

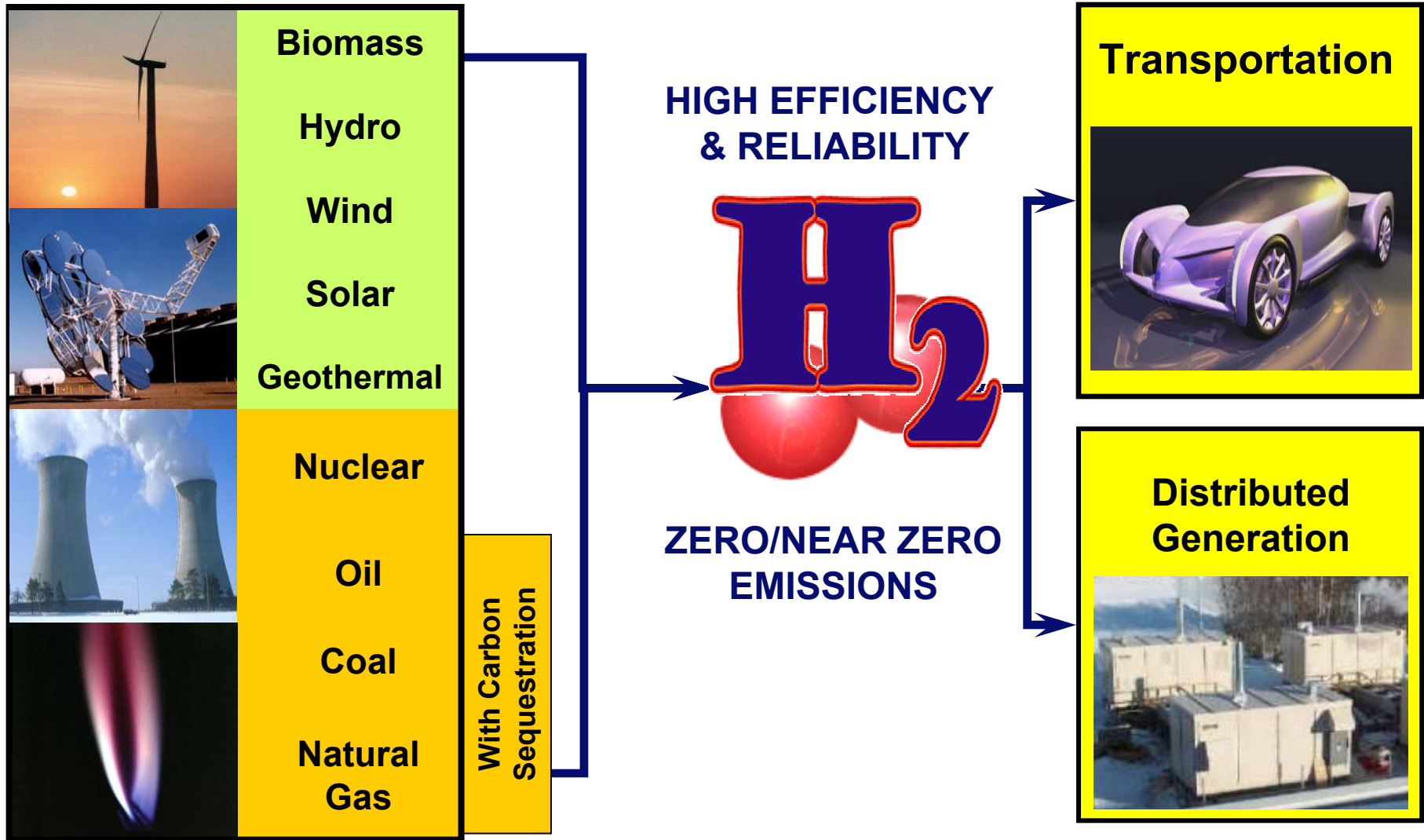


**International Partnership  
for the Hydrogen Economy**

**Dr. Robert K. Dixon**

IPHE Secretariat

# Why Hydrogen? It's abundant, clean, efficient, and can be derived from diverse domestic resources.





# National Commitments

## **United States**

Committed \$1.2 billion for the first five years of a long-term hydrogen energy technology and infrastructure development program.

## **European Union**

Committed up to € 2 billion to long-term research and development of renewable and hydrogen energy technologies.

## **Japan**

Fuel cell and hydrogen technology research, development, and demonstration program has tripled since 1995.

## **Canada**

Completed a fuel cell commercialization roadmap in March 2003; currently \$40 million per year of federal support for hydrogen programs.

## **Initiated Roadmaps and Programs:**

Australia, Brazil, China, France, Germany, Iceland, India, Italy, Republic of Korea, Norway, Russia, United Kingdom

# President Bush Launches the U.S. Hydrogen Fuel Initiative



"Tonight I am proposing \$1.2 billion in research funding ....

"With a new national commitment, our scientists and engineers will overcome obstacles to taking these cars from laboratory to showroom so that the first car driven by a child born today could be powered by hydrogen, and pollution-free.

**President George W. Bush  
2003 State of the Union Address  
January 28, 2003**



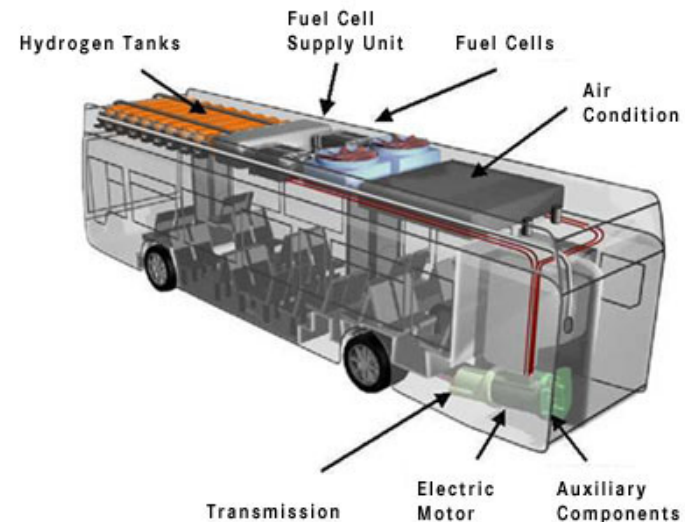
# European Union Initiative



The European Union has dedicated over €2 billion to hydrogen and fuel cell research activities, and is establishing a European Technology Platform to coordinate member state initiatives.

Through the **Clean Urban Transport for Europe Program (CUTE)**, the European Commission is allocating €18.5 million to support 9 European cities in introducing hydrogen into their public transport system.

27 fuel-cell powered buses, running on locally produced hydrogen, will show that zero emission public transport is possible when ambitious political will and innovative technology are combined.



Citaro fuel cell bus prototype which will be the basis for the bus fleet used in the fuel cell bus project.

# Japan's Hydrogen Program

Fuel cell and hydrogen technology research, development, and demonstration program has tripled since 1995.

## Japanese Manufacturer's Fuel Cell Vehicle prototypes



TOYOTA



HONDA



NISSAN



Compact FCV. Daihatsu Move



TOYOTA/HINO FC BUS2.



# Developing Countries

---

Developing countries are exploring the hydrogen economy:

- Brazil
- China
- India

# IPHE Goal



Efficiently organize, evaluate and coordinate multinational research, development and deployment programs that advance the transition to a global hydrogen economy.





# IPHE Ministerial

---

The IPHE Ministerial was held November 19-21, 2003 in Washington DC, USA.

- Signing of the Terms of Reference
- 700+ delegates and participants representing approximately 30 countries
- Public-Private Dialogue Sessions
- IPHE Committee meetings

# IPHE Partners



Russian Federation



USA



Canada



Iceland



## IPHE Partners' Economy:

- Over \$35 Trillion in GDP, 85% of world GDP
- Nearly 3.5 billion people
- Over 75% of electricity used worldwide;
- > 2/3 of CO<sub>2</sub> emissions and energy consumption



Japan



South Korea



China



India

United Kingdom



France



Germany



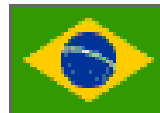
Italy



Australia



Brazil



Norway



European Commission





# IPHE Operating Structure

## Steering Committee

- Governs the overall framework, policies and procedures of the IPHE;
- Periodically reviews the program of collaborative activities; and
- Provides direction to the Secretariat.

## Implementation and Liaison Committee

- Reviews the progress of collaborative projects;
- Identifies promising directions for research, development, demonstration, and commercial use;
- Provides technical assessments for policy decisions; and
- Maintains communications with the private sector and other stakeholders.

# Implementation-Liaison Committee



- 2<sup>nd</sup> meeting in Germany, March 2004
- High Priority Activities
  - ❖ Hydrogen Production
  - ❖ Hydrogen Storage
  - ❖ Fuel Cells
  - ❖ Codes and Standards
  - ❖ Socio-economics
- Developing national hydrogen R&D Roadmaps
- Organizing international workshops
  - ❖ Storage: Lucca, Italy – Summer 2005
- Next Meetings
  - ❖ Iceland (Sept. 23 – 25, '04);
  - ❖ Brazil (March '05); China (Sept. '05)



# Steering Committee

- Held in Beijing, China – May 2004
- Initiated the Beijing Action Plan:
  - ❖ Develop Steering Committee Workplan
  - ❖ Identify appropriate role for IPHE in Codes and Standards work
  - ❖ Identify pathway forward for stakeholder participation
  - ❖ Develop IPHE communication and outreach package
  - ❖ Convene a meeting of the R&D managers on IPHE Partners
  - ❖ Compile an integrated IPHE hydrogen roadmap
  - ❖ Organize international conferences
- Next meetings:
  - ❖ France (Dec. '04/Jan. '05);
  - ❖ Japan (May '05); Iceland (November '05);
  - ❖ Canada (April '06), and Brazil (Fall '06).

# Contacts



**E-Mail: [IPHE@EE.DOE.GOV](mailto:IPHE@EE.DOE.GOV)**

Robert Dixon  
U.S. Department of Energy  
202/586-1394  
[robert.dixon@ee.doe.gov](mailto:robert.dixon@ee.doe.gov)

Christopher Bordeaux  
U.S. Department of Energy  
202/586-3070  
[christopher.bordeaux@ee.doe.gov](mailto:christopher.bordeaux@ee.doe.gov)

Michael Mills  
U.S. Department of Energy  
202/586-6653  
[michael.mills@ee.doe.gov](mailto:michael.mills@ee.doe.gov)

Debbie Hinz  
U.S. Department of Transportation  
202/366-6945  
[debbie.hinz@ost.dot.gov](mailto:debbie.hinz@ost.dot.gov)

## **On the Web:**

[www.usea.org/iphe.html](http://www.usea.org/iphe.html)

[www.eere.energy.gov/hydrogenandfuelcells/partnerships.htm](http://www.eere.energy.gov/hydrogenandfuelcells/partnerships.htm)