

New Companies and Utility Markets

Arati Prabhakar

Chair, Efficiency and Renewables Advisory Committee (ERAC)
for the U.S. Department of Energy

Formerly with U.S. Venture Partners, NIST, DARPA

June 2011

Artificial Photosynthesis
Cuts the Plant Out of the Loop

Wave Power:
Help From the Moon

Metal-Air Batteries
500 miles of range per charge

Compact Modular Reactors
Lifeline for a struggling industry

Electrofuels
CO₂ to liquid fuels

Flow Batteries
Storing power on the electricity grid

Algae
Biofuel and carbon capture

More lumens/watt

Fusion:
Energy Miracle or Mirage?

The objective is
the transformation of our energy systems:

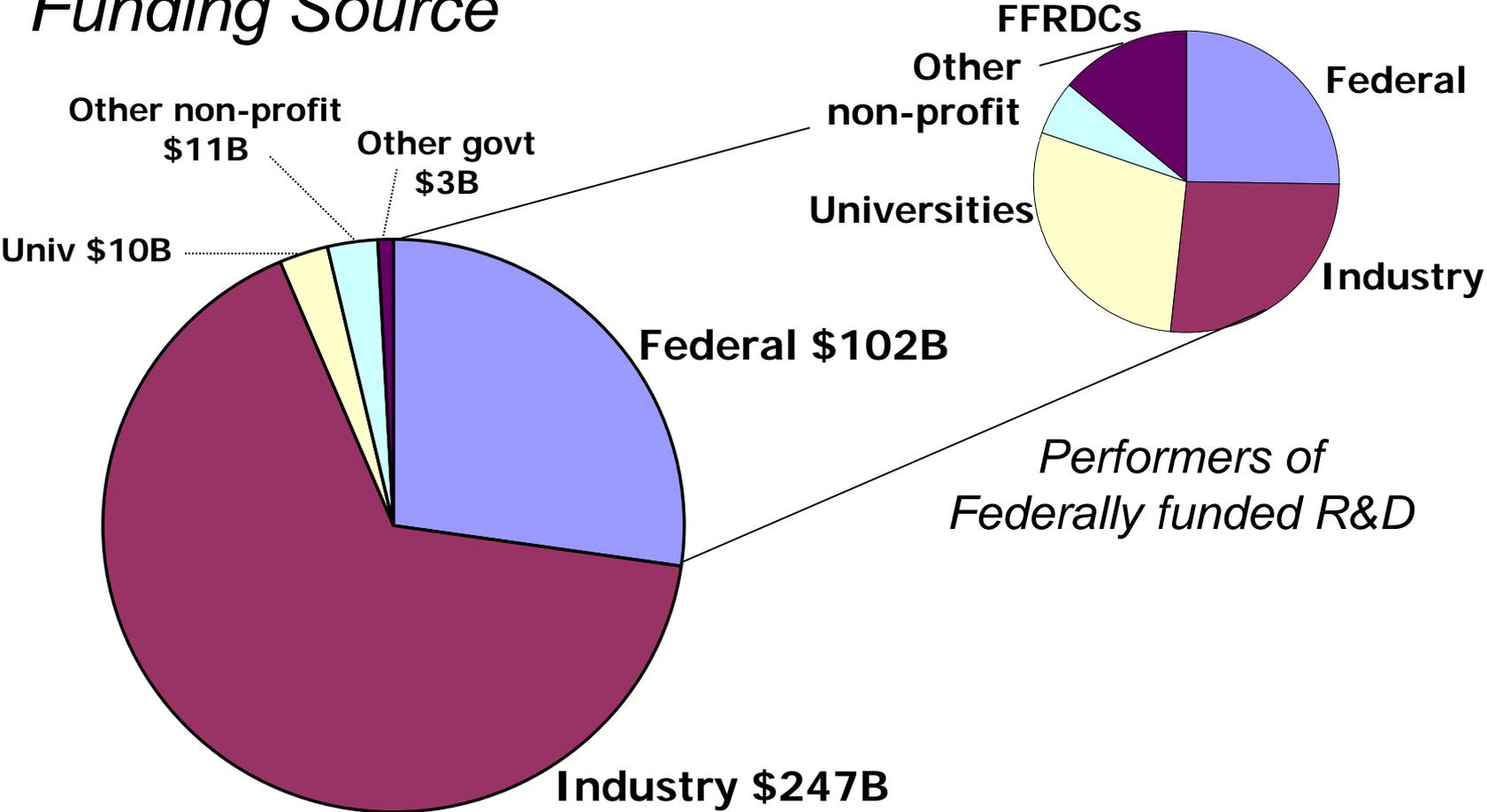
sustainable
secure
affordable.

How do we get there?

U.S. Energy R&D

U.S. R&D 2007: \$373B

Funding Source



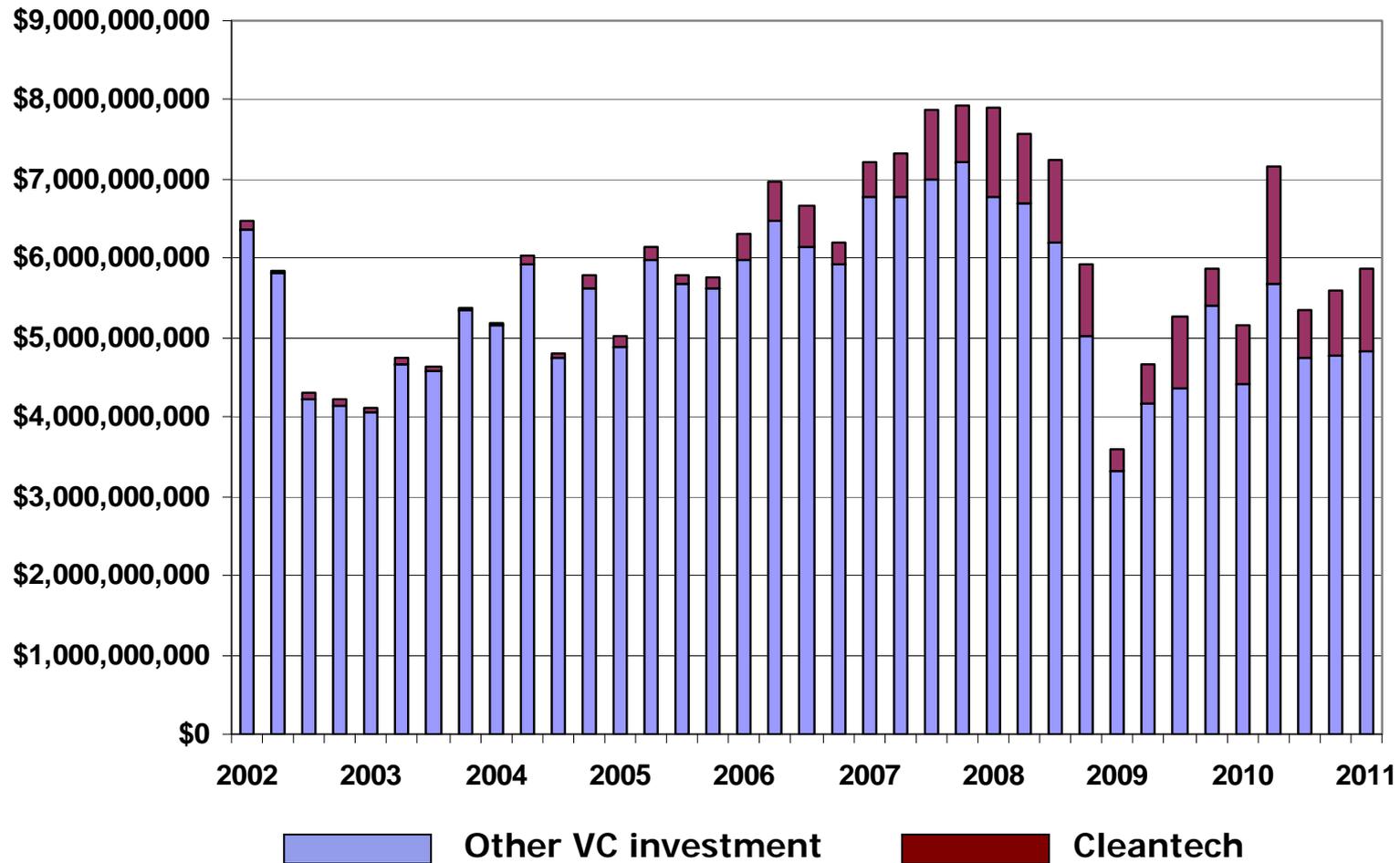
U.S. Company R&D 2007

Selected Sectors

	<u>Sales (\$M)</u>	<u>R&D (\$M)</u>	<u>%</u>
Software	\$100,000	\$19,634	19.6%
Communications equipment	\$78,000	\$11,435	14.7%
Internet service providers & Web search portals	\$17,500	\$2,351	13.4%
Pharmaceuticals & medicines	\$375,000	\$47,624	12.7%
Semiconductor & other electronic components	\$153,000	\$18,315	12.0%

U.S. Cleantech Venture Capital

Cleantech Now 15% of U.S. Venture Capital \$3-4B/year



Slow customers

You turn grey and die
selling into the
automotive market –
and utilities are even
slower

***Commodity
product***

You get killed if you
compete on the basis of cost

Policy risk

If the government
would just get out of
the way...

Technology risk

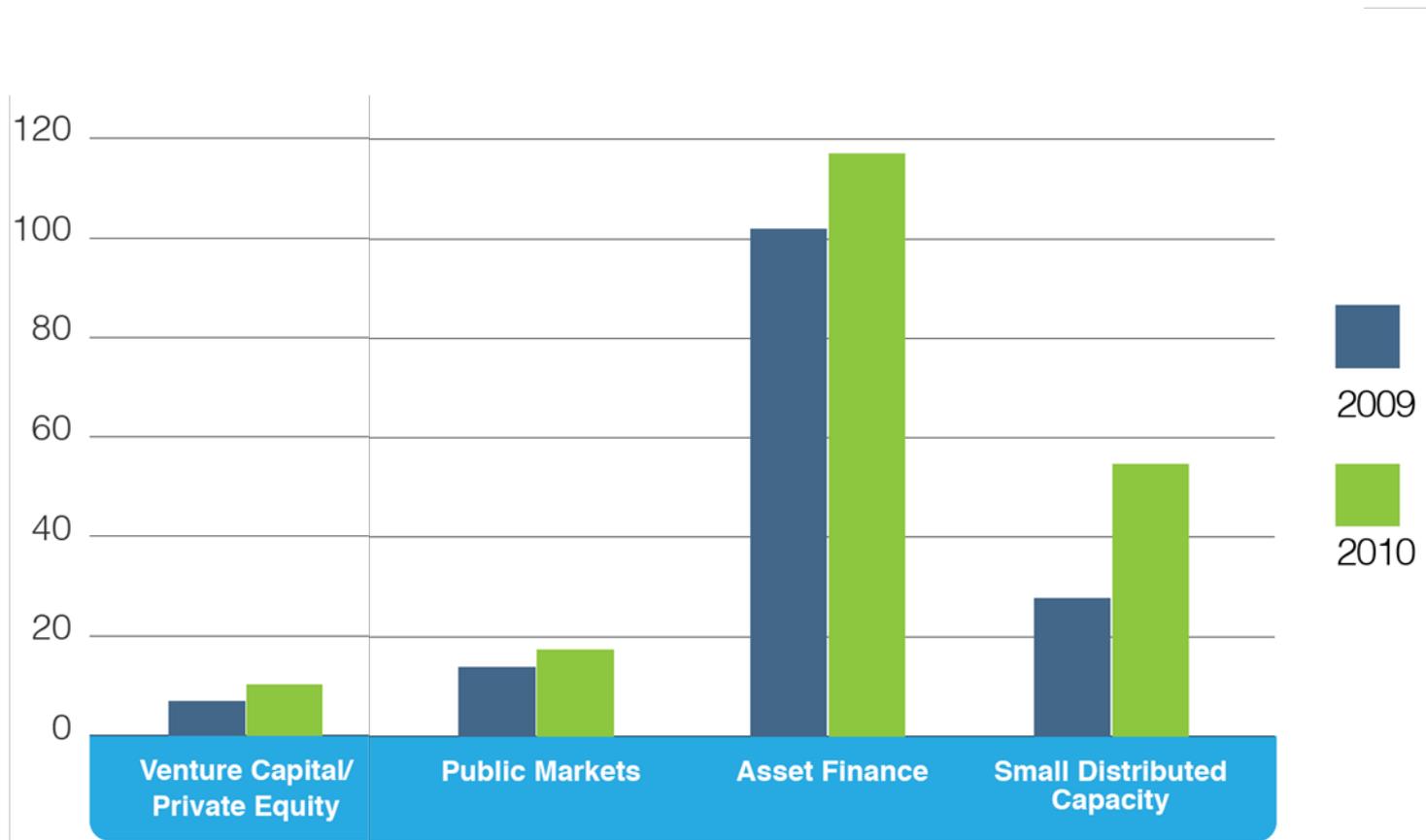
That's the material of the
future:
it always has been, and
always will be

Scale risk

A factory is
a boat anchor
around your neck

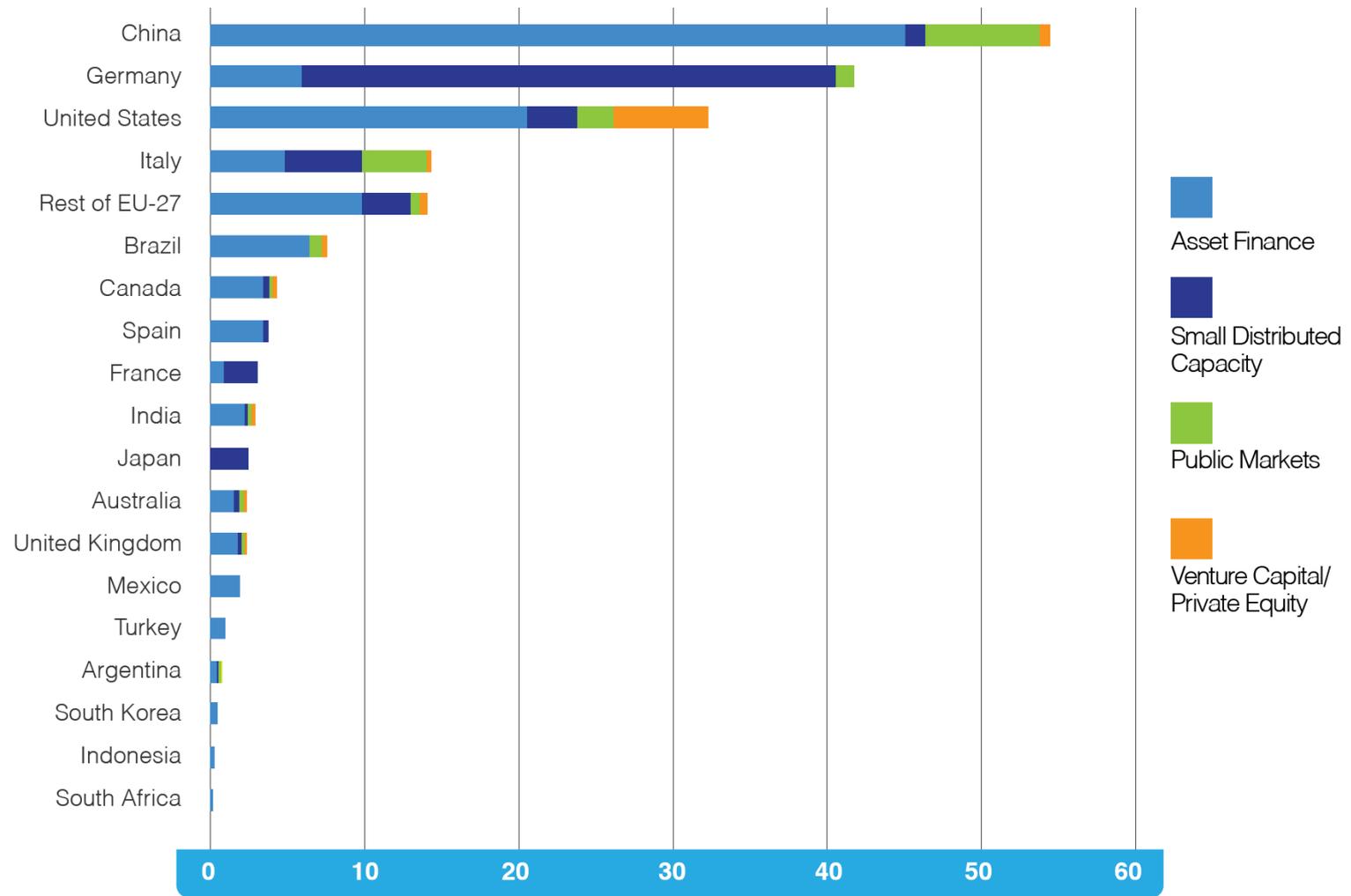
Cleantech at Scale

G-20 Clean Energy Investment by Financing Type (\$B)

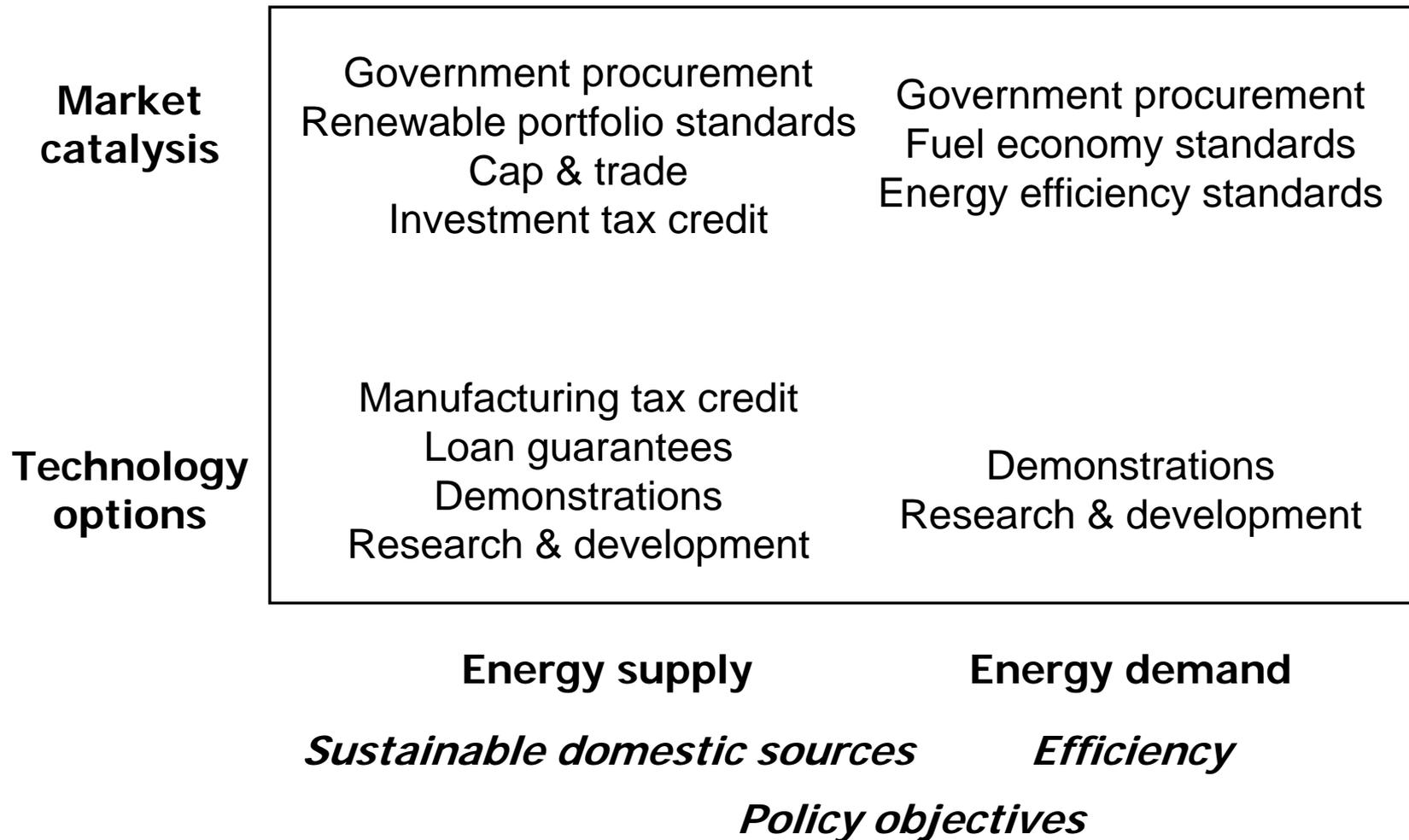


Includes biomass, geothermal, wind, hydro, solar, marine energy, biofuels, and energy efficiency

Clean Energy Investment 2010 (\$B)



U.S. Federal and State/Regional Policies for New Energy Technologies



Transforming Our Energy Systems

R&D

- Maintain and strengthen public energy R&D
- Build utility sector R&D

Entrepreneurship

- Continue cleantech entrepreneurship and VC
- Create more on ramps for new capabilities into utilities

Policy

- Align public policies to unleash private deployment capital

THANK YOU

aratiprab@gmail.com