

A New Technology for Flare Mitigation

Crusoe Energy Systems Inc.



A Digital Flare Mitigation Solution



A NEW TECHNOLOGY IS AVAILABLE TO CONVERT WASTED NATURAL GAS INTO COMPUTING

- ❖ Crusoe converts “stranded” natural gas into electricity for energy-intensive computing on the well site
- ❖ Digital Flare Mitigation (DFM) solves critical regulatory challenges for oil and gas companies by achieving beneficial use and reducing emissions

Crusoe’s Objective: help operators maintain and increase oil production by solving the regulatory and environmental challenges of associated gas



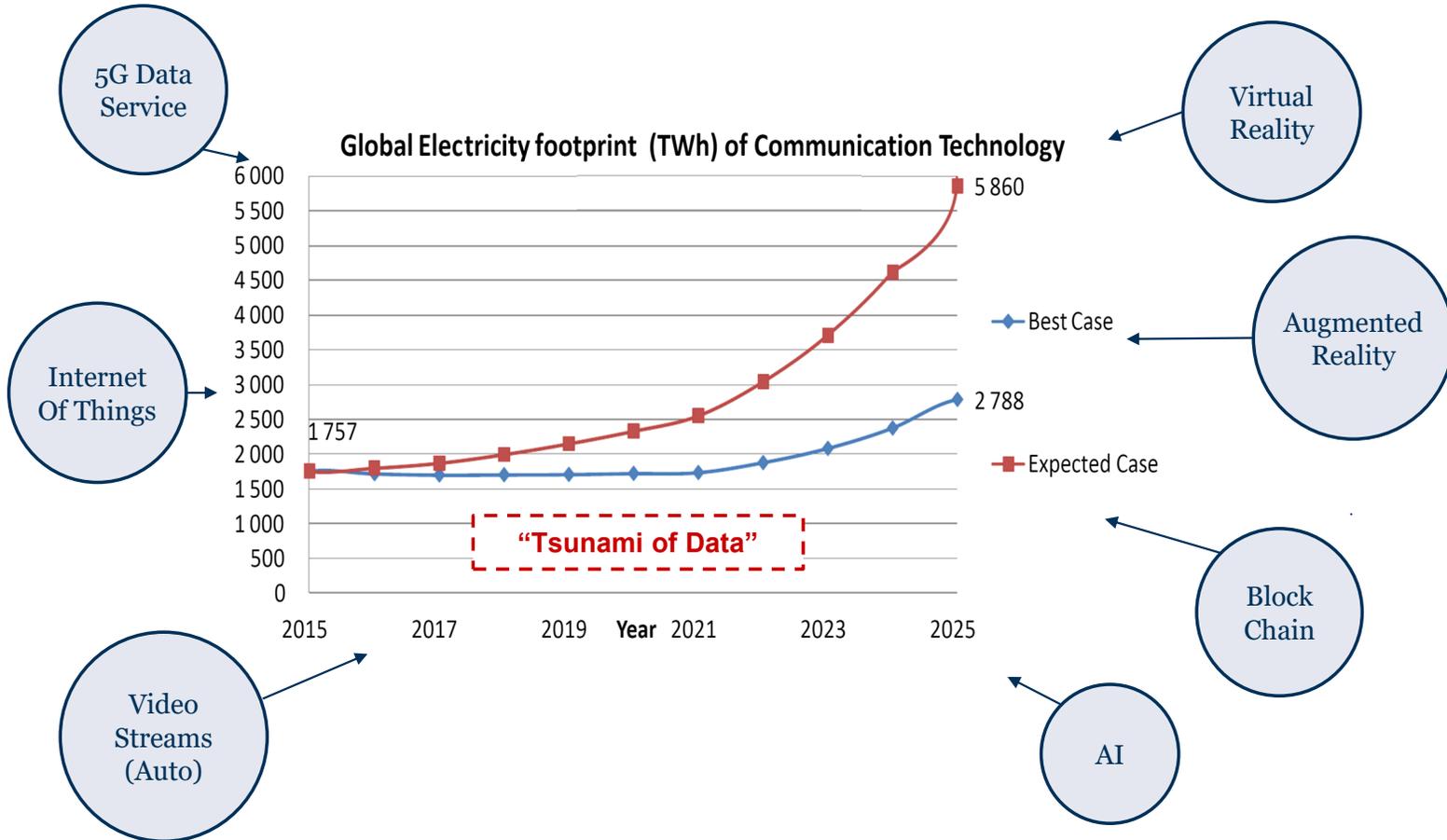
Why Digital Flare Mitigation?

- ✓ DFM is the most cost-effective solution in flare mitigation
- ✓ Modular design allows for rapid turnkey deployment and mobilization
- ✓ Highly scalable from 70 mscfd to multiple mmscfd
- ✓ High reliability with few failure points

Energy Intensive Computing

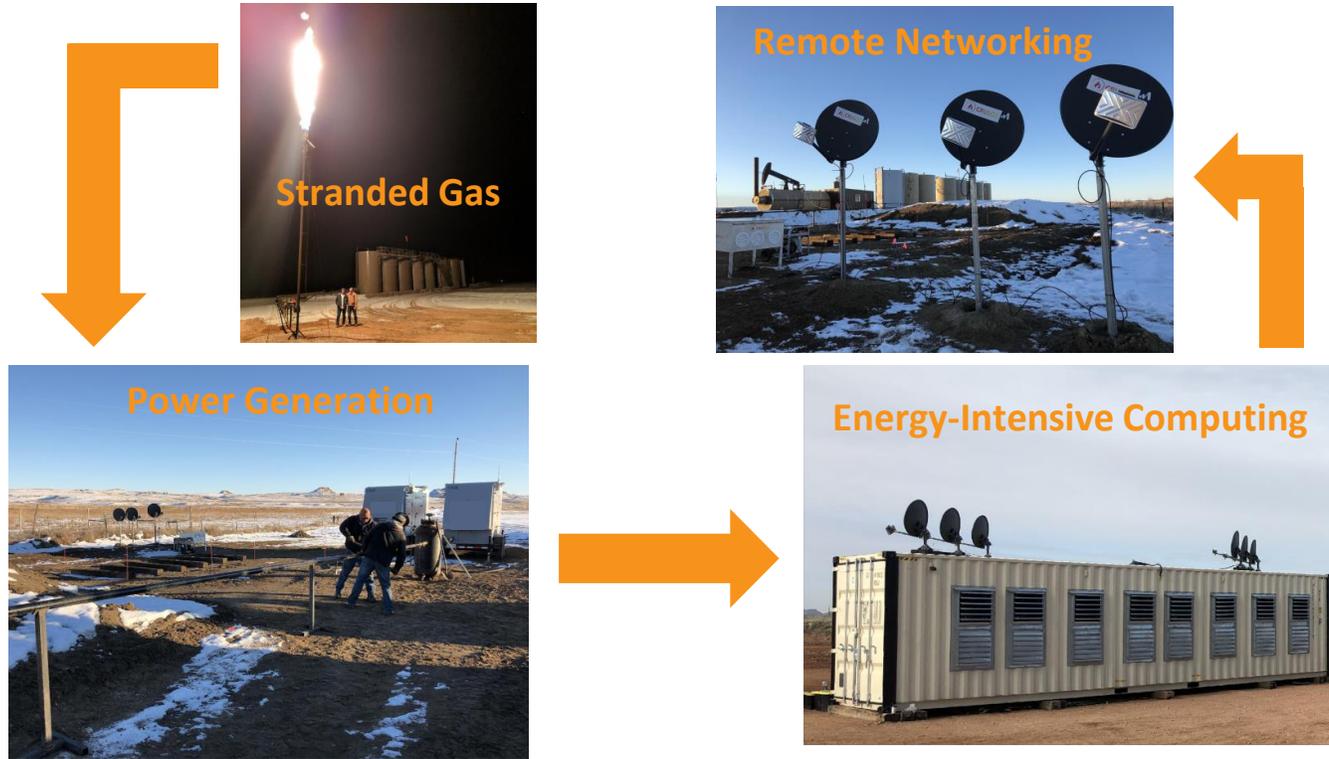


RAPID GROWTH IN DATA NEEDS



Digital Flare Mitigation

COMPONENTS OF A DIGITAL FLARE MITIGATION SYSTEM



- ❖ The Digital Flare Mitigation System is a mobile and modular assembly of power generation, computing and remote telecommunications systems optimized specifically for stranded gas resources
- ❖ Designed for portability, rapid commissioning, rugged oilfield conditions and modular scalability

Easy Integration, Compact Footprint



DEPLOYMENTS COMPLETED IN AS FEW AS 4 DAYS



**Step 1:
Connection Point**

Operator provides simple manifold and valve to existing gas line

Typically, manifold directly onto line leading to flare

1-2 Days

**Step 2:
Generator**

Crusoe provides generator system, delivered on portable trailer or skid

1 Day

**Step 3:
Compute Module**

Computing modules delivered by truck

Satellite antennae installed and aligned after delivery

1-5 Days

**Step 4:
Startup**

Computers connected to generator

Generator start up

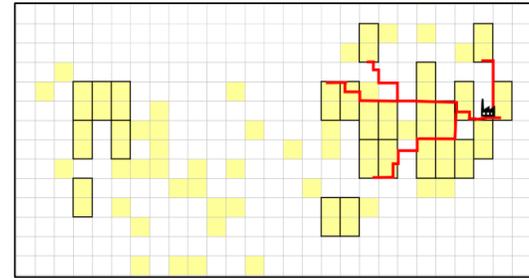
Flare becomes back-up gas plan

1 Day

Digital Flare Mitigation Use Cases



ACHIEVE REGULATORY COMPLIANCE WITHOUT MIDSTREAM INFRASTRUCTURE



Existing Flared Gas

Superior gas-capture alternative for producing wells that are currently being flared

USE CASES

- ✓ Producing wells without midstream infrastructure
- ✓ Delayed pipeline arrival
- ✓ Extended gas plant downtime
- ✓ Pipeline capacity challenges
- ✓ Joint Power Generation

Development Flexibility

Gas offtake plan for future wells to be drilled outside existing infrastructure

USE CASES

- ✓ Drilling exploratory step-out wells ahead of pipeline build
- ✓ Satisfy expiring leases outside of existing infrastructure service areas
- ✓ Delineate acreage prior to formal midstream agreement, avoid minimum drilling commitments

Case 1: ROW Issues

SOLUTION FOR GAS ON LONG-TERM STRANDED ACREAGE

ROW Issues can leave wells without access to a market for associated gas

Topography

Badlands and other natural features have caused midstream challenges for years



Severe topography has no impact on DFMS effectiveness

Surface Owner Challenges

Inability to get Right-of-Way agreement executed by Surface Owner(s)



DFMS operates under existing Surface Use Agreement and does not typically require additional approvals

Digital Flare Mitigation Systems:

- Remove the need to build out physical infrastructure
- Provide beneficial use for gas outside traditional markets

Case 2: Offload Capacity

PRODUCING OIL WITH TAKEAWAY ISSUES

Decreases in offload capacity can leave a well without gas takeaway for extended periods of time

Extended Gas Processing Plant Downtime

Interruptible Gas Contracts

Compressor Station Issues

Downstream Capacity Issues



Digital Flare Mitigation Systems:

- Allows operator to continue oil production while addressing regulatory requirements
- Decouples well's run-time from downstream performance

Case 3: Exploration Wells & Delineation



GAIN COMFORT IN DRILLING WELLS AHEAD OF INFRASTRUCTURE



Digital Flare Mitigation Systems:

- Facilitates regulatory compliance while evaluating performance of exploration wells
- Allows operator to continue to delineate acreage position before agreeing to midstream contract with minimum volume commitments
- Easy mobilization allow DFM to act as stop-gap prior to arrival of pipeline

Case 4: Midstream Partnership

BRIDGE SOLUTION FOR MIDSTREAM PROVIDERS



Digital Flare Mitigation Systems:

- Gas-capture tool for midstream partners prior to build-out completion
- Improve midstream economics by deferring capital expenditures until production levels warrant pipeline construction
- Stop-gap solution allows midstream partners to propose more competitive deal terms which delay implementation of minimum volume commitments

Joint Power Generation



OPTIMIZE ON-SITE POWER GENERATION CAPACITY

Crusoe as Power Provider

Purchase electricity directly from Crusoe by the kWh at a fraction of the cost of renting generators directly

- ✓ *Crusoe utilizes large volumes of stranded gas to power turbine generator, 1MMcfd+*
- ✓ *Operator pays only for electricity used to run ESPs or other well site needs by the kWh*
- ✓ *Remainder of power utilized for energy-intensive computing*

Excess Power Gen Capacity

Monetize consistently underutilized excess power generation capacity by selling electricity to Crusoe on the well site

- ✓ *Large turbine generators like ones used for electric frac fleets consistently underutilize generation capacity*
- ✓ *Crusoe's trailer-mounted compute modules follow turbines and pay by the kWh*
- ✓ *Operator monetizes spare capacity while maintaining stable load regime*



Crusoe's Background



OIL & GAS INDUSTRY OPERATIONS TEAM

✓ Operating since 2018

- Digital Flare Mitigation Systems operating in Powder River Basin (WY), Williston Basin (ND) and DJ Basin (CO)
- Ongoing simultaneous multi-basin operations

✓ Excellent safety record: zero injuries to date

✓ Approved MSAs with multiple publicly traded oil and gas companies

- PEC and ISN third party verification of safety procedures and training policies

✓ Crusoe consults with leading regulatory, permitting and public relations firms to ensure positive stakeholder management

✓ Operations & business development teams assembled from high-quality E&P and service companies:

THE CRUSOE TEAM

❖ Chase Lochmiller, CEO

- Technology and cloud computing background

❖ Cully Cavness, President

- E&P, midstream and power generation finance background

❖ Ken Parker, VP Facilities Engineering, Operations & Safety Manager

- Lifetime safety record: EMR of 0.2 vs. industry average of ~0.6-2.0
- 25 years of operational experience domestically and internationally

❖ Andrew Likens, VP Business Development

- Former Land Manager, facilitated several multi-rig development programs

❖ Nick Corredor, Field Operations Manager

- Field operational leadership roles within oilfield service companies

PIONEER
NATURAL RESOURCES



BG GROUP



Key Points



TECHNOLOGY FEATURES

✓ Facilitates flare mitigation and regulatory compliance

- Achieves a bona fide beneficial use and 3rd party gas offtake plan
- Reduces flaring, waste and emissions of NO_x, SO_x and VOCs (smog precursors)

✓ No lengthy land acquisition, right-of-way negotiation or pipeline permitting process

✓ Modular, easily mobilized and scalable to match available gas resource

- 70 mcfpd up to multiple mmcfpd, can add or subtract modules as gas resource changes over time

✓ Fast to implement

- Commissioned in days once components arrive on-site
- System delivery lead time of several weeks to several months dependent on gas volumes

✓ No minimum drilling commitments or onerous volume guarantees

✓ Fully interruptible

Appendix

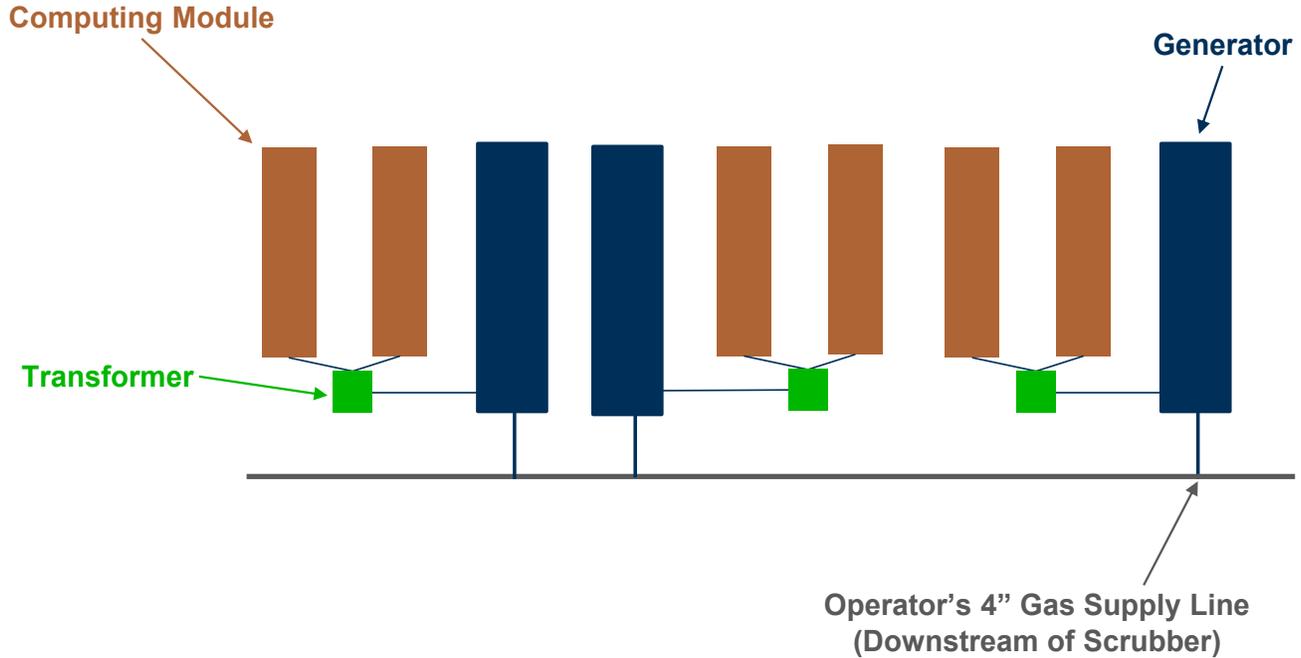
Crusoe Energy Systems Inc.
September, 2019



Site Diagram w/ Skid Generators



600 MCFD LAYOUT ILLUSTRATION



Easy Integration, Compact Footprint

