Solar Power Distillation Pipeline

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Abstract: A system, using only renewable energy, is described. A pipeline filters and heats the seawater, using solar energy. The water travels along the pipeline and condenses to deliver fresh water.

There are reports; that in the near future fresh water will become depleted and cost per gallon will become prohibitively expensive for everyday people. There are always reports of doom, but fresh water should be readily available for everyone and at all the times. There is a need for renewable, sustainable fresh water.

Currently, the sources of water are: The sun produces vast quantities of hydrogen nuclei, some of which, mixes with oxygen in the upper atmosphere and rains water on earth. There have been reports of comets and asteroids depositing water on earth. There is the hydrological cycle of rain, rivers, oceans/lakes, clouds, rain. This hydrological cycle is not a source of water. The proportions change, but the total global amounts remain about the same.

On the surface, water is available in aquifers, fresh water lakes, river run off, polar ice and the vast oceans of seawater. Unfortunately, seawater is contaminated with biological organisms, detritus, large percentages of chemical compounds and chemical elements. Seawater could be process to provide a almost limitless quantities of fresh water.

Such an effort, distilling vast amounts of seawater, would require great expenditure of resources and energy. There is a method of achieving this, albeit with a rather steep learning curve. The following is a solar-powered water distillation pipeline proposal. This pipeline would intake seawater at a shoreline and deliver fresh water at the terminus. With a combination of solar and wind power, a method might be available to pump, process seawater and produce potable water. Except for abnormally poor weather conditions, this system would function with no additional energy inputs.

The details are as follows: The seawater portion of the pipeline and solar collectors would be above ground. This is because solar energy would be used to heat the water. Solar energy collectors would be at the top of the exposed pipeline. Mirrors would stretch along the pipeline to direct additional solar energy to the collectors. The heat would be carried to the seawater troughs, suspended within the pipeline. The troughs would be broad and open to the interior atmosphere of the pipeline. Initially, the seawater portion would be a high capacity, broad and large pipeline, but tapering to a shallower and smaller pipeline as the proportion of seawater to potable water changes.

A large portion of the pipeline is buried, so that heat from the distillation effort can be diffused to the cooler subterranean sections. The potable water stream bed would initially be smaller, narrow and would increase in size as the proportion of potable to sea water increases. The potable water component would be at the bottom of the pipeline. This would be deep underground to increase the

temperature difference between the heated upper chambers and the lower cooler chambers.

At the top of the pipeline, a trough is suspended that carries the seawater. The seawater is heated by the solar collectors and this energy (heat) is conveyed through support beams. The support beams are insulated and thermally connected to the solar heat collectors which are above ground. The heat is collected, transferred to the troughs and to the water. The water is heated and the water vapor is released throughout the interior of the pipeline. The cooler subterranean interior condenses the water from the moist air and the fresh water is collected in the troughs at the bottom of the pipeline. As the fresh water increases to the capacity of the troughs, it would be diverted to an above-ground potable water pipeline.

Simple wind powered water pumps could be used to drive the water through the pipelines and overcome differences in elevation. Well-insulated storage tanks, staggered along the system could be used to initiate the next day start-up. Also, if the pipeline can be kept airtight, the next day startup could be assisted with a siphoning action at high points along the route. Water in a pipeline carries a great amount of momentum. Photovoltaics and wind power could be used to power computers, computer-controlled equipment, motors and pumps. The solar cells could also back up the wind-powered pumps.

Any pipeline with the associated right-of-ways will be costly but the price for fresh water at the service end should justify the system. In order to maintain orientation to the maximum solar input an east/west route would be utilized. Fortunately, workable interstate highways are bought and paid for. These might be utilized.

The system is not labor intensive. Normal day to day operations would include administration, maintenance and security. The system would have about the same maintenance costs as any fresh water pipeline except for periodically removing the seawater solids from the surfaces of the seawater troughs.

Filters at the front-end would remove most of the solids and an effort could be made to remove the sodium chloride (table salt,) which would leave little to impair the efficiency of the system. The salt could be packaged and sold. In addition, both the sodium and the chloride are important commodities in the chemical processing industries. Other valuable elements from the seawater might be obtainable.

Please note: While the cost of water is a few U.S. pennies per gallon and the costs for a project similar to this proposal, is difficult to justify. Some effort similar to this one, is needed. Some alternatives are: If weather control is possible and if rain water could be diverted, it would be taking water from some other region (nation) and wars have been started for less. There are very great efforts to increase the efficiencies of producing hydrogen by electrolysis. Imagine, producing hydrogen, allowing the gas to rise to an elevation (lifting a belt driven electrical generator,) burning the hydrogen/oxygen, at elevation, to form steam/water (drive a steam powered generator,) allowing the water to fall and drive an electrical generator. One energy input, three energy sources; would be an impossible perpetual motion machine. An extremely efficient electrolysis of hydrogen, is likely not possible.

To bring this project to fruition does not require a great deal of expertise, it only requires dedication and an entrepreneur drive. Select a location near a seawater source and a residence. Write up a complete treatise,. Copyright it. Draw up a business plan. Talk to local county and state administration officials will they allow it? The project brings construction jobs, some long term

employment, a tax source on the right-of-way, a source of water (perhaps cheaper) and recognition. Will they provide support, tax breaks and even subsidies?

Find people that have a good on-line presence. Ask them, with care to join the effort and then offer partnerships. Go to crowd-funding sites and offer (upon completion,) the first gallon of water, water to local supporters, company stock, signs, t-shirts or whatever. Hire the needed expertise and produce a detailed engineering plan with the revenue requirements and the expected profit stream. Complete necessary paper and tax forms. Create capital (offer an "Initial Public Offering," negotiate with another company or merge with another company) and build the solar power distillation pipeline.