

## Solutions Powered By Clean Combustion

**Environmental  
Protection**



**Intelligent  
Solutions**



**Social  
License**



# Questor Technology Inc.

20 Years Providing Solutions Eliminating the Need to Vent or Flare Gas

# Forward Looking Statements

**Certain information presented today may constitute forward-looking statements. Such statements reflect the Company's current expectations, estimates, projections and assumptions.**

**These forward-looking statements are not guarantees of future performance and are subject to certain risks which could cause actual performance and financial results in the future to vary materially from those contemplated in the forward-looking statements.**

**For additional information on these risks please refer to the Company's 2018 annual reporting under the heading "Business Conditions and Risk Management."**

# Corporate Profile

- Founded in 1994 and listed in 1998 on the TSX Venture Exchange “QST”. HQ Calgary, AB
- Strong, experienced management team and Board of Directors
- Clean balance sheet with no debt
- Technology considered best in class
- U.S. and Canadian patent - original expires November 2019 – new patents filed
- Proven technology that is key to meeting the tough global regulations and targets on emissions



# Investor Information

## Share Information

<b>Common Shares</b>	<b>27.2 million</b>
<b>Warrants</b>	<b>Nil</b>
<b>Current share price (09/04/2019)</b>	<b>\$4.53</b>
<b>52 Week Hi-Low</b>	<b>\$2.05-\$5.36</b>
<b>1H EPS</b>	<b>\$0.16</b>
<b>Market Cap</b>	<b>\$125.4 Million</b>

## Major Shareholders

<b>Audrey Mascarenhas</b>	<b>16%</b>
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## 1 Year Share Price Performance

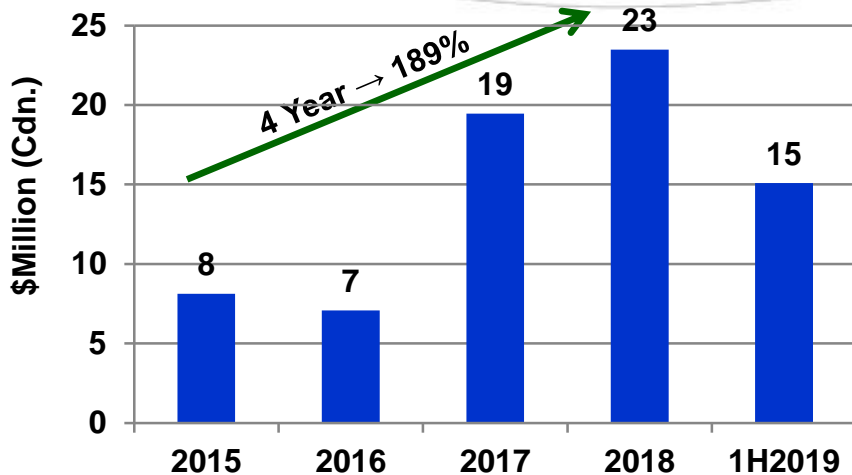


## Financial Information (1H 2019)

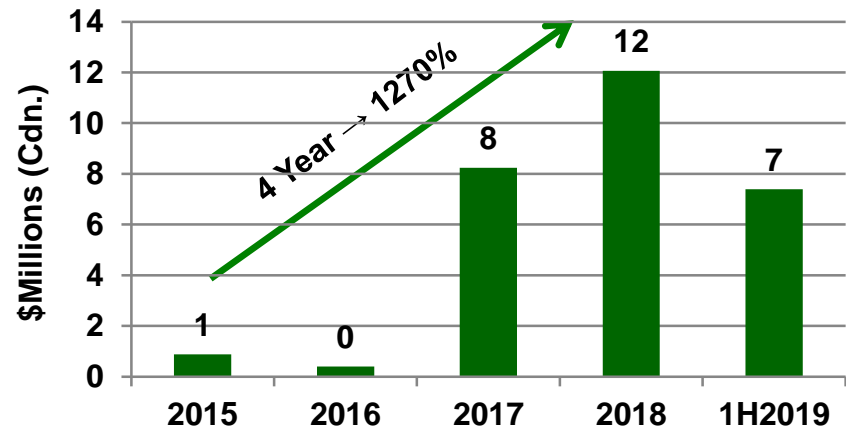
<b>Revenue</b>	<b>\$15.1 million</b>
<b>Cash</b>	<b>\$9.5 million</b>
<b>Net Debt</b>	<b>Nil</b>

# Consistent Revenue Growth

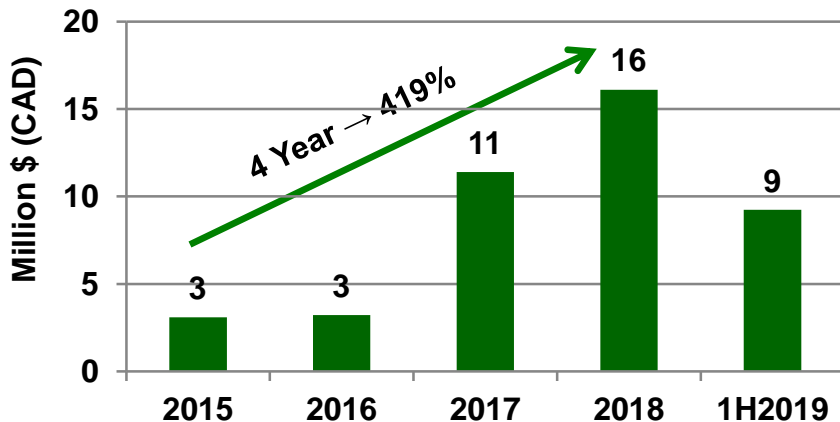
## Gross Revenue



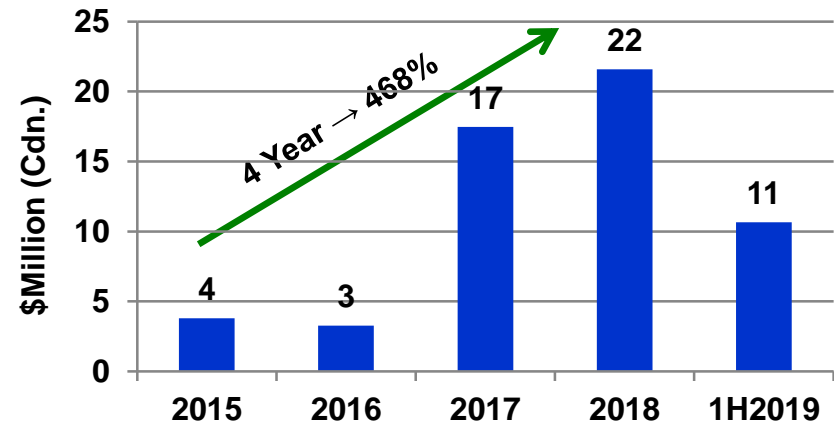
## Adj. EBITDA



## Rental Revenue



## USA Revenue



# What We Do



**QUESTOR** is a leading provider of 99.99% efficient, safe, reliable and regulatory compliant patented waste gas combustion systems across an array of industries.

**QUESTOR** specializes in the clean combustion of waste gases, methane, VOC's, HAP's and BTEX, addressing air quality and GHG emissions. We recover the waste heat from clean combustion and other sources to generate power or potentially treat water.

**QUESTOR's** solutions improve safety, reduce costs, improve energy efficiency, achieve compliance, reduce GHG emissions while gaining public support.

**QUESTOR's** adaptability has resulted in unique solutions that have become industry standards in an ever-changing, competitive market.

# The Problem We Are Solving

**BEFORE**



**QUESTOR**



**Community acceptance; operating and capital cost reductions; safety; energy efficiency; emission regulations: VOC, HAP's, methane, air quality, GHG emissions, low carbon operations, green/closed loop completions, no flaring, no venting, no odors**

# Creating Value From Waste

## Clean Emissions Solutions

99.99% Combustion Efficiency  
Clean Emissions - CO<sub>2</sub> and Water



Pad and Well Site Operations



Drilling and Completions Operations



Gas and Oil Processing Upstream, Midstream and Downstream

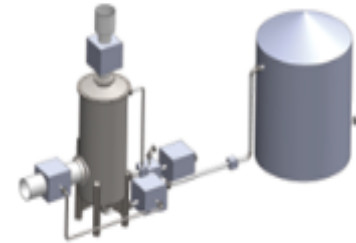
Waste Gases



Clean Combustion Device



Heat Energy



Water Vaporization  
(Under Development)



ORC Heat to Power  
77kW to 5MW



# Board of Directors

## Jim Inkster



Entrepreneur and businessman. Jim has provided twenty years of insight in assisting management in building the firm base on which the Corporation's growth plans are materializing.

## Stewart Hanlon – Chairman



Mr. Hanlon had a long and distinguished career with Gibson Energy Inc. a Canadian-based midstream energy company. Mr. Hanlon served as President and CEO of Gibson from 2009 through 2017.

## Jean-Michel Gires



Jean-Michel Gires was previously the President & CEO of Total E&P Canada. He joined Chrysalix in 2013, an energy venture capital firm. He is based in Calgary and dedicates himself to innovation.

## Audrey Mascarenhas President & CEO



Chemical Engineer with Master's degree in Petroleum. Over 38 years of oil and gas experience. She joined Questor in 1999. UofC Engineering Industry advisor. Chair of the Federal Government Clean Technology Strategy table. 2011 E&Y Entrepreneur of the year. Fellow of the Canadian Academy of Engineers. Distinguished lecturer for SPE.

# Questor Team Profile



**Audrey Mascarenhas – President and CEO**

**Dan Zivkusic – CFO**

CPA, CMA with over 20 years in the oil and gas industry in the E&P and service sectors. Senior executive finance experience in E&P, pressure pumping, artificial lift systems, managed pressure drilling and testing.

**Robert Miller – President, ClearPower Systems**

Mechanical engineer with over 45 years of extensive experience in manufacturing, co-generation and power generation with Amerada Hess (Microgen), Turbogenix, Calnetix and General Electric.

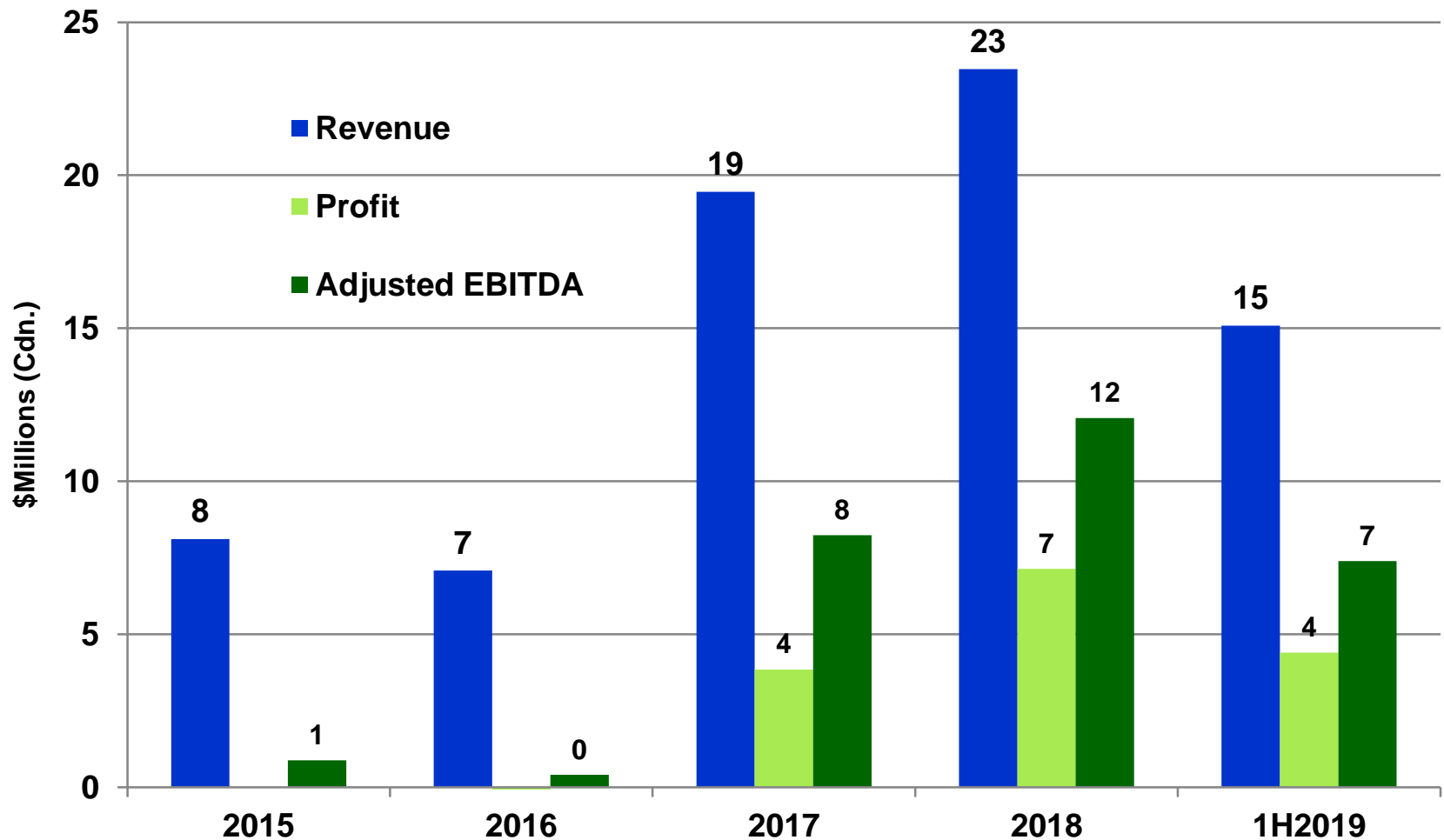
**John Sutherland – COO**

Mechanical engineer with over 31 years of domestic and international experience in production operations, facility design, regulatory compliance, HSE and EPC with various mid-sized to large multinational oil and gas companies.

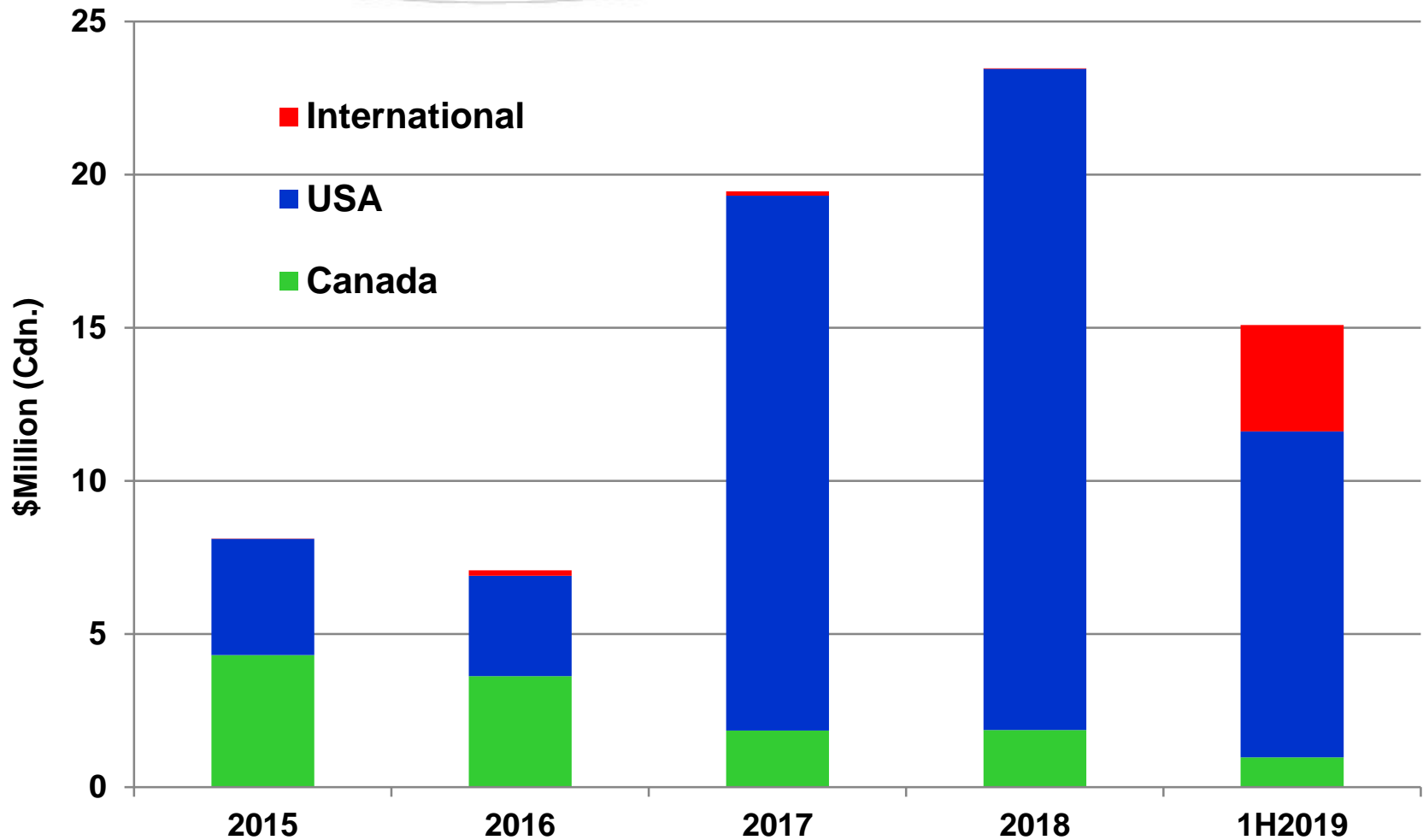
**Justin Mahendra – VP, Sales & Marketing**

16 years of technical sales, account management and business development experience including 7 years in waste management within the UK and Europe and the past 9 years in the North American oil and gas sector.

# Financial Performance



# Revenue by Region



# Business Segments

**Sales**



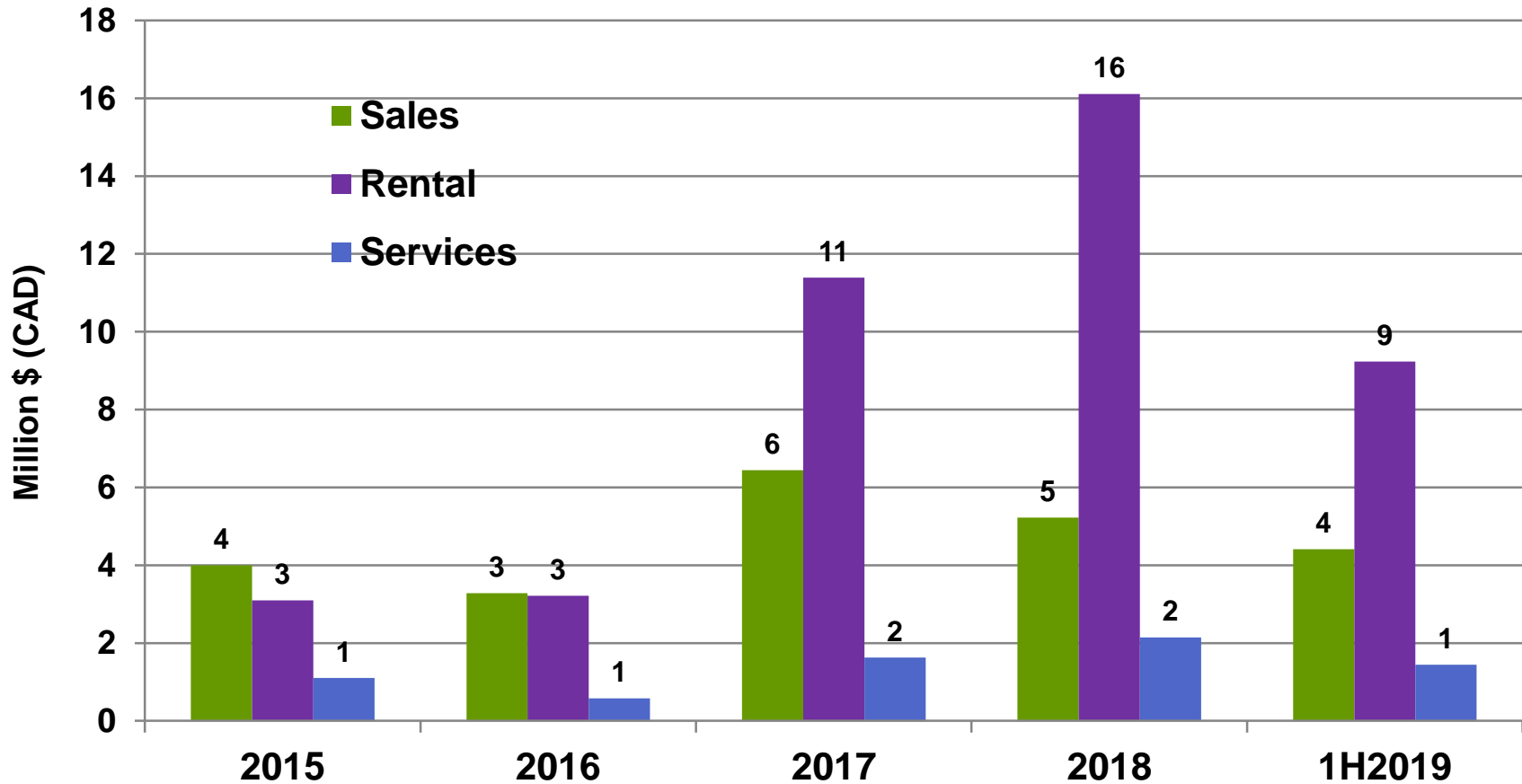
**Rentals**



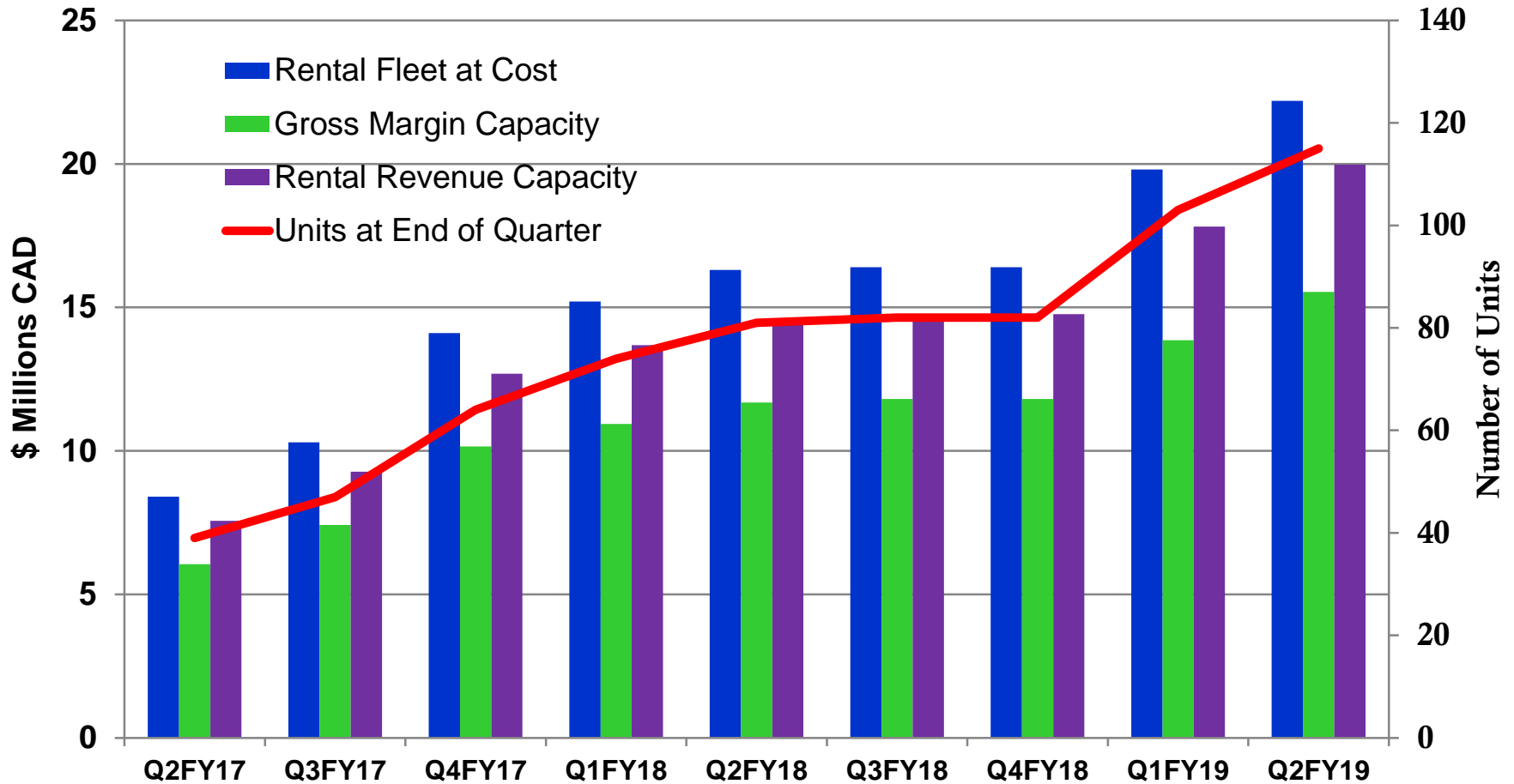
**Field Combustion Services**



# Business Segment Revenue



# Rental Fleet Expansion



# Colorado

- Air quality issues: non-attainment zones
- Lack of gas pipeline take away capacity
- Win-win created with stringent regulations
- Senate Bill 181 has created a framework for industry and community to work together
- Questor has established a strong market presence and significantly reduced customer concentration





# Units in Colorado

**30% reduction in lease size, 20% reduction in pad cost;  
*Incremental 400 bbls/d production***



# Rental Fleet Expansion to Texas & North Dakota



- Over 40% of the rental fleet is committed to contracts ranging in term from 6 months to 24 months in Colorado, Texas and North Dakota
- Questor was independently field tested in North Dakota and Colorado and, once again, confirmed its performance in excess of 99.99%
- Questor units deliver value to our clients by increasing oil production limits by significantly reducing VOC's and NO<sub>x</sub>
  - *400 bbls/d per site in CO*
  - *2200 bbls/d per site in ND*
  - *Eliminated other equipment saving \$1MM/site/yr.*

# North Dakota Testing

Combustor	Parameter	Test Result				Average
		Test 1	Test 2	Test 3	Test 4	
SITE 1 Q5000-17-164 (west)	VOC DRE %	99.997%	99.998%	100%	100%	100%
	NOx (lb/MMBtu)	0.158	0.200	0.233	0.232	0.206
	CO (lb/MMBtu)	0.110	0.074	0.017	0.067	0.067
	Stack Temperature (°F)	1125	1412	1649	1823	1502
SITE 1 Q5000-17-173 (west)	VOC DRE %	100%	100%	100%	100%	100%
	NOx (lb/MMBtu)	0.140	0.182	0.220	0.287	0.207
	CO (lb/MMBtu)	0.049	0.008	0.002	0.011	0.018
	Stack Temperature (°F)	1046	1348	1522	1852	1442

Combustor	Parameter	Test 1	Test 2	Test 3	Average
		SITE 2 Q5000-17-183 (east)	VOC DRE %	100%	100%
	NOx (lb/MMBtu)	0.279	0.258	0.252	0.263
	CO (lb/MMBtu)	0.001	0.002	0.001	0.001
	Stack Temperature (°F)	1758	1860	1758	1792
SITE 2 Q5000-17-173 (west)	VOC DRE %	100%	100%	100%	100%
	NOx (lb/MMBtu)	0.244	0.279	0.281	0.268
	CO (lb/MMBtu)	0.002	0.004	0.002	0.003
	Stack Temperature (°F)	1743	1763	1775	1760

Combustor	Parameter	Test 1	Test 2	Test 3	Average
		SITE 3 Q5000-17-123 (east)	VOC DRE %	100%	100%
	NOx (lb/MMBtu)	0.178	0.173	0.202	0.184
	CO (lb/MMBtu)	0.092	0.013	0.005	0.037
	Stack Temperature (°F)	1737	1706	1688	1710
SITE 3 Q5000-17-164 (west)	VOC DRE %	100%	100%	100%	100%
	NOx (lb/MMBtu)	0.205	0.198	0.204	0.202
	CO (lb/MMBtu)	0.046	0.049	0.042	0.046
	Stack Temperature (°F)	1735	1754.000	1745	1745

# New Mexico / Texas



Permian Basin

## Permian – TX/NM

- > 600 MMscf/d currently flared with pipeline capacity at 98%
- Opportunity for a 180 unit rental fleet
- 4021 wells drilled but not completed due to lack of P/L capacity
- Yard space in Midland, Texas
- Initial work with WPX in NM
- Units in the Eagleford



## Bakken - ND

- 520 MMscf/d flared representing 20% of total gas production
- Deployed 42% of the current rental fleet to the area.
- Expanding client base.
- “HUB” – technicians, yard and office
- Opportunity for a 120 unit rental fleet
- Questor units creating an opportunity to increase oil production utilizing 99.99% combustion efficiency

# New Growth Opportunity in Mexico

- Methane emission reduction target of 75% by 2025 from oil and gas industry
- Mexico's environmental regulations will reward companies that harness benefits from associated gas
- Fines and oil production curtailment for non compliance
- Currently executing two large projects - \$ 8.5MM
  - 3 sites – waste heat to power
  - 10 sites – methane and HAP's destruction

Questor combustion unit



*Questor anticipates significant interest in its integrated combustion and waste heat to power solutions*

# Growth Opportunity in Canada

- Tall Stacks
- Dehy's
- Regulation compliance  
Methane, H<sub>2</sub>S, SO<sub>x</sub>,  
and BTEX
- Provincial and Federal  
regulation

# Waste Heat: Recovery and Use

- Clean heat is extracted
- Thermal energy used to generate power
- Same system used for water treatment
- Flue gas stream also used directly as heat or to exchange with glycol or heat medium



Questor combustion unit



# Emission Data



methane

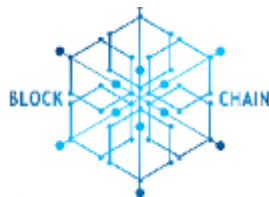
hydrogen sulfide

BTEX

VOC's

HAP's

Questor Clean Unit



Emissions Excellence Center  
Calgary, Canada



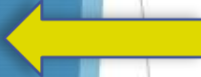
# Questor's Market Drivers




- **US EPA/State, Mexico and Canadian regulation focused on air quality and non-attainment zone emissions: Methane, HAP and VOC's**
- **Recognition of Questor's 99.99% combustion efficiency – advantage in meeting air quality emission regulations (VOC's) – resulting in incremental oil production**
- **Global Climate change focus; Methane is 84 x more potent than CO<sub>2</sub> – clean combustion reduces GHG emission 30 x – most cost effective way to reduce**
- **E&P C-suite compensation tied to emission reduction targets**
- **Investment \$\$ targeting low carbon emission industries – 100+ Investors managing over \$35 trillion**
- **Verification of compliance – Data**
- **Public protests – Greta Thunberg**

# Best Practices

5.6.1 Dominion is specifying a Questor brand flare/incinerator for all glycol dehydration plants, and must be included as the base proposal.



	Specification	Spec. No.	14
	For	Template Rev. No.	6
	Glycol Dehydration Unit	Rev. Date	03/01/2013

scenario. Sight glass connections and high/low level switch connection on the surge are to make maximum use of the height of the surge tank, with as much gap between switch levels as possible. Sight glass visible range must include the switch level to provide accurate setting and confirmation of the switches.

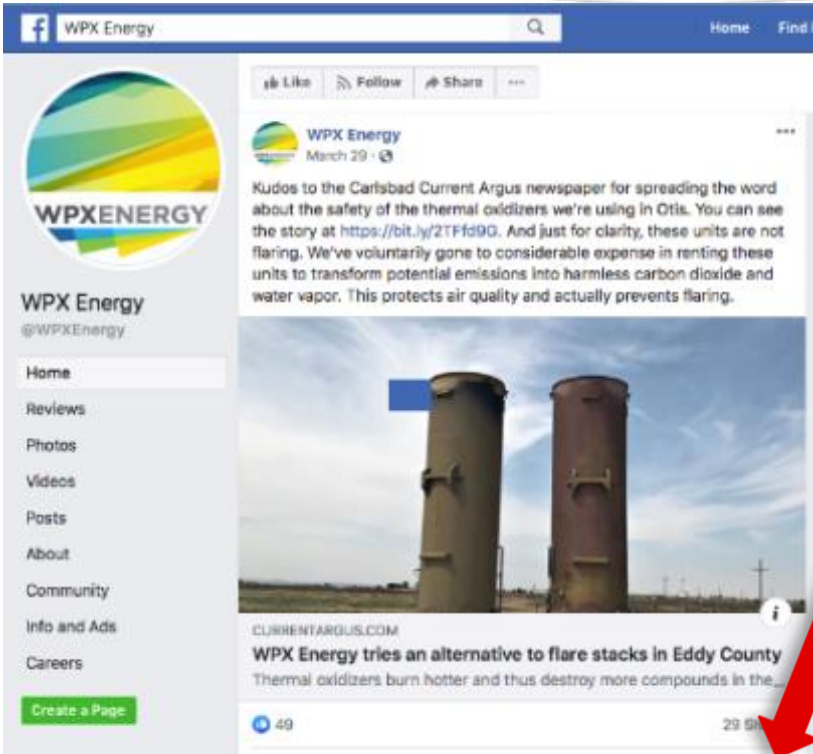
- 5.5.13 There shall be clean out and drain connections on both the reboiler and the surge tanks. For an in-line design which incorporates a weir, there will be one 12" nozzle on either side of and very close to the weir at or near the top, and a 12" drain at the opposite end of each compartment, preferably on the bottom of the head. For over-under designs, the reboiler shall have the top clean out at one end and with drain on opposite end; and the surge shall have the top clean out at approximately a 10:30 position with opposite end clean out, preferably on the bottom of the head. These connections are to be flanged with blinds.
- 5.5.14 TEG temperature in the reboiler shall be controlled by the PLC and shall not exceed 380 °F at maximum load.

## 5.6 FLARE / INCINERATOR

- 5.6.1 Dominion is specifying a Questor brand flare / incinerator for all glycol dehydration plants, and must be included as the base proposal. Alternatives may be considered.
- 5.6.2 The flare/incinerator shall, as a minimum, provide 90% destruction efficiency.
- 5.6.3 If a higher degree of vapor treatment is necessary, a thermal oxidizer may be necessary. Refer to Appendix 13.1 for specific requirements.
- 5.6.4 In the still column vent and ahead of the flare inlet shall be a vapor preheater to further minimize the condensation of water and distillate vapors. This preheater shall be positioned within the reboiler stack, shall be stainless steel, and will be field-insulated.
- 5.6.5 A flame arrestor shall be installed in the still outlet pipe ahead of the flare / incinerator and shall be in a vertical position. A relief valve shall be added at the reboiler to prevent overpressure of the reboiler should the flame arrestor become clogged.
- 5.6.6 Ahead of the flare / incinerator and the flame arrestor shall be a vessel or tank (commonly called a blowcase) to collect fluids that may condense under prestart conditions or upset conditions. This vessel shall permit automated pressurized blowing of captured liquids to Owner's remote liquids storage tank. Provide with proposal the anticipated operation logic for this blow tank. All level switches, manual valves, and solenoids for this are to be supplied by Vendor. Include in the outlet piping for this blowcase a quality soft-seat check valve ahead of a solenoid valve (to minimize the possibility of downstream pressure from getting back into the blowcase), ahead of the manual valve. Include with the blowcase an automated vent valve to relief residual

Filename: (In File Net)	Last Revised:	Page Number
14 Glycol Dehydration Unit spec. doc.	03/01/2013	10 of 35

# Social License



## WPX Energy tries an alternative to flare stacks in Eddy County

Adrian C Hedden, Carlsbad Current-Argus | Published 12:53 p.m. MT March 28, 2019 | Updated 1:01 p.m. MT March 28, 2019

### Some residents mistake facility for tank battery fire

Fire appeared to erupt at a flare stack in southern Eddy County, scaring motorists and nearby in the area. Many call 911, reaching volunteer fire services already strained for resources. **But the blaze wasn't a danger. It was a measure of safety.**

They're called thermal oxidizers, and could provide a safer, more efficient way to flare natural gas.



That's why WPX Energy installed the control measure in February at a facility in the community of Otis along Derrick Road between U.S. Highways 286 and 62/180. A pipeline the company planned for the area was delayed until the end of April, meaning natural gas drawn from the well had to be flared to maintain safe pressure levels at the site. But to a casual observer, vents at the bottom of the stack could reveal frightening, especially at night.

WPX spokesperson Kelly Swan said the visual is like "a giant hot water tank with a very large pilot light". It caused dozens of calls to the Eddy County Office of Emergency Management, and volunteer firefighters were sent out to address the concerns. Eddy County Emergency Manager Jennifer Arredariz said the Office takes all calls seriously. "It does look like it's on fire," she said. "At night, it looks like something is burning out there. We continue to get phone calls from passersby. We have to treat all calls like it's a fire."

### What is it?

Thermal oxidizers burn hotter and thus destroy more compounds in the gas before it is released into the air. A typical flare stack burns at about 800 degrees Fahrenheit, but the oxidizers heat up to 1,200 to 1,800 degrees, said JoDell Mizoue, WPX environmental manager. She said that higher heat allows for 99.9 percent combustion efficiency, burning off all the methane and only releasing carbon dioxide and water vapor. Flares usually burn at about 98 percent efficiency, she said. The flaring process is especially important, she said, as a safety measure to balance the pressure of a new well. "That additional 1 percent ensures that compounds like the methane are completely destroyed," Mizoue said. "They burn clean. There's no smoke. In ensuring that they burn much hotter." Such a control is especially helpful when wells are drilled near residential areas, she said.



They're meant to burn high volumes of gas — about 5,000 cubic feet per day compared to an average "flare" that can burn between 2,000 and 3,000, Mizoue said. **It's a safer and more efficient design, she said, ideal for a residential area.** "We are looking at more gas, especially as this is a new well," she said of the facility in Otis. "These units are enclosed because they are enclosed. It's not an open flame, but they tend to glow." Mizoue explained that doors at the bottom of the facility allow for air flow, but also make the flames visible albeit not as bright as a standard flare. "It's primarily because it's in a residential area," she said of the facility. "We had concerns. We didn't want that to rumble. We also had concerns with night light. (Thermal oxidizers) just make sure the mix is perfect and it's in a controlled environment."

WPX is renting the thermal oxidizers from Denver-based Questor until a pipeline connection to WPX's oil well in the area is complete. That was expected by the end of April, read a WPX news release. Unit that time, the equipment remained active at the well site, secured by barbed wire fencing to keep locals off the private property. To quell local anxiety in the meantime, WPX planned to erect signs in the area to inform motorists and others of the purpose and lack of threat posed by the facility. When the pipe is coming in, and had a gap in time," she said. "All that gas will be sold. We didn't want to burn the gas, but sometimes you have to and that was the way." Thermal oxidizers are an example of "market-driven" solutions, Mizoue said, to cut down on waste and increase revenue for oil and gas companies. "We try and do everything possible to minimize emissions," she said. "There's some situations where gas flows not big enough for a control device like this. In this case, it was great". She said the oxidizer in Otis was the first one used by WPX, its success would result in more appearing in the area.

"They're called thermal oxidizers, and could provide a safer, more efficient way to flare natural gas."

"A typical flare stack burns at about 800 degrees Fahrenheit, but the oxidizers heat up to 1,200 to 1,800 degrees, said JoDell Mizoue, WPX environmental manager. She said that higher heat allows for 99.9 percent combustion efficiency, burning off all the methane and only releasing carbon dioxide and water vapor."

"It's a safer and more efficient design, she said, ideal for a residential area."

## **COST REDUCTION FOR CLIENTS**



## **PUBLIC CONFIDENCE**



## **QUESTOR SOLUTIONS AND TECHNOLOGY INC**

**Audrey Mascarenhas**  
President and CEO

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## **ENVIRONMENTAL PROTECTION**

