

Results-Based Innovation at the U.S. Environmental Protection Agency

David Widawsky, Ph.D.

Associate Director

Office of Environmental Policy Innovation

U.S. Environmental Protection Agency

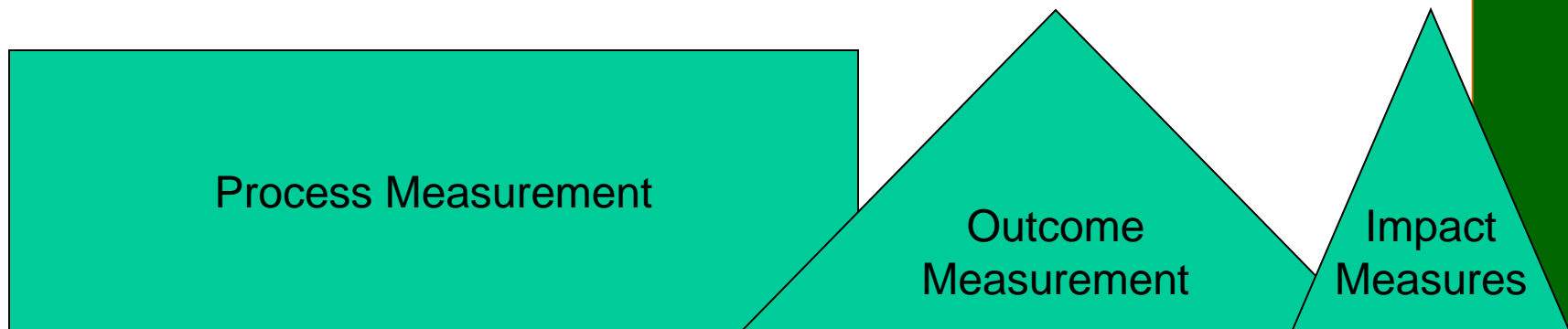
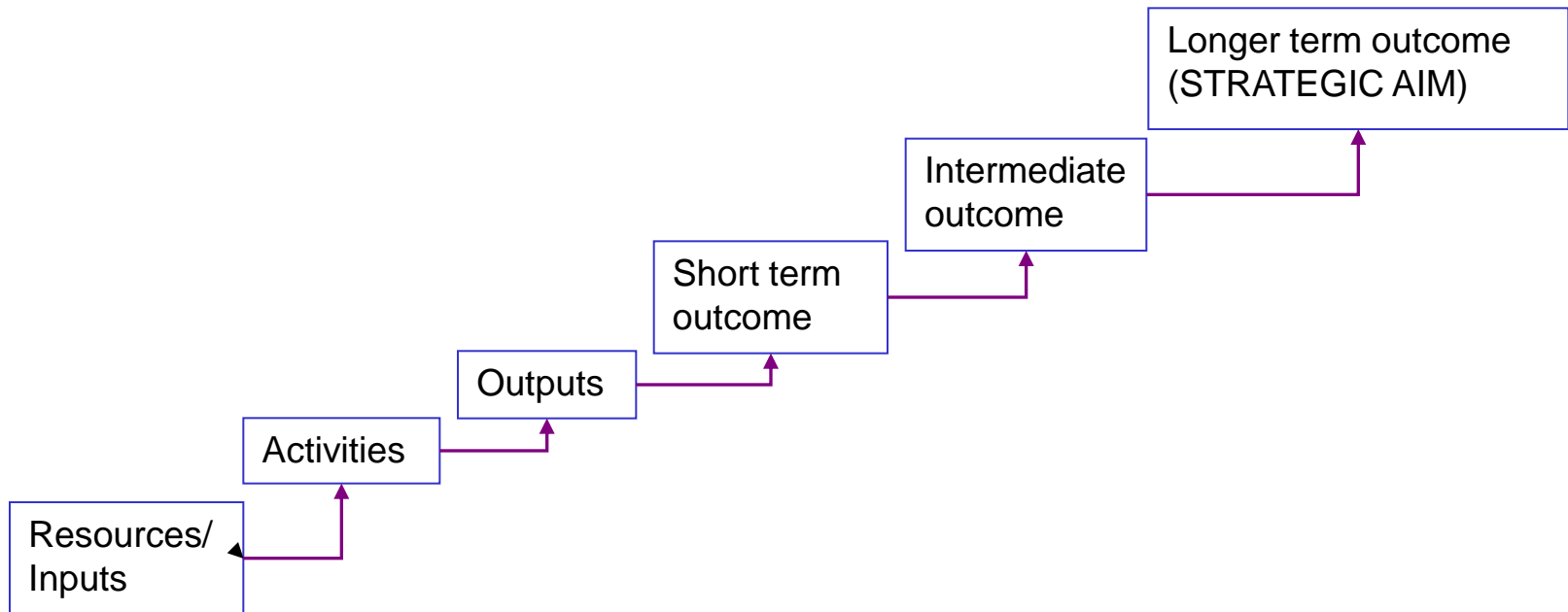
An Innovative Environmental Protection System

Attributes

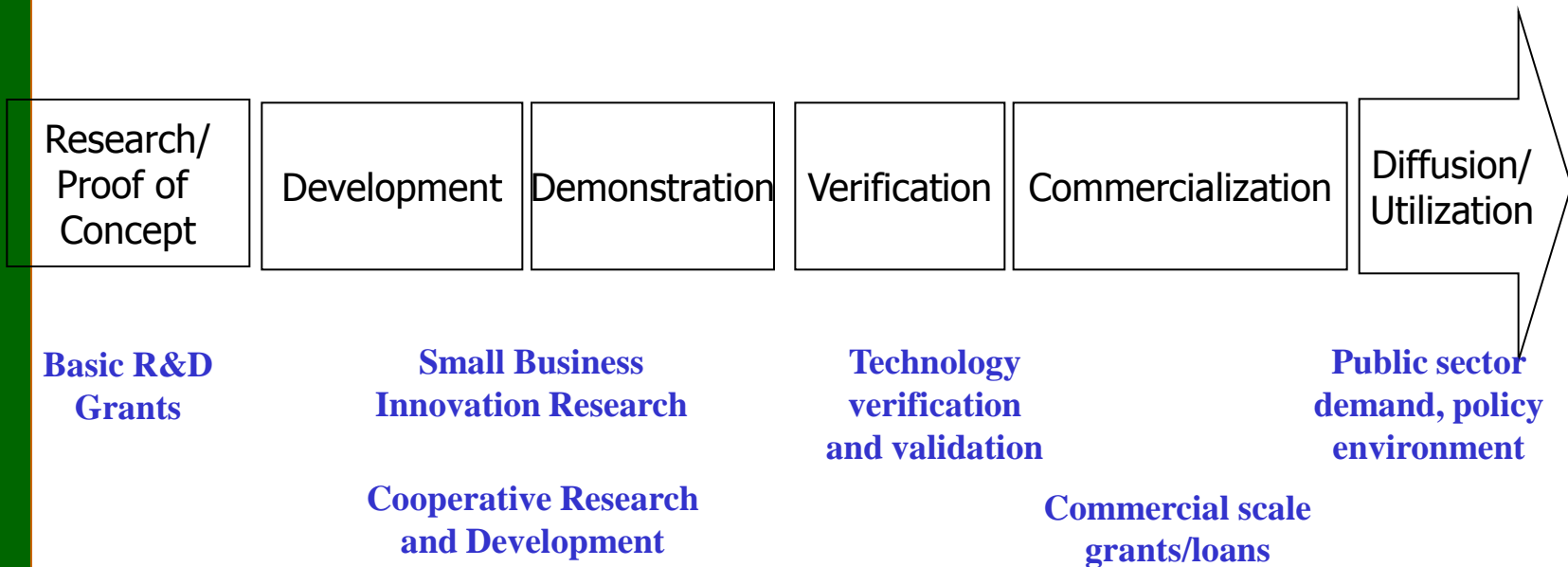
- Focuses on environmental performance and results:
 - Regulatory and non-regulatory
- Integrates environmental management more fully across facilities, problems, and media (i.e., air, water, land)
- Uses market incentives to achieve environmental goals
- Emphasizes partnerships and stakeholder collaboration
- Triple Bottom Line
 - Opportunities to improve environmental results AND economic outcomes

..... much more than just technology

How do we measure inputs, activities, outputs, outcomes?



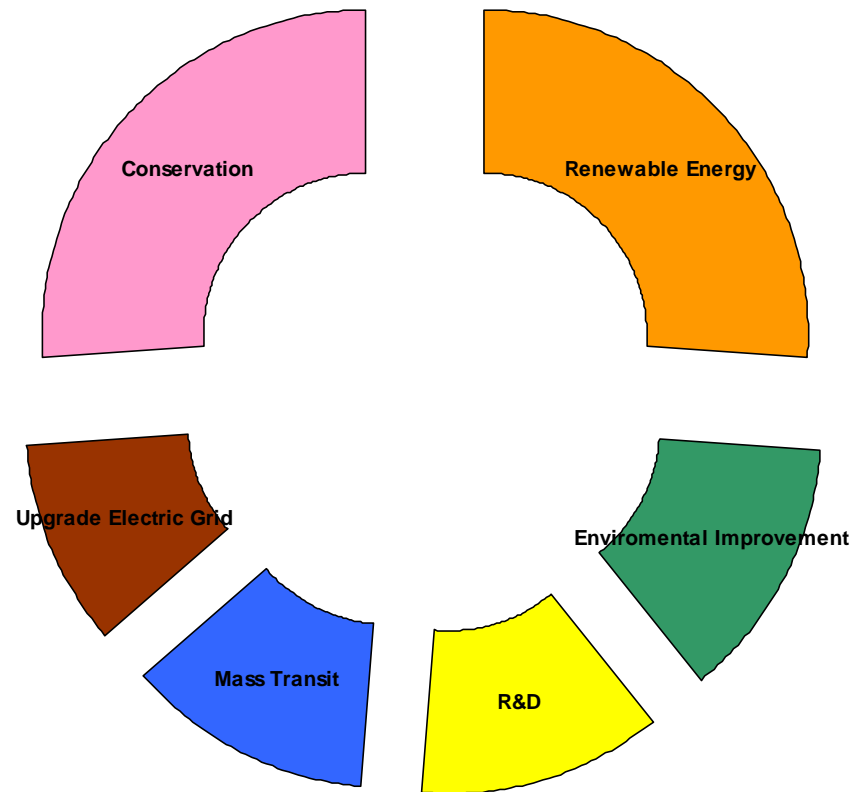
Measurement Needs Along Entire Technology Continuum



Why do we need measurement tools?



Green Component of American Recovery and Reinvestment Act (ARRA) : > \$100 billion (€70 billion)



www.recovery.gov

Recovery Through Retrofit: results-based ARRA investments in home weatherization

- 130 million homes in U.S.
- Generate more than 20 percent of U.S. carbon dioxide emissions
- Goal: reduce home energy use by up to 40 percent
- Reduce home energy bills by up to \$21 billion annually
- Three sets of activities:
 - Access to information
 - Access to financing
 - Access to skilled workers and entrepreneurs
- Measurement of home performance (Energy Star) and reporting of results

Weatherization and Beyond



**PROTECT OUR ENVIRONMENT
FOR FUTURE GENERATIONS**

U.S. Environmental Protection Agency • U.S. Department of Energy

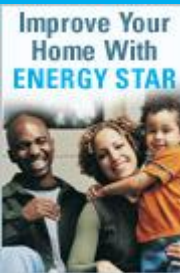
ENERGY STAR

PRODUCTS ▶



- Appliances
- Heating & Cooling
- Home Electronics
- Lighting
- Office Equipment
- Store Locator
- Rebate Finder

HOME IMPROVEMENT ▶



- Common Home Problems
- Home Energy Audits
- Air Seal & Insulate
- Heat & Cool Efficiently
- Home Performance with ENERGY STAR
- For Contractors

BUILDINGS & PLANTS ▶



- Guidelines for Energy Management
- Tools & Resources Library
- Expert Help
- New Building Design
- Green Buildings

NEW HOMES ▶



- Find an ENERGY STAR Builder
- ENERGY STAR New Home Features
- Benefits for Homeowners
- For Residential Professionals



Tax Credits Under the Energy Bill



Take the ENERGY STAR Change A Light Pledge



Hurricane Help: Energy Efficient Rebuilding

www.energystar.gov

GHG reporting requirements and ARRA investments in energy efficiency and renewable energy

- Complementary, but not planned that way....
- Investments in EE and RE (\$38 billion under ARRA)
 - Residential weatherization, industrial EE, solar, wind, geothermal, carbon capture, fuel and vehicle technology...
- Proposed GHG Reporting Rule:
 - Suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA. The gases covered by the proposed rule:
 - carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and other fluorinated gases including nitrogen trifluoride (NF₃) and hydrofluorinated ethers (HFE)

Regulatory Innovation to Complement Technology Innovation: An Example

- Air emissions permits traditionally linked to production process
- Processes change as markets change
 - Evolving biofuels production and biorefineries
- Flexibility is based on total emissions
 - “internal trading”
 - Innovative approach to results and adaptation
- Results
 - Less down time, greater efficiency, quicker response

Gaps: Green Jobs Counting and Reporting

- Sustainable economic revitalization depends on a trained green workforce having quality career potential
- What is a green job or a green business?
 - Industrial classification
 - Occupational classification
 - Available data
- Other ways to measure
 - Industry studies
 - Life Cycle Analysis (LCA)
 - Environmental Outcomes
- Illustrates multiple objectives requiring multi-dimensional measurement

The Need for Measurement is Large

- Other types of gaps in linking innovation to environmental outcomes
 - market demand and penetration, linking behavior change to environmental outcomes, ex ante and ex post estimation
- There is no single set of measurement requirements
 - gaps will depend on the policies being pursued
 - multiple objectives increase the measurement requirements
- Environmental innovation and economic transformation are evolving
 - Measurement systems must be robust enough to provide insight into opportunities for refinement and improvement

Thank you!!

www.epa.gov/innovation

widawsky.david@epa.gov

+1-202-566-2215