

# Technology to Market Overview

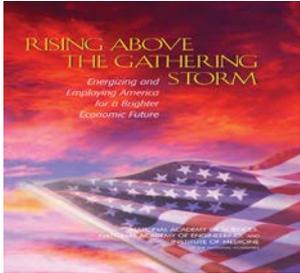
Jason Wible, Tech-to-Market Advisor  
Advanced Research Projects Agency - Energy

CEC Staff Workshop  
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# ARPA-E's History

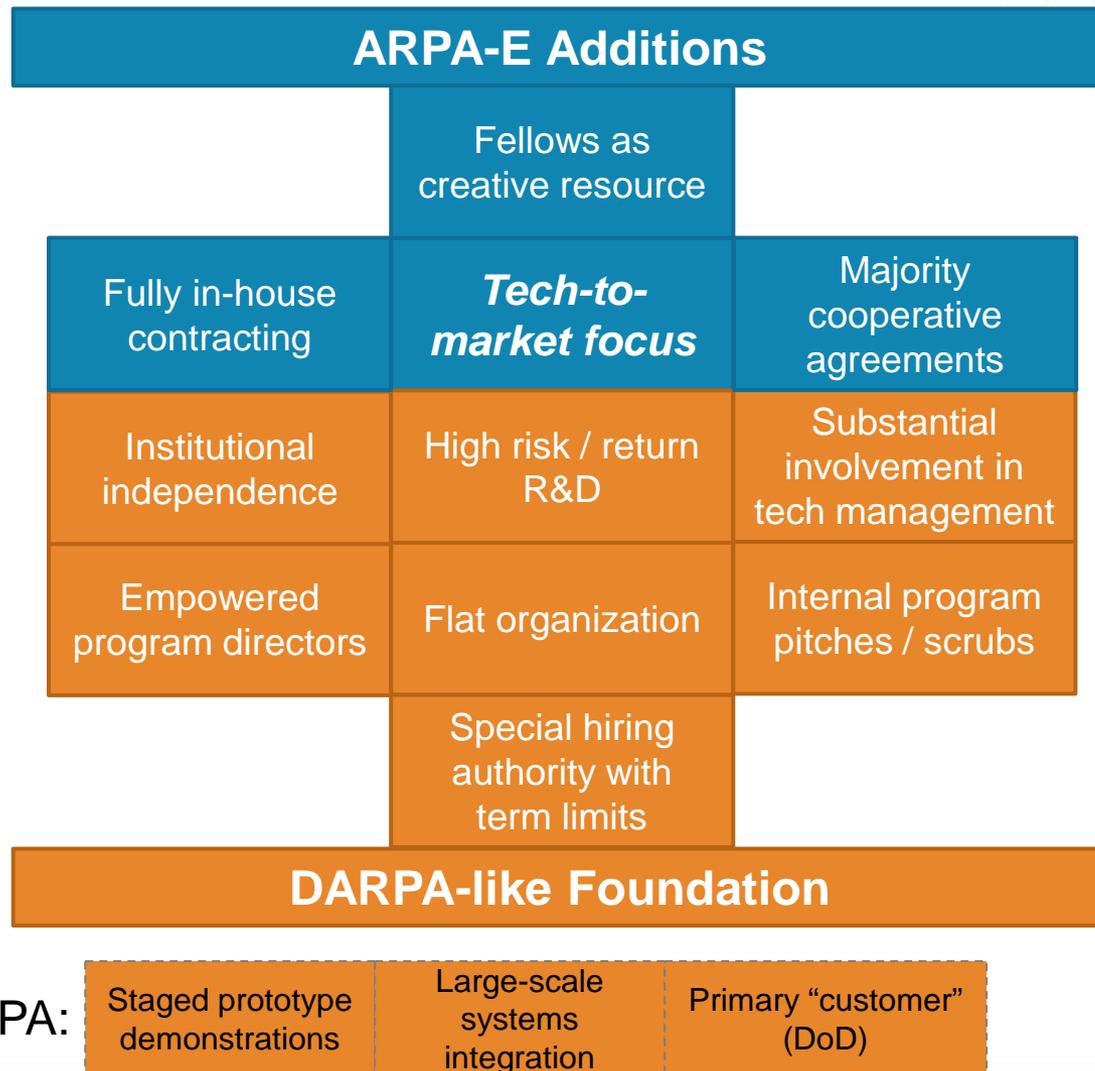
In 2007, The National Academies recommended Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy\*



...“The new agency proposed herein [ARPA-E] is patterned after that model [of DARPA] and would sponsor creative, out-of-the-box, transformational, generic energy research in those areas where industry by itself cannot or will not undertake such sponsorship, where risks and potential payoffs are high, and where success could provide dramatic benefits for the nation.”...



# Built on DARPA foundation, and still evolving...



# § 16538: ARPA-E's Statute – T2M Mandates

## Mission

- “translating scientific discoveries and cutting-edge inventions into technological innovations”

## Responsibilities

- “identifying mechanisms for commercial application of successful energy technology development projects”

## Awards

- “at least 5 percent of the amount shall be used for technology transfer and outreach activities”

What does it do?

What problem does it solve?

Who will buy this?

What is the adoption process and what are the barriers?

If it works...

*will it matter?*

How long will it take to develop?

Why is it possible now but wasn't before?

What are the risks and payoffs?

How much will it cost to develop? To produce?

# Market Engagement: *Understanding The Market*

## Getting past the Standard Interaction

Hey check out my super-expensive, unreliable gadget that we cooked up in lab and have no idea what to do with!

What they hear:

**Hey - check out my new energy technology that can solve all your problems!**

**Lab Researcher**

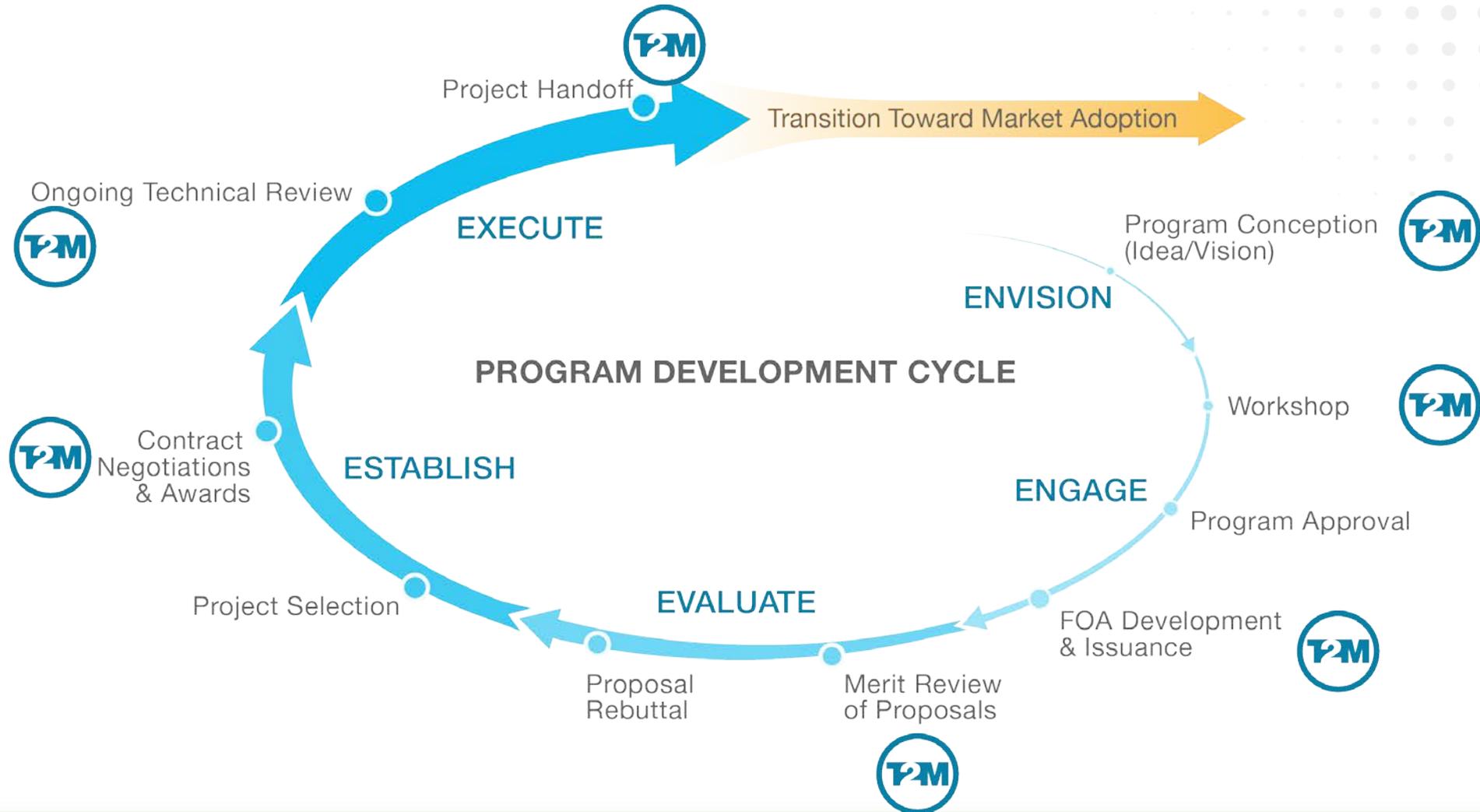
I'm trying to be polite. Actually, you haven't told me enough to have any clue of how interesting this is for me. I need to know: 1) Does it work? 2) What specific problem does it solve? And 3) How much does it cost?

What they really mean:

**Interesting!**

**Strategic Partner / Investor**

# At what points does T2M engage?



# Tech to Market Approach

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- ▶ **Manage:** the Commercialization progress of project technologies
  - Manage project teams' T2M efforts through T2M Plans and jointly developed milestones
- ▶ **Advise:** support project teams with skills and knowledge to align technology with market needs
  - IP and competitor management
  - Value Chain and Market analysis
  - Product hypothesis
  - Economic analysis
  - Partner discovery and engagement
- ▶ **Finance:** engage third party financiers to support continuity of technology development towards the market

# Market Knowledge Throughout Program Lifecycle

## Technology to Market Analytical Lenses

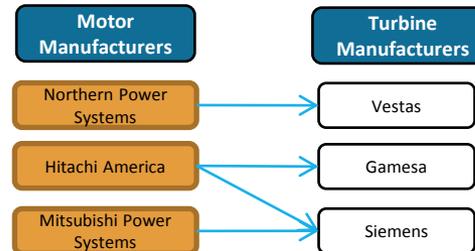
## Project Lifecycle

### Value Chain Analysis



Describes the **sequence of activities** current used to serve the market; useful for identifying entry points

### Partnerships Analysis



Defines **number and strength** (JV, supply agreement) of relationships between parties

### Competitive Analysis



Illuminates the **competitive pressures** that exist in the market

### Market Requirements

#### Defines:

- Minimal performance requirements for adoption,
- Performance requirements to unseat the incumbent
- Necessary product channels
- Intermediate Markets

FOA dev.

Project Execution

Next Stage

# IP and Competitor Analysis

Evaluation of the IP landscape  
in and around your technology?



What IP do you own?



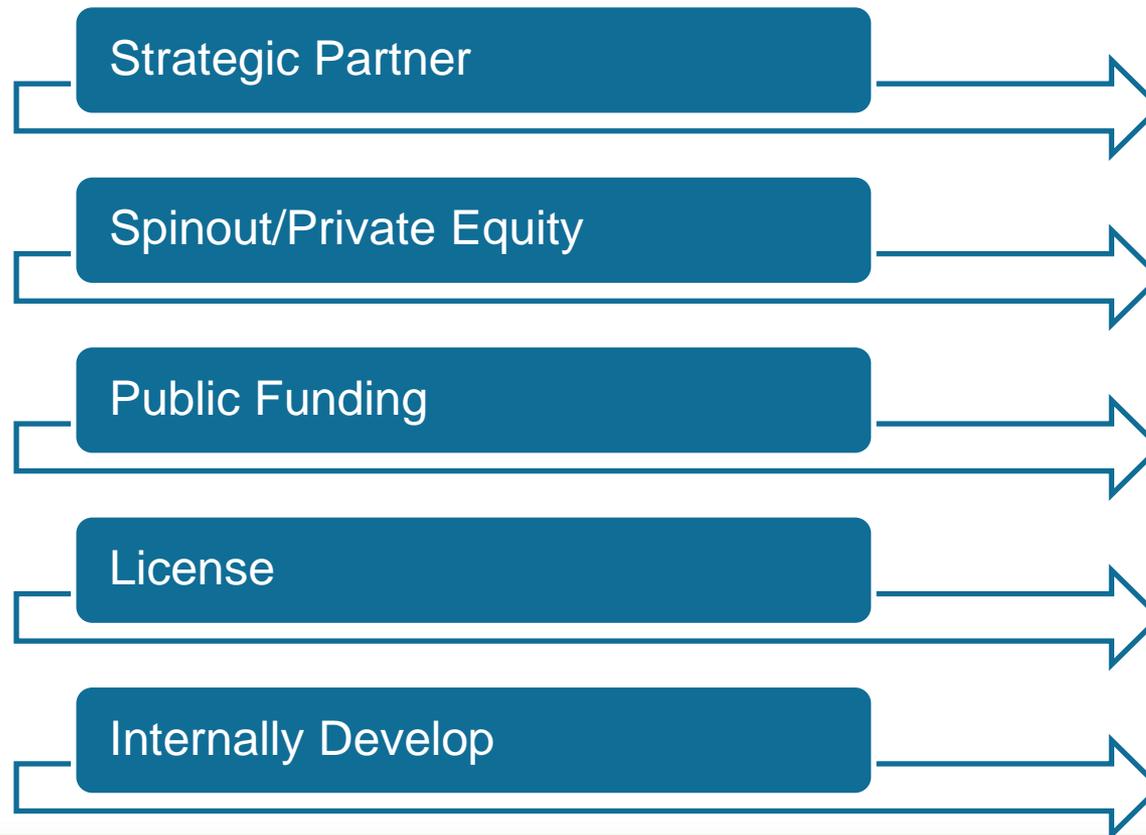
What IP do you expect to create?



What limits could your competition  
create?

# Finance Models

- ▶ Determine how to pay for further development of the technology
  - One size does not fit all
  - Help each project find its best path forward



# Thanks!

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# Programs

**OPEN** programs support the development of potentially disruptive new technologies across the full spectrum of energy applications.

- Complement focused programs
- Support innovative “one off” projects
- Provide a “snapshot” of energy R&D

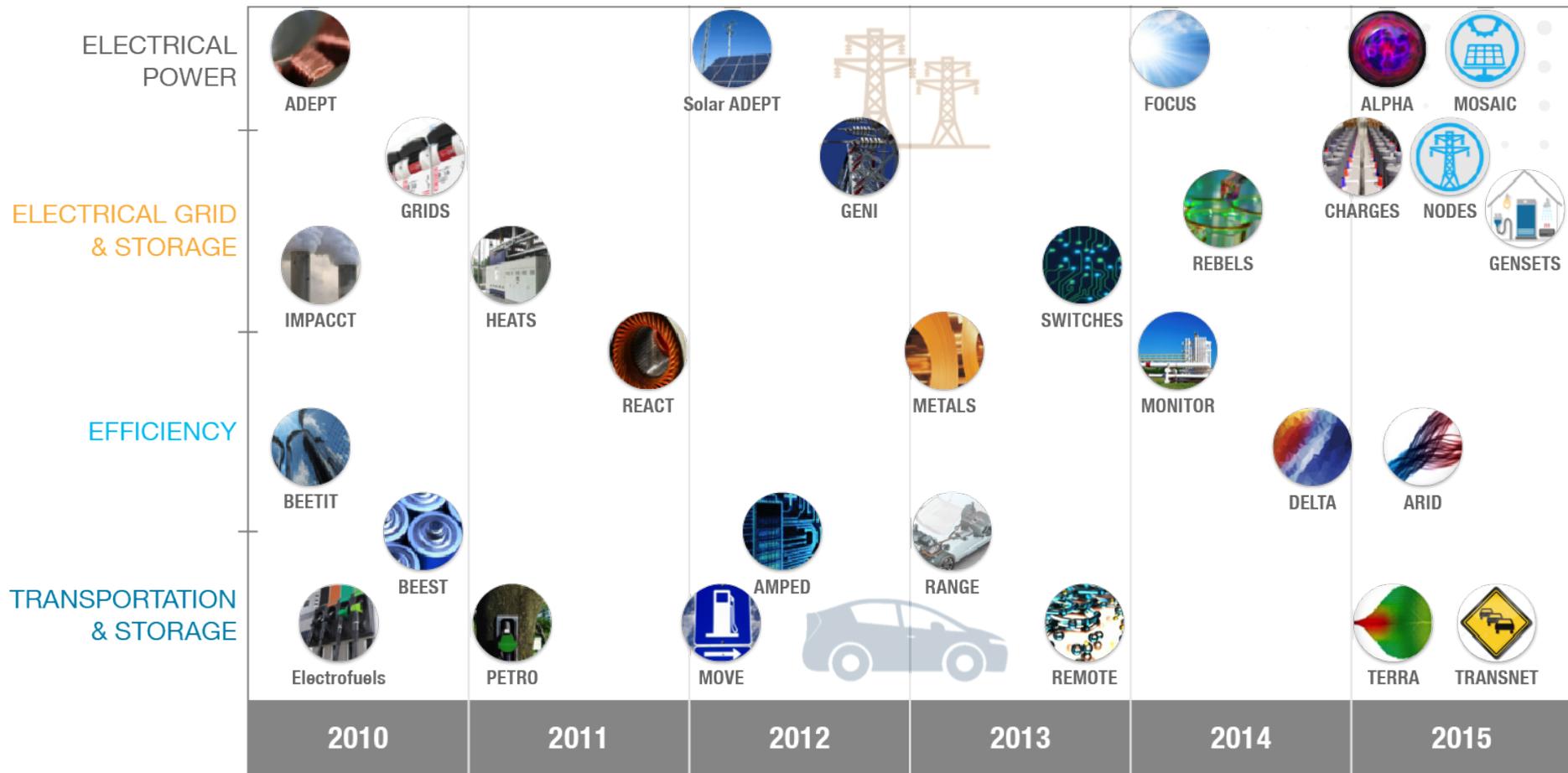


**FOCUS** programs prioritize R&D topics by their potential to make a significant difference in ARPA-E’s mission space.

- Size of the potential impact
- Technical opportunities for transformation
- Portfolio of projects with different approaches

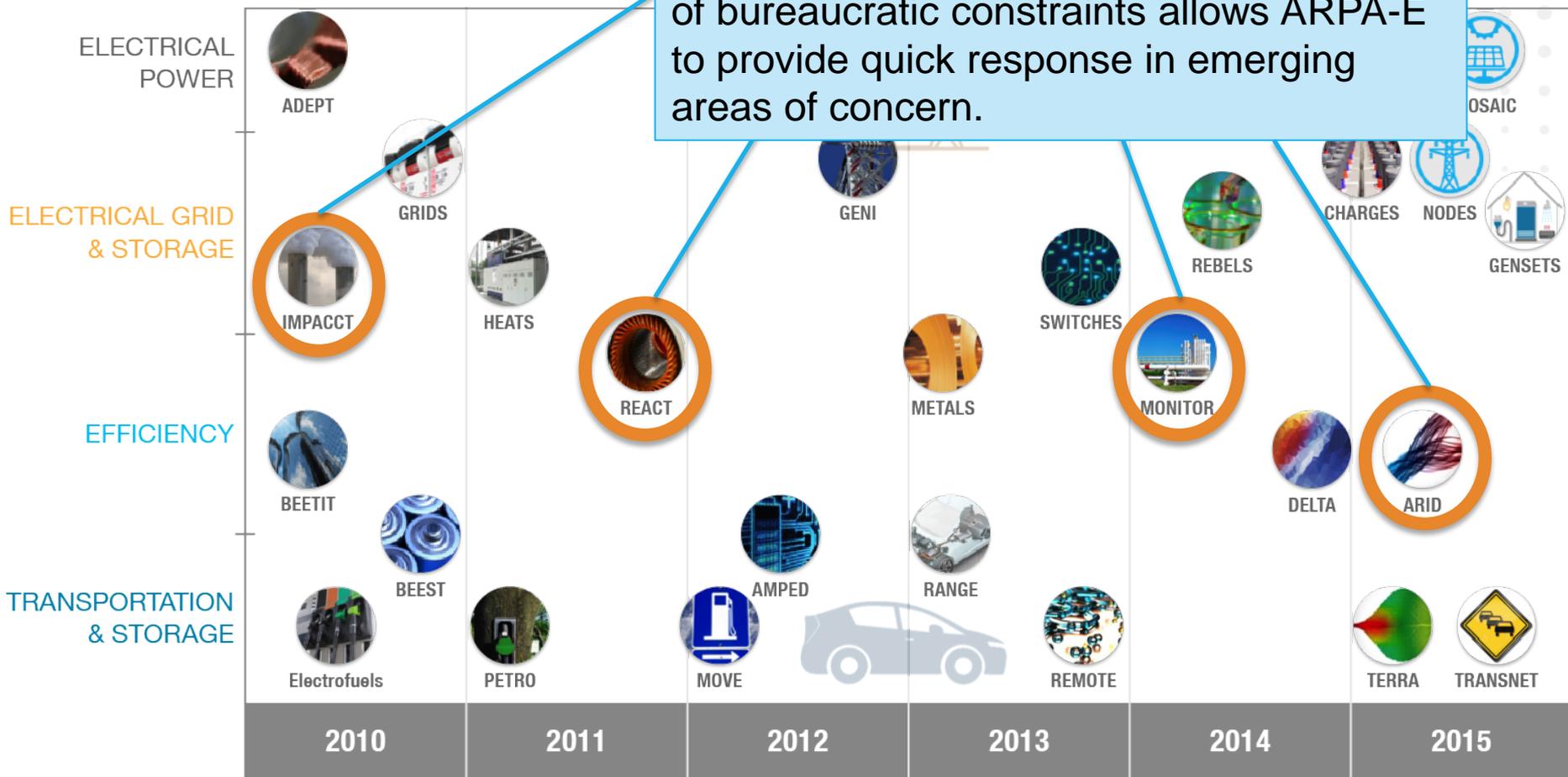


# Focused Program Portfolio\*

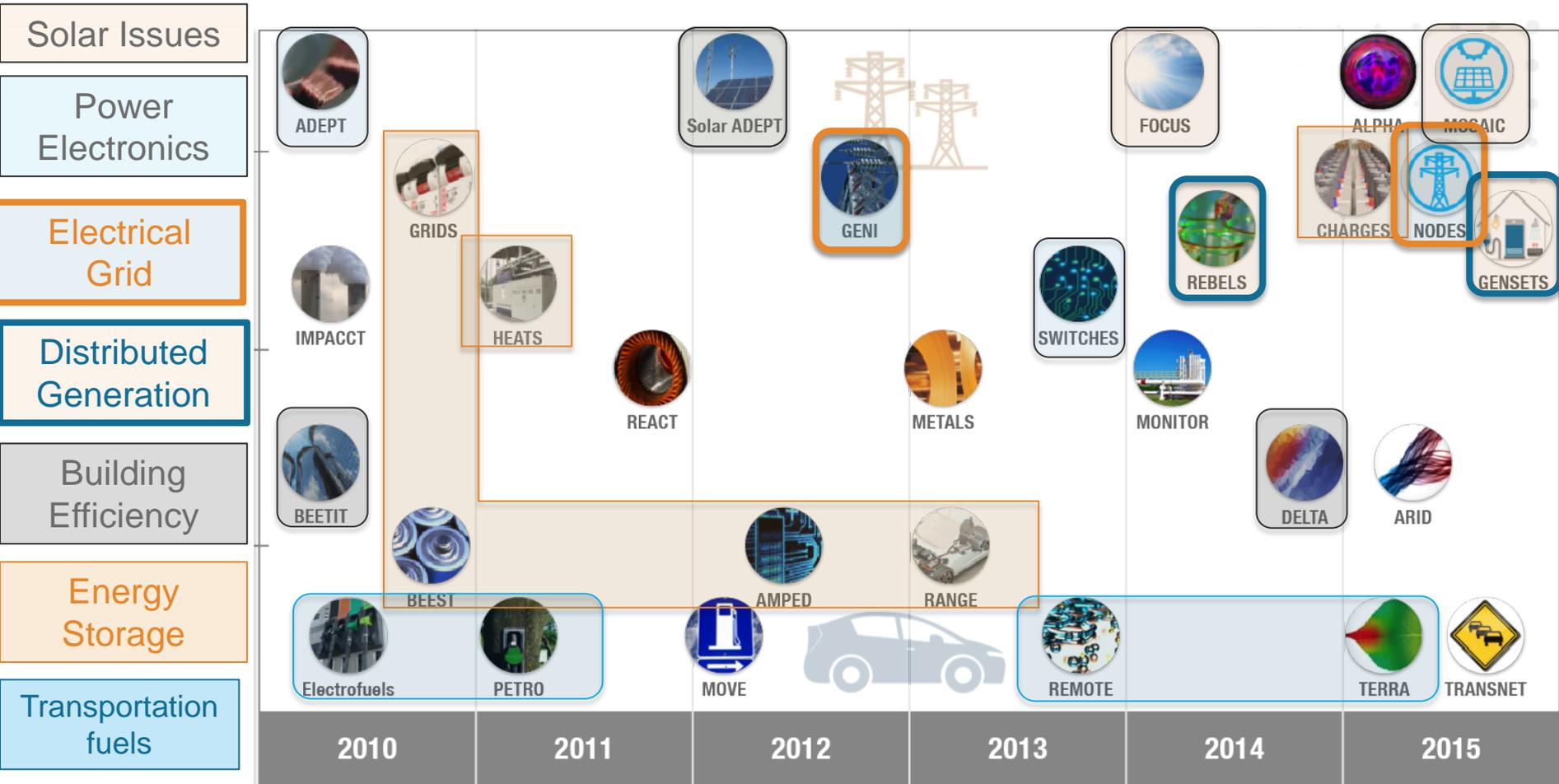


# Focused Program Portfolio\*

The authority to identify and address new technological opportunities with a minimum of bureaucratic constraints allows ARPA-E to provide quick response in emerging areas of concern.

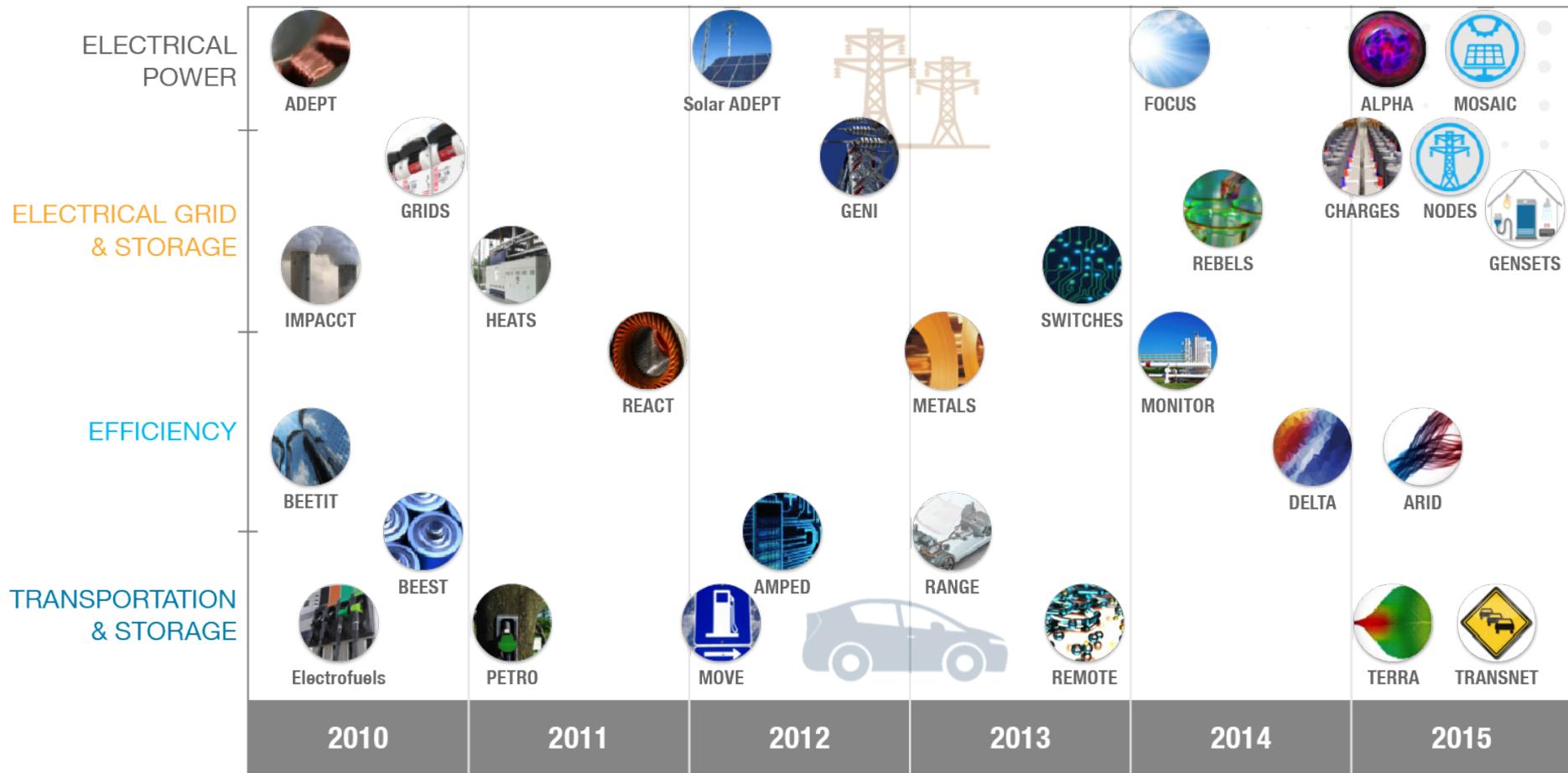


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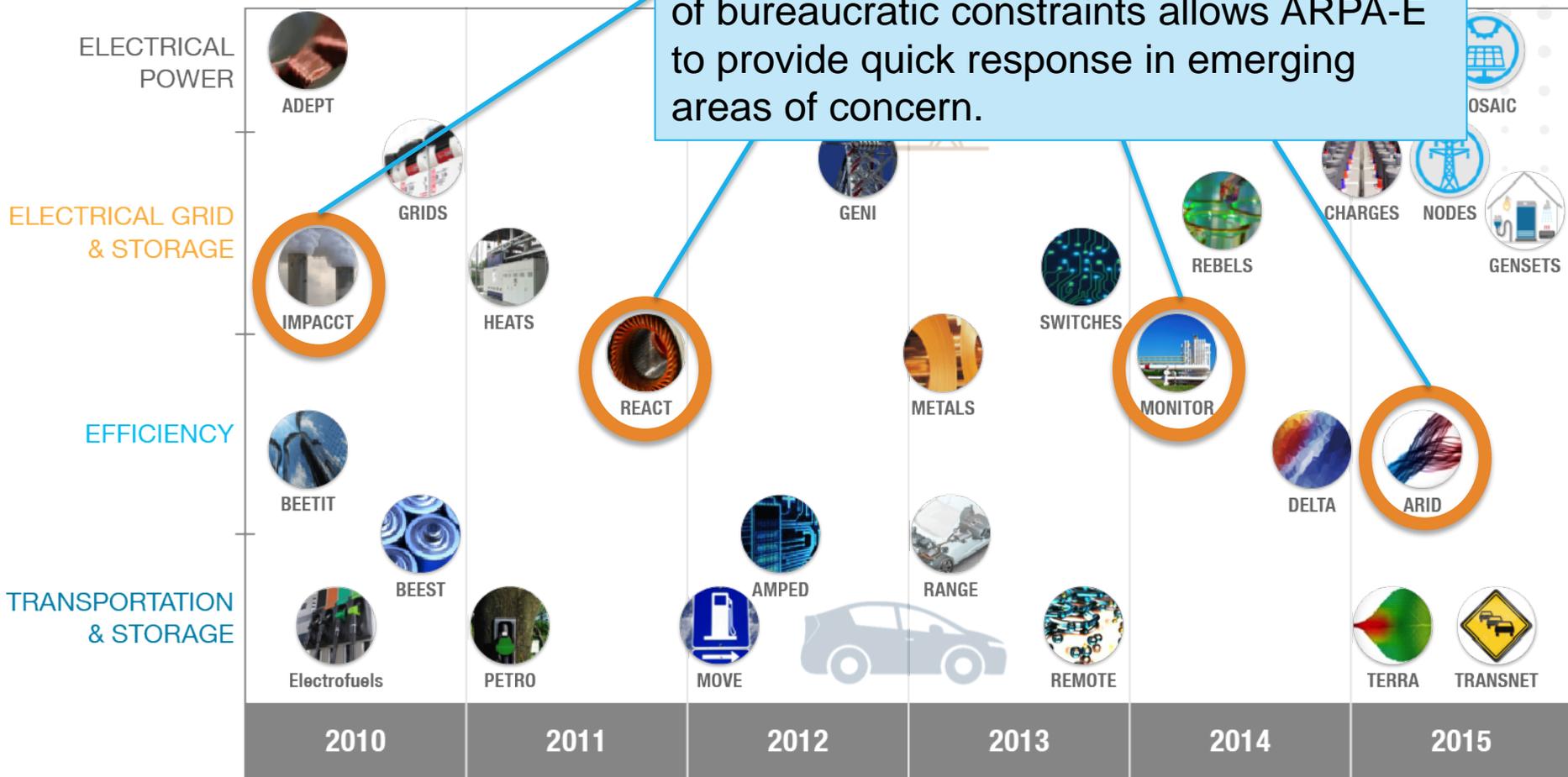
ARPA-E's dynamic portfolio process supports evolving unconventional approaches to energy challenges.

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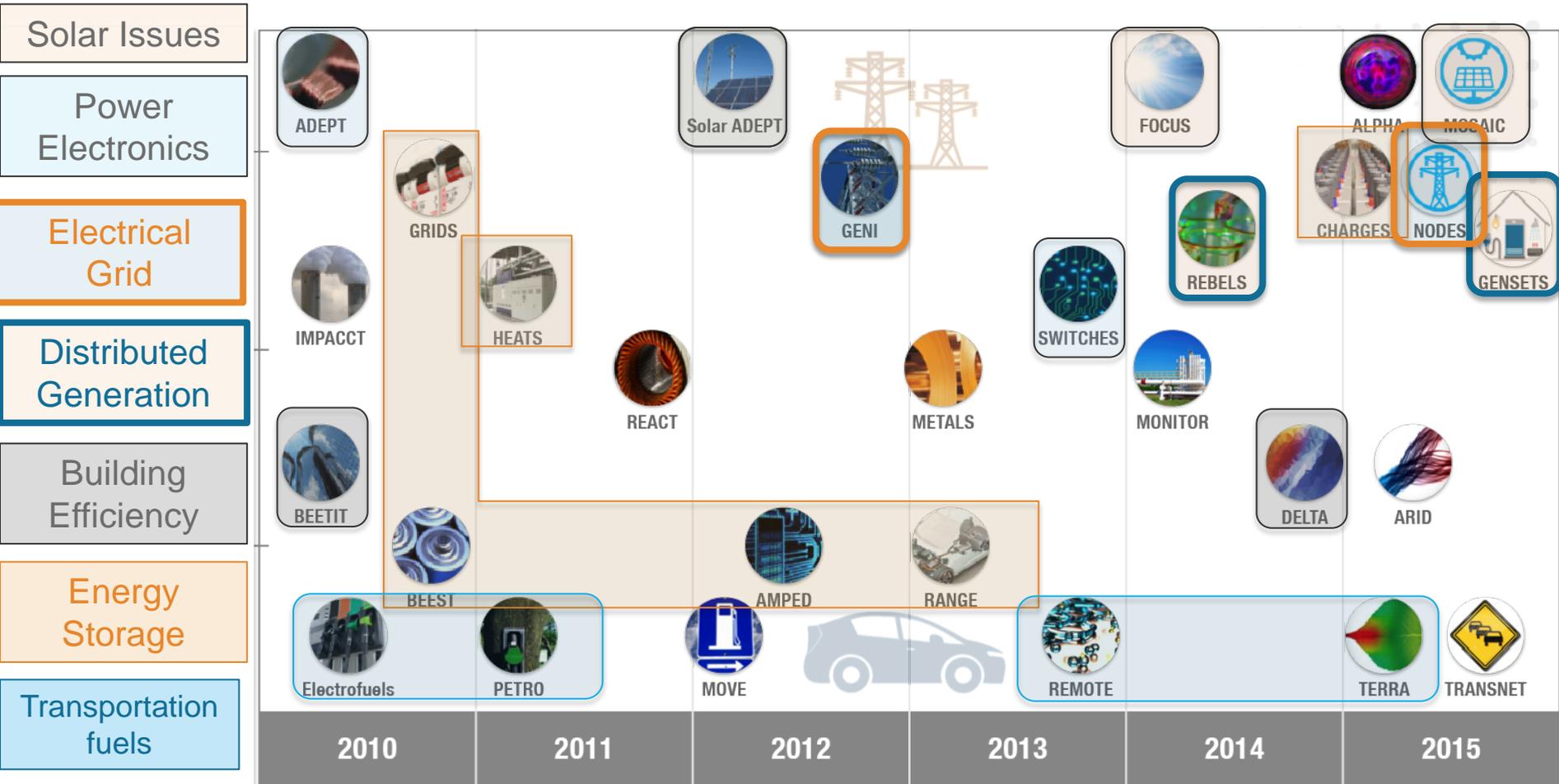


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