grid over the course of more than a century of providing secure, reliable electric service to the Southeast. Our risk mitigation strategy emphasizes a "defense-in-depth" approach that focuses on preparation, prevention, response and recovery, with an emphasis on isolation of, and enhanced protections for, critical assets.

Industry-Government Coordination and Information Sharing

Due to the critical role electricity provides for the nation, protecting the grid is a shared responsibility between the industry and government. Partnering with industry peers and federal agencies allows for the rapid development of defenses to emerging threats and the detection of threats based on the intelligence and experience of peers and the federal intelligence community. The tremendous benefits afforded to security and reliability by such coordination and partnership are being significantly enhanced by the ESCC. As previously discussed, the ESCC is the principal liaison between leadership in the federal government and in the electric power sector, with the mission of coordinating efforts to prepare for national-level disasters or threats to critical infrastructure. The ESCC is the only council with CEO-level engagement and leadership, consisting of a 30-member body made up of utility CEOs and trade association leaders representing all segments of the electricity industry. The ESCC works with a parallel group of government counterparts who are also organized around these goals and are committed to aligning government and industry efforts to secure the grid. These counterparts include senior Administration officials from the White House, Department of Energy (DOE), Department of

Homeland Security, the Federal Energy Regulatory Commission (FERC), the Federal Bureau of Investigation, and other agencies.

The ESCC and its government counterparts have four designated areas of focus: (1) industry-government coordination during crises and in the steady state; (2) leveraging strategic infrastructure investments and R&D for resilience and security-related products; (3) threat information sharing and processes among public and private institutions; and (4) cross-sector coordination to prepare for major incidents, better understand and protect our mutual dependencies, and share information more effectively.

The Administration's National Infrastructure Advisory Council (NIAC) has lauded the electric sector as a model for how critical infrastructure industries can most effectively partner with the government.[1] With regard to the NIAC and ESCC, the NIAC has sent to the White House a report and recommendations calling for greater CEO/senior executive engagement to protect "lifeline" sectors (electricity, water, telecom, transportation and financial services). NIAC recommended a "Strategic Infrastructure Executive Council" of lifeline CEOs should be formed, and that the ESCC should convene this group.

We are encouraged that the Committee's draft language on critical electric infrastructure security largely aligns with the ESCC's priorities. Section 1204 addresses several, fundamental issues with regard to information sharing and industry-government coordination that should be included in any such federal legislation:

- *Industry-Government Consultation Prior to Ordering Emergency Measures*: Regarding language in Section 1204 of the discussion draft providing the Secretary of

[1] *See, e.g.,* Report, *NIAC Executive Collaboration for the Nation's Strategic Critical Infrastructure: Final Report and Recommendations,* at p. 59 (March 20, 2015) ("The members of the Electricity Sub-Sector have a history of working together because of their dependency on the national electric grid that connects the majority of them together, from generation to transmission to distribution at the local level.").

Energy emergency authority to address grid security emergencies, the electricity sector widely recognizes the risk of imminent threats to the grid and the importance of rapid response. Should Congress feel that granting emergency authority is warranted, we agree that DOE is the appropriate agency to execute that authority. We encourage any directive made under this emergency authority to be accompanied with specific threat information and provide for a range of remediation methods including mitigating controls, asset diversity, redundancy and alternate paths of delivery. We support the language requiring consultation with industry prior to the issuance of an emergency order and providing temporary access to classified information to key personnel within those participating entities to "enable optimum communications" regarding the grid security emergency. Providing for such consultations will inform emergency directives with industry expertise in assessing the underlying threat and developing effective modes of response that reflect the experience of critical infrastructure owner/operators and the specific engineering and design of relevant assets. The ESCC is well positioned to provide a ready conduit to facilitate government-industry consultations on emergency energy directives, and we recommend that the ESCC be included in the list of entities to be consulted with prior to the issuance of emergency orders. Of course, adding the ESCC to the list of consulting entities would not be at the expense of the Electric Reliability Organization's (ERO) participation but would complement the consultation process with the ERO, affected regional entities and owners, users, and operators of the bulk electric system that is already contemplated in the discussion language.

- *Information Sharing and Protection of Critical Electric Infrastructure Information (CEII):* The provisions in Section 1204 designed to facilitate voluntary

information sharing and protect critical electric infrastructure information from disclosure are essential complements to the Secretary's emergency authority and would generally facilitate protecting the nation's grid from threats. The related provisions that safeguard CEII from public disclosure will encourage increased coordination between electric critical infrastructure owner/operators and the government. Specifically, the language exempting such information from disclosure under the Freedom of Information Act as well as the protections from disclosure by the Federal Energy Regulatory Commission will support confidence of participants in collaborative efforts like the ESCC.

- *Broader Information Sharing Legislation Would Facilitate Security and Reliability*: Recognizing the electric sector's interdependency with other sectors, we believe that information sharing legislation would be most effective and have a broader impact as a cross-sector bill. We encourage ongoing efforts in Congress to pass broad information sharing legislation that applies to all sectors. Information sharing would be further enhanced by a focus on increasing automated machine-to-machine sharing. Legislation promoting such automated informational sharing between industry peers and the government is also needed. Furthermore, the Electric Sector – Information Sharing and Analysis Center (ES-ISAC), which currently operates as a central source of information sharing between the electricity sector and government, should have an increased role in any information sharing program impacting the electricity sector.

- *DOE to Facilitate the Acquisition of Appropriate Security Clearances*: As indicated previously, Section 1204's directives to increase the sharing of classified information will likewise assist the electric sector mitigation of threats to the grid. Increased awareness of the nature of the threat that is underlying the emergency order

will be particularly useful to the critical infrastructure companies that are on the front lines defending the grid. Security clearances should be expanded in a manner that provides depth and breadth – directed not only to senior management, but also to key members of their staff, as well as appropriate physical security, cybersecurity, and operations personnel. Though not mentioned in the discussion draft, some have proposed limiting the number of security clearances on a per-company basis. We believe such caps would artificially and unnecessarily limit a company's ability to assess and respond to threats. Other sectors, such as defense, already have broad bases of cleared personnel and extensive information sharing programs. It is becoming increasingly clear that critical infrastructure should as well.

Cost Recovery and Liability Protections

We also support the backstop cost recovery and liability protection provisions in this Section. Establishing a mechanism for ensuring that owners, operators and users of the bulk power system may recover substantial costs incurred in complying with an emergency order and affording liability protections for complying with emergency directives will encourage the appropriate use of facilities to address the emergency request, and likely spread the costs of compliance across the appropriate entities. With regard to the cost-recovery provision, one improvement to the proposed language would be to replace the requirement that costs be "prudently incurred" with a standard allowing for the recovery of costs incurred in "reasonably complying" with such an emergency measure. The concern with a "prudently incurred" standard is that it could result in detractors essentially arguing that the required emergency measures and resulting implementing actions were not "prudent."

Electromagnetic Pulse (EMP) and Geomagnetic Storms and Disturbances (GMD)

Section 1204 takes an appropriate approach to addressing both EMP and GMD. EMP refers to the weapon-based, very intense pulse of electromagnetic energy that could damage electronics within the impacted area. GMD, on the on the other hand, is basically a "solar storm" that, if severe, has the potential to affect the operation of the electric grid. Section 1204 represents an appropriate legislative approach to address EMP and GMD in that it does not mandate a one-size-fits-all approach to address any such event. Such a one-size-fits-all approach would not be appropriate to address potential GMD events because the intensity of GMD events varies significantly depending upon a utility's geographic latitude and would vary depending upon inherent system resiliency. Likewise, the mitigation of EMP incidents is primarily the responsibility of the U.S. military and intelligence agencies, and the actual effect of an EMP event on the bulk power system is unknown. Section 1204 refrains from attempting to establish a broad legislative approach to addressing EMP or GMD but instead defines such events as types of Grid Security Emergencies that would specifically be addressed by DOE, other appropriate agencies, and affected industry participants in any particular instance.

Section 1207. State Consideration of Resiliency and Advanced Energy Analytics Technologies and Baseload Generation.

Families and businesses served by electric utilities in the U.S. depend on a reliable and affordable supply of electricity, which in turn is predicated upon baseload generation and its unmatched reliability and electricity price stabilization effects. Baseload generation has served as the backbone of the electric system for many decades and must remain a key part of the electric system in the future if the U.S. is to continue to reap the economic and energy reliability

benefits it currently enjoys. Section 1207 of the discussion draft of the bill is supportive of baseload generation and is a reasonable, first step to promote efforts to ensure that baseload generation continues to serve the families and businesses of the U.S. for many decades to come.

Baseload generation is vital to ensuring the continued supply of clean, safe, reliable and affordable electricity to families and businesses. Baseload generation provides twenty-four-hours-a-day, seven-days-a-week capability to support reliability, and it also helps ensure the affordability and stability of electricity prices. Baseload generation provides an ongoing, economic supply of energy to customers and not merely generation capability to serve peak load. Generation that is only used to serve peak load (peaking generation) is designed to operate relatively few hours out of the year while baseload generation is designed to operate essentially nonstop. While peaking generation typically has lower capital costs, it typically has higher fuel prices and greater price volatility, which has historically been acceptable because peaking generation is designed to operate relatively few hours during a year and the overall price effects of peaking generation have been muted when combined with the more stable fuel costs of baseload generation that operates around the clock.

The importance of baseload generation to the vibrancy of the wholesale electric market in the Southeast should be recognized. Today, the Southeast has an active and abundant wholesale market that includes substantial amounts of baseload generation resources. The existing wholesale market, which is based upon competitive, market-based rates, provides price visibility for market participants and ensures all forms of capacity are offered in the most efficient manner possible, adding to the liquidity of those wholesale markets. The abundance, diversity, and economic value of baseload generation along with the liquidity and visibility of wholesale prices

in the Southeast have ensured low and stable prices and high reliability to the benefit of not only retail but also wholesale customers across the Southeast.

Baseload generation serves as the backbone of the electric system. Electricity demand in the U.S. varies from hour-to-hour and from day-to-day. However, there is always some demand for electricity. In fact, the hourly minimum demand during a given year is typically on the order of 40% of the hourly maximum demand in a given year. Baseload generation is designed specifically to reliably and economically supply this steady, twenty-four-hours-per-day, seven-days-per-week level of electricity demand throughout the year.

Regardless of whether baseload generation is operating during a period of low or high demand, it provides not only capacity and low cost energy but also essential reliability services, including voltage support and frequency support. Additionally, baseload generation provides all-important mechanical inertia to the system during short circuits that might occur on the high voltage transmission system as a result of severe weather, such as lightning or tornados. During a short circuit and in the subsequent fractions of a second following the time when the short circuit is isolated from the electric system, the large mass of rotating equipment inherent in baseload generators is essential to maintaining the stability and reliability of the electric system as it quickly recovers from the short circuit condition. Without the large rotating mass of the many interconnected, baseload generators on the electric system during short circuit events, the reliability of the system would be compromised. All of these essential reliability services are provided by baseload generation throughout the entire year and are absolutely critical to maintaining a reliable electric system.

In addition to providing essential reliability services, baseload generation further enhances reliability because there is typically an on-site inventory of fuel at baseload generation

facilities. Baseload generation needs are generally met by nuclear, coal or biomass generators. All three of these types of generators typically have many days' worth of fuel inventory stored on-site. At a coal or biomass generating plant, this fuel inventory is typically stored in a fuel pile. For nuclear generation, the reactor core contains fuel rods that can power the reactor and produce electricity on an uninterrupted basis for months at a time. Typically, nuclear power plants shut down for refueling about every 18 to 24 months. However, even when fuel rods are replaced during a refueling at a nuclear power plant, only about one-third of the fuel rods are replaced. If a scheduled nuclear refueling needs to be delayed to ensure reliability of the electric system, a nuclear plant almost universally has more than sufficient fuel reserves to temporarily forego the refueling and continue to operate reliably for a considerable period of time. This fuel inventory at nuclear, coal and biomass generating plants helps to mitigate the possibility of fuel supply disruptions to the generators since they can continue to operate for extended periods of time in the event that their fuel deliveries are disrupted due to unplanned events. Generating units that do not have on-site fuel storage are at risk of fuel supply disruptions and can therefore pose risks to the overall reliability of the electric system.

While other types of generation, such as that powered by natural gas,[2] wind or solar as well as distributed generation and demand response, all serve important roles in the provision of electric service, their roles are different than that provide by baseload generation. As explained in these comments, the unique attributes of baseload generation must be preserved.

[2] It should be noted that while natural gas, combined-cycle generation can serve as baseload generation, in order to do so it has to be able to satisfy the 24 hours, seven-days-a-week capabilities required of baseload generation. For any such natural gas-fired generator, this means that it should have the firm fuel transportation commitments and sufficient fuel storage capabilities to allow for the constant production of electricity required to be baseloaded.

Baseload generation has unmatched reliability and electricity price stabilization effects. It has served the families and businesses of this great nation for decades. It is essential that baseload generation remain a part of the generation mix in the future to ensure a continued reliable and affordable supply of electricity. Section 1207 of the discussion draft of the bill is an important step to ensuring that baseload generation continues to be a part of the U.S. generation mix so that the families and businesses served by electric utilities can enjoy a reliable and affordable supply of electricity. The Section's state consideration provisions would provide visibility and emphasis to the importance of baseload generation in the provision of clean, reliable, safe and affordable to industry, households, and the nation.

Section 1202. Reliability Analysis for Certain Rules that Affect Electric Generating Facilities.

In recent years, the nation's fleet of electric generation facilities have been impacted by new regulations promulgated by the U.S. Environmental Protection Agency (EPA) that have the potential to jeopardize the reliability of the bulk electric system on which customers depend for a constant and affordable supply of electricity. This regulatory development demonstrates that there is the very real potential that compliance with a specific rule, such as a new environmental rule, may result in jeopardizing the reliability of the electric system. Reliability might be jeopardized due to factors such as short lead times for compliance with a new rule or the inability to continue to operate one or more generating units during very infrequent and short duration periods of malfunction of required environmental controls. This potential for reliability problems is particularly pronounced should the affected generating unit be critical to maintaining the short-term reliability of the electric system.

The EPA continues to promulgate rules to further lower the environmental impact of electricity generation. Their singular focus is on clean energy. However, utilities, along with their respective state regulators and FERC, are responsible for the more holistic balance of clean, safe, reliable and affordable electricity for all customers. The proposed Section 1202 would ensure that the reliability impacts of a proposed or new final rule are assessed in a timely manner by FERC, in coordination with the ERO/North American Electric Reliability Corporation (NERC). These organizations have both expertise and authority regarding electric system reliability and may properly be relied upon to provide a definitive and unbiased assessment of the reliability impacts of proposed and new final rules issued by another federal agency. The reliability analysis that would result from section 1202 would be made available to the public for review and any needed subsequent action. Section 1202's proposed reliability assessments are greatly needed and takes a reasonable approach to addressing the current gap regarding the significant reliability impacts presented by either proposed or final federal rulemakings today.

Section 1201. Resolving Environmental and Grid Reliability Conflicts.

We support including in the comprehensive bill the proposed Section 1201. If DOE uses its Section 202(c) emergency authority to require a power plant to operate to maintain electric reliability, the plant owner or operator should not be held liable if operating causes an environmental violation. That is not a fair result. If the government requires a utility to run a plant in order to keep the lights on, that utility should be provided an exemption from liability, as the Committee has recognized previously.

I hope the Committee will consider improving the language in the bill in one respect. An emergency is an emergency, and Congress should not complicate DOE's action by making it

determine how an emergency order can be made consistent with federal, state and local environmental law and regulations "to the maximum extent practicable." That could cause delay and lawsuits. It would be more appropriate to require DOE to take "reasonable" measures to minimize conflict with environmental requirements.

Section 1205. Strategic Transformer Reserve.

Southern Company supports the policy behind the proposed Strategic Transformer Reserve legislation and agrees that the industry should have an inventory of key equipment in the event of high impact but low probability events. In this regard, Southern Company and many others in the electric industry are strong supporters of existing EEI initiatives, such as the Spare Transformer Equipment Program (STEP) program as one example. STEP is a coordinated, industry-wide program designed to increase the electric industry's inventory of spare transformers in order to ensure that the electric industry has sufficient capability to restore service in the event of coordinated, deliberate destruction of utility stations. In 2006, FERC approved the Spare Transformer Sharing Agreement. This Agreement provides the framework for participating signatories to maintain and acquire a certain number of transformers based upon specified criteria and to sell their spare transformers to another participating utility that suffers a triggering event. To date, more than forty entities have executed the Agreement.

In addition, the industry has also developed the SpareConnect program. SpareConnect provides a mechanism for bulk power system asset owners and operators to network with other SpareConnect participants concerning the possible sharing of transmission and generation step-up (GSU) transmission and related equipment. SpareConnect establishes a confidential, unified

platform for the electric industry to communicate equipment needs in the event of an emergency or other non-routine failure.

While supporting the policy behind the proposed Section 1205 to create a national inventory of large power transformers, we believe that the continued use and expansion of private industry approaches will prove more beneficial in the long run than a top-down, government solution. The industry is currently pursuing the development of a broader, voluntary program that could address a wider range of qualifying events than the terrorist-type attacks contemplated by STEP. Discussions are ongoing to develop a more expanded program that would go beyond just transformers and to more generally encompass key spare equipment reserves. In this regard, the nuclear industry has an established, comparable program, and there are lessons learned from that effort that can be leveraged broadly within the electric industry. In developing this expanded program, DOE, Department of Defense (DOD), FERC, the ERO/NERC and other federal agencies will be engaged and consulted with as that effort goes forward.

One area in which federal legislation could play an important role would be to assist with the funding to set-up and develop such an expanded program. Such an approach is contemplated at subsection (c)(2)(E) of Section 1205 and presumably in the section's appropriations provisions. An industry sponsored self-funded program would better ensure its overall long term sustainability, however Federal support in covering the cost of the initial establishment of the program would be helpful and likely facilitate its quicker adoption.

In conclusion, while supporting the policy behind proposed Section 1205, we believe that the industry, their customers and the nation as a whole will be better served by allowing the

industry to create the structure, cost responsibility and pricing for sparing services as opposed to a top-down government solution.

Section 1206. Cyber Sense.

In Section 1206, the creation of a Cyber Sense program will also support secure and reliable electricity. This innovative program is an approach long supported by Southern Company and the electricity sector at large. Similar to certification by organizations like United Labs, Cyber Sense accreditation would be effective in improving security, reliability and resiliency, as it is focused on the creators of technology rather than that technology's users. As well, implementation of this program should take care not to discourage innovation or require excessive disclosures that would undermine security. Finally, the Cyber Sense program has the potential to play an even great role in the nation's defense if it were expanded to be applicable to technologies provided to all critical infrastructure sectors and not just the electric sector.

Cost Socialization Concerns with FERC Order No. 1000.

While beyond the scope of the discussion draft, FERC's Order No. 1000 concerning Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities raises serious cost socialization concerns that would be appropriate to be addressed in legislation. Order No. 1000 would allow FERC to authorize a transmission developer to impose its transmission costs upon entities that are neither a customer nor have a contractual relationship with the developer and to otherwise broadly socialize the developer's costs. Legislation would be appropriate to avoid such economic distortions and the basic unfairness that would result from such an approach.

Conclusion

New and dangerous threats pose risks to the reliability and resiliency of the grid. Working in effective collaboration with the government through programs like the ESCC and the Electricity Sector Information Sharing and Analysis Center (ES-ISAC), the electricity sector can continue its long tradition of mitigating and responding to threats to provide secure and reliable electricity. Section 1204 of the Committee's discussion draft would facilitate these industry-government partnerships and data exchanges, thereby promoting reliability through enhanced system security and resiliency. Likewise, baseload generation is vital to the provision of clean, safe, reliable, and affordable electricity to consumers, and Section 1207 is a reasonable, first-step to the continued viability of baseload generation. Lastly, new Federal regulations have jeopardized system reliability, and Section 1202 would fill the significant, existing gap of requiring that the potential impacts of any such significant rulemaking be thoroughly analyzed and considered prior to the regulations becoming effective.

I applaud the Committee for proposing the discussion draft language and providing me this opportunity to testify. I look forward to your questions.