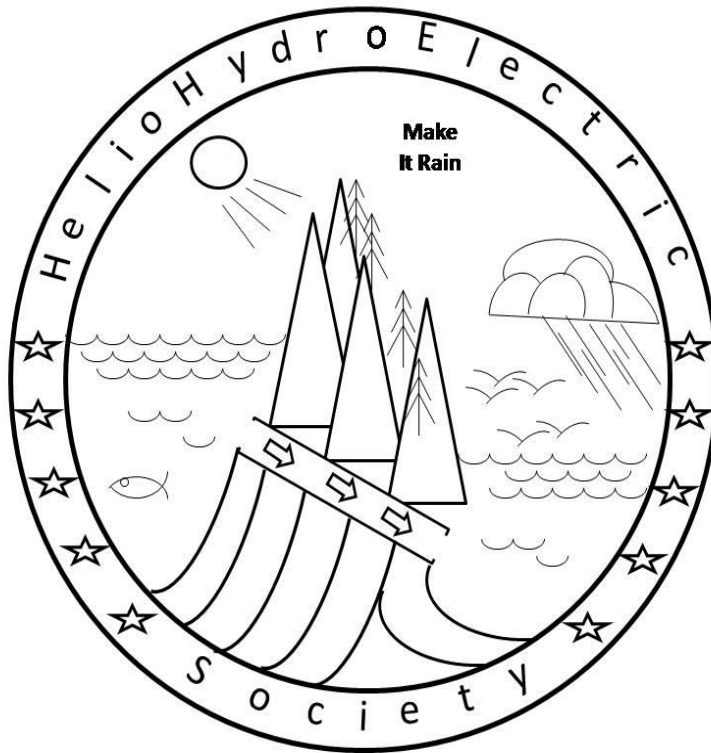


HelioHydroElectric Potential Prefeasibility Study EXECUTIVE SUMMARY

Prepared by Martin Nix B.U.S, A.A.S. Seattle, WA, August, 2015



ABSTRACT: HelioHydroElectric is a little known solar engineering technology, using salt/sea water and solar power to create evaporation ponds for artificial rain in deserts. Worldwide there are large HelioHydroElectric resources. Located worldwide are dry endorheic salt lakes. These can be flooded with salt/sea water to create clouds from evaporation. The additional rainfall would increase vegetation, thus removing carbon dioxide from the atmosphere. HelioHydroElectric technology is the only technology that can actually remove carbon dioxide from the atmosphere. The additional rainfall in deserts will increase agriculture and provide new living space. Not only can salt/sea water be used, but also underground alkali aquifer water can be used to flood these dry salt lakes. It is proposed that wind and solar power be used, along with energy conservation, for water pumping. Development of HelioHydroElectric has the potential of solving the drought problem and reversing Global Warming worldwide. It is concluded that if fully developed worldwide, 281.1 cubic miles of rain water would be created each year, removing a total of 40,025,460,310 tons of CO₂ per year. This is nearly equivalent to the amount of CO₂ mankind generates each year. Plus, nearly 181,526,693 barrels of biofuel/biodiesel oil from algae grown in these lakes would be created. It is estimated that worldwide, 379,135 square miles of dry salt lakes could be flooded with salt/alkaline water. It is estimated that 363,482 Megawatts would be needed to pump this large volume of salt/alkaline water into deserts regions. This is well within the existing generation capacity of mankind. It is estimated there is approximately -5,368 Megawatts that can be generated from sites below sea level (such as the Dead Sea) worldwide. HelioHydroElectric would create an additional 1,494,763 square miles of grasslands in deserts. HelioHydroElectric can restore water in the Colorado River, thus solving the drought in California. The author utilized estimating techniques, in part due to the difficulty of obtaining current geologic data, much of it none existent. The author argues that much of the conflict in the Middle East is caused by the drought. HelioHydroElectric can be a military solution to the Islamic State. HelioHydroElectric will solve Global Warming. It is hoped this paper will spur conversations and funding for a full feasibility study.

WORLDWIDE POTENTIAL			
Location	Potential Evaporation of Rain Water**		
	Cubic Feet/Day	Cubic Feet/Second	Cubic Miles/Year
Iran & Region	55,754,406,720	644,470	138.0
Pakistan & Region	3,170,901,280	36,660	7.8
India	2,787,840,000	32,266	6.9
Southwest USA	1,070,086,924	12,542	2.6
Middle East	7,193,343,091	87,785	17.8
Africa	11,413,225,680	132,073	28.2
South America	4,709,987,158	54,618	11.6
Australia	5,758,343,068	65,379	14.2
China/Mongolia	22,585,391,880	259,904	56.0
Worldwide Total:	114,443,555,800	1,325,697	283.1

****Assumes 1% evaporation rate per day per surface area.**

WORLDWIDE POTENTIAL			
Location	Energy Requirements for Pumping*		
	Megawatts (Theory)	Megawatts (Practical)	Below Sea Level
Iran & Region	33,699MW	67,398MW	-3 ,596MW
Pakistan & Region	5,204	10,408	0
India	122	244	0
Southwest USA	4,807	9,614	-26
Middle East	10,277	20,554	-1025
Africa	32,803	65,606	-432
South America	29,941	59,882	0
Australia	4,140	8,280	-30
China/Mongolia	60,748	121,496	-259
Worldwide Total:	181,741MW	363,482MW	-5,368MW

****** Total square miles is an estimate. Geologic data was difficult to obtain, in some case did not exist. Author used a “best guess estimate” for square miles. Sometimes names did not exist, the author used local features for names.**

******* Number of sites is actually unknown. However, a “best guess estimate” was used, when geologic data was absent. Not all sites can be developed due to wildlife, etc. However, some sites are very feasible. Attempt was made to locate dry salt lakes, which are flat and dry. (endorheic lakes)**

**WORLDWIDE POTENTIAL
SURFACE AREA ESTIMATE**

Location	Total Square Miles****	Number of Sites*****
Iran & Region	199,840	11
Pakistan & Region	12,545	11
India	10,000	1
Southwest USA	8,330	161
Middle East	19,301	88
Africa	38,403	54
South America	12,845	7
Australia	20,257	28
China/Mongolia	57,614	29
Worldwide Total:	379,135	390

****** Total square miles is an estimate. Geologic data was difficult to obtain, in some case did not exist. Author used a “best guess estimate” for square miles. Sometimes names did not exist; the author used local features for names.**

******* Number of sites is actually unknown. However, a “best guess estimate” was used, when geologic data was absent. Not all sites can be developed due to wildlife, etc. However, some sites are very feasible. Attempt was made to locate dry salt lakes, which are flat and dry. (endorheic lakes)**

**WORLDWIDE POTENTIAL
ALGAE CARBON DIOXIDE REMOVAL POTENTIAL**

Location	Total Square Miles	(Tons/day)	(Tons/year)
Iran & Region	199,840	27,856,097	10,167,475,510
Pakistan & Region	12,545	1,748,672	638,265,513
India	10,000	1,393,920	508,780,800
Southwest USA	8,330	1,161,135	423,814,406
Middle East	19,301	2,690,404	981,997,822
Africa	38,403	5,353,070	1,953,870,550
South America	12,845	1,790,490	653,528,850
Australia	20,257	2,823,663	1,030,636,995
China/Mongolia	57,614	8,030,930	2,931,289,450
Worldwide Total:	379,135	52,848,381	19,289,659,900

-Assumes 100 square feet of Algae grown removes 1 pound of CO₂ from the atmosphere per day.

-Total Square Miles x 5280ft x 5280ft = Total Square Feet.

-Total Square Feet/ 100 square feet per pound CO₂ removed / 2000 lbs per ton=
Total Tons removed of CO₂ from atmosphere per day.

-Multiply by 365 to get amount removed per year.

WORLDWIDE POTENTIAL
RAIN CARBON DIOXIDE REMOVAL POTENTIAL

Location	Evaporation Rate/Year Cubic Miles	Square Miles Grasslands Created	Tons/Year CO2 Removed
Iran & Region	138.0	728,640	10,156,658,690
Pakistan & Region	7.8	41,184	574,072,012
India	6.9	36,432	507,832,934
Southwest USA	2.6	13,728	191,357,337
Middle East	17.8	93,984	1,310,061,773
Africa	28.2	148,891	2,075,421,427
South America	11.6	61,248	853,748,121
Australia	14.2	74,976	1,045,105,459
China/Mongolia	56.0	295,680	4,121,542,656
Worldwide Total:	283.1	1,494,763	20,735,800,410

- Assume 1 square foot of grassland removes 1 pound of CO2 per year.
- Assume one cubic mile of rain per year creates 5280 square miles of grass lands.
- Square miles grasslands created x 5280 ft x 5280 /2000 lbs per ton=Total/Year
. . . CO2 removed.
- Assume 12 inches of artificial rain created by HelioHydroElectric creates one pound of grass in grasslands per square foot.
- The MicroClimate effect adds additional rainfall, thus the amount of rainfall should be greater than 12 inches per year.

TOTAL CARBON DIOXIDE REMOVED PER YEAR BY HelioHydroElectric

19,289,659,900 + 20,735,800,410= 40,025,460,310 Tons/Year

Mankind generates 39,800,000,000 Tons/Year of Carbon Dioxide.

HelioHydroElectric if fully developed worldwide would remove all the CO2 created by Mankind.

Location	WORLDWIDE POTENTIAL	
	ALGAE BIOFUEL/BIODIESEL POTENTIAL	
	Tons/day	Barrels/Day
Iran & Region	27,856,097	98,315,636
Pakistan & Region	1,748,672	6,171,783
India	1,393,920	4,919,717
Southwest USA	1,161,135	4,098,123
Middle East	2,690,404	9,495,543
Africa	5,353,070	18,893,188
South America	1,790,490	6,319,376
Australia	2,823,663	9,965,869
China/Mongolia	8,030,930	23,344,458
Worldwide Total:	52,848,381	181,526,693

- Assume that one pound of CO2 makes 1/3 equal weight in Biofuel/Biodiesel.
- Assume 30% efficiency of process.
- Assume one barrel of oil weighs 170 pounds.
- Convert one ton to 2,000 pounds.
- Tons/day x 2,000 pounds per ton / 170 pounds per barrel of oil x 30% efficiency=Barrels/Day of Biofuel/Biodiesel fuel made.

HelioHydroElectric can potentially make 181,526,693 Barrels of oil per day.

Conclusion: Proposed is the pumping of salt/seawater inland to various endroheic dry lakes for flooding of existing dry salt lakes to create clouds, and thus artificial rain. This technology, known as HelioHydroElectric technology, will create more vegetation in the desert, region and in mountains, thus reversing Global Warming. It will stimulate the economy of the world, and help solve many conflicts worldwide caused by lack of water and drought. Solar pumping technology is now very well developed. This Prefeasibility study is mostly to study the potential for construction of such a project. It is hoped that funding for a complete Feasibility study can be located so as to determine the environmental impact, climate impact, and economic impact along with construction plans and cost. Israel, Jordan and Palestine are presently constructing the Red to Dead Sea project, so as to add additional moisture to the region. Egypt has under study the Qattara Depression project. This is being reviewed elsewhere. Iran and Pakistan are considering HelioHydroElectric projects. It is proposed that these sites be evaluated for future development.

***This is no visionary than what TVA and Hoover Dam were in 1915,
history repeats itself.***