

Science and Digital Briefs

By Shopper Editor Dave Bunting

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Solar power's aluminum challenge

Aluminum for required solar power structures is five times the world's planned production.

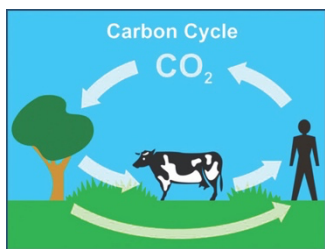
Most of the worries about solar panel production have focused on the [elements](#) that go into the panels themselves, like gallium, cadmium, germanium, indium, selenium, and tellurium. But according to [new research](#), the massive amount of aluminum needed to house the solar rigs of the future could create further problems.

The total for frames, mountings, and other parts came to 486 million metric tons, almost five times the 100 million metric tons the world bank had calculated.

The World Bank report predicted that only 4 TW of photovoltaics would need to be installed by 2050, only one fifteenth of the 60 TW, set by the most recent International Technology Roadmap for Photovoltaics (ITRPV). The world would need to produce 4.5 TW of additional capacity each year until 2050 to keep warming to under 2°C. For context, by the end of 2020, just over 0.7 TW were installed.

Also the aluminum manufacture would generate very high emissions. Producing one tonne of aluminum from bauxite—a common source of the element—results in between “really high” 14 and 16 metric tons of CO₂ or equivalent. “If your electricity is coal or fossil fuels powered, the emissions will be huge.”

Info: shpr.fyi/solaralum



Human food is from plants- Our human carbon cycle

All human “living” or biological food energy is produced by the sun's energy creating various carbon substances in plants through photosynthesis.

Yes, we eat animals, but the food substances in animals are created from their eating plants whose food substances are, as in the paragraph above, carbon produced by the sun in plants.

There is no other human food, no human food other than the



carbon produced in plants using the sun's energy.

Photosynthesis in plants uses the sun's energy to convert carbon dioxide or CO₂ from the air into “reduced” forms of carbon such as proteins (wood and muscle are proteins), fats and, of course, carbohydrates.

Our bodies, the same as in all plants and animals, in all of our cells, use the energy in these carbon substances, oxidizing or “burning” them using oxygen from the air inhaled in our lungs, either to create body tissues (which are a temporary form of carbon storage), or to create energy, producing, as a waste product, carbon dioxide that we exhale.

All biological life, in all plants and animals, is based on this simple carbon cycle.

The energy we use from carbon fossil fuels, oil, coal or natural gas, was also created in plants though millions of years ago then buried deeply in the earth under high pressure and temperature which converted the plant tissues into our coal, oil and natural gas.

We also use non-biological energy directly for power useful to us: 1) solar panel power, 2) turbines in dams which convert the sun's energy *after it lifts the water as vapor to rain on the mountains and run back down through the hydroelectric turbines*, and 3) nuclear power generated using the sun's own processes.

We can use energy from these non-plant sources to create light energy which, like the sun's light energy, we can shine on plants which they use to change carbon dioxide in air to biological energy and tissues. But that energy is again available as our “living” biological energy only after this processing through plants.

We have never found a way to convert such non-biological energy into biological energy that we or plants can use directly- we cannot “eat” the power generated by solar, hydro or nuclear generation. Before we can eat it, plants must convert it into the biological tissues and energy we humans can use, can eat.



Moxee Solar Power Approved

The Goose Prairie solar project has been approved, clearing the way for Seattle-based OneEnergy Renewables to build the 80 megawatt project on 625 acres about 8 miles east of Moxee with work expected to start later this year.

The solar panels will tilt throughout the day to follow the sun, maximizing solar energy

output, according to a news release. The approval also has an option for a battery storage system at the site.

The site is near State Route 24, Den Beste Road and Desmarais Road. The system will deliver power through the Bonneville Power Administration's lines at the site for use at Goose Prairie or anywhere else on the national power grid.

The site is named “Goose Prairie” as it likely was originally proposed for a large meadow at Goose Prairie, the community in Okanogan-Wenatchee National Forest east of Chinook Pass, whose residents were seeking more and more reliable power. It was logically moved to the Moxee site for availability of a large flat lower-value south-facing land area, sunnier weather, and proximity to major power lines.

Includes excerpts from the [Ya-kima Herald-Republic](#).

Info: shpr.fyi/3fZ1SGA



Bill Gates' Nuclear Power Plant

Last November, TerraPower, the US-based nuclear power company backed by Bill Gates, announced it had chosen a site for its first reactor. [Kemmerer, Wyoming](#), population 2,500, is the site of a coal-fired plant being closed. The TerraPower project will see it replaced by a 345-megawatt nuclear reactor that would pioneer a number of new technologies: a reactor design that needs minimal refueling, cooling by liquid sodium, and a molten-salt heat-storage system.

TerraPower is backed by Bill Gates who is promoting nuclear power as a partial solution for the climate crisis. The company has been selected by the US Department of Energy to build the reactor, with at least \$180 million toward construction and perhaps billions of dollars in the future.

Info: shpr.fyi/gatespower

Coal Power “Down” not “Out”

BEIJING, Nov 15 (Reuters) - How humanity confronts climate change has come down to the intentions behind two words.

The U.N. COP26 climate conference adopted a [final deal](#) two months ago that at the last minute dropped wording calling for the “phase out” of coal-fired power, replacing it with “phase down”.

“If we are to successfully transition to the energy system of tomorrow, we cannot simply unplug from the energy system of today,” Sultan al-Jaber of Abu Dhabi, said.

“We cannot just flip a switch.”

Info: shpr.fyi/coaldown

Dave Bunting, Jan. 31, 2022
References in links below items.
See these columns on my blog: daverant.com