# PATHWAYS TO ZERO

Solutions to Eliminate Natural Gas Flaring and Venting



## NDPC Annual Meeting

© ECOVAPOR RECOVERY SYSTEMS September 2021

## ACHIEVING NET-ZERO IS AN URGENT CHALLENGE



# Access to reliable and affordable energy is vital, and our industry is critical to meeting these demands, but we can do better, and will continue to face rising pressure to reduce emissions



"Zero Routine Flaring by 2030" Initiative

44 oil and gas companies are endorsers and more are signing-on.



### Greater Transparency

API issued new framework for tracking, emissions, including flared natural gas, to increase transparency.

## **\$EPA**

## More Methane Regulations

White House Executive Order "...proposing new regulations...on emission guidelines for methane and volatile organic compound emissions from existing operations in the oil and gas sector..."



### States Increasing Gas Capture Rules

Colorado, New Mexico and North Dakota have implemented regulations restricting flaring, venting and emissions and/or creating compelling tax incentives for reducing flaring and emissions.

#### **BlackRock** Capital Investment Corporation<sup>TC</sup> Wall Street Demanding Better ESG Performance

World's largest money manager with \$8 trillion requiring portfolio companies to disclose direct emissions from operations and from energy they buy.



### North Dakota

-SB 2328 provides tax relief for flare mitigation -91% capture requirement (95% on federal lands) -ND legislature funding further development of emission reduction technologies via 3 state agencies-

## OUR MISSION – GOAL ZERO





### SITE ASSESSMENT

#### Quantification of:

- Tank Venting
- Emission Volumes
- Contaminant Levels (O<sub>2</sub>, H<sub>2</sub>S)

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### **GAS PURIFICATION**

Deliver pipeline-ready gas using:

- **Zer0**<sub>2</sub> Patented oxygen removal solutions
- **Sulfur Sentinel** Simple, economic H<sub>2</sub>S removal

#### **VAPOR MANAGEMENT**

- Tank Commander Tank pressure control
- Make up Gas and Blower solutions
- Vapor flow metering and control
- O<sub>2</sub> and H<sub>2</sub>S metering

## CAUSES OF ROUTINE FLARING AND VENTING





## OUR ENVIRONMENTAL PERFORMANCE SOLUTIONS



### **Gas Purification Solutions**

ZERO2 EMISSIONS REDUCTION SYSTEM



- 100% tank vapor capture to meet pipeline spec eliminates routine flaring
- ✓ No moving parts means high reliability and uptime
- ✓ Improved safety profile from lower tank pressures
- ✓ Reduced operational complexity (no VRT)
- Generates incremental profit by recovering and selling BTU-rich tank vapor gas
- ✓ Proven with 120+ units in the field
- ✓ Simplified permitting with lower PTE
- Capture applicable tax credits and boost free cash flow

## SULFUR SENTINEL

#### H<sub>2</sub>S TREATMENT SYSTEM



- ✓ Efficiently treats the specific H₂S concentration present
- ✓ Uses solid, iron-oxide-based catalyst
- ✓ No liquids handling or disposal
- No additional equipment (e.g., spent media separator)
- ✓ No downstream corrosion, scaling, or fouling
- Cost effective compared to other treating methods
- $\checkmark$  Full service and support provided by EcoVapor

## HANDLING THE WELLSITE LIFE CYCLE



## **Economic Solutions for Every Stage – Maximize ROI and Emissions Reduction**

Our leasing model with rapid, straightforward unit replacement allows the ZerO<sub>2</sub> system to be right-sized as wellsite vapor production declines.



Cumulative 21k tons of CO<sub>2</sub>e prevented equates to saving at least \$63k in carbon credit offset purchases

## CASE STUDY: BEFORE ZERO<sub>2</sub>





#### **EXAMPLE DATA / BEFORE**

Liquids Production	1,090	boe/d		
Separator Pressure	50	psig		
Gas Production	137	mscf/d		
VRT Vapor Quality	2,104	BTU/scf		
Flare Activity	Continu	ous		
VOC, NO <sub>X</sub> , GHG Emissions	At perm	At permitted limit		
Pipeline Gas Spec	Only me	et by flaring vapor		

## CASE STUDY: AFTER ZERO<sub>2</sub>





### **EXAMPLE DATA / BEFORE**

Liquids Production	1,090	boe/d	
Separator Pressure	50	psig	
Gas Production	137	mscf/d	
VRT Vapor Quality	2,104	BTU/scf	
Flare Activity	Continuous		
VOC, NO <sub>X</sub> , GHG Emissions	At permitted limit		
Pipeline Gas Spec	Only met by flaring vapor		

#### **EXAMPLE DATA / AFTER**

Liquids Production	1,125	boe/d	<b>1</b> 35
Separator Pressure	50	psig	
Gas Production	188	mscf/d	<b>1</b> 51
VRT Vapor Quality	2,665	BTU/scf	<b>127%</b>
Flare Activity	Emergency only		
VOC, NO <sub>X</sub> , GHG Emissions	Below permitted limit		
Pipeline Gas Spec	Met without flaring		

## CASE STUDY: PROFITABLY ELIMINATE ROUTINE FLARING





#### **EXAMPLE DATA / BEFORE**

Liquids Production	1,090	boe/d		
Separator Pressure	50	psig		
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## WHY LEADERS CHOOSE ECOVAPOR



### Achieve Net Zero with EcoVapor



### **Eliminate Routine Flaring and Venting**

- Purify gas for sales line
- Improved safety profile

### **Achieve ESG Goals**

- Reduce emissions
- Improve sustainability

### **Boost Economic Returns**

- Recover and sell BTU-rich vapor
- Capture applicable tax incentives
- Increase Free Cash Flow

### **Transition to Net-Zero**

- Lighten the impact of industry on the environment
- Strengthen social license to operate





### Why Nodak Oilfield Services is qualified to implement innovative solutions to the Bakken:

- Established Reputation in the Industry
- Rapport and Trust Among Producers
- Safety, Integrity and Company Values
- Progressive Solutions to Oilfield Challenges
- Providing Services to the Bakken Since 2010

"We are excited about partnering with EcoVapor, and to take a progressive approach to the industry by offering their innovative environmental performance solutions to the Bakken. Operators are looking for new approaches that not only reduce flaring and emissions, but also generate more oil and gas revenue."

-- Clint Hacker, CEO, Nodak Oilfield Services





## **#ZeroFlares**

## **#CarbonNeutral**

www.nodakoilfieldservices.com

# WE'RE PASSIONATE ABOUT ZERO

Thank you!

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www.ecovaporrs.com