

DRAFT PROPOSED ACTION ITEMS FOR THE ALASKA LEGISLATIVE ENERGY POLICY TASK FORCE

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PROPOSED ACTION ITEMS FOR DRAFT GOAL #5: PARTICIPATE IN ADVANCED RESEARCH DEVELOPMENT AND DEMONSTRATION OF CLEAN AND RENEWABLE ENERGY TECHNOLOGIES.

1) Support Wind Power in the Railbelt

Wind resource potential is characterized by the Department of Energy's (DOE) National Renewable Energy Lab (NREL) in seven wind classes, each representing a range of wind power densities or wind speeds at a specified height above the ground. A Class 7 resource is the best. Alaska has 99% of the Class 7 wind resources in the United States. NREL is currently improving its Wind Atlas by doing detailed high resolution (HR) wind mapping of many parts of the USA, including large areas of Alaska. This HR wind map will be an effective tool in determining locations where the resource can be harnessed.

The American Wind Energy Association (AWEA) reported in May 2003 that the U.S. wind energy industry is on track to install 1,100-1,400 MW of new capacity this year. The growth that is underway across the country is expected to boost U.S. installed wind power capacity from current levels of close to 4,700 MW to approximately 6,000 MW.

Outside of Alaska, wind is the world's fastest growing energy source. World wide wind producing has doubled in the last two years. Germany now gets 4% of all its electricity from wind. Denmark gets 17%, and the European Union's goal is 20% by 2020.

Chugach Electric Association's (CEA) marketing surveys and wind monitoring studies have led it to serious consideration of developing a large scale wind farm off the coast of Anchorage on Fire Island. Both Municipal Light & Power (ML&P) in Anchorage and Golden Valley Electric Association (GVEA) are also interested in adding wind power to their energy portfolios. The fuel cost with wind power never changes, allowing utilities to hedge against rising prices of other fuels, and enabling them to plan better into the future.

2) Establish a .2 cent Kwh System Benefit Charge for the Railbelt

System Benefit Charges are non bypassable mill rated surcharges on the price of electricity that consumers pay. These charges are often used to capitalize Renewable Energy Funds that support education about renewables and fund capital investments in renewable energy projects.

System benefit charges can also fund services that historically been provided by utilities but are now threatened by the shift to "competition" in the electric industry which has caused utilities to cut their costs and eliminate spending on activities that are not seen as directly contributing to profits.

Such services have included bill payment assistance and energy conservation measures for low-income households and energy efficiency programs for residential and business customers. The term "system benefits" has been coined to describe these corollary benefits of a regulated utility system.

3) Establish a Alaska Renewable Energy Fund

Twelve states have established such funds to pay for and encourage the use of renewable energy technologies, For example, the systems benefit charges in Oregon are put into an independent trust that funds eligible wind, solar electric, biomass, small scale hydro, tidal, geothermal, and fuel cell projects. These projects are supported by grants, loans, rebates, equity investments, and other financing mechanisms used by the fund.

The states with Renewable Energy Funds are California, Connecticut, Illinois, Massachusetts, Minnesota, New Jersey, New York, Pennsylvania, Rhode Island, Oregon, Ohio, and Wisconsin.

4) Establish an Alaska Renewable Portfolio Standard

Renewable Portfolio Standards (RPS) are specified as a certain percentage of renewable energy in a generator's or state's power portfolio by a certain date. Requirements are sometimes quantified as amounts of energy. For example, a

government can set a requirement of 100 MW of wind produced electricity by the year 2010. Fifteen states now have some form of renewable energy portfolio standard.

Alaska should Require that 5% of Electricity in the Railbelt be generated by renewable sources by 2010. All power generated at Bradley Lake would be part of that total.

The other states with Renewable Portfolio Standards are: California, 20% by 2017; Maine, 30% currently; Nevada 15% by 2013; Illinois 15% by 2020; Hawaii 9% by 2010; Connecticut 6% by 2009; Massachusetts 4% by 2009; New Mexico 10% by 2010. The other states are Arizona, Wisconsin, Texas, Pennsylvania, Minnesota, Iowa, and New Jersey.

5) Establish a Hydrogen and Renewable Energy Institute at the \_\_\_\_\_ University of Alaska

Other places with renewable energy resources like Iceland and Hawaii are already positioning themselves to produce and export hydrogen for use in fuel cells.

In Hawaii Hawaiian State Legislature established the Hydrogen Natural Energy Institute (HNEI) in 1974. HNEI is an international \_\_\_\_\_ leader in renewable energy, and coordinates research and development of Hawaii's alternative energy resources.

In 2001, the Hawaii State Legislature passed the Hydrogen Research and Development Act. To establish a hydrogen private-public partnership within the Department of Business, Economic Development, and Tourism, with assistance from HNEI. In passing the Act, the Hawaiian legislature found that the state represents an excellent site to attract government and industry investment in hydrogen because Hawaii 1) has significant indigenous renewable resources; 2) has excellent research capabilities at the University of Hawaii; 3) has a central location for trade opportunities with Pacific Rim nations and; 4) has high transportation fuel costs. The new law will initiate pilot projects to install multi-megawatt electrolyzers to produce hydrogen from indigenous resources on the Kona coast of the island of Hawaii, conduct a comprehensive evaluation and market study for the production of hydrogen on the island of Hawaii and the importation and \_\_\_\_\_ production of hydrogen for Oahu, conduct engineering assessments of biomass or wind energy pathways for hydrogen for all islands, initiate pilot projects

that include distribution of hydrogen produced on the island of Hawaii to the other islands, initiate discussion of tax incentives for investors, and conduct assessments of potential cost benefits to consumers and recommend ways to educate consumers about the benefits of hydrogen fuel. ·

Alaska has all four of the same factors present that prompted the Hawaiian legislature to pass the Hydrogen Research and Development Act in 2001. First, according to the U.S. Department of Energy, Alaska has some of the best wind resources in the country, plus a supply of other renewables, including geothermal and tidal. Second, The Arctic Energy Technology Development Center (AETDL) at the University of Alaska, Fairbanks is a national leader in fuel cell research. The university has been conducting fuel cell research for more than five years and recently received a five-kilowatt solid oxide fuel cell (SOFC), one of the first of its kind in the U.S. Third, Alaska is a center of world transportation. The Ted Stevens International Airport is one of the busiest freight airports in the world because of its location midway between Europe and Asia and wind rich areas of the Aleutians are very close to large asian markets. Finally, Alaska, like Hawaii, has high transportation fuel costs. All of these factors, in combination, make Alaska an ideal place to develop a hydrogen economy. With our vast renewable resources Alaska could become a net exporter of hydrogen across the Pacific. Such an economy would create a long term sustainable job base that would grow with world energy demand.

6) Enact a State Net Metering Law

Net metering removes barriers to clean distributed generation. It provides an incentive to invest in renewable energy by allowing the owners and operators of small, renewable energy facilities to sell surplus electricity to the utilities at the same retail rate they pay to the utilities for purchased electricity. In practice, utilities will provide a credit for electricity sold to the grid. Systems can be residential or commercial. 36 states in the U.S.A. allow net metering.

7) Encourage Bioenergy Use and Development

Today the U.S. produces 10.2 billion watts of electricity from wood waste and waste from other biomass. We also derive up to 0.4 percent of all our transportation fuels (about 1.5 billion gallons) from corn, which is used to produce ethanol.

In Alaska, perhaps the greatest potential source of bioenergy is the “biodiesel” being produced by harvesting fish oil at fish processing plants.

With funding from the U.S. Department of Energy’s Regional Biomass Energy program (RBEP), the Alaska Energy Authority, and the Alaska Science & Technology Foundation, seafood producer UniSea, Inc., has undertaken a demonstration project to test the practical use of blended fish oil and diesel fuel as generator engine fuel.

Fuel blends tested ranged from 100% fish oil fuel to 100% diesel fuel. Current testing is being done with a 50-50 fish oil-diesel fuel blend (known as B50). Overall, the fish oil blends performed comparably to the traditional diesel fuel. They produced significantly lower emissions with the exception of oxides of nitrogen (NO<sub>x</sub>), which were slightly higher with all the fish oil blends. In some regards (such as starting) the test engine actually performed better using the fish oil biodiesel blends.

One of the beauties of fish oil is that it requires minimal processing to be made usable as fuel—an additional mechanical filtration step is all that is needed, making fish oil a much more cost-effective fuel resource than many other materials used to make biodiesel. At a cost of 25 cents per gallon for fish oil compared to \$1.19 per gallon for diesel fuel, it’s easy to see why fish oil biodiesel blend fuels make good economic sense. Future efforts will focus on assessing 1) the long-term effects of fish oil fuel blends on the equipment, 2) the suitability of fish oil biodiesel blends for use in the most common engines in the region, and 3) the amount of fish oil available for processing into fish oil biodiesel blends.

PROPOSED ACTION ITEMS FOR DRAFT GOAL #7: PROMOTE CONSERVATION AND ENERGY EFFICIENCY ALL ACROSS ALASKA

- 1) Establish a State Supported Energy Efficiency and Conservation loan program

Energy efficiency and conservation is the quickest and easiest way to save energy. Retrofits of inefficient lighting and appliances pay for themselves in a very short time. The State should support a loan program available to both residential and commercial consumers to invest in energy efficiency and conservation.

- 2) Establish an Energy Efficiency Investment Fund to support energy efficiency initiatives with a non-by passable charge of 0.3 cents/KWh

The fund would be managed by an independent third-party administrator overseen by a board composed of regulators, state energy offices, and consumer, efficiency and environmental advocates.

- 3) Challenge Alaska's Cities to Join the Clean Cities Program

Sponsored by the U.S. Department of Energy (DOE), the Clean Cities Program supports public and private partnerships that deploy alternative fuel vehicles (AFVs) and build supporting infrastructure. The mission of the Clean Cities Program is to enhance our nation's energy security and air quality by supporting public and private partnerships that deploy clean-burning AFVs and build their associated fueling infrastructure.

- 4) Adopt Current Model Building Energy Codes

Building energy codes require all new buildings to be built to a minimum level of energy efficiency that is cost-effective and technically feasible. "Good practice" codes have been adopted by just over half the states.