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Catoctin News Newsletter of the Catoctin Group serving

Carroll, Frederick and Washington Counties

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## In Memory of George C. Rudy

By Bob and Betty Law

George Rudy or just "Rudy" to his friends, passed away January 13th of this year. He was an outstanding citizen advocate for a clean environment in Frederick County for many years. He was well known among environmental advocates, governmental representatives and agency personnel for his persistence, determination and wide-ranging participation in many citizen committees and groups. He was the citizen representative for the Environmental Restoration

Advisory Board (RAB) for Ft. Detrick.

George was also a longtime member of the Sierra Club Catoctin Group and m a n y ot h e r environmental groups. He regularly appeared at Monocacy River Board meetings to advocate for

the River's water quality and often spoke in opposition to the Potomac Gas Pipeline to list only a few. He would regularly report environmental violations to the proper authorities and wrote countless memos and white papers detailing specific suggestions to fix environmental problems in the Frederick area.

Because of his frequent attendance to many environmental and governmental meetings, he was almost always the first person to learn of potential environmental concerns before other organizations or agencies became aware of them. He was very effective at coordinating and unifying diverse environmental organizations in the region to petition their governmental officials as to the hazards involved and the means to curtail them.

Coming from a background as an environmental professional in the nuclear industry, George Rudy was a polymath in a wide variety of environmental hazards and the proper way to control, dispose and prevent environmental contaminations. George Rudy demonstrated leadership as a voice for the environment as he doggedly attended RAB and Monocacy River Board meetings. He challenged assumptions by providing facts and science to defend his positions. He served as a role model to others encouraging them to defend the environment. George was often the only citizen attending some meetings held by a governmental agency.

Despite his physical disability at the end of his

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radon

life, George made his way to meetings where the accessibility for the h an d i c a p p e d w a s u n a v a i l a b l e or challenging at best. He was tireless in his activity, often appearing at different public evening meetings three times a

week and often during the day. He demonstrated his passion for the environment until the day he died.

Following are some of the organizations George C. Rudy was active in during the past 13 years:

- Frederick County Health Department Technical Advisory Committee
- Citizen Member U.S. Army Ft. Detrick Environmental Restoration Board (RAB)
- Frederick County/City Containment Laboratory Community Advisory Committee
- Frederick Zero-Waste Alliance (formerly No Incinerator Alliance)
- Sierra Club Catoctin Group
- Climate Change Working Group
- Frederick Compost Work Group
- Friends of Frederick County
- Smarter Growth Alliance of Frederick County

By Bob Law

#### Hydrogen for Home Heating

Leeds, Great Britain, is the first city to utilize a mixture of natural gas and hydrogen to make a low carbon home heating fuel, proving that hydrogen can be delivered safely at scale. This is requiring the replacement of old cast iron pipelines with polyethylene and some retrofitting of gas furnaces and stoves. Biomethane produced from organic matter can be produced cheaply to combine with

hydrogen and will require less storage space and pipeline modifications.

Yet in order for this new fuel to succeed, some sort of "buy-in" from the petroleum industry will be required; otherwise the industry could utilize its political power to push back this new competitor. Using carbon capture, natural gas can have an important role in creating hydrogen in quantity. Thus far, carbon capture has been a disappointment. Its capture and burial has been

expensive, but a new project in Norway holds promise. Their Mongsftad Technology Center is the largest industrial scale carbon capture facility in the world using the solvent amine, a strippeddown form of ammonia. This effort has received support from the oil and gas industry.

### Hydrogen Fueled Planes, Trucks and Ships

Bill Gates of Microsoft fame, is heavily investing in a new technology called DAC (Direct Air Capture); extracting carbon dioxide from air to be converted to carbon monoxide and mixed with hydrogen to become an aviation fuel. A similar process is being considered for heavy truck fuel and maritime usage. Once again, this requires production from abundant clean energy sources in sufficient scale to meet aviation industry needs.. Finland's Lappeenranta University of Technology has suggested Chile's Atacama Desert as a location that could produce enough solar power to sustain a large aviation fuel industry. Clearly this will require much investment and construction, but it is possible. Commercial and military aircraft are second only to home heating in their greenhouse gas contribution followed by heavy vehicles and shipping.

#### **Cement from Hydrogen**

Cement production has seldom been on the environmentalist radar. Yet it is a huge consumer of fossil fuels, usually natural gas. Kilns must reach





a temperature of 1600 degree Celsius to calcinate limestone into the crystals used in Portland cement. Electricity cannot provide this necessary heat. A project backed by European Union investment in Belgium is directed towards redesigning kilns to capture exhaust gasses from the crystalizing process, and then combining them with hydrogen.

This process should not only lower the amount of natural gas used, but also speed the temperature rise in kilns to

produce more efficient crystallization. The resulting products have been named "Novel Cements" and are undergoing experimentation by the construction industry before becoming standardized building products. China, has heavily invested in cement research and development. China uses coke to produce cement, a worse method than using natural gas.

#### **Hydrogen Metal Production**

Since the beginning of the Industrial Revolution, steel making has been centered upon the use of a refined coal called coke. Needless to say, any product associated with coal is highly polluting and coke production has been exceptional in this regard in air water and soil. Charles Dickens, over 100 years ago, describes "Coketown", in his novelette Hard Times. Old coke facilities have created many Superfund sites.

#### (continued, following page)

\*This is the second hydrogen article by the author for this newsletter. See <u>https://www.sierraclub.org/</u> <u>sites/www.sierraclub.org/files/sce/maryland-chapter/Catoctin\_Group\_Newsletters/CGNewsWinter2018.pdf</u>

#### (from previous page)

A Swedish company has started a pilot project to produce fossil fuel free steel. It will utilize its abundance of clean energy to produce hydrogen by electrolysis to produce a product called "direct reduced iron." In this process, natural gas is used to produce a "sponge iron", which can be further refined into steel in traditional electric arc furnaces. As with other adaptations of hydrogen, the effort is nascent.

A joint venture between Rio Tinto and Alcoa in Brazil is experimenting with hydrogen in Aluminum production. This has traditionally been done by passing aluminum oxide between an electric anode and cathode. This produces massive amounts of carbon dioxide. The

**Marcher Walker Pilgrim** 

A memoir from the Great March for Climate Action

## **Reading and Book Signing**

Thursday, April 4th, 7:00 p.m. Unitarian Universalist Church



bv Ed Fallon

4880 Elmer Derr Road, Frederick, MD 21703



On an 8-month walk from LA to DC in 2014, dozens of marchers became a mobile village, sounding the alarm about the climate crisis.

Through humor and candid introspection, Ed shares how the experience brought into focus his lifelong search for love and meaning, even as intense, interpersonal dramas threatened to tear the March community apart.

Books available for purchase at the event or online at *boldiowa.com* 

All proceeds support continued climate action.

For more information, contact Monica Greene at: <u>monica.greene@yahoo.com</u>

new process is undisclosed as a proprietary asset, but is backed by Apple Computer, which also is interested in reducing its product carbon footprint. If successful, this joint venture will offer smelter

retrofitting kits to other aluminum producers and it may offer cost reduction in the aluminum manufacturing process.

The common denominator of these new approaches is carbon capture. The results of this technology have been a disappointment for years with little financial backing, but help has arrived

from a most unexpected quarter: Donald Trump. The Trump Administration has applied a Q45 tax credit that significantly increases financial support for each ton of carbon

> captured. In all likelihood, he was encouraged to do this by the oil and gas industry. Environmentalist fear that the petroleum industry wants to utilize the carbon material to increase production in fracking, especially in fields that are playing out.

> Others indicate that the oil men want to have a role in the carbon free future. It may be both. Nonetheless, without this economic boost, the possibility of hydrogen becoming a means to wean us from fossil fuels probably will not Ultimately, happen. hydrogen must be a player in the capitalist world. The petroleum industry has the deep pockets and infrastructure to create this desirable brave new world. Our fear has to be that their involvement will slow progress, which can only be hastened through legislation, which is unlikely in the present political environment. Yet there still is hope for hydrogen.

## To De-Ice or Not to De-Ice, that is the QUESTION

By Christine Maccabee

Perhaps it is time to go on a low-salt diet

I was a bit shocked, but not really surprised, when I read of the harm being done to the environment by the salt (sodium chloride) we scatter on sidewalks, steps, parking lots and roads. After WWII, when the economy began to boom and more cars were manufactured, and more roads were built, the salt industry also began to expand. Keeping people safe was the premise; but the environmental consequences became increasingly dire and over many decades of use salt has

led to consequences most people did not expect.

Until I began digging into some facts and figures on the subject, I worried about how streams and rivers, the watershed generally, were able to handle large influxes of salt during icy, snowy winters such those we have experienced this year. As a result, I have



Photo: Gunther Salt Company gunthersalt.com

used less and less salt on my walkways and I have some facts to support my concern, which I will share with you.

In the winter issue of the National Wildlife Magazine, researcher Kristen Uhlenbrock said "Salt leaches heavy metals from roads, which together with the salt infiltrates soil and water, killing plants and aquatic life. " According to a 1991 study by the U.K Forestry Commission, 700,000 trees were killed annually in Western Europe by salt. Studies made by our U.S. Geological Survey has estimated 19 million tons of salt are used annually on our roads and other impervious surfaces.

The increased use of salt since the '50s has created long-term salination in 44 percent of 284 freshwater lakes in the Northeast and Upper Midwest. Lake ecosystems, human drinking water, fisheries and certain aquatic life forms require pure, fresh water. Moreover, the quality of our fresh water is increasingly compromised by other pollution sources such as overflow of coal and animal holding ponds, herbicide and pesticide run-off from farms and lawns, oil spills and other chemical spills.

A pretty gloomy picture indeed, but there are potential solutions at least to the salt problem. This winter, I have noticed a different approach to treating roads where a salt slurry is applied prior to the storm, apparently reducing the amount of solid salt needed later. This may help.

Also, there is salt with an additive called "deicer", a combination of beet juice, alfalfa meal and/or calcium magnesium acetate, which can reduce the amount of salt used. However, it should be used sparingly as there can be complications from its overuse.

One suggestion by National Wildlife is to shovel or sweep sidewalks early and often.

I do this, and it works quite well as melting can then occur more quickly, frequently drying surfaces naturally, without use of salt. When there is truly dangerous ice, I will sprinkle a bit of salt only on the area of the steps I plan to walk on. Otherwise, I am just careful, and sometimes do not use any salt. Living lightly and with less is always best. As Hilary Dugan, a freshwater scientist from the University of Wisconsin says, "Chloride is an environmental problem that we could solve by purely stopping putting so much of it into our environment." Most of us know that globally fresh water is increasingly less available and as human populations increase, the problem worsens.

So, the next time you begin to overdose with salt on your sidewalk or driveway, stop and think about where all that salt will ultimately go as it flows into our storm drains to our streams, rivers and lakes and the serious consequences that will result.

## Multi-faith Alliance of Climate Stewards — Frederick County (MACS Frederick County)

By Barbara Trader

# Since our inception in the fall of 2017, members from several faith traditions have worked in solidarity to build MACS' presence and impact ...

The Multi-faith Alliance of Climate Stewards (MACS) of Frederick County comprises individuals and faith communities who are called to act on climate.

MACS has set a goal to plant 1,000 trees in Walkersville this spring through its campaign, **Trees for Tomorrow**.

A tree planting event, in partnership with Streamlink Education, is scheduled for April 7, 2:00 – 4:00 PM. Families and participants of all ages are encouraged to volunteer by signing up

at: <u>www.streamlinkeducation.org/</u> <u>macstreeplanting</u>. This follows one that took place on March 31st.

On October 20th, MACS will partner with Hood College and Interfaith Power and Light to host "Floods, Droughts, and Justice: A Multifaith Discussion of Stewardship and Resilience in a Changing Climate". This afternoon seminar will begin with an overview of the expected climate impacts Frederick County residents will face; include a discussion of responses local



government, institutions and individuals have as options for prevention and resilience; and conclude with ideas for action. This meeting

will leave participants more deeply connected to the realities we face, and with useful tools and relationships as we work toward a more resilient future for our community. Watch for announcements about this event through our Facebook page.

Since our inception in the fall of 2017, members from several faith traditions have worked in solidarity to build

MACS' presence and impact, including Quaker, Catholic, Methodist, Jewish, United Church of Christ, Unitarian Universalist, Islam, and more. We welcome anyone (regardless of formal congregation affiliation) who shares our commitment. MACS is led by a steering committee and is building a growing list of supporters to take part in events and actions. Our partners are Interfaith Power and Light and Interfaith Partners for the Chesapeake.

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Further Information http://www.sierraclub.org/maryland/catoctin-group