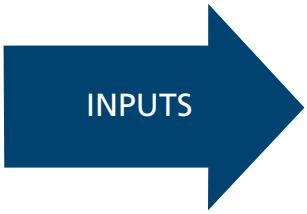
Rethinking inputs



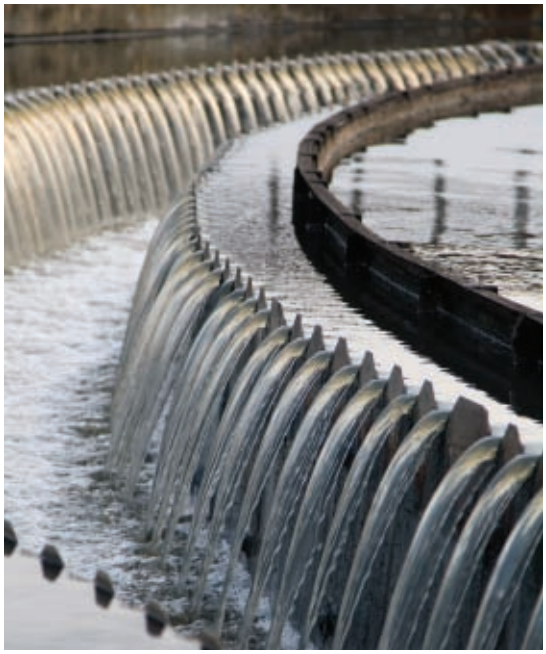
What are the inputs of your business? They may include water, food ingredients, seeds, biomass, energy, feedstock or fertilizer. Let's examine a few common business inputs to help you rethink the ones you use.

Finding value in water

Water is a key input for most agribusinesses. Although it is less evident in Canada than other countries, water resource availability is changing drastically around the world. Glaciers are melting. Water stocks are decreasing in some areas, and flooding is occurring in others. Southern Alberta and parts of Quebec face significant water challenges as they look to irrigate farmlands and generate hydroelectric power in the face of dwindling water stocks. Areas of Brazil and Africa are suffering brownouts from not having enough water to drive hydroelectric turbines. What can we learn from experiences overseas that will help Canada preserve its water resources?

Legendary oil investor T. Boone Pickens recently invested in groundwater rights in Texas, because he speculates that water is the new oil. As investors and industries speculate about the future of water, what opportunities and risks do you foresee for your operation? How can you extract value from your water resources?

Some countries are looking at innovative ways to reuse water or recycle waste water. Australia and Singapore have both instituted massive-scale waste water recycling and reuse projects in response to pressures on water supplies from climate change. Researchers are exploring opportunities for using ocean water in areas where traditional agricultural



lands are becoming unusable due to water shortages.

Canada's water supply

According to Robert Sandford, chair of the United Nations Water for Life Decade, Canada has adequate water compared to the rest of the world, but the supply can be exhausted. Canada has about 2,850 cubic kilometres of renewable fresh water, which is roughly 6.5 per cent of the world's supply. The rest of Canada's water is fossil water that is stored either in lakes, ice or snow. In Sandford's words, "Once we spend this water, it's gone."[6] The Conference Board of Canada is not forecasting water shortages, but does predict variable, seasonal water flows in Canada. It advises companies, including agribusinesses, to consider water variability in their risk analysis, conduct scenario planning, and adjust their design, construction standards and insurance requirements.[7]

Water availability

Concerns are being raised worldwide about water availability and cost. Water markets already exist in some regions, such as parts of Australia and Punjab, Pakistan, where water for agriculture is tradable. These farmers participate in water markets and can trade their water allocation with neighbours.

Water management programs already exist in Canada. In 2000, the South East Kelowna Irrigation District in British Columbia established a pricing program for water that has significantly decreased the demand for water per hectare. The South Nation Conservation team in Ontario piloted a water trading system to meet new municipal regulations to decrease high phosphorous levels. While the South East Kelowna program charges users for water, the South Nation program paid farmers for implementing best management practices to lower phosphorous levels. In both cases, environmental considerations became part of the bottom line of conducting business. What is the value of water to your operation? What would it mean to your bottom line if water cost you more?

What about energy?

Energy is another key input for most agribusinesses. FCC's winter 2009 edition of Knowledge Insider examined how volatile energy markets could affect Canadian agriculture and agribusiness. Agriculture already plays a key role in energy, contributing biomass, cereals and oilseeds for energy production and transforming agricultural waste into energy through anaerobic digestion.

Some businesses are creating alternative energy sources. Onion juice, previously a waste product,

Figure 4: 2006 irrigated farms in Canada (by no. of farms)

1 B.C.	
farms	19,844
# irrigated	6,938
% irrigated	34.96

2 Alta.	
farms	49,431
# irrigated	3,817
% irrigated	7.72

3 Sask.	
farms	44,329
# irrigated	923
% irrigated	2.28

4 Man.	
farms	19,054
# irrigated	241
% irrigated	1.26

5 Ont.	
farms	57,211
# irrigated	2,983
% irrigated	5.21

6 Que.	
farms	30,765
# irrigated	1,305
% irrigated	4.25

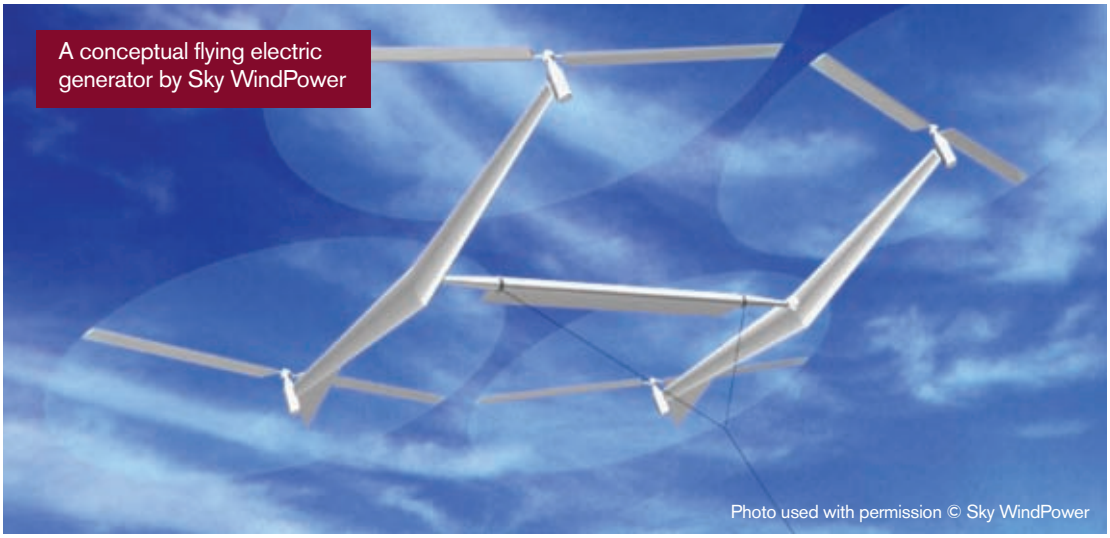
7 N.L.	
farms	558
# irrigated	33
% irrigated	5.91

8 P.E.I.	
farms	1,700
# irrigated	55
% irrigated	3.23

9 N.B.	
farms	2,776
# irrigated	117
% irrigated	4.21

10 N.S.	
farms	3,795
# irrigated	255
% irrigated	6.72

Source: Statistics Canada



A conceptual flying electric generator by Sky WindPower

now generates electrical power. High-altitude kites flown by robots are being studied to generate electrical energy. Turbine-bearing balloons are harnessing steady wind power as high as 4,752 metres in the air.[8] Research funds are supporting further uses for biomass, with algae research gaining much interest from investors and the media.[9]

Did you know?

Feedstock can refer to biomass for use in manufacturing or energy generation processes. It can include waste from various crops, co-products from bioenergy production and waste products from food processing.[10]

Making it work – Anderson Group

Markets are growing for biomass as an energy feedstock. CEO Dany Poisson and CFO Patrice Desrochers of Quebec-based Anderson Group have developed a new technology to reduce harvesting costs of forestry biomass. Their baler gathers biomass from short-rotation woody crops and natural brushes, then mulches, compacts and packages it for gasifiers and biomass burners in a single step. "It's exciting to be working with young engineers on biomass energy and to be part of the advancing green economy," Poisson says. "I encourage others to find a way to be part of the green economy, because it's one of the most rewarding places to be."

www.grpanderson.com

Photo courtesy of Anderson Group co.

Varieties of algae are being used as feedstock for energy production

Finding value in feedstock or ingredients

Many agricultural products can be used as feedstock to produce energy. Some agribusinesses generate energy on site by converting waste products. Some save money on energy costs by using heat exchange technology or conducting energy audits to find inefficiencies and excess heat waste. What steps have you taken since oil hit US $147 a barrel in 2008? Can you hedge your risks by meeting some of your own power needs or using renewable energy sources?

Think about the primary feedstock or ingredients for your agribusiness. Are they seeds that become plants? Are they food ingredients that become packaged goods? Is it biomass to create energy? Whatever your primary inputs, thinking innovatively about greener inputs can help you save money or create new products.

You can uncover hidden opportunities by stepping back and rethinking your business inputs. Perhaps you can substitute products, reduce inputs or reuse inputs, like water, by changing your methods or processes. Looking at your inputs through a green lens can uncover hidden value and short or long-term benefits for your business.

Rethinking and revamping your operational systems and processes in ways that benefit the planet could provide cost savings, boost productivity and reduce environmental impact. Could your operation use a green tune-up?

Did you know?

Biomass is any organic material that is available on a renewable or recurring basis. It comes from sources like agriculture and forestry residues, or less common ones such as algae and jatrophra – a genus that includes a variety of drought and pest-resistant plants, shrubs and trees.

Flax straw used for biomass process

Making it work – Enviroshake Inc.

Roofing shakes aren't a typical agricultural product. That didn't stop Jim Nash of Enviroshake Inc. in Chatham, Ontario. He liked the look of cedar shakes on houses, but wasn't impressed with their long-term durability and warranty, when there was one. Determined to create a better product, he began experimenting and developed the Enviroshake. Enviroshakes are made from 95 per cent recycled materials from the plastic, auto and agriculture industries. They look like cedar shakes and have a 50-year warranty. Nash says opportunities abound for new innovations in the green economy. "There's a market out there for agricultural plastics and fibres that needs to be developed, but this will only continue to grow as more bioproducts come into production. Learn where the materials are being applied and create partnerships with end-users."

www.enviroshake.com

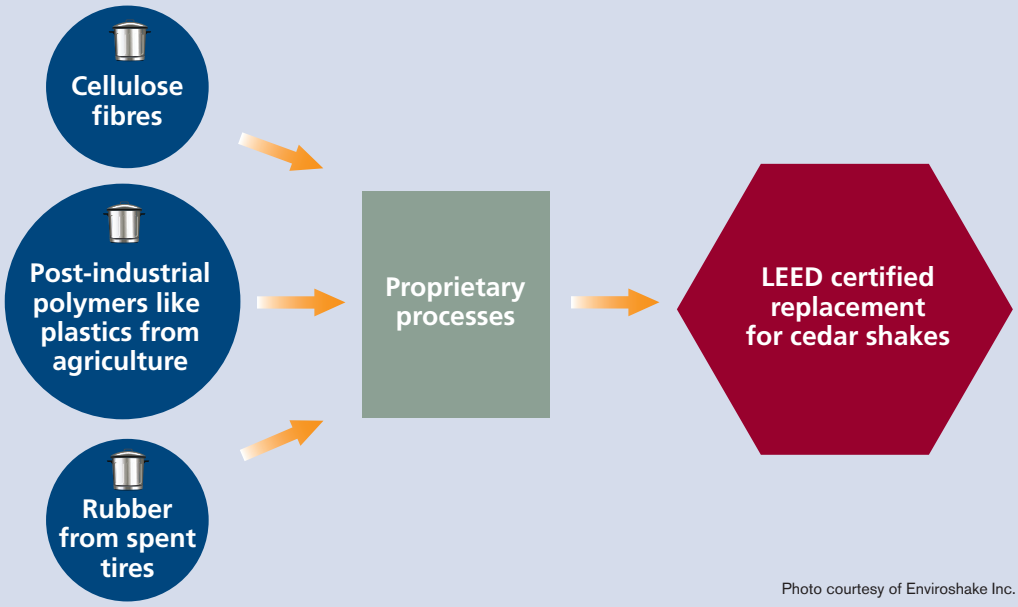


Photo courtesy of Enviroshake Inc.

Did you know?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System promotes a whole-building approach by recognizing performance in five key areas of human and environmental health: sustainable site development, water efficiency, energy efficiency, materials selection and indoor environmental quality. For more information on LEED certification in Canada, go to www.cagbc.org.

Did you know?

Res/Op Technologies in Winnipeg, Manitoba, developed trademarked technology, called the Orverter, to dispose of organic waste. The combustion technology operates solely on the energy produced from the organic materials being destroyed. This makes it essentially self-fuelled once heated and eliminates fossil fuel costs. The burner operates at a consistent 950 C, turning organic waste into an odourless vapour and sterile ash while producing energy.

Photo courtesy of Res/Op Technologies Inc.