

# BTO 2020 Peer PReview

David Nemtzow

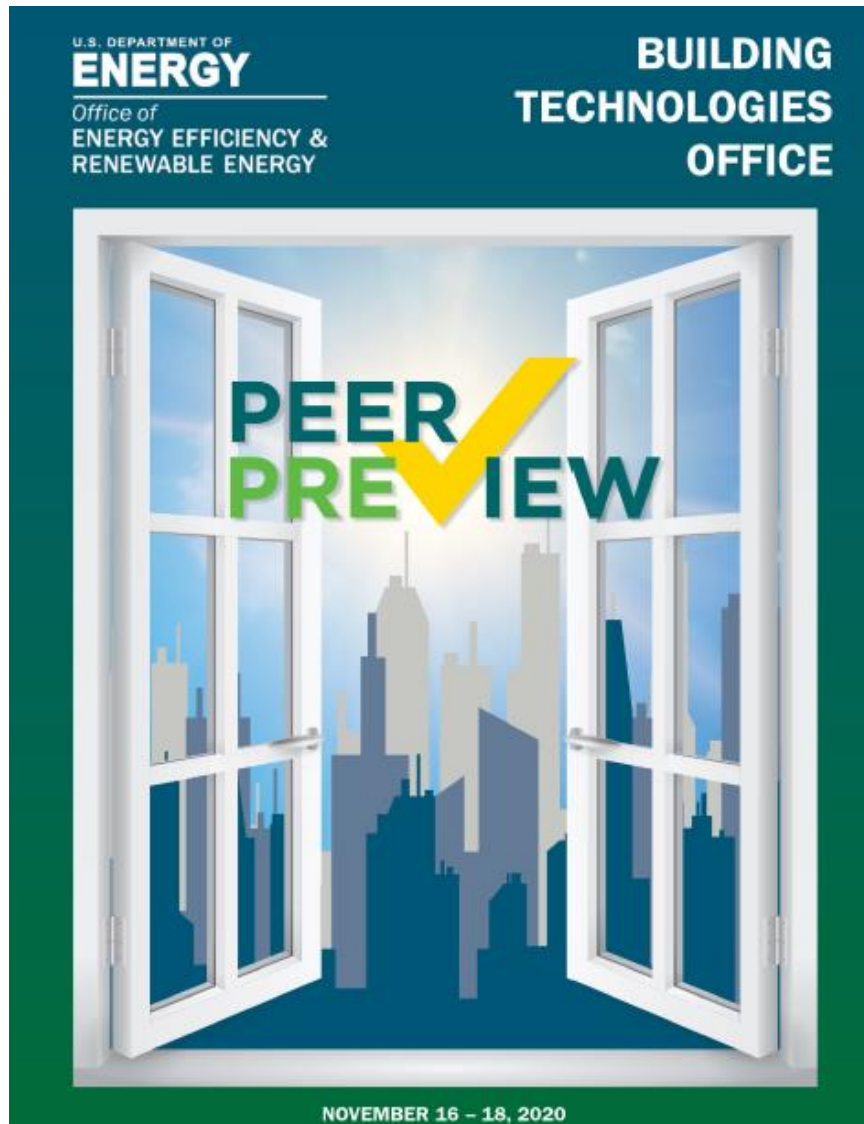
*November 17, 2020*



# Review

- Tough year for everyone, and BTO certainly wasn't exempt
- But lots of accomplishments (and other progress) including:
  - ✓ Connected Communities FOA
  - ✓ BENEFIT FOAs
  - ✓ Proving Ground FOA
  - ✓ EMPOWERED Joint FOA
  - ✓ EnergyPlus Python EMS
  - ✓ First window attachment certification
  - ✓ Field Validation
    - ❑ Building codes
    - ❑ EE-wide strategy
    - ❑ PG FOA
  - ✓ ABC Projects, Collaborative
  - ✓ Solar Decathlon
  - ✓ "Return to Work" initiative w/NASEO
  - ✓ Four RDOs: SSL, BEM, Windows, Envelope
  - ✓ GEB Roadmap (Jan. '21)
  - ✓ National Energy Codes Conference
  - ✓ Webinar series, outreach incl.:
    - ❑ Better Buildings Residential Network
    - ❑ Thermal energy storage
    - ❑ Embodied energy/carbon/LCA
  - ✓ Progress on numerous technologies
  - ✓ Contributions re: COVID-related arenas
  - ✓ E-ROBOT Challenge
  - ✓ New staff (and healthy staff)
  - ✓ **Much more!**

# 2020 Peer *P*Review Brochure



The [2020 Peer \*P\*Review brochure](#) orients you to the days' sessions, including a welcome letter from BTO's Director, essays on hot topics in the buildings industry, a detailed agenda, and more.

American-Made Challenges



# E-ROBOT Prize

Envelope Retrofit Opportunities for  
Building Optimization Technologies

Energizing Innovation in Building Retrofit Technologies

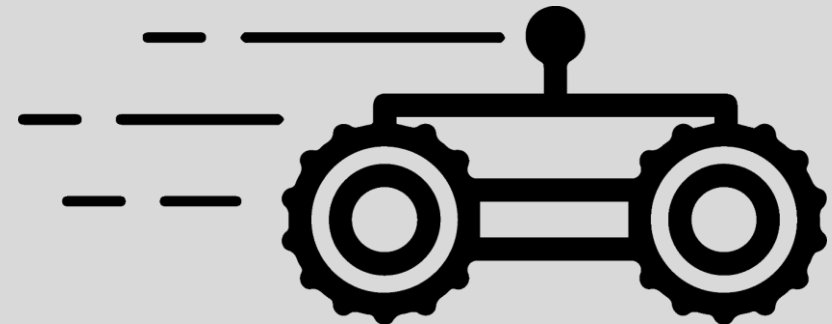


# Envelope Retrofit Opportunities for Building Optimization Technologies

## Goal

### E-ROBOT Prize

Catalyze the development of minimally invasive, low-cost, and holistic building envelope retrofit solutions that make retrofits easier, faster, and more accessible for workers.



# Why Building Envelope Retrofits + Robotics?

Aging Building Stock and Stagnant Retrofit Rates



Nearly 85% of residential and 55% of commercial buildings that exist today will exist in 2050 & only ~2% undergo energy-efficient envelope retrofits each year.

Current Solutions Are Invasive and Costly



Current deep energy-efficiency retrofit technologies are particularly disruptive in existing occupied buildings.

Difficult or Dangerous Spaces for Workers to Access



Collaborative robotics enable workforce safety, productivity, and installation quality.

# American-Made

## Buildings E-ROBOT Prize



U.S. DEPARTMENT OF ENERGY

The American-Made **Buildings Prize** is a series of competitions designed to accelerate and sustain American innovation in efficient building technologies.

### E-ROBOT PRIZE: \$5M Prize Pool

The **Envelope Retrofit Opportunities for Building Optimization Technologies (E-ROBOT)** Prize is a dual-phased competition designed to spur innovation in building envelope retrofit approaches. Winners will provide a solution that:

- ✓ Utilizes robotics or other advanced techniques
- ✓ Results in a holistic solution including sensing and inspection, remediation, smart remediation materials, and mapping capabilities
- ✓ Is low-cost and minimally invasive.

## How It Works

### ENTER TO WIN

Entrepreneurial individuals and teams develop innovative concepts through the American-Made Buildings Prize with support from the American-Made Network.

### BECOME A CONNECTOR

Connectors are the foundation of the American-Made Network. They are technology incubators, investors, and manufacturing facilities that connect competitors to resources that rapidly develop product solutions and help fund successful innovations.

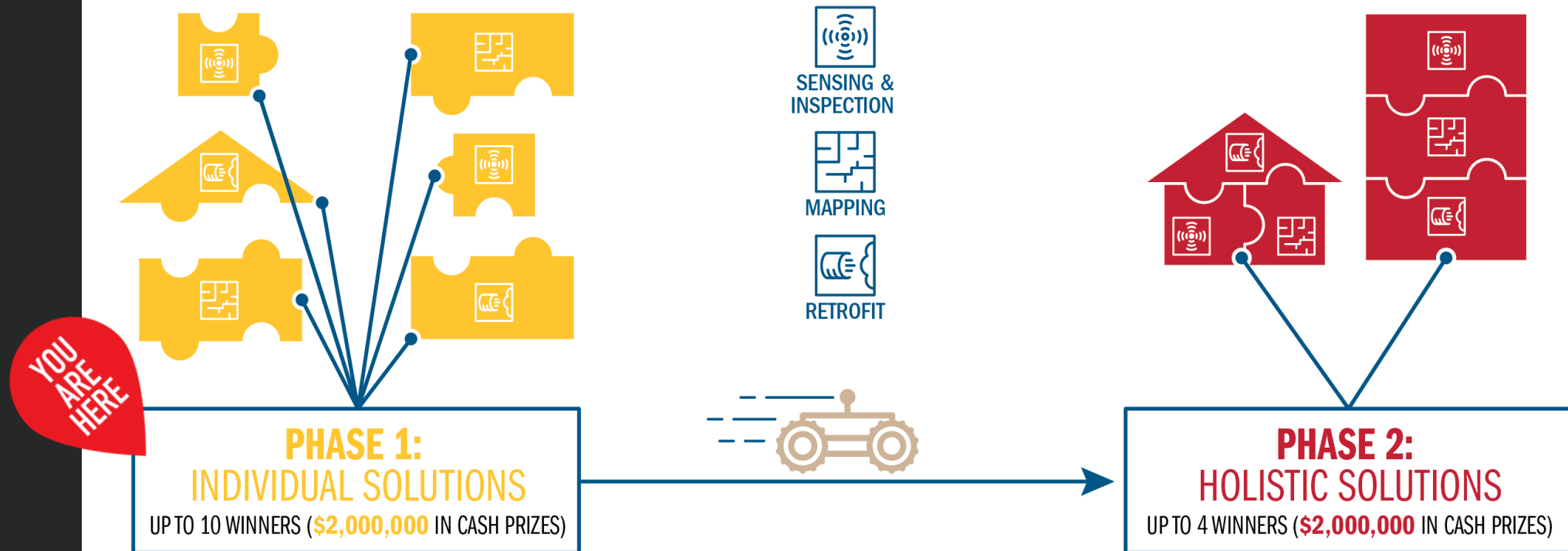
### WIN CASH PRIZES

Competitors win cash prizes at each stage of the competition for innovations that meet the contest challenge. Connectors may receive performance payments for recruiting teams, network partners, and assisting teams (whether or not the team wins a prize).

**UP FOR THE CHALLENGE?** Learn more at  
[americanmadechallenges.org](http://americanmadechallenges.org)

# Phase 1 + Phase 2

## BUILDINGS PRIZE **E-ROBOT: Envelope Retrofit Opportunities for Building Optimization Technologies**



**\$4M in Cash Prizes + \$1M in Network Support**

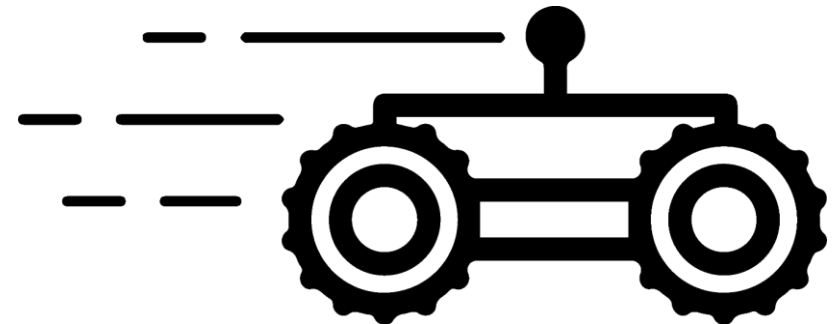


# ***Are You Up for the Challenge?***

**Learn more at**  
**[americanmadechallenges.org/EROBOT](http://americanmadechallenges.org/EROBOT)**



U.S. DEPARTMENT OF ENERGY



E-ROBOT PRIZE • U.S. DEPARTMENT OF ENERGY  
BUILDING TECHNOLOGIES OFFICE

[www.energy.gov/eere/buildings/building-technologies-office](http://www.energy.gov/eere/buildings/building-technologies-office)

# PReview

## Lots in store, potentially including:

- ✓ **Climate change & its urgency**
- ✓ **Role for efficiency, renewables**
  - ❑ Incl. electrification, renewables integration and DF/storage
- ✓ **Existing buildings**
- ✓ **Economic stimulus**
- ✓ **Diversity, equity & inclusion**
- ✓ **COVID**
- ✓ **International engagement**
- ✓ **Resilience**
- ✓ **Deployment and MT role**
- ✓ **Standards & codes**
- ✓ ***Inside ball***
  - ❑ Bigger role for EERE, BTO
  - ❑ Deployment and MT role
  - ❑ Technical assistance, incl. for states and LGs
  - ❑ Workforce-related
  - ❑ Integrating/balancing multiple policy goals
  - ❑ BTO budget and staffing?

# BTO Team

## Emerging Technologies

Karma Sawyer – Program Manager  
Fredericka Brown (Fellow)  
Erika Gupta  
Mary Hubbard  
Mohammed Khan  
Marc LaFrance  
Wyatt Merrill (Fellow)

Sven Mumme  
Monica Neukomm  
Joshua New (M&O)  
Radhakrishnan Nikitha (M&O)  
Sam Petty (Fellow)  
Amir Roth  
Brian Walker

## Residential Buildings Integration

Joan Glickman – Program Manager  
Holly Carr  
Jonathan Cohen  
Steve Dunn  
Chris Early  
Lyla Fadali (Fellow)  
Adam Hasz

Dale Hoffmeyer  
Marc LaFrance  
Terrence Mosley (Fellow)  
Sam Rashkin  
Nicholas Ryan (Fellow)  
Maddy Salzman  
Eric Werling

## Commercial Buildings Integration

Amy Jiron – Program Manager  
Harry Bergmann  
Cedar Blazek  
Mariana Egea Casalduc (Fellow)  
Hannah Debelius (Fellow)  
Blake Dressel (Fellow)

Ryan Fedie  
Kassandra Grimes (Fellow)  
Charles Llenza  
Carl Shapiro (Fellow)  
Sarah Zaleski

## Building Energy Codes

David Nemtzow – Program Manager  
Michael Reiner (Fellow)

Jeremy Williams

## Appliance and Equipment Standards

John Cymbalsky – Program Manager  
Bryan Berringer  
Lucy deButts

Jeremy Domm  
Stephanie Johnson  
Catherine Rivest

## Operations

Bob Aasen  
Lucy deButts  
Jeremiah Freeman

John Mayernik  
Regina Washington

## Support Staff and Contractors

BTO relies on a strong network of contractors, including the following and many others:

Seghen (Mike) Atsbaha  
Mia Casabona  
Rebecca Ciraulo  
Naeema Conway  
Paget Donnelly  
Julia Downing  
Randall Gentry  
Starlette Gibbs  
Karen Harting  
Gretchen Hitchner

Alexandra Isaacson  
Patty Kappaz  
Kristian Kiuru  
Andy Kobusch  
Jared Langevin  
Marissa Morgan  
Don Mosteller  
Zoe Respondek  
Bill Zwack

We're at: [first.last@ee.doe.gov](mailto:first.last@ee.doe.gov)

and (I sure hope) **All of YOU!**