NATEL ENERGY

Opportunities for Allocation of the Cap-and-Trade Auction Proceeds for the 2016-2017 through 2018-2019 Fiscal Years

Comments by Natel Energy, Inc.

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Natel Energy is taking this opportunity to comment on the 2015 Investment Plan as published by the California Air Resources Board, regarding the allocation of Cap-and-Trade funds moving into the 2016-2017 through 2018-2019 fiscal years. Our comments will focus on the inclusion in the Investment Plan of the following topics:

1. Water-Energy Nexus: Allocating revenues for water infrastructure investment and the water-energy nexus that quantify the GHG benefits of water efficiency projects should be a primary focus of the Investment Plan. Placing a value on the embedded energy within water use in the state, and incorporating the GHG benefits of water-energy projects, will help increase climate resiliency and drought preparedness.
2. Integrated Renewable Energy Approach: Renewable Energy solutions should be viewed through an integrated lens, where opportunities for the firming of intermittent resources can be found in the co-location of technologies and generation sources with baseload renewable energy generation, such as small hydropower. Investments in data and systems to better site, develop and operate integrated renewable energy solutions is important to achieving the full potential.
3. Incentivize Private Capital: Using Cap-and-Trade allocations to further incentive longer-term trends in private capital investment and market growth is vital in meeting the state's GHG reduction goals, and in commercializing new technology that will be vital toward the growth of a clean energy market in California.

Water-Energy Nexus

Climate change is increasing the frequency and severity of droughts in California, and shifting precipitation from snow to rain. To supplement water supplies, California has increasingly resorted to tapping groundwater, particularly in drought years. As a result of these pumping trends, USGS has calculated that nearly 80 million acre-feet of groundwater have been lost since 1962 levels. The DWR has recorded that ~40% of recharge wells have detected a decrease in groundwater levels of 2.5 feet or more. This is resulting in land subsidence that was measured to be as great as 2 inches a month in 2015. Groundwater pumping is both an energy issue as well as a water issue. The city of Fresno spent $9 million on electricity to pump groundwater in 2011 in response to decreasing surface water availability. It is essential that, in its Second Investment Plan, the ARB includes a focus on the water-energy nexus, and on the potential for significant GHG reduction through projects that provide increased water efficiency, that invest in better water infrastructure, and that support technologies able to simultaneously deliver on the water and energy fronts. In the face of drought, technologies that can deliver on both clean energy generation and water efficiency or drought resilience should be a key target in Cap-and-Trade revenue allocations.

At Natel Energy, we believe that the simultaneous pursuit of GHG reductions and increased climate resilience can be achieved through innovation in the small hydropower sector. Natel sees opportunity for projects that meet increasing energy demands while also delivering much needed co-benefits of groundwater recharge, wetland restoration, and more.With the right investment in software systems and data, we believe that opportunity exists to identify basins where distributed hydropower projects could improve water capture to facilitate groundwater recharge for high priority watersheds, while also harnessing that water flow for energy needs. Such investment provides an opportunity to align energy related goals for a cleaner grid with larger climate goals put forth by the state in the face of drought and water efficiency needs. Grant programs, such as the WET Program, should be reworded to evaluate and realize the opportunity that exists at the water-energy nexus for projects with co-benefits in both water and energy efficiency. Such investments have the potential to have a significant positive impact on the ARB's energy and climate goals.

Integrated Renewable Energy Approach

Helping advance flexible generation to fill gaps amongst more intermittent renewable sources, maintaining grid security and flexibility, is essential for advancing renewable technology. Baseload renewable energy generation is vital to meeting the demands of a 21st century grid with the GHG reduction goals California has set forth. Cap-and-Trade funding, therefore, must take into account the necessity of an integrated approach to a diversified renewable portfolio. Rather than placing generation technologies in silos, the load effects and concerns that come with ramping up solar and wind generation can be mitigated by advanced technology solutions in other sectors, such as innovation in small hydropower. A diversified portfolio of co-located renewable energy generation should play an important role in generating the demand to ensure that GHG reduction goals are met, while maintaining grid stability and security. We consider the new way of developing hydropower embodied through low-head hydro technology, such as Natel's, as being less defined by size alone and instead defined by its distributed, networked, and flexible nature. In this light, project design is focused on maximizing outputs (kWh, acre-feet groundwater recharge, acres of watershed habitat restored) while minimizing impact footprint (concrete and other materials of construction, excavation and concomitant sediment release, habitat loss, productive land use loss, etc.). Similarly, as is taking place across the electricity industry, technological advancements are enabling distributed project development to scale efficiently, particularly in data and communications. This progress facilitates combining the flexibility and resource-efficiency of distributed projects with the economies of scale of a networked, utility-scale system.

Funding for the Second Investment plan should provide support for renewable technologies in an attempt to provide this increased flexibility and security in our grid system.This includes projects that reduce installation and maintenance costs, improve reliability, and more, while also calling for examination of opportunities for synergies from combining renewable technologies. In this category, we believe that an emphasis should be placed on the opportunities that exist for the co-location of renewable energy technology that can deliver on demands for generation flexibility and grid stability in the face of intermittent resources, such as combining distributed hydro projects with solar projects within an irrigation district. Additionally, guidelines for investment can take into consideration the co-location of renewable energy technology with other environmental and climate resiliency solutions as well, such as the

creation reservoirs for groundwater recharge and wetland habitat restoration. In conclusion, the ARB Second Investment Plan should include and more strongly emphasize an understanding of the need for an integrated approach to renewable generation, as well as a focus on the opportunity provided by new innovation in small hydropower.

Incentivize Private Capital

As mentioned in the Investment Plan draft, the leveraging of private capital is essential in initiating and supporting market transformation. Providing the mechanisms by which markets can grow to provide private capital at scale will be key in meeting the state's climate goals, in particular in supporting the necessary growth market for clean energy technology. In order to ensure the success of such investment, private sector actors should be brought into the decision-making process, to allow for accurate analysis of the strengths and successes of specific programming tactics and to give private market actors the ability to better understand regulatory and return requirements. In that vein, such programs must also recognize that technologies at earlier stages of deployment will require different sets of incentive and support to meet energy efficiency or water efficiency goals. A focus on earlier-state technologies in these sectors, where other lenders or investors may be less willing to absorb risk, will be key in supporting the commercialization of water and energy technologies that will vital in advancing goals in the energy and climate sector. Such considerations should be a major focus around financial programs and offerings, from loan guarantees to grant programs, in the upcoming ARB Investment Plan.

About Natel Energy

Natel Energy is a privately held company located in Alameda, California. Natel manufactures and sells proprietary hydroelectric turbines called hydroEngines™ that are suitable for low-head, high-flow settings, and range from 50kW to 1 MW of capacity per unit. Natel is focused on offering a competitive turbine product for small hydro installations that drives down the cost of project development. This new approach of distributed low head projects, called EcoSmartHydro™, offers an alternative to large-dam hydropower. EcoSmartHydro™ combines a watershed management platform - watershedOS™ - with Natel's proprietary hardware to optimize the generation of hydropower in conjunction with human and ecosystem needs. Specific for projects in California, we use watershedOS™ to screen projects to deliver both energy (baseload, renewable) and water (eg, increased surface to groundwater transport) value, with the goal of increasing the resiliency of California's watersheds by delivering improved water and energy efficiency with the added co-benefits of groundwater recharge, wetland habitat restoration, and more. More information can be found on our website at www.natelenergy.com