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Texas State Geologist Scott Tinker:...COP26 prepares to commit trillions of dollars.... it is important to understand

how confusing, and even implausible, are some of the roadmap's key 2050 assumptions...paved with bad assumptions

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The road to Glasgow is paved with bad assumptions
By Scott W. Tinker, opinion contributor
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While global leaders prepare to trek to Glasgow for COP26 - the United Nations Climate Change conference - Asia, Europe and Britain are experiencing **energy crises**, largely politically self-inflicted. The public is paying the price.

Meanwhile, COP26 aims to "accelerate action toward the goals of the UN Framework Convention on Climate Change" and the goal of **net-zero emissions**. The idea being that if the world could balance human-sourced emissions of greenhouse gases with equivalent emissions removals, warming could stay below 1.5 degrees Celsius.

As the guide for getting to net-zero emissions, the International Energy Agency (IEA) - an intergovernmental organization often called the "world's energy watchdog" - published its "**Net Zero by 2050: A Roadmap for the Global Energy Sector**" in May of this year, where it describes a "narrow but achievable" path to net-zero emissions. While the IEA does excellent, objective work, critics say it is undermining the "**climate change battle**."

The IEA roadmap certainly assuages those accusers by targeting a "net zero energy system" underpinned by an extremely rapid transition away from carbon-based fuels - for example, an immediate end to new coal, oil and natural gas. Yet, in reality, emissions are the primary issue for climate change, not fuels. Nonetheless, fuels continue to be targeted by public pressure that is starving oil and gas companies of capital, and government policies legislating and subsidizing solar, wind and battery winners.

As global leaders at COP26 prepare to commit trillions of dollars, guided by this roadmap, it is important to understand how confusing, and even implausible, are some of the roadmap's key 2050 assumptions.

Assumption No. 1: No new oil and gas fields, and no new coal mines or mine extensions.

In the roadmap, unabated coal demand declines by 98 percent, when in fact coal in Asia continues to **expand** significantly. Oil consumption declines by 75 percent, and natural gas by 55 percent.

These fuels are replaced within the roadmap in part by expanding wood, biomass and biofuels, even though bioenergy has been shown by many **studies** not to be particularly "green."

Assumption No. 2: While population and the global economy continue to grow, global energy use actually declines.

This requires an annual rate of energy intensity improvements averaging 4 percent to 2030, about three times the average rate of the past two decades. Never before have population and economic growth detached from energy consumption. Even in the most remarkable of efficiency assumptions, it is hard to envision this arbitrary global reduction in energy consumption.

Assumption No. 3: Two-thirds of total energy supply in 2050 will come from wind, solar, bioenergy, geothermal and hydro.

Solar alone would account for one-fifth of total energy in the roadmap - with solar photovoltaic capacity increasing 2000 percent and wind increasing 1100 percent. One challenge not often considered for such unprecedented growth in turbines and panels, and the batteries to back them up, is the environmental damage, human rights violations and national security issues associated with the mining, manufacturing and landfill disposal required.

Assumption No. 4: In the roadmap, per capita CO2 emissions in developed economies, currently around 10 tons, and in emerging and developing economies - for the more than 6 billion people other on Earth - currently around 4 tons, decline to zero.

In reality, per capita CO2 emissions in emerging and developing nations, which have the largest and fastest-growing populations and economies, will continue to rise long before they fall.

Assumption No. 5: Investments in end-use energy, energy infrastructure, electricity generation and low emissions fuels rise from just over $1 trillion annually to $4 trillion; cumulatively around $120 trillion in the next 28 years. Staggering.

Achieving any single assumption will be very difficult - but taken in the aggregate, it's highly unlikely.

In reality, there are many roads to net-zero emissions. Whatever the ultimate path, it must focus on emissions. It must reflect the **multiple global transitions** playing out today, driven by such factors as geopolitics, natural resources, physics, economic growth, reduction of atmospheric emissions as well as protection of land, air and water. In fact emerging economies, represented by the **Ministerial Statement** of Like Minded Developing Countries, consider net-zero emissions to be "anti-equity and against climate justice."

One thing is clear: Emerging and developing economies will **not sacrifice economic growth for emissions** reductions. They might, however, consider a range of technology and resource options that focus on emissions reductions, while allowing them to continue to benefit from affordable and reliable coal, oil and natural gas.

Yet, many academics, think tanks, advocacy organizations and government officials continue to propound IEA roadmap-type thinking and produce reports with 80 percent or more solar and wind. Reality can be a harsh teacher as we witness the many self-inflicted global energy crises today, in systems with considerably less than 80 percent. Weather-dependent wind and solar can't deliver reliable energy at scale without extensive and expensive backup.

Undercapitalized oil and gas companies can't provide the required backup, causing many countries to **reach out to non-neighborly neighbors** for natural gas and coal as winter approaches. As a result, energy prices are soaring.

It can be difficult to separate our biases and beliefs from science and economics. But separate we must, lest a climate-based roadmap lose its energy-reality way, hurting the very people it was intended to protect. The ***road to green should not be paved with bad assumptions.***

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