PROPOSAL PAPER

Independent Technical Panel on Demand Management Measures
Final Report on California Landscape Water Use
1-18-16 Draft

Section #: 10 *(From the current draft outline)*

Section Title: Research and Documentation Needs and Support *(From the current draft outline)*

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Background:
California is currently experiencing its fourth year of a statewide drought and has resulted in the Governor issuing and extending an Executive Order that requires specific water conservation goals for each city in the state. In addition, among a number of the Governor's directives in the Executive Order required the Department of Water Resources to review and provide updates to the Model Water Efficient Landscape Ordinance (MWELO) and California Building Standards.

In January 2010, MWELO was revised and one of the new requirements was to reduce the Evapotranspiration Adjustment Factor (ETAF) from 0.8 to 0.7 for a new landscape over 2,500 square feet, which would have resulted in a 12.5% reduction in the required water budget. To date, there has been no study with data to confirm the impact of the ETAF reduction. On December 1, 2015, the ETAF was decreased another 21.+%, again resulting in significantly less water allowable water for the water budget of a new landscape. Again, there is no research on the horizon that will substantiate the reduction of the 0.7 ETAF to 0.55 for residential and 0.45 for commercial landscapes.

Given the pending reduction in ETAF along with the "newly" revised MWELO statute, there will be a significant shift in how California landscapes will be designed, implemented and maintained in the future. The fourth year of this unprecedented drought has elevated the need to conserve landscape water, since landscapes are irrigated with approximately 55% of urban water. Therefore, the need to identify and implement best management practices to conserve landscape water is currently of paramount importance. Thus far, there has been minimal science-based research in California (to support which landscape water conservation best management practices will result in significant and institutionalized water savings. In addition, there is currently no mechanism in the state to provide annual funding for conservation research nor is there a state agency program to provide ongoing research oversight. The need for a landscape water conservation research program is critical to manage irrigation more efficiently and to educate the public on selecting and planting low water use plants. Current landscape water conservation research occurs on an "opportunistic" basis. That is, when there is a drought crisis that triggers a state mandate or if there is money available through a state water bond. In times of drought, it is challenging to capitalize on these opportunities without dedicated program staff and resources at the state agency level, such as Department of Water Resources.

Four years of drought provides an opportunity for creating and implementing a landscape water conservation research program. An example of a state agency research program is the Public Interest Energy Research (PIER) program under the California Energy Commission. This program provides annual funding for energy research and has in place a public goods charge as the funding source. While the public goods charge topic will certainly be a controversial topic, it is time for agencies, academia,

industry, and NGO's to invest in and provide leadership for a sustainable landscape water conservation research program for California. Unfortunately, the list of barriers to overcome opposition to establishing and implementing a public goods charge is long and will take too many years to reach consensus and to implement.

In the last 5 years, there has not been funding by state agencies to adequately support quantitative water conservation research, including landscape related research needs. The need for California to provide funding for research is now critical to understand where investments by the state through statewide rebates, programs and services are best prioritized and also have research adaptable to benefiting individual water utilities and other interested researchers and planners.

Recommendation Purpose Statement:

The Independent Technical Panel (ITP) recommends that the Department of Water Resources (DWR) collaborates with the California Urban Water Conservation Council (CUWCC) and academia such as the University of California (UC) to convene stakeholder meeting(s) to identify the priority needs for research that will result in short-, medium- and long-term conservation water savings. The CUWCC currently has a research and evaluation and landscape committees that may assist in this effort. This effort could be a follow-on effort of the process used to develop the CUWCC's Market Transformation Framework for Sustainable Landscapes. It is envisioned that UC researchers would have a central role in facilitating the dialogue among stakeholders.

Prior to convening meeting(s), the Department of Water Resources or other organization will conduct a science-based literature review for identifying research conducted on best management practices for water conservation, with a key emphasis for landscape, and a synopsis of what specific research has resulted in significant landscape water conservation through best management implementation. The outcome of this research could become a part of the CUWCC's new Water Conservation Wiki and also shared and leveraged by Department of Water Resources.

Recommendation:

The ITP recommends to State Legislature to appropriate $5 million to the Department of Water Resources for funding priority research needs that will result in water conservation. Furthermore, the ITP recommends that research money is identified for funding priority science-based research. Research projects will need to be multi-year and will need to demonstrate impact of research findings with empirical data and statistical analysis.

DWR will convene an industry stakeholder committee that will confirm priority research topics and defined requirements for proposal solicitation. A sample list of key topics is provided along with an example of a high priority research focus:

Potential Topics:

1. Irrigation Technology
    a. Low-cost, consumer friendly irrigation controller with standard features that can comply with one- or two-day mandatory water restriction. Having a controller with standardized features for the majority of all residential homes will facilitate irrigation

controller education by many organizations and institutions rather than relying on paid professionals.

2. Social/Behavioral Modification (incentives)
    a. Effective stewardship messaging causing social/behavior change for promoting responsible water use without waste
3. Documentation
    a. Providing protocol manual for evaluation, measurement and verification of landscape water conservation
4. Programs (training and education)
5. Landscape Design (plants and hardscape)
6. Soil Technology
7. Irrigation Management
    a. Research to determine if existing and new landscapes can perform to the MWELO ETAF
8. Gray & Treated Water