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Exergy Systems, Inc. Comments on instituting the Drought Executive Order B-37-16

See attached.

Additional submitted attachment is included below.

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INNOVATIONS IN MEMBRANE TECHNOLGOY

October 27, 2016

Commissioner Andrew McAllister
California Energy Commission
1516 Ninth Street
Sacramento, California 95814
RE: Docket #16-OII-01 - Order Instituting Informational Proceeding for Drought Executive Order B-37-16

Dear Commissioner McAllister and CEC Staff:

Exergy Systems, Inc. (hereinafter Exergy) appreciates the opportunity to provide the following comments regarding implementation of drought Executive Order B-37-16 and Innovative Water Conservation and Water Loss Detection and Control Technologies.

Exergy strongly supports Governor Brown and California Energy Commission's efforts to improve water use efficiency and conservation in California. We believe it is imperative that viable innovative technologies and their development be supported by the State, and to offer programs that facilitate and allow these technologies to make their way to market. State of California can play a very important role, through its various governmental programs, in accelerating and adoption of these new innovations.

Our great State has been a hub for innovation in many technology fronts. It is time that we help embrace innovation in water as well.

Exergy Systems, Inc. is launching patented and proprietary point-of-use (POU) water recovery and reuse products that allow for onsite, decentralized recycling and reuse of water - in most cases back into original applications.

We believe that onsite (and decentralized) water recycling is the most efficient use of water resources, as it allows customers to avoid wasting of the water. This approach not only saves up to 90% of the original amount of water needed - - for a variety of applications, but also saves customer up to 70% of water related costs, and reduces the need for wastewater management and treatment (onsite or offsite), which is costly and highly regulated.

Most California commercial, industrial and institutional (CII) customers have not had any pressures to reduce a drop of water in the past two years, despite the Statewide emergency drought. Large amounts of water from these sites are currently wasted. Even residential customers can eventually benefit from onsite reuse solutions. For example, grey waters can be used more widely for irrigation, instead of being wasted down the drain.

There is great need to shift government programs to create new market paradigms to allow for creation, validation and qualification of potential products in this new emerging water marketplace. Most water recycling systems offered today, are for central uses and so normally custom built. Small modular products are not available to customers. There will be great needs for technology development, validation and standardization as new products are introduced and offered in the market-place.

We believe onsite recovery and reuse approach can help many innovative technologies, such as advanced purification and membrane separation

technologies, smart metering, IoT, and others to gain market adoption and access.

As central systems and aging infrastructure in the state require major overhauls, it is very important that new solutions are offered. Current central water systems lack efficiencies, are costly to operate and maintain, and require technological upgrades, which are not feasible or allowable (due to regulatory restrictions). They are hurdles to innovation as most new technologies cannot gain foothold in central systems, or the systems cannot be easilyupgraded to include them. Water agencies either cannot or are not able to move away from the traditional ways of water delivery, treatment and management, and so innovation will continue to face resistance in the face of these existing forces.

We need to be careful, as there maybe issues in embracing any and all technologies blindly. If new technologies feed to this old way of management, then we continue to put our resources where they should not go. As an example, why spend money to measure water leakage in central sewer systems and spend millions of dollars implementing such solutions, when our aging infrastructure delivers drinking water quality that is not acceptable in many communities any ways. Customers are are more and more shifting to point of use(POU) or point of entry(POE) solutions – such as under the sink RO systems that waste 50% of the incoming water and use energy. These issues show how technologies alone cannot address the shift in efficiency we may wish to see in our State.

The pathways to market for many new technologies will ultimately shift due to these and other drivers – some of which government can direct. Technology providers will be faced with a changing landscape but also can help shape this

change and assist government to achieve the end goal it is hoping to see in achieving water efficiency.

The following are some specific suggestions that can be considered:

- Provide funding for testing, validation and qualification of innovative new technologies and products for onsite, and decentralized in water use efficiency and reuse. The focus of the program should be innovation of the technology and applications/use area to promote new solutions.
- Provide a platform with funding, for showcasing and piloting innovative technologies and products that reduce water usage, energy usage, and allow us to achieve efficient recovery and reuse, and recycling.
- Develop certification, or accreditation programs for such solutions (or products) much like the EPA waterwise program for hoem fixtures (like toiletts and showerheads), to allow for standardization of the hardware platforms, in a variety of applications; such as in homes and building grey water systems, commercial and institutional wastewater recovery/recycling.
- Provide funding on water measurement and accurate flow measurement for decentralized applications. Most leak detection and measurement being offered today are based algorithms (calculated using models), not physical measurement. This is a big problem as these algorithms are each created differently so the measurements are subjective and inaccurate. While initially this maybe acceptable in helping us gain knowledge of overall water waste, specifics will be eventually needed to address potential areas to reduce water usage from leaks. We strongely recommend the funding to focus on small and decentralized solutions/systems. Central systems see many offering for such products,

and there is no need to spend resources to get acceptance for these already well established products in the market place.

We appreciate the opportunity to provide these comments on the Innovative Water Conservation and Water Loss Detection Program and we look forward to working with you to develop new and innovative technologies for launch in the State of California.

Best regards,

Azita Yazdani, P.E.

President and CEO

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