

TGIF Taking Great Ideas Forward

Improving Northern Capital - Sustainable Development in the Northern Tier

Opinions expressed in this newsletter are those of the author and do not reflect positions of organizations with which he is affiliated.

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“I believe there is a place in the spectrum of television for really good conversation, if it is informed, spirited, soulful.”

-Charlie Rose-

MEETINGS and EVENTS:

Links will provide additional information. Dates for recent additions are in **bold**.

<i>What</i>	<i>Date</i>	<i>Time</i>	<i>Where</i>
Bayfield Regional Conservancy Maple Syrup Pancake Breakfast	April 5th	8:00-10:30 AM	Mt. Ashwabay Ski Chalet
Bioenergy Forum	April 8 th	9:00-3:00	Ashland – AmericInn Conference Center
Herbster Smelt Fry	April 12 th	3:00 – 7:00*	Herbster's Historic Gymnasium
BCEDC Board Meeting	April 14 th	10:00 – noon	Washburn Library
Biofuels Conference	April 16 & 17	All Day	UW – Stevens Point
Sustainable Business Conference	April 24-25	All Day	Ashland
Business Development Conference	May 7 & 8	All Day	Cable, Lakewoods
Digital Healthcare Conference	May 7 & 8	All Day	Madison
BCEDC Annual Meeting	May 12 th	10:00 – noon	TBA
Manufacturing Advantage 2008	May 21	All Day	UW-Stout
Green By Design Conference	June 12-13	All Day	Washington DC area
Northern Aquaculture Demonstration Facility Field Days	June 12–13	All Day	Red Cliff / Bayfield
Northwest Wisconsin Lakes Conference	June 19 & 20	All Day	Cable, Telemark

* Get to the Smelt Fry early! *The Herbster Community Club has been known to run out of Smelt before quitting time.*

Algae & Antibiotics

In 2006, Wisconsin individuals, organizations and businesses spent over \$19 billion on energy. Estimates are that the energy burden increases 5% each year. Most of that money leaves the state, unavailable to circulate and create jobs, opportunity and wealth. Wealth is being built, but not here. Wealth is being built in the homeland of Wisconsin's coal and oil suppliers. Billions wind up in the middle east. Billions could remain in Wisconsin.

Barbara Lawton, Wisconsin's Lt. Governor, spoke yesterday at the UW-Superior Rothwell Center. She optimistically portrayed the opportunities inherent in the challenges of making Wisconsin energy independent. University research, and the strength of Wisconsin's research capacity, is seen as critically important to success in achieving the goals of energy independence that the Governor set in 2006. Achieving 25% of electrical and transportation energy from renewable feedstock by 2025 is progressing. However, success is unlikely to follow a path of doing more of the same things and expecting different results.

Agriculture and forestry are looked upon as a source of critical feedstock for transportation fuels; ethanol and biodiesel. I have my doubts.

Ethanol has driven food prices upward and biodiesel from cultivated annual row crops seems as nuts as using oil from hazelnuts. Taking high value plants out of the economy to move people and products from point A to point B is unsustainable and defies common sense. Seasonal harvest of crops requiring high energy inputs for high yields seem unlikely to replace the steady supply and convenience of fossil fuels.

That Wisconsin is intending to invest in development of a multi-million dollar soybean crushing facility for biodiesel production is at best a short-term solution. The intent is laudable in that Wisconsin exports billions or unrecoverable dollars for transportation fuel each year. Finding a suitable source of biofuel that can be produced locally is exactly right on. However, investment in a soybean crushing facility may not represent the greatest potential for return on investment.

Short-term solutions probably need to be tolerated as we learn and rethink old frameworks for our energy needs.

Real energy independence, it seems to me, will come from fully distributed generation from renewable sources that mimic what living organisms have been doing for a great part of three-billion years. My dream is to generate electricity and transportation fuel in my backyard. Someone's study of biology could lead the way to wealth-generating solutions. Opportunity is in the details.

Two quotes from unknown sources capture critical truisms:

“The answer rises every morning.” and

“We earthlings exist as guests of green plants.”

Natural capital is derived from primary production; solar energy processed by chlorophyll and a team of transducers in cells of green plants. Even on a cloudy day, my two acres and/or 2500

square feet of roof space should yield about enough energy. (... if I learn to conserve a bit; staying home to work is still a good idea.)

Algae are at the base of the oldest and still working bio-economy. Anyone who has placed a tropical fish aquarium too close to a window, knows that growing algae is easy. Algae have long been considered a potential source for biofuel. The yield of oils from certain species of algae that are suitable for biodiesel production exceeds the yield from soybeans by several hundred fold.

Finding the right species of algae for local energy generation could yield a high return on the investment in research. Fifteen years ago the US Department of Energy abandoned a program of algae research based on a judgment that algae could not be cost effective. Oil then was about \$23 a barrel.

New insights about algae metabolism suggest that algae may one day be a major source of hydrogen fuel. Scientists at Argonne National Laboratory are looking at the production of hydrogen by photosynthesis. Now that could work in my future backyard fuel-cell generator. The right combination of growth potential and metabolic novelty is out there waiting to be discovered and developed.

Penicillin and streptomycin successes in the late 1940s stimulated a global search for other antibiotic-producing bacteria and fungi from thousands of soil samples collected on every continent. The effort required systematic collection, laboratory growth and screening for potential effective yields. The effort built Eli Lilly, Merck, Pfizer and others into a huge industry from the discovery of metabolic details long used by soil microbes.

While the basics of photosynthesis are reasonably well known to biochemists, nuances and details abound among thousands of species of algae, bacteria and terrestrial plants. Screening for these details will yield new insights and opportunity for creative scientists and entrepreneurs to find good solutions for local generation of fuels. The right combination for northwestern Wisconsin and northeastern Minnesota will emerge if a goal is set to find the right combination. Global search may help but the right combination may be found among hundreds of species of algae that have been growing in our northern tier soils, wetland and waters for tens of thousands of years.

All of this seems to me to be fodder for some exciting science education. The sources for future great ideas may still be fighting boredom in our elementary schools. I have a couple of old aquariums and a few ideas from years of teaching microbiology that are just collecting dust.

LIGHTER SIDE:

As with most jokes the original author is unknown. Whoever you are; "Thanks!" Names, when added, are intended to tease the innocent.

--Cannon Fodder from YouTube!

[-- This is probably not the waste of beer that it would otherwise seem. These "artists" use only Milwaukee's finest lite beer.](#)

Take care and enjoy a great weekend!

/BRUCE

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Bruce Lindgren is Principal of [B.Lindgren CONSULTING](#). The consulting practice serves small business, local government, school districts and non-profits providing support for research, grant development, technical writing, marketing support and project management. Bruce brings his background in biological sciences, education, small business and media technology to generate and implement ideas contributing solutions to mission critical challenges.

In addition Bruce maintains the following affiliations:

[Bayfield County Economic Development Corporation](#), (BCEDC) Director

[Inland Sea Society](#), (ISS) Director

[Lake Superior Binational Forum](#), (LSBF) US Co-Chair

[Bayfield CountyLakes Forum](#), Board Secretary

[Raindrop Garden Gallery](#), (RGG) Co-owner

[IDEA Consortium LLC](#), Owner

[Chequamegon Institute, Inc.](#) Initial Registered Agent

[Coalition for Eco-Industrial Development](#), (CEID) Acting President & CEO

[Northwest Wisconsin Workforce Investment Board](#), (WIB) Member

The encircled fractal triangle represents an integrated cluster of seven ideas – economics, ecology, equity, ethics, experience, education and energy – that may be considered a core for sustainability studies. Bruce is available to present illustrated lectures and facilitate discussions about role of education in Industrial Ecology, Sustainable Development and the Sustainability Revolution.