

Creation Care



The world and all that is in it belong to the Lord, the earth and all who live on it are his. --Psalm 24:1

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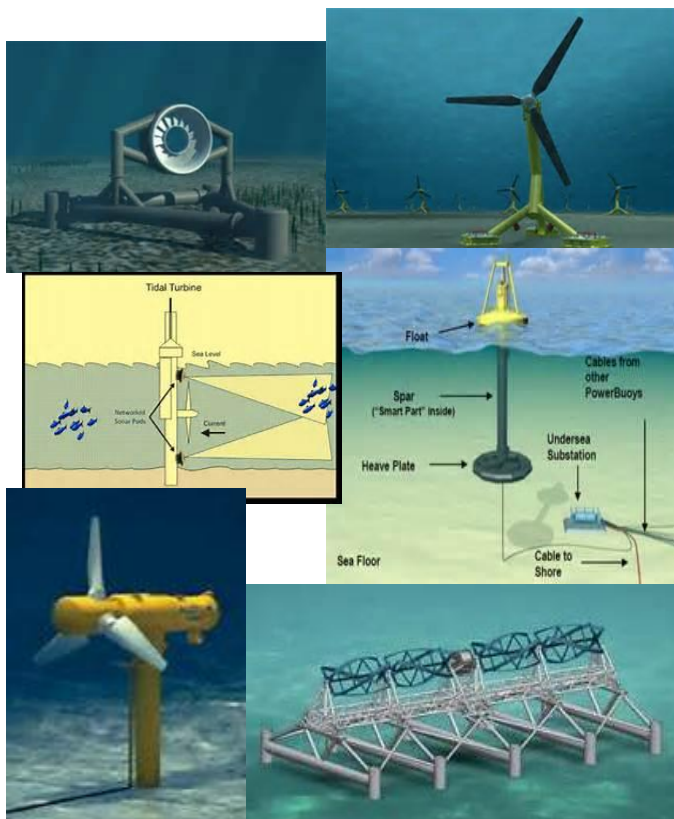


Ocean Power

Can we Harness Ocean Power to make Electricity?

Many scientists and nations around the world are working on "ocean power" - the technology is getting better - the potential is huge! Think about it. Many population centers are on or near the world's oceans. The constant movement, the salt content, and the water temperature all hold potential for creating electrical power.

There is a wide variety of new contraptions that are using the waves and tides to generate electrical power right now.



Wind energy hovers between 3 and 10 cents a kilowatt hour and conventional natural gas between 5 and 8 cents. Ocean Power (Hydro-Kinetic power) is still above 8 cents and must come down in order to be competitive. In time the cost of hydro-kinetic power will come down just like wind power did.

Are there dangers involved with hydro-kinetic power? Moving parts, such as blades, could injure sea mammals and fish and the noise may interrupt or interfere with their living patterns. Ocean trash may damage the generating equipment. There may be other problems that remain unknown since the technology is still so young and developing.

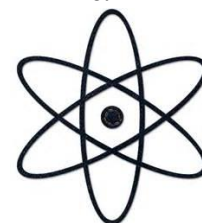
One thing is certain, moving water has power producing potential and we will continue to investigate it and refine our attempts to harness it.

For an excellent 101 course on this subject, go to energy.gov/eere/water/marine-and-hydrokinetic-energy.




New Hope for Nuclear Energy?

It has been said that Nuclear Energy is a very expensive and dangerous way to boil water in order to produce electricity.



The two most worrisome problems with nuclear energy production are the danger of a nuclear accident (melt-down and explosion), and the endless accumulation of nuclear waste which we are unable to safely store.

On the plus side nuclear produces no CO₂ during power generation and the problem of intermittency does not exist like it does with electricity produced by wind and solar power.

Can nuclear overcome its unique safety and proliferation problems? Will innovations like "closed fuel cycle" generation, where spent fuel is reprocessed, solve the present nuclear waste problem? Can the huge resource drain created by its current structural and maintenance needs be simplified? These are just some of the questions that must be answered before nuclear energy can be reborn. 

This fellow is No Drip! Aabid Surti of Pune, India is an



award winning writer, artist and cartoonist. He is a humble, soft-spoken man who cares about people and about the world in which we live.

When he was a child his mother made regular early morning trips to the community water faucet, outside their tenement, to carry water back to their apartment. He remembered how he stood

in line at the public water taps before dawn, to catch the day's share of water. Water was a precious necessity and a back-breaking chore. He also knew that people died because of a lack of safe drinking water. It irked him to see water wasted.



In 2007 he came across a statistic about wasted water from a dripping faucet. One faucet, dripping three drips per minute added up to one liter per day and 104 gallons per year. The article estimated that 1,000 liters of water (265 gallons) were wasted every month in his community.

Leaky taps are easy to ignore and expensive to repair if you must hire a plumber. At first he went around to family and friends to urge them to repair their leaky taps. That did not work well and failed to reach the broader community. He decided to form the "Drop Dead Foundation" to repair, free of charge, leaking taps. Its services were advertised and appointments were made to make the needed repairs on Saturdays.

One man insisted that Surti tell him why he was putting so much energy into fixing leaky faucets. He replied that it was a way to put prayer into action. Surti's "social conscience" pushed him to find some means to make something better than it was and to show that even little things can have big results for the common good when they are added together. If he could do it, so can we. ☺



An Environmental Case Study:

The Water Protectors; A Test of Values and Procedures

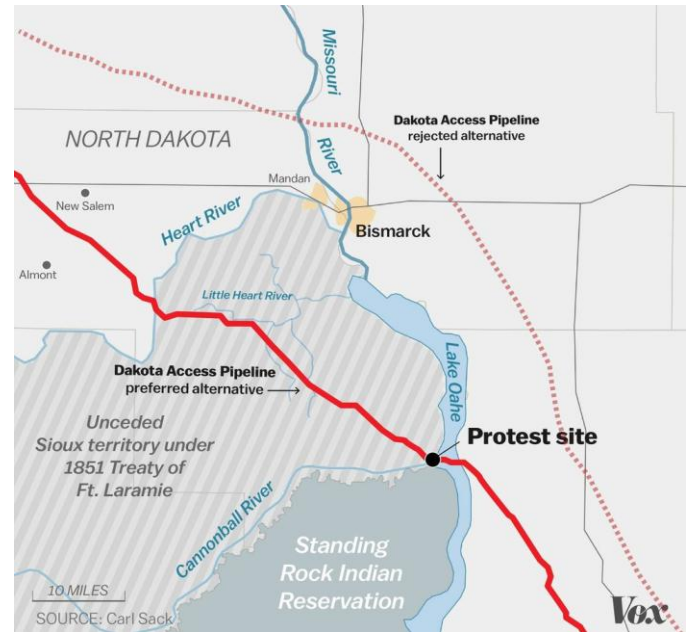
Worldwide attention, debate and protest has been given to the Dakota Access Pipeline project. The pipeline runs 1,134 miles at a cost of over 3.8 billion dollars. It was scheduled to be operational January first of this year.

1. The pipeline runs from the Bakken oil fields in western North Dakota to southern Illinois. The pipeline can send, in a matter of minutes, what it takes road and rail transportation days to deliver. The advantages are obvious. The much debated safety issues are not as obvious but just as real.
2. The original routing took the pipeline underneath the Missouri River about ten miles north of the city of Bismarck. This route was rejected because of the fear that a pipeline leak could compromise Bismarck's municipal water sources and its residential areas.
3. The alternative route (11 miles shorter) takes the pipeline through "Unceded" Sioux territory under the 1851 Treaty of Fort Laramie (see map). The Department of the Interior holds this more than 800,000 acres of land "in trust" for the Tribe.

FIRST, the treaty was never renegotiated, it was "reinterpreted," a not so subtle way for the more powerful to manipulate the less powerful. The federal government simply took control of this "Unceded" section of the Tribal Lands (about 150 years ago) for political and economic reasons. The Unceded Land, contrary to the pipeline PR, does contain sacred sites and burial places and, under the 1851 Treaty does belong to the Sioux Tribe. Standing Rock's Historic Preservation Officer, LaDonna Brave Bull Allard said: "Of the 380 archeological sites that face desecration along the entire pipeline route, from North Dakota to Illinois, 26 of them are right here at the confluence of these two rivers. It is a historic

trading ground, a place held sacred not only by the Sioux Nations, but also the Arikara, the Mandan, and the Northern Cheyenne."

SECOND, the pipeline crosses underground at the junction of the Cannonball and Missouri Rivers at Lake Oahe in unceded



Sioux territory about half a mile upstream of the "recognized" reservation at a very wide expanse of water. Like the Bismarck crossing, any leak at that point could send oil directly into the tribe's main source of drinking water. Distance is a key factor here. The further the pipeline must travel under a body of water the greater the chance that a leak could contaminate the water above it. The Bismarck route takes the pipeline under the river while the Standing Rock route takes it under a large river filled lake! Both communities had common ground over the same issue - the safety of their water supplies, but Standing Rock did not have the same economic and political clout. Bismarck won and Standing Rock lost.

Because of a loop-hole in the environmental protection laws the pipeline contractor was able to divide the construction into small "projects" which meant that he could avoid a full environmental impact study. The efficacy of crossing a narrow compared to a large body of water was never publically addressed. Over 33,000 petitions were sent to the U.S. Department of Justice asking for a review of all permits and a request to order a full review of the project's environmental impacts. That did not happen.

4. In American politics, power resides in your ability to reach an audience. Protest is a basic American right, tradition, and means of social change - it is usually inconvenient for the "establishment" and it is not always peaceful. One only needs to look at the use of protest in our colonial, political, racial, and labor/business history to understand its importance.

Protest is often the only way to root out the political and economic collusion that so often corrupts the channels by which citizens can be heard and receive justice. Embedded economic and political power will only respond to the restraints of regulation, the ballot box, boycott of products and investment, or organized protest. Too often, the old saying "the squeaky wheel gets the grease" is the only way by which legal and legislative action becomes possible (See Matthew 18:1-

8, *the Parable of the Widow and the Judge*). History also reveals that protest is most effective when it follows the Jesus, Gandhi, and King models of non-violence. From the verifiable published accounts (photos taken by both sides, protesters and law enforcement) the unarmed Water Protectors were, under the circumstances, well disciplined and peaceful even when a private security firm, hired by the pipeline contractor, accosted the protesters with attack dogs (rented from a firm in Ohio), while police units, on the hill above, stood passively by out of "safety concerns" for their officers!

Law enforcement, made up of various police units from a number of states including Ohio (see USA Today Network Ohio article by Carrie Blackmore Smith, 1-13-17), is being widely criticized for its over-reaction, militarized presentation, the use of rubber bullets, shock grenades, tear gas, and water cannons in sub-freezing weather, etc. on the protestors.

In many places our tradition of a civil police force in which civilians and police are closely allied, has rapidly deteriorated and has become militarized in equipment and tactics creating an unhealthy "them versus us" mentality and enforcement by any means necessary to "restore order." In North Dakota, for example, a recent piece of legislation was introduced (House Bill #1203) that provided: "Liability exemption for motor vehicle driver. Notwithstanding any other provision of law, a driver of a motor vehicle who negligently causes injury or death to an individual obstructing vehicular traffic on a public road, street, or highway may not be held liable for any damages." The bill was defeated by a vote of 51 to 41. The right of civil disobedience itself is also being challenged in a number of states. Can protests be considered "economic terrorism?" Terrorism is the "in-word" these days, a label that incites fear, clouds reason, and is a much used fear-mongering political tool to achieve political ambitions. It is being used to suppress or deny the rights guaranteed by our Constitution in the name of safety and protection. In 1759 Benjamin Franklin said: "*Those who would give up essential liberty to purchase a little temporary safety deserve neither.*" In his First Inaugural Address (3-4-1933), at the height of the Great Depression, Franklin D. Roosevelt said: "*The only thing we have to fear is fear itself.*" We should accept this wisdom if we want to keep our constitutional republic free and strong.

Ours is a system of, for, and by the people. Dissent is the life-blood of such a system. It may be messy and frustrating at times, but it is absolutely necessary. The EPA (Environmental Protection Agency) has the responsibility to protect the interests of both private and public enterprises. That's a tough job and it can be overdone, but it must be done or money and self-interest will jeopardize long term safety, human rights, and creation care. I think this case study illustrates what happens when private enterprise and public opinion clash in the midst of a naive political context.

5. Pipeline safety is a real issue. Since 1996 oil spills in North Dakota alone, amounted to 3,138,029 gallons of oil spilled causing \$41,910,001 in property damage. For example, on 12-5-16, rupture monitoring equipment failed and a landowner found that a 6-inch Belle Fourche pipeline



spilled at least 176,000 gallons of crude oil into Ash Coulee Creek in Billings County, North Dakota (picture). In 2016 twenty-eight pipeline leaks were reported across the U.S. Pipelines are vulnerable structures that often leak! That's the reality. No wonder that people who live near them worry about their safety and environmental impacts. It is non-residents who usually build the pipelines and process the petroleum. Their primary interest is in the product and the money they get from it. When it is finished, they leave and move on to the next project. The residents are left behind to live with the dangers and the disasters inherent in pipeline technology. It is their health, their land, their water, and their wildlife that suffers the consequences. How does the law and the permits protect them? And when disaster strikes who pays the price?

6. Years ago the typical wedding ceremony ended with words of warning: "*What God has joined together, let no man put asunder.*" Asunder comes from the Old English "*sundrian*" and means "*to separate from.*" In the Christian wedding God joins the two together - not nature; not the church; not society; not mutual consent - God joins them together! In Matthew 19:1-12 we find the history of Hebrew Divorce. The Pharisees wondered why Moses granted permission for divorce if it was not a part of God's creation. Jesus replied: "*Moses gave you permission to divorce your wives because of your hardness of heart. But it was not this way at the time of creation.*"

God's creation is the key to many things and it is at the center of Creation Care. Everything that humanity creates is imperfect, fragile, limited to its design life, and subject to the forces of nature. Engineers, architects, and mathematicians all try to estimate and anticipate nature's actions and re-actions, but, as the scripture suggests, "*now we see in a mirror dimly*" (Matt. 13:12). My point is simple. Human constructs like pipelines are second rate, finite, and replaceable - but God's creation is infinite and its flora and fauna cannot be replaced. When the finite challenges the infinite we should always give first place to the infinite. In this case, the first concern is the water, not the petroleum. God bless the Water Protectors everywhere! ☸

Since 1970 over half of the world's wildlife has died or been killed. At the present rate of decline 67% will be gone by the end of the decade!

When Humanity is Worthy

"*They shall take dominion (v'yirdu) - The Hebrew connotes both 'dominion' (derived from radah) and 'descent' (derived from yarad). When humanity is worthy, we have dominion over the animal kingdom; when we are not, we descend below the level of animals and the animals rule over us.*" Thus wrote Rashi (1040-1105). Rashi, (Shlomo Yitzchaki), was a brilliant medieval French rabbi who authored a comprehensive commentary on the Talmud which is included in every edition since its first printing in the 1520s. "He is acclaimed for his ability to present the basic meaning of the text in a concise and lucid fashion."



There is a train of thought which suggests that when we fail to exercise a proper stewardship of creation as God commanded,

the dying creation will, in time, cause a dying humanity - in their deaths, the dying animals rule over us. ☹️

Let the Sunshine In

First Solar is a public company that was founded in 1999 and is headquartered in Tempe, Arizona. It employs 6350 persons. In California two of its 550-megawatt photovoltaic power stations are among the worlds largest. The Desert Sunlight Solar Farm at Desert Center is located in the Mojave Desert in the southern tip of California. It produces enough energy to power about 160,000 average California homes, helps to displace 300,000 metric tons of CO₂ which is the equivalent of taking about 60,000 cars off the road. The second 550-megawatt facility is the Topaz Solar Farm, Carrizo Plain in central California. ☹️

It's the Pesticide, stupid!



For years we have been trying to figure out what is killing all kinds of bees (along with a variety of other critters). Winters that were too cold or too warm, little red mites, some unidentified killer, habitat destruction? All the while, in the back of our minds that word kept popping up - that word that draws all kinds of political and economic debate - that word PESTICIDE. Remember? *"Better living through chemistry."* Chemistry has done an enormous amount of good, but it has also done a lot of bad!

Commercial bee keepers in Minnesota are taking the lead in getting to the bottom of the bee tragedy. Two "bee bills" were introduced in their legislature which would identify and designate "pollinator lethal insecticides," bar nurseries from falsely labeling plants as "bee friendly," create an emergency response team to respond quickly to suspected pesticide kills, and give beekeepers access to financial compensation when pesticides are the culprit. If these bills are signed, it will be a really big deal and provide a model for other states to use.

NEONICS are the most widely used class of insecticides in the world. They are systemic pesticides, taken up through a plant's vascular system and transmitted throughout, including in pollen and nectar - the very thing which bees forage and drink. Neonics are water soluble and dissipate into soil where they slowly accumulate season after season, year after year. Even using neonics as directed does not prevent the damage. Poison is poison.

The aspect of the problem I want to focus on in this report is the use of neonics on pre-treated seed. For years many farmers have been complaining that it is next to impossible to find untreated seeds for corn, soy, wheat, dry beans and canola. At least 94% of corn seed in the US is pre-treated with neonics. Pre-treated seed was meant to improve yields and reduce damage from common pests. Experience, however, shows that the neonics don't help all that much - certainly not enough to outweigh the dangers. They are, however, able to elevate the cost of the seeds to the farmer!

The process of planting neonic-coated seeds creates additional risks. Talc powder is used to keep the coated seeds from sticking together. The automated planter sends dust into the air which is wind-spread in the planting vicinity. This is

known as "planter exhaust." The planting season for corn in the Midwest runs from mid-April through early May. This is the same period in which the energy requirements of bees rapidly increases causing greater contact with neonic pollution.

Dr. Christian Krupke of Purdue University stated that research is making it increasingly clear that seed coatings don't significantly increase yields or improve pest control. What is clear is that the neons in these coatings are killing bees and bees, after all, lie at the heart of our agriculture. ☹️

Indoctrination
is training with a fence around it.
Education
builds no fences, but it does build bridges.
Clyde C. Fry, "Reach for the Stars," page 2, 5-7-1963

Yep! You Gussed it, We're running low on sand too!

According to the U.S. Geological Survey the world uses about 44 billion tons of sand and gravel per year. The shape of sand particles affects its density, stability and overall engineering behavior including such



things as its plasticity, strength and bearing capacity. Sand is the thing that modern cities are made of. It is used to make glass, electronics, aeronautics, and, most of all, asphalt and concrete. Asphalt is sand and gravel stuck together with oil while concrete is sand and gravel that is stuck together with cement. Sand is heavy and the cost of shipping it long distances has great environmental and economic costs.

The cheapest and best sources of sand are found onshore but they are dwindling rapidly. Sea sand is salt (a major corrosive) and debris laden and is expensive to clean. Desert sand is plentiful, but too smooth (eroded by wind rather than water) and therefore lacks the binding capabilities that give concrete the strength needed in construction. M-Sand (manufactured sand) is made by crushing rock and old concrete, etc. but its workability is negatively affected.

Though the supply may seem endless, sand is a finite resource like anything else. Extracting sand to meet the demands of the worldwide construction boom is a \$70 billion industry. Multinational companies dredge and vacuum up huge amounts of sand from the ocean floor causing ecological damage and beach erosion. Since 2005 sand mining has weakened bridges in Liberia and Nigeria, erased at least two dozen Indonesian islands and eroded beaches in San Francisco Bay. Many countries have put in place strict regulations on the mining of sand requiring permits and oversight of operations. A black market in sand has developed in a number of countries where "sand mafias" and other gangs use bribes and violence to mine and sell sand.

In 2012 alone the world used enough concrete to build a wall 89' high by 89' wide around the Equator. ☹️