

Original Paper

Can the Cop21 Stop the Rise of CO₂s

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Abstract

The UN Climate Change Conference COP 25 is a huge international reunion to attempt to enact with unanimity policies that counteract global warming or its effects. Can such really overcome the difficult problematic of collective action inherent in providing global public good?

The Global Environmental Process runs meeting after meeting-no results. The global thermometer keeps rising, as CO₂s do not decrease. The first manifestations of Hawking's irreversible change have appeared around the world. Only one major non-incremental policy would make a difference: close down coal power.

Keywords

UNFCCC COP (United Nations Framework Convention on Climate Change Conference of the Parties), hawking, lomborg, coal substitution by solar plants, Bhadla Solar Park

1. Introduction

In the great debate between *climate change deniers* and *climate change asserters* the question is the preponderance of evidence, and not beyond reasonable doubt. The global warming hypothesis is falsifiable in Popper's philosophy of science. Thus various doubts may be put forward. But the evidence collection so far supports the climate change hypothesis. Even worse, there is reason to fear irreversibility.

The Social Sciences have discussed for a long time whether rational comprehensive decision making is possible in public institutions like government. In classic economic theory market actors were assumed capable of rational decisions explaining the law of demand and supply. However, management theory of the firm denied this, launching instead the Herbert Simon incrementalism.

So successful were the teachings of the so-called Carnegie School of organization theory that all large organizations, private or public, were modeled as making decisions or policy incrementally, i.e. focusing only upon marginal changes.

Two American political scientists, Charles Lindblom and Aaron Wildavsky, took the teachings of James March very literally, modeling government and public administration as piecemeal disjointed marginalism. Certainly. International public organization was no exception, although matters could be even worse: irrational decision making or the garbage can in Joined Johan Olsen's words. How, then, could mankind counteract climate change by rations policy making?

2. Hawking's Irreversibility

Global astro physicist Stephen Hawking stated in an interview some time before his death in 2017 that planet Earth had entered unstoppable climate change. Refuting comments were made by for instance Dane Bjorn Lomborg. We know that Hawking might have exaggerated, but today we ask ourselves if we are beyond the point of no return with slowly but steadily worsening environmental degradation.

Global climate policymaking is far away as few countries take the Paris Agreement seriously. Examining the energy plans of the largest and most polluting nations, one discovers no impact of Paris promises.

It is well-known that international decision-making is slow with high transaction costs.

The UN bodies have met for many a year and large enquiries have been published. Yet, little policymaking towards the chief problem, coal, has been achieved.

3. Lomborg and the Cornucopians

It should be mentioned that there are a few famous scholars claiming that climate change is either not taking place at all or that it has been exaggerated. The criticism of environmentalism might have contributed to the slower development of an anti-global warming policy by the UN. The shift to electric engines in new automobiles is extremely positive but will not be sufficient. One should attack the core of the problem, namely the demand of supply of coal fired energy.

The Cornucopians challenge environmentalism by rejecting not only global warming but also general environmental degradation. Their theory is today expanded by Bjorn Lomborg in several publications, but it was formulated by economist Julian Simon and political scientist Aaron Wildavsky. The Earth is plentiful, they stated, and highly resilient to various kinds of usages. Environmentalism is merely a myth constructed in order to frighten the public, as well as to criticize the prevailing economic system, i.e., capitalism.

Lomborg suggests that one should not concentrate on reducing CO₂s and rather keep using fossil fuels. He maintains that planet Earth has other more urgent priorities: reducing starvation, clean water and halting the spread of HIV. These are completely arbitrary, because the world can do all of this and simultaneously reducing carbon pollution in major world metropolitan areas, e.g., New Delhi, Beijing and Paris.

4. Notion of Irreversibility

In the context of environmental change irreversibility is a most dire concept. It entails that there is no restoration of an earlier equilibrium possible whatever the size of change involved. There is a real risk that planet Earth is on a slow evolution towards ever hotter predicaments, eliminating numerous species. All known feedback loops are positively reinforcing climate change

It is not known what the time process looks for global warming: how much and when and how if any negative feedback loops could be released, then a new stationary would be possible.

Human interaction or climate policymaking: The development of events could be changed by a large scale policy against the most polluting of the fossil fuels, namely coal. But it requires non-incremental decision-making-can this be done by an international body?

The attempts at implementing climate policy are thus far only successful at the national level. Temperature rise to plus 2 degrees up to 2050. At the time markets adapt to the new situation or expectations thereof. The arrival of electronic cars is a great innovation for the halt to CO₂ rise. In the energy supply there are several changes or plans for innovation in order to rely more upon renewable sources of power.

Yet, despite all the announced changes people feel that things are not moving quickly enough. Thus, we witness growing citizen concern in global mass protests. The US government still shirks despite the many signs that young people believe their futures are being compromised.

5. Earth CO₂ Thermometer

Is the planet already at its Hawking's point in time? The notion of irreversible transformation is very menacing, as policy could only slow down the arrival of a global disaster

There is a way to find out about irreversibility, namely to consult the global thermometer CO₂ daily: 10 November at 410 ppm and 408 one year ago (CO₂).

As long as the "fever" goes up, hope diminishes. Why, then, cannot irreversibility be excluded? Because demand and supply of fossil fuels and energy is all but static.

6. Sanguineness

Well-known commentator on climate change, Professor Johan Rockström at Stockholm University now suggests that Environmental Science and Earth Sciences have reached an understanding of safe global limits for the survival of mankind in its present biological and chemical form. Thus, the question is merely to derive policies that enforce these limits, one of which is the amount of carbon dioxide in the atmosphere. No doubt the Earth Sciences have made great progress since the initial warnings of global warming. However, we still need much more information. First, the *exact* relationship between atmospheric concentration of CO₂ and global temperature is not fully understood. Second, we don't know *when* the impact of climate change could be unsupportable for various species as well as man. Third, we are ignorant about the possibilities and costs of wide-scale carbon capture / elimination as well

as storage.

Professor Rockström appears to state that since we can estimate the limits of bearable environmental damage, we will automatically take action to enact them. Why? Knowledge does not always translate into action. The United Nations and its intergovernmental conferences have no sound policy making procedure for combatting global warming.

7. Energy Today and Tomorrow

The demand for energy is rising rapidly meaning fossil fuels may only diminish relatively. Look at the BP global images in Figure 3 in the conclusion. In this projection energy demand grows sharply as economic growth and development keep rolling on in both rich and poor countries-unstoppably it seems at least. Renewables are poised to replace coal, but it is merely a chimera. Coal will be reduced relatively speaking but not much absolutely. As oil and natural gas will predictably increase, the necessary decrease in fossil fuels is illusory.

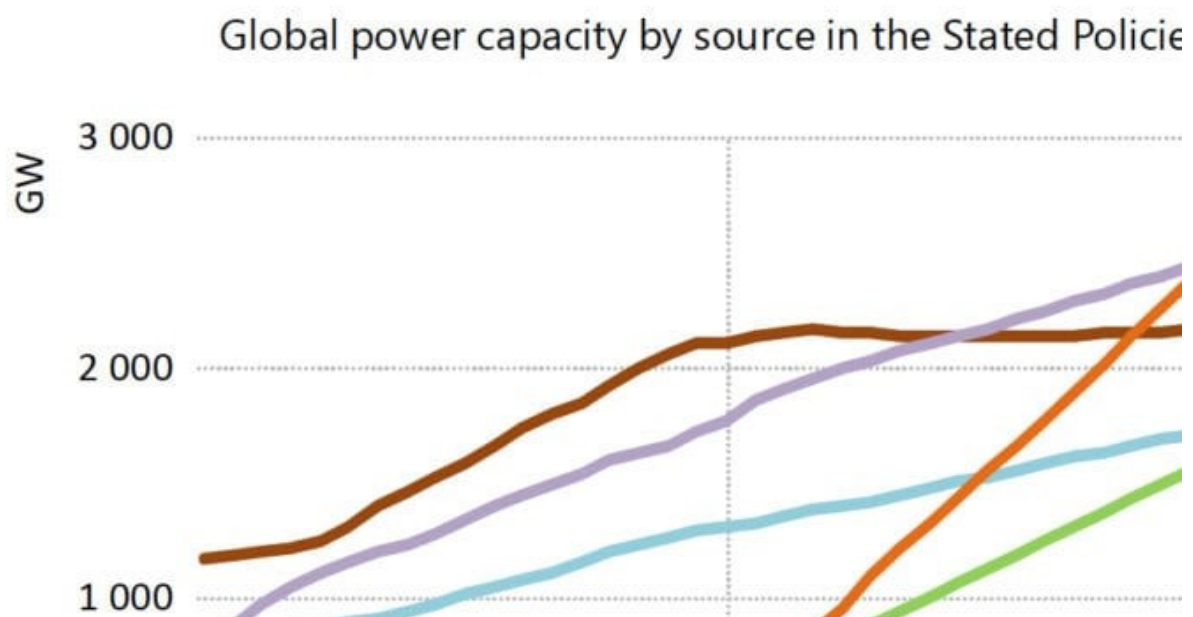


Figure 1. Global Power Capacity Projection

Source: IEA.

Here we have ILLUSION ONE that makes Hawking's irreversible thesis relevant for climate policymaking nationally or internationally:

Illusion 1: Coal or fossil fuels will decrease very much absolutely up to 2035.

COAL-WILL IT DISAPPEAR?

The culprit in the global climate crisis is first and foremost coal. Coal is the dirtiest of all energy kinds, but it is also used on huge quantity in several countries. It is not difficult to reduce the burning of stone

coal but what about wood coal or charcoal?

Charcoal is the conundrum of the energy of poor people - how much is burned every year? Charcoal is wood with many use, in poor countries it is a most vital source of heat and energy. Charcoal is derived from the trees in forests, resulting in an enormous pressure upon the forests around the world.

Charcoal is produced from wood and is easily traded. As wood in the forests is an open access resource it is bound to be depleted. Charcoal is the poor man's free riding, to be exported to fellow poor families. The whole process of producing and contaminating charcoal releases of Co₂.

Here we have some quotes about charcoal in Latin America:

"According to a new FAO report, Latin America and the Caribbean at the global level is only surpassed by Africa in terms of per capita production and use of charcoal.

The FAO report, The Charcoal Transition, points out that Latin America and the Caribbean produced about 8.9 million tons of coal in 2015, surpassed only by Africa, which produced 62 percent, 32 million tons.

Brazil is not only the largest producer in the region, but the country that produces the most charcoal in the world: it generated 6.2 million tons in 2015, 12% of global production.

More than 90 percent of wood-derived coal in Brazil is used by the industrial sector, with the metallurgical industry using 80 percent of the total.

In other countries of the region, however, coal is mainly used in the food industry and in households." (FAO)

Illusion 2: Coal may be much reduced although charcoal will keep diminishing world forests.

POVERTY AND ENERGY: A STRONG LINK

The charcoal story implies that poverty enters the global environment conundrum. The coordination bodies of the UN and WB, IMF and WTO work for two chief objectives:

A) Reducing poverty

B) Reduce CO₂s.

This is not the place to analyse at length the various policies for alleviating poverty around the globe. What is to be emphasized is that poverty reduction necessarily involves country economic growth or development. Thus, the enormous economic advances in East Asia have lifted millions out of poverty. But the price is heavy air pollution. India is faced with the very same problematic - rapid economic growth versus environmental degradation.

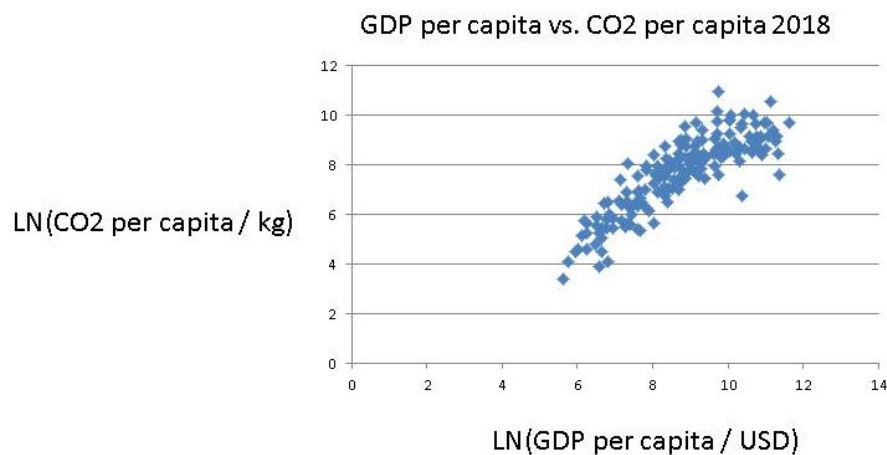


Figure 3. GDP per Capita-CO2 per Capita 2018, Log-Log Scale

Poor countries can NOT bypass the general relationship between socio-economic development on the one hand and increasing CO2 demand on the other hand. The two horns of this global dilemma are poverty reduction and CO2 increased where both outcomes are driven by economic growth. It is urgent to invent how development can be promoted by carbon neutral economic growth.

Illusion 3: Development can be carbon neutral.

NUCLEAR POWER: NOT AN OPTION?

Several countries have decided to abandon their nuclear plants for renewables. To shut down and dismantle an atomic station is extremely costly, especially if done prematurely. The Fukushima catastrophe became a starting signal for atomic power close down in Germany and France. However, Sweden began already around 2000 to prematurely abandon nuclear power. One can mention that Sweden is about to replace atomic power with a large expansion of biomass. However, burning biomass also results in CO2 emissions and other forms of pollution. The thesis that biomass is carbon neutral is flawed, because it requires that forests are cleared, and they may not be replaced. Sweden has much lower CO2s than capita than Denmark and Norway, but it may simply be an accounting trick.

Illusion 4: Nuclear Power is more damaging for the environment than biomass.

SOLAR POWER

Below we make an attempt to calculate how much solar energy would be required to replace coal power. As benchmark the Bhadla Solar Park in India is used, projected to deliver 2255 MW once construction is ready from December 2019. In all, 900 such plants would be necessary to completely eliminate all coal power generated in 2018. Table I illustrates how many solar plants of this size each of the ten biggest coal producing nations would need to install to replace their entire coal power production.

Table 1. Number of Bhadla Solar Park Plants Required to Replace Coal Power by Country (Global Energy Monitor)

Country	Number of plants
Asia:	
China	475
India	100
Japan	28
South Korea	18
Thailand	2
North Korea	2
Americas	
United States	106
Colombia	1
Europe:	
Germany	32
Russia	30
Africa:	
South Africa	14

Illusion 5: One can phase out coal power slowly, with replacements of biomass.

The global close down of coal fired power and heat would signal the environmentalism is top priority. It can be combined with activities against plastification of ocean and sea, the turn to electric cars, etc.

Conclusion

It remains to be seen if the UN coordination efforts result in any concrete policy. The revolution in the car industry helps of course, but the Co2 thermometer keeps ascending.

The risk for global environmentalism is that it becomes a movement of despair and protests only. One may say that we know much more now than a mere 10 years ago about the natural limits of our civilisations. However, how are the necessary restraints to be introduced and enforce?

Environmentalism must now attack the sources of the problematic: fossil fuels. By closing down coal fired power plants and build a stream of solar power plants, a major step in the right direction would be taken. This is non-incremental policy making on a global scale, which is the only chance mankind has to avoid Hawking's irreversibility. Otherwise, we end up in the scenario in Figure 3, where fossil fuels and in particular coal dominate the energy sector in spite of a surge for renewables. Countries must use solar power as *substitute* for coal power, and not as *supplement*.

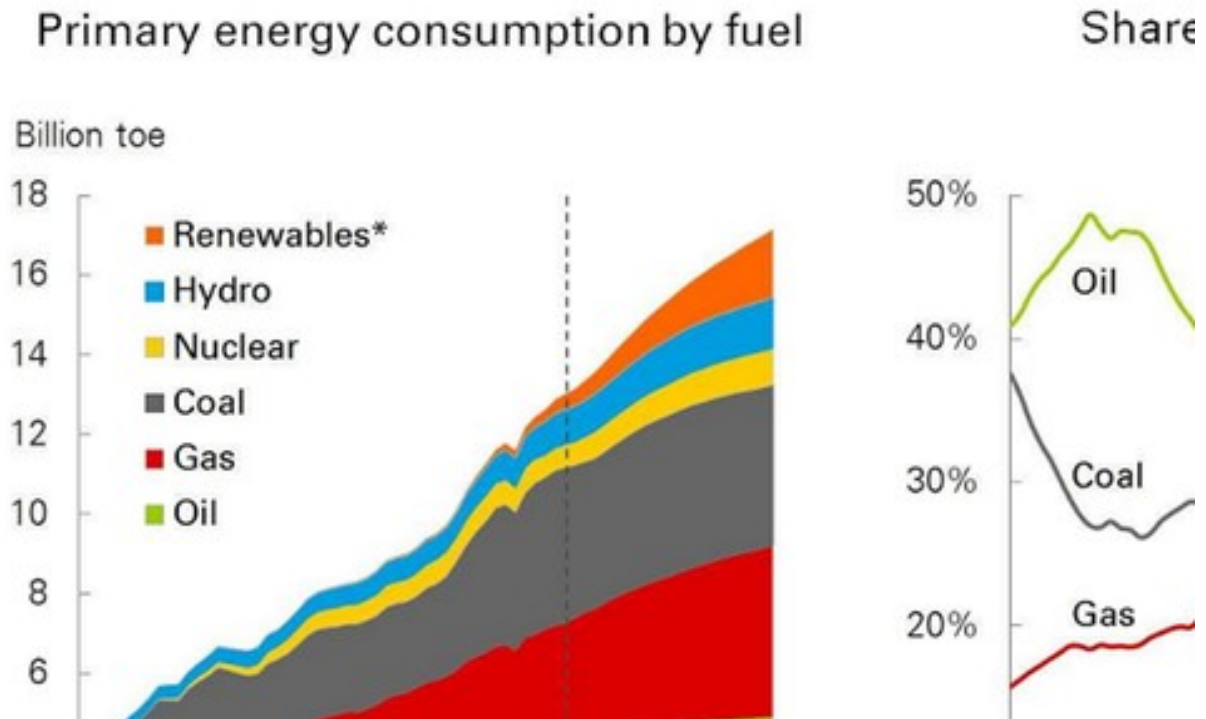


Figure 3. Primary Energy Projections (BP)

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