PUREWEST
Essential Energy. Responsibly Produced.

CleanConnect.ai
Seeing is Believing

BR&E
Bryan Research & Engineering, LLC
Chemical Engineering Consultants

PROMAX FOR NON-ENGINEERS

- Recognized by state and federal regulators in the oil & gas sector
- Widely used by upstream and midstream oil & gas operators for permitting
- Trusted by buyers and sellers of LNG

JUNE 27, 2024
1:00 PM CST

Kelly Bott, *Guest Host*
Senior Vice President, Corporate Affairs
PureWest Energy

Jason Oates, *Guest Host*
Vice President, Sustainability
PureWest Energy

Diego Morales, *Co-host*
Consulting Engineer
Bryan Research & Engineering

Mark Houston Smith, *Host*
Co-founder & President
CleanConnect.ai

You're in the right place to discover..

- PureWest Energy's journey to empirical measurement using *ProMax*
- The Top 7 Benefits of Using *ProMax*
- How to Transition to Empirical Subpart W using *ProMax*
- Why natgas buyers are willing to pay a premium for emissions data validated with *ProMax*

Your webinar hosts

Kelly Bott

Senior Vice President,

Corporate Affairs

PUREWEST
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Jason Oates

VP, Environmental & Regulatory

PUREWEST
Essential Energy. Responsibly Produced.

Diego Morales

Consulting Engineer, ProMax / BRE

BR&E

Mark Houston Smith

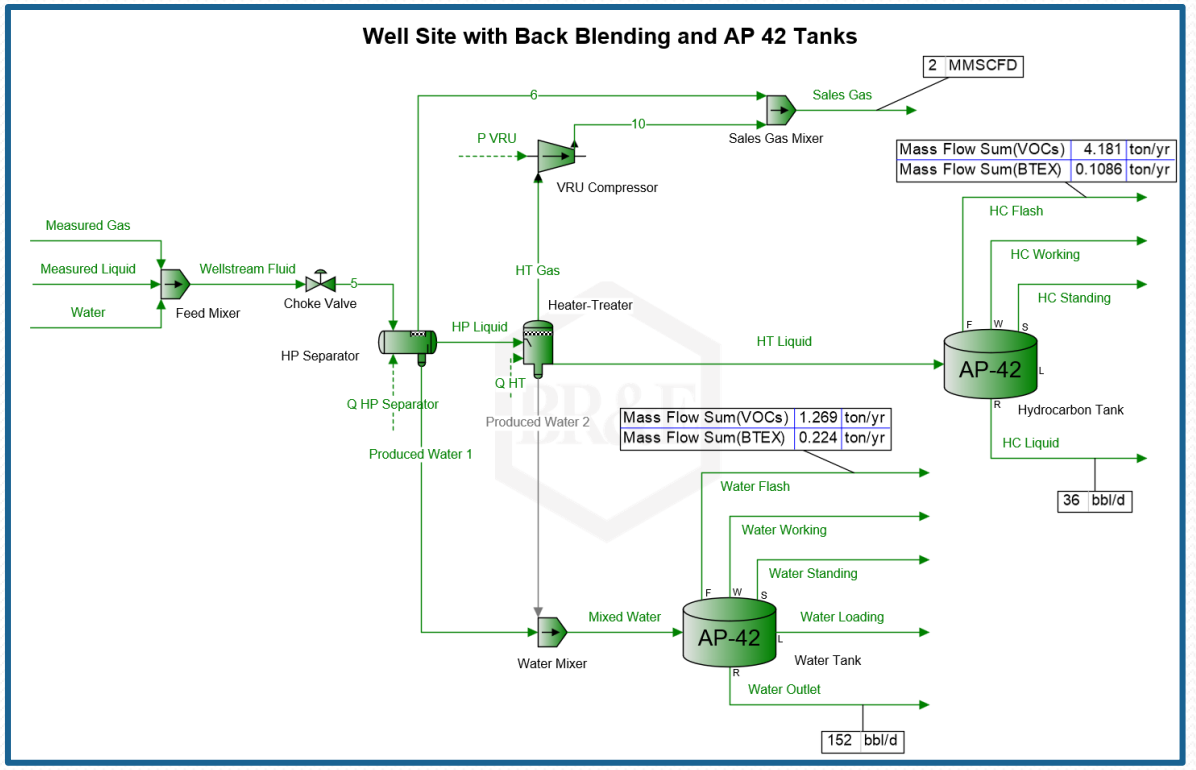
Co-founder

MODERATOR

CleanConnect.ai
Visual Automation

What is ProMax?

- Process simulator – a software for designing/optimizing processing facilities and performing engineering calculations



What does ProMax do?

- Takes readily available data like samples and operating conditions to perform calculations for important decisions
- Can calculate emissions from a facility, figure out leak compositions, help engineers minimize emissions by changing operations, and more
- All of this is done in a time efficient, highly accurate manner not possible with simpler methods

7 Ways PureWest is Using ProMax 6

1. **Greenfield site design**
2. **Brownfield site upgrades**
3. Real-time operations performance monitoring
4. Real-time emissions inventory (i.e. empirical Subpart W)
5. Site/source level reconciliation (OGMP 2.0, MMRV)
6. WEC Fee calculations
7. Sell ISO 14067-certified tokenized emissions commodities for a profit (requires MMRV-level emissions inventory)

Vision and Mission

PureWest is a mission driven organization

Vision

To be the most responsible and profitable Rockies-focused natural gas company

Mission

To advance modern life by producing natural gas in a safe, environmentally-responsible, and cost-conscious manner

PureWest Gas Marketing Overview

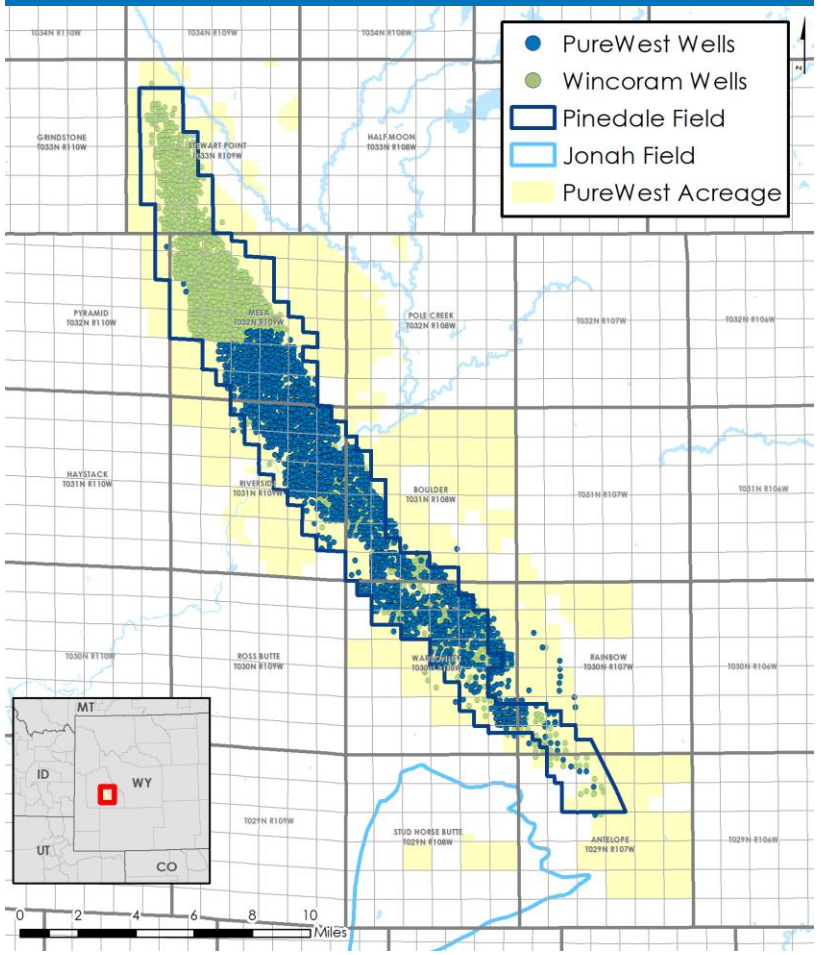
Clean, large-scale, low decline natural gas production with broad pipeline connectivity

PRODUCTION & RESERVES	Feb'24 marketed gas production	613 bbtu/d
	PDP decline profile (1-year / 3-year)	17% / 10%
	Proved developed net reserves / PV10	1.0 tcfe / $1.5 billion
ACREAGE & DEVELOPMENT	Net acreage (WI/% operated)	108k acres (96%/100%)
	Operated wells	~3,500
	Annual development capital (1 rig)	$150-180mm
	Undeveloped locations	>1,500
ENVIRONMENTAL PERFORMANCE	2022 Methane Intensity (EPA Subpart W reported)	0.06% -- 85% below US avg.
	% Trustwell platinum / gold certified	>99%
	Environmental accounting platform	EarnDLT
	Hart Energy ESG awards	2021, 2023

PIPELINE CONNECTIVITY

Processing Plant	Feb'24 bbtu/d	Pipeline Connectivity: Kern	NWPL	Ruby	OT / REX	CIG	QPC
Opal	199	✓	✓	✓	✓	✓	
Pioneer	216	✓	✓	✓	✓		
BlacksFork	198	✓	✓		✓	✓	✓
	613						

Pinedale Field



Verified Culture of Safety and Environmental Excellence

Strictly Confidential

Advancing the differentiated gas market with industry-leading safety and environmental performance

HARTENERGY.COM ESG AWARDS 2021, 2023

0.06%

Industry leading low methane intensity rate(1)

IES VERIFIED ATTRIBUTES

CH4 LOW-METHANE

FRESHWATER FRIENDLY

TrustWell Ratings	
Certified	99%
Platinum	88%
Gold	12%
Wells	3,421

"PureWest Energy stands at the forefront of sustainability, pioneering a cleaner future with unwavering dedication."

David Conley
Founder & CEO
CleanConnect.ai
Visual Automation

DENVER BUSINESS JOURNAL
FINALIST
2023 BEST PLACES TO WORK
BPtW
PureWest
RANKED #1

GMP
Oil And Gas Methane Partnership 2.0

- Comprehensive, measurement-based reporting framework
- Improves the accuracy and transparency of methane emissions reporting

EarnDLT

A decentralized platform to quantify, track, and monetize environmental attributes powered by blockchain technology and a fungible token.

DGCC

The DGCC is a coalition of stakeholders across the natural gas supply chain dedicated to facilitating a pathway for policymakers, regulators, utilities, and gas consumers to utilize differentiated gas as an important option to meet their climate goals.

1) *Methane intensity rate (MIR) calculated as methane emissions released / total methane produced*

The Challenge:

1. **To be the most responsible (cleanest) Rockies-based producer and;**
2. ***Empirically* prove it to regulators, investors, customers, and buyers**

CHOOSE:

Emissions Factors

Empirical Inventory

You believe whatever EPA tells you to believe

You discover the truth and I show you how far the rabbit hole goes

Subpart W – Factors vs. Empirical

Factors (Measurement Methods 3-5) vs. Empirical (Measurement Methods 1-2)

Generic Factors

Generic emission factors

(Measurement method 5)

Periodic LDAR

Quarterly OGI or Method 21

(Measurement Method 4)

Site-specific Factors

Get 30-50 samples of every component

(Measurement Method 3)

Factors

Use population and/or site-specific factors

VS

Empirical

Use chemical engineering principals and tools for measurement

Combo: Direct + Site Calculation

- ProMax 6.0 Data Exchange
- Non-fugitive emissions
- **(Measurement Method 2)**

Direct Measurement

Real-time component-level monitoring for fugitive & non-fugitive emissions.

Measurement Method 1)

Mass Balance

Allows site / source reconciliation required by OGMP 2.0, MMRV, and other certification

Excerpt from [EPA Cheat Sheet]

The Evolution of Emission Reporting

EPA -> OGMP 2.0 -> MMRV

1 Venture/Asset Reporting
- Single, consolidated emissions number
- Only applicable where company has very limited information

2 Emissions Category
- Emissions based on Methane Emission Category (IOGP and Marcoaz)
- Estimates based on generic emissions factors

3 Generic Emission Source Level
- Emissions allocated to detailed source type
- Based on generic emissions factors

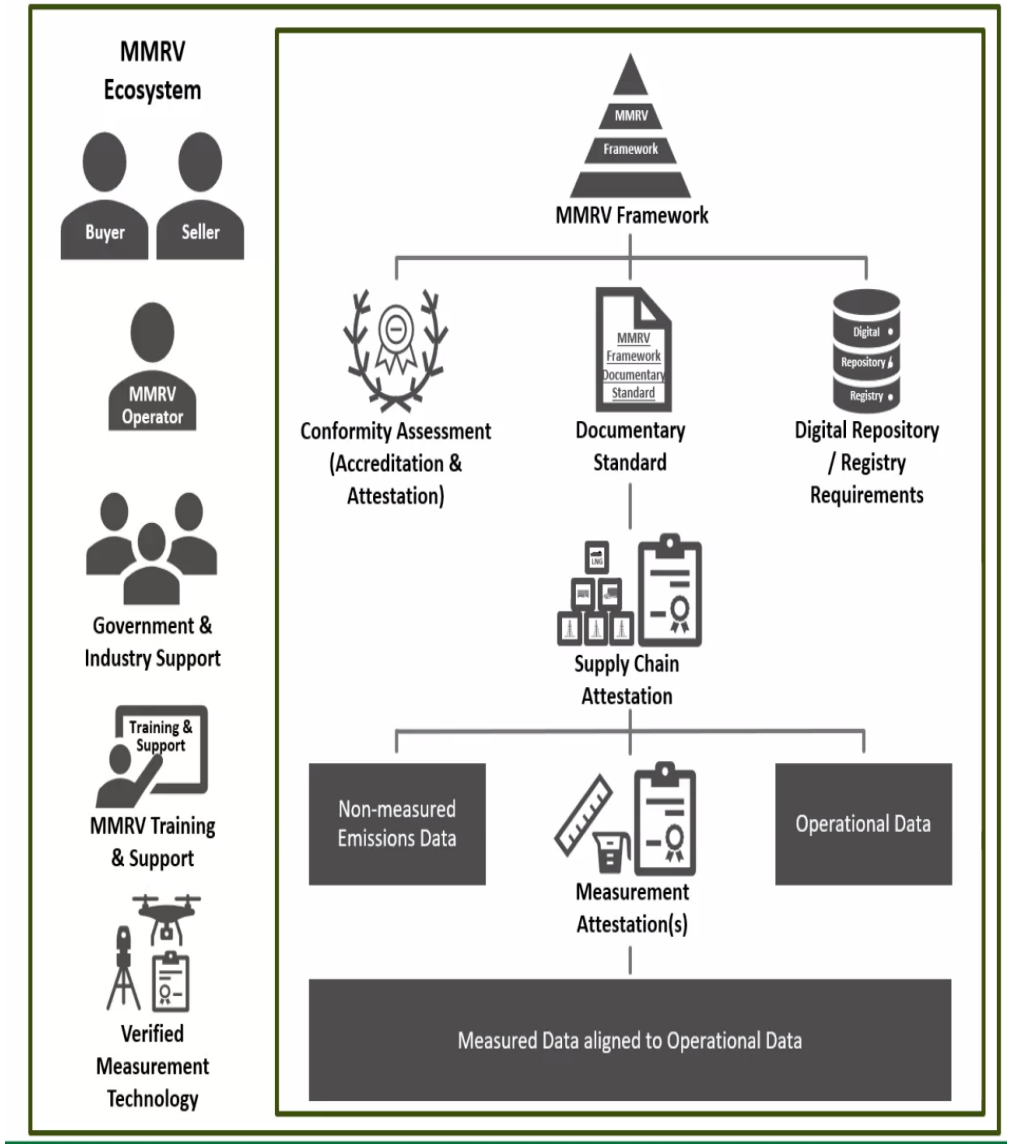
Current EPA Subpart W

4 Specific Emission **Source Level**
- Emissions reported by detailed source type using specific emissions and activity factors
- Based on direct measurement or other methodologies

5 **Source (Level 4) + Site Level Measurement Reconciliation**
- Level 5 reconciles the source-level estimates of Level 4 with independent site-level measurements
- Based on direct measurement methodologies

NOTE: Once an operator signs up, they have 3 years to achieve Level 5 and keep their gold status

Measurement, Monitoring, Reporting & Verification (MMRV)



18-country working group (e.g. US, EU, Canada, etc.)

Comparing GHG Emission Inventories

Feature	Empirical Subpart W Waste Emission Charge	OGMP 2.0 Level 4/5	CO Regulation 7 GHG Intensity Reporting	MMRV
Prerequisite Compliance	Mandatory Reporting Rule Subpart W	Local Govt	CDPHE Regulation 7	Local Govt.
Source-level Measurements	Method 1-5 (1=more accurate, 5=factors)	TBD	TBD	TBD
Site-level (Top-down) measured	n/a	Site & Source-level reconciliation required for Level 5	Site & Source-level reconciliation required for Level 5	Site & Source-level reconciliation required for Level 5
Baseline	• Upstream: 0.2% CH4 intensity • Midstream: 0.11% CH4 intensity • Down: 0.05% CH4 intensity	0.2% CH4 intensity (OGCI numbers)	• 10.94 mtCO2e/kBOE GHG (2025) • 8.46 mtCO2e/kBOE (2027) • 6.80 mtCO2e/kBOE (2030)	0.2% CH4 intensity (OGCI numbers)
Fee (tax) for not hitting baseline	• $900/mT CH4 (2024) • $1200/mT CH4 (2025) • $1,500/mT CH4 (2026)	None	GHG Fee (TBD)	EU CBAM
Emissions Inventory Audit	TBD	By OGMP	By CDPHE	ISO 14064-1 / 14064-3
Methodology Audit		By OGMP	By CDPHE	ISO 14067 / 14064-3
Data Audit / Standard	Yes. 3rd party. / TBD	Yes. OGMP/TBD	Yes. 3rd party. / TBD	ISO 14067 / 14064-3
Supply Chain Attestation / MMRV				ISO 14067
Registry Requirements to Facilitate Buyers/Sellers				ISO 14060

Excerpt from EPA Cheat Sheet

But wait, can't I just stay on Factors? Yes, but you'll pay higher WEC fees

New Factors -> Impact WEC Fees

WEC Calculation	2024	2025	2026
WEC $/T	$900	$1,200	$1,500
Subpart W Factors	2024	**2025**	**2025**
mT/CH4 Over Limit	0	2,600	2,600
WEC Fee	$0	$3.1M	$3.9M

ILLUSTRATION PURPOSES ONLY

Assumes NO increase in production, so the numbers are probably lower than they will be in reality

Results

- Using 2022 factors, one operator had zero WEC fee
- Using 2025 factors, their WEC fee went to over $3M without considering the increase in production
- This is *intentional* in Subpart W, to get operators to move to empirical

Subpart W – Factors vs. Empirical

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Generic Factors

Generic emission factors

(Measurement method 5)

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Quarterly OGI or Method 21

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Combo: Direct + Site Calculation

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Excerpt from [EPA Cheat Sheet]

Autonomous365.ai

Energy AI Suite

Engineering

- Permits
- Site updates
- Digital Twin 2.0

Automated Regulatory Compliance

- Subpart W Reporting
- OGMP 2.0 Level 4|5
- OOOOb/c Autonomous LDAR

Autonomous Operator

- Gas & liquid leak detection
- Autonomous Gate Guard
- Fire/smoke detection
- PPE Detection
- Tank level monitoring
- AI-RMM

ProveZero

- Tradeable tokenized energy
- ISO 14067 Certified
- SCS-115 Low-CI Certified
- ETH blockchain
- MMRV Trading

CleanConnect.ai

Visual Automation

7 Ways PureWest is Using ProMax 6

1. Greenfield site design (w/empirical measurement built-in)
2. Brownfield site upgrades (w/empirical measurement upgrades)
3. **Real-time operations performance monitoring**
4. Real-time emissions inventory (i.e. empirical Subpart W)
5. Site/source level reconciliation (OGMP 2.0, MMRV)
6. WEC Fee calculations
7. Sell ISO 14067-certified tokenized emissions commodities for a profit (requires MMRV-level emissions inventory)

Autonomous365.ai

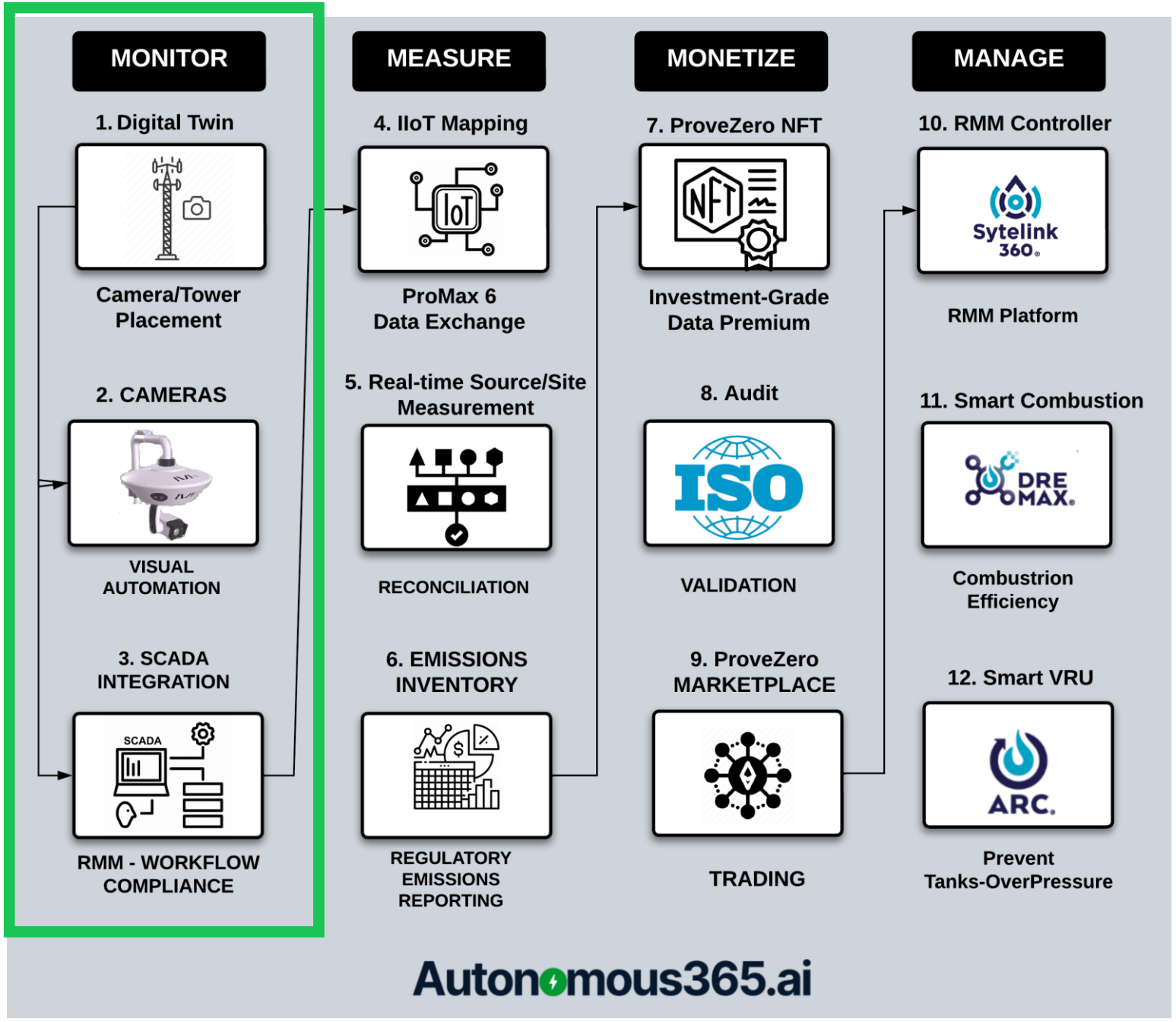
Energy AI Suite

Featuring M⁴: Our Repeatable Process

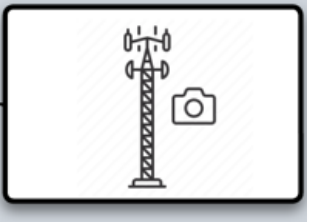
- **MONITOR** – Automate compliance & operations using visual automation
- **MEASURE** – Automate OGMP, Subpart W, and MMRV reporting
- **MONETIZE** – Automate digital energy that can be traded for a premium
- **MANAGE** – Autonomous management of combustion & VRU's w/RMM platform

CleanConnect.ai

Visual Automation



1. Digital Twin



Camera/Tower Placement

Autonomous365.ai Digital Twin

- Digital Twin system allows us to find the proper camera tower location
- Configure the camera tour stops
- Allows operators to virtually walk the site
- Allows us to do component-level detection & diagnosis
- Allows us to associate IIoT device tag & ProMax model to digital twin
- **DEMO: 30-minute setup**

Minerva Sensor-Fusion™ Platform

Camera Features

- VOC or Methane-only OGI
- 360-degree optical / IR cameras
- Sound array
- Weather-proof casing
- Built-in Gimbal
- 360-degree pan-tilt
- Up to 4 Nvidia AGX
- Comms package

AI Workflow

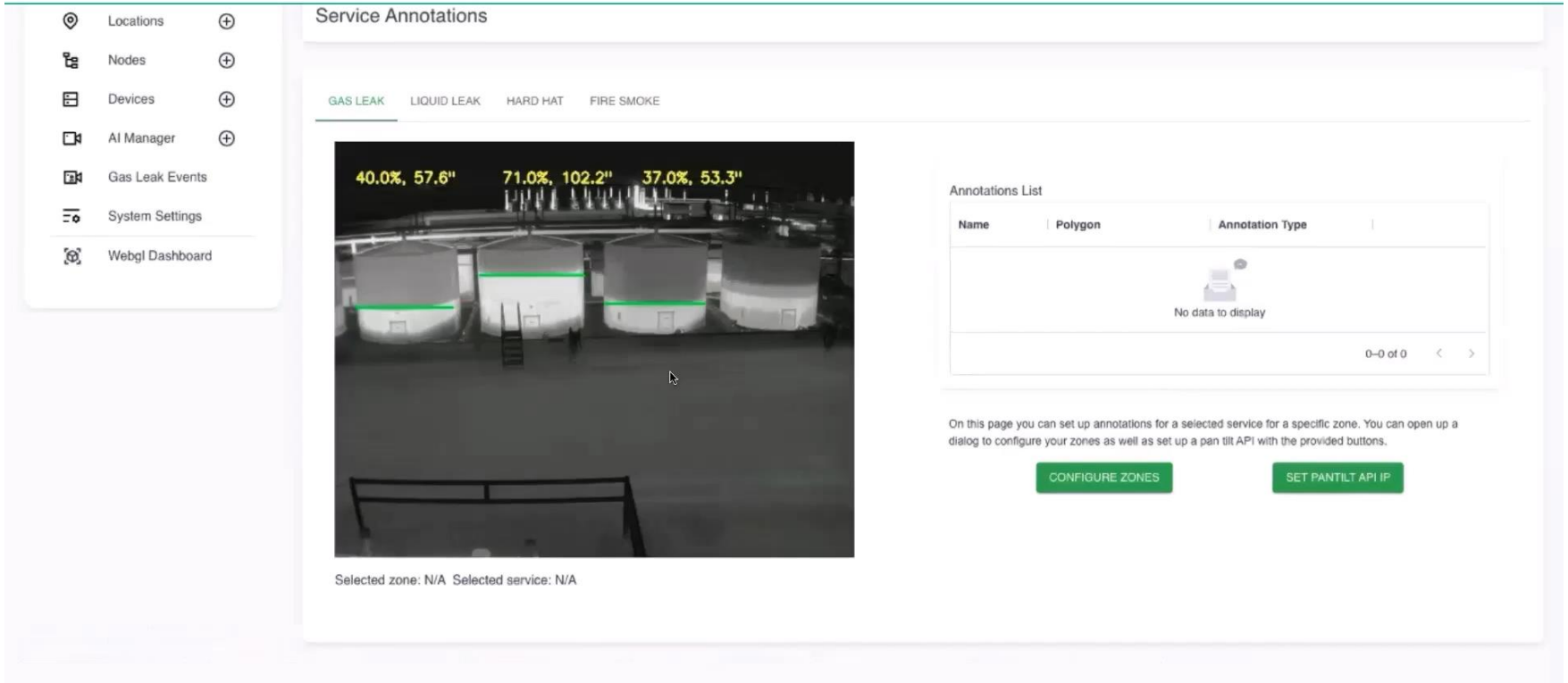
- Gas leak detection
- Gas leak quantification
- Liquid leak detection
- Fire & smoke detection
- Autonomous gate guard
- Tank-level monitoring
- PPE Detection
- Compressor monitoring

2. CAMERAS

VISUAL AUTOMATION

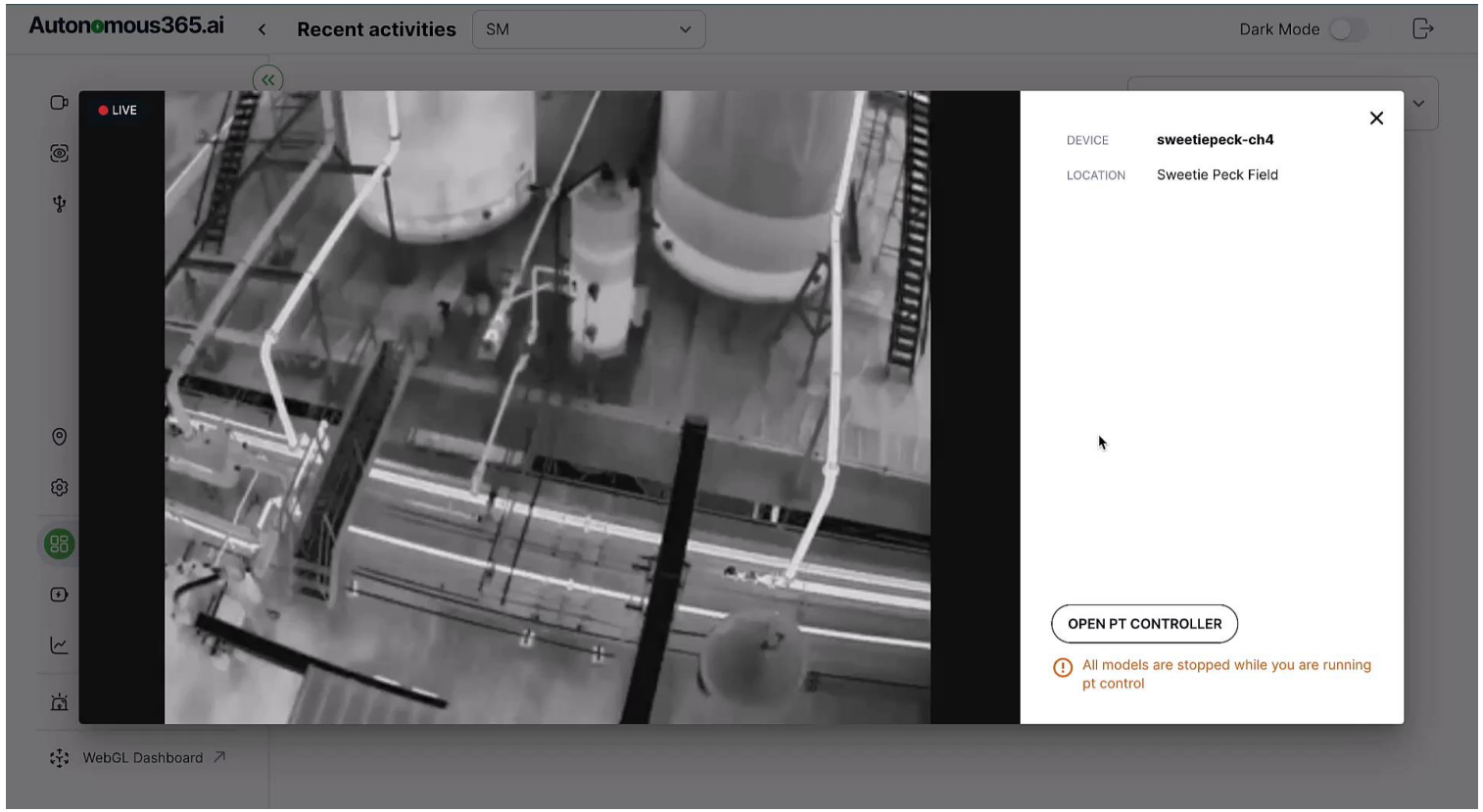
2. Install Minerva camera package – fine-tune tour stops

You can configure the tour stop location
Set pan & tilt

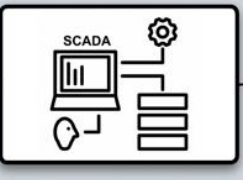


OGI Camera Live View

- Operators can take control of the pan/tilt/zoom
- View the component-level event
- Put the OGI camera back on its tour stop with one-click



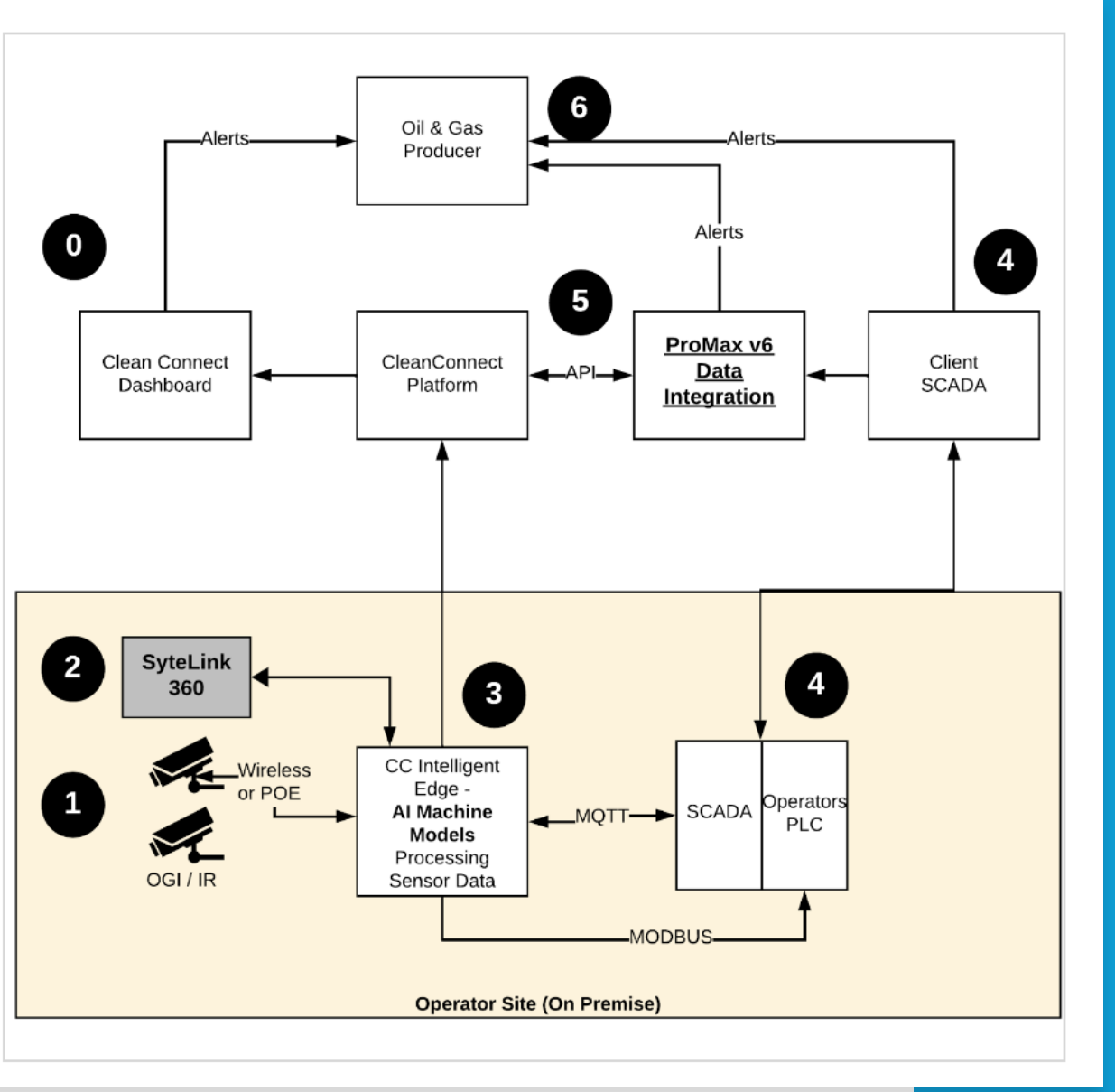
3. SCADA INTEGRATION



RMM - WORKFLOW COMPLIANCE

System Architecture

1. OGI cameras send raw data to edge
2. Optional: SyteLink360 sends data to edge
3. Edge device processes computer vision models
4. Integrated with SCADA via MQTT / Modbus
5. Data pushed/pulls from SCADA to Promax 6, then to Clean Connect platform
6. Alerts sent to O&G producer



CleanConnect.ai
Visual Automation

CleanConnect.ai's Autonomous LDAR Is Government-Approved Source-Level Monitoring

CleanConnect.ai autonomous LDAR was approved by Colorado as an alternative approved instrument monitoring method or **Alt-AIMM**. To complete CDPHE's Alt-AIMM requirements, CleanConnect.ai achieved six key milestones in the application, including:

Source-level Detection

Demonstrate visual source-level leak detection of emissions, including the ability to distinguish between fugitive and permitted emissions.

Alt Work Practice

Provide an automated LDAR work practice that demonstrates how we detect, enable operators to diagnose and fix any problem found. Diagnosing and fixing leaks remotely is acceptable & encouraged.

Blind Testing

Demonstrate detection performance with blind testing at various distances and leak sizes on a production facility. 2kg/hour at 100m.

Operator Endorsement

Colorado operators provided letters of support for the Alt-AIMM application and participated in actual production and field data collection that was included in the application.

LDAR Equivalency

Prove emissions reduction equivalency against current CO (Regulation 7) regulatory ***monthly*** OGI LDAR requirements.

EPA Region 8 Approval

The CleanConnect.ai system is currently engaged with the EPA Region 8 for approval. EPA is adopting a very similar process to Colorado's Alt-AIMM process.

Click to watch a the walkthrough of this document.

MONITOR

CleanConnect.ai

Seeing is Believing

CDPHE Alt-AIMM Approval Letter

COLORADO
Department of Public Health & Environment

Issued on: August 16, 2023

David Conley
Clean Connect AI, Inc.
7352 Greenridge Road, Unit A9
Windsor, CO 80550

RE: Approval of Request for Clean Connect Monitoring System and Work Practices to be an Alternative Approved Instrument Monitoring Method for statewide Colorado Air Quality Control Commission (AQCC) Regulation No. 7, Part B, Section II STEM and LDAR Requirements

Dear David Conley:

The Air Pollution Control Division (division) reviewed Clean Connect AI, Inc.'s application dated February 28, 2022, applying for approval of the Clean Connect Monitoring System and Work Practices (Clean Connect) as a proposed Alternative Approved Instrument Monitoring Method (Alternative AIMM) for purposes of AQCC Regulation No. 7 Storage Tank Emission Management (STEM) monitoring and Leak Detection and Repair (LDAR) requirements. That application, along with information provided to the division as described in the supplemental information and division summary, is sufficient for the division to issue an approval letter for Clean Connect as an Alternative AIMM under the Non-Quantitative Classification. Please review AQCC Regulation No. 7, Part B, Section II.E. for the requirements for terms of use under the Non-Quantitative Classification.

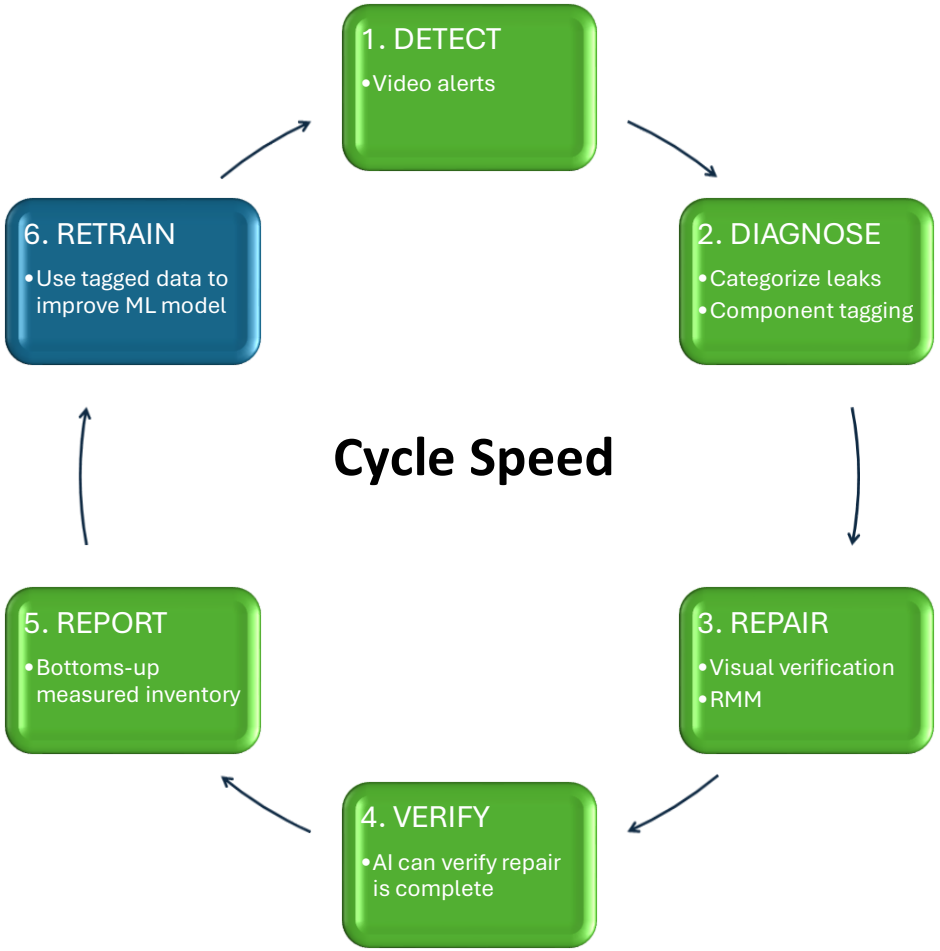
This division approval of Clean Connect as an Alternative AIMM for operators of facilities subject to AQCC Regulation No. 7 STEM monitoring and LDAR requirements is granted for use to comply *only* with statewide requirements of Regulation No. 7, Part B, Sections II.C.2, II.E, and III.F, including AVO inspections required by Section II.E.4. An operator using Clean Connect at one or more facilities within the 8-hour ozone control area or northern Weld County that are subject to Regulation No. 7, Part B, Section I.L.1.-7. must separately comply with ***all*** requirements of Part B, Section I.L.1-7 as noted in #3 below. The use of Clean Connect is approved provided the following additional conditions are met:

- **The first government-approved continuous OGI-AI autonomous LDAR solution:**
- Using CleanConnect.ai replaces:
  - Regulatory monthly **LDAR**
  - Regulatory **AVO** inspections
  - Regulatory **tank** emission monitoring
- Eliminates 92% of the regulatory scheduled call-outs

MONITOR

Alt-AIMM Approved Autonomous Operator Workflow

Alt-AIMM Approved Workflow



AI-Assisted Workflow Explained

1. **DETECT** is done using our AI computer vision – operator gets video alerts
2. **DIAGNOSE** allows operator to categorize leak at the component-level
3. **REPAIR** – operator can use diagnosis to repair remotely if possible
4. **VERIFY** repair is complete using AI
5. **REPORT** bottom-up measured inventory
6. **RETRAIN** – ML detection/diagnose model is continually improving

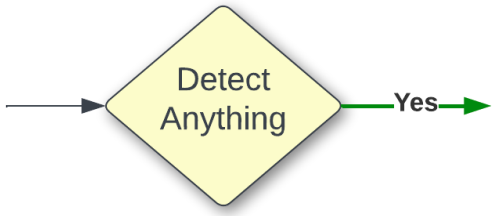
MONITOR

Clean Connect Autonomous LDAR

- True remote monitoring
- Period **component-level** screening
- **Component-level** inspection
- Eliminates call-outs

Periodic Screening With CleanConnect.ai

Component-Level Screening



60.5397b

Componenent-Level Live Look

Remote Component-level **Inspection** < 0.5m from source

MONITOR

CleanConnect.ai
Empower Human

PPE (Hardhat) detection

- Detects people & heads
- Auto-zooms camera for a better look
- Looks to see if they are wearing correct PPE (e.g. hardhat)
- Looks to see if they're in authorized areas of the site

September 2021

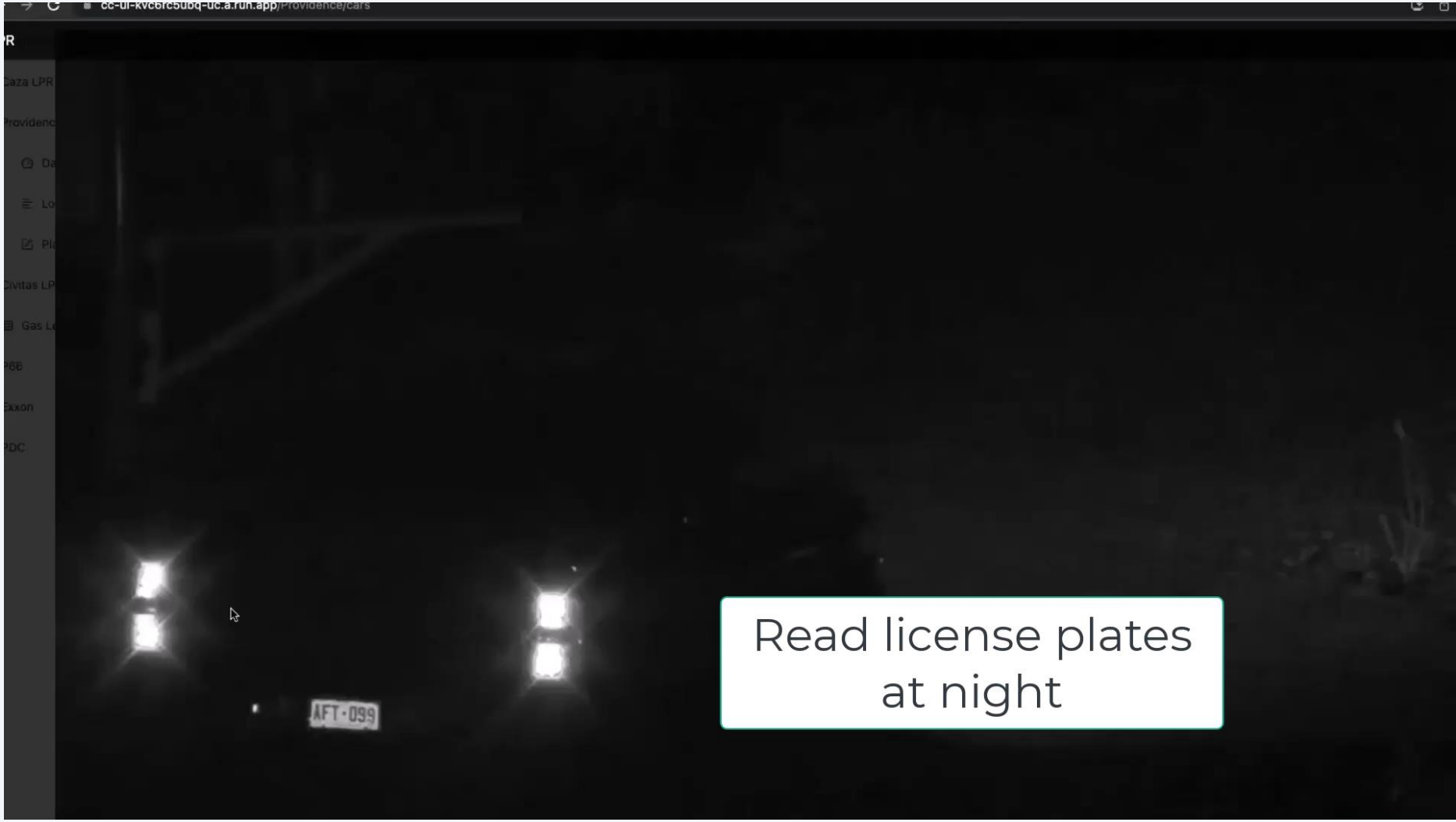
Subject to NDA

MONITOR

CleanConnect.ai
Empower Human

Virtual Gate Guard

- Detects vehicles and license plates
- Checks against white/blacklist of license plates
- Notifies operator (blacklist alert)
- Opens & shuts the gate based on results



Subject to NDA

MONITOR

Fire & Smoke Detection

- Color
- Duration
- Opacity

MONITOR

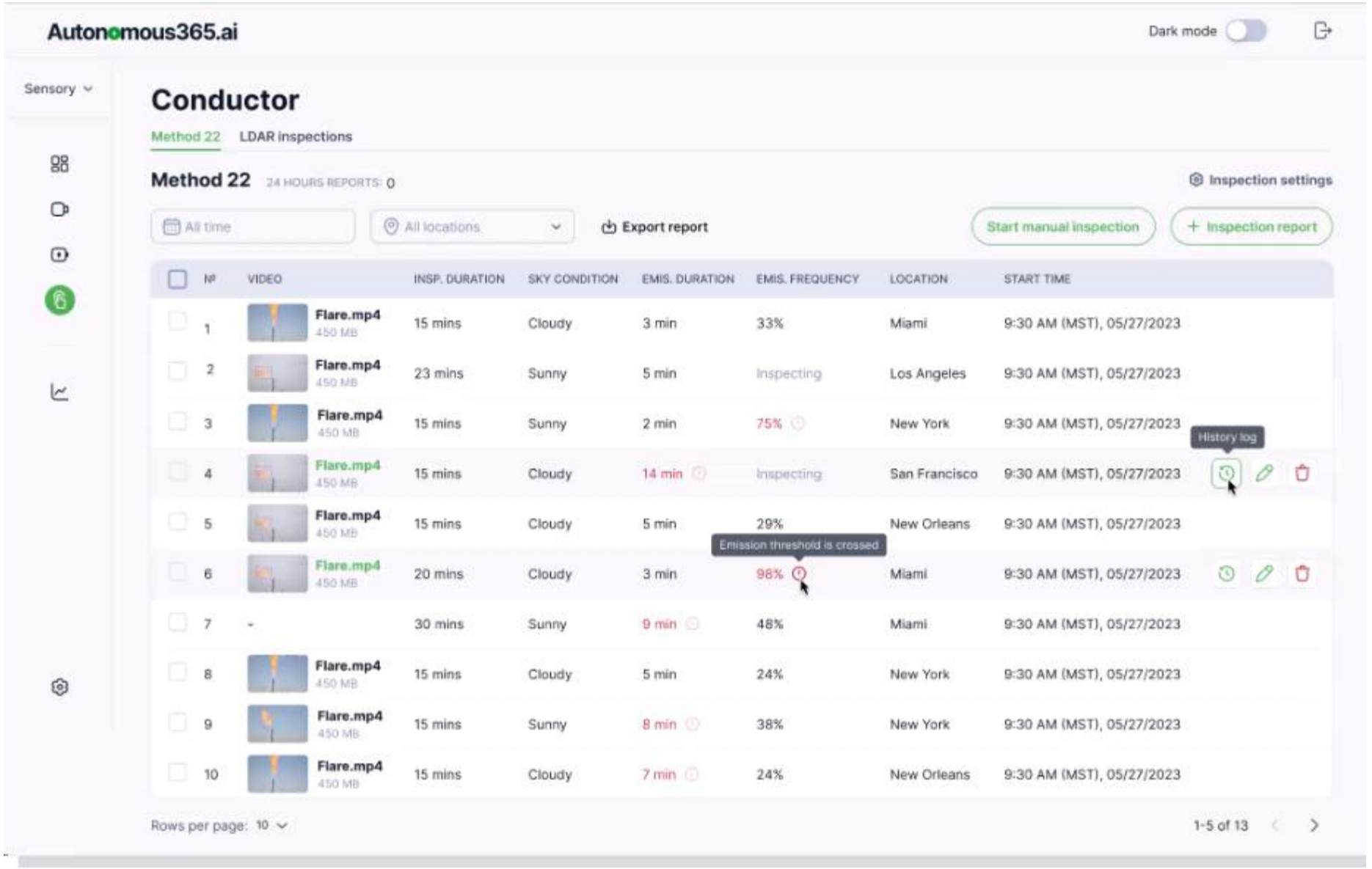
Smoke Detection

- Color
- Duration
- Opacity
- Works day & night

MONITOR

Method 22 Autonomous Inspection

- Leverages the continuous flame & smoke monitoring
- Uses the built-in workflow
- Allows you to set automatic daily 15-min monitoring
- Will create a Method 22 inspection reports
- We are applying to EPA for alternative Method 22 approval
- Ex: One of our clients does daily inspections on hundreds of sites



Liquid Leak Detection

- Pinhole leaks
- Pop-offs
- Spills

Autonomous365.ai **Actionable Alert Dashboard**

Dark mode

MONITOR

Sensory

Recent activities (2 new alerts)

All time | All locations

№		ALERT	DEVICE	LOCATION
1		**Tank Level** 9:30 AM 05/27/2023	Observer	Miami
2		**Fire/Smoke** 9:30 AM 05/27/2023	Camera 360	Los Angeles
3		**Gas Leak** 9:30 AM 05/27/2023	Tower 23525	New York
4		**Hard Hat** 9:30 AM 05/27/2023	Camera 12345	San Francisco
5		**Gate Guard** 9:30 AM 05/27/2023	Observer	Miami
6		**Liquid Leak** 9:30 AM 05/27/2023	Digital Watchdog Multi	New Orleans
7		**Gas Leak** 9:30 AM 05/27/2023	Observer	New York
8		**Gas Leak** 9:30 AM 05/27/2023	Tower 23525	Los Angeles
9		**Gas Leak** 9:30 AM 05/27/2023	Camera 360	Los Angeles
10		**Hard Hat**	Camera 360	New York

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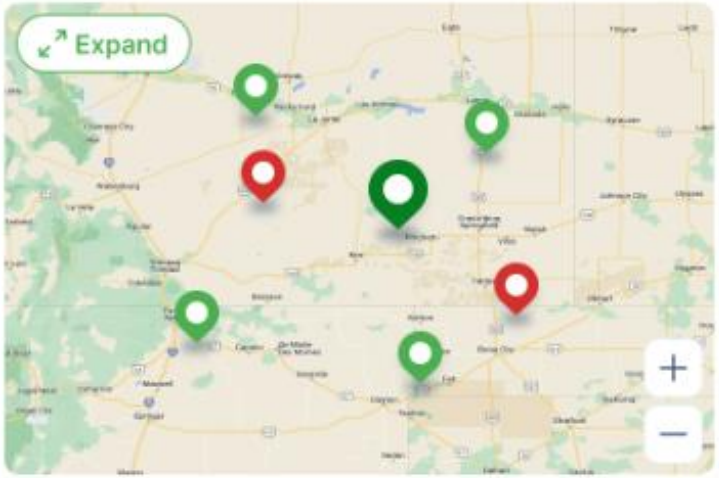
1-5 of 13



24 LOCATIONS

Gas Leak — DEVICE 1
LEAKING DETECTED: Field overview
24 HOURS EVENTS: 3

Fire/Smoke — DEVICE 3
FIRE/SMOKE DETECTED: Fire machine
24 HOURS EVENTS: 3

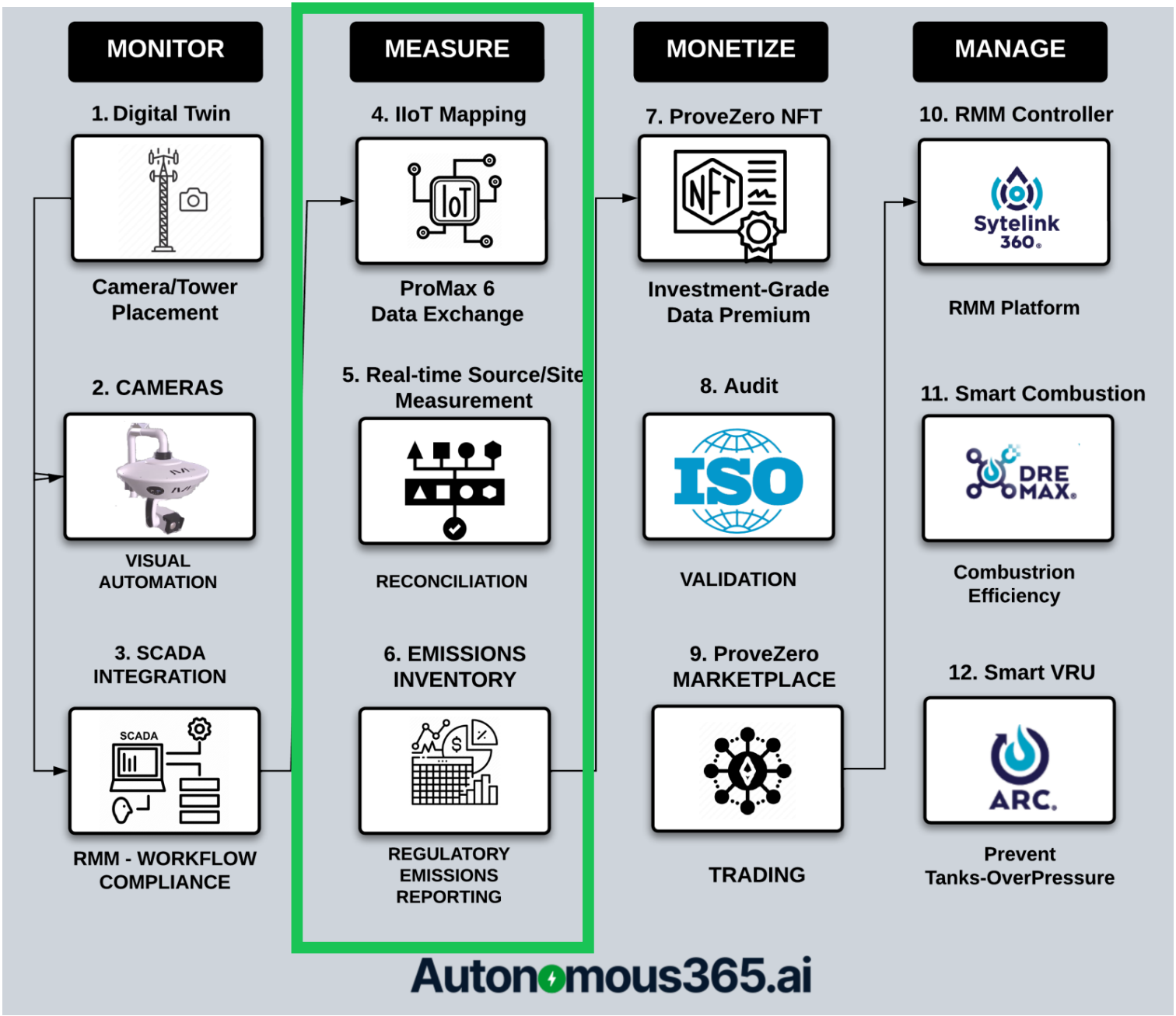
Hard Hat — DEVICE 3
24 HOURS EVENTS: 0

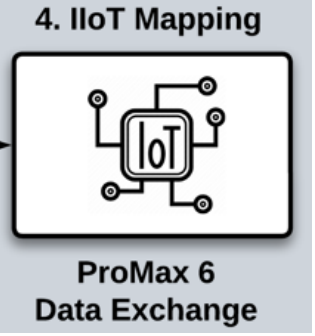
Gate Guard — DEVICE 6
24 HOURS EVENTS: 6

Tank Level — DEVICE 6
24 HOURS EVENTS: 6

Autonomous365 MEASURE
Process

- **MONITOR** – Automate compliance & operations using visual automation
- **MEASURE** – Automate OGMP, Subpart W, and MMRV reporting
- **MONETIZE** – Automate digital energy that can be traded for a premium
- **MANAGE** – Autonomous management of combustion & VRU's





Why ProMax 6.0 Data Exchange?

PureWest Reasons

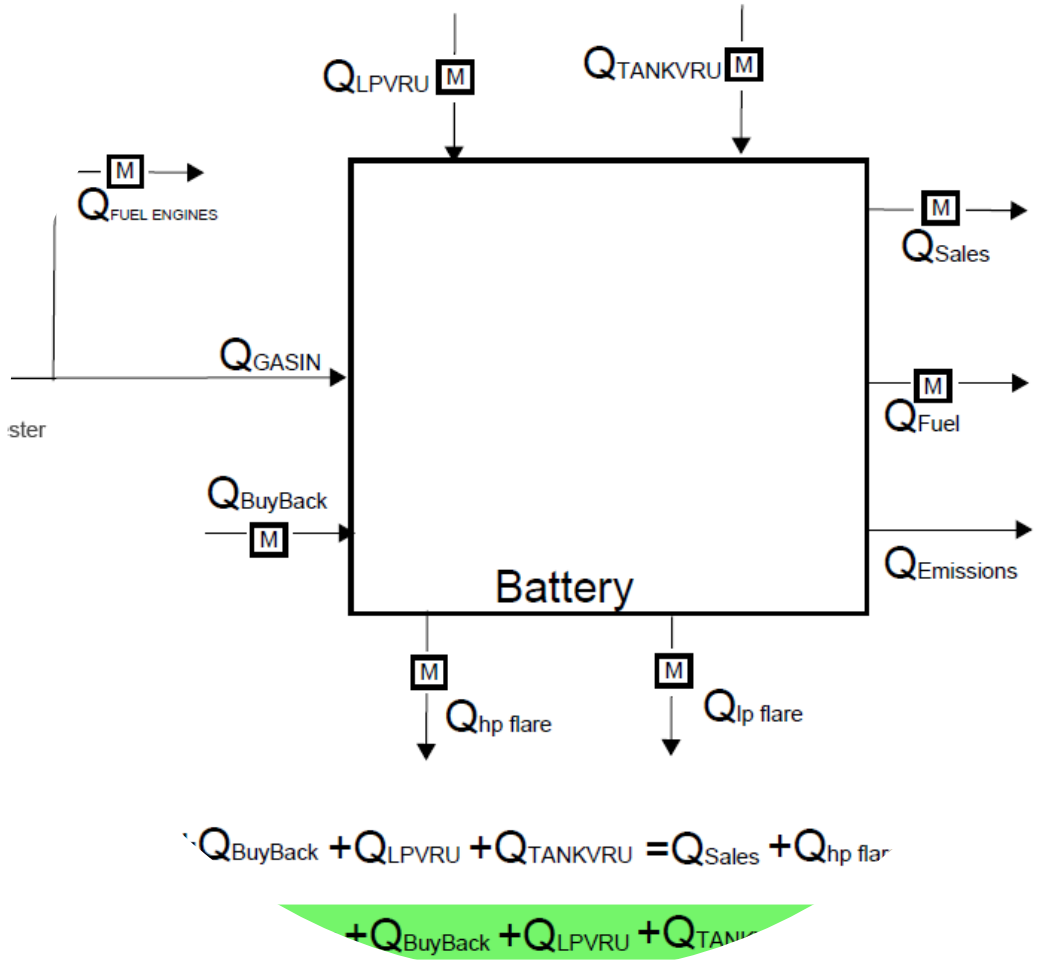
- Regulatory acceptance in upstream & midstream for permits & Subpart W
- Industry standard
- Instant credibility
- Defensible
- It helps verify measurements
- Provides operations with a measurement feedback loop

CleanConnect.ai Reasons

- Make the ProMax model live
- Real-time mass balance
- We can use it for site-level reconciliation
- We can update the model to as-built
- Can link it to live IIoT data
- We can link it to our digital twin
- It helps us create a continuous feedback loop to improve our AI machine models

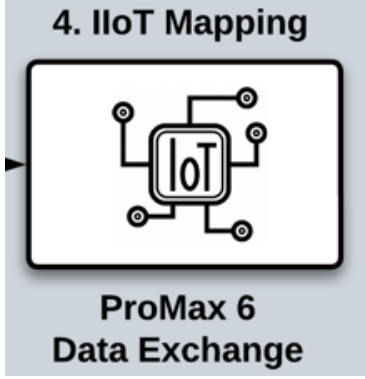
Calculating Mass Balance in Real-Time

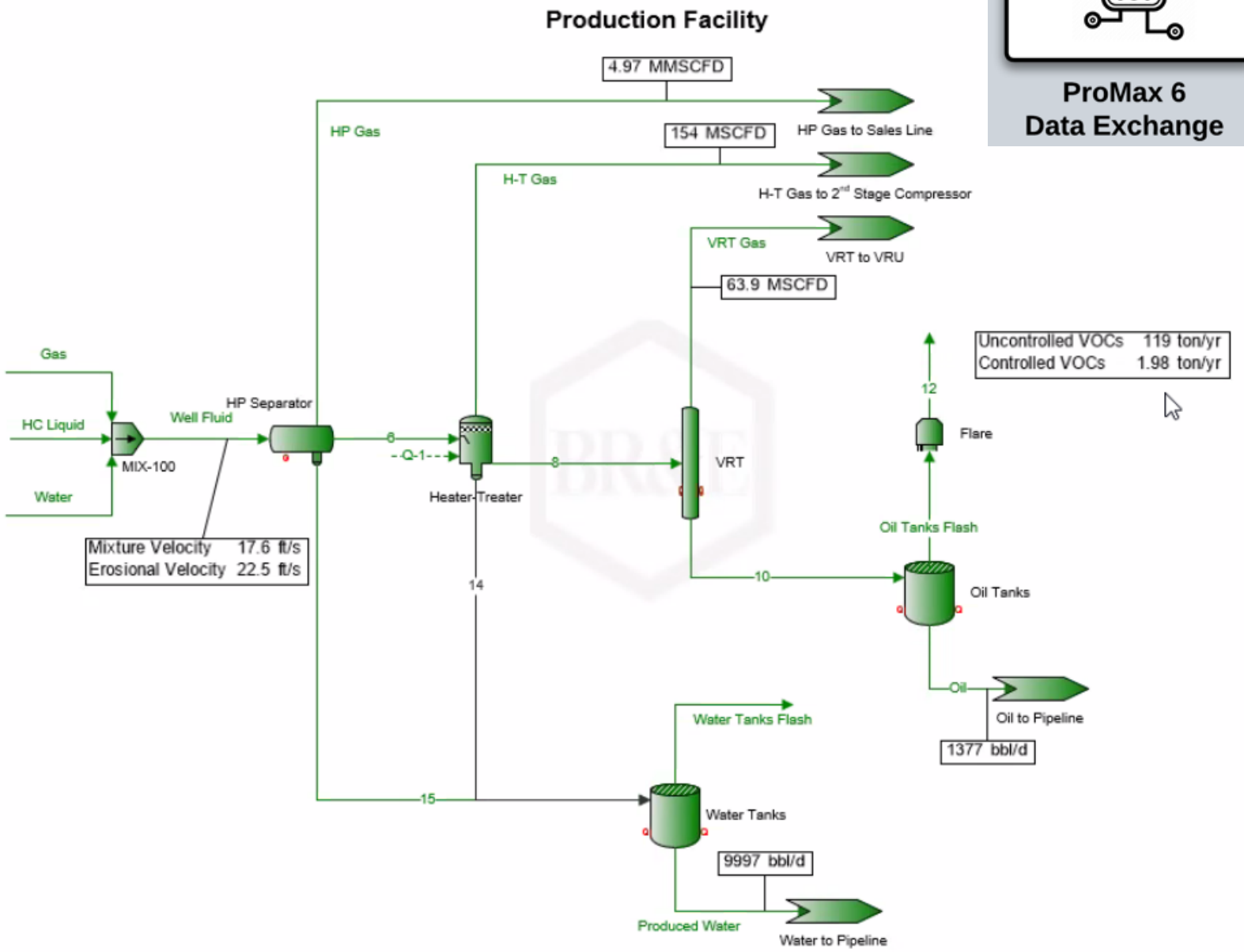
[M]eter	Description	What to do if missing..
GTester	Test separator gas meter	Required
Fuel Engines	Meter to for fuel gas to fuel compressor engines	Estimate based on engine requirements
GasLift	Meter to measure gas reinjected into the well	Required
LP VRU	Low-pressure vapor recovery unit (VRU)	Calculated using comparable fluid flash calculations
Tank VRU	Vapor Recovery Units (VRU) on tank(s)	Calculated using comparable fluid flash calculations
Sales	Gas sales meter	Required
HP Flare	High-pressure flare meter	Required
LP Flare	Low-pressure flare meter	Required
Fuel	Typically for heater treaters and flare ignitors	Vendor supplied information



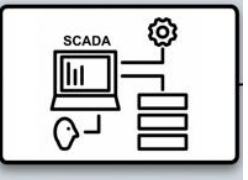
IIoT Mapping to ProMax 6.0 Data Exchange

- We map IIoT devices/meters into ProMax
- We run the live model to get a **real-time mass balance**
- Better data = higher “fidelity” score





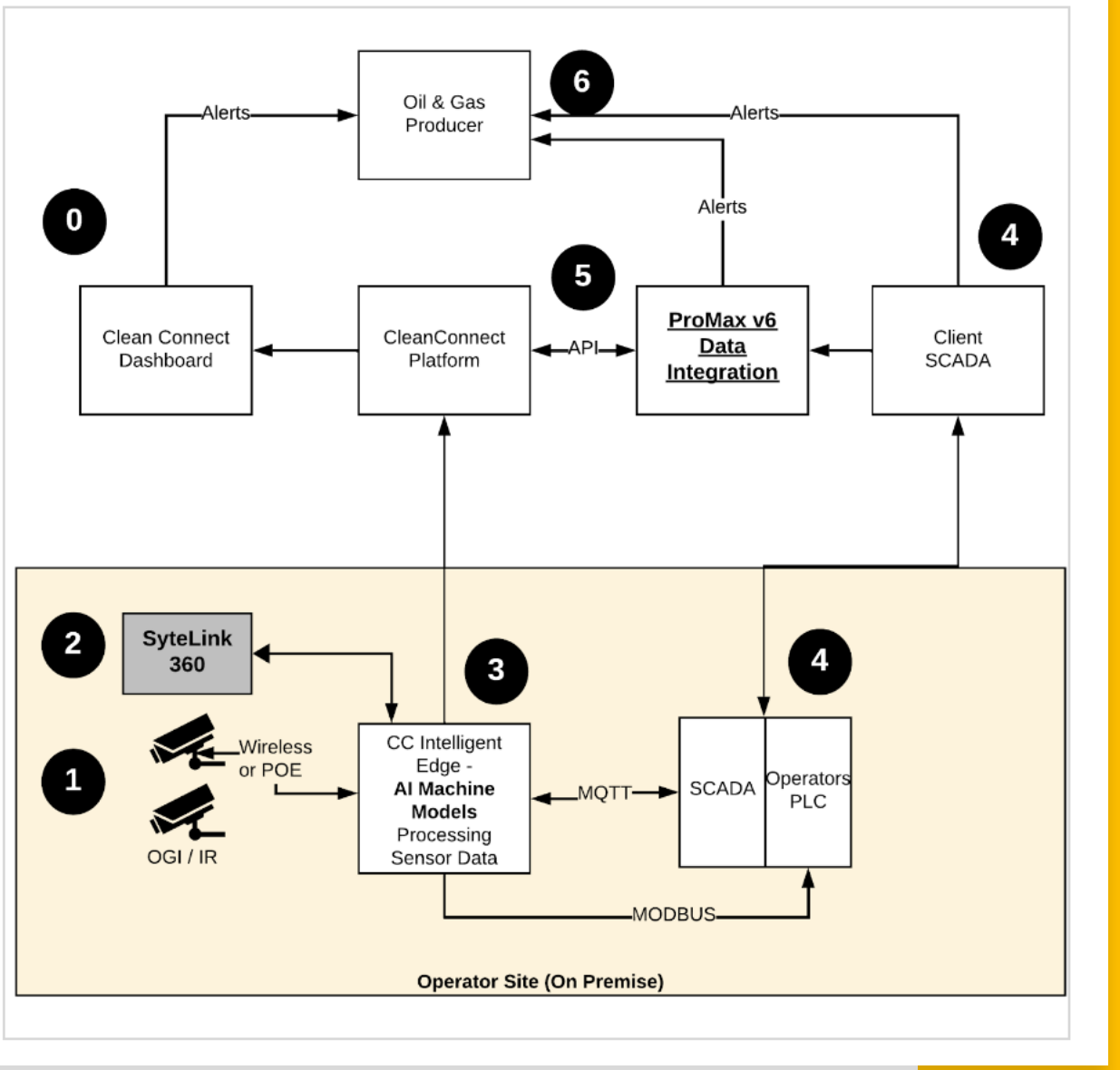
3. SCADA INTEGRATION



RMM - WORKFLOW COMPLIANCE

System Architecture

1. OGI cameras send raw data to edge
2. Optional: SyteLink360 sends data to edge
3. Edge device processes
4. Integrated with SCADA via MQTT / Modbus
5. Data pushed/pulls from SCADA to Promax 6, then to Clean Connect platform
6. Alerts sent to O&G producer



5. Real-time Source/Site Measurement

RECONCILIATION

Autonomous365.ai
Energy AI Suite

ProveZero

1

Source-level gas detection (fugitive)

Computer Vision

Well pad Site

4

Mass Balance + Source-level non-fugitive emissions

2

IIoT Telemetry

- Temperature
- Pressure
- Throughput

3

ProMax 6.0 Data Exchange

5

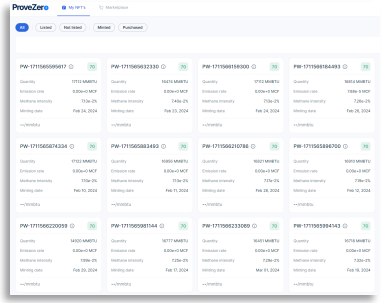
Empirical Emissions Inventory

Table	Attributes
Company	**ID, Name, Address, County,**
Facility	ID, type (G&B, Prod, etc) , name, location,
Well	ID, name
Equipment Group	Type, Pumps, controllers, tanks,
Equipment	Type, model #, serial #, etc.
Emissions	Type, date, qty, duration, measurement method,
Throughput	Input, sales meter, buyback, mass balance

Meets all Emission Reporting Standards

- **EPA Subpart W**
- **CDPHE - GHG Intensity Reporting**
- **OGMP 2.0 Level 4|5**
- **MMRV**

6



Tradeable Certificate On Blockchain

How each department uses data from ProMax 6 Data Exchange

Engineering

- Greenfield designs
- Brownfield site updates
- Digital Twin

Automated Regulatory Compliance

- Subpart W Reporting
- OGMP 2.0 Level 4|5
- OOOOb/c Autonomous LDAR
- Environmental permits

Autonomous Operator

- Integrating with live operational data
- Mass balance
- Continual improvement feedback loop
- Predictive alerts
- RMM

Sustainability

- Tradeable tokenized energy
- ISO 14067 Certified
- SCS-115 Low-CI Certified
- ETH blockchain

Feedback Loop

CleanConnect.ai
Visual Automation

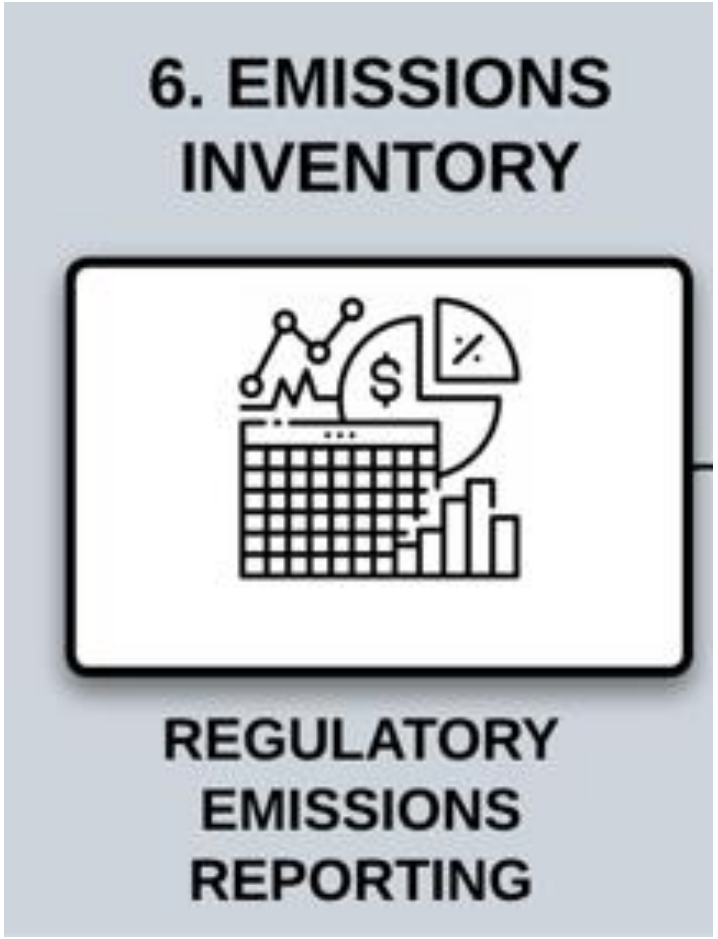
Steps PureWest Took to Newer Upstream Site from 0.09% to 0.03% methane intensity

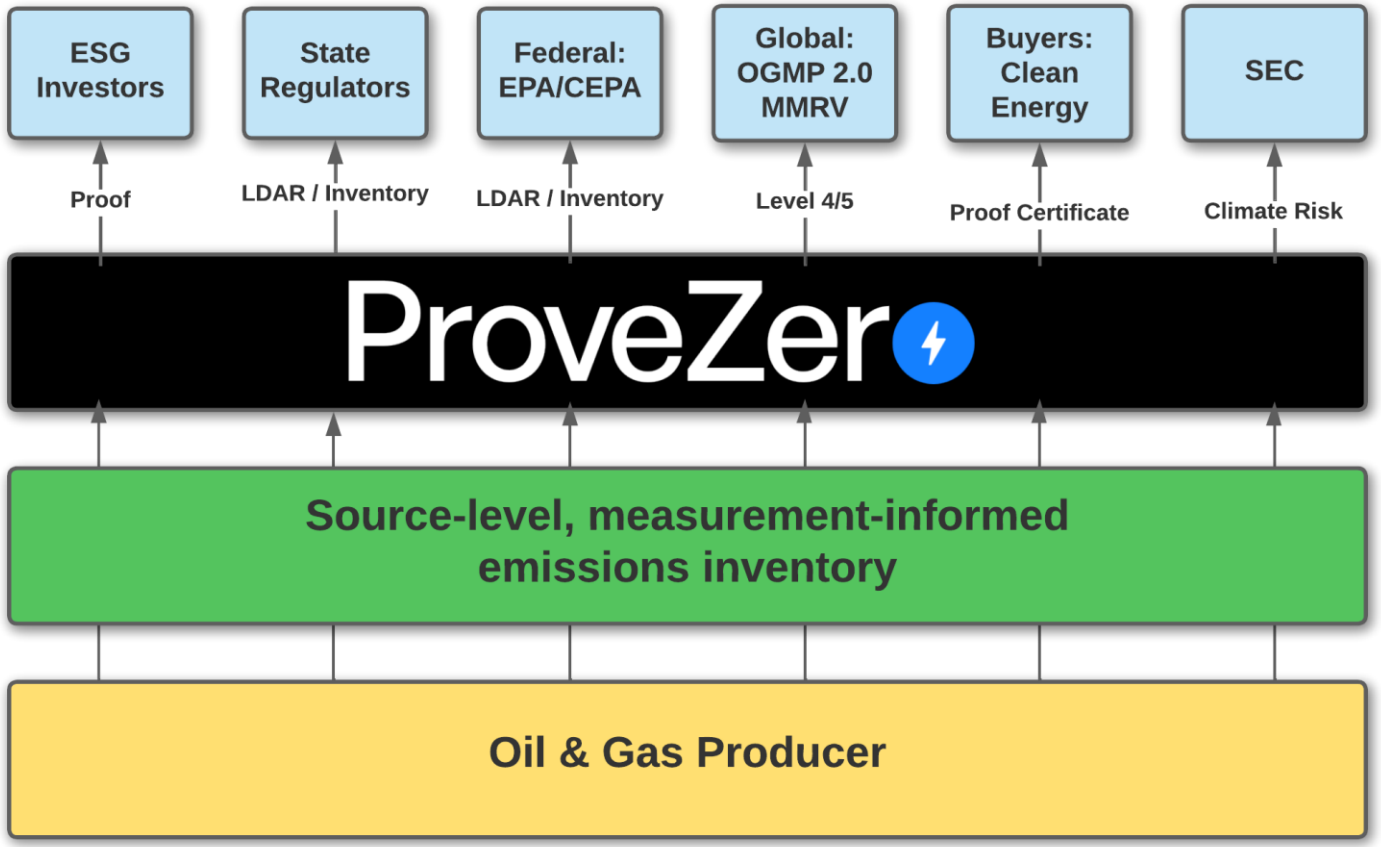
Steps Taken to Reduce	Methane Intensity on Site
Create ProMax model – connect with meter devices & CC	0.09%
• For PureWest, we quickly identified dehydration as a major driver of our emissions. • Further analysis determined that we had more dehydration capacity than we needed for our level of production. • This discovery led us to consolidate production into fewer dehydration units	0.05%
• We then looked at the inputs to the model for the dehydrators and determined that the 'pump strokes' on the glycol pumps were also a driver of our emissions. • We then refined the model with actual strokes to get a more accurate estimate of the site's emission profile.	0.03%
• We are now focused on automating the pump stroke count process to improve the 'fidelity' of the emission model for the WB8-25.	TBD

7 Ways PureWest is Using ProMax 6

1. Greenfield site design (w/empirical measurement built-in)
2. Brownfield site upgrades (w/empirical measurement upgrades)
3. **Real-time operations performance monitoring**
4. **Real-time emissions inventory (i.e. empirical Subpart W)**
5. **Site/source level reconciliation (OGMP 2.0, MMRV)**
6. WEC Fee calculations
7. Sell ISO 14067-certified tokenized emissions commodities for a profit (requires MMRV-level emissions inventory)

Empirical Source / Site Level, Reconciled, Emissions Inventory





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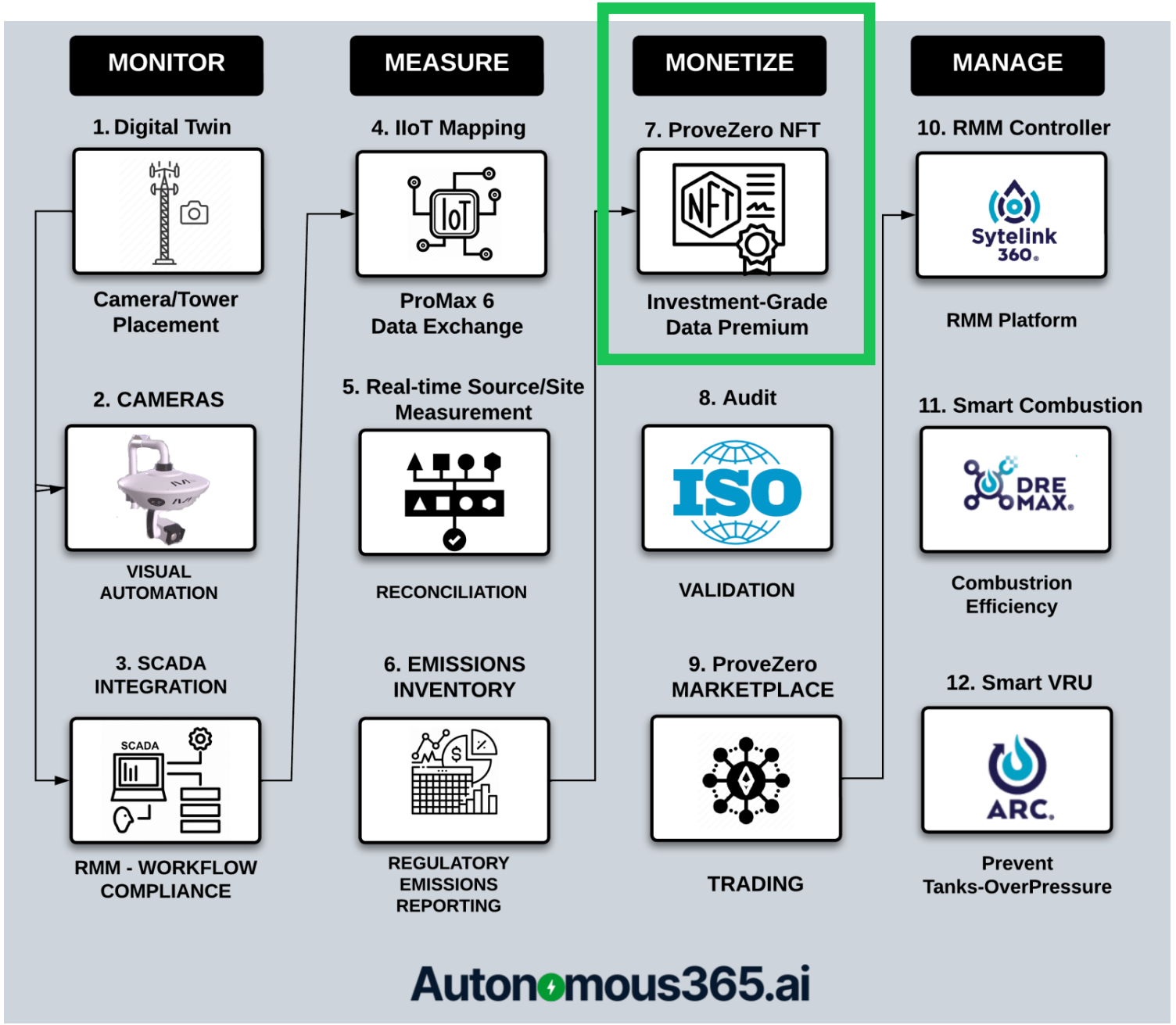
MONETIZE PROCESS

- **MONITOR –** Automate compliance & operations using visual automation
- **MEASURE –** Automate OGMP, Subpart W, and MMRV reporting
- **MONETIZE –** Automate digital energy that can be traded for a premium
- **MANAGE –** Autonomous management of combustion & VRU's



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Feedback Loop

CleanConnect.ai
Visual Automation

7. ProveZero NFT

Investment-Grade Data Premium

- Day's production data & reconciled emissions data is written to NFT on ETH blockchain
- Stored in operator's digital wallet

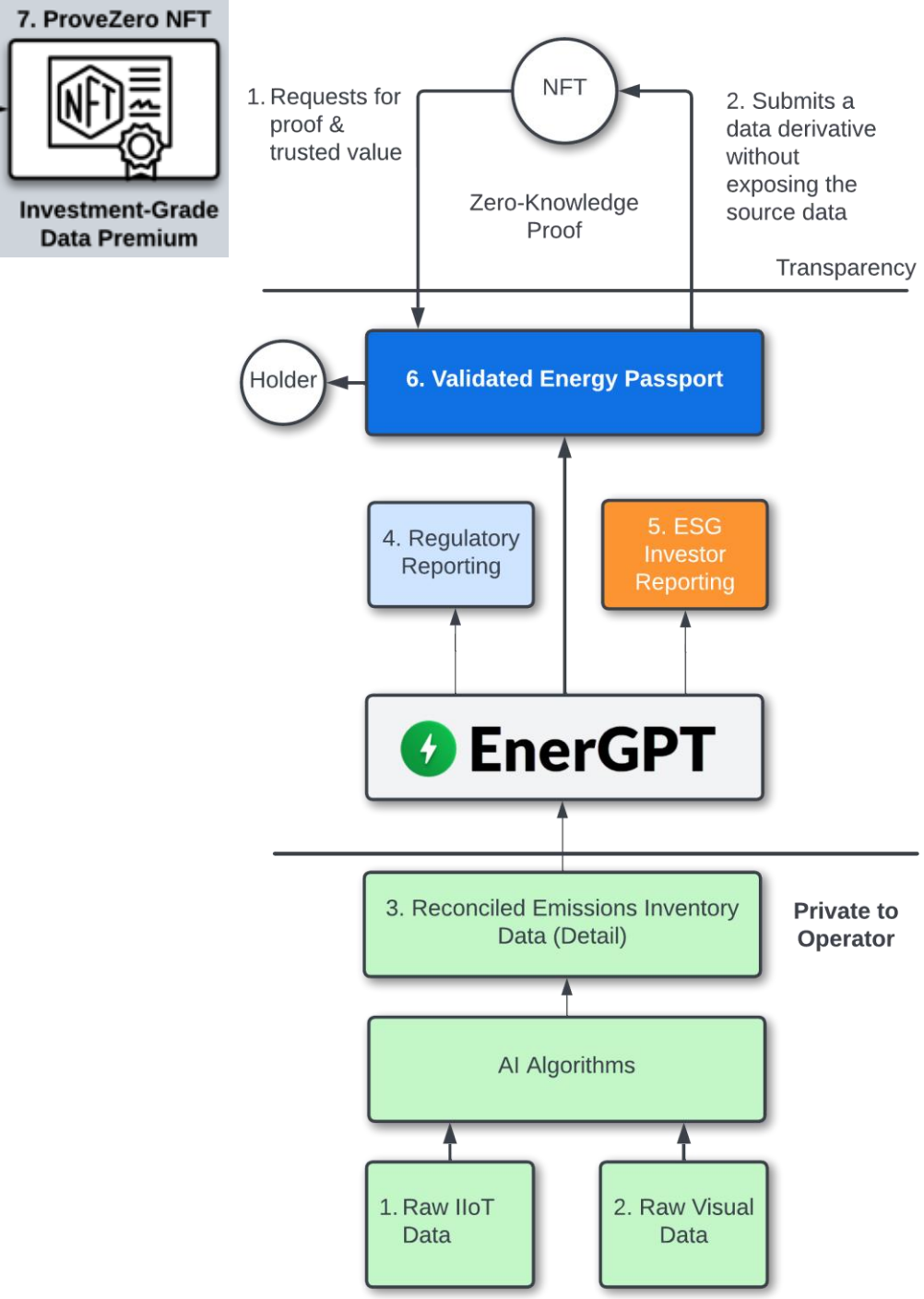
ProveZero My NFT's Marketplace

Measured and calculated properties

Fuel Gas, MSCF	225.6311
Gas Lift, MSCF	N/A
Version	v0.1
Flare Gas, MSCF	50.6613
Flash Gas, MSCF	N/A
Sales Gas, MSCF	16199.3271
Buyback Gas, MSCF	N/A
CO2 Emitted, MSCF	240.9081
N2 Produced, MSCF	29.0059
NoX Emitted, MSCF	0.007
Sold Oil, barrels	N/A
CO2 Produced, MSCF	8.0096
Produced Gas, MSCF	16248.1815
CC Fidelity Rate, %	0.7

Camera Model	Methane Only
Production End	2024-02-25
Gas Composition	TRUE
Oil Composition	TRUE
Producer Name	warbonnet-ogi
WEC Threshold, mtCH4	0.6221
OGI-Detection	N/A
OGI-Measurement	N/A
Percent Difference, %	1.3203
Produced Oil, barrels	N/A
Production Start	2024-02-25
Methane Density, kg/scf	0.0192
Visual Verification	TRUE
CO2e Intensity, mtonne/kBOE	6.6848

Meter Proving Schedule	TRUE
Methane Emission Rate, MSCF	0
Methane Emission Intensity, %	0.0713
OGI-Inspection-Frequency, MCF	72
Sales Gas CH4 Concentration, %	94.7423
Expected Emission, MSCF and Tonne	10.9808
Produced Gas CH4 Concentration, %	94.5721
Gas Composition Report Date	03-12-20
Oil Composition Report Date	07-17-18
Sum Methane Emitted, MSCF and Tonne	10.9808



Data Layers

1. Raw IoT telemetry
2. Raw OGI footage com
3. AI-enhanced source-level measurement-informed inventory
4. Summarized data for regulators using EnerGPT
    1. OGMP 2.0
    2. Subpart W
    3. MMRV
5. Summarized data for financial stakeholders
    1. Ex: SEC
    2. Others: Insurance, investors
6. ProveZero Energy Passport

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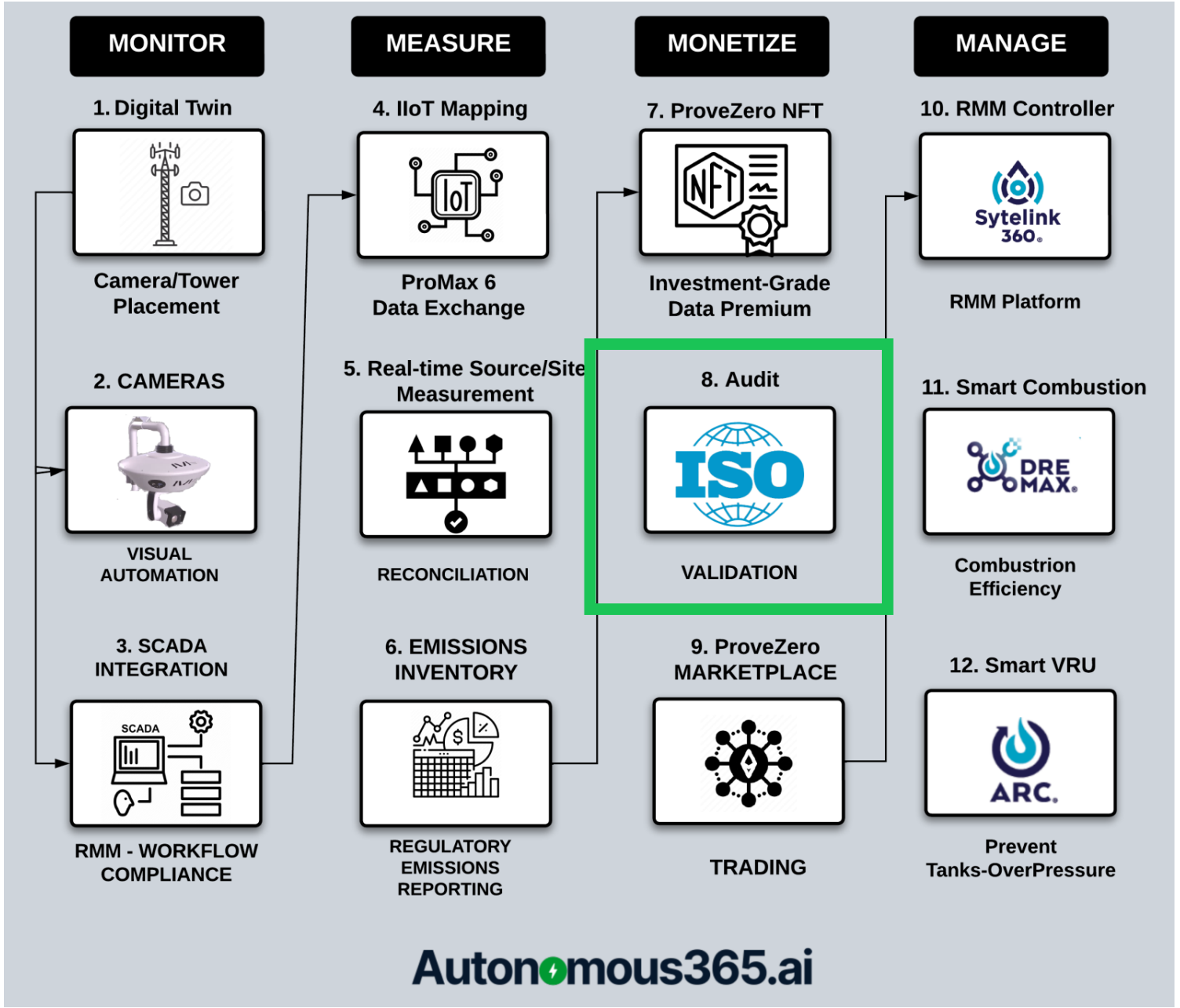

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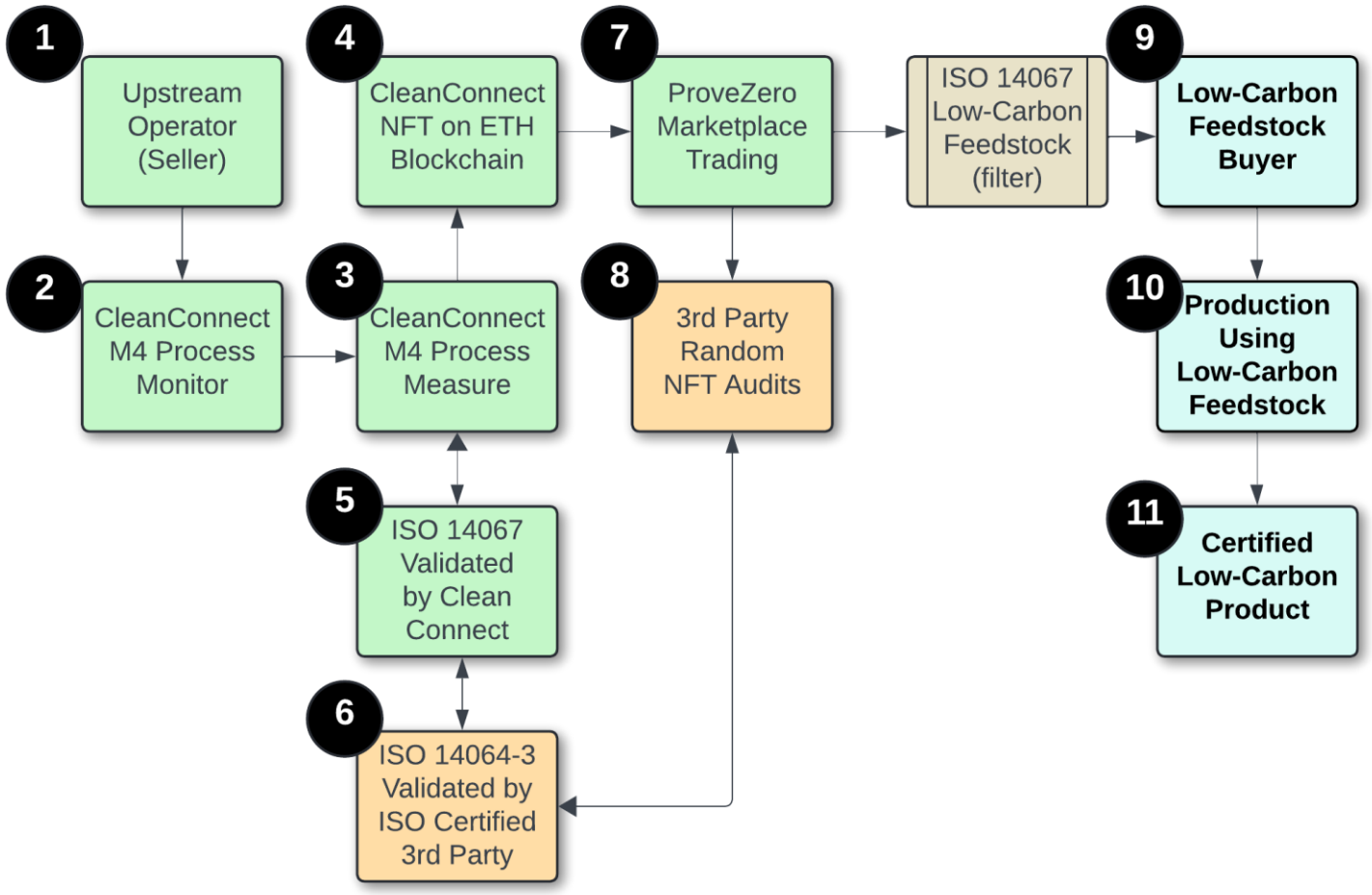
Buyer Seller Workflow

- Petrochem wants to sell low-carbon product
- Buying low-carbon natgas feedstock is significantly cheaper than RNG
- Upstream producers, like PureWest, will earn a **premium** for validated low methane-intensity feedstock



ISO 14067 Standards

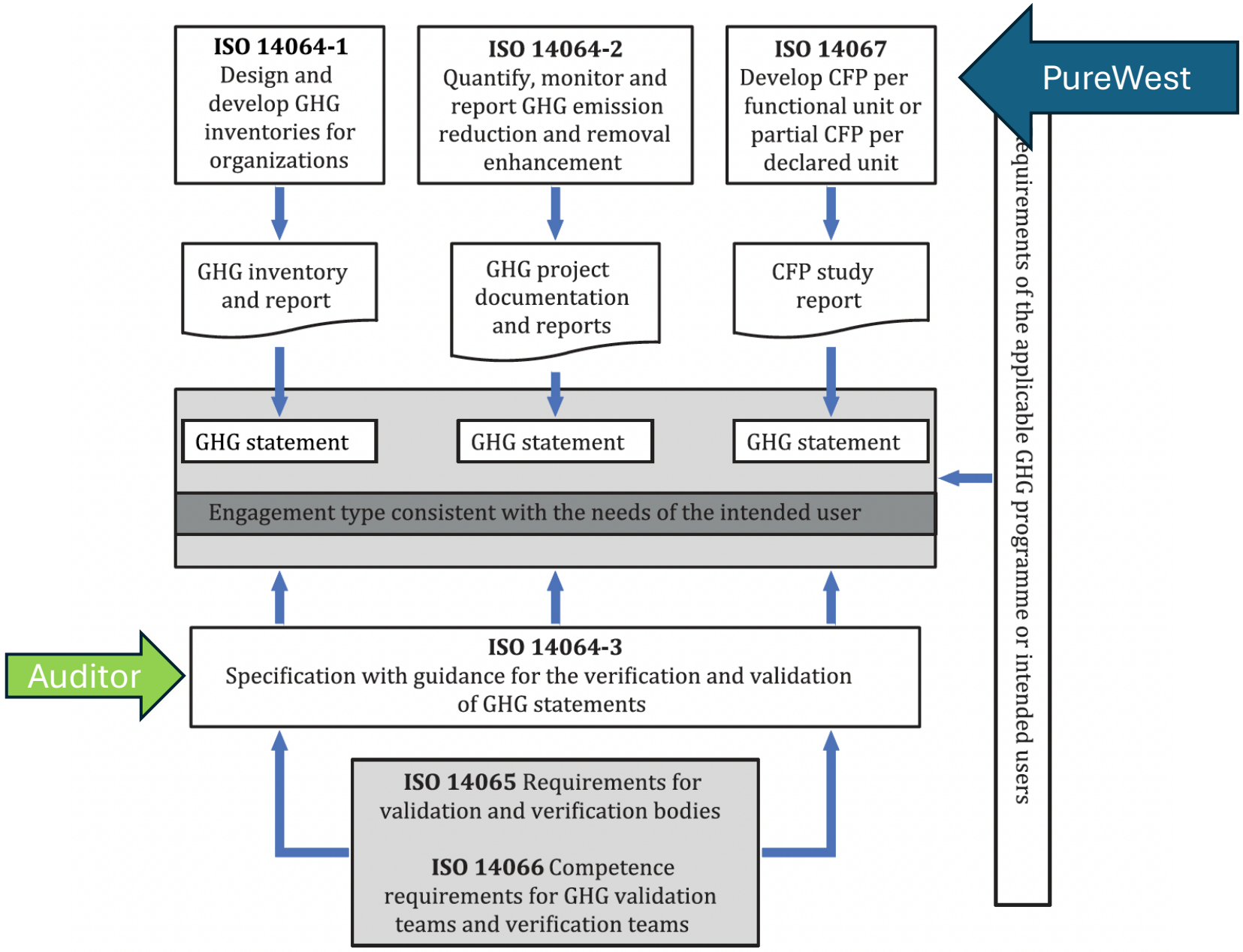


Figure 1 — Relationship among the ISO 14060 family of GHG standards

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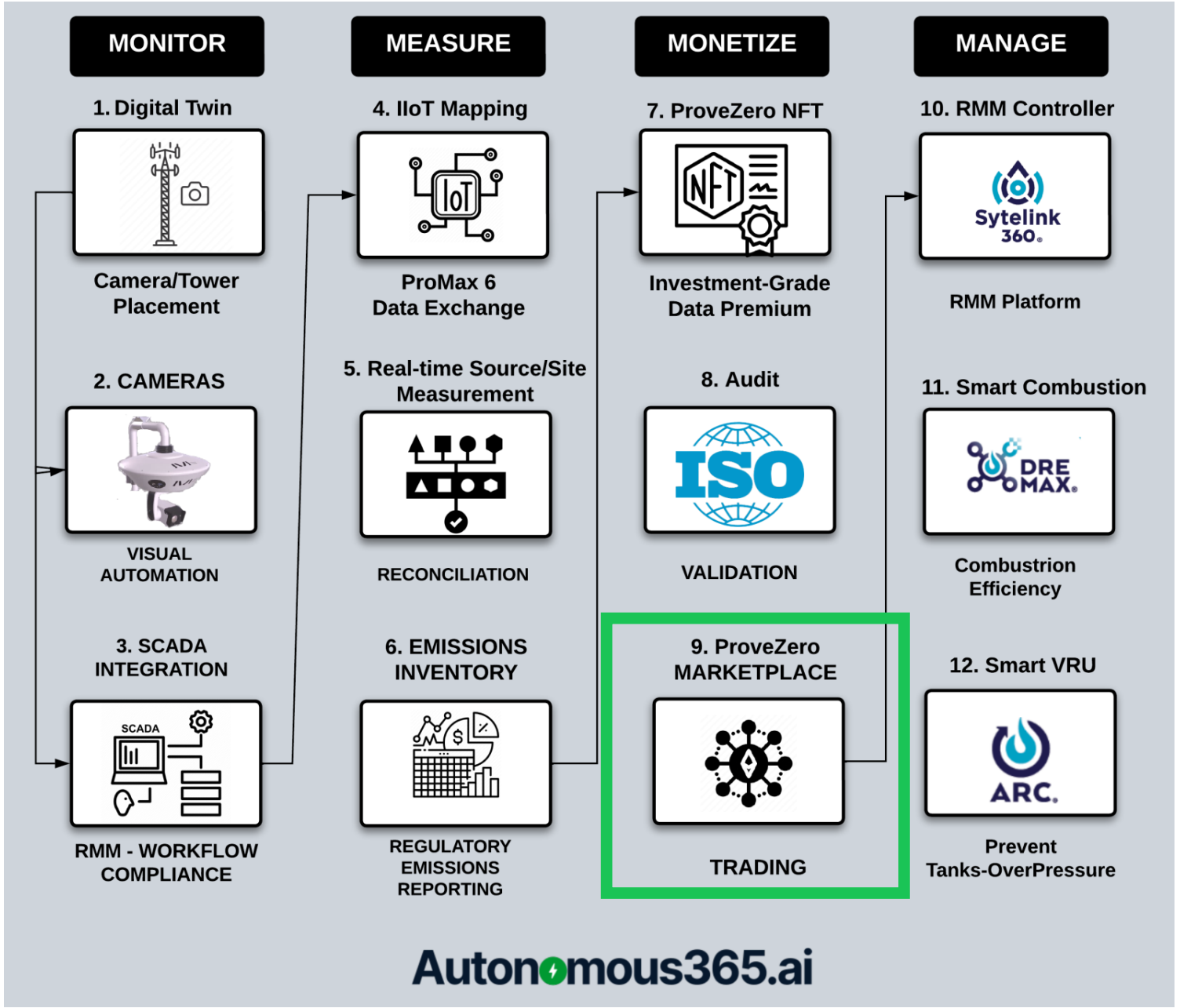
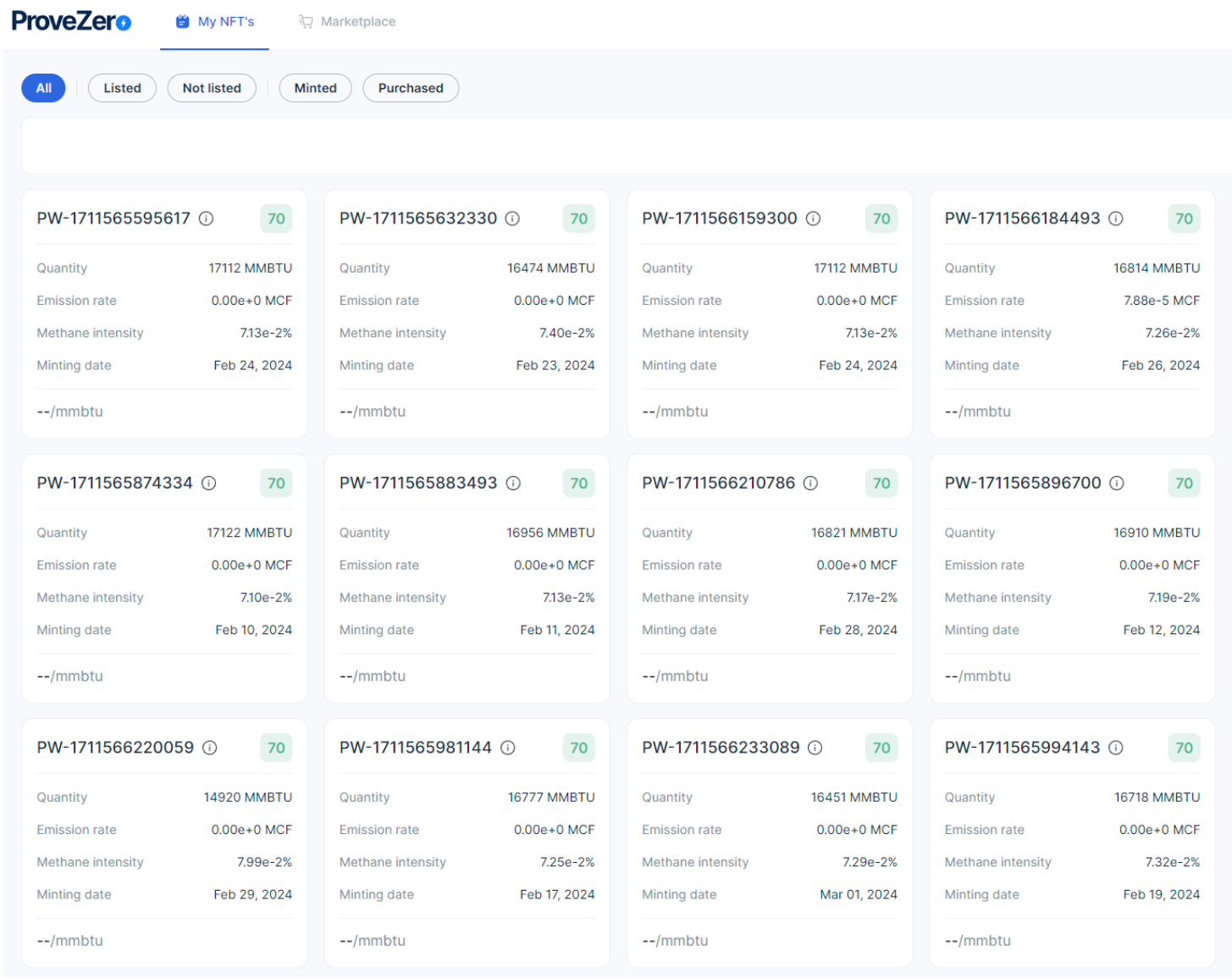


8. ProveZero MARKETPLACE

PREMIUM

ProveZero Marketplace

- Sellers can list NFT's for sale (emissions claims)
- Buyer's can buy with fiat currency and transfer ownership of NFT's to their wallet
- Buyer's can keep, resell, retire NFT's



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Discussion

For a copy of the slides, email: mark@cleanconnect.ai

ARE YOU READY TO GO EMPIRICAL?

Emissions Factors

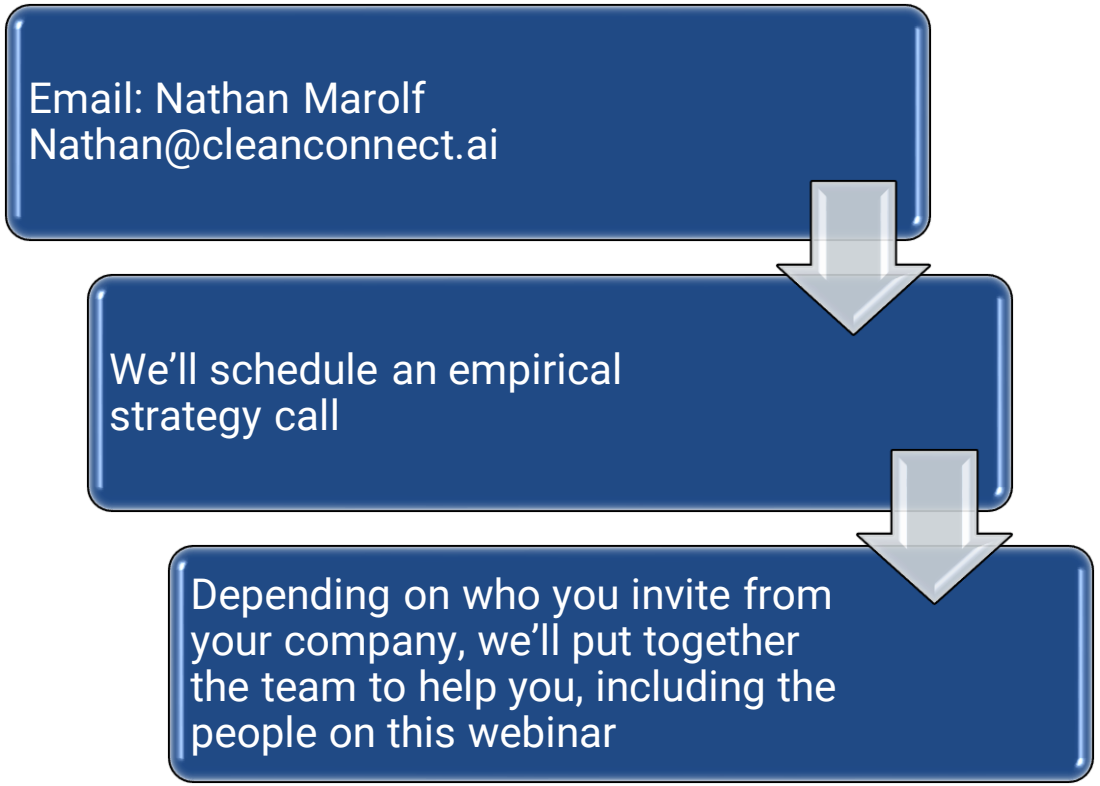
You believe whatever EPA tells you to believe

Empirical Inventory

And we'll guide you on you journey

If you're ready to explore empirical:

Empirical Strategy Session



Our Inter-Disciplinary Team

- Chemical Engineer (PhD)
- AI Data Scientist
- Autonomation Engineer
- ProMax Senior Consultant
- Combustion Engineer
- Tokenized energy engineer
- Regulatory / compliance specialist
- Direct measurement equipment engineer
- **..and other operators who are ahead of you on their empirical journey**