

# SUSTAINABILITY

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# Tipping toward a sustainable future

BY CHRISTINE ERVIN

## Renewable energy markets and climate change have the potential to **transform quality of life**, but they're accelerating in opposite directions

Google "tipping point" and you'll find countless trends said to be edging toward virus-like growth, from Apple Mac Minis to India's economy.

Two mega-trends stand out for their potential to transform quality of life: the booming renewable energy markets and climate change. Unfortunately, they are accelerating in opposite directions. And unless we start matching clear priorities with bullish investments, climate change will surely swamp the contributions from clean energy.

Take the renewable energy market. Today's technologies are sophisticated, reliable and often price-competitive thanks to 30 years of R&D and field experience. Now add rising energy costs, a post-9/11 appreciation for energy security and outbreaks of bipartisan interest in bolstering U.S. competitiveness through domestic energy jobs.

It's no wonder that renewable energy is getting serious respect from private investors. In fact, the research firm Clean Edge forecasts global growth of biofuels, wind, solar and fuel cells to quadruple from \$40 billion to \$167 billion in sales over the next 10 years.

But money is pouring into other technologies as well – from nuclear energy to Canadian oil sands. The U.S. Energy Information Administration (EIA) also forecasts energy use to rise 26 percent by 2025, keeping non-hydro renewables under 5 percent of the energy mix.

That's bad news for a warming climate.

Many scientists believe that we have a window of about 20 years to shape an emissions trajectory that we can live with – literally. But how best to engage an American public on a challenge that defies comparison in magnitude, complexity and range of economic, health and environmental impacts?

We hear that risks seem too remote. But Alaska's permafrost and glaciers are quickly melting. Colorado ski resorts are spending more for artificial snow. And insurance companies are bracing for more category 4 and 5 hurricane events (think Katrina) and in latitudes not accustomed to these events (think New York).

But then, how do we avoid a sense of futility? Thank goodness for several encouraging developments!

First, the press is giving less air time these days to naysayers working outside the mainstream scientific community on climate change. That's crucial, because a recent University of Maryland survey shows that Americans are far more willing to support strong action when they understand there is no scientific "debate" on the key issues.

Second, religious groups are stepping up to translate the atmospherics of science to core values that people connect with, like fairness and stewardship of resources.

Finally, many experts believe we have all the tools needed. Princeton scholars, S. Pacala and R. Socolow, have recently concluded as much: "humanity can solve the carbon and climate problem in the first half of this century simply by scaling up what we already know how to do" (Science Vol. 305, No. 5686). Many prestigious economists add that such actions will not compromise economic health.

I agree. But only if we act decisively on several top priorities geared toward our new carbon-constrained world:

• **Boldly invest in the largest, cleanest, most cost-effective energy supply today: energy efficiency.**

California has cut per capita carbon emissions 30 percent since 1975 through aggressive energy codes, appliance standards and utility programs – while growing into the world's sixth largest economy. Based on plentiful case studies, the American Institute of Architects is calling for a 50 percent cut in carbon-based energy use in all new and renovated buildings by 2010.

Our vehicles warrant similar upgrades. It's ludicrous that our average fleet efficiency hasn't improved since 1987, making European fleets twice as efficient. Even China is poised for a stan-

dard more stringent than ours. Whether by CAFÉ or substantial "fee-bates" that reward efficiency and penalize guzzlers, this should be our highest priority for reducing our addiction to oil.

• **Deploy renewable energy in lockstep with efficiency.**

Efficient buildings, appliances and cars all require less energy – making renewable energy even more affordable and flexible. Portland and Whole Foods Market show what's possible: 100 percent renewable energy for their own facilities. In fact, consumers anywhere can buy "green tags" for their own electricity use today.

More than 21 states require utilities to supply varying percentages of renewable energy; Gov. Ted Kulongoski's proposed 25 percent by 2025 standard – among the nation's strongest – awaits only the Legislature to determine Oregon's role in the new economy.

On the transportation front, states are beginning to add targets for biofuels and ethanol.

• **Harness the market through a carbon cap, an emissions trading market and "real" prices.**

Our prized market system thrives when information and price signals are working, but energy prices are terribly distorted.

Contrary to popular perception, a national poll recently showed that 59 percent of Americans would support increased gas taxes so long as funds were dedicated to helping reduce global warming. So let's get with it. A measly penny a gallon would double the \$1 billion federal R&D budget for efficiency and renewables. Let's make it a dime – even a quarter – and do more than talk about energy independence and consumer relief.

Once market signals are working in tandem with our goals, with regulations as needed, we'll have far fewer stop-gap programs to worry about. (Indeed, EIA testified last year that a cap and trade system would boost the share of renewables from 4 percent to 16 percent by 2025.)

That's why Wal-Mart's CEO testified in support of a mandatory cap-and-trade system recently. And why Oregon should take an early lead in gearing up for low-carbon, cellulosic fuels made from local waste products rather than imported Midwest corn.

We're tipping all right. Which way is wholly up to us.

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