Emerging Drivers for Cleantech Investments: An EPA-Investor Roundtable

September 24, 2009 10 a.m. – Noon

U.S. Environmental Protection Agency 77 W. Jackson Blvd., Room 1932 Chicago

10:00 – 10:10 Opening and Introductions
Walter W. Kovalick Jr., Acting Deputy Regional Administrator

10:10 – 10:25 EPA's Role in Fostering Technology

10:25 – 10:40 Discussion of EPA's Assets for Investors and Entrepreneurs

- EPA's Small Business Innovative Research Program: Special Opportunity to Leverage National Science Foundation SBIR funding, December '09
- Environmental Technology Verification (ETV) Program: EPA Verification of Technology Performance
- Supplemental Environmental Projects: Opportunities to deploy Novel Technologies through EPA Enforcement

10:40 – 10:50 EPA Regional Technology Needs: Addressing Emerging Environmental Challenges

10:50 – 11:05 EPA's Semi-Annual Regulatory Agenda: Signals for the Cleantech Marketplace

11:05 – 11:25 Initial Responses to EPA Information Related to Demand for Cleantech

- Robert Savage, Fund Manager, Rocket Ventures; Managing Partner, CoreNetwork, Toledo, OH
- Ira Weiss, Associate Clinical Professor of Accounting, University of Chicago Booth School of Business; Faculty Director, Hyde Park Angels; Managing Director, RK Ventures, Chicago, IL
- Keith Crandell**,** Co-founder, ARCH Venture Partners, Chicago, IL

11:25 – 11:55 Roundtable/Across Web Discussion of On-Going Dialogue with EPA about Cleantech

11:55 – 12:00 Wrap Up and Next Steps

U.S. EPA: The Context for Promoting New Environmental Technology

September 24, 2009

Walter W. Kovalick, Jr. Ph.D.
Asst. Regional Administrator
U.S. EPA—Region 5
Kovalick.walter@epa.gov

2

Outline

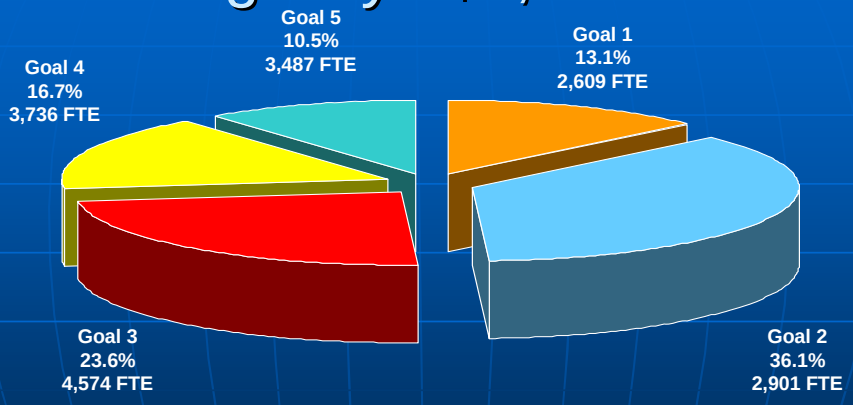
- Mission and budget
- Operations and implementation
- Technology nexus

Mission and Mandates

- One of 20+ independent regulatory agencies
  - Not a Cabinet department, but Cabinet status
- Protect public health and the environment
- Multiple statutes provide mandates
  - Clean Air Act
  - Clean Water Act
  - Safe Drinking Water Act
  - Resource Conservation and Recovery Act (as amended)
  - Comprehensive Environmental Response Compensation and Liability Act (Superfund)
  - Federal Insecticide Fungicide and Rodenticide Act (FIFRA)
  - Toxic Substances Control Act (TSCA)
  - Others

4

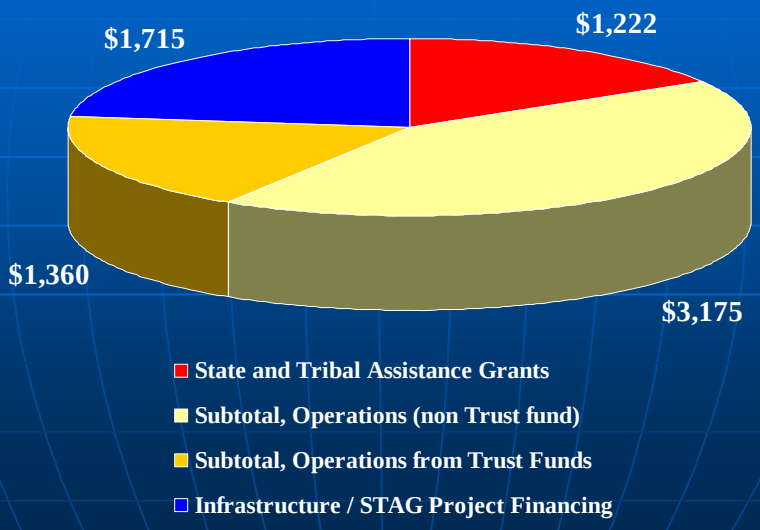
FY 2008 Budget by Goal
Total Agency: $7,472 Million



- Goal 1: Clean Air and Global Climate Change
- Goal 2: Clean and Safe Water
- Goal 3: Land Preservation and Restoration
- Goal 4: Healthy Communities and Ecosystems
- Goal 5: Compliance and Environmental Stewardship

5

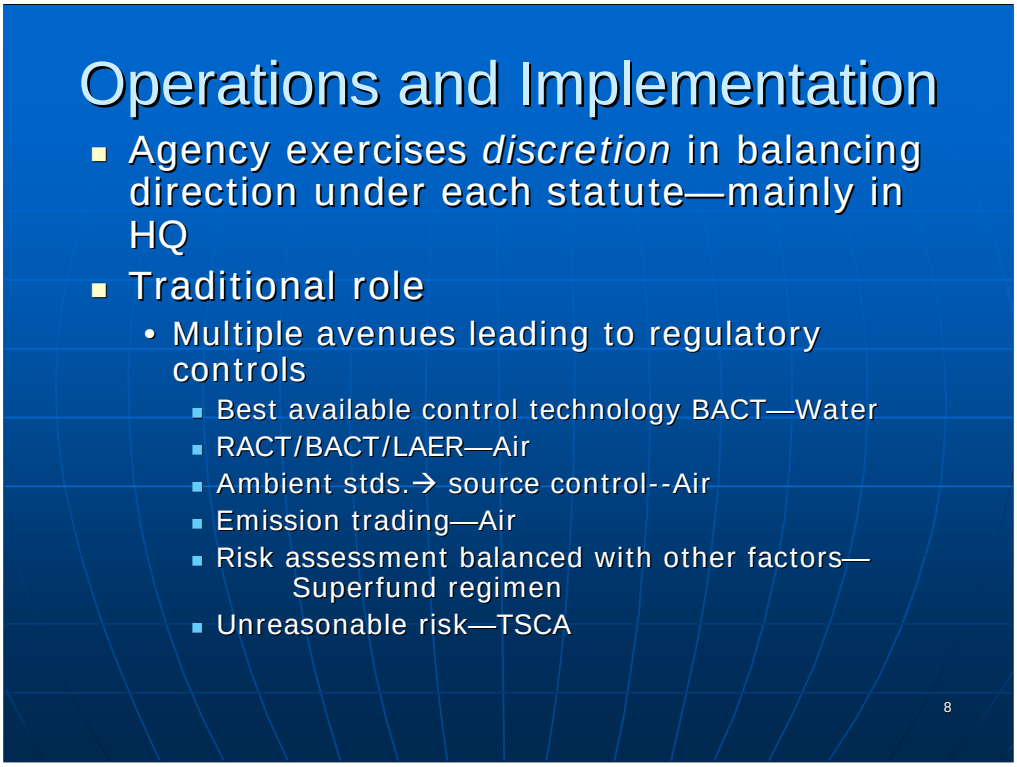
EPA 2008 Budget Allocation (Millions)



6

Regulated entities need compliance assistance because:

- Most small business don't have staff who are dedicated to the oversight of their regulatory responsibilities.
- Regulatory obligations change.
- Need help to understand new rules, especially complex ones.
- Resources are often not sufficient to provide on-site assistance to more than a fraction of the regulated entities.



RACT, or Reasonably Available Control Technology, is required on existing sources in areas that are not meeting national ambient air quality standards (i.e., non-attainment areas).

BACT, or Best Available Control Technology, is required on major new or modified sources in clean areas (i.e., attainment areas).

LAER, or Lowest Achievable Emission Rate, is required on major new or modified sources in non-attainment areas.

Uncertainty introduced by new chemicals or substances showing up in new media

Asbestos and Reserve Mining

Precautionary principle in EU—until we know enough about the risks, don't proceed

Wildlife in Arctic showing a marked decline in PCB's in fatty tissue; PFOA's are on the upswing; mere presence is not a reason for action; how to sort this out?

Multimedia

WWT effluent guidelines and sludges; what is their impact?

MTBE added as fuel oxygenate in late 90's to decrease the smog problem in major cities; then discovered that MTBE is more mobile and more recalcitrant than BTEX and plumes moving out of leaking underground storage tanks. Not only from tanks in cities where MTBE authorized, but tanks elsewhere as well; so gas was shipped all over the U.S.; reconsidered MTBE and more careful about the new options, meanwhile we have new GW cleanup challenges

Scale—major source of water and air pollution are/have been addressed; now thousands of leaking underground storage tanks require partnership with states to address problems; non-point source

New science and technology—nanomaterials revolutionizing consumer products and other processes and products

Ops and Implementation (cont.)

- New Strategies (beyond "command and control")
  - Begun in 1990's—HQ together with Regions
    - Compliance assistance
    - Voluntary partnerships, e.g. Energy Star, Waste Wise
    - Partnering for economic gain/ development

      e.g. Brownfields, CRADAs

  Plus

  - International developments/imperatives (ISO 14000/EMS plus EU/China requirements)

  N.B. As always, enforcement keeps a level playing field

9


WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
NH
VT
ME
MA
RI
CT
NJ
DE
MD
DC
HI
Guam
Trust Territories
American Samoa
Northern Mariana Islands
AK
PR
VI
10

Ops and Implementation (cont.)

- Almost half of 17,000 FTE in Regional Offices
  - Most EPA regulatory programs delegated to states and tribes
  - Vast majority of inspection, permitting, enforcement at state/tribal level
- ~2400 FTE for science and technology work—mostly ORD
  - Of $760M budget, ~$440M extramural

N.B. Large % of entire EPA workforce are scientists/ engineers

11

EPA Roles in Environmental Technology Marketplace

- Funding agent
- Technology developer
- Regulator/enforcer
- Information broker
  - Neutral
  - Verification agent
- Partner in deployment
- User of "first resort"

12

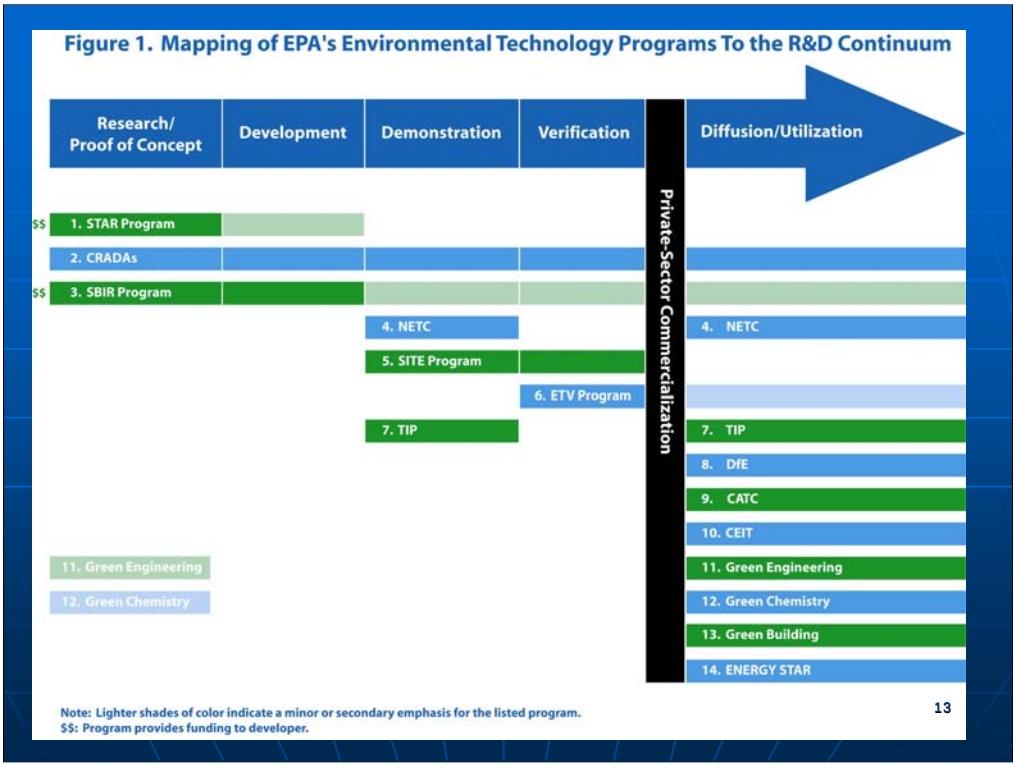


Figure 1. Mapping of EPA's Environmental Technology Programs To the R&D Continuum
Research/ Proof of Concept
Development
Demonstration
Verification
Diffusion/Utilization
Private-Sector Commercialization
$$ 1. STAR Program
2. CRADAs
$$ 3. SBIR Program
4. NETC
5. SITE Program
6. ETV Program
7. TIP
11. Green Engineering
12. Green Chemistry
4. NETC
7. TIP
8. DfE
9. CATC
10. CEIT
11. Green Engineering
12. Green Chemistry
13. Green Building
14. ENERGY STAR
Note: Lighter shades of color indicate a minor or secondary emphasis for the listed program.
$$: Program provides funding to developer.
13

Intersections: EPA's Work and Environmental Technologies

- For niche areas, in depth understanding by researchers/programs,
  - E.g. drinking water treatment, air pollution control, remediation, diesel retrofit
  - Monitoring technologies (due to methods approval function and operating in-house/State networks)
- Secondary level of understanding of industrial processes to set BACT, etc. levels
- Appreciation of technology aspects of many sectors through partnering programs, i.e. Design for Environment, energy conservation, etc.

14

Observations: How Technology Intersects with EPA Work

- With few exceptions, EPA mission is not to be a “technology development” organization
- New environmental problems are viewed first through statutory/regulatory lens (e.g. GHG sequestration = UIC program) leading to technology inquiry
- While expert in some niches, EPA’s mandates don’t call for comprehensive monitoring of technology developments
- The Environmental Technology Council is a forum for joint action across programs/regions—see www.epa.gov/etop

15

Observations (cont.)

- EPA's regulatory agenda charts the subjects and issues to be addressed over a several year period
- By its nature, technology driven regulations "fix" *best* technology; resources normally limit EPA's ability to continuously update "best"
- EPA is well vested in technology diffusion activities, esp. verification
- EPA is experienced in operating SBIR and grant programs; no mandates for many other financial vehicles