**The Challenge of Stabilizing CO2               Alan Betts (15 December 2015)**

Richard Heinberg from the Post-Carbon Institute gave an excellent talk on the challenges we face to stabilize carbon dioxide in the atmosphere. One aspect though is not well appreciated. About a third of the CO2 coming from the burning of fossil fuels and the clearing of forests is being stored in the oceans. This is a hidden benefit to us now, because this reduces CO2 in the atmosphere and the warming of the climate. But at the same time, dissolved CO2 is weakly acidic and this is making the ocean more acidic (less alkaline), which is an increasing threat to ocean ecosystems. The oceans are also storing a lot of heat now, and this has slowed the warming of the continents. Both these processes, the storing of heat and CO2 in the oceans, is why the Earth has such a long memory: what we burn now is 'remembered' for centuries. So the more and the longer we burn fossil fuels, the harder it is to undo the consequences, since not only does atmospheric CO2 rise, so does CO2 in the oceans. So even when we have succeeded in reducing our greenhouse gas emissions to a small value, and we are addressing the task of reducing atmospheric CO2 by storing more carbon in the soils and by replanting forests, it will be a slow process. Yes, CO2 will start to fall, but some of the CO2 stored in the oceans will be released back to the atmosphere, and we must remove that also. The recovery of our present atmosphere and climate will take centuries. But this is not a reason to turn away: it is simply one of the many reasons why climate scientists keep telling us that the sooner we act, the more grateful we will be later this century.

**Notes on the VECAN\* Conference by Alan Betts** (http://alanbetts.com). The conference was held in Fairlee, Vermont on December 5.

\* VECAN (Vermont Energy and Climate Action Network) is a network of over 100 grassroots energy committees and organizations in Vermont working to help people and communities transition to clean, renewable energy.