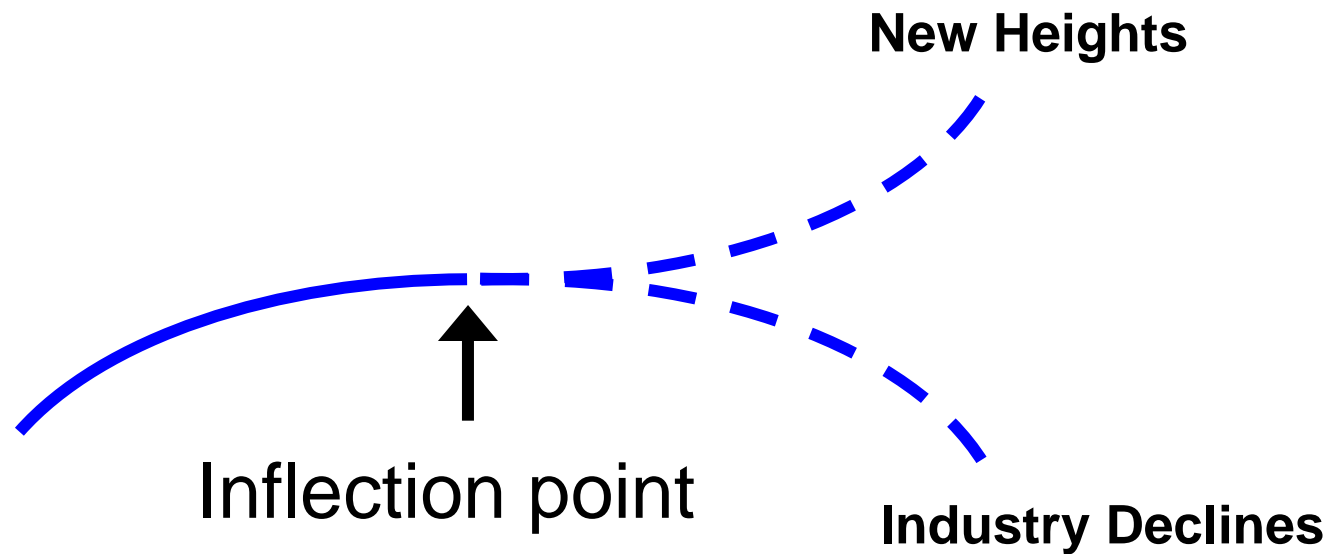


Plug-In 2008

Andy Grove

July 22, 2008

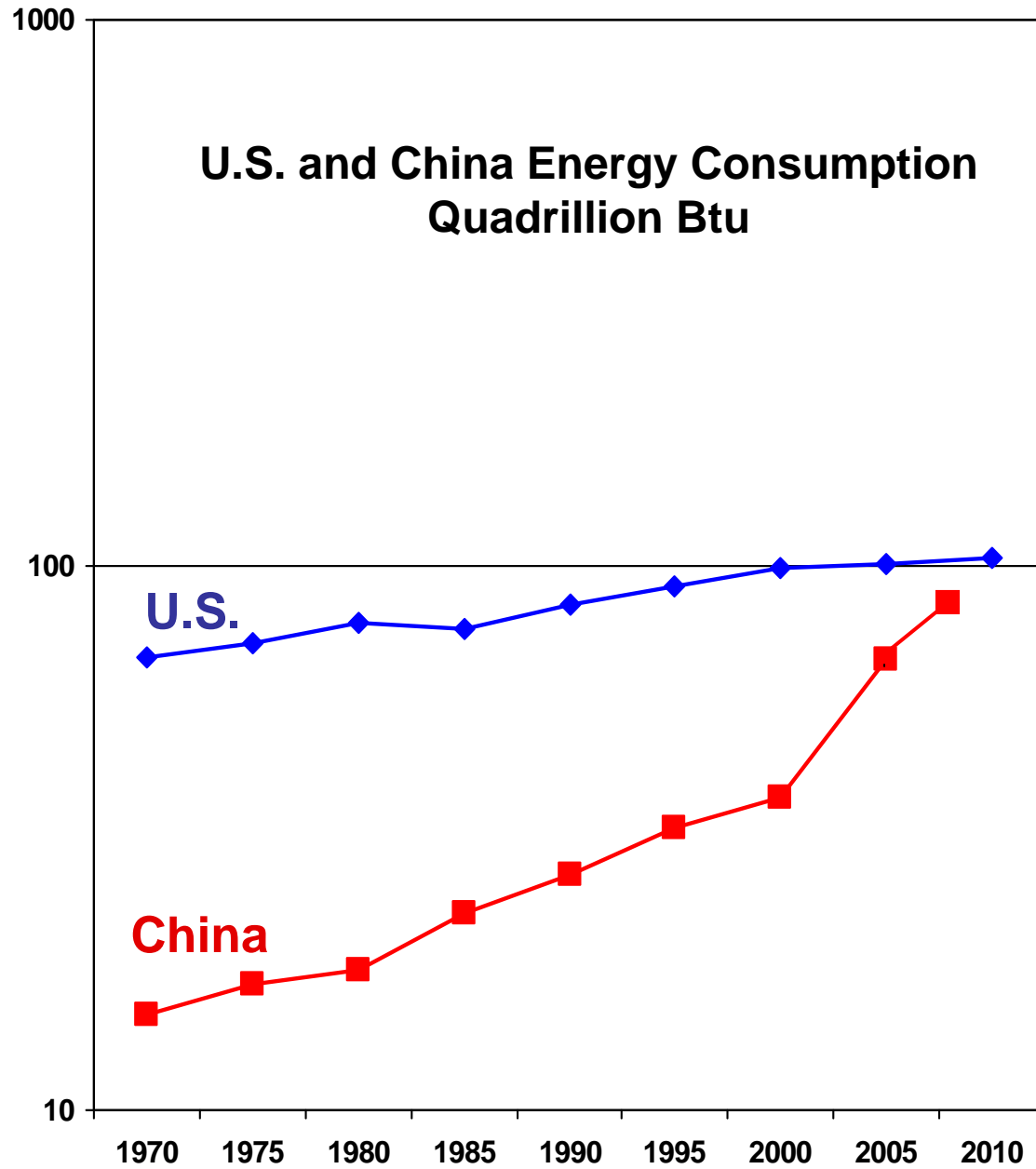
Strategic Inflection Point (SIP)



Transformation of the
\$7,000B
Energy Industry

What's Going On

- Perceived decline of U.S.
- “Speculation”
- “Peak oil”
- Globalization
- China



Tragedy of the Commons

At Stake For US:

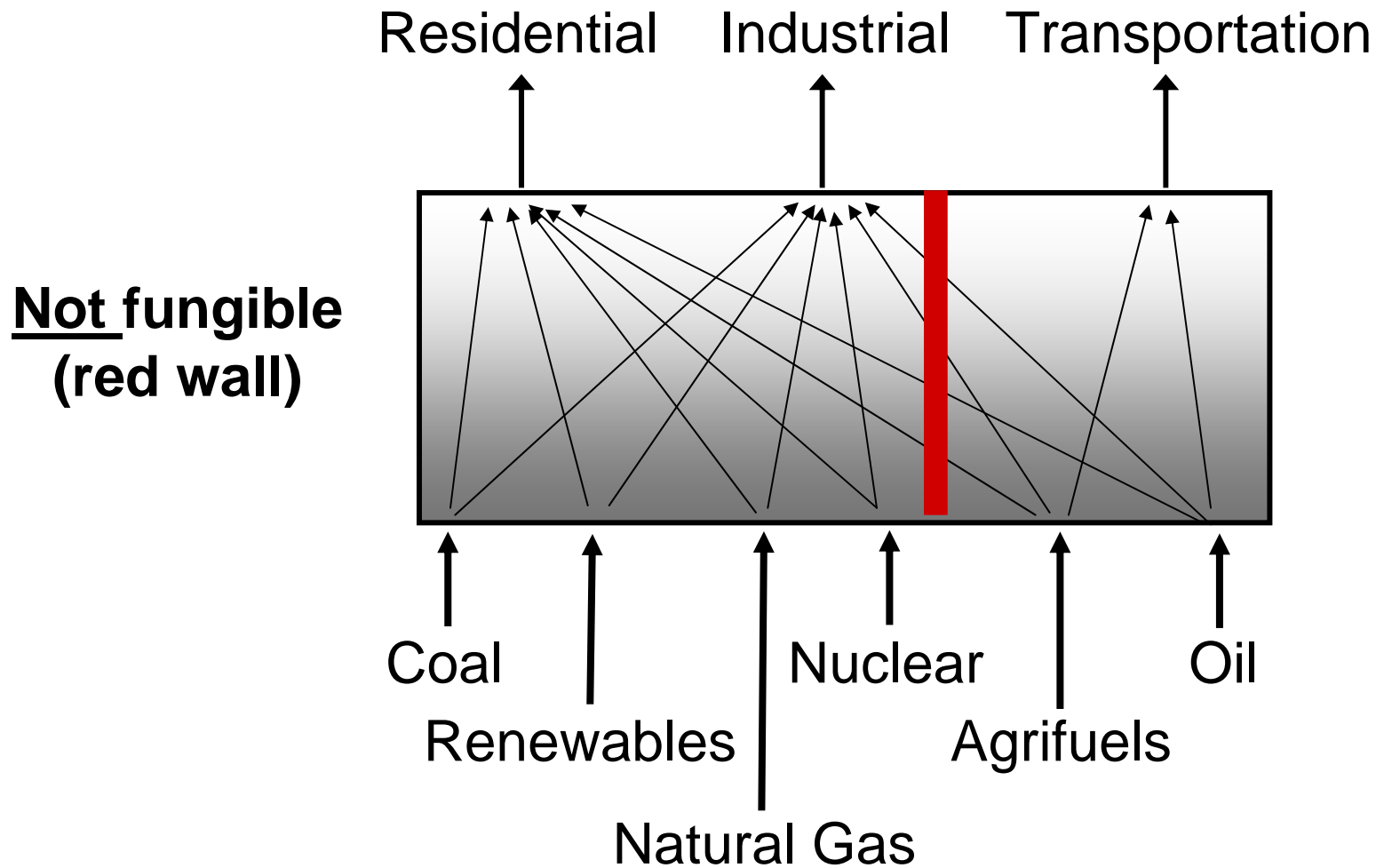
- Economic security
- National security

Building

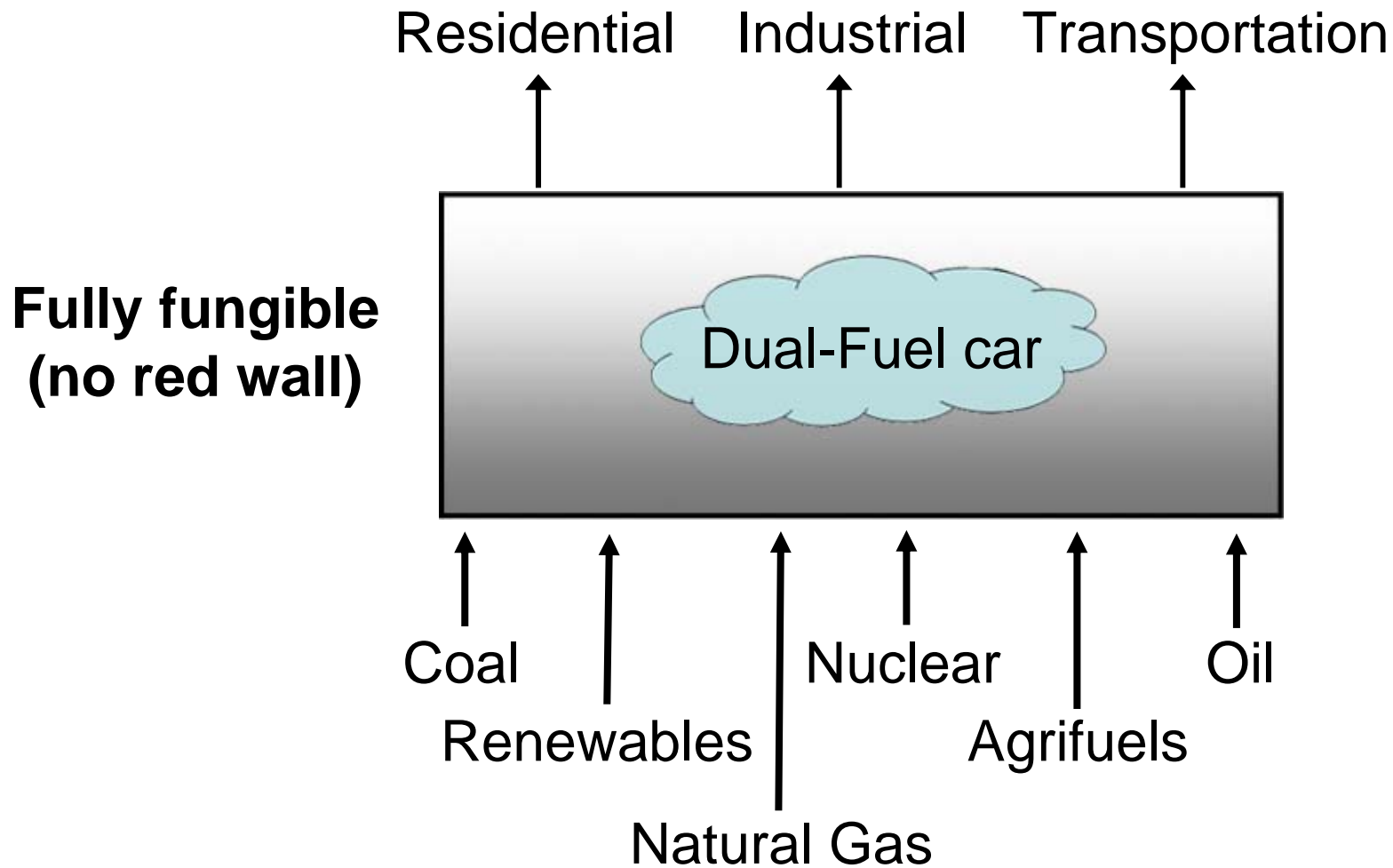
ENERGY RESILIENCE

is paramount

The Energy Industry Today



The New Energy Industry



Fungibility requires use of
electricity in transportation

Stickiness

How?

Definitions:

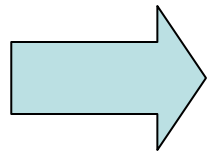
“Electric Car” = always relies on electricity

“Dual-fuel car” * = uses electricity first; gasoline when needed

* Aka PHEV

Factoid:

80% of U.S. drivers drive fewer than 40 miles per day



A dual-fuel car, with 40 miles electric range, can cut gasoline use by more than half.

Job 1

- Take a large step toward electricity in transportation
 - Convert PSVs* first
 - Aim at ≥ 40 mile daily electric range

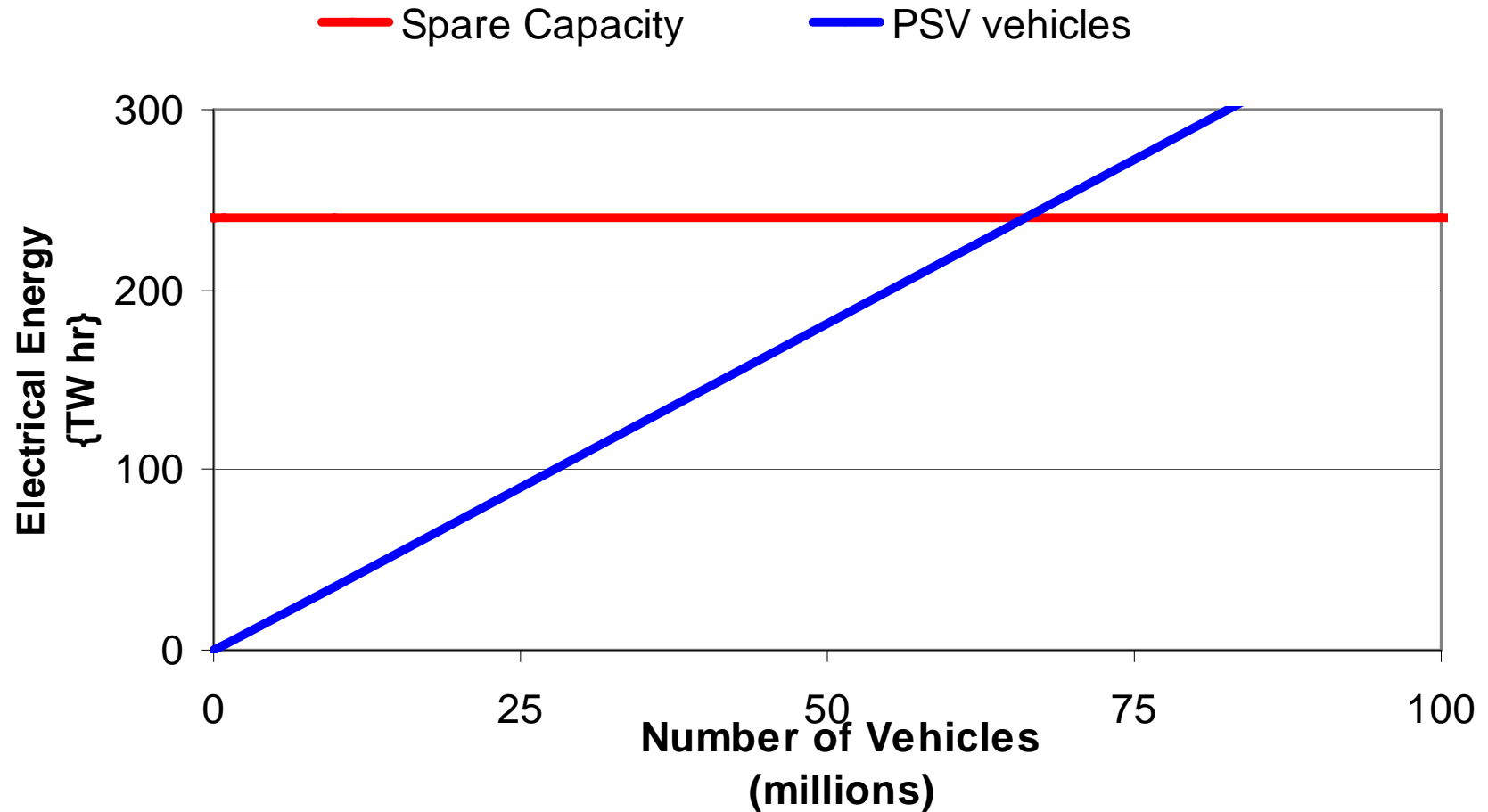
* PSVs = Pickups, SUVs, Vans

- 100M PSVs on U.S. roads
- Conversion would save ~50% of imported petroleum

Key Issues

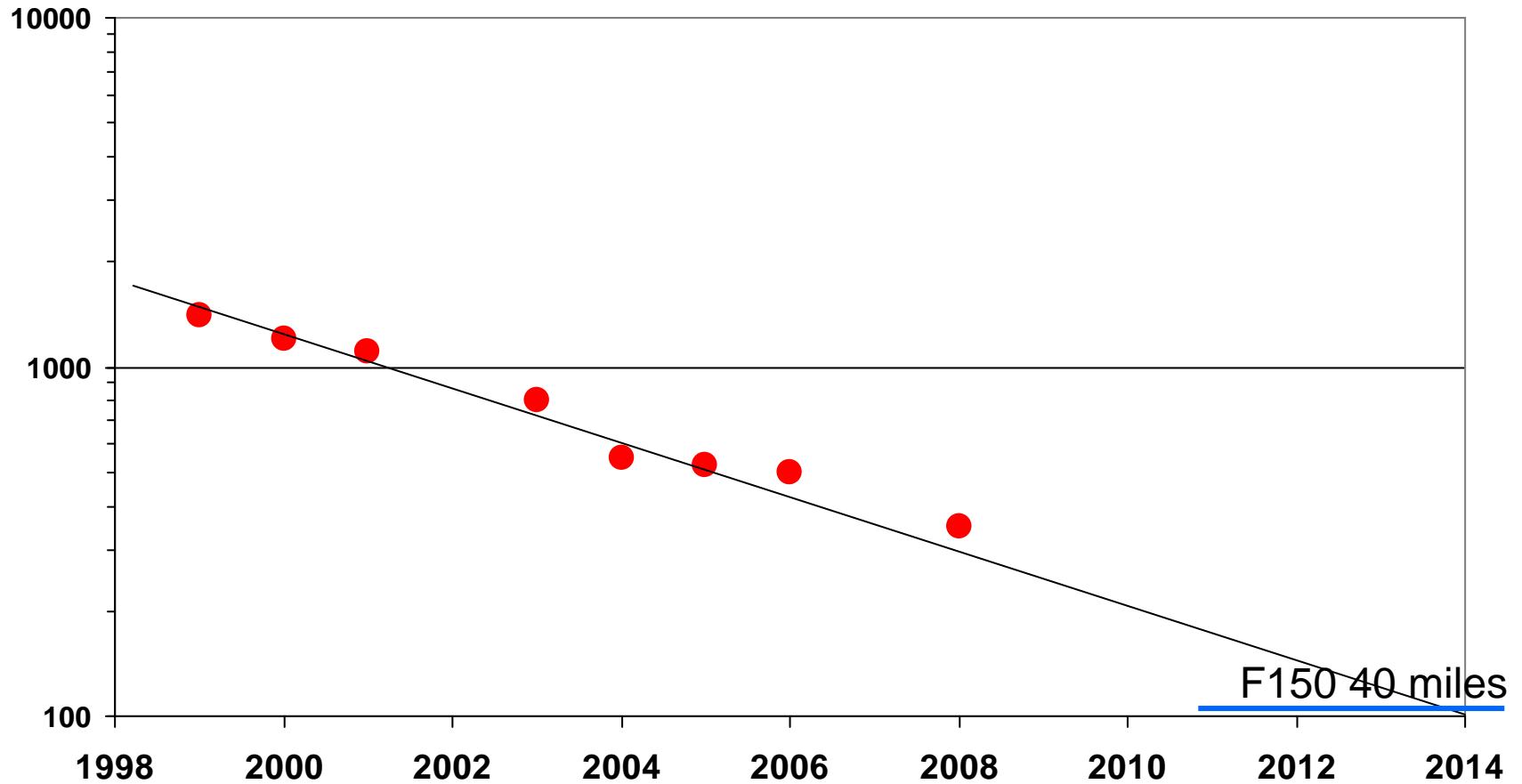
- Infrastructure
- Battery cost
- Carbon emission
- Production ramp

Enough Reserve Capacity For Over 50 Million D-F Vehicles



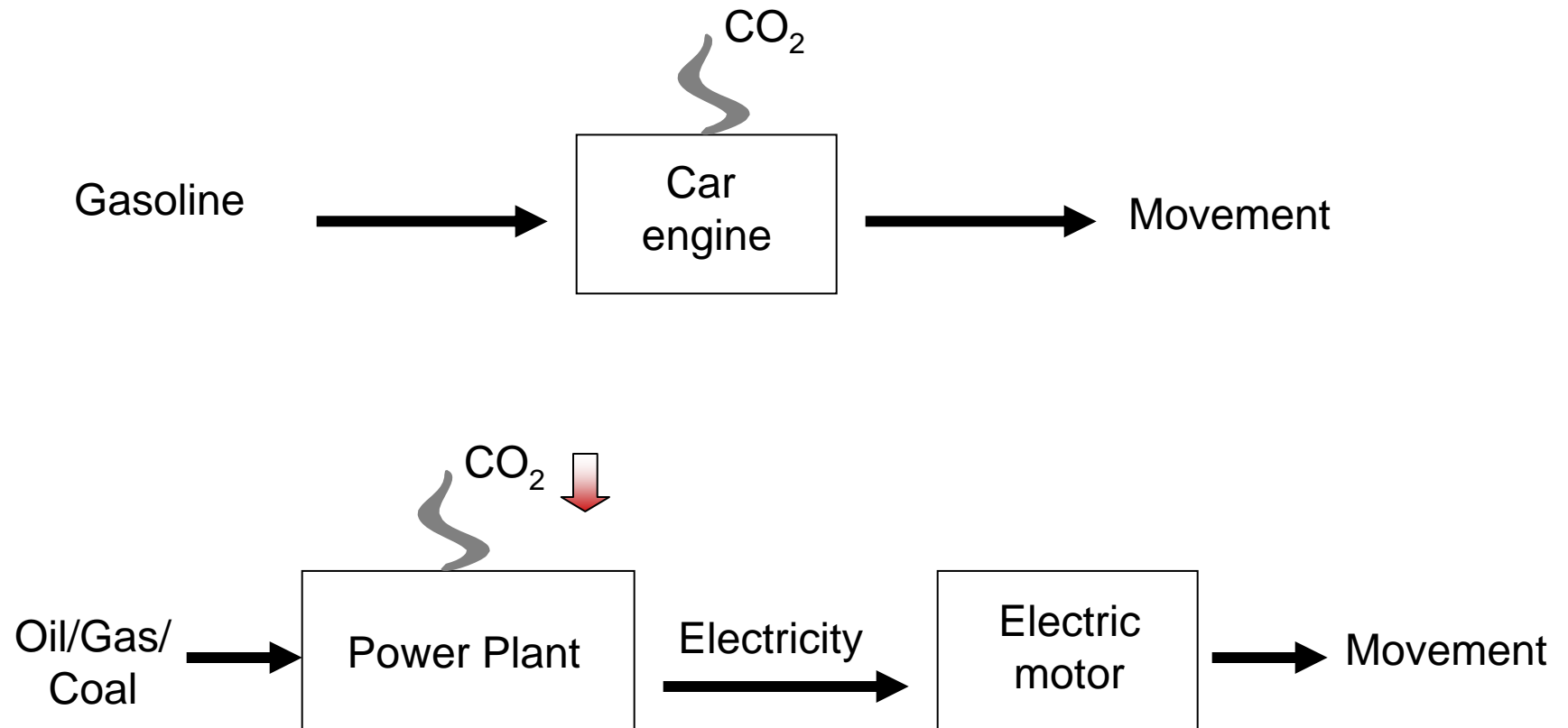
Battery Costs Decline

\$/kWhr



50% / 5 years

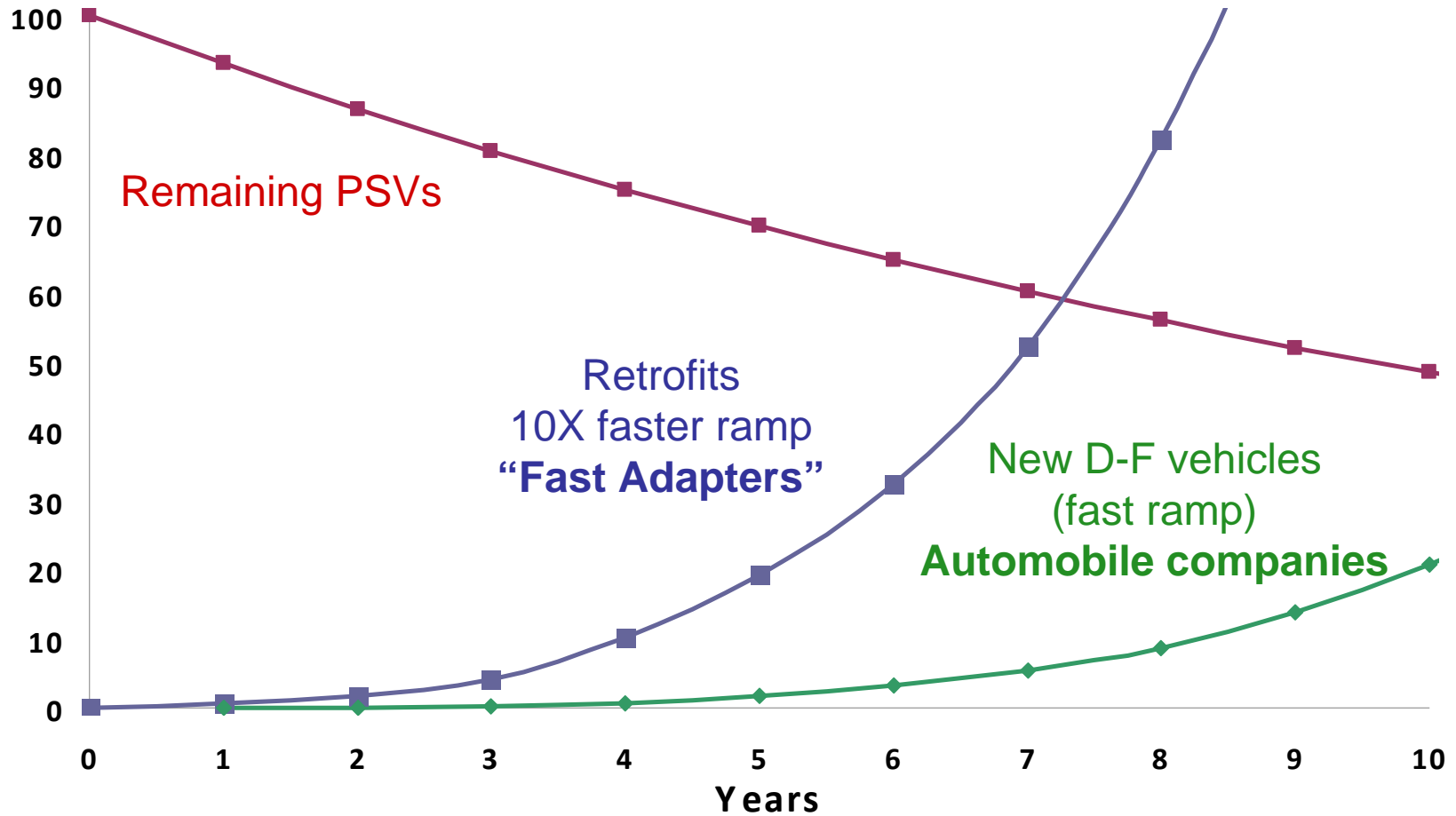
Carbon Emission Reduced



Potential: ~50% reduction!

We Must Have a 10X Ramp

Units/millions



Lesson From the Development and Deployment of the Internet

Force

Entrepreneurs

Cross-Boundary Disruption

Internal transformation

Complementors (market devel)

Government

Examples from History

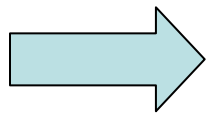
PC industry

Apple → Music industry

Cable industry

Multimedia

Telecom industry



Compete/Complement

Inter-Industry Task Force

- Core members from electric utility, auto, high-tech industries and academia
- Goal: 10 million Dual-Fuel PSVs on roads in four years
- Present plan to new President on January 21, 2009

Rebuilding the Commons Requires Contributions From All

- Consumers
- Utilities
- Legal System
- Investment Community

Consumers:

(Short video clip here)

Consumers: Change of Behavior

- Tax credit (50%) for retrofitting PSVs
- Cost offset by 'progressive' licensing fees (for all vehicles, boats and planes)

Utilities: Market Development

- Free electricity for use in D-F PSVs for 2 years

Legal System: Streamlined

- Special Federal court district
 - Intellectual property managed and adjudicated under its supervision
- Auto manufacturers
 - Adopt open source principles in re specs
 - Commit to not withhold warranties

Investment Community:

Drive Innovation / Support Entrepreneurism

- Venture community leads
- SBA helps grow by providing loans and assistance to retrofitters

Approach to U.S. Government

- As a unified industry
- Resolve conflicts internally

Rebuilding The Commons

- Cooperative, problem solving attitude
 - Internet model
- Urgency
 - Industrial response to WWII

CLEAR AND PRESENT DANGER



There Could Be Blood