Energy in Texas: Appetites and Opportunities

During his February 24 *Hot Science – Cool Talks* lecture entitled "From Fracking to the 40 Acres: Energy Challenges for UT, Texas, and the World", Dr. Michael Webber compared annual per capita (per person) energy consumption in Texas, the United States, and worldwide. He stated that on average, Americans consume over four times the amount of energy that the average person worldwide does. Texas residents consume almost twice the energy annually that the average American does! What are the factors driving this apparent difference in energy appetites among Texans, Americans, and the worldwide average?

Although modern American homes are more energy-efficient than ones built 30 years ago, they are also much larger in size¹ and require more energy to heat and cool them. In Texas, natural gas is used for heating and hot water, while electricity is used for air conditioning. Per capita residential electricity consumption in this state has steadily increased over the past 25 years, and one of the fastest growing consumption categories is air conditioning during summer¹. This implies that domestic usage habits, trends in house size, and warming trends in an already-hot southwestern climate play a significant role driving high rates of energy usage among Texans. In addition, human populations in states that are large and predominantly rural consume more gas per capita than smaller, more urbanized states². Although the highway system in Texas is well-developed, usage and development of rail-based public transportation systems are not. 84% of Texans live in urban areas², so this is an area that can be improved. Although Texans consume more energy per capita than the average American, the same factors of energy use habits, house size, and transportation play a significant role in why Americans consume more energy than the worldwide per capita annual average.

Not only does this illustrate the necessity for Texans and Americans to identify and implement important changes to consumption patterns and lifestyles, a significant opportunity to meet our increasing energy demands using cleaner, alternative fuel sources exist in Texas. With large exposure to direct sunlight and wind, rapidly evolving Solar PV and Wind Technologies are being deployed at increasing rates in Texas. The state is in good position to lead the country in the production of clean energy from environmentally-friendly sources.

Data Sources:

- Webber, Michael, E. "From Fracking to the 40 Acres: Energy Challenges for UT, Texas, and the World" Hot Science – Cool Talks, February 24, 2012 <u>http://mediasite.esi.utexas.edu/UTMediasite/Viewer/?peid=913b790ca9e04263a49c1ee4654b9</u> <u>36f1d</u>
- US Energy Information Administration Website: Texas Data http://205.254.135.7/state/state-energy-profiles.cfm?sid=TX
- ¹ US Department of Energy State Information: Texas Residential Energy Use Data <u>http://apps1.eere.energy.gov/states/residential.cfm/state=TX</u>
- ² US Department of Energy State Information: Texas Transportation Energy Use Data <u>http://apps1.eere.energy.gov/states/transportation.cfm/state=TX</u>