HARVEST PETROLEUM, INC.

One Medium-Size Oil Platform vs. a Giant Wind Farm

Both installations would produce approximately 12 billion kilowatt hours of energy annually — enough electricity for 2 million European homes or one million U.S. homes annually.

One oil platform produces approximately 20,000 barrels of oil per day, and is the size of one football field.

A comparable windfarm with minimum battery backup would require 146 Giant GE Haliade-X 12-Megawatt Wind Turbines, covering **110 square miles of ocean**.

The all-in costs for both energy sources for installation, maintenance, and the daily cost of producing the energy over 10 years would be as follows:

- **Oil Platform: $3.5 Billion**
- **Wind Farm: $128 Billion**

The ratio in this example above is **36 to 1** in favor of an offshore oil platform vs. a giant offshore wind farm. Policy makers should make note. With tree plantings financed by the oil platform there would be zero CO2 emissions.

The $3.5 billion for the oil platform includes approximately $650 million for tree plantings which would sequester 100% of the CO2 released from the fossil fuel. Taxpayers would save almost $125 billion and have **ZERO CO2** emissions. They would also have reliable energy 24 hours per day. The environment would have 100 million trees that in the next 80 years would sequester an additional amount of CO2 that is released by 1.3 million cars every year until the year 3000. The trees would also give valuable habitat to 100's of species of animals and plant life. If only 10 per cent were fruit trees it would allow for one million people to avoid starvation every year for the next 50 years.

Industrial battery installation

The wind farm costs would include the battery expense to back up only 6 days per month when the wind is not blowing, blowing too slow, blowing too hard or when the turbines are turned off or down for maintenance. The GE wind turbines are rated

for typhoon/hurricane winds and wind gusts of up to 140 mph. But at 70-80 mph winds the rotors are shut down.

Battery backup is crucial for wind and solar energy as both are intermittent. No wind or no sun equals no energy. In this example battery backup is for just 6 days per month (20%) because of wind intermittency (global averages are 30-40% intermittency for wind farms). The batteries would cost $119 billion for enough capacity to store energy for just 6 days. The expense on battery storage costs for energy is enormous. Details on these calculations are in the *Notes* section at the end of this information sheet.

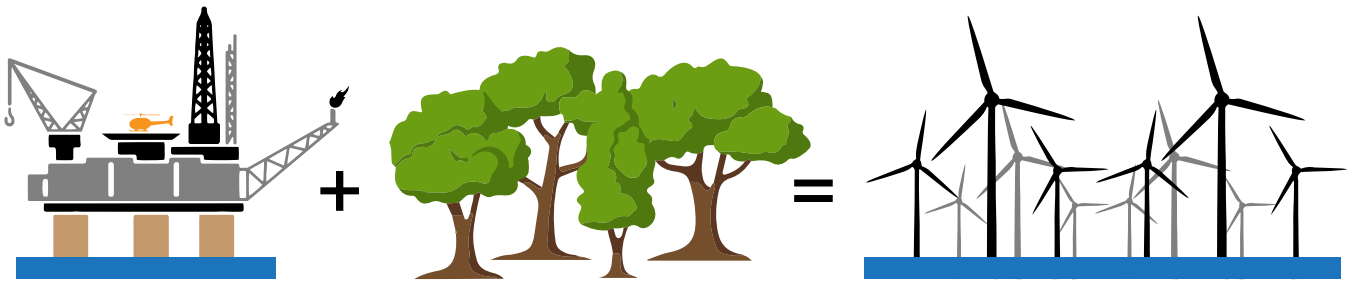
The CO2 released from the platform oil as produced gasoline and diesel would be 3.4 million tonnes of CO2 per year. The oil platform could finance the sequestering of 100% of this CO2 by planting 100 million trees at a cost of approximately $650 million over 20 years.

Policy makers will be squandering close to $125 billion on just one typical wind farm to allow for the equivalent reliability of energy from just one medium size oil platform. The electricity from the wind farm will cost rate payers 4-6 times or more their normal monthly cost of electricity from oil or gas for the next 20 Years.

An overwhelming amount of money can be saved by acknowledging the economics of oil and gas and planting trees versus offshore windfarms.

Net Zero policies should be focused on Tree Planting Policies.

Category	Oil Platform	Wind Farm
Annual Energy in kW hours	12.2 billion	12.2 billion
Cost of Installation	$500 million	$5 billion
All-in Cost to Produce each kW hour first 10 years	3 cents	$1.05
Tree Planting Expense	$650 million	none
Battery Backup 20% Coverage	none	$119 billion
All-in Cost to deliver electricity over 10 years	$3.5 billion	$128 billion
CO2 Released	Zero	Significant*
CO2 Sequestered for 80 years by trees	525 million tonnes	Zero
Ocean Surface Used	Size of a football field	110 square miles
* CO2 released from mining, processing, manufacturing and construction of 146 wind turbines		



1 oil platform + CO2 absorbing trees = 146 wind turbines

Subsidies to wind merchants should be stopped and tax credits and subsidies should be given to oil producers for tree plantings that can negate 100% of the CO2 released from oil and gas. This policy could save world governments $5 to 10 trillion a year and keep the world running on reliable fossil fuels while still sequestering CO2 emissions.

To build the windfarms will release approximately 50% of the CO2 released from the burning of fossil fuels for the equivalent energy production from the mining, processing, manufacturing, transporting, construction, and ocean placement of the wind turbines. The windfarms will be net zero after approximately 10 years but at a huge cost to society.

Benefits of One Oil Platform with Tree Planting vs. One Giant Wind Farm:

- Zero CO2 in the atmosphere
- In this one Example Governments and taxpayers Save potentially $125 billion
- The Environment is endowed with 100 million trees for the ecosystem, wildlife, and fruit for starving people.
- For the next 80 years, the trees planted will sequester 540 million tonnes of CO2, the equivalent of negating the CO2 from 1.5 million cars every year until the year 3000.

Below are all the calculations and references used in this analysis.

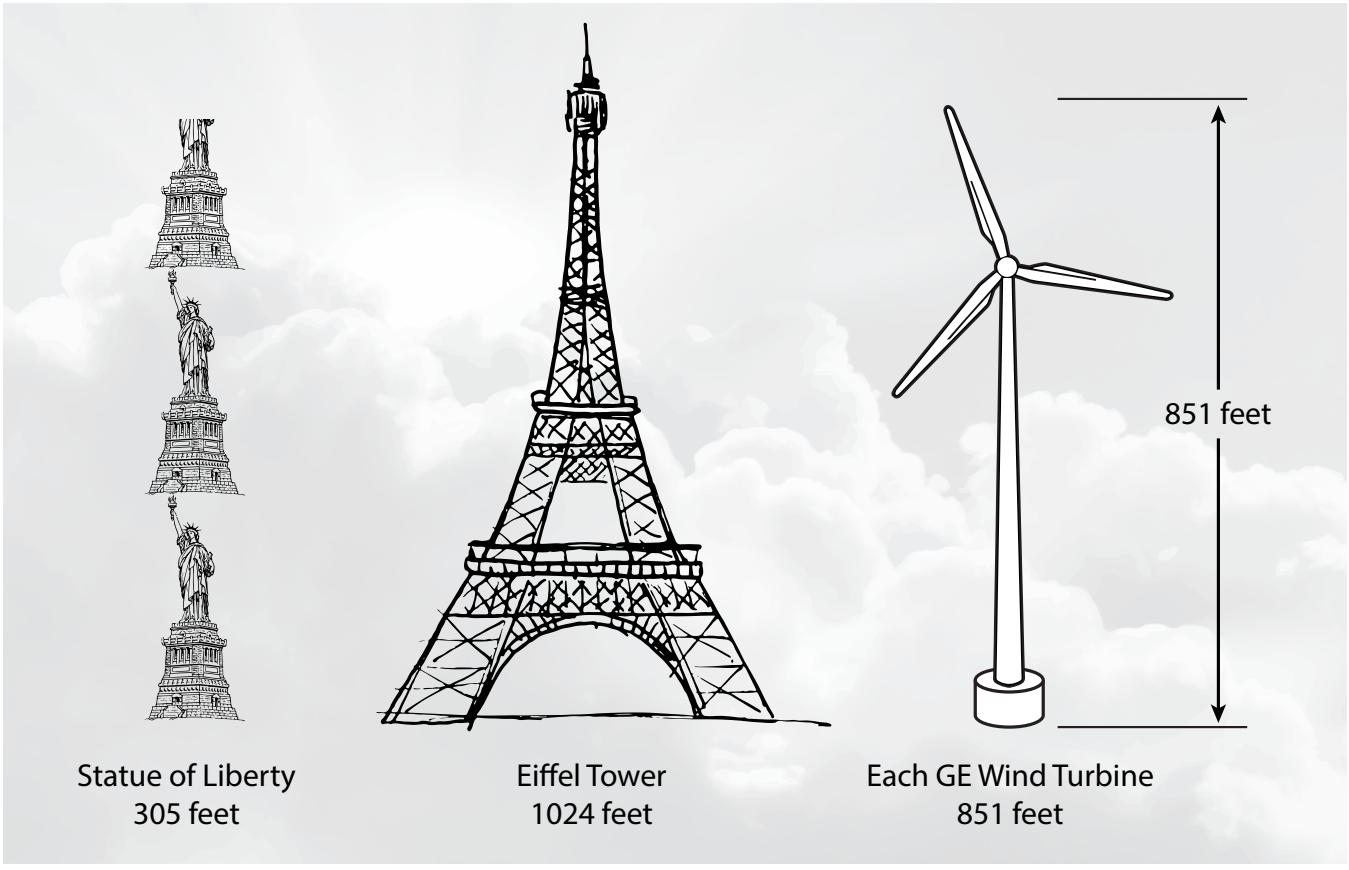
NOTES:

1. The energy from the GE wind turbines and oil barrels were calculated using a standard conversion of a barrel of oil that is rated at 5,722,000 BTU's. Converting BTUs to Kilowatt hours (kWh) is also a standard of one kWh derived from 3,412 BTU's. Thus, the oil platform producing 20,000 barrels of oil per day, produces the equivalent of 12.2 billion kWh per year.

2. A wind farm that would also produce the same amount of kWh of an oil platform producing 20,000 barrels of oil per day would equate to 146 Giant GE Haliade-X 12mW size wind turbines. This would be 146 wind turbines that would also produce 12.2 billion kWh of electricity per year, at a rating of 20% intermittency. If the wind blows at the right speed 80% of the time, then one would expect 12.2 billion kWh of electricity.

3. The GE Turbines are 851 feet tall, about 15% less than the Eiffel Tower, and 2.8 times as high as the Statue of Liberty.

4. Wind farms need to be constructed so the wind from one turbine is not diverting or choking off wind from a nearby wind turbine. This is called "wake loss". Therefore, wind turbines need to be spaced far enough apart to gather efficient wind per turbine. The spacings are usually 3-10 times the size of the diameter of the wind turbine blades circumference (wingspan). The Giant GE Wind Turbine blades are 220 meters in total wingspan. That's longer than two football fields. As such, a conservative estimate of the area needed for this offshore wind farm would be approximately 110 square miles. Using standard industry spacings would be 10x the wingspan down wind and 3x the spacing side by side or laterally.



5. The wind turbines all have to have transmission lines (called inter-array cables) to get the electricity to shore and hooked up to an electricity grid. This will also require hundreds of miles of transmission lines and other installations to transfer the power onshore. Normal industry estimates are for this to cost 25% of the cost of the wind turbines.

6. The all-in installation cost metrics for wind turbines are $2,858 per kilowatt installed. An offshore cost supported by past installations.

7. The cost of a typical oil platform that would be rated for 20,000 barrels of oil per day would be costed out at approximately $500 million for construction and commissioning.

8. Battery costs were calculated using latest industry costs of $567 per kilowatt hour for battery storage. This coincided with discounting Tesla industrial battery installation costs by 50%.

9. Installation costs for the wind turbines were calculated using two criteria: The New York Block Island capital costs of $2,625,000 per megawatt capacity and an industry average of $2,858 per kilowatt of capacity.

10. Tree CO2 sequestering used 75 lbs. of CO2 sequestered after 13 years of growth and before that a low beginning sliding scale of sequestering ability starting in year two. Since the number of trees over 20 years needed would be still growing during this time, a doubling of the tree quantity was used, arriving at 100 million trees. Many high sequestering trees can reach 150-200 CO2 pounds annually. A conservative estimate of 75 pounds per year per 20-year grown tree was used. Spacings were 350 trees per acre. Planting, maintenance and pruning were calculated at $340 per year per acre for the first two years and then $150 per acre for maintenance for the next 18 years, by NGOs (non-government organizations) contracted.

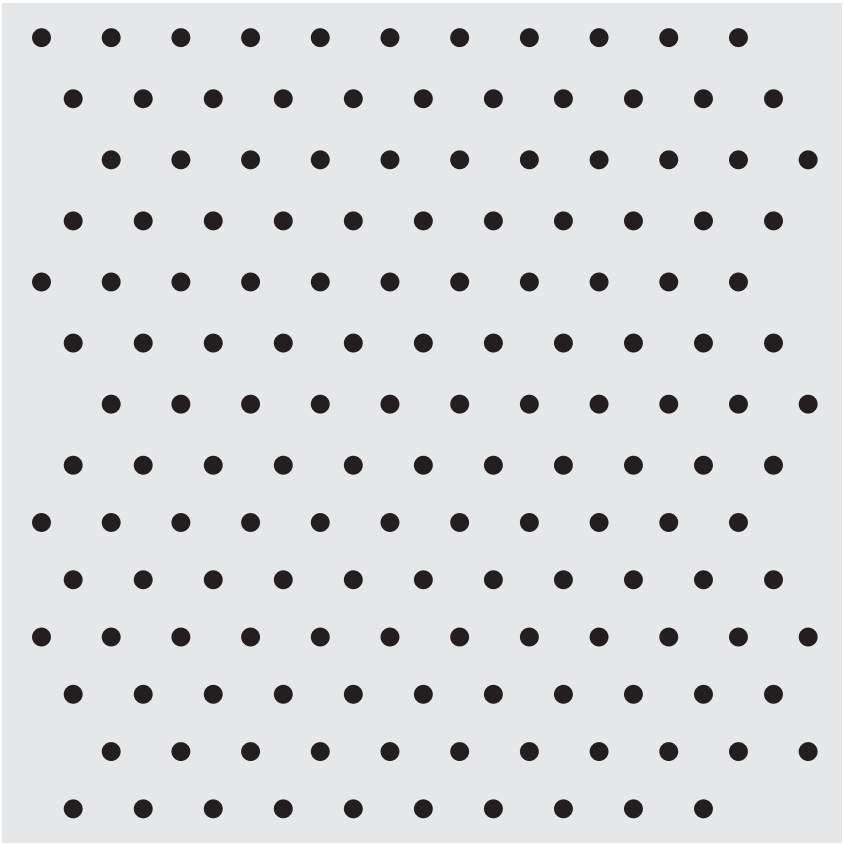
11. Maintenance costs for the turbines were calculated at 2 cents per kilowatt hour which could be at the low end for deep water offshore wind farm maintenance.

12. CO2 emission from a typical passenger vehicle were based on the U.S. EPA advice of 8.887 grams of CO2 per gallon of gasoline and 10.180 grams for diesel.

13. In 2019, India planted 220 million trees in one day.

— Kenneth J. Gerbino

146 Wind Turbines Covering **110 Square Miles of Ocean**:



Equals the energy production of a single Offshore Oil Platform, which is approximately the size of one footbal field