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February 14, 2006  
TRA Case: LSMD

Thomas Enslow  
Adams Broadwell Joseph & Cardozo  
1225 8th Street, Suite 550  
Sacramento, CA 95814

Re: Draft EIR for Amendment of the Sphere of Influence for the Sacramento Municipal Utility District (SMUD) and Annexation by SMUD of the Cities of West Sacramento, Davis, and Woodland and Portions of Unincorporated Areas of Yolo County (SCH #2005092009);  
Potential impact of changed electricity rate structure on groundwater pumping.

Dear Mr. Enslow:

The Sacramento Municipal Utility District (SMUD) annexation proposal is subject to approval by the Sacramento Local Agency Formation Commission (LAFCo). I have reviewed the January 2006 Draft EIR prepared by LAFCo. The DEIR incorrectly analyzes the potentially significant environmental impact of lowered electricity rates on groundwater pumping in the service area. In doing so, the EIR fails to identify groundwater impact as a individually significant adverse indirect impact of the project.

Overview

The proposed Program consists of the proposal by SMUD to annex the cities of West Sacramento, Woodland, and Davis and unincorporated portions of Yolo County and to provide electric service to these areas. The project entails changes in electrical power source and construction of some new facilities (e.g. substations, powerlines).

The SMUD proposal is estimated to reduce electricity "rates by over 25%" (DEIR ES-5, and discussion p. II-9) . Reduced electrical energy cost will lead to increased consumption due to simple market economics. Through increased consumption, the project will therefore have an impact on overall energy supply and indirectly on various environmental aspects of energy production.

The DEIR acknowledges the growth inducing impact of annexation "Two key goals of the Program—lower rates and better reliability—are likely, by their nature, to support economic growth within the Annexation Territory." (DEIR VI-1) The DEIR also acknowledges the seemingly interwoven effect of electricity supply on nearly every aspect of the affected environment and concludes the project will have many significant

and unavoidable cumulative impacts (DEIR Table I-2: Summary of Potential Cumulative Environmental Impacts). Unfortunately, the shotgun approach to cumulative impacts prevents the DEIR from looking more closely at areas where the project will likely have individually significant effects.

The majority of groundwater pumping in the annexation area uses electricity for energy. Reducing electricity cost will result in increased groundwater use. Although groundwater is an important resource for agriculture, groundwater overuse has significant environmental implications. California Department of Water Resources monitoring well data show that groundwater levels are vulnerable to overdraft in dry years.

As depth to groundwater increases, pumping energy cost increases. Reducing electricity cost will allow exploitation of deeper, more depleted groundwater resources.

Increased groundwater use will have impacts on the groundwater basin itself, impacts on irrigation and agricultural drainage water quality, and impacts on waterfowl, streams and aquatic habitats.

An EIR suitable for LAFCo use needs to consider the individually significant impacts on groundwater supply, wetlands and aquatic habitats and migratory waterfowl, and energy efficiency and energy supply.

#### Groundwater Setting

The DEIR addresses the groundwater setting for the project area in section IV-G.1.d. Existing Conditions in the Analysis Area (3) Groundwater Hydrology (page IV-130). The DEIR incorrectly claims that the “Annexation Program is located largely within the North American Subbasin of the Sacramento Valley Groundwater Basin” and it goes on to describe “groundwater levels in southwestern Placer County and northern Sacramento County “. The description is of the wrong subbasin.

In fact, the project area is the eastern corner of the Yolo subbasin (DWR 5-21.67). DWR states:

“Groundwater levels are impacted by periods of drought due to increased groundwater pumping and less surface water recharge (e.g. in the late 1970’s and early 1990’s), but recover quickly in “wet” years. Long term trends do not indicate any significant decline in water levels, with the exception of localized pumping depressions in the vicinity of the Davis, Woodland and Dunnigan/Zamora areas. Past studies (Scott, 1975) have concluded that the Yolo subbasin is subject to overdraft, however the completion of Indian Valley Reservoir in 1976 provided significant relief in the form of additional available surface water (YCFWCWD, 2000).” California’s Groundwater Bulletin 118, updated 2/27/04)

The annexation area includes the rapidly growing cities of West Sacramento, Davis, and Woodland, but the majority of the land area is still in irrigated agriculture. The choice of irrigation water supply is very sensitive to cost and water quality considerations, but represents a balance of ground and surface water sources. “Agriculture, on the other

hand, accounts for 96 percent of total water use and gets 57 percent of its supplies, in average years, from surface water and 43 percent from groundwater.” Yolo County, California’s Water Supply System Conjunctive Use Without Management, Mimi Jenkins, 1992.

### Groundwater Impact

The high value agricultural practices in the annexation area all require irrigation, with crops that use from 1.5 to 3.5 acre-feet/acre (i.e. “feet”) per year. The cost of providing adequate water has been a significant factor in agricultural economics. Most farmers in the area have a choice between ground water pumped from their own wells or receipt of irrigation water.

Although well water is readily available, there is a high energy cost for pumping. One acre-foot of water weighs 1360 tons. The energy cost to pump water is roughly proportional to the depth of the well because lifting the weight of water from deeper wells requires more work. Under typical conditions (pump efficiency 52%, output at 10 psi) it takes 65 kw-hr to pump one acre-foot from a depth of 10 feet, 105 kw-hr to pump from 30 feet, 144 kw-hr from 50 feet, and 183 kw-hr from 70 feet depth. (TRA based on Agricultural Pumping Efficiency Program <http://www.pumpefficiency.org/Pumptesting/costanalysis.asp>)

Thus, pumping electrical cost at \$0.10 per kw-hr will range from \$6.50 to \$18.30 as depth to groundwater goes from 10 feet to 70 feet. Given that a quarter section field will need on the order of 350 acre feet of irrigation, annual costs would range from \$2,275 to \$6,405. These are significant costs to a farmer and are proportional to cost of electricity. Reduced cost will allow exploitation of deeper water or use of more water. Pumping is competitive with surface supply when cheap enough.

The DEIR attempts to show that the reduced electrical rates will produce a minor overall reduction in cost of agricultural production and hence would be an insignificant stimulus to increase agricultural consumption of irrigation water. This approach is flawed because it does not examine the interchangeability of irrigation sources. A decrease in groundwater cost of 10 to 25% could result in a complete switch to groundwater in many cases. Net water use from all sources may increase only slightly, but the proportion from groundwater may increase dramatically.

The DWR assessment of groundwater notes the existing depression around Davis, in the annexation area, and attributes the stability of the groundwater basin to the use of surface water. Significant changes in pumping could alter that status quo.

### Other environmental effects of groundwater use

Although ground water is an important resource for agriculture, ground water over use has very significant effects. The proposed project will indirectly contribute to these environmental impacts.

Yolo County wetlands are formed where high groundwater meets the surface. Although wetland persistence is a seasonal function of rainfall, generally lowering groundwater in the area from agricultural use will cumulatively limit the extent and duration of wetland and riparian habitats. These wetlands serve as habitat for migratory waterfowl and other wildlife.

### Energy consumption

Classical supply and demand considerations tell us that a lower price of a commodity leads to increased consumption. The common wisdom is that demand for energy, particularly demand for electricity, is inelastic in the short term meaning that even significant fluctuations in price -- up or down -- will produce minimal corresponding changes in consumption (RAND Corp. Technical Report 292, Regional Differences in the Price-Elasticity of Demand For Energy, Mark A. Bernstein, James Griffin, 2005).

Groundwater pumping is a relevant exception. Because pumping costs are so high, where there is a choice of irrigation water sources, even a change of a few percent in electricity costs can tip the economic choice in favor of one source or another. The farmer's electricity bill will be higher, but he offsets the increase by reduce purchases for irrigation water from other sources. Increased electricity use for pumping has a direct impact on energy supply.

In simple terms, a 25% decrease in cost could allow as much as a 25% increase in consumption with sources and still have no increase in the user's electricity bill. In fact, reduced cost may stimulate even greater consumption in the long term. Not only will cheaper electricity encourage more groundwater pumping, but the cumulative impact of lowering groundwater levels will also increase energy cost per unit of water.

CEQA requires assessment of energy use as set out in Guidelines Appendix F. The DEIR addresses the topic under IV. N. Utilities/Service Systems/Energy Conservation (p. IV-189 ff). Neither this section nor the Project Description (Chapter II) contains a discussion of the electrical load to be assumed under the project or any changes in electrical consumption that will result from the cheaper rates SMUD touts. Cheaper electricity will lead to increased consumption and a reduced incentive for conservation. This effect will be notable not just for groundwater pumping, but for energy use overall in the annexation area.

\* \* \*

The Draft EIR cites CEQA Guidelines Appendix G for significance criteria. "A project would result in potentially significant impacts if it would: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;" (DEIR IV-131)

Considering the extent of irrigated agriculture in the project area and the demonstrated problems caused by groundwater use in the past, the EIR needs to evaluate the effect of increased pumping facilitated by reduced electricity costs. Groundwater impacts will

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lead to increase electricity use. Although impact on groundwater may not be a direct effect of the proposed action, it is clearly a reasonably foreseeable and individual indirect effect of the project.

Sincerely,

A handwritten signature in black ink that reads "Thomas Reid". The signature is written in a cursive style with a large, stylized "R".

Thomas S. Reid