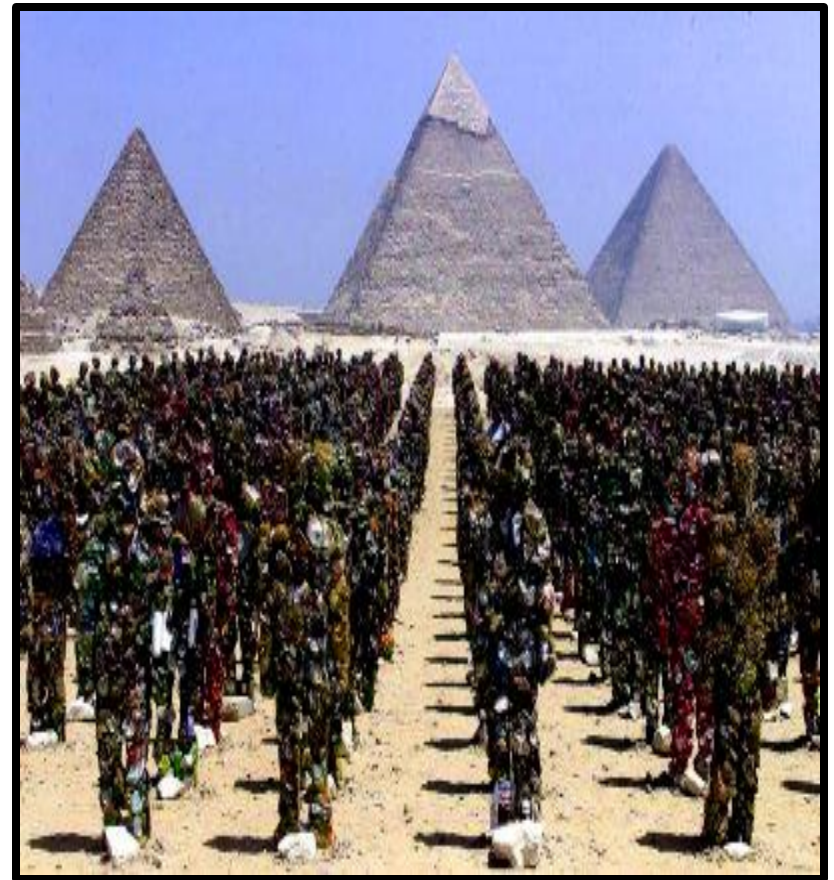




REDUCE
REUSE
RECYCLE



Who We Are Is What We Leave Behind



**Trash People Exhibit
constructed from 20 tons of recycled material**



**Around 100 million metric tons of plastic
are produced annually
10 million metric tons ends up in the sea
About 80% of it comes from land**



102 Tons of Trash

Americans make more trash than anyone else on the planet, throwing away about 7.1 pounds per person per day, 365 days a year.



Across a lifetime that rate means, on average, we are each on track to generate 102 tons of trash.

Best Buy offers comprehensive appliance and electronics recycling programs.

The company collects more than 400 pounds of product for recycling every minute

What Will Samsung Do With Its 4.3 Million Recalled Smartphones?



According to calculations the 4.3 million smartphones contain more than 20 metric tons of cobalt, more than 1 ton of tungsten, 1 ton of silver, 100 kilograms of gold and between 20 and 60 kilograms of palladium.

Bike Ride Sharing in Beijing

as new license plates (in lottery) are reduced by 1/3 by 2018, plus mandating even/odd driving days as traffic control measure since 2004. Cars increased by 303% from 1998 to 2013





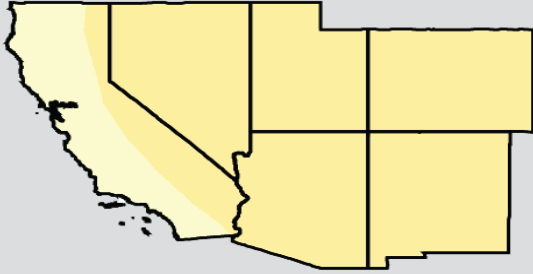
**SEARCH: 10 Most Polluted Cities
in US**

[Here are the top 10 cities](#) with the worst ozone or particle pollution:

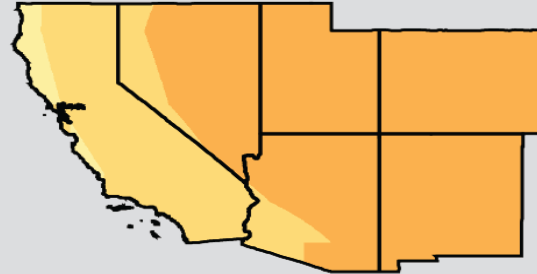
- 1. Los Angeles-Long Beach, California**
- 2. Bakersfield, California**
- 3. Visalia-Porterville-Hanford, California**
- 4. Fresno-Madera, California**
- 5. Phoenix-Mesa-Scottsdale, Arizona**
- 6. Sacramento-Roseville, California**
- 7. Modesto-Merced, California**
- 8. Denver-Aurora, Colorado**
- 9. Las Vegas-Henderson, Nevada**
- 10. Fort Collins, Colorado**

Projected Temperature Increases

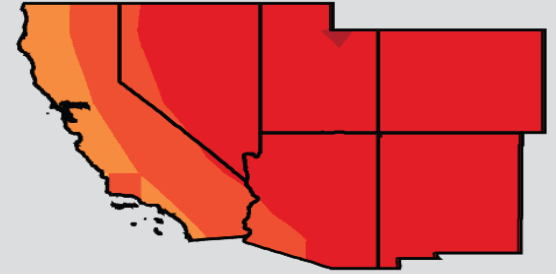
Higher Emissions (A2)



2021–2050

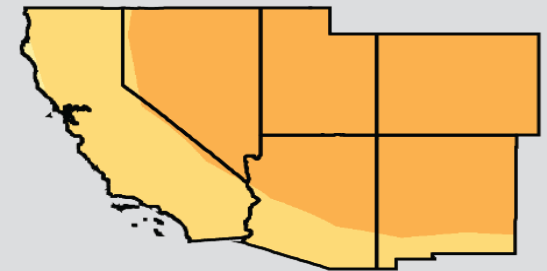
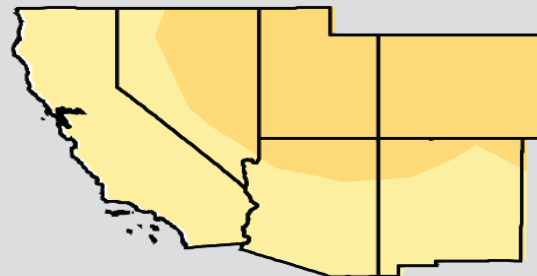
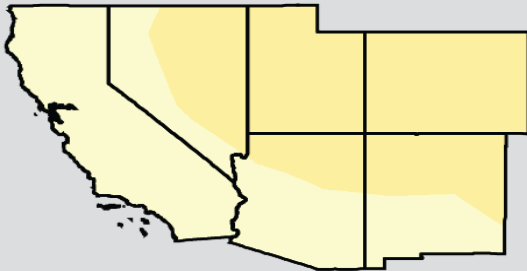


2041–2070

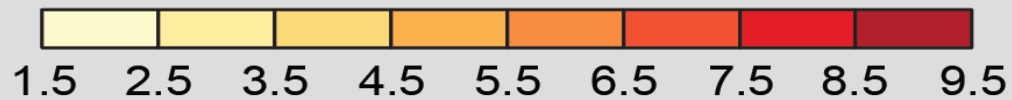


2070–2099

Lower Emissions (B1)



Temperature Change (°F)





We have grown so accustomed to plastic pollution that we hardly notice it anymore

It takes 500-1,000 years for plastic to degrade

The average American throws away approximately [185 pounds of plastic](#) per year





**Arizona Lawmakers Forbid Cities From Enacting
Plastic Bag Bans**

Senate Bill 1241

April 2015

azcentral.com

Reusable Thinking



www.shutterstock.com · 305661503

If it can't be reduced, reused, repaired, rebuilt, refurbished, resold, recycled or composted, then it should be restricted or removed from production

Berkeley Ecology Center

Tubohotel features 20 concrete rooms



Drain Pipes Reused



747 at Costa Rican Resort



Carrot Nano Fibers

combined with high tech resins



Tough, durable components can be molded to whatever shape, degree of stiffness, strength or lightness required.

Rods 50% carrot from rejected crop

Carrot Fiber Helmets, Snowboards, Car Parts, Motor Home side panels are a few of future possible uses of Curran

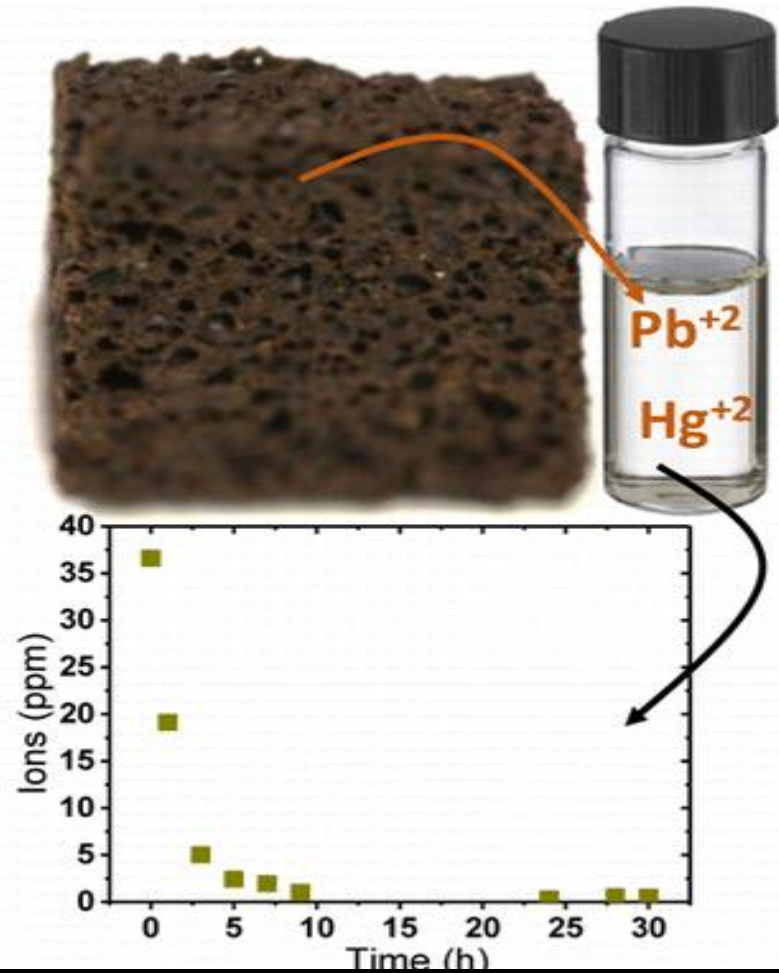
Biodegradable Golf Balls

made with crushed lobster shells (waste) , and biodegradable binder & coating. Cost 19cents



Other applications: plant pots that decompose; survey stakes

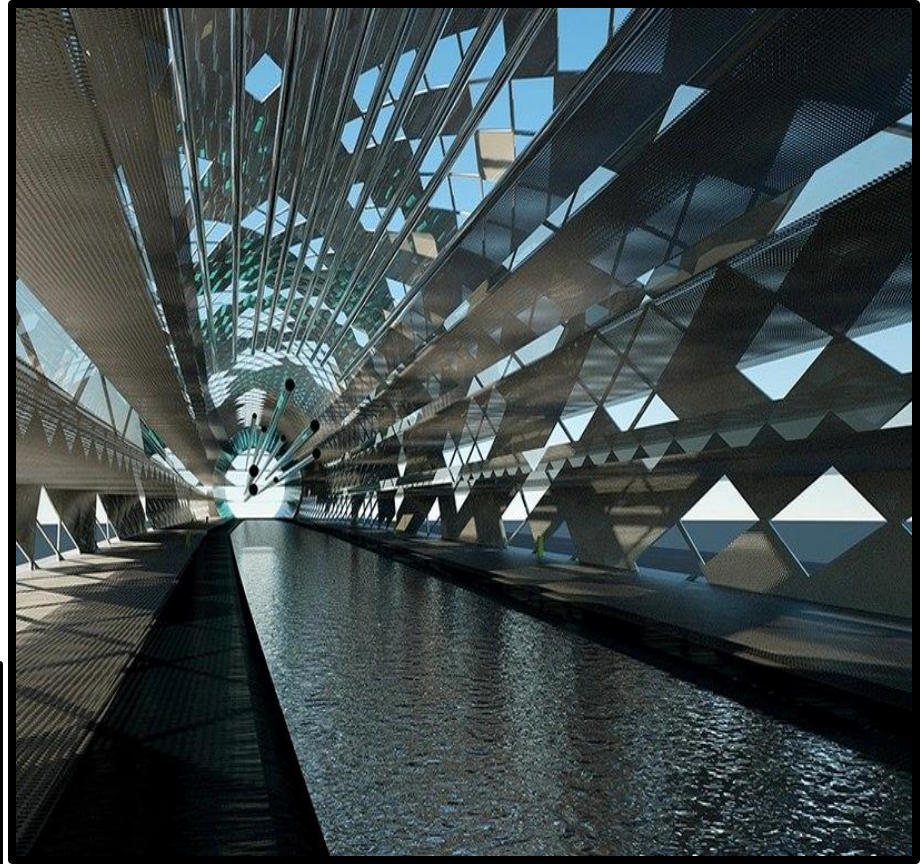
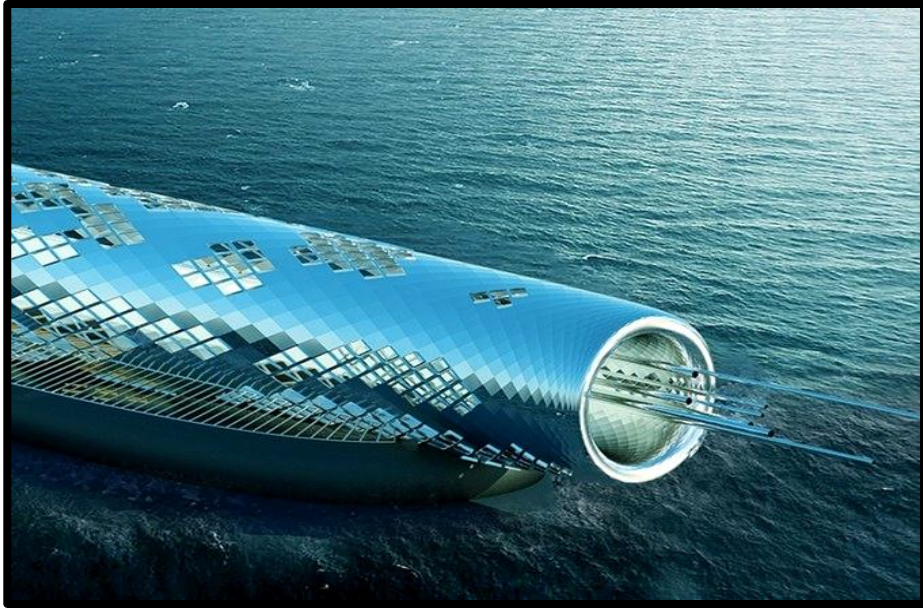
**Spent Coffee-
Bioelastomeric
Composite Foams
used for the
removal of Pb^{2+}
and Hg^{2+} from
Water**



**99% of Lead & Mercury ions removed from waste
water over 30 hours**

Solar-Powered Desalination

one tube is estimated to be able to produce 1.5 billion gallons of drinking water a year



the Pipe ensures the safe reintroduction of brine deposits back into the ocean by passing them through a series of thermal baths.

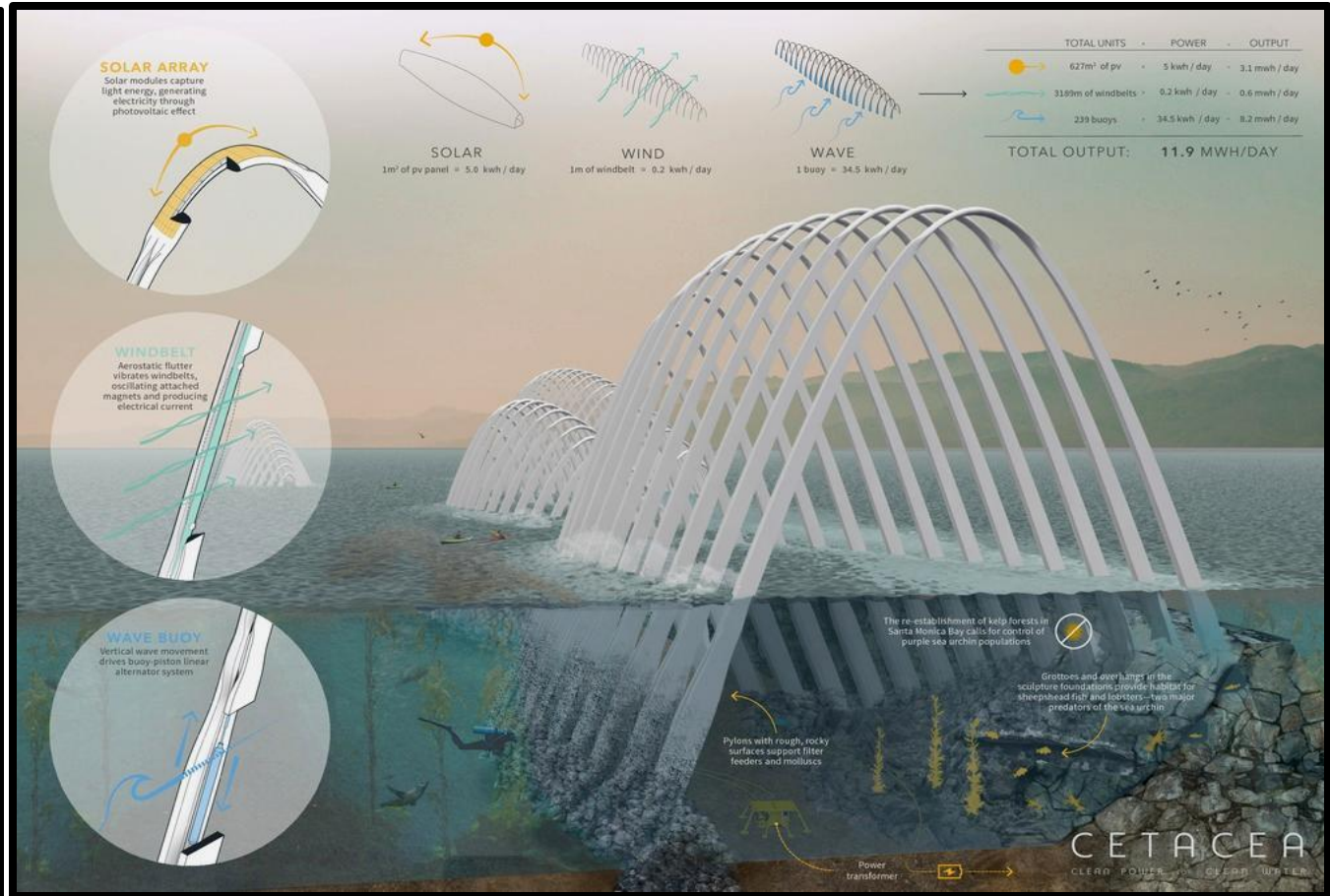
Carbon Neutral Power

Combining:

Wave Buoys
Wind Belts
Photovoltaic
Arrays

producing
11.937mWh/Day

Meeting clean water
needs of 7,317
residents +
left over power
for 251 households



Design provides habitat for sea urchin predators [thus]giving kelp forest a chance to regrow, allowing for return of ecological diversity, and the sequestering of carbon .



Bioengineered Rhino Horn

Challenges: Save the Rhino? Supposedly the **3D printed** horns are physically and genetically indistinguishable from real rhino horn..., ..companies survey-45 percent of rhino horn buyers would be willing to buy the 3D printed

or Create increased demand for the real thing, & make it harder to catch illegal rhino horns

“Shoe Without A Footprint”

...is made using beverage-grade CO₂. Novomer, a chemical technology startup, developed a proprietary catalyst that reacts with CO₂ to create polyurethane, which was then used to make the foam for the shoe.

NRG Energy





CO₂-based rigid foams have varied applications

In May 2016, Ford Motor Co. became the first automaker to announce plans to use captured CO₂ in its foams for seat cushions. Other industries..comm'l & res. construction are also interested in CO₂-based rigid foams because they are less flammable and less likely to break down due to UV exposure

Making a "Shoe Without a Footprint"

<http://paidpost.nytimes.com/nrg/making-products-from-air.html?emc=eta1>

Carbon XPRIZE applicants submissions have a range of applications for

CARBON CONVERSION

By storing CO₂ in everyday products, instead of relying on the trees and oceans to absorb it, the Carbon XPRIZE looks to reframe how we address CO₂ emissions from energy production

Greenhouse Gas [Methane] to Plastic

AIRCARBON Chair (Newlight)



World's First Zero-Emissions Hydrogen Train Unveiled



The hydrogen, aka "hydrail," train is powered by a hydrogen fuel cell and emits nothing but steam and condensed water-with Speeds up to 87 mph & storage capacity for a 497 mile range

Solar Energy to produce Potable Water for a family of four or an entire hospital, depending on how many panels used

Zero Mass Water founder, **ASU Professor**

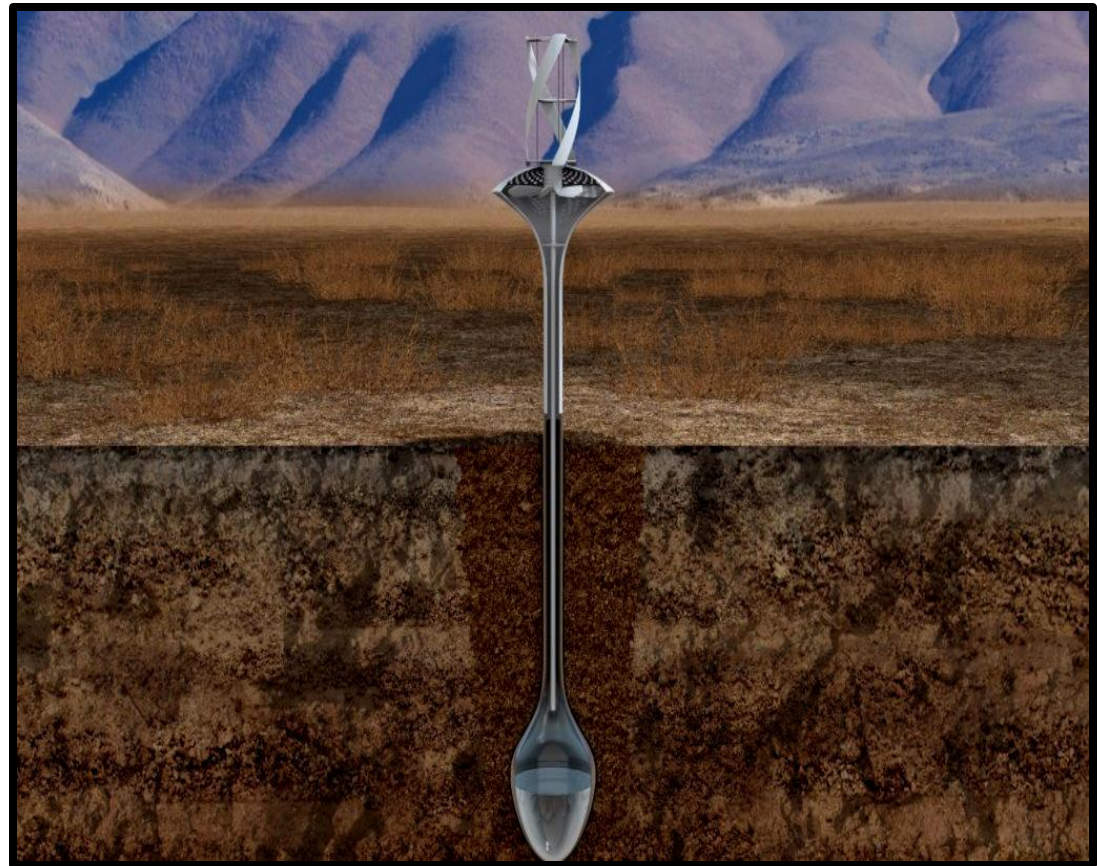


Water Seer relies on simple Condensation

- draws air into the subterranean chamber, cools the air, causing water to condense creating 'artificial' well



Device can collect up to 11 Gallons of clean water every day with no: external power supply required, no greenhouse gas emissions, or adverse environmental impacts



World's Largest Solar Project



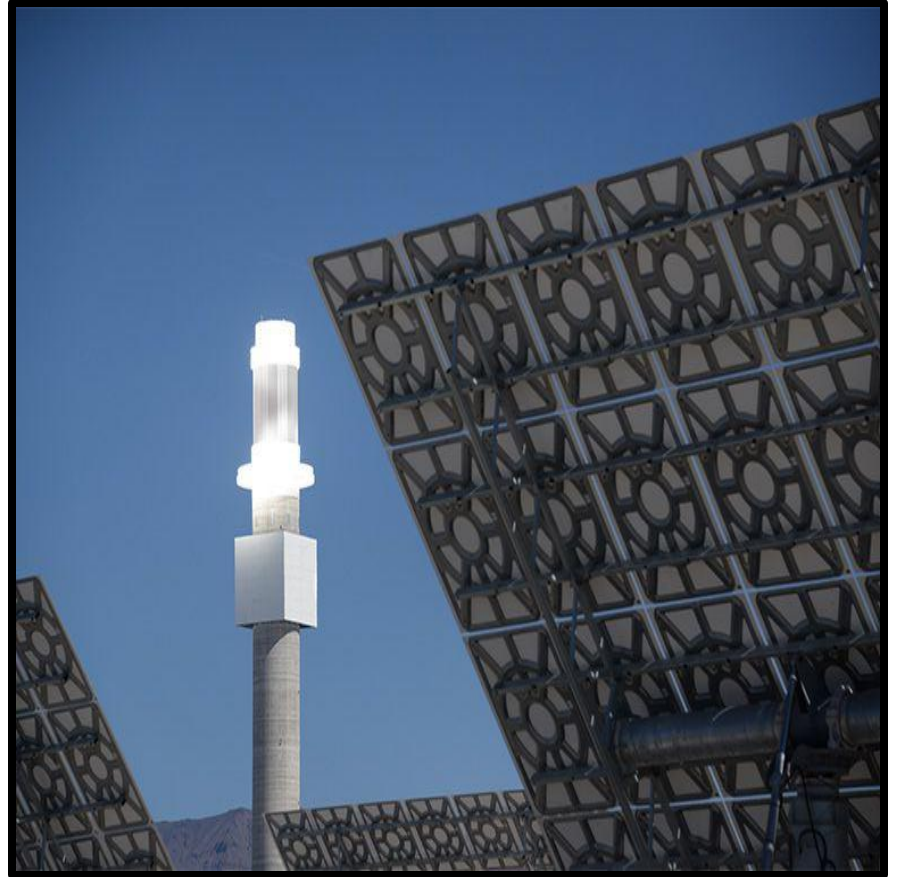
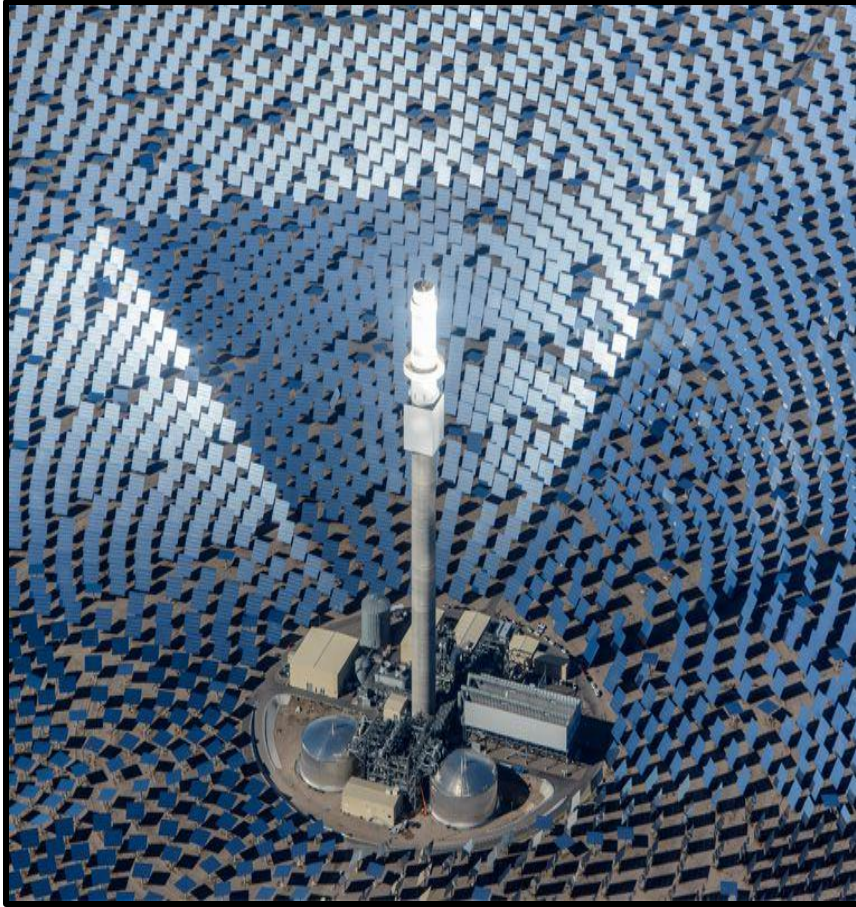
<http://www.npr.org/2016/10/12/497637737/solar-power-project-would-generate-electricity-24-hours-a-day>

SolarReserve LLC

...at least 100,000 mirrored heliostats capture the sun's rays and concentrates it onto 10 towers equipped with a molten salt energy storage system. Each Heliostat is aimed toward focal point at the Tower with (dedicated) computers.

Proposed for the Nevada Desert

Molten Salt Powering Homes



Molten salt is heated to 1000 degrees, stored, then used at nighttime to make steam to power a generator. Tower plus receiver height typically 640 feet.

Phoenix Recycling and Diversion Programs aim to divert 40 percent of trash from the landfill by 2020; & to achieve zero waste by the year 2050



Possible Anthem Recycling Committee resource? Any body here on that Committee?



Palm fronds ground into hay-like substance then pelletized into livestock feed.



Phoenix finds solution for pesky palm fronds

The city spends about \$578,000 per year to haul palm fronds to the landfill (making up to 3% of all trash). It will pay Palm Silage about \$408,000 to dispose of them, saving \$170,000 annually.

Grazing Goats Get Work

Goats have returned to the City of Mesa water treatment plant to help control the weeds, & an invasive tree species. They eat 8-10# /day

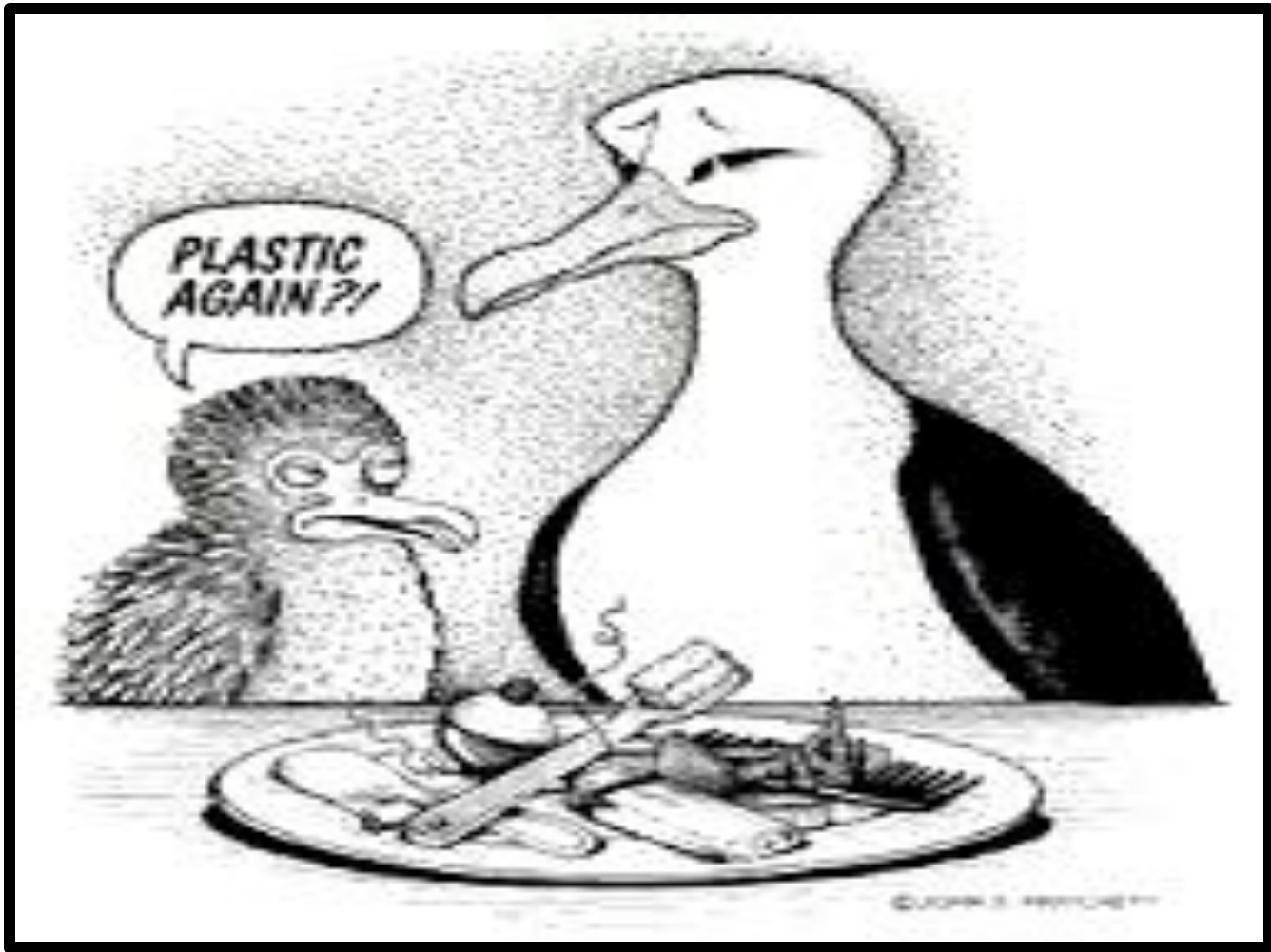


What Next?

**Is there a way back from the
102-ton legacy?**

|





How Did We Get Here?

From Patriotic Conserving of Resources (Thrift) to Obsolescence as an Obsession



BUY SHOP LIVE
Mantra of Buy-N-Large,
Mega Corporation, as Earth,
contaminated with garbage, is
abandoned in 2805



“Our willingness to part with something before it is completely worn out is a phenomenon noticeable in no other society in history.. It must be further nurtured even though it runs contrary to one of the oldest inbred laws of humanity, the law of thrift.”

J. Gordon Lippincott, 1947-[who pioneered the modern fields of product design and corporate branding].

What More Can You Do?

Shorten your shower 1 minute ...save 550 gallons per year

Switch your showerhead ...save 2,900 gallons per year.

look for **WaterSense**

ShowersBetter



FOOD BANK & RESOURCE CENTER

Fighting Hunger Giving Hope



U.S. Government Follow the guidelines provided on the label to help you save energy.

ENERGYGUIDE

Refrigerator-Freezer
 • Automatic Defrost
 • Side Mounted Freezer
 • Through-the-Door Ice

1 **EFC** (Energy Factor) Capacity: 20 Cubic Feet

Estimated Yearly Operating Cost **\$67**

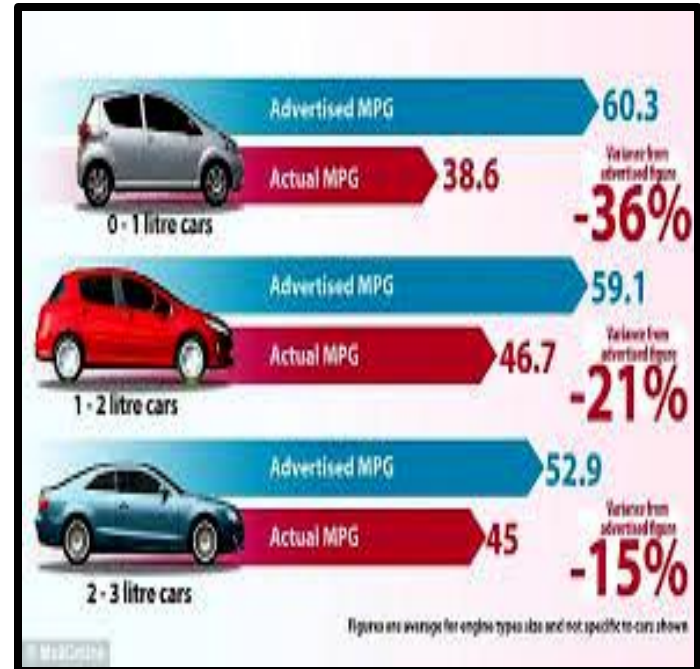
Cost Range of Similar Models

4 **630 kWh** Estimated Yearly Electricity Use

3 Your cost will depend on your utility rates and use.

5

For more information, visit www.ftc.gov/guidelines



https://twitter.com/WorldfNature/status/800434404858494985?ref_src=twsrc%5Etfw




→ **100**
solutions
for climate
action in
cities



ZERO
WASTE

- 
- Refuse
 - Reduce
 - Reuse
 - Recycle
 - Rot

collect moments
not things.



*“Do your little bit of good where you are;
it's those little bits of good put together
that overwhelm the world.”*

— Desmond Tutu

