Energy and Obesity – The 2008 Keystone Youth Policy Summits

Summary
Keystone Science School and Keystone Center for Science and Public Policy programs blend learning in the natural world with developing mediation and conflict resolution skills. Since 2004, these two divisions of The Keystone Center in Colorado have partnered with the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology (NCSSSMST) to offer Keystone Youth Policy Summits (YPS). The Summits have awakened Consortium students to a world of problem solving that incorporates critical thinking and consensus and provided them with the experiential tools to find solutions to issues they will inherit from previous generations.

Two groups of students met during the 2008 Summits. The 2008 topics were *Sustainable Fuels in America* and *Obesity in America*. Participants researched each topic prior to their YPS and came together to meet with experts and to discuss and negotiate policy recommendations. Two reports resulted: the *Student Agreement on Sustainable Fuels in America* and the *Student Agreement on Obesity in America* (summarized below).

Sustainable Fuels in America

The Keystone Science School hosted 39 students from 10 NCSSSMST schools for the Youth Policy Summit on Sustainable Fuels in America in June 2008. During the Summit, participants discussed the environmental, social, economic and political problems associated with current and future fuel usage in the United States. Participants shared research, defined the issues and options, and sought consensus on recommendations. Students next met with experts to develop thoughtful, practical ideas that were presented to The Keystone Center's National Energy Board in October 2008. Through the formation of the Junior Energy Board sponsored by Duke Energy, the student group will continue to work.

Questions and Issues

Environment:

The extraction, shipment, and consumption of oil have a number of well-known environmental impacts, from damage to fragile eco-systems from extraction and from oil spills, to smog and carbon dioxide emissions from tailpipes. Yet no fuel is perfect and indeed each alternative fuel has its own set of environmental impacts. What near-term, mid-term and long-term fuel mix is best for the environment?

What are the 'upstream' environmental impacts of various fuels (i.e., what is the source of the fuel, and how is it grown or extracted)?

What are the 'downstream' environmental impacts of various fuels (e.g., are fishermen impacted by added agricultural runoff)?

Are some fuels better in terms of climate change? What upstream and downstream impacts must be considered to get a full life-cycle understanding of emissions attributable to a specific fuel?

Equity:

Some fuels may be more useful in concentrated urban areas, where most travel is local and fueling stations can be concentrated in a small area. Others may be better suited to agricultural areas closer to where they are grown. Which mix of fuels creates the greatest social equity in the near-term, mid-term and long-term?

Must everyone have equal access to all fuels?

What does that mean for car and truck and engine manufacturers?

There are environmental justice issues with oil refineries impacting poor communities more than others. Might some alternative fuels adversely affect other communities?

Standards and measurements:
With a goal to significantly reduce use of oil-based fuels, what standards should be set over what time period?

What is an appropriate target over the short-term (4-8 years)? Mid-term (8-16years)? Long-term (16 years+)?

How will progress be measured?

What are challenges and opportunities to work around them and overcome them?

Recommendations

Short-term Plan Summary (4-8 years):
By 2016, we recommend plans to accomplish the following:

- Decrease foreign oil dependence by five percent;
- Require 20 percent of the nation's gas stations to provide at least one form of biofuel;
- See no increase in the rate of change of carbon emissions;
- Increase fuel diversity;
- Make great strides in research of various fuels and carbon capture and storage;
- Increase public awareness of various fuels;
- Gain accessibility to various fuels in the current infrastructure;
- Make alternative energy a popular and viable option for consumers;
- Augment government support of alternative fuel programs;
- Revise and renew government tax incentives; for up to 150,000 hybrid cars per car manufacturer from the years 2010 to 2015;
- Meet the goal of having 10 percent of all cars to be hybrid vehicles.

Mid-term Plan Summary (8-16 years):
By 2024, our goal is to:

- Develop and implement advanced hybrid electric vehicle technology that reduce environmental impacts;
- Government mandate for Fischer-Tropsch liquids to have carbon neutrality in mature industries;
- Require a minimum of 40 percent of the vehicles being driven in the United States are hybrids with 60 percent of the vehicles sold being hybrids;
- Provide research grants for manufacturers who go beyond the *Energy Independence and Security Act (EISA) of 2007* requiring by the year 2020 the CAFE of each manufacturer must be no less than 35 miles per gallon;
- Implement a household and commercial bio-waste recycling program;
- Meet or exceed the goals of 21 billion gallons of advanced biofuels set by the *EISA* of 2007;
- Fund research for methods to use biofuels, biomass and bio-waste for the clean production of hydrogen and electricity, to convert easily into the future of a hydrogen power based economy.

Long-term Plan Summary (16+ years):
By 2024, our goal is the following:

- 40 percent of cars on the road are hybrids;
- 60 percent of all cars produced by manufacturers are hybrids;
- Research, development and deployment of GTL, CTL and BTL technology, as well as hydrogen.

By 2040 our goal is the following:

- ~100 percent of cars on the road are hybrids;
- Continued production of GTL, CTL, and BTL cars, with the goal of ~60 percent of vehicles on the road using a mix of these fuels;
- Continued production of hydrogen, with the goal of ~40 percent of vehicles on the road using hydrogen.

By 2060 our goal is the following:

- 40 percent of cars on the road are hydrogen;
- 60 percent of cars being produced by manufacturers are hydrogen;

- GTL, CTL, and BTL plants are switched to hydrogen production;
- And by 2080, our goal is that 100 percent of cars on the road are hydrogen.

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Participating Schools

Arkansas School for Math, Science and the Arts, Hot Springs, Arkansas
Brooklyn Technical High School, Brooklyn, New York
Center for Advanced Technologies, St. Petersburg, Florida
Conroe ISD Academy of Science and Technology, The Woodlands, Texas
Illinois Mathematics and Science Academy, Aurora, Illinois
Liberal Arts and Science Academy, Austin, Texas
Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan
Roanoke Valley Governor's School, Roanoke, Virginia
Rockdale Magnet School For Science and Technology, Conyers, Georgia
Science and Mathematics Academy, Aberdeen, Maryland

Obesity in America

The Keystone Science School hosted the second 2008 Youth Policy Summit in August, bringing together 26 students from five NCSSSMST schools to develop consensus-based recommendations on preventing and treating obesity in the United States. Participants addressed the fact that the number of Americans who are overweight or obese is rising even though information about healthy living is available. Students came to the Summit immersed in the roles of different stakeholders after months of researching questions and issues about obesity. During the Summit they interacted with a panel of experts from government, industry, academia, and civil society. Through fact-finding and iterative negotiations, the participants considered a range of evidence-based strategies to identify approaches to reversing this public health crisis and recommended policies in three areas: information, education and inspiring action.

Questions and Issues

What specifically should be done over the next 10 years, by whom, and by when, to bring about the behavior changes necessary to reduce incidence of overweight and obesity significantly in the United States?

A good deal of information about healthy lifestyles is already available to Americans. What else might they need to know?

Consider dietary guidance from government, school curricula, public health messages, and information from other sources such as physicians, coaches, and dietitians. Consider how such information is currently being used—by whom, and for what purpose? Is it reaching enough people?

What do you recommend be done going forward?

Who would implement any new strategies, and how might they be funded? What educational strategies are needed to help people use this information appropriately? How effective are current efforts?

Consider current education around use of the Food Label and MyPyramid, school wellness plans, school curricula, public health announcements, and information for special populations such as dieters and new parents. What do you recommend be done going forward? Who would implement any new strategies, and how might they be funded?

What other strategies (programs or messages) should be used to motivate and inspire people to act upon this knowledge and change their behavior?

What factors compel people to act on health-related information? Are new messages needed, or environmental changes (such as integrated community and neighborhood design, or greater availability of healthier foods)...or both?

How are messages delivered most effectively? (Factors may include who delivers the message, through what means, with what tone, etc.) Who would implement any new strategies, and how might they be funded?

What research priorities are most pressing over the next 10 years?

Recommendations

Youth Education:

Develop "Health Clubs" managed by high school volunteers for students ages 7-10 that would help prevent obesity by reaching out to students on a monthly basis. Topics covered in the program would include the importance of physical activity and nutrition. High school volunteers, as role models for younger students, would commit to maintaining a healthy lifestyle.

A policy should be put in place to improve the nutrition of school meals and competitive foods. A ten-year, federally funded national school nutrition policy should phase out unhealthy choices and unhealthy competitive foods from schools.

To draw attention to health awareness in schools, each state should have a plan in place to record the progress of students' physical activity, including semiannual testing beginning in kindergarten. The test results should be published statewide in hopes of setting new physical activity standards.

To better educate students on health and wellness, students should be required to pass a federally mandated, standardized test as a graduation requirement. The test would include topics such as nutrition, family life, and drug awareness.

Community Engagement

In order to encourage healthy lifestyles in communities, an increase is recommended in federal funding for parks, and physical activity guidelines recommended by the American Academy of Pediatrics should be posted in parks for community education.

A federal government fund should be established to support communities in building sidewalks and bike paths. Individual communities would apply for grant money with project proposals beginning in 2010 and projects would be completed by 2020.

Communities should also start intramural sports programs for community members of all ages. The programs would be housed in schools and other public areas; volunteers would serve as coaches and referees.

Motivation from the Media

Commercials with familiar television figures and characters should be used to teach children about healthy living. These figures could spread simple messages, including the importance of eating fruits and vegetables and the importance of regular exercise.

Adult Epidemic

The government should collaborate with colleges and universities to help young adults avoid "The Freshman Fifteen." A computer, using a card swipe system, could help students track how long and how often they go to the gym, and schools could reward active students with prizes.

To reach adults, businesses should collaborate with fitness centers to provide employees with reduced price or free fitness membership, increasing fitness center business, tax relief for businesses and opportunities for physical fitness. Fitness memberships could also be offered through health insurance plans.

Consumerism & Obesity

A "healthy option" symbol overseen by the U.S. Food and Drug Administration should be used to identify healthy products and services. In order to earn the symbol, products should contain essential nutrients and/or low amounts of sodium, saturated fat, trans fat, cholesterol, etc.

The MyPyramid diagram should be placed on all food products to highlight the nutritional characteristics of the item, consumption recommendations and other suggestions to create a balanced meal.

Obesity, Socioeconomic Status and Communities

Food availability and affordability are major factors in affecting the health of families. Since many low-income families use food stamps, 25 percent of food stamp money should be allotted for FDA-approved healthy foods.

Federal grants should be appropriated to build grocery stores across the nation in low-income or rural areas to improve access to low-cost healthy foods.

The private sector should become more involved in maintaining a healthy community by developing privately sponsored gyms and health programs. Food brand icons and television characters could help promote healthy diets and lifestyles.

Public service announcements regarding good nutrition should be more severe and focus more on the dangers of obesity. A mandatory broadcast of federal public service announcements that explain health risks could impact rising obesity rates.

States should mandate that restaurants provide nutritional information. Portion sizes should also be reduced.

Public and private healthcare institutions should offer low-cost nutrition courses for new parents before and after childbirth.

Federal Coordination

Obesity programs are spread across three federal agencies, the Centers for Disease Control and Prevention, the USDA and the FDA. To maximize efficiency, one of these agencies should be chosen to lead efforts in obesity prevention.

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Participating Schools

Alabama School of Fine Arts, Birmingham, Alabama
Alabama School of Math and Science, Mobile, Alabama
Crooms Academy of Information Technology, Sanford, Florida
Gatton Academy of Mathematics and Science, Bowling Green, Kentucky
Thomas Jefferson High School for Science and Technology, Alexandria, Virginia

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