AMENDMENT TO RULES COMMITTEE PRINT 116–63

OFFERED BY MR. QUIGLEY OF ILLINOIS

After the item in the table of contents relating to section 5101, insert the following:

Sec. 5102. Definitions.
Sec. 5103. Power system modeling reform and updates to grid services and grid operator software.
Sec. 5104. Advanced energy and grid efficiency studies and report.

Page 436, after line 15, insert the following:

SEC. 5102. DEFINITIONS.

In sections 5103 and 5104:

(1) ADVANCED ENERGY TECHNOLOGY.—The term ''advanced energy technology'' means any energy generation, load-modifying transmission, or storage technology with zero or minimal greenhouse gas emissions that is connected—

(A) to the distribution system;

(B) to the transmission system; or

(C) behind the meter.

(2) ADVISORY COMMITTEE.—The term ''Advisory Committee'' means the advisory committee established under section 5103(a)(2)(A).

(3) COMMISSION.—The term ''Commission'' means the Federal Energy Regulatory Commission.

(4) ELECTRIC UTILITY.—The term ''electric utility'' has the meaning given the term in section 3 of the Federal Power Act (16 U.S.C. 796).

(5) GRID OPERATOR.—The term ''grid operator'' means—

(A) a Transmission Organization, including—

(i) an Independent System Operator; and

(ii) a Regional Transmission Organization;

(B) a public utility; and

(C) an electric utility.

(6) INDEPENDENT SYSTEM OPERATOR.—The term ''Independent System Operator'' has the meaning given the term in section 3 of the Federal Power Act (16 U.S.C. 796).

(7) INITIATIVE.—The term ''Initiative'' means the Advanced Energy Technology Research Initiative established under section 5103(a)(1).

(8) PUBLIC UTILITY.—The term ''public utility'' has the meaning given the term in section 201(e) of the Federal Power Act (16 U.S.C. 824(e)).

(9) REGIONAL TRANSMISSION ORGANIZATION.—The term ''Regional Transmission Organization'' has the meaning given the term in section 3 of the Federal Power Act (16 U.S.C. 796).

(10) SECRETARY.—The term ''Secretary'' means the Secretary of Energy.

(11) TRANSMISSION ORGANIZATION.—The term ''Transmission Organization'' has the meaning given the term in section 3 of the Federal Power Act (16 U.S.C. 796).

SEC. 5103. POWER SYSTEM MODELING REFORM AND UPDATES TO GRID SERVICES AND GRID OPERATOR SOFTWARE.

(a) ADVANCED ENERGY TECHNOLOGY RESEARCH INITIATIVE.—

(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Commission, in coordination with the Secretary, shall establish an initiative, to be known as the ''Advanced Energy Technology Research Initiative'', to research and provide recommendations on how to improve the modeling, operational, and planning practices used for the bulk electric system.

(2) ADVISORY COMMITTEE.—

(A) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Commission, in coordination with the Secretary, shall establish an advisory committee to research, report on, and provide recommendations on matters relating to the Initiative, including—

(i) whether the existing modeling and long-term and short-term planning practices used by grid operators for power systems, including power markets, adequately incorporate expected integration with respect to advanced energy technologies;

(ii) whether the methods used to determine future transmission and capacity needs and make reliability-related determinations use the right data to adequately forecast and model the integration of advanced energy technology into electric power systems;

(iii) whether the modeling and planning practices described in clause (i) and the methods described in clause (ii) need to be updated to better account for the inte-

gration of advanced energy technology into electric power systems;

(iv) any undue barriers to the adoption of advanced energy technology presented by—

(I) existing modeling, operational, and planning practices; and

(II) State estimation tools for planning and reliability;

(v) any need to develop emerging technologies or software for use in improving modeling, planning, and operations in wholesale electricity markets to resolve computational or technical barriers to the adoption of advanced energy technology, including software relating to—

(I) the use of big data, artificial intelligence, and probabilistic methods to predict, in near-real-time—

(aa) energy generation from variable and distributed resources;

(bb) load profiles; and

(cc) consumption and congestion; and

(II) the use of artificial intelligence to improve the responsiveness of energy system operations;

(vi) whether existing and future grid reliability service definitions and the modeling techniques, operational processes, and planning processes used to procure grid reliability services—

(I) appropriately account for the technical and operational characteristics of advanced energy technologies;

(II) allow for the use of those advanced energy technologies to provide grid reliability services; and

(III) include appropriate cybersecurity safeguards; and

(vii) any rulemaking, technical conference, or policy statement that, in the determination of the Advisory Committee, the Commission should consider.

(B) COMPOSITION.—The Advisory Committee shall consist of—

(i) not fewer than 1 representative from each of—

(I) the Commission;

(II) the Department of Energy;

(III) the Electric Reliability Organization (as defined in section 215(a) of the Federal Power Act (16 U.S.C. 824o(a)));

(IV) an Independent System Operator or a Regional Transmission Organization;

(V) an entity generating electric power that is not affiliated with a transmission-owning public or non-public utility;

(VI) an environmental organization with expertise on the bulk electric system; and

(VII) an institution of higher education with expertise on the bulk electric system;

(ii) not fewer than 2 designees of the National Association of Regulatory Utility Commissioners;

(iii) not fewer than 3 representatives from public utilities or electric utilities in areas not serviced by an Independent Sys-

tem Operator or a Regional Transmission Organization; and

(iv) not fewer than 2 representatives from private and nonprofit associations with expertise in the development, deployment, and use of advanced energy technologies.

(C) REPORTS.—Not later than 18 months after the date of enactment of this Act, and every 2 years thereafter for 10 years, the Advisory Committee shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report on the Initiative, including the findings or recommendations of the Advisory Committee with respect to the matters described in clauses (i) through (vii) of subparagraph (A).

(b) ADVANCED ENERGY TECHNOLOGY AND GRID SERVICES PROGRAM.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish a competitive financial assistance program, to be known as the ''Advanced Energy Technology and Grid Services Program'', under

which the Secretary shall enter into Federal financial assistance agreements with eligible entities described in paragraph (2) for the purpose of increasing the market penetration of advanced energy technology through advanced research and development and pilot demonstrations of—

(A) software upgrades, including upgrades to the software platforms used to operate wholesale energy markets;

(B) updated power system planning;

(C) new power system (including power market) modeling platforms;

(D) cybersecurity and physical security upgrades; and

(E) resilience upgrades.

(2) ELIGIBLE ENTITIES DESCRIBED.—An eligible entity referred to in paragraph (1) is—

(A) a grid operator;

(B) a State public utility commission;

(C) an energy cooperative;

(D) a municipality;

(E) an electric utility;

(F) a gas utility; or

(G) a State energy office.

(3) ELIGIBLE ACTIVITIES.—The Secretary may enter into a financial assistance agreement under this subsection for—

(A) software upgrades by grid operators;

(B) new power system (including power market) modeling platforms;

(C) enhancements to cybersecurity safeguards; or

(D) updated power system (including power market) planning, updated power system (including power market) modeling, or updated reliability planning and modeling by grid operators.

(4) COST SHARING.—In awarding Federal financial assistance (including grants, loans, and any other form of financial assistance) to fund eligible activities under this subsection, the Secretary shall require cost sharing in accordance with section 988 of the Energy Policy Act of 2005 (42 U.S.C. 16352).

(5) COORDINATION.—In carrying out the Advanced Energy Technology and Grid Services Program established under this subsection, the Secretary, to the maximum extent practicable, shall co-

ordinate with existing programs of the Department of Energy that focus on grid modernization efforts.

SEC. 5104. ADVANCED ENERGY AND GRID EFFICIENCY STUDIES AND REPORT.

(a) STUDIES.—

(1) ADVANCED ENERGY STUDY.—The Secretary, in coordination with the Commission, shall carry out a study of the costs and benefits to consumers of updating power system planning, modeling, and operational practices, including reliability-related planning, and energy market participation rules on advanced energy technologies and resources, including distributed energy technologies and resources, such as—

(A) energy storage technologies;

(B) energy efficiency and transmission efficiency technologies;

(C) distributed solar and wind energy generation;

(D) fuel cells;

(E) smart thermostats and smart building technologies;

(F) demand response technologies, including natural gas demand response technologies;

(G) advanced metering technologies;

(H) electric vehicles and electric vehicle charging infrastructure;

(I) any aggregation of the distributed energy technologies and resources described in subparagraph (A) or (C); and

(J) any other advanced energy technologies, as determined by the Secretary.

(2) GRID EFFICIENCY STUDY.—

(A) IN GENERAL.—The Secretary, in coordination with the Commission, shall carry out a study of the barriers and opportunities for advanced energy technologies that provide increased, more efficient, or more effective delivery over the existing transmission network.

(B) REQUIREMENTS.—The study under subparagraph (A) shall include—

(i) an examination of—

(I) the reliability, resilience, and economic benefits of technologies such as power flow control, topology optimization, and dynamic line ratings;

(II) the costs, benefits, and challenges associated with deployment of the advanced energy technologies described in subparagraph (A); and

(III) the impact of grid efficiency improvements on wholesale and retail electricity rates; and

(ii) an analysis of the role of financial and regulatory incentives in the deployment of advanced energy technologies, as determined by the Secretary.

(b) REPORT.—Not later than 18 months after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report describing the results of the studies under paragraphs (1) and (2) of subsection (a).

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