

EnWave Corporation (ENW)

March 23, 2019

EnWave Corporation offers industrial-scale dehydration technology for commercial applications in the food, cannabis, and pharmaceutical spaces. The Company's Radiant Energy Vacuum ("REV™") platforms are becoming the new global dehydration standard, as they are faster and cheaper than freeze drying, and have better end product quality than both air drying and spray drying.

In the first quarter of 2019, which ended December 31, 2018 the Company reached revenues of \$7,806,000 compared to \$4,519,000 in the same period in fiscal 2018, an increase of \$3,287,000 or 73%. Continued strong sales of Moon Cheese, the crunchy cheese snacks produced by EnWave's 100% owned subsidiary NutraDried, contributed to this outstanding performance.

EnWave reported a net loss of \$15,000 in the first quarter of fiscal 2019, a significant reduction compared to the loss of \$397,000 in the first quarter of fiscal 2018.

While 2018 was a breakthrough year in many ways for EnWave, it is clear that the pace of growth will continue to accelerate into 2019. We expect a strong surge in NutraDried sales to at least \$25 million, a boost in royalties, and some significant machine purchase orders.

We reiterate our buy recommendation for EnWave Corp. with a price target of \$3.88, which is 115% above today's stock price.



- The Company anticipates several long-term projects to convert to commercial licenses as well as additional REV machine capacity to be ordered by existing partners in 2019.

A first order on which the investment community is waiting for is the follow up order from Bonduelle for a large 400kW quantaREV machine. There may also be some further exciting developments from the US Army Natick Soldier R&D Center (NSRDEC).

More growth is also expected in the cannabis space. So far, Tilray has purchased a 10kW REV machine and two 60kW continuous REV machines. In addition, The Green Organic Dutchman also bought a 60kW REV unit for the dehydration of cannabis.



THE COMPANY

EnWave Corporation is a Vancouver-based applied technology Company that works in partnership with food, cannabis, and pharmaceutical companies to develop commercial applications for its proprietary Radiant Energy Vacuum (REV) dehydration technology.

The key to the technology is the vacuum environment in which the drying process takes place. Thanks to the reduced atmospheric pressure, the temperature, at which the moisture is efficiently removed, can be lowered. This reduction of heat and oxidization minimizes the damage inflicted on the REV-dried products, preserving richer flavors, brighter colors and higher nutritional content versus other drying methods.

The University of British Columbia manufactured the first prototype REV machine in 1996 for dehydrating food and nutraceuticals. Since then, EnWave has developed three commercial-scale REV platforms: **nutraREV** for the food industry to dry fruits, vegetables, meats and other products quickly and at low-cost, while maintaining high levels of nutrition, taste, texture and color; **powderREV** for the dehydration of bulk food cultures, probiotics and fine biochemicals such as enzymes; and **quantaREV** for continuous, high-volume low-temperature drying of sensitive food products in liquid or solid form.

In addition, the Company has one developmental-stage REV platform: **freezeREV** to stabilize and dehydrate biopharmaceuticals such as vaccines.

EnWave's business model is to sell REV machinery and to sign royalty-bearing commercial licenses with leading food and pharmaceutical companies for the use of its revolutionary technology. Each license agreement restricts the partner's use of the technology to specific applications and geographic areas.

So far, EnWave has signed twenty-five royalty-bearing licenses, with licensees using the REV technology for applications in the dairy, seafood, spice & herb, fruit products,

cannabis, vegetable products, and meat products verticals. Some of the Company's best-known customers include Bonduelle, Gay Lea Foods, Milne Fruits and Perdue Farms.

EnWave generates revenues from the following sources:

- ❑ REV machine sales and maintenance;
- ❑ Maintenance of the machines to ensure they are running properly and to replace and repair components subject to normal wear and tear from ongoing operations;
- ❑ Royalty streams from partners, which typically vary between 3% and 5% of sales (paid out quarterly), or a fee per kilogram of net production; and
- ❑ NutraDried, a 100% owned subsidiary, which sells healthy dried cheese snacks.

EnWave reported in the first quarter of fiscal year 2019, the highest quarterly revenue in the Company's history.

Next to the success of Moon Cheese, EnWave also sold additional REV machines to both Milne Fruit and Bare Snacks in Q1 of 2019.



The Moon Cheese club format is doing extremely well at Costco.

Milne purchased its third 120kW REV machine for the production of an extensive portfolio of

dried vegetable and fruit applications. The installation is planned towards the end of calendar year 2019, and will significantly increase Milne's processing capacity for royalty-bearing REV products.

Also Bare Snacks purchased its third REV unit. A small-scale 10kW machine will be used to fill the increasing market demand for its REV-dried snack products. The third equipment purchase by Bare Snacks again confirms the growing commercial acceptance of EnWave's REV technology in the rapidly-growing "better for you" snacking vertical of the consumer-packaged goods sector. Bare Snacks is a wholly-owned subsidiary of PepsiCo, Inc and distributes premium fruit snacks throughout the U.S. under its Bare brand of products.



Bare Foods has purchased three 10kW REV machines in nine months' time to keep up with demand.

EnWave has set the pace for 2019 in its first quarter. It wouldn't be a surprise if EnWave surpassed total sales of \$35 million in fiscal 2019.

NutraDried LLP

NutraDried LLP develops, manufactures, markets and sells 100% all-natural cheese snacks under the Moon Cheese brand.

NutraDried produces Moon Cheese in cheddar, gouda, mozzarella, pepper jack, and sriracha flavors at its manufacturing facility in Ferndale, Washington, and distributes it in over 25,000 retail locations across Canada and the United States. Notable retail points of distribution include Starbucks, Costco, Target, Rite Aid, CVS, Safeway, Loblaws, and Save-On-Foods.

NutraDried's growth in revenue and profitability is due to the fact that it significantly expanded its distribution of Moon Cheese throughout Canada and the U.S.

More specifically, NutraDried began selling its Moon Cheese product in a 10oz Club Pack format to Costco in the first quarter of 2018 as a product rotation in Costco's Midwest division. During the year, NutraDried expanded the product rotation to the Southeast and Northwest divisions.

Currently, the 10oz Club Pack is distributed only through Costco. However, NutraDried is targeting additional Club Pack distribution opportunities. NutraDried's strategy is to further grow revenue and profitability by leveraging its network of food brokers in the United States, as well as by further investing in marketing activities to increase consumer demand and awareness for Moon Cheese.

NutraDried also increased marketing at the regional level in the U.S. to improve consumer awareness with the goal of creating further demand pull.

In order to fulfill the ever higher demand, NutraDried commissioned a second 100kW nutraREV machine in September 2018 at its Ferndale facility, doubling its production capacity for Moon Cheese. This second REV unit is currently also running at full capacity.

It also expanded its packaging and warehousing capacities through the purchase of additional manufacturing equipment to match processing capacity with the additional dehydration capacity.

We understand that the conservative guidance for total NutraDried sales in fiscal year 2019 is around \$25 million.

In addition, a Moon Cheese salad topper will be launched as an alternative to croutons exclusively in Walmart in 2019.

To manage all this expected growth, Mr. Mike Pytlinski was recently hired as CEO of NutraDried. With a successful background spanning nearly 30 years in the food manufacturing industry and financial services

sector, Mr. Pytlinski has direct leadership experience building sales and brand awareness for processed food products. Most recently, Mike Pytlinski served as the Vice President of Marketing for Palermo’s Pizza. Over the course of a six year campaign the pizza line more than tripled in sales under his stewardship.

TECHNOLOGY

Before EnWave launched its Radiant Energy Vacuum technology, food processing companies were limited to opt for either ‘freeze drying’, which provides great product quality, but is cost prohibitive and is only used to process higher-value products; or ‘spray and air-drying’, which is cost effective but degrades the quality of the products (Also see table below).

Thanks to EnWave’s REV dryers, companies, for the first time, can combine the effectiveness of freeze drying with comparable economics of spray and air drying.

EnWave's REV technology utilizes radiant energy (microwaves) in a vacuum environment to homogeneously dehydrate a wide variety of foodstuffs and biomaterials at temperatures ranging from approximately 37.5°C to below freezing.

Four REV platforms have been developed to address specific market opportunities. Three platforms – nutraREV, powderREV and quantaREV - are at a commercial stage, while the fourth one – freezeREV - is under development. Each platform is described in more details below.

	EnWave's REV Technology	Freeze Drying	Air Drying
Better Product	Superior Color Superior Flavor High Nutritional Retention	High Nutritional Retention	Heat & Oxygen Damages Color, Flavor, Nutrients and Texture
Faster Process	Minutes or Hours (1,5 hours for Blueberries)	Hours or Days (24 - 36 hours for Blueberries)	Hours (6 hours for Blueberries)
Cheaper Cost	Up to 80% lower processing costs than freeze-drying (combination of lower capital, labor and energy costs)	High Capital Costs High Energy Costs	Low Capital Costs Competitive Energy Costs
Comparison between EnWave's REV technology, and freeze & air drying.			

Commercial Stage

nutraREV is designed for the dehydration of fruits, vegetables, herbs, dairy products, meats and seafood. It provides higher nutritional content, and improved appearance, flavor and texture over freeze drying, which is the industry standard for dehydrating many food applications. It is EnWave’s most popular technology.

nutraREV machines are available at varying scales: 2kW for product development, 10kW for pilot-scale production and 100kW or higher for commercial production.

A 100kW unit is capable of producing as much as 150 kg (340 lbs) of dried product (below

5% residual moisture) per hour. A 100kW machine sells on average for USD\$1.5 million and generates between \$200,000 and \$400,000 in royalties per year at full utilization.

quantaREV is designed for high-volume, low-temperature dehydration of solids, liquids, granular or encapsulated products. It uses a continuous belt design in a controlled vacuum-microwave environment with an eventual target of dehydrating several tonnes of material per hour. This low temperature technology is designed to provide a higher-quality end product than what is currently achieved with spray drying or air drying.

powderREV is designed to dehydrate a wide variety of materials including enzymes,

probiotics and food cultures, pharmaceuticals, non-regulated biologicals and certain dry food products.

The technology is ideally suited to replace the expensive and time-consuming process of tray freeze drying, which takes place in a high heat environment and damages sensitive organisms. Laboratory tests have shown that the potential benefits of powderREV over freeze drying include less capital cost due to faster dehydration times, smaller plant footprints, and lower energy and labor costs.

Development Stage

freezeREV is designed to provide high-speed dehydration for live and active organisms in vials with the potential for significantly lowering operating costs compared with freeze drying. freezeREV is intended for products that must have a minimum moisture content in order to maximize their shelf-life. It is currently available as a multi-vial prototype for partner research and development.

The idea is to evaluate EnWave's REV technology as a viable replacement for lyophilization in the pharmaceutical industry. More specifically, the developmental work and testing has focused on the potential of dehydrating several vaccinations.

Unlike lyophilization, freezeREV employs a combination of microwave energy with a low-pressure environment to achieve rapid, highly controlled dehydration of live, or active, biological materials.

Tests conducted on a lab-scale freezeREV show that processing times are far less than with lyophilization, which dramatically reduces costs. In addition, the footprint of a freezeREV machine is sizably smaller than a lyophilizer. And finally, third party tests show no key differences between freezeREV and lyophilized products.

Expanding Patent Portfolio

EnWave holds numerous patents that protect both its REV technology and specific methods of use. The past two years, the Company received no less than 43 new patent

approvals that protect its technology and processes.

Because the Company's technology continues to be developed, new innovations are made. As such, its intellectual property portfolio continually expands.

EnWave is driven to innovate and continuously commits resources to strengthen its intellectual property portfolio. Patents are truly the cornerstone for the Company's licensing-royalty business model, because each time a new patent is granted, the royalty stream timeline extends twenty years from the patent's filing date.

THE MARKET

EnWave targets both the drying equipment market and dried products market, where it partners with companies that dehydrate their products.

The total market size for freeze drying equipment is estimated to reach \$35 billion by 2020. Especially the food processing and pharmaceutical industries are expected to continue to drive demand for freeze drying equipment. While food processing is the largest segment with about 35% of the market, cannabis and biotechnology are expected to be the fastest growers the following years.

The worldwide market size for dried products is estimated at an astonishing \$400 billion. The largest segment, estimated at \$140 billion, is the food industry, which includes dried fruits, vegetables, meats, etc. The biopharmaceuticals segment comes in second with a \$67 billion market share, closely followed by probiotics, food cultures and enzymes, that generates \$61 billion annually. The dried beverage market, primarily made up of coffee and milk, is estimated at \$31 billion.

EnWave intends to develop the market for REV technology by selectively collaborating with strategic partners focused on reducing processing costs and creating new or improved product opportunities.

VERSATILE APPLICATIONS FOR REV

While EnWave's dehydration technology has plenty of applications, it's clearly excelling in a number of distinct sectors.

Rapidly Expanding Dairy Space

By far the most successful REV dried cheese snack on the market today is Moon Cheese, as it's available at every Starbucks in North America and at thousands of retail stores in Canada and the United States.

Attracted by this success, other food companies worldwide sensed an opportunity and closed commercial agreements with EnWave to produce similar snacks. Typically, EnWave receives a 5% royalty on cheese snack sales.

The companies below have all signed a commercial agreement with EnWave to produce a REV dried cheese product. It is also stated for which country or region the companies obtained an exclusive license.

- ❑ **NutraDried LLP** for the United States;
- ❑ **Umland LLC** for high kosher products in the United States. Production and distribution of the snacks has commenced;
- ❑ **Gay Lea Foods** for Canada. It started up a 100kW nutraREV machine to expand the production of its 'Nothing But Cheese' snack product. After a somewhat slower start, sales are starting to pick up;
- ❑ **Lake Blue Spa** for Chile. Commercial production of its INTAKT cheese snacks has recently started. The dried cheese products are available in four flavors: Original Gouda, Spicy Gouda, Oregano Gouda, and Mediterranean Mix;
- ❑ **Dominant Slice** for Portugal and Spain. It recently launched a dried cheese product, coined B!t Cheese, and is now building out commercial opportunities for the product line (also see Fruit Category below);
- ❑ **Agricola Industrial La Lydia SA (Pitalia)** for Central America. It has received two 10kW nutraREV units and has ordered a 100kW REV machine (also see Fruits Category below);

- ❑ **Ereğli Agrosan** for Turkey. The license actually grants the company the exclusive right to process a variety of fruit, vegetable and cheese products. Ereğli's dried cheese product has entered the market and is being sold B2B in central Asian markets and into Europe;
- ❑ **Kesito LLC** for Greece. A 10kW commercial REV machine was installed late 2016, which allowed Kesito to complete product development and enter the European market with a high-quality, shelf-stable dried cheese snack product under the Air Cheese brand name: and
- ❑ **Ashgrove Cheese** for Tasmania. Ashgrove purchased a 10kW commercial REV unit and launched a crunchy cheese snack under the brand name 'Amaze Balls' in January 2018.

Next to the above agreements for REV dried cheese snacks, EnWave also signed a commercial royalty-bearing license with the following dairy company.

- ❑ **Arla Foods**, the world's largest manufacturer of organic dairy products. Pursuant to the License, Arla submitted a purchase order to obtain a small commercial-scale Radiant Energy Vacuum machine to initiate production in 2018, with plans to quickly scale if its products are commercially successful.

The License grants Arla the exclusive right to use REV technology to process dairy products in Denmark, Sweden, Finland and Norway.

EnWave Excels in Dried Fruits Market

A growing number of fruit processors have signed either an evaluation or commercial agreement with EnWave, indicating that this is another strong market segment for the Company's applications.

EnWave has a royalty-bearing commercial license with, among others, these fruit related companies:

- ❑ **Milne Fruit Products** entered the REV-dried fruits market a couple of years ago, positioning MicroDried products - all-

natural fruit pieces and powders - as pure, healthy alternatives to sugar-infused offerings. Milne Fruit is one of EnWave's largest customers, as it ordered its third 120kW machine right before the end of 2018. In fact, more than 50 consumer products on the market today already use its ingredients;

- ❑ **Natural Nutrition Limited d.b.a. Nanuva Ingredients**, a Chilean fruit processor, that has positioned itself as a leading provider of 100% natural (with no additives) dried fruits with colours, shapes, flavors and nutrients very similar to those of fresh fruit. These healthy ingredients are used in the snack food, functional food, nutraceutical and cosmetics industry;
- ❑ Next to dried cheese (see above), **Agricola Industrial La Lydia (Pitalia)** is also very active in the dried fruits space. In fact, La Lydia is a global leader in producing and exporting golden pineapples under the brands YAZ and SWITI. La Lydia formed a new business entity coined Pitalia specifically for the production of REV dried products. In 2018, Pitalia has started selling pineapple, apple, mango and banana snack products through its Pure Joy brand in the European and South, Central and North American markets;
- ❑ **Van Dyk Specialty Products Ltd.**, a major Canadian producer of wild blueberry products, that is best known for its highly successful blueberry juice, is focused on providing the market with high-quality REV dried blueberry products;
- ❑ **AvoLov LLC (formerly AvoChips LLC)**, a U.S. based processor that has developed an innovative new avocado snack product using REV technology. AvoChips submitted a purchase order to obtain a 10kW commercial-scale REV machine to initiate production. The license grants AvoChips the exclusive global rights to use the REV technology to process the snack product;
- ❑ **Howe Farming Group**, one of Australia's largest and most diverse farming enterprises. The license grants Howe Farming the exclusive right to use the Company's REV dehydration technology to produce dried banana products in Australia and the non-exclusive right to produce dried blueberry products in Australia; and

- ❑ **Bare Foods** is the creator of delicious Snacks Gone Simple, including bare Apple Chips, Banana Chips, Coconut Chips, and new Beet Chips, Carrot Chips, and Sweet Potato Chips. Their snacks are sold in the United States, through grocery stores like Whole Foods Market, Sprouts, Safeway, and Publix as well as national retailers such as Target and Amazon. Distribution of the Bare snacks are bound to significantly increase further as the company was acquired by food and beverage giant PepsiCo in May 2018. In October last year, Bare purchased a third 10kW REV machine.
- ❑ **Dominant Slice**, a Portuguese snack company, signed a non-exclusive commercial royalty-bearing license with EnWave, granting Dominant Slice the right to use its existing REV machinery to produce pineapple, mango, banana, coconut and papaya fruit pieces in Portugal.

Growing in Important Vegetable Sector

In 2016, EnWave entered into a partnership with **Bonduelle**, the world's leading processed vegetable producer. By removing most of the moisture content prior to freezing, the companies developed an innovative way to preserve frozen vegetables using EnWave's Radiant Energy Vacuum (REV) technology. This process ensured that the flavor and texture of the vegetables remained intact.

The agreement also involved a long-term lease commitment for a commercial 120kW quantaREV machine, and granted exclusivity for the dehydrofrozen process to Bonduelle. Years of work led to the launch of Bonduelle's InFlavor premium frozen vegetable line. Presented at trade shows and test marketing events, the InFlavor brand was an immediate success and even received prestigious awards acknowledging the appeal of the product line.

After a favorable response from its test audience, several larger orders for the InFrozen products were recently secured from B2B clients, prompting Bonduelle to officially launch its InFlavor dehydrofrozen vegetable product line to its food service customers.

Moreover, the multinational has confirmed plans to launch a retail version of the product line late 2019.

Last month, EnWave reported that the royalty agreement with Bonduelle has been revised, such that exclusivity for the production of frozen vegetables was extended for the North American market. The global exclusivity, which Bonduelle once had in the dehydrofrozen vegetables space, however was reduced to a more focused market territory. Most likely because Bonduelle didn't purchase the number of REV machines necessary to maintain its global exclusivity. In order for Bonduelle to retain its exclusive right to produce dehydrofrozen vegetables in North America using REV technology, it must purchase a 400kW REV machine before September 30, 2019.



Bonduelle will soon launch its InFlavor dehydrofrozen vegetable product line to food service customers and retail consumers.

In exchange for the extension of the exclusivity, Bonduelle had to make a milestone payment to EnWave. The amount of the payment was not disclosed but believed to be meaningful. In addition, Bonduelle agreed to buy-out the operating lease on the 120kW quantaREV machinery currently operating at Bonduelle's plant in Sainte-Martine, Quebec.

This is all good news for EnWave as Bonduelle's product line may soon generate a substantial royalty stream for the Company.

In 2017, **Merom Farms**, an agricultural and food production company, announced that it is going to start selling wasabi-based products in Canada and the United States.

The dried, powdered and encapsulated wasabi is specifically designed for the natural health supplement market and will soon be available under the "Your Wasabi" brand name.

Your Wasabi holds the ONLY license issued by Health Canada to produce wasabi capsules in Canada. (Also see Cannabis/Hemp Category below).



Both the wasabi antioxidant capsules and muscle cream are produced by Wasabi Farms Ltd.

Meat Snack Producers - Another Major Market for EnWave

The intention of most of these meat companies is to develop crispy meat snacks. Similar snacks are already being produced, but the texture and taste of most meat chips is poor because they are either air dried or baked.

In the meat category, EnWave has signed a royalty-bearing agreement with:

- ▣ **Perdue Farms**, a leading food and agricultural products company, ordered a 10kW REV dryer to process pet food and pet treats in the United States and Canada.

Cannabis / Hemp Application

Late August 2017, EnWave filed a new patent application for the simultaneous pasteurization and drying of cannabis using

REV technology. These patent-pending methods expand the application of EnWave's REV technology to the booming medical and recreational cannabis sector.

Medicinal cannabis is often used by chronically ill or immunocompromised patients, causing several countries with medicinal cannabis programs to employ strict standards regulating microbial contamination of herbal cannabis products in order to reduce the potential for opportunistic lung infections. Ionizing radiation is currently the only method commonly employed to meet these medicinal cannabis microbial standards.

However, EnWave's patented technology pasteurizes and uniformly dries cannabis in its natural state, without any additives, in under one hour, dramatically shortening the time from harvest to marketable products and circumvents the need to transport medical cannabis to highly-specialized and expensive off-site decontamination facilities.

Another major advantage is that EnWave's continuous high-volume REV drying process also eliminates the need for large-scale in-house drying rooms and their associated potential for product loss due to mold growth during the traditional multi-day drying process.

Finally, a common method for the extraction of cannabinoids (essential oils) from the dried plants uses pressurized CO2 as solvent. The challenge with this process however is that moisture levels in dried leaves often vary, which results in inconsistencies in the oils that are extracted. The goal with REV is to produce a much more homogenous raw material at a specific moisture level.

Still in 2017, the Company signed a royalty bearing agreement with **Tilray**, a major Canadian cannabis player with international presence. Tilray is an Authorized Licensed Producer as defined by Health Canada's Access to Cannabis for Medical Purposes Regulations (ACMPR).

The license grants the cannabis grower the exclusive right to use the Company's proprietary REV dehydration technology to dry and decontaminate cannabis in Canada.

In return for the exclusivity, Tilray has purchased a small-scale 10kW commercial REV unit to enable advanced product development along with a large-scale 60kW commercial REV machine that will be used to initiate commercial production. In May 2018, Tilray ordered a second 60kW REV machine, which will be installed in Portugal. Both units are expected to be up and running in 2019.



So far, Tilray has purchased a 10kW REV machine and two 60kW continuous REV machines.

Moreover, the Licensed Producer must also pay royalties based on the amount of cannabis processed with EnWave's REV equipment. Royalties in the cannabis space could be up to three times higher than what EnWave receives from companies that are active in the food sector.

Early 2019, EnWave announced the signing of its second royalty bearing license. This time with **The Green Organic Dutchman Holdings Ltd. (TGOD)**, another well-known Canadian cannabis producer.

TGOD has purchased a commercial 60kW REV machine to begin processing cannabis. The REV machine will be installed mid-2019 and will commence operations shortly thereafter generating royalties on all cannabis processed by TGOD using EnWave's technology.

Early 2019, EnWave reported another license agreement with **Your Wasabi Farms Ltd (YWF)**, to enable the partner to begin processing hemp with its REV equipment on a toll-processing basis on behalf of third-party suppliers.

It should be noted that the license currently granted to YWF is for the processing of hemp only, which is a species of the Cannabis plant. Hemp has many industrial uses derived from fibers of the plant and is also increasingly becoming important for medicinal applications. While hemp itself is legal to cultivate and process, marijuana plants are still regulated and production of these plants in Canada requires a license.



Hemp is distinct from cannabis in that it only has a miniscule concentration of tetrahydrocannabinol (THC), and thus no narcotic capability. Hemp does however contain cannabidiol (CBD), a substance often produced from cannabis that has certain medicinal benefits.

As the legal consumption of marijuana grows in Canada, increasing demand will likely encourage more cultivation operations and larger crop yields. This in turn may lead to greater utilization of REV processing to cure and dry cannabis plants. There is the possibility that YWF may apply for regulatory approval to begin processing marijuana plants, and thereafter reach an amended deal to expand the license agreement with Tilray to include this option under a royalty structure.

In addition, in April 2018, EnWave signed a TELOA with **a major Canadian cannabis player**. Although EnWave didn't release the name of its new partner, it did mention that it is one of Canada's largest licensed cannabis producers (LP). When doing an online search for the biggest cannabis companies, returning names are Canopy Growth, Aurora Cannabis, Aphria Inc., and MedReleaf Corp, all billion dollar companies!

The Licensed Producer was granted six months to evaluate EnWave's Radiant Energy Vacuum (REV) technology for cannabis decontamination and dehydration. During that period, the LP will rent a pilot-scale REV

dryer, which will generate revenue for EnWave. Moreover, EnWave granted the LP an exclusive option to license the REV technology for processing cannabis in an unnamed European country. EnWave management confirms that this TELOA is still active.

Pharmaceutical Dehydration Technology

A final pillar of EnWave's success is pharmaceutical applications.

In December 2011, EnWave signed a 10-year Research and Development agreement with **Merck**, one of the world's leading pharmaceutical, chemical and life science companies, in which Merck bears the costs associated with this process. Test results with a scaled-up freezeREV machine have been very encouraging.

The REV freeze drying technology for the pharmaceutical industry provides the capability for continuous processing such that individual dosage units of vaccines, enzymes, antibodies, proteins, probiotics and other small molecule therapeutics may be rapidly dried and packaged.

In September 2018, EnWave announced that Factory Acceptance Testing was completed after a thorough development phase at its own R&D facility in British Columbia, in collaboration with Merck. Testing work focused on achieving specific throughput and capacity objectives established by Merck to demonstrate the processing can deliver consistent performance with regards to production metrics such as moisture content, homogeneity, processing time, etc.

Following this test phase, Merck installed the 9kW REV machine at its facility in Pennsylvania, where it recently passed site acceptance testing. Site acceptance testing ensured that the equipment performed at the Merck manufacturing complex in line with the same protocol as the original parameters already achieved at EnWave's R&D test facility.

Merck has several new products under development that will become candidates to

utilize the REV machine for the potential launch of products in the future. The development regime would involve a timeline greater than 3 years to gain FDA approval, so the actual commercial payoff for this technology is some time ahead.

However, EnWave has once again demonstrated a new application for its REV technology. The potential rollout as part of the manufacturing process for established pharmaceutical companies like Merck represents another distinct industrial sector where the REV machines are contributing to efficient production of new products.

GROWTH DRIVERS

EnWave Potentially Solving Major Military Issue

In June 2017, EnWave entered into a contract with the US Army Natick Soldier R&D Center (NSRDEC) to jointly develop low weight, high quality, nutritious field rations.

This opportunity for EnWave is enormous, as potentially hundreds of thousands of men and women in active duty could be served REV-dried rations.

The military is focused on reducing the footprint (weight and volume) of what fighters have to carry in the field. It will not only increase chances of them packing more rations, it will also lessen their fatigue and improve agility and speed.

The Company's Radiant Energy Vacuum technology is uniquely suited for this purpose, because food items can be intermediately dried, and as such easily compressed. When products are dried with other drying techniques and then compressed, they typically pulverize into small pieces.

Internal focus groups of up to 200 people involved in sampling of these newly developed products have been very enthusiastic about the composition and flavor of the samples provided.

In fact, the NSRDEC was so satisfied with the progress being made that late July 2018 it ordered a 10kW REV machine for research

and development purposes. The acquisition of the 10kW REV machine by NSRDEC aims to facilitate an accelerated path to improved Close Combat Assault Ration deployment.

After a successful presentation at the Pentagon in May 2018 and confirmed demand for REV dried rations, the NSRDEC has fast tracked the research and development necessary for implementation with close combat warfighters.

EnWave and the NSRDEC are currently looking to collaborate with potential vendors to manufacture and supply REV-dried nutrient rich field rations moving forward.

RECENT EVENTS

Royal FrieslandCampina Engages EnWave Corporation to Advance R&D Initiative Using REV Technology

In January 2019 another intriguing product development opportunity was established by EnWave through a deal with a subsidiary unit of Royal FrieslandCampina N.V., the sixth largest dairy company worldwide.



A ping pong table in the hallway, two old Trabant cars on the rooftop terrace, and millennials in abundance. Welcome to Milkubator, where the goal is to achieve in three months what would take a year and a half at FrieslandCampina headquarters.

Operating as a cooperative of more than 13,000 individual dairy farms based in Netherlands, Belgium, and Germany, FrieslandCampina represents the collective interests of its membership of independent dairy farms, assisting with development,

production and sale of dairy products throughout a broad-based European marketing area.

One avenue for FrieslandCampina to deliver further growth to its members is the investment towards innovation of new products that create value and build new marketing opportunities for dairy products or dairy-based ingredients.

As such, FrieslandCampina has established its Milkubator initiative, through which a small team of talented researchers is funded to rapidly create and develop new products. Similar to a start-up venture, this business model enables a small team of entrepreneurial individuals to more effectively advance and implement a new product idea. This process has already led to the development of a variety of new products using milk and milk components.

EnWave now signed a Commercial License and Equipment Sales Agreements with Milkubator that will allow the innovation subsidiary to explore and evaluate the potential for using REV Technology to create new dairy products.

The collaboration includes the sale of a smaller 10kW REV machine to be installed at the Milkubator facility for testing and product development. The Milkubator team will initially focus on the development of dairy-based products with the potential to expand the scope to other dairy products thereafter.

As with many other initial sales agreements completed by EnWave, this deal also has the potential for further growth as any successful product development would require the purchase of additional REV machines to maintain the license arrangement.

FINANCIALS

EnWave generates revenue from two business segments: EnWave Canada and NutraDried. EnWave Canada sells REV machinery to royalty partners, rents REV units to prospective royalty partners, and earns royalties from customers that sell REV dried products. Note that royalties are payable to

EnWave as a percentage of the value of products sold or based on the number of units produced by its royalty partners. NutraDried, on the other hand, sells Moon Cheese snacks into retail and wholesale distribution channels.

EnWave Canada reported revenues of \$1,478,000 for the three months ended December 31, 2018 compared to \$2,121,000 for the three months ended December 31, 2017, a decrease of \$643,000. The decrease in revenues was due to a lower number of machine sales. Royalties, on the other hand, reached \$251,000 during the three months ended December 31, 2018 compared to \$203,000 for the three months ended December 31, 2017 an increase of \$48,000 or 23%.

All in all, EnWave Canada reported a loss of \$1,161,000 for the three months ended December 31, 2018 compared to a loss of \$398,000 for the three months ended December 31, 2017, an increase of \$763,000.

Amounts in \$000's	12/31/18	12/31/17
EnWave Canada Sales	1,478	2,121
NutraDried Sales	6,328	2,398
Total Sales	7,806	4,519
Cost of Goods Sold	4,769	3,093
Gross Profit	3,037	1,426
Expenses	2,736	1,823
Pre-Tax Income (Loss)	301	(397)
Income Tax Expense	316	-
Net Profit (Loss)	(15)	(397)
Diluted Shares Outs.	101,473	95,781
Diluted EPS	(0.00)	(0.01)
Selected income statement data for the quarters ended December 31, 2018 and December 31, 2017.		
Source: Company Filings		

NutraDried reported revenues of \$6,328,000 for the three months ended December 31, 2018, compared to \$2,398,000 for the three months ended December 31, 2017, an increase of \$3,930,000 or 164%. NutraDried reported income of \$1,146,000 for the three months ended December 31, 2018, compared to \$68,000 for the three months ended December 31, 2017, an impressive increase of \$1,078,000. As mentioned above, this strong performance was mainly due to NutraDried

securing additional sales at Costco, Whole Foods, and Publix.

Furthermore, the Company achieved a gross profit of \$3,037,000 for Q1 2019 compared to \$1,426,000 for Q1 2018, an increase of \$1,611,000 or 113%. Gross margin as a percentage of revenue was 39% for Q1 2019 compared to 31% for Q1 2018.

Balance Sheet As Of December 31, 2018

On December 31, 2018, the Company had working capital of \$13.30 million, compared to \$12.01 million on September 30, 2018. On December 31, 2018 the cash and cash equivalents balance was \$9.28 million compared to \$9.10 million on September 30, 2018, an increase of \$178,000. The change in cash and cash equivalents is primarily due to deposits received from customers on machine purchases as well as cash proceeds from the exercise of employee stock options. The Company had net cash outflows from operating activities of \$113,000 for Q1 2019.

Amounts in \$000's	12/31/18	12/31/17
Cash and Cash Eq.	9,279	10,942
Restricted Cash	250	250
Trade Receivable	4,367	2,428
Due From Customers Under Contract	521	2,187
Inventories	3,303	2,549
Total Current Assets	18,142	18,540
Plant and Equipment	4,822	2,550
Total Assets	23,781	21,926
Trade and Other Payables	2,570	1,814
Total Current Liabilities	4,842	2,882
Long Term Debt	339	73
Total Liabilities	5,348	2,955
Total Stockholder Equity	18,433	18,971
Selected balance sheet data on December 31, 2018 and December 31, 2017. Source: Company Filings		

Inventory on December 31, 2018 includes completed machines and machine components of EnWave Canada of \$1.76 million, which is an increase of \$47,000 compared to September 30, 2018. The inventory of EnWave Canada relates to 10kW

machines and related components. NutraDried's food product and packaging supplies inventory was \$1.54 million, which is an increase of \$383,000 compared to \$1.16 million on September 30, 2018 due to the increased production.

OUTLOOK & VALUATION

An increasing number of food, cannabis, and biopharmaceutical companies are realizing that REV is the way to go if they want to maintain their competitive advantage.

The sale of REV dryers is generating millions of dollars for EnWave. Moreover, with each additional REV unit becoming operational, the minimum quarterly royalties are increased proportional to the size of the machine. A 100kW machine will typically generate between \$200,000 and \$400,000 in royalties per year at full utilization. As more and more machines are taken into production, EnWave will benefit big time.

Although EnWave is already on the right track to achieve sustained growth and profitability, it has a vast number of solid growth opportunities in its pipeline.

One of the biggest opportunities for EnWave is situated in the **cannabis** space. As one of the first cannabis companies to recognize the potential for REV technology in its operations, Tilray established a partnership with EnWave in 2017 to begin using REV machines process its significant cannabis production.

In May 2018, Tilray ordered a second 60kW REV machine to serve the Portuguese market, and early 2019, EnWave announced the signing of a royalty bearing license with The Green Organic Dutchman Holdings Ltd. (TGOD), another well-known Canadian cannabis producer. However, EnWave's REV technology has so many advantages for cannabis processors, that many more of them will follow suit.

In addition, EnWave doesn't pursue any business activities related to cannabis in the United States until the regulatory environment becomes more favorable. However, in December 2018, the U.S.

government signed into law the 2018 Farm Bill, which included the **Hemp** Farming Act, a bill that removed hemp from the federal list of controlled substances and legalized industrial hemp production. As a consequence, EnWave is now evaluating commercial opportunities in the U.S. for legalized hemp production with its rapid dehydration technology.

Also in the U.S., further developments are expected this year in regards to the **U.S. Army** field ration development project. EnWave and the United States Army Natick Soldier Research, Development and Engineering Center ("NSRDEC") are conducting a collaborative R&D project for the development of nutrient rich field rations for soldiers. The U.S. Army purchased the 10kW REV machine in 2018 to facilitate an accelerated path to improved close combat assault ration deployment. This opportunity for EnWave is enormous, as potentially hundreds of thousands of men and women in active duty could be served REV-dried rations.

In the pharmaceutical field, EnWave has completed fabrication and installation of the first scaled-up Good Manufacturing Practices ("GMP") freezeREV for **Merck** as a part of a multi-year project to develop EnWave's REV dehydration technology for the pharmaceutical industry. The first scaled-up machine was designed to provide Merck with the ability to continuously dehydrate liquid vaccination in vials, and has the potential to displace the need for lyophilisation.

The GMP freezeREV machine passed factory acceptance testing at EnWave's facility in late 2018, and recently passed site acceptance testing at Merck's facility. The GMP freezeREV machine is now installed and Merck plans to use the freezeREV machine to pursue GMP certification for new products; if successful Merck will potentially pursue clinical trials using the EnWave technology.

In July of 2018, EnWave also signed a Collaboration and License Option Agreement with **GEA Lyophil** GmbH of Germany. The two companies will evaluate a potential partnership to manufacture and deploy continuous cGMP REV equipment into the global pharmaceutical sector. No additional news has been announced since, but the

negotiations seem to be going in the right direction.

Finally, a few weeks ago, **Bonduelle** launched its InFlavor dehydrofrozen vegetable product line to its food service customers and confirmed plans to launch its retail product in late 2019. Bonduelle's InFlavor makes use of EnWave's REV technology to provide a premium frozen vegetable offering to consumers.

In exchange for exclusive North American rights to use EnWave's technology to produce dehydrofrozen vegetables, Bonduelle must purchase a 400kW REV machine before September 30, 2019. As consideration for the extension, Bonduelle agreed to pay a milestone payment to EnWave and agreed to buy-out the operating lease on the 120kW quantaREV machine currently operating at Bonduelle's plant in Sainte-Martine, Quebec.

Valuation

Given the still emerging nature of EnWave's earnings, a multiple-based valuation is challenging. Instead, we apply a Discounted Cash Flow (DCF) model.

Based on our estimate of 118 million shares outstanding, the intrinsic value of EnWave's shares derived from our model is \$3.88, up from \$3.85 in our previous report.

We reiterate our buy recommendation for EnWave Corp. with a price target of \$3.88, which is 115% above today's stock price.

SHARE DATA & OWNERSHIP

As of February 27, 2019, EnWave had approximately 102.2 million common shares outstanding. In addition, the Company had approximately 8.3 million warrants outstanding with an average exercise price of \$1.37.

Finally, EnWave had about 7.2 million stock options outstanding with a weighted average exercise price of \$1.17. Each stock option entitles its holder to purchase one common share of the Company.

The principal owners of the Company's common stock are DJE Investment (3.57%), and Manulife Asset Management (2.44%).

MANAGEMENT

▣ **MR. BRENT CHARLETON, CFA - PRESIDENT & CEO, DIRECTOR**

Mr. Charleton has extensive experience working in competitive team-based environments in the public and private sectors. He has managed the business development, marketing and investor relations mandates for EnWave Corporation since 2010 and was recently promoted to President and Chief Executive Officer. Brent, an ex-professional athlete, is a graduate of the Marketing Management program at the British Columbia Institute of Technology and has earned a Bachelor of Arts degree in Criminology and Communications from Simon Fraser University. Mr. Charleton has

completed the Canadian Securities Course and is a holder of the right to use the Chartered Financial Analyst® designation.

▣ **MR. DANIEL HENRIQUES, CPA, CA - CFO**

Mr. Henriques is a Chartered Accountant and brings extensive experience in finance effectiveness and financial reporting to his role at EnWave. Prior to joining EnWave, Mr. Henriques was a manager in the Assurance group at PricewaterhouseCoopers LLP, and supported numerous mid-market companies, including companies listed on the Toronto Stock Exchange, TSX Venture Exchange and the New York Stock Exchange, with financial reporting and compliance. While at PwC, Mr. Henriques provided clients in the manufacturing and technology sectors professional services in the areas of financial audits, financial reporting and tax.

ANNUAL INCOME STATEMENT FY 2016 – 3M 2019

All numbers in thousands

PERIOD ENDING	FY 2016	FY 2017	FY 2018	3M 2019
Total Revenue	14,933	15,954	22,825	7,806
Cost of Revenue	10,383	11,654	13,915	4,769
Gross Profit	4,550	4,300	8,910	3,037
Expenses				
General & Administrative	1,989	2,072	2,439	998
Sales & Marketing	793	2,160	3,731	976
R&D	1,656	1,138	1,213	341
Amortization Intangible Assets	1,222	888	573	137
Stock-based Compensation	399	891	545	357
Total Operating Expenses	6,387	7,286	9,317	2,736
Net Income (Loss) Before Income Taxes	(1,837)	(2,986)	(407)	301
Income Tax Expense	-	-	538	316
Net Income (Loss)	\$(1,923)	\$(2,986)	\$(945)	\$(15)

Annual Income Statement FY 2016 – 3M 2019. Source: Company Filings



E N W Λ V E

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OTC: NWVCF
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