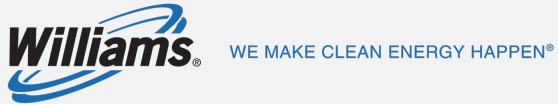


# Data Driven Proof of GHG Mitigation

The Next Generation of the Natural Gas Marketplace has Arrived

LDC Forum August 2022 | Denver CO



**Brian Vogt**  
Director  
Williams  
New Energy Ventures



**Dan Harple**  
Founder & CEO  
Context Labs BV  
Context Labs Energy



# Williams Climate Commitments and New Energy Ventures

## Guiding Principles



**Achieve** carbon reductions for ourselves, our customers and partners.



**Create** economic value with actionable investments.



**Target** opportunities where our midstream competencies provide strong competitive advantages.



**Provide** scalable options for the future.



## Right Here, Right Now Opportunities

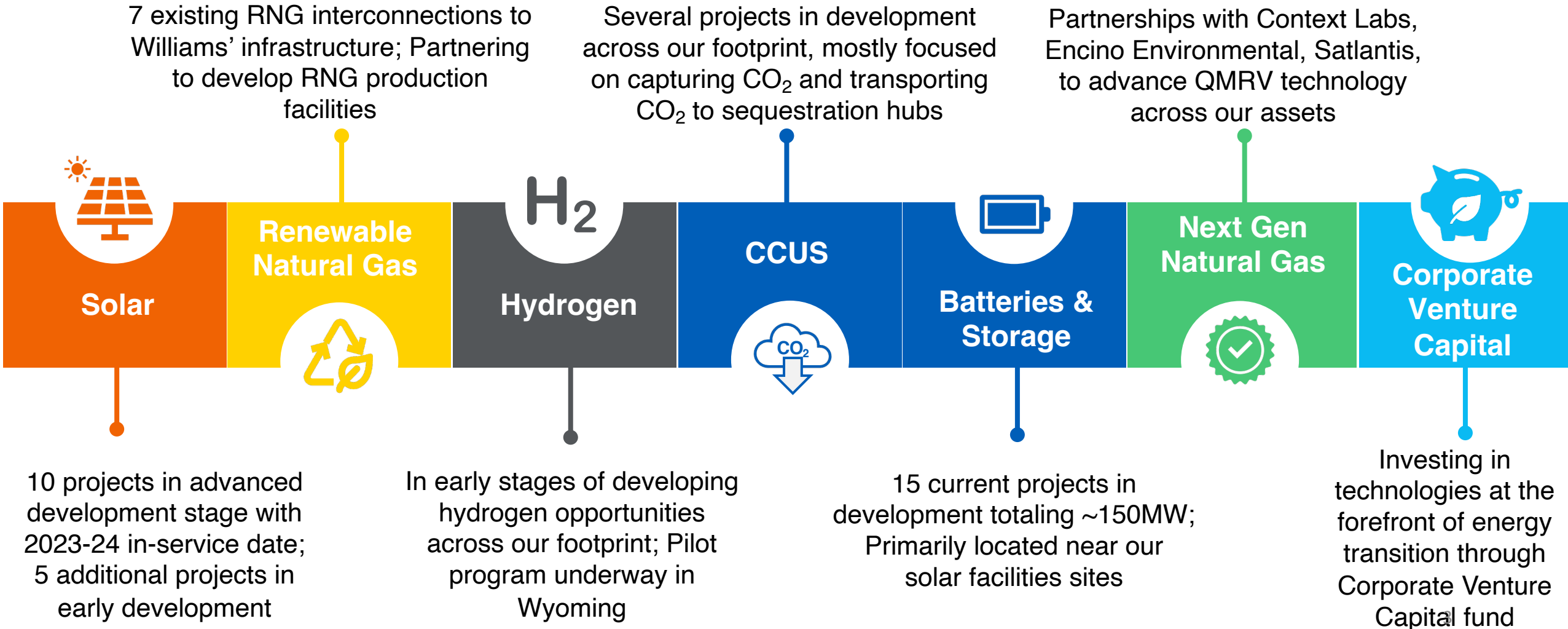
**Goal: 56% absolute reduction in company-wide greenhouse gas emissions by 2030**

Leverage our natural gas-focused strategy and technology that is available today to focus on immediate opportunities to reduce emissions, scale renewables and build a clean energy economy.

## Future Innovation and Technologies

Our path to net zero by 2050 involves a combination of immediate and long-term solutions, including investments in renewables, technology and the best and brightest talent who are committed to doing what is right.

# New Energy Ventures Projects Underway



# Proof Points for our improvements in emission efficiency



## Significant natural gas volume growth since 2005

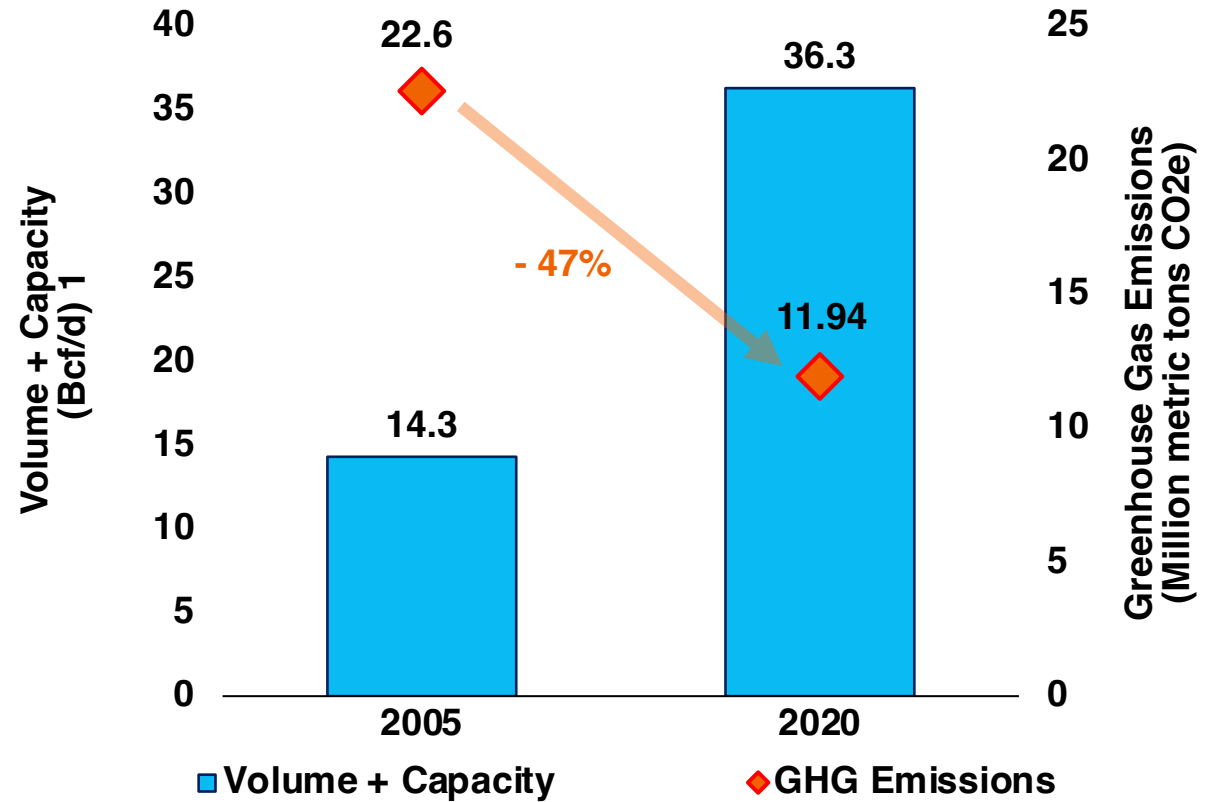
- Transmission capacity up over 100%
- Gathering volumes up nearly 4x



## Emissions down while business scales up

- Improving operations efficiency
- Implementing operating practices focused on safety and emissions reductions
- Modernizing equipment and investing in new technologies

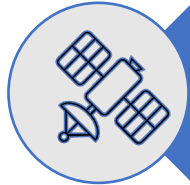
Williams Greenhouse Gas Emissions vs. Natural Gas Handled



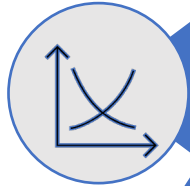
<sup>1</sup> For 2005, E&P net volumes: 0.7 Bcfe/d; Firm reserved transmission capacity (Transco, NWP and Gulfstream): 10 Tbtu/d; Gathering volumes: 3.4 Tbtu/d; gas used in power tolling agreements: 0.2 Bcf/d. For 2019, Firm reserved transmission capacity (Transco, NWP and Gulfstream): 21.5 Tbtu/d; Gathering volumes: 12.9 Bcf/d. Tbtu converted to Bcf at 1,000 btu per cf.



# Certified Low Emission Natural Gas: Moving Beyond Monitoring



Carbon intensity and ESG reporting with independent verification will become a requirement for marketing natural gas products



Extend focus to track carbon intensity through entire supply chain



State-of-the-art technology measurements

- Using **multiple** technologies to monitor, quantify, and reduce emissions
- Utilize big data capability to integrate levels of overlapping data
- Advanced analytics prevent and reduce methane emissions



Enable transparency for any certifier or auditor to verify

- RSG and/or carbon intensity
- Data governance
- Operations policies and procedures
- ESG standards

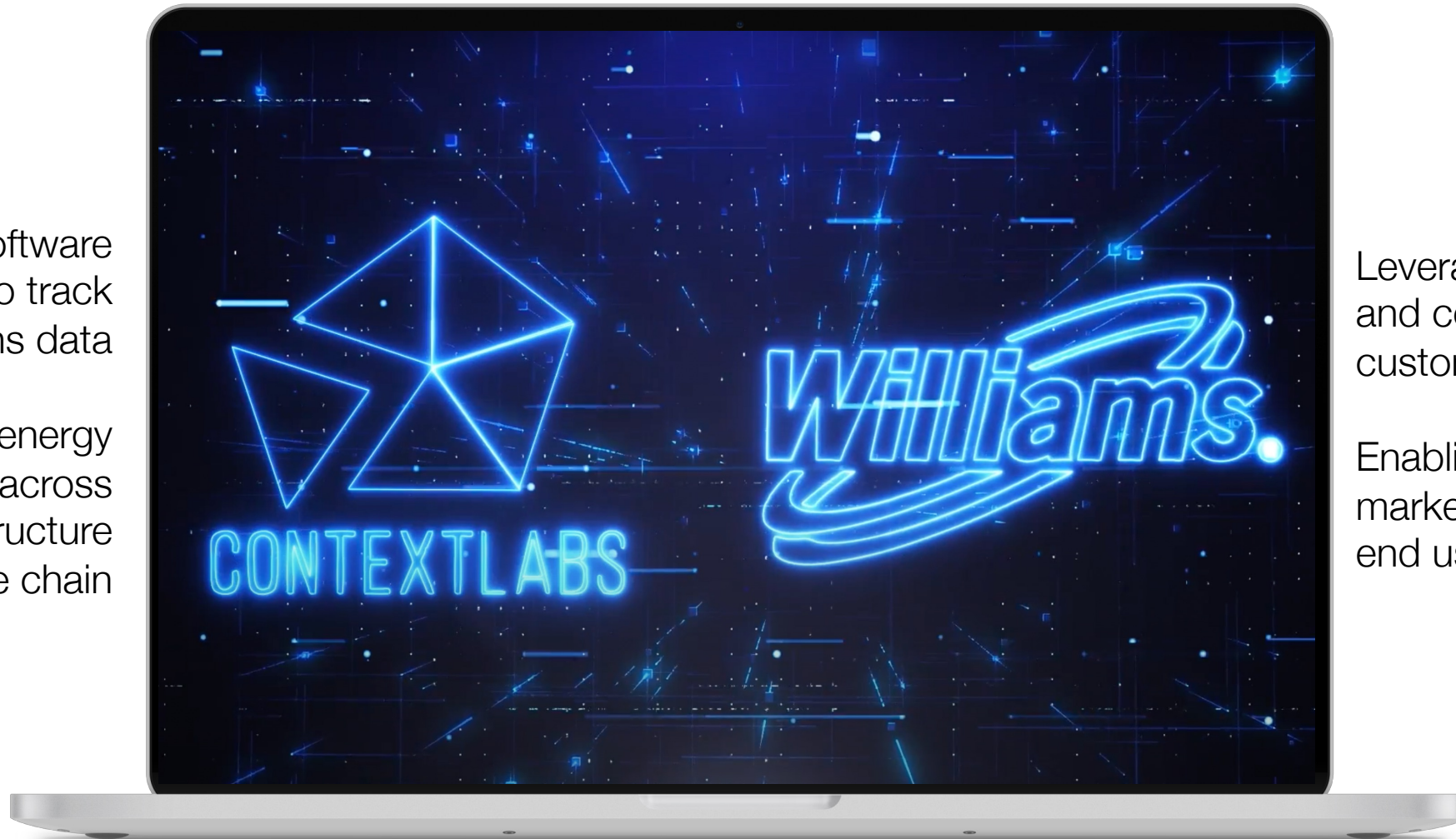


Extend focus beyond methane to all CO<sub>2</sub>e

# Developing an At-Scale Clean Energy Ecosystem

Deploying a software platform to track emissions data

Enabling energy optimization across the infrastructure value chain



Leveraging asset footprint and connectivity to customers

Enabling a low-carbon gas market, from well-head to end users

# The Future of the Natural Gas Marketplace: NextGen Gas

- **Transparent and verified emissions insights for Williams' assets and value chain**
  - Certified Path specific emissions insights will provide a new way optimize natural gas value
  - Wellhead to burner-tip emissions certification, independently assured
- **Enterprise-wide GHG mitigation and real-time optimization**
  - Because what gets measured, gets improved
  - Using **multiple** technologies to monitor, quantify, and reduce emissions
- **Differentiated products and services to support customers' needs and ESG commitments**
  - Providing emissions intensity across the supply chain to expand beyond Responsibly Sourced Gas (RSG), delivering low-carbon and net zero midstream services

## Technology Partners

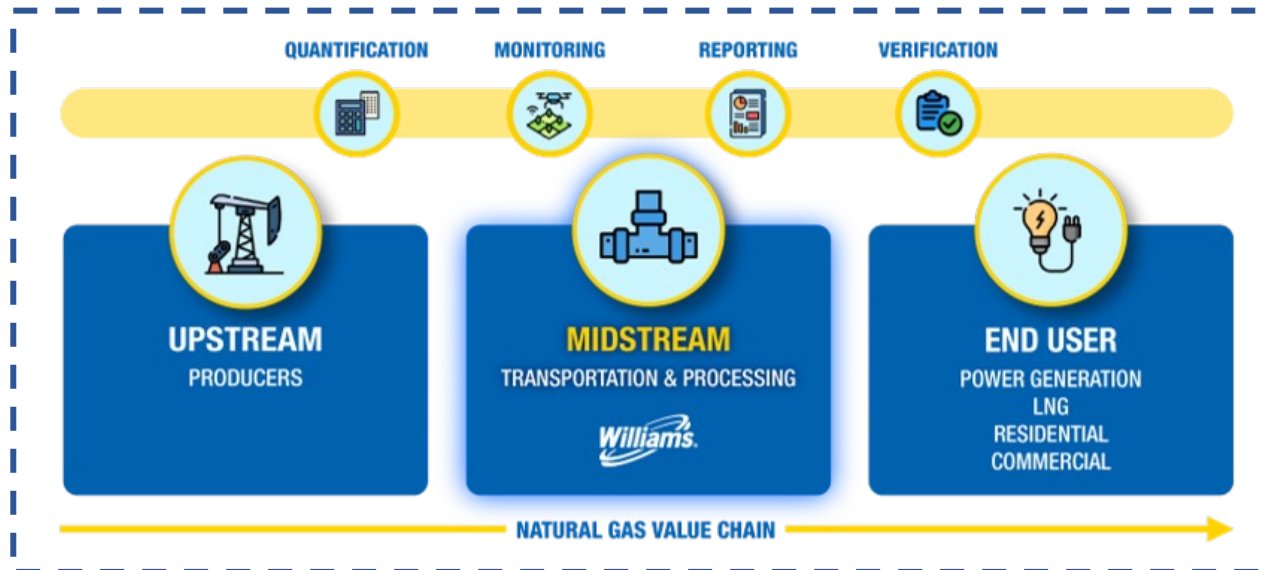


CONTEXT LABS



**ENCINO**  
ENVIRONMENTAL  
SERVICES

S A T L N T I S



**NextGen Gas**

Certified Low Emission Natural Gas

# Certification Across Upstream, Midstream, and Downstream Assets

## Verified GHG Emissions Attestations

Calculated end-to-end Scope I, II, and III GHG Emissions, backed by blockchain

Verified by KPMG in accordance with the GTI Veritas Protocol and OneFuture Standards

Option to pair with offsets according to buyer requirements

SCHEDULE A: PROOF DETAILS	
ID	0da7a909-82f7-4ebc-bb7b-95242da4b6ec
Signature	ED25519:08E88DA913275AF754987DAD0347E818E9E206192B03F6381C9996171B3F009401CA32A581A432E62B8BAEBB243978BC9A2C71D2413B54DF1AEF3C527E79A872
Created at	2022-04-15T00:08:19.202635Z
Creator	15Dd53dtC6rdZmuqaFelpidwvGou5 (Foo Bar: foo@bar.com)
Public Key	033313f874391165A21B889F2EFD3701D0863435C9889CFD80B6B79B6109899AF

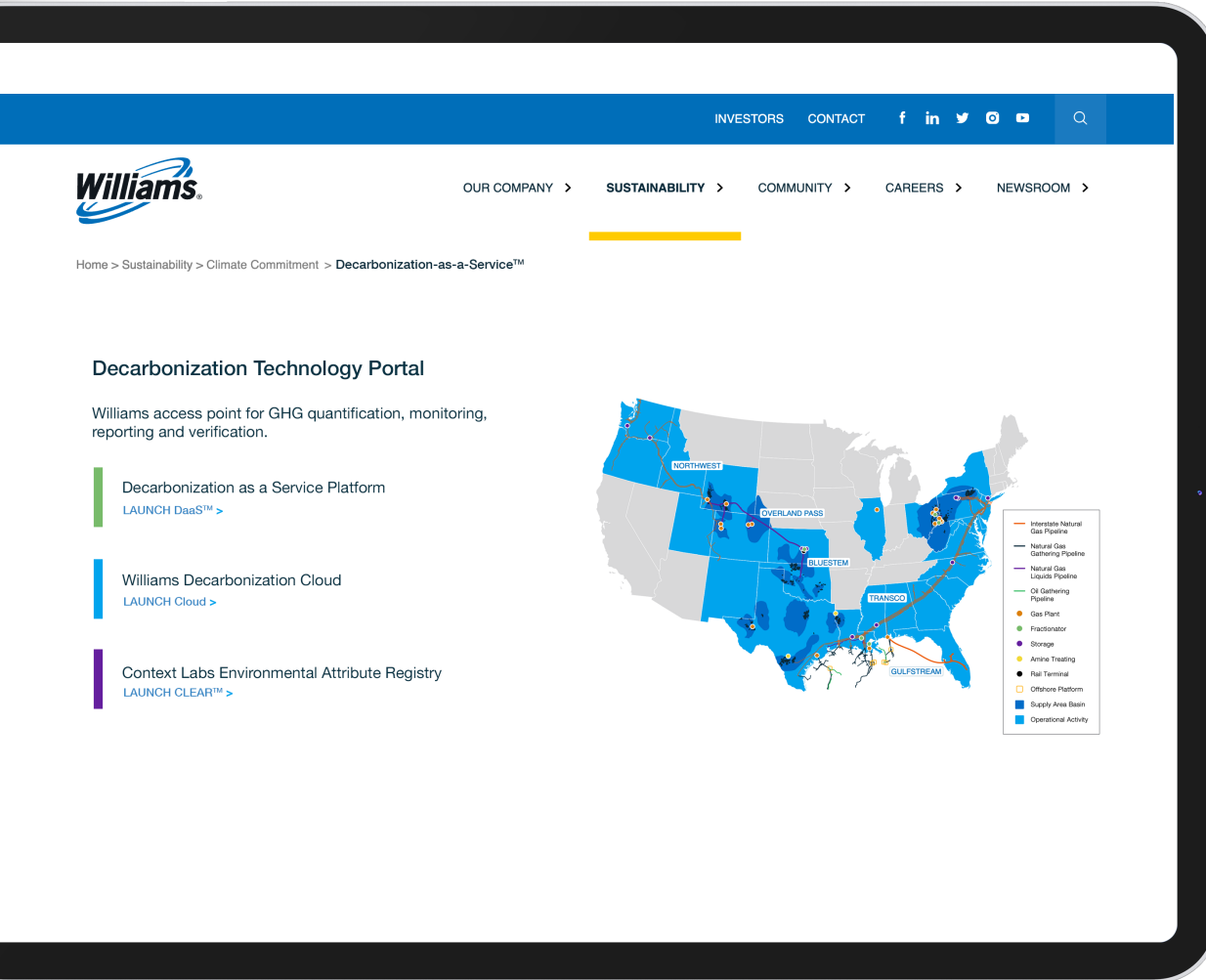
The proof contains the following attestations.

ID	0da7a909-82f7-4ebc-bb7b-95242da4b6ec
Contract_Gas_Volume (MMBTU)	100000
Contract_Delivery_Period	Apr 2022
Upstream_Operator	EQT
APINumber	37-117-21801, 37-117-21892, 37-117-21929
Midstream_Operator	Williams
Receipt_Point	TransCo #520
Delivery_Point	TransCo #505
Utility_Operator	PSEG
Processing_Facility	Sewaran 7
Delivered_Methane_Content (%)	96.45
Delivered_Methane_Emissions (tons)	5.62
Delivered_Methane_Intensity (%)	0.286
Delivered_Carbon_Emissions (tons CO2e)	7,251.2
Delivered_Carbon_Intensity (kg CO2e/MMBtu)	65.92
time	2022-04-15T00:08:12.887688Z





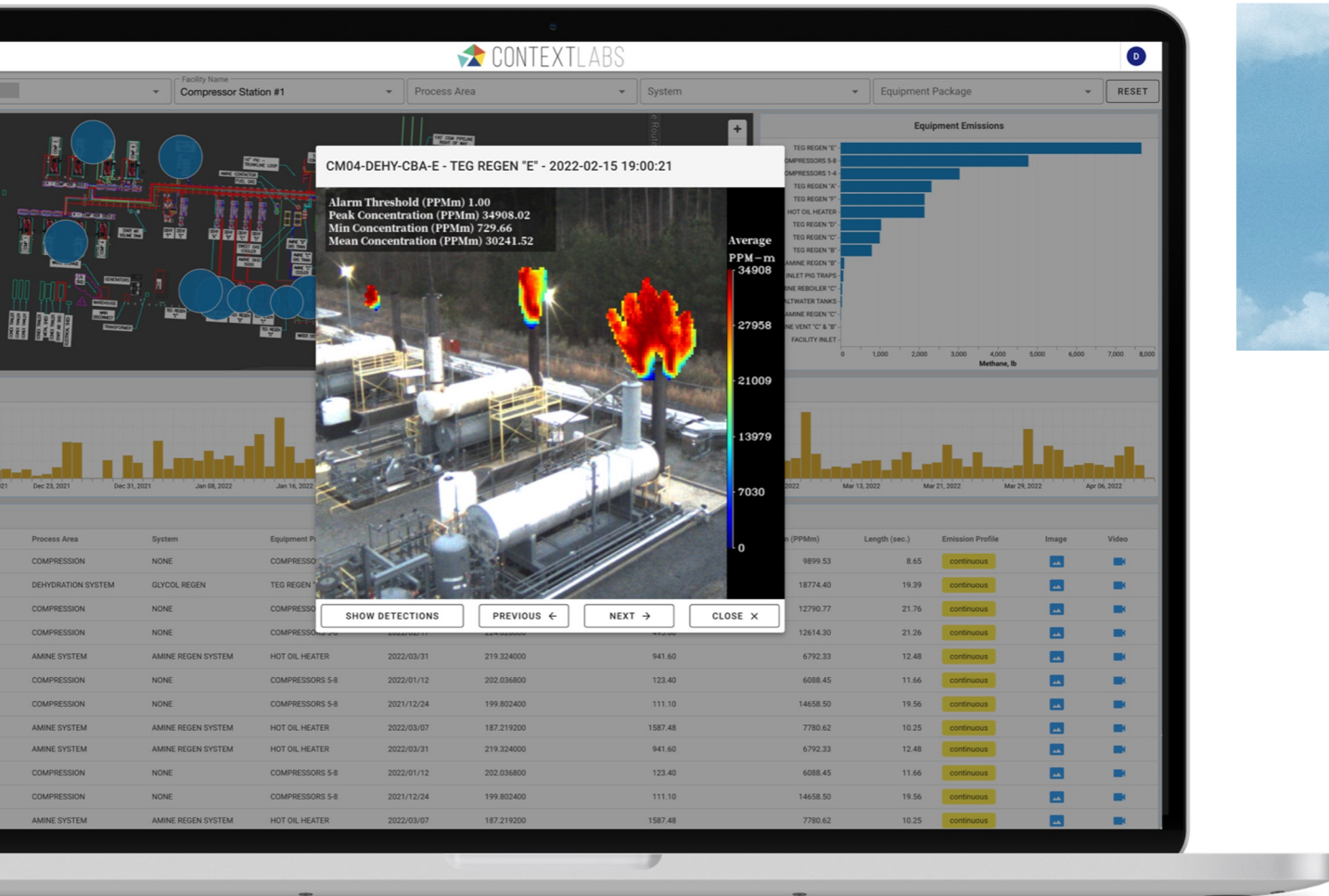
# An End-to-End Solution Across Williams' Energy Supply Chain



**Introducing Williams Decarbonization Cloud**  
Real-Time Asset and Emission Optimization  
Path Specific Emission Profile Certification  
Connecting and Adding value to our ecosystem



# A Data Fabric Platform to Service the Decarbonization Cloud



A vertically integrated solution that fits seamlessly into field operations

Prove performance to any stakeholder through immutable provenance linked to each event

Real-time equipment-level monitoring + AI-based analytics:

- Incorporate real-time emissions measurement into operational decision-making
- Isolate upset conditions from routine operations to respond effectively
- Select transmission paths based on measured carbon intensities



# Introducing Context Labs

- Founded by a team that has developed at-scale platform technology over the past 30 years that has impacted billions of Internet users on a daily basis:
  - Netscape Communications: Establishing key standards for Internet collaboration, media streaming, and VoIP
  - Oracle: providing core big data and collaborative capabilities for Oracle Fusion (now with other 65,000 customers)
  - A joint venture with China's Sina: providing core underlying technology for its Weibo platform, with over 650 million daily users
- Based upon the Pentalytic™ Framework: Emerging from Founder's MIT Research
- Our mission is to deliver and scale the world's trusted impact software platform to lead and set the standard for trusted data and analytics, solving the challenges of our times

## Example Commercial Partners

- **Williams**: Empowering the Next Generation of the Natural Gas Marketplace
- **BP Energy Partners**: A joint venture for the energy sector
- Strategic partner for **KPMG's** Climate Accounting Infrastructure (CAI)
- Commercializing the **RMI (Rocky Mountain Institute)** Climate Action Engine (CAE)
- Climate Platform tech for the **Environmental Defense Fund**

"By enabling companies to more accurately measure and document their carbon footprint, the systems Context Labs offers may help reduce greenwashing, or exaggerating environmental benefits, and lead investors to businesses that are really making progress."

Source: [The Wall Street Journal](#)

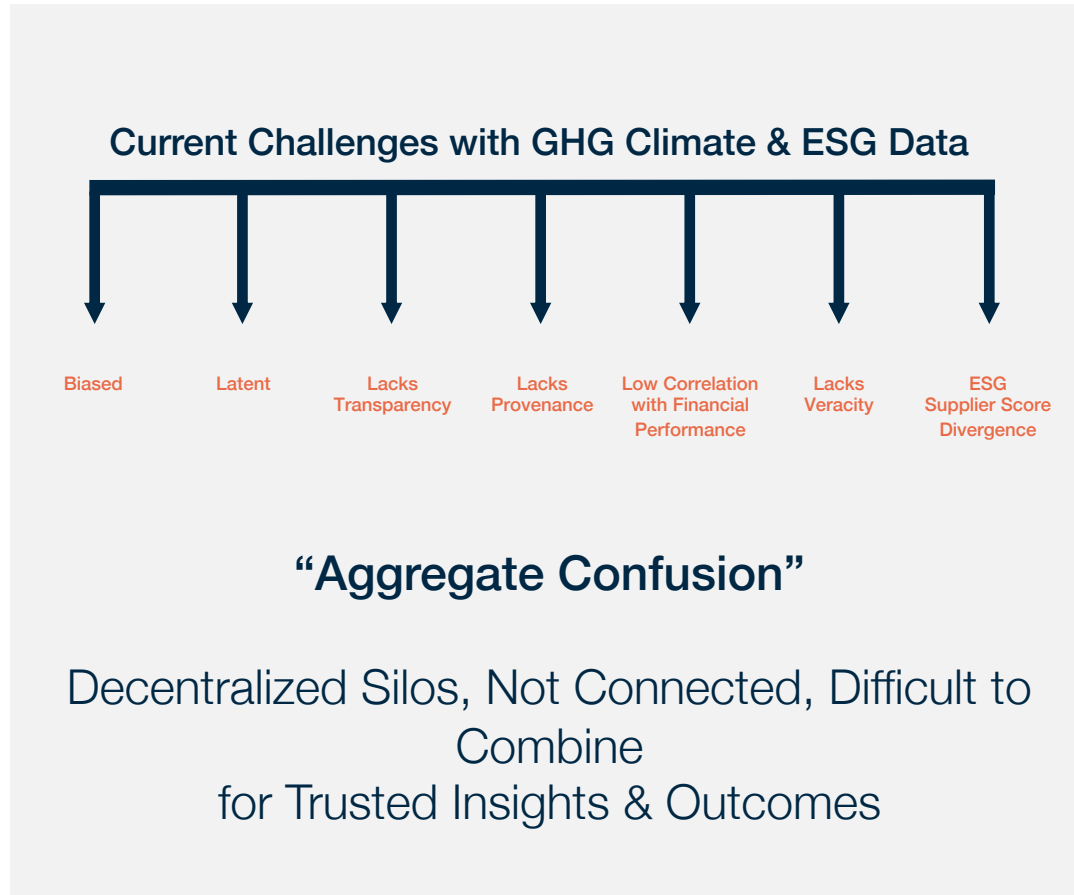


# Trusted Data, Contextualized across the Energy Supply Chain

Markets | Family Office

## Conflicting ESG Ratings Are Confusing Sustainable Investors **Bloomberg**

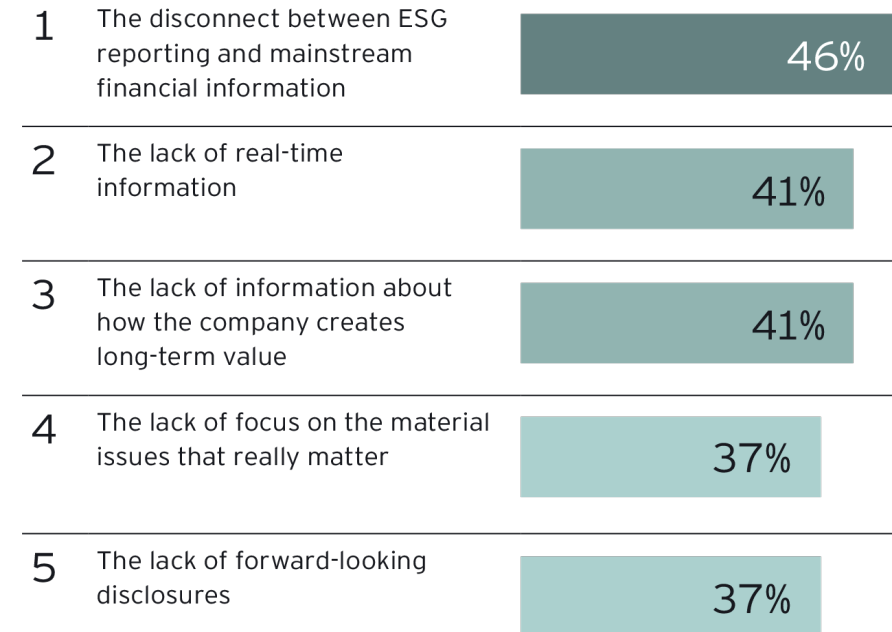
There are many ways to score a company on environmental, social, and governance criteria, making the results difficult to compare.



Climate Change and Sustainability Services (CCaSS) Fifth global institutional investor survey

**Figure 6: The top five challenges to the usefulness and effectiveness of ESG reporting**

Thinking generally about the ESG reporting you receive, which of the aspects below, if any, do you believe are challenges to its usefulness and effectiveness?



Note: percentages of the same numeric value are ranked by decimal point difference.

# Context Labs **Immutably** Technology Foundation

Data Fabric Enablement

### Ingest

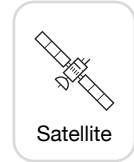
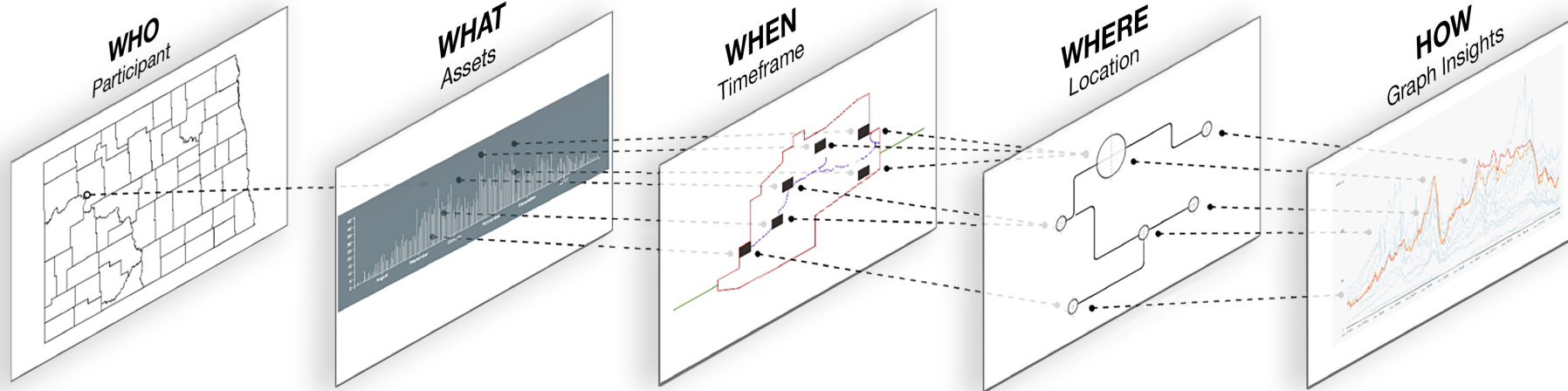
Real-time or Batched  
Processing of Disparate Big Data Sources

### Enrich

Trusted Contextual Metadata  
AI & ML augmentation  
Secures 3<sup>rd</sup> Party Data & Attestations  
Blockchain Secured Audit

### Analyze

Deeply Descriptive & Predictive Signals,  
Indices, Cohort Analyses, Market Prediction



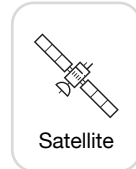
 **Immutably** AI-enabled Network Graph Analytics Reveal Insights by Connecting Disparate Data



# A Commercial Solution for the Energy Sector

Decarbonization as a Service™  
(DaaS™)

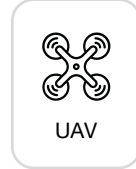
Powered by



Satellite



Airborne



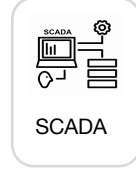
UAV



Remote Ground

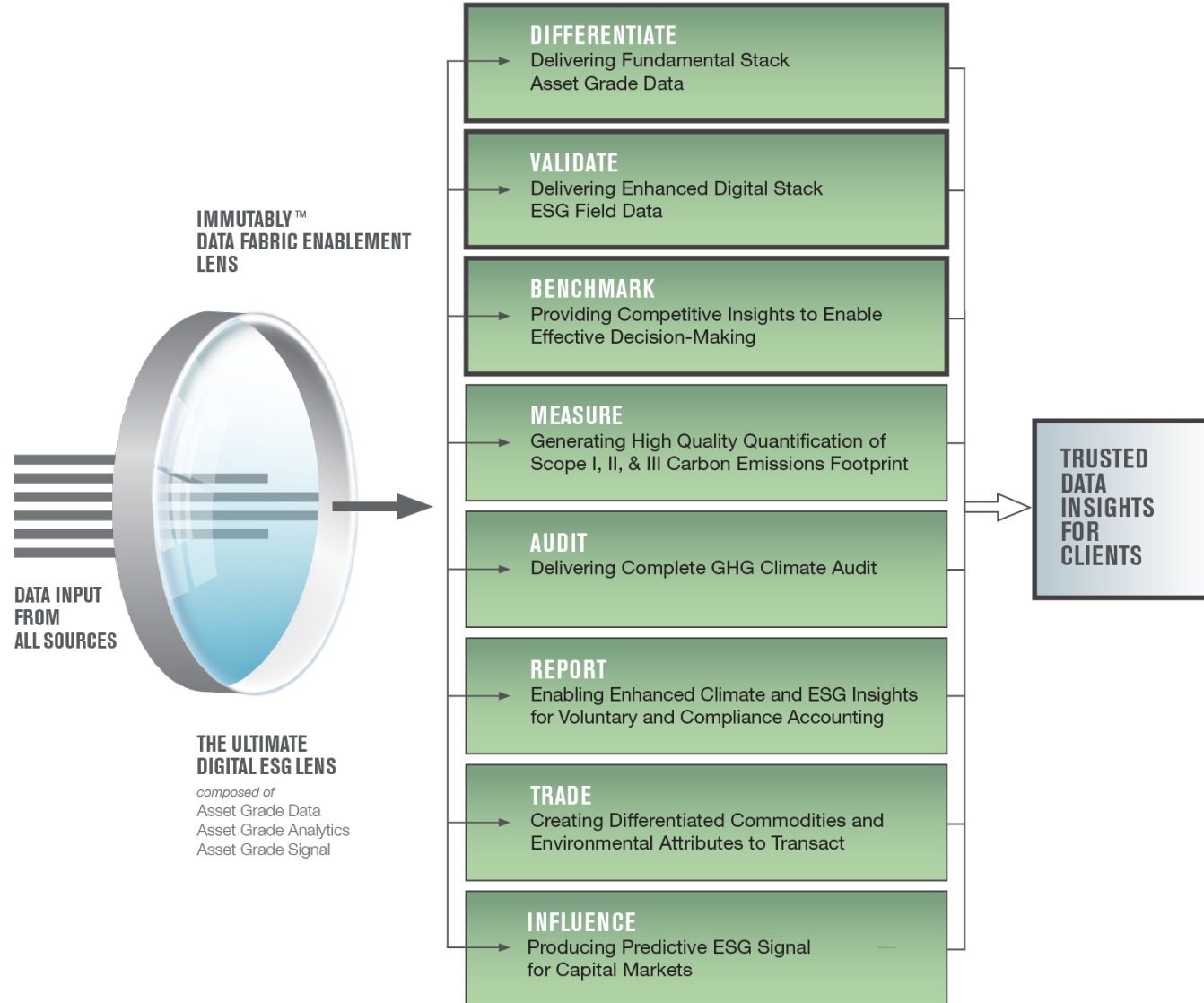


CEM



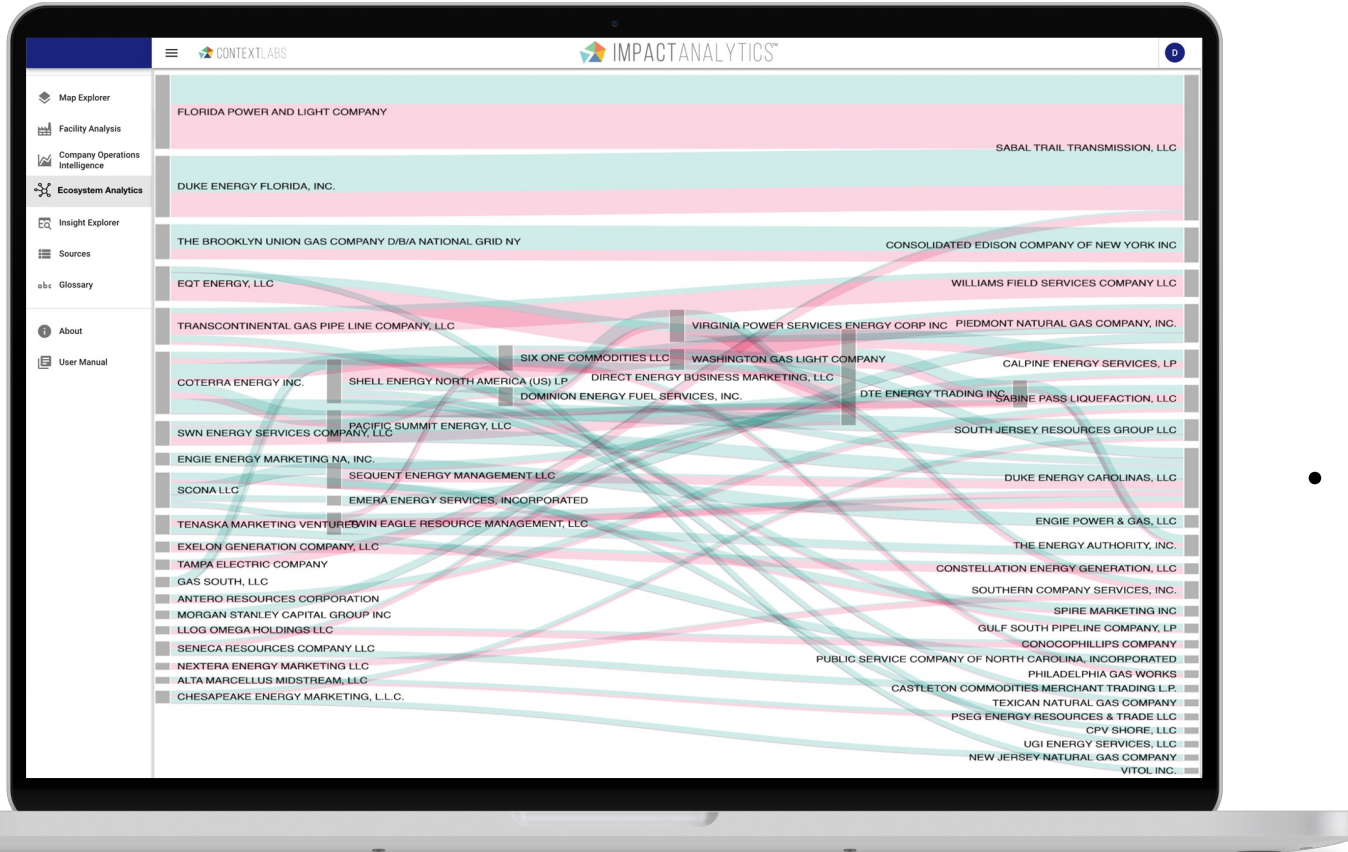
SCADA

DaaS™ Sensor Stack • Interconnected with EdgeShare™





# Commercializing Emissions Intensity: From Wellhead to Burner Tip



- Building a new Ecosystem-focused Emissions Value Chain:

- Driving market evolution toward a more real-time acceleration of the Energy Transition
- Ability to select transmission paths based on measured carbon intensity
- Enabling energy optimization across the infrastructure value chain

- Driving Immediate Commercial Opportunities:

- Enabling Demand-Side Transactions to Satisfy Customer Needs for GHG Mitigation
- Bringing to Market End-to-End Certified Low Emission Natural Gas
- Coupled with the Realization of Differentiated Commodities
- Delivered predictive analytics using Machine Learning and AI



# What's Next

*Williams and Context Labs realize the entire natural gas value chain must be monitored, measured, and verified to secure natural gas's role in a clean energy future.*

Williams is excited to explore an opportunity to partner with our customers to provide Certified NexGen Gas solutions.



Decarbonization  
Cloud Powered by DaaS™

Visit with the Williams team to explore certified pathway options available this year & Visit the Context Labs' Kiosk to Schedule a Demonstration

**Sign up to further explore opportunities**

- Initiate path-specific projects to demonstrate traceable end-to-end emissions
- Create and transact a certified Low Carbon Intensity product
- Pair with Immutably™-derived Asset Grade offsets to create Net-Zero pathways
- Serve growing demand for transparent deliveries of natural gas and NGLs







CLEAN,  
AFFORDABLE  
AND  
RELIABLE  
ENERGY

WE MAKE CLEAN ENERGY HAPPEN®

