ARPA-E Information Session: SCALEUP Program

Briefing for Industry and Investors

February 24, 2020

We will begin momentarily

Kindly note this webinar is being recorded and will be publically available following today’s presentation
Notice

The content included in this presentation is intended only to summarize the ARPA-E SCALEUP funding process, as well as the contents of SCALEUP funding opportunity announcement (FOA) DE-FOA-0002166.

The SCALEUP FOA language will control if there are any inconsistencies between this presentation and the FOA. All Applicants and potential Partners are strongly encouraged to carefully read the SCALEUP FOA.
We look forward to hearing from you!

- Please submit your questions during the presentation!
  - Chat your questions in the WebEx chat bar OR
  - Email to arpa-e-comms@hq.doe.gov with “SCALEUP Webinar” in the subject line.
  - Kindly note that to avoid distractions, all phone lines are muted

- Written question responses will be distributed, via
  - Email to Webinar registrants
  - Posted on ARPA-E’s eXCHANGE
  - Posted on the SCALEUP website
    - [https://arpa-e.energy.gov/?q=scaleup](https://arpa-e.energy.gov/?q=scaleup)

- Today’s presentation will be recorded. The presentation will be posted on ARPA-E’s website and ARPA-E eXCHANGE.
Today’s Agenda

Seeding Critical Advances for Leading Energy technologies with Untapped Potential (SCALEUP)

- FYI – Today’s talk is tailored for industry and investors!
  - Team Introduction
  - Why SCALEUP?
  - SCALEUP FOA Process
  - Program Overview
  - Partnering 101
  - Helpful Resources
That’s me!

Mary Yamada
T2M Advisor

James Zahler
Associate Director for T2M

Pat McGrath
Deputy Director for Technology

Madhav Acharya
T2M Advisor


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ARPA-E’s SCALEUP Workshop

Wednesday, May 20

SLAC National Laboratory
Menlo Park, CA

If you are interested in partnering you should attend!
Why SCALEUP?
SCALEUP Motivation

ARPA-E Primary R&D

Cost / Performance

Scale

Existing Technology

Potential Disruptive Technology

Inadequate team

Insufficient value

Poor implementation


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SCALEUP Motivation

"SCALING GAP"

Potential Disruptive Technology

Existing Technology

COST / PERFORMANCE vs. SCALE
SCALEUP Motivation

ARPA-E’s SCALEUP Program

Existing Technology

Inadequate systems integration

Potential Disruptive Technology

Cost / Performance

Scale


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SCALEUP Motivation


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SCALEUP Program Highlights

SEEDING CRITICAL ADVANCES FOR LEADING ENERGY TECHNOLOGIES WITH UNTAPPED POTENTIAL

1st scaling and pre-pilot focused program from ARPA-E

$50M available for 5 to 8 selected teams
   – Awards between $1M and $10M (federal share)
   – Small Business Grant

50% cost share (non-federal share/total project costs)

Small Business focused
   – Reduced cost share of 30% options
   – $150k grant available
SCALEUP FOA Process

Please remember to submit your questions!

Use the WebEx chat bar OR

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SCALEUP FOA Phases and Project Selections

We are here. Semi-Finalist notifications by April 20, 2020
SCALEUP FOA Phases and Project Selections

We are here. Semi-Finalist notifications by April 20, 2020

Please join us at the May 20, 2020 Workshop


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SCALEUP FOA Phases and Project Selections

Phase 1: Preliminary Applicant
- Preliminary Application Submission

Phase 2: Semi-Finalist
- Workshop (OPTIONAL)
- Full Application Submission

Phase 3: Finalist
- Oral Presentation
- Award Negotiations

Down Select

We are here.
Semi-Finalist notifications by April 20, 2020

Please join us at the May 20, 2020 Workshop

Full Application submission due date:
July 20, 2020


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Program Overview

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SCALEUP FOA Applicants

Small business, company, and industry participation is at the core of the SCALEUP program.

SCALEUP is designed to encourage company and industry participation.

In addition, applicants to the SCALEUP FOA:

Must own/control subject invention(s) or software arising from ARPA-E award(s)

Must partner with potential customers, end-users, suppliers, etc.
As we enter Phase 2 of the SCALEUP FOA process, you can partner with Semi-Finalists!

<table>
<thead>
<tr>
<th>SCALEUP Project Role</th>
<th>Example Entity/Organization Types</th>
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</table>
| **Prime Applicant**  | • Start-up or Small Business  
                         • Large/Medium Sized Business  
                         • Consortia or Non-profit |
| **Sub-Applicant**    | • National Laboratory  
                         • University  
                         • Research Institute |
| **Partner**          | • Venture Capital  
                         • Corporate Investor  
                         • OEM/Suppliers |
Types of SCALEUP Projects

Pre-commercial scaling projects that focus on:

› Technology Integration
› Building Capacity
› Validating Performance
› Manufacturability
› Reliability

Success in these ARPA-E SCALEUP projects will enable…

Substantial investments from the private sector to continue the development to early commercial products.
Possible SCALEUP Technologies

**TRANSPORTATION**
- PHEVs
- Storage
- Engine Efficiency
- Connective & Autonomous

**GENERATION**
- Geothermal
- CHP
- Resource Detection
- DER

**GRID**
- Transmission Infrastructure
- Sensors & Controls
- AI
- Non-Battery Storage
- Fuel Cells

**STORAGE**
- Earth-Abundant Materials
- Management & Protection
- Earth-Abundant Materials
- High Power Switching

**FUELS**
- Advanced & Alternative Fuels
- Crop Monitoring
- Envelope Materials
- Thermal Systems

**BUILDINGS**
- Sensors & Controls
- Appliance Efficiency
- Building Materials
- Efficient Computing

**INDUSTRIAL**
- Advanced Manufacturing
- Waste Recovery
- Resource Efficiency

**ELECTRICAL**
- Wide-Band Gap Devices
- Transistors
- Efficient Computing
- Envelope Materials

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ARPA-E’s SCALEUP Criteria

We use quantitative and qualitative criteria to evaluate SCALEUP applications.

The three, *equally weighted*, criteria areas include:

<table>
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<tr>
<th>SCALEUP Criteria</th>
<th>Weight (%)</th>
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<tbody>
<tr>
<td>Project Feasibility &amp; Technical Merit</td>
<td>33.33%</td>
</tr>
<tr>
<td>Commercial Viability, Strategy, &amp; Impact</td>
<td>33.33%</td>
</tr>
<tr>
<td>Team Qualifications, Experience, &amp; Capabilities</td>
<td>33.33%</td>
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We’ve emphasized and elevated the importance of market potential and team composition.

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Partnering 101

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SCALEUP Partners

The SCALEUP FOA includes both required and optional partnering with investors and industry.

**Commercialization Partners (REQUIRED)**
- Customers
- End-Users
- Suppliers
- Manufacturers
- Distributors
- Corporate Investors

**Financial Partners (OPTIONAL)**
- Venture Capitalists
- Accelerators
- Incubators
- Angel Investors
- Impact Investors
- Corporate Investors
## SCALEUP Partner Responsibilities

Partners take on investment risk with the goal that the technology is successfully proven and commercialized.

<table>
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<tr>
<th><strong>Commercialization Partners (REQUIRED)</strong></th>
<th><strong>Financial Partners (OPTIONAL)</strong></th>
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<tbody>
<tr>
<td><strong>NOW</strong></td>
<td></td>
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<tr>
<td>• Provide a <strong>Letter of Intent</strong> to your partnering Semi-Finalist team.</td>
<td></td>
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<tr>
<td><strong>LATER</strong></td>
<td></td>
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<tr>
<td>• Provide <strong>cost share</strong>, via:</td>
<td></td>
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<tr>
<td>— Cash contribution</td>
<td></td>
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<tr>
<td>— Providing in-kind (e.g., a demonstration site, IP, etc.)</td>
<td></td>
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<tr>
<td>• <strong>Actively participate</strong> in the project.</td>
<td>• <strong>Does not</strong> actively participate.</td>
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Upcoming Milestones

ARPA-E is offering several opportunities for potential partners to engage with SCALEUP Semi-Finalists.

- **Feb 14**: Preliminary Application Deadline
- **Late April**: Semi-Finalists Announced
  - Email news alerts
  - Email to Webinar registrants
  - ARPA-E Newsletter
- **Early May**: Semi-Finalists Profiles Go Public!
  - To include company name, bio, contact info.
  - Posted on ARPA-E’s SCALEUP Webpage
- **May 20**: SCALEUP Workshop
SCALEUP Workshop

- Logistics
  - Stanford Linear Accelerator Center (SLAC) in Menlo Park, CA
  - May 20, 2020 (All Day Event)
  - Attendees will include Semi-Finalists and invited stakeholders

- Agenda Overview
  - Semi-Finalist Pitches
  - Dedicated time for networking
  - Breakout rooms available throughout the day for one-on-one confidential meetings

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The SCALEUP Program is designed to:

- Encourage **small business** participation,
- Enable **further technology de-risking** of pre-production prototypes,
- Emphasize the importance of **market potential** and **team composition**, and
- Offer **contractual flexibility** to match the risk tolerance of investors and industry.

**SCALEUP Semi-Finalists will represent top ARPA-E technologies and teams.**
Helpful Resources

› To learn more about ARPA-E’s SCALEUP program visit:
  – https://arpa-e.energy.gov/?q=scaleup

› For information regarding the SCALEUP Workshop:
  – Email arpa-e-comms@hq.doe.gov with “SCALEUP Workshop” in the subject line
  – Please visit the SCALEUP Workshop webpage
    • https://arpa-e.energy.gov/scaleup-workshop

› Other resources include the:
  – The SCALEUP FOA
  – The SCALEUP FOA General FAQs Section
Let’s Move into the Q&A!