

**Balancing Acts:  
Energy Insecurity among Low-Income Babies  
and Toddlers of Color Increases Food Insecurity  
and Harmful Health Effects**

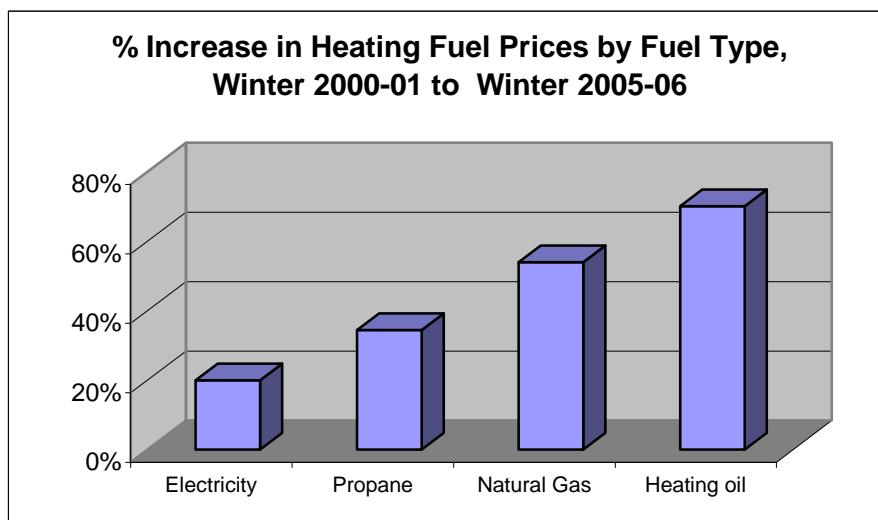
A Report by the Children's Sentinel Nutrition Assessment Program (C-SNAP)  
Commissioned by the Joint Center for Political and Economic Studies  
Health Policy Institute

---

March 2007

## Rising Energy Prices for All

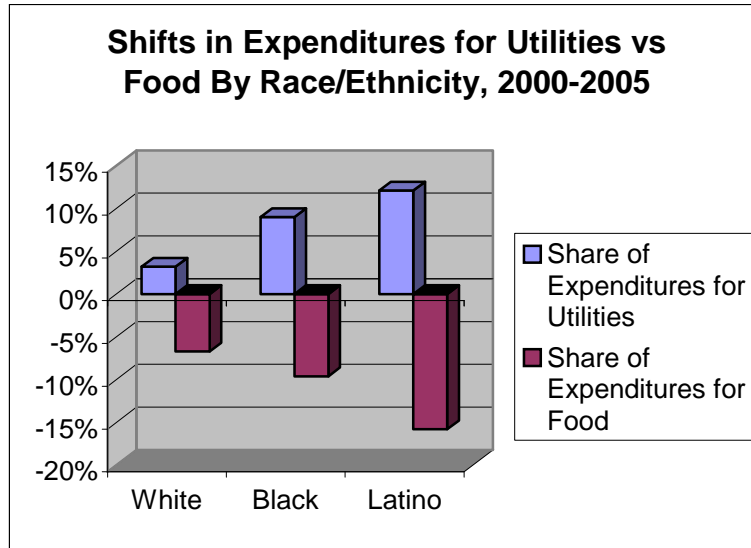
Increases in energy prices since 2000 have raised grave concerns about the ability of low-income households to sustain a safe and healthy environment for their children. According to the U.S. Bureau of Labor Statistics, overall energy prices increased by 42.1% between 2000 and 2005.<sup>i</sup> The U.S. Energy Information Administration reports that between the winter of 2000-2001 and the winter of 2005-2006, national average prices increased by 20.0% for electricity, 34.5% for propane, 54.0% for natural gas, and 70.1% for heating oil, as illustrated in the chart below.<sup>ii</sup> Household energy expenditure trends mirror these price increases, with national average expenditures for electricity increasing by 9.2%, propane by 15.6%, natural gas by 27.8%, and fuel oil by 40.3% over this period.



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

## Expenditure Shifts In Energy Versus Food

Increases in the cost of necessities force many families to make difficult and often hazardous choices when budgeting for household expenditures. Minority families are disproportionately impacted by these trade-offs. Data from the U.S. Consumer Expenditure survey for the period 2000-2005 show that between 2000 and 2005, as food prices increased by 13.5% overall, the share of total annual expenditures going for “utilities, fuels and public services” (which includes household energy spending) among Latino families increased by 12.1% on average, while the share of their spending going for food decreased by 15.8% on average. Similar shifts in the average proportions of expenditures occurred among Black households, with a 9.0% increase in the proportion spent on “utilities, fuels and public services,” and a 9.6% decrease in the proportion for food. Although similar shifts in average proportions of spending occurred among White households, the percent was somewhat lower, with a 3.2% increase in average proportion of spending for “utilities, fuels and public services,” and a 6.7% decrease in average spending for food.<sup>iii</sup>



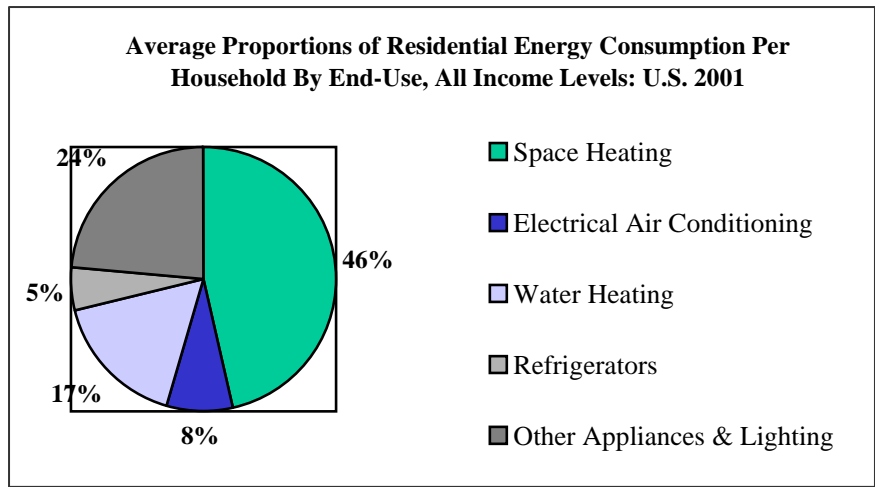
Source: US Department of Labor, Bureau of Labor Statistics

The consequences of such trade-offs in spending can be serious, particularly for low-income households, and most especially for the youngest children in those households. The first three years of life are a sensitive period of extraordinary brain and body growth; young children in this phase are highly vulnerable to any deficiencies in family resources or well-being. Results of research conducted from 1989-1992 by pediatric researchers at what was then Boston City Hospital (now Boston Medical Center), found that children between ages 6-24 months whose families sought acute care for them at the hospital’s Emergency Department within three months following the coldest month of the year had significantly lower weight-for-age than children needing care the rest of the year.<sup>iv</sup>

This drop-off in growth observed among very young children following periods of extreme cold weather has been labeled “heat or eat,” indicating the tragic coping strategies that many low-income families are forced to employ when their financial resources are not adequate to cover the costs of all necessities. Recently a similar phenomenon has been observed in geographical areas that experience extreme heat during the summer months. “Cool or eat” occurs when families trade off buying adequate healthy food in order to pay their electricity bills for electric air conditioning.<sup>v</sup>

### Household Energy Consumption

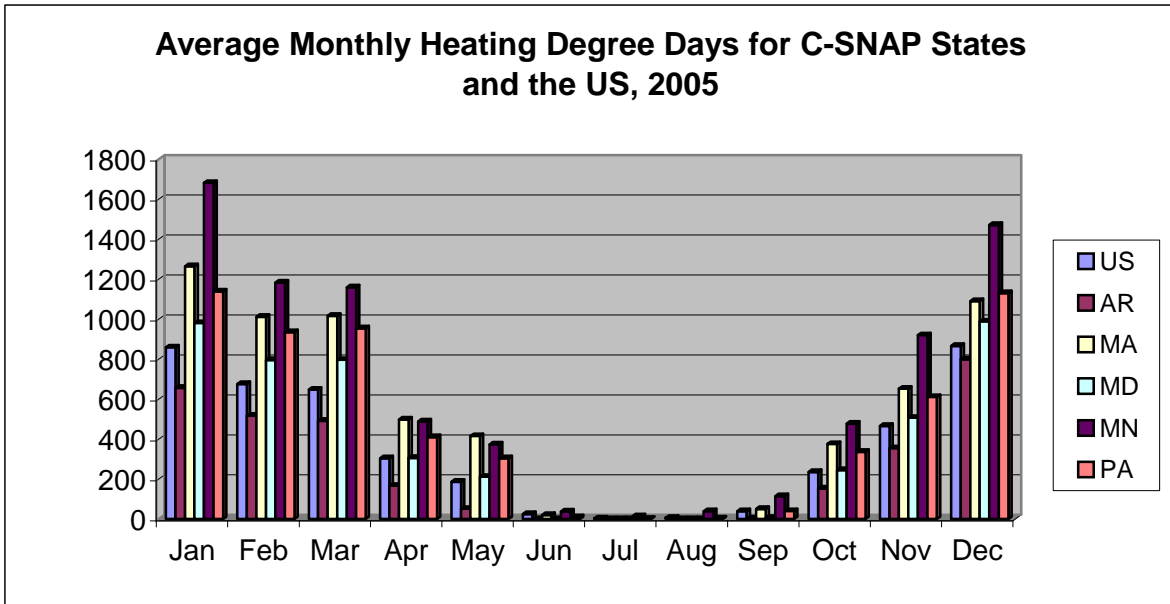
As seen in the following chart, the largest uses of energy in homes are for heating and cooling, with heating comprising the greater of these two. For households in northern states where winters can be long and intensely cold, heating fuel becomes a major household expenditure. On the other hand, for southern states, and states like Arizona, Nevada and regions of California, cooling can be as critical for health, and involve large expenditures for electricity for air conditioning.



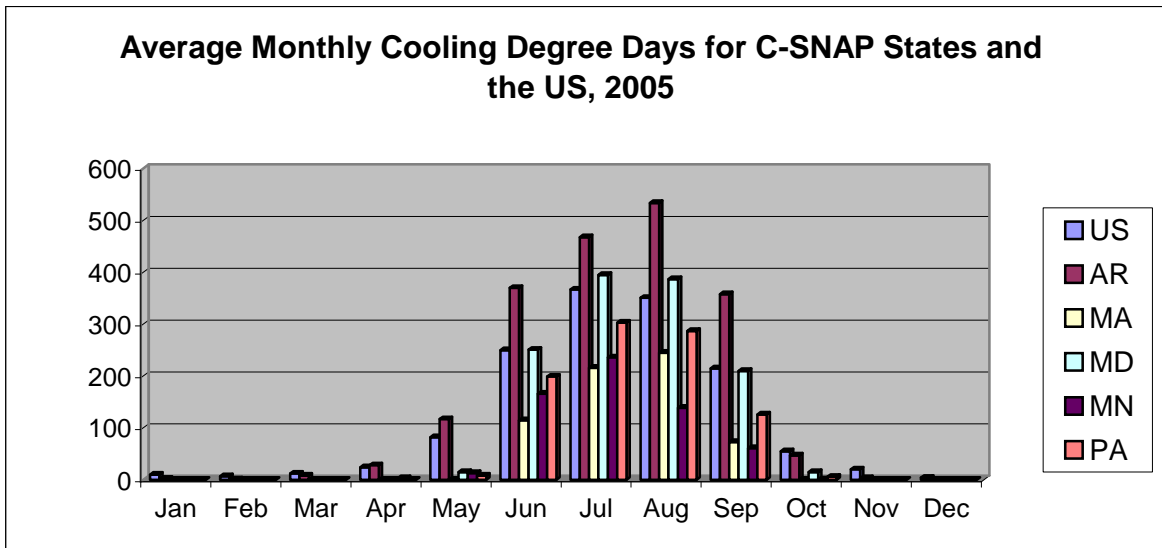
Source: US Energy Information Agency, Residential Energy Consumption Survey, Various Years. [www.eia.doe.gov/emeu/consumption](http://www.eia.doe.gov/emeu/consumption)

### Heat or Eat and Cool or Eat

A measure of the differences between daily low temperatures in a state and an average, neutral temperature of 65 degrees F, cumulated over a given period of time, is called “heating degree days.” The number of heating degree days a state has gives an indication of how much energy will be needed for heating. As one might imagine, there is also a similar measure of the number of days when temperatures are higher than the average neutral temperature of 65 degrees F. That measure is called “cooling degree days.”<sup>vi</sup> The following two charts show the average number of heating degree days and cooling degree days for the U.S. and the five C-SNAP states.



Source: National Weather Service, Climate Prediction Center



Source: National Weather Service, Climate Prediction Center

Two things are immediately apparent from these two degree day charts. First, states differ widely in the number of heating and cooling degree days they have in any month. And second, the number of heating and cooling degree days varies, almost inversely, within states across months in a year. As expected, there are more heating degree days in northern states, and more in the late fall, winter and early spring months than during the summer months. The opposite is generally true for southern states, and for arid, hot states like Arizona and Nevada. Those states have more cooling degree days than northern states, and there are more in the summer and early fall months than in the winter months.

These charts show that wide variation in heating and cooling degree days leads to cyclically increased demand and large expenditures for low-income families, whose inadequate income remains stable (or, in the case of seasonal workers, even disappears in the cold season). For poor or near-poor families, saving for colder or hotter months is simply not possible.<sup>vii</sup> Any change in the cost of utilities can place severe strains on tight household budgets, and if bills go unpaid, they haunt families throughout the year.<sup>viii</sup> Families’ efforts to meet increased heating or cooling costs during cold or hot months often necessitate very difficult trade-offs like those involved in “heat or eat,” or “cool or eat.”

Low-income families with rising energy burdens frequently attempt to cover energy expenses by decreasing spending on food and health care. When reallocation of scarce resources is not enough to pay the bills, many resort to alternative heat sources that jeopardize their children’s health and safety by increasing risk of fires, burns, and carbon monoxide poisoning. When combined with marginally affordable or unaffordable housing, high energy costs can create insurmountable budget constraints that force low-income families to endure unhealthy and unsafe living conditions that threaten child health. These include excess moisture and mold, poor ventilation, cockroach and vermin infestations, peeling paint, lead paint, unsafe stairs and steps, fire hazards, inadequate refrigeration and storage of food, and extreme temperatures.<sup>ix</sup>

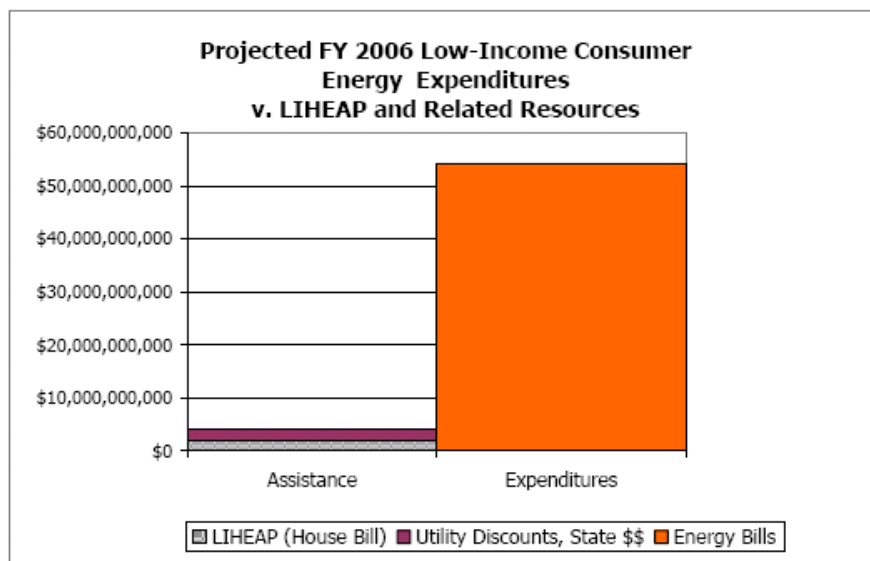
As the gap between rising energy costs and available family resources increases, more families accumulate substantial unpaid utility bills, leading to arrearages and utility disconnections. As charges pile up, many are unable to pay rent on time, resulting in eviction and homelessness. Such loss of housing can have devastating effects on child health and family well-being.

### Current Household Energy Assistance

The primary federal government program for assisting low-income families in paying their energy bills is the Low Income Home Energy Assistance Program (LIHEAP). LIHEAP is a federal block grant program providing grantees (states, District of Columbia, tribes and territories) with annual formula grants to help low-income families pay their heating and cooling bills. At the federal level, LIHEAP is administered by the U.S. Department of Health and Human Services through the Administration for Children and Families.

States are allowed to set income eligibility for LIHEAP at the greater of 60% of the state median income level or 150% of the federal poverty level (\$23,654 for an average family of three in 2006). In practice, most states target funds to lower income families, with more than 70% of families receiving LIHEAP having incomes below 100% of the federal poverty level (\$15,769 for an average family of three in 2006).

In 2006, only 16.1% of eligible households received LIHEAP based on federal eligibility or 23.1% based on state eligibility standards.<sup>x</sup> The main reasons for very low LIHEAP participation rates are not lack of interest or need, but rather, deficiencies in program funding. Federal and state governments allot only a small fraction of the funds necessary to pay for assistance to LIHEAP-eligible households each year. The chart below shows the projected aggregate cost of low-income household energy expenditures for 2006 compared to assistance funds actually available from state *and* federal sources.

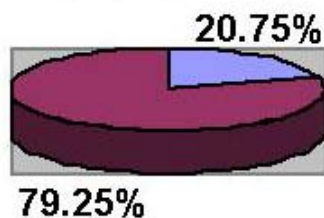


Source: Power, M. *Lower-Income Consumers' Energy Bills and Their Impact in 2006*. *Economic Opportunity Studies*, Washington, DC, October 25, 2005.

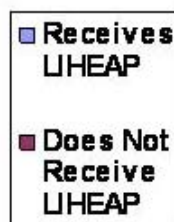
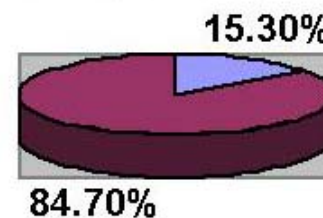
While national participation in the LIHEAP program is low, Latinos tend to have even lower rates of participation. One explanation for the low Latino enrollment is the fact that many Latinos live in warmer states where LIHEAP participation is low for all ethnicities. Blacks, on the other hand, tend to participate at a slightly higher rate than average, which may also reflect geography and colder climates. Previous C-SNAP research has found that LIHEAP has a protective effect on young Black children’s growth: young Black children whose potentially eligible families did not receive LIHEAP were **29% more likely to be at nutritional risk for slowed growth and more likely to have a lower weight-for-age.**<sup>xi</sup>

C-SNAP has found no association between LIHEAP participation and obesity in young Black and Latino children, or, for that matter, in children of any ethnicity.

**Black Families Eligible for LIHEAP in the C-SNAP Sample**



**Latino Families Eligible for LIHEAP in the C-SNAP Sample**



### Why should we care?

Understandably, when most of us think about poverty and hunger, we picture the bare kitchen table or the empty refrigerator. Few of us imagine the thermostat turned to ‘off’ or the electricity shut-off notice in the mail. But the reality is that low-income families struggle with deprivation and the ability to consistently provide for multiple survival needs. While each problem warrants attention, there are few so urgent as energy insecurity.

Children of color are particularly at risk, not because of their race or ethnicity in and of itself, but rather because their families are disproportionately affected by poverty, and have fewer resources with which to meet their children’s basic needs. Compounding the risk incurred due to economic hardship is the risk inherent in being a child of very young age. Because babies and toddlers are not yet in formal educational settings, they are generally seen only by their parents, health and child care providers, and are therefore largely invisible to society’s major support systems. For young children from poor and near-poor families, this societal invisibility comes at great cost because it means that food and energy insecurity, along with their detrimental effects, often can go unnoticed and untreated. The insults to young children’s growth and development caused by energy and food insecurity should raise concerns for society at large because experience of these early shortages diminish their educational and economic promise and may shift their future trajectory towards failure. Food insecure children are less likely to have the social and cognitive skills and abilities that help them to do well in school.<sup>xii</sup> If this does not worry us on a moral plane, then it certainly should trouble us on a societal and economic

level. If thousands of children of color suffer preventable health problems and developmental delays, and, subsequently, difficulties in school and limited work opportunities<sup>xiii</sup> potentially future generations of adults of color could remain trapped in poverty rather than contributing to the expansion of our skilled workforce.

## Results

The **Children’s Sentinel Nutrition Assessment Program (C-SNAP)** is a national network of pediatricians and public health specialists dedicated to:

- Conducting original, clinical research on children under 3 years old
- Informing public policies that protect children’s health and development by providing credible evidence to policymakers and advocates
- Providing referrals to medical care and other resources for children and food insecure families

The C-SNAP research team comprehensively assessed the associations between energy insecurity and child health and nutrition outcomes, specifically among young children of color under age three. We also evaluated whether family LIHEAP participation is correlated with better health outcomes among young children of color. Energy insecurity is indicated in the C-SNAP data by an affirmative response to any combination of the following four survey questions (listed in abbreviated form):

1. In the past year has any utility company threatened to shut off your utilities for not paying bills?
2. In the past year have you ever used a cooking stove to heat your home?
3. In the past year were there any days your home was not heated/cooled because you couldn’t pay the bills?
4. In the past year has any utility company shut off your utilities or refused to make a delivery for not paying bills?

Based on responses to these questions, we defined an energy security indicator as follows<sup>xiv</sup>:

- Energy secure = no affirmative responses to any of the four questions;
- Moderate energy insecurity = affirmative responses to the first question only;
- Severe energy insecurity = affirmative responses to any one or more of questions two through four.

### C-SNAP study sites include:

- Boston Medical Center, Boston, MA
- Hennepin County Medical Center, Minneapolis, MN
- Mary’s Center for Children, Washington, DC\*
- University of Arkansas for Medical Sciences, Little Rock, AR
- University of Maryland Medical Center, Baltimore, MD
- St. Christopher’s Hospital for Children, Philadelphia, PA
- Harbor-UCLA Medical Center, Los Angeles, CA\*

\*Currently dormant site



## Young Black Children

### ***Food insecurity increases for Black families with young children who are energy insecure.***

Compared to those whose families were energy secure,

- Black babies and toddlers whose families had moderate energy insecurity were *more than two and half times as likely to live in a food insecure household.*
- Black babies and toddlers whose families had severe energy insecurity were *2.83 times as likely to be in a food insecure household.*

***Energy Security:*** Consistent 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.)

### ***Child food insecurity increases for young Black children whose families are energy insecure.***

Compared to those whose families had no problems paying for energy,

- Black babies and toddlers whose families were moderately energy insecure were *80% more likely to have child food insecurity.*
- Black babies and toddlers whose families were severely energy insecure were *almost three times as likely to have child food insecurity.*

### ***Child health status worsens when young Black children's families are energy insecure.***

Compared to those whose families had no trouble paying for energy,

- Black babies and toddlers whose families experienced any level of energy insecurity were *43-52% more likely to be in fair or poor health.*

### ***Hospital admission on day of emergency room visit is more likely for young Black children who are energy insecure.***

Compared to those whose families were energy secure,

- Black babies and toddlers whose families had moderate energy insecurity were *38% more likely to be admitted to the hospital on the day that their parents sought care for them in an emergency room.*

### ***Developmental Risk is higher for young Black children who are energy insecure.***

Compared to those whose families had no trouble paying for energy,

- Black babies and toddlers whose families had severe energy insecurity were *82% more likely to be at risk for development problems.*

***Food Insecurity:*** A technical term many frontline workers call hunger, food insecurity refers to limited or uncertain access to enough nutritious food for all household members to lead an active and healthy life.

***Child Food Insecurity:*** This is the most severe form of food insecurity, meaning that the supply of food is so short that the parents can no longer buffer their children from the lack of food. Essentially, this is child hunger.

*US Department of Agriculture, Household Food Insecurity in the United States, 2005.*

## **Young Latino Children**

### ***Food insecurity worsens for young Latino children whose families are energy insecure.***

Compared to those whose families had no problems paying for energy,

- Latino babies and toddlers whose families were moderately energy insecure were *more than twice as likely to live in a food insecure household.*
- Latino babies and toddlers whose families were severely energy insecure were *more than three times as likely to be in a food insecure household.*

### ***Child food insecurity worsens for young Latino children whose families are energy insecure.***

Compared to those whose families were energy secure,

- Latino babies and toddlers whose families were moderately energy insecure were *76% more likely to experience child food insecurity.*
- Latino babies and toddlers whose families were severely energy insecure were *nearly three times as likely to experience child food insecurity.*

### ***Likelihood of past hospitalization increases for young Latino children whose families are energy insecure.***

Compared to those whose families were energy secure,

- Latino babies and toddlers whose families were moderately energy insecure were *45% more likely to have had a past hospitalization.*

### ***Developmental risk increases for young Latino children whose families are energy insecure.***

Compared to those whose families were energy secure,

- Latino babies and toddlers whose families were severely energy insecure were *93% more likely to be developmentally at risk.*

## **Limitations**

This study has several important limitations. First, C-SNAP interviews are only conducted in English, Spanish, and (in Minneapolis only) Somali. In addition, Asians and Native Americans were not included in this report because the sample size was too small to yield interpretable results. Thus, while C-SNAP recognizes that the term ‘children of color’ encompasses more than just Black and Latino children, we did not examine the effects of energy insecurity on the health and well-being of other babies and toddlers of color. Second, while the cross-sectional study design can demonstrate associations, it does not allow us to establish causation. Additionally, this study is not a nationally representative sample. Instead it is a sentinel sample of families with children younger than three years of age receiving care at emergency departments or acute care clinics that currently serve low-income populations in five United States cities.

## Implications of C-SNAP's Findings

Energy insecurity is harmful to young children's health, growth, and development. The results from this study show that energy insecurity increases the chances that babies and toddlers of color will get sick and have developmental problems. In addition, young children of color from energy insecure families have increased odds of food insecurity, which, in turn, is linked with increased risk of hospitalizations, nutrient deficiencies, learning and developmental deficits, and behavioral and emotional problems. These findings demonstrate that energy supports need to be prioritized by policymakers serving low-income communities of color, and suggest that the current structure for assisting families is inadequate. **Changes can be made that will brighten the prospects for young children of color and all of America's children.**

## Action Needed by Policymakers

1. **Support the safety-net as a whole** – do not trade programs off against each other. Unbalancing the safety-net means that dangerous choices trickle down to low-income families.
2. **Fund the Low Income Home Energy Assistance Program (LIHEAP)** at the maximum authorized level to allow the program to meet the yearly need from eligible households.
3. Continue to **support consumer shut-off protections** that protect vulnerable people (the disabled, elderly, the sick, and young children) from extreme weather conditions.
4. Help low-income families **improve the energy-efficiency of their homes** by providing more funds for home weatherization programs and rebates for energy efficient appliances and products. The less low-income families spend on energy due to improved efficiency, the farther their LIHEAP assistance dollars will stretch.
5. **Collect energy insecurity data** in the same uniform, annual manner that food insecurity data are gathered. In this way, the true magnitude of the problem can be tracked, effective programs supported, and policies based on evidence can be written.

These findings also argue that low-income families need a strong and comprehensive safety-net — not just nutrition assistance or just fuel assistance, but diverse and tightly interwoven supports—to ensure that their basic needs of food, shelter, and energy are met. Failing this, we, as a society, can expect the growth of already wide disparities between low- and high-income families to accelerate. Moreover, even wider gaps will emerge between the health and future prospects of children from low-income families of color and their higher income peers. Ensuring that all children's basic needs are met is not just good social policy, but policy that supports children reaching their potential for learning and growing into the productive workforce of tomorrow's America.

## **AUTHORS**

This report was prepared by Stephanie Ettinger de Cuba, MPH, C-SNAP Research and Policy Director, Boston, MA, John Cook, Ph.D., M.A.Ed., C-SNAP Co-Principal Investigator at Boston Medical Center in Boston, MA; and Deborah A. Frank, MD, C-SNAP Principal Investigator at Boston Medical Center in Boston, MA, in collaboration with other C-SNAP Principal Investigators:

- Maureen Black, PhD, Co-Principal Investigator, University of Maryland School of Medicine, Baltimore, MD;
- Patrick Casey, MD, Co-Principal Investigator, University of Arkansas for Medical Sciences, Little Rock, AR
- Mariana Chilton, PhD, MPH, Co-Principal Investigator, St. Christopher's Hospital for Children, Philadelphia, PA
- Diana Cutts, MD, Co-Principal Investigator, Hennepin County Medical Center, Minneapolis, MN;
- Alan Meyers, MD, MPH, Co-Principal Investigator, Boston Medical Center, Boston, MA;

Data management, analysis, and interpretation were completed by the C-SNAP data coordinating team at the Boston University School of Public Health Data Coordinating Center:

- Danielle Appugliese, MPH
- Timothy Heeren, PhD
- Zhaoyan Yang, MS

## **ACKNOWLEDGMENTS**

This report was sponsored by the Joint Center for Political and Economic Studies.

We would like to thank Mindy Ju, C-SNAP summer intern for her assistance in compiling the background research for this report.

C-SNAP operations and analyses have been supported by: Abell Foundation, Annie E. Casey Foundation, Anonymous Donor, Anthony Spinazzola Foundation, Candle Foundation, Claneil Foundation, Daniel Pitino Foundation, EOS Foundation, Gold Foundation, Gryphon Fund, Hartford Foundation for Public Giving, Jennifer Kaminsky, MAZON: A Jewish Response to Hunger, Minneapolis Foundation, New Hampshire Charitable Foundation, Project Bread: The Walk for Hunger, Sandpiper Philanthropic Foundation, Schaffer Foundation, Susan P. Davies and Richard W. Talkov, Susan Schiro and Peter Manus, Thomas Wilson Sanitarium for Children of Baltimore City, United States Department of Agriculture, Vitamin Litigation Funding, with major funding from the W.K. Kellogg Foundation.



## APPENDIX I: Energy Security Data Tables

Only statistically significant results are presented below. Control variables for each outcome were selected if they met the formal statistical criteria for confounding – correlated at p less than .05 with both the predictor and the outcome.

### Young Black Children

<b>Outcome</b>	<b>No Energy Problems (n=3,501) 62%</b>	<b>Less Severe: Threatened (n=665) 12%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=1,488) 26%</b>	<b>p value</b>
<b>Household Food Insecurity (yes/no)</b>	<b>1.00</b>	<b>2.59 (1.85, 3.62) p&lt;.0001</b>	<b>2.83 (2.19, 3.66) p&lt;.0001</b>	<b>p&lt;.0001</b>
Adjusted for: Site, Employed, Maternal Depression, Maternal Age, Food Stamps, TANF, Housing, LIHEAP and TANF Sanction				

<b>Outcome</b>	<b>No Energy Problems (n=3,501) 62%</b>	<b>Less Severe: Threatened (n=665) 12%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=1,488) 26%</b>	<b>p value</b>
<b>Child Food Insecurity (yes/no)</b>	<b>1.00</b>	<b>1.80 (1.13, 2.88) p=.01</b>	<b>2.94 (2.08, 4.14) p&lt;.0001</b>	<b>p&lt;.0001</b>
Adjusted for: Site, Employed, Maternal Depression, Maternal Age, Housing, LIHEAP and TANF Sanction				

<b>Outcome</b>	<b>No Energy Problems (n=3,501) 62%</b>	<b>Less Severe: Threatened (n=665) 12%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=1,488) 26%</b>	<b>p value</b>
<b>Child Health Fair/Poor</b>	<b>1.00</b>	<b>1.52 (1.16, 1.99) p=.002</b>	<b>1.43 (1.15, 1.77) p=.001</b>	<b>p=.0004</b>
Adjusted for: Site, Maternal Depression, Child Age and Food Stamps				

<b>Outcome</b>	<b>No Energy Problems (n=3,501) 62%</b>	<b>Less Severe: Threatened (n=665) 12%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=1,488) 26%</b>	<b>p value</b>
<b>Admission on Day of ER/Acute Care Clinic Visit</b>	<b>1.00</b>	<b>1.38 (0.99, 1.95) p=.06</b>	<b>0.84 (0.64, 1.09) p=.18</b>	<b>p=.03</b>
Site=Boston & Little Rock Only Adjusted for: Employed and LIHEAP				

<b>Outcome</b>	<b>No Energy Problems (n=3,501) 62%</b>	<b>Less Severe: Threatened (n=665) 12%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=1,488) 26%</b>	<b>p value</b>
<b>PEDS –Significant Concerns (Development Risk)</b>	<b>1.00</b>	<b>1.19 (0.78, 1.82) p=.43</b>	<b>1.82 (1.29, 2.58) p=.0007</b>	<b>p=.003</b>
Limited to those over 4 months Adjusted for: Site, Maternal Education, Maternal Depression, Age of Mother, Age of Child and Housing				

### **Young Latino Children**

<b>Outcome</b>	<b>No Energy Problems (n=1894) 72%</b>	<b>Less Severe: Threatened (n=193) 7%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=517) 20%</b>	<b>p value</b>
<b>Household Food Insecurity (yes/no)</b>	<b>1.00</b>	<b>2.29 (1.31, 4.01) p=.004</b>	<b>3.13 (2.01, 4.89) p&lt;.0001</b>	<b>p&lt;.0001</b>
Adjusted for: Site, US Born, Married, Maternal Education, Maternal Depression, Breast Fed, Food Stamps, TANF, Housing, LIHEAP and Food Stamp Sanction				

<b>Outcome</b>	<b>No Energy Problems (n=1894) 72%</b>	<b>Less Severe: Threatened (n=193) 7%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=517) 20%</b>	<b>p value</b>
<b>Child Food Insecurity (yes/no)</b>	<b>1.00</b>	<b>1.76 (0.86, 3.60) p=.13</b>	<b>2.76 (1.63, 4.70) p=.0002</b>	<b>p=.0008</b>
Adjusted for: Site, US Born, Married, Maternal Education, Maternal Depression, Breast Fed, Food Stamps, TANF, Housing, LIHEAP and Food Stamp Sanction				

<b>Outcome</b>	<b>No Energy Problems (n=1894) 72%</b>	<b>Less Severe: Threatened (n=193) 7%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=517) 20%</b>	<b>p value</b>
<b>Past Hospitalizations</b>	<b>1.00</b>	<b>1.45 (1.02, 2.07) p=.04</b>	<b>1.12 (0.86, 1.45) p=.41</b>	<b>p=.11</b>
Adjusted for: Site, US Born, Married, Maternal Depression, Breast Fed, Food Stamps, TANF and Housing				

<b>Outcome</b>	<b>No Energy Problems (n=1894) 72%</b>	<b>Less Severe: Threatened (n=193) 7%</b>	<b>Severe: Shut Off/ Unheated/ Cooking Stove (n=517) 20%</b>	<b>p value</b>
<b>PEDS –Significant Concerns (Development Risk)</b>	<b>1.00</b>	<b>0.71 (0.34, 1.49) p=.37</b>	<b>1.93 (1.18, 3.15) p=.008</b>	<b>p=.01</b>
Limited to those over 4 months Adjusted for: US Born, Maternal Education and Breast Fed				

## **APPENDIX II: Children’s Sentinel Nutrition Assessment Survey Instrument -- Energy Questions**

1. Since [name of current month] of last year has the [gas/electric] company sent [you/the primary caretaker] a letter threatening to shut off the [gas/electricity] in the house for not paying bills?
2. In the last 12 months since last [name of current month] [have you/has the primary caretaker] ever used a cooking stove to heat the [house/apartment]?
3. Since [name of current month] of last year were there any days that the home was not [heated/cooled] because [you/the primary caretaker] couldn’t pay the bills?
4. Since [name of current month] of last year has the [gas/electric/oil] company [shut off/oil company refused to deliver] the [gas/ electricity/ oil] for not paying bills?



### **APPENDIX III: Summary of the Parents' Evaluation of Developmental Status (PEDS)<sup>xv</sup>**

In order to assess the impact of food insecurity on the development of young low-income Black and Latino children, C-SNAP utilized the Parents' Evaluation of Developmental Status (PEDS).<sup>xvi</sup> PEDS is a parent report screening instrument used to detect developmental concerns about children from birth to eight years of age. Parents (or caregivers) answer ten questions on whether they have concerns about their child in the following areas of development: cognition, expressive, and receptive language, fine and gross motor, behavior, socio-emotional development, self-help and learning. All responses are recorded and scored based on the child's age, as well as the presence or absence of significant age-related concerns identified by the screening instruments.<sup>xvii</sup> For this report, the analyses are based on the total number of significant developmental concerns reported. PEDS is a standardized instrument that has demonstrated validity, reliability, and accuracy and meets the American Academy of Pediatrics standards for developmental screening. It has also proven to be largely unaffected by socio-demographic factors like race/ethnicity, geographic location, parental education/employment status, and parent/child gender.

## **REFERENCES**

- <sup>i</sup> Department of Labor, Bureau of Labor Statistics. Reported in the Economic Report of the President, 2007.
- <sup>ii</sup> Short Term Energy Outlook. U.S. Energy Information Administration, March 6, 2007.  
<http://www.eia.doe.gov/emeu/steo/pub/wf01.html> (Accessed March 10, 2007).
- <sup>iii</sup> U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, various years.  
<http://www.bls.gov/cex/csxshare.htm#1995> (Accessed March 10, 2007).
- <sup>iv</sup> Frank DA, et al. Seasonal Variation in Weight-for-Age in a Pediatric Emergency Room. Public Health Reports, July/August 1996, 111:366-371.
- <sup>iv</sup> 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.
- <sup>v</sup> Ibid, November 2006.
- <sup>vi</sup> National Weather Service, Climate Prediction Center.  
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/cdus/degree\\_days/](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/) (Accessed March 16, 2007).
- <sup>vii</sup> The Child Health Impact Working Group. Unhealthy Consequences: Energy Costs and Child Health. Boston, MA, November 2006.
- <sup>viii</sup> Ibid, November 2006.
- <sup>ix</sup> Ibid, November 2006.
- <sup>x</sup> National Energy Assistance Directors' Association (NEADA). The Low Income Home Energy Assistance Program: Providing heating and cooling assistance to low-income families during a period of high energy prices. Washington, DC, February 9, 2007.
- <sup>xi</sup> Agénor, M., Ettinger de Cuba, S., Rose-Jacobs, R., Frank, D.A. et al 'The Impact of Food Insecurity on the Development of Young Low-Income Black and Latino Children' and Frank, D.A., Ettinger de Cuba, S., Neault, N., et al. 'Protecting the Health and Nutrition of Young Children of Color: The Impact of Nutrition Assistance and Income Support Programs' in *Research Findings from the Children's Sentinel Nutrition Assessment Program (C-SNAP)* prepared for the Joint Center for Political and Economic Studies Health Policy Institute, May 2006.
- <sup>xii</sup> Ettinger de Cuba, S., Frank, D.A., Rose-Jacobs, R. et. al. *Nourishing Development: A Report on Food Insecurity and the Precursors to School Readiness among Very Young Children*, July 2006.
- <sup>xiii</sup> Ibid, July 2006.
- <sup>xiv</sup> While there is no officially accepted definition of energy security, the definition shown here is consistent with the conditions measured by the energy insecurity scale described in *Measuring the outcomes of low-income energy assistance programs through a home energy insecurity scale*. A report prepared for the OCS' LIHEAP Committee on Managing for Results by Roger Colton of Fisher, Sheehan and Colton, under subcontract to the National Energy Assistance Directors' Association (NEADA). US DHHS/ACF, Washington, DC, July 2003.
- <sup>xv</sup> Agénor, M., Ettinger de Cuba, S., Rose-Jacobs, R., Frank, D.A. et al 'The Impact of Food Insecurity on the Development of Young Low-Income Black and Latino Children' and Frank, D.A., Ettinger de Cuba, S., Neault, N., et al. 'Protecting the Health and Nutrition of Young Children of Color: The Impact of Nutrition Assistance and Income Support Programs' in *Research Findings from the Children's Sentinel Nutrition Assessment Program (C-SNAP)* prepared for the Joint Center for Political and Economic Studies Health Policy Institute, May 2006.
- <sup>xvi</sup> F.P. Glascoe, Collaborating with Parents: Using Parents' Evaluation of Developmental Status to Detect and Address Developmental and Behavioral Problems (Nashville, TN: Ellsworth & Vandermeer Press, Ltd, 1998).
- <sup>xvii</sup> Glascoe, 1998; F.P. Glascoe, PEDS: Parents' Evaluation of Developmental Status (n.d.), [www.pedstest.com](http://www.pedstest.com) (accessed March 16, 2007).