



# Youth Policy Summit Student Agreement



August 4-11, 2007

## ENERGY EFFICIENCY IN AMERICA Final Policy Recommendations



The Keystone Center  
and  
National Consortium for Specialized Secondary Schools  
of Mathematics, Science and Technology



## Foreword

Co-hosted by the National Consortium for Specialized Secondary Schools of Mathematics, Science, and Technology (NCSSSMST) with Keystone Science School and The Center for Science & Public Policy—program divisions of The Keystone Center—the fifth Keystone Center Youth Policy Summit focused on Energy Efficiency in the Buildings, Transport and Electric Utility Sectors. In August 2007, 37 students from 8 math and science schools from across the country came together in Keystone, Colorado to develop recommendations for solutions to this problem in the United States.

After months of research and study, these students spent the week of August 4-8 working in stakeholder groups and in separate issue-based caucus sessions, discussing, arguing, developing, and finally reaching resolutions. With guidance from The Keystone Center staff members and Consortium representatives, these high school students produced viable approaches to dealing with a problem that is confounding policy makers nationally, and in every state in this country.

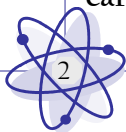
We are proud of the initiative shown by these students and the quality of the product that resulted. The students have developed several well-researched, thoughtful, and practical ideas. And they have laid the groundwork for future students to become more involved in energy-related issues, with the concept of a National Energy Conservation Society, based upon similar ideals as the National Honor Society.

Please use this report to assist you in your efforts to help young people make good choices. Distribute it to those individuals who are involved in policy and decisionmaking on energy efficiency initiatives, and explore whether other students would like to become involved in future energy saving efforts.

The Keystone Center and the NCSSSMST support the continuing focus on quality education and opportunities for students in math, science, and technology. You may contact us with questions or find additional information regarding our organizations by visiting our websites at <http://www.ncsssmst.org> and <http://www.keystone.org>.

During the Summit, participants took stock of the larger environmental, social, economic, and political problems associated with inefficient energy use, shared their own research, sharpened the definition of the issues and options, and sought consensus on recommendations that will then be reported back to the Secretary of Energy, the U.S. Environmental Protection Agency (EPA) Administrator, and to the President. This report represents the results of the Summit's deliberations in the form of a written set of consensus recommendations.

The overarching question participants addressed was the following: What specifically should be done over the next 50 years, and by whom, to bring about the changes necessary to significantly reduce the use of energy by the U.S. regarding buildings, transport and electricity that will lead to a considerable reduction in carbon emissions over that time period?



## STUDENT AGREEMENT ON ENERGY EFFICIENCY IN AMERICA

More specifically, the Summit asked students to address the following questions to the extent possible:

**Standards and measurements.** With a goal to significantly reduce carbon emissions over 50 years, what standards should be set over what time period?

- ♦ What is an appropriate target over the next decade on building efficiency? On transport efficiency? On electric efficiency?
- ♦ How will progress be measured?
- ♦ What are the challenges and opportunities presented?

**Incentives.** What incentives should be used to motivate and inspire organizations and individuals to act upon this knowledge and implement change?

- ♦ What factors compel people to act on energy-related issues?
- ♦ Is there sufficient access to energy efficient products (e.g., programmable thermostats, high efficiency vehicles)? What can the group agree to do to improve access? How would that be funded?
- ♦ Are there a sufficient variety of options (e.g., is public transport available and does it take people where they want to go, or must they rely on private transport)? What can the group agree to do to improve the number of options? How would that be funded?
- ♦ Are revisions needed in the tax code to encourage some activities and discourage others?

**Education.** A good deal of information about energy efficiency is already available to Americans as a whole. How can this information be better disseminated?

- ♦ How effective are current educational efforts? Is the current education around use of the Energy Star label, school curricula, and public service announcements considered?
- ♦ Does the messenger matter?
- ♦ What can organizations agree to do to reach more students, teachers, legislators, and others with influence?
- ♦ What are the recommendations regarding education and these issues?
- ♦ Who would implement any new strategies, and how might they be funded?



### National Consortium for Specialized Secondary Schools of Math, Science and Technology

The Consortium is the nation's foremost alliance of schools dedicated to transforming mathematics, science, and technology education to create synergies among schools engaged in educational innovation by shaping national policy, fostering collaboration, and developing, testing, implementing and disseminating exemplary programs. The Consortium was established in 1988 to provide a forum for schools to exchange information and program ideas and to evolve alliances between them. There are currently 100 institutional members (secondary schools), representing more than 37,000 students and 1,600 educators. These are joined by over 100 affiliate members (colleges, universities, foundations, organizations and corporations) who share the goals of transforming mathematics, science, and technology education. For more information, visit [www.ncsssmst.org](http://www.ncsssmst.org).





*“It is better to light a candle  
than to curse the darkness.”*

*~Eleanor Roosevelt*

# Table of Contents



Foreword	page 2-3
Introduction from the Students	page 6
Questions/Issues and Overview of Recommendations	page 7
<b>Final Policy Recommendations</b>	<b>page 8-21</b>
Chapter One: Standards and Measurements	page 8
Chapter Two: Incentives	page 11
Chapter Three: Education and Youth Programs	page 17
Media Coverage	page 22-23
2007 Participating Schools, Teachers and Students	page 24
Student Agreement-Signature Page	page 25-26
Acknowledgements and Sponsors	page 27



## Introduction from the Students

Energy is vital to this generation's everyday life; however, some would say that it is used too much. In fact, energy consumption and the sources from which energy is gained are two issues that have become more important in the recent years and will continue to increase until changes are made. Education for the general public on energy efficiency and conservation and incentives for action on these matters is an essential part to the progress towards an energy efficient society. Standards, along with incentives and education, would ensure that all buildings, vehicles, and people had certain rules to meet in order to be more energy efficient.

The 2007 Keystone Center Youth Policy Summit met to discuss the three main topics of standards, incentives, and education concerning energy efficiency in order to make recommendations about future action. This Summit, national in scope, included schools from Alabama, Florida, Illinois, Massachusetts, Michigan, Louisiana, and Virginia (see page 24). These not only relate to high school students, but also to students in higher education, the general public, and business officials. The questions are listed in detail on the subsequent page with suggestions in the following sections.



“I am especially proud of this program. At Keystone we work with today's thought leaders on vexatious energy and health problems in one of our divisions and with students, teachers, and system administrators to train the next generation to do better. This program brings the best of both worlds together. Bravo to everyone involved!”

–Peter Adler, Ph.D.,  
President,  
The Keystone Center

# Questions/Issues and Overview of Recommendations

- 1) With a goal to significantly reduce carbon emissions over 50 years, what standards should be set over what time period?
  - a. Creating a cap and trade system
  - b. Further implementing the national LEED (Leadership in Energy and Environmental Design), or equivalent, standard for buildings
  - c. Improving transmission efficiency for electricity
  - d. Encouraging Smart Growth communities
  - e. Adding fuel economy calculation screens in vehicles
  - f. Supporting International Organization for Standardization (ISO) 14001 certification
  - g. Using third party polls to measure progress
  
- 2) What incentives should be used to motivate and inspire organizations to act upon knowledge of energy efficiency and implement change?
  - a. Steadily increasing gas taxes
  - b. Using tax-free Energy Star products during Energy Week
  - c. Providing tax breaks for buildings conforming to energy efficient standards
  - d. Leasing of solar panels
  - e. Using farm land for energy generation
  - f. Increasing rebates and energy rates
  - g. Advancing metering infrastructure research and implementation
  - h. Adjusting rebates in the Energy Policy Act of 2005
  - i. Taxing incandescent light bulbs
  - j. Aiding energy efficient progress with government loans
  - k. Providing tax breaks for certain types of LEED certified buildings
  - l. Improving public transportation
  
- 3) A good deal of information about energy efficiency is already available to Americans. How can this information be disseminated more effectively? What are the recommendations going forward on this issue?
  - a. Improving curriculum about energy efficiency
  - b. Training teachers about energy efficiency
  - c. Requiring energy information in driver's handbooks
  - d. Creating the National Energy Conservation Society for high school
  - e. Labeling utility bills with tips for adults
  - f. Providing vehicle efficiency labels
  - g. Encouraging public service announcements



# Chapter One:

## Standards and Measurements

### Carbon Cap and Trade System

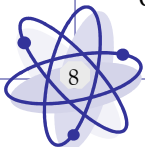
Currently, many harmful emissions are put into the atmosphere. We propose the creation of a carbon cap and trade system to help control the amount of greenhouse gas emissions created that would promote energy efficiency. In 2008, we recommend the formation of the “United States Carbon Cap and Trade Authority” (CCTA). This



organization’s first task will be to monitor carbon emissions throughout the country for four years. In 2012, a cap will be placed on national carbon emissions. The U.S. CCTA will distribute carbon emission credits to states based on each state’s emissions proportional to the total. A suggested equivalency is one ton of carbon to one credit.

After 2012, the total number of carbon credits, and therefore carbon emissions, distributed among the states will decrease by 2.5%, compounded annually. Excess credits will not be allowed to roll over from year to year. Beginning in 2032, the amount of emissions will decrease by 4%, compounded annually.

Each state will be responsible for determining how to distribute its credits; whether top emitting industries, all businesses, or even individuals are given the credits is left up to the states. Under this system, each state will also be able to determine how much to decrease each party’s credit allowances over time (i.e., more or less for an industrial sector) as long as national standards are met. Excess credits will not be allowed to roll over from year to year.



The CCTA will also be responsible for the creation and administration of an exchange market similar to the New York Stock Exchange. This will allow for the trading and selling of credits among the states. In the case of a state exceeding its allotted emissions, credits may be purchased or traded from other states; otherwise, a significant fine will be placed on the state by the CCTA. Ideally, the state will pass on this fine to the contravening party or parties.

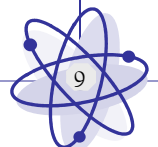
An expansion clause will be written to allow for assessment and revision of practices in 2032.

## Buildings

Buildings contribute 40% of all energy use in the United States today. One way of decreasing this usage is through the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. We recommend further implementation of the LEED program, or an equivalent, into federal programs and using Energy Star-rated appliances. Our group suggests the creation of a LEED, or equivalent, baseline and the use of Energy Star-rated appliances for all new construction funded by the federal government. This will push the government's buildings, and all buildings, by example, to become more energy efficient. Furthermore, we recommend that all federally funded buildings currently standing become LEED certified, or equivalent and use Energy Star appliances when next renovated.

## Electricity

Though the electricity industry is currently researching new technologies, there is still more work to be done to improve energy efficiency. One area where this could be accomplished is in transmission efficiency. Today, approximately a 7% loss occurs when electricity is transmitted from the power plant to consumers. We believe that new technology will cause a drop in transmission losses to 6.3% by



2015. Also, we recommend electric utilities and transmission operators further decrease transmission losses to no more than 5% by 2025.

Another recommendation is the creation of a national net metering system. This system allows consumers who generate their own electricity to sell back excess energy to the utility company, which will promote the use of autonomous alternative energy sources such as wind and solar generation by private consumers. An added benefit of this system is the removal of a portion of consumers from the electricity grid, which could be especially helpful during peak load times.



## Transportation

Last year the federal government provided as much as \$39 billion to oil companies, according to Earth Track (<http://www.earthtrack.net>). Since the petroleum industry is quite profitable already, we recommend the removal of 50% of these subsidies.

Additionally, we suggest that these funds be redirected to federal research into renewable alternative energy sources, infrastructure, and implementation. For example, this money could fund research into non-corn based biofuels.

To maintain a baseline in transportation efficiency, we recommend leaving Corporate Average Fuel Economy (CAFE) standards as currently written and favoring market-based initiatives, such as gas taxes and the cap and trade system.

# Chapter Two: Incentives

## Behaviors Encouraged by the Government

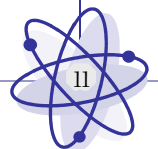
We acknowledge that the government can encourage positive behaviors and we suggest several methods to accomplish this related to energy efficiency. First, our long-term plan is for all moderate and large communities to become Smart Growth communities. These cities could be condensed and be public transit and pedestrian oriented. This behavior could be encouraged in the inner suburbs first, and then all suburbs and communities through county and city zoning practices. Smart Growth can also be promoted to new communities.

Currently in certain models of automobiles, an instantaneous fuel economy calculation is displayed on the dashboard. We would encourage a system such as this in all models of automobiles. This will allow drivers to instantly adjust their driving behaviors accordingly to get the best fuel economy.



To promote the efficient use of energy within industry, the government could support and encourage ISO 14001 certification, subsequently enabling businesses to self determine an “Energy Master Plan” beneficial to both the environment and companies.

Finally, we recommend the use of polls conducted by a third-party to measure change, growth, and the use of new technologies related to energy efficiency.



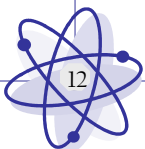
## Taxes on Fossil Fuels for Transportation

Gradually, each state's gasoline tax could increase in order to create an incentive for consumers to rely more on both alternate fuels as well as energy efficient vehicles. With a steady increase of prices, the change might be more accepted by the general public. In our current geopolitical position, the situation is apparent that gas prices will rise. The tax hike along with increased raw gas prices could persuade consumers to drive only when necessary, buy more energy efficient vehicles, and encourage their congressmen to push for alternative energy research. The tax from the gas could be divided and used solely for the development of alternative renewable fuels, energy efficient technology, and public transportation. Domestic transportation companies, such as General Motors, Ford, and Chrysler, could then collaborate to contribute and benefit from the research. In order to avoid inflation, all businesses would be exempt from the rise in taxes. The businesses would save all gasoline receipts, turn them in to the government, and be reimbursed. Low-income families, as defined by the government, would also be eligible to be reimbursed based on the same principles.

In ten years, the gas tax could also start to apply on commercial uses of fossil fuels. Farms count as a commercial use of gas. This gas tax could start at a low rate and then continue to escalate in the same pattern as the original tax.

## Energy Week

During the week of Earth Day, all Energy Star products could be sold without tax. The promotion of this "Energy Week" could bring positive attention upon Energy Star products and could promote energy efficient habits. During this week, the rate of household energy efficient products could be accelerated, and homeowners and businesses would have an incentive to improve their existing residences with energy-efficient products. This positive attention put upon Energy Star products could promote energy efficient habits, in a convenient and affordable manner.



## Businesses and Energy Efficient Standards

Businesses implementing the use of energy efficient technology in their buildings could save money on energy; thereby creating a greater profit. The government may provide a 25% tax break on the savings that may be gained by switching to energy efficient standards for all manufacturers. This money could be used for energy efficiency research. This tax break should encourage more businesses to renovate their buildings to become more energy efficient. The amount saved by the energy efficient standards will be calculated using the projected energy efficiency gains or by comparing utility bills.

## Solar Panels

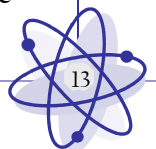
Another proposal is to have electricity utilities rent out solar panels to individual homeowners. By having these panels in their homes, homeowners will be able to gain autonomy in their energy use. If the customer produces excess electricity, the consumer can in turn sell the electricity back to the energy provider. Solar panels are most active in the daytime, specifically peak hours, thus these panels could also ease daytime electricity load.

## Farming Land for Energy Generation

Currently, many farmers are taking advantage of renting out their land to energy providers for the installation of windmills and solar panels. A wider range of promotion for this program could be beneficial for the farmers and property owners throughout rural areas. The property owners could produce energy for the company and sell it to the energy provider. This benefits both sides because clean energy is produced and farmers profit.

## Rebates and Energy Rates

Because alternative energy is still a relatively new field for discovery, there is opportunity for utility providers to invest large amounts of money in the generation of alternative energy and the research of new technology. If electricity rates were to increase, utility companies would be able to afford continuation in advancement. If electric utilities were to increase, the extra money could be used for rebates, as a benefit to the consumer.



Rebates could be given for energy efficient appliances; thus, consumers will use less energy, and should eventually pay about the same amount for electricity.

If the federal government were to begin to tax the sale of electricity through utilities, the money could go towards rebates and research for consumers to implement such things as photovoltaic (PV) cells and wind generators for home use. This tax could function in the same method as the sales tax. This tax would most likely only apply to fossil fuel generated electricity and fission, though that is debatable. This could encourage renewable energy sources to become more economically competitive to use.

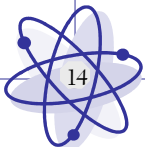
If government were to approve a rate hike for utilities and compensate for the money lost from decreased electric sales, the money that the electric utilities lose due to less energy consumption could be replaced by the money generated from this rate hike. Also, the overall increase in the price of electricity should make it possible so that more of the currently available energy efficient technologies are implemented into buildings and power generation.

## Metering Infrastructure Research/Implementation

An electronic device that is currently being developed by an electric utility company could be provided to consumers so that the consumer can monitor in real-time how much electricity is being used and is costing the consumer at the moment. This device will allow consumers to be more mindful of how much electricity they are consuming and how different activities affect their energy use. The device communicates with utility computers through radio waves and additionally, should give consumers the incentive to use electricity during times that are not peak so that their electricity is cheaper.

## Energy Policy Act 2005 (Rebates)

The Energy Policy Act (EPAAct) of 2005, signed into effect August 8, 2005, provides many rebates and incentives available to the public and companies in the U.S. However, upon closer inspection, the amount of money given back to those who invest in energy efficiency is lacking. The summary of the EPAAct 2005 on the Department of Energy website clearly shows that there are several hundred dollars available in rebates for energy efficiency, but



one hundred dollars in the form of a rebate is not effective when the immediate cost for the products is in the thousands and in some cases tens of thousands when doing extensive improvements on a building. To make energy efficiency a reality in America, more must be done through incentives. The EPA Act of 2005 is a start; however, the caps must be raised and the rebates should become based on a percentage.

## Incandescent Light Bulb Tax

Incandescent light bulbs have caused many home owners to opt for cheaper bulbs instead of purchasing light efficient bulbs such as compact fluorescent light bulbs (CFLs) and light-emitting diodes (LEDs). To help offset the natural tendency to purchase a cheaper bulb, taxes should be implemented to gradually raise the price of incandescent light bulbs. As it stands many in Congress want to slowly phase out these



bulbs. This strategy, besides aiding in the phase out of incandescent bulbs, should also aid in promoting the use of CFL's and LED's. This tax will be used to help fund rebates, research, etc. Currently there is a bill that will ban the incandescent light bulb by 2016; this is just a way to ease the public away from the use of such inefficient devices.

*“The summit provides a wealth of experiences for the students: sharing responsibility for daily living, respecting and moving in an outdoor environment, learning to negotiate. Their ability to listen to and interact with an extraordinary panel of experts is the highlight. People, positions and theories on paper become very real and it is a tremendous learning experience. I thought the trip to the Ace Hardware was also fantastic--viewing energy efficient concepts put into practice was an authentic experience.”*

*-Nancy Todnem,  
Illinois Mathematics & Science Academy*

## Government Loans

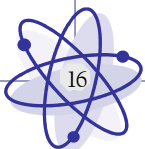
To help those who want to invest in energy efficiency, but are unable to afford the change, government loans could be made available. These loans could allow people to afford the immediate costs of renovations and energy efficiency improvements to their homes. The receivers of the loan will pay back the government based on the income of the person and the payback period of the products purchased. The loan is then paid back to the government in full. This would be conducted at the state level. This suggestion is an expansion of the program that is already in place in some areas. The interest rate would be based upon inflation. The point of this loan is to decrease the upfront costs to the consumer for those that are unable to pay the cost.

## Buildings

LEED (Leadership for Energy and Environmental Design) is a national green building certification program in the United States. When a building applies to turn “green”, it is rated based on how well it meets certain standards. The ratings are as follows: platinum, gold, silver, and certified. Based on this information, we propose to administer tax breaks to the owners of buildings that have been deemed as “green”. The magnitude of the tax break will increase with the level of certification that the building has earned. For example, a building that has earned platinum in the certification process will be given larger tax breaks than a building that has earned gold certification. This system will gradually work towards every building being built through the LEED program, as well as many other certification programs such as Energy Star and ISO 14001. Eventually, we propose to make “green” certification mandatory for all new buildings.

## Transportation

By improving public transport and making it more available to more people, as well as converting public transport (public buses, school buses, etc.) to more energy efficient and renewable sources such as bio-diesel, a large majority of harmful emissions could be eliminated. Soon fuel cells, biofuels, and electric vehicles may become available and more common due to the increased research.




# Chapter Three:

## Education and Youth Programs

Instead of sitting idly by while an impending energy crisis creeps over the horizon we must combat future problems before they begin. America and other countries can be proactive in finding an answer to our current and future problems by educating those who will be instrumental in provoking positive, future change. We should give the power of education and the know how to those who will continue to find solutions to our energy struggle, rather than living with the problems caused by ignorance and inability.

### Curriculum

Non-profit organizations and corporations could be encouraged to create or sponsor videos about energy efficiency. Television and radio networks could also be encouraged to develop public service announcements encouraging energy efficiency. Corporations could be encouraged to promote education initiatives in K-12 public schools. Vehicle and transportation companies could be encouraged to participate in energy efficiency technology education programs. For example, car companies may wish to showcase their new hydrogen fuel cell technology to high school science classes.

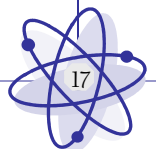


*“ The Keystone Policy Summit was an amazing experience. Not only did I meet a ton of people with different backgrounds and views, but I also developed close ties with a lot of them in just one week. The research and development of our policy paper taught me so much. Not only about energy efficiency, but also about teamwork, mediation and leadership. While having great ideas is always a plus, it is even better if you are able to share them with a group in a positive and effective way because the main goal of any collaborative work is to make sure that in the end, the entire group is satisfied.*

*The Keystone experience was an incredible one that I will never forget, and I sincerely hope that the work that we did will be helpful in the future.*

*Thank you!”*

*-Natalie Kirchner  
Thomas Jefferson High School*



## Teacher Training

Energy efficiency training could be implemented as a part of required teacher training and workshops. These workshops will apply to K-12 teachers in public schools. The funding for the workshops will come from state and local education committees, state and local governments, and the Department of Education. Teachers could receive the training at the same workshops that they already attend, it could just be an added part of the curriculum. The purpose of this training would be to make teachers aware of ways to conserve energy so that they will be able to pass on this knowledge to their students. When leaving the classroom and turning out the lights, they can explain that it is wasteful to leave the lights on when no one will be using them. This way children learn without actually changing or adding new curriculum to the already over-packed curriculum that teachers have today.



## Drivers' Handbook

State governments could be strongly encouraged to add extra pages to the drivers' handbook about energy efficiency. Funding should be the responsibility of the state. The drivers' test could then have questions about energy efficiency, with the new material focusing on driving behaviors and improving vehicle efficiency (e.g., driving fast decreases fuel efficiency).

## National Energy Conservation Society

We recommend the creation of the National Energy Conservation Society (NECS). NECS is a society that could promote leadership and environmental awareness. As the NECS, we the stakeholders will promote a constitution for this society that will include several details such as discipline and dismissal policies, specific status within the society and



membership. There may be national, state, regional, and local chapters. We will promote a national energy conservation website that will provide information and have a similar theme as the National Honor Society. The members of this society will use community service projects that will promote energy efficiency awareness and allow students to learn more about the issue through hands-on experience. Potential projects include leading elementary and middle school assemblies on energy efficiency as well as leading their communities in energy efficient methods and habits, joint partnerships with Habitat for Humanity or other community service branches that will focus on energy efficiency. This will allow the students to work hand in hand with some of our leaders today in the energy conservation movement. Joining local green builder's chapters and initiating energy efficiency fairs would be some examples. There must be one or more large, organized project that each chapter has the freedom to create or compose per year.

# Education and Adult Programs

## Utility Bill Label

Utility companies could be mandated to place specific information about energy savings on each customer's energy bill. The label will offer energy-saving tips, as well as ways that customers can maximize the energy efficiency in their homes, increasing customer satisfaction.

## Vehicle Efficiency Label

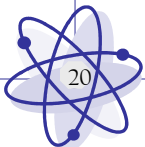
Creating a Vehicle Efficiency Label could hold information about carbon dioxide emissions, sulfur dioxide emissions, fuel efficiency, assumptions about driving habits and conditions, and overall environmental impact. The federal government would then be responsible for implementing the vehicle efficiency label on all new cars sold in the United States. The

assumptions about driving habits and conditions will be clearly laid out. That is, mileage may vary depending on driving habits, but the label will give a better sense of how mileage will vary under different scenarios.

Miles per Gallon *		Emissions
City	Highway	
Average		CO <sub>2</sub>
w/AC		SO <sub>2</sub>
w/Radio		NO <sub>x</sub>
w/Cruise		CO
		Particulates
*not liable for discrepancies on driving habits		

## Public Service Announcements

A huge way to inform the public, especially among adults, is through Public Service Announcements (PSA). This type of educational campaign could be primarily funded through various non-governmental organizations and other corporations who will gain advertisement exposure by adding their names to the sponsor list. The PSA's content will include: smart growth, public transportation, energy efficiency and renewable energy sources in general. The PSA's will be in the form of television commercials, posters, radio advertisements, pamphlets, etc.



## Conclusion

Energy efficiency is, as mentioned before, a growing concern for the future of our world, our country, our state, and ourselves. The suggestions mentioned previously, if put into action, would work as stepping stones towards a more energy efficient environment that our society desperately needs. Although some of these program or incentive suggestions may seem costly at first, when considering the outcome of a nation less wasteful in energy and less polluted than before, the resulting value obviously outweighs initial cost. It is with these concerns in mind that the student body of The Keystone Youth Policy Summit presents these recommendations with the high confidence that they will be seriously considered and implemented in the near future.



# Media Coverage

## Best and brightest take on energy use

Top math and science students from across the nation are in Keystone this week working on a plan to make the U.S. a leader in energy efficiency

BY LORY POUNDER

*Summit Daily News*

August 7, 2007

KEYSTONE — Ashleigh Joplin often feels her voice is hushed because she is in high school.

But that is not the case this week. In fact, Tuesday morning her thoughts on energy efficiency were heard by a panel of leaders in the energy industry as well as government officials and representatives from non-profit organizations.

“We realize we are in a crisis and we need to propose change for the future before it is too late,” said Joplin, 17, of New Orleans.

She is one of the 38 math and science students from across the country meeting for the Youth Policy Summit at The Keystone Center this week. The high school juniors and seniors arrived from various specialized schools to tackle the topic of energy efficiency.

“This program says a lot about who we actually are,” Joplin said as fellow students, Kendall Spears, Michael Robson and Katie Adams, all 17, nodded in agreement.

These four seniors have all researched the topic and passionately hope to raise awareness in their hometowns about it, using skills they will learn this week. And for Spears, who plans on becoming a robotics engineer, he will carry the knowledge into his field.

Also, while these teens may one day be shaping future policy, the message they want the public to get now is that individuals can make a difference in energy use. They want people to pay attention to their energy consumption and play their part in saving the future, the students said. “Be aware of what you’re doing and what you’re consuming,” Joplin cautioned.

The 2007 Youth Policy Summit on Energy Efficiency in America was featured front page of the *Summit Daily News* in an article titled, “Best and brightest take on energy use” by Lori Pounder.



### **Making their voices heard across the nation**

Before arriving in Keystone, the students worked on separate pieces of the energy puzzle and wrote research papers about the topic during the spring semester, explained Jeremy Kranowitz, senior associate with The Keystone Center who is working with the students. Now, they will take that knowledge and use it to explore the topic together and devise a plan.

Throughout the next few days, the students will learn about mediation, negotiation skills and coming up with solutions that satisfy people on all sides in the industry, Kranowitz said. In the end, they will turn their research and discussions into public policy recommendations that would make America a leader in energy efficiency during the next 50 years — a paper that will then be circulated to more than 400 leaders and policy makers in industry, government and education.

During the panel discussion, Kranowitz talked the students through a vision exercise, first asking them to go through a list of the energy they used Saturday as they made the trip to Colorado. “There was a lot of energy used from the moment you woke up to the point you got to Keystone,” he said pointing out everything from the electronic equipment in their rooms and the utilities in their homes to the plane ride. Afterward, the students imagined what energy use would look like 30 years in the future. Some of the ideas they came up with included green building as the norm, more recycling, better mass transportation and a shift in cultural values to see the importance of energy conservation, efficiency and reuse.

Leaders in the industry from energy companies talked to the students about some current initiatives and problems they face as they grapple with this same issue. “We are going to need solutions from efficiency and supply sides ... to tackle this problem,” said Art Wiese, a representative of API Energy.

### **Youth Policy Summit crossing generations**

This is the fourth year for the Youth Policy Summit, which is a collaboration between The Keystone Center and The National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology. The program helps the students take what they’ve learned to a new level, Christine Scanlan, senior vice president and chief operating officer for The Keystone Center and Keystone Science School, said, adding that they hope to roll it out to public schools such as Summit High School in the future.

“It’s something that brings science alive for students. ... The issues we deal with are cross-generational,” she said, giving the example of obesity as a past topic.

Janesse Brewer, senior associate with The Keystone Center, added, “It’s working with real life leaders of today and the leaders of tomorrow.”

Lory Pounder can be reached at (970) 668-4628, or at [lpounder@summitdaily.com](mailto:lpounder@summitdaily.com).



## 2007 Participating Schools, *Teachers* and Students

### Center for Advanced Technologies (St. Petersburg, Florida)

*George Garbutt*  
Carley Sattler  
Erica Von Stein  
Jessica Lipton  
Joe Cuffel  
Mackenzie Deck

### Massachusetts Academy of Math and Science (Worcester, Massachusetts)

*William Ellis*  
Shengzhi Li  
Michael Carkin  
Amy Maurer  
Heather Richardson  
Jason Poon

### Alabama School of Math & Science (Mobile, Alabama)

*Kevin Dolbear*  
Christina Lett  
Claude Buerger  
Katelin Adams  
Michael Robson  
Emily Brown

### Roanoke Valley Governor's School (Roanoke, Virginia)

*Fred Hoffman*  
Grace Aheron  
Natalie Dilley  
Claire Hitchins  
Kate Robbins

### Battle Creek Area Math & Science Center (Battle Creek, Michigan)

*Mary Lindow*  
Matt Johnson  
Elizabeth Straley  
Caroline Morel  
Michael Paxhia

### The New Orleans Charter Science & Math High School (New Orleans, Louisiana)

*Valerie Bodet*  
Jonathan Corley  
Ashleigh Joplin  
Kendall Spears  
Jessica Gustin

### Illinois Math and Science Academy (Aurora, Illinois)

*Nancy Todnem*  
Anita Mehta  
Birce Onal  
Yangbo Du  
Sanat Bhole  
Gouthami Rao

### Thomas Jefferson HS for Science and Technology (Alexandria, Virginia)

*Melissa Schoeplein*  
Xiaoxiao Lin  
Sarah Applegate  
Jackson Prestwood  
Nishanth Parameswaran  
Natalie Kirchner

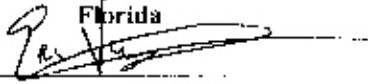
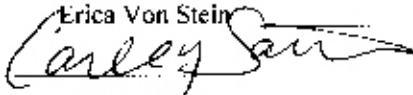
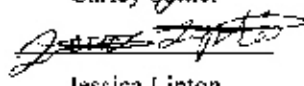
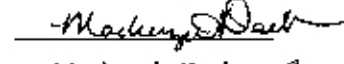
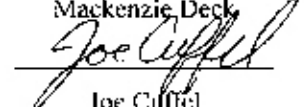




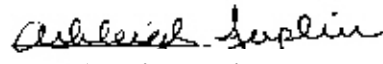
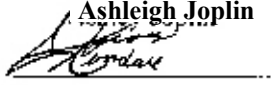
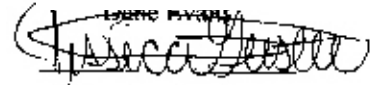
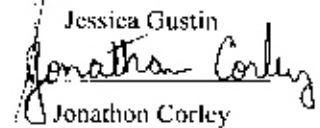
AGREEMENT ON ENERGY EFFICIENCY  
IN AMERICA  
The Keystone Center Youth Policy Summit 2007  
Agreement-Signature Page



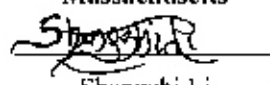
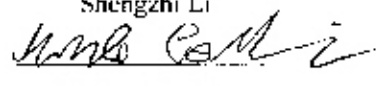
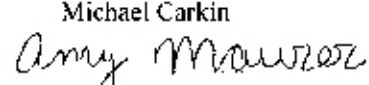
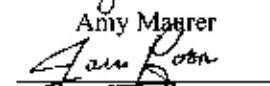
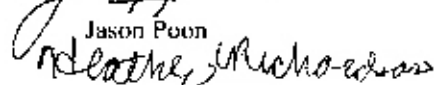
Center for Advanced Technologies

Florida  
  
Erica Von Stein  
  
Carley Sattler  
  
Jessica Lipton  
  
Mackenzie Deck  
  
Joe Cuffel

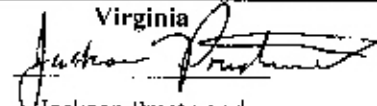
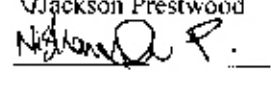
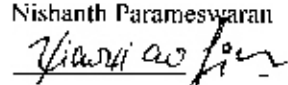
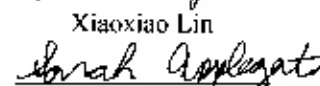
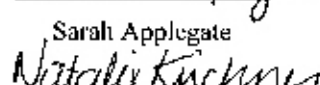
The New Orleans Charter Science & Math  
High School  
Louisiana

  
Ashleigh Joplin  
  
Kendall Spears  
  
Jessica Gustin  
  
Jonathon Corley

Massachusetts Academy of Math and Science

Massachusetts  
  
Shengzhi Li  
  
Michael Carkin  
  
Amy Maurer  
  
Jason Poon  
  
Heather Richardson

Thomas Jefferson HS for Science and Technology

Virginia  
  
Jackson Prestwood  
  
Nishanth Parameswaran  
  
Xiaoxiao Lin  
  
Sarah Applegate  
  
Natalie Kirchner



AGREEMENT ON ENERGY EFFICIENCY  
IN AMERICA  
The Keystone Center Youth Policy Summit 2007  
Agreement-Signature Page



Illinois Mathematics & Science Academy

Illinois

Sanat Bhole

Sanat Bhole

Yangbo Du

Yangbo Du

Anita Mehta

Anita Mehta

Birce Onal

Birce Onal

Gouthami Rao

Gouthami Rao

Alabama School of Mathematics & Science

Alabama

Katelin Adams

Katelin Adams

Emily Brown

Emily Brown

Claude Buerger

Claude Buerger

Michael Robson

Michael Robson

Christina Lett

Christina Lett

Battle Creek Area Mathematics & Science Center

Michigan

Caroline Morel

Caroline Morel

Elizabeth Straley

Elizabeth Straley

Michael Paxhia

Michael Paxhia

Matt Johnson

Matt Johnson

Roanoke Valley Governor's School

Virginia

Grace Aheron

Grace Aheron

Natalie Dille

Natalie Dille

Claire Hitchens

Claire Hitchens

Kate Robbins

Kate Robbins

## Acknowledgements

Thank you to the following individuals for sharing their expertise and technical knowledge by serving on the expert panel held on August 7, 2007.

- James Donlon** Senior Vice President, Chief Financial Officer, ArvinMeritor, Inc.  
**Dan Gibbs** State Representative, House of Representatives, District 56, Colorado  
**Rachel Gutter** Sector Manager, K-12 and Higher Education, U.S. Green Building Council  
**Paul Kriescher** Principal, Lightly Treading, Inc.  
**Dave Munk** Senior Program Manager, Resource Action Programs  
**Robert Ozar** Energy Efficiency and Demand Response Program Coordinator, Michigan Public Service Commission  
**Steve Rosenstock** Manager of Energy Solutions, Edison Electric Institute  
**Debra Sundin** Director, Business Product Marketing & CIP/DSM, Xcel Energy  
**Meg Victor** EPA's Clean Air Markets Division, U.S. Environmental Protection Agency  
**Arthur Wiese** Manager for Economic Policy, American Petroleum Institute

## Sponsors

Thank you to the following financial supporters of The Keystone Center Youth Policy Summit on Energy Efficiency in America, 2007

**Friends of the New Orleans Charter Science & Math High School**

**American Petroleum Institute**

**United States Environmental Protection Agency**

**Xcel Energy Foundation**

**Edison Electric Institute**

Thank you as well to the teachers, staff, Board members and Trustees of The Keystone Center and the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology for their participation, encouragement and support.







*Keystone Science School*

*The Keystone Center's Youth Policy Summit is  
designed to advance critical thinking and  
problem-solving skills in our leaders of the future.*



The Keystone Center  
Keystone Science School  
Center for Science & Public Policy  
1628 Sts. John Road  
Keystone, CO 80435  
970-513-5800  
[www.keystone.org](http://www.keystone.org)

National Consortium for Specialized  
Secondary Schools of Mathematics,  
Science and Technology  
3020 Wards Ferry Road  
Lynchburg, VA 24502  
434-582-1104  
[www.ncsssmst.org](http://www.ncsssmst.org)