

UNDESERT - “Capturing Carbon by Foresting Deserts”



Nicholas Seet

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Problem: CO₂ → Heat → Dry



BBC Sign in Home News Sport Reel Worklife

NEWS

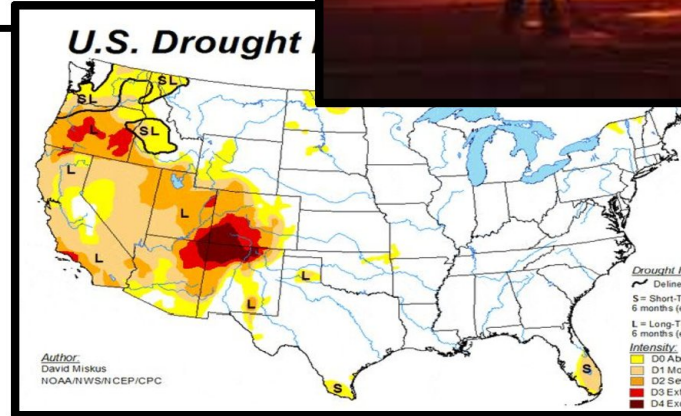
Home Coronavirus Video World US & Canada UK Business Tech Science Stories Entertainment

Science

Climate change: Trees 'most effective solution' for warming

By Matt McGrath
Environment correspondent

4 July 2019



CNBC

Landmark U.N. report delivers stark warning on climate change, says it's 'code red for humanity'

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Solution: Sun + Desert + Water = SmartFore.st



2% land for water



98% land for trees

The Sharjah site is actually a calcic horizon, one of the **worst barren desert soil types.**



The Sharjah site (4000m2) is now a small oasis with **plants, bushes, food, fresh water and homes.**



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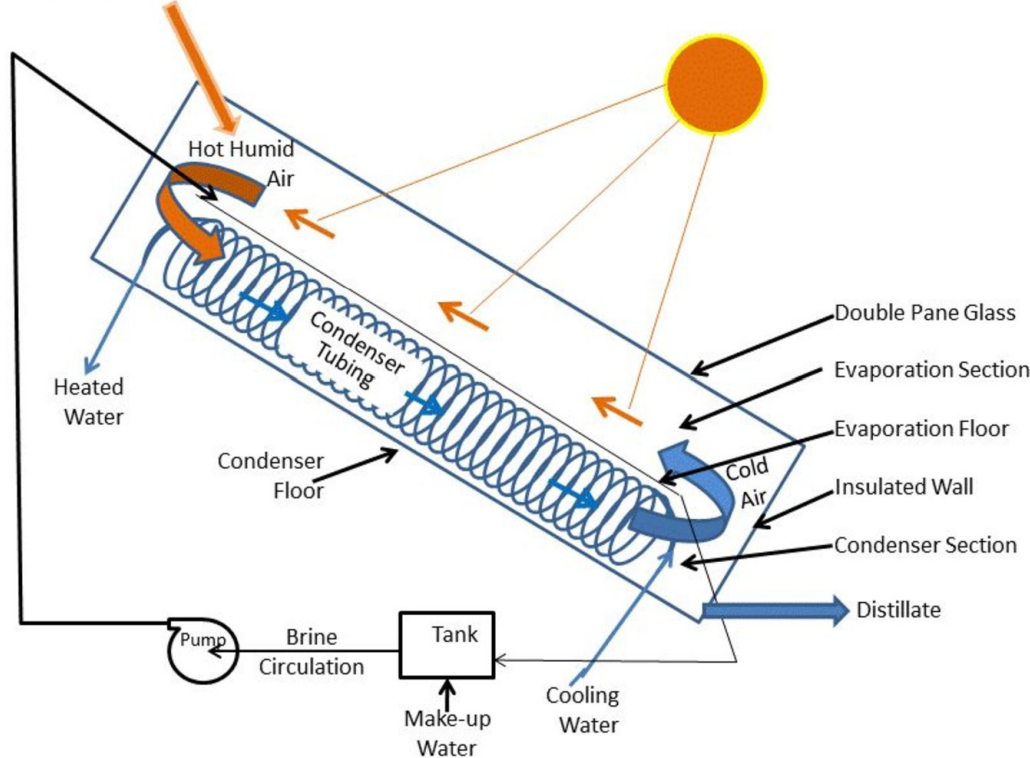
Technology: Solar Water Purification (SWAP)



Example Temperatures

Ambient: 35°C

Internal: 63°C

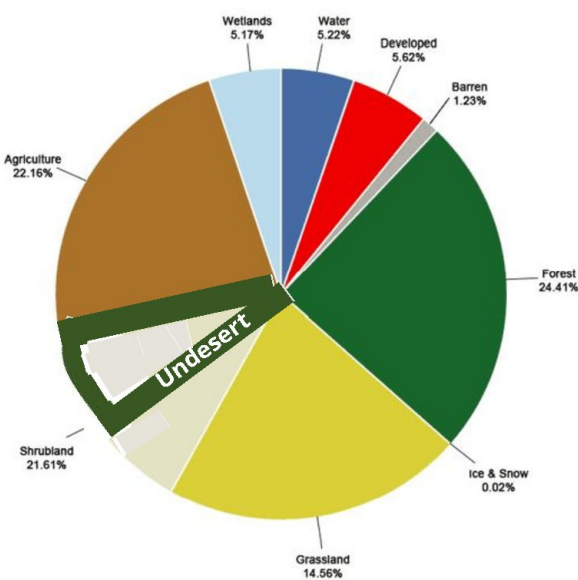


Key Features

- 4 patents issued, evaluated by LANL NMSBA
- Takes any source of wastewater/seawater to ultra-pure water
- Low cost, < \$200/unit from COTS parts
- Zero Liquid Discharge (ZLD)

Competition: Land Use & Water Tech

- Our system does not utilize agriculture/forest land
- We are located in otherwise unusable regions
- We are growing the pie for Wood Products
- We are adding new Carbon Capture resources



Competing Water Tech

Multi-Resolution Land Characteristics

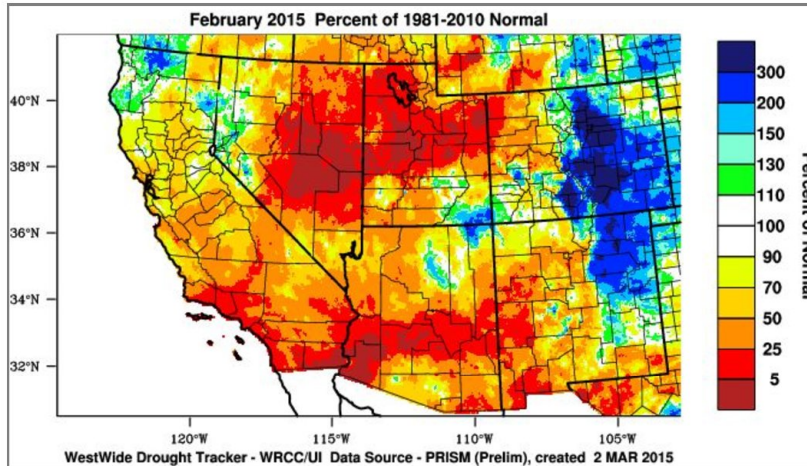
<div>*Worst</div> <div>**** Best</div>	Hardware cost	Soft Cost	Volume Efficiency	Electrical Demand	Chemical Cost	Environmental Waste	Overall
Undesert	****	****	***	****	****	****	****
Reverse Osmosis	*	*	****	*	*	*	**
Solar Still w/ Carbon Paper	***	**	*	**	***	***	**
Evaporation Pond	***	***	*	*	***	**	**

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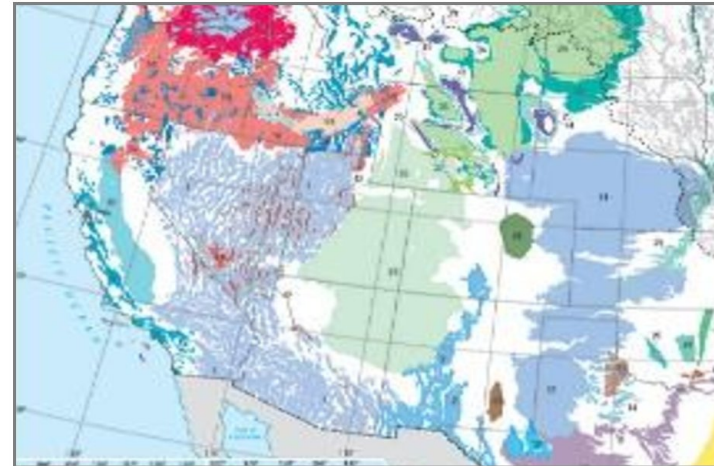
Underground Water is Plentiful



Precipitation
(red means driest)



Underground water
(blue means water)



Target geographies in the US:
Southern California, New Mexico, Arizona, West Texas

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Timeline: Ready for Deployment

**NANO
SMARTFORE.ST**

64 Trees

20T CO₂/Yr

NOW



**UNIT
SMARTFORE.ST**



1Q22

700 Trees

200T CO₂/Yr
1 Acre

**KILO
SMARTFORE.ST**

3,500 Trees

1,000T CO₂/Yr
5 Acres

3Q22



**MEGA
SMARTFORE.ST**



3Q23

448,000 Trees

128,000T CO₂/Yr
1 Square Mile

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The Math: It's Time to SWAP



	Allocated Life Cost per Tree	Allocated Life Cost per Acre
Tree, planting and irrigation system	\$5	\$3,500
SWAP units (each unit supports 130 trees)	\$4	\$2,800
Land acquisition (700 trees per acre)	\$1	\$700
Water well (drilling)	\$1	\$700
Labor (maintenance & management)	\$1	\$700
Remote monitoring & site security	\$1	\$700
TOTAL	\$13/tree	\$9,100/acre

- Life Carbon Credit: \$28,800/ac (@\$8/tn)
- Tree Value at Maturity: \$70,000/ac (@\$100/tree)

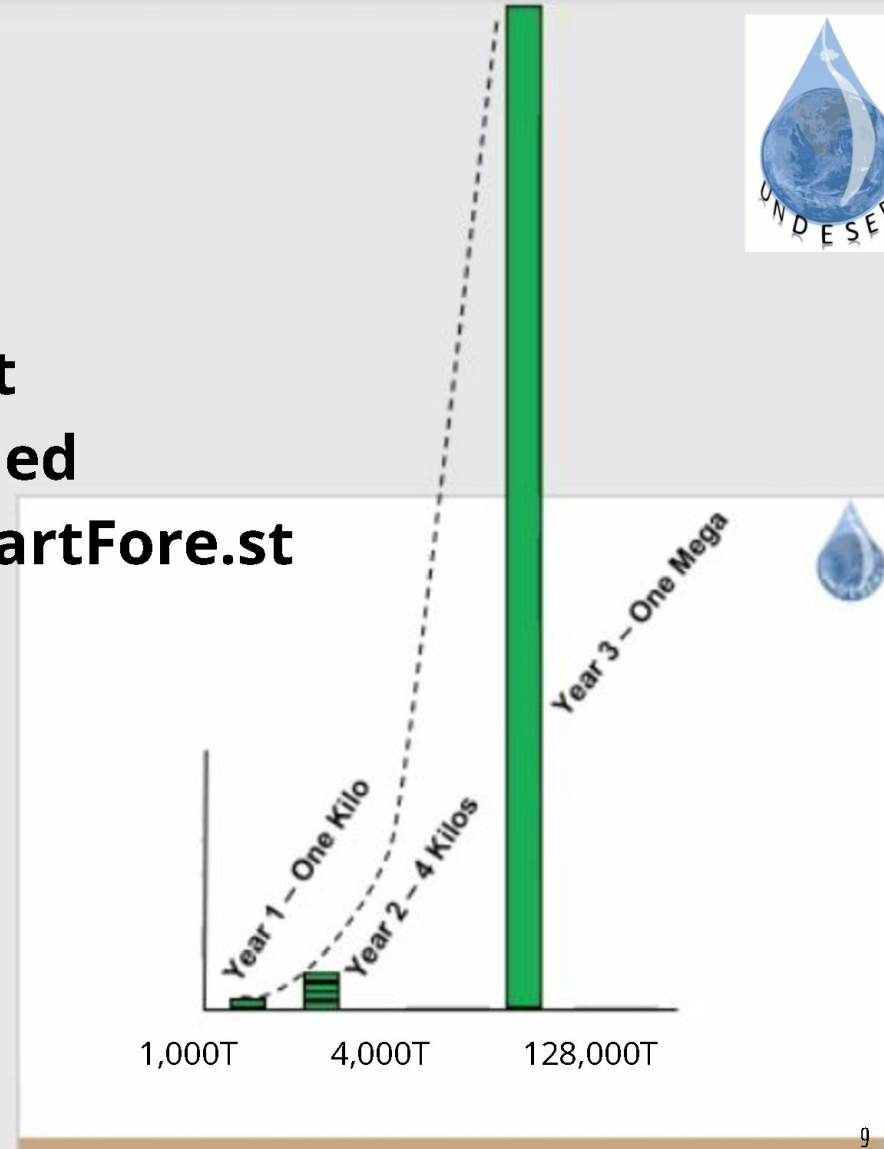
Scale Up Financing

Year 1: 5 acre Kilo SmartFore.st

Year 2: 4 Kilo SmartFore.st Added

Year 3: 1 square mile Mega SmartFore.st

**\$3.5MM Series A
sought in Year 3**





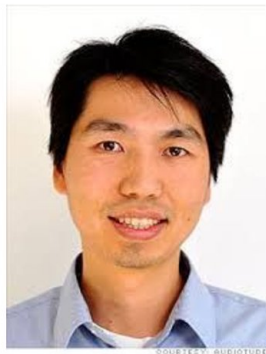
Team: Meet The Experienced Undesert Team

Nicholas Seet
CEO

Auditude Founder

Sold to Adobe \$120MM

HMC BS Eng/UCLA MBA



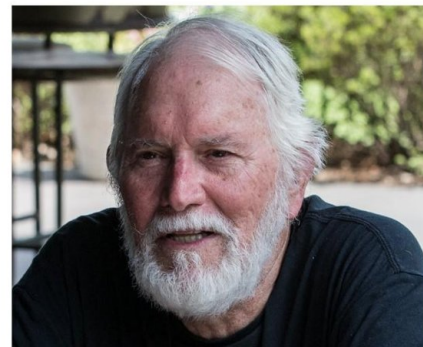
COURTESY: AUDITUDE

Hill Kemp
CTO

Chemical Engineer

Ex-State Representative

Inventor



ADVISORS:

Mick O'Neill - Professor Emeritus, NMSU

Sandra West - Climate Reality Northern NM

Thomas Lord - President, Dynamic Commodity Management, LLC

Andrea Course - Venture Principal, Shell

“Capturing Carbon by Foresting Deserts”



UNDRINKABLE water
UNUSABLE land
UNLIMITED sun

UNDESERT

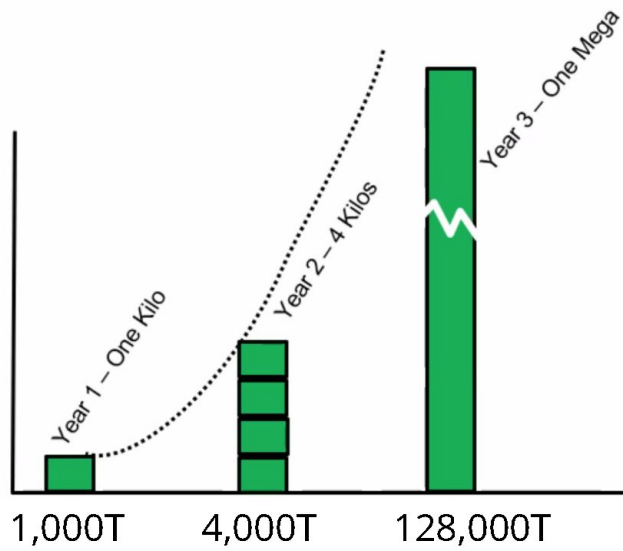
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Fundify Crowd Investing Covers Years 1 and 2

- Fundify Partnership Covers First 2yrs Ops
- Year 0: 25 Acres w/Water Well Purchased
- Year 1: Kilo SmartFore.st (5 acres) Sold
- Year 2: Selling four more (cash-flow pos)
- Year 3: Mega SmartFore.st (1 square mile)



MC MASSCHALLENGE

★ In-Kind Deals

FUNDIFY

UNDRINKABLE water
UNUSABLE land
UNLIMITED sun
UNDESERT

FPP Campaign

Just Launched

undesert

FROM DRY DESERT TO SMARTFORE.ST: by capturing carbo...

\$13.8 k funding interest

5 investors interested

Clean Technology Minority Founders

Eco

undesert.com

FROM DRY DESERT TO SMARTFORE.ST: by capturing carbon, curating forests, cleaning water, afforesting deserts, and using 100% renewable solar energy, Undesert's mission is to reverse the effects of Global Warming.

Agriculture

Solution: SWAP SmartFore.st

The SmartFore.st is actually a water tower, one of the smartest business decisions will happen.

The SmartFore.st (SFS) is now a small scale with plants, houses, food, fresh water and homes.

Investor Interest
Investors interested
Be the first
Funding Interest So Far
Click below

Offering Terms

Funding Goal
\$25,000 - \$250,000

Security Type
SAFE

Min Investment
\$25.00

Max Investment
\$100,000.00

Valuation Cap
\$10,000,000

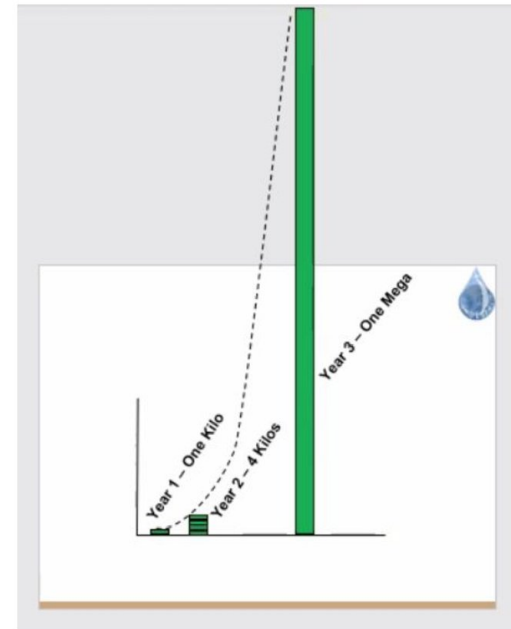
Discount
20%

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Ask & Business Model: Beginning Year 3



- Raising \$3.5MM to purchase/plant 1x Mega SmartFore.st (640 acres)
- Carbon Credits sold at market price (currently \$8/tonne, increasing annually)
- All-in cost \$5/tonne, so \$3/tonne profit, increasing
- Bonus wood harvest cash (\$64MM) at year 18, all profit
- Second and subsequent plantings at variable costs only
- Future plantings staggered bi-annually and physically
- Carbon sequestered for 100+ years



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HISTORY - Ready for Deployment



2016

Field testing in Sharjah, UAE



Ener.com conceived and
customer validation begins



Winter

2021

First field deployment in New
Mexico

2015

SWAP concept patents
issued



Spring
2019

Team met at Alamogordo
Water Research Facility



Spring
2020

LANL NMSBA evaluates
technology

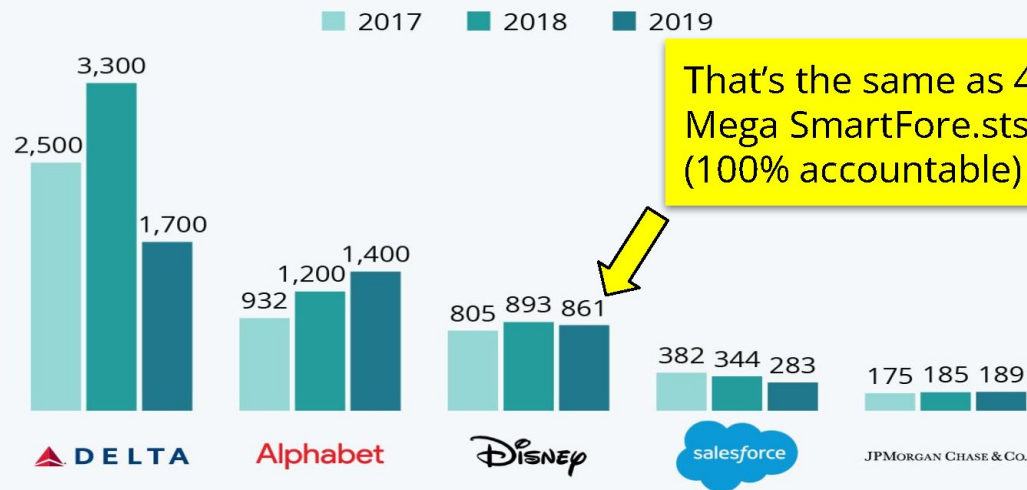


Who Cares? Carbon Offset Market is BIG



Trend in Carbon Offset Purchases

Carbon offsets purchased by select companies, 2017-2019
(in thousand metric tons of CO₂ equivalent)



\$200 Billion

Corporations Carbon Offset Spending by 2050

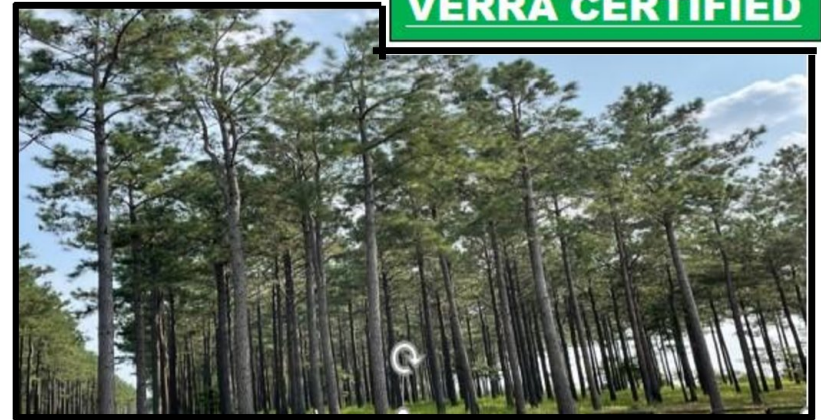


**60% of Fortune 500
companies are acting
on the climate crisis**

CO2 Triage: Collecting Carbon within 6 Months

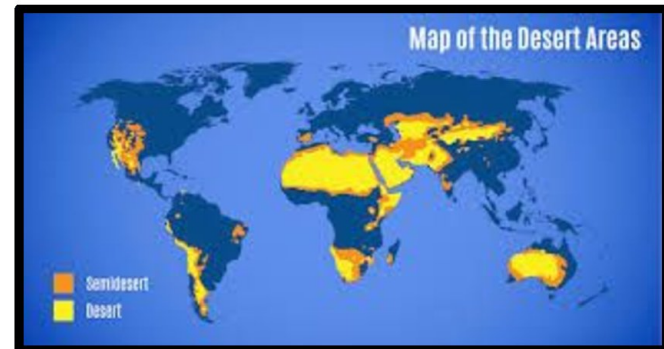


BEFORE



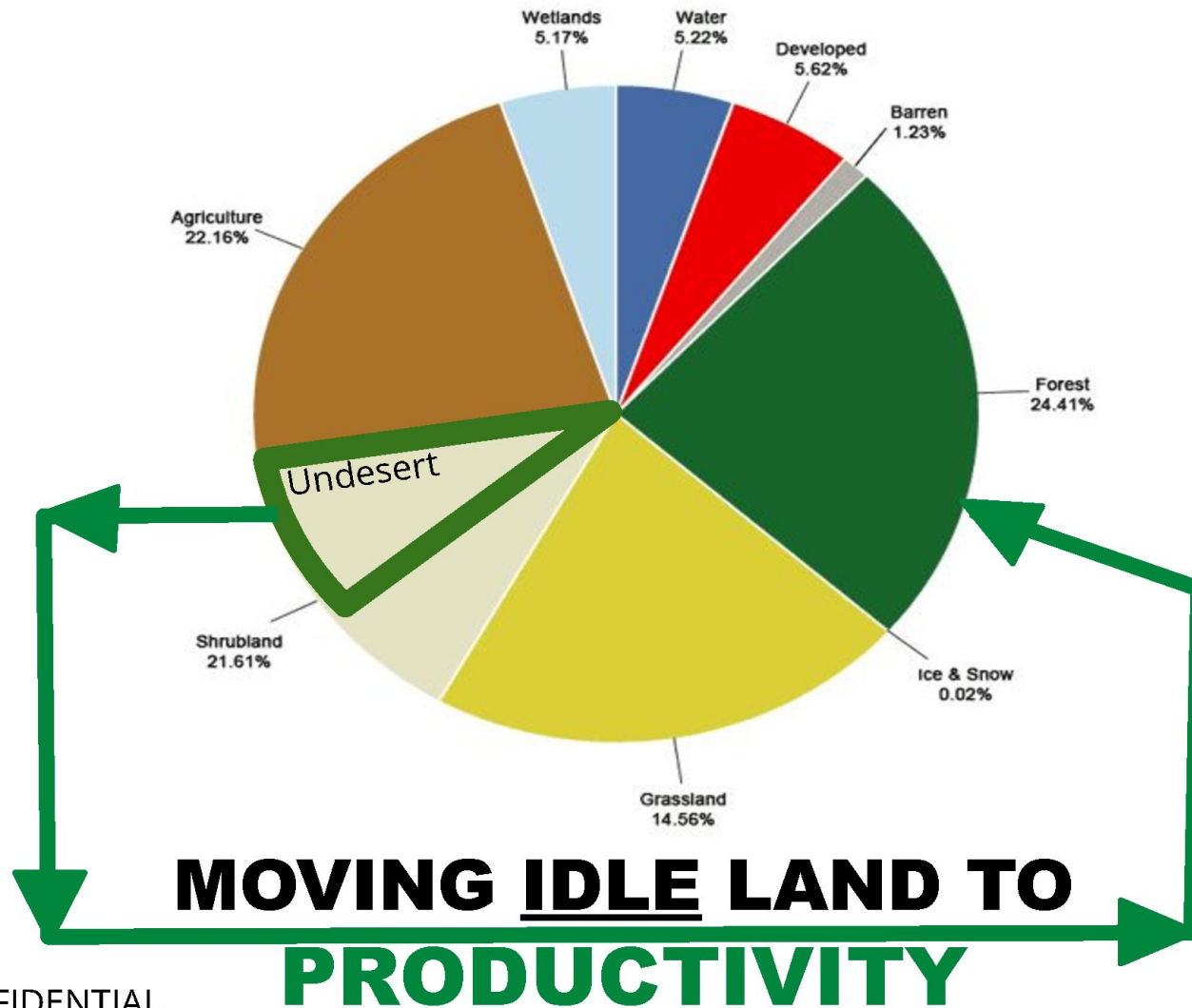
AFTER

**2% of Global Desert Forestry
Offsets all CO2 Emissions**



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Undesert Land Use: Shrubland to Forest



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Data From: Multi-Resolution US
Land Characteristics Consortium

Case Studies- Hypothetically speaking of course*



Shell has an ambition to invest up to
\$200 MILLION
between 2020 and 2021 in natural ecosystems

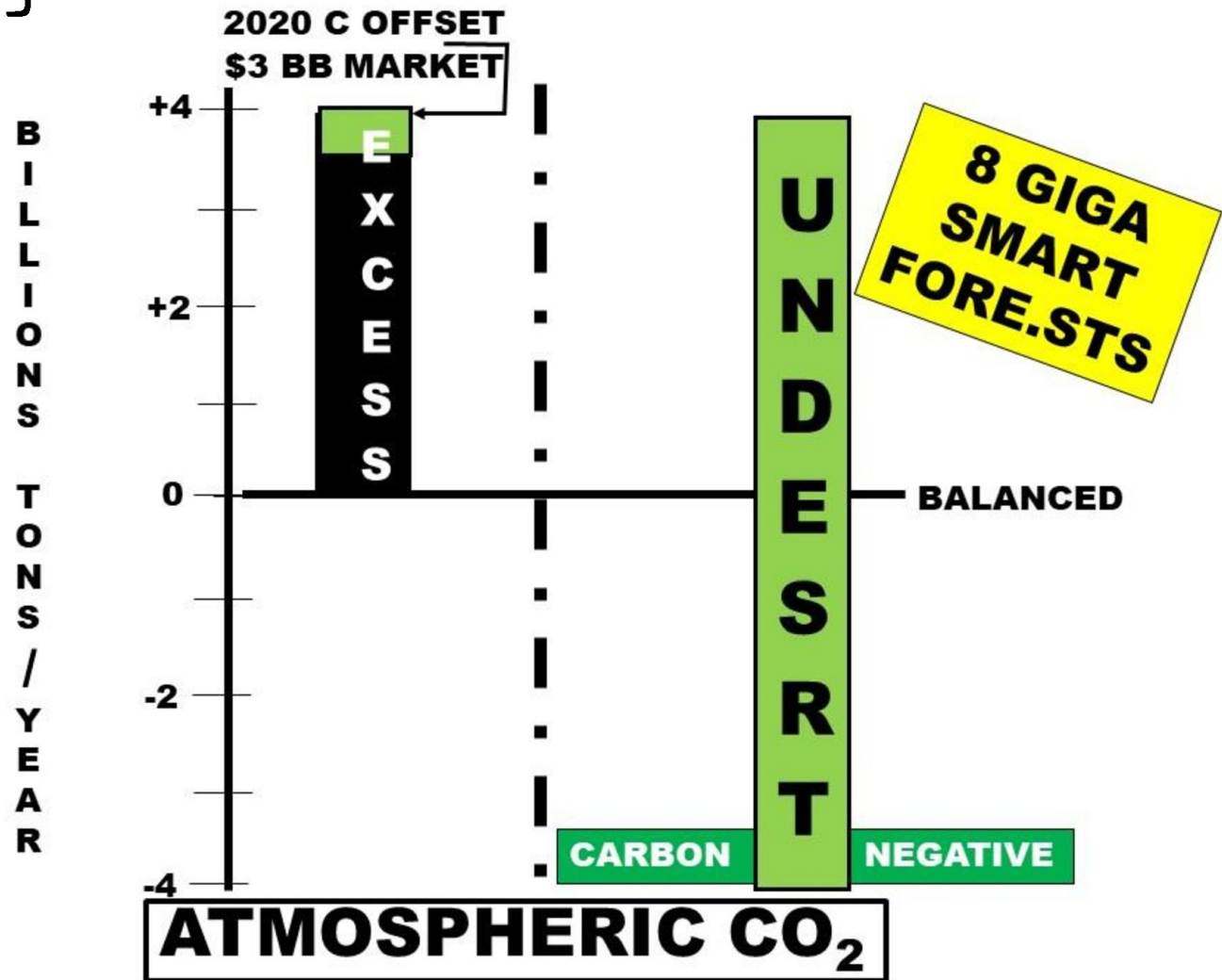


- UPS trucks probably run 12-15mpg.
- 9-10 metric tonnes co2/year/truck.
- 123,000 trucks.
- That would require about 10 Mega SmartFore.sts

*we have no signed relationship with the firms and all information shown is public

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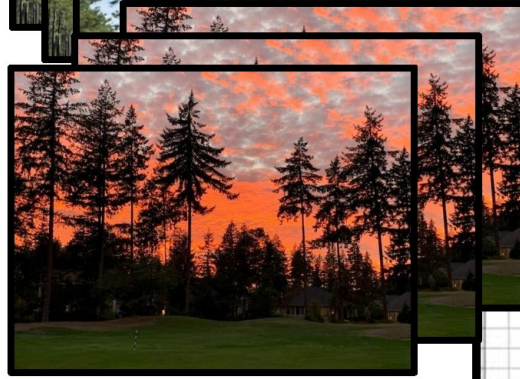
Carbon Negative



Problem Solved: A Giga SmartFore.st per Desert

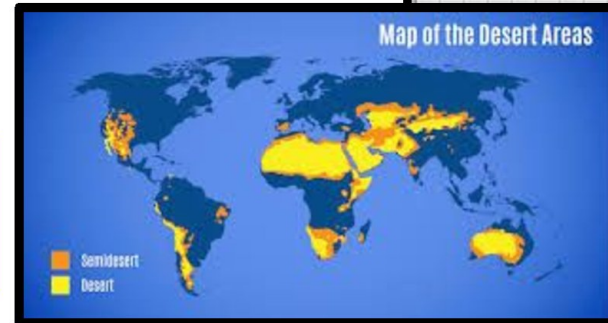


**Atmospheric
CO2 First**



1 Giga SmartFore.st

**8 Giga SmartFore.sts
Offsets all CO2 Emissions**



The
Sahara
Desert

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Worldwide Deserts (We only need 2%)

US Deserts	Area (sqmi)
Mojave Desert/Area	47,877
Sierra Nevada Desert	39,612
Joshua Tree National...	1,235
Death Valley National...	5,270

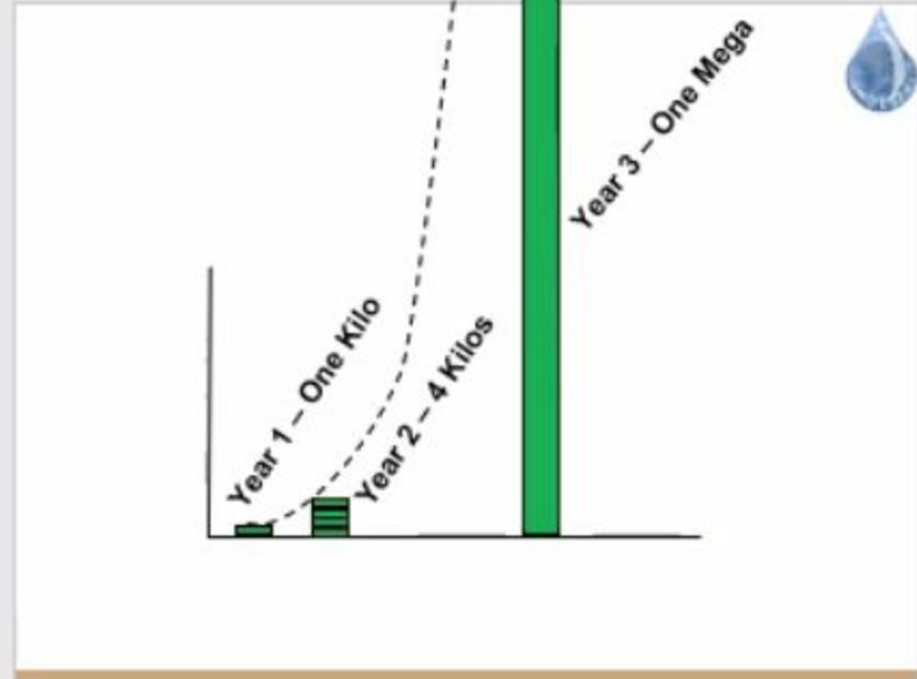
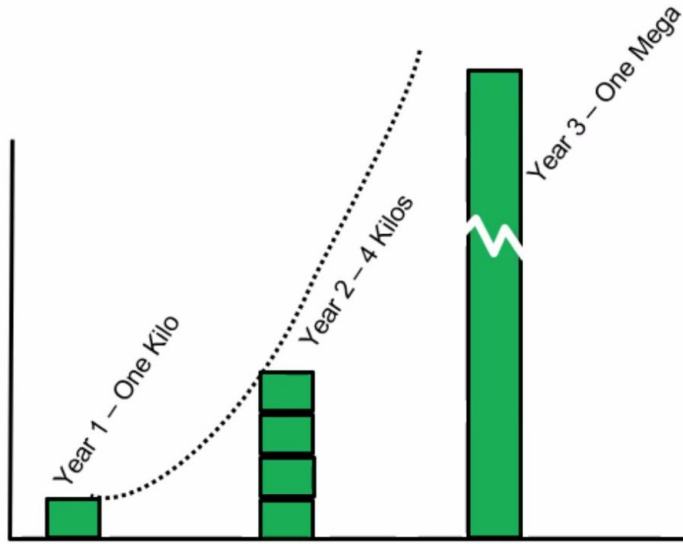


From <https://en.wikipedia.org/wiki/Desert>

Rank	Desert	Area (sqmi)
1	Antarctic Desert (Antarctica)	5,500,000
2	Arctic Desert (Arctic)	5,400,000
3	Sahara Desert (Africa)	3,500,000
4	Arabian Desert (Middle East)	1,000,000
5	Gobi Desert (Asia)	500,000
6	Patagonian Desert (South America)	260,000
7	Great Victoria Desert (Australia)	250,000
8	Kalahari Desert (Africa)	220,000
9	Great Basin Desert (North America)	190,000
10	Syrian Desert (Middle East)	190,000

Save. The. Planet.

What's with that wiggly line?



We Need Land - Lots of (Idle) Land



Featured Properties



Rio Grande Estates - Socorro

New Mexico

RV and camp without restriction! These are great off grid properties for building, RVing, and camping. Tremendous views of the Manzano Mountains.

[MORE PROPERTY DETAILS »](#)



Sunshine Valley Ranchettes

New Mexico

0.5 - 4 acre properties outside of Deming, NM. Every lot is only a few miles from the Florida Mountains in the West. The subdivision is surrounded by 1000's of acres of State Land which will protect it from overbuilding and preserve the area and local wildlife.

[MORE PROPERTY DETAILS »](#)



Arizona Rancheros

Arizona

The Arizona Rancheros have spectacular scenic views. They're located near the Painted Desert, a beautiful area. These are mostly undeveloped areas of the subdivision in Sun Valley, Arizona. These parcels are 1.25 acres and up, on high ground. Great for off grid living with few if any neighbors, yet close to Holbrook.

[MORE PROPERTY DETAILS »](#)



Concho Lakeland

Arizona

Beautiful off-grid residential parcels with views of the nearby White Mountains. Great for tiny houses! This area is known for its good water. Pastoral beauty, natural peace and quiet. Near the town of Concho, AZ Mild climate. Many historical sites and national monuments within an easy drive. Convenient from Highways 60 and 61.

[MORE PROPERTY DETAILS »](#)



Sunset Ranches, Unit 83, Lot 23

Hudspeth Co. Odds & Ends, Texas

Mountain views, surveyed, access!

[MORE PROPERTY DETAILS »](#)



Spring Valley Ranches

Mohave County, Arizona

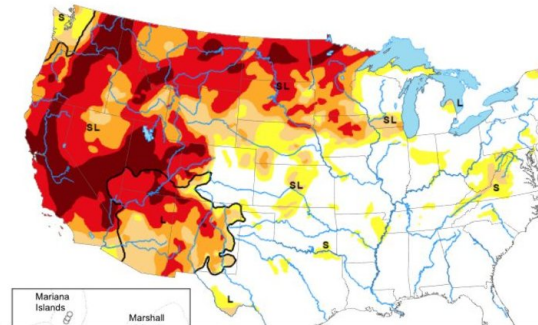
Dream Property With Power And More

[MORE PROPERTY DETAILS »](#)

The 2021 U.S. Drought Monitor forum will be held virtually on October 21-22, 2021. To register, the agenda will be posted on the registration page soon.

Map released: August 19, 2021

Data valid: August 17, 2021



- Desert Land Cost \$1,000/Acre Or Less
- Southwest Is Ideal
- Forested Land Worth 10x

It's Real - Many Endorsements



"PRESENTED MODULAR SOLAR DESALINATION TECHNOLOGY, A **SOUND TECHNOLOGY BASIS**, TESTED INTERNATIONALLY WITH **DETAIL OF INTERNATIONAL TESTING.**"
- NREL

A study by the United States' Los Alamos National Laboratory (LANL) created a full thermodynamic model of the Suns River modules and **confirmed field performance within 2%.**

"The team combines experts from industry and national labs. The team appears to **have the necessary expertise and capabilities to perform the proposed work.**" - DOE

July 18th, 2019

Assistant Secretary Daniel Simmons
Office of Energy Efficiency and Renewable Energy
Department of Energy
1000 Independence Avenue SW, Mail Stop EE-1
Washington, DC 20585

CONGRESS OF THE UNITED STATES
DELEGATION OFFICE
STATE OF NEW MEXICO
HART SENATE OFFICE BUILDING
WASHINGTON, D.C. 20510
(202) 224-8962

Dear Assistant Secretary Simmons:

The New Mexico Congressional Delegation writes in support of the application submitted by SIVI LLC for a Solar Energy Technologies Office Fiscal Year 2019 Funding Program: Small Innovative Projects in Solar grant as funded by the Department of Energy. This grant, DE-FOA-0002064, will allow SIVI LLC to conduct a demonstration project for a novel solar-powered water desalination technology that concurrently cools photovoltaic solar panels in order to improve their efficacy.

The current project is a collaborative effort between SIVI LLC, Los Alamos National Laboratory, and Los Alamos County to assess the feasibility of combining a solar-thermal water purification technique with photovoltaic systems. This demonstration is intended to improve the performance of existing solar arrays by removing panel heat while simultaneously producing purified water.

If awarded, these entities report that they will conduct field-based empirical assessments of this technology to determine its efficacy and scalability relative to current solar power generation methods. The New Mexico Congressional Delegation expects their findings to inform our state's efforts to increase the share of energy generated from renewable sources and to preserve access to potable water for communities across New Mexico.

The New Mexico Congressional Delegation proudly supports the application submitted by SIVI LLC for a Solar Energy Technologies Office Fiscal Year 2019 Funding Program: Small Innovative Projects in Solar grant as funded by the Department of Energy and we request that you give their application thorough consideration within your agency's guidelines.

Sincerely,


Tom Udall
United States Senator


Martin Heinrich
United States Senator


Ben Ray Lujan
United States Representative


Deb Haaland
United States Representative


Nochiil Torres Small
United States Representative

Now US Secretary of the Interior!

Platform: Business/Consumer Apps



- | | |
|---|--|
| <ol style="list-style-type: none">1. Wastewater purification
(seawater, riverwater,
production water)2. Cooling Tower Blowdown3. Ag: Desert-to-farm, livestock4. Drinking water production5. Industrial Clean Water
(super-computers,
chip-manufacturing,
post-mining cleanup, etc)6. Hydrogen Production7. Desert city water production8. Naval ship-water9. Government water source | <ol style="list-style-type: none">1. Bottled distilled water2. On-campus water-demo3. Portable water kiosks4. Solar-home/RV water5. Survival/Eco market6. Evaporative Cooler Life7. Family water (from 2L to 10L,
cooking and drinking)8. Seacraft water9. Hot Water Heater Life |
|---|--|

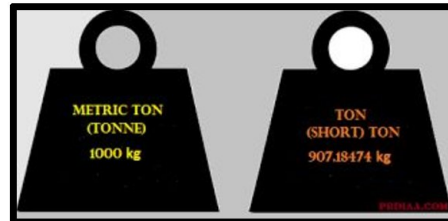
Carbon Offsets - Local, Accountable, Effective



→ **BUSINESS MODEL:** With an investment in land and equipment we can capture CO₂ at a cost of under \$5 per ton. Projections are that carbon credits will approach \$100/ton. We will pre-sell our carbon capture through advance purchase agreements.

→ **EXECUTION PLAN/GO TO MARKET STRATEGY:** We plan to establish a market scale demonstration to affirm our approach. We then can establish Carbon Purchase Agreements (CnPA's) in advance from governments and industries to finance our investment and establish the forests on empty/idle desert land which is plentiful and available.

→ **TRACTION:** With CnPA's in hand we will acquire the land, install the desalination equipment and plant seedlings. Contract to planting time span would be 6 – 12 months. The desalination and forest tending would be ongoing operations. Users can monitor forest status via remote video/satellite link.



SmartFore.st - Not Your Grandpa's Forest



- More Tree Plantation Than Rainforest
- Manicured Forest / Scalable Model
- Native Trees / Individually Tracked
- Satellite, Drone, and Ground Remotely Monitored 24/7
- Lightning Proof / Well Watered
- Physically Secure / Remote
- Hyper Dense (1000 Trees/Acre)
- 18 Years to Maturity / Harvestable
- Desert / Native-species Friendly
- Water Smart / Premium Lumber
- Renewable Forest / Attracts Wildlife
- Retains Water / Improves Soil
- Changes the Local Climate

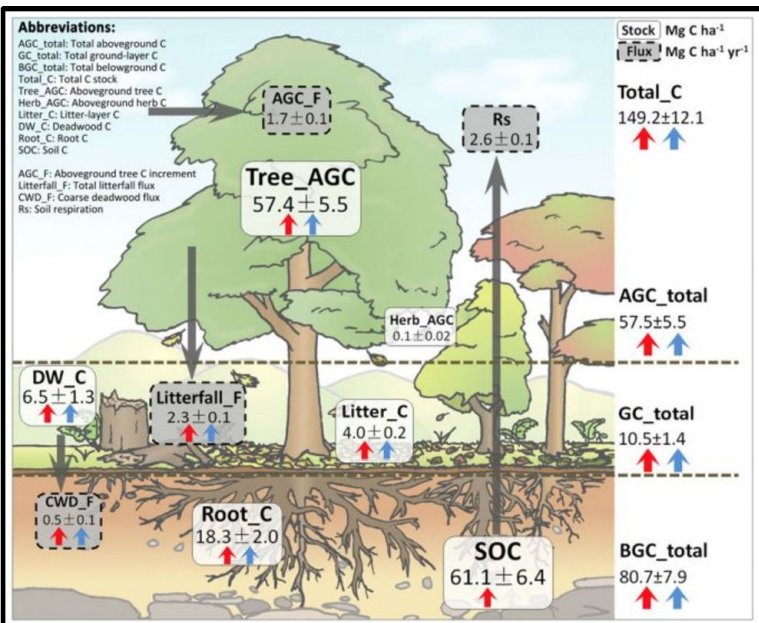


Tropical tree roots represent an underappreciated carbon pool

Date: October 12, 2017

Source: Smithsonian Tropical Research Institute

Summary: Estimates of the carbon stored by tropical forests rarely take tree roots into consideration. Scientists report that almost 30 percent of the total biomass of tropical trees may be in the roots.



Why Trees?



Ponderosa Pines

Cost \$2/Seedling

Afghan Pines



Case studies show existing **pine** stands can earn an **average** of about \$100 to \$150 **per acre per** year. "That doesn't mean you plant the **trees** and get \$100 to \$150 a year -- landowners must properly manage the timber, thinning a few times over the 35-year lifespan.