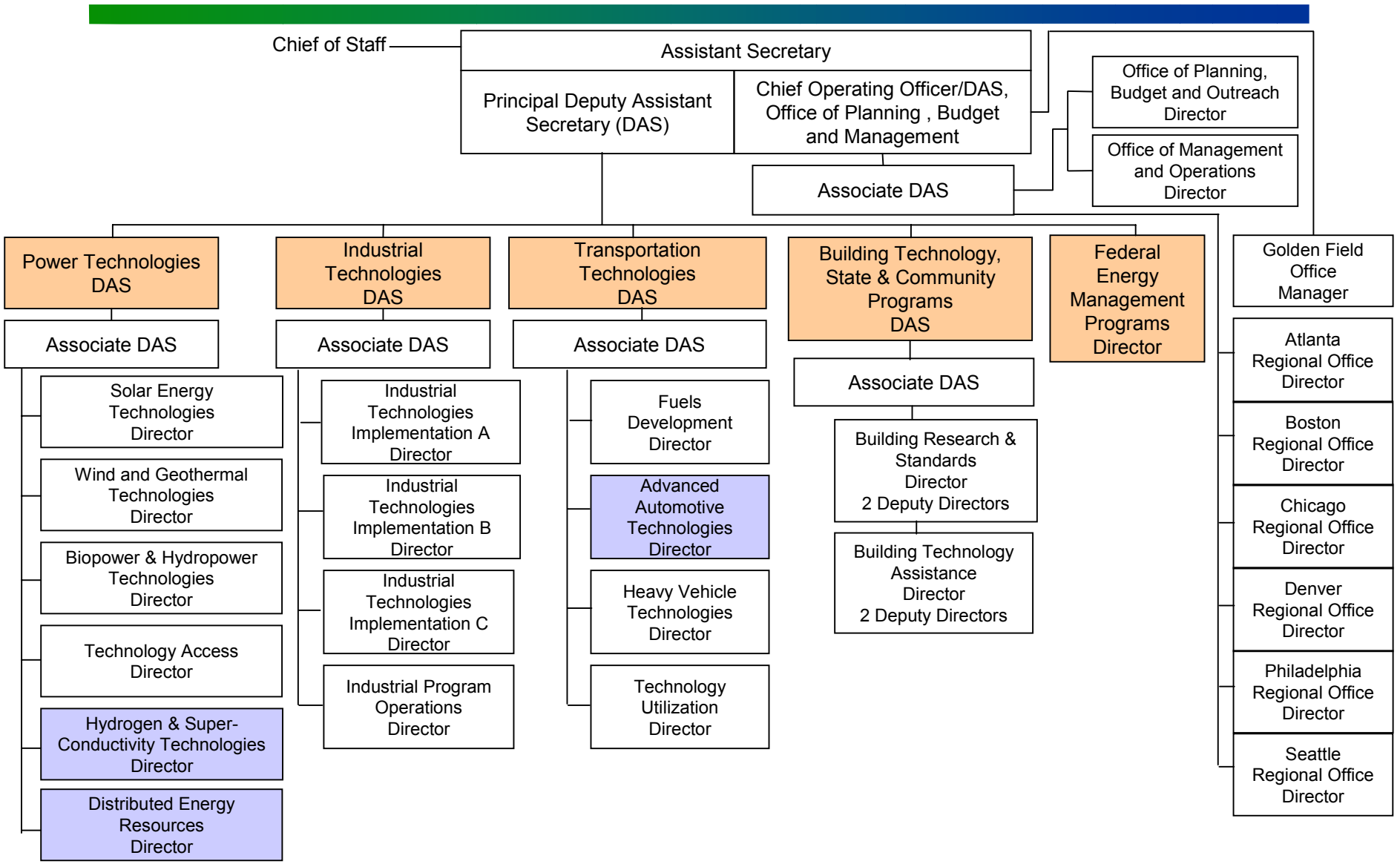
Office of Hydrogen, Fuel Cells & Infrastructure Technologies (proposed)

Steve Chalk

May 6, 2002

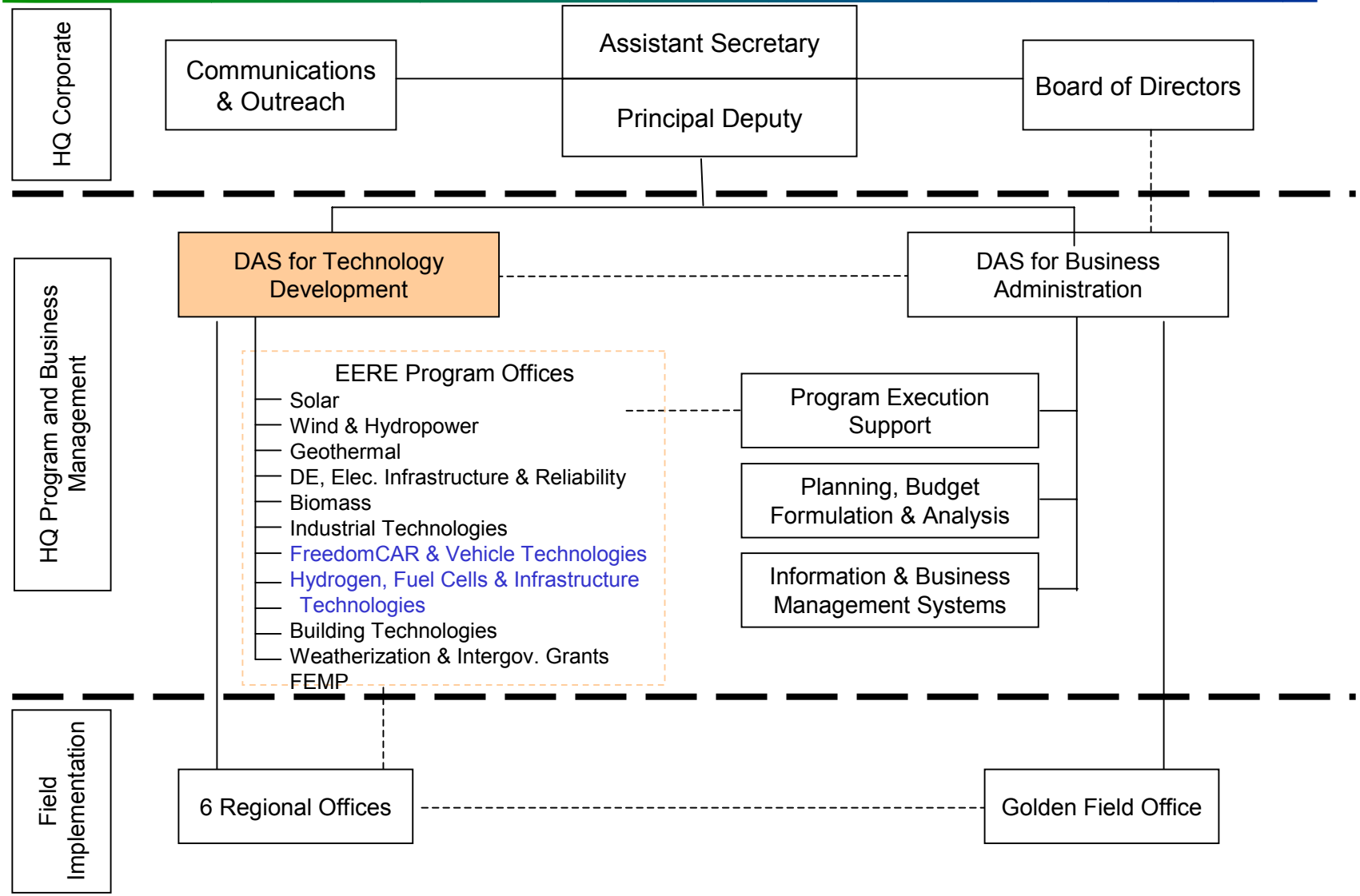
Current "Market Sector" Model

Office of Energy Efficiency and Renewable Energy



Proposed Streamlined, Integrated, and Focused Model

Office of Energy Efficiency and Renewable Energy



EERE Fuel Cell and Hydrogen Funding ($K)

Interior Appropriations					
TRANSPORTATION FUEL CELL R&D	**FY 2001**	**FY 2002**	**FY 2003**	**Increase**	
Systems	7,405	7,600	7,600	0	(0%)
Components	12,052	12,825	14,900	2,075	(+16%)
Fuel Processing & Storage	20,806	21,300	24,100	2,800	(+13%)
Field Evaluations	0	0	3,000	3,000	(New)
Technical Support Services	400	200	400	200	(+100%)
TOTAL	**40,663**	**41,925**	**50,000**	**8,075**	**(+19%)**
DISTRIBUTED GENERATION TECH.					
TOTAL, Stationary Fuel Cells	**5,440**	**5,500**	**7,500**	**2,000**	**(+36%)**
Energy & Water Appropriations					
HYDROGEN RESEARCH					
Core Research and Development	14,438	14,426	19,331	4,905	(+34%)
Technology Validation	9,009	10,320	15,000	4,680	(+45%)
Analysis and Outreach	3,147	4,437	5,550	1,113	(+25%)
TOTAL	**26,594**	**29,183**	**39,881**	**10,698**	**(+37%)**

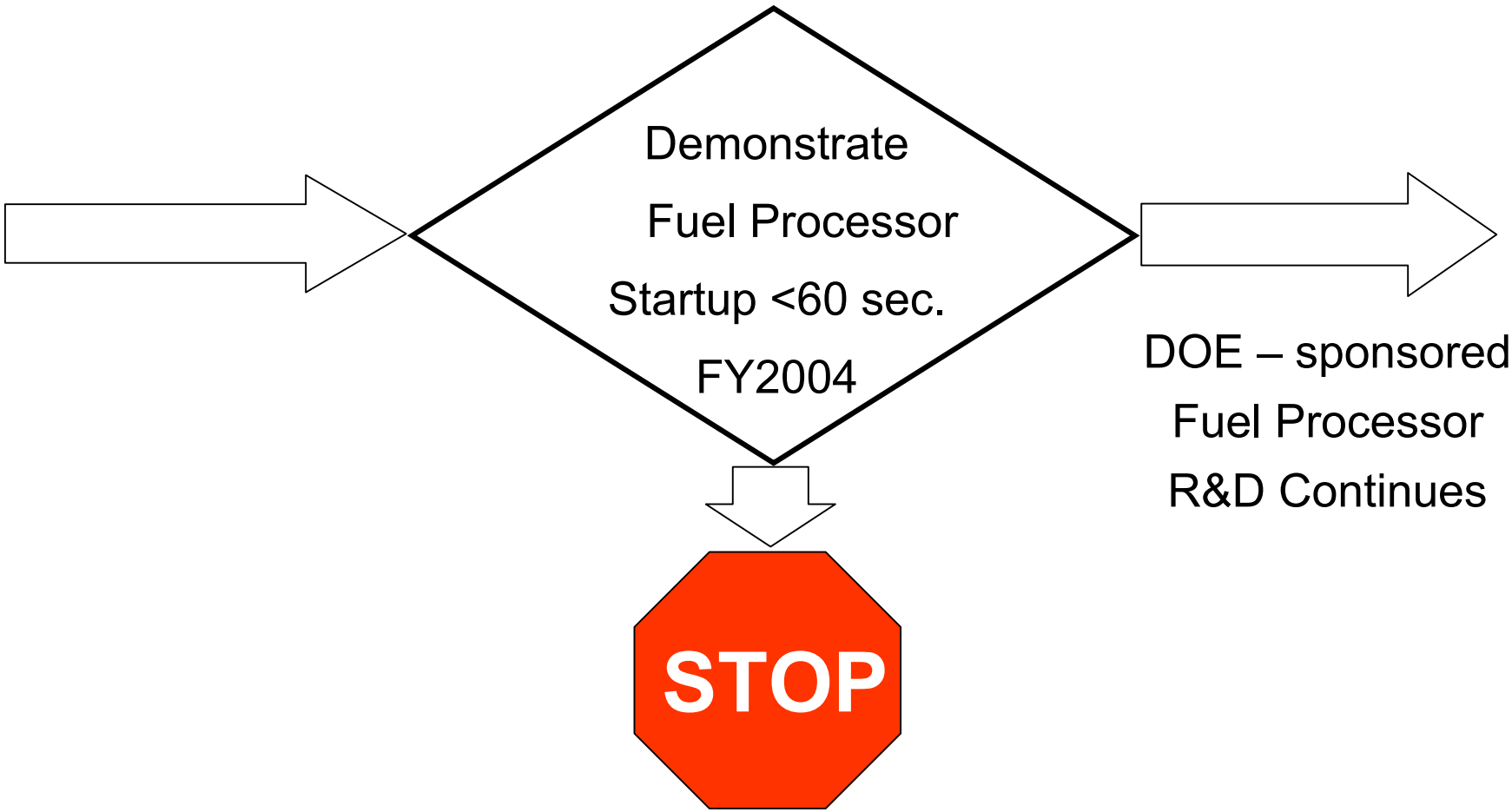
Organizational R&D Priorities

1. Hydrogen Storage
2. Hydrogen Production
3. Fuel Cell Cost Reduction

Major Fuel Cell Decisions

Fuel Flexible Fuel Processing

GO/NO GO DECISION



PARTNERSHIP FOR VEHICLES/ INFRASTRUCTURE DEMONSTRATIONS

2000 2004 2008 2012

	Phase 1 Technical Feasibility Demonstration	Phase 2 Controlled Fleet Demonstrations	Phase 3 Commercial Readiness Demonstrations	Commercialization Phase
Vehicles Objective Sites Number of Vehicles	Test FC vehicle performance and feasibility 1(CaFCP) < 50	Demonstrate use of FC vehicles under real-world conditions 3 sites (varying climates) ~ 500	Demonstrate commercial viability of FC Fleet vehicles 2-3 states (networked sites) ~ 5000	Investment to establish manufacturing plants and sales/service
Infrastructure Objective Hydrogen Source Number of Stations	Demonstrate H_2 fueling station Analyze fuel options Primarily trucked in liquid ~3	Onsite generation from multiple feedstocks Renewables and fossil fuels 5-10	Sufficient stations to provide consumer convenience Most Cost Effective sources by region 20-30	Investment for 25-50% of all stations H_2 capable
Go/No Go Decision Points		**Decision Criteria:** Phase 1 vehicles achieve 1000 hrs durability, $325/kW cost (projection based on 500,000 units production). R&D results project 2500 hrs durability, $125/kW, $3.00/gallon gasoline equivalent (untaxed), and 145 g/mi greenhouse gases	**Decision Criteria:** Phase 2 vehicles achieve 2500 hrs durability, $125/kW cost (projection based on 500,000 units production) and hydrogen at $3.00/gallon. R&D results project 5000 hrs durability, $45/kW, $2.10/gallon gasoline equivalent (untaxed), and 130 g/mi greenhouse gases	**Decision Criteria:** Based on capability to achieve 5000 hrs durability, $45/kW cost, $2.10/gallon gasoline equivalent (untaxed), And 130 g/mi greenhouse gases and other market factors, the decision to enter a commercialization phase will be made by industry.
2001 Laboratory Status Fuel Cell Cost = $325/kW @ high volume, Durability = 1000 hrs, Hydrogen Cost = $4.50/gallon gasoline equivalent (untaxed)				

R&D Continues Concurrently to address key cost and performance barriers

Draft

Hydrogen Vision/Roadmap

"Focus research and development efforts on integrating current programs regarding hydrogen, fuel cells, and distribution…" – National Energy Policy

Hydrogen Vision/Roadmap Workshops held 2001 & April 2002 with industry stakeholders

- ✓ Hydrogen Vision complete
- ✓ Hydrogen Roadmap to be completed May/June 2002
- ✓ www.eren.doe.gov/hydrogen/features.html

"The President's Plan directs us to explore the possibility of a hydrogen economy…."
Spencer Abraham, Secretary of Energy