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Ideas are plentiful but so are obstacles to growth of renewables

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By Dan McCue

When it comes to fostering a renewable energy sector in an ever more competitive economy, the clustering of business resources – and the businesses themselves for that matter -- makes a lot of sense, according to L. Hunter Lovins, president and founder of Natural Capitalism Solutions.

In fact, the long time sustainable development advocate and author of the forthcoming Climate Capitalism said the concept of clustering was very much at the forefront of recent work she performed in Afghanistan.

“While I was there, I was working with this whole concept of clustering and how you take seemingly distinct economic sectors and enable them to all work together,” Lovins told Renewable Energy Magazine. (This is the second part of a two-part interview. The first part can be found here.)

“Clearly you have to create the economic eco-system,” she said. “You have to have the funding in place so that bright ideas can go not just to profitability, but to fabulous success. This is what the Silicon Valley in the US has done so well.

“It has in place the universities, the garage mentality – that state of mind that says you don’t need a high tech lab to be a success; all you need to strike it rich is a few bucks and a great, innovative product created, literally, at your workbench – and it’s got the funding and support structure for the IT and computer-based start-ups,” Lovins continued.

While Silicon Valley doesn't yet have rest of the eco-system it will need to become a major force in the renewable energy sector, “it’s working hard to get it,” she said.

True, the legendary hotbed of tech has the fact the state of California has always had reasonably progressive policies when it comes to clean-energy and climate change in its favor, "but absent a strong feed-in tariff, you’re not going to have the investment support that will bring the long term dollars to the industry and will enable the clever start-ups to go to scale,” Lovins said.

And it’s that “going to scale” that needed for a cluster to pay real dividends. As Lovins noted, “there are clever little start-ups everywhere”. The challenge is keeping them in place – and reaping both the direct and ancillary benefits of their growth.

US lacks policy to help start-ups come to scale

As an example of what governments and communities don’t want to happen, Lovins pointed to Evergreen Solar, which last year announced it was shuttering its manufacturing facility in Devens, Massachusetts in the US and moving the solar fabrication and assembly operation to Wuhan, China.

In 2007, the company received $23 million in grants from Massachusetts to build its facility on state-owned property. It also received $17.5 million in low-interest loans along with a 30-year lease.

And yet, by late 2009, Chinese government policies had made US-based production increasingly uncompetitive.

In a bid to remain in the US, Evergreen Solar CEO Rick Feldt travelled to Washington, DC, and met with US Energy Secretary Steven Chu and Commerce Secretary Gary Locke.

Though Feldt believed he'd made a persuasive case for some kind of support from the government, in February 2010 he told financial analysts that President Obama's appointees do "not quite have the understanding that we think is necessary about what's actually happening in this industry."

Feldt added, "The US keeps talking about keeping jobs. You go to the President's State of the Union Address and he says, 'I want to keep jobs in the United States.' The problem is it's easy if you say it, but you've got to do something to do that."

"We are going to China as quickly as we can," he said.

Over the past year, Evergreen Solar has spent about $50 million on its new Wuhan, China facility. It moved there in earlier this month, taking 800 jobs with it.

So how does a country keep a home-grown company like Evergreen Solar from abandoning it for somewhere else?

Lovins said there are any number of policy mechanisms that the government can adopt, but ultimately they have to come down to one thing: enabling the entrepreneur to see they have a legitimate business proposition at home, a sense that their efforts will result in a rewarding economic proposition.

"I think most of the companies that are scampering to China would much rather do business in the United States," she said. "But that's true only if at the end of the day the money that's in their pockets equals the money they can get in their pockets because they've run off to China.

"What China offers these companies is government support and cheap labour, but it's always been my belief that companies don't so much care about the cheap labour. Not really," Lovins said. "What companies care about when all is said and done is the bottom line. If you can enable them to have an end result that's the same as if they moved everything to China, they'll stay here. But we haven't. And again, the best mechanism for that I've found in the feed-in tariff."

Bureaucrats kill a promising incentives program

Another of Lovins' favourite incentive programs spoke directly to the inherently decentralized nature of most renewable energy options.

"One of the problems we've had in the US is that the Dept. of Energy typically gives research money to any technology that looks like it's going to be big and centralized, and that's just dumb. You don't need to build huge power plants to for solar and wind and many of the other renewables to make a difference," she said. "Here in California, in Berkeley, specifically, they started doing something called PACE or Property Assessed Clean Energy, in 2009; basically, the way it works is, you and a group of your neighbours gets together and asked the local municipality to establish a special taxing district that will allow individuals who want to implement renewable or efficiency measures to do so.

"So what you'd do is, you go to the city or county, get the money to buy solar panels, or what have you, and then you pay the loan back as part of your property tax," Lovins continued. "The beauty of it is the tax obligation for the renewable you're implementing stays with the property. It's not a personal loan. It's not a tax increase on the larger community. And you don't have to recoup your personal investment in the renewable before you sell the property – so again you're removing another barrier to the implementation of renewable energy."

The program worked so well that California passed legislation to allow other communities to offer PACE financing, and many did just that. In Sonoma County, in California's wine country, construction

activity during the first nine months of the program rose 8.4 percent, while in neighbouring Napa County, which didn't adopt PACE financing, construction trades actually went down by 3 percent.

"So we know what the benefits are," Lovins said. "The numbers are in. We know that enabling customers to get financing for solar and for increased energy efficiencies, creates jobs and delivers prosperity into the community."

Lovins went on to cite statistics from the US state of Oregon that suggest that per megawatt, decentralized power production like that promulgated by PACE generates over $2 million in increase economic output annually, over half a million dollars in increased wages, and over 10 times the number of jobs that one would create if they were merely to invest in a central power station plan.

For a brief period, PACE was going gangbusters and spreading to several other US states. Then, the Federal National Mortgage Association, otherwise known as Fannie Mae, and the Federal Home Mortgage Corporation, also known as Freddie Mac, the taxpayer-based mortgage lenders in the US who were among the organizations at the heart of the global economic crisis, stepped in and banned the program, saying it violated the terms of their outstanding mortgage agreements.

"I was on the phone two days ago with Gwen Hallsmith, the city planner in Montpelier, Vermont, and she was apoplectic," Lovins said. Here she had millions of dollars worth of city improvements slated to go based on this funding mechanism, and these idiot bureaucrats who are afraid that anything might take precedence over their incompetent mortgages, killed it.

"Going back to what we were talking about earlier, that's what leads you to think, 'You know, there is a conspiracy.' The trouble is, it's not a conspiracy; it's incompetence throughout our government," she said.

For her part Hallsmith travelled to Washington, D.C. and spoke directly with Vice President Joe Biden. However, according to Lovins, Biden told the city planner that the administration's hands were tied on the matter, and that the only entity that controls "Fannie and Freddie" is Congress.

"And that's where it stands," Lovins said.

Greater access to capital needed

Standing on the balcony of her Northern California home – "the only place I get reliable cell phone service when I'm home," she quipped – Lovins let's out a "God bless, California" as various birds make their presence loudly known in the background.

"At least voters here defeated Proposition 23, which would have rolled back most of the state's most meaningful environmental protects, and along with that, they also elected Jerry Brown as governor. Jerry understands all these issues and he is committed to unleashing the new energy economy."

Citing statistics compiled by the University of California, Berkeley, Lovins contends that is California's current environmental regulatory regime – AD 23 – survives likely future efforts to overturn it, it could by the mid-2020s, return $76 billion to the state economy and create over 400,000 new jobs.

"That's the thesis of Climate Capitalism," she said. "We know how to solve the economic problems facing us, let's go. Let the market work.

"Now, the problem we have of course is that markets require access to capital, which we don't have at the moment," Lovins said. "If you are a utility and want to build a coal-fired plant, you can get cheap money. But Fannie and Freddie have just cut off the cheap money to ordinary citizens who want to embrace solar or other renewable.

"Markets require that you are not distorting them with various fat fingers [in the pie] and the subsidies that go to the incumbent industries are a huge distortion," she continued. "Markets require perfect

information and none of us have it. But if a government wants a market it can create access to that information and enable people to identify the technology that's appropriate to them, where they can get it, and even how to get a contractor."

Back in 1997, Lovins and her former husband, Amory B. Lovins -- she as executive director and he as director of research at the Rocky Mountain Institute -- wrote a paper called Climate: Making Sense and Making Money.

In it, they listed eight categories of market imperfections, and then for each of them described various ways of overcoming them.

"All these years later, it would still be a good program for governments to put in place," she said. "Identify the barriers that are keeping the market from working for the renewable energy sector, and then systematically start clearing them."

But if the answers are so obvious, one has to wonder how can someone with the access of Lovins not have already convinced policy makers to start moving?

"Good question!" She said. "The answer, I think, is that our side has been a bit stupid. We have posed this as a moral issue – Al Gore – and we have posed this as an environmental issue, as a way to, say, save the polar bear.

"Now, there's nothing wrong with polar bears, but frankly, the issues that people care about are their homes, their jobs, their prosperity, their community, so let's start phrasing all of this in those terms," Lovins said.

As far as America's policy on renewable energy is concerned, Lovins even goes so far as suggesting that advocates open a conversation with the Tea Party, the large and unwieldy political movement in the US that helped foster widespread Republican victories in last November's elections.

Although the group is something of a catch-all in terms of the issues its members embrace, its over-riding philosophy is summed up by calls for what describe as a "Constitutionally-limited federal government."

"My question for them is, 'How is it that we are going to limit government?" Lovins said. "You want less government spending? Fine, let's get rid of the perverse subsidies. If you truly want less government spending, let's get rid of subsidies to all sectors of the energy economy and let the solar guys squeak as loud as the nuclear guys.

"What people don't realize is that absent all of those competing subsidies to the incumbent technologies, the market will work, efficiencies will win first, and at the end of the day, renewable will be far ahead of where they are today," she said.

Google finds geothermal motherlode

But that's not to suggest Lovins is entirely despairing for today. Among the things she said she takes heart in are efforts like the transition town movement, first devised by permaculture teacher Rob Hopkins – from work originally done by Australian scientist and author Bill Mollison -- at the Kinsale Further Education College in Ireland.

Described very simply, planners in transition towns look to create adaptations in the realms of energy production, health, education, economy and agriculture to create of road map for the sustainable functioning of the town.

Hopkins' work has been taken up by several of his students, and the professor himself has since decamped to his hometown of Totnes, a civil parish in Devon, England to continue his work. Since first putting his ideas to paper in 2003, transition towns have spread rapidly. Today, there are

reportedly over 300 in existence in the United Kingdom, Ireland, Canada, Australia, New Zealand, the United States, Italy and Chile.

The other event that Lovins considers intriguing is internet search giant Google's discovery of a huge, untapped source of geothermal energy under the US state of West Virginia.

According to research funded by Google and released last year, a large area in eastern West Virginia has been found to have elevated heat flow and upper crustal temperatures compared to the rest of the eastern US.

Researchers David Blackwell, Zachary Frone and Maria Richards of South Methodist University in Dallas, Texas, used data from thousands of oil, gas and water wells to update the sparse geothermal maps that previously existed for West Virginia.

The new information has bumped up the state's previous geothermal resource estimates by 75 percent, suggesting that underground heat could provide 18,890 MW of power using today's geothermal technology – far more than the state's entire power generation capacity of 16,350 MW, most of which currently comes from coal.

Based on the researchers' numbers, West Virginia would be the largest single site for geothermal power east of the Mississippi River.

Google hasn't made clear just what it intends to do with this newfound geothermal resource. But Google's philanthropic arm, Google.org, has invested more than $45 million in clean energy technologies, including advanced wind, solar thermal and enhanced geothermal systems.

"It's a very interesting discovery, particularly because previously most maps suggested that most of the geothermal potential in the US was located in Nevada, in the western half of the country," Lovins said. "What makes this finding so important is that while there may be lots of geothermal under the ground in Nevada, there are no transmission lines to capitalize on it. West Virginia, by comparison, is very much tied into the grid serving the densely populated eastern US."

Finding inspiration in Mali

Also exiting Lovins are second generation bio-fuels.

"I particularly like them in developing countries when they are done intelligently," she said.

By way of example, Lovins pointed to Mali, the landlocked West African nation on the edge of the Sahara desert, where more than 700 small farming communities have installed bio-diesel generators power by oil from the hardy Jatropha plant.

The Malian government has been promoting cultivation of the inedible oilseed bush, which is commonly used as a hedge separating properties, to provide electricity for lighting homes, running water pump and mills, and other uses.

Mali hopes to eventually power all of its 12,000 villages with the renewable feedstock.

"It's a perfect situation," Lovins said. "Instead of displacing farms and families and trying to create massive plantations of Jatropha, they're encouraging farmers to grow it in conjunction with their other crops and then using it, locally, to generate power in those very communities."

"Other things I like include community solar gardens, lipid algae being turned into a fuel source, and very smart wind. Sandy Butterfield, in Boulder, Colorado [in the US] is doing some really interesting things – although I'm not at liberty to talk about them," she said. "Then there are all the advances we're seeing in solar, there's tidal power drawn from the bobbing of the ocean, there's hydrogen –

although that will require a change in the entire infrastructure to take advantage of it, and nobody has quite figured out how not to break their teeth on that one.

“Personally, I think it’s going to be an electric future with electric cars being a huge part of the answer,” she said. “And I am currently working with the Carbon War Room, which is trying to enable small island nations to go 100 percent renewable. Watch this space. That should be a very exciting program.”

For additional information:

Natural Capitalism Solutions