

FEDERAL SMART BUILDINGS ACCELERATOR

The Federal Energy Management Program (FEMP) is supporting the development and launch of a **Federal Smart Buildings Accelerator** to design and implement specific approaches to catalyze the adoption of smart building and grid-responsive technologies throughout U.S. Government Agencies. The **accelerator will support significant DOE and Federal Government-wide goals** such as resilience, energy savings and broadly electrifying and decarbonizing government activities, using renewable energy on a 24/7 (full-time) basis, and transitioning to zero-emissions fleets.

What is a GEB?

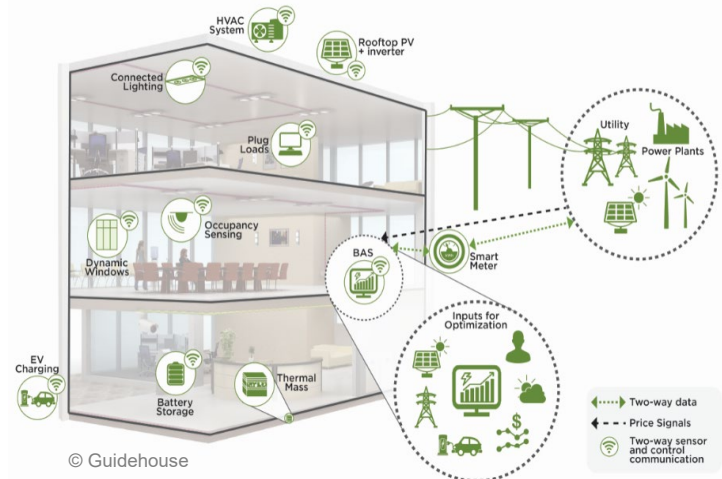
A **grid-interactive efficient building (GEB)** is an energy-efficient building with connected and smart technologies characterized by use of flexible Distributed Energy Resources (DER) and grid-responsive technologies to optimize energy use for utility benefits, occupant benefits, new manufacturer offerings, and/or societal benefits.

<https://www1.eere.energy.gov/buildings/pdfs/75470.pdf>

The accelerator will demonstrate the business case for specific innovative technologies and approaches that allow engagement with local utilities that desire load management, grid flexibility, and additional support services. This effort will incorporate opportunities for grid-interactivity into existing FEMP programming that supports Federal Agencies as they evaluate their facilities and develop improvement plans. This accelerator leverages technologies validated by the Building Technologies Office (BTO) and General Services Administration (GSA) around Grid-Interactive Efficient Buildings (GEB) that provide Federal Agencies with opportunities to decarbonize their fleets and buildings.

FEMP will develop and validate tools to increase uptake of GEB technologies and will recognize sites that develop a GEB implementation plans. FEMP will also bring together key stakeholders throughout the US Government to examine key issues relating to GEB such as cybersecurity, utility engagement, contracting approaches, and the inclusion of fleets in GEB planning.

This accelerator is called for in the **Energy Act of 2020** and supports many aspects of President Biden's **Executive Order** detailing initiatives to decarbonize Federal Agencies. Implementing GEB



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Grid-Interactive Efficient Building (GEB). Photo courtesy of Guidehouse Consulting.

technologies in buildings can help Agencies meet the goals set under this executive order by providing real-time demand management and energy optimization to help reduce carbon emissions from the energy used by government facilities by utilizing and integrating renewable generation and storage on the grid.

Accelerator Goals:

- ▶ **Develop and pilot tools** for GEB opportunity identification, deployment, and successful adoption of GEB technology in Federal facilities in the U.S.
- ▶ **Screen and identify Federal buildings** for potential GEB adoption with various types and sizes of facilities and in various geographic locations.
- ▶ **Develop action plans** for implementing identified GEB technologies that agencies can implement post accelerator effort.
- ▶ **Produce trainings** for GEB technology operators to ensure peak energy savings and the use of best practices, along with guides and strategies to implement GEBs smoothly and efficiently

Why Grid-Interactive Smart Buildings are Important

Growing peak electricity demand, transmission and distribution infrastructure constraints, and an increasing share of variable renewable electricity generation are challenging the electrical grid. As the grid becomes increasingly complex, demand flexibility can play an important role in helping maintain grid reliability, improving energy affordability, and integrating a variety of generation

sources. Smart Federal buildings can provide flexibility by reducing energy waste, helping balance energy use during times of peak demand and/or plentiful renewable generation, and reducing the risk of frequency deviations.

Today, behind-the-meter distributed energy resources (DERs)—including energy efficiency, demand response, solar PV, EVs, and battery storage—are typically valued, scheduled, implemented, and managed separately. The GEB vision is the integration and continuous optimization of DERs for the benefit of building owners and occupants, as well as the grid.

A GEB technology is **energy-efficient** (persistent low energy use), **connected** (proving two-way communication with the grid), **smart** (analytics supported by sensors and controls optimize energy loads), and **flexible** (energy loads can be dynamically shaped and optimized).

Partners

Accelerator partners agree to:

- ▶ **Assign an Accelerator lead** from the Agency who will take part in the 2-year process of the Accelerator
- ▶ **Identify 1-3 sites** at which you will commit to utilizing the developed resources
- ▶ **Identify your facility's current capabilities**, needs, and barriers to implementing GEB measures
- ▶ **Recruit the servicing utility and any key contractors or ESCOs** supporting the site to participate as applicable
- ▶ **Actively participate** in accelerator partner meetings and provide updates
- ▶ **Develop case studies, best practices, and snapshots** that highlight the findings and lessons learned from implementing the action plan with partners

For more information, please contact Jason Koman:

Jason.Koman@ee.doe.gov

Partner Benefits and Recognition

Organizations can become Partners in the Federal Smart Buildings Accelerator by signing a voluntary agreement and developing a site-specific plan to implement GEB technologies within the 2-year Accelerator program. Benefits include:

- ▶ Assistance developing a plan to achieve substantial carbon, energy, and operational cost savings.
- ▶ Improve occupant comfort, productivity, and satisfaction
- ▶ Improved and more automated building system operations and maintenance
- ▶ Receive national recognition for leadership, innovation, and energy/carbon savings
- ▶ Exchange lessons learned with other partners on financing, technologies, policies, and measures
- ▶ Access to online tools, resources, educational and training materials, and ongoing support from DOE

Resources and Support

As the lead in this effort, DOE agrees to provide support to participants in the following ways:

- ▶ **Staff and fund** the accelerator process
- ▶ **Fund the development of tools and resources** necessary to support partners implementing GEB technologies in their facilities and aid them in utilizing those tools and resources. **DOE will not fund installation of technologies through this effort**, however financing options will be discussed and investigated
- ▶ **Develop training resources** for GEB operators and support personnel
- ▶ **Appoint** a point of contact for partners
- ▶ **Create and facilitate networking** and technical peer exchange opportunities with stakeholder organizations and other partners to develop and share best practices, lessons learned, and innovative solutions