



Fuel Cell Technology and Product Development for Transportation

Jack Gatzuras

Manager: Business Development and Programs

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UTC Power

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PRODUCT DEVELOPMENT



Proctor and Gamble began development in 1961

It took 8 years to develop the product

...and 14 years for full national distribution



UTC POWER PEM FUEL CELLS

UTC Power's first PEM program started in 1998

By mid-2010, UTC Power will have provided fuel cells for 63 cars and 25 buses

Operate at current densities 50% greater than 3 years ago with 50% less Pt

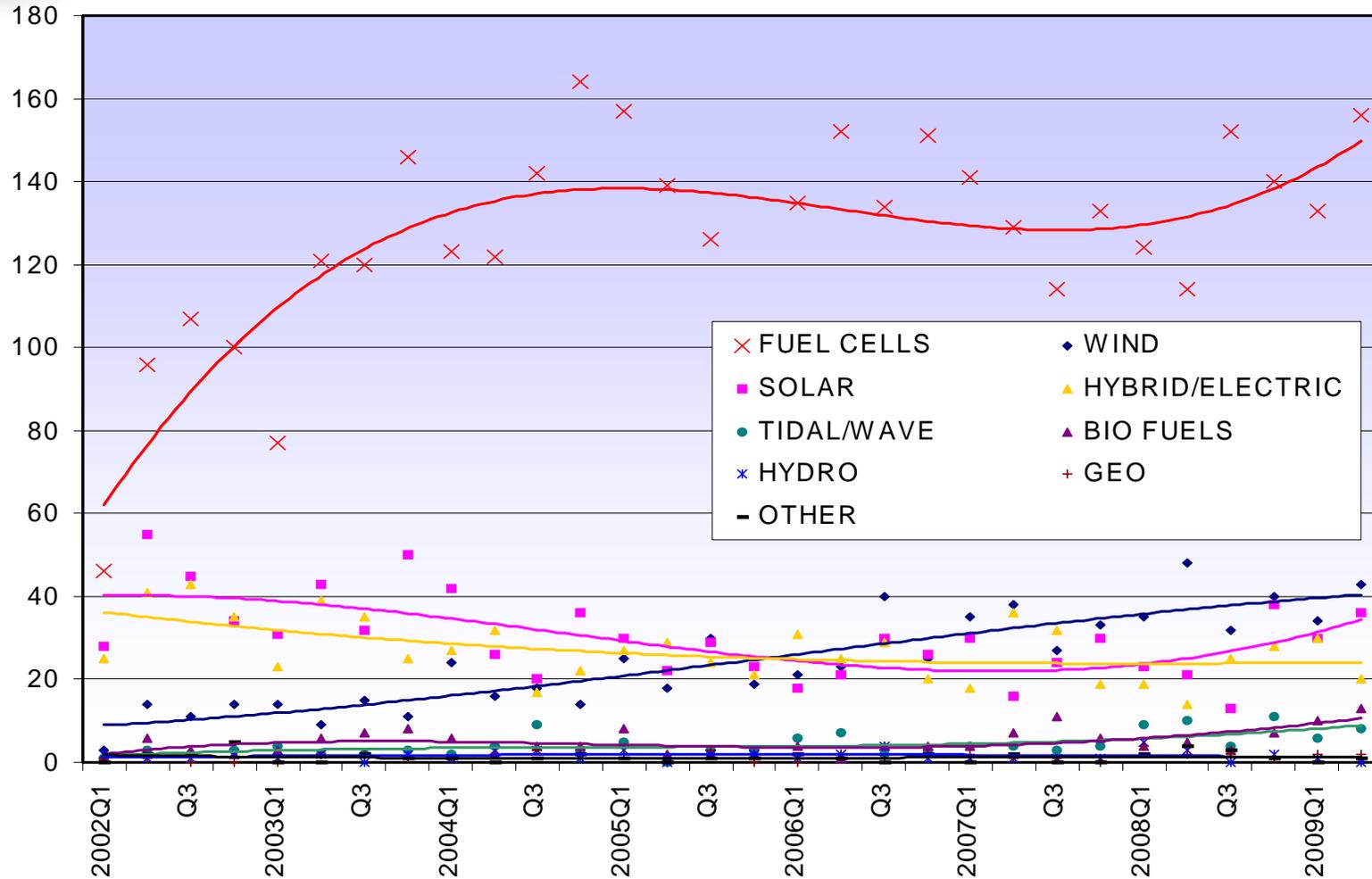
Durability in the field has tripled





CLEAN ENERGY - U.S.PATENTS

All Sectors Patents by Quarter 2002 - 2009



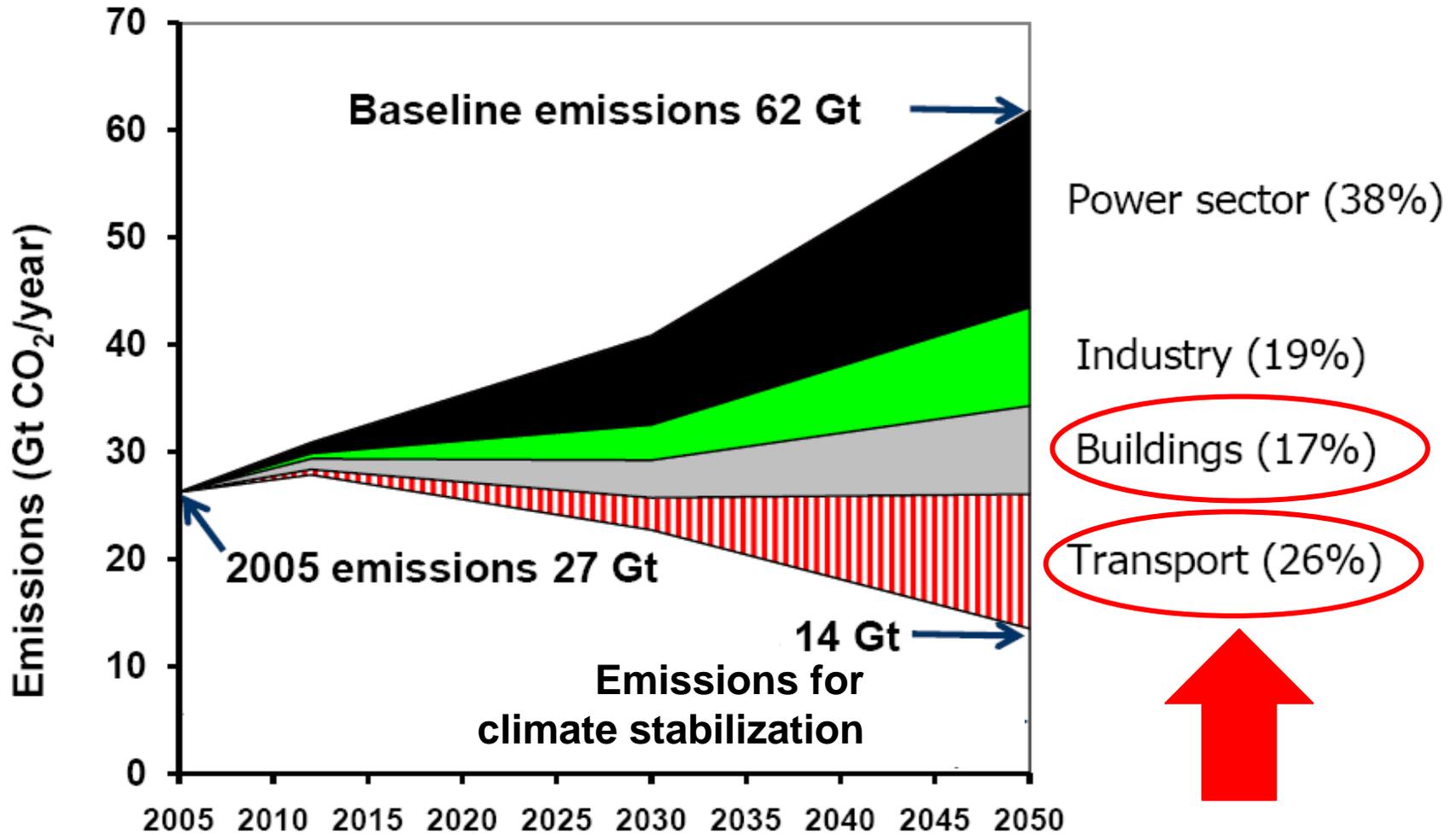
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Source(w/permission): CLEANTECH GROUP at Heslin Rothenburg Farley & Mesiti P.C.



LONG-TERM SOLUTIONS NEEDED





STATIONARY FUEL CELLS



1992

Commercial product

270 units deployed worldwide

200 kW

40,000 hour stack life

400 kW

Stack life doubled

90% efficient



Now



FUEL CELL TRANSIT BUSES

Delivery of 16 new buses starting this fall

AC Transit leading the way !



Developing next generation bus power plant

25% more power, 67% smaller and 50% lighter

Cost target supports < \$1M fuel cell bus by 2015



FUEL CELLS

Key to meeting GHG reductions

On path to commercialization

Smart policy is necessary

Stakeholder alignment needed

Its our responsibility





Thank you !



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