

# **ANNUAL INFORMATION FORM**

Fiscal Year Ended April 30, 2019

July 31, 2019

# **TABLE OF CONTENTS**

Basis of Presentation	3
Cautionary Note Regarding Forward Looking Statements	3
Corporate Structure	4
General Development of the Company	5
Technology Overview	6
Company Vision and Objectives	8
Highlights from Current Year	8
Business Strategy for Upcoming Year	9
Product Overview	11
Patent and Intellectual Property Overview	13
Competitive Analysis	14
Market and Industry Data	15
Recent Developments	17
Risk Factors	19
Risks Related to our Business	24
Dividend and Distributions	25
Capital Structure	25
Directors and Officers	27
Cease Orders, Bankruptcies, Penalties or Sanctions	29
Audit Committee	29
Legal Proceedings and Regulatory Actions	32
Transfer Agents and Regulators	32
Interests of Experts	32
Additional Information	32

#### **BASIS OF PRESENTATION**

As used in this annual information form ("AIF"), unless the context otherwise requires, references to "REGI U.S., Inc.", the "Company", "REGI", "RadMax", "RadMax Technologies, Inc.", "we", "us", "our" or similar expressions refer to REGI U.S.. Inc.

Unless otherwise noted, in this AIF, all information is presented as of July 30, 2019. All references in this AIF to "dollars", "\$" or "US\$" refer to United States dollars, unless otherwise expressly stated.

References in this AIF to our fiscal year refer to the fiscal year ended April 30, 2019. For example, references to "Fiscal 2019" refer to our fiscal year ended April 30, 2019.

We have proprietary rights to a number of company names, product names, trade names and trademarks used in this AIF that are important to our business, such as, RadMax Technologies, Inc., REGI U.S., RadMax. We may omit the registered trademark ( $^{\circ}$ ) and trademark ( $^{\circ}$ ) symbols and any other related symbols for such trademarks and all related trademarks, including those related to specific products or services, when used in this AIF.

The Company's principal offices are located at 7520 N. Market St., Ste. 10, Spokane, WA 99217. Its telephone number is (509) 474-1040.

#### **CAUTIONAY NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This AIF contains certain information that may constitute forward-looking information within the meaning of Canadian securities laws and forward-looking statements within the meaning of U.S. federal securities laws, both of which we refer to as forward-looking statements, including, without limitation, statements relating to certain expectations, projections, new or improved product introductions, market expansion efforts, and other information related to our business strategy and future plans. Forward-looking statements can, but may not always, be identified by the use of words such as "seek", "anticipate", "plan", "continue", "estimate", "expect", "may", "will", "project", "predict", "potential", "targeting", "intend", "could", "might", "would", "should", "believe", "objective", "ongoing", "assumes", "goal", "likely" and similar references to future periods or the negatives of these words and expressions and by the fact that these statements do not relate strictly to historical or current matters. These forward-looking statements are based on management's current expectations and are subject to a number of risks, uncertainties, and assumptions, including market and economic conditions, business prospects or opportunities, future plans and strategies, projections, technological developments, anticipated events and trends and regulatory changes that affect us, our customers and our industries. Although the Company and management believe that the expectations reflected in such forward-looking statements are reasonable and based on reasonable assumptions and estimates, there can be no assurance that these assumptions or estimates are accurate or that any of these expectations will prove accurate. Forward-looking statements are inherently subject to significant business, economic and competitive risks, uncertainties and contingencies that could cause actual events to differ materially from those expressed or implied in such statements.

Undue reliance should not be placed on forward-looking statements. Actual results and developments are likely to differ, and may differ materially, from those anticipated by us and expressed or implied by the forward-looking statements contained in this AIF. Such statements are based on a number of assumptions and risks which may prove to be incorrect, including, without limitation, assumptions about: the performance of our production facility; our ability to maintain customer relationships and demand for our products; the overall business and economic conditions; the potential financial opportunity of our addressable markets; the competitive environment; the protection of our current and future intellectual property rights; our ability to recruit and retain the services of our key personnel; our ability to develop commercially viable products; our ability to pursue new business opportunities such as water purification, water desalination or enhanced Harmonic Absorption Recuperative Power (HARP) / Organic Rankin Cycle (ORC); our ability to obtain additional financing on reasonable terms or at all, and the impact of new laws and regulations in Canada, the United States or any other jurisdiction where we are currently doing business or intend to do business.

Many factors could cause our actual results, level of activity, performance or achievements or future events or developments to differ materially from those expressed or implied by forward-looking statements, including, without limitation, the factors discussed under "Risk Factors". There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those expressly or impliedly expected or estimated in such statements. Shareholders and investors should not place undue reliance on forward-looking statements as the plans, intentions or expectations upon which they are based might not occur. Although the Company's cautions that the foregoing list of risk factors, as well as those risk factors presented under the heading "Risk Factors" and elsewhere in this AIF, are not exhaustive, shareholders and investors should carefully consider them and the uncertainties they represent and the risks they entail. The forward-looking statements contained in this AIF are expressly qualified by this cautionary statement. Unless otherwise indicated, forward-looking statements in this AIF describe our expectations as of the date of this AIF and, accordingly, are subject to change after such date. We do not undertake to update or revise any forward-looking statements for any reason, except as required by applicable securities laws.

## **CORPORATE STRUCTURE**

We were organized under the laws of the State of Oregon on July 27, 1992 as Sky Technologies, Inc. On August 1, 1994, our name was officially changed by a vote of a majority of our shareholders to REGI U.S., Inc.

On July 27<sup>th</sup>, 2016, REGI undertook a reorganization, naming its wholly owned subsidiary, RadMax Technologies, Inc. ("RadMax") as its DBA for marketing and technology image.

On September 16, 2016, REGI entered into an asset purchase agreement (the "APA") with Reg Technologies Inc. ("Reg Tech"), a British Columbia public company whose common stock was listed on TSX Venture Exchange to purchase all of the assets of Reg Tech, a company with a common director and CEO with REGI. An aggregate of 51,757,119 unregistered common shares of our company were issued as consideration for the asset purchase. This consolidation of ownership to the technology better enables the focused research and development efforts. The transaction was closed on February 17, 2017 upon TSX Venture Exchange approval.

Prior to the APA, REGI and Reg Tech had been engaged in the business of developing and commercially exploiting an improved axial vane type rotary engine known as the Rand Cam/Direct Charge Engine (the "RC/DC Engine") with the marketing and intellectual rights in the U.S. held by REGI and the worldwide marketing and intellectual rights, other than in the U.S., held by Reg Tech. Upon closing the APA, REGI owns the worldwide rights to the aforementioned technologies.

The asset purchase also resulted in our partial ownership of Minewest Silver and Gold Inc. ("Minewest"), a British Columbia company engaged in the business of acquisition and exploration of mineral properties. Following the APA, the company determined its partial ownership in Minewest was conditioned upon fulfilling requirements set forth in a November 18<sup>th</sup>, 2011, British Columbia Supreme Court Plan of Action. Extensive research confirmed these required actions were never completed and thus the partial ownership of Minewest was negated.

On March 7<sup>th</sup>, 2018, a Mutual Accord and Satisfaction Agreement was signed between the Directors of Minewest and Regi U.S., Inc. unwinding the original transactions and title to Minewest mining claims were returned to the original Minewest investors. This 3/7/18 agreement released all of the Companies interest in Minewest and any rights or interest in its mining claims or operations.

In January 2017, the new management team expanded our research efforts with the addition of four outside consultants who brought extensive experience in the areas of; mechanical / electrical engineering, oil and gas production / distribution systems, air conditioning (A/C) / refrigeration, material sciences, military applications, C-level business management, and large-scale power plant design and operation.

During the Fiscal year, 2019 the following leadership changes took place.

- Jeffry White left the company in September 2018 to pursue other career opportunities vacating the role of Chief Financial Officer (CFO).
- Effective September 30, 2018, Paul Chute assumed the role of CFO in response to Jeffry White's decision to leave the company.
- Effective March 27, 2019, Michael Urso stepped down from the roles of CEO and member of the company's Board of Director's (BOD) to take on the role of Vice President of Operations which allowed him to focus on business expansion and product commercialization.
- Effective March 27, 2019, Paul Chute, the company's previous CEO, was reinstated into the CEO role while also retaining his seat on the Board of Directors and position as Chairman of the BOD.

On June 07, 2019, at the Company's Annual Meeting, the shareholders & the Board of Directors (BOD) took the following actions.

- Ratification of Fruci & Associates as independent auditors for the fiscal years ending April 30, 2019 and 2020
- Effective June 07, 2019, Lynn Petersen, Vice President, Business Development, Paul L. Porter, President and Chief Technology Officer and Paul W. Chute, CEO, CFO and Chair of Board of Directors, we re-elected by the Shareholders and Sr. management positions assigned.
- The number of Common Shares authorized to be issued were increased from 150,000,000 to Unlimited.
- The Shareholders also authorized a Preferred Class of stock. As of July, 31<sup>th</sup>, 2019, no preferred shares had been authorized.

The BOD is now actively searching for three independent, experienced business executives to fill the three open seats. The BOD is specifically looking for executives that are capable of providing invaluable guidance as the company moves towards proving, and commercializing the rotary, axial vane technology and the potential licensing and / or the sale of the company.

We will need to raise additional capital in the future beyond any amount currently on hand and which may become available as a result of debt and/or equity financing, including the exercise of options which are currently outstanding, in order to fully implement our intended plan of operations for the upcoming year.

#### **GENERAL DEVELOPMENT OF THE COMPANY**

#### **Company Profile:**

Company: RadMax Technologies, Inc.

Address: 7520 N. Market Street, Suite #10, Spokane, WA 99217, USA

Website: radmaxtech.com

Legal status: C Corporation (US)

Date of incorporation: RadMax Technologies, Inc., 5/10/2007 (Washington)

In business since: 1992

Ownership (or major share structure): Public, Shareholder owned

Legal structure (subsidiary or non-subsidiary): Wholly owned subsidiary of REGI U.S., Inc.

If it's a subsidiary, provide parent company details: REGI U.S., Inc., 7/27/1992 (Oregon), C Corporation (US), 7520

N. Market Street, Suite #10, Spokane, WA 99217, USA

Category (start-up or SME or other): Start-up

Full time employees: 5

Annual revenues: Current: US\$86,750, 2019 Projected: US\$500,000

RadMax Technologies, Inc., a wholly owned subsidiary of REGI U.S., Inc., based in Spokane, Washington. It is a technology and product development company that is designing, building and proving the functionality of a family of smaller, lighter and more energy-efficient axial vane, rotary devices built around a patented "common rotary core". This common rotary core can be easily configured into a broad range of innovative products that includes gas expanders, compressors, pumps, and internal / external combustion engines, etc. These devices, utilized across numerous global markets and applications, help reduce energy consumption, costs and greenhouse gas emissions (GHG's) by using "less energy, more efficiently". Thanks to our proprietary sliding axial vane technology, our devices are designed for high output to weight ratios making them easily scalable from small to very large. We intend to develop and market these devices in cooperation with our industry, government, and private investor partners. We are initially focused on applications that are new and disruptive, in that they are more efficient, environmentally friendly, compact and cost-effective while offering a broader operational range and other advantages over incumbent technologies.

RadMax's sliding axial vane technology is built around a "common rotary core" where vanes form chambers on both sides of the rotor. The volume of these chambers changes as the vanes travel along the cam profile. This results in alternately compressing and expanding vapors / fluids at both cam locations offering the following key advantages over incumbent devices and technologies:

- Compact design with high output to size and weight ratios
- Simple operation, low parts count and fewer moving parts
- The option of integral electricity generation
- Easily scalable from small to very large
- Able to operate at much lower temperatures and pressures than incumbent devices, dramatically broadening the range of potential market applications

We currently have three active patents, an additional five applications pending approval, and have identified as many as 15 other areas for possible patenting once funds become available.

From our headquarters in Spokane, WA, we are working with our engineering staff, as well as outside engineering and business consultants, to design, build, and commercialize these devices. Our goal is to license or sell RadMax technology and/or participate in joint ventures to manufacture RadMax products for a broad spectrum of industries and applications. Examples of industries and applications that could benefit from our technology include (but are not limited to); transportation, aerospace, air conditioning and refrigeration, oil and gas production and distribution, power generation, water desalination and purification, pumps, commercial building dehumidification / CO<sub>2</sub> removal, industrial manufacturing, and military markets. In addition to its potential use as a prime mover, RadMax's "common rotary core" technology can easily be configured into a diverse range of expanders, compressors, and pumps used as stand-alone devices, or by combining several devices on a single shaft to expand functionality while minimizing size.

To date, several gas expander prototypes have been built for bench top and pilot scale testing, and one unit has been sold and delivered to an outside customer, the Department of Energy (DOE), via The Pacific Northwest National Laboratory. Additional prototype development and testing is underway in Spokane. This testing is being focused to address the significant, unsolicited, global market interest in RadMax's technology and devices from government agencies, associations, corporations, countries, and / or industries. A broad overview of the customers, markets and applications we are actively addressing can be found below:

Additional Department of Energy (DOE) National Laboratory grant proposals or independently funded industrial projects, are expected over the next year targeted at innovative applications in the Oil & Gas, Commercial A/C / refrigeration, green energy generation, and water purification / desalination industries.
 RadMax is currently working with the Pacific Northwest National Laboratory (PNNL), the National Renewable Energy Laboratory (NREL) and interested industry OEM's on these grant proposals and product development projects.

- Several joint DOE, OEM and RadMax grant proposals and projects, pending or currently underway are expected to continue into the upcoming year. These projects are supported by large A/C / refrigeration / cooling Original Equipment Manufacturers (OEM's) who are interested in offering their customers products that reduce energy consumption, GHG emissions, fruit & vegetable spoilage during transportation and / or improve dehumidification and CO₂ removal from commercial buildings, without additional energy costs over incumbent equipment and technologies. These companies have already donated a 10-ton commercial A/C unit to RadMax for in-house testing and others are funding joint DOE / RadMax white paper research studies to clearly define the cost, environmental, safety and performance benefits of these new technologies, before funding pilot scale testing.
- Several "proof-of-concept" demonstration projects are being negotiated with large industrial corporations
  that have an interest in RadMax's expander technology to reduce their carbon foot print, overall energy
  consumption and their GHG emissions, while also generating green energy. To date, these companies
  represent the global oil and gas, heat pump, food & beverage, syngas, concrete, and glass molding
  industries.
- In response to unsolicited market demand, RadMax is in the process of designing, manufacturing and selling a standardized "plug & play", general purpose gas expander / generator. The device will be capable of generating between 0.5kW to 2.0kW of electricity for customer's that have a compressed gas, refrigerant, or steam system in use. This device is forecast to be available for purchase on RadMax's website by June, 2 2020. This is a significant milestone for RadMax as it marks the shift from product development to product sales. The device offers customers the ability to conduct on-site, in-situ proof-of-concept testing while generating power that can be used to power nearby electronics, offset energy consumption / costs and the associated reduction in GHG emissions. RadMax anticipates that once customers understand the potential of this technology they will want to have larger scale, customized devices engineered for their specific needs.
- Several projects have been proposed by military and government contractors, as well as independent companies interested in the development of internal and external combustion engines based on RadMax's core technology. Interest to-date is in engines that range from 40 hp up to 700 hp, targeted for use in high power, high mile-per-gallon hybrid vehicles, military drones, APU's, and for lightweight carbon fiber or ceramic engines for a variety of specialty applications. All future development work pertaining to internal / external combustion engines will be funded, and performed by RadMax's development partners. RadMax's role will be to grant access to intellectual property, existing designs, data, engineering staff and prototypes which will serve as the starting point for all future engine development.

Work will continue until we have designed, manufactured, tested and sold a commercially acceptable product for each of these specific market applications. This will conclusively demonstrate "proof-of-concept" and bring in the large investors and investment banks needed to scale the company and position it for acquisition. However, there is no assurance at this time that such commercially feasible designs will ever be perfected or will become profitable. If a commercially feasible design is perfected, we expect to derive revenues from the sale of products, licensing the RadMax technology, selling the rights to specific applications and markets, selling our intellectual property, or selling the company. However, there is no assurance at this time that revenues will ever be received from any of the aforementioned revenue paths, even if it does prove to be commercially feasible.

Based on the unsolicited market interest received and our prototype testing to-date, we believe that multiple markets exist for RadMax's rotary devices. We also believe that these devices can be produced at competitive prices, and provide a combination of energy utilization efficiency, power density, long-term reliability, and durability. The initial focus of our development efforts will be on the expander / generator as discussed above.

# **TECHNOLOGY OVERVIEW**

# **RadMax Technology Principle**

RadMax Technologies, Inc.'s (a wholly owned subsidiary of REGI U.S., Inc.) RadMax® technology is a family of smaller, lighter and more energy-efficient engines, compressors, pumps, gas expanders and combined devices

designed for simplicity, efficiency, durability and power. The RadMax rotary principle is unique. A positive displacement device, vanes reciprocate parallel to the axis of rotation through a rotor and compress or expand fluids in the same manner as traditional positive displacement, reciprocating piston devices. The rotating, reciprocating vanes follow the sinusoidal surfaces of stationary cams in the end housings, forming chambers on both sides of the rotor between the rotor, stator walls and vanes. The chamber volume changes as the vane follows along the cam profile during the rotor's revolution, resulting in alternately compressing and/or expanding fluids at both cam locations, depending on the device's function. The desired device functionality is achieved by simply changing the cam profile and / or intake and exhaust porting locations in the cam.

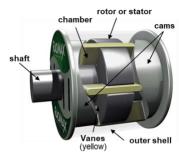
RadMax's patented "common rotary core" technology make it easily modifiable for a broad and diverse range of markets and applications. This simple and efficient design offers the following advantages:

- Compact design with high output to size and weight ratios
- Simple operation, low parts count with few moving parts
- Rotary motion input and output porting does not require complicated or inefficient valving systems
- High and variable compression and expansion ratios possible
- Able to operate in wide pressure, flow and temperature ranges
- Expanders and compressors can handle two-phase fluids (vapor-liquid)
- Efficiently expand and compress low density gases
- Integral or shaft driven electricity generation
- Combination of more than one function into a single
- Easily scalable from less than 1 kW to several MW of generated energy

A RadMax device is a combination of distinct sections depending upon how many compression-expansion cycles are machined into the cam. This unique feature allows for each of the sections to be independently configured with different compression and/or expansion ratios allowing for such things as multi-stage expansion /

compression by porting one section output into and between the different sections. A unique capability of the RadMax technology is the ability to design more than one function into a single shafted device. The typical RadMax mechanism is comprised of two or more cams connected by a common driveshaft in a single housing. By using independent vane actuator systems, it is possible to have two separately functioning cam cycles – for example a compressor and an expander – in the same housing. The resulting device provides increased functionality and higher performance with a smaller foot print than that possible with two separate devices. These characteristics make RadMax's combined-cycle devices well suited for applications with weight and space restrictions.

Additionally, because of its unique rotary design, it is possible to add electricity generation components directly onto the RadMax shaft eliminating the need and additional space required for a stand-alone generator.



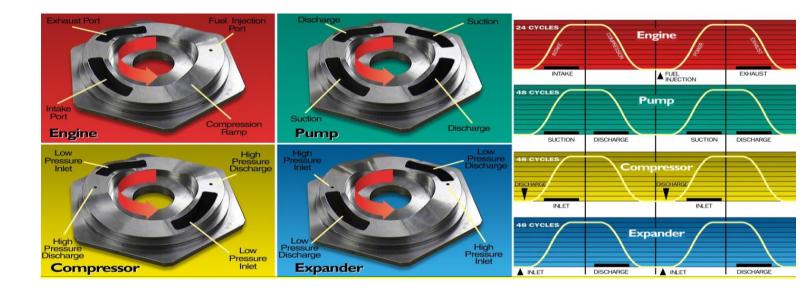
RadMax Principle



Expander

Compressor





#### **COMPANY VISION AND SHORT TERM OBJECTIVES**

**Vision** - To disrupt power generation / extraction, A/C, refrigeration, oil and gas production / distribution, compressor, pump, and internal / external combustion engine markets with the introduction of smaller, simpler, environmentally friendly and more efficient RadMax rotary devices. Our first-generation product offering will focus on gas expanders which will allow our customers to re-capture otherwise lost energy while reducing overall energy consumption, carbon foot print, and their greenhouse gas emissions (GHG's). Over the next year we plan to rapidly grow the company by designing, manufacturing and selling custom designed gas expanders for a diverse range of industrial customers and applications. This will be accomplished through customer funded, demonstration projects initially targeted for the Oil & Gas, Food & Beverage, and industrial manufacturing industries.

We also plan to launch a standardized, "plug-and-play" gas expander capable of generating 0.5kW to 2.0kW of electricity, that can be purchased off our website allowing a broader range of customers to evaluate these devices with minimal financial risk for their specific applications. Once performance is proven, we anticipate a dramatic increase in demand as these customer's approach RadMax for larger, more powerful devices that offer more significant cost and environment benefits that better suit their long-term needs. This will require the support of a large investor and outside contract manufacturer to manage effectively. This will be a significant milestone for the company marking the first year of significant revenue from product sales.

**Short-term Objectives** - To design, manufacture, sell and field test RadMax gas expanders that offer customers innovative, low part count, compact and light weight rotary devices with; superior power to weight ratios, high internal compression, expansion, and pump ratios, eliminating the need for complicated valving systems. Once proven on a pilot scale they are easily scalable to suit any application, opening the door for a device with multiple functionalities integrated onto a common shaft, and in a compact housing.

#### HIGHLIGHTS FROM THE CURRENT YEAR

Over the past year, we have completed the mechanical design, construction, sale and delivery of a "proof-of-concept" compressed gas expander to PNNL/DOE. This represents a key milestone for the company as it was the first product sale and first sales related "revenue" for RadMax. The RXG was integrated into PNNL's innovative, patented Harmonic Adsorption Recuperative Power System (HARP) that is capable of using low-grade heat sources like; solar, geothermal, and even waste process heat to produce electricity by driving a thermal compressor. The outflow from this compressor is routed through the RXG which in turn, generates electricity. Construction of this device allowed us to test various materials of construction as well as; sealing, cam, vane, bearing and porting

designs. It also operates using refrigerants which are regulated and require a fully contained, closed loop system for testing. This opens the door for a project with a large OEM in the A/C, refrigeration and cold storage industry that has already donated a 10-ton commercial A/C unit to RadMax to facilitate testing at our Spokane shop.

The engineering insights collected from current prototype testing has already been incorporated into our second -generation expander designs which will be more balanced, mechanically reliable, two-cam, low density refrigerant expanders. The 2<sup>nd</sup> generation expander will be completed in the fall of 2019 and be tested in the OEM donated, 10-ton commercial A/C unit as well as similarly sized heat pumps supplied by EEMS for modification and field testing in Africa. The 2<sup>nd</sup> generation expander will also be tested and involved in the Oil & Gas demonstration projects currently being negotiated for implementation is 2020.

The 2<sup>nd</sup> generation gas expander will also be the basis for the "plug & play" product offered for sale on line beginning in the Summer, 2020

#### **CURRENT YEAR HIGHLIGHTS AND ONGOING INITIATIVES:**

- Collaborating on three pending DOE grant proposals involving RadMax gas expanders and two Department of Energy National Laboratories (PNNL and NREL). Proposals involve using RadMax expanders in DOE patented systems that can:
  - Generate electricity from low quality heat sources such as solar, geothermal, or waste process heat to purify / desalinate water more efficiently, without the use of expensive membranes and at a much lower cost than incumbent reverse osmosis technologies.
  - Efficiently separate the more valuable liquid hydrocarbon fractions from produced natural gas streams while also generating electricity that can be used to offset production costs.
- Collaborating with two major air conditioning and refrigeration OEM's and a heat pump manufacturer on multiple projects and potential applications. Projects include:
  - An OEM funded white paper analysis of the benefits or a RadMax expander combined with a patented thermal compressor from PNNL to remove CO₂ and moisture from the interiors of commercial buildings at no additional cost beyond that of existing HVAC systems.
  - Another OEM funded white paper analysis of the benefits or a RadMax expander combined with a
    patented thermal compressor from PNNL that utilizes several "metal organic framework (MOF's)
    materials to remove ethylene oxide and other gases that cause fruit, vegetables, and other perishable
    goods to soil during transport. Removing these gases extends the life of these goods by weeks or
    months dramatically impacting profit margins for suppliers and retailers. This technology is targeted at
    the global refrigerated sea-tainers, rail and transport truck containers industry.
  - RadMax 2<sup>nd</sup> generation expander prototype testing in a donated OEM 10-ton, commercial A/C unit to compare and contrast the benefits associated with eliminating the fan motor, powering parasitic electronics, or selling generated power back to the grid. Testing to commence in the fall of 2019.
  - RadMax 4<sup>th</sup> generation expander prototype testing in the EEMS supplied heat pumps. Once successfully
    modified and tested EEMS has an investor interested in funding and marketing an additional 100 units
    across Africa. Testing to commence, fall, 2019.
- RadMax completed an engineering site visit to a European brewery in early 2019 to determine viability of field testing two (2) RadMax gas expanders, in one of their 100 breweries. The expanders will be tested in the CO<sub>2</sub> based refrigeration system and their steam-based boiler system. Discussions with senior management are underway to finalize a contract to recover the otherwise "lost" energy from their steam boiler and CO<sub>2</sub> refrigeration systems. Company is interested in reducing energy consumption and cost while eliminating the associated GHG emissions. Success with a pilot scale installation opens the door to over 100 additional breweries globally.
- Negotiating multiple demonstration projects with several US & Canadian Oil & Gas companies for good head methane emission reductions, as well as energy recovery/ power generation from natural gas wells and

- pipeline letdown stations. Project advancement and funding decisions for each participating company or government agency will be made by calendar year end 2019.
- RadMax is collaborating with a Canadian syngas waste heat recovery company to convert landfill, agricultural, and biowaste into electricity using a combination of technologies that includes a RadMax expander / generator. Project is on hold until a customer is found that is willing to finance the construction and testing of this more efficient, safer, mobile, and lower cost technology. The Canadian company would like to license RadMax technology for this specific application for the USA and Canada. A licensing, manufacturing and assembly agreement is currently being discussed by the three (3) companies involved in the project.
- Evaluating International Liquid National Gas (LNG) compressing and storage applications. Several global companies are interested in using RadMax compressors and expanders to store a variety of gases and then generate electricity when the gas is pulled from storage for transport to end users.
- Evaluating the RadMax turbine and internal combustion engine technology for a variety of applications of
  interest to governments and their military's. RadMax will provide access to IP and make available previous
  diagrams, prototypes, and limited engineering support to these companies but all future engineering costs
  associated with engine design, construction and testing will be the responsibility of the development
  partner. A non-compete and licensing agreement will define applications and geographic rights for both
  companies if successful.

Subsequent devices targeted for other applications are conceptually laid out, but additional resources; engineering and financial are required to move them forward.

In addition to our engineering hires we have also expanded our Spokane shop to include multiple 3-D composite printers, a Vertical CNC metal milling machine, a CNC lathe and modeling software. We have also secured local access to a full metal machine shop that can be contracted as needed to ensure milling targets are met when multiple projects are underway. As funding for our development efforts arrives, this expansion will significantly improve our capability to design, manufacture, and test multiple prototypes concurrently.

Our marketing and business development efforts to date have received interest from international leaders in the; A/C, refrigeration, natural gas distribution / service, utility, industrial manufacturing and oil & gas companies. We also have strong interest in ongoing projects and pending grant proposals with governments agencies that include the Department of Energy (DOE) via PNNL and NREL.

#### **BUSINESS STRATEGY FOR UPCOMING YEAR**

#### Market / Engineering focus for the upcoming year (2019 – 2020):

Our focus for the upcoming year will be on broad scale, domestic and international proof-of-concept, field testing of the RadMax gas expander (RX) and expander-generator (RXG). The objective is to develop, test and sell a line of gas expanders / generators that can be used to extract between 0.5k/W to 2kW of energy otherwise lost from natural gas pipelines as well as a variety of industrial air conditioning, refrigeration, gas storage and steam systems. This recaptured energy can be used to offset energy costs, power parasitic devices or be sold back into the grid, all of which reduce the users carbon footprint and GHG emissions.

We also plan to design, build and sell the company's first, general purpose, off the shelf gas expander – generator product. This plug & play product would generate between 0.5kW to 2kW of energy for customers interested in reducing their energy consumption, reducing energy costs and GHG emissions, by utilizing this otherwise lost energy to provide a more reliable source of power for remote locations, to power on-site electronics, or simply reduce energy consumption / costs.

RadMax will continue to work with global customers with more specific needs to custom design, build and test larger scale gas expanders / generators in a variety of markets and applications on a case by case basis. These projects will be funded by the customer on a milestone basis to minimize risk and costs for both companies.

With no marketing, other than our website RadMax has been able to compile an impressive list of global companies interested in having an expander designed and tested for their specific application(s). To-date these companies represent a broad, global cross-section of industries that include; oil & gas, A/C, refrigeration, food and beverage, glass molding, concrete production, water purification, and syngas waste energy production.

A more detailed summary of targeted products, projects, markets and applications for the upcoming (2019 / 2020) year can be found below:

- The first RXG unit sold by RadMax was purchased by the Department of Energy (DOE) specifically The Pacific Northwest National Laboratory (PNNL) in late 2018. RadMax technology has since been engineered into several additional projects with two DOE National Laboratories. These expanders are targeted for use in projects that are designed to generate power from low quality heat sources like solar and geothermal that aren't viable with incumbent technologies, or to generate power from an innovative thermal compressor to be used to purify water, remove CO<sub>2</sub> and / or water from commercial buildings, or to separate out the more valuable liquid components from natural gas as it is extracted and processed from the good head.
- The RXG can be used to recapture up to 20% of the pressure volume energy lost during the depressurization of gases at letdown stations along the length of global natural gas pipeline networks. Driven by the difference between inlet and outlet pressures, the gas expands as it decompresses rotating the RXG's shaft causing it to generate electricity, perform work, or reduce operating costs. Demonstration projects are being scheduled over the next year, funded by a combination of large Canadian Oil & Gas companies and the Canadian Natural Gas Innovation Fund. RadMax devices would replace less reliable solar, wind and gas generator devices used today remote electronic sensors and communication devices.
- RadMax is pleased to report that our project proposal submitted as part of the Canadian Natural Gas Innovation Fund (NGIF) Round 4 funding competition has been selected as semi-finalist. The NGIF announcement was made as part of the Global Petroleum Show held in Calgary, Alberta on June 12, 2019. RadMax is working with a large Canadian Oil & Gas company along with the Canadian Natural Gas Innovation Fund to design, build and field test a gas expander generator (RXG) device to be used as a "power module" at the good head to replace incumbent pneumatic devices powered by methane, which is vented after use. Tightening Canadian methane emission regulations require that emissions be dramatically reduced or eliminated for all new gas wells starting in 2024. Existing gas wells can be retrofitted with the RadMax RXC device to reduce methane emissions also. There is growing global pressure to dramatically reduce GHG emissions attributed to the use of pneumatic power modules by Oil and Gas companies. A successful field trial will open the door to a large global market of approximately three (3) million gas wells which are estimated to emit over one (1) billion scf / year of methane and other GHG's. RadMax offers the only option for capturing, compressing and re-injecting these GHG's back into the pipeline, good for the bottom-line and good for the planet.
- The RXG can be used to generate power in any industrial setting where pressurized gases such as steam, natural / other gas, or refrigerants are in use. Over the next year, proof-of-concept demonstration projects are being scheduled in a wide variety of industries and applications that include the following:
  - The global food & beverage industry, specifically we are working with a global brewery interested in reducing energy consumption, their carbon footprint and their GHG emissions. An engineering site visit to the pilot brewery in Europe was completed earlier this year by Paul Porter, Chief Technology Officer for RadMax. If the pilot brewery project is successful it opens the door to over 100 additional breweries for this customer alone. The customer is looking to purchase and field test two (2) RXG's, one on their CO<sub>2</sub> refrigeration system and the other on their steam / boiler system over the next year.
  - Negotiations are underway with a Canadian based syngas waste heat recovery company interested in utilizing RadMax RXG's to convert landfill, agricultural and biological waste into electricity. Tightening landfill regulations and rising costs are forcing companies to find alternatives to landfilling these materials. This issue is further magnified by the fact that other countries are starting to refuse North American sourced waste products, with many sending the waste back to the source country who has limited capacity to store, landfill or burn it. Converting the waste to Syngas not only keeps it out of landfills but it also produces significant quantities of electricity that can be sold to offset operational costs and eliminates the GHG's associated with increased energy production. Incumbent steam

- systems are inefficient, immobile, dangerous and expensive to operate. The units we propose overcome all of these hurdles. RadMax plans to supply the RXG device to our partners, under a licensing agreement, who will then assemble, certify and sell the finished units to North American customers.
- o RadMax intends to install and test a RX device in the donated 10 ton, commercial A/C unit at our shop in Spokane, Washington. The objective is to evaluate various configurations for the RX that increase the SEER rating for the unit, without significantly increasing its cost. Once completed we plan to host in-house demonstrations for OEM's and interested investors. RadMax is already partnering with a A/C, refrigeration OEM and the Pacific Northwest National Laboratory on a funded research project to evaluate the effectiveness of a RXG device for removing CO<sub>2</sub> and humidity from commercial buildings without increasing the cost over existing technologies.
- o RadMax has submitted a proposal for the design, construction and pilot scale testing of RXG device targeted for use in up to 6 European glass molding plants owned by the customer. We are working through the customers consulting company to design and test the system on a smaller scale, 25kW system before committing to larger 125kW systems desired for each additional plant. The customer is interested in reducing their energy costs by recapturing energy from the high-pressure NG gas lines feeding the plants and reselling that energy back to the utility. Adoption of the RadMax system has the additional benefit of reducing each plant's energy cost and carbon footprint. The customer would like to speed up the project and sign the contract by the end of fall, 2019. Ideally, he would like the skid mounted, pilot 25kW RXG system delivered to Europe by the end of 2020. Once a contract is signed the customer and consultant are planning to visit the RadMax office and shop in Spokane, Washington.
- Several other customer-initiated field trial proposals have been submitted to companies representing a
  wide variety of industries from liquid gas storage (NG or nitrogen) to concrete manufacturing but they
  are in the early stages of discussion so no other details will be reported at this time.
- RadMax intends to develop a general purpose RXG device and offer it for sale on the company's website. This is a significant milestone for the company as it represents the first, broad scale product offering. The product will accelerate global interest, testing and adoption of the technology by allowing customers to purchase, install, generate power and measure performance. The objective is to offer a 0.5kW to 2.0kW durable, low maintenance, two (2) sided expander generator to be used as a "plug and play" device that allows customers to demonstrate "proof-of-concept" power generation in-house with low risk and minimal cost. This will lead to orders for larger, customized devices to meet the specific power generation, cost savings and GHG emission reduction needs those customers. This strategy will dramatically accelerate company growth by offering a standardized device that customers can used on their own in a variety of applications to demonstrate efficiency and value. This involves minimal RadMax resources to accomplish and all orders will require full payment in advance. Once comfortable with the technology customers will return to RadMax for larger, more customized devices (i.e. multiple functionality on a single shaft) that better satisfies their specific needs.

# **Focus on Air Conditioning / Refrigeration Gas Expander Industry:**

Over 900 billion kWh of electricity, with a value of over \$90 billion USD was used for air conditioning and refrigeration systems in 2016 in the U.S. Additionally, the generation of this power resulted in approximately 500 million metric tons of  $CO_2$  emissions. In markets this large, even minor increases in system efficiency can result in substantial cost and  $CO_2$  emissions savings. The RadMax two-phase expander generator (RXG<sup>tp</sup>) currently ready for field testing is positioned to be a direct replacement part for the outdated expansion valve found in every commercial air conditioning and refrigeration system worldwide. This device will capture part of the energy "lost" by current expansion valve technology and convert it to electricity that results in an increase in overall system efficiency of between 5% - 20%. If this device were installed in every system currently operating in the U.S., approximately (commercial and residential) 50 - 150 billion kWh of electricity (\$5 - \$15 billion) and over 100 million metric tons of  $CO_2$  emissions could be eliminated annually.

The U.S. air conditioning market, at about 14 million new units per year represents roughly 7% of the global market of 100 million new units per year. The U.S. market is projected to grow at a 2% - 4% annual rate to about 30 million new units by 2030. However, the global market for air conditioning and refrigeration products is expected to explode at over a 10% annual rate to 700 billion new units by 2030, and to 1.6 billion new units by 2050. Every one of these systems, as well as the global ecosystem, can benefit from an upgrade to RadMax technology. This explosive growth is being driven primarily by increased wealth and population growth in developing countries, and global warming. The largest projected increases in demand are projected to be in China, India, Brazil, Mexico and Indonesia.

The expander generator is primarily intended for integration into new commercial building air conditioning and refrigeration systems, however, its design also allows for it to be easily retrofitted into existing systems offering an estimated payback (ROI) of 2 - 3 years.

# Strategy for penetrating the A/C and refrigeration market:

We intend to continue to pursue the development of our RadMax technology by partnering with the DOE's National Laboratories and industry OEM's on several pending grant proposals. These projects benefit from the unique attributes of our rotary, axial vane technology which maximizes efficiency, saves energy, reduces costs while also reducing GHG emissions. RadMax will accomplish this by partnering with, or being a co-awardee on innovative projects and technologies of interest to the DOE and industry OEM's. If successful, these awards will allow us to fund our product development objective of designing, building, and delivering a "proof-of-concept" device for evaluation by OEM's, companies interested in licensing new technology from PNNL, or from potential investment partners interested in commercializing and selling PNNL and / or RadMax technologies. This strategy is working as RadMax's first- gas expander - generator (RXG) sale was to PNNL who integrated it into their innovative, solar powered, sea water desalination, water purification system and geothermal powered Harmonic Absorption Recuperative Power (HARP) system which are capable of purifying brackish ground water and / or generating electricity dependent on market demand and economics. This strategy allows RadMax to fund the RXG development through proof of concept while maintaining control of the company, and our intellectual property. Initially, we plan to manufacture first generation devices based on the specifications provided by our partners. Once proven, the production of these devices will transfer to a contract manufacturer. The long-term objective is to license and / or sell the technology to these partners as they have the market presence and financial resources to maximize its potential. We have no current plans to become actively involved in either manufacturing or marketing any device beyond proof of concept testing and first-generation sales.

Our short-term objective is to design, build, and deliver RadMax Expanders, Compressors, and Generators for a variety of projects involving the A/C, refrigeration, HARP, Organic Rankin or Brayton cycle technologies. These well-established technologies open the door to a wide range of markets and applications from air conditioning, refrigeration, desalination / water purification systems, as well as low temperature, low pressure solar, geothermal, and waste energy driven, power generation systems. Upon successful testing, the prototypes will then be introduced to early adopter OEM's that want to strengthen their market position, offer the most energy efficient products, and open the door to new technologies and markets that competitors can't enter with incumbent technologies.

Based on successful "proof-of-concept" testing of the RadMax prototypes in the DOE / PNNL grant projects, we expect to have significant interest from Industry OEM's and investment groups for the introduction and testing of RadMax technology in targeted industries and applications. We believe this will pave the way for product development and sales along with the potential for joint ventures, license agreements, and ultimately the sale of IP and / or the Company. However, there is no assurance that the tests will be successful or that we will ever achieve these objectives.

# Focus on Oil and Gas Expander / Generator Industry:

## RadMax Natural Gas (NG) Expander

The proposed RadMax NG expander is a rotary, positive-displacement device that is uniquely able to capture both kinetic and pressure-volume energy in pressure letdown applications and convert it to rotational power. This power can then be used to drive integrated or attached generators and compressors.

The key advantage of RadMax technology as applied to NG applications is the ability to generate inexpensive electric power from lower gas pressures and flow rates than incumbent, more expensive screw, turbine and other expander technologies. The RadMax gas expander-generator (RXG), RadMax expander-compressor (RXC) and RadMax expander-generator-compressor (RXGC) can extract energy from the gas flow at the wellhead or other locations and generate electrical power and/or compressed air. The generated electric power can be used for powering remote electronic devices, control panels, lighting, security and other control and monitoring systems. The generated compressed air can be used to drive onsite pneumatic devices displacing natural gas and eliminating GHG emissions at existing and new installations.



RadMax

Mounted in parallel with the existing pressure regulator valve, a small portion of the upstream pipeline flow is let down through the RXG and then added back into the pipeline downstream of the existing pressure control

valve. In this configuration, the RXG, RXC and RXGC provide a reliable, low cost source of electricity or compressed air as long as gas is flowing in the pipeline and has the added benefit of not impacting the normal operation or flow of the host pipeline. Since the cost of the power and associated carbon footprint for the power generated by the RXGC has already been paid for in the compression of the gas for transport, the generated power is "free" and does not generate additional GHG emissions.

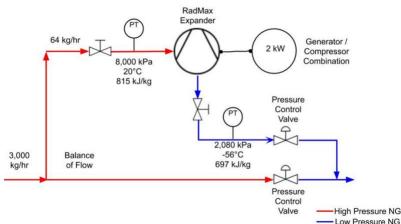


Figure 1: Mass flow and energy balance of RXGC installation

The RXGC is a compact device with a prototype two (2) kW generator (RXG) estimated to be only eight (8) inches in diameter and about fourteen (14) inches tall. Figure 1 provides a mass and energy balance and typical installation plan for a RXGC.

# **PRODUCT OVERVIEW**

# **RadMax Rotary Compressed Gas Expander:**

The RadMax compressed gas expander is a positive-displacement device that is uniquely able to capture both kinetic and pressure-volume energy and convert it to rotational power in compressed gas expansion applications. This power can then be used to drive other devices such as compressors, fans or an electrical generator. Additional efficiency and size related benefits can be gained by incorporating an electric power generator directly onto the same shaft as the gas expander.

#### **Key Advantages:**

- Able to efficiently expand low density gases
- Developed torque can be used to generate electricity or drive an external device
- Variable expansion ratios possible
- Able to achieve higher work efficiencies at lower speeds

- Easily scalable from small to large devices
- Adoption could decrease electricity consumption in the USA by \$5 to \$15 billion.
- Adoption could reduce CO₂ and other GHG emissions by over 100 million tons in the USA alone.

#### **Applications:**

The RadMax gas expander, when paired with a generator can replace less efficient devices such as the throttling valves in air conditioning and refrigeration systems. The incumbent free gas expansion valves and mechanical throttling valves are not capable of capturing available pressure energy. The RadMax compressed gas expander is also used as the turbine component in the RadMax expander engine, it is used to capture lost energy in natural gas pipelines and throttling stations, and is used to generate electricity from flare gas, solar, and geothermal sources.

We are currently focused on designing and building prototype devices targeted for use in the air conditioning / refrigeration and oil and gas industries. When used, these devices can significantly reduce electric power requirements and associated CO<sub>2</sub> emissions. RadMax is currently partnering with the Department of Energy (DOE) via the Pacific Northwest National Laboratory (PNNL) and industry partners on a variety of Solar Energy Technology Office (SETO), Geothermal Technology Office (GTO), and Building Technology Office (BTO) grant proposals and projects.

RadMax is also actively soliciting industry leading corporations to evaluate and commercialize these products in their current and future product designs. Several of these companies are supporting the proof of concept projects underway with the DOE and PNNL.

# RadMax Compressor

The RadMax positive displacement compressor incorporates the advantages of both positive displacement and centrifugal compressors by utilizing the volumetric energy of a positive-displacement compressor *and* the kinetic energy of a centrifugal compressor to pressurize a gas. A combination of four distinct sections, this unique design allows for each section to be configured with a different compression ratio and allows multi-stage compression in one device.

# **Key Advantages:**

- · High internal compression ratios possible
- High volume output to size ratio
- Able to efficiently compress low density gases
- Better handle entrained liquids in compressed gases (2 Phase)
- Compressors are easily scalable from small to very large

Additionally, the inherent design of the RadMax sliding vane principle lends itself to better handle two-phase (liquid/vapor) fluids, improved efficiency for enhanced refrigeration and steam cycle applications all of which are targeted end uses.

RadMax is also actively soliciting industry leading corporations to evaluate and commercialize these products in their current and future product designs. Several of these companies are supporting the proof of concept projects underway with the DOE and PNNL.

#### **Applications:**

Compressing refrigerants for industrial, commercial, residential and automotive air conditioning systems; industrial gas compressing; natural gas field and pipeline gas compression; low density gas to high pressure. The RadMax compressor is being tested in DOE SETO and GTO projects that use metal Organic Framework Materials

(MOF's) as sorbents for a thermal compressor and for a novel dehumidification / CO<sub>2</sub> capture system. The RadMax compressor is used to pull a vacuum on these sorbents which dramatically improves loading / unloading efficiency significantly increasing productivity while lowering the cost of the process.

## **RadMax Combined Function Devices:**

A unique attribute of the RadMax technology is the ability to combine more than one machine function into a single device. The combined function device is comprised of two cams connected by a common driveshaft in a single housing. By using separate vane actuator systems, it is possible to have two separately functioning cam cycles (i.e. engine, pump, compressor, or gas expander) in the same device.

# **Key Advantages:**

- Increased design flexibility and functionality
- · Compact size with high performance
- Reduced size, weight, parts count and cost
- Rapid field change-out capability
- Scalable from small to very large devices
- · Can utilize Brayton, Rankine and Organic Rankine cycles

# **Applications:**

RadMax external combustion engines, applications with limited space and weight restrictions such as auxiliary and backup power generation, waste heat recovery, portable pumps, compressors, generators, and compressed gas system throttling energy recovery for A/C and refrigeration systems.

## RadMax Pump

The RadMax positive displacement pump pairs the high-volume capacity of positive displacement pump with the simplicity and efficiency of a centrifugal pump. A RadMax pump is able to utilize the volumetric displacement energy of the fluid *and* the kinetic energy of the vane action. This results in an extraordinarily energy efficient pump. A combination of four distinct sections, this unique design allows for different pumping actions or flow rates/streams in one device.

#### **Key Advantages:**

- · Creates high output volume to size and weight ratios
- · Better handling of gas-entrained liquids
- · Self-priming & auto re-priming
- Can operate as a boost or lift pump
- Multiple smooth pumping actions per rotation
- · Scalable from small to very large devices

RadMax has actively pursued the development of the RadMax pump by offering an exclusive license, to make and sell these devices, in return for their product development funding.

# **Applications:**

Because of its efficient, high-volume output, the RadMax pump is well suited for fire protection; water and flood control; irrigation; marine; water treatment; oil and gas industry down hole and subsea; industrial processes; heavy industry and construction; and portable pump applications.

# **RadMax Internal / External Combustion Engines:**

We believe that the RadMax internal and external combustion engines can achieve improved fuel and mechanical efficiencies when compared to traditional combustion engine designs, based on the inherently efficient design and thermodynamic characteristics of the engine. A higher expansion to compression ratio is possible with our internal combustion engine design resulting in increased fuel efficiency.

The RadMax engine is characterized by high torque, compact size, and a high horsepower-to-weight ratio, making it an ideal option for various transportation, and power generation applications. Long service life, low power-to-weight ratio, and increasing environmental concerns and regulations are prompting a second look at the viability of gas turbine engines for more mainstream applications. A gas turbine engine's optimized combustion produces fewer total emissions than internal-combustion engines. However, their lower operating efficiencies and higher operating and capital costs are impediments to their increased use.

A RadMax "external" combustion expander (turbine) engine incorporating RadMax's higher efficiency, positive displacement compressors and gas expanders, coupled with an optimized external combustor, can significantly improve fuel and energy extraction efficiency over existing gas turbine engines. Having true "multi-fuel" capability, the RadMax turbine engine would be well suited for hybrid engine and power generation applications. We are currently working with potential co-development partners willing to fund engine development using previous RadMax designs, prototypes and test data as their starting point. One partner is interested in military and government applications while the other is interested in developing a high power, 100 mpg hybrid technology for commercial vehicles and sports cars. A licensing agreement based on target customers and geographic territories will be negotiated so each party benefits from the work of the other and allowed for the engine to be commercialized.

# **Key Advantages:**

- Compact size & weight (~ 25% of comparable hp piston)
- High power to weight ratio (>1 hp/lb.)
- High internal expansion ratios possible
- · Continual, smooth rotary motion
- Easily scalable 20 1,500hp
- Low part count and fewer moving parts; conducive to rapid change-out replacement, reduced maintenance costs and increased reliability

#### **Applications:**

Primary and backup power generation; automotive & truck, aviation, military, marine and industrial applications prime mover; and hybrid vehicles

#### **PATENT OVERVIEW**

As at July 30, 2019 RadMax has the following patents (issued, pending, & provisional):

- REGI U.S., INC. 2011. "Axial Vane Rotary Device and Sealing System". Patent No.: 7,896,630, US.
- REGI U.S., INC. 2013. "Vane Type Rotary Apparatus with Split Vanes". Patent No: 2,496,157, CA.
- REGI U.S., INC. 2017. "Electricity Generator and Methods for Generating Electricity". Patent Application No.: 15/669589, US.
- REGI U.S., INC. 2017. "Prime Mover Assemblies and Methods". Patent Application No.: 15/669,625, US.
- REGI U.S., INC. 2017. "Rotary Devices Having Variable Compression and Expansion Ratios". Patent Application No. 15/946,068, US.
- REGI U.S., INC. 2018. "Prime Movers, Pumps and Compressors Having Reciprocating Vane Actuator Assemblies and Methods". Patent Application No.: 15/946,147, US.
- REGI U.S., INC. 2018. "Modified Two Phase Refrigeration Cycle". Patent Application No. 16/284,923, US.
- REGI U.S., INC. 2018. "Modified Two Phase Steam Cycle Patent Application No.: 16/258/929, US.

#### **COMPETITIVE ANALYSIS**

We believe the true competition to the RadMax expander is the incumbent throttling valve technology not alternative expanders such as the turboexpander or screw expanders. That said, it is important to note that if the RadMax expander were compared to these alternative devices it would outperform them in the areas of:

- Price
- Size
- Increase system efficiency

# **Competitive Positioning:**

The speed of adoption of our air conditioning / refrigeration expander / generator will largely depend on how effective we are at encouraging original equipment manufacturers (OEM) to examine, adopt and ultimately design RadMax technology into their next generation family of products. We believe that the significant increase in efficiency / SEER rating, the decrease in operating costs, as well as the goodwill associated with any improvement in environmental performance will drive OEM's to have a serious look at our technology. Once one adopts others will be forced to quickly follow. The largest savings are realized by the larger and constantly running (not variable) refrigeration systems, and we assume these systems will be the first to adopt our technology. Also, because of the higher pressures and temperatures involved with CO<sub>2</sub> based refrigeration systems, higher efficiencies and cost saving are associated with these systems. This could lead to the accelerated adoption of CO<sub>2</sub> based systems, especially for commercial and industrial applications. There are no other existing expander technologies that can achieve the same level of system efficiency increases for CO<sub>2</sub> base systems than that provided by the RadMax expander.

We are working with the two of the major OEMs and believe that they will want to have exclusive rights to the technology in order to obtain and sustain a competitive advantage in the global market place.

# Focus on Oil and Gas Expander / Generator Industry:

Similarly, tens of millions of horsepower are used to compress natural gas to facilitate distribution across the USA and world. The compressed gas must be reduced in pressure prior to use by the end user. This pressure drop is accomplished through the use of a "throttling" pressure reducing valve positioned at letdown points along the distribution system network. These valves waste a significant amount of the energy that was initially spent to compress the gas. A significant portion of this "lost" energy is recoverable and can be converted to shaft power. This power can then be used to generate electricity or drive other devices such as compressors through the use of a RadMax gas expanders rather than traditional throttling valves. Turbo expanders are currently used for this purpose for some high pressure / flow rate applications. However, their use is not practical or economical for this purpose at most application points along the gas distribution system. Being a positive displacement device, the RadMax expander can work with most any pressure and flow rate and can be implemented throughout the gas distribution network. RadMax expanders replacing throttling devices along these global gas distribution pipelines could generate billions of dollars of electricity and save millions of tons of related CO<sub>2</sub> and other GHG emissions annually.

RadMax is working with a large Canadian Oil & Gas company along with the Canadian Natural Gas Innovation Fund to design, build and field test a gas expander – compressor (RXGC) device to be used as a "power module" at the well head to replace incumbent pneumatic devices powered by methane, which is vented after use. Tightening Canadian methane emission regulations require that emissions be dramatically reduced or eliminated for all new

gas wells starting in 2024. Existing gas wells can be retrofitted with the RadMax RXGC device to reduce methane emissions also. There is growing global pressure to dramatically reduce GHG emissions attributed to the use of pneumatic power modules by Oil and Gas companies. A successful field trial will open the door to a large global market of approximately three (3) million gas wells which are estimated to emit over one (1) billion scf/ year of methane and other GHG's. RadMax offers the only option for capturing, compressing and re-injecting these GHG's back into the pipeline, good for the bottom-line and good for the planet.

#### **Competition and Alternative Technologies:**

We currently face and will continue to face pressure from established companies that desire to develop, manufacture and sell products that offer the same advantages as our devices. While currently, not a highly competitive business, in terms of the number of competitors, the business of developing innovative lower cost, higher efficiency, and higher performing technologies is nonetheless difficult because most existing producers are large, well-financed, and have an established market presence that they will aggressively defend. For these reasons, we are more inclined to initially manufacture and sell devices to demonstrate proof-of-concept after which time we plan to contract manufacture, sell licenses to applications / geographies, and / or sell our IP / company. The development of our business and its ability to maintain its competitive, and technical position will continue to depend upon our ability to attract investors and to retain qualified; engineering, financial, and managerial personnel.

Our guiding business strategy is to develop RadMax technology products for applications that are either looking for a solution, or where our product offers significant advantages in performance and / or financially over incumbent products. This strategy implies that our co-development industry partners will be "early adopters" looking for new "green" products to enhance their market position, reduce costs, broaden their product offering, and increase their market share and margins.

#### MARKET AND INDUSTRY DATA

Industry and market data and forecasts included in this AIF were obtained or derived from internal company research, especially where RadMax devices are introducing a new technology and creating a new line of innovative, energy saving products. Market data for all established industries and market segments were obtained or derived from; market research reports, publicly available information, reports of governmental agencies, industry publications and surveys, or direct input from corporations participating in the market(s) or from industry consultants. We have relied upon industry publications as our primary sources for third-party industry data and forecasts. Industry surveys, publications and forecasts generally state that the information contained therein has been obtained from sources believed to be reliable, but that the accuracy and completeness of such information is not guaranteed. We have not independently verified any of the data from third-party sources, nor have we ascertained the underlying economic assumptions relied upon therein. Similarly, internal surveys, industry forecasts and market research, which we believe to be reliable based upon management's knowledge of the industry, have not been independently verified. By their nature, forecasts are particularly likely to be inaccurate, especially over long periods of time. In addition, we do not know what assumptions regarding general economic growth were used in preparing the forecasts cited in this AIF. While we are not aware of any misstatements regarding RadMax Technologies, Inc. industry data presented herein, our estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under "Risk Factors" and elsewhere in this AIF. While we believe our internal business research to be reliable and market definitions are appropriate, neither such research nor definitions have been verified by any independent source. This AIF may only be used for the purpose for which it has been published.

#### **Market Positioning:**

The 2018 / 19 year has been a landmark year for RadMax, one full of significant accomplishments in product development and overall company growth. Over the past year we have designed, built, tested and sold prototypes

of the RadMax compressed gas expander and / or generator. We have focused our efforts on producing prototype expanders used to conduct proof-of-concept demonstration trials for the air conditioning, refrigeration, oil & gas, and a variety of other industrial applications and markets. Specifically, we intend to introduce innovative new devices that capture lost energy that can be sold back into the grid, used to power Smart devices, used to recharge batteries, or used to power parasitic devices, all of which significantly reduce energy consumption / operating costs. Our devices capture some of the energy lost in the compression phase of these cycles by generating electricity or torque during the expansion (let down) portion of the cycle. We are currently collaborating with the PNNL and interested industry partners on several potential DOE grant proposals that are focused on improving efficiency and / or decreasing operating costs in the refrigeration and power generation markets. Our goal is to develop a demonstration expander-generator that is compatible with refrigerants used in air conditioning, refrigeration, and refrigerant based ORC systems. These ORC systems use a low temperature heat source such as solar, geothermal, or other waste process heat for power to drive a wide variety of power generation, refrigeration, air conditioning, and water desalination / purification applications. Additionally, slightly modified versions of the same device can extract megawatts of "lost" power by replacing throttling valves on compressed natural gas pipelines, or significantly improve the efficiency of steam power plants by reducing fossil fuel consumption and the associated CO<sub>2</sub> and other GHG emissions.

Our marketing plan is to develop a standard size, "plug & play" expander capable of generating 0.5kW to 2.0kW of electric power for use in proof-of-concept, demonstration trials in the A/C, refrigeration, oil & gas and a variety of other industrial markets and applications. These devices are very energy efficient as they capture energy lost in the compression cycle use that power to drive Smart and / or parasitic devices or allow for the sale of the power back to the utility. We plan to manufacture the initial proof-of-concept devices in order to demonstrate performance and gain traction in these markets before either contract manufacturing, licensing the technology for each potential market / geographic area, or selling the company. In order to continually evolve the technology RadMax intends to design, manufacture and sell custom devices into specialty, lower volume, high value applications through the use of inhouse and third-party manufacturing.

We are currently focused on capitalizing on the RadMax expander's unique capability to capture and covert, to usable work normally "lost" energy by pressure regulating throttling valves. The use of this energy can contribute significantly to the overall efficiency and operating cost structure of the host system. We have identified air conditioning/refrigeration and natural gas distribution applications as high value market targets. We are consequently working with the DOE via PNNL as well as industry OEM's in these two areas to schedule demonstration projects for our expanders.

# Marketing Milestones for upcoming year:

- 1) Continue to partner with the DOE via the National Laboratory network and industry partners to develop and trial RadMax devices in innovative new technologies that increase efficiency while reducing the cost of water purification / desalination, the removal of CO₂ and humidity from commercial building, or generate power from low quality heat sources like solar, geothermal, or waste process heat. Once proven our goal is have RadMax technology licensed to the industrial partner for commercialization.
- 2) Design, build, sell and test two (2) RadMax expander / generators for a global brewery interested in reducing their energy costs while also reducing their carbon foot print and GHG emissions. A successful trial will open the door to over 100 additional breweries in their global network as well as additional companies.
- 3) Have our Canadian Oil and Gas project funded by our industry sponsor and the Natural Gas Innovation Fund The RadMax projects titled "Demonstration of electrical power generation with positive displacement rotary expander at natural gas production letdown point" and "Demonstration of innovative positive displacement device for recompression of natural gas to avoid venting" are two of the twelve project proposals selected by NGIF to submit investment proposals for stage 2 evaluation and due diligence in the Production related category. Selection of project finalists and the associated funding decision will be made in the Fall 2019.

- 4) Design, build, sell and test a RadMax expander / generator at a glass molding company based in Italy. As successful test with the smaller expander will open the door to five (5) additional plants. These additional units will be much larger in size, produce more energy and will be custom designed by RadMax for their specific application.
- 5) RadMax intends to develop and market a general purpose RXG device and offer it for sale on the company's website. This is a significant milestone for the company as it represents the first, broad scale product offering. The product will accelerate global interest, testing and adoption of the technology by allowing customers to purchase, install, generate power and measure performance. The objective is to offer a 0.5kW to 2.0kW durable, low maintenance, two (2) sided expander generator to be used as a "plug and play" device that allows customers to demonstrate "proof-of-concept" power generation in-house with low risk and minimal cost. This will lead to orders for larger, customized devices to meet the specific power generation, cost savings and GHG emission reduction needs those customers. This strategy will dramatically accelerate company growth by offering a standardized device that customers can used on their own in a variety of applications to demonstrate value. This involves minimal RadMax resources to accomplish and all orders will require full payment in advance. Once comfortable with the technology customers will return to RadMax for larger, more customized devices (i.e. multiple functionality on a single shaft) that satisfy their specific needs.
- 6) Offer pre-development licenses to companies that are interested in investing in the development of the RadMax internal / external combustion engine. These companies will fund the development in exchange for exclusive rights to the technology for a specific geography, customers and applications. RadMax will allow access to our previous engine designs, prototypes, test data and engineering staff to use as the starting point for the development process.
- 7) Secure a large outside investor using our recent private placement offering and utilize their network to market the company, identify a market maker capable of moving the stock price to better reflect the significant progress the company has made over the past year. This investor will allow the company to aggressively pursue demonstration projects and the launch of our first "plug and play" expander available to the general public. Success will accelerate company growth and investor interest in the company. It will also trigger significant demand for RadMax expanders, which cannot be managed efficiently with existing resources. To successfully fulfil these orders will require an outside manufacturing partner and the resources of a significant investor, investment bank or commercialization partner to successfully navigate the very real risks associated with rapid growth of a small business, commonly referred to as the "valley of death". The risk is greatest once we have a successful product but haven't yet achieved success as a business. We believe that RadMax will be in this position over the next year as our gas expander proves itself in the hands of potential, large scale customers and OEM's. The resources, financial and personnel needed to weather the timeframe between product success and business success requires the support of a significant investor or industry partner. We plan to aggressively pursue existing and new investment contacts as the gas expander demonstration projects begin to show positive results.

#### **Potential Revenue Streams:**

- Government and industry project development funding: targeting between \$100k to \$500K for proof of concept development and testing.
- Outside investors participating in RadMax's \$700k USD private placement offering.
- The sale of industry custom designed products.
- The sale of our standardized "plug & play" product offering available through the RadMax website.
- Sale of IP or exclusive rights to specific markets and / or geographies
- Sale of the company

#### **Promotion:**

- Website
- Social Media Marketing strategy to selectively target groups with information

- Tradeshows: 2-3/year
- Industry publication articles
- Market makers and other promotional companies

# **OVERVIEW OF RECENT DEVELOPMENTS AND BUSINESS FOCUS FOR UPCOMING YEAR:**

- Collaborating on three DOE grant projects or proposals with two National Laboratories.
- Collaborating with two major A/C and refrigeration OEM's and equipment suppliers on multiple applications
- Finalizing a contract with an International brewery to recover energy from their steam and CO<sub>2</sub> systems.
- Negotiating multiple demonstration projects with US & Canadian O&G companies for emissions reduction and energy recovery/ power generation from natural gas wells and pipeline distribution systems
- Partnering with N. Illinois University to evaluate the potential to 3D print RadMax devices which offers the opportunity to reduce weight, cost, manufacturing time and part count.
- Partnering on an International heat pump project to increase cooling and drying process efficiencies in remote agricultural areas
- Collaborating with a Canadian syngas waste heat recovery company to convert landfill, agricultural, and bio waste into electricity.
- Evaluating International Liquid National Gas (LNG) compressing and storage applications.
- Evaluating RadMax turbine and internal combustion engine technology for applications of interest to the US Aerospace industry and the US Military.

# What do we need to make all this happen?

A strategic partner to help fund the expansion of our engineering and product commercialization capabilities needed to position RadMax for rapid growth and future sale.

#### Is RadMax positioning the company for sale?

Yes, our objective has always been to rescue the company, revive the technology, build prototype devices to demonstrate proof-of-concept and then sell the company. Specifically, we are looking for a partner that has the expertise and resources needed to rapidly grow the company, participate in the growing list of proof-of-concept projects and commercialize the technology on a global scale.

#### What is our time line for this transition?

We are looking to spend the next several years conducting proof-of-concept projects across all target markets and applications. We also plan to aggressively expand our patent portfolio, refine our designs, evaluate the potential for 3D printing our devices and continue to collaborate with the DOE's National Laboratories on several projects that pull our devices into the public's view. We anticipate a very busy and productive year that will position the company for sale within the next two years.

## **Environmental Matters**

Laws and regulations relating to protection of the environment have not had a negative impact on our business. In reality, the opposite has been true:

- o Companies are evaluating RadMax technology in order to meet tightening government regulations on methane and other GHG emissions from pneumatic controllers on natural gas well heads.
- Companies are evaluating RadMax devices in order to recapture otherwise lost energy from compressed refrigeration, steam, natural / other gases. Doing so allows them to reduce their overall energy consumptions which also decreases their carbon foot print and GHG emissions.
- Use of the RadMax devices in PNNL's HARP project allows companies to generate electricity from low quality heat sources like solar, geothermal, and even waste process heat without any GHG emissions.

#### **Availability of Raw Materials**

Since we only intent to manufacture prototype devices used to demonstrate proof-of-concept, raw materials are not a major concern. That said, it is important to note that a key responsibility during the design of any prototype is to always consider raw material function, performance, availability and cost, to ensure that the device performs as designed and achieves projected cost targets. Once proof-of-concept is achieved it is our intention to contract out manufacturing to increase efficiency and production capacity, while reducing lead times and material costs. At this time, using current materials of construction, there does not appear to be any foreseeable problem obtaining any materials or components.

# **Dependence on Certain Commercial Agreements**

We do not have any material or other commercial agreements upon which we are dependent.

#### **Royalty Payments**

No licenses have been awarded in relationship to our currently active patents, hence no royalties collected.

## **Research and Development**

RadMax conducts research and development (R&D) in house with our full-time engineering staff and augmented by our contracted business and engineering consultants.

#### **Employees**

As of the date of this AIF form we have seven full time employees. We also rely on several experienced contractors for engineering, business and manufacturing support.

#### **RISK FACTORS:**

The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties may also adversely impact and impair our business. If any of the following risks actually occur, our business, results of operations, or financial condition would likely suffer. In such case, the trading price of our common stock could decline, and you may lose all or part of your investment.

We face risks related to general domestic and global economic conditions.

We rely on our ability to raise capital through the sale of our securities. However, the current uncertainty arising out of domestic and global economic conditions poses a risk to the economies in which we operate. Our ultimate success will depend upon our ability to raise additional capital or to have other parties bear a portion of the required costs to further develop or exploit the potential market for our products.

We are a development stage enterprise.

We are a development stage enterprise and are subject to all of the attendant business risks associated with a development stage enterprise, including constraints on financial and personnel resources, lack of established credit facilities, and uncertainties regarding product development and future revenues. We will continue to be subject to all the risks attendant to a development stage enterprise for the foreseeable future, including competition, complications and setbacks in the development program, and the need for additional capital.

Although we anticipate receiving future revenues from licensing of our technology or joint ventures. we have received minimal revenues from sales of any of the products under development. There can be no assurance as to when or if we will be able to develop significant sources of revenue or whether our operations will become

profitable, even if we are able to commercialize any product. See "Operating and Financial Review and Prospects," and Notes to Financial Statements.

We have no assurance that we will be able to develop a commercially feasible product.

We have no assurance at this time that a commercially feasible design will ever be perfected, or if it is, that it will become profitable. Our profitability and survival will depend upon our ability to develop a technically and commercially feasible product which will be accepted by end users. The RadMax which we are developing must be technologically superior or at least equal to other devices that competitors offer and must have a competitive price/performance ratio to adequately penetrate its potential markets. If we are not able to achieve this condition or if we do not remain technologically competitive, we may be unprofitable and our investors could lose their entire investment. There can be no assurance that we or potential licensees will be able to achieve and maintain end user acceptance of our engine.

We will require additional financing and we may not be able to secure the financing necessary to continue our development and operations.

There is no assurance that we will be able to secure the financing necessary to continue our development and operations. Our expectations as to the amount of funds needed for development and the timing of the need for these funds is based on our current operating plan, which can change as a result of many factors, and we could require additional funding sooner than anticipated. Our cash needs may vary materially from those now planned because of results of development or changes in the focus and direction of our development program, competitive and technological advances, results of laboratory and field testing, requirements of regulatory agencies and other factors.

We have no commercial credit facility or other Industry based committed sources of capital. To the extent capital resources are insufficient to meet future capital requirements, we will have to raise additional funds to continue our development and operations. There can be no assurance that such funds will be available on favorable terms, or at all. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of such securities could result in dilution to our shareholders. If adequate funds are not available, we may be required to curtail operations significantly or to obtain funds on unattractive terms. Our inability to raise capital would have a material adverse effect on us.

We have a history of losses and expect to incur significant losses for the foreseeable future.

We expect to incur significant losses for the foreseeable future and cannot be certain when or if we will achieve profitability. Failure to become and remain profitable will adversely affect the value of our Common Shares and our ability to raise capital and continue operations.

We have a history of operating losses, and an accumulated deficit, as of April 30, 2019, of \$\$26,091,945. Our ability to generate revenues and profits is subject to the risks and uncertainties encountered by development stage companies.

Our future revenues and profitability are unpredictable. We currently have no signed contracts that will produce revenue and we do not have an estimate as to when we will be entering into such contracts. Furthermore, we cannot provide assurance that management will be successful in negotiating such contracts.

We have no assurance that our products will receive market acceptance.

Our profitability and survival will depend upon our ability to develop a technically and commercially feasible product which will be accepted by end users. The RadMax technology which we are developing must be

technologically superior or at least equal to other products our competitors offer and must have a competitive price/performance ratio to adequately penetrate our potential markets.

Our officers lack experience to manufacture or market our products.

Assuming we are successful in developing RadMax devices, we presently have no proven ability either to manufacture them. There is no assurance that we will be able to profitably manufacture and market engines.

Our auditors have indicated that our losses raise substantial doubt about our ability to continue a going concern.

The report of our independent auditors with respect to our financial statements for the year end April 30, 2019 includes a "going concern" qualification, indicating that our losses and deficits in working capital and shareholders' equity raise substantial doubt about our ability to continue as a going concern.

We are dependent upon certain members of our staff, the loss of which could adversely affect our business.

We are dependent on certain members of our management and engineering staff, the loss of services of one or more of whom could adversely affect our business. The loss of any of these key individuals could hamper the successful development of RadMax technology. Our present officers and directors have other full or part-time interests unrelated to our business. Some officers and directors will be available to participate in management decisions on a part-time or as-needed basis only. We do not have "key man" life insurance on such officers and currently have no plans to obtain such insurance. Our success also depends on our ability to attract and retain additional skilled employees and advisors.

We are dependent upon consultants and outside manufacturing facilities.

Since our present limited financial plans do not provide for an increase in technical staff or the establishment of manufacturing facilities, we will be primarily dependent on others to perform these functions and to provide the requisite expertise and quality control. There is no assurance that such persons or institutions will be available when needed at affordable prices. It will likely cost more to have independent companies do research and manufacturing than for us to handle these resources.

Our business may suffer if we are unable to adequately protect our intellectual property.

Our business depends on the protection of our intellectual property and may suffer if we are unable to adequately protect our intellectual property. The success of our business depends on our ability to patent all our technology devices. Currently, we have been granted several U.S. Patents. We cannot provide assurance that our patents will not be invalidated, circumvented or challenged, that the rights granted under the patents will give us competitive advantages or that our patent applications will be granted.

Our devices and planned applications may contain product errors which could adversely affect our operations.

Our planned applications may contain errors or defects, especially when first introduced, or when new versions are released. Our products may not be free from errors after commercial release has occurred. Any errors that are discovered after such commercial release could result in loss of revenue or delay in market acceptance, diversion of development resources, damage to our reputation, increased service and warranty costs and liability claims. Any defects in these products could adversely affect the operation of and market for our products, reduce revenue, increase costs and damage our reputation.

Our competition possesses greater technical resources and market recognition than us and there is no assurance that we will be able to compete effectively with these companies.

While not a highly competitive business in terms of numbers of competitors, the business of developing engines of a new design and attempting to either license or produce them is nonetheless difficult because most producers are large, well-financed companies which are very concerned about maintaining their market position. These companies possess greater technical resources and market recognition than us, and have management, financial and other resources not yet available to us. Existing technology are likely to be perceived by many customers as superior or more reliable than any new product until it has been in the market place for a period of time. There is no assurance that we will be able to compete effectively with these companies.

Market prices for our products may decline in the future which would have a material adverse effect on our business, financial condition and results of operations.

We anticipate that market prices for our main products may decline in the future due to increased competition. We expect significant competition among local and international companies, including from new entrants, may continue to drive equipment prices lower. We also expect that there may be increases in promotional spending by companies in our industry which would also contribute to increasing movement of customers between competitors. Such increased competition and the resulting decline of market prices for our products would have a material adverse effect on our business, financial condition and results of operations.

New technology or refinement of existing technology could render our RadMax Technology products less attractive or obsolete.

New technology or refinement of existing technology could render our products less attractive or obsolete. Our success depends in part upon its ability to anticipate changes in technology and industry standards and to successfully develop and introduce new and improved devices on a timely basis. There is no assurance that we will be able to do so. Accordingly, if we are unable to adapt to changing technologies and to adapt our product to evolving industry standards, our business will be adversely affected.

Product liability claims asserted against us in the future could hurt our business.

Product liability claims asserted against us in the future could hurt our business. If a customer suffers damage from our products, the customer could sue us on product liability or related grounds, claim damages for data loss or make other claims. We currently do not carry product liability insurance. While we have not been sued on product liability grounds to date, a successful product liability or related claim brought against us could harm our business.

Our success may be dependent on the timing of new product introductions and lack of market acceptance for our new products.

Our future success may be dependent on the success of our products and services. The success of our business depends on a variety of factors, including:

- The quality and reliability of our products and services
- Our ability to develop new products and services superior to that of our competitors
- Our ability to establish licensing relationships and other strategic alliances
- Our pricing policies and the pricing policies of our competitors
- Our ability to introduce new products and services before our competitors
- Our ability to successfully advertise our products and services
- · General economic trends

We may be affected by other factors which may have an adverse effect on our business.

Our areas of business may be affected from time to time by such matters as changes in general economic conditions, changes in laws and regulations, taxes, tax laws, prices and costs, and other factors of a general nature which may have an adverse effect on our business.

Insurance coverage, even where available, may not be sufficient to cover losses we may incur.

We seek to minimize any losses we may incur through various insurance contracts from third-party insurance carriers. However, our insurance coverage is subject to large individual claim deductibles, individual claim and aggregate policy limits, and other terms and conditions. We cannot assure that our insurance will be sufficient to cover our losses. Any losses that insurance does not substantially cover could have a material adverse effect on our business, results of operations, financial condition and cash flows. We cannot assure that we will be able to obtain comparable insurance coverage on favorable terms, or at all, in the future.

We must successfully maintain and/or upgrade our information technology systems and software licenses, and our failure to do so could have a material adverse effect on our business, financial condition or results of operations.

We rely on various information technology systems to manage our operations. Over time, we have implemented, and we continue to implement, modifications and upgrades to such systems, including changes to legacy systems, replacing legacy systems with successor systems with new functionality, and acquiring new systems with new functionality. These types of activities subject us to inherent costs and risks associated with replacing and changing these systems. These implementations, modifications and upgrades may not result in productivity improvements at a level that outweighs the costs of implementation, or at all. In addition, the difficulties with implementing new technology systems may cause disruptions in our business operations and have a material adverse effect on our business, financial condition or results of operations.

#### We may not achieve our publicly announced milestones on time.

From time to time, we may publicly announce the timing of certain events we expect to occur. These statements are forward-looking and are based on the best estimate of management at the time relating to the occurrence of such events. However, the actual timing of such events may differ from what has been publicly disclosed. The timing of events may ultimately vary from what is publicly disclosed. We undertake no obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, after the distribution of this AIF, except as otherwise required by law. Any variation in the timing of certain events having the effect of postponing such events could have a material adverse effect on the Corporation's business plan, financial condition or operating results.

# **RISKS RELATED TO OUR BUSINESS:**

The price of our shares may fluctuate.

Market prices for securities in general, tend to fluctuate. Factors such as the announcement to the public or in various scientific or industry forums of technological innovations, new commercial products, patents, exclusive rights obtained by us or others, a change of regulations, publications, financial results, future sales of securities by us or our shareholders and many other factors could have considerable effects on the price of our securities. There can be no assurance that the market price of the Common Shares will not experience significant fluctuations in the future.

The market price of our shares could decline as a result of future issuances or actual or potential sales.

The market price of the Common Shares could decline as a result of future issuances by us or sales by existing holders of Common Shares, or the perception that these sales could occur. Sales by shareholders might also make

it more difficult for us to sell equity securities at a time and price that we deem appropriate, which could reduce our ability to raise capital and have an adverse effect on our business.

The market price of our shares could decline as a result of operating results falling below the expectations of investors or fluctuations in operating results each quarter.

- Our revenues and expenses may fluctuate significantly and any failure to meet financial expectations may
  disappoint securities analysts or investors and result in a decline in the price of our Common Shares. Our
  revenues and expenses have fluctuated in the past and are likely to do so in the future. These fluctuations
  could cause our share price to decline. Some of the factors that could cause revenues and expenses to
  fluctuate include the following:
- The inability to complete product development in a timely manner that results in a failure or delay to commercialize products;
- The timing and willingness of any current or future collaborators to invest the resources necessary to commercialize our products;
- The outcome of any litigation;
- · Changes in foreign currency fluctuations;
- The timing of achievement and the receipt of milestone payments from current or future third parties;
- Failure to enter into new or the expiration or termination of current agreements with third parties;
- Failure to introduce our products to the market in a manner that generates anticipated revenues;
- Any change to laws, regulations and guidelines governing an industry in which we operate.

If our quarterly operating results fall below the expectations of investors or securities analysts, the price of our Common Shares could decline substantially. Furthermore, any quarterly fluctuations in our operating results may, in turn, cause the price of our stock to fluctuate substantially.

There is only a limited public market for our common shares on the OTCQB Venture Market and those markets are extremely volatile.

There is only a limited public market for our common shares on the OTCQB Venture Market and there is a risk that a broader or more active public trading market for our common shares will never develop, or be sustained, or that current trading levels will not be sustained.

The market price for our common shares on the OTCQB Venture Market has been and we anticipate will continue to be extremely volatile and subject to significant price and volume fluctuations in response to a variety of external and internal factors. This is especially true with respect to emerging companies such as ours. Examples of external factors, which can generally be described as factors that are unrelated to the operating performance or financial condition of any particular company, include changes in interest rates and worldwide economic and market conditions, as well as changes in industry conditions, such as regulatory and environment rules, and announcements of technology innovations or new products by other companies. Examples of internal factors, which can generally be described as factors that are directly related to our consolidated financial condition or results of operations, would include release of reports by securities analysts and announcements we may make from time-to-time relative to our operating performance, advances in technology or other business developments.

Because we have a limited operating history and no profits to date, the market price for the common shares is more volatile than that of a seasoned issuer. Changes in the market price of the common shares, for example, may have no connection with our operating results or prospects. No predictions or projections can be made as to what the prevailing market price for the common shares will be at any time, or as to what effect, if any, that the sale of shares or the availability of common shares for sale at any time will have on the prevailing market price.

You will be subject to the penny stock rules to the extent our stock price on the OTCQB Venture Market is less than \$5.00.

Since the common shares are not listed on a national stock exchange or quoted on the OTC Market within the United States, trading in the common shares on the OTCQB Venture Market is subject, to the extent the market price for the common shares is less than \$5.00 per share, to a number of regulations known as the "penny stock rules". The penny stock rules require a broker-dealer to deliver a standardized risk disclosure document prepared by the SEC, to provide the customer with additional information including current bid and offer quotations for the penny stock, the compensation of the broker-dealer and its salesperson in the transaction, monthly account statements showing the market value of each penny stock held in the customer's account, and to make a special written determination that the penny stock is a suitable investment for the purchaser and receive the purchaser's written agreement to the transaction. To the extent these requirements may be applicable they will reduce the level of trading activity in the secondary market for the common shares and may severely and adversely affect the ability of broker-dealers to sell the common shares.

You should not expect to receive dividends in the foreseeable future.

We intend to retain any future earnings to finance our business and operations and any future growth. Therefore, we do not anticipate paying any cash dividends in the foreseeable future.

#### **DIVIDENDS AND DISTRIBUTIONS**

To date we have not paid any dividends on our common stock and do not expect to declare or pay any dividends on our common stock in the foreseeable future. Payment of any dividends will be dependent upon future earnings, if any, our financial condition, and other factors as deemed relevant by our Board of Directors.

#### DESCRIPTION OF OUR SHARE CAPITAL STRUCTURE AND DISTRIBUTION

There is a limited public market for our common stock which currently trades on the OTCQB Venture Board under the symbol "RGUS" where it has been traded since September 21, 1994. The common stock has traded between \$0.01 and \$6.75 per share since that date.

The following table sets forth the high and low prices and the trading volume for our common stock as reported on the Venture Board for the months presented. These quotations reflect inter-dealer prices, without retail markup, mark-down or commissions, and may not reflect actual transactions.

Month / Year	High (\$/share)	Low (\$/share)	Volume (shares)
May 2018	0.12	0.08	245,862
June 2018	.13	.07	245,400
July 2018	.13	.08	434,100
August 2018	.10	.07	323,900
September 2018	.09	.08	526,400
October 2018	.08	.06	469,600
November 2018	.09	.09	524,900
December 2018	.07	.04	481,200
January 2019	.09	.01	375,400
February 2019	.09	.06	388,900
March 2019	.09	.05	180,300
April 2019	.09	.05	757,600

May 2019	.08	.04	269,900
June 2019	.08	.05	642,800

#### **Holders**

As of June 17, 2019, there were 108,687,307 shares of common stock outstanding, held by 844 registered and 2,513 beneficial shareholders of record.

#### Securities authorized for issuance.

The Company is authorized to issue unlimited shares of common stock, without par value. Each share of Common Stock is entitled to one vote on all matters submitted for shareholder approval.

# **Recent Sales of Unregistered Securities**

#### **CONVERTIBLE NOTES**

#### Related parties

During the year ended April 30, 2019, the Company issued Convertible Notes to related parties for cash proceeds of \$20,000, services of \$27,932, settled accounts payable from previous years of \$47,400. The Company also issued new Convertible Notes in settlement of previously issued Convertible notes in the amount of \$33,600 which included accrued interest of \$5,600.

#### Non-related parties

During the year ended April 30, 2019 the Company issued Convertible Notes, non-related parties for cash proceeds of \$493,575, settled accounts payable from previous years of \$7,490, service debt provided by non-related parties of \$27,932.

During the year ended April 30, 2019, the Company paid \$92,000 in principal on Convertible Notes, non-related parties plus interest of \$1,624.

### **EQUITY**

# <u>Issuance of common stock on exercise of convertible of notes, related parties</u>

During the twelve months ended April 30, 2019 related party convertible promissory notes of \$552,439 and accrued interest of \$53,045 were converted into a total of 6,629,903 shares of REGI's common stock at conversion prices between \$0.0344 per share and \$0.10 per share.

# <u>Issuance of common stock on exercise of convertible notes, non-related parties</u>

During the twelve months ended April 30, 2019 non-related party convertible promissory notes of \$213,427 and accrued interest of \$40,855 were converted into a total of 2,842,823 shares of REGI's common stock at conversion prices between \$0.08 per share and \$0.10 per share.

### Common Shares Issued In Lieu of Cash for Services

During the twelve months ended April 30, 2019 the Company issued 40,000 shares of its common stock for services provided by consultants of the Company with the total value recorded at \$1,880 based on the market trading price as of the issuance date.

A summary of REGI's stock option activities for the year ended April 30, 2019 are as follows:

Options	Shares	Weight-Average Exercise Price (\$/share)
Outstanding at May 01, 2018	9,355,000	0.52
Granted		
Exercised		
Forfeited or Expired		
Outstanding at April 30, 2019	9,355,000	\$0.52
Exercisable at April 30, 2019	9,163,750	\$0.53

#### SUBSEQUENT EVENTS

Subsequent to April 30, 2019, a total of 200,000 shares of the Company's common stock were issued in a private placement of \$14,000 at a share price of \$0.07 per share.

Subsequent to April 30, 2019, non-related party convertible promissory notes of \$4,550 and accrued interest of \$567 were converted into a total of 51,167 shares of REGI's common stock at a conversion price \$0.10 per share

The following table sets out the name, place of residence and position held with us for each of our executive officers and directors as of April 30, 2018.

Name and Place of Residence	Position Held	With Company Since	Common Shares, Directly or Indirectly Beneficially Held
Paul W. Chute, Washington State, USA	CEO, Board Chairman / Director	2016	2,166,632
Lynn Peterson, Washington State, USA	Vice President, Business Development / Director	2016	1,271,871
Paul Porter, Washington State, USA	President / Chief Technology Officer / Director	2016	972,858

As of April 30, 2019, the directors and executive officers as a group, beneficially owned or exercised control or direction over approximately 4,411,361 (4.05%) of the outstanding Common Shares of REGI.

The following are brief biographies of REGI's directors and key members of our management as of the date hereof:

**Paul W Chute**, **Director**, **CEO**, **CFO**, **Board Chairman**, 68. Paul has over 45 years of executive experience building or restructuring over 25 private and public companies. He specializes in Governance, Business Plans, Financing, Corporate Structure, Systems and Operational functionality. A strong believer in team management, Paul believes in cooperative processing with accountability. He served as CEO and CFO of Acadia National Health Systems. He earned his MBA in Business Management from Husson University and a BS in Accounting from the University of Maine.

**Paul L. Porter, Director, President and Chief Technology Officer**, 63. Paul has been a hands-on engineer and manager for over 30 years. Founder and former president of Jetseal, Inc., a manufacturing firm specializing in cutting-edge seal design and other aerospace technologies, Paul now serves as Managing Partner and Chief Engineer at P.A. Industries, in addition to his work on the RadMax Rotary Cycle. He has an MBA from McNeese University and BS in Mechanical Engineering from Brigham Young University.

**Michael Urso, Vice President, Operations**, 63. Mike is a Senior Executive with over 25 years of experience in the areas of Innovation, Business Development, Marketing, Operations Management, and Sales with companies ranging from startups to large \$50 billion global corporations.

Mike is a skilled leader with an impressive track record of transforming companies with commodity based, or incremental innovation strategies into innovation leaders. He also has extensive experience mentoring startup companies and successfully guided many from concept to commercialization, using a combination of tools and personal experience.

Prior to his current position, Urso served as the Vice President of Product Innovation for Saint-Gobain's North American Gypsum business. While in this position he moved Saint-Gobain from a position of innovation follower to being the innovation leader in the North American gypsum industry.

During his career Mike has also held leadership positions as Senior Principal Consultant, Sirti, a Washington State funded, high tech business incubator with a successful track record of launching new companies or negotiating successful exits; Vice President of Marketing, Potlatch Corporation, Wood Products and Resource Management Divisions; Global New Business Development Manager and Global Composite Materials Project Manager, Dow Chemical Company, Emulsion Polymers Division; Operations Manager, Dow Chemical, Chemical and Metals Divisions; North American Marketing Manager, Dow Chemical, Emulsion Polymers Division; and Canadian Marketing Manager, Dow Chemical, Emulsion Polymers Division.

Mike received a BSc degree from the University of Calgary, Alberta, Canada, and a MBA degree from Northwood University's DeVos Graduate School of Management, Midland, Michigan. He is also a co-inventor on four patents and holds citizenship in both the USA and Canada.

Lynn Petersen, Vice President Business Development / Director, 69, an accomplished marketer and new product strategist, Lynn has over 30 years of leadership experience in technical sales, marketing, customer service, and business development management. He has worked with clients in the mining, industrial chemical, electronics, aerospace, and capital equipment industries. Lynn has a Master's of Science in Economics & Agricultural Engineering and a BS in Mechanized Agriculture from South Dakota State University.

#### **Contract Engineers:**

Allen MacKnight, Dr. MacKnight is a retired Corporate Fellow from Honeywell Aerospace. He has managed advanced applications engineering development and new product initiation and development. Projects include aircraft and spacecraft environmental controls; nuclear, biological, and chemical air purification; fuel cell power systems; advanced turbine power generation systems; and advanced space life support. He has worked on projects for NASA, the International Space Station, Airbus, the USAF, Allied Signal Aerospace, and Honeywell. Dr. MacKnight holds a PhD in Physical Chemistry from the University of Utah.

**Dr. Massimo "Max" Capobianchi**, Dr. Capobianchi is Professor of Mechanical Engineering at Gonzaga University and the department chair. His professional experience includes 10 years as a practicing mechanical engineer in industry and more than 20 years in academia. He has worked as a mechanical design engineer in the electronics field. He earned his BE, MS in Mechanical Engineering, and PhD in Mechanical Engineering from State University of New York.

**Ian Walker, P. Eng.,** Mr. Walker is an / electrical engineering consultant with over 19 years of electrical engineering experience, 11 of those were in a corporate setting and the last 8 working through his own consulting service. While in these roles Ian managed people, marketed and guided designs at a high level. Responding to RFPs, proposals, as wells as on-site requirements gathering. He was the developer of electricity

demand shifter hardware and core firmware development of inverter energy storage systems. He also managed client relations for large customers like AT&T, Verizon and Comcast in the telecommunications arena; G.E. and Siemens in the industrial controls world; Con Ed and Lishen Battery in the power generation industries. Ian is experienced in all stages of product development. Successfully taken ideas for product and process improvements and turned them into new products and control systems ranging from pressure monitors for gas turbine generators to energy storage to new algorithms for stretching metals.

In a contract role functioned as an Energy Storage System Architect, Principal Engineer and Lead Engineer in developing energy storage/generation product prototypes, developed hydroelectric controls for small power generation, and designed a "Humming" monitor for large gas turbine control.

**Ron L. Prowse, Ron** is a retired oil and gas engineer who has worked internationally for Mobil then ExxonMobil. He has alternated between engineering and operations positions both offshore and onshore in Canada, Nigeria, Indonesia, Scotland, the U.S. and Equatorial Guinea. Ron began his career in research and is named on two patents. He holds a MS in Metallurgical Engineering from the University of Alberta.

Darin Redinger, Mechanical Engineer. Mr. Redinger has nearly 30 of engineering experience working in various capacities for both large and small companies. Darin's expertise includes the use of commercial DFD and mechanical simulation software for the design, modeling, and analysis of thermal-mechanical systems. Mr. Redinger has worked for Siemens Power Corp, Westinghouse, Infinia Corp. and Autodesk.

# **CEASE TRADE ORDERS, BANKRUPTCIES, PENALTIES OR SANCTIONS**

REGI U.S., Inc was subject to a Cease Trade Order (CTO) imposed by the British Columbia Securities Commission (BCSC) as a result of the Company's failure to file Form 51-102F2 Annual Information Form for the year ended April 30, 2017 on a timely basis. On July 24, 2018, the BCSC granted a full revocation of the CTO as the Company has since filed the Annual Information Form and all subsequent interim filings.

Other than as noted above no Director or executive officer of the Company is, or has been within the past ten years, a director, officer of any other company that, while such person was acting in that capacity, was the subject of a cease trade or similar order or an order that denied the company access to any statutory exemption for a period of more than 30 consecutive days, or was declared bankrupt or made a voluntary assignment in bankruptcy, made a proposal under any legislation relating to bankruptcy or insolvency or been subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, receiver manager or trustee appointed to hold the assets of that person.

No Director or executive officer of the Company has, within the ten years preceding the date hereof been subject to any penalties or sanctions imposed by a court relating to securities legislation or by any securities regulatory authority or has entered into a settlement agreement with a securities regulatory authority or been subject to any other penalties or sanctions imposed by a court or regulatory body or self-regulatory authority that would be likely to be considered important to a reasonable investor making an investment decision.

#### **AUDIT COMMITTEE**

The Audit Committee is responsible for the Company's financial reporting process and the quality of its financial reporting. The Audit Committee is charged with the mandate of providing independent review and oversight of the Company's financial reporting process, the system of internal control and management of financial risks, and the audit process, including the selection, oversight and compensation of the Company's external auditors. The Audit Committee also assists the Board in fulfilling its responsibilities in reviewing the Company's process for monitoring compliance with laws and regulations and its own code of business conduct. In performing its duties, the Audit Committee maintains effective working relationships with the Board, management, and the external auditors and monitors the independence of those auditors. The Audit Committee is also responsible for reviewing the Company's financial strategies, its financing plans and its use of the equity and debt markets.

#### **Audit Committee Charter**

The Company adopted a new audit committee charter on June 10, 2018. The Charter is available on the Company's website at http://radmaxtech.com/document/news/2018/2018-07-20-audit committee charter-317.pdf

Implementation of the new charter has begun with the active recruitment of three independent members of the Board of Director with the required background, skills and expertise to be assigned to the Audit Committee.

# Composition of Audit Committee and Independence

Until the successful recruitment of three independent directors the Company's Board of Directors serve the functions of the Audit Committee. NI 52-110 provides that a member of an audit committee is "independent" if the member has no direct or indirect material relationship with the Company, which could, in the view of the Board, reasonably interfere with the exercise of the member's independent judgment.

The Board of Directors is currently comprised of Paul Chute, Paul Porter and Lynn Peterson. Mr. Paul Chute is not considered to be independent under NI 52-110 because he was the Chief Executive Officer of the Company. Mr. Paul Porter is not considered to be independent under NI 52-110 because he is the President of the Company. Lynn Peterson is not considered to be independent under NI 52-110 because he is an officer of the Company.

Name	Independent within the meaning of NI 52-110	Financial Literacy	Officer, Control Person or Employee
Paul Chute	No	Yes	Yes
Paul Porter	No	Yes	Yes
Lynn Peterson	No	Yes	Yes

The Company has been actively searching for independent members of the Audit Committee with the required credentials.

#### Relevant Education and Experience

NI 52-110 provides that an individual is "financially literate" if he or she has the ability to read and understand a set of financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of the issues that can reasonably be expected to be raised by the Company's financial statements. All of the members of the Board of Directors are financially literate as that term is defined in NI 52-110.

#### Paul W. Chute

Mr. Chute's recent experience has been leading the challenge of a complete rebuilding of REGI U.S., Inc. and managing the development of its patented RadMax Technology as the Company's CEO, for which he attracted and retained a team of capable and dedicated engineers, consultants, advisors and technical staff.

Mr. Chute has extensive experience in making development stage companies successful, having served as CFO, CEO and Director of both private and public companies. Mr. Chute's strong belief in the potential of the RadMax technology has led him to come out of retirement to move REGI U.S., Inc. forward and focus on refining, testing and marketing the RadMax Technology. Mr. Chute was appointed a director and the Chief Executive Officer of the Company on July 17, 2016. Mr. Chute also served as the President and CEO and a director of Reg Technologies Inc. and Minewest Silver and Gold Inc. Mr. Chute has his Bachelor of Science degree in accounting and his MBA degree.

Mr. Chute also holds advanced certifications as a Diplomat in the American College of Healthcare Executives and a Fellow of the Healthcare Financial Management Association.

#### Paul Porter

Mr. Porter was appointed a director in August, 2013. Mr. Porter had served as our Chief Engineer prior to his appointment. Mr. Porter has extensive experience as an expert mechanical engineer in the manufacturing and designing of seals. Mr. Porter was the founder and President of JetSeal, Inc., a manufacturing engineering tool and producing design firm. JetSeal, Inc. was sold to Heico Corp. (HEI) an aerospace company in the late 1990's when JetSeal, Inc. was under Mr. Porter's ownership. Prior to this, he was a manufacturing manager for Parker Seal Group, a Fortune 500 Company.

#### Lynn Petersen,

Mr. Petersen has served as the Company's Vice President Business Development since 2016. Mr. Petersen is an accomplished marketer and new product strategist, Lynn has over 30 years of leadership experience in technical sales, marketing, customer service, and business development management. He has worked with clients in the mining, industrial chemical, electronics, aerospace, and capital equipment industries. Lynn has a Master's of Science in Economics & Agricultural Engineering and a BS in Mechanized Agriculture from South Dakota State University.

# **Reliance on Certain Exemptions**

The Company is a "venture issuer" and is currently relying on the exemption in Section 6.1 of NI 52-110 relating to Parts 3 (*Composition of Audit Committee*) and 5 (*Reporting Obligations*).

## **Audit Committee Oversight**

Since the commencement of the Company's most recently completed financial year, the Board of Directors has appointed and the Annual Shareholder Meeting have approved Fruci & Associates II, PLLC as external independent auditor.

# **Pre-Approval Policies and Procedures**

The Company has not adopted any specific policies and procedures for the engagement of non-audit services.

# **External Auditor Service Fees**

The following table discloses accounting fees and services which we paid to our auditor, Fruci & Associates Certified Public Accountants during fiscals 2018 and 2019:

Type of Services Rendered	2018 (\$)	2019(\$)
Quarter Review Fees	10,100	10,500
Audit-Related Fees, to date (*)	14,300	15,000(*)
Tax Fees	5,478	1,200
All Other Fees	29,878	26,700

In the table above, "audit fees" are fees billed by the Company's external auditor Fruci & Associates, PS, Certified Public Accountants for services provided in auditing the Company's annual financial statements for the subject year. "Audit-related fees" are fees not included in audit fees that are billed by the

auditor for assurance and related services that are reasonably related to the performance of the audit or review of the Company's financial statements. "Tax fees" are fees billed by the auditor for professional services rendered for tax compliance, tax advice and tax planning. "All other fees" are fees billed by the auditor for products and services not included in the foregoing categories.

# **LEGAL PROCEEDINGS AND REGULATORY ACTIONS**

To the knowledge of REGI U.S., Inc., it is not a party to any legal material proceeding.

# **TRANSFER AGENTS AND REGULATORS**

Our Transfer agent is Nevada Agency and Transfer Company, 50 West Liberty Street, Suite 880 Reno, Nevada 89501. Phone: (775)-322-0626; Fax: (775) 322-5623

# **INTERESTS OF EXPERTS**

As of April 30, 2018, Fruci & Associates II, PLLC our external auditors, and its partners did not hold any registered or beneficial ownership interest, direct or indirect, in the securities of REGI U.S, Inc.

# **ADDITIONAL INFORMATION**

Additional information related to REGI U.S. may be found on SEDAR at <a href="www.sedar.com">www.sedar.com</a>., and the Company's SEC filings at <a href="http://www.sec.gov/edgar">http://www.sec.gov/edgar</a>