

CO₂ Stories

Alain Labastie, 2011 SPE President, president@spe.org



The second SPE International Conference on CO₂ Capture, Storage, and Utilization will be held 10–12 November in New Orleans. CO₂ issues are at the center of many controversies, within the general public as well as the scientific community and even the oil and gas community. These controversies may have a significant impact in our industry, so I would like to take this opportunity to share with you some personal thoughts on the subject.

It is important to make a clear distinction between facts, which are well established, and theories or interpretations, which may be subject to intense discussion. Let's start with facts.

- CO₂ concentration in the Earth atmosphere has been increasing since beginning of the industrial era, about 150 years ago. This increase is well correlated with the intensive use of fossil fuels as energy source.

- There are many substances acting as greenhouse gases (GHG) in the atmosphere, the most important being water vapour. However, only the concentration of CO₂ has significantly increased in the past century.

- The oil and gas sector accounts for one-third of GHG emissions, but this is mostly due to the end users, you and me: transportation, heating of buildings, etc. The oil and gas industry itself, including E&P, refining, and distribution of petroleum-related products, accounts for only 5% of the global GHG emissions, much less than agriculture (share=14%) or deforestation (share=17%).*

This is important to remember: our industry is perceived as being responsible for a large fraction of GHG emissions, and this is not true. The end users—i.e., the general public—are responsible, and they don't realize that.

However, many unconventional hydrocarbons that we are beginning to produce have much higher CO₂ emissions per barrel, as compared to conventional light oil. For example, emissions from extra-heavy oil produced by thermal methods are 4 times higher, and even 10 times higher if we include upgrading. (This is due to steam generation and heating for upgrading.) Another example is synthetic fuels from gas-to-liquids (GTL) conversion (Fischer Tropsch process), which are 15 times higher in CO₂ emissions than conventional oil.

These are facts, well established. Let's talk now about interpretations and theories. One of the most controversial is the concept of global warming, which is creating a lot of . . . "warm" discussions. This is only a theory; apparently the data are not sufficient to establish that as a fact (I am not a climate scientist, so I don't want to elaborate on that).

However, it is fact that there are hundreds of peer-reviewed scientific papers confirming the global warming concept, and not a single one, to my knowledge, stating the opposite. Again, I am talking only about peer-reviewed papers, which are supposed to give sound information.

From this fact, you can draw two different conclusions.

1. This is evidence that the concept of global warming is likely.
2. This is evidence that the scientific community is under the influence of strong lobbies.

*United Nations Intergovernmental Group for Studies on Climate Change, 2008.

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This brings us to the point of the necessity (or not) of mitigation measures. Many people and many organizations claim that decreasing emissions is the priority—a good idea, but:

- Don't try to explain that to the people who do not even have access to electricity (1.6 billion worldwide) or are struggling for a limited access to any form of energy.

- You have to adapt your own lifestyle—many people (not all) talk for

others, not for themselves. Anyway, very important savings on CO₂ emissions could be achieved at no cost in developed countries. An example I am mentioning in some of my talks is, why buy mineral water from Europe in the USA Rocky Mountains?

Our industry is regularly accused of not doing what is needed. I believe we should strongly reject that claim. On the contrary, the industry is working on energy efficiency, and most important is working on carbon capture and storage (CCS), which may be a key element for mitigation in the mid-term. There are a couple of CCS pilots now in operation in various regions of the world, and our industry is fully playing its role by developing and demonstrating this technology. The problem of large-scale implementation is purely a global political problem—we need a political decision; our industry will be ready on time to deploy this technology. This activity is now only a cost. Policy makers could make it a value in the future, and the technology will develop only under these conditions. Note that for the new CO₂-intensive unconventional hydrocarbons (extra-heavy oil, GTL) I was talking about earlier, CO₂ emissions are concentrated and easy to capture, but again we will do what is required by the authorities.

In conclusion, I would say that CO₂ regulations should not be seen as a threat for our industry, but rather as an opportunity to develop new activities. We are the only ones to have the technology for the full CCS chain: capture (process), transportation, injection, and short- and long-term monitoring. I am sure this activity, which is only a cost today, will one day have a value. In addition, this will offer new opportunities for careers for the young people entering or considering joining our industry.

So, don't be afraid to talk about CO₂. For more information about the key issues and technical applications, attend the SPE CO₂ conference in New Orleans. See www.spe.org/events/co2/2010/ for more information. **JPT**

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