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HOUSE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

FISCAL YEAR 2021 APPROPRIATIONS FOR THE DEPARTMENT OF ENERGY

TESTIMONY OF JASON BURWEN
VICE PRESIDENT OF POLICY, ENERGY STORAGE ASSOCIATION

(ESA submitted identical comments to the Senate Appropriations Committee)

Advances in energy storage technologies are transforming the U.S. electricity system by bolstering grid reliability and resilience, reducing electricity market prices, and improving the integration of a diverse and clean energy generation mix. The Department of Energy's (DOE) energy storage research programs are essential to developing and deploying the next generation of commercially-viable energy storage solutions, filling the innovation pipeline that U.S. companies depend on to improve commercial offerings, grow, and create jobs. It is for that reason that Secretary Brouillette has launched the Energy Storage Grand Challenge, dedicating the federal government to spur technology and business developments to meet 21st century electric system needs. ESA respectfully requests that the Appropriations Committee invest in DOE's energy storage activities commensurate with the scale of effort that DOE's Energy Storage Grand Challenge represents.

Additionally, given the severity of economic disruption resulting from the current public health emergency of COVID-19, ESA recommends that DOE appropriations be re-allocated toward activities that maintain or increase commercial activities and employment while serving DOE's mission to drive technology innovation.

ESA makes the following recommendations for FY 2021 appropriations at DOE:

- **OE/EERE/ARPA-E: Appropriate $300MM for grid energy storage research, development, & demonstration, with $100MM in the Office of Electricity.** ESA recommends an appropriation of $100MM to the Office of Electricity (OE) energy storage R&D accounts, which will avoid cuts to energy storage R&D efforts while funding construction of the Grid Storage Launchpad facility. ESA also supports additional appropriations of another $200MM for coordinated grid energy storage RD&D in relevant programs outside of OE, such as in ARPA-E and the Office of Energy Efficiency and Renewable Energy (EERE). For reference, the President's budget recommends $190MM for a similarly cross-cutting Advanced Energy Storage Initiative, with $83.5MM for OE and $97MM for EERE. Additionally, this level of appropriations will bring DOE energy storage appropriations in line with the levels contemplated in the bipartisan Better Energy Storage Technology Act (S. 1602) and American Energy Innovation Act (S.

2657).

- **EERE: Direct DOE to provide grants and technical assistance to utilities with interconnection processes and distribution mapping, with an emphasis on vulnerable customers.** Utility interconnection departments often do not have the resources to meet the escalating demand for interconnections by customers installing distributed energy resources (DERs). This challenge has been compounded by closures of government offices and slowing of permitting processes in the aftermath of the COVID-19 public health emergency. Additionally, customers and utilities lack visibility into distribution systems to understand the optimal sites for DERs prior to initiating an interconnection process. Barriers to timely and cost-effective interconnection will jeopardize the growth of DERs, including energy storage, and reduce competition in electricity markets—as well as provide direct impediments to economic recovery from COVID-19 of DER businesses. Additionally, the incidence of public safety power shut-offs and extreme weather disruptions has raised the importance of investments in DERs for customer resilience—increasing the public safety stakes of timely interconnection, particularly as public health infrastructure is critical to maintain. ESA recommends direction to DOE EERE to (1) identify and disseminate utility interconnection best practices and (2) provide technical assistance to utilities to streamline interconnection processes. ESA also recommends direction to EERE to provide funds to states to (1) make grants for utility investments in GIS mapping and analyses of distribution systems, and (2) make grants to utilities, public power entities, and rural electric co-operatives to increase personnel for processing DER interconnection requests. Should the Committee seek to move faster than the current appropriations process on measures to respond to the current economic shock, a separate appropriation for this matter is merited. ESA welcomes the opportunity to follow up with the Committee on this matter.

- **EERE: Direct DOE to provide grants for distributed energy resources, including energy storage, for resilience and cost-savings.** Now is the time to improve electric system resilience while mitigating the economic shock of COVID-19 to power sector industries, as the stakes of grid resilience are critical for enabling an uninterrupted public health emergency response. ESA recommends direction to DOE EERE to provide grants to States, units of local government, the military, and Indian tribe economic development entities to administer to electric customers for (1) enhancing energy security through measures for electricity delivery infrastructure hardening and enhanced resilience and reliability, which includes energy storage as a potential solution; and (2) for reducing costs of electric service to businesses through installing energy storage and other distributed energy resources. Should the Committee seek to move faster than the current appropriations process on measures to respond to the current economic shock, a separate appropriation for this matter is merited. ESA welcomes the opportunity to

follow up with the Committee on this matter.

- **OE/EERE: Direct DOE to undertake at least five demonstration projects, including longer-duration energy storage technologies**. ESA recommends that DOE appropriations for energy storage innovation allocate more resources to demonstration projects that accelerate technology development and commercialization, as contemplated in S. 1602 and S. 2657. Specifically, ESA recommends direction to DOE to cost-share at least five longer-duration storage technology demonstration projects. Additionally, ESA recommends that DOE consult with DOD under existing authority to support demonstrations of longer-duration storage technologies at military installations for mission assurance.

- **OE/CESER: Direct DOE to partner with states to develop frameworks for valuing power system resilience investments.** While many grid operators and state & local governments are examining energy storage for resilience, the lack of defined methods for valuing resilience prohibits factoring such value into cost-benefit analyses that inform public & private resilience planning and procurement decisions. ESA recommends that DOE's Office of Cybersecurity, Energy Security, and Emergency Response, in coordination with the Office of Electricity, establish a technical assistance program for states to develop local programs and market mechanisms for investments in local electric service resilience. ESA also recommends that DOE, in coordination with state regulators, utilities, and resilience technology providers, establish a set of technical terms and definitions by which the provision of electrical service resilience can be specified for use in resilience investment programs, markets, and transactions. ESA recommends that DOE create a library of methods and measures by which investments in electrical service resilience can be evaluated, which can inform DOE's technical assistance to help states develop the resilience cost-benefit methodologies underlying each state's resilience programs and markets. Finally, ESA recommends that DOE coordinate with FEMA and all other federal agencies involved in the funding and deployment of electrical service resilience investments to establish a consistent evaluation standard for all resilience investment cost-benefit analyses conducted for federal programs.

- **EERE: Direct DOE to demonstrate and share information on hybrid storage-generation resources operations.** While storage has been integrated with solar power plant operations, storage integrated with wind, hydropower, natural gas, and other generation technologies remains rare. As more developers seek to hybridize generation with storage, grid operators lack an understanding of both the short-run operational and long-run planning implications for system reliability from such hybrid resources, which may lead to inappropriate interconnection processes and operating standards.

ESA recommends that DOE's Office of Energy Efficiency and Renewable Energy undertake demonstrations of grid-connected hybrid storage-plus-generation projects of varying types and size ratios, sharing grid operational data derived across seasons to better inform interconnection and system planning processes for RTOs/ISOs, transmission owners, and other utilities.

- **EERE: Direct DOE to conduct analyses of the resource adequacy contribution of storage of varying durations across grid regions.** As more large-format grid energy storage joins the bulk power system, grid planners have yet to agree up on modeling methods to quantify the contribution that energy-limited resources like storage make to system resource adequacy. At the same time, state regulators lack adequate tools to assess the reasonableness of storage relative to other resources for resource adequacy. Following on work done by NREL, ESA recommends that the DOE undertake a review of modeling of the contribution of energy storage to resource adequacy, recommend best practices, and where appropriate conduct analyses to quantify the reliability contribution of energy storage of varying durations across grid regions.

Additionally, ESA wishes to apprise the Appropriations Committee that it endorses the Senate Energy and Natural Resources Committee's Better Energy Storage Technology Act (S. 1602) and American Energy Innovation Act (S. 2657) to authorize an energy storage cross-cutting account at DOE to better coordinate related storage RD&D across the various program offices, as detailed above. ESA notes that the President's budget request makes a similar proposal that these accounts be grouped together in an Advanced Energy Storage Initiative, and ESA support appropriations report language aligned with this goal.

Thank you for considering ESA's request to continue investments in energy storage technology innovation that will strengthen our electric grids, create new jobs & investment, and make American technology companies more globally competitive. We look forward to working with members of the Appropriations Committee to ensure that the future U.S. electric system benefits from the flexibility of energy storage technologies to make electric service more resilient, efficient, affordable, and sustainable.

Cheers,

Jason Burwen
Vice President of Policy
Energy Storage Association