Attachment 1: Description of Emissions Reduction Measure Form

Title: *Water Recycling*

Type of Measure (check all that apply):

☑ Direct regulation
☑ Monetary Incentive
☐ Voluntary
☐ Other Describe:
☐ Market-based compliance:
☐ Non-monetary incentive
☐ Alternative Compliance Mechanism

Responsible Agency: State Water Resources Control Board (SWRCB)

Sector:

☐ Transportation
☐ Other Industrial
☐ Agriculture
☐ Sequestration
☑ Electricity Generation
☐ Refineries
☐ Cement
☑ Other Describe: Water

2020 Baseline Emissions Assumed (MMT CO2E):

The electricity used by the water sector should be included in the baseline forecast for the electricity sector.

DWR's current trends scenario in the State Water Plan (B-160) predicts urban water use increasing by 3 million acre-feet (MAF) by 2030. The Climate Action Team report states that providing 44 million AF of water used annually in California produces 44 million tons of CO2. This would imply that a 3 MAF increase in urban water use would lead to a baseline increase of 3 million tons of CO2E by 2030. Assuming a linear increase, by 2020 the increase would be approximately 1.7 million tons CO2.

This estimate is conservative, however, as it does not take into account 1) how widely the energy use varies between northern and southern California and 2) the increasing energy intensity of marginal water supplies. Since much of the additional demand for water is likely to occur in Southern California and the Central Valley, and since many of the new supplies would be more energy intensive than existing supplies, the actual increase in emissions from an additional 3 MAF of urban water use would likely be substantially higher than the estimate above.

Percent Reduction in 2020:

Cost-Effectiveness ($/metric ton CO2E) in 2020:

Description:

- Increase investment in water recycling

- Focus investments in areas where recycling could offset most energy-intensive water supply
- Support, through allocation of revolving fund monies and by adopting new state water quality policies, improving wastewater treatment so as to make treated wastewater available to offset the use of potable water for applications such as landscape irrigation.
- Evaluate recycled water facilities from an energy perspective. Some analyses by the Inland Empire Utilities Agency have shown that the energy intensity of recycled water can be reduced through sizing the pipes larger to reduce friction.
- The State Water Resources Control Board should work with the Department of Water Resources (DWR), the Air Resources Board, the California Energy Commission, and the Public Utilities Commission, to complete a study that quantifies energy savings and greenhouse gas emission reductions that would be available from aggressive water recycling efforts.

All water recycling programs must be accompanied by water quality safeguards, appropriate to the intended end use of the recycled water.

Emission Reduction Calculations and Assumptions:

The State Water Recycling Task force has identified the potential for the state to recycle from 1.4 to 1.67 MAF by 2030. Emission reductions would depend on which water the recycled water offset, and the energy requirements for treating and distributing the recycled water. We urge the state to conduct the necessary analyses to identify the potential for water recycling to contribute GHG emission reductions.

Cost-Effectiveness Calculation and Assumptions:

Recycled water costs range from $300-$1300/AF,[1] with the upper end of that range unlikely to be cost-effective in most locations. The Recycled Water Task Force estimated that to add 1.4 to 1.67 MAF of recycled water by 2030 would require an estimated capital investment of $9 to $11 billion.[2] These are not net costs, however. The alternative supply sources are likely to cost in the same range as water recycling, thus the net societal costs should be minimal.

Implementation Barriers and Ways to Overcome Them:

Potential Impacts on Criteria and Toxic Pollutants:

Any reduction in electricity demand from water recycling will decrease electricity generation and provide reductions in criteria pollutants.

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[1] Department of Water Resources, *California Water Plan Update*, Bulletin 160-05, Vol. 2, Chapter 16, p. 2
[2] Department of Water Resources, *Water Recycling 2030: Recommendations of California's Recycled Water Task Force*, (Sacramento, CA: June 2003). p.15.