CARBON EMISSION - LIFE QUALITY IN BUILDING INDEX
DATA TO BE AGGREGATED AT CITY LEVEL

- REPRESENTS A LARGE COMMUNITY OR CITY

PROJECTED GOAL
BUILDINGS OF THE FUTURE
HIGH LIFE QUALITY/
NEGATIVE CARBON BUILDINGS

CURRENT Trajectory
MID-HIGH LIFE QUALITY/
HIGH CARBON BUILDINGS

DEVELOPING COUNTRIES

LIFE QUALITY IN BUILDINGS

HIGH

CARBON EMISSIONS

POOR

EXCELLENT
Building Sector vs. Other Sectors

Geared turbofan design could lead to another 10-15% improvement. In this size range.

Note: Larger conventional turbofan engines, 80,000 lbf-ft and above have gradual increases in SFC, due to shear weight and drag coefficient of engine size.
Energy Efficiency in Buildings

- **Building Systems**
- **Lighting Sub Systems**
- **Cooling Sub Systems**
- **Glazing Sub Systems**

Building Sector Accounts for:
- 40% of Total U.S. Prime Energy Expended
- 70% of all U.S. Electric Energy Use
Automobile System Efficiency

Ton-MPG by Model Year
(with Three-Year Moving Average)

Light-Duty Automotive Technology,
Carbon Dioxide Emissions, and Fuel
Economy Trends:
1975 Through 2010
Automobile System Efficiency

Significant reductions in tailpipe emissions;
Significant improvement in safety features and accident fatality percentages

It’s Not Just About Energy Efficiency
(Buildings are Built for People)
Indoor Environmental Quality Performance Decreased

- Present situation
  - 6% of Americans affected
  - 5,000 death per year in the US
  - 12.7 billion USD per year
  - Continues to increase

- Causes
  - Sensitization when exposure to certain non-volatile chemical forms on indoor aerosols
  - Life style – 90% time spent indoors
  - Cities - Population concentration
  - Tight Construction