

# Washington Manufacturing Alert

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Most Important Industry

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## Powering Up: Hydrovolts Readies Products For Market

Hydrovolts, the Seattle company that for more than five years has been developing electric generators driven by water flows in such unconventional settings as wastewater treatment plants and irrigation canals, is ready to make its debut with commercial products.

The company plans to roll out three products at an industry conference in Boston in late January: 2.5- and 15-kilowatt waterfall turbines for the industrial market, and a 12-kilowatt turbine for installation in water canals.

Hydrovolts will build the units at its facility in the South Park neighborhood of Seattle. The company says it will mainly use

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Extension arms called boombacks move water away from the frame of a pivot irrigation system. Photo courtesy of IACO.

## Vancouver Irrigation Products Company: Getting Water To Where It's Needed

BY BILL VIRGIN  
Editor/Publisher

Water is one of the vital ingredients in agriculture. Too little water, little or no crop. Too much, same result.

A Vancouver company has spent the last 50 years making accessories for irrigation systems that are a common sight across the West, to tackle the problem of too little water.

Now Irrigation Accessories Co. is making a big push into products that deal with that other problem – too much water, or at least water applied in the wrong quantities in the wrong places.

When irrigation systems deliver more water than the ground can absorb, it runs off. That wastes water, a commodity that will increase in cost as demand grows for its use. It also wastes energy required to pump water.

Runoff also causes pollution by washing fertilizers and chemicals into streams, as well as erosion.

Jon Johnston, president of Irrigation Accessories (better known by its acronym IACO), believes a new generation of products will help farmers cut water and energy use while also improving crop yield, quality and uniformity.

"It's a far more efficient use of water," he says.

Irrigation systems typically come in three varieties – hand lines (water lines laid on the ground), wheel lines (elevated three to four feet off the ground on structures supported by what look like large wagon wheels) and linear and pivot systems (the sprinkler heads are mounted on frames 15 feet in the air).

Johnston's efforts are focused on the market for pivot irrigation systems, using a design feature called booms, boombacks or offsets. Instead of having a sprinkler head directly underneath the irrigation tower's frame, the boomback moves the sprinkler head 10 to 15 feet back from the frame and its direction of travel. One reason for that was to reduce the amount of water that wound up

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## Irrigation Accessories: Small Company, Big Changes In Markets

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on the frame and made a mess of the pathway for the irrigation system's wheels.

One problem with pivot systems is a matter of geometry. As the irrigation system moves on a pivot in a giant circle, sprinklers toward the end of the pivot move faster than those toward the center. "To get enough water to germinate plants or to grow, you've got to be dumping a lot of water at the end of that pivot," Johnston says. "You wind up with sprinklers with really large nozzle sizes and you're dumping a lot of water. Then the problem becomes the ground can't absorb it and the water runs off."

Johnston's approach is what he calls innovative boom technology, using new designs of nozzles to increase the spread of the water without increasing the volume, giving the soil time to absorb the water.

A further refinement makes use of a technology developed by another Washington manufacturer, Nelson Irrigation Corp. of Walla Walla. Nelson makes a rotating sprinkler head that distributes water in roughly a 180-degree half-circle, so that the water doesn't get thrown back onto the frame.

The drawback is that a rotating sprinkler head can't be used with conventional hose booms (a length of hose hanging from the pivot frame or boomback). "If you think about a sprinkler that sprays in only one direction, you can't hang it on a piece of hose," Johnston says. "It's just going to blow sideways. I had to reverse engineer our boom to deal with that side force."

Coming up with products like these is merely the first step. Now Johnston has to market them, and that represents a major change for his company.

Traditionally IACO marketed its products to manufacturers of irrigation systems, who marketed them to local dealers, who marketed them to their customers, the farmers using them. Johnston likens his role to the maker of a car alternator.

"Who makes the alternator in your car? You don't really know," Johnston says. "You don't really care as

long as the alternator lasts longer than the car. Nobody cared who we were as long as it lasted longer than the pivot. Now I've got something, I've got to educate the grower" and create a brand.

To do that Johnston needs data to back up his claims of reduced costs and better performance from using IACO's products. Washington State University will be doing a study of the use of improved boom and sprinkler systems. "I can talk all day long and say my product saves you water and does this, and everyone will say, 'Well, he's biased.' If I can get a third party doing a study to back up our claims, it's going to be easier to market."

All this is a major undertaking for a company that has just three employees and just under \$1 million in annual sales. Before the recession hit it had eight employees, and at its peak the company had sales of \$1.8 million a year.

"The recession hit us late," Johnston says. "(In) 2008 we had a pretty good year; 2009, it tapered off and (in) 2010 the phone stopped ringing. That was our toughest year."

Business is coming back, but it's been spotty, he adds. "Our whole market base has changed. The hand line and wheel line accessories that we manufactured were a big part of our base. That's way, way off. The growth is in the boombacks and in the innovative technology."

Johnston says there's lots of room to grow in the pivot-irrigation market; only a tiny percentage of such systems are equipped with boombacks. But a tough economy and tight money has some buyers buying the basic systems, even with the paybacks that boomback-equipped systems offer.

IACO was started in the Portland area by Bill Stout, a pioneer in the development of irrigation equipment. Johnston says he's stayed in the region, even though most customers are east of the mountains, because of easy access to vendors and suppliers along the I-5 corridor.

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## Hydrovolts Powers Up With Industrial Waterfall, Canal Generators

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U.S.-made parts for its turbines, with a bias toward producers in the Pacific Northwest. The company has nine employees, and says it will add more as it builds sales.

Hydrovolts says the most promising market initially is for man-made waterfalls in industrial facilities such as manufacturing and processing plants and water treatment facilities where large volumes of water drop from one level to another. It has applied for a patent for a design that allows installation of multiple generating units along the rim of an industrial waterfall.

The industrial waterfall market “will have a faster initial domestic acceptance and a shorter sales cycle than that of the canal turbine,” Hydrovolts said in a recent release.

The company says one competitive advantage for its products is that they’re based on a standardized design that requires little modification to the unit or the installation site.

The list price for a 15-kilowatt unit, including inverter, is \$75,000.

Hydrovolts is still interested in the canal market as well, which could include irrigation systems, cooling water discharges and other “controlled water channels.” The company installed a test unit in a canal of the Roza Irrigation District near Sunnyside in the Yakima Valley last year, and is installing a second demonstration unit, using a different rotor-blade design, this month.

By the end of the year Hydrovolts will have two waterfall and two canal turbines installed and generating electricity at West Coast locations, and says several of

the hosts for those demonstration units will wind up buying them.

As it shifts from a development-stage company to commercialization of its technology, Hydrovolts’ management structure is also changing. Mike Layton, who had been the company’s chief operating officer, was named president, succeeding founder Burt Hamner, who remains on the board. Before joining Hydrovolts, Layton worked in business development and sales for CCI Surfacing, a Seattle-based countertop manufacturer.

Hamner, who founded Hydrovolts in 2007 and raised more than \$3 million from angel investors and contest awards, said Layton had more experience in operating a machinery manufacturing company.

Hamner also led an effort in 2005 to study the potential for tide-driven electricity generation in Puget Sound. He now operates Cleantech Mentor to consult with clients about micro and small hydropower and evaluating clean technologies.

The company also said its board has authorized the sale of up to \$1 million in convertible debt to fund product introduction and operations for next year.



**A Hydrovolts generator installed at West Sound Utility District at Port Orchard. Photo courtesy of the company.**

## Boeing: Third 737 Production Line To Be Added At Renton Plant

Boeing has delivered several pieces of good news to its Renton plant in recent years — scheduling three production-rate increases of its 737 and designating it the site of production for its next version of that plane, the Max.

One lingering question about the Renton plant is what happens when Boeing reaches the planned rate of 42 planes a month in the second quarter of 2014. If Boeing wanted to build even more planes to meet market demand, would the Renton plant have the capacity to increase its production rate? Or might Boeing choose to add a 737 production line somewhere else?

Now Boeing has addressed the capacity question with an announcement that is good news not just for the Renton plant and its employees but for its suppliers and vendors in the region.

In a conference call updating the media on the status of the Max program, Beverly Wyse, vice president and general manager of the 737 program, said Boeing plans to build a third 737 production line at the Renton

plant, parallel to the two existing lines.

The third line, dubbed a transition line, will go into operation in 2015 to build flight-test versions of the 737 Max, four of the initial model and two each for two derivatives to follow.

Eventually production of the Max will be integrated into Renton’s two existing production lines, which have the capacity for 42 planes a month. The third line, Wyse said, will then be used for future rate increases.

Wyse said the company has no specifics as yet on the timing of a rate increase. But since Boeing expects “significant growth” in the market for single-aisle planes like the 737, “We’re pretty sure they’re coming.”

Boeing increased production of the 737 from 31.5 planes a month to 35 in January. The rate will increase again, to 38 planes a month, in the second quarter of 2013.

Wyse said Boeing continues to study and reconfigure the Renton plant to reduce space required for production and to improve work flow.

## NewsWire: The Latest In Washington Manufacturing

**OLYMPIA:** Manufacturing employment rose by just 400 jobs from September to October 2012, although that was a better performance than in 2011 when there was a 1,700-job drop between those two months. The Employment Security Department said total manufacturing employment, not seasonally adjusted, was 288,900 in October, up 12,000 jobs from the same month a year ago. Aerospace parts and products manufacturing employment rose by 200 from September to October, and is now 7,100 jobs ahead of the same month a year ago.

**IRVING, Texas:** Hostess Brands Inc. said it plans to permanently close a bakery in Seattle, as well as two other locations, because of a strike that began Nov. 9 at those plants. The Seattle plant, which makes Hostess cake products, has 110 employees. At the end of the week the company threatened to liquidate entirely if the strike isn't called off.

**FEDERAL WAY:** Orion Industries plans to move its operations from Federal Way to Auburn. The company operates a manufacturing division supplying the aerospace, automotive, marine and medical-device industries, as well as a customer call service center; it specializes in training people facing barriers to employment, such as disabilities, for jobs with other companies. Orion has purchased 6.5 acres on 15th Street Northwest, a parcel bordered by the Auburn airport and a bus park-and-ride lot. Groundbreaking on the 100,000-square-foot building is to occur in December, with the move taking place in November 2013. Orion is investing \$9 million in the new location. Orion said it has outgrown its present site in Federal Way, where 225 employees are spread among three buildings; moving to Auburn will also put it closer to its prime customer, Boeing. Orion expects employment to reach 265 by the end of 2013. The company hasn't decided what it will do with the buildings, one owned and two leased, in Federal Way.

**VANCOUVER:** Christensen Shipyard landed three yacht sales contracts at the recent Fort Lauderdale International Boat Show that the company said will keep it working on projects through 2015. One of the contracts is for resale of a 160-foot vessel, while the other two are for new 160-foot and 164-foot yachts. Christensen said it hired 80 employees in 2012 bringing the total to 250, and it plans to add 60 more by mid-2013. The company currently has eight yacht projects.

**SUNNYSIDE:** Seneca Foods Corp. is acquiring Independent Food Corp., which processes pears, apples and cherries for sale under brand and private labels for the retail, food-service and industrial markets. Terms

weren't disclosed. Independent Foods, founded in 1972, has been owned by Underwood Fruit and Warehouse Co., Independent Foods Processors Corp. and Mt. Adams Orchards Corp.

**BELLINGHAM:** Terra Power Systems LLC, which makes power distribution system products for trucks and other heavy equipment, has been acquired by Littelfuse, a Chicago-based publicly traded maker of circuit protection products. Terms weren't disclosed. Littelfuse said Terra Power has annual revenues of about \$7 million. Terra Power will be operated as part of Littelfuse's Cole Hersee business.

**KALAMA:** Bennu Glass LLC, which earlier this year restarted a wine-bottle manufacturing plant, has leased an additional 20,000 square feet of warehouse space at the Port of Kalama's Kalama River Industrial Park for storage and distribution of bottles.

**SEATTLE:** Madison Park Group, which makes greeting cards and gifts, and RPI, a Tukwila producer of personalized products such as photo books for retailers, will launch a line of print products in conjunction with online humor site Cheezburger.

**KENT:** Oberto Brands will open a production facility in Nashville, Tenn., in the second quarter of 2013 to produce beef jerky and meat snacks. The plant will employ 310 people. The company said the second plant, in addition to one in Kent, is needed to meet demand, which has doubled in recent years.

**KIRKLAND:** CSA Group, a Toronto-based not-for-profit testing and certification organization, has acquired Orb Optronix, an LED test, measurement and certification company. Orb Optronix, which has 17 employees, also manufactures and sells LED test and measurement equipment.

**VANCOUVER:** Columbia Machine Inc. said it has settled a patent infringement case it filed in federal court against Besser Co. of Alpena, Mich., concerning concrete processing machines that Columbia makes. Columbia said it dropped its claim that Besser's Servopac infringes on its patents, while Besser dropped its claims that Columbia's patents are invalid. Columbia was founded in 1937.

**EVERETT:** Boeing has increased the production rate of its 787 passenger jet from 2.5 to five planes a month, and plans to reach a production rate of 10 planes a month at its Everett and South Carolina plants by late 2013.