


ARPA-E: Changing What's Possible

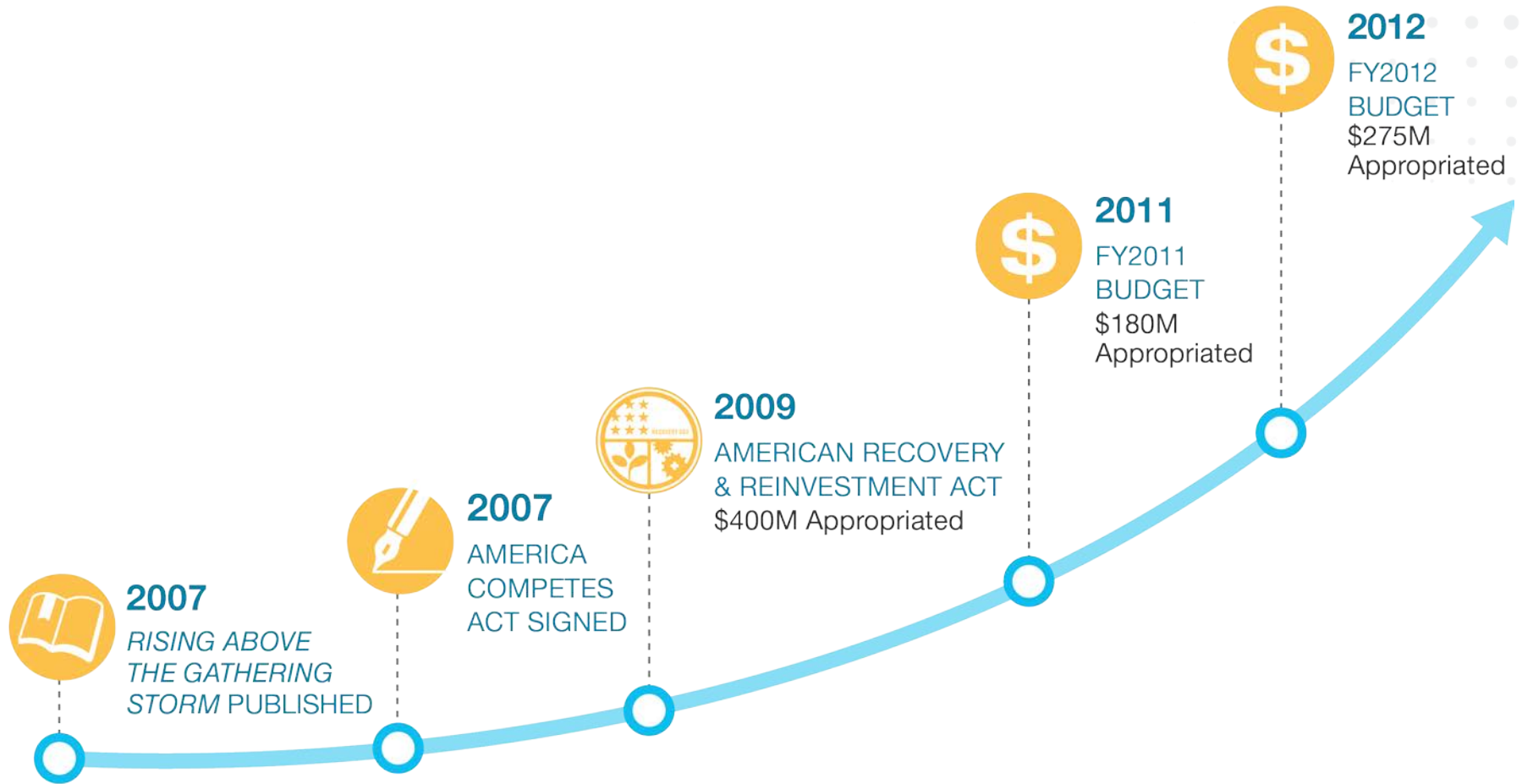
2013 ASEE Engineering Research Council (ERC) Annual Conference

Peder Maarbjerg

March 4, 2013

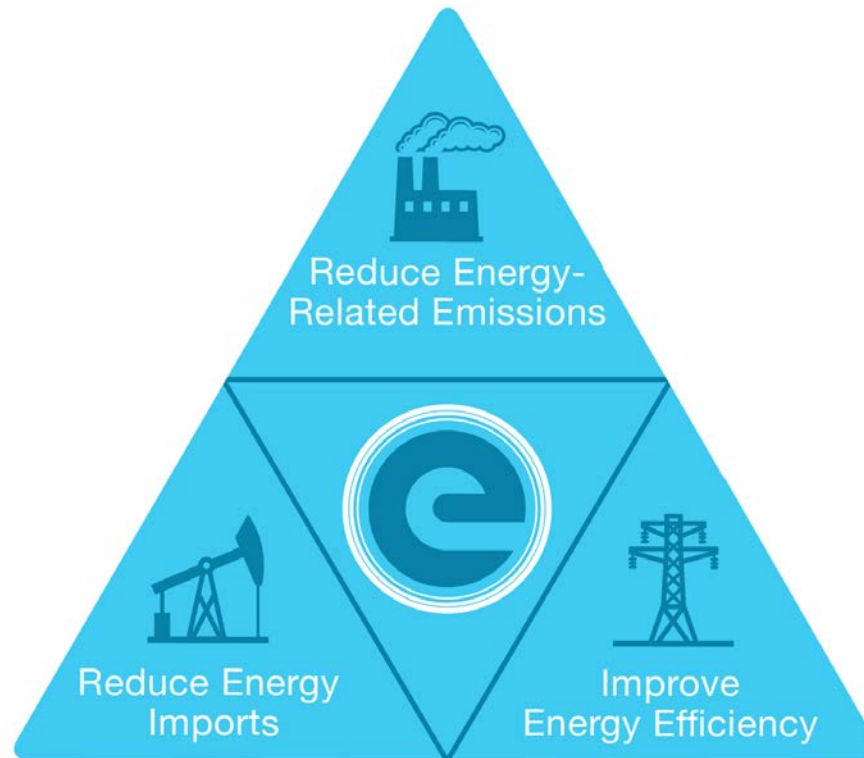


Evolution of ARPA-E



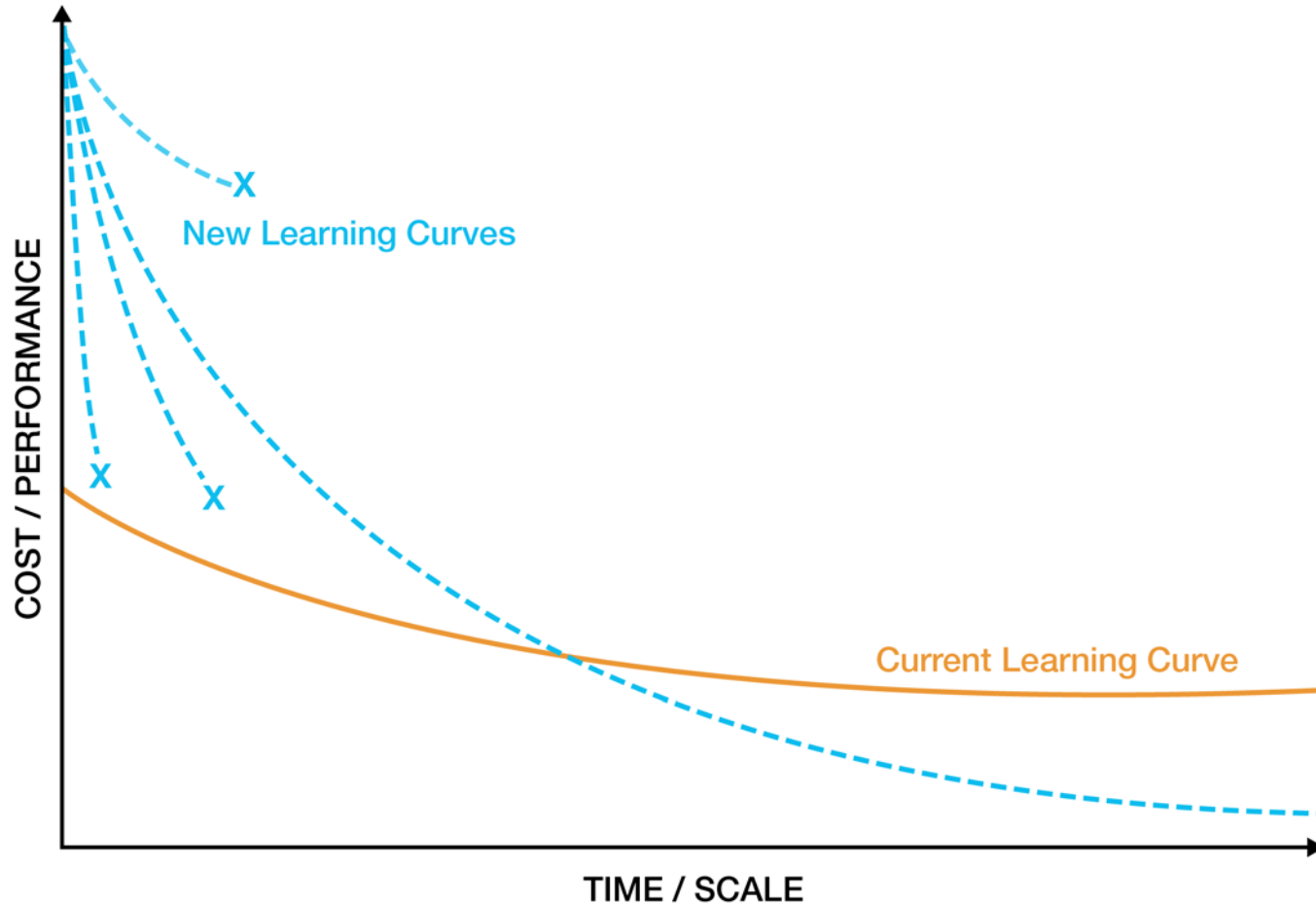
ARPA-E Mission

Catalyze the development of transformational,
high-impact energy technologies



Ensure the U.S. maintains a lead in the development
and deployment of advanced technologies

Creating New Learning Curves



What Makes an ARPA-E Project?



IMPACT

- ▶ High impact on ARPA-E mission areas
- ▶ Credible path to market
- ▶ Large commercial application



TRANSFORM

- ▶ Challenges what is possible
- ▶ Disrupts existing learning curves
- ▶ Leaps beyond today's technologies



BRIDGE

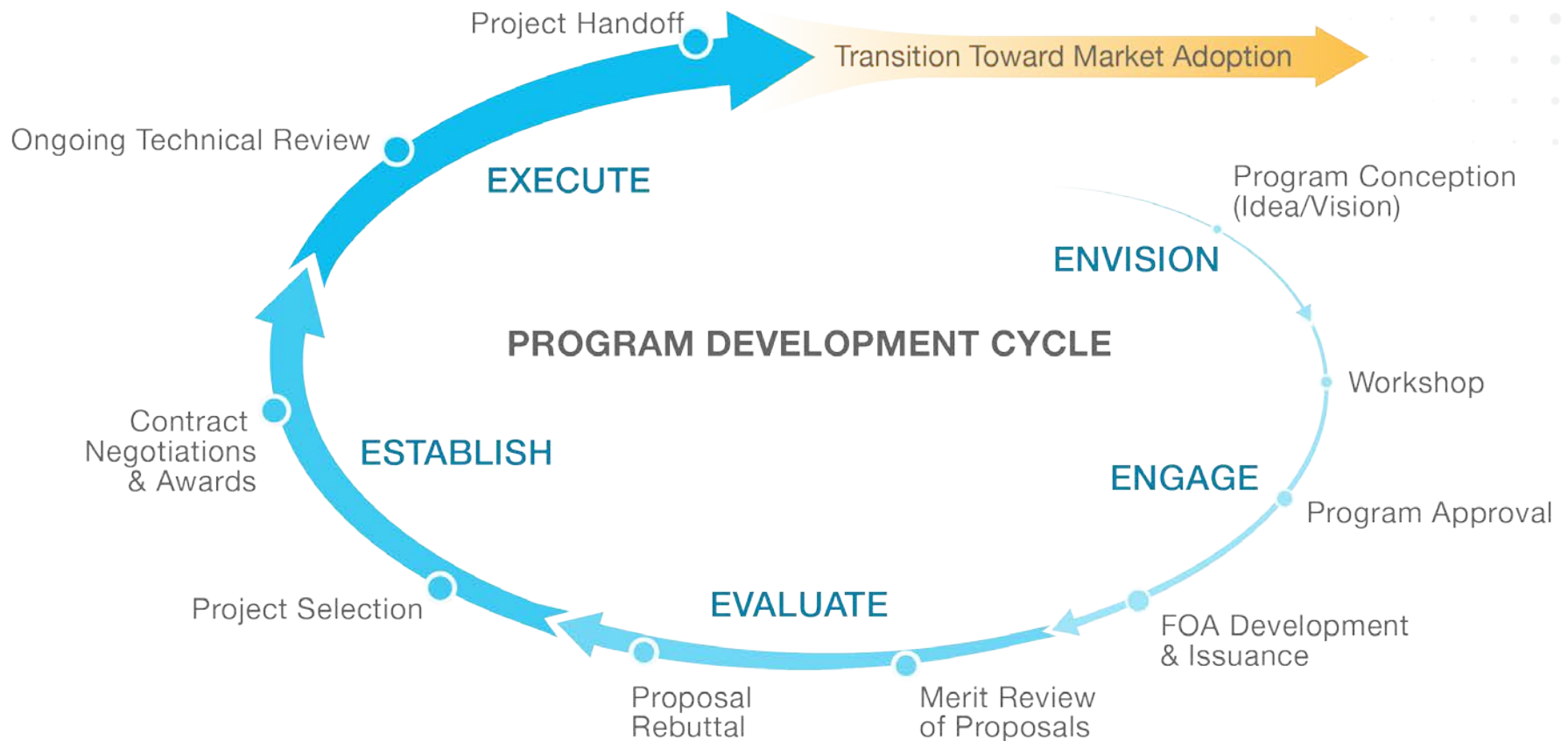
- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere
- ▶ Catalyzes new interest and investment



TEAM

- ▶ Comprised of best-in-class people
- ▶ Cross-disciplinary skill sets
- ▶ Translation oriented

Technology Acceleration Model



Measuring ARPA-E's Success



MOVING TECHNOLOGY TOWARD MARKET

- ▶ Partnerships with Other Government Agencies
- ▶ Licensing/Acquisition by an Established Firm
- ▶ Licensing/Acquisition Resulting in a Spinoff
- ▶ Private-Sector Funding
- ▶ Growth of Existing Company (e.g., Organic Growth)



BREAKTHROUGH ACHIEVEMENTS

- ▶ Patents
- ▶ Publications

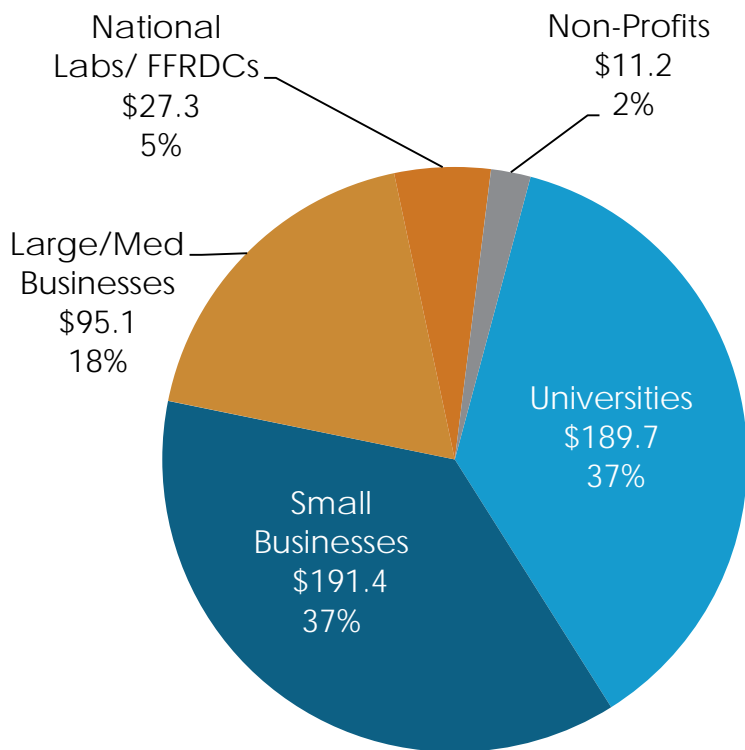


OPERATIONAL EXCELLENCE

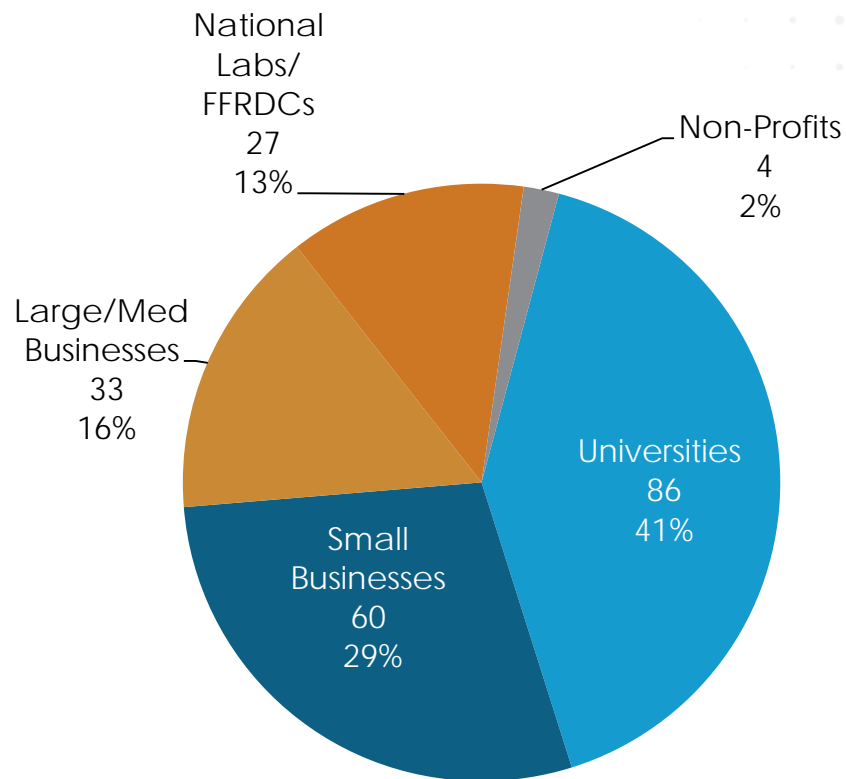
- ▶ Expedited program development and project selection
- ▶ Aggressive performance metrics

Breakdown of ARPA-E's project leads

Federal Funding (million \$)

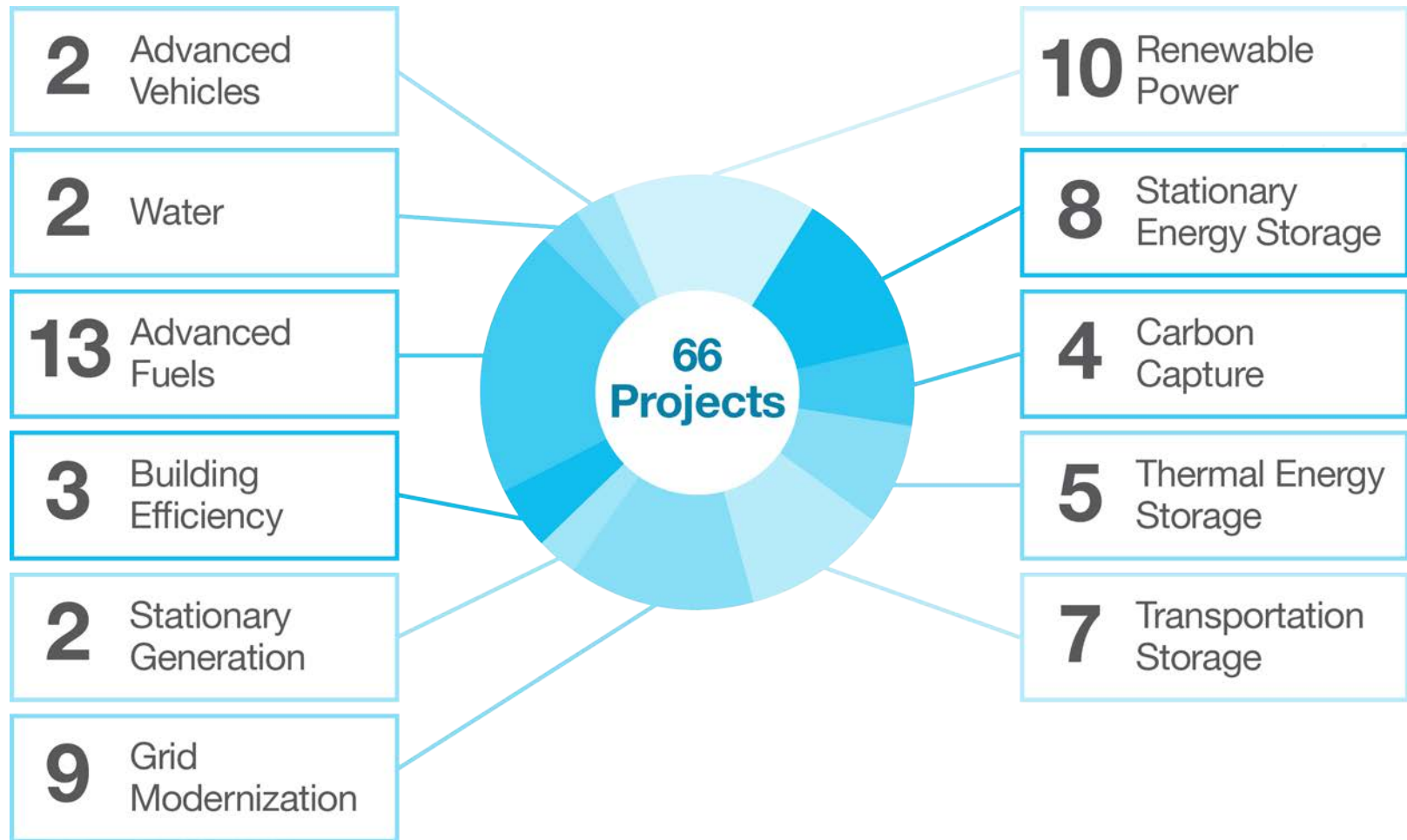


Frequency



Data above includes all ARPA-E projects contracted as of the end of FY 2012, with the exception of AMPED and SBIR/STTR which were excluded due to data availability issue..

OPEN 2012: 66 Projects, 24 States, 11 Areas



Focused Programs



TRANSPORTATION ENERGY TECHNOLOGIES

BEEST

Electrofuels

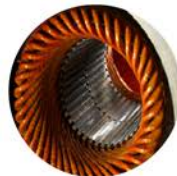


PETRO

MOVE

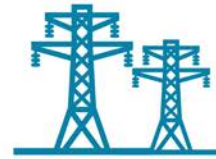
HEATS

REACT



AMPED

SBIR/STTR



STATIONARY ENERGY TECHNOLOGIES

BEET-IT

IMPACCT

GRIDS



Solar ADEPT

GENI

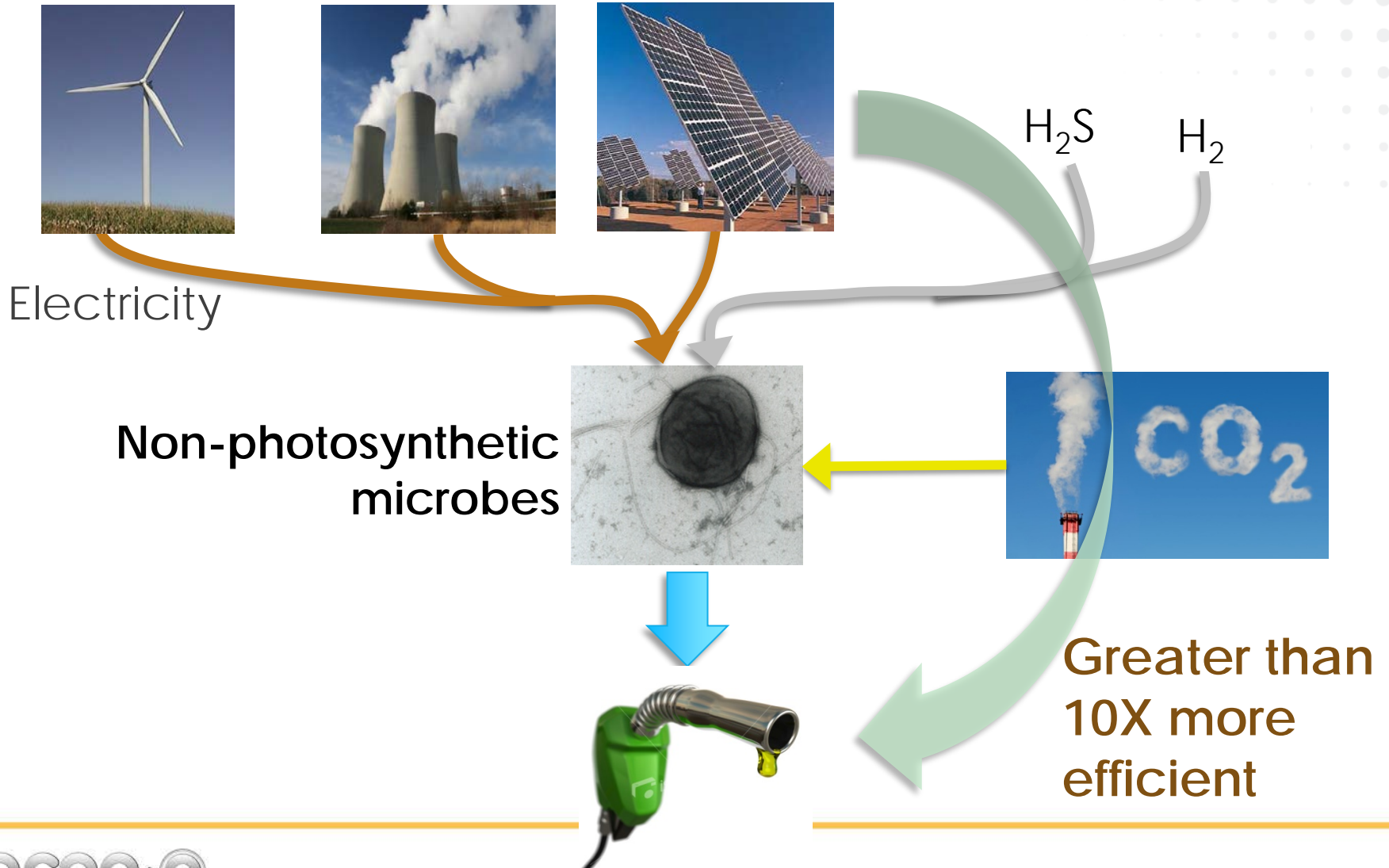
ADEPT

Photosynthetic Biofuels

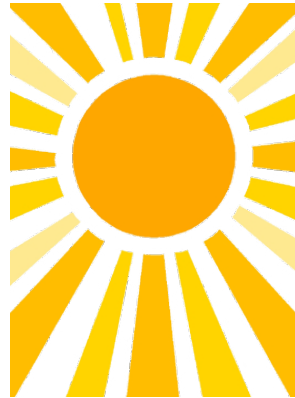


Less than
1% efficient

Electrofuels



Plants Engineered To Replace Oil (PETRO)



Non-food
crops that
directly replace
transportation fuels

Photosynthetic
plants





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