Backgrounder

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Slouching Toward a "Huddled Masses" Housing Policy: Saving Energy with Higher Densities?

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Since early spring, President Barack Obama and his Secretaries of Transportation and Housing and Urban Development have endorsed and promised policies to encourage or require Americans to live in higher-density communities and rely more on public transportation instead of privately owned automobiles.[1] These first steps reflect the new Administration's embrace of the "Smart Growth" strategy to conserve land, crowd development, and deter automobile usage and their intention to use federal agencies to implement it.

Beyond curbing "sprawl" and pandering to the prejudices of Smart Growth advocates and connoisseurs of the urban experience, little justification is offered for embarking on such an unprecedented exercise in social engineering, but that may be changing.

Forcing More People into Smaller Apartments?

In April, Secretary of Energy Steven Chu gave an extensive interview to *The Washington Post* in which he provided his views on greenhouse gases, climate change, energy independence, fuel efficiency, cap-and-trade policies, and many other energy-related topics, including the importance of achieving greater energy efficiency in public and private buildings, including the nation's housing stock.[2] After Secretary Chu noted that some believe that commercial-building energy use could be cut by as much as 80 percent, *The Washington Post* asked whether that would be possible with existing technology. Chu replied:

Talking Points

- The Obama Administration's unfolding energy policy is likely to rely on coercion to achieve dramatic changes in American lifestyles.
- Secretary of Transportation Ray LaHood admits that the Administration's new transportation policy "is a way to coerce people out of their cars."
- Secretary of Energy Steven Chu claims that small European-style apartments will yield considerable energy savings.
- The U.S. Department of Energy's study that demonstrates energy savings for small apartments is based on serious flaws in the data collection process.
- If President Obama and his subordinates are to be believed, this Administration is promising to impose unprecedented ("transformational") changes on the way Americans live, work, and travel in order to achieve a variety of environmental goals.
- That Department of Energy study should be withdrawn, and the data should be recollected, recalculated, and re-evaluated.

This paper, in its entirety, can be found at:
www.heritage.org/Research/SmartGrowth/bg2281.cfm

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> Correct. But it's not widely dispersed. It's not widely believed you can do this in a cost effective way, and so I think we can develop design tools to actually design buildings to do this.
>
> You read stories in Europe where there are in small apartments zero-net energy consumption apartments [*sic*]. There is—you know, body heat keeps a lot of the apartment warm. You can't do this in a big apartment with a few people.

So there it is: One option for the reduction in energy use that has come to the attention of the U.S. Department of Energy is to pack more people into smaller apartments—a prospect more akin to living standards in Calcutta.[3] Perhaps this Carteresque austerity trend will encourage the Environmental Protection Agency to declare that if Americans weren't so fussy about personal hygiene, vast volumes of fresh water could be saved.

Flawed Data

Unfortunately for Americans' quality of life, data tabulated by the Department of Energy in its *2008 Buildings Energy Data Book* reveal that Third World–austerity living standards may lead to reduced energy consumption, but this finding may be a result of serious data flaws in the report about which the Energy Department apparently was not aware until after the report's release.

Table 1 reproduces the Energy Department's table on "Residential Delivered Energy Consumption Intensities by Housing Type in the 2008 Buildings

Residential Energy Consumption

Delivered Energy Consumption Intensities in 2005

Residential Housing Type	Per Square Foot (Thousand BTU)	Per Household (Million BTU)	Per Household Members (Million BTU)	Percent of Total Consumption
Single-Family	**52.9**	**106.6**	**42.6**	**80.5%**
Detached	*39.8*	*108.3*	*39.7*	*73.9%*
Attached	*47.3*	*91.7*	*37.0*	*6.6%*
Multi-Family	**67.6**	**63.7**	**29.5**	**14.8%**
2–4 units	*77.6*	*84.5*	*34.9*	*6.3%*
5 or more units	*61.7*	*53.8*	*26.4*	*8.5%*
Mobile Homes	**68.7**	**72.7**	**29.4**	**4.7%**
				100.0%

Source: Energy Information Administration, Residential Energy Consumption Survey, 2005, June and October 2008, Table HC 1-1-2, Table US-1 part1, and Table US-4, at *http://www.eia.doe.gov/emeu/recs/recs2005/c&e/detailed_tables2005c&e.html* (May 26, 2009).

Table 1 • B 2281 heritage.org

1. See Wendell Cox and Ronald D. Utt, "Don't Regulate the Suburbs: America Needs a Housing Policy That Works," Heritage Foundation *Backgrounder* No. 2247, March 5, 2009, at *http://www.heritage.org/Research/SmartGrowth/bg2247.cfm*, and Ronald D. Utt, "President Obama's New Plan to Decide Where Americans Live and How They Travel," Heritage Foundation *Backgrounder* No. 2260, April 14, 2009, at *http://www.heritage.org/Research/SmartGrowth/bg2260.cfm*.
2. Lois Romano, "Voices of Power: Steven Chu," *The Washington Post*, April 16, 2009, at *http://www.washingtonpost.com/wp-srv/politics/documents/vop_chu_transcript.html* (May 27, 2009).
3. In 2001, the Sierra Club proposed a new land-use regulation that would require 500 housing units to the acre, which led to this observation from Heritage Visiting Fellow Wendell Cox: "The 500 unit per acre density is 3.4 times the highest density census tracts in Manhattan and more than double the most dense wards of Mumbai (Bombay) and Kowloon (Hong Kong), which are generally considered to be the most dense communities in the world. But Mumbai achieves its high population density with comparatively few housing units per acre. According to Police Commissioner Shivanadan, 55 percent of Mumbai residents are homeless. Moreover, the Sierra Club 500 housing-unit-per-acre standard is similar to the densities achieved in the notorious, poverty- and disease-stricken areas of Manhattan's Lower East Side in the early 20th century, and seven times as dense as Calcutta, with its infamous 'black hole' of density and poverty…. At this density, all U.S. residents could live in an area approximately the size of Portland." Within 24 hours of Cox's critique, the Sierra Club withdrew the proposal from its Web site. For more details on this proposal, see "Sierra Club Promotes 'Black hole of Calcutta' Densities, then Retreats," Demographia, at *http://www.demographia.com/db-sierraclub500.htm* (May 27, 2009).

Energy Data Book," which measures differences in energy consumption for both single-family, detached houses and attached townhouses, mobile homes, and multi-family housing, for two- to four-unit buildings as well as for buildings with five units or more. In turn, energy consumption (in BTUs) for each residential building type is measured by energy use per square foot of living space, per household (unit), and per household member.

As Table 1 reveals, single-family detached housing—the sort common to the suburbs of America and Europe—has the highest energy efficiency rating on a *square foot basis*, while multi-family housing has the worst. Even mobile homes do better in conserving energy than does the typical multi-family unit when measured this way.

When measured on a *per unit* or *household basis*, apartments ranked better on energy efficiency, but this advantage stems entirely from the fact that the apartments in the survey were much smaller than the typical single-family home. In effect, the only energy-efficiency advantage that apartments have over detached housing is their small size—precisely the austerity and rationing opportunity that Secretary Chu referenced in his April interview.

Although the data in this table point to the energy-saving opportunities that are available to Americans if they revert to a more primitive lifestyle, there is evidence to demonstrate that these data overstate the energy-saving benefits of an austerity strategy due to a serious deficiency—acknowledged by Department of Energy staff—in the quality of the data on energy use from multi-family housing that were collected for the survey.

Specifically, the Energy Department forgot to collect and incorporate information on the energy required to light the common areas, including exterior and parking areas, lobbies, stairwells, laundry rooms, and hallways. The Energy Department also forgot to collect data on the energy used to heat and cool these common areas and the energy used to operate the elevators, washers and dryers, and swimming pools. By the Energy Department's own admission, none of the many comparative analyses and tables presented in the *Buildings Energy Data Book* include this significant use of energy.

Had these uses of energy been included in the data and in the calculations cited in the *2008 Buildings Energy Data Book*, then the data per square foot would be even more favorable to single-family detached dwellings. And more accurate data would either have narrowed or flipped the apartment–household difference in favor of single-family units. The *2008 Buildings Energy Data Book* is therefore utterly worthless in guiding policymakers to a rational energy conservation strategy as it relates to tenancy choices.

Conclusion

If President Obama and his subordinates are to be believed, this Administration is promising to impose unprecedented ("transformational") changes on the way Americans live, work, and travel in order to achieve a variety of environmental goals. But as the evidence to date indicates, many of these decisions will be based on flawed data that have been carelessly collected and calculated by the Department of Energy.

Although the data presented in the *2008 Buildings Energy Data Book* are so deficient as to be useless at best and harmful at worst, these same deficiencies are also applicable to the Energy Department's collection, calculation, and presentation of comparative energy use for various travel modes. Unless these deficiencies are corrected, the Administration runs the risk of adopting policies that hurt the economy and do not improve energy efficiency.

Typical of the Department of Energy's longstanding failure to produce accurate and useful data on fuel use is its annual report on fuel use by mode of transportation. Until 2000, the Energy Department included intercity buses as one of the many travel modes evaluated and found that intercity buses were the most energy-efficient way to travel—about three times more energy-efficient than passenger rail. For reasons never revealed, the department stopped including intercity buses in its annual survey, leaving Congress and policymakers in the position of debating an energy-efficient transportation system with the wrong information, particularly at a

time when many are pretending that a costly investment in high-speed rail will provide energy-saving travel opportunities.[4]

With so much of the American way of life at stake, the President and Congress should require that the Department of Energy retract the *2008 Buildings Energy Data Book*—and any other flawed surveys and reports—and insist that correct and comprehensive data be provided *post haste*.

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4. Ronald D. Utt, "Congress Should Link Amtrak's Generous Subsidy to Improved Performance," Heritage Foundation *Backgrounder* No. 2072, September 20, 2007, pp. 11–13, at *http://www.heritage.org/Research/Budget/bg2072.cfm.*