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Henry Kelly
President

Federation of American Scientists

High Performance Building

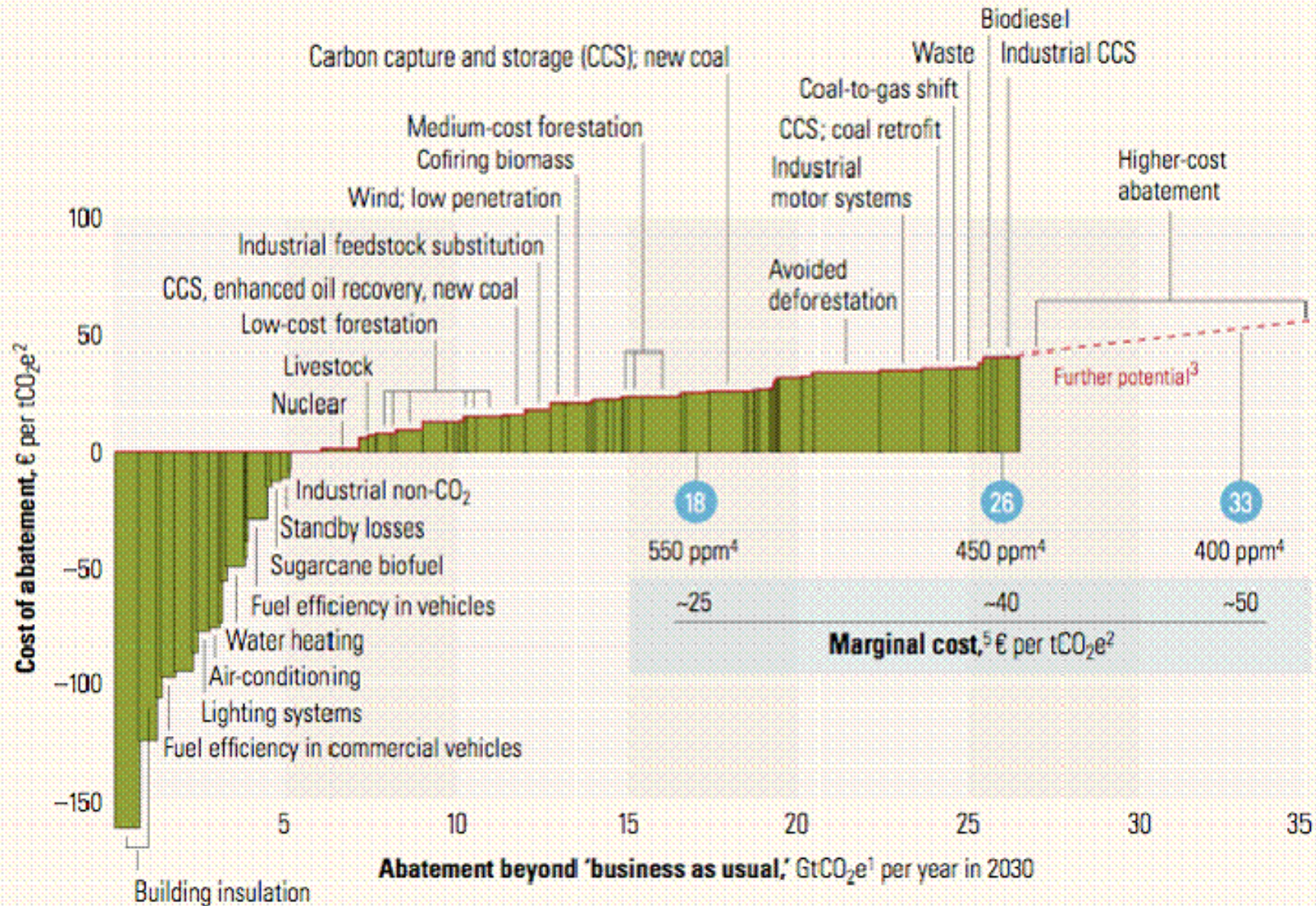
...building that integrates and optimizes on a lifecycle basis all major high performance attributes, including

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

Source: Energy Independence and Security Act (P.L. 110-140) Title IV, Sec. 401

Safety Goals: Protection Against ...

- Strong Winds
- Earthquakes
- Fire (internal and external)
- Insects
- Mold
- Hazardous Indoor Air Quality



McKinsey Quarterly Report, 2007, no. 1

High Performance Buildings - The necessary direction for the building industry to meet 2030 CO₂ reduction goals

Technologies

- Improved building envelope (strong, highly effective insulation)
- High Efficiency 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 cost-competitive 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 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 is 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 more than \$25,000,000 per year (at 2004 production rates)
- Other benefits include: increased energy independence, reduced national residential energy consumption, reduced 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 Benefits of High Performance Design

- Greensburg, KS: Greensburg City Council approved a resolution that all city building projects will be built to high energy-efficiency standards.
- Pacific Northwest NEEM Program: More than 120,000 HUD-code homes built since 1988. Utilities invest \$100,000,000 in Demand Side Management ... 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.
- Create incentives and other programs to encourage high performance in all construction.

