



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

EERE Strategic Plan Briefing

EERE Strategic Plan



Strategic Plan Input

Strategic Plan Input

- President's Climate Action Plan (CAP)
- 2014–2018 DOE Strategic Plan
- Quadrennial Energy Review (QER)
- Quadrennial Technology Review (QTR)
- EERE Leadership
- EERE Staff
- EERE Stakeholders
- National Laboratories

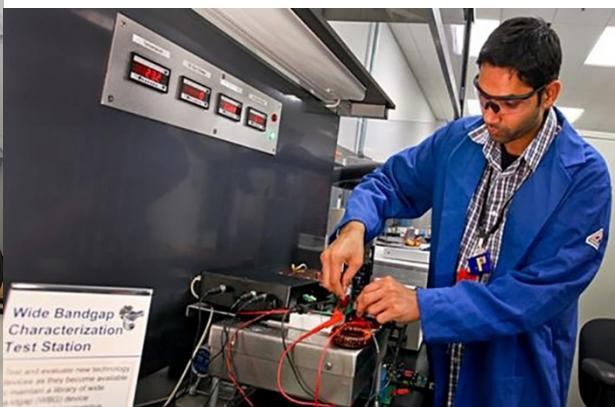
Strategic Plan Implementation

Strategic Plan Implementation

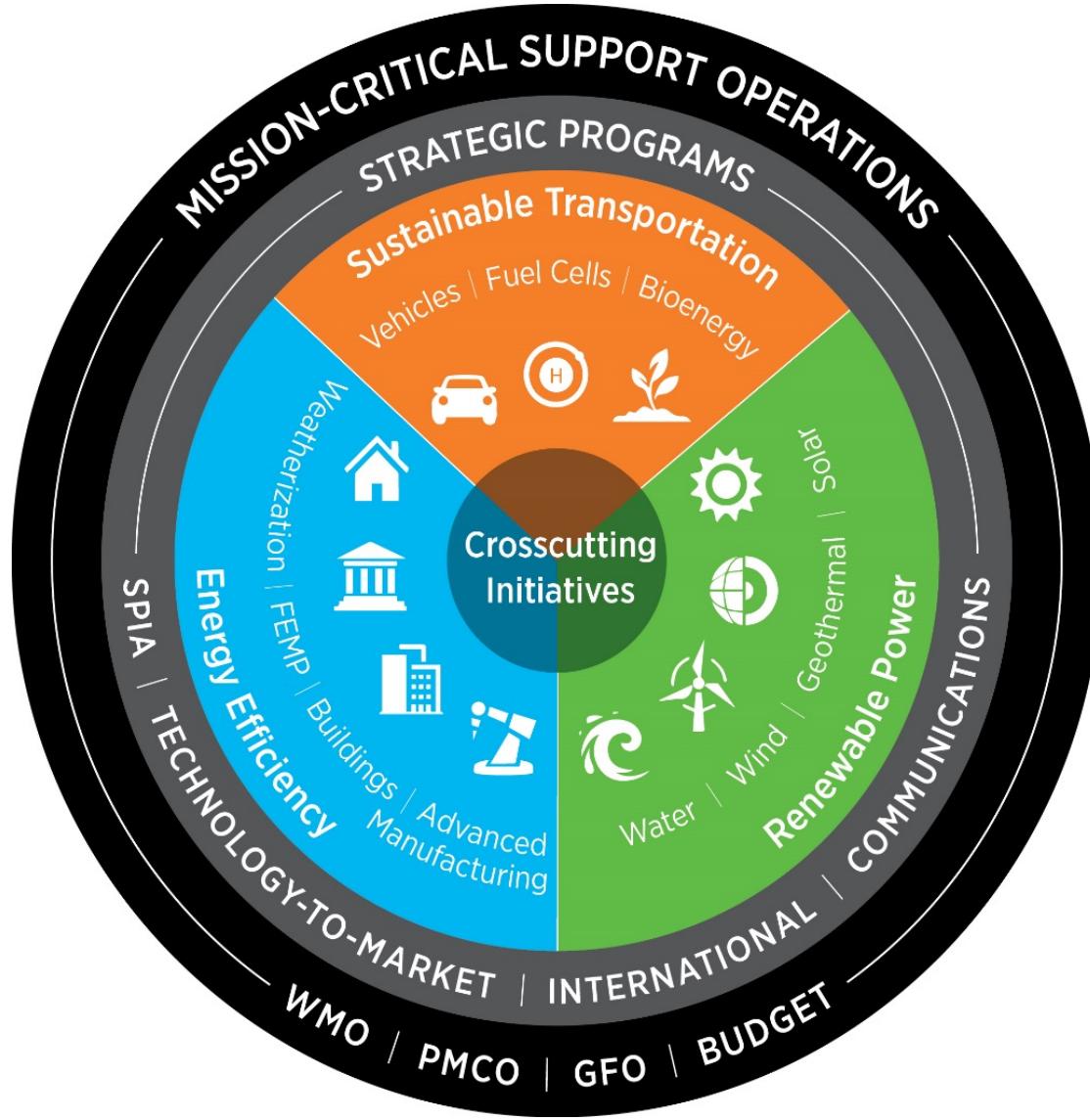
- Multi-year Program Plans (MYPPs)
- Annual Operating Plans
- Funding Opportunity Announcements (FOAs)
- Engagements and Partnerships

EERE Vision

A strong and prosperous America, powered by clean, affordable, and secure energy



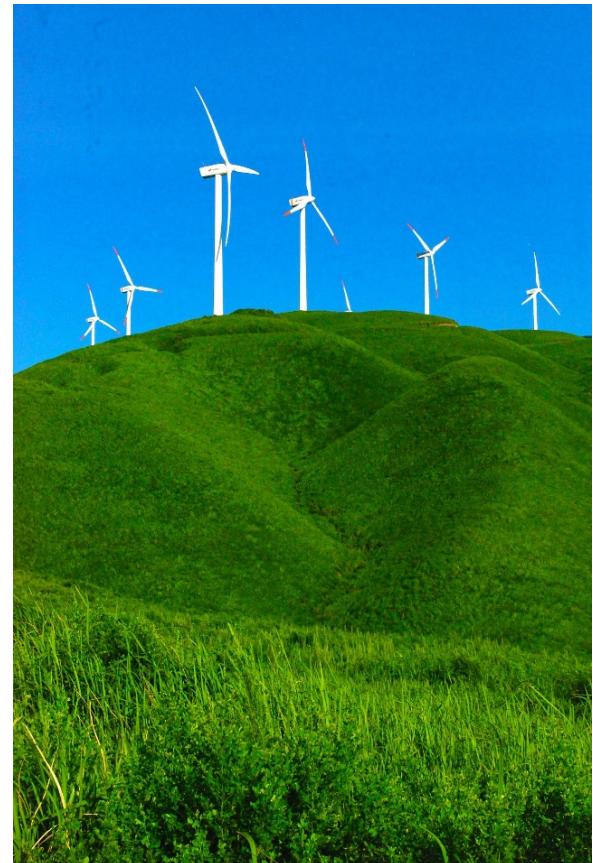
EERE Mission



To create
and sustain
American
leadership in
the transition
to a global
clean energy
economy

EERE Organizational Principles

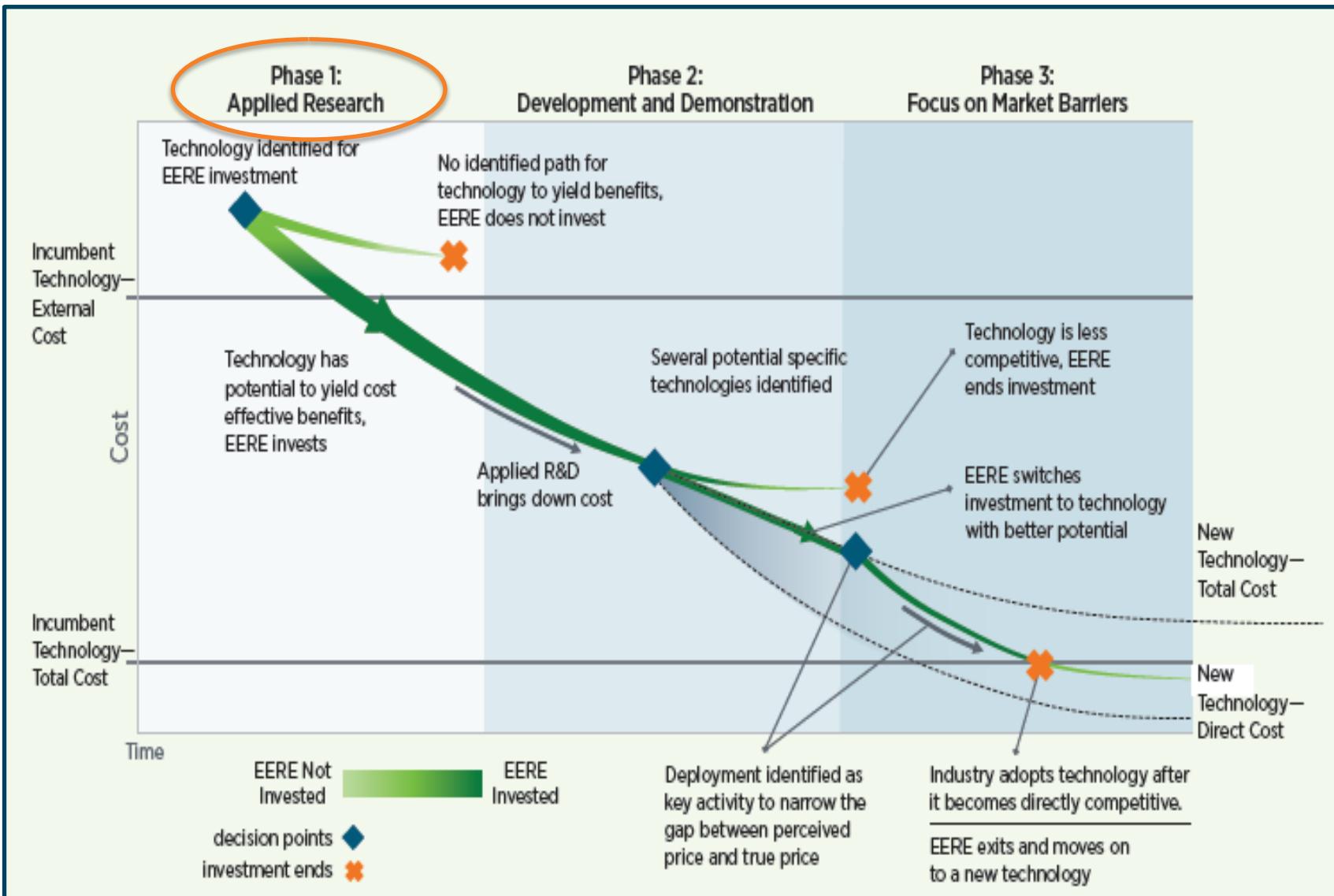
- Economic Prosperity
- Affordability
- Reduced Environmental Impact
- Energy Security
- Consumer Choice



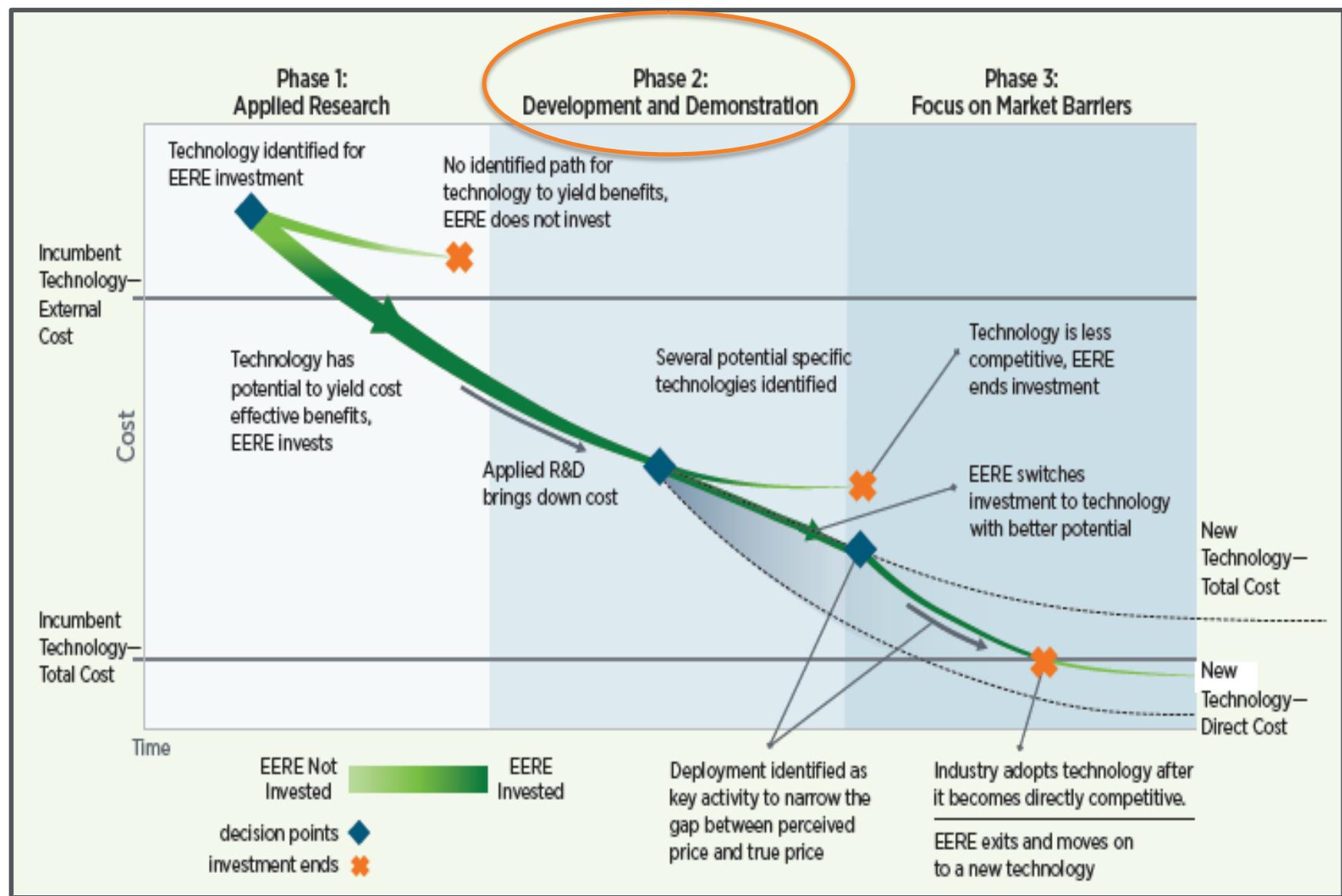
EERE Five Core Questions

- **Impact**
Is this a high-impact problem?
- **Additionality**
Will EERE funding make a large difference relative to existing funding from other sources, including the private sector?
- **Openness**
Are we focusing on the broad problem we are trying to solve and open to new ideas, approaches, and performers?
- **Enduring Economic Impact**
How will EERE funding result in enduring economic impact for the United States?
- **Proper Role of Government**
Why is this investment a necessary, proper, and unique role of government rather than something best left to the private sector?

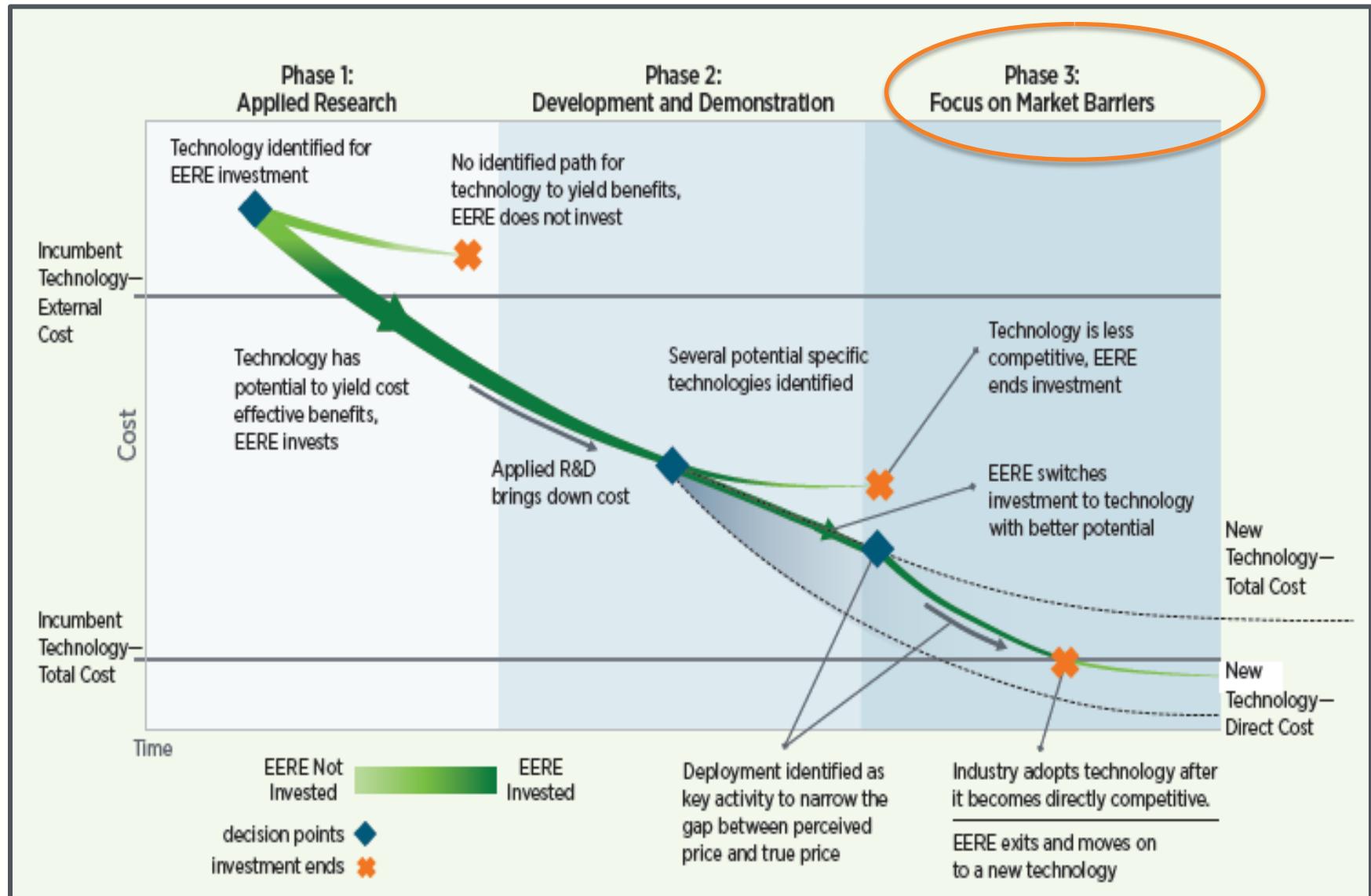
EERE Innovation Model – Phase 1



EERE Innovation Model – Phase 2



EERE Innovation Model – Phase 3



EERE Strategic Plan Structure



Strategic Goals

Sustainable Transportation
Renewable Power Generation
Energy Efficiency
Clean Energy Manufacturing
Grid Modernization
Federal Sustainability
High-Performing Culture

Goal 1: Sustainable Transportation

Accelerate the development and adoption of sustainable transportation technologies



Example Strategies: Sustainable Transportation

Cost Reduction and Performance Improvement

- Develop Technologies That Enable the Cost-Effective Production of Electric-Drive Vehicles

Technology Validation and Risk Reduction

- Support Pilot and Demonstration Facilities for Alternative Fuel Production

Reducing Market Barriers

- Support Pioneering Deployments of Market-Ready Vehicles and Alternative Fuels in Key Early Markets

Sustainable Transportation Success Indicators

1. By 2020, through improvements in engine efficiency, increase the fuel economy of gasoline and diesel light-duty vehicles by 35% and 50%, respectively
2. By 2022, develop materials that enable a cost-effective 30% weight reduction for light-duty vehicles
3. By 2022, develop a battery pack demonstrating a modeled cost of \$125/kWh and an electric drive system demonstrating a modeled cost of \$8/kW and efficiency greater than 94%
4. By 2017, demonstrate a 50% improvement in long-haul truck freight efficiency
5. By 2017, validate at pilot scale at least one technology pathway for hydrocarbon biofuel production demonstrating a mature modeled cost of \$3/gge with GHG emissions reduction of 50% or more
6. By 2022, validate at pilot or demonstration scale two additional pathways for hydrocarbon biofuel production at a modeled cost of \$3/gge with GHG emissions reduction of 50% or more
7. By 2020, develop and demonstrate a fuel cell system for light-duty vehicles achieving 150,000-mile durability and a modeled cost of \$40/kW
8. By 2020, reduce the modeled cost of hydrogen production from renewable resources to less than \$4/gge

Goal 2: Renewable Power Generation

Increase the generation of electric power from renewable sources



Renewable Power Generation Success Indicators

1. By 2020, reduce the cost of solar power to \$0.06/kWh at utility scale, \$0.08/kWh at commercial scale, and \$0.09/kWh at residential scale, without incentives
2. By 2020, reduce the cost of land-based wind to \$0.06/kWh broadly across the U.S. without Incentives
3. By 2030, reduce the modeled cost of offshore wind to \$0.14/kWh
4. By 2020, reduce the modeled cost of new hydropower to \$0.12/kWh
5. By 2030, reduce the modeled costs of marine and hydrokinetic systems to \$0.27/kWh for wave; and \$0.28/kWh for tidal
6. By 2020, reduce the modeled cost of geothermal power from currently undiscovered hydrothermal resources to \$0.10/kWh
7. By 2030, reduce the modeled LCOE from newly developed geothermal systems, including EGS, to \$0.06/kWh

Goal 3: Energy Efficiency

Improve the energy efficiency of our homes, buildings and industries

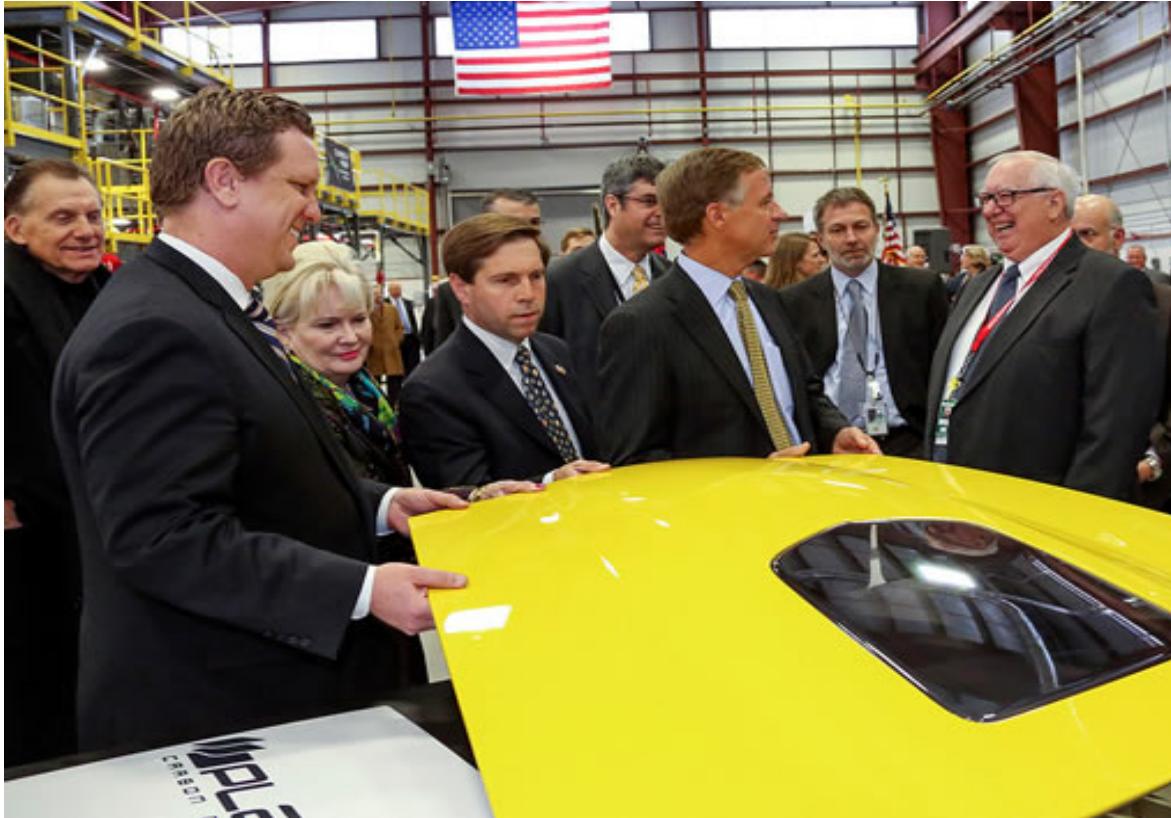


Energy Efficiency Success Indicators

1. By 2020 develop cost effective technologies capable of reducing a building's energy use per square foot by 30%, compared to a 2010 baseline
2. By 2030, reduce energy use per square foot in all U S buildings by 30%, compared to a 2010 baseline
3. By 2025, reduce the energy used for space conditioning and water heating in single-family homes by 40% from 2010 levels
4. By 2025, demonstrate approaches with market leaders in the commercial sector achieving 30% energy savings per square foot for existing buildings and 50% energy savings in new buildings relative to typical commercial buildings in 2010
5. By 2020, demonstrate at scale market-based industrial programs and practices providing energy savings of 25% or more
6. By 2025, introduce new industrial technologies and/or advanced materials that lower facility-level energy costs 50% or more, and/or provide 50% savings over targeted product lifecycles, compared to a 2010 baseline
7. From appliance standards enacted from 2009 through 2016, realize energy savings to avoid at least 3 billion metric tons of carbon emissions cumulatively by 2030

Goal 4: Clean Energy Manufacturing

Stimulate the growth of a thriving domestic clean energy manufacturing industry



Clean Energy Manufacturing Success Indicators

1. Growing numbers of companies that produce clean energy technologies choose to locate manufacturing facilities in the United States
2. Growing numbers of U S manufacturers choose to implement energy efficiency measures
3. EERE-supported technologies mature to be substantially manufactured in the United States
4. By 2025, reduce the life-cycle energy consumption of EERE- targeted manufactured goods by 50%

Goal 5: Grid Modernization

Enable the integration of clean electricity into a reliable, resilient, and efficient electricity grid

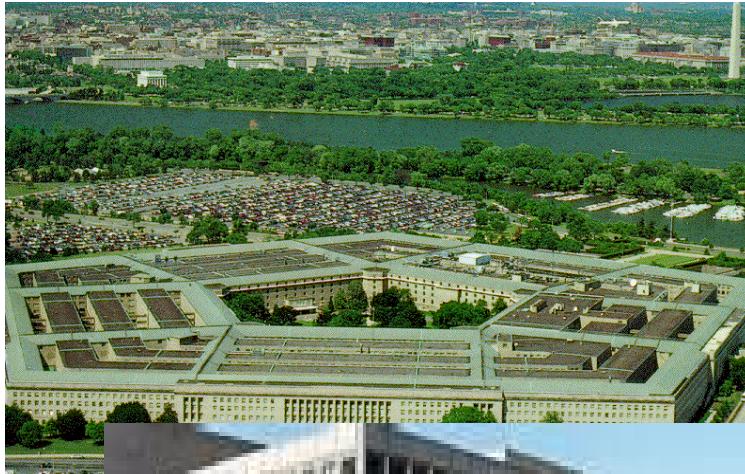


Grid Modernization Success Indicators

1. By 2020, develop and demonstrate at scale the technologies and tools required to enable distributed energy resources to supply up to 50% of the electricity, on average, across a distribution system while maintaining a safe, reliable, and cost-effective power system
2. By 2035, enable up to 35% of the nation's electricity to come from variable generation while maintaining a safe, reliable, and cost-effective power system
3. By 2035, develop the technologies and tools for active devices including smart building loads, electric vehicles, and distributed generation to provide 10% of the nation's flexibility needs
4. Provide to regulators, policy makers, and other stakeholders the technologies, tools, and technical assistance necessary to accelerate the establishment of policies, markets, and other institutions needed to achieve the Nation's goals

Goal 6: Federal Sustainability

Lead efforts to improve federal sustainability and implementation of clean energy solutions



Federal Sustainability Success Indicators



1. By 2025, facilitate the reduction of scope 1 and 2 greenhouse gas emissions from federal facilities by 40%, compared to a 2008 baseline
2. By 2025, facilitate the use of renewable energy to meet 25% of federal energy needs
3. By 2020, reduce greenhouse gas emissions from the DOE complex by 28% and meet other sustainability goals, compared to a 2008 baseline

Goal 7: High-Performing Culture

Enable a high-performing, results-driven culture through effective management approaches and practices

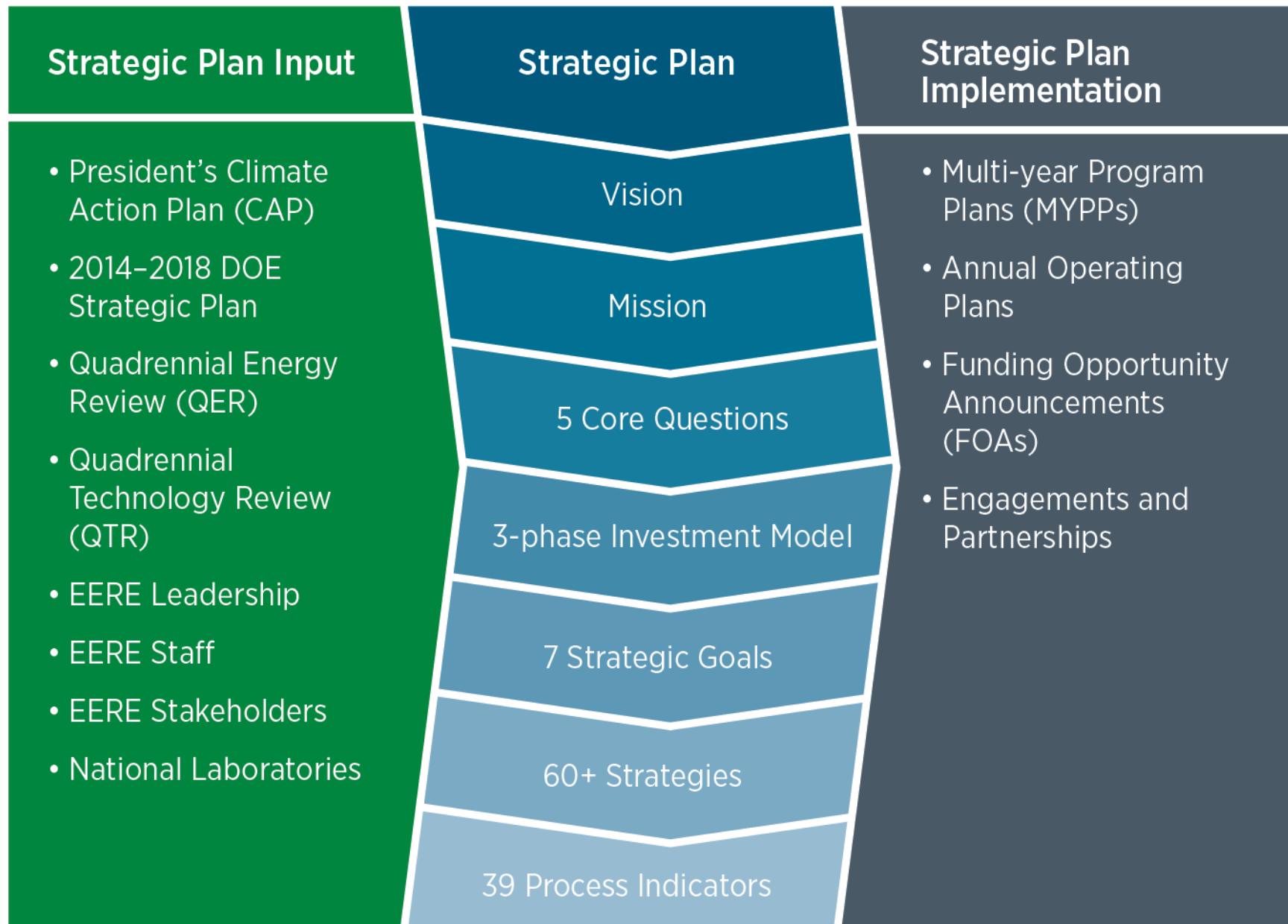


High Performing Culture Success Indicators



1. By 2017, each EERE Technology Office has completed an updated Multi-Year Program Plan.
2. Perform at least two new EERE impact evaluation studies each year.
3. For the “Best Places to Work” component of the Federal Employee Viewpoint Survey, increase average EERE scores by 10 percentage points by 2017 and 20 percentage points by 2020 relative to 2014 baseline.
4. By 2017, 100% of applicable EERE projects will submit quarterly reports and receive formal EERE quarterly assessments through a single information technology portal.
5. Starting in 2017, approve all National Laboratory Annual Operating Plans prior to the fiscal year
6. By 2017, launch at least two new programs to increase technology transfer from EERE’s investments at DOE’s National Laboratories.

EERE Strategic Plan



Questions?

