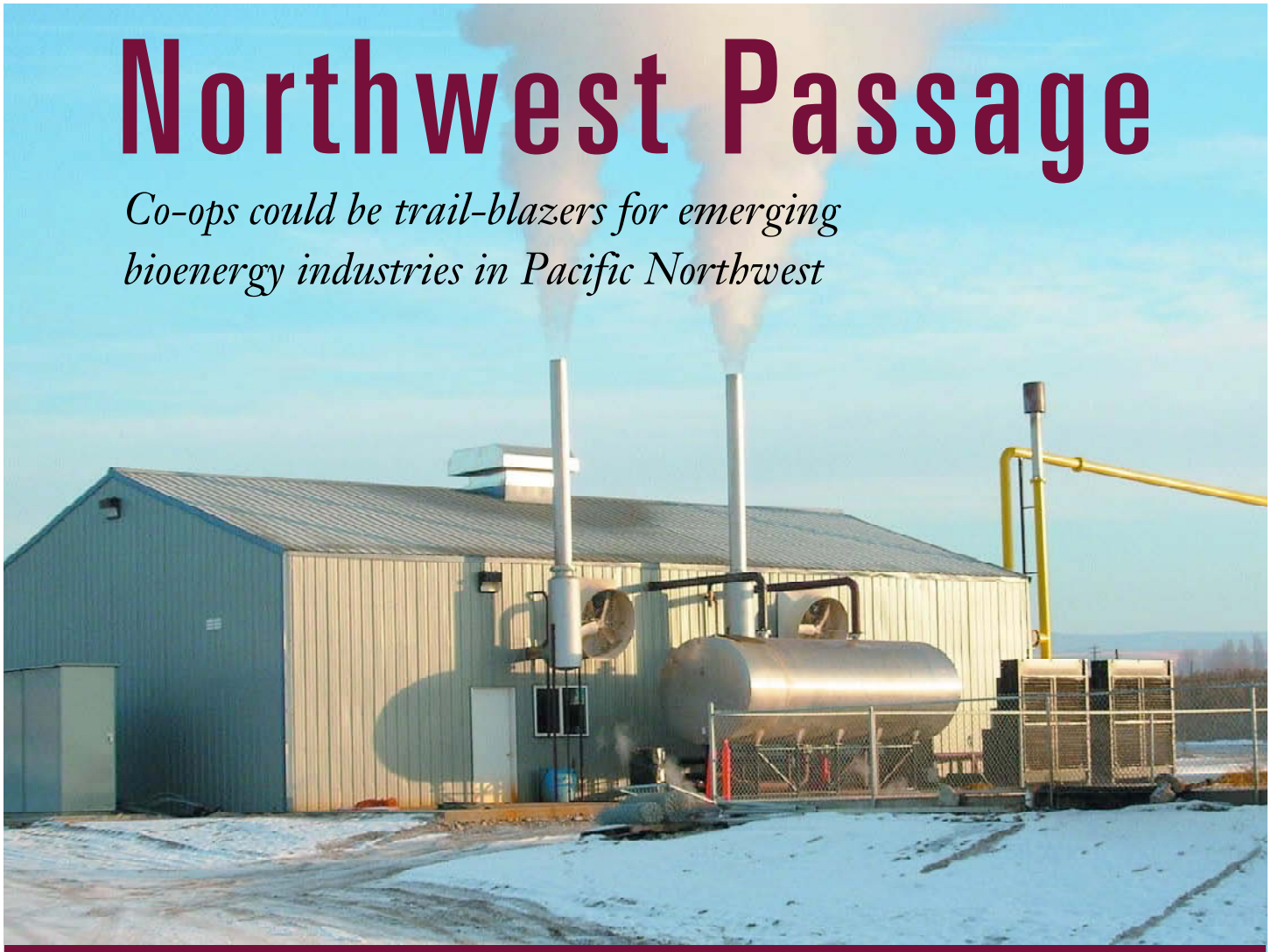
Northwest Passage

Co-ops could be trail-blazers for emerging bioenergy industries in Pacific Northwest



Cow manure on the Dan DeRuyter dairy in eastern Washington is being converted into enough methane to generate electricity to light up more than 200 homes.

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Editor's note: The Northwest Cooperative Development Center (NWCDC) received funding from the Bullitt Foundation and USDA Rural Development to explore the role of the cooperative business model in emerging bioenergy industries. The Center produced a study, Harvesting Northwest Bioenergy Cooperatives; Mapping the Route to a Cooperatively-Owned Future for Emerging Bioenergy Industries *available on the web (www.nwcdc.coop/Resources/HarvestingNWBioECoops.pdf), upon which this article is based. It examines the past, present and future role of cooperatively owned businesses in the budding bioenergy industry. The conclusions are based on one year of research, including interviews with existing co-ops, surveys of groups seeking to form co-ops and a review of case studies and articles.*

Bioenergy presents the Pacific Northwest with tremendous opportunities for cleaner energy and economic development. It's touted as being the answer to a variety of regional problems ranging from rural out-migration to diminishing natural resources.

The Northwest is a region born through resource extraction and now defined by a "post-industrial" economy. The traditional economy of resource-based industries and manufacturing are transitioning into a "new" economy of high-value-added sectors, such as software and biotech.

This economic transition has created new winners, but also new losers. For example, Microsoft has created many new millionaires while population and median incomes are rapidly decreasing in many rural towns.

The rise of a renewable energy industry has created hope and promise that a rural renaissance is on the horizon.

Renewable energy resources, such as wind and biomass, are distributed throughout rural regions and hold the potential for widely distributed economic benefits. Rural economies are realizing new potential from pre-existing assets. (The term "bioenergy" in this article refers to renewable energy made from biological sources, including liquid "biofuels" (primarily ethanol and biodiesel) and "biopower," derived from numerous biomass sources, such as anaerobic digestion generation.)

The opportunity for economic development should not only be viewed within the context of jobs creation and commodity prices, but also the long-term future of potential ownership and equity. Different ownership models are ultimately designed to benefit their stakeholders, i.e., the owners. Local ownership substantially increases economic benefits compared to absentee, investor-owned businesses.

While the Midwest has offered a dynamic example for how to build locally owned biofuels plants, the situation in the Pacific Northwest is much different. Unlike the Midwest, the Northwest doesn't have as long of a cultural tradition of farmer co-ops. The Northwest has a more diverse ecology and geography and, subsequently, a broader range of crops. Whereas the agricultural infrastructure of the Midwest is based on a surplus of high-volume/low-value commodities, the Northwest is based on specialty crops (such as apples, wine, etc.) and geared for export. According to data from USDA Census of Agriculture, the produce value per acre in Idaho, Washington and Oregon are four times that of Iowa.

The specific industries perceived as holding the greatest potential for bioenergy development in the Pacific Northwest are:

- Biodiesel
- Ethanol
- Anaerobic digestion
- Combustion of woody biomass

Northwest's considerable potential

The Northwest holds near-term potential for a regionally based liquid biofuel/biodiesel industry. Oregon, Washington and Idaho have the potential to grow substantial oilseed crops, primarily rotational canola.

Multiple farmer-owned projects are now underway but a great deal of infrastructure capacity has yet to be developed. Currently, there are few regional crushers to separate the meal and the oil, and more hybrid research is needed to guarantee producers reliable crop yields. Just as with ethanol, oilseed producers (for example, the Pendleton Grain Growers) can engage in a variety of capacities to capture greater value for their agricultural products.

The Midwest ethanol industry provides a timely case study of how a liquid biofuels industry can be developed from the farm up. Nationally, the ethanol industry is experiencing a rapid transformation toward larger, investor-owned facilities. Virtually all current ethanol industry development in the Pacific Northwest is investor-owned.

The Northwest's primary comparative advantages for ethanol production are low-cost commodities already flowing through the region, via rail and barges, to Pacific Rim markets. It also has a large, pre-existing feed-mash market to supply the region's dairies.

While corn and wheat are grown in the Pacific Northwest, the most abundant biomass feedstocks are forestry and agricultural residues. That said, the future of cellulosic feedstocks for ethanol is still unclear. Research and development and the refining of technologies are needed to fully commercialize a cellulosic ethanol industry.

Assuming the production technology will be commercialized, the long-term potential for cellulosic ethanol is enormous and could play a major role in the liquid biofuels industry. Just as an investor-owned firm (such as Iogen with Goldman Sachs and Royal Dutch/Shell) can explore launching a cellulosic ethanol refinery, so could a group of agricultural producers explore cooperating to:

- Jointly market their agricultural residues to a biofuel plant (i.e., act as a bargaining and supply procurement cooperative);
- Join in a joint venture with an investor-owned or privately held company to operate a plant;
- Launch a producer-owned small- to medium-scale facility.

Marketable advantages of the co-op business model

1. **Democratically controlled** by those it serves; surplus is distributed equitably.
2. **Ties to local community** mean co-ops are more likely to be socially conscientious, more accountable and more representative of the broader community.
3. No investors to feed, so **more income stays in the community.**
4. **Permanence:** co-ops live beyond their founders.
5. **Self-management,** as co-ops are a self-help tool for people to achieve together what they cannot achieve alone.
6. **Trusted business partners** — most people believe producers to be honest and reliable individuals.
7. **Co-ops focus on social, individual and community needs** in addition to the bottom line. Most investor-owned firms focus only on the bottom line.

Forms are constructed to channel the flow of manure at the DeRuyter Dairy methane gas facility. Although this operation is not owned by a cooperative, this technology is well adapted for cooperatives to pursue.

AD power suited to co-ops

Anaerobic digestion (or "AD") promises a niche solution to a distinct set of problems, from energy production to manure management. A well-recognized industry in other parts of the world, AD is quickly becoming more feasible in the Pacific Northwest because of technical advancements for its cooler climate. A group of farmers in a local area with large quantities of animal waste could realize economic opportunities by forming an AD bioenergy cooperative.

Cooperative ownership is well-suited to address specific project needs, such as the initial high capital costs of digester construction and the need for large quantities of manure. As an industry, AD offers promising opportunities to form synergies between multiple stakeholder groups, i.e., farmers who need improved manure management and communities that want clean waterways.

Woody biomass

The combustion of woody biomass for heat and power is an established industry led by wood products manufacturers. Innovation promises that new technologies, such as integrated biorefineries, are likely just around the corner. Because bioenergy production uses large amounts of feedstock, a co-op of like-producing individuals (such as straw-producing seed growers) could efficiently support such a facility. Because of the sheer quantity of available resources, woody biomass promises to play an increasing role in the nation's renewable energy portfolio.

America now has an opportunity to establish the future direction of the bioenergy industry and what it will accomplish for the nation. There will be costs and benefits, no matter the direction. If we seek a bioenergy economy that delivers on its promises to rural America, then we must incorporate rural economic development priorities.

While every state in the Pacific Northwest is seeking to accelerate the development of nascent bioenergy industries, there is still much development to occur in order to have the vibrant, regionally based industry people envision.

Recommendations for new and existing co-ops:

- Normal rules of business apply to co-ops: create a market-driven enterprise with a well-researched and thought-out business plan, have adequate reserve funds, etc.
- Build partnerships — co-ops represent a broader community than an average limited liability corporation (LLC) and, by definition, must appreciate and incorporate community interests. This is strength for co-ops.
- Identify what differentiates the group, be it feedstock production or marketing, and leverage these strengths to ensure economic success (see sidebar, page 13).

Co-ops must clearly identify and research their markets, resources and partners to determine if the project justifies the possible risks.

Key recommendations for local government, policymakers and the general public:

- Provide guaranteed markets through contracts, such as the business relationship the City of Portland is exploring with Pendleton Grain Growers and Madison Farms to potentially supply Oregon-grown biodiesel.
- Encourage and support accessible and sizable capitalization, including investment equity, grants and debt availability that provides "gap" financing and loan guarantees.
- Educate about, and advocate for, the benefits of local ownership.
- Realize the broader condition of industry development and seek to create what is wanted, be it decentralized, locally-owned or centralized, absentee-owned business.
- Create ownership-based incentives and/or tax benefits, such as Minnesota's disincentives for selling off a farmer-owned facility.

Time to build equity is now

While we may still be at the dawn of the renewable energy industry, it is important for co-ops to build equity now. As private capital has rushed into renewable energy, the resources are becoming increasingly under contract with well-capitalized and entrenched firms.

As Under Secretary for Rural Development Thomas Dorr has pointed out, "This is probably the greatest new opportunity for wealth creation in rural America in our lifetimes…" It is no secret wealth is generated through the accumulation and leveraging of assets, not through passively providing inputs.

In the Pacific Northwest, a "gold-rush mentality" has led to a rapid acquisition of the "low hanging fruit" of renewable energy resources. For example, look at the wind industry, where much of the easily accessible wind rights have consolidated into the possession of just several firms. While there are still niche holes well-suited to communities, family farmers and co-ops, the major players are in place.

There would be enormous environmental benefits if all the manure in the Northwest flowed into investor-owned digesters of the design-build-own-operate model.

Industrial lifecycle stages

Usually caused by product innovation or deregulation, the following lifecycle stages are common in emerging industries:

1. Dormant: low numbers of competitors enjoy high monopoly profits.
2. Takeoff: soaring entry and virtually non-existent exit from the market.
3. High Turnover: many firms enter and leave the market.
4. Shake-out: mass exit via mergers, bankruptcies, etc.
5. Stabilization: a stable oligopoly emerges.

(Source: Michael Gort, Steven Klepper. Time paths in the diffusion of product innovations. Economic Journal, vol. 92, No. 367. September, 1982).

These units crush canola seed at Pendleton Grain Growers Co-op. The resulting oil and meal can be used for biodiesel. USDA Rural Development provided a $300,000 Value-Added Producer Grant for the biodiesel project.

Unfortunately though in that scenario, the priority of local, rural economic benefit risks being decoupled from the other aims of the renewable energy projects.

Investors will play a powerful role in the rapid development of these industries, yet it is important for local players, co-ops and communities to develop and maintain equity early while opportunities are still available before these industries mature (see sidebar, above). These industries will undoubtedly expand and contract, as ethanol has demonstrated. Farmers, co-ops and communities will need to be strategic in their risk exposure. ■