

Bay Planning Coalition  
Energy and Water Nexus Summit

Questions to the panelists from the audience

*Answers deferred to written responses due to lack of time*

Questions to specific panelists:

For Dr. Val Frenkel (Panel 2):

- 1) “Can you comment on trends in energy efficiency for de-salination relative to greenhouse gas emissions?”

**Answer: The less energy we need for desalination, the less gas emission is created. Due to the developments in energy efficiency for desalination process the significant achievements are achieved already within last 15-20 years requiring energy for desalination process only in the range 2-3 kW-hr/ m<sup>3</sup> of treated water down from 8 kW-hr/m<sup>3</sup> in the past. Please note that these numbers for the desalination process only not including other needs to develop water supply from desalination or other new source such as water conveyance, intake, discharge and environment mitigation features. There is still way to go to find good practical way to manage osmotic power (which is a natural force that desalination process needs to overcome), improve membrane materials, reduce fouling in desalination systems and develop and commercialize newer desalination technologies (Forward Osmosis, Pressure Retarded Osmosis, Membrane Distillation) and/or combine different processes to improve overall efficiency of the desalination.**

- 2) “Could you please explain the effect of global warming on the water cycle and would it increase fresh water from evaporation of sea water transferred to rain water?”

**Answer: Global warming may increase rainfalls and may increase rising of the sea level. As water already covering more that 70% of the surface, global warming may reduce footprint of the land and for the shore places particularly. Ocean would be still the largest receiver of the rainfalls and with global warming we may expect increase of the ocean footprint. The ocean water rise would increase salinity intrusion to the ground waters and we may need more projects like old and new Orange County salt water intrusion barrier even in the Northern California. In this case desalination may become even more attractive as a sustainable water supply source for the future. I would not count on global warming as a solution on the new water supply.**

For Dr. Simon Mui (Panel 3):

“From the environmentalist viewpoint, at what point is it OK to have negative economic impacts to achieve a ‘clean environment’?”

**Answer: It’s a false choice to trade-off the environment and the economy. A clean environment and healthy economy actually goes hand-in-hand.**

**Pollution standards have been established to ensure that major polluters aren’t simply shifting their pollution costs to other sectors of our economy, including the vulnerable and disadvantaged members of our populations. In fact, it’s a sign of an inefficient economy and inefficient industry when these real pollution costs are externalized to society. Strong pollution standards are needed to sustain a healthy, durable economy.**

**Time-and-time again, the benefits of pollution standards have been shown to far outweigh the costs to major polluters. For example, the benefits of our federal Clean Air Act have been shown to exceed their costs by a ratio of 26 to 1. That’s an enormous return on our investment amounting \$1.3 trillion annually in benefits to the U.S. economy while preventing an estimated 160,000 deaths every year [1].**

**But strong standards can also catalyze innovation and competitiveness in industry. Let’s take the auto industry, where U.S. suppliers of clean, fuel efficient vehicle technologies are playing a key role in industry expansion and fostering significant job growth. Today, those clean technology suppliers are responsible for employing 150,000 workers directly and hundreds of thousands indirectly in the U.S. [2]. The landmark new automobile pollution and fuel efficiency standards – spurred by California – are growing these jobs even more. A study by the Blue-Green alliance involving the United Autoworkers shows that these standards will generate over half a million American jobs – 62,000 jobs in California alone [3].**

**Source of stats:**

**[1] <http://grist.org/energy-policy/2011-03-02-gains-from-clean-air-act/>;  
<http://www.epa.gov/air/sect812/prospective2.html>**

**[2] <http://www.nrdc.org/transportation/autosuppliers/>; [www.drivinggrowth.org](http://www.drivinggrowth.org).**

**[3] [http://switchboard.nrdc.org/blogs/plehner/obama\\_administration\\_set\\_to\\_fi.html](http://switchboard.nrdc.org/blogs/plehner/obama_administration_set_to_fi.html)**

Questions for general response:

“Is time of use metering an option for the water industry? Are there benefits to that/is there a cost difference at various times of day?”

**Michael Norton:**

Because there is a lot of storage within water distribution systems I don't see any merit in having a “time of use” based rate structure. What I feel would be more effective in curbing excessive use is a “rising block” rate structure which means you pay a higher unit price the more you use. So you receive a basic amount of water sufficient for drinking, cooking and washing at a rate which represents costs plus small return for the utility, but once you start watering the lawn and garden or having multiple showers then you pay a much higher rate. This means that you are financially incentivized to purchase dishwashers, washing machines, showers and bathroom fixtures which have low water use.

“Are we thinking enough outside the box in creating opportunities for end-users to use water more efficiently? Conservation is a good start, but efficiency is crucial.”

**Michael Norton:**

I believe that this has to come down to financial incentive in the end. “Western” society still doesn't value water in the conceptual sense because it is extremely rare for us to not have it freely available at our faucets. Schools in general do not teach water in a comprehensive way. (An exception is SFPUC who have a great program of water curricula for schools). Our kids receive a view that in the developed world we all have drinking water and that the big issue is water in the lesser-developed world. Whilst this is true, what our kids aren't taught is anything about water footprint. Our indirect water use (virtual water in food, clothing and consumables) is at least 20 times that of our direct use. It could be argued that the greater efficiency gains are to be found in the water used to grow food and in reducing food waste. But bringing the question back to household use, in Germany the price of water is higher than in many other European countries and the impact of this has been to reduce average use to around 110 litres per person per day (around 25 gallons – yes that's twenty five). One of the reasons it has got so low is that there is a financial incentive for households to install gray water recycling systems within the house. These systems collect water from baths, showers and sinks and recycle it for flushing the toilet. Due to the higher rate, the cost of the system can be paid for over as little as 3 years.

“What are your thoughts/ future strategies to better align and integrate energy and water vis a vis efficiency programs and co-funding opportunities with consumers and business organizations”

**Frances Spivy-Weber:**

**A key early step is a statewide policy decision on how to account for energy in water, so that those who require a close nexus between ghg reduction or energy efficiency are confident they are not paying for benefits outside their mandate and that their monies are going to the highest priorities whether in the water or energy sector. The agency decision-makers are the CPUC and the Air Board, and the venues are during this bridge period for energy efficiency and in the next several months following the cap and trade auction. WETCAT is working with the agencies on this, but we are also working with the ACWA energy committee and local government and power agencies through CalWEC, too. While there are always opportunities for regional folks to work together on a project by project basis, until we have an approved accounting methodology, I don't think there can be large, comprehensive programs.**