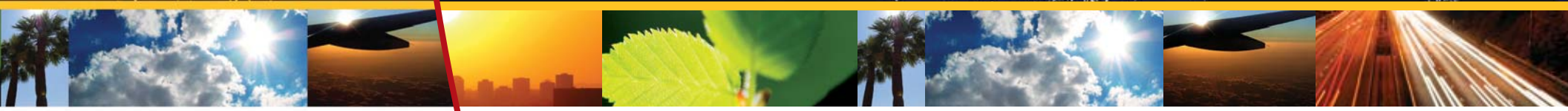
ARIZONA
TOWN HALL
Creating Solutions

Arizona's Energy *Future*

Highlights of the 99th Arizona Town Hall

November 6 - 9, 2011

Grand Canyon, Arizona



Participants Jennifer Frownfelter and Steven Eddy

A clear set of core principles should guide Arizona's energy policy. At times, these principles may come into conflict, as with the potential tradeoff between lowering electricity costs and reducing pollution from electric plants. Energy policymakers must therefore plan holistically, with proper respect for these competing principles.

- From the 99th Arizona Town Hall Report of Recommendations

For almost 50 years, Arizona Town Hall has engaged, educated and inspired Arizonans to create solutions to critical policy issues.

Participants in the 99th Arizona Town Hall, held November 6-9, 2011 at the Grand Canyon, discussed energy and its impact on education, the economy, and our general quality of life. The result: A consensus of recommended actions to capitalize on Arizona's unique assets and build a brighter future for generations to come.

Prior to the Town Hall session, participants from throughout the state reviewed a comprehensive background report developed by Arizona State University. Meeting in facilitated small groups for two days, the participants addressed a common set of discussion questions. Trained recorders captured points of consensus and the entire group gathered for a plenary session on the third day to adopt a report of findings and recommendations.

Participants heard from Elisabeth Graffy, professor and researcher from the University of Wisconsin-Madison during Monday's dinner event. Participants also heard from a panel of authors of the 99th Arizona Town Hall Background Report, as well as a panel of students who attended the Youth Town Hall held on October 12, 2011.

This publication is a summary of the complete report and ASU's background research which are published and made available to Arizona Town Hall members, the Arizona Legislature, other elected officials, public libraries, and the general public. Download or order copies online at www.aztownhall.org, or call 602-252-9600 to request a copy.

Key Points from Background Report prepared by ASU

The Importance of Energy

- Reliable, affordable energy is often taken for granted but is essential for Arizona businesses and residents for almost everything they do.
- Arizona's manufacturing, construction, transportation, health care, and other economic sectors all depend heavily on large quantities of reliable energy.
- Significant energy is required to provide water to the state's cities and agriculture.
- Arizona residents depend on energy to provide transportation to and from work and play, to power lights, air conditioning, and other electrical devices, to provide drinking water, and many other aspects of their lives.

Arizona Energy

- Arizona's primary energy resources include a lot of sunlight along with modest amounts of coal, uranium, wind, and hydropower.
- 90% of the state's electricity is produced by nuclear, coal, and natural gas power plants.
- Close to 100% of the state's transportation fuels are generated from petroleum, with less than 1% from natural gas or electric vehicles.
- Arizona residents and businesses spent $17.6 billion on energy in 2006, approximately $3000 per person.
- Arizona's overall energy consumption has grown rapidly in recent decades and will continue to grow as the state's population grows.
- Per capita energy consumption in Arizona is lower than the national average but growing.

Energy Security

- Arizona imports all of the fuel it uses for transportation and most of the fuel it uses to produce electricity.
- $12 billion flows out of the state each year to pay for fuels to provide energy.
- The security of Arizona's energy supply is currently good but is threatened in the long-term by rising prices, aging infrastructure, international conflict and terrorism, and rising global demand for energy.
- Oil supplies are increasingly concentrated in a small number of countries, few of which are close allies of the United States, and whose collective investments in new infrastructure are falling behind what is necessary to maintain the long-term security of oil supplies.

Energy and the Environment

- Current electricity production in Arizona requires significant water, as nuclear, coal, and natural gas power plants consume more water to produce energy than other kinds of power plants.
- Transporting and purifying water to meet the needs of Arizona's growing cities requires large amounts of inexpensive energy.
- Burning of fossil fuels to produce energy is the primary human cause of climate change and the major source of local air pollution.
- Arizona's greenhouse gas emissions are growing, although Arizona emits fewer greenhouse gas emissions per capita than the US national average.
- The coal-fired Navajo Generating Station in Page, Arizona, has the 5th highest carbon dioxide emissions and 11th highest nitrogen oxide emissions in the United States.
- The health effects of air pollution from energy production are significant.
- The environmental effects of air pollution from energy production are felt throughout the state, including in rural areas and the national parks, which suffer from impaired visibility.
- Coal and uranium mining in the state pose significant health risks for mine workers.
- Environmental rules for power plants are expected to continue to tighten at the federal level, placing greater demands on plants to mitigate emissions.

Opportunities in Energy Efficiency

- Significant opportunities exist to improve energy efficiency, thereby reducing the need for new power plants and saving Arizona residents and businesses money on their energy bills.
- Investments of $1700 per person in energy efficient technologies could result in overall savings of $3900 per person, for a total savings to the Arizona economy of $24 billion and to the US economy of $1.2 trillion.
- The state's energy efficiency standards, set by the Arizona Corporation Commission, calls on Arizona utilities to become 22% more efficient by 2020, are among the nation's most aggressive, and are expected to save Arizona residents and businesses $9 billion by 2020.

Opportunities in Renewable Energy

- Arizona has the most available solar energy resources in the US and some wind energy resources.
- Solar and wind energy have reached prices that are comparable to other forms of energy production in some markets.
- The state's renewable energy standard requires the state's utilities to get 15% of their energy from renewable sources by 2025.
- The state's renewable energy standard is lower than many other Western states, although its distributed generation "carve out," which requires that 30% of utilities' renewable energy generation must come from distributed generation, is higher than most other states.
- Arizona is currently ranked fourth among all states in solar photovoltaic installations.
- Combined, the Arizona Corporation Commission's renewable and energy efficiency standards mean that Arizona utilities will not need to build a new base load power plant until after 2030.
- Several manufacturers of solar panels have located manufacturing facilities in Arizona.
- Arizona has significant potential for future economic growth from solar energy, including from the export of solar-generated electricity, biofuel, other solar-generated fuel, and solar panels.

From the Background Report prepared by

ASU Arizona State University

Student participant and speaker Jen Fuller and Background Report author/editor/speaker Sharlissa Moore

Arizona has been successful at developing energy that is reliable, secure, and affordable. These factors are keys to Arizona's economic strength and the public health and safety of its citizens.

- From the 99th Arizona Town Hall Report of Recommendations

Report of Recommendations

After reviewing the full background report prepared by Arizona State University, participants in the 99th Arizona Town Hall convened at the Grand Canyon from November 6-9, 2011. The result: a consensus of recommended actions to make the most of Arizona's energy opportunities.

Energy Policy

- A clear set of core principles should guide Arizona's energy policy. This policy must be long-term, protect future generations, and take into account the externalities that result from energy production, delivery and consumption.
- Our policy should consider our arid environment and promote Arizona's economic competitiveness with a preference for: local, renewable, sustainable and distributed generation; reduction of energy imports; increases in renewable and sustainable utility-scale generation; and continued increases in energy exports.
- We must invest in emerging and recently commercialized technologies, and continue to develop more sustainable and less water-intensive energy solutions. These technologies may require public incentives to level the playing field.
- Arizona's energy policy should seek to minimize the harmful side effects of power generation and delivery on behalf of all Arizona communities, especially our Native American and low-income communities and our future generations.

Promoting Energy Reliability, Security and Affordability

- Maintaining and upgrading Arizona's energy infrastructure will be important for energy reliability, as will diversifying energy sources, decentralizing production, and reducing environmental impacts. The state must focus on more effectively meeting the energy needs of all its citizens, especially rural residents, vulnerable populations and Native American communities.
- Cooperation between public and private entities will be required in order to provide the capital needed for long-term infrastructure improvements.
- To meet future demand, we must change current consumption habits by adding conservation and efficiency.
- Arizona should establish mechanisms to consider energy security improvements, including developing greater intrastate fuel storage capacity, and more diversified and sustainable fuel sources.
- We must continue to balance the need for reliable and secure energy that is also affordable and exhibits long-term price stability. Energy policies must consider the true costs of energy, including the evidence-based costs of the consequences of energy production.

Leadership in Setting Energy Policy

- Arizona should create or identify a body with the responsibility and authority to implement comprehensive energy policy. This body should assist in integrating local, regional and national energy resources and needs and recommend "best practices" policies that will provide regulatory consistency and save time and cost for the industry and ratepayers.

Members of Panel Ocotillo participate in panel discussions.

Both government and the private sector need to play a role in promoting energy efficiency and changing individual consumption habits. While policy changes are necessary, we should focus more on individual responsibility than government mandates.

- From the 99th Arizona Town Hall Report of Recommendations

- The Arizona Corporation Commission (ACC) should change the factors it considers when setting rates to make those factors more responsive to changing economics and energy needs. Regulations should include a performance-based system that facilitates long-term planning and decision-making. The ACC should increase community involvement in the development and approval of new energy projects.

Initiatives to Promote Energy Safety and Reliability

- Encourage more distributed energy production such as rooftop solar collectors.
- Expand the diversification of transportation fuels.
- Promote the development of more public transportation options.
- Increase funding for research and implementation of energy storage.
- Develop storage facilities for natural gas and other fuels.
- Conduct a thorough hazard assessment and mitigation plan for all energy facilities within the state.
- Build adequate electric transmission and delivery system redundancies in rural areas.

True Costs of Energy

- An energy life-cycle analysis is necessary for existing and potential energy options to incorporate externalities (e.g. water use, the environment, health and foreign wars) and incentives into energy pricing.
- Public policy should impact energy pricing by analyzing long-term planning, investment and education to the public, such as increasing public awareness of the true cost of energy.
- Approaches that stabilize utility revenues while supporting investments in energy efficiency and renewable sources should be considered such as decoupling which separates fixed infrastructure costs from consumption pricing.

Arizona's Energy Economy

- Policymakers and private enterprise should optimize the use of Arizona's competitive advantages in the energy industry to enhance the state's economy.
- Arizona should promote public-private partnerships to develop new and emerging energy technologies. Policymakers should also adopt appropriate incentives and tax policies to promote energy conservation and investments in renewable energy.
- Education efforts should aim to promote a better public understanding of the costs, benefits and impacts on energy consumption and conservation as well as the opportunities presented by increased investment in the energy industry.

Energy Sustainability and Efficiency

- Arizona's leaders must address environmental challenges through a balanced and integrative approach. They must demonstrate an understanding of our values of protecting the environment while investing in technologies and development that move us toward greater energy independence.
- Arizona needs to educate the public and change consumer behavior towards greater energy efficiency.
- While policy changes are necessary, we should focus more on individual responsibility than government mandates. Government should approach energy efficiency as a partner and adopt holistic policies in collaboration with industry.
- Sustainable and renewable energy technologies should play a predominant role in meeting Arizona's growing energy demand.

Executive Committee member Gilbert Davidson, Board Chair Ron Walker, and Development Committee Chair Art DeCabooter.

Collaboration is essential; none of us has all the resources to change and implement Arizona's energy future alone.

- From the 99th Arizona Town Hall Report of Recommendations

- Businesses, hospitals, schools and rural communities should consider installing distributed generation facilities, and incentives should be provided to encourage this.
- Reform of regulated utility pricing rules may be required to incentivize investment in programs that reduce energy demand.
- Government and industry also must invest in new infrastructure to facilitate more widespread use of innovative technologies (e.g. smart grid and smart meters).

Energy Innovation

- Arizona's research institutions, the private sector, and policymakers need to collaborate to further develop advances in energy innovation and emerging technologies.
- We must improve the education system from K-12 through higher education, with a focus on interdisciplinary science, technology, engineering and math.
- Arizona must improve workforce development and trade programs, veteran placement and vocational training.
- We should look to examples of other states that have successfully facilitated energy innovation and development.

Strategic Energy Plan

- Arizona must develop a long-term, comprehensive energy plan that seeks to create a diverse, sustainable portfolio of energy generation with as close to zero carbon emissions as feasible (by mid-century).
- Sustainability should encompass economic, commercial and environmental considerations.
- The plan should define the state's goals for meeting its needs for energy and transportation fuels, and position Arizona as an incubator of innovation and a leader in new energy technologies and conservation.
- There should be specific goals with measurable outcomes and benchmarks, including targets and timetables for the adoption of renewable and sustainable energy sources.
- Priority should be given in the plan to providing more security, dependability, and affordability for transportation fuels and natural gas supplies.
- Key state leaders will need to agree on the actions necessary to implement the plan, including a balanced approach to funding so that no one group or community is excessively burdened.
- The multiple stakeholders involved in the plan must take responsibility for educating their constituencies and communities on the elements of the plan.

Solar array, Arizona Western College.

Arizona has tremendous opportunities to develop its energy economy. Based on the state's plentiful sunshine, Arizona should be a leader in solar energy generation and the development of related technologies.

- From the 99th Arizona Town Hall Report of Recommendations

How You Can Have An Impact

- Make your views on the importance of Arizona's energy future known to the Governor (*http://azgovernor.gov/Contact.asp*).
- Use resources such as Project Vote Smart *(http://www.vote-smart.org/index.htm)* to find contact information for your elected officials, including U.S. Senators and Representatives, and inform them of your perspectives on energy.
- Keep up to date on relevant programs in your community and action you can take through the Arizona Town Hall *(http://www.aztownhall.org),* the Arizona Technology Council *(http://www.aztechcouncil.org)*, the Arizona Corporation Commission *(http://www.azcc.gov/)*, and the Arizona Commerce Authority *(http://www.azcommerce.com/*).
- Arrange a program in your community. Arizona Town Hall can provide resources, speakers, and printed materials. Use social media and personal networks to share information.
- Be a change agent. Utilize the wealth of knowledge contained in the full report from the 99th Town Hall to develop partnerships and programs that will ensure a safe, affordable and sustainable energy future in Arizona. Download the full report at *http://www.aztownhall.org*.
- Share your knowledge and the work of Town Hall participants with family, friends and coworkers.
- To join existing efforts to pursue recommendations from the 99th Arizona Town Hall, contact the Arizona Town Hall office.
- Additional resources:
  - U.S. Department of Energy (*http://energy.gov)*
  - U.S. Energy Information Administration (*http://www.eia.gov/)*
  - EIA Annual Energy Outlook report *(http://www.eia.gov/forecasts/aeo/index.cfm)*
  - Environmental Protection Agency *(www.epa.gov/cleanenergy/energy-programs/suca/resources.html)*
  - Energy Star *(www.energystar.gov)*
  - Pew Charitable Trusts' Clean Economy Report *(www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf)*
- Additional consumer resources:
  - American Council for an Energy Efficient Economy *(www.aceee.org/consumer)*
  - California's Energy Commission's Consumer Energy Center *(www.consumerenergycenter.org).*

ARIZONA TOWN HALL

Creating Solutions

We welcome your involvement, questions, and perspectives.

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Since 1962, Arizona Town Hall has been engaging and connecting Arizonans. Town Hall recommendations are a valuable resource for policymakers because they do not represent the agenda of a particular group or political perspective. Instead, Arizona Town Hall reports contain the informed consensus of Arizonans from different political parties, professions, and geographic areas of the state. A private, non-profit civic organization, Arizona Town Hall has served as a catalyst for conversations and recommendations that have influenced significant changes in Arizona's public policy over the years. Countless local, state, and national leaders have cited Arizona Town Hall as an important factor in educating people about the multiple facets of complex issues and fostering the development of personal and professional leadership skills.

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