Submitted by Joe Orawczyk of Yermo, CA

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California Energy Commission and Bureau of Land Management

My dad is a good man. He's an amiable sort who loves his wife and family as best he can. He's a WWII vet who is almost 80 now, and he is not well. Time has a way of doing that to us; just as it is inevitable we all will eventually run out of time. It is the natural order of things, I suppose. But my dad was only about two years old when a study[1] on the topic of child labor conditions in an Anthracite coal mining district of the Shenandoah Valley was produced by the U.S. Government. As you might imagine, this study revealed some dangerous and appalling working conditions in the coal mining industry of the day.

According to the findings, many of the boys employed as "breaker boys" sat on wooden boards for hours on end performing the task of picking out pieces of sharp slate by hand from the endless roaring stream of ore in a cloud of black coal dust. It was a job where during the first few weeks, a boy's 'fingers bled almost continuously.' And this job title was described in the study as being among the 'not-dangerous' jobs.

The "jig runner," a job where some boys lost a limb, was considered a bit dangerous considering they worked with moving machinery. "Scraper line tenders, shaker watchers, oilers, and repair boys" were among the other risky jobs employed by boys, some of whom were typically as young as eight or ten, but most were 12 or older.

The boys filling the position of "spraggers" had the highly dangerous job of thrusting heavy wooden sticks into the iron spokes of the coal car wheels to stop them. "Fan boys" turned ventilation fans by hand in the mines, where cave-ins and prolonged standing in coal slush was common, as were serious injury and death.

Over 550 mining deaths were reported in each of the three years prior to the study. Of course this was long before the advent of OSHA or workman's compensation insurance were conceived, but not state child labor laws. Those were already in existence in some states, but were ineffective or routinely circumvented or simply ignored, as is evidenced by the finding of this study.

While the study concedes 'dangerous work must be done,' it also asserts "Children ought not to do dangerous work at any age when they are too young to assume responsibility for their own acts."

[1] "Child Labor in the Anthracite Coal Mines". Annals of America, Vol. 14, pp 319-324. Encyclopaedia Britannica, Inc., 1976.

Even before this government study became public, history[2] provides there were the incessant proverbial do-gooders who managed to have federal legislation enacted which banned child labor, only to see the Supreme Court declare any such laws unconstitutional. The League of Women Voters were among those supporting an amendment which failed ratification. These supporters were characterized as 'socialists, communists, and bolshevists[3]' and eluded to as devil worshipers by those in opposition of such laws, which primarily were the good-hearted God-fearing business-minded capitalists, I suppose.

Apparently the do-gooders of so long ago believed investment in compulsory public education would better serve not only the child, but both the long term economic development of the nation and capitalism itself. Obviously these self-righteous members of the League of Women Voters had to be stopped before they should entertain other outrageous demands upon the status quo, like equal pay for equal work or some similar misguided folly.

The coal industry on the other hand, which generally paid children a fraction of the level of wages it paid to an adult, argued the loss of this cheap labor would make the mines financially unviable and force them to shut down. In some instances, it seems that's precisely what happened. Perhaps the mine owner simply could not react quickly enough for his enterprise to survive, or maybe he just got sick and tired of all the stupid new regulations he was being forced to bear the burden of.

Regardless of the cause, the effect was some portion of the coal industry shut down its mines which increased unemployment and harmed the local economy. But then along came a new capitalist who found a way to purchase and reopen the mine, perhaps by utilizing technically advanced machinery to replace the boys, and was able to turn a profit without child labor. Yes, it seems wealth transferred from the former mine owners to new ones – a transfer from a Mr. Smith to a proverbial Mr. Jones – and we've been trying to keep up with him ever since.

Now please accept my apologies for having you suffer this simplistic rehashing of old history just so I may endeavor to make a point, but history has a way of repeating itself. And here, in this instance, the point is the people with power and money will typically fight tooth and nail to hold on to their position of wealth as opposed to surrendering it by transfer to anyone else, even if this means casting aspersions or otherwise labeling opponents with derogatory terms. This too is the natural order of things, I suppose. And so it is, I perceive, we suffer the repeat of history.

Permit me to expound.

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[2] Kelley, Florence. "Obstacles to Enforcing Child Labor Laws". Annals of America, Vol. 13, pp 85-89. Encyclopaedia Britannica, Inc., 1976.

[3] "Objections to the Child Labor Amendment". Annals of America, Vol. 14, pp 422-423. Encyclopaedia Britannica, Inc., 1976.

I attended a Climate Change Conference consisting of four presentations including Dr. Lynn Fenstermaker who spoke about carbon uptake and climate change in the Mojave Desert and Bill Powers who talked about how energy laws and public policy is manipulated by the energy industry. The other two presentationns were made by Kirsten Ironside on The Declining Range of Joshua Trees and Nobel Laureate Dr. Jean Bennan whose topic was The Impact of Climate Change on Desert Wildlife and Possible Management Strategies.

The event was held in Joshua Tree, California on February 27, 2009. The conference was arranged by an organization called the National Parks Conservation Association and was sponsored by a multitude of government agencies, academia, local businesses, and environmental groups consisting of the following:

Defenders of Wildlife – www.defenders.org

U.S. Department of the Interior – www.doi.gov

National Park Service – www.nps.gov

Joshua Tree National Park – www.nps.gov/jotr/

The Mojave National Preserve – www.nps.gov/moja

The Living Desert – www.livingdesert.org

Copper Mountain College – www.cmccd.edu

Morongo Basin Arts Council – www.mbcac.org

The Wildlands Conservancy www.wildlandsconservancy.org

and the Mojave Desert Land Trust. Another sponsor was a local eatery called Ricochet which provided the food (which was much appreciated by all who attended).

You'll notice the California Energy Commission failed to join in sponsoring this event (an oversight, I'm sure), but the governor's office was kind enough to send a representative named Larry Grable to start things off. I mean no disrespect, but I've no idea who he was or why he was there other than to extend greetings and express the support of Governor Schwarzenegger, which he accomplished quite splendidly.

A representative of The Living Desert introduced the first speaker who co-authored a paper (and now a book[4]) revealing arid systems may be storing more carbon dioxide than previously thought. Put another way, desert plant life may capture, consume and utilize more greenhouse gasses than some forests. When we clear desert land, we exacerbate climate change.

This is important, as it means the people in government who bear the fiduciary burden to regulate energy related issues in the best interest of the public (such as members of the CEC and BLM) would be negligent in their duties by failing to consider the long-term ramifications to climate change caused by the unnecessary consumption of pristine land as opposed to fallow lands already destroyed by man's impact including abandoned alfalfa fields where the farmer made more money selling his water rights to developers than by growing hay. Please consider this in your deliberations.

The first speaker was Dr. Lynn Fenstermaker, an associate research professor with the Desert Research Institute (DRI) – and director of the Nevada Desert FACE (Free-Air Carbon dioxide Enrichment) Facilitly and the Mojave Global Change Facility www.unlv.edu/Climate_Change_Research (not to be confused with the Desert Riders Club of Las Vegas as they are an entirely different group altogether) located in Nevada. There she serves as the Director of two statewide research programs that are addressing the impacts of global change on the Mojave Desert. Combined these programs address the potential effects of elevated CO_2 and other global changes on the Mojave Desert ecosystem.

In one program, researchers pump CO_2 over an open area of vegetation as a climate change treatment and use traditional field methods as well as remote sensing and field spectrometry to examine plant responses. The second program has three treatments that simulate increased summer precipitation, crust disturbance and nitrogen deposition, e.g., other possible global change factors in addition to elevated CO2. One of the primary focuses of these research efforts (which involve scientists from across Nevada and the US) is to examine global change effects on the carbon and water cycles of this arid region.

[4] Webb, Robert H., Lynn Fenstermaker, Jill Heaton, Debra Hughson, Eric McDonald, and David Miller. The Mojave Desert: Ecosystem Processes and Sustainability. University of Nevada Press, 2009.

She reported on the unexpected results from an eddy covariance tower and static dome chamber measurements that revealed the Mojave Desert appears to be storing more carbon than anticipated, approximately 100 g C per meter square per year. One of the questions this study has raised is – where's the carbon going? While additional studies are needed to address this question, they assume much of it is absorbed by plants, but some is also absorbed by the soil biological crust as well as the soil mineral fraction.

She explained how the variable having the largest effect over the ecosystem is water, primarily in the form of precipitation. The plants need rain by early February in order to properly germinate or grow. Precipitation records show high levels of rain in 1998 and 2005. Those were essentially the only wet years on record for the Mojave. In some research plots the research staff used irrigation to replicate rain.

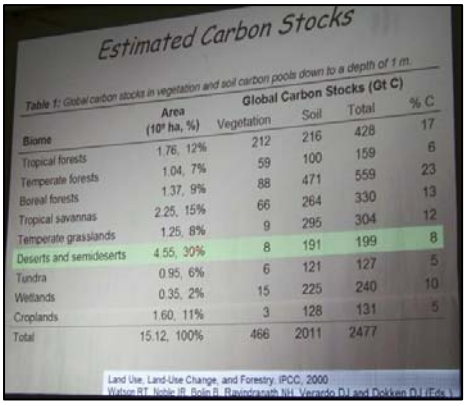
Estimated Carbon Stocks

Table 1: Global carbon stocks in vegetation and soil carbon pools down to a depth of 1 m.

Biome	Area (10^6 ha, %)	Global Carbon Stocks (Gt C) Vegetation	Soil	Total	% C
Tropical forests	1.76, 12%	212	216	428	17
Temperate forests	1.04, 7%	59	100	159	6
Boreal forests	1.37, 9%	88	471	559	23
Tropical savannas	2.25, 15%	66	264	330	13
Temperate grasslands	1.25, 8%	9	295	304	12
Deserts and semideserts	4.55, 30%	8	191	199	8
Tundra	0.95, 6%	6	121	127	5
Wetlands	0.35, 2%	15	225	240	10
Croplands	1.60, 11%	3	128	131	5
Total	15.12, 100%	466	2011	2477	

Land Use, Land-Use Change, and Forestry. IPCC, 2000

Other research also demonstrates how increased CO_2 levels helps invasive plants over existing plant life at a rate of about 200%. In other words as greenhouse gasses increase non-native plants will flourish and presumably overtake and dominate resources needed by current desert plants to survive. Thus, the ecosystem will change.

I could be wrong but it seems likely to me scraping the desert intensifies climate change in part because disturbed crust results in a reduced absorption of carbon by plants and bacteria. Soil bacteria webs hold the crust together reducing soil erosion from high winds. The crust is the top layer of the ground and the soil is below the crust. You can learn all about what bacteria do in the soil (like consuming carbon and plant litter), at the U.S. Department of Agriculture National Resources Conservation Service website soils.usda.gov/sqi/concepts/soil_biology/bacteria.html which offers a wonderful soil biology primer in layman's terms.

For instance, and as Dr. Fenstermaker explained in answer to a question from the audience, the term plant 'litter' is not the same as the trash we put in a trashcan. When desert plants become stressed, as from lack of rain, they will jettison their leaves, stems, and sometimes twigs for their core to survive the heat.

During the Q and A, I asked about precipitation vs. irrigation. I asked how they irrigate, by impact sprinklers or soaker hose, and I asked if they use municipal water to irrigate and if so have they considered pH levels and what if any effect chlorinated water may have on the soil and the plants.

Dr. Fenstermaker responded they use groundwater pumped from a well for irrigation, which has no chlorination but does have slightly higher levels of nitrates than rain and does feed nitrogen to the plants that they would not normally obtain from precipitation.

As to the method of irrigation, they found impact sprinklers tend to provide an irregular pattern and unlike rain, tend to get one side of a plant wet while not reaching the other side due to the water falling on an angle. This is why they opted for an oscillating system of irrigation from "T" posts one meter above the ground for a more uniform coverage. Apparently they put some thought into it.

I don't recall her response to the topic of pH levels. The reason I asked about pH is we've all heard of 'acid rain' and I know some plants such as evergreens thrive in an acidic soil while many desert plants have evolved a toleration of a far more alkaline pH level so prevalent in groundwater. We also know the continued use of groundwater will tend to cause salination of the soil resulting in the reduction of agricultural harvest yields to the point of futility. I wonder if the research results would change much if enough acid were injected into the groundwater being pumped for purposes of irrigation to better replicate natural precipitation. I also wonder about any effects from natural fluorides or other minerals and chemicals (i.e. pharmaceuticals or endocrine disrupters) in the irrigation water as opposed to rain.

She also remarked it was "an excellent question" which either feeds my ego like nitrates to a plant because she liked my question or is a euphemism for 'who let this guy in the room?' Personally I prefer the first. ;)

Be that as it may, the data and discussion along with this first presentation of the day was enlightening. In fact, during the round table later in the day among some young students I heard one lady with a Germanic accent comment "I had no idea about this stuff. You never hear about this on the news and I don't know why. Everybody should know about climate change and how it's proven to be real and not just some kind of words used for this or that." She was genuinely taken aback and I could see concern welling within her. To me, her awareness was heartening indeed.

Now, I've discussed this in detail simply to drive home the point that there are people out there a whole lot smarter than me who have spent years focusing on one simple question as it relates to desert lands and fauna. While further work needs to be done to assess the value of pristine desert lands, from their studies I think they are in a position to prove an intact ecosystem remains undervalued by our traditional 'valuation systems' which is worthy of your consideration and deliberation in resolving this AFC. In my view the desert offers a greater value to continued human existence if left alone rather than simply as a temporary economic resource for the financial benefit of some guys in Ireland, meaning the owners of the parent company of this

project known as NTR. For your consideration, some background on NTR and the applicant obtained from public media sources is made part of this document stating at page 14, as a sort of addendum hereto.

Getting back to the conference, April Sall of the Wildlands Conservancy introduced the third speaker; Bill Powers of Powers Engineering in San Diego. April mentioned sustainable energy land speculators are clamoring to submit applications to build facilities on public lands. Many have submitted applications for the same land others have already applied for just in case the first applicants are denied. According to her, there were currently 1.4 million acres of public lands in the desert southwest being considered for solar and wind development. We now know the U.S. Secretary of Interior has set aside just over 676 thousand acres[5] as 'study areas' for this purpose.

After much analytical thought on the situation, Bill deduced new transmission lines are to energy what subprime loans were to banking. It's all about quick profits. These so called *energy* companies are in the distribution business more than the energy business. They are middle men. They purchase power from fossil burning plants in Mexico or out of state where laws are less stringent, and simply transporting it across high power transmission lines to the rate payers. The transmission lines cost nothing to these companies because the cost of construction etcetera is passed on to the rate payer. Upgrading or replacing of transmission lines is simply just another way to increase profits.

In this particular case for example, the language in the AFC infers a need for upgrading the transmission lines, but it seems the existing infrastructure and transmission lines already have adequate capacity to handle the first phase (500MW) of this recently renamed "Calico Solar One" project. Maybe I'm reading it wrong but it seems to me it's only if SCE signs on to buy power generated from a second phase of the project and only if that second phase is approved by the CEC and BLM that upgrading the existing transmission lines might become necessary.

The current energy system in the United States is simply a dysfunctional system. According to Bill, energy companies are serving as the gatekeeper to legislation and public policy on energy. The way it works, as I understand it, is the lawyers representing huge energy companies draft laws which energy lobbyists present to our elected officials who then enact it into law. In

[5] Federal Register: June 30, 2009 (Volume 74, Number 124), Page 31308-31309, From the Federal Register Online via GPO Access [wais.access.gpo.gov]

essence, the energy industry lawyers are the gatekeepers of current and likely future public policy. And while this may be an over simplification of the system, the argument makes sense.

I've a friend at work who is buying a new house in Barstow. He asked his builder about putting up a small wind turbine in his back yard. The developer explained the laws require he obtain written permission from all of his neighbors from within a one mile radius before they could seek permits or even consider the idea. And I heard permits run upwards of $8,000 just to put photovoltaic (PV) panels on your home. The laws are written to dissuade the public from installing their own renewable energy source because the utility companies simply don't want the competition. After all, how can a utility make as much money as it currently does with fewer customers?

On the plus side, On June 25, 2009, the California Attorney General filed an argument that 'feed-in tariffs' as proposed in California are not only permitted under federal law but that they should be used to encourage the rapid growth of renewable energy in an effort to help fulfill the goals of new laws on the topic. Be that as it may, I'm willing to wager my paycheck against yours that if a state law is ever enacted past the protests of the gatekeepers, they will sue in federal court, as this is about money and greed rather than reality or long-term goals. If feed-in tariffs are enacted, perhaps we can come to an understanding on the complementary value of PV and remote plants.

But back in February, Bill talked at length about Powerlink and how San Diego Gas & Electric was trying to build a new power transmission line from the Mexican border through pristine desert lands all the way to the urban centers. Unfortunately for the project, those darn do-gooder environmentalists got in the way and the utility shelved the plans. Then along came the herd mentality of 'going green' to 'save the planet from global warming' and SDG&E dusted off the plan and slapped a green label on it. They said they wanted to build a huge solar plant (or was it a wind farm) down by the Mexican border but needed to have new transmission lines to bring this new 'sustainable' power to the end user.

With the new green label on the project, the environmentalist said 'Great idea! We're with you on this. You've got our support. All ya' gotta do is sign this here paper that says the new line will only be used for sustainable energy and not for energy created by the burning of fossil fuels.'

Needless to say SDG&E balked. 'Well now, you know' said they, 'the sun doesn't always shine and the wind don't always blow, so we can't really commit to such a request 'cause we just ain't too sure exactly what source of power plant the electricity is goina come from. That is, not all the time ya see.'

So the do-gooders pulled their support and maybe the governor got involved and then SDG&E told the governor, either we build this without the restriction of energy source or we aren't going

to build it at all and the state can figure out some other way to work toward its goals of obtaining sustainable energy by 2020 or whenever.

The ultimatum worked, our girly-man governor gave in (again) and the Public Utilities Commission of California gave its blessing to the project, much like I fear the CEC and BLM will blindly do for NTR/SES/Tessera Solar. Not because CEC or the BLM is filled with girly-men necessarily, but maybe because they wish to avoid jeopardizing their employment by doing anything other than the bidding of the guy who appointed them, who it seems, is having his strings pulled by the lobbyists who are paid by the lawyers representing the utilities.

In all fairness to the govenator, our president is just as susceptible to biting the apple. You see, the answer Obama's advisors are feeding his administration is that sustainable energy is the way forward, which can best be achieved by harnessing the wind, waves, and sun. Heck, they're even putting the term 'clean-coal' into his speeches. The question is, who is lobbying his advisors? The answer is the same as it has always been – the people who are most effective at expressing their concerns to the advisors of the President are the ones with the most resources to enable them to accomplish it – professional lobbyists.

Yes as Bill observed, it's amazing how old transmission line proposals magically segued into a renewable power line. I think it's called 'greenwashing.' Slap the green label on it and the public will fall for it hook, line and sinker. Just change the name to the flavor of the month. But that's the nature of capitalism. Socialize the risk and externalize the costs. Let the public pay for it.

In this instance, we've a venture capitalist from Ireland using free money from government funding in the form of guaranteed loans (guaranteed by the tax payer), to obtain and essentially destroy public lands (which exacerbates climate change), so they can make a profit selling electricity to SCE who will sell it to rate payers like me with ever increasing prices, and ultimately abandon the project for tax payers like me to clean up. What's wrong with that picture? I love it! It's like having sex with my clothes on.

Bill Powers said the utility model is big and remote and the smartest thing to do is urban photovoltaic (PV). In consideration of his observations and some of my own, I must concur this seems to be a far superior path to complying with the renewable energy goals of the state without reducing the capacity of the desert to absorb carbon. From my perspective, photovoltaic technology is preferable to remote solar plants for several reasons. These include resources, effectiveness and security.

I'm not saying we should abandon any plans for remote solar. If fact if we're going to have one, this one seems preferable on face value as it seems to consume the least water. And I'm certainly not saying 'not in my back yard.' To the contrary, I wish this project were in my back yard,

literally! Here in the Lower Mojave Basin we have lots of fallow land which as such, is already damaged beyond an ability to effectively absorb carbon. But NTR/SES/Tessera doesn't want to buy land when they can get it for free from the public. That would eat into their profits. From their perspective it's much better to externalize the burden of cost of land unto the public. They say, let the public pay for it.

Bill Powers also observed one of the problems with remote energy plants, be they based on renewable sources or fossil, is some energy is lost in transmission due to resistance and leaks (grounding). In fact, when I visited the site a couple days before the official bus trip to take some digital pictures, one of the places I stopped at was under some power lines where I endeavored to rest my elbow on a metal post sticking out of the ground on the shoulder of the road in order to steady my camera. In doing so I suffered a minor shock to my elbow. No harm really, but the point is the electricity being transported in power lines overhead had somehow managed to escape the confines of the power line with enough volume for me to detect a small electrical shock to my elbow as I touched the metal guide post. You don't have that problem with photovoltaic panels. There's less resistance or other loss of power in large part because there is less distance to travel. Perhaps the utilities are less concerned with leakage than selling what they distribute.

And while someone can build a remote solar plant that produces, say 150,000 kV, we could just as easily place a 1.5 kV PV panel system on 100,000 roofs and accomplish the same goal without changing public lands or consuming a drop of water. PV panels don't require water or other liquid cooling like remote solar plants do. And fresh water as a resource is becoming as endangered as some other forms of life.

You need only visit Lake Mead[6] to discover a 150 foot bathtub ring as evidence in the drastic overdraft this limited resource has endured. As it is, should the water level at Lake Mead drop another 50 feet, the penstocks of Hoover Dam will no longer be able to draw enough water to turn the turbines which produce about 20% of the electricity we consume in Southern California. And about half the electricity we consume is used to move water, which for now at least, enables us to live wherever we like.

What the casual observer fails to realize is that when Lake Mead has a bathtub ring, it reflects the condition of the entire Colorado River Basin[7], meaning the entire water table, not just one lake.

[6] Monroe, Robert, "Lake Mead Could Be Dry by 2021" http://ucsdnews.ucsd.edu/newsrel/science/02-08LakeMead.asp# Scripps Institution of Oceanography/UC San Diego

See also: http://www.nytimes.com/2007/10/21/magazine/21water-t.html?_r=1

[7] "The American Southwest: Are we running dry?" RUNNINGDRY.ORG. July 5, 2009 <http://www.runningdry.org/americansouthwest/america.html>.

In other words, it means that if a farmer has a well fed by the Colorado where the water level of Lake Mead has dropped by a 150 feet, then chances are the farmer has to drill a new well 150 feet deeper just to touch water in an effort to irrigate his crops *and* he has to consume more electricity to pump it farther than he used to. Hence, logic dictates our current level of water consumption is not sustainable, and no matter how much conservation efforts we implement, as long as population increases, so will demand. While growth is fundamental to building an economy it is detrimental to long term sustainability and will eventually collapse upon itself regardless of political or business concerns.

The only other solution is an increase in rain and snow which is irrational to conceive considering an increase in population creates an increase in carbon which will tend to increase global temperatures which will reduce snowpack and fresh water. Consider if you will, any hydrologist can tell you that if you have a mountain range that is 6,000 feet above sea level then you will have x-amount of water runoff from that mountain which will sustain a population of x-amount. If your mountain is nine or ten thousand feet high, then you'll benefit from not only spring rains that fill your reservoir or recharge your aquifer, but you'll also enjoy freshwater in the summer months from the melting snowpack at levels above 6,000 feet.

But then along comes an increase in average temperatures to your mountain range my one whole degree. Guess what happens – that's right, instead of having a snowpack that starts at 6,000 feet now it doesn't start until say 6,500 feet. Your mountain didn't get any taller so you have less snowpack. This means you will suffer spring time precipitation at much higher levels than you did before the temperature increased which is likely beyond the design of your 100 year flood[8] designs for storm water diversion. We would be wise to anticipate this will continue to occur every year, eventually bankrupting insurance companies and maybe the economy as well, while at the same time reducing the amount of fresh water we were accustomed to enjoy during the summer months when it is needed most. And this isn't me talking; this is according to the State of California.[9]

I realize representatives from various government agencies simply lack the luxury of time necessary, much less the inclination, to visit each other's websites or otherwise invest the effort necessary to understand the world beyond their own, but water and energy are inseparable. They are intertwined as each relies on the other. We must understand this simple truth and we must act

[8] In example, search Yahoo for Reuters news story dated July 5, 2009 – 'Flooding and heavy rain in southern China have forced 550,000 people to evacuate their homes and killed at least 15.' No drop of water thinks it's at fault for the flood.

[9] State of California, "DWR Climate Change". Department of Water Resources. Last visited July 5, 2009 <http://www.water.ca.gov/climatechange/>. When you visit the site, scroll down and select "Climate Change Video"

accordingly or face the alternative. While those who desire to reap profits from the sun are blinded by the light, we will die of thirst in the process. Water is an issue[10].

Until we know at what volume (or even if) the aquifer from which the applicant intends to draw from is recharged, then we've no way of knowing the duration this project can remain viable. If the aquifer is not recharged or is only partially recharged, the applicant will, in essence, be mining fossil groundwater at the estimated rate of 36 to 50 acre feet per annum. We may not know for certain what effect this will have on other tapped into the aquifer, but it can't be good. And when more people or industries tap into this aquifer which logic dictates would result in a massive depletion of the aquifer in perhaps as little as five or ten years, what will the applicant do then, other than file bankruptcy and abandon the site for the tax payer to clean up? For this too it seems is the nature of things, or of business at least.

The administration may assume the easy way to replace the hydropower is with solar but unlike the vast disbursement of PV over already disturbed lands, remote solar plants make excellent terrorist targets. What do you suppose would happen to our economy if several of these plants were damaged or destroyed during the heat of summer? Homeland security won't allow truck traffic over Hoover Dam anymore for this very concern. But how difficult would it be to park a truck bomb adjacent to these solar facilities and remote detonate them whereby the percussion shatters the mirrors? Why is this so inconceivable in the aftermath of 9/11? How difficult would it be to attack the transmission lines as well, or wind turbine towers for that matter? Security is an issue too and PV nearly solves this issue of national security to our power grid and economy.

You know, climate change is not about saving the world. The Earth will still be here with or without an atmosphere. No it's much more important than saving the planet. It's about saving life as we know it, including our own. But even if we are able to reduce carbon emissions to a level which sustains our climate, we will still run out of food and water unless we find a way to drastically reduce population. On the other hand, I suppose we can take solace in the realization the problem of excessive population is self correcting, because if we fail to fix it, I'm confident the planet will resolve it for us.

I first heard of this project on the tenth of June, less than a month ago. This simply is not enough time to read through the 732 page AFC plus perhaps another 1,000 pages in appendices and all the CEC related documents, not to mention the 100 pages of news clippings and similar research documents I've purviewed in an attempt to grasp and restate the obvious. These new time limits intended to ramrod the process are unreasonable and unrealistic. This drastic limitation of time for the benefit of public review is a method to dissuade and limit public discourse. Accordingly I join with others in requesting the CEC and BLM extend the scoping period to afford other citizens with an opportunity to respond, hopefully with far less cynicism than I am able to avoid.

[10] Barlow, Maude, "Blue Covenant – the global water crisis and the coming battle for the right to water". The New Press, 2007

You should know I've mixed feelings about remote power plants, be they wind, solar, geothermal, nuclear, or anything else. I assure you environmentalists do grasp the hypocrisy of being for sustainable energy but against remote energy plants and understanding the power structure as implemented by those who have it, some seem willing to sacrifice some public lands for the good of the cause even though PV is likely the better way to initiate a path toward sustainable energy.

I may not be a well educated man. I've but a high school diploma and I've taken some courses at our local community college, mostly in computer science, yet I still can't figure out how to text people on my cell phone. But even a blue collar union guy like me is smart enough to understand your decisions will affect my children and theirs too, well beyond the twilight of our lives. Among the limited observations I've attained is that labels reveal far more about the one who bestows them than they do about the recipient. So I'll not assign any label for you but simply ask you by what label do you see yourself? Considering you endure certain fiduciary responsibilities, I hope you are a good man, not unlike my dad. Please prove me right.

Respectfully submitted,

Joe Orawczyk

What follows is offered as an addendum to the foregoing merely for background purposes of the applicant, whoever that is. While the next couple of sentences or so come from the AFC itself, the residual reflects a culmination of data from public media sources found by conducting a search from one or more news databases[11] and other websites discovered by searching the Internet in general, along with some addition observation and comments of my own, and thus should be taken with a grain of salt.

'The Applicant of SES Solar One (SES Solar Three, LLC and SES Solar Six, LLC1) is a private enterprise that is a wholly owned subsidiary of SES.' (Yet Tessera Solar made the presentations at the scoping hearing.)

In mid-2008, NTR plc[12] (NTR) obtained a 51% controlling stake in the company by investing $100 million.

NTR is an international developer and operator of renewable energy and sustainable waste management businesses in the United States, the United Kingdom, Ireland, and Continental Europe.

National Toll Roads (NTR), Inc. was founded by Tom Roche Senior of the Roche family which still maintains ownership of about 44%. Tom Roche Junior is chairman at NTR with an approximate 35% share, and Ann Roche has around 9%. Phillip Lynch's investment firm One 51/ Doyle Group consortium controls over 25%. The residual 30% or so of NTR is owned by various undisclosed entities, perhaps including a venture capitalist or two. However, according to an article in the Sunday Times (London) dated about a year ago on June 9, 2008, "Cash-flush NTR" went to its handful of shareholders to obtain permission to make a 'charitable donation' 'of up to 2.4m shares' of company stock valued at 15.6 million Euros. This donation was on top of up to 5.5m in cash which does not require shareholder approval. The article does not disclose information about the recipient or what percentage of the company these shares represent, but I'm willing to bet none of it went to the Sierra Club.

Not to change subject, but rather to expound a bit on this topic of implied charity, by reviewing SEC disclosure documents of a company I had worked for, I found the CEO also sat on the board of about a dozen other huge corporations but also including one tiny one described as a benevolent charitable health clinic located in Central America. While the purpose may appear altruistic at first glance, a far more nefarious motive may explain why a stressed-out multi-millionaire executive responsible for the concerns of a bunch of businesses would endeavor to find the time to concern himself with the health issues of common poor people in a third world country. Conspiracy theorists (along with logic) would speculate the hard to prove reason for such philanthropic endeavors is called 'a non-reportable and hard to trace financial stipend for services rendered.'

[11] Infoweb.newsbank.com

[12] Here 'plc' means public limited company, however as this company is traded on a gray market as opposed to a public exchange, this term seems dubious.

So if the top executives who share seats on boards of a bunch of companies vote to make tax-deductable financial contributions from the various companies they control to an equal number of offshore charities of which said executives run and receive a financial annual stipend (perhaps amounting in the tens of millions of dollars) which they can avoid reporting on their personal income taxes, well how would anyone know about it (or care)? This suspected conduct may also be described as tax evasion or even money laundering. Many politicians and others who purport to maintain the public trust have also utilized the practice of creating non-profit entities simply to channel money to family and loyalist.

Getting back to the subject, NTR constructed some roads and bridges in Ireland/Europe and operated them as toll roads over a 20 year period from which they earned their profit. After a score of years, the contract was sold to the state when the National Roads Authority paid NTR 488 million (Euros?), this according to an article in the Irish Financial Times Info Ltd dated August 13, 2008. Back then, the currency exchange rate of a Euro was about a dollar-fifty. Hence 488m Euros would be worth around 732 million dollars or three-quarters of a billion dollars, with a 'b'.

The handful of shareholders of NTR had already caused it to evolve from its core business of road construction and toll collections by investing into a high risk wind power company called Airtricity. The plan was to build the world's largest wind farm in shallow waters along the English coast and sell the electricity they generate to customers throughout the UK. Eventually however, NTR opted to sell its 51% controlling interest in Airtricity to Scottish and Southern Energy company (SSE) possibly because it does not relish the concept of having to deal with tens of thousands of individual rate payers like SSE does when instead, NTR can come to California and sell to just two customers (SDG&E and SCE), making things much more manageable. Of course, I'm just speculating on that. A more rational argument was offered by the business editor of the Sunday Times (London) in the November 25, 2007 issue of that publication; to wit:

> "Airtricity and the West Link are probably the two outstanding examples of **NTR** 's handiwork. The company has decided to "monetise" both assets and will probably end up with net cash over E1.1 billion after the disposals are completed next year.
>
> Both sales are shrewd. The toll bridge licence was approaching its expiry date anyway, and this was a clever way of selling it off. Airtricity is a wind farm developer, not a utility. As it builds out wind farms, its business will increasingly be selling electricity. Meanwhile, it would also face massive capital calls. This is the right time to capture value.
>
> The problem is that none of the remaining **NTR** businesses actually need E1.1 billion. Greenstar is a decent company. It started out in classic **NTR** mode, identifying a gaping hole in Ireland's waste infrastructure and set about building landfills. It has since shifted focus, however, and is concentrated on waste collection, handling and recycling. It is a utility services company, not an infrastructure developer. Also, traditionally **NTR** is a builder, not a buyer, of businesses, and Greenstar's growth path is through acquisitions."

It was reported NTR sold its interest in Airtricity to SSE for 850 million Euros.

Other companies owned or controlled by the conglomerate NTR include Wind Capital, a US wind-energy company, Stirling Energy Systems, a solar energy company, and Green Plains Renewable Energy, a bioethanol producer. And on or about April 27, 2009, SES announced the launching of another company;

Tessera Solar with an international division based in London. The Tessera North American division based in Houston Texas will be tasked to manufacture the products needed to build commercial solar-thermal power plants.

I suspect this means Tessera can bill SES for SunCatcher parts and equipment at any exorbitant price it wants because SES is billing itself and using the invoices to evidence its costs and thus justify any tax benefits it can get from the state or federal government under the stimulus package, all the time increasing the profits of its foreign parent NTR. And once Tessera sets the price, other companies will follow suit, eventually passing the cost on to the rate payer/tax payer (who in my case is one and the same).

And while the Application For Certification submitted by SES boasts "The unique combination of the Applicant's technical expertise and NTR's track record in developing large-scale renewable energy and infrastructure projects provides a strong platform from which to realize the Project." NTR's track record evidences a well managed company controlled by a very small number of people/shareholders that is opportunistic in nature as it builds, sells off, and thus escapes and abandons any contractual obligations or expectations from the public.

From everything I've read, particularly in the AFC, it seems likely to me NTR will come into our desert, permanently damage over eight thousand acres of public land, build a state of the art remote solar facility with the use of government backed loans, produce profits during the first 19 years of its 20 year contract with SCE, sell the residual contract (probably at a loss in order to entice the buyer) to someone else, and then abandon the project, washing their hands of any responsibility to the environment or the public.

In mid October 2008, NTR also acquired controlling interest in to Green Plains Renewable Energy Inc., (ethanol, grain and farm supplies) through a merger with its VBV LLC. VBV LLC is a joint venture between Sir Richard Branson's Virgin Group and NTR with NTR enjoying a controlling interest. VBV had ethanol plants in Indiana and Tennessee and Green Plains had a couple in Iowa. Then Green Plains paid $9 million January 20, 2009 to acquire 51% of Blendstar LLC, a Houston based operator of biofuels terminals with anticipated revenue of $1.2 billion in 2009, according to an article in the Omaha World-Herald dated March 26.

Businesses like NTR see climate change as an opportunity to make money rather than a detriment to their operations. These foreign companies are often ahead of the curve because they were influenced by pressures and regulations introduced following the Kyoto protocol which American companies were permitted to ignore under the previous administration. Foreign companies like NTR are using their understanding of climate change and the change in public attitudes as a potential competitive advantage. NTR saw the writing on the wall and positioned itself with new products and science to make money, often through risky acquisitions. On the plus side to the environment and public policy, most of these types of companies perceive environmentally friendly strategies as an asset valuation.

The highest risk is usually the unknown, and in renewable energy, the biggest unknown is in future regulations. Having a network of people inside regulatory agencies can alleviate some of this risk. Among the people listed in the Proof of Service list attached to the CEC memo dated June 12, 2009 is an Applicant representative named Camille Champion. She's listed as the Project Manager of Tessera Solar in Arizona. Her name also appears on a BLM web page announcing the auction of public land in June

2007 by the BLM for $7 million. Apparently she had the public trust when she used to work for the BLM in their Phoenix Field Office in Arizona but now works as project manager for NTR's newest subsidiary.

Wind Capital was founded by Tom Carnahan in 2005. His dad Eugene was Governor of Missouri when he died in a plane crash in 2000. He was running for state senator at the time and actually won the election. Tom's mom was appointed to fill the seat and served as a U.S. Senator for the State of Missouri from 2001 to 2003. Eugene and Jane had other successful children besides Tom, including Congressman Russ Carnahan and Missouri Secretary of State Robin Carnahan. Their fourth offspring, Roger, was a pilot and was piloting the plane in which both he and his dad perished. Sad story, but the point is NTR, it seems, can use Tom's contacts within government to aid in their mutual goals.

I attended the CEC scoping meeting held on June 22, 2009 at Barstow Community College (BCC). I started taking pictures of the posters the applicant had staged around the back of the room for visitors to examine. As you might expect, the posters offer a positive perspective of the proposed development. While waiting for the show to begin, I started chatting with a couple people who were inspecting one of the posters. Turns out the guy owns 77 acres smack dab in the middle of this project and had a few questions about imminent domain and some other topics. Then another land owner joined our discussion and shared some of his concerns about how his land is landlocked after someone put up a gate at the BNSF RR crossing at Hector Road and put a lock on the gates without giving a key to the local landowners. Since the locked gate went up a year or so ago, they have had to drive about three or more miles to access their land than they used to. Soon this project may block that longer route too. One land owner told me he had been trying to get a key to the gate for access, but to no avail. It's like talking to a wall. The company is non-responsive.

As we started to share contact information, we were interrupted by a very friendly lady who introduced herself as a local liaison for the applicant and wondered if we had any questions? Her friendliness was a bit overbearing, almost to the point of rudeness but not quite. She shook hands with each of us, making eye contact and smiling the whole time.

When we declined to offer any questions and endeavored to go back to our discussion, she persisted in injecting her own topic and overview of the project with its many benefits, etc., etc. It was as if we were not being 'interrupted' so much as 'disrupted.' It was as if she were trained in how to distract people interested in the same topic for similar reasons from ever linking up and comparing notes. A 'divide and conquer' or perhaps simply a 'divide before they can unite' sort of tactic.

In hindsight I must admit it was a most impressive and effective tactic. Keep visitors busy and occupied; consume their time, limit their exposure to one another, and before long, the event is over and the people have left without ever having the chance to truly hear from anyone other than what the official tour guide wants them to know. Such conduct seems indicative to the level of ethical conduct of the company, I mean considering she was employed by them to represent their interests.

She gave us her card which she told us she prints up herself. Here's what's on her card:

I M James Enterprises LLC
Irene M. James, Land Development Consultant Project Manager
14240 Point Reyes Street
Fontana, CA 92336,
Phone: 909-702-0673
Fax: 909-350-8990
Email: immjfontana@aol.com

When I had time after the meeting, I did a simple search of her company name on Yahoo and came up with an interesting point or two. Although it's the same phone number, apparently she used to operate out of a different address of:

IM James Enterprises, LLC
PO Box 454
Etiwanda, CA, 91739
(909) 702-0673
Irene M. James

That's where she was when she joined the Barstow Chamber of Commerce in 2009. Seeing as how this is June, it seems safe to say she's been in Fontana for less than six months, but she insists she's a local. She works out of a home office located over a hundred miles from the site, but she's *a local*. Hmm.

By plugging in her new address into Google Earth, or into Yahoo Maps and selecting the satellite view option, you too will discover the location appears to be a residence, as opposed to an actual or formal business location. I wondered if it's zoned for her business use so I plugged the address into the county tax assessor's website to learn she and her husband David purchased this parcel 1100-521-28-0000 in late 1990 and then transferred ownership to a family trust in 2006 but I couldn't figure out if it's zoned for residential or business.

Regardless, apparently she is a client of Joseph E. Bonadiman & Associates Inc. civil engineering and land survey, 234 North Arrowhead Avenue, San Bernardino, CA 92408 (see bonadiman.com) as she's mentioned there.

She's credited with contributions of $1,250 to the Mitzelfelt campaign. Brad Mitzelfelt serves as the First District Supervisor for San Bernardino County in place of Mr. Bill Postmus who left the position when he was elected to be the county assessor, but who subsequently resigned following some personal illicit drug problems. Mitzelfelt should not be guilty by association but he was handpicked by Postmus. Both are republicans. Regardless, what do you suppose motivated her to contribute money to the campaign fund of the district supervisor? Could it be to buy influence? Public records reveal Stirling Capital Investments, LLC of Foothill Ranch CA 92610 contributed $2,100 to Mitzelfelt too. Not surprisingly, County

Supervisor Mitzelfelt seems in favor[13] of this project. It's peculiar what can be found by following the money.

Ah well, it seems this too is the nature of things. We spend our youth being indoctrinated under the label of education to embrace the system controlled by the status quo; our adulthood climbing a ladder of success which may prove to be leaning on the wrong wall; and our retirement wondering with admiration how it all happened as we reflect on the percentage of God's Commandments we have violated so far. Then we pass. Or do we fail?

[13] http://www.sbcounty.gov/bosd1/newsroom/ViewPressRelease.aspx?DocID=426

Comments on Stirling Energy Systems (SES) Solar One Project Application For Certification (AFC) to the California Energy Commission (CEC) and Bureau of Land Management (BLM)

§/Pg	Comments/Questions	Answer/Response
§3.1 p1-4	Near the end of subsection 1.3 at the top of page 1-4 of the AFC, SES states 'Water would be provided via <u>a</u> groundwater well on a portion of the BLM ROW … and transported through an underground pipeline.' SES goes on to stipulate it intends to consume about 50 acre-feet of water per year during the nearly four years of construction. After words, they expect that quantity to decrease to around 36.2^{af} per year over the life of the Solar One project. Q-1: Can SES tell us more about the underground pipeline to be used to transport water from the well? What will it be made of, what size/length, where will it go, will there be pressure regulators, double checks/backflow devices, valves, hydrants, bibs, etc.? Did I simply overlook it or is there a plumbing schematic or other map provided within the AFC and if so, where? Because as far as I can see, it's not in the plumbing site plan A, B, or C of Figures 3-44, 45, or 46. Q-2: Will there be water towers or evaporative coolers on site? If so, what quantity of water will they consume? Q-3: The language says "a groundwater well" meaning just one, but as we'll discover later in the AFC, SES intends to drill as many "secondary" wells as it may deem necessary or perhaps appropriate to obtain the fossil groundwater to quench its desires. Why would more than one well be needed? And what's the total number of wells that will be drilled to support this project?	A-1: A-2: A-3:
3.1 3-4	Table 3-2 on page 3-10 describes 3 water storage tanks, two of which will measure 20' high by 40' feet in diameter for the purpose of storing 175,000 gallons each. Ignoring sea level and gravity as factors, the	A-1:

§/Pg	Comments/Questions	Answer/Response
	formula $\pi \cdot r^2 \cdot h \cdot 7.5$ provides a volume of these storage tanks at almost 13,500 (7.7%) gallons greater capacity than listed. Q-1: Any reason SES opted to withhold this information?	
1.5.6 1-7	Subsection 1.5.6 mentions the project 'would have some level of impact on travelers passing through the area' and even 'has the potential to become a tourist attraction (similar to Palm Springs wind generation along I-10), drawing visitors from the energy industry, the environmental community, schools, research facilities, and government/political figures who seek direct personal experience of progressive renewable energy solutions.' Q-1: How will SES accommodate the bus loads of students and other visitors touring the Solar One facility? Q-2: Will there be a welcome center or museum constructed at or near the site? How about a public parking lot? Q-3: What safety plan has been developed for the multitudes of visitors envisioned? Q-4: How will the impact of the increased local traffic and trash be controlled and mitigated? Q-5: What affect on water resources will these visitors have? Where visitor populations considered in calculations for water consumption? Q-6: Does SES intend to construct any sort of public observation areas where visitors may enjoy an overview of the project, perhaps on a highpoint of land located adjacent to the underground high pressure gas pipeline just south of the I-40 at Hector Road? If so, where are the plans for that within the AFC?	A-1: A-2: A-3: A-4: A-5: A-6:

§/Pg	Comments/Questions	Answer/Response
3.3.1 3-7	The end of subsection 3.3.1 on page 3.7 under the topic of Surface Water discusses drainage features and lack of floodplains, and it ends with 'additional delineation will be undertaken to identify flood paths within the project site that pose a hazard.' Q-1: What hazards? Q-2: Has this been done? If so, by whom and what are the results? If not, when will it be completed? Q-3: Upon completion, will the findings be made available for consideration of the CEC, BLM, and other interested parties including the public? If so, in what form (another application or over the Internet, etc.)?	A-1: A-2: A-3:
3.5.8 3-24	Under the topic of Site Security, the first sentence of subsection 3.5.8 appears incomplete – "…as part of the." What? SES intends to maintain '24-hour site security monitoring … via closed circuit TV cameras' and further, as described in detail in Figures 3-20 through 3-23, SES plans to utilize bright lighting at night in the main complex area and some paved roads. Q-1: "…as part of the." What? Q-2: What affect will night time light pollution have on wildlife? Q-3: What affect will night time light pollution have on travelers? Q-4: Will there also be lighting along the perimeter fence? Q-5: How will SES mitigate this light pollution? Q-6: Upon completion of construction, would it be feasible to utilize night vision	A-1: A-2: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	capable security cameras and equipment in place of external lighting? Q-7: While this subsection on site security fails to address the topic of coordination with or the oversight of Homeland Security, how difficult or likely would it be for a terrorist to blowup a truck bomb parked on the shoulder of I-40 whereby the percussion would shatter a multitude of SunCatcher unit mirrors and wreak havoc on our economy? How quickly could Solar One recover from such a catastrophic event? Q-8: Unlike photovoltaic's which operate autonomous to the grid, it seems Solar One will make a mighty fine terrorist target. Who will pay for its security and repair if it suffers a terrorist attack? Any insurance?	A-6: A-7: A-8:
3.5.10 3-27	SES asserts an estimated maximum or average annual water usage of 36.2 acre feet of water during normal operation but an additional 13.8^{af} equating to 50^{af} during the roughly four-year construction stages. However, here in subsection 3.5.10 on page 3-27 they reveal 'peak construction states will increase water consumption to 10 times peak operations demand.' Q-1: If 10 x 36.2af = 362^{af} then how does SES justify an assertion of only 50af? Q-2: Here again, exactly how many wells will be drilled to satisfy the demand of the proposed project? As we learned earlier from the discussions of subsection 1.3 on page 1-4, well water will be transported by 'underground' pipeline, but here at 3.5.10, conflicting language advises us SES will use 'above-ground' conduits. Q-3: Which is accurate and why the discrepancy?	A-1: A-2: A-3:

§/Pg	Comments/Questions	Answer/Response
T 3-4 3-35	Water Usage Rates – According to Table 3-4 on page 3-35, roughly a third of the estimated 24.2 acre feet if water pumped annually from the aquifer and processed (presumably through reverse osmosis (RO)) for purposes of mirror washing will be discarded as brine to an evaporation pond due to the high levels of total dissolved solids it will contain. Over the 20 to 40 year life of the Project, the estimated 162 to 324[af] of purposely evaporated water could be quantified as substantial. Q-1: Are these TDS's hazardous? Q-2: In order to reduce the amount of resources consumed and the associated costs over the life of the project, can the brine be filtered and then used for dust control, fire suppression, and to flush commodes? If not, why not? Secondly, the totals provided under the last two columns don't add up. This type of simple mathematical error does not instill confidence in the engineering capabilities of SES as presented in the residual of their AFC. By correcting the addition, we find the GPM increase while the volume in acre feet is reduced. Q-3: How does SES explain this error? Also, is the gpm rate per well or for all of them combined? Thirdly, the footnotes use the term 'based on' three times and the word 'assumes' seven. Q-4: How does this not add up to ten erroneous guesses? Also, footnote two and three appear to conflict in the quantity of scrub washes each SunCatcher unit will receive annually. Nor is this addressed subsequently in subsection	A-1: A-2: A-3: One or all: A-4:

§/Pg	Comments/Questions	Answer/Response
	3.7.5 on page 3-37 under the aptly titled 'SunCatcher Mirror Washing' where one might expect. Footnote 2 seems to estimate 100% of the units will receive one scrub per quarter, equating to four per annum while footnote 3 estimates eight normal and only one scrub. The language is ambiguous at best, perhaps intentionally so. Q-5: Which is accurate, one or four scrubs per year? Q-6: Under what circumstances would the number of scrubs per year increase or decrease? The Potable Water (for drinking and sanitary) Use is calculated presumably via the official SES water use dart board to be 5.2^{af}. Sarcasm seems appropriate as here again the numbers do not add up. Footnote 1 stipulates there is a 5 day work week totaling 21 work days a month. Hence 21 days x 12 months = 252 work days per annum. Footnote 5 assumes 30 gallons of water per person per (work) day for 182 people. Hence 30 x 182 x 252 = 1,375,920 gallons per year ÷ 325,851 gallons in an acre foot = 4.2^{af} vice 5.2^{af} as claimed in the table. So where is the other acre foot going, besides bad math? Well footnote 7 seems to say it's going to the sixth day in a six day work week, in conflict with footnote 1. Hence, 252 + 52 = 304 work days x 30 x 182 = 1,659,840 ÷ 325,851 = 5.1^{af} (still not 5.2^{af}). However, subsection 3.9.1 asserts some construction will continue 24/7, suggesting a 7 day work week. It's all so convoluted. Q-7: Of the 182 workers, how many will be construction workers and how many will be non-construction workers? Also, how many will suffer a five, six or seven day work week. Q-8: How will the onsite workforce population fluctuate by shifts, by work week, by construction/operation, per day,	A-5: A-6: A-7: Construction: Non-Construction: 5 day: 6 day: 7 day: A-8:

§/Pg	Comments/Questions	Answer/Response
	week, month, year – throughout the life of the project? What affect will this have on the environment and on water resources?	
3.7.1 3-36	Water Supply Source Q-1: What size is the aquifer? How much water does it hold? Q-2: Does the underground aquifer ever recharge? If so, how is this proven? If not, then how is the deduction wrong that concludes SES proposes to essentially mine fossil water from one, two, or 'possibly of additional wells being added to provide water supply as needed' apparently without regard to sustainability over the life of the project or the detrimental effects to the environment and wildlife? Q-3: Here again, how many wells? Q-4: What is the risk aquifer depletion may result in a sinkhole as has occurred in other parts of the country and world?	A-1: A-2: Y / N or unknown – Proven? A-3: A-4: Unknown, high, or low because:
3.7.2 3-36	SES claims pump and water quality tests were performed but "The data was insufficient to make proper determinations!" Q-1: Really? Are we to believe SES spent millions to prepare this AFC over the past many months only to submit it for review and consideration without bothering to provide pertinent data on the topic of water quality and volume availability on a project located in the middle of the Mojave Desert? Q-2: Does SES think desert groundwater is of such little consequence or concern to us as to avoid or delay revealing their findings on the topic? Is SES truly incompetent or are they trying to hide something? Q-3: What are the levels of nitrates? Q-4: What are the levels of fluoride? Q-5: What are the levels of pharmaceuticals	A-1: Y / N – remarks: A-2: Y / N – remarks: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	and endocrine disrupters? Q-6: Why is this AFC incomplete and why are we considering it before it is complete?	 A-6:
3.7.3 3-36	Water Treatment Requirements Q-1: By 'fire water' does SES mean fire suppression water or rye whisky? Q-2: The first sentence ends with another disclosure of SES's intent to drill as many wells at it likes, so here again, how many wells will be drilled and at what rate of flow/volume will water be drawn from the aquifer by each? Q-3: Once construction is completed will secondary wells be capped and abandoned or will they be removed and backfilled? The language asserts 'water for potable use will meet EPA standards' and 'disinfection treatment is required to meet drinking water standards.' But the language does not describe how those standards and requirements will be met. We know groundwater in this area typically suffers from high alkalinity and natural fluorides and with high nitrates not uncommon, as well as excessively high TDS. Lacking the water quality analysis promised in Table 3-5, what we don't know and are left to our imaginations to speculate is weather additional pollutants (pharmaceuticals, endocrine disruptors, etc.) will be a valid concern among many others. One thing we do know is high levels of natural fluorides in our local ground water results in weakened enamel to human teeth after long term exposure; turning teeth brown and increasing the risk of tooth loss. Q-4: Will the workforce be permitted to drink the deionized water to mitigate the effects of excessive fluoride? What dental plan will the workers enjoy? The language of 3.7.3 ends by disclosing an	A-1: A-2: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	intent to store drinking water intermixed with fire suppression water in the same 188.5k capacity water storage tank. Q-5: Here again, why not utilize brine water for fire suppression and RO for drinking? By doing so, the million gallon brine evaporation pond could be claimed as a backup for fire suppression and a smaller brine storage tank would save money on infrastructure.	
3.7.4 3-36	Water Treatment Systems – Here we are told SES recognizes a requirement to treat water in different ways for differing uses. SES then offer non-committal evasive language in the third sentence where it says "Using a value engineering method, …" which we can only hope is less prone to error than their inability to perform simple addition as previously discovered in Table 3-4. Um, "Using a value engineering method, further evaluation will be performed for the various options that may be available to treat, store, and distribute the water as needed. It is envisioned that the water treatment system will consist of …" among other things "… a disinfection system, [and] a demineralized water treatment system for mirror washing water, …" Q-1: What 'further evaluation' is the applicant talking about? May we assume SES is not considering the massive consumption of lumber or coal to deionized water through boiling? In other words, if the options are limited to RO or one other process, why not say so? Otherwise what else are they hiding? Q-2: If not reverse osmosis (RO) then why do they need evaporation ponds? Q-3: If RO, how much energy will the process consume? The language near the top of page 3-37 introduces the terms 'reject water and	A-1: A-2: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	sludge disposal' but fails to define either. Q-4: Is 'reject water' an exclusive euphemism to brine or is there another meaning within this AFC? Q-5: Is 'sludge disposal' exclusively synonymous with the term 'salt cake' as used in 3.8.2 on page 3-42? Or are we also talking about septic tank sludge? Q-6: If these terms have other meanings, what are they?	A-6:
3.7.5	This subsection on SunCatcher Mirror Washing is woefully lacking in content in that it fails to provide some basic information the reader would logically expect to find under such topic. For instance: Q-1: How many washes/scrubs will be performed per given time periods of daily, weekly, monthly, quarterly, or annually? Q-2: Are wash processes performed manually (maybe by some guy named Manuel), or automatically? Q-3: If automated, is it computer controlled like timed irrigation or does someone flip switches and turn valves? Q-4: If automated, how is it plumbed? Is wash equipment internal to each of the SunCatcher units or external? Q-5: If additional information is provided in another section or appendices of the AFC, why aren't they referred to within this subsection?	A-1: A-2: A-3: A-4: A-5:
3.7.6	Fire Protection Water – The paragraph mentions '…treated water for fire protection applications and domestic uses.' Q-1: Is the water treated for purposes of fire protections (i.e. oxygen inhibitor) or domestic uses (i.e. filtering, softening, or	A-1: A-2:

§/Pg	Comments/Questions	Answer/Response
	chlorination)? Q-2: What form of treatment process is the water subjected to and what, if any chemicals are involved in the treatment processes, and at what quantities/levels? Q-3: If chemicals are used, what (if any) health risk or hazards to people or to the environment do they pose? Q-4: How will such be controlled/mitigated?	A-3: A-4:
3.7.7 3-37	Dust Control – "Construction water augmentation from the Secondary Water Well or from other on-site wells …" Q-1: How many wells? Q-2: If above-ground conduits are used will they be pressurized and if so how will they be protected from leaks or rupture or from being damaged or destroyed by vehicular traffic? Q-3: What is the reaction plan upon the unlikely event of catastrophic mainline failure in order to reduce loss of water? On page 3-38 we discover there will be a 'demineralized waterline … will be used to supply well water for dust control' Q-4: What is a demineralized waterline? Is it a euphemism for deionized? Q-5: Will it be above ground or below? Q-6: Does this mean SES intends to use demineralized water for dust control?	A-1: A-2: A-3: A-4: A-5: A-6:
3.7.8 3-38	Potable Water – Mentions 'chemical dosage for disinfection' but fails to disclose what chemical or at what dosage, nor what quantity is kept on site or related risks. Besides what is listed in Table 3-11; Q-1: What disinfection chemicals?	A-1: A-2:

§/Pg	Comments/Questions	Answer/Response
	Q-2: What dosages? Q-3: What quantities are kept on site? Q-4: What potential hazards do such chemicals present and how will they be mitigated? The subsection also mentions bottled water. Q-5: If bottled water or soda will be available on site, what recycling program will be implemented and how will it work? Q-6: Which bottling companies are being considered to contract a supply? Are they local?	A-3: A-4: A-5: A-6:
3.8.1 3-39	Sanitary Wastewater System – Few things are more wasteful than using fresh water to flush human waste. Where ever SES can realistically reduce water consumption or the need for pluming to transport and control water, the less cost there will be. It takes money to produce the energy needed to pump water from here to there. Waterless urinals mean less power is needed to pump water which means more power is available for sale. Waterless urinals also mean less pluming to install or maintain which also reduces costs and increases profits. Also consider the bragging rights and PR. Q-1: Will SES commit to utilize waterless urinals to reduce water consumption and extend the life of the leach field by reducing saturation from unnecessary volume? Q-2: How about compost toilets? What would be the cost savings over the life of the project? Q-3: What 'approved off-site disposal facility' will be the recipient of sewer sludge from the Solar One project?	A-1: A-2: A-3:
3.8.2 3-42	Water Treatment Solid Wastes – SES expects to remove and transport 34 tons of low-moisture salt cake to the Barstow or Victorville landfill each year from the	A-1:

§/Pg	Comments/Questions	Answer/Response
	evaporated brine. Q-1: Considering the Solar One project is located well beyond the city boundaries, how do the cities of Barstow and Victorville feel about being dumped on? Q-2: If the cities reject the solid waste, how will SES get rid of it? Will they ship it to Detroit by train? Where exactly? Q-3: Why are Tables 3-7 and 3-8 incomplete? How does SES expect us to make a determination on their application without disclosing this information?	A-2: A-3:
3.8.3 3-44	Waste Management – other than being listed in Tables 3-9 and 3-10 and a single obscure sentence (in §3.8.3.1) on page 3-45 under Operation Wastes, there's nothing here to speak of regarding an internal recycling program for beverage containers, paper, plastic, glass, cardboard, Styrofoam, tires, scrap metal, lumber, etc. Q-1: What program does SES intend to implement as an internal recycling program? How will it work? Q-2: Under §3.8.3.3, how many hours of training will each employee receive and from whom? Q-3: Is the HMMP available on the Internet for review and consideration?	A-1: A-2: A-3:
3.8.4	Under §3.8.4.3, the text fails to consider ethylene glycol. Q-1: Why? The same subsection provides for an evacuation of personnel but then says hydrogen poses no adverse effects. Q-2: If there are no adverse effects, then why evacuate?	A-1: A-2:
	More to come.	A-1:

§/Pg	Comments/Questions	Answer/Response
	Q-1: Q-2: Q-3: Q-4: Q-5: Q-6:	A-2: A-3: A-4: A-5: A-6:

§/Pg	Comments/Questions	Answer/Response
2.0 2-1 And trans-cript of CEC gen mtg	The introductory text to Section 2.0 of the AFC offers no indication of a need to construct a new electrical substation within the Solar One project site. Even subsection 2.2 avoids mentioning a need to build a 'new substation' and merely mentions "Under Phase I, Solar One will construct a solar power project with a total capacity of 500MW that will connect to the SCE Pisgah Substation via a new 230-kilovolt (kV) interconnect transmission line that the Applicant will construct." The CEC held its first regular business meeting of 2009 on the morning of January 14. As evidenced by the testimony provided by the CEC Project Manager Christopher Meyer within lines 6 thru 12 on page 18 of the transcript of said meeting, the reader is led to understand "there will be a new 230kV substation approximately in the center of the site." A transmission line will be constructed to connect this new substation to the existing SCE Pisgah substation. Mr. Meyer goes on to say "The connection is only about, I think, .14 miles from the edge of the project site." Q-1: What is the total distance from the new substation to the existing SCE substation? Q-2: Where can we learn more about this new substation?	A-1: A-2:

§/Pg	Comments/Questions	Answer/Response
2.2 2-2	Per the language contained in the paragraph at the bottom of page 2-2, it appears there is no requirement to upgrade the Lugo-Pisgah number 2 220kV transmission lines above current capacity until and unless SEC agrees to purchase the 350MW anticipated to result from the second phase of this Solar One project. Apparently the existing infrastructure can handle 500MW from the first phase, but not the 850MW from both phases combined. Q-1: Is this interpretation of the language accurate? If not, how so?	A-1:
3.5.1 3-18	The text makes mention of an intent to supplement interior fluorescent lighting in the operation and administration and water treatment buildings with day time ambient sunlight. Q-1: Will this be accomplished primarily via the installed windows in exterior walls of these structures, or will skylights also be incorporated? For what it's worth, I applaud the applicants' decision to utilize photovoltaic equipment to charge battery powered roadway lighting and would encourage them to utilize the same for low intensity path lighting where path lighting is necessary. Q-2: Is this their intent? Q-3: What aviation obstruction lighting will be required by the FAA?	A-1: A-2: A-3:
3.5.2 3-18	Under the topic of electrical grounding, it is explained an electrical energy dissipating grounding system consisting of bare conductors will be installed in a grid pattern below grade. Q-1: What method will be used to install this grid below grade? Q-2: Is 'below grade' synonymous with	A-1: A-2: A-3:

§/Pg	Comments/Questions	Answer/Response
	underground or below soil surface? If so, at what depth the grid be buried? Q-3: How will this grid be installed without disturbing the surface crust, plants and wildlife? Q-4: Given in standard measurable units (i.e. inches or feet), what will the distance of grid spacing be? Q-5: How extensive in size will this grid be in comparison to the acreage of the project? Q-6: Where grounding conductors will bond with metallic piping, how will electrolysis be avoided or mitigated?	A-4: A-5: A-6:
3.5.3 3-19	It is revealed under the topic of cathodic lightning protection that a study will be conducted to make certain determinations.  Q-1: Who will conduct this study and when during this application process will its' findings be made available to interested parties including the public? Q-2: If the applicant expects the CEC, BLM, or other interested parties to rely on this study as part of, and in hopes of the eventual approval of their AFC, why were the results of said study not made part of the AFC prior to submission for review and consideration? Q-3Why does the applicant perceive the	A-1: A-2: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	mere mentioning of a proposed study on a given topic will suffice in place of the actual study for purposes of review and consideration of this AFC? Q-4: Will the grounding system grid described in subsection 3.5.2 be part of the cathodic lightning protection? Q-5: What risks do lightning strikes pose?	
3.5.4 3-19	HVAC – Here we first learn of an intent to install evaporative coolers and use liquid propane gas (LPG) or simply propane for radiant heater. Q-1: What quantity of water will be consumed through evaporative cooling? Q-2: How many evaporative coolers will be installed and what size will each be? Q-3: Will bleeders be utilized in an effort to control alkali scaling? Q-4: Will portable evaporative coolers be used? If so, in what quantity? Q-5: Will chemicals be used to control scaling? If so, what quantities will be stored and what hazards do such chemicals pose? Q-6: Will there be any water towers on site? If so, for what purpose? Also, what chemicals will be used to maintain this type of equipment? Q-7: Will chromium-6 be used? Q-8: Will a chiller or boiler be installed? Q-9: In what quantity and how will propane radiant heaters be installed and used? How will they be protected from vehicular impact?	A-1: A-2: A-3: A-4: A-5: A-6: A-7: A-8: A-9:
3.5.9 3-26	Q-1: Define ‘crown’ and ‘polymeric stabilizers’ as used in the sentence “No crown is anticipated if polymeric stabilizers are used, further reducing drainage	A-1:

§/Pg	Comments/Questions	Answer/Response
	conveyance impacts." Q-2: Are polymeric stabilizers the same as 'dust palliatives' or 'soil binders' as used in some other subsection including 3.7.7 on page 3-56? Q-3: Do polymeric soil stabilizers reduce the ability of water to penetrate treated soil? Q-4: What risks to human safety and to the environment do these products pose? Q-5: In what quantities will they be applied? Q-6: Will they decompose or will they remain for decades or even centuries?	A-2: A-3: A-4: A-5: A-6:
3.8.4.3 3-49	Q-1: Under the topic of 'accidental release' where SES uses the word "pumping" in the sixth bullet of the list, what product are they planning to pump? Do they intend to pump the hazardous material or the absorbent cure? A reasonable person would reason the task listed in the seventh bullet to 'ensure all equipment used when handling the product is grounded; would best be performed and confirmed prior to a hazardous spill rather than as a measure to be adopted during such situation. Q-2: Does the applicant concur? If not, why not? If so, how will the applicant improve this spill reaction plan? The eighth bullet mentions a vapor suppressing foam. Q-3: What more can the applicant share about this product besides their intent to have and use it? By what name does it exist? How is it dispensed? Is training required? Q-4: What are the risks and hazards presented by storage or use of this product?	A-1: A-2: A-3: A-4: A-5: A-6:

§/Pg	Comments/Questions	Answer/Response
	Q-5: Under what circumstances would it be released? How would it be cleaned up after use?	A-7:
	Q-6: If flushed like storm water, what effect would it have on the ecosystem in the evaporation/recharge basin?	A-8:
	Q-7: If it is permitted to enter the water table through percolation and is later found to be detrimental to the groundwater, how will SES mitigate this other than bankruptcy and project abandonment?	A-9:
	The tenth bullet states "Where feasible and appropriate…"	
	Q-8: What is the criteria used to determine what is or is not feasible and appropriate?	A-10:
	Q-9: Who makes this determination – the company or the CEC project manager or his representative?	
	Q-10: Can the applicant describe situations where one trigger may apply but not the other and therefore they may opt not to remove contaminated soil?	A-11:
	It seems language following the eleventh bullet is contradictory. First it says report spills but then seems to say disregard.	A-12:
	Q-11: Is SES aware of any other LORS on this topic which may apply, other than CERCLA? If so, what are they in sequential order by precedent? Do any take precedent over CERCLA?	A-13:
	Q-12: Besides selective reading of exclusionary language of LORS, how does the applicant intend to apply the residual language to the issue of hazardous material spills and contaminated soil removal?	A-14:
	Q-13: What has caused hydrogen explosions in the past and how is the applicant planning to avoid similar experiences? Can it be caused by an errant or out of control vehicle collision with a	A-15:

§/Pg	Comments/Questions	Answer/Response
	SunCatcher? Or perhaps a lit cigarette? Q-14: What are the risks of sabotage and how are these being reduced? Q-15: If a maximum 210 cubic feet of hydrogen does explode, what is the blast radius? Q-16: If a maximum 210 cubic feet of hydrogen does explode within the project site, could this cause a domino effect resulting in additional explosions of hydrogen stored in nearby SunCatcher units? Q-17: The language stipulates 'absorbent material will be carried on the supply truck' but what of fire extinguishers? Will they be available on each vehicle and if so, how will they be maintained and periodically tested for serviceability? The language claims "The risk of fire is minimized because refueling operations occur outdoors." Q-18: Is the risk of fire or explosion increased by lightning strikes? How are possible lightning strikes mitigated? Q-19: Does the applicant envision any other scenarios where other hazardous materials may be inadvertently introduced to the project site? Q-20: Considering the applicant intends to have and use propane for radiant heaters and fuel for forklifts as mentioned elsewhere in the AFC, what volatile or hazardous materials is the applicant failing to mention here in this subsection besides propane – pesticides, herbicides, insecticides, chromium-6, etc.?	A-16: A-17: A-18: A-19: A-20:
3.8.4.4 3-51	Q-1: Rather than simply using "soft bottom storm water retention basins"… "designed so that the retention flows will empty within 72 hours … by draining, evaporation, or infiltration," as described earlier in	A-1:

§/Pg	Comments/Questions	Answer/Response
	subsection 3.5.9, has the applicant considered beyond mere LORS compliance for something superior?	A-2:
	Q-2: Can storm water be considered as an asset rather than waste?	
	Q-3: What method can be implemented by which a quantity of storm water equal to or in excess of the amount of groundwater consumed by the project operations may be captured and held in an oversized leach field of sorts or other effective guzzle to reduce evaporation during percolation for the purpose of recharging the aquifer, thus increasing the long term sustainability of the project?	A-3: A-4:
	Q-4: How does the applicant justify characterizing the act of vegetation clearing and ground leveling by use of heavy blading equipment including motor graders, bulldozers, elevating scrapers, hydraulic excavators, rubber tire loaders, compacting loaders, water tenders, and dump trucks as 'slightly altering the land areas of the site?'	A-5:
	Q-5: What is meant by the term 'earth-binding materials' as used in subsection 3.8.4.4? Is this some sort of adhesive intended to replace the fibrous crust currently in place by nature?	A-6:
	Q-6: What chemicals will be applied to the soil as an 'earth-binding material?' What effect may they have on wildlife and on the environment to include plant life and water quality?	A-7:
	Q-7: At the bottom of page 3-51 within subsection 3.8.4.4, the applicant divulges an intent to construct at least one sediment trap 'immediately upstream of the property boundary.' Will effectively increase the gross area of public land beyond the 8,200 acres previously claimed?	
Table	Q-1: What's the difference between a 'technician,' a 'SES technician,' and a 'sun	A-1:

§/Pg	Comments/Questions	Answer/Response
3-15 p5-39	technician?' Q-2: Will JSIDS alarm tech duties be outsourced through a contractor? If internal, why is it not listed? Q-3: how will other jobs typical in industrial operations be performed if they are not listed in this table?	 A-2: A-3:
3.9.10 5-38	Q-1: Where the language states some of the workforce may come from 'other areas of the southwest.' Does this include illegal aliens from Mexico? If not, how will this be verified? Q-2: How will SES and its subsidiaries ensure their contractors and their subcontractors comply with labor laws? Q-3: Considering federal money may be involved in this project, is the applicant subject to additional labor laws such as the Davis Bacon Act or other prevailing wages LORS? Q-4: Might temporary lodging for some workers be in the form of mobile homes or recreational vehicles on-site? If so, what impacts will this action pose to the environment, to resources, and to safety? What zoning laws apply?	A-1: A-2: A-3: A-4:
3.9.7 3-55	SES anticipates a need for water during construction at a peak rate of 10 times that of the anticipated normal operation peak rate. Q-1: How often and for what duration does SES anticipate this vastly increased consumption of water will occur? Here again, the text provides a tacit assumptive revelation construction water will be augmented from secondary water well, and/or from other on-site wells but fails to provide the total or maximum number of wells necessary. Q-2: What is total number of wells SES will	A-1: A-2: A-3:

§/Pg	Comments/Questions	Answer/Response
	bore and at what potential volume will each well produce? Q-3: What vortex or other undermining risks do multiple well drafts pose? How will these risks be mitigated? The language state 'the proposed debris basins/retention basin will also allow for groundwater recharge.' Q-4: How is this assertion realistic as these basins are designed to 'empty within 72 hours to provide mosquito abatement (see 3.5.9 near bottom of page 3-26)?' Q-5: If mosquito abatement is a concern warranting the quick draining of basins, why is it not mentioned as such with the two each million gallon brine evaporation ponds? The text mentions 'lined ditches' in the center of page 3-57. Q-6: With what material are ditches lined?	A-4: A-5: A-6:
3.9.8 3-57	Q-1: Define 'special conveyance.'	A-1:
3.9.9 3-58	Q-1: Once construction is complete what will be the annual payroll? Q-2: Will these jobs be paid at the prevailing wage? Q-3: Which jobs will be union jobs? Q-4: Which collective bargaining agreements will apply to this project?	A-1: A-2: A-3: A-4:
3.10.1.3 3-71	On the topic of Heat Hazards, this subsection does not mention evaporative cooling or propane heating. Q-1: Why does this subsection fail to mention evaporative cooling and propane heating?	A-1: A-2:

§/Pg	Comments/Questions	Answer/Response
	Q-2: What else is omitted? Cooling towers perhaps? Q-3: Will solar heat gain be different after construction is initiated or completed? If so, how so?	A-3:
3.10.1.4 3-71	On the topic of Flood Hazards, the language concerns itself with culverts, channel hydraulics, directing flow, controlling flow, flow speed, roadway dips, and efforts to minimize scour that would undermine the project infrastructure or equipment. But it makes essentially no mention of capture and retention for aquifer recharge so as to improve the likelihood of long term sustainability of the project. Q-1: Why does the applicant seem so focused on satisfying minimum regulatory compliance levels but is unable to think outside the box for the benefit of its own best interests? All sarcasm aside, are not the people running SES smarter and more visionary than the minimum compliance levels they seem to strive for? Q-2: How can NTR or its subsidiaries claim to work toward sustainable energy through the unsustainable consumption of a limited natural resource such as fossil groundwater? And unless and until the applicant can prove the aquifer is being recharged, the CEC as well as the BLM should err on the side of caution and are justified to assume the groundwater is fossil. To do otherwise would be negligent or reckless. Q-3: If the aquifer is not recharged and the water is essentially fossil groundwater, and if additional solar energy operations (or other industrial/agricultural/residential consumers of water) will likely tap into this same aquifer, how definite and viable is the 20-year PPA with SCE? Q-4: If the applicant runs out of water before the PPA with SCE expires, what will	A-1: A-2: A-3: A-4: A-5:

§/Pg	Comments/Questions	Answer/Response
	the applicant do? Q-5: If the aquifer is recharged, what is the long term viability of its source?	
3.10. 2.2 3-71	Fire Systems – The first sentence offers an assertion the project 'will be supported by local fire protection services.' Q-1: Does the applicant mean to say 'augmented' rather than 'supported?' In the last paragraph on page 3-72 we learn "The Harvard-Station 46 in Newberry Springs would provide the primary fire protection, fire fighting, and emergency response service to the Solar One site." Q-2: Has the applicant obtained and provided a copy of a written communiqué from said fire station confirming it is aware it 'would provide the primary' fire services and is okay with that? Q-3: Will the limited resources of the Harvard Fire Station realistically satisfy the needs of this project? Q-4: How up to date are local fire fighters to the explosive nature of hydrogen, as will be stored and used in the 34,000 SunCatcher units? Q-5: If additional equipment is needed and if additional training and periodic refresher classes are necessary to maintain adequate levels of knowledgeable professionals at local fire/rescue facilities, who will make these determinations and who will fund such additional equipment or training? Is it the intent of SES who will introduce this additional workload and hazards to the area that such expense should also be externalized as a burden unto the taxpayer? Considering the Harvard-Station is 31 miles away but the volunteer fire department in Yermo is about the same distance and volunteer departments located in Newberry Springs and Daggett are even closer, it	A-1: A-2: A-3: A-4: A-5: A-6:

§/Pg	Comments/Questions	Answer/Response
	stands to reason those volunteer firefighters would likely be first responders on scene at the project site in the advent of an emergency. Q-6: Who will fund training for local volunteer firefighters and paramedics as likely first responders? In consideration of volunteer turnover, who will fund training for new replacements? Q-7: Will the resources of local volunteer fire departments need additional equipment too? If so, who will fund such improvements? Q-8: What part will other fire departments such as the Barstow FD, the FD at the MCLB, at the NTC Fort Irwin, at the MCAGCC 29-Palms, or personnel at the Barstow/Daggett Airport play? Q-9: Have any of these other entities been contacted or consulted about this project? Do they have any concerns? If so, what are those concerns and how will they be mitigated?	A-7: A-8: A-9:
3.11.3 3-78	I'm confused about something which I touched on in a previous question concerning subsection 3.7.6. Q-1: Will fire suppression water be basic well water, water treated for domestic use, water treated to potable quality, or water processed through reverse osmosis or some other intensive demineralization process? 3.7.6 is unclear on this. Table 3-20 stipulates 'Fire water supply will be from the demineralized water contained in 175,000 gallon storage tank located at the main services complex.' Well, that seems clear enough. But then 3.11.3 says 'The well water storage tank will provide water for the demineralizing process, and the demineralized water will be stored in two 17,000 gallon tanks for [the purpose of] SunCatcher mirror-washing water.' … and	A-1:

§/Pg	Comments/Questions	Answer/Response
	'A potable water tank will provide both fire-suppression water and domestic water in the main services complex. The potable water tank will be designed to maintain a constant supply of fire-protection water [that is] unavailable for mirror washing.'	A-2:
	3.10.1 mentions a 'fire flow and potable fire flow tank' as well as 'the fire-suppressions and potable water storage tank' … which may or may not be one and the same. The latter 'will be supplied from the pretreatment water treatment system, …'	A-3:
	Q-2: What exactly is a 'pretreatment water treatment system?'	
	Q-3: Are these two water tanks one and the same?	
	Q-4: What is a 'fire flow' tank as opposed to a 'fire-suppressions' tank and a 'potable water storage tank?'	A-4:
	Regardless, at least now we know potable water and fire suppression water will be stored in the same tank (presumably intermixed), or do we? According to the main services complex plumbing site plan part B at Figure 3-45, the potable water tank(15) is separate from fire protection and mirror washing water tank (16), which are both separate from the raw water tank (17). I can't help but wonder if anyone proof reads this stuff before sending it out. I know my stuff is full of errors, but I'm not a professional getting paid to produce this stuff. I'm just speculating here but it seems like the AFC document authors are not clear in what one another are intending or describing.	A-5:
	Q-5: If the applicant isn't sure what they're talking about, how can the CEC or anyone else be expected to figure it out and make a decision that serves in the best interest of whom they represent?	A-6:
	Q-6: What happens to water used to wash	

§/Pg	Comments/Questions	Answer/Response
	mirrors? Does it fall to the ground to be absorbed on the spot or is it captured and reutilized?	
Figure 3-43, 44, 45	The HAWS model 8300 eyewash listed in the plumbing site plan (Figures 3-43, 44, and 45) comes fully equipped with a drench shower and even has a test card to record weekly testing. Q-1: How often does the applicant intend to flush and test these units and how much water will they consume for each test? Q-2: Considering the summer heat can increase the temperature of water trapped in a galvanized steel pipe dangerously above the ambient air temperature surrounding the pipe, how will the applicant mitigate the risk of scalding injury to eyes, etc. of anyone finding it necessary to utilize the eyewash during times of high heat? What are the ambient temperature thresholds where use of these eyewash stations is deemed safe or unsafe? What advice does the manufacturer provide on this concern? Q-3: To which water source will these safety devices be plumbed? Demineralized, potable, domestic, or raw water?	
	Ran out of time for remaining review and questions of the rest of the AFC documentation.	

APPENDIX L – Hazardous Materials Handling

§/Pg	Comments/Questions	Answer/Response
1.1 L-1	Environmental Setting – the first bullet of this subsection directs "Major medical cases will be flown to Loma Linda University Medical Center Hospital in Loma Linda, CA.	A-1:

§/Pg	Comments/Questions	Answer/Response
	Q-1: In a typical best case scenario, how much time will elapse from initial injury to arrival of local emergency medical professionals on site who will evaluate the situation and ultimately determine and summons a flight for life helicopter? Q-2: In a typical best case scenario, how much time will elapse from initial injury to arrival of the victim into the waiting hands of emergency medical professionals at Loma Linda? Q-3: How will the cost of flight for life be covered? Will it be externalized to the tax payer too?	A-2: A-3:
2.0 L-2	Construction Phase – Q-1: "Only" hazardous materials? Really? How about propane or LPG, acetone, light fluid, acid, chlorine, herbicides, insecticides, polymer soil boding chemicals, or Windex? Q-2: Define "small volumes" Q-3: What action will the applicant take upon realizing 'materials are dripping from vehicles or equipment?' Q-4: What is the applicant endeavoring to infer where it states "These materials have low acute toxicity?" The language mentions an Emergency Response Program, an Environmental Safety Plan, and a Hazardous Materials Management Plan. Q-5: How are these plans or programs interrelated? Which takes precedent?	A-1: A-2:
3.0 L-3	The language mentions 'a designated chemical storage room.' Q-1: What safety features will this chemical storage room incorporate? Q-2: What safeguards and training will	A-1:

§/Pg	Comments/Questions	Answer/Response
	workers receive concerning this room? Who will provide this training? Q-3: What size will this room be and what will it contain? Will items other than chemicals be stored in this room, such as office supplies or products for the bathrooms?	A-2: A-3:
3.1.2 L-6	'Waste oils will be recovered and reclaimed by a contractor.' Q-1: Who will recover the product – the contractor or the SES/Tessera employee? Q-2: Will recovered products be stored temporarily on site? If so, how will this be controlled?	A-1: A-2:
Table L-3 on pg L-8	Construction waste and vehicles list an estimated amount of 200 gallons and 226 gallons respectively. Q-1: In what time period? Per week, month, quarter? Storm water from construction – non-hazardous will be managed by a method of 'Water will percolate into on-site soils' Q-2: How will contamination from on-site surfaces be withheld from the percolating water?	A-1: A-2:
Table L-5 on pg L-11	The table lists four businesses. Q-1: Have these business already committed or contracted with the applicants to provide the services the applicant expects them to provide?	A-1:

Topic: Abandonment/Closure/Decommission

Document & Page	Text	Remarks
First page of each of the following files: MASTER_Section_ 5.3, 5.4, 5.5, 5.6, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16, and 5.17, as well as on page 5.11-10, etc.	"The Project includes the construction, operation, maintenance, and abandonment of up to 850 megawatts (MW) of capacity by solar power generating facility and its ancillary systems in two phases …"	This opening statement appears over a dozen times throughout the SES AFC. How does SES define "abandonment" as used throughout its documents? Does 'abandonment' mean walk away and leave the mess for the taxpayer or someone else to cleanup? Is SES talking about the abandonment of 'capacity' or the actual infrastructure of the 'facility and ancillary systems?' Is it the intent of SES to build and profit from this Solar One project and then abandon it in place? If not, what insurance or funding mechanism and guarantee is in place to resolve this concern?
MASTER_Section_5.2 page 5.2-1	"The Project includes the construction, operation, maintenance, and decommissioning of up to 850 megawatts (MW) of capacity by solar power generating facility and its ancillary systems in two phases …"	This opening statement appears rarely throughout the SES AFC. How does SES define "decommissioning" as used throughout its documents? Here again, what subject is SES talking about? Is 'abandonment' and 'decommissioning' interchangeable. If not, why use one word here and the other in most other places? Does decommissioning mean deconstruct, dismantle, removal, and repair environment to preconstruction conditions? If so, and if these words are used interchangeably, does 'abandonment' mean the same thing as decommission? Or vice versa?
MASTER_Section_5.5 Pate 5.5-2	"This section summarizes the potential environmental effects on water resources that could result from construction, operation, maintenance, and abandonment of the Project."	I've yet to read anything in 5.5 summarizing the potential environmental effects on water resources that could result from 'abandonment' of the Project.
MASTER_Section_5.13 page 5.13-2	"This section discusses the potential for the construction, operation, maintenance, and decommissioning of the) Project and its ancillary systems to cause significant effects to aesthetic values within the Project vicinity."	I've yet to read anything in 5.13 discussing the potential effects to aesthetic values that could result from 'decommissioning' of the Project.
SiteVisitInfo_	"BLM must comply with the	In that there is no closure plan, it seems BLM has failed to comply with this

Document & Page	Text	Remarks
ScopingHearingNotice Subsection Attachment A on page 5	requirement of NEPA to ensure that environmental impacts associated with construction, operation, and decommissioning will be identified, analyzed and considered in the application process."	requirement.
MASTER_Section_2.0 page 2-5	"In processing the application, the BLM will comply with the requirements of NEPA, which requires that federal agencies reviewing projects under their jurisdiction consider the environmental impacts associated with their construction, operation, maintenance, and decommissioning."	Here again, considering there is no closure plan, it seems BLM has failed to comply with this requirement. But SES has made clear the responsibility is not theirs, it's BLM's.
MASTER_Section_3.0 Subsection 3.4.4.2 on page 3-13	"The solar dish will typically be mounted on a foundation consisting of a metal fin-pipe that is hydraulically driven into the ground. This foundation is preferred because no concrete is required, no spoils are generated, and the foundations can be completely removed when the Project is decommissioned."	They "can be" but lacking a written commitment to do so, there exists no requirement to actually remove anything.
MASTER_Section_3.0 page 3-21	"Assembly buildings will be decommissioned after the Project's SunCatchers are assembled and installed."	Define decommissioned. Does SES mean dismantled or deconstructed and removed from the site?
MASTER_Section_3.0 page 3-62	"Post construction the assembly building and their associated laydown areas will be decommissioned and dishes installed on this acreage."	Here the inference is 'decommissioned' should be defined as deconstruct and remove. (But what are 'laydown' areas?)
MASTER_Section_3.0 page 3-81	"The removal of the Project from service, or decommissioning, may range from "mothballing" to the removal of equipment and appurtenant facilities,	However, here 'decommissioned' is described to encompass a variety of meanings. The term 'mothballing' seems indicative of abandonment more so than removal.

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	depending on conditions at the time."	
MASTER_Section_3.0 page 3-81	"Because the conditions that would affect the decommission-ing decision are largely unknown at this time, these conditions would be presented to the CEC, the BLM, and other applicable agencies. To ensure that public health, safety, and the environment are protected during decommissioning, a decommissioning plan will be submitted to the CEC for approval before decommissioning."	'would be?' sounds a lot like maybe or maybe not. If it is presented, *when* will it be presented? What will it contain?
2009-04-06_AFC_SUPLLEMENT_TN-50880 Data Adequacy Request 47. On page WASTE-1	"A more detailed closure plan will be finalized prior to construction related activities associated with the Solar One Project."	Does this mean SES intends to offer a detailed closure plan before construction starts but after authorization for construction is approved? This is not acceptable. The public needs to know what the details of the closure plan is, including funding and full reclamation before support can be entertained.
MASTER_Section_3.0 page 3-81	"The plan will discuss the following: … decommissioning alternatives other than complete restoration to the original condition "	No closure plan exists, but SES is notifying everyone who reads their AFC of their intent to entertain and consider alternatives to restoration, perhaps to include abandonment.
MASTER_Section_3.0 page 3-81	"The plan will discuss the following: … associated costs of the proposed decommissioning and the source of funds to pay for the decommissioning."	This should be resolved before this AFC can be approved. Funding will probably come from the rate payer, and the rate payer should be made aware and have a say before approval is considered. The SES should be held responsible for all costs via bonding.
MASTER_Section_2.0 page 2-4	"The Applicant's request for right-of-way will also include the right to maintain access to the Project for the duration of the 20-year PPA."	Upon completion of the Power Purchase Agreement with SCE, does not SES anticipate a need for continued access for any purpose, like to implement a closing plan for instance?
MASTER_Section_2.0 page 2-1	"The Project is a solar power electric generation project that has been developed and designed to conform to the	Clearly, SES perceives this Project has an anticipated lifecycle of 20 to 40 years or more. If this proves accurate, most of us will likely be dead and gone before this project

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	requirements of the 20-year Power Purchase Agreement (PPA) between SCE and SES Solar Three, LLC and SES Solar Six, LLC (Applicant1)."	suffers the same fate. Why should SES care what we think or what we worry about? In order to reduce the risk of abandonment for those who follow us, the Project must have a written closure/decommission plan requirement clearly detailing all aspects of returning the environment to its current condition *prior to* any approval of the SES AFC by the CEC and BLM, with consideration of approval contingent upon full disclosure and consideration of said plan. It is not 'impossible to foresee' what the likely situation will be in the future, and thus it is possible to draft a plan which includes certain guarantees for the return of the environment to its preconstruction conditions. Notice the primary factor considered in anticipation of 'forcing early decommissioning' is economics rather than continued compliance with laws (i.e. 33% by 2020) or climate change. It's all about externalizing costs to maximize profits.
MASTER_Section_2.0 page 2-2	"The Applicant has signed an initial 20-year contract with SCE under which SCE will buy all the energy produced from the first 500MW phase of the Project and has an option to purchase all the energy from the 350MW expansion phase as well."	
2009-04-06_AFC_SUPPLEMENT_TN-50880 Data Adequacy Request 47. On page WASTE-1	"Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation."	
MASTER_Section_3.0 subsection 3.11.1 on page 3-77	"The Project has a designed operating life of 40 years and is capable approximately 3,500 hours of annual electricity production, with a projected annual availability of approximately 99 percent while on-sun."	
MASTER_Section_3.0 subsection 3.12.3 on page 3-80	"The planned life of Solar One is 40 years; however, if the Project is still economically viable, it could be operated longer. It is also possible that the Project could become economically noncompetitive before 40 years have passed, forcing early decommissioning."	
2009-04-06_AFC_SUPPLEMENT_TN-50880 Data Adequacy Request 47. On page WASTE-2	"To ensure adequate review of a planned project closure, SES would submit a proposed facility closure plan to the Energy Commission for review	SES 'would' (a.k.a. 'may' or 'might' or for that matter 'might not') suggest a closure plan (not necessarily in writing, maybe orally over the phone or something) for the consideration of the CPM of the CEC (who may or may not be on the payroll of various

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	and approval at least 12 months (or other period of time agreed to by CEC's compliance program manager CPM) prior to commencement of closure activities"	energy companies by then) about a year before SES starts shutting down the plant. If the CPM doesn't approve the plan, then what? Will SES shut down anyway and simply abandon the project because the CEC was unreasonable in denying their closure plan? Assuming the project remains open for its planned life of 40 years, by this language SES is not expected to submit a closure plan until 39 years after they open. That's unacceptable because neither the CEC or the BLM (nor any other interested party to include the public), can make an informed decision to support this project lacking this written plan.
2009-04-06_AFC_SUPLLEMENT_TN-50880 Data Adequacy Request 47. On page WASTE-2	"1. Identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site; … 3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and …"	Obviously SES can envision circumstances which would result in the necessity to abandon infrastructure on site for some (apparently) indescribable reason but SES also argues it is 'impossible to foresee' what the future holds. Apparently SES can foresee a need to abandon but not the justification.
MASTER_Section_3.0 page 3-81	"In general, the decommissioning pan for the Project will attempt to maximize the recycling of Project components. Solar One will attempt to sell unused chemicals back to the suppliers or other purchasers or users."	This is not specific enough to substitute for a formal written abatement action plan upon anticipated cessation of operations. Their 'attempt' to do something is nice but what if their attempt fails? Unless SES states what it will do with 'unused chemicals' (for instance), it remains possible it will do what so many before it have done, and illegally dump or abandon hazardous waste. If this were not a concern, there would be no need for the existence of a Superfund or its designation.
MASTER_Appendix_T Focus map 1 orphan summary	"1003879078 ABANDONED REFINERY SITE"	This is one of over a dozen links to Environmental Data Resources Inc Site Reports. This one is specific to the abandoned refinery site located on Old Route 66 in Newberry Springs and serves as an example of what the taxpaying public can expect if there is no funding and planning for the removal and cleanup of a previously

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		economically viable business operation. Here, *primary responsibility* of the site has fallen upon the State and thereby the taxpaying public.
MASTER_Section_5.9 page 5.9-3	"A heliostat tower was installed in 1982 and was decommissioned in 1999."	Here SES is referring to the original Solar One plant located in Daggett, CA. It was 'mothballed' until UC Davis found another use for it. I've tons of photos of this facility as well as the SEGS I and II and other power plant mentioned in this paragraph. The question is, once UC Davis is done with it, then who will pay for its eventual removal? Certainly not SCE. They absolve themselves of responsibility by their method of procuring (not creating) electricity. SCE is just the middle man. SES is the contracted provider. What if SES subcontracts? Then who's responsible?
MASTER_Section_5.13 page 5.13-3	"The power tower is a Heliostat design that was decommissioned in 1999 and is now used as a research facility, operated by University of California at Davis."	
MASTER_Section_5.18 on page 5.18-5	"Solar Two Tower was decommissioned in 1999, and was converted by the University of California, Davis, into an Air Cherenkov telescope in 2001, measuring gamma rays hitting the atmosphere."	
MASTER_Section_5.14 Subsection 5.14.2.3 on page 5.14-13 and 5.14-14	Abandonment/Closure	These two subsections, each consisting of two paragraphs totaling five sentences, merely allude to a 'Project closure plan' or 'the plan' without specific details of what such plan contains. It's sort of like if you wanted to know a phone number and SES says we plan to draft up a yellow pages phone book that may or may not contain the phone number you're looking for. Get back with us in 39 years.
MASTER_Section_5.15 Subsection 5.15.2.4 on page 5.15-14	Abandonment/Closure	

Submitted by Joe Orawczyk, a resident of Yermo, CA

From: Mr Joe Orawczyk <yermojoe@yahoo.com>
To: Christopher Meyer <Cmeyer@energy.state.ca.us>
Date: 7/7/2009 1:56 PM
Subject: Re: SES Solar One comments to Docket

Here's another question I'd like to submit within the scoping period:
According to Wikipedia, The Walt Disney Concert Hall at 111 South Grand Avenue in Los Angeles, after the construction, modifications were made to the Founders Room exterior; while most of the building's exterior was designed with stainless steel given a matte finish, the Founders Room and Children's Amphitheater were designed with highly polished mirror-like panels. The reflective qualities of the surface were amplified by the concave sections of the Founders Room walls. Some residents of the neighboring condominiums suffered glare caused by sunlight that was reflected off these surfaces and concentrated in a manner similar to a parabolic mirror. The resulting heat made some rooms of nearby condominiums unbearably warm, caused the air-conditioning costs of these residents to skyrocket and created hot spots on adjacent sidewalks of as much as 60 ºC (140 ºF).
Does the applicant anticipate any similar problems may be suffered by the public traveler on I-40 (or otherwise)?
If similar problems do occur, how will this be mitigated or resolved and who will pay for it?
Thanks, Joe ;)