

**TESTIMONY ON SENATE BILL 272
SENATE SUBCOMMITTEE ON AGRICULTURE, NATURAL RESOURCES, & ENERGY
THURSDAY, APRIL 18, 2013
GIVEN BY Dr. PHILIP MCCREADY
PRINCIPAL, INNOVATION ECONOMICS CONSULTING**

Good morning Chairman Schwartz, Senator Giron and members of the Subcommittee.

Thank you for providing me the opportunity to address this Subcommittee.

My name is Dr. Phillip McCready and I am the Principal and Senior Analyst at Innovation Economics Consulting and Chief Innovation Officer of Colorado's digital health initiative PRIME Health Collaborative. Innovation Economics is an economic development research and consulting company founded in 2004 with clients ranging from the Colorado State Office of Economic Development and International Trade, Denver South Economic Development Partnership, cities of Lakewood, Centennial and Parker, and out of state Black Hills Vision and Rapid City Economic Development Partnership in South Dakota.

By way of background, I have a Doctorate degree in 'Regional Systems of Innovation and Competitiveness, a Master's degree in regional economics and Bachelor's degree in Land and Real Estate Development. I have been working in economic development since 1995; creating strategies for local and regional economic development in the UK, France, Bermuda and Scotland. My passion for economic development was sparked by living through the collapse of manufacturing-technology industry in the UK's West Midlands region where I worked in my father-in-laws engineering company in the 1980s.

Colorado is an energy-rich state with abundant fossil, renewable, and alternative fuel resources. Colorado has been vying to become a top tier Diversified Energy economy, including new fast growing Cleantech industries. Total Colorado employment in Cleantech was 21,950 in 2012. The top 10 US centers of Cleantech have average employment of 66,000; such as New York-New Jersey, LA and San Francisco in California, Houston and Dallas in Texas, Chicago, Washington DC and Philadelphia in the North East.

While Colorado's Cleantech industries has been smaller, it has been on a rapid growth curve since 2005. Cleantech industries were a major source of job growth during the great recession of 2009, adding 8,846 jobs in the state in the 5 years up to 2012. Employment growth in Colorado's clean energy industry outpaced most other states from 2007 to 2012; growing 40.3%, compared to a national average of 13.8%. Colorado was growing clean tech jobs almost three times faster than the national average.

The 2011 average annual salary for Cleantech employees was \$77,160 in Colorado, compared with the national average of \$72,980. Colorado's Cleantech payroll reached nearly \$1.7 billion in 2011. Typical occupations include Geoscientists, Environmental Engineers, Electrical Engineers, Environmental Specialists and Construction and Related Workers.

Large out of state companies in the solar thermal industry have established a presence in Colorado, including Abengoa Solar in Lakewood and Sky Fuels in Arvada. Companies like these have the potential to manufacture high-tech commercial arrays and residential arrays and establish Colorado as a national manufacturing hub, much like Vestas Wind Systems has done with sites in Broomfield and Pueblo.

Looking ahead, the prospects for creating jobs from the industries in this bill are strong. The Brookings Institution's 2011 Report "Sizing the Green Economy" in conjunction with Batelle identify the total jobs in different segments of Cleantech in 2010:

Professional Energy Services 49,863 jobs

Solar Thermal 5,379 jobs in 2010

Geothermal 2,720 jobs

Renewable Energy Services 1,981 jobs

These industries are among the fastest growing in Cleantech for jobs creation between 2003 and 2010:

Ranked #1: Solar Thermal +3,732 jobs added; and 18.4% average annual growth

Professional Energy Services +18,702 jobs added; and 6.9% average annual growth
Geothermal +998 jobs added; and 6.7% average annual growth
Renewable Energy Services +687 jobs added; and 6.3% average annual growth

Introducing Bill 272, which is recognized by most observers to have minimal cost or financial impact on the major energy utilities, could have a very major impact on helping Colorado strengthen its presence in these industries emerging industries. There are a number of reasons why this measure could be particularly beneficial at this time:

1. These renewable energy technologies are a valuable part of state and regional economic development efforts; and are targeted by multiple economic development groups in Northern, central and Southern Colorado, including Metro Denver Economic Development Corporation.
2. Partnership initiatives are underway between the University of Colorado Boulder (CU-Boulder), the Colorado School of Mines, Colorado State University (CSU), and the National Renewable Energy Laboratory (NREL) to help commercializing energy technologies through its six research centers; which includes the Solar Technology Acceleration Center (SolarTAC) and the Energy Efficiency and Management Center. These depend on attracting and retaining the best energy entrepreneurs and startups.
3. Similarly the success of the Niobrara Energy Park—a 644-acre microgrid energy and technology park located in Weld County will depend on retaining the States position as the epicenter for uniting Cleantech and traditional fossil energy.
4. Colorado track record of creating Clean energy jobs faster than most other markets is under threat. In 2011 to 2012 one-year employment growth fell to 1.4% in Colorado; compared to 3.9% national growth rate. Falling from three times the national job growth rate to a third of the national growth rate.
5. A combined reduction in federal government contracting driven by sequestration and federal spending cuts, combined with the austerity measures and the post war draw-down in military spending (10 percent last year and 100 billion proposed in President Obama's 2013 budget) suggests there will be significant pressure coming on to military-linked economies everywhere. In my work in the Black Hills in South Dakota, we are already seeing the effects of these trends.
6. Colorado, especially Southern Colorado is relies heavily on its military-linked economy. Having worked on several military-base closure projects, I have been following the work of top defense analyst Gordon Adams. He suggests that cuts to military spending will happen regardless of counter lobbying and that a new military base closure program is likely. The timing is right to support Colorado's economic diversification by leveraging these fast growing Cleantech industries.
7. The window of opportunity to make a large economic impact through the Cleantech industry cluster is here. The cost for the measure proposed is minimal; largely it is reorganizing current funds. This window of economic development opportunity is not finite. Competitor regions have much larger economic opportunity incentive fund to persuade companies to bring jobs to their regions and states.

The availability of federal tax credits and the demand-side initiatives covered in this bill are important measure to help create competitive advantage in new clean tech industries. They stimulate customers to invest and to buy these systems. I have a Solar Thermal system on my own home and can attest to the effectiveness of this technology. You are at a crossroads to take action that can make a positive impact on job growth. Cleantech companies and investors around the world are watching Colorado's moves carefully..