**Fueling the Future: Deliberating PA’s Energy Options**

**Overview**

In the modern world today energy plays a large role, powering our homes and devices, and ultimately our lives. With advanced technologies being discovered in the field we are able to find new sources of energy that will power our needs. Although we are developing these new sources, we are also faced with the possibility of depleting resources which could ultimately disappear.

How can we preserve our current standard of living that relies on consistent energy? Are some energy sources more beneficial to human life than others? How can we combine the countless energy sources to ensure a safe and healthy living environment? These questions are pertinent to Pennsylvania, and we will attempt to collaborate on solutions to the energy future in this deliberation.

**Benefits:**

* In the future, if we want to continue to use fracking as a source of energy in the United States, it is important that it is well-regulated with policies put in place to ensure that damage is not done to local air and water quality.
* The process of extracting the gas requires tighter regulations to minimize the amount of methane released into the atmosphere.
* Pennsylvania is already a large contributor of natural gas through fracking, and can expand the industry in the future, pioneering the industry.

**Approach 1- Fossil Fuel**

Fossil Fuels are an easily available source of energy. Fracking transformed the manufacturing industry, providing jobs and making industry more competitive by lowering energy costs. It has also helped to develop a domestic supply of gas causing the price of gas to drop significantly. Fracking is also one of the most secure energy solutions; guaranteed to provide energy for at least 110 years.

**Framing Questions:**

* Do the benefits of fracking outweigh our concerns or vice versa?
* What changes need to be made to fracking in the future?
* How has the media shaped the public’s view on fracking?
* Should we continue to use fossil fuels as the number one source of energy in Pennsylvania? In the nation?

**Trade-offs:**

* Fracking fluid contains many potentially harmful chemicals; most of which are pollutants, and some are toxins such as radioactive materials and heavy metals. This can get into local residents’ water supply, making it unusable.
* Chemicals used and the disposal process of these chemicals isn’t always reported honestly, drawing a lot of criticism.
* If shales are not managed properly and the caps are not closed on the wells, methane, a greenhouse gas, is vented out into the atmosphere.
* Fracking has been associated with earthquake tremors.
* The oil and gas produced from fracking has been associated with birth defects and an increased risk of cancer in neighboring areas.

**Framing Questions:**

* Are the negative connotations of nuclear energy fair?
* Would you be willing to live next to a nuclear power plant?
* Do you consider nuclear energy “clean”?

**Trade-offs:**

* As Pennsylvanians know, most conventional reactors can overheat and experience a meltdown, which greatly endangers the surrounding area
* While only a small amount is produced, the highly-radioactive waste of many reactors takes thousands of years to decay, and must be stored in special subterranean containers
* Even the most conventional reactors have mammoth up-front costs, making constructing them less-than-desirable for the private sector

**Benefits:**

* By mass, fissile isotope (nuclear reactor fuel) houses 2,400,000X the energy of coal and natural gas, and produces more than 250,000X less waste.
* When weighed against every other energy option, including renewables, nuclear power causes the least deaths per trillion kilowatt hours (.04)
* The dose of radiation given by nuclear power plants is 100X less than the dose given by coal-fired power plants

**Approach-2 Nuclear**

Nuclear fission has provided energy for decades. The chemical process provides substantial energy that can inexpensively power almost any device. PA also has reserves of thorium, an element that can more safely produce power. With improving technology, it remains an energy source we have largely untapped energy source.

**Trade-offs:**

* Renewable sources are generally not as lucrative as fossil fuels or nuclear.
* Another disadvantage of renewable energy sources is the reliability of supply. Renewable energy often relies on the weather for its source of power.
* It is a new technology with developing equipment and extremely large capital costs.

**Benefits:**

* PA's existing wind farms have the capacity to power 180,000 homes, with plenty of room for expansion. The state currently ranks 16th in the nation in installed wind power capacity.
* Expanding wind energy can provide an economic boost to the state. In 2010, the industry supported, directly and indirectly, upwards of 4,000 jobs in Pennsylvania
* Pennsylvania's 63,000 farms and 2.7 million livestock animals also hold promise in the form of biofuels made from energy crops and biogas from livestock waste.

**Approach-3 Renewable Energy:**

Renewable energy produces minimal environmental waste and renewable sources will never “run out.” But despite the long-term environmental and financial benefits, renewable sources carry tremendous start-up costs and research/development.

**Framing Questions:**

Is clean energy worth compromising some of our state’s beautiful landscapes?

Do you feel that the government should subsidize research for renewable technologies?

What doubts do citizens have about a potential shift toward renewable energy sources?