

I am Ralph D'Alessandro. I graduated with a BS in Engineering from the United States Military Academy and a JD from Villanova School of Law. I am the past president and the current vice president of the Board of Supervisors of the Delta Conservation District in Western Colorado. This letter is submitted in support of the proposed small hydro bill HB 15-1364.

The Delta Conservation District over the past 5 years has worked to promote the awareness and utilization of the hydro power potential in its district and, through resolutions adopted by the 76 districts comprising the Colorado Association of Conservation Districts, in the State of Colorado. The District has also worked with the Colorado Department of Agriculture (CDA) to promote the use of small hydro power generation for on farm systems utilizing the potential of irrigation water in irrigation canals and ditches where sufficient flow and head pressure exist. Each of our workshops on the topic have attracted over 100 attendees and last year one of our employees worked with the CDA promoting small hydro potential among our agricultural producers. We currently have at least 4 producers prepared to install small hydro systems pending the resolution of the state approval process. In rural Colorado the Colorado State Electrical Board (CSEB) is the inspecting and approving authority for small hydro installations, including those connected to the electrical grid of the local utility. Despite the language and the intent of the 2014 small hydro law stemming from HB 14-1030, the CSEB still requires costly field certifications for small hydro systems that are connected to the grid, including those utilizing a UL listed inverter.

This approach by the CSEB is detrimental to the realization of the hydro potential in the entire state, but especially so in Western Colorado and Delta County. A 2014 CDA report entitled "Developing Agricultural Hydropower in Colorado" found statewide there was estimated to be a substantial capacity for hydro development utilizing the existing agricultural related infrastructure. Utilizing the irrigation ditch mapping data in a study conducted by the Delta Conservation District, the study found that the Delta Montrose Electric Association (DMEA) service area in particular, and Delta County specifically, had 59 ditch drops where such development was feasible utilizing the head pressure and flow conditions that matched the requirements of existing water turbines. The most economically attractive sites were estimated to be able to provide about 800 KW of hydropower. Additional dam sites were identified that were technically feasible for development, providing approximately another 540 KW of hydropower.

By not treating micro-hydro water turbines in the same manner as wind turbines, i.e. requiring the field certification, and not as intended by the language of the 2014 law stemming from HB 14-1030, the CSEB makes many of the potential

installation sites uneconomical for agricultural producers. The CSEB licensed inspectors are all on the Front Range so travel time and costs, when added to the already unnecessary certification costs, increase installation and equipment costs by thousands of dollars.

I support the draft bill language of HB 15-1364 drafted in concert with DORA and as approved by a multiplicity of stakeholders, including Tri-State Electric, Excel Energy, CREA, DMEA, CEO, CDA, and hydro proponents. I am told this language also is not opposed by IBEW Local 111. The draft language is consistent with the intent of the 2014 small hydro legislation. This draft language, if enacted, will permit the development of the substantial small hydro potential in Colorado and especially for its agricultural producers who can capture the hydro potential of their irrigation water that is now not being fully utilized.

Contrary to what has been raised, the intent of the 2014 small hydro legislation was not to just allow stand alone inverter based systems to be approved by the CSEB without field certification, but rather all such inverter based systems specifically including those connected to the grid. The issue was initially raised because of the lack of any UL listed small hydro turbines for small hydro inverter based installations that were being disapproved without costly field certifications. The 2014 legislation included the language that small hydro installations were to be inspected according to the minimum standards of the 2011 NEC for small wind electric systems which only required listing of inverters. The intent was clearly brought out during testimony on HB 14-1030 before the Senate Agriculture, Energy and Natural Resources Committee and was well understood by then Senator Schwartz who chaired that committee and was one of the Senate co-sponsors of the bill. An orchardist and a member of the Delta Conservation District Board of Supervisors, Mr. Paul Maudlin, who has 3 decades of power generation experience, a PhD in nuclear engineering and is a licensed Professional Engineer, testified at that hearing specifically about the lack of any UL listed small hydro turbines, the safety afforded an installation by the inclusion of an UL listed inverter in the equipment train connecting to the grid, and his particular experience with a system on his orchard that passed the electrical wiring and equipment installation but was not approved because of the lack of product listed small hydro turbines which it was, and still is, the policy of the CSEB to require. The intent of the legislation was clearly stated at that hearing.

With respect to the issue of electrical installation and electrical worker safety, that is a concern of all involved whether from the perspective of a utility, power supplier or a customer reliant upon the grid. While not speaking for the rural electrical cooperative, if an REA such as DMEA, which has union linemen and electrical workers as its employees for whom it has a great concern for their safety

and as well as for the safety of its electrical system, if it finds the draft language acceptable then I suggest it correctly safeguards those concerns.

The language of this bill provides the opportunity for agricultural producers, and others, to utilize the potential of a readily available energy source. For the agricultural industry and its many small producers HB 15-1364 will help reduce operating costs long term and will aid a significant part of Colorado's economy. I strongly urge its adoption.

Respectfully submitted.

Ralph D'Alessandro