

RE: the docket number 12-EPIC-01 : “EPIC Second Investment Plan”

Consumption of water resources for power generation is a major socio-economic issue facing the world. The problem is particularly acute in regions of arid climate, including California.

The draft investment plan addresses research needs for utilizing degraded water for power plant cooling and evaluating the environmental impact of cooling tower draft. (*S5.3 Proposed Funding Initiative: Improving Science for Water Management in Power Generation: Hydropower Forecasting and Hybrid Cooling Towers*).

We, however, feel that at least one critical research initiative is missing to fundamentally address the need for water resources in energy generation.

Alternative dry cooling technologies for power plants

Solar thermal power plants, nuclear power plants, as well as conventional fossil-fuel-based steam power plants consume significant amount of fresh water for cooling. Effective cooling of the working fluid (condensing steam) is critical because the operating efficiency of these power generation plants depend on the condenser temperature.

The lack of access to sufficient cooling water can severely impede development/operation of both existing and new power plants, including large-scale solar thermal power plants in or near desert areas.

Existing ACC (Air Cooled Condenser)-based dry cooling solutions can substantially reduce or potentially eliminate the need for cooling water. However, they have found very limited usage due to their high capital costs, inefficiency, and large foot prints/weights.

This calls for a major initiative supporting concentrated research efforts on developing innovative alternative dry cooling technologies that can overcome the limitations of the existing dry cooling technology.

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