

Excellence in Fuel Cells

Fuel Cell Summit

Hannover Fair

April 9 – 11th



Brian Walsh

Technical Director

Breakthrough Technologies Institute

Fuel Cells 2000

US Fuel Cell Council

Fuel Cells 2000 / BTI

- U.S. nonprofit organization formed in 1993
- Promotes fuel cells from public interest perspective.
- Supported by foundations, grants and contracts -- no corporate
- www.fuelcells.org



U.S. Fuel Cell Council

- Trade Association
- Supports commercialization for all applications
- International membership
- 115+ Members



US Fuel Cell Council

www.usfcc.com

International Trends

1) Internationalizing

- Always: International before Commercial
- Recently: Australia, China, Singapore, Italy, others

2) Collectivizing

- EU-US Scientific Co-Operation
- 6 OEMs working collectively on 700 bar H2 storage
- Japan Hydrogen & Fuel Cell Demo. Project
 - DaimlerChrysler lead FCV Test Program/Facility

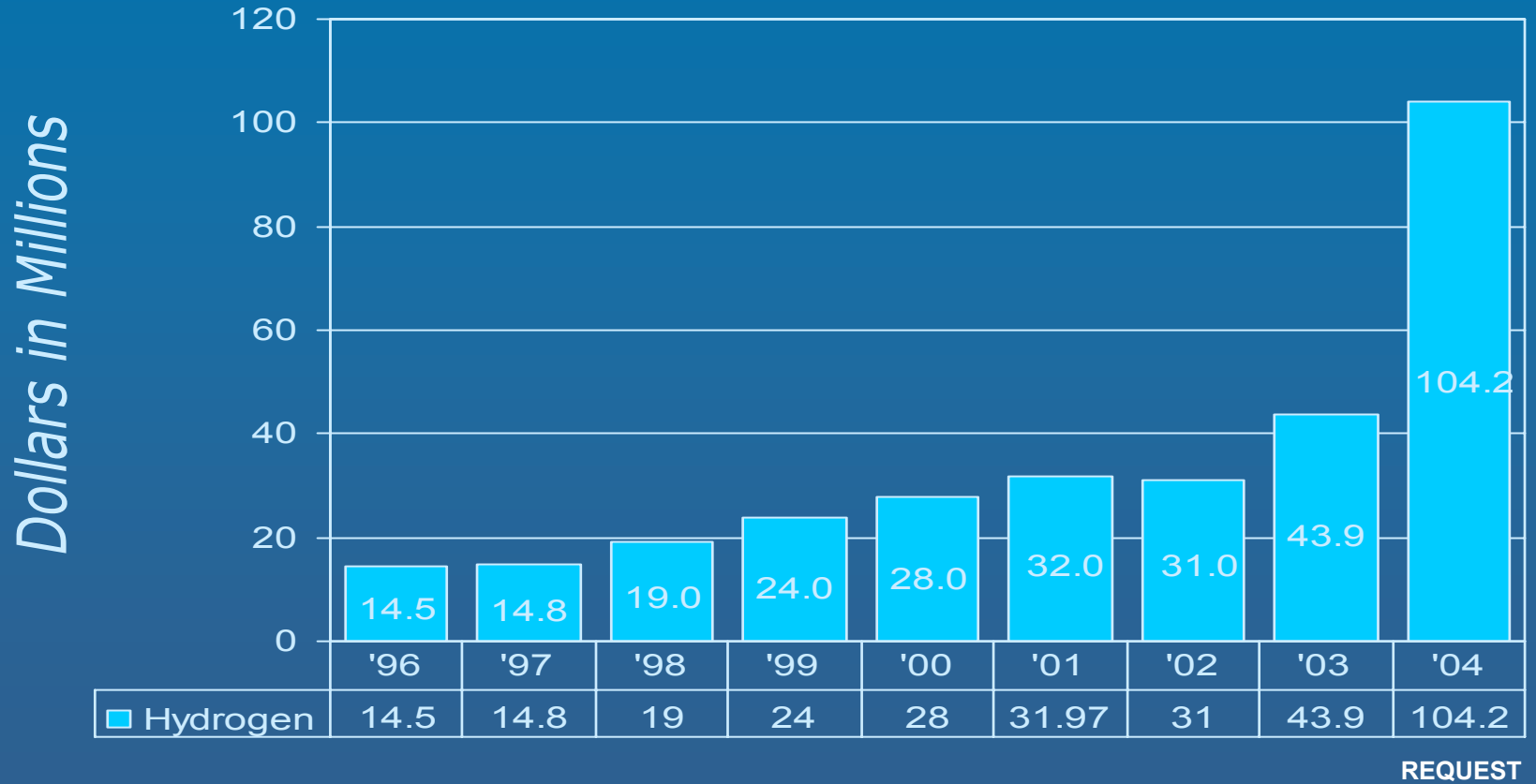
3) Governments Starting to Throw Real \$\$ at it

- US, EU, Japan, Canada, UK, China, Singapore, Australia, & Many Others Increasing Federal Funding

US DOE FY04 Budget Request for FreedomCAR and Hydrogen Fuel Initiatives

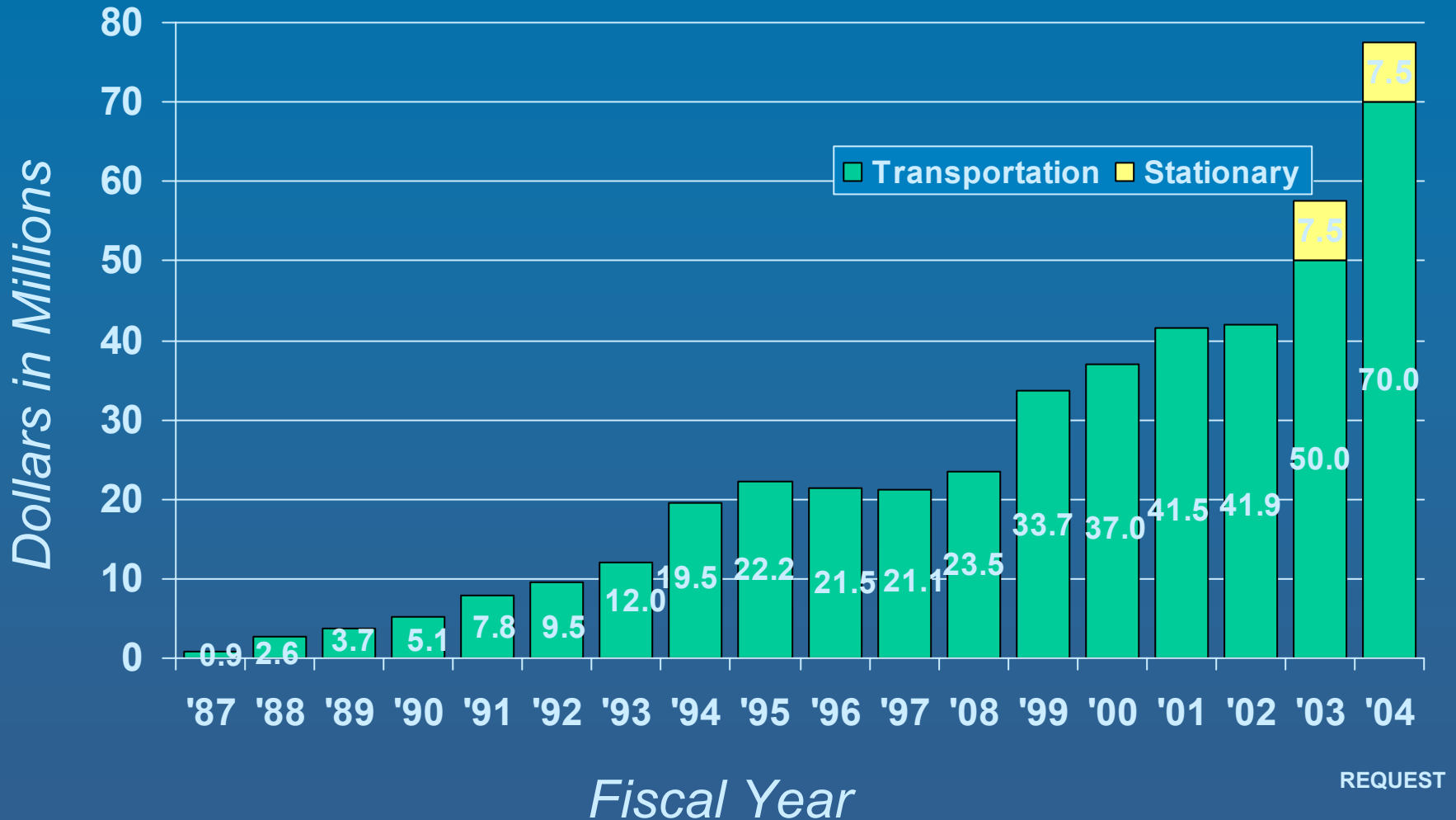
Organization	Million \$
Hydrogen, Fuel Cells & Infrastructure Technologies Program (EERE)	165.5
FreedomCAR and Vehicle Technologies Program (EERE)	91.1
Office of Fossil Energy (FE)	11.5
Office of Nuclear Energy, Science and Technology (NE)	4.0
Department of Transportation (RSPA)	0.7
Total	272.8

DOE Hydrogen Funding History



Fiscal Year

DOE Fuel Cells for Transportation Funding History



Hydrogen Infrastructure and Fuel Cell Technologies put on an Accelerated Schedule

President Bush commits \$1.7 billion over 5 years:

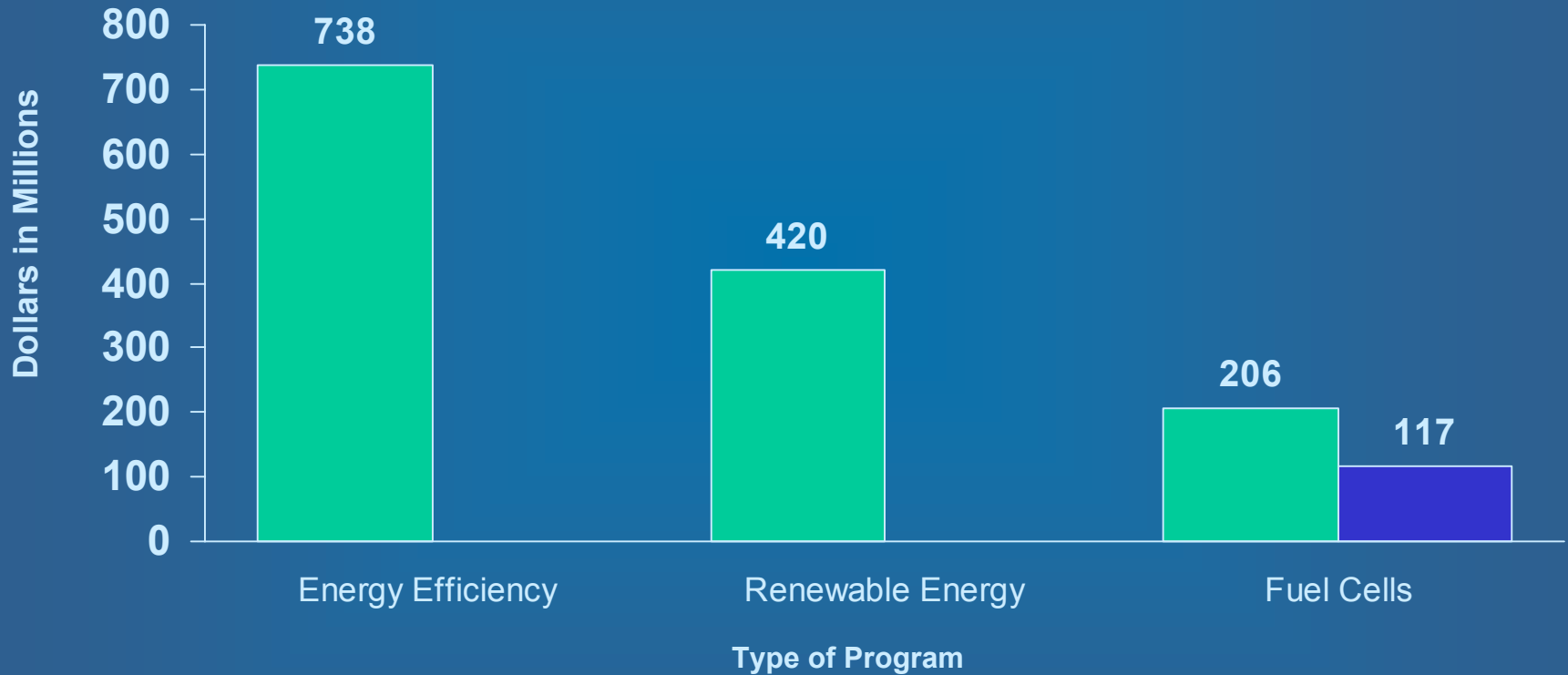
- ❖ \$1.2 billion for hydrogen and fuel cells RD&D (\$720 million in new money)
- ❖ \$0.5 billion for hybrid and vehicle technologies RD&D

Accelerated, parallel track enables industry commercialization decision by 2015.

***Fuel Cell Vehicles in the Showroom
and Hydrogen at Fueling Stations
by 2020***



State Funds Manage Between \$117 million to \$206 million in Funds Dedicated to Fuel Cells Annually



Note: (1) Range based on fluctuation on annual allocation for fuel cell programs, and variable nature of some types of incentives

US – Private

- US Fuel Cell Council
 - 115+ members
 - Latin America Working Group
- National Hydrogen Association
 - 80+ members
- Fuel Cell Advocates
 - GM recently joined

Headlines

The Fuel Cell on Its Way to the Customer: New buses for Europe - DaimlerChrysler Presents World's First Small Series of Fuel-cell-powered Buses

- DaimlerChrysler

Hyundai and Five Global Automakers Team Up on Fuel Cell Project

- EyeForFuelCells

Palcan signs Joint Venture with Chinese Companies to power vehicles

- Palcan Press Release

Japanese Companies working together to unify standards for micro fuel cells

- FuelCellToday

Fuel cell vehicles to finally hit the streets

- Associated Press