

# President Biden's Silk Purse: Young People Will Sit in Judgment

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**The eyes of history may see 2021 as a turning point for human-made climate change. Hyperbole? Maybe not. Today is a potential turning point because the public now sees the reality of climate change. Senators Joe Manchin and Kyrsten Sinema, in questioning the Green New Deal “climate plan,” give Joe Biden the chance to make a silk purse out of a sow’s ear. The critical issues are not rocket science: college and high school students can understand the basic issues and policies that will determine their future. Biden has the opportunity to initiate an effective domestic climate program that would survive changes of administration and lead the world in the right direction. Given the fact that the United States is most responsible for existing climate change, it is incumbent upon Biden to work with China – the largest current source of greenhouse gas emissions – to fashion a joint approach that will help assure a bright future for humanity and nature.**

Burial of the Green New Deal climate plan is not a loss. No other nation should copy that plan (its failings are noted below). [Economists](#)<sup>1</sup> agree that the fastest, least cost, way to phase down carbon emissions must begin by collecting a rising carbon fee from fossil fuel companies with 100% of the funds distributed uniformly to the public. [Student body presidents at more than 450 colleges and universities](#)<sup>2</sup> – with both red and blue political leanings – support this fee & dividend approach. So do a large number of [high school student leaders](#).<sup>3</sup>

The Supreme Court ruled in Massachusetts v EPA that CO<sub>2</sub> is a pollutant that EPA has the responsibility to regulate. The Supreme Court majority in this ruling included current Chief Justice John Roberts. [Biden's EPA has authority to collect a rising pollution fee](#)<sup>4</sup> – a carbon fee – from the fossil fuel industry.

All of the funds from the carbon fee should be distributed to legal residents. In that case, [two-thirds of the people come out ahead](#),<sup>5</sup> receiving more in their dividend than they pay in increased prices. Thus, the public will support the policy, even though the price of fossil fuels will rise. Products with a large fossil fuel component in their construction will be shunned as the carbon price rises. A rising carbon fee is not the only action required, but it is a [foundation of climate policy](#)<sup>6</sup> that makes other actions to reduce emissions more effective and faster in uptake.

A rising domestic carbon fee can spur international phasedown of fossil fuel emissions. Nations that have a carbon fee will [collect a border duty on products from countries that do not have an equivalent carbon fee](#).<sup>7</sup> This border duty will encourage more nations to have their own fee, so they can collect the money themselves.

**Fee & dividend is the goose that can lay golden eggs;** it spurs innovation and modernization of infrastructure, thus increasing economic activity and tax revenues that can be used for social justice programs, such as universal pre-K education. Fee & dividend itself directly [supports social justice](#),<sup>8</sup> because most low-income people will receive more in their monthly or quarterly dividend than they pay in increased prices.

The greatest threat to fee & dividend is posed by advocates of tax-and-spend, who will try to grab all or part of the revenue from the fee to fund their favorite technologies or social programs.

Such a money grab would be an arrow through the heart of the goose – killing both the climate solution and social justice. The public – not receiving the dividend they need to deal with the changing world – would rebel against rising fuel prices. High carbon emissions would continue.

But if the Biden administration imposes the carbon fee & dividend program through its existing right to collect a carbon fee, this approach should withstand any legal challenge by the fossil fuel industry. Fee & dividend is clearly designed to solve the problem created by the pollutant.

**The original Green New Deal climate plan is a sow's ear.** Its cost would be paid in part by borrowing from young people already struggling to pay off student debts. Claims that it would not add to the national debt are contradicted by budget analyses and common sense. The costs would add to the national debt, inflation, and burgeoning interest costs on the national debt.

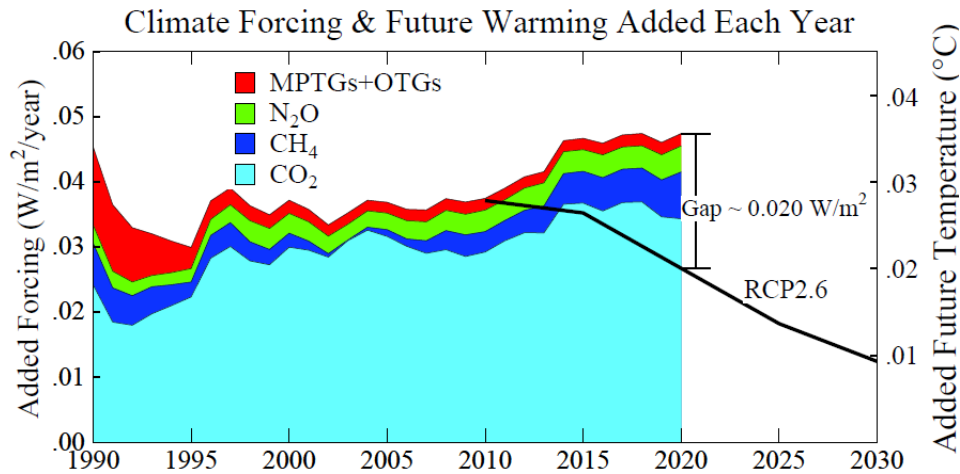
Our government cannot run an effective top-down climate plan. I worked for one of the better agencies – NASA – and saw the growing impact of the inefficient, archaic civil service system. It's no accident that the private sector can launch a spacecraft 10 times cheaper than NASA can.

The Green New Deal is designed to phase out nuclear power. Large subsidies are included for wind and solar energy, adding increased debt burden for young people. Nuclear power is also subsidized in the Green New Deal, but more than ten times less than the renewables subsidy. Why not exclude all these subsidies, replacing them with cost-free fee & dividend as economists recommend? This would save the taxpayers money and reduce the ballooning national debt. If renewables are now the cheapest energy – as advocates claim – renewables will be chosen as a replacement for fossil fuels as the rising carbon fee rapidly forces down fossil fuel use.

The nuclear power subsidy in the Green New Deal is for 5 years and the renewables subsidy for 10 years. That makes no sense. Renewables already have been subsidized for 30 years, plus a large uncalculated subsidy from Renewable Portfolio Standards (RPSs) that force utilities to obtain a portion of their power from renewables with the RPS cost passed on to the public via higher electricity prices. Renewables should be ready for market now, without more subsidies.

Nuclear power was not only excluded from RPS support. Bill Clinton – after he was elected in 1992 – announced in his first state-of-the-union address: “We are eliminating programs that are no longer needed, such as nuclear power research and development.” Nuclear is potentially the least-cost energy, but it was excluded from support that would drive down its costs.

[Young people understand](#)<sup>9</sup> that, despite past prejudices against nuclear power, the inherent benefit of its high energy density and small environmental footprint will allow nuclear power to be a 24/7 power source that is needed to complement intermittent renewable energies, if there is a level playing field for all energies. However, Administration plans seem to be written by the anti-nuclear faction of the Democratic party: (1) the Versatile Test Reactor Project (VTR) at the Department of Energy (DoE) has been dropped from Biden's proposed 2022 budget ([Conca, 2021](#)).<sup>10</sup> VTR is a facility the private sector could use to test new fuels and materials for new reactors, supporting the private sector the same way that NASA did. Elon Musk's rocket launch success did not appear out of thin air: NASA provided start-up funding and allowed use of NASA facilities. (2) The Nuclear Regulatory Commission (NRC) needs to support the private sector by reducing the extraordinary time and cost of its reviews, but there are severe doubts about whether the NRC will reform its ponderously slow procedures ([Nordhaus, 2021](#)).<sup>11</sup>



**Fig. 1. Annual growth of GHG climate forcing (red is trace gases, mainly CFCs). Graph shows 5-year means, except 2019 is the 3-year mean and 2020 is 1-year mean.**

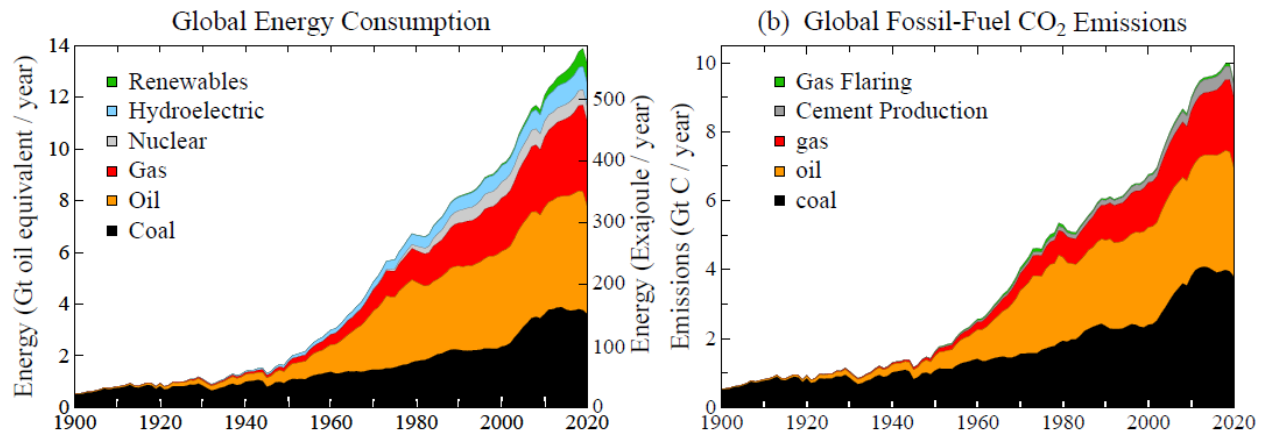
I was agnostic about nuclear power when I criticized climate policy in 2004, but as I traveled with environmentalists the next few years, I saw exaggerations in their concerns. Also, I did not admire their tactic of trying to make nuclear power as expensive as possible. I helped organize national and international workshops including energy experts with all perspectives, as recounted in draft chapters 43 ([Energy for the World](#))<sup>12</sup> and 45 ([Energy and World Peace](#))<sup>13</sup> for *Sophie's Planet*. We concluded that nuclear power is crucial as a complement to renewable energies, if young people are to have a bright future with a hospitable climate.

Today, intermittent renewable energies provide only a few percent of global energy. Their portion will increase, but they will not provide all of our energy in the foreseeable future. The world requires a large portion of energy from sources that provide a continuous (24/7) flow of energy. That energy will be provided by fossil fuels and nuclear power; for the sake of young people, a large fraction had better be from nuclear power.

**A cruel hoax is being perpetrated on young people.** The United Nations Conference of the Parties (COP) meetings and the Intergovernmental Panel on Climate Change (IPCC) respond to demands of climate justice by defining ambitious scenarios for greenhouse gas (GHG) amounts and global temperature. That's a fake. No policies are adopted – or even considered – that would allow the real world to actually approach such scenarios.

The best way to expose lack of realism is to graph the scenarios versus real world data. Figure 2 of my first book<sup>14</sup> showed that – despite decades of huge subsidies for renewable energies – the real energy mix in the United States had made little progress toward the goal of “all renewables.”

Now it's more relevant to compare reality with the 2015 Paris Agreement goal: “holding the increase in global average temperature well below 2°C above pre-industrial levels and pressing efforts to limit the temperature to 1.5°C...” IPCC scenario RCP2.6 was consistent with that goal, but the real world quickly diverged from that scenario, as shown in [Young People's Burden](#)<sup>15</sup> and updated in Fig. 1. The gap between this 1.5°C scenario and reality in principle could be closed by sucking CO<sub>2</sub> from the air and sequestering it. But the cost of CO<sub>2</sub> extraction would be trillions of dollars, even for optimistic cost estimates, cf. the *Burden* paper. Such CO<sub>2</sub> extraction will not happen – the UN has a hard time raising even \$100B for climate adaptation.



**Fig. 2. Global energy consumption and fossil fuel emissions. BP data<sup>16</sup> are used from 1965. Giffellan et al. data<sup>17</sup> of earlier date are adjusted by factors near unity to match BP in 1965.**

The cruel hoax perpetrated at COP meetings must be apparent to IPCC scientists, but with rare exception (e.g., Kevin Anderson) the alarm is not sounded: it is now impossible to achieve the Paris agreement goal with the COP diplomatic approach. Scientists with even a smattering of understanding of global energy use realize the limitations imposed by realpolitik and realpolitic, even if they do not use those words.

**Realpolitik and realpolitic impose limitations on emission reductions.** Realpolitik refers to practical factors that limit the speed of change even with committed leaders. Realpolitic refers to additional politics – usually spurred by special interests – that further limit the rate of change.

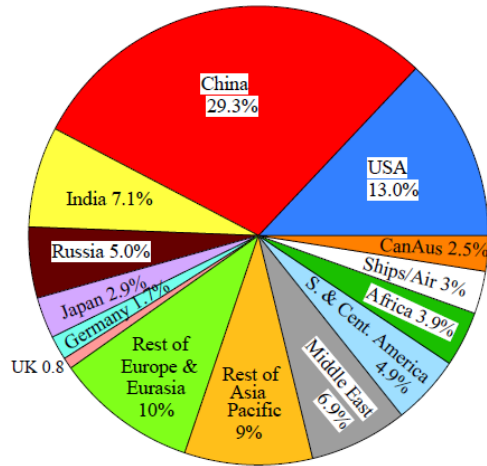
Realpolitik refers to much more than the fact that a political leader must be certain to “keep the lights on.” A more important factor is the desire of the public to raise their living standard. Fossil fuels are a convenient, inexpensive source of great energy. They will be used, unless an equal or better alternative is available. It takes time to develop adequate alternatives.

Realpolitic causes additional delay due to poor governance. A political leader may find it convenient to obtain support by denying the reality or seriousness of climate change. The fossil fuel industry may find it easier to bribe governments, rather than develop clean energies.

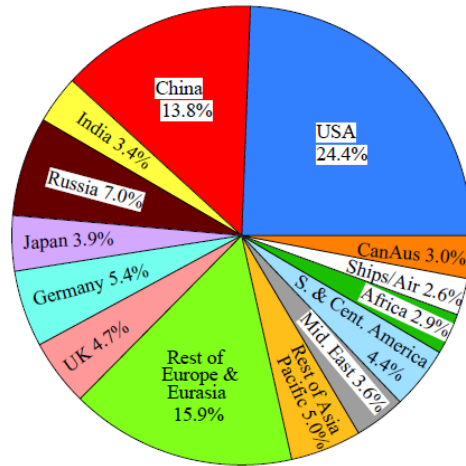
Political leaders understand these limitations that make it difficult to achieve global emission reductions, especially in the near term. Thus, they set goals for some time in the future when they will likely be out of office, if not dead. The consequence of this delay tactic is that the positive exclamations at the conclusion of COP meetings are bullshit.

Realpolitik and realpolitic limitations can be overcome, if basic energy facts are understood and addressed. The first basic fact is that fossil fuels are readily available and they will be used as long as their price does not include their costs to society. Those costs include air pollution, water pollution, and, especially, climate change. The second basic fact is that renewable energies must be complemented by a reliable 24/7 energy source, and the choices for the foreseeable future are nuclear power and fossil fuels. In principle, fossil fuels might be used with carbon capture, but the only ready – or almost ready – complement for renewables is nuclear power.

(a) 2020 Annual Emissions (9.4 GtC/yr)



(b) 1751–2020 Cumulative Emissions (452 GtC)

**Fig. 3. Left: fossil fuel CO<sub>2</sub> emissions in 2020. Right: cumulative 1751-2020 emissions.**

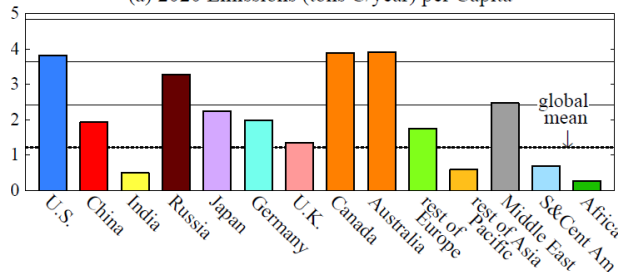
**C**ontinuing growth of atmospheric CO<sub>2</sub> is the main drive for climate change, as shown by Fig. 1. This growth is caused by the emissions from burning of fossil fuels. China is now the largest emitter of fossil fuel CO<sub>2</sub>, with more than double the emissions of the United States. However, climate change is proportional to cumulative emissions<sup>18,19</sup> – the pie chart on the right. The United States is the nation most responsible for global warming.

Per capita emissions are also relevant (Fig. 4, based on 2020 populations).<sup>20</sup> U.S., Canadian and Australian citizens are highest emitters today among the major emitting nations (Fig. 4a). United States, United Kingdom and German citizens are most responsible for climate change (Fig. 4b).

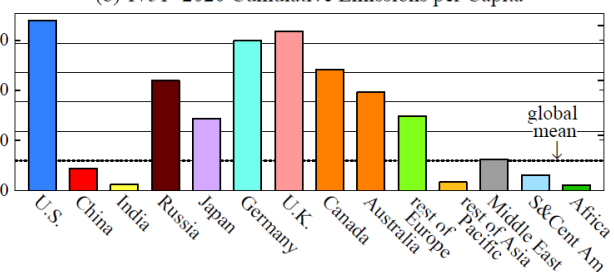
The United States and China have the largest economies in the world. If these two countries choose to cooperate on energy and climate, they can change the course of our planet’s history.

In early 2014 I was fortunate to be invited to give the science talk on climate change at the *Symposium on a New Type of Major Power Relationship* in Beijing. The other science talk from the U.S. – focused on infectious disease – was given by Donald Shriber of the Centers for Disease Control (CDC), as the CDC Director, Tom Frieden, was unable to attend. My presentation was blunt. I provided all of my [charts](#)<sup>21</sup> to the hosts. Some of the charts are updated in [draft Chapter 47](#) of *Sophie’s Planet*.

(a) 2020 Emissions (tons C/year) per Capita



(b) 1751–2020 Cumulative Emissions per Capita

**Fig. 4. Left: fossil fuel emissions in 2020. Right: cumulative 1751-2020 emissions.**

My talk described the danger of climate change and the fundamental actions needed to avert that danger. The existential threat is the potential to initiate unstoppable sea level rise to a level that causes loss of coastal cities, combined with global warming that makes low latitudes unlivable. The basic ingredients of a solution are (1) a steadily rising global carbon fee, and (2) modern ultra-safe nuclear power at a price comparable to that of fossil fuels.

The timing and setting of the meeting seemed propitious. The Symposium was a cooperation between the Kissinger Institute on China and the United States and the Counselors' Office of the State Council of the People's Republic of China, where the latter is think tank of the non-military executive departments of the Chinese government.

After the opening talks in Beijing, we visited several Chinese cities and manufacturing sites for solar panels and windmills. De facto the West and China had cooperated to drive down the cost of those renewable energies, as the continuous development spurred by the large global market brought down the unit prices for both solar and wind energy.

**An analogous cooperation on the next generation of ultrasafe nuclear reactors** can provide the missing link required to move to carbon-free electricity. After the symposium I contacted nuclear experts in the United States and Chinese colleagues to arrange a workshop on climate change and nuclear power.

We held the workshop in 2015 and published a [paper in Science](#)<sup>22</sup> describing the potential for China-U.S. cooperation to advance nuclear power as well as the obstacles to cooperation. We noted that each country has a major stake in the other's success in reducing its carbon emissions, and each has a major stake in the achievement of enhanced nuclear safety in the other country and the rest of the world. Agreements would be needed to manage U.S.-Chinese commercial intellectual property exchanges and to create a stronger mutual foundation for coordinating support for international nonproliferation and security objectives.

Hopes for near-term cooperation were torpedoed by the Trump Administration shortly after the 2016 elections in the United States. The early actions of the Biden Administration are puzzling. It is well understood that [China and the United States will be competing](#)<sup>23</sup> in many ways, but that should not prevent cooperation. What is the priority that we place on the future of young people and the planet?

The danger is that realpolitics will prevent or long delay needed cooperation. If high global fossil fuel emissions continue for several decades the existential threat could become reality. There is a danger of shutting down the overturning ocean circulations, leading to [sea level rise of several meters](#)<sup>24</sup> this century and the loss of coastal cities.

Young people will be sitting in judgment. There is a growing sense that neither political party in the U.S. is on their side. There is also a growing sense of the political power that young people are capable of wielding, as they demonstrated in 2008, when they turned the tide, leading to election of Barack Obama. I'm out of time here – this topic is continued in Chapter 49 Equal Rights and Opportunity of *Sophie's Planet*.

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- <sup>1</sup> [Economists' statement on carbon dividends](#), Wall Street Journal, 17 January 2019.
- <sup>2</sup> Hansen, J., [Student Leadership on Climate Solutions](#), [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1), 31 July 2020.
- <sup>3</sup> Hansen, J., [Can Young People Save Democracy and the Planet?](#), [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1), 8 October 2021.
- <sup>4</sup> Hansen, J.E. and D.M. Galpern, [Biden should impose a carbon fee now](#), Op-Ed, Boston Globe, 1 June 2021.
- <sup>5</sup> Hansen, J. and J. Marshall, [A carbon tax is key to addressing the climate crisis – and carbon dividends could get Congress to support one](#), Op-Ed, Boston Globe, 8 September 2021.
- <sup>6</sup> Hansen, J.E., draft [Chapter 44: Tell the President the Whole Truth](#) for *Sophie's Planet*, archived at [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1).
- <sup>7</sup> Hansen, J.E., draft [Chapter 42: Old King Coal Lives](#) for *Sophie's Planet*, archived at [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1).
- <sup>8</sup> Boyce, J., [The Case for Carbon Dividends](#), Polity Press, 2019.
- <sup>9</sup> Hansen, J., [Why Are You Optimistic?](#), blog communication, [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1), 11 August 2020.
- <sup>10</sup> Conca, J., [There is still time to save U.S. global leadership in nuclear energy if Congress doesn't cut off the VTR to spite its face](#), Forbes Magazine, 25 August 2021
- <sup>11</sup> Nordhaus, T., [Can NRC Reform Itself?](#), Breakthrough Institute, 15 October 2021.
- <sup>12</sup> Hansen, J.E., draft [Chapter 43: Energy for the World](#) for *Sophie's Planet*, archived at [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1).
- <sup>13</sup> Hansen, J.E., draft Chapter 45: [Energy and World Peace](#) for *Sophie's Planet*, archived at [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1)
- <sup>14</sup> Hansen, J., Chapter 2. The A-Team and the Secretary's Quandary, in [Storms of My Grandchildren](#), Bloomsbury, 320 pp., New York, 2009.
- <sup>15</sup> Hansen, J., M. Sato, P. Kharecha, K. von Schuckmann, D.J. Beerling, J. Cao, S. Marcott, V. Masson-Delmotte, M.J. Prather, E.J. Rohling, J. Shakun, P. Smith, A. Lacis, G. Russell, and R. Ruedy: [Young people's burden: requirement of negative CO<sub>2</sub> emissions](#). *Earth Syst. Dynam.*, **8**, 577-616, 2017.
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- <sup>19</sup> Matthews. H.D., N.P. Gillett, P.A. Stott and K. Zickfeld: [The proportionality of global warming to cumulative carbon emissions](#), *Nature* 459 829–32, 2009.
- <sup>20</sup> Prior versions of this figure overestimated percapita emissions from the Middle East, because of an error in the population estimate.
- <sup>21</sup> Hansen, J., [Symposium on a New Type of Major Power Relationship](#), Beijing, 24 February 2014 ([http://www.columbia.edu/~jeh1/mailings/2014/20140224\\_Beijing35.pdf](http://www.columbia.edu/~jeh1/mailings/2014/20140224_Beijing35.pdf)).
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