



CHANGING WHAT'S POSSIBLE

# **OPEN 2018 Full Application**

## **Best Practices**

# What Makes an ARPA-E Project?



## Transformational Technology

- ▶ Challenges what is possible by surpassing other technologies under development
- ▶ Disrupts existing learning curves
- ▶ Leaps beyond today's technologies towards a distinctively innovative approach



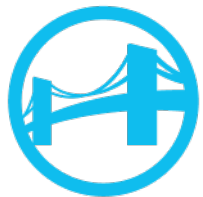
## High Risk

- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere and catalyzes new interest and investment
- ▶ Active engagement through rigorous project management and technical milestones



## High Reward

- ▶ Have a significant impact in reducing imports, improving efficiency, or reducing emissions
- ▶ Quantified by primary energy saved or emissions avoided



## Pathway to Impact

- ▶ Commitment from team to push technology toward real deployment
- ▶ Credible path to market
- ▶ Large commercial application

# General Tips for Writing a Full App

**1**

Your proposal should be cohesive and consistent rather than pieces of information that form an incomplete story

**2**

Clearly justify your claims and when possible cite relevant work to support it

**3**

Don't use long prose when a graph or table will do

**4**

Once completed, read the proposal yourself. If you are not happy with it, chances are the reviewer may find deficiencies as well

# Describe Your Technology

## Problem statement

- Clearly describe the problem to be solved, its scale, technical metrics, and timeline.

## Proposed technology

- **Describe** the proposed technical solution **in sufficient detail for us to properly assess it**
- Clearly lay out how the proposed technology will meet the technical performance targets.

## State of the art

- Describe clearly how the proposed technology represents a **unique and innovative solution** compared to state of the art (SoA) and competing technologies, including what may not yet be available in the literature or other public sources.
- **Quantify the advantages/improvements of your technology over SoA** and competing technologies as much as possible.

## Impact

- Describe **specific impact** of the proposed technology **on energy landscape** (in units of energy generated, saved, etc.), economics and society if implemented on commercial scale **quantitatively**. You may use the Super Sankey Diagram developed by Otherlab: <http://departmentof.energy/>

# Describe Your Proposed Workplan

## ▶ Approach

- Describe the technical approach and how this approach will achieve the project objective(s)

## ▶ Preliminary data

- Describe the background, theory, simulation, modeling, experimental data that support the proposed approach and achieving the project objective(s)
- Provide specific examples of supporting data and citations to scientific and technical literature
- **Compare preliminary data to SoA**

## ▶ Work plan

- Identify major tasks, their objectives and a final deliverable
- Use "**SMART**" objectives (specific, measurable, attainable, relevant and time bound)

## ▶ Technical Risk

- Identify potential technical issues and risk and propose a risk mitigation plan

## ▶ Schedule

- Provide a schedule for the proposed effort by major tasks, including major milestones and Go/No-Go decision points as appropriate. (**A Gantt chart is highly recommended.**)

## ▶ Task Descriptions

- Identify and provide a description for each main task in the proposed effort
- Describe the key technical milestones and how these define the critical path for success

# Define a Reasonable Path to Market

## Techno-Economic Analysis

- Provide a **preliminary cost model** for the proposed technology and **compare economic benefits with competing technologies**
- Identify major cost factors and explain how the proposed work will reduce cost and uncertainties

## Technology-to-Market Strategy

- Describe how the proposed technology is expected to transition from the lab to commercial deployment, including:
  - a description of the eventual product, potential near- and long-term market entries
  - a likely commercialization approach (startup, licensing, etc.)
- Discuss potential manufacturing, supply chain, cost, and scalability risks
- Discuss anticipated roles for proposed research team in commercialization

## Intellectual Property

- Describe existing intellectual property, if any, that will be used to develop the new intellectual property
- Discuss new intellectual property and data that is anticipated to be created as part of this effort, if any

# FAQs

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- ▶ Visit <https://arpa-e.energy.gov/?q=faq> and click “Current Funding Opportunities”
- ▶ **A common FAQ:**
  - **Q:** Can team member composition be modified?
  - **A:** *Team member composition and amount of funds may be modified to account for new developments since submission of the concept paper.*
- ▶ If you have a question not answered by the FAQs, please email the ARPA-E Contracting Officer: [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov)

# A summary to wrap up.....

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U.S. DEPARTMENT OF  
**ENERGY**

<https://arpa-e.energy.gov>

Questions? [ARPA-E-CO@hq.doe.gov](mailto:ARPA-E-CO@hq.doe.gov)

**Please refer to eXCHANGE for information on deadlines**