**UV Light**

* <https://www.discovermagazine.com/health/are-ultraviolet-sanitizing-lights-safe-for-humans>
* <https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/uv-lights-and-lamps-ultraviolet-c-radiation-disinfection-and-coronavirus#:~:text=A%3A%20UVC%20radiation%20is%20a,often%20called%20%22germicidal%22%20lamps>.
* <https://www.lighting.philips.com/main/products/uv-disinfection>
* <https://www.webmd.com/lung/news/20200519/coronavirus-puts-uv-in-the-disinfectant-spotlight>
* <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/miscellaneous.html>
* <https://www.discovermagazine.com/technology/how-robots-could-help-on-the-frontlines-of-the-coronavirus-pandemic>
* <https://www.discovermagazine.com/health/uv-light-wands-are-supposed-to-kill-viruses-but-do-they-really-work>
* <https://rb.gy/j8rzel>
* <https://www.bbc.com/news/business-51914722>
  + Hospital UV robots cost $67k
  + Takes 20 min to disinfect room
  + No one can be in the room
* <http://microchemlab.com/test/uv-room-disinfection-devices>
  + Leading companies such as Clorox, which primarily deals with chemical disinfectants, are already breaking into this market
  + Other leading companies in the industry: UVDI, Xenex, Spectra254
  + Most are the size of a water cooler
    - Can be wheeled into the room, some can be mounted on the wall
  + Companies that make UV devices must register with the Environmental Protection Agency
* <https://www.nbcnews.com/shopping/tech-gadgets/best-uv-c-ultraviolet-light-sanitizers-n1119301>
  + Smaller scale UV sanitation devices
  + UV phone sanitizer ($79.99)
  + Water bottle ($95)
  + Wireless charging station with uv light sanitation ($99.99)
  + HomeSoap UV Sanitizer for tablets, remotes, small devices ($199.95)
  + <https://www.amazon.com/Sanitizer-Portable-Disinfector-Chargable-59S/dp/B0861BK9LQ/ref=sr_1_1_sspa?crid=2BZE1LL2IG3EK&dchild=1&keywords=uv+light+sanitizer&qid=1602447713&sprefix=uv+li%2Caps%2C243&sr=8-1-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUE2TUdDU0taSUxBRlMmZW5jcnlwdGVkSWQ9QTAxNDE2NTkxVjdFVVc0UDM4RFFCJmVuY3J5cHRlZEFkSWQ9QTEwMDY3MDAxTlZZS1pEREtPVldBJndpZGdldE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ==>
  + <https://www.amazon.com/Cabinets-inf%CE%B5c-ti%CE%BFn-Barber-Bottles-Personal/dp/B0865H5R1X/ref=sr_1_35?dchild=1&keywords=uv+light+sanitizer+box&pd_rd_r=b2401f39-d4f8-4680-bfbc-c59e2966c3c6&pd_rd_w=NAijL&pd_rd_wg=xwNPV&pf_rd_p=0ec05f25-9534-48fe-9c3e-40b89957230e&pf_rd_r=K6K02KWTEZP71C9CK6JR&qid=1602447734&sr=8-35>
* Cons
  + (<https://www.discovermagazine.com/health/uv-light-wands-are-supposed-to-kill-viruses-but-do-they-really-work>)
  + Potential exposure
    - Damage to skin and eyes
    - Cause Cancer
  + LEDs= less efficient for disinfection
  + Duration/intensity unknown for most effective cleaning
    - Some say 5 cm away for 15-30 sec
    - Low dose for home use take longer
      * Commonly used in air ducts to prevent exposure
* Pros
  + UVC lights
    - More effective than UVA or UVB lights
    - 100-280 nm
* UVC lights
  + 4 Types
    - Low-pressure mercury lamp
    - Excimer lamp or Far-UVC lamp
    - Pulsed xenon lamps
    - Light-emitting diodes (LEDs)

BOEING UV WAND: -David <https://boeing.mediaroom.com/2020-09-22-Boeing-Licenses-Ultraviolet-Wand-to-Healthe-Inc-to-Counter-COVID-19>

Philips UV   
<https://www.assets.signify.com/is/content/PhilipsLighting/Assets/philips-lighting/global/20200504-philips-uv-purification-application-information.pdf>

FDA Report: <https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/uv-lights-and-lamps-ultraviolet-c-radiation-disinfection-and-coronavirus>

**Competitor Product:** <https://xterilizerofficial.com/pages/xterilizer40?gclid=Cj0KCQjw2or8BRCNARIsAC_ppyZEu5t7cV2WH-UwA4-vuOwdKRyJNT3T3INC1-66CkPfB3gkCL9mVBQaAunmEALw_wcB>

**OIL SKIMMING BOAT**

You can look at my final report and slideshow to get more information on the oil skimming boat. There are two big competitors we found but we already did some of the business stuff.

**WATER STORAGE**

What is an energy demand response provider?

<https://news.energysage.com/demand-response-programs-explained/#:~:text=Demand%20response%20providers%3A%20EnerNOC%20and,service%20territory%20or%20electric%20region>.

Limitations: <https://www.sciencedaily.com/releases/2016/10/161024090454.htm>

Energy use variations: <https://www.eia.gov/todayinenergy/detail.php?id=830>

Energy TOU plans: <https://news.energysage.com/whats-the-cheapest-time-of-day-to-use-electricity-with-time-of-use-rates/>

Simple analysis of feasibility: <https://www.waterworld.com/water-utility-management/energy-management/article/16192848/pumped-storage-using-water-towers-aquifer-well-pumps-to-generate-energy-during-peak-demand-periods>

Similar idea but with a whole island: <https://spectrum.ieee.org/energy/renewables/4-new-ways-to-store-renewable-energy-with-water>

Patent: <https://patents.google.com/patent/US8080892B2/en>