

Watt's Happening? #110

by Don Pettit

for Peace Energy Renewable Energy Cooperative

www.peaceenergy.ca ph 250-782-3882



Sun Power: getting brighter



China has successfully tested near-space flight of the world's largest solar drone. With a wingspan of 45 meters, the solar-powered drone flies at an altitude of 20 to 30 kilometers, near the edge of space, at speeds of 150 to 200 miles per hour. The unmanned vehicle can remain aloft for months, and is intended for meteorological observation and communications relay.

What is that big bright thing up there in the sky anyway? Is it a bird? A plane? It is Superman? No, it's the sun! But like Superman, it's coming to our rescue.

What is the sun, anyway? It's an utterly immense nuclear fusion reactor. A very, very large one, and it's a nice safe 93 million miles away. It came free with our cozy little planet, and it makes life here possible.

The sun will happily burn for the next several billion years, no maintenance required. All we have to do is soak up the pollution-free energy it's sending us, every day, just like every other living thing on our planet.

How much energy is the sun giving us? A LOT! Many thousands of times more than our global economy could ever use, and many thousands of times more than the energy stored in all the planet's fossil fuels.

And, (here's two real bonuses) it doesn't run out, ever, and it pours from the sky, free for the harvesting.

MASSIVE GROWTH

Solar power is expected to be the most economical source of energy on the planet in just three years, beating out both coal and gas. This was not predicted or expected, and has taken everybody by surprise.

Throughout 2016, approximately 500,000 solar modules were installed around the world every day. This year, that number is expected to almost double.

The World Energy Agency predicts that within 30 years solar will be the world's biggest single source of electricity. By 2040, Bloomberg New Energy Finance predicts that one-quarter of Australia's power will

come from rooftop solar, and renewables will provide as much power in the US as natural gas. Meanwhile, three-quarters of all the money spent in China for new energy is going into renewables, mostly solar and wind. Likewise India.

WHY SOLAR?

Solar energy is extremely plentiful. Ask any plant. And everybody has some.

Each year, about 9 million kilowatt-hours of solar energy fall on each acre of generally sunny earth. That means that the solar energy falling on the roof of your home, even at the modest conversion efficiency of a modern photovoltaic (PV) panel (about 20%) is enough to power your house and charge your electric car. With solar power on your roof and an electric car in your driveway, you can kiss your electricity bills goodbye and never go to a gas station again.

Like the chlorophyll in a plant, a PV panel uses crystalline silicon as a catalyst to convert photons (sunlight) directly into electrons (electricity). No moving parts to maintain, no fuel to pay for and burn, no pollution. This silicon catalyst changes very little over time, so as long the solar panel remains sealed against the weather, it will last a very long time, at least 50 years, likely much longer.

PV panels now come with a 25-year warranty

for this very reason. Most of my home solar array is over 25 years old, and my first panel, bought almost 40 years ago, is working just fine. These things last a long, long time with no maintenance.

Silicon, in case you're wondering, is the most abundant element on the surface of the Earth. We won't be running out of silicon for solar panels anytime soon.

Rapid advances in mass production manufacturing technology and a huge scale-up of solar panel production, first in China and now around the world, have caused prices for solar energy to plummet. Just a few years ago, PV panels were the most expensive part of any solar energy system. Now, design, racking, wiring and labour are the biggest expenses.

Flexible solar panels, solar coatings that can be applied to any surface, and energy-generating windows are quickly coming on-stream as well.

When we tap into renewable energy (solar, wind, small hydro, geothermal, tidal) we are tapping into energy that

is constantly being created in real time. It's the energy "income" of planet Earth.

Its all around us in countless different forms, it doesn't pollute, and it never runs out.

Solar energy is a bright, bright idea, and it's coming to our rescue. Look, up in the sky!

Each year,
about 9 million
kilowatt-hours
of solar energy
fall on each acre
of generally
sunny earth.



This 12 kW solar array on the Armitage home in Hudson's Hope, BC, will provide all the energy this family needs for next half century. (Array designed and installed by Peace Energy Cooperative.)