

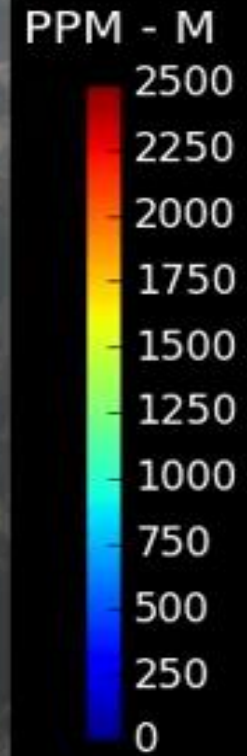


REBELLION  
P H O T O N I C S





## Rebellion Photonics, Methane (1.0km)



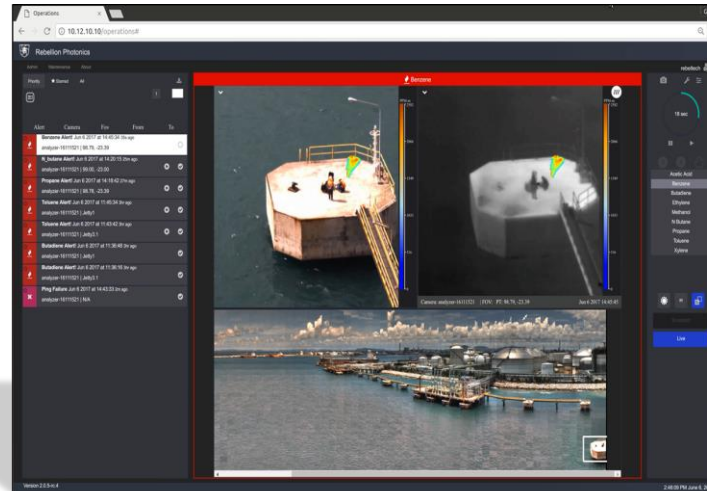
2016-12-30 13:01:57.55



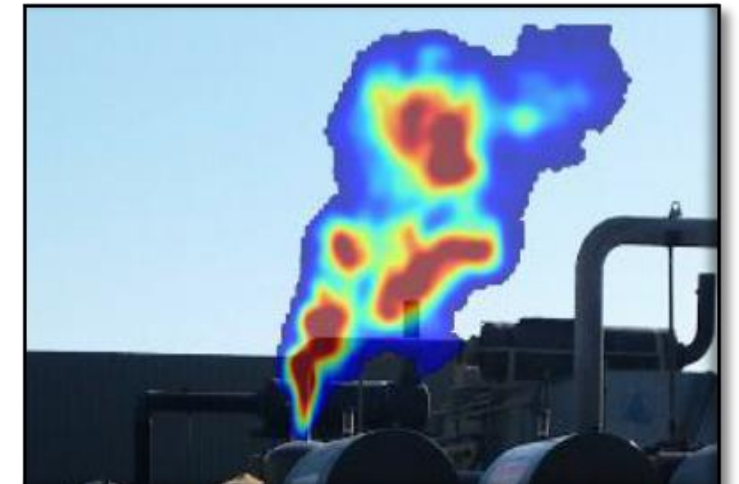
*“Rebellion is a platform provider of intelligent, automated, visual monitoring solutions that makes sites safer, greener, and more profitable.”*



UNIQUE LEAK DETECTION  
HARDWARE



ALARM MANAGEMENT  
SOFTWARE INTERFACE



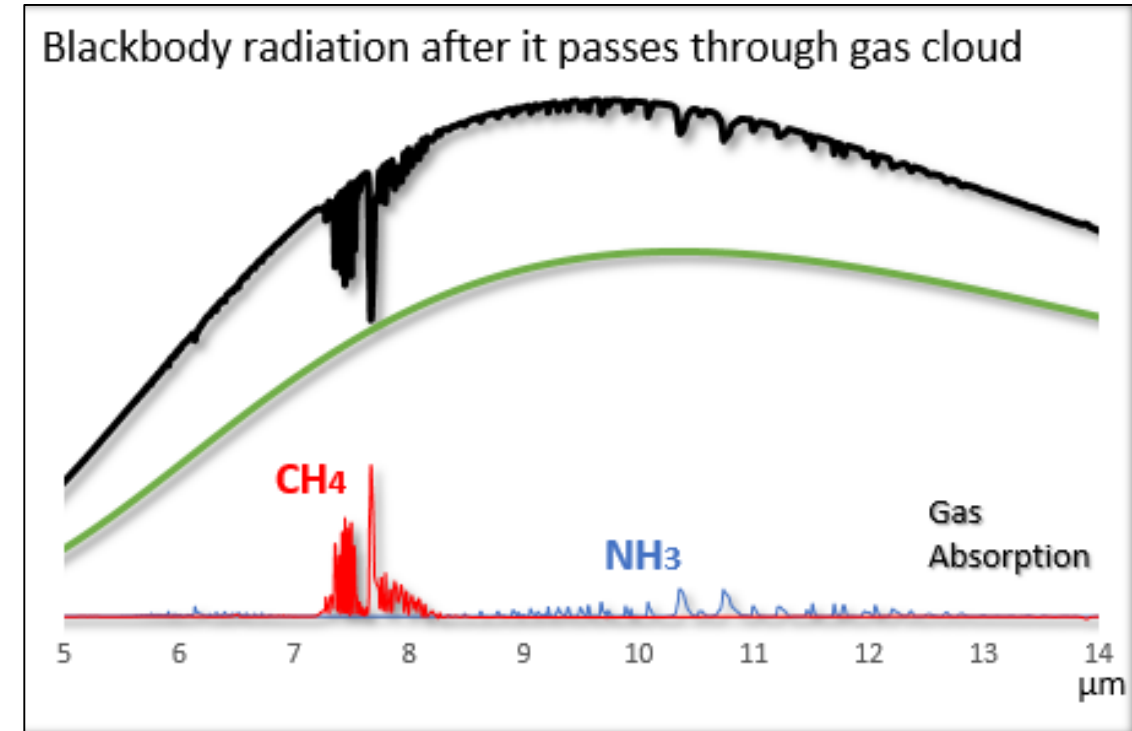
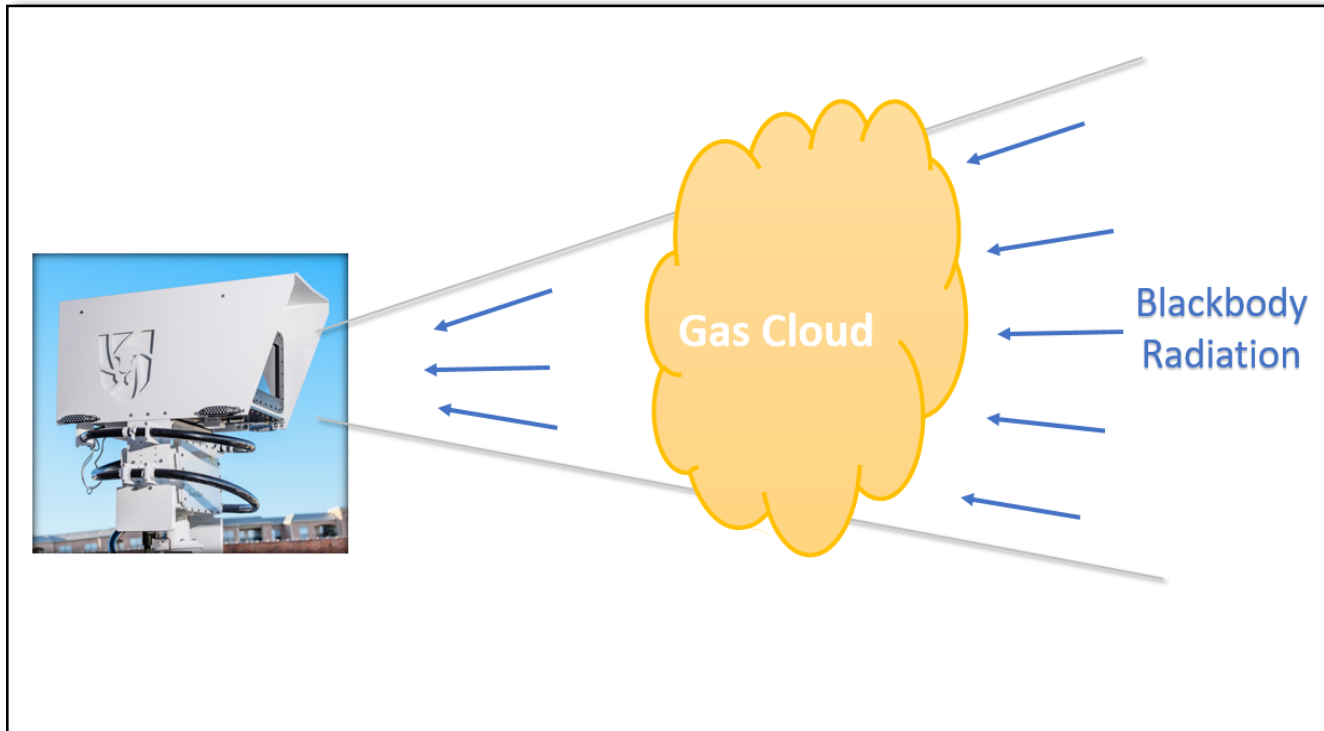
PHYSICS ENHANCED AI REAL-TIME  
LEARNING (PEARL®) ANALYTICS

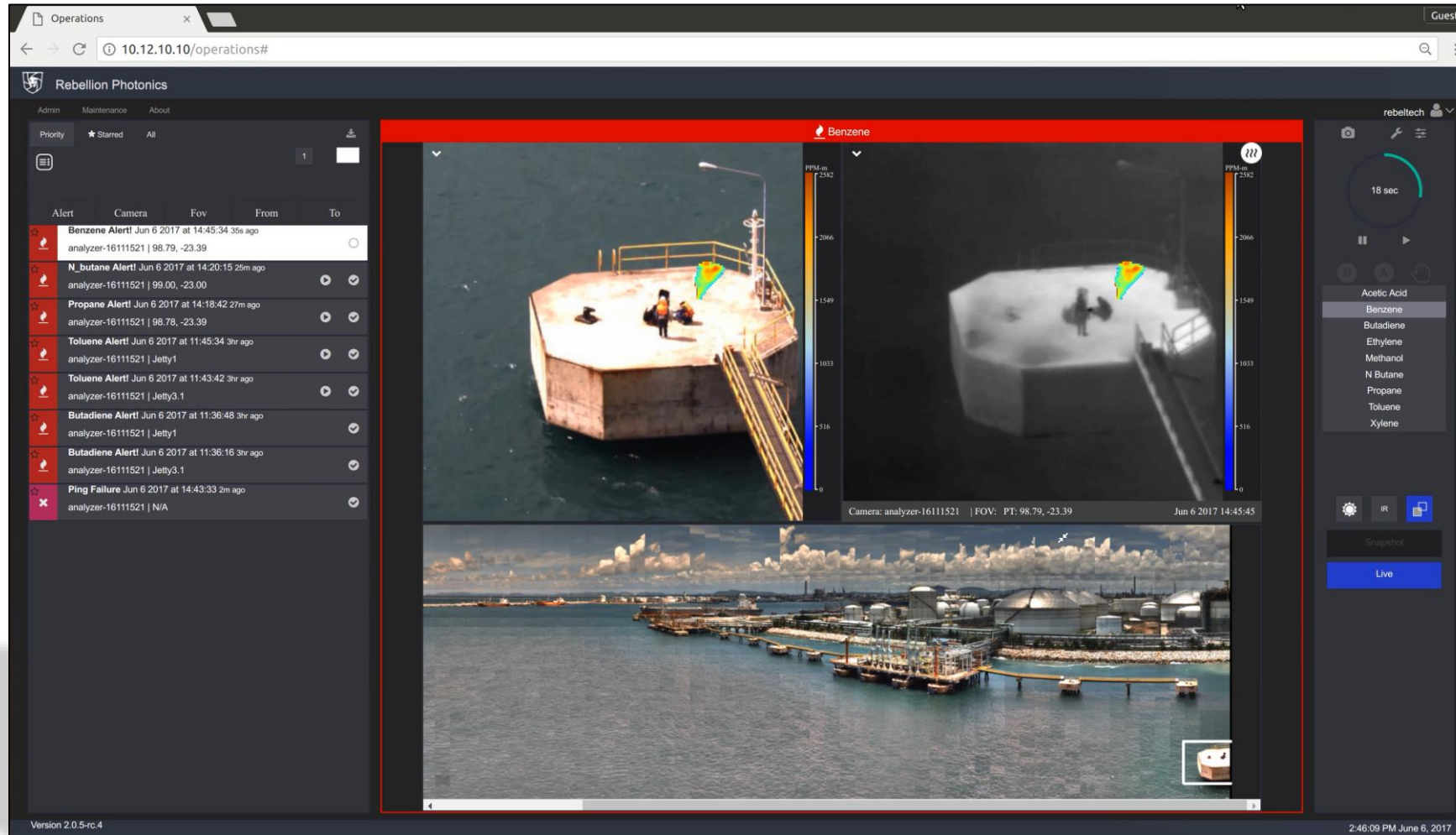


*STANDARD GCI*



*MINI GCI*





Fully autonomous | 24/7 operation | No humans needed to monitor





Gasoline Leak



Ethane Leak





# A Single Device.



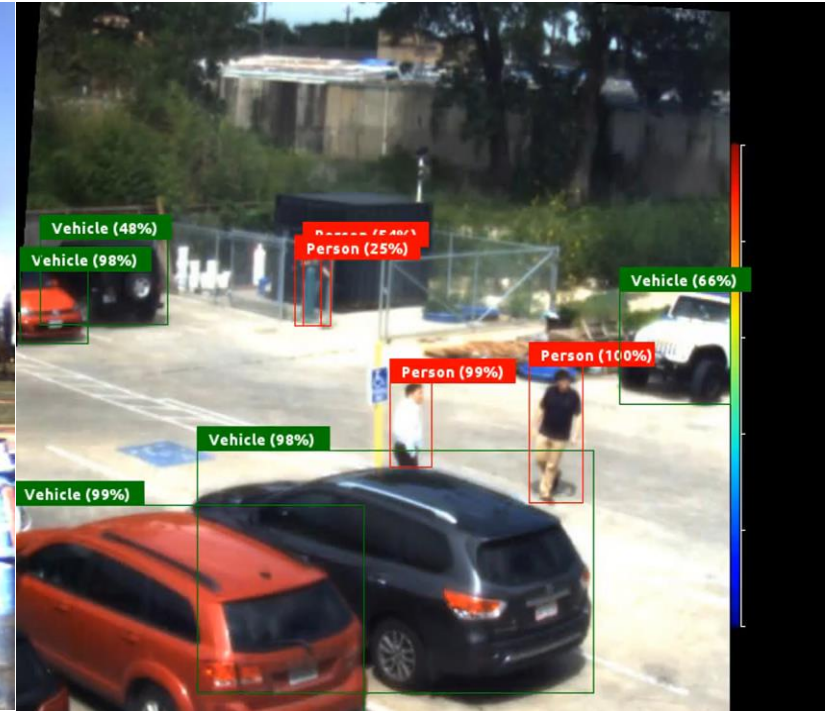
Gas Leaks

[ Methane, 25+ Hydrocarbons ]



Fire

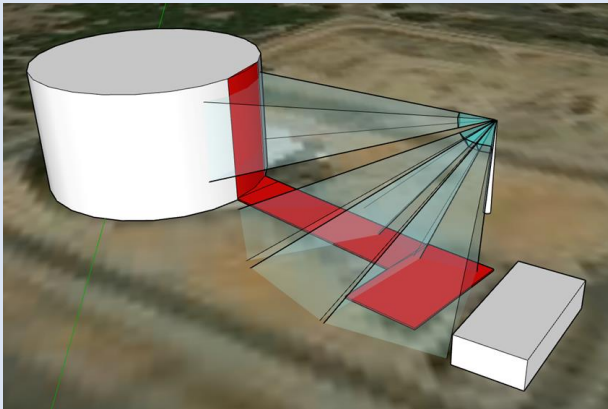
[ Heptane ]



Intrusion

[ People, Vehicles, Ships ]

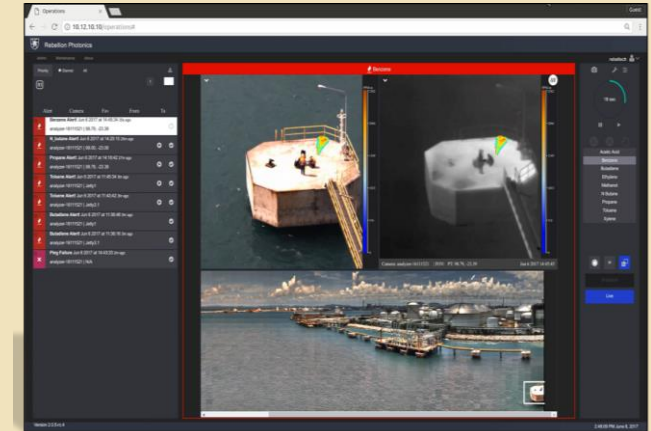
## PLANNING



## INSTALLATION

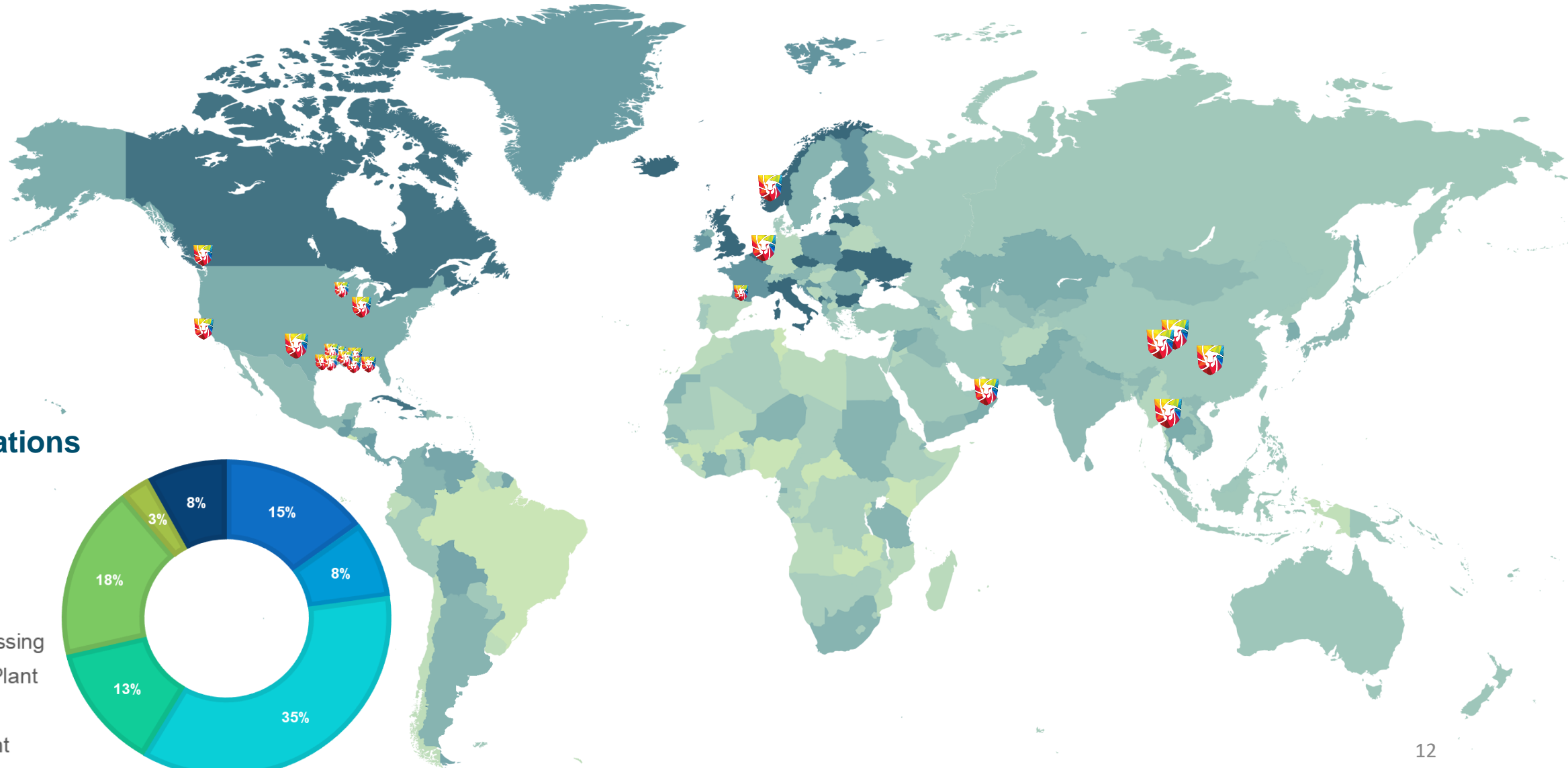


## SUPPORT



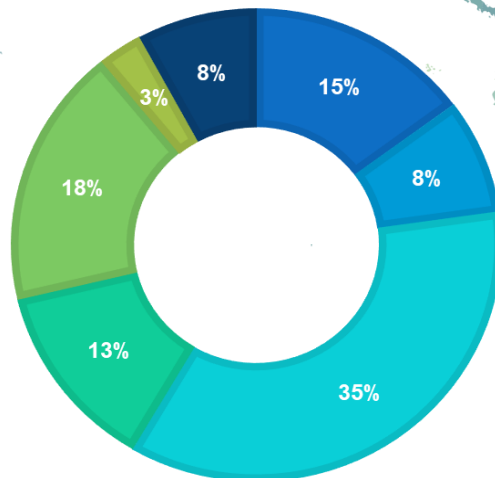






## Applications

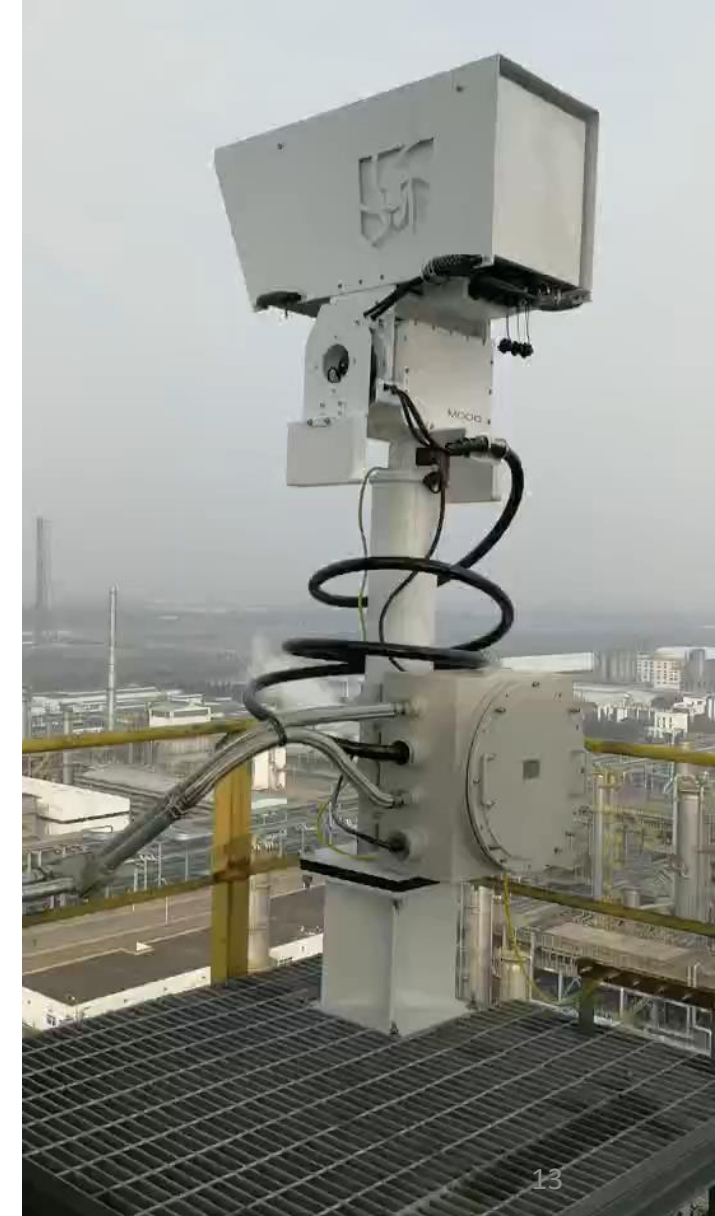
- Refinery
- Tank Farm
- Pipeline
- Gas Processing
- Chemical Plant
- Terminal
- Power Plant



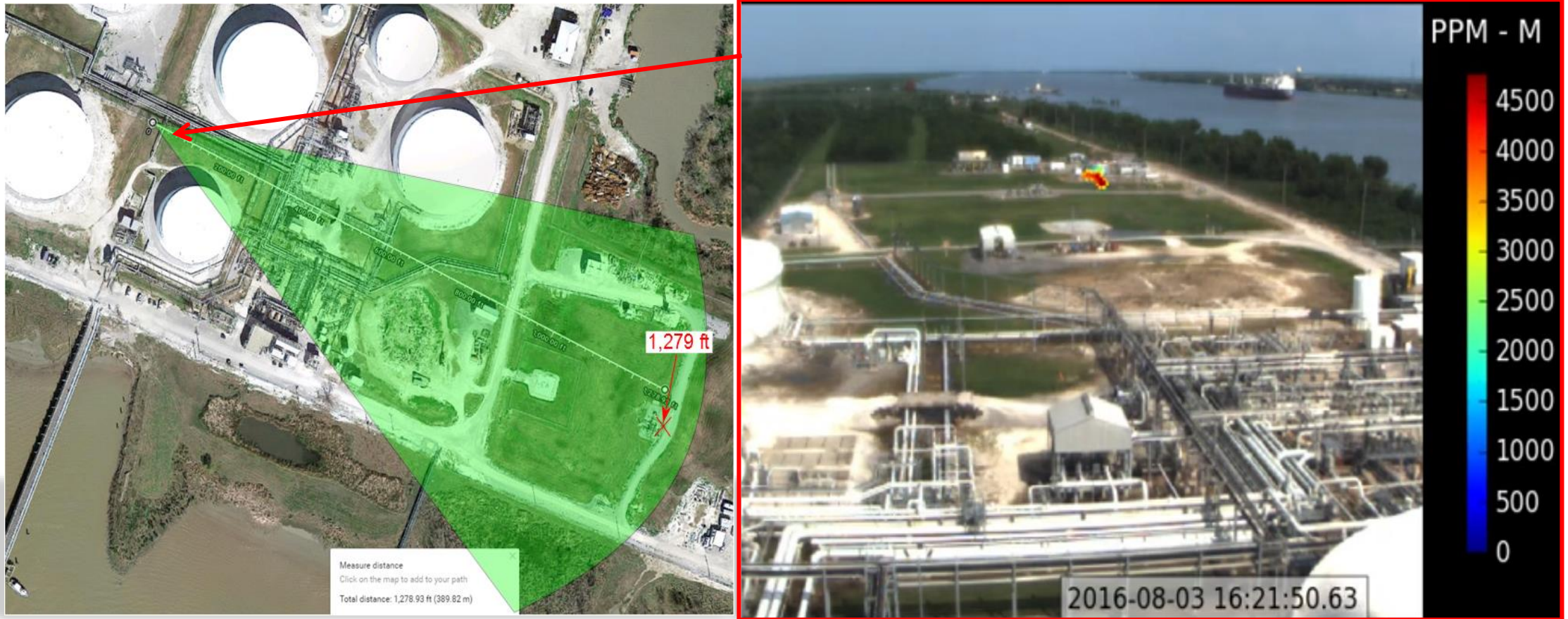




- Two (2) GCI systems providing 24/7 monitoring of entire refinery
- Monitoring for 6 different gases simultaneously
- Capable of alerting to any leak within 2 minutes in a very complex environment
- During commissioning we found two leaks at site that were fixed immediately.



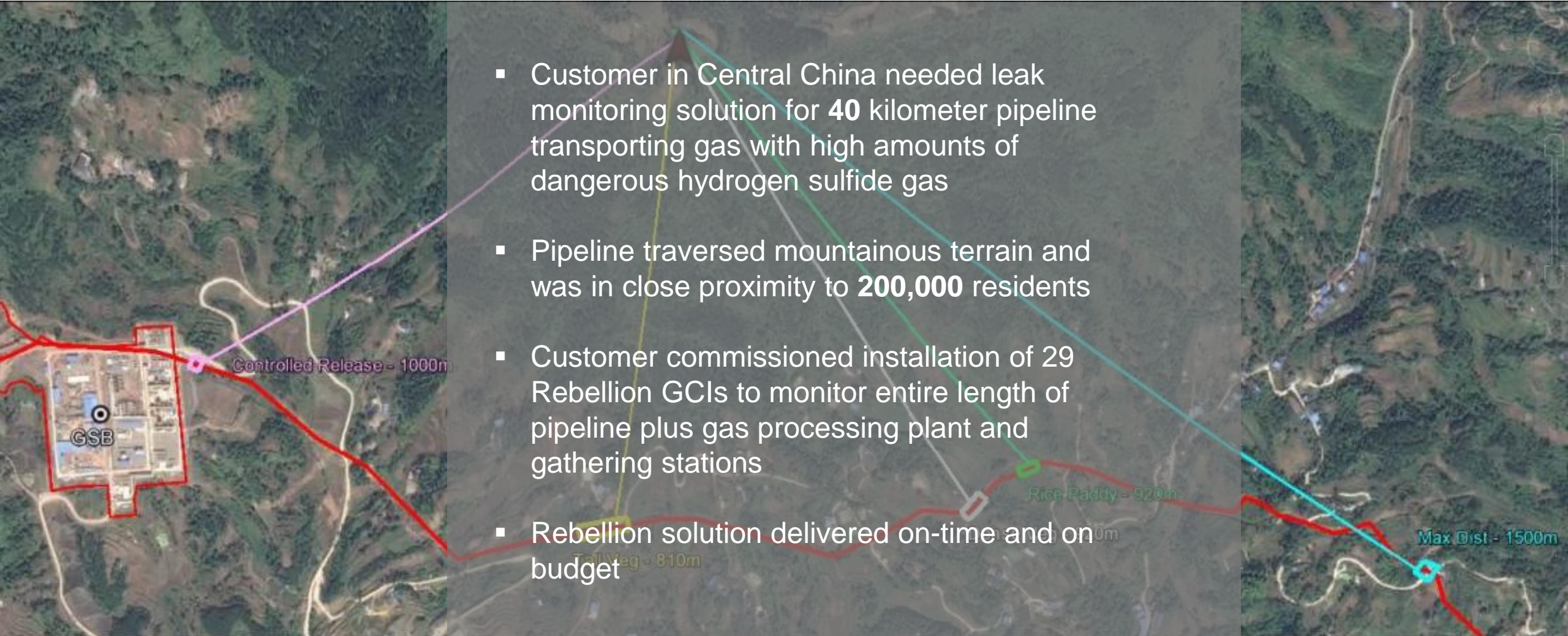




1 GCI System Monitors Entire Facility

Saved Customer \$2M Over Other Gas Monitoring Options!





- Customer in Central China needed leak monitoring solution for **40** kilometer pipeline transporting gas with high amounts of dangerous hydrogen sulfide gas
- Pipeline traversed mountainous terrain and was in close proximity to **200,000** residents
- Customer commissioned installation of 29 Rebellion GCIs to monitor entire length of pipeline plus gas processing plant and gathering stations
- Rebellion solution delivered on-time and on budget





TANK FARMS



CHEMICAL PLANTS



GAS PROCESSING PLANTS



POWER PLANTS



REFINERIES



DRILLING & WELL SITES



LNG FACILITIES



PORTS



OFFSHORE PRODUCTION FACILITIES





## Royal Dutch Shell ties executive pay to carbon reduction

3 December 2018 | 65



Share

SUSTAINABLE BUSINESS FEBRUARY 7, 2019 / 9:38 AM / A MONTH AGO



## Chevron ties executive pay to methane and flaring reduction targets



Jennifer Hiller

3 MIN READ



## ExxonMobil agrees to join oil and gas climate change alliance



### Oil and Gas Climate Initiative sets first collective methane target for member companies

OGCI News • September 24, 2018

OGCI companies set a target to reduce by 2025 the collective average methane intensity of aggregated upstream oil and gas operations.



Markets Tech Media Success Perspectives Video

U.S. Edition

## BP will link bonuses for 36,000 workers to climate targets



By Ivana Kottasová, CNN Business

Updated 4:48 AM ET, Fri February 1, 2019

# [ *Rebellion is strategically aligned with its customers* ]

- ❖ **Reducing** methane and other GHG emissions
- ❖ **Reducing** cost – Capex and Opex
- ❖ **Reducing** human exposure to toxic and dangerous gases





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