Prof. Franco Battaglia

The Fraud of Climate Change and Energy Transition

This is the edited transcript of the presentation of Francesco Battaglia to Panel 3, "Principles of Science for Durable Economic Progress," of the Schiller Institute's June 18–19 Conference, "There Can Be No Peace Without the Bankruptcy Reorganization of the Dying Trans-Atlantic Financial System." Prof. Battaglia was until recently Professor of Physical Chemistry at the University of Modena, Italy. He holds a Ph.D. in Chemical Physics from the University of Rochester in New York, and is the author of many scientific papers and books on theoretical chemistry and chemical physics.

Subheads have been added. Some graphics used in the presentation are omitted, and direct references to them deleted.

Schiller Institute

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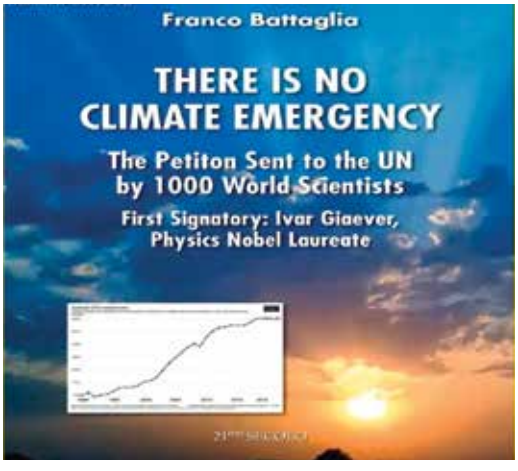
Good morning! When governments in Europe and the U.S.A. choose their energy policy, they assume that there is a climate emergency that must be stopped, caused by fossil fuels and CO_2 emissions, which must be reduced to zero; and that we must produce energy in other ways, specifically using so-called renewables, especially to generate electricity—but also to reduce emissions from cars, the transportation sector, heating, lighting, essentially everything—as conceived by those who want this energy transition, specifically to wind and solar panels.

Now the fact that there is no climate emergency, has been brought up many times. This pamphlet contains a petition, "There Is No Climate Emergency," sent to the Secretary General of the United Nations by a thousand scientists; the first signatory was a Nobel laureate in physics, Ivar Giaever. Of course, this fell on deaf ears.



Abandonment of Fossil Fuels Is Impossible

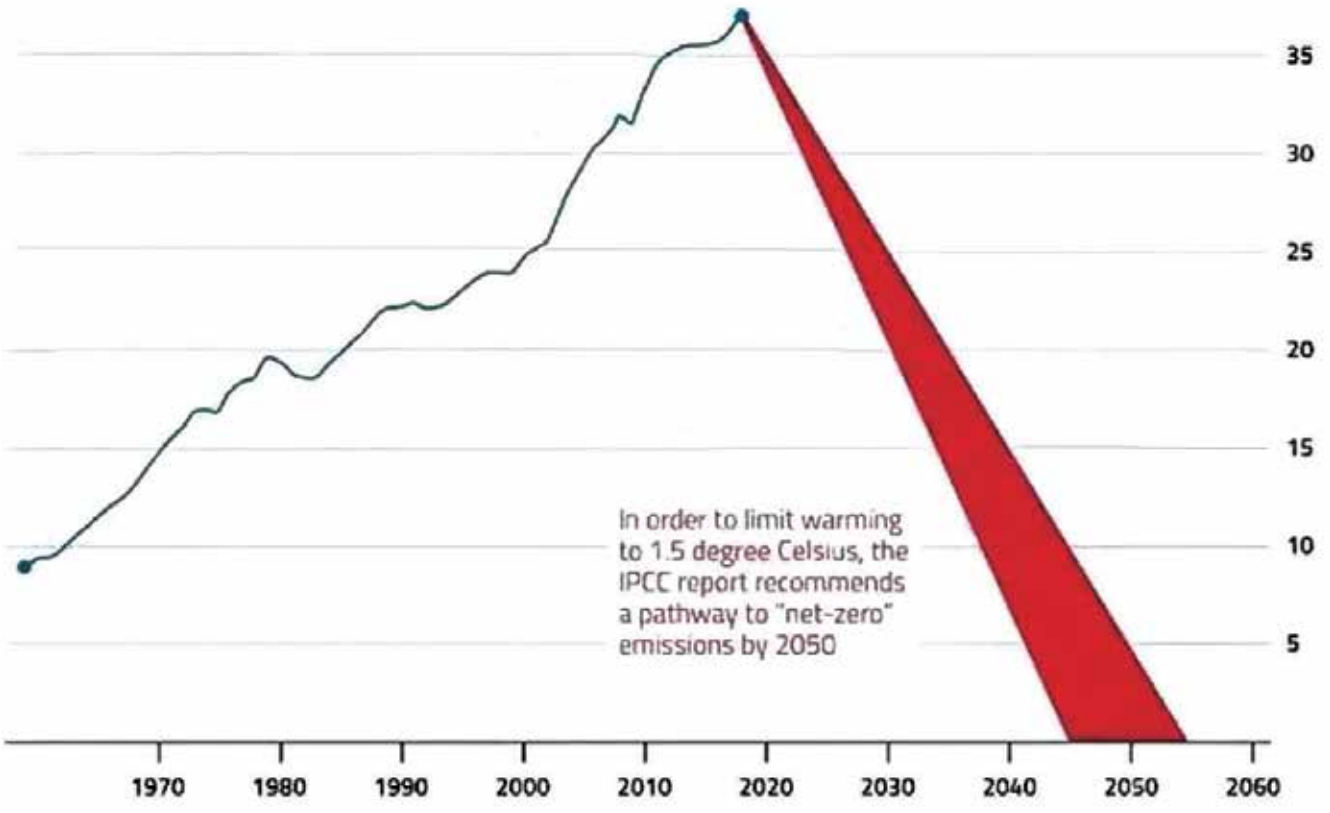
Let's now look at why reducing CO_2 emissions is not only undesirable but also impossible. The year 2021 was not the first time an attempt was made to reduce CO_2 emissions; in fact, the world's big names have already met 26 times, most recently in Glasgow last year; this year they will meet in Egypt in November, for the 27th time, which shows they failed 26 times!

On other occasions, they actually tried to sign agreements, most notably the Kyoto Protocol and the European Union's 20-20-20 package. The Kyoto Protocol, which came into force in 2003, stipulated that CO_2 emissions should be reduced by 6% by 2012; and the 20-20-20 package stipulated that by 2012, the date of the expiration of the Kyoto Protocol, CO_2 emissions should have been reduced by 20% from 1990 levels. In reality, emissions increased by 40%. Observing that emissions were rising in defiance of every Kyoto agreement, in 2008 the European Union launched this 20-20-20 package, proposing that by 2020, they would reduce emissions by 20% from 1990 levels. But this curve keeps going up and emissions are 60% higher.

It is a fact that CO_2 emissions have been rising relentlessly for 150 years. The Green New Deal, or the [European Commission's] "Fit for 55," would like to reduce emissions and bring them to zero over the next 30 years, a leap that will absolutely not happen; rather the contrary, emissions will continue to increase simply because abandoning fossil fuels is technically inconceivable and impossible.

Why is it technically impossible to abandon fossil fuels? Of course the other countries in the world are perfectly aware of this. The European Union con-

The Impossible Pathway: IPCC Carbon Emission Reductions To Limit Warming to 1.5 Degrees



Source: Global Carbon Budget 2018

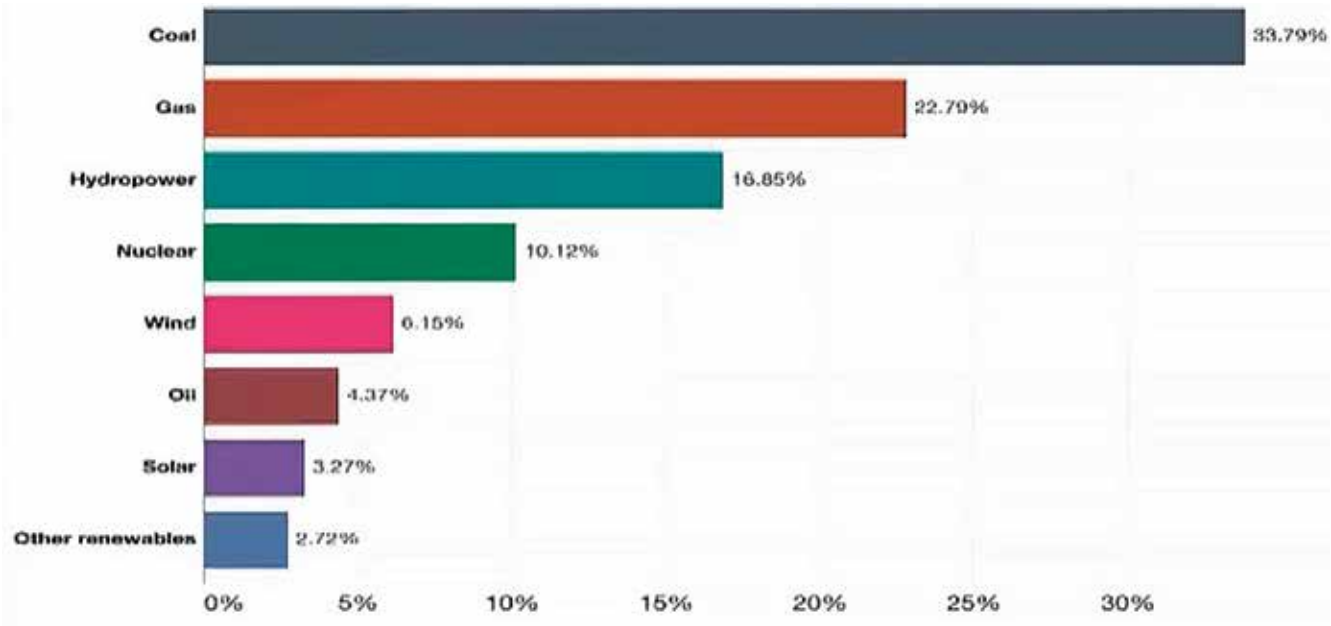
tributes only 9% to world emissions—if the EU were to actually zero out its emissions, this would in fact not contribute *anything* to its alleged climate impact. I repeat: This would have no effect on the *presumed* climate impact, because the 91%, the rest of the world's emissions, will not be reduced. In fact, they will increase, given the energy policy programs of both China and India.

So, what is the point? The point you have to understand is that our civilization, our society, differs from past civilizations in one very specific thing, which is that we have made available to all, abundant and cheap energy. For several tens of thousands of years until 200 years ago, we got 100% of our energy from the Sun. Today, solar energy, even if we include hydroelectricity—which is also solar energy—contributes less than 10%. So, solar energy is without question the energy of the past. Eighty-five percent of our energy today comes from fossil fuels; add 5% from nuclear to that 85%, and we have 90% of our energy coming from technologies that do not use solar energy; they are not in the renewable energy pool.

Now why did I say it is technically impossible to make this coveted energy transition? The main reason is [that] for Italy—but the graphs for the United Kingdom and other advanced countries are similar—regarding the consumption of electricity over a 24-hour period … Italy always consumes [at least] 30 gigawatts (GW) of electricity. However, in the hours between 8:00 a.m. and 8:00 p.m., the rate of consumption increases and reaches a maximum peak of 60 GW at 7:00 p.m. Now, at 7:00 p.m. it is dark; therefore, photovoltaic panels installed on all city roofs actually count for zero. As for the wind, we cannot assume the wind will blow at 7:00 p.m. just because we want it to.

Then, in order to meet the maximum peak electricity demand—and we are imagining a world that would like to go all-electric—to meet this maximum peak, we would need sufficient conventional plants to guarantee the electricity to meet this demand. And what kind of conventional plants? The ones that produce power on user demand. Do we need more electricity? We fire up the coal plants, the natural gas plants, nuclear plants, we

Share of World Electricity Production by Source, 2020



Source: Our World in Data based on DP Statistical Review of World Energy & Ember

burn more coal, more gas or more uranium depending on the demand. I have simplified things slightly, but basically that's the way it is. It doesn't apply to nuclear power, which is always on, but gas turbines can be turned on quickly on demand at peak hours.

As an alternative to gas turbines there is hydroelectricity, the only renewable source that technically has any validity. Why? Because hydropower also produces electricity on demand. I drop water on the turbine so that gravitational potential energy at height becomes kinetic energy when water falls on a turbine, and is transformed into electricity. That's the point.

So, conventional technologies are absolutely irreplaceable. Hydropower of course has a constraint; the constraint is that it depends on reservoirs. In the Italian province of Puglia, there are no hydropower plants, but we do have them in Trentino Alto Adige. Basically, a country like Italy can rely on hydropower for around 15–20% of its needs. The rest has to be covered by either nuclear, or coal, or natural gas.

And this is also true for other countries. The load curve of the United Kingdom has the same pattern: 7:00 p.m. is the peak of maximum consumption.

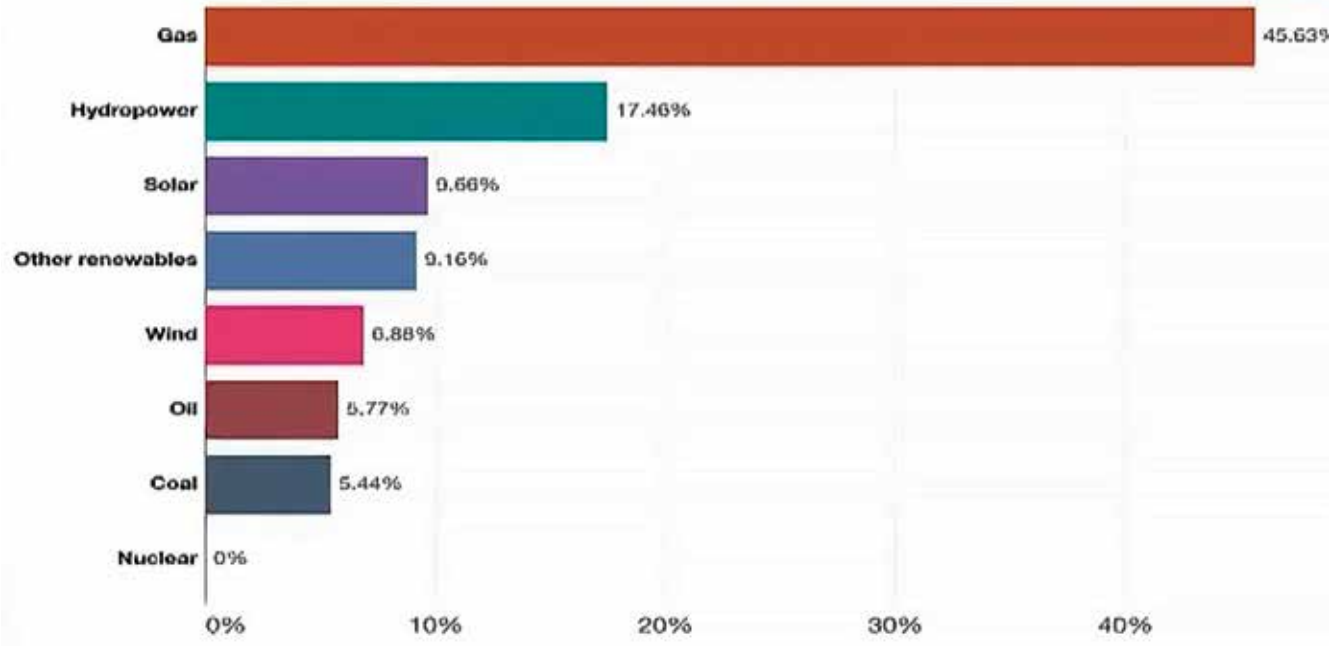
Sources of World Energy Today

Now, how about the world? What does Italy do? What would Europe like to do? How does the world produce its electricity? Mainly, 34–35%, from coal. What about Italy? Italy wants to stop coal altogether. In fact, I think the president of ENEL, in a recent speech, said he wants to close all our coal plants and cover the areas with photovoltaic panels: just plain crazy.

And what about the rest of the world, what do they do? The world relies a little too much on natural gas. Too much, because it would be better to rely mainly on coal and nuclear. This is a graph for world energy production. In Europe, nuclear is first and coal is second. In the United States, coal is first and nuclear is second. However, let's look at the situation in the world as a whole. Coal is first. Natural gas—I repeat, there is too much dependence on natural gas to generate electricity; natural gas should be used for the auto industry, and as I said earlier, we should use coal, nuclear—and to the extent possible, hydro—for generating electricity, and natural gas only slightly for generating electricity, say 5–10%; not the 25% that is currently the case in the world. No more than 5% to meet peak demand, since gas turbines turn on quickly.

However, unlike the rest of the world, Italy has relied almost entirely on natural gas. Much worse than the world has: Almost half of its electricity needs are met by natural gas. How did this ever happen!? Because Italy said "No" to nuclear power. We produce zero percent nuclear; if we include consumption, we would be

Share of Electricity Production by Source, Italy, 2020



Source: Our World in Data bsed on DP Statistical Review of World Energy & Ember

at –15%, because Italy imports nuclear power from France: We have a contract to import 6 gigawatts. We have reduced nuclear to a new import commodity. With coal, we're being picky, we want to shut it down; so coal is out, nuclear is out, and we are doing as much as we can with hydro—so we've tied ourselves, hand and foot, to suppliers of natural gas. Specifically Russia, which has rightly supplied us with its natural gas at, shall we say, all too reasonable prices.

The Insanity of Going to War with Russia

We have committed the further insanity of going to war with Russia, for no reason at all. The Russian-Ukrainian issue is an issue between Russia and Ukraine. Getting entangled with supplying weapons to one of the two contenders, first of all, was foolish because it does not take into account the claims of either side, particularly Russia, which can also be understood as legitimate claims if one analyzes them carefully. Secondly, we have taken ourselves out as a potential peacemaker, an arbiter.

And so this war that Russia is fighting in Ukraine with all reasonable motives—the main motives being that Russia did not want to have NATO missiles on its borders, which is reasonable; just like in 1962, when Kennedy could not tolerate Soviet missiles on its borders, specifically, just off Florida, in Cuba. And that little conflict, which was not an armed conflict: Khrushchev and Kennedy resolved it within a week. Khrushchev, very reasonably, turned around his ships carrying missile parts to be assembled in Cuba, and shortly after, in return, the United States removed its missiles from Turkey.

Today, such a peaceful solution, with both sides compromising, has been obviated by choices which in my view, are tinged with evil. My position from this point of view is the same as that of Pope Francis.

As a result, we now have a big problem besides having to be reconciled with Russia, which cannot be guaranteed without Russian natural gas, either directly or by using intermediaries. About this, there is no doubt.

But the other problem is that the expenditures, the economic investments we are making into technologies that are, as we say in Italian, gimmicky, losers, interruptibles—specifically wind and solar panels—will put our backs against the wall, while energy prices increase, the which will make us less competitive with countries that have cheaper energy.

Let me stop here to leave time for questions.