

PROPOSAL PAPER

Independent Technical Panel on Demand Management Measures Final Report on California Landscape Water Use 10-28-15 Draft

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

Section Title: Research 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 an Executive Order that requires specific water conservation goals for each city in the state. In addition, his Executive Order required the Department of Water Resources to review and provide updates to the Model Water Efficient Landscape Ordinance (MWELo).

In January 2010, MWELo was enacted into law and one of the 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 result in a 12.5% reduction in the required water budget. Unfortunately, there is no study with data to confirm the impact of the ETAF reduction. In December 2015, the ETAF will be decreased another 21.4%, again resulting in significantly less water allowable water for a “new” landscape water budget.

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 landscape practices to conserve landscape water is currently paramount importance. Unfortunately, there has been very little science-based research in California (as defined by the *No Child Left Behind Act* of 2001; [see footnote](#)) to support which landscape water conservation best management practices will result in significant and institutionalized water savings. In addition, there has been little to no funding by state agencies to support quantitative landscape water conservation research for the last 5 years. The need for California to provide funding for research is now critical.

Recommendation Purpose Statement:

The Independent Technical Panel (ITP) recommends that the Department of Water Resources (DWR) convenes a landscape horticulture stakeholder meeting to identify the priority needs for research that will result in short-, medium- and long-term landscape water savings.

Prior to convening this meeting, the Department of Water Resources will conduct a science-based literature review for identifying research conducted on best management practices for landscape water conservation and a synopsis of what specific research has resulted in significant landscape water conservation through best management implementation.

Recommendation:

The ITP recommends to State Legislature that it directs the Department of Water Resources to convene a landscape stakeholder meeting to identify priority research needs that will result in landscape water conservation. Furthermore, the ITP recommends that research money is identified for funding priority science-based research. Research projects will need to multi-year and will need to demonstrate impact of research findings with empirical data and statistical analysis.

Research topics to be considered by the stakeholder group should be from and not limited to the Alliance for Water Efficiency, UC researchers and California landscape industry professionals.

- Cost/benefit of native & low water use, and xeric landscapes versus turf.
- Native plant research, best management practices for irrigation type, establishment, maintenance)
- Water requirements and drought tolerance of landscape turfs and plants to induce dormancy
- Cost/benefit of turf dyes (environmental impact, etc.)
- Impact of landscape contractor, landscape architecture, irrigation auditors (QWEL, IA, CLCA) training, education, and certification.
- Impact of improving system efficiency through audits, tune-ups, sprinkler-head retrofits, and other measures.
- Protocol for turf conversion to low water use landscapes
- Cost/benefit of landscape conversions (i.e., turf to low water use plant material)
- Standard methods for measuring, monitoring and verifying water savings.
- Cost/benefit of rebate programs (turf, nozzle, smart controllers, etc.)
- Cost/benefit of smart controllers (weather-based, soil moisture)
- Development of a standard irrigation controller for residential landscapes to facilitate consumer education on how to program irrigation controllers.
- Smart pressure regulating systems for delivering consistent water pressure to residential landscape irrigation systems and for sensing irrigation leaks.
- Micro-climate evapotranspiration measurement for residential/urban landscapes.
- Artificial turf (cost/benefit, environmental impact).
- Cost/benefit of properly functioning irrigation systems (systems with matched heads, proper spacing, proper pressure, and unclogged heads)
- Development of smartphone application that will provide specific irrigation scheduling for a specific location, landscape and irrigation system.
- Research to analyze behavior modification methods for adopting landscape water conservation

The federal perspective on scientifically based research

The No Child Left Behind (NCLB) Act of 2001 encourages and, in some cases such as Reading First, requires the use of instruction based on scientific research. The emphasis on scientifically based research supports the consistent use of instructional methods that have been proven effective. To meet the NCLB definition of "scientifically based," research must:

- *employ systematic, empirical methods that draw on observation or experiment;*
- *involve rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions;*
- *rely on measurements or observational methods that provide valid data across evaluators and observers, and across multiple measurements and observations; and*
- *be accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparatively rigorous, objective, and scientific review.*