Sunday Service: Feb 3, 2013 "Global Warming: A Key Moral Issue of Our Time"

Presented by church members Pam Person, member of U. S. League of Women Voters Climate Change Task Force; Dan Huisjen, Board Member of Maine Interfaith Power & Light; and Karen Wigglesworth, UUCE Worship Associate.

Pam Person

Thank you for inviting me to join you today to talk about global climate change. What I want to talk about is how using the 7th Unitarian Universalist principle connects the dots on climate, the economy and energy use.

I do "Covenant to affirm and promote the 7th Principle – "Respect for the Interdependent Web of all existence of which we are a part". This Principle has become a moral, spiritual, ethical, practical, economic "center" for me, leading to action on mitigating climate change even while living in Maryland and since moving to Maine in 1989. I want to tell you about the five things that move me to action.

Here are five DOTS to think about

THE FIRST MAJOR DOT - Trends

Over the last 800,000 years ***atmospheric concentration*** CO_2 levels as indicated by the ice-core data have fluctuated between 170 and 300 parts per million by volume (ppmv), corresponding with conditions of glacial and interglacial periods. The highest pre-industrial value was 298.6 ppmv, in the Vostok core, around 330,000 years ago.

Atmospheric CO_2 levels have increased markedly in industrial times. In Spring 2012 Barrow Alaska the atmospheric C02 level reached 400 ppm - at Mauna Loa Hawaii the level was 396 in April 2012. ***Once C02 in atmosphere it stays for 100 years!***

C02 emissions (TONS OF C02 produced from burning fossil fuels and other sources) have been going down in **US** since 2008 recession, deindustrialization in US and greater use of natural gas. - BUT UP IN CHINA AND DEVELOPING NATIONS.

In the contiguous US, 2012 was the warmest on record (3.2 degrees above the 20th century average) - 19 states had the "warmest ever"; 26 states were among the top 10 warmest; Alaska was cooler than normal. 2012 was the eighth warmest year globally.

2012 was the second with most extreme in weather and precipitation. (In Bangor, Maine, this January 31 the "high" was 54 degrees, 7 degrees warmer than the previous record.) Usually there are almost equal heat and cold records in an average year – not 2012!

2012 had eleven disasters that have reached the $1 billion threshold – including, of course, Sandy. The drought has only gotten worse this year from June to December.

SECOND MAJOR DOT - There is no free fossil-fuel-energy-lunch in terms of carbon pollution – but the economic costs are finally turning in our favor.

I want you all to understand the **"carbon content of fossil fuels'** because it is key to policy and personal decisions**. C**oal is the most polluting 56 – followed by oil & gasoline at 47-43, propane and natural gas is best at 38-32 but has methane. Tar sands oil is bitumen and is 15-20% more polluting than regular oil to produce.

Encouraging trend DUE TO THE ECONOMICS : What is happening to the energy mix in the United States, as a result of **inexpensive, available** shale gas, is that the amount of coal used to produce power (usually electricity) is going down – it was 50% in 2003 is now 37%. Gas-fired energy production was 18% in 2003 and is now 30%, ***causing a dramatic drop in carbon dioxide emissions.***

There are pending rules that hopefully will mandate reductions in coal fired power plant C02 emissions that will reduce new plants and close old ones in 2015. Unfortunately coal fired power plants are still being built in China where the pollution has been so high this month that many are wearing ace masks.

THIRD MAJOR DOT - Closest to "a free lunch" are conservation actions and more efficient materials and motors and renewable energy.

Green Growth Action Alliance report released 1/21 at World Economic Forum stated that world must spend extra $700 billion a year to reduce fossil fuel use – greening the economy is the only way to accommodate the 9 billion people by 2050 though re-newables and efficiency.

FOURTH MAJOR DOT - There and four types of economic costs and consequences of NOT taking action on climate change for the global economy. They are:

FIRST **Direct economic damages**: 2012 had 11 billion dollar disasters in US - Sandy and drought and tornadoes and wildfires. Sandy's costs are at least $60 billion and counting. The drought is worsening - barges are having trouble getting down the Mississippi and across the Great Lakes. Crop insurance and record prices helped grains but hurt livestock. Think of your food prices!

SECOND **Higher costs of compliance**: The longer we wait to take action the higher the taxes, fines, mitigation projects will have to be.

The new coal fired power plant regulation is cost, but necessary

THIRD **The lost opportunities for economic growth in all sectors if barriers are not removed and costs are not correctly placed:**

Barriers are being removed & costs are being assigned

Pending new standards so that the highest carbon emitters, coal fired power plants, are correctly paying the true costs.

Maine PUC agreed to support the offshore windfarm proposed by Norwegian developer – Statoil - marrying UMaine technology and Norwegian wind energy knowledge. Cutting edge wind energy technology coming to Castine this Spring – 1/8th scale floating deep sea wind turbine developed at U Maine Advanced Structures and Composite Center – this is economic development for Maine!

Positive economic returns from tidal energy project in Cobscook Bay

Maine has best wind power potential in Northeast – Margery Forbes' son monitored under a turbine in Massachusetts to see how many dead birds he would find – answer NONE

Car makers are shedding pounds to meet the new mileage standards of 54.5 miles per gallon average by 2025. In 4-6 years redesigned vehicles will be using more magnesium and aluminum plus new transmissions and engines, such as Ford's Eco-Boost.

FOURTH **The current and future costs occurring to citizens, businesses and governments who are using energy too inefficiently**:

Leaky buildings, inefficient vehicles, too much "fugitive" electricity when electronic equipment such as TV and computers etc not in use, i.e. instant on features cost 7%.

Maine has the oldest housing stock in the US Efficiency Maine's Air Sealing Promotion will help Mainers plug air leaks – TALK TO DAN DURING THE POTLUCK!

Many new electronics have sleep feature.

FIFTH MAJOR DOT - I urge you to take personal action, in your home, business, vehicles and politically to affirm the 7th Principle:

Sign the postcards at potluck today

When you replace appliances or vehicles or renovate your home, look to reduce energy use as top priority.

Try some of the " 44 ways to save energy" I brought today

Go to DC Feb 17 and march.

Oppose the Tar sands pipelines in the US or going on in the West or East in Canada. Canada is also having opposition to a 700 mile pipeline from tar sands to British Columbia!!

Write Obama: The US needs to lead internationally; we are still a signatory to the 1992 UN Framework on Climate Change; to have the EPA to adopt proposed standards on new and existing coal fired power plants; thank him for the higher fuel efficiency standards on vehicles. (Senator Snowe and Feinstein's legislation) and for talking about global climate change in his 2nd inaugural address

Contact local legislators: Ask them to support Maine's renewable energy industry; it's good for Maine economically and environmentally.

Back in the year 2000, I lobbied with the National Interfaith Climate Change Initiative folks in DC. That was ***13 years ago***. I am glad Interfaith Power & Light initiated this National Preach-In today to reawaken action on climate change!

Dan Huisjen
Good Morning.

If anyone here doesn't know me, I'm Dan Huisjen, husband of your minister Sara. I'm also on the Board of Maine Interfaith Power and Light, where I'm supposed to be the Congregational Outreach person. My day job is that I'm an Energy Auditor. I help people find out how the heat is escaping from their house and, hopefully, help them reduce the amount of oil required to stay warm.

Of course, in preparing for today, my dear wife gave me the following instruction: Keep it worshipful. Some days I have no idea what this means. Having been brought up by Evangelical Neo-Baptist Cultists, I spent most of my adult life, before meeting Sara, carefully avoiding religion. Now I'm married to a minister, my Congregationalist sister is going to graduate from UCC Seminary next May, and I wonder how this happened. Anyway, I've learned it's perfectly functional to just call it all "God" and do my best to show care for - and wonder at - everything in existence. And that means that for me, any geeky science subject that comes up is an object of worship.

Being accidentally surrounded by religious people, I've come to understand that most ministers have only three sermons. This is not the first time I've stood in front of a crowd delivering what is intended to be a motivational message, and I think it's fair to say that my three, are *Basic Organic Gardening, Home Weatherization, and The Fate of Modern Civilization*. I'm happy to talk about any of these at length, but today, the last one will get the attention.

So, with that in mind, let's start with a nice, worshipful quiz: I have six questions.

1) What is the current atmospheric CO2 level?
Answer: 395 ppm, and a 1°C temperature rise.

2) What was it before the industrial revolution?

Answer: 280 ppm. So we've gone up 115 ppm in the last 200 years or so, and, by the way, we're accelerating.

3) What organization is Bill McKibben a leader in?
Answer: The organization is 350.org. 350 represents the parts per million units of CO2 that is being considered "safe" …even though it's significantly higher than 280 ppm of pre-industrial revolution days.

4) For the next question, listen to this description (source 2009 Copenhagen climate talks, by way of the UK Met Office). Guess what temperature rise and/or CO2 increase is being discussed:

> The heat waves happen every year with this global average temperature rise. Southern England will regularly see summer temperatures around 40°C (104°F). The Amazon becomes desert and grasslands, while increasing CO2 levels… make the world's oceans too acidic for (most shellfish). Tropical diseases increase. Agricultural yields around the world drop and half a billion people will be at greater risk of starvation. The West Antarctic and Greenland ice sheets melt and the world's sea level begins to rise by seven meters/ 23 feet. Glaciers recede, reducing the fresh water supply for major cities. Coastal flooding hits more than 10 million extra people. A third of the world's species will become extinct.

With that description, what temperature and CO2 rise is this?
Answer: 2°C (3.6°F), 450 PPM CO2. This is only **one more degree** than what we have now. The more we burn, the worse things get.

5) How much carbon is in currently proven oil, gas, and coal reserves, on tap to burn between now and 2050?
Answer: 2,795 Gigatons
Kilo, mega, giga. Thousands, Millions, Billions. So almost 28 Billion tons.

6) How much carbon could we burn by 2050 and *theoretically* still stay under that rather unpleasant 2°C rise?
Answer: 565 Gigatons

See this? This (holding up a yard stick) is our reserves (Question 5), which we're planning on burning. Each of these represents a gigaton.

And this (holding up a 3-4 inch piece of the yard stick) is the *most* we might be able to burn and not push over 2°C global temperature rise (Question 6).

The Buddha once gave a sermon where all he did was hold up a flower. Sorry. I know these two sticks aren't quite the same.

A few months ago Bill McKibben wrote an article, published in Rolling Stone, that made this point: In order to not fry ourselves into extinction, we need to limit our fossil carbon burning to about a fifth (or less) of the amount that the fossil energy companies say that they *already* have on tap to sell to us in the next 40 years or so.

You see things like Superstorm Sandy and the spreading drought in the west. In case anyone missed it, last week there was another storm, bigger than Sandy, spinning in the middle of the North Atlantic. It had 50' waves. Luckily for Europe, it mostly dissipated before landfall.

Australia is going back and forth between searing heat with uncontrollable wildfires, and typhoons with associated flooding.

And of course, close to home, many of us were without power for some time this last week because of the windstorm. You have to wonder how many super storms and weather related disasters we can go through before we're too worn down to rebuild yet again. As we know, New Orleans is not yet fully recovered from Katrina. New Jersey is rebuilding from Sandy, but what if we got one or two of those every year?

On Thursday, as I was trying to polish this talk into something I'd want to present today, one of my imaginary friends of Facebook posted a link to an article in AdBusters, titled "The Biggest Wake-up Call in History." It included this quote, translated here from the original Australian:

> Among high-profile eco warriors… two conversations often take place simultaneously. The public position is: "we face serious risks, potentially catastrophic, if we don't act urgently and strongly." In private, often late at night, as they wonder if the battle is lost, they discuss "geopolitical breakdown, mass starvation and what Earth would be like with (only) a few hundred million people."

Now, some will talk about the possibilities of new power sources that are green and abundant. They talk about building a new economy around these. I have my doubts that we can replace energy that took tens of millions of years to collect, with sources that collect, in an easy to distribute form, a full year's supply, every year, or that this can be done in such a way that our future economy looks anything like our past economy.

Just as oil is finite, so to are the iron and copper and aluminum ores. We've already burned over half of the oil, so that what's left is lower quality, harder to get, and harder to refine. The same is true for many other resources. How will the new wonder technologies be supplied with neodymium for magnets, and cadmium and nickel for batteries, when those too are in short supply? Never mind the toxic byproducts of mining and manufacturing.

We say "Improve Efficiency". I'm all about improving efficiency. We can improve our efficiencies in the houses we live in now. We can improve the efficiencies of our cars. But only by so much. And with efficiency improvements there's often a paradox. Efficiency makes formerly uneconomical activities economical, so the economy spins faster, and consumes resources faster. As Combined Average Fuel Efficiency has gone up, gas consumption *has not* gone down.

So while we're talking about how to save the planet *and get the economy moving again*, remember that the glaciers and ice caps are melting, which is going to leave darker land and water exposed to sunlight, resulting in further warming. Methane is bubbling out of the melting tundra permafrost, resulting in further warming. The CO2 in the atmosphere from coal burned

decades ago is still there and active and will stay there for a long residence time, resulting in further warming.

Is switching to compact florescent bulbs going to fix this? Is recycling our cardboard going to fix this?

Our global economy is about as done as the Polar Bears. Yes, the bears are still wandering around garbage dumps in Canada and Alaska. They will probably be visible on the shoreline for a few more decades, looking for the ice that used to provide them with a hunting platform. But their natural habitat is beyond the point of saving. And so is our global industrial economy.

This is sad for many of us, because I really like modern life, where I can have light at the flick of a switch, cook on a gas stove, have lots of comfortable clothes, the internet, go driving where I want, when I want…

Yet we keep hearing reports, like the one from the International Energy Agency, mentioned in the AdBusters article. These reports keep saying, "If we don't do something in five years, we'll be beyond the tipping point." Well, we've been hearing those forecasts for more than five years now.

So this is ***the other conversation*** to have: Rather than assuming we still have time, assume we don't. Assume that our past actions have unavoidable consequences.

What do you do with your life? What do you set as your goals? What do you want to survive you? What do you want to see cleaned up most, of all the messes that humans have made here?

What I've had to say here does not provide answers. It asks new questions. Hard questions. It is a struggle to think about. It confronts our own society's myths of a Jetson's or Star Trek future, with the looming reality of our past catching up to us. We must not ignore these questions.

Stay worshipful.