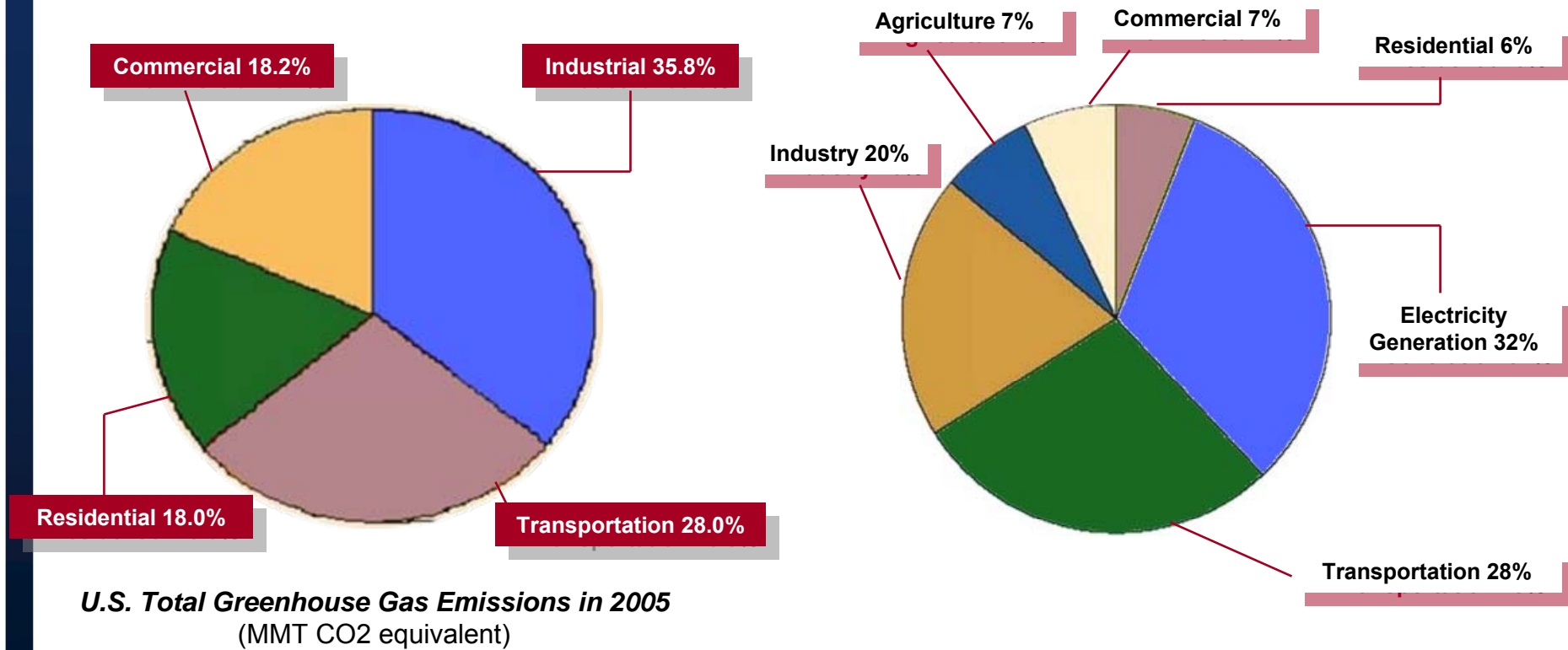


Who is Responsible for What?

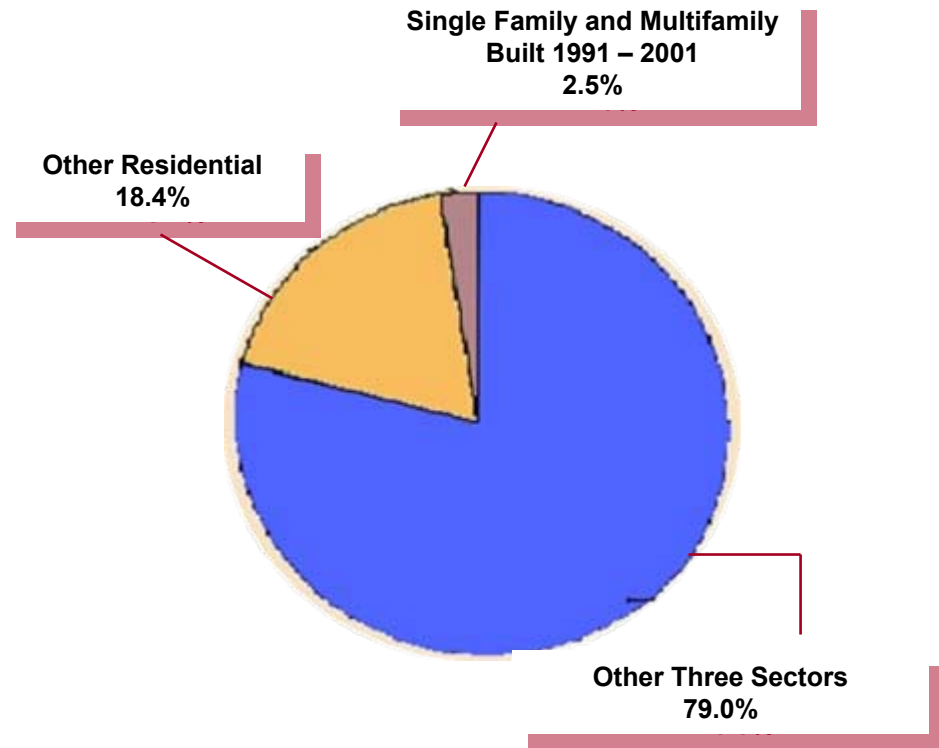
- “Residential GHG Emissions” (Tab 2)





Old vs. New Homes

- **Residential Energy Consumption**
 - 81.6% from Pre-1991 Homes
 - 2.52% from 1991-2001 Homes
- **New homes > energy efficient HVAC and insulation.**
- **“Even if each of the new homes built from 1991-2001 consumed zero energy, it would have only reduced total consumption in the U.S. by 2.52%. The same result could be achieved by improving the average efficiency of the pre-1991 homes by 14.7%.”**



U.S. Energy Consumption in 2001



Non-HVAC Household Behavior

- Cooking, laundry, lighting, TVs and DVDs
- Occupant behavior > impact on non-HVAC energy consumption (vs. items in builder's control).
- Δ from baseline home
 - Two ceiling fans: 6.3%
 - Side-by-side fridge: 22.1%
 - Hot tub: 50.8%
 - Daily dish wash: 41%



Vehicle CO₂ Emissions and Compactness of Development

- Tab 3
- Gas consumed ↓ as subdivision compactness ↑.
- Congestion effect with > compactness.
 - Inefficient vehicle use ↔ reduced VMTs.
- Subdivision of 100 households
 - 1.56 – 4.69 units per acre
 - Gas consumption 90,700 gallons
 - 7.81 units per acre (.64 acre lot)
 - Gas consumption less than 80,000 gallons
 - Thus, GHG emissions ↓ as density ↑.



Vehicle CO₂ Emissions and Compactness of Development

Estimated Annual CO₂ Emissions From Vehicles For 100 Housing Units

Compactness of Subdivision* (housing units per acre)	CO ₂ emissions (1000 lbs)	Gasoline use (1000 gallons)	Vehicle Miles Traveled (1000 miles)	Vehicle Efficiency*
Under 0.08	2,313.9	119.5	2,471.7	20.7
0.08 to 0.39	2,137.2	110.4	2,311.7	21.4
0.39 to 1.56	1,965.9	101.5	2,232.1	21.5
1.56 to 4.69	1,756.7	90.7	1,995.9	21.4
4.69 to 78.1	1,724.6	89.1	1,958.4	21.5
7.81 or more	1,542.9	79.7	1,763.3	21.3

Data source: 2001 National Household Travel Survey, Federal Highway Administration