

Stephen P. Cook's review of **Planet of the Humans** film available on You Tube spring 2020
executive producer Michael Moore, producer / writer Jeffrey Gibbs

Before I tell you why I do NOT recommend this film, describe what's WRONG with it and where it MIGHT have gone, let me start by identifying what I feel it gets RIGHT. For me, while much of its one hundred minutes is painful to watch, roughly twenty-five minutes of it is valuable. Unlike many people who live (like I do) in small town America, it does not celebrate something I call "Freedom From Limits." Instead the film charts and leaves us pondering the dangers of something clearly connected to the unlimited exercise of freedom, namely unrestrained economic and population growth. Its most moving images—which connect with its title and which we see as it ends—involve an orangutan in what was once a (Southeast Asian?) forest. The poor creature, nothing like the apes depicted in the old "Planet of the Apes" movie, is in the middle of a huge clear-cut sadly swinging from the branches of the only tree left standing after the unrestrained resource extraction. Alas, he soon dies...

...Undoubtedly "Planet of the Humans" filmmakers want us to make a metaphorical leap and leave wondering whether our inability to rein in growth will result in destroying all life on the planet and eventually ourselves? And—while the film doesn't go there—one could ask whether perhaps a "Limits and Ethics" orientation might be a more responsible choice than "Freedom From Limits?"* (see note 1 below)

Prior to that ending, the film suggests that there are both too many humans, and that those of us in the affluent world must change our excessive consumption-based lifestyles. But sadly it does little more than identify this problem. It doesn't elaborate by picturing examples of how people who choose (again these phrases are mine) "Enoughness" live differently from those who choose "More is Better."* (note 2 below)

The concept of "Enough" is one my mentor and eventual collaborator Donella Meadows, coauthor of the 1972 MIT / Club of Rome bestseller *The Limits to Growth*, liked to write about. She—and others like *Small is Beautiful* author E.F. Schumacher—helped me appreciate that, if humanity is have a sustainable future, it must collectively embrace "Enoughness." Not only did the film miss an opportunity to picture this in action, it also generally fails with respect to fairly portraying the basis for a sustainable economy—namely renewable energy.

For starters, it makes mining / producing high purity silicon for photovoltaic (PV) solar panels look like it is unsustainably tearing up the planet. In actuality—given the optimum thickness of the active layer in solar cells is a tiny 100 microns (1 micron = one millionth of a meter)—this is, relatively speaking, not that significant compared to the alternative. The film wants us to forget coal mining and all those train cars full of coal being constantly delivered to power plants. And forget about related greenhouse gas / climate change concerns. Lets not...

Imagine 40 years of operation of two 500 megawatt power plants—one solar PV and one coal fired. My back of the envelope calculation*(note 3 below) suggests all the silicon in the former would weigh around 20,000 tons. Sounds like a lot, except when you realize that once that is in place you've got it for the whole FORTY YEARS lifetime of the installation. The "fuel"—supplied by the Sun—is free. In contrast the coal-fired power plant would use 20,000 tons of fuel in the form of coal (burned at 250 tons per hour) in the first roughly FOUR DAYS (80 hours) of its operation—and keep using coal at the rate of 250 tons per hour for another 39 years and 361 days! Plus the coal-fired plant itself makes extensive use of resources in its construction. And the film wants us to forget the 10 billion tons of carbon that coal-fired power plants worldwide emit every year (roughly ¼ of all global emissions)!

Given that much of it is based on Ozzie Zehner's book *Green Illusions* published in 2012, the film is dated. This is important in that the last decade has seen dramatic developments in solar and wind—both in terms of improved technology and in economics. In the latter regard, renewables are now fully competitive with fossil fuel in many parts of the world. And certainly the so-called net energy situation for them has improved. With regard to the film's suggestion that solar PV is a net energy loser (meaning it takes more energy to make them than they ultimately produce), this was once true. Undoubtedly the first PV panels (made in 1979) I used in my attempt at self-sufficient living in the Arkansas Ozarks fit into this category. But today's panels are so much better!

One analysis—based on PV panels as used in (not especially sunny!) Switzerland in 2016 *(note 4 below)—put their ratio of total electrical output to 'equivalent electrical energy' investment in the range of nine or ten. (A net energy loser would have this value as less than one.) Speaking of my first PV panels: they were still producing close to their rated output 35 years later when I included them in the sale of my house in New Mexico. I mention this as my comment on the film's irresponsible suggestion that PV panels may last no more than ten years!

Likewise it unfairly attacks wind as to longevity / materials (neglecting to mention metal for constructing/ installing them can be recycled) and land use. It features clearing a New England mountaintop to install wind machines, and cutting Joshua trees for a solar installation in the California desert. Clearly there are places NOT to put wind and solar. Sadly the filmmakers included these spots, rather than the ranches and farms of the Great Plains / Midwest, and thus missed interviewing Texas ranchers / Iowa farmers who love the money wind machines bring them as their land does double duty. Nor does it mention rooftops as good places to put solar panels.

The film points to costly and environmentally questionable electrical energy storage as a big problem in using renewables, and points out that electric cars often run on fossil fuel derived energy from big dirty power plants. While increasingly new developments—especially in places like California—allow renewable energy enthusiasts to counter such charges, I would have liked the film to showcase positive solutions instead of all the negativity! For example, rather than documenting what happens to a solar-powered festival when it rains to emphasize the intermittent nature of solar / wind, the film needed upbeat treatment of both proven (such as pumped hydro) and promising energy storage technologies. Personally I'm excited about the prospects of society using existing pipeline infrastructure in transitioning to meeting current uses of natural gas with hydrogen gas produced from splitting water with direct solar or wind derived electricity—and to highways with, not just electric cars but also, hydrogen fuel cell powered vehicles!

After its generally irresponsible takedown of solar PV and wind- produced electricity, the film describes many nightmarish biomass energy installations. Many of us back in the 1970s were initially excited by prospects for using renewable energy from biomass. But after decades of experience—and lack of hoped for breakthroughs—that enthusiasm has either dampened considerably or, in the case of some technologies (like making ethanol from corn) turned to very hostile opposition. Sadly the film links solar and wind with biomass in putting down green energy in general! And unfortunately some film watchers may conclude that, because biomass derived energy masquerading as renewable is bad, all renewable energy is bad. Not so!

Of course it is naïve to conclude that all biomass projects related to energy utilization / land use are bad. Some are more appropriate than others; some can even dramatically minimize greenhouse gas / carbon emissions. Putting lots of people to work selectively thinning overgrown western USA forests to minimize catastrophic forest fires (and huge carbon release) may fit here.

With respect to biomass, beyond lamenting all the trees cut for questionable reasons and related boondoggles, the film might have provided inspiring footage of people planting trees in suitable locations around the world for the purpose of capturing lots of carbon dioxide. This can have added benefits, notably to poor farmers and investors. In this latter regard I've recently invested \$2500 * (note 5 below) in funding an acre of fast growing trees that, over a ten year period as they grow to maturity, can capture 1000 tons of carbon. That 1000 tons is FIFTY YEARS worth of an average American's 20 tons of carbon per year footprint. That \$2500 might grow considerably—yielding a nice monetary return on the investment—when the trees, which stump sprout so don't need to be replanted, are harvested and the timber is sold. Footage of such trees growing on President Carter's Plains, Georgia land might have found its way into this film had it chose to focus on “the solution” rather than “the problem.”

Indeed the film might have inspired us with “can do” type human accomplishments in using renewable or energy efficient technologies, appropriate technology, regenerative agriculture, or practicing the five “R”s—reusing, repairing, recycling, refusing to buy what is not needed, and reducing waste... Sadly it not only assaulted some of these efforts, but also went after people and organizations. In particular, Bill McKibbin, Al Gore, and the Sierra Club were singled out for abuse.

We all know that humans are imperfect creatures and that it's always possible to find examples of this. Accordingly, it saddens me that this film, in terms of another choice I've outlined elsewhere * (note 6 below), fosters “Cynicism” rather than bolstering good feeling by celebrating “Service to Others.” I won't defend the individual actions attacked, except to note that Al Gore is the same guy who, after winning the 2000 election popular vote for President, averted a constitutional crisis by gracefully bowing out after a politically biased Supreme Court decision. As for the Sierra Club, I refer you to its defense of specific charges the film makes. * (note 7 below)

In conclusion, instead of all the negativity, this film could have painted an upbeat, positive picture of what we've learned about using renewable energy in environmentally responsible fashion, and how those lessons are shaping—and will continue to shape—a sustainable human future. And, after the valuable “limits to growth” lesson and tragic footage of the dead ape, it could have left us with an inspiring imaginary glimpse of a much different “Planet of the Humans” if we make good choices!

*** Notes and More to Explore**

note 1: a complete description of these two choices is at

<http://www.projectworldview.org/choice40.htm>

note 2: a complete description of these two choices is at

<http://www.projectworldview.org/choice45.htm>

note 3: this is based on (what may very well be too high?) 40 kilograms of silicon in one kilowatt of PV capacity—which is roughly the size of the array in my Arizona backyard

note 4: see <https://www.sciencedirect.com/science/article/pii/S0301421516307066>

note 5: the company is Mesa, Arizona-based World Tree (see <http://www.worldtree.info>)

note 6: a complete description of these two choices is at

<http://www.projectworldview.org/choice32.htm>

note 7: I've posted the Sierra Club response to the film at

<http://www.projectworldview.org/SCdefense.pdf>