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Hurricanes, climate change, and U.S. leadership

by Robert Farmer, © 2000

When I learned Bryan Norcross would be with us this month, the memories came flooding back. In September 1992 Concept Communiqués produced its first issue of *Energy News*. It was an inauspicious beginning. Isaac Jones' president's message began "Hats Off to all the people at FPL and to all our members who are giving selfless hours to get our community back on line after the awesome destruction Hurricane Andrew inflicted on us." Herb Gager's Program Corner gave no mention of Andrew. An FPL employee himself, he was too busy working round the clock to change his column which was written before the storm. Isaac wrote of "rebuilding" and "helping our neighbors in need." We cancelled the meeting that month—there was too much work to do in south Dade. It was a grim but very human time in south Florida.

Andrew was a very tight, compact storm. Its wind field was about 150 miles across. Its size had allowed me to make a decision about the *direction* I could safely evacuate my family. Andrew came west, we fled north and watched from 30 miles north of Orlando as it came ashore. I had an evacuation plan and it has worked very well for me—that is until exactly a year ago.

Hurricane Floyd was awe-inspiring. A borderline Category 5 monster, pack-

ing winds of 155 mph, and at 450 miles across, covering an area the equivalent of 9 Andrews! Its sheer dimensions defied any ability to plot a safe drive out of harm's way. No matter how you looked at it, if Floyd came ashore in Florida it would cause major damage throughout the state. I stayed, and prayed, while I contemplated the sheer size of this storm.

We will never know how big a disaster Florida avoided when, with gale force winds just offshore from Fort Lauderdale and the eye wall 190 miles away, Floyd began its slow turn towards the north during the evening of September 13th and missed Florida completely. Fortunately it also lost much of its power in the cooler waters to the north before it came ashore in the Carolinas 3 days later.

Most storms these days appear to be much larger and more powerful than in the past. In my 16 years in South Florida, the first 10 years of hurricanes (excepting Andrew) were cakewalks compared to the monsters of the last 6 years. They are, by my reckoning, super storms and I wonder what Mr. Norcross will tell us about current scientific thought on their size and power. He might tell us that they're thought to be periodic anomalies, storms like great hurricanes of the past, coming in naturally occurring cycles. But he's more likely to tell us that global climate change and the gradual warming of the oceans is now at the core of scientific

study in the development of these tropical cyclones. And that we should be on alert for more frequent visits of super storms to our shores.

Energy engineers are well aware that greenhouse gases produced by the burning of fossil fuels are the primary cause of global warming, and therefore, the warming of oceans. And if the oceans are warming, it is not unreasonable to expect that hurricanes will become much more powerful given the boost in thermal energy available to feed their growth. This is a terrifying scenario, and unfortunately there is still too little being done here in the US to curb emissions of greenhouse gases. If that's not bad enough news, US honor is at stake over this issue on the world's stage.

The international community is struggling to engage the US in ratifying the Kyoto Protocol—the United Nations' 1997 climate change agreement setting binding targets for greenhouse gas emissions. The European Union (EU), which includes our principle G8 partners, has become increasingly frustrated that the US is not assuming its customary leadership role, particularly on this issue. Either in reducing its own greenhouse gas emissions, or especially in ratifying the Kyoto Protocol.

From personal observation as a delegate for Third Planet (a Fort Lauderdale-based public charity) at an international

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Kyoto Protocol conference in London recently, this frustration borders on resentment.

The major point of contention is ratification. Before the Protocol can legally come into force it must be ratified by at least 55 Parties and *in addition* Annex I Parties which accounted in total for at least 55% of the total CO₂ emissions for 1990. Without US participation it is mathematically very difficult for the Protocol to come into force. This is because the US accounts for 36.1% of all 1990 Annex I emissions, and without them many more signatories will be required to obtain the 55% emissions total necessary for ratification.

The Europeans may work alone, without the US, towards ratification. But by some accounts only the UK has a plan which is on track to meet its target (8% below 1990 levels) during in the first commitment period (2008-2012). This could make the EU's efforts all the more significant as a measure of their concern about global warming. Come what may, whether they can meet their targets or not, they see the need to get on with solving the problem. Hence the frustration, and resentment, that the US is not there as partners.

We can only hope that in the next US legislative session there will be more action on this issue, both on the Kyoto Protocol, and domestically in reducing greenhouse gases, where we all need it most. •



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His technical expertise includes large scale to small scale power generation, combined heat and power (CHP), marine and surface transportation, and alternative fuel applications.

A Florida resident since 1984, Robert was a member of the Energy Advisory Committee of Governor Chiles' Commission for a Sustainable South Florida.

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