



**WEBINAR
SERIES**

Connected Communities and Grid Interactive Efficient Buildings (GEB)

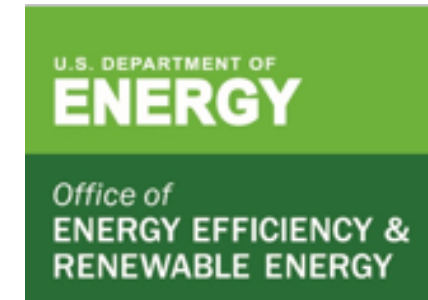
DOE Investment in Efficient, Smart,
Flexible Buildings of the Future

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Building Technologies Office Approach

BTO invests in energy efficiency & related technologies that make homes and buildings more affordable and comfortable, and make the US more sustainable, secure and prosperous. Budget ~US\$285M/year; activities include:



R&D

Pre-competitive, early-stage investment in next-generation technologies



Integration

Technology validation, field & lab testing, metrics, market integration



Codes & Standards

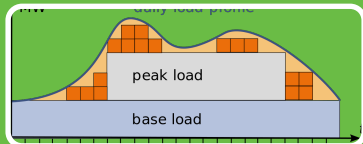
Whole building & equipment standards technical analysis, test procedures, regulations



Potential Benefits of Flexible Building Loads



✓ Energy Affordability



✓ Improved reliability



✓ Reduced grid congestion



✓ Enhanced services

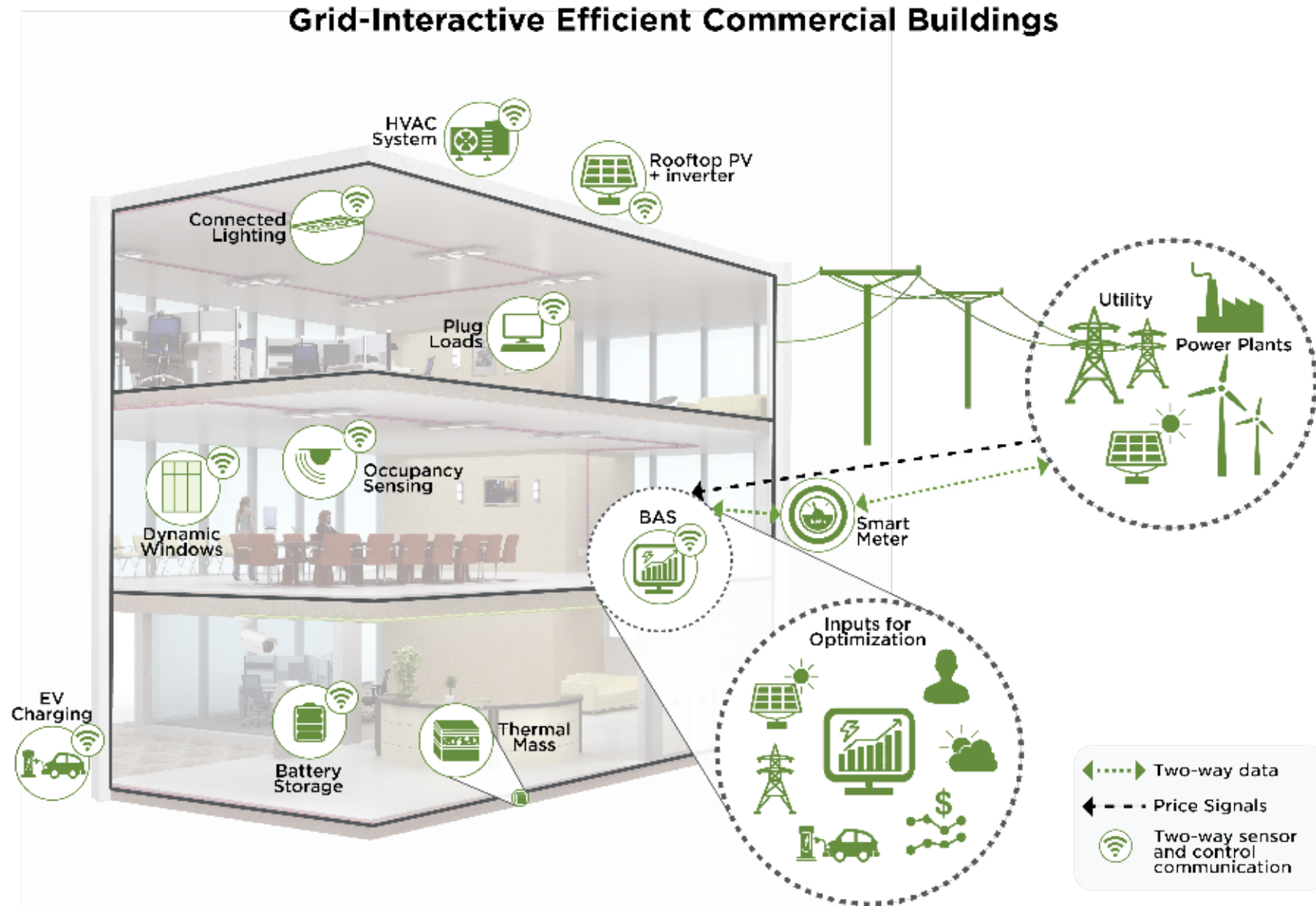


✓ Environmental benefits



✓ Customer choice

Grid-interactive Efficient Buildings Initiative



Key Characteristics of GEBs



EFFICIENT

Persistent low energy use minimizes demand on grid resources and infrastructure



CONNECTED

Two-way communication with flexible technologies, the grid, and occupants



SMART

Analytics supported by sensors and controls co-optimize efficiency, flexibility, and occupant preferences



FLEXIBLE

Flexible loads and distributed generation/storage can be used to reduce, shift, or modulate energy use

Benefits of Multi-Building Approach



“Communities” Could Take Many Forms



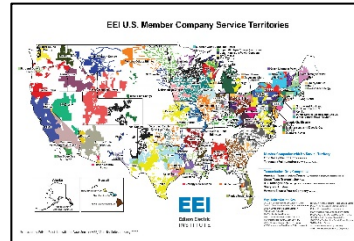
Residential neighborhood



Geographically-dispersed building portfolio



Mixed-use development



Utility territory



Downtown commercial district



New construction



University, or corporate campus



Existing building retrofits

Coordination across a Diverse set of Pilots



Key Activities 2020-21

Stakeholder Engagement

- Utility working group focused on EE/DR integration & GEB projects
- State working group focused on 4 TA areas: Potential, pilots, lead by example & valuation
- Commercial building working group focused on technology optimization business case
- GEB Roadmap focused on a national perspective of implementation needs to scale GEBs

Research & Validation

- Demand flexibility technology metrics
- Continued research projects across HVAC, lighting, water heaters, appliances, controls, modeling focused on determining demand flexibility capability
- Occupant thresholds and impacts
- Commercial, residential, community demand flexibly datasets from validation projects

DOE Intends to Invest \$42 Million into “Connected Communities”



Connected Community:

A group of grid-interactive efficient buildings (GEBs) with diverse, flexible end use equipment that collectively work to maximize building and grid efficiency without compromising occupant needs and comfort



Funding opportunity would enable regional GEB communities to share research results and lessons learned on projects that increase grid reliability, resilience, security and energy integration well into the future.



Demonstrate and evaluate the capacity of buildings as grid assets by **flexing load** in both **new developments and existing communities** across diverse climates, geography, building types and grid/regulatory structures



Share research results and lessons-learned on projects that improve energy affordability, increase grid reliability, resilience, security and energy integration

What We're Looking For

- ✓ Teams of strategic stakeholders
- ✓ Sets of multiple buildings
- ✓ Multiple DER integration
- ✓ Ability and willingness to share data
- ✓ Diversity of projects (geography, building type, climate, vintage, regulatory)

What We Hope to Achieve

- Measured impact of building as grid assets
- Solutions that address diverse grid needs that can be scaled in size and in other communities
- Input from occupants on impact and comfort level
- Demonstrated new business models for demand flexibility and DER coordination and optimization
- Online solutions center on best practices

Request for Information on Connected Communities



We Look Forward to Your Feedback

Visit eere-exchange.energy.gov or **Scan the QR Code** for the Request for Information:

“DE-FOA-0002291: **Request for Information**: Funding Opportunity Announcement 2206: “Connected Communities”

RFI Questions

Category 1: Technical Requirements

- e.g. will the proposed requirements of the draft FOA support demonstrations that explore the smart load controls and building design load reduction strategies in combination with other DERs that provide the best options for demand flexibility to meet specific grid needs?

Category 2: Funding, Cost share, and Period of Performance

- e.g. is the proposed funding per project reasonable to achieve the drafted FOA objectives?

Category 3: Data Sharing/Measurement and Verification

- e.g. how can these pilots best consider, measure, and document energy, building occupant/tenant, and financial impacts?

Category 4: Other

- e.g. is there any other feedback on the FOA goals, design, requirements, etc. you would like to provide?



Teaming Partner List

EERE is compiling a Teaming Partner List to facilitate the widest possible participation for this anticipated FOA.

- The list allows organizations with expertise in the topic and wish to participate in an application, but may not wish to apply as the Prime applicant to the FOA, to express their interest to potential applicants and to explore potential partnerships.

Any organization that would like to be included on this list should submit the following information to the Teaming List email

CCPilotsTeamingList@hq.doe.gov with the subject line “Teaming Partner Information”:

- Organization Name,
- Generic Organization Contact Email,
- Generic Contact Phone,
- Organization Type,
- Area of Technical Expertise (bulleted list less than 25 words), and
- Brief Description of Capabilities (less than 100 words).

Ways to Engage

Recognizing the large scale and complexity of projects targeted for this opportunity, we have built in time for thoughtful feedback and team formation.

Team Stakeholders

- Grid resources/assets
- Building/home owners
- Researchers
- Technology manufacturers
- Regional, state, or local governments
- Other types of stakeholders

Teaming List Email

CCPilotsTeamingList@hq.doe.gov

RFI Opened on March 27, 2020

Provide feedback and responses to key questions around FOA development by **May 12, 2020.**

FOA Planned for **Summer 2020 Release**

Start forming a team of strategic stakeholders for submission

Email your responses to:

CCPilotsRFI@ee.doe.gov

Thank you!