



Advancing Contracting in Energy Storage (ACES):
Working Group

Technical Performance Data Standards Section

Appendix 2 Leadership and Resources

**Development of Data Standards
Construction and Operations on the Smart Grid
Energy Storage**

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There are number of data standard initiatives with several industry and trade association providing leadership and direction.

For best practice data standards for energy storage should leverage and synergize the data standards already developed by various efforts so that energy storage is not a “one off” specialty line of data, but an incorporated element of system data from design concept and financing to construction and operations.

Here are the several industry and trade association that are contributing to data standards from design concept and financing to construction and operations.

Glossary of Terms

Building Energy Data Exchange Specification (BEDES) [Dictionary](#)

Energy Storage Association [Glossary of Terms](#)

IEEE Explore - [Browse Standards Dictionary](#)

[buildingSMART Data Dictionary \(bSDD\)](#)

Orange Button

[DOE Orange Button](#)

[SunSpec Alliance](#)

[Smart Electric Power Alliance \(SEPA\)](#)

[National Renewable Energy Laboratory](#)

[kWh Analytics – Orange Button Translate](#)

[XBRL US - Solar - Surety - FinTech](#)

International

[Building SMART International](#)

[International Energy Agency](#)

[International Standards to Develop and Promote Energy Efficiency and Renewable Energy Sources](#)

[International Organization for Standardization \(ISO\)](#)

[American National Standards Institute \(ANSI\).](#)

[Energy Efficiency Standardization Coordination Collaborative](#)

Mexico Secretariat of Economy

General Directorate of Standards (Dirección General de Normas)

[Mexican Secretariat of Economy Standards](#)

[Standards Council of Canada \(SCC\)](#)

[Standardization Solutions Matter for the Environment](#)

YouTube [Making a difference for our environment](#)

[Pan American Standards Commission \(COPANT\)](#)

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Cyber

Data Interoperability and Data Exchange create vulnerabilities that need to be addressed and managed by anyone working with data standards.

2009 [Smart Grid and Cyber Challenges - National Security Risks and Concerns of Smart Grid](#)

Congressional Research Service

2011 [The Smart Grid and Cybersecurity— Regulatory Policy and Issues](#)

White House

2013 [Executive Order -- Improving Critical Infrastructure Cybersecurity](#)

U.S. Department of Commerce - National Institute of Standards and Technology

2014 [Guidelines for Smart Grid Cybersecurity](#)

U.S. Department of Energy

2015 [The Energy Sector Cybersecurity Framework Implementation Guidance](#)

Idaho National Laboratory

2016 [Cyber Threat and Vulnerability Analysis of the US Electric Sector](#)

Websites - Resources

[National Institute of Standards and Technology \(NIST\)
Cybersecurity Framework](#)

U.S. Department of Energy

[Energy Sector Cybersecurity Preparedness](#)

National Renewable Energy Laboratory

[Cybersecurity and Resilience](#)

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Federal Agencies

[DATA.Gov](#)

Environmental Protection Agency (EPA)

[National Action Plan for Energy Efficiency](#)

Department of Commerce

[Renewable Energy and Energy Efficiency Advisory Committee](#)
[Commerce Data Hub](#)

Department of Energy

[Office of Energy Efficiency and Renewable Energy](#)

[Green Button](#)

[Solar Energy Technologies Office](#)

[SunShot Initiative](#)

[Building Energy Data Exchange Specification](#) (BEDES)

[BEDES Dictionary](#)

Department of Treasury

[Data Transparency](#)

[Energy Information Administration](#)

[Open data](#)

[National Institute of Standards and Technology](#) (NIST)

[Green Button Initiative Artifacts Page](#)

[NIST Smart Grid Collaboration Wiki for Smart Grid Interoperability Standards](#)

[National Renewable Energy Laboratory](#) (NREL)

Open Energy Information - [OpenEI](#)

[Orange Button Solar Data Exchange](#)

[Federal Energy Regulatory Commission](#) (FERC)

[Integration of Renewables](#)

[Security Exchange Commission](#)

[Office of Structured Disclosure](#)

[Division of Economic and Risk Analysis](#)

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XBRL-CET Working Group

e**X**tended **B**usiness **R**eporting **L**anguage - **C**onstruction, **E**nergy and **T**ransportation

- 2019 The U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Solar Energy Technologies Office (SETO)
[Request for Information: Challenges and Opportunities for the American Solar Industry](#)
- 2018 Comments to US Department of Commerce
[Cross- Agency Priority Goal: Leveraging Data as a Strategic Asset](#)
Reducing Burdens for Construction of Infrastructure
- 2017 Comments to US Department of Transportation
[Reducing Burdens for Construction of Infrastructure](#)
- 2017 Comments to California Department of Transportation
Caltrans SB1 / SB103 Small Business
[Reducing Burdens for Construction of Infrastructure](#)
- 2015 Department of Energy (DOE)
Office of Energy Efficiency and Renewable Energy (EERE)
[Solar Bankability Data to Advance Transactions and Access - \(SB-DATA\)](#)
- 2015 Department of Energy - SunShot Initiative
Office of Energy Efficiency & Renewable Energy
[Request for Information for Solar Data & Informatics](#)
- 2014 The U.S. Department of Energy (DOE)
Office of Energy Efficiency and Renewable Energy (EERE)
[Buildings University Innovators and Leaders Development \(BUILD\) – 2015](#)
- 2014 American Energy Data Challenge
U.S. Department of Energy and the Green Button Initiative
Open Data by Design Contest.
[Construction Performance Measurement Dashboard using XBRL-CET](#)
- 2012 XBRL Challenge
Tracy Gateway Business Park XBRL Challenge
[Improving Access to Surety Credit for Small and Emerging Companies](#)

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Leaders in Standards Development

[American National Standards Institute](#) (ANSI).

[Energy Efficiency Standardization Coordination Collaborative](#)

[Association for Cooperative Operations Research and Development](#) (ACORD)

[Seamless Integration a Reality in Writing Surety!](#)

[Berkeley Earth](#)

[Building SMART International](#)

[buildingSMART Data Dictionary \(bSDD\)](#)

[California Senator John Moorlach](#) (District 37)

[California Senate Bill 598 – Open Financial Statements Act](#)

[California Senate Bill 598 – Open Financial Statements Act](#) Legislative Information

[SB598 – Open Financial Statements Act – Fact Sheet](#)

[Code for America](#)

[Data Foundation](#)

January 2019 - [The State of the Union of Open Data](#)

[Digital Accountability and Transparency Act of 2014](#) – DATA Act

[Electric Power Research Institute](#) (EPRI)

[Energy Storage Association](#) (ESA)

[Construction Progress Coalition](#) (CPC)

[Global Covenant of Mayors for Climate & Energy](#)

September 2018 – The Global Covenant of Mayors for Climate & Energy (GCoM) announced today a new partnership with Google and Bloomberg Philanthropies. The partnership channels Google’s proprietary data and technological capabilities through GCoM’s global network of cities and city networks together with Bloomberg Philanthropies’ leadership on cities and climate change to drive global action.

[Global Energy Storage Alliance](#) (GESA)

[Google – Project Sunroof](#)

[Grid Modernization Laboratory Consortium](#)

[Interoperability Fact Sheet](#)

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[Institute of Electrical and Electronics Engineers \(IEEE\)](#)

[IEEE-SA Standards Board](#)

[IEEE Standards Association](#)

IEEE Explore - [Browse Standards Dictionary](#)

IEEE 1547 [Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces](#)

IEEE 2030 [IEEE Standard for Smart Energy Profile Application Protocol](#)

[International Electrotechnical Commission \(IEC\)](#)

[International Electrotechnical Commission Renewable Energy \(IECRE\)](#)

[IEC Technical Committee 82 \(TC 82\) Solar photovoltaic energy systems](#)

[IEC 61724 Photovoltaic system performance - Part 1: Monitoring](#)

[IEC 61850 Communication networks and systems for power utility automation](#)

[International Organization for Standardization \(ISO\)](#)

Report [ISO on energy](#)

Report [ISO 50001 - Energy management systems](#)

Report [ISO and climate change](#)

[ISO standards for the environment](#)

[Modular Energy Storage Architecture \(MESA\)](#)

[National Association of Regulatory Utility Commissioners](#)

[National Association of Surety Bond Producers](#)

[SFAA/NASBP Joint Automation Committee](#)

[Electronic Bonds](#)

[Standards Adoption Toolkit](#)

National Electrical Manufacturers Association - [Energy Storage Systems](#)

[Standard for Uniformly Measuring and Expressing the Performance of Electrical Energy Storage Systems](#)

[North American Energy Standards Board \(NAESB\)](#)

[North American Electric Reliability Corporation](#)

[Standards](#)

[Standards Committee](#)

[MOD-032-1 — Data for Power System Modeling and Analysis](#)

[Generating Availability Data System \(GADS\) Solar Generation Data Reporting](#)

[Electricity Information Sharing and Analysis Center](#)

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Mustang Prairie Energy

2018 Sandia Report – [Energy Storage Financing – Performance Impact on Project Financing](#)

2016 Sandia Report – [Energy Storage Financing: A Roadmap for Accelerating Market Growth](#)

[Oasis Energy Interoperation](#)

[Energy Market Information Exchange \(EMIX\) Version 1.0](#)

[Smart Electric Power Alliance \(SEPA\)](#)

[Orange Button](#)

[Adopting data standards to evaluate solar asset performance and raise capital](#)

[How solar data standards became a priority at Salesforce](#)

[Solar Energy Industries Association \(SEIA\)](#)

[Best Practices for Solar Risk Management](#)

[Is Standardized Solar Permitting Next Industry Breakthrough?](#)

[Solar Automated Permit Processing \(SolarAPP\) initiative](#)

[SolarNexus](#)

[California Public Utilities Commission](#)

[Integrated Energy Project \(IEP\) Model](#)

[Standards Council of Canada \(SCC\)](#)

[Standardization Solutions Matter for the Environment](#)

YouTube [Making a difference for our environment](#)

[State and Local Energy Efficiency Action Network \(SEE Action\)](#)

[Energy Use Data Access](#)

[SunSpec Alliance](#)

[Orange Button](#)

[Data Exchange for Solar Finance](#)

[Orange Button Implementor's Network](#)

Surety Fidelity Association of America/ National Association of Surety Bond Producers

[XBRL](#)

[SFAA/NASBP Joint Automation Committee](#)

[Electronic Bonds](#)

[Standards Adoption Toolkit](#)

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[Sustainable Energy Action Committee \(SEAC\)](#)

[Task Force on Climate-related Financial Disclosures](#)

[Western Electricity Coordinating Council
Standards](#)

[Women of Renewable Industries and Sustainable Energy \(WRISE\)](#)

XBRL US

[XBRL for Surety](#)

[XBRL for Solar](#)

[FinTech](#)

July 25, 2018

Comments to US Department of Commerce

[XBRL US Comment Letter RE Docket Number USBC-2018-0011](#)

[Leveraging Data as a Strategic Asset Phase 1 Comments](#)

2012 XBRL Challenge

Tracy Gateway Business Park XBRL Challenge

[Improving Access to Surety Credit for Small and Emerging Companies](#)