



Energy Security, Food Security, LIHEAP and Family and Child Health

Energy Affordability and Energy Insecurity: The Impacts on Low-Income and At-Risk Consumers

NARUC Conference

February 16, 2009; Washington, DC

John T. Cook, Ph.D.

Boston Medical Center

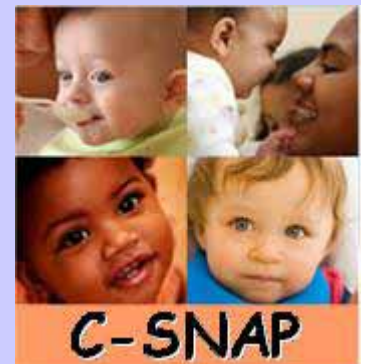
Children's Sentinel Nutrition Assessment Program (C-SNAP)



- A research center made up of a national network of clinicians and public health specialists for research in multiple pediatric settings on the effect of U.S. social policy on young, low-income children's health and nutrition. Research sites in:
 - **Little Rock, AR, Boston, MA, Baltimore, MD, Minneapolis, MN, Philadelphia, PA (Active)**
 - **Los Angeles, CA, Washington, D.C. (Inactive)**

C-SNAP Scientists/Collaborators/Colleagues

- **Deborah A. Frank, MD (Boston)**
- **Maureen Black, PhD (Baltimore)**
- **John Cook, PhD (Boston)**
- **Mariana Chilton, PhD (Philadelphia)**
- **Carol Berkowitz, MD (Los Angeles)**
- **Patrick Casey, MD, MPH (Little Rock)**
- **Diana Cutts, MD (Minneapolis)**
- **Alan Meyers, MD, MPH (Boston)**
- **Nieves Zaldivar, MD (Washington, DC)**
- **Stephanie Ettinger de Cuba, MPH (Boston)**
- **Nicole Neault, MPH (Boston)**
- **Suzette Levenson, MPH, EdM (Boston)**
- **Timothy Heeren, PhD (Boston)**
- **Danielle Appugliese (Boston)**
- **Zhaoyan Yang, MS (Boston)**



SUPPORTED BY

Major funding: W.K. Kellogg
Foundation

Additional funding:

- Abell Foundation
- Anonymous Donor
- Candle Foundation
- Annie E. Casey Foundation
- Claneil Foundation
- Endurance Fund
- EOS Foundation
- Gold Foundation
- Gryphon Fund
- Hartford Foundation for
Public Giving
- Massachusetts Vitamin
Litigation Settlement Funds
- MAZON: A Jewish Response
to Hunger
- Minneapolis Foundation
- Daniel Pitino Foundation
- Project Bread: The Walk for
Hunger
- Sandpipers Foundation
- M&H Schaffer Foundation
- Sue Schiro & Peter Manus
- Anthony Spinazzola
Foundation
- Thomas Wilson Sanitarium for
Children of Baltimore

Presentation Overview



- Re-Setting the Context
- Household Energy Insecurity
- Household Food Insecurity & Poverty
- Associations Between Energy Security, Food Security and Poverty
- How Energy Insecurity Harms Child Health
- Policy Issues and Handles
- Alternative Futures

MARKET WATCH: Dollar continues to influence oil prices

Sam Fletcher

Senior Writer

HOUSTON, June 16-- . . ."Countries like China, India, and the Middle East have massive subsidies that insulate consumers from rising prices. As such, a stronger or weaker dollar will have no effect on these consumers, who are driving all of the incremental crude demand. Moreover, a strong dollar cannot solve non-OPEC supply woes, defuse the Middle Eastern geopolitical risk premium, or reinflate OPEC's excess supply bubble. Over the long run, crude and the US dollar are simply driven by different variables and have no lasting relationship. Thus, even if the dollar begins to strengthen, it is not a certainty that oil prices will pull back,"

Analysts in the Houston office of Raymond James & Associates Inc.

Energy prices

The July contract for benchmark US light, sweet crudes dropped \$1.88 to \$134.86/bbl June 13 on the NYMEX. The August contract lost \$1.91 to \$135.47/bbl.

MARKET WATCH: Crude prices continue to fall

Sam Fletcher

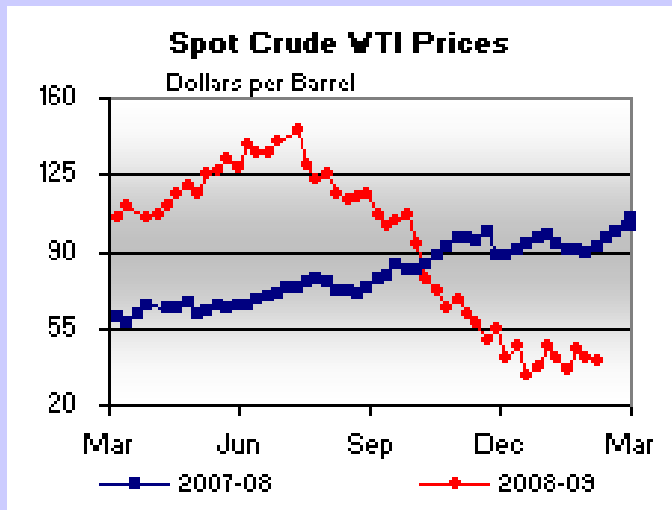
OGJ Senior Writer

HOUSTON, Feb. 12 --“Oil prices were still declining in early trading Feb. 12, at least partly "driven by Congressional posturing over details of stimulus legislation, including the scaled back business tax breaks," said analysts . . .”

“The crude market also was adversely affected by a report from the Energy Information Administration that US crude inventories jumped by 4.7 million bbl to 350.8 million bbl in the week ended Feb. 6, exceeding Wall Street's expectations . . .”

Energy prices

The March contract for benchmark US sweet, light crudes dropped \$1.61 to \$35.94/bbl Feb. 11 on NYMEX. The April contract lost \$1.29 to \$42.47/bbl. Each monthly contract through December posted losses, yet prices remain in contango through at least April 2010.



Spot Prices (Cents Per Gallon*)			
Spot Prices		Change From Last	
02/06/09		Week	Year
Crude Oil WTI	\$40.24	-1.49	-51.53
Gasoline (NY)	128.7¢	-2.2	-100.2
Diesel Fuel (NY)	136.3 ¢	-7.7	-120.2
Heating Oil (NY)	136.2 ¢	-7.5	-118.9
Propane (Gulf Coast)	65.4 ¢	-7.6	-70.0

***Note:** Crude Oil WTI Price in Dollars per Barrel.

Source: US EIA, This Week in Petroleum, February 11, 2009

<http://tonto.eia.doe.gov/oog/info/twip/twip.asp>

What is Household Energy Security?

- ***Energy Security:** Access to enough of the kinds of energy needed for a healthy and safe life in the geographic area where a household is located.*
 - *An energy-secure household's members are able to obtain the energy needed to heat/cool their home, operate lighting, refrigeration and appliances while maintaining expenditures for other necessities (e.g., rent, food, clothing, transportation, child care, medical care, etc.)*

Source: C-SNAP

Energy Insecurity Defined

- Energy Insecurity: *Lack of or inconsistent access to sufficient affordable energy of the type and quality necessary for a healthy, safe life where the household is located.*

How is Energy Security Measured?

- C-SNAP's Ordinal Energy Security Indicator
 - Derived from four questions in the C-SNAP survey
-

Moderate

Severity

High

1. In the last year, has the [gas/electricity] company sent you a letter threatening to shut off the [gas/electricity] in the house for not paying bills?
2. In the last year, has the [gas/electric/oil] company [shut off/refused to deliver] the [gas/electricity/oil] for not paying bills?
3. In the last year, have you ever used a cooking stove to heat the [house/apartment]?
4. In the last year, were there days that the home was not [heated/cooled] because you couldn't pay the bills?

A Logic Model for Considering Ways Energy Insecurity Affects Child Health

A Child Health Impact Assessment of Energy Costs and the Low Income Home Energy Assistance Program

Prepared by the Child Health Impact Working Group
Boston, Massachusetts
November 2006

Pathways of the Impacts of Unaffordable Energy on Low-Income Households

Mechanism →

Short-Term Impacts →

Medium &
Long-Term
Impacts

High energy costs force budget trade-offs that jeopardize child health.

Families spend less on food, medications, and housing in order to pay high energy costs.

- "Heat or eat" - food insecurity & other nutritional risk due to trade-offs between energy and food expenditures
- Seasonal food insecurity

- Poor growth
- Malnutrition - infection cycle leading to increased illness
- Cognitive, developmental deficits of malnutrition affecting school performance

Pathways of the Impacts of Unaffordable Energy on Low-Income Households (Contd.)

Mechanism	Short-Term Impacts	Medium & Long-Term Impacts
<ul style="list-style-type: none"> - High energy costs result in unpaid bills, arrearages and utility disconnection. - Families make partial rent or mortgage payments or miss an entire payment because of unaffordable energy bills. 	<ul style="list-style-type: none"> - Cold exposure - Increased use of unhealthy heating sources - Possible loss of utilities required for basic health and safety: light, refrigeration, cooking, water heating - Increased risk of housing instability due to utility disconnection 	<ul style="list-style-type: none"> - Adverse physical health impacts: e.g., lack of primary care, un/undertreated medical conditions, growth delay - Adverse mental health impacts: e.g., anxiety, depression, behavioral disorders - Adverse behavioral, developmental and educational impacts: e.g., developmental delay, grade repetition

Pathways of the Impacts of Unaffordable Energy on Low-Income Households (Contd.)

Mechanism	Short-Term Impacts	Medium & Long-Term Impacts
<ul style="list-style-type: none"> - High energy costs combined with unaffordable housing force families to endure unhealthy housing conditions. - High energy costs contribute to budget constraints limiting families' ability to afford appropriate housing, resulting in exposure to unhealthy housing conditions: <ul style="list-style-type: none"> > Rodent & cockroach infestation > Water leaks and mold > Peeling paint and lead paint 	<ul style="list-style-type: none"> - Increased incidence & severity of asthma - Increased incidence of lead poisoning - Preventable injuries from fires, burns, falls - Increased rates of infectious diseases, such as diarrhea and respiratory conditions 	<ul style="list-style-type: none"> - Increased health care utilization, including emergency department visits and hospitalizations - Missed school due to illness - Cognitive and developmental deficits due to lead poisoning

How is Energy Security Related to Food Security and Child Health?



What is Food Security?

Ways of Looking at Adequacy of Food Resources

- Definition: “Food security—access by all people at all times to enough food for an active, healthy life—is one of several conditions necessary for a population to be healthy and well nourished.” (*Household Food Security in the United States, 2005 / ERR-29* Economic Research Service/USDA)
- Scope of reference: Individual, **household**, community, county, state, nation?
- Dimensions: **Quantity, quality, affordability, accessibility, palatability, cultural appropriateness, etc.**
- Severity Levels: Low to high. Worry and inconvenience to severe hunger. Hunger occurs at the most severe levels of food insecurity.

What we Have Learned About Ways Food Insecurity and Hunger are Bad for Children

- Brain architecture/cognitive development, prenatal and perinatal periods (0-3 yrs)
- School-readiness (0-5 yrs),
- Learning, academic performance and educational attainment (6-17 yrs)
- Physical, mental, and social development, growth and health (0-17 yrs)
- Psychosocial and behavior problems, and mental health problems (6-17 yrs)
- Child health related quality of life; perceived functionality, efficacy and “happiness/satisfaction,” (6-17 yrs)
- Some, not yet conclusive evidence of associations with obesity (0-17 yrs)

C-SNAP's Research Findings

On

Associations Between Energy
Security and Child Health



Seasonal Variation in Wt/Age in a Pediatric Emergency Room

Subjects	Exposure	Outcome	Results	P Value
Children ages 6-24 months presenting at Boston City Hospital ED	Presenting during 3 mos. following the coldest month of the year	% With Wt/Age Below the 5 th Percentile	<i>A significant increase in prevalence of low Wt/Age followed the coldest month</i>	
July 1989- June 1990	Min Mean Temp=21.7F	Mean =9.6% for next 3 Mos.	Mean =6.6% for Rest of Yr.	P = 0.002
July 1990- June 1991	Min Mean Temp=29.4F	Mean =8.3% for next 3 Mos.	Mean =6.5% for Rest of Yr.	P = 0.049
July 1991- June 1992	Min Mean Temp=31.0F	Mean =8.4% for next 3 Mos.	Mean =6.6% for Rest of Yr.	P = 0.064

Source: Frank DA, et al. Seasonal Variation in Weight-for-Age in a Pediatric Emergency Room. Public Health Reports, July/August 1996, 111:366-371.

Heat or Eat: Nutritional and Health Risks Among LIHEAP-Eligible Children Less Than 3 Years of Age

Outcome	Does Not Receive LIHEAP (n=5925)	Receives LIHEAP (n=1149)	P Value
Mean Wt/Age Z-Score	-0.333	0.076	P = 0.01
At Nutritional Risk for Growth Problems	1.23	1.00	P = 0.05
Acute Hospital Admission	1.32	1.00	P = 0.05

Source: Frank, et al. Heat or Eat: The Low Income Energy Assistance Program and Nutritional Risk Among Children Less Than 3 Years of Age. Pediatrics, Nov 2006, 118(5):e1293-e1302.

Logistic Regression Results: Energy Security as Predictor, Food Security as Outcome, Controlling for Site, Race, US-Born, Low Birthweight, Marital Status, Insurance, Child's Age

Outcomes	Energy Secure (No Energy Problems)	Moderate Energy Insecurity (Shutoff Threatened)	Severe Energy Insecurity (Shutoff, Stove to Heat, Unheated)
Household Food Insecurity (yes/no)	1.00	2.37 (1.78-3.16) P <0.01	3.06 (2.46-3.81) P < 0.01
Child Food Insecurity (yes/no)	1.00	1.79 (1.18-2.72) P<0.01	3.46 (2.56-4.67) P<0.01
Child Health Fair/Poor	1.00	1.34 (1.08-1.68) P=0.01	1.36 (1.15-1.61) P<0.01

Source: Cook JT, Frank DA, et al., A Brief Indicator of Energy Security: Associations with Food Security, Child Health, and Child Development in US Infants and Toddlers. *Pediatrics*; Oct 2008, 122; e867-e875.

Logistic Regression Results: Energy Security as Predictor, Food Security as Outcome, Controlling for Site, Race, US-Born, Low Birthweight, Marital Status, Insurance, Child's Age

Outcomes	Energy Secure (No Energy Problems)	Moderate Energy Insecurity (Shutoff Threatened)	Severe Energy Insecurity (Shutoff, Stove to Heat, Unheated)
Hospitalized Since Birth (yes/no)	1.00	1.22 (1.03-1.45) P=0.02	1.02 (0.89-1.17) P=0.74
Significant PEDS Developmental Concerns	1.00	1.00 (0.71-1.41) P=0.99	1.82 (1.38-2.39) P<0.01

Source: Cook JT, Frank DA, et al., A Brief Indicator of Energy Security: Associations with Food Security, Child Health, and Child Development in US Infants and Toddlers. *Pediatrics*; Oct 2008, 122; e867-e875.

Seasonal Variation in Food Insecurity is Associated with Heating and Cooling Costs among Low-Income Elderly Americans

- Low-income elderly households experienced substantial seasonal variation in the incidence of food insecurity with hunger in areas with high winter heating costs and high summer cooling costs.
- In high-cooling states: odds of food insecurity with hunger for poor elderly-only households were 27% higher in the summer than in the winter (*cool or eat*).
- In high-heating states: pattern was reversed for such households; the odds of food insecurity with hunger were 43% lower in the summer (*heat or eat*).

Source: Nord M, Kantor LS. Seasonal variation in food insecurity is associated with heating and cooling costs among low-income elderly Americans. J Nutr, November 2006. 136:2939-2944.

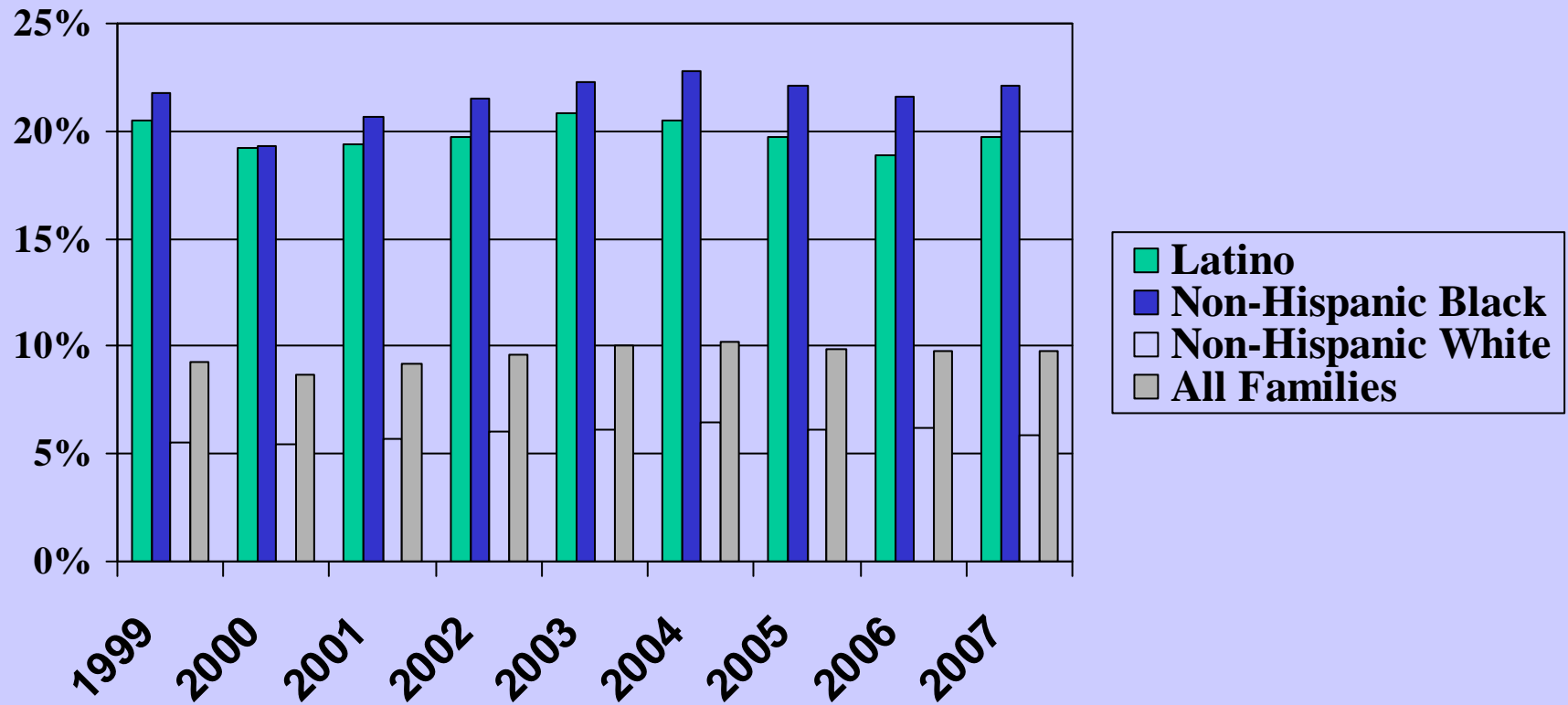
What Influences Energy Security and Food Security?



What Influences Food Security?

- Food insecurity and hunger in the US are largely a result of insufficient household resources, low income or poverty
- Poverty in the US is caused mainly by a lack of sufficient jobs that pay living wages
- Prices and costs are becoming more critical
 - Energy prices
 - Food prices
 - Housing costs

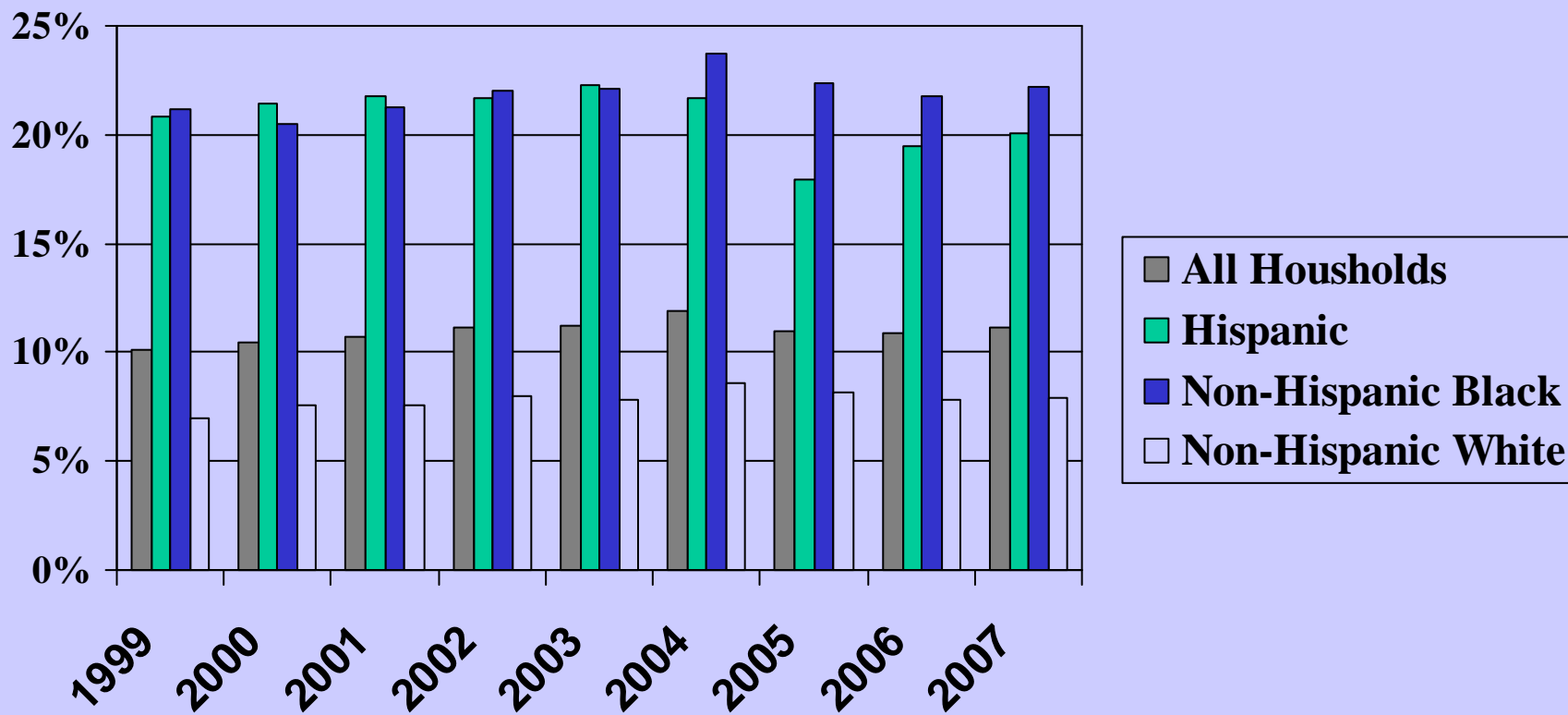
Proportion of U.S. Households with Incomes Below Poverty By Race/Ethnicity, 1999-2007*



*Includes households with and without children.

Source: U.S. Census Bureau, Current Population Survey, various years.

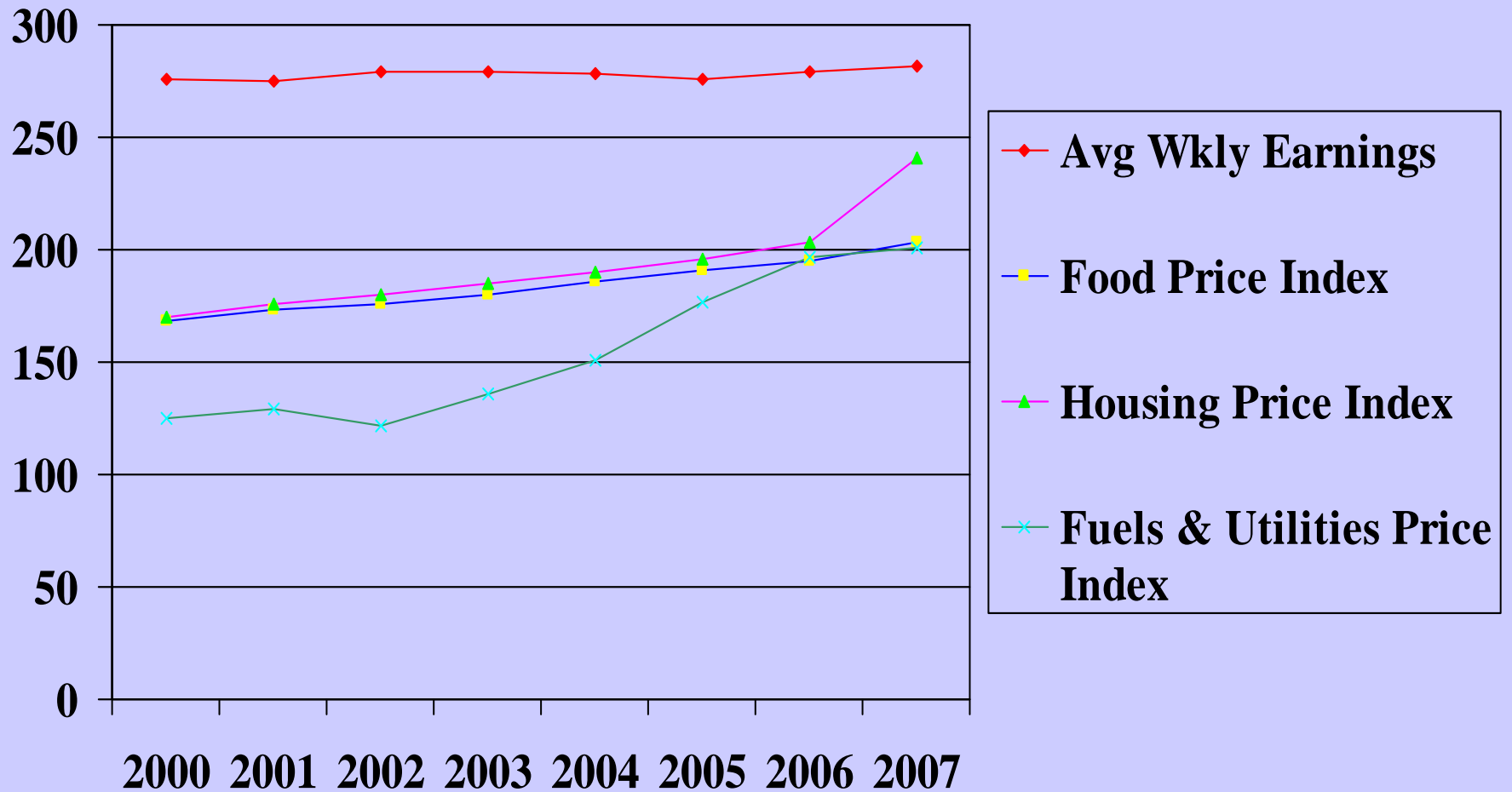
Proportion of U.S. Households that are Food Insecure, By Race/Ethnicity: 1999-2007*



*Includes households with and without children.

Source: USDA\ERS Food Security in the U.S., various years.

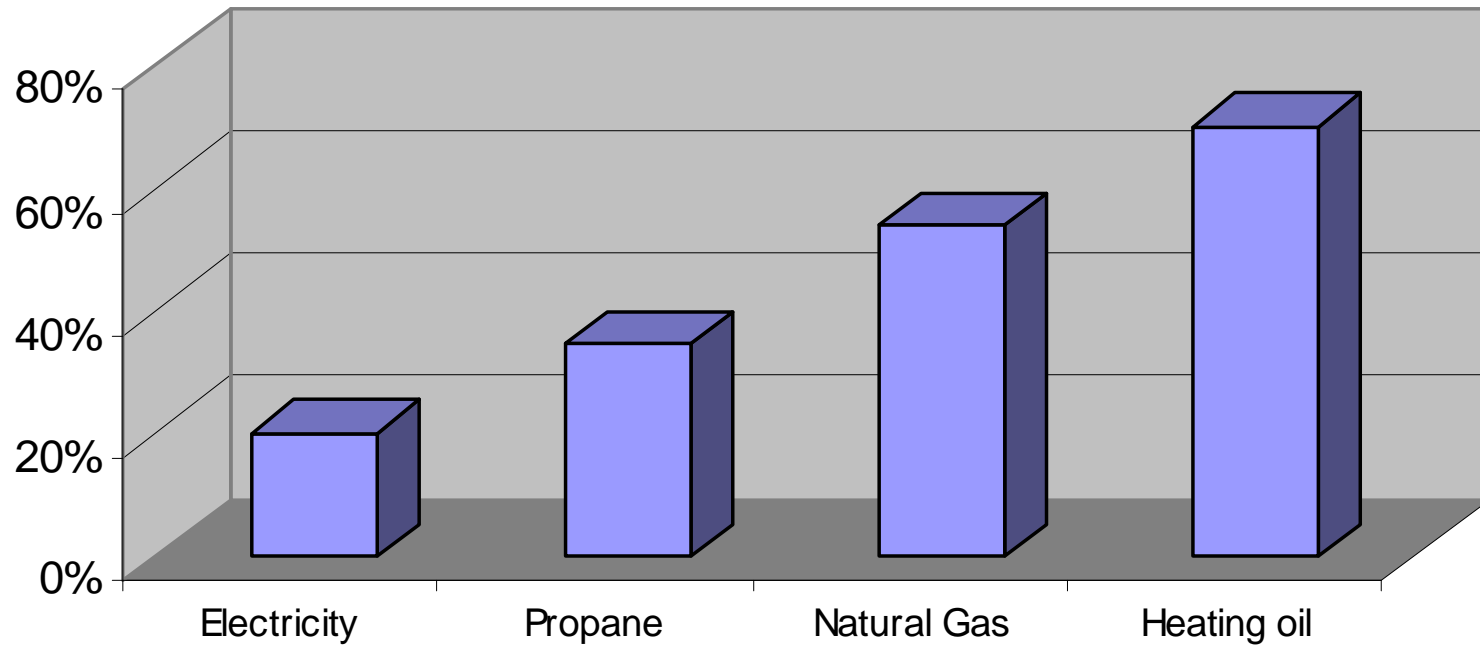
Changes in Inflation-Adjusted Average Weekly Earnings versus Prices of Selected Necessities



Source: US Dept of Labor, Bureau of Labor Statistics

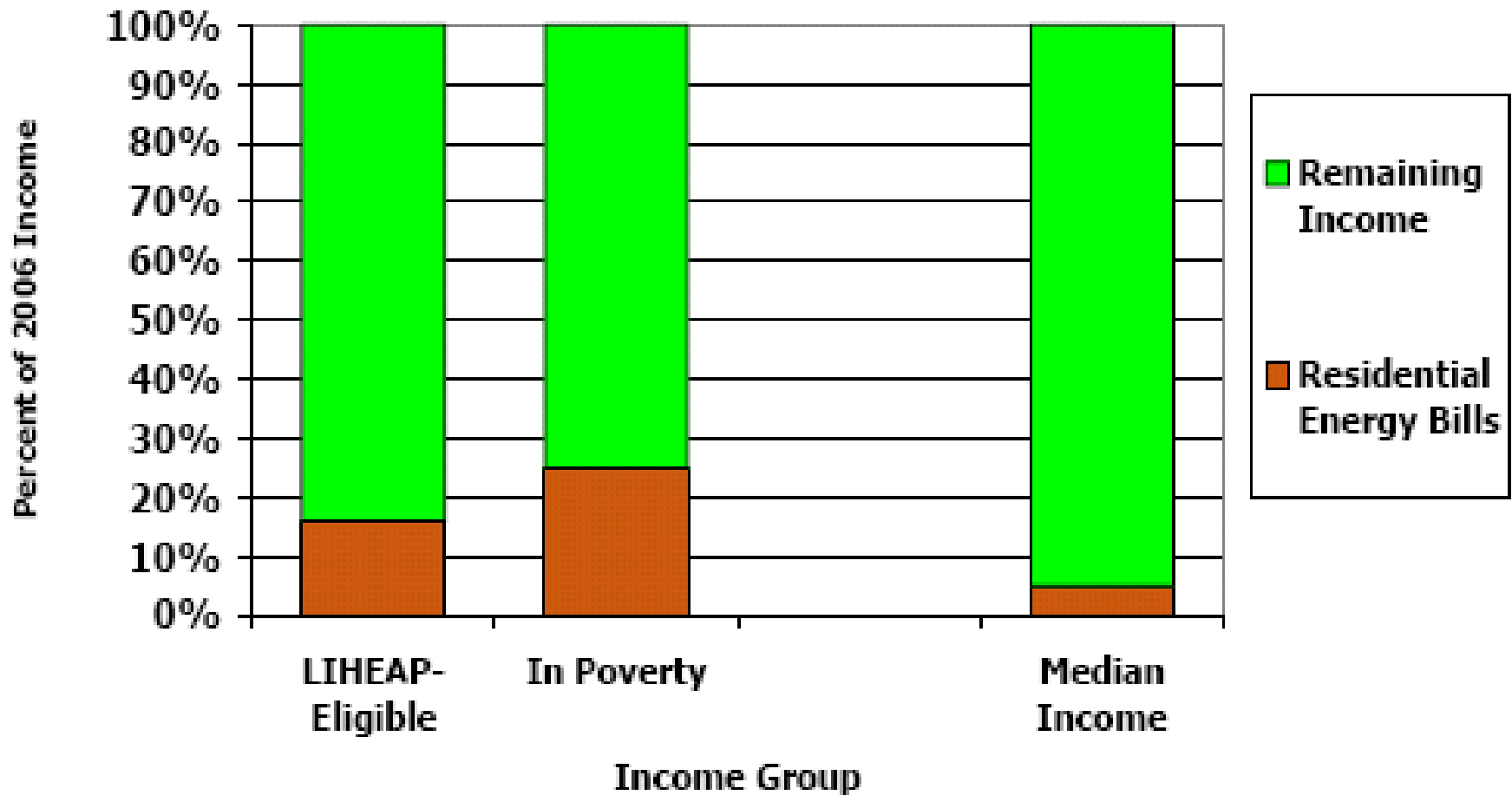
NOTE: Price index represents % change Yr to Yr

% Increase in Heating Fuel Prices by Fuel Type, Winter 2000-01 to Winter 2005-06



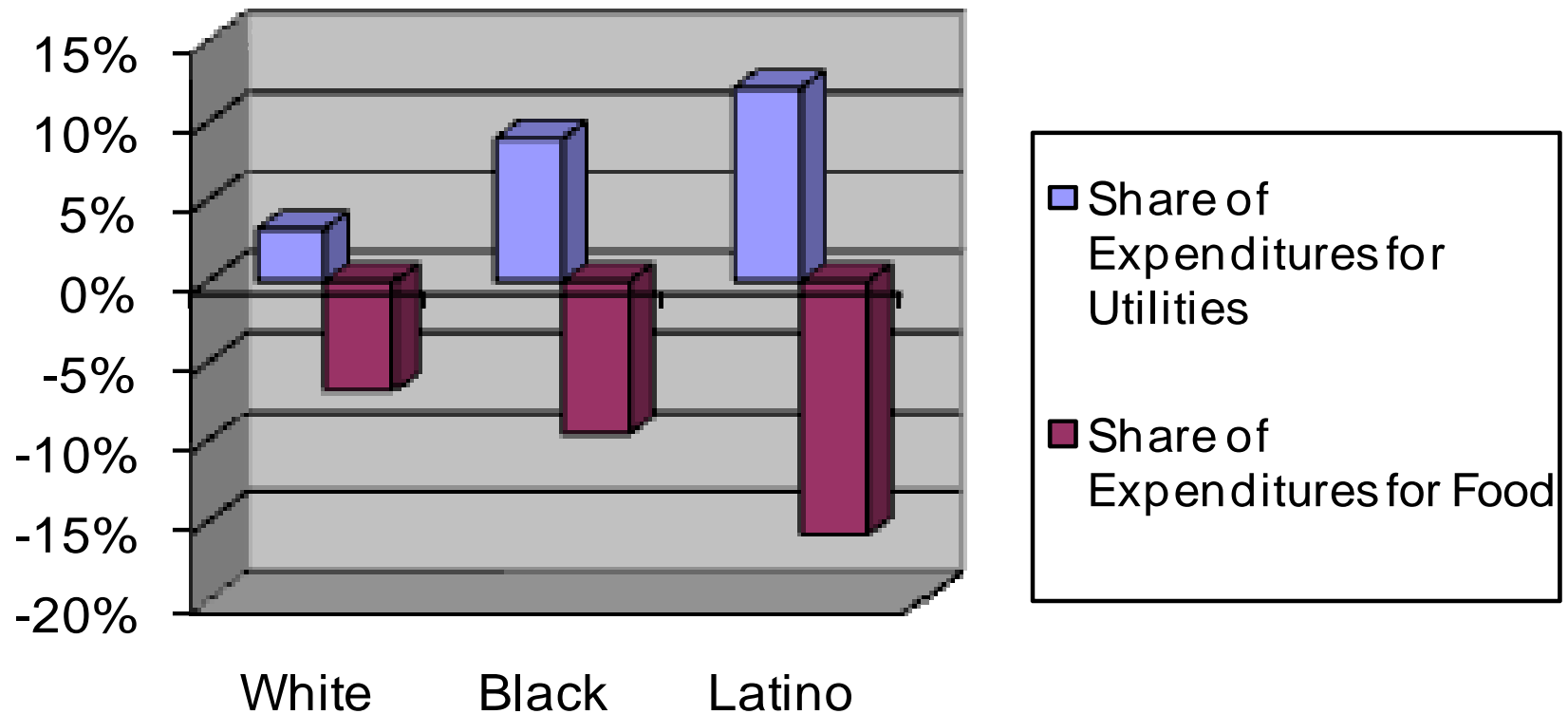
Source: US Energy Information Administration Short-Term Energy Outlook.

Percent of FY 2006 Household Income Needed to Pay Projected Residential Energy Bills



SOURCE: Power M. Lower-Income Consumers' Energy Bills and Their Impact in 2006. Economic Opportunity Studies, Washington, DC, October 25, 2005.

Shifts in Expenditures for Utilities vs Food By Race/Ethnicity, 2000-2005

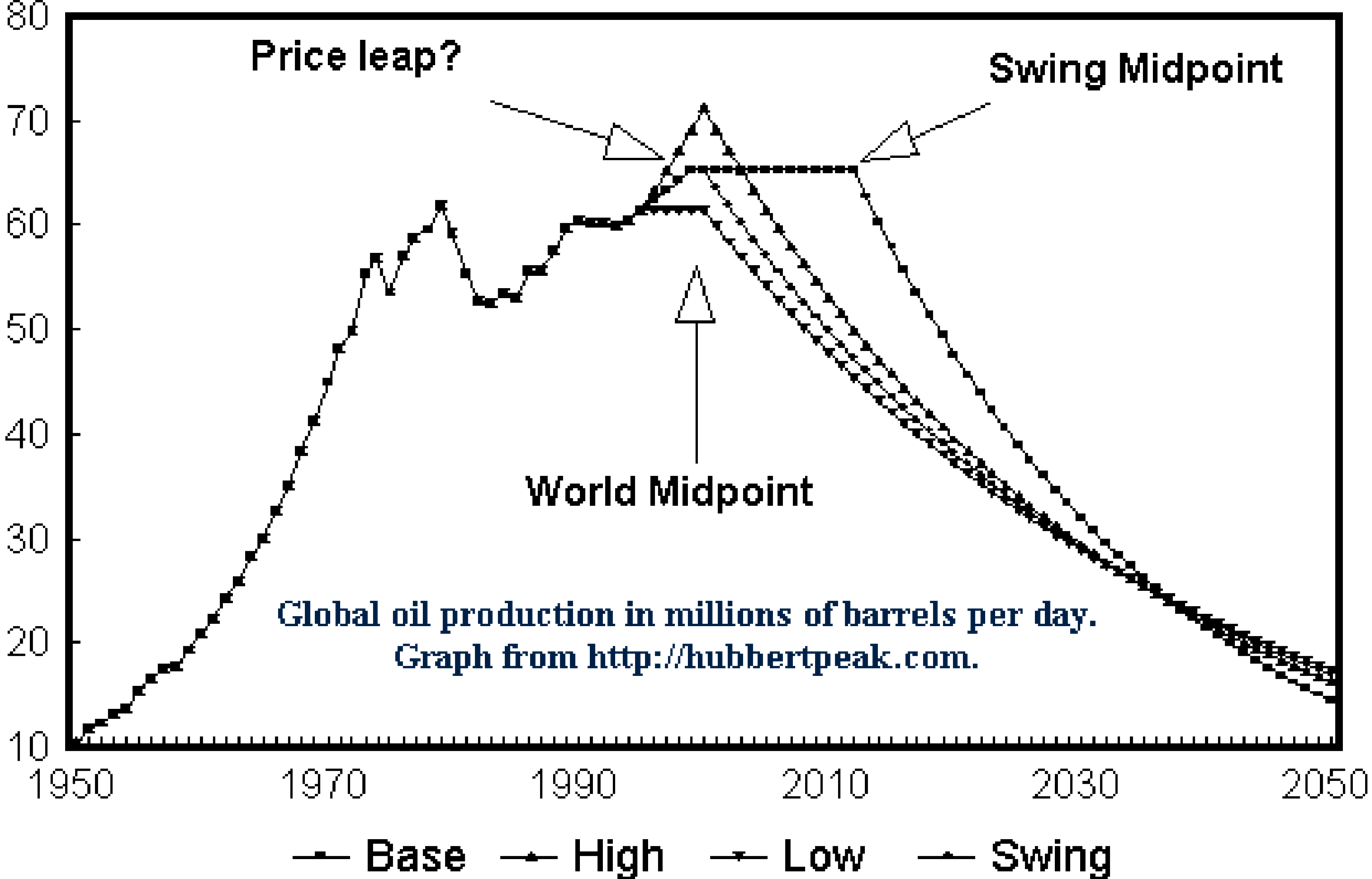


Source: US Department of Labor, Bureau of Labor Statistics

The Greatest Threats to Children's Energy Security, Food Security & Health

- ***Rising costs of energy***
 - Energy market dynamics; demand from China, India, OPEC and other developing economies
 - Energy prices and food prices
 - Energy costs and household stress
 - Energy costs and capacity of the Emergency Food Assistance Systems (Public and Private)
 - Housing/financial market crisis & fall of the US dollar
- ***Global climate change***

Peak Oil: Global Forecast of World Oil Production: Campbell, 1996



Alternative Futures

- **What kind of world do we want for our children and grandchildren? (Seven generations?)**
 - Status Quo (GIA) ⇔ Disaster
 - Community, Cooperation and Collaboration are our best hope – a Sustainable Community Approach (WITT)
- **Values of A Sustainable Community Approach:**
 - Community and the “common good” are intrinsically valuable.
 - Civic engagement and civil service are necessary and very valuable.
 - Government works for the people, not the reverse, and it is not our enemy

**THANK YOU
FOR YOUR ATTENTION**

