

Translated from the original Catalan at:

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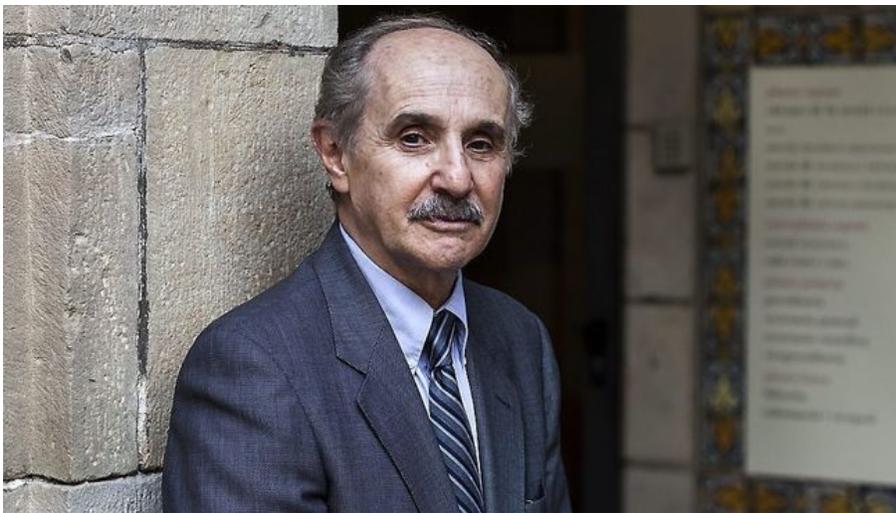
International

CLIMATE CHANGE

Edward Rubin: “If we don’t reduce CO₂ emissions to the air it will be impossible to stop global warming”

Scientist of the IPCC, the group of UN experts and Nobel Peace Prize laureates, and climate technology specialist

SONIA SANCHEZ Barcelona UPDATED 06/19/2016 00:00



After tense negotiations in Paris, the final agreement on climate change eliminated the word *decarbonization* and replaced it in order to find "a balance between emissions by anthropogenic sources and removal by sinks of greenhouse gases." Although sinks are primarily natural forests and oceans that capture CO₂, some scientists interpret the text as a gateway to technology that extracts CO₂ from the air to store it underground. This is what is also known as sequestration of CO₂, a subject in which the scientist Edward Rubin is a leading global specialist. Within the group of UN experts on climate change (the IPCC, which won a Nobel Peace Prize), Rubin – who was invited to Barcelona by the Institute of Catalan Studies -- coordinated the report precisely on the use of such technology to prevent warming.

But wouldn’t this technology to sequester CO₂ simply allow many countries to continue consuming oil and gas?

The more options excluded from the equation, the harder it will be to stay below a 2°C or 1,5°C rise in average global temperature. We must be honest about the options we have. A scenario of 100% renewables is impossible in the short and medium term. Nuclear power? It has many other risks. And

fossil fuels, which today produce 85% of our energy will not disappear quickly. So the alternative to not using the option to sequester CO₂ is to continue emitting more CO₂ to the atmosphere. Without carbon sequestration it may be impossible or very difficult to achieve the necessary reduction. China and India, for example, continue burning coal. It should not be a substitute for other measures, but we cannot exclude any option.

Are governments interested in this?

Governments and industry are not currently demanding this for two reasons: because the technology is still developing, and especially because of its high cost.

Saudi Arabia, for example, has included in its Paris commitments to build the world's largest platform for capturing CO₂. Does he see this as realistic?

In Saudi Arabia there are many universities doing research on the subject. There is interest in this technology in that country and others in the region, but in large part it is to use CO₂ to extract more oil.

How?

CO₂ has interesting properties: it can help extract oil from the ground. If you successfully drill for oil, natural pressure pushes the oil out, up to a certain point. Then it becomes more difficult. To get the remaining oil, the first thing the industry does is to inject steam, which helps release oil. But if you use CO₂ you can get even more. It acts as a lubricant for the more difficult oil. This technique, called enhanced oil recovery, is widely used in the western US, particularly in Texas.

This oil will eventually generate more CO₂. So, is nothing gained?

This is often true. But now with lower oil prices enhanced recovery is no longer profitable. This was going to be the main use of CO₂ when oil prices were high, but with current prices it may no longer pay off.

Are there are some countries that are extracting CO₂ from the air for climatic reasons?

Not from the atmosphere, but from industrial processes. The first country to do this was Norway. During the 1990s the Norwegian government imposed a tax on emissions of CO₂ from natural gas production of 40 euros per ton emitted. However, since the cost to capture and store the CO₂ under the North Sea in Norway was only about 20 euros per ton, the industry found it cheaper to do so. But on the continent unless other governments impose a high tax, no one else will do it because it is too expensive.

Wouldn't storing CO₂ underground entail risks such as earthquakes or other effects?

Not if you put in the right place. Certain geologic formations on land and under the sea, as in Norway, are ideal places. Also depleted oil wells, where oil has been stored for many thousands of years can be used to store CO₂. According to geological studies, there are many places to store it safely using the least costly technology.

Wouldn't it be better to focus research on renewables?

Renewables could end up replacing other energy sources for electricity, but not transportation. Cars, planes and ships cannot operate directly on renewable energy sources like wind and solar. There are currently only three ways to use renewables for transportation: electric vehicles, hydrogen, or biofuels. But there is still a long way to go to make these viable on a large scale.