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Henry Kelly
President

Federation of American Scientists

High Performance Buildings

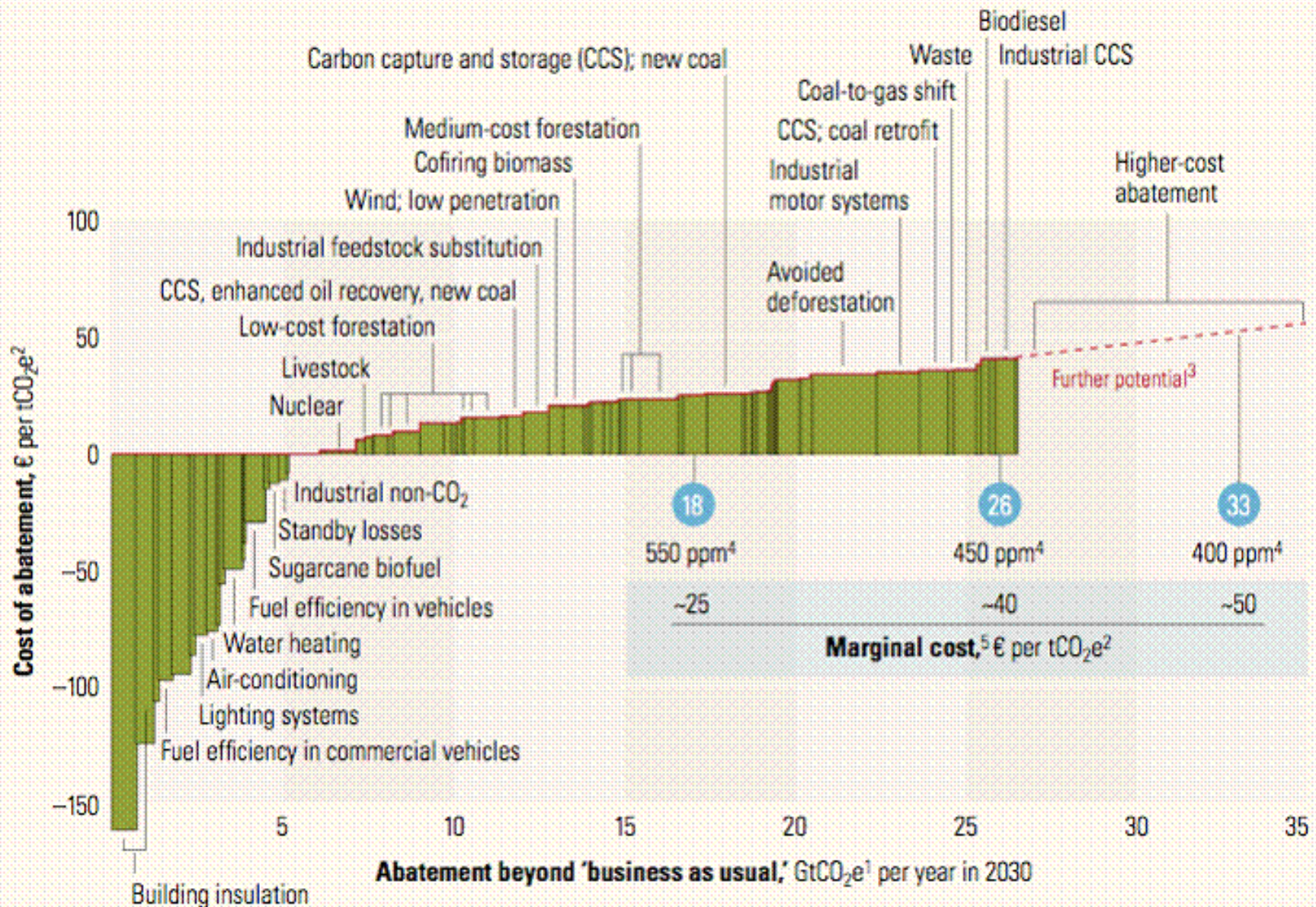
...building that integrates and optimizes on a lifecycle basis all major high performance attributes, including

- **energy conservation,**
- **environment,**
- **safety,**
- **security,**
- **durability,**
- **accessibility,**
- **cost benefit,**
- **productivity,**
- **sustainability,**
- **functionality, and**
- **operational considerations.**

(Title IV, Sec. 401)

Safety Goals: protection against

- Strong Winds
- Earthquakes
- Fire (internal and external)
- Insects
- Mold
- Indoor air quality



McKinsey Quarterly Report, 2007, no. 1

HP buildings as the necessary direction for building industry for the future to meet the 2020 CO₂ goals

Technologies

- Improved building envelope (strong, high effective insulation)
- Improved Heating, Cooling, Ventilation
- Reduced duct leaks
- Improved lighting design (daylighting, controls, lamps)
- New technology for paints & roofing materials
- Quality Control/Quality Assurance

FEMA's Mississippi experience demonstrates:

- The Manufactured Housing industry is fully able to produce high performance housing with high levels of quality assurance – if asked to do so in an effective procurement specification
- Affordable, high performance emergency housing units can meet the temporary AND permanent housing needs of the displaced state residents.

Concept

Design

Bidding

Prototyping
@ plant

Production
@ plant

Receipt

Deployment

A transparent design process
and quality-driven
engineering performance
worked in Mississippi and
should be used as a model for
future procurements



Emergency Housing should...

- Be specified to meet stringent high performance goals
- Use quality assurance provisions from the beginning of the process.
- Be a long-term solution (non-disposable). Dual HUD-code and IRC certification is possible



It's much easier to ensure high performance and quality control in a manufacturing environment than in the field

RESULTS:

- Energy Star homes + Energy Star HVAC will save consumers to over \$25,000,000 per year (at 2004 production rates)
- Other benefits include: increased energy independence, reduce national residential energy consumption, reduce power plant greenhouse gas emissions and climate change impacts. Lower federally subsidized low income utility bill voucher & weatherization taxpayer expenses.

(M. Lubliner, MHCC Presentation, May 23, 2007)

Growing Consensus on High Performance Goals

- Greensburg, KS: “ Greensburg City Council has approved a resolution that all city building projects will be built to high energy efficiency standards.
- Pacific Northwest NEEM Program: Over 120,000 HUD-code homes built since 1988. Utilities invest \$100,000,000 in Demand Side Management. Provided a “better deal” than new coal power plant. SEO quarterly inspections + HUD process
- MS AHPP Park and Cottage Models

Next Steps

- Work with code organizations to develop a high performance standard as an option in national codes.
- Require that all federal building procurements use high performance standards and quality assurance.
- Design incentives and other programs to encourage high performance construction in all construction.

