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Getting there more efficiently

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It has been a generally warm winter in New England. Burlington had no nights in January below 0 degrees, and the temperature reached a remarkable 70 degrees on February 26th. The biggest snowstorm came in mid-March with 2 feet of snow in many places, but the snow quickly melted with sunny skies and the approach of the spring equinox. Another coastal snowstorm followed at the beginning of April.

For the second year in a row, spinach survived in the open protected only from deer. At the end of March as soon as the soil had thawed, I planted lettuce and more spinach, which sprouted as the temperature rose into the 70s in recent weeks. Remember not to plant anything that a frost will kill till the maples leaf out, unless you are prepared to cover them well. The clear nights of spring make frosts likely, because the earth can cool rapidly to space at night, until the deciduous forests leaf out and put more water vapor in the air.

Politically the last 2 months have had a certain fascination. After the inauguration, the fantasy of rescuing the coal industry replaced tackling climate change by phasing out fossil fuels. That same week, China canceled plans to build 100 new coal-fired power plants, and introduced a plan to install 130 GW of new solar power by 2020. To give you a sense of scale, this is a thousand times the large build-out of solar power in New England in the last year or two. As climate change leadership shifted to China, the US stacked the cabinet in Washington with fossil fuel advocates.

Our grandchildren will look back in horror and say “How could they sacrifice the Earth to protect the profits of the billionaires?” Well, our elected leaders pretend not to know that burning all our coal and oil reserves will melt the icecaps, flood the coastal plains and wipe out half of life on earth. As Pope Francis pointed out in 2015, our use of power and our respect for creation is a deeply spiritual issue. We cannot serve both the Earth and money.

Transportation in New England uses a lot of fossil fuel, so it is one of the big challenges we face to decarbonize our economy. A typical automobile getting 25 miles per gallon, so driving 12000 miles per year burns 480 gallons of gas and emits 4.3 tons of CO₂. A recent study showed that this melts an extra 140 sq.ft. of Arctic sea-ice every September. As the reflective sea ice shrinks, the warming of the Arctic accelerates, and we will soon face more amplifying factors like the release of methane, another stronger greenhouse gas.

I drive to meetings and to the grocery store, so how can I reduce the gasoline I use? Only by shifting to electricity coming from solar power. For me this has taken a couple of years. First I invested in solar panels from a community array, providing 5.7 kW of peak power. Over the year, eighty percent of this power provides the electricity that powers our house and heats our hot water. Twenty percent provides the power for a Prius Prime plug-in hybrid, which we purchased last year.

The all-electric range is only about 25 miles, but that is enough to drive to my neighboring towns and back. The combination of a very efficient hybrid car that gets 55 mpg, and this modest all-electric range

has surprised and delighted me. Even in the winter months, we have averaged more than 120 miles on a gallon of gas. This means we only fill up the 10 gallon gas tank every 1200 miles. Yet using it will still emit almost a ton of fossil CO₂ every year, and inexorably contribute to the melting of Arctic sea-ice.

The basic issue is that typical four-passenger cars weigh about 3500 pounds. Where I grew up in England, there were networks of public paths connecting towns that had been used for centuries – on foot or on horseback. For the future, New England needs a new network of small paved roads for lightweight electric cargo bicycles and tricycles. Even tricycles that are fully enclosed with a shell to keep out the weather, are less than a tenth of the weight of a car; so they are far easier and cheaper to power with solar electricity. But for safety reasons they need to be separated from heavy trucks and speeding cars. And yes, they will only go half the speed of cars – about 25 mph. They could use heated seats for our winters, and there will be some snow-days.

But there are two fringe benefits that would benefit our health in the long term: some exercise commuting to work, and a closer connection to the landscape as we travel. This is of immense importance as our society must turn to the Earth for guidance.