

***Energy Efficiency and Renewable Energy
(EERE)
Fuel Cell and Hydrogen Programs***



**Fuel Cell Summit VI
College Park, Maryland
May 29, 2002**

**Pete Devlin
U.S. Department of Energy**



Program Drivers

NEP Overarching

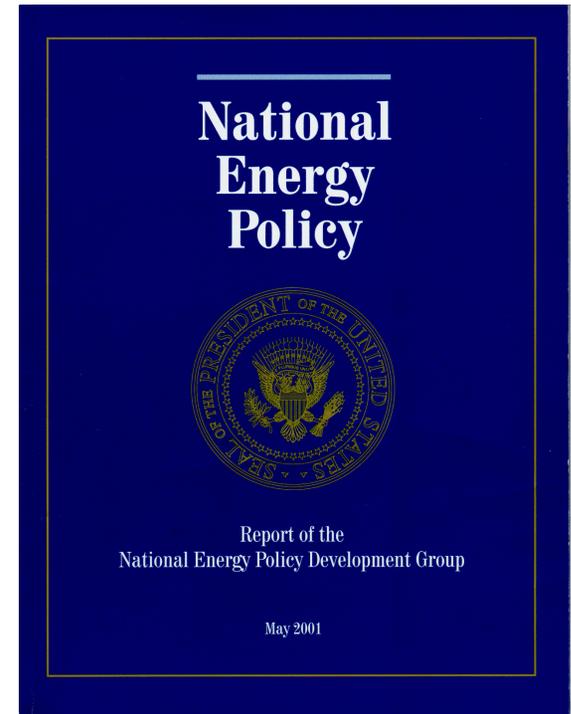
- President directs Secretary of Energy to develop next-generation technology – including hydrogen
- Develop education campaign communicating hydrogen benefits
- Support Hydrogen Energy Act re-authorization
- Integrate hydrogen and fuel cell R&D

Presidential Initiative – FreedomCAR

EERE SPR Findings

- (1) Balance RD&D activities/needs stronger analytical basis
- (2) Expand hydrogen and fuel cell vehicles

EERE Portfolio Priorities: 4 of the top 5 including
Priority #1: Dramatically reduce or even end dependence on Foreign Oil



“The President’s Plan directs us to explore the possibility of a hydrogen economy....”
Spencer Abraham, Secretary of Energy

Energy Security = Feedstock Diversity (Hydrogen) + Energy Efficiency (Fuel Cells)



The Former "Market Sector" Model

Office of Energy Efficiency and Renewable Energy

Chief of Staff

Assistant Secretary

Principal Deputy Assistant Secretary (DAS)

Chief Operating Officer/DAS, Office of Planning, Budget and Management

Office of Planning, Budget and Outreach Director

Office of Management and Operations Director

Associate DAS

Power Technologies DAS

Industrial Technologies DAS

Transportation Technologies DAS

Building Technology, State & Community Programs DAS

Federal Energy Management Programs Director

Golden Field Office Manager

Associate DAS

Associate DAS

Associate DAS

Associate DAS

Solar Energy Technologies Director

Wind and Geothermal Technologies Director

Biopower & Hydropower Technologies Director

Technology Access Director

Hydrogen & Super-Conductivity Technologies Director

Distributed Energy Resources Director

Industrial Technologies Implementation A Director

Industrial Technologies Implementation B Director

Industrial Technologies Implementation C Director

Industrial Program Operations Director

Fuels Development Director

Advanced Automotive Technologies Director

Heavy Vehicle Technologies Director

Technology Utilization Director

Building Research & Standards Director
2 Deputy Directors

Building Technology Assistance Director
2 Deputy Directors

Atlanta Regional Office Director

Boston Regional Office Director

Chicago Regional Office Director

Denver Regional Office Director

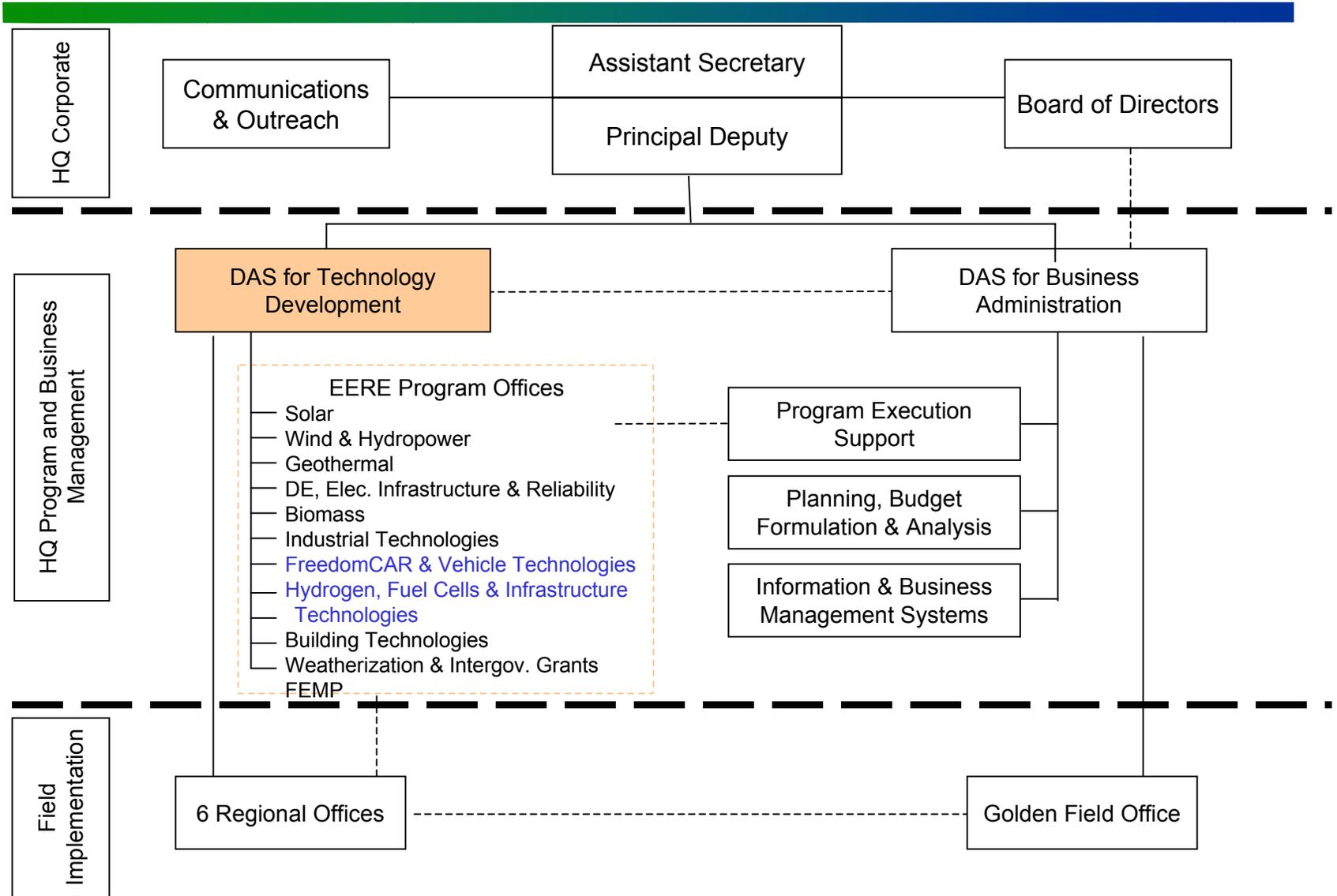
Philadelphia Regional Office Director

Seattle Regional Office Director



Current Streamlined, Integrated, and Focused Model

Office of Energy Efficiency and Renewable Energy





Fuel Cell and Hydrogen Program Focused on Removing Barriers

Fuel Cells:

- Cost
- Durability
- Start-Up Time (transportation)
- Air/Thermal/Water Management
- Codes & Standards



Hydrogen:

- Storage
- Hydrogen Fuel Cost
- Fuel Infrastructure
- Codes & Standards

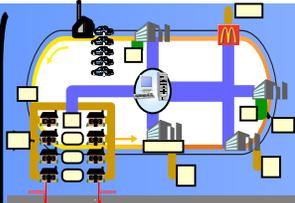




Hydrogen Infrastructure and Storage

I
N
F
R
A
S
T
R
U
C
T
U
R
E

S
T
O
R
A
G
E



Power Parks

- Co-production of H₂ and Electricity



Off-Board Reforming

- Purification
- Compression
- Dispensing



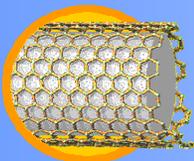
Renewables

- Wind
- Biomass



Pressurized Tanks

- Carbon Composites



Storage Materials

- Hydrides
- Carbon Nanotubes



FY03 Program Activities

Fuel Cells for Transportation Request: \$50M, Distributed Generation Request: \$7.5M, Hydrogen Research Request: \$39.9M

Transportation (Interior):

- Continuation of critical R&D through 30 new cost-shared industry contracts and national laboratories to address key barriers
- Field Evaluations - Emphasize the introduction and evaluation of fuel cell vehicles in fleets

Distributed Generation (Interior):

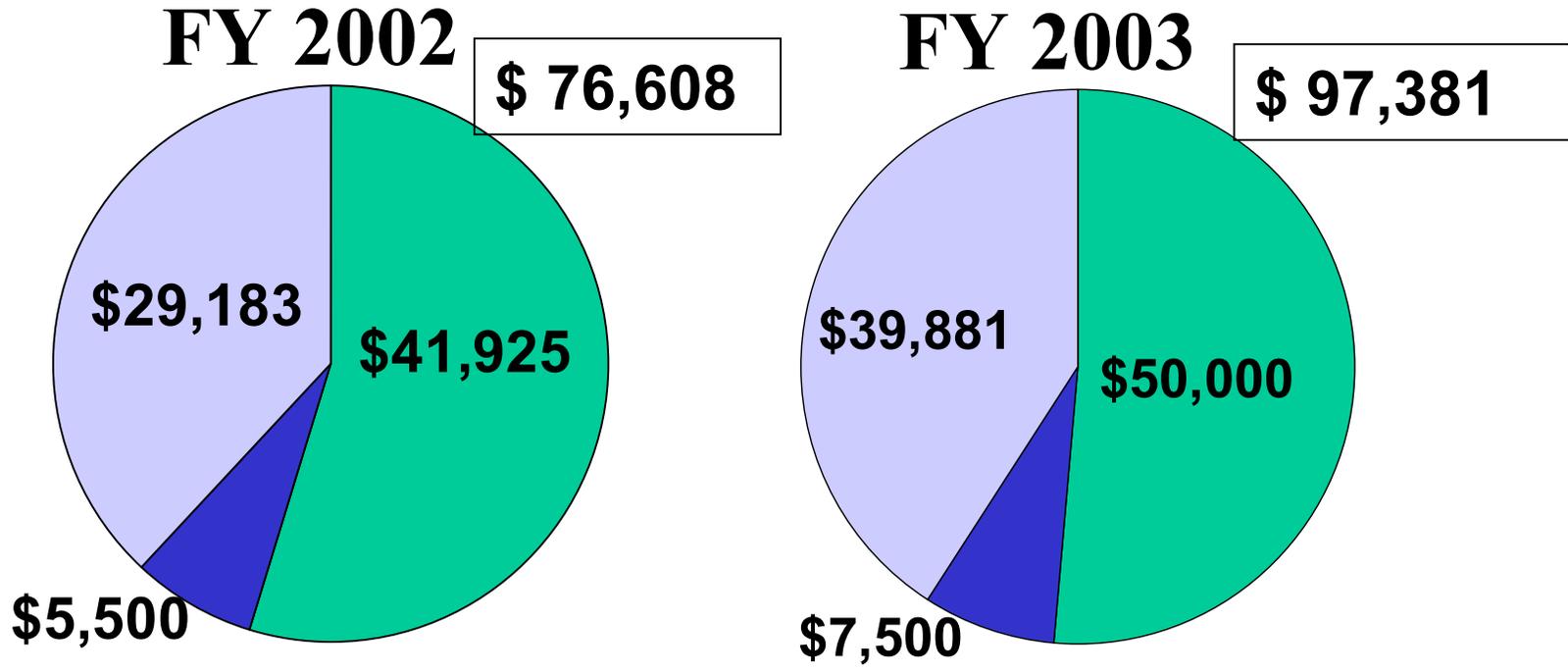
- Test laboratory natural gas fuel processor for PEM fuel cell systems
- Develop high temperature PEM system

Hydrogen Program (Energy and Water):

- Increased efforts in hydrogen storage and infrastructure in support of the FreedomCAR program
- Support for Power Parks and Uninterruptible Power Sources



EERE Fuel Cell & Hydrogen Funding (\$K)



- Transportation Fuel Cell R&D
- Distributed Generation Technology
- Hydrogen Research



Conclusion

EERE Fuel Cell and Hydrogen Activities:

- **Aimed at valuable national benefits**
 - **energy security via lower oil imports**
 - **higher grid reliability**
 - **reduced air pollution**
 - **lower carbon emissions**
- **Rely on extensive industry collaborations**
- **Focus on critical technology needs**
- **EERE Reorganization integrates all EERE fuel cell and hydrogen activities into a single office.**