# Prizes

Drawing lessons from Federal efforts
to drive innovation

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# My introduction to prizes


- What makes it expensive/difficult to extract wave energy?
  - Expensive to test & demonstrate technologies
  - Ocean environment is harsh

- Barriers for entry to wave energy:
  - High cost of tank and ocean testing
  - Wide variety of technical skills and deployment experience needed
  - Expensive and time consuming permitting & licensing processes
  - Limited investor knowledge about wave energy

WAVE ENERGY PRIZE
U.S. DEPARTMENT OF ENERGY

Produce WECs that double the state-of-the-art energy captured per unit structural cost

- Rigorous comparison between device types
- Yield game-changing solutions that exceed aggressive performance metrics
- Advance understanding of pathways to achieve long-term LCOE goals
- Attract investors and create the strong foundation for future funding opportunities
- Mobilize new and existing talent

## Four technology gates

Three Phases: Design | Build | Test

**REGISTRATION**

**Design Concept** — 4.5 months

TECHNOLOGY GATE 1

**Selecting Qualified Teams**

Up to 20 Qualified Teams for small scale testing

**Build and Model 1/50th Scale Device** — 5.5 months

TECHNOLOGY GATE 2

**Determining Finalists and Alternates**

Up to 10 Finalists and 2 Alternates for MASK Basin testing

**Build 1/20th Scale Device** — 4.5 months

TECHNOLOGY GATE 3

**Verifying readiness for MASK Basin testing**

Up to 10 Finalists for MASK Basin testing

**Test and Award** — 3.5 months

One week of testing per team in MASK Basin

TECHNOLOGY GATE 4

**Identifying the winner(s) of the Prize**

Grand Prize Winner, $1.5M; 2nd Place Finisher, $500K; 3rd Place Finisher, $250K

## *Participants evaluated on*

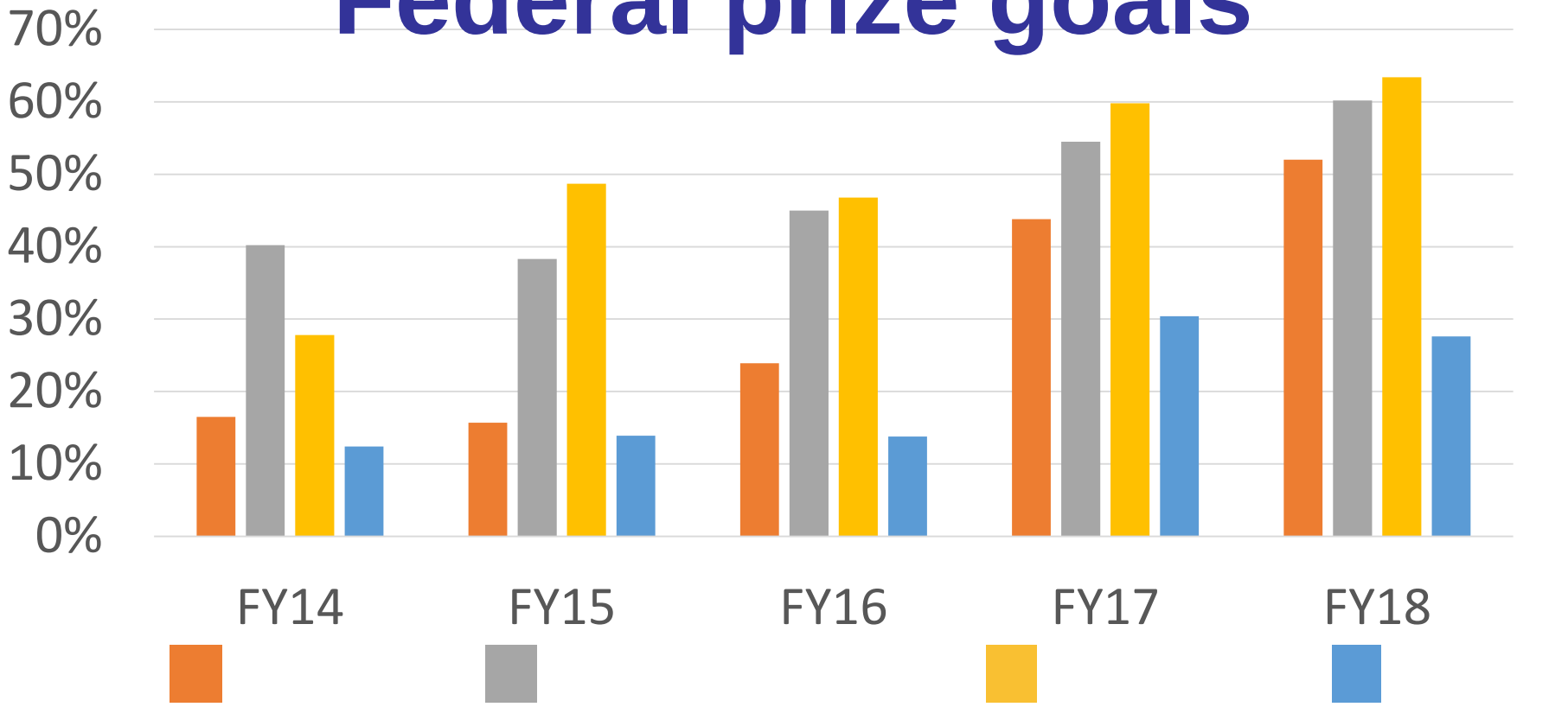
WAVE ENERGY PRIZE


92 66 20 9 4

# The Case in Energy Efficiency

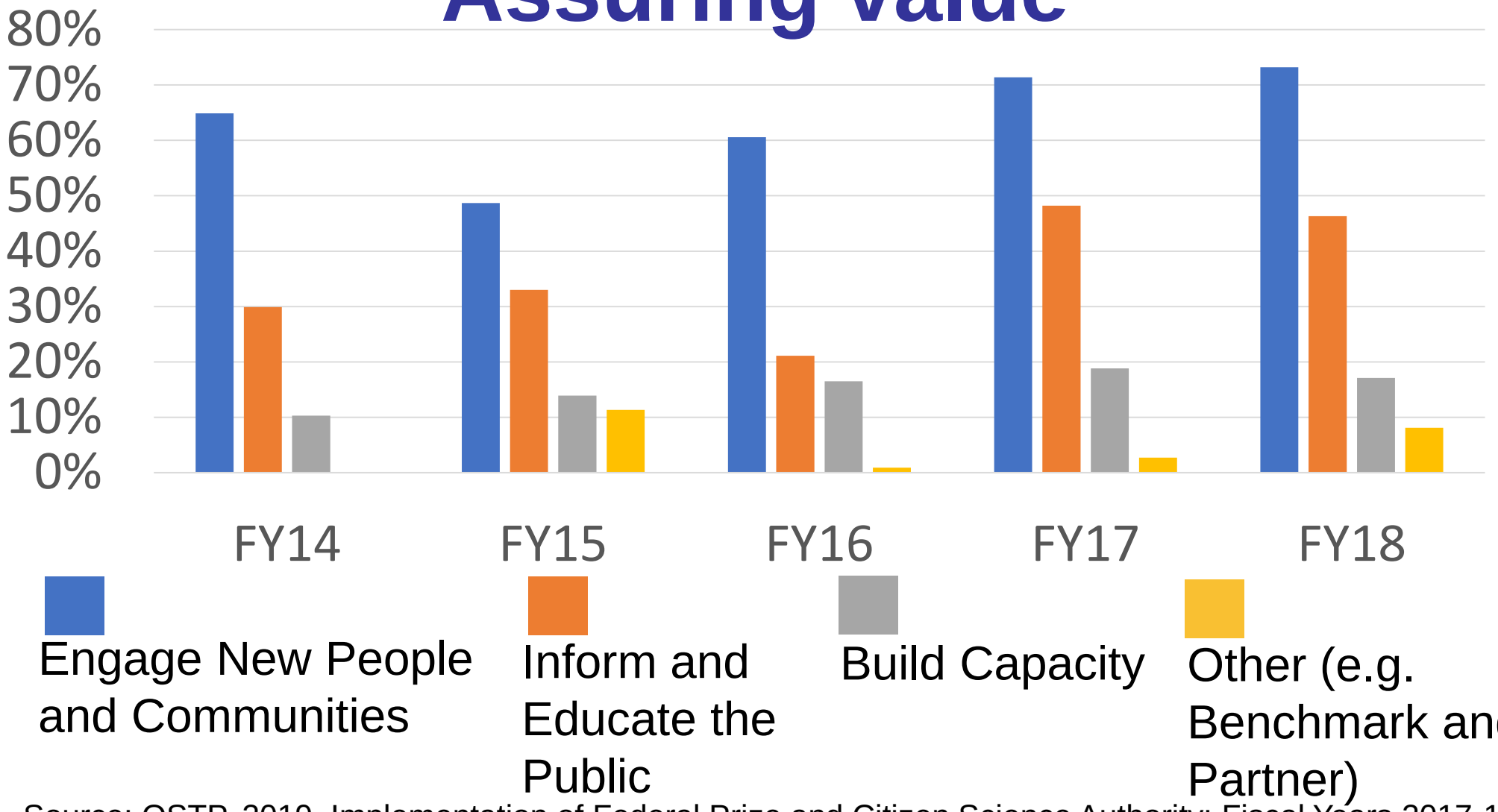
- Aggressive savings goals, harder to achieve cost effectively
- More frequent and severe heat waves. Cooling technologies are adding to global warming
- Heat pump tech exists, but in less than 10% of California homes
- Customer's fear and doubt

# Federal prize goals




Source: Office of Science and Technology Policy, 2019. Implementation of Federal Prize and Citizen Science Authority: Fiscal Years 2017-18.

# Assuring value




Source: OSTP, 2019. Implementation of Federal Prize and Citizen Science Authority: Fiscal Years 2017-18.

# Concerns

- Will the prize result in a winner?
- When should I use a prize vs. traditional award?
- What is a prize's relative cost and return on investment?


Source: Eckert, Jan B. The Super Efficient Refrigerator Program: Case Study of a Golden Carrot Program, 1995

# Risk Mitigation

- Suitability of the Problem for a Prize
- Communications, outreach, engagement plan
- Resource planning

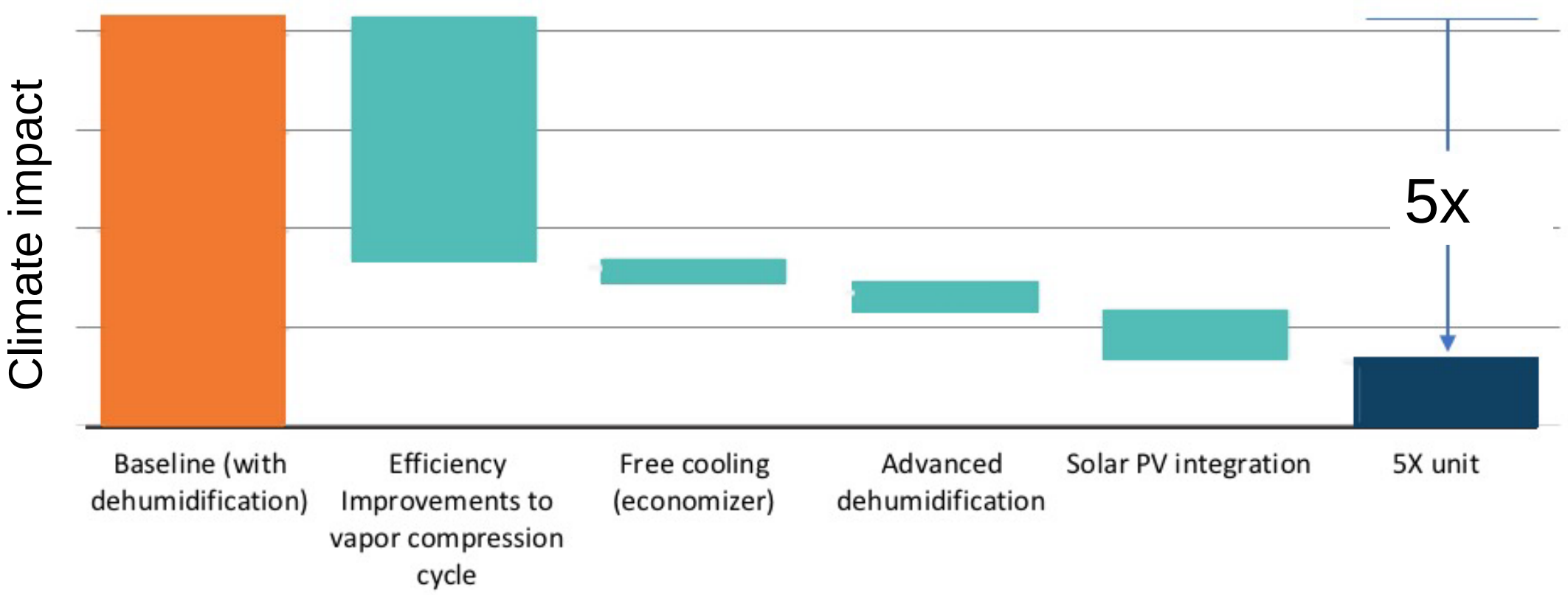
# Key elements in prize design

- Goal
- Structure (reward, timeline, participant pool)
- Metrics and Evaluation
- Incentive

# Lessons from Prize Examples

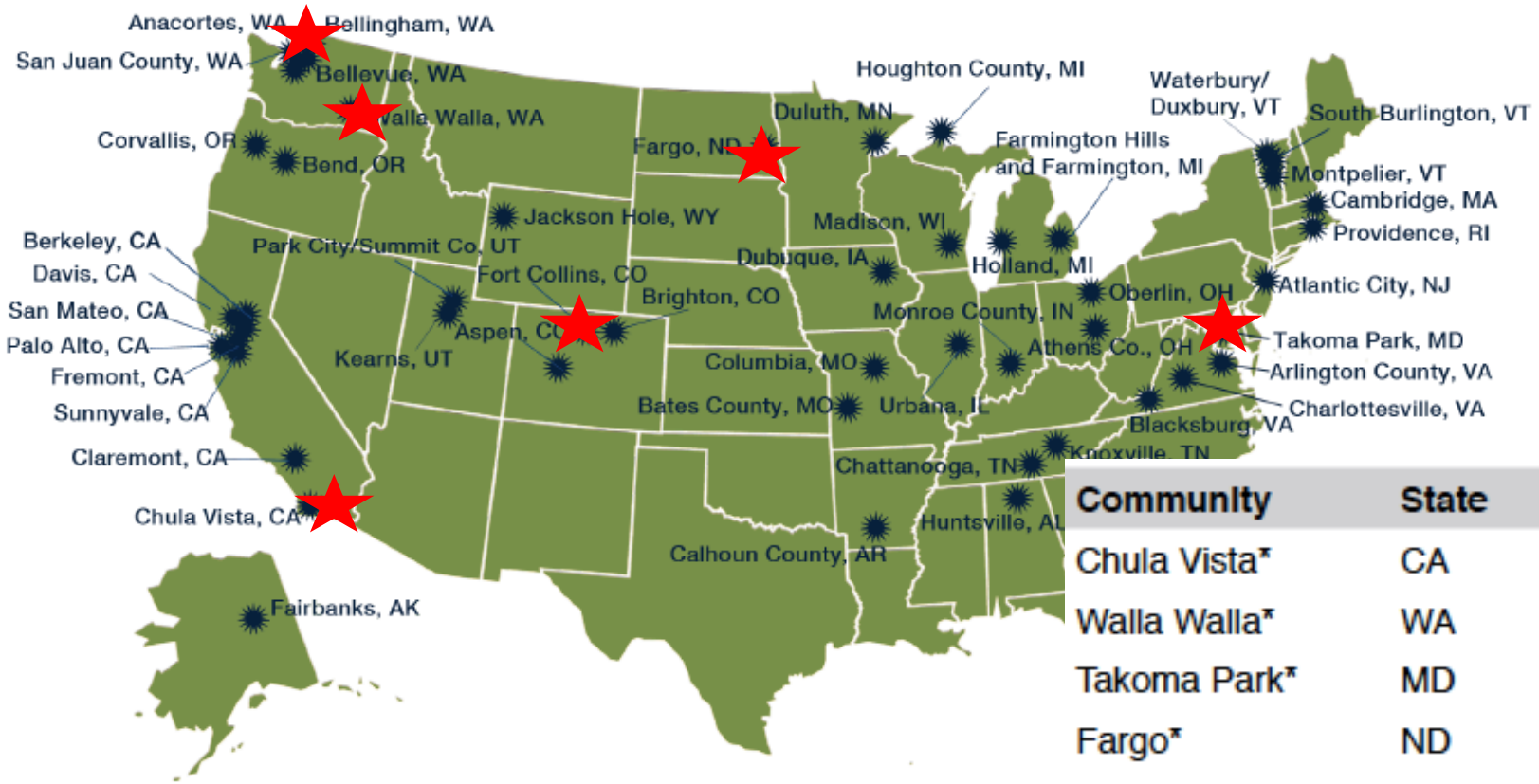

- Ideas, software, and apps (DOE's Sunshot Catalyst prize)
- Technology development (Global Cooling Prize; US EPA Super-Efficient Refrigerator Program)
- Market adoption (Georgetown University Energy Prize)

# Global cooling prize




*Source*: Campbell, Kalanki, and Sachar 2018.

# Georgetown University Energy Prize




| Community | State | Overall Energy Score |
|---|---|---|
| Chula Vista* | CA | -9.545 |
| Walla Walla* | WA | -9.114 |
| Takoma Park* | MD | -7.879 |
| Fargo* | ND | -6.847 |
| Fort Collins* | CO | -6.076 |

Source: Georgetown University, Advancing Energy Efficiency in Small Cities, 2018.

# Next Steps

- Have we identified the barrier/problem?
- Any legal statutes?
- Organizational buy in?
- Tap into extensive prize resources and expertise

Challenge.gov
Government Challenges, Your Solutions

LOOKING FOR MORE INFORMATION?
See GAO-17-14 at GAO.GOV

# Thank you

- Jorge Morales Guerrero and Darshan Karwat (Arizona State University)
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- Josh Courtney (City of Takoma Park),
- Jenn Gustetic (NASA), Jarah Meador (General Services Administration), Lorin Kavanaugh-Ulku (USAID)
- Fellow panelists

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