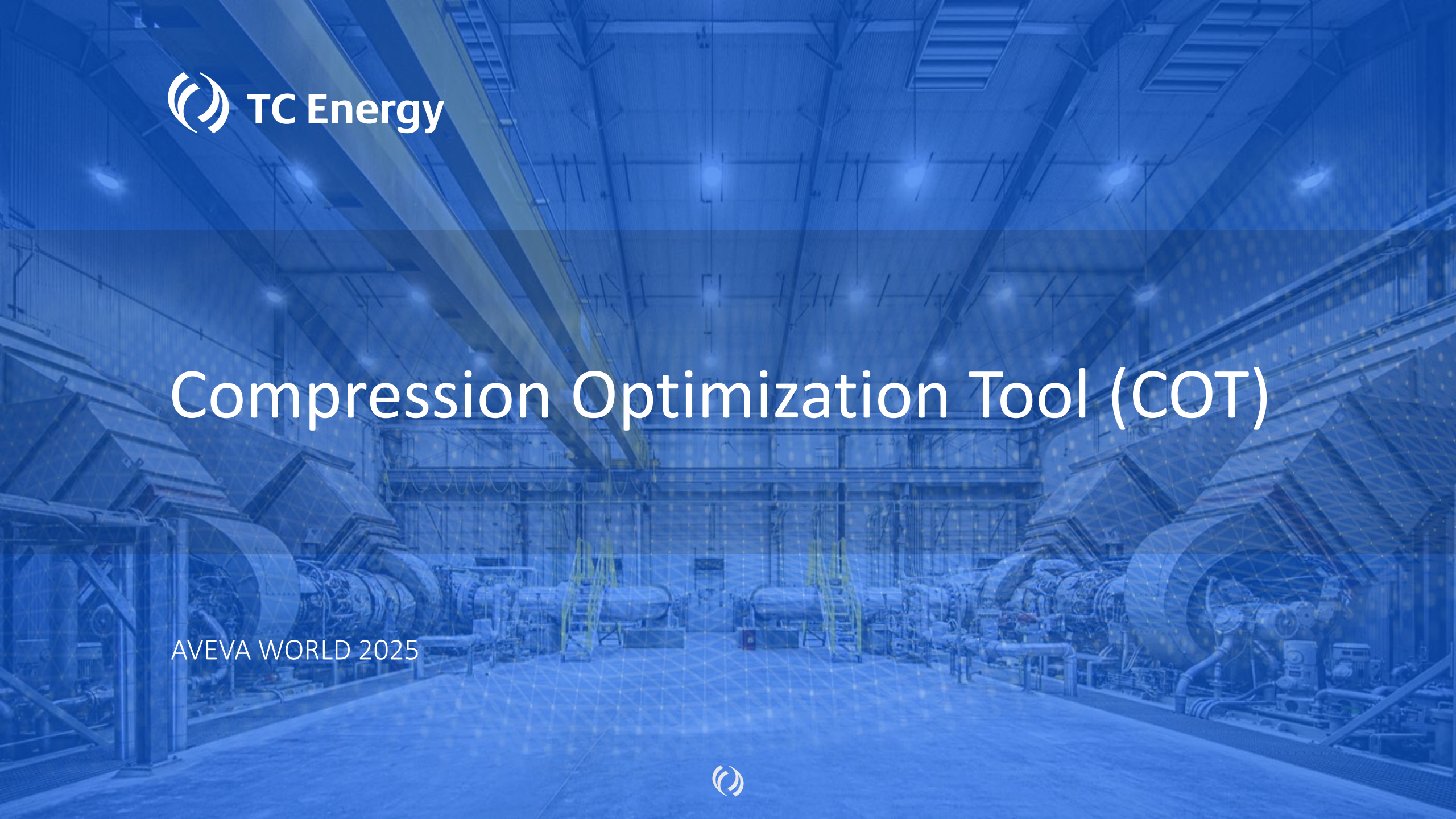

AVEVAWORLD



TC Energy

Compression Optimization Tool (COT)

AVEVA WORLD 2025

Speakers

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Agenda

- TC Energy Overview
- Business Drivers
- What is COT
- People & Processes
- Functionality
- Results
- Technology Layers
- Future Work
- Q&A

Forward-looking information and non-GAAP measures

This presentation includes certain forward-looking information, including but not limited to, our financial and operational performance, statements related to future dividend and earnings growth, future EBITDA growth, the future growth of our core businesses, including the performance of our subsidiaries, expectations about strategies and goals for growth and expansion, including acquisitions, expected cash flows and future financing options available along with portfolio management, including our expectations regarding the size, timing and outcome of the asset divestiture program, expected dividend growth, expected duration of discounted DRP, expected access to and cost of capital, expected energy demand levels, expected costs and schedules for planned projects, including projects under construction and in development, expected emission reductions and other benefits from planned projects, expected capital expenditures and proportion of program relating to energy transition, contractual obligations, commitments and contingent liabilities, including environmental remediation costs, expected regulatory processes and outcomes, statements related to our GHG emissions reduction goals, expected outcomes with respect to legal proceedings, including arbitration and insurance claims, the expected impact of future tax and accounting changes, the commitments and targets contained in our 2023 Report on Sustainability and GHG Emissions Reduction Plan and expected industry, market and economic conditions, including their impact on our customers and suppliers. Statements that are forward-looking are based on certain assumptions and on what we know and expect today and generally include words like anticipate, expect, believe, may, will, should, estimate or other similar words.

Forward-looking statements do not guarantee future performance. Actual events and results could be significantly different because of assumptions, risks or uncertainties related to our business or events that happen after the date of this presentation. **In particular, unless otherwise specified, forward-looking statements in this presentation do not include the impacts of TC Energy's intention to separate into two independent, investment-grade, publicly listed companies through the spinoff of TC Energy's Liquids Pipelines business expected to close in the second half of 2024, subject to receipt of all required approvals (the "Liquids Spin-off").**

Our forward-looking information is based on certain key assumptions and is subject to risks and uncertainties, including but not limited to the realization of expected benefits from acquisitions and divestitures, our ability to successfully implement our strategic priorities and whether they will yield the expected benefits, our ability to develop, access or implement some or all of the technology and infrastructure necessary to efficiently and effectively achieve GHG emissions targets and ambitions, the commercial viability and scalability of GHG emissions reduction strategies and related technology and products, our ability to implement a capital allocation strategy aligned with maximizing shareholder value, the operating performance of our pipelines, power generation and storage assets, amount of capacity sold and rates achieved in our pipeline businesses, the amount of capacity payments and revenues from power generation assets due to plant availability, production levels within supply basins, construction and completion of capital projects, cost and availability of, and inflationary pressures on, labour, equipment and materials, the availability and market prices of commodities, access to capital markets on competitive terms, interest, tax and foreign exchange rates, performance and credit risk of our counterparties, regulatory decisions and outcomes of legal proceedings, including arbitration and insurance claims, our ability to effectively anticipate and assess changes to government policies and regulations, including those related to the environment, our ability to realize the value of tangible assets and contractual recoveries, competition in the businesses in which we operate, unexpected or unusual weather, acts of civil disobedience, cyber security and technological developments, ESG-related risks, impact of energy transition on our business, economic conditions in North America as well as globally and global health crises, such as pandemics and epidemics, and the impacts related thereto. As actual results could vary significantly from the forward-looking information, you should not put undue reliance on forward-looking information and should not use future-oriented information or financial outlooks for anything other than their intended purpose. We do not update our forward-looking statements due to new information or future events, unless we are required to by law. You can read more about these factors and others in the MD&A in our most recent Quarterly Report to Shareholders and in other reports we have filed with Canadian securities regulators and the SEC, including the MD&A in our most recent Annual Report.

For additional information on the assumptions made, and the risks and uncertainties which could cause actual results to differ from the anticipated results, refer to our most recent quarterly report and most recent annual report filed under TC Energy's profile on SEDAR at www.sedar.com and with the U.S. Securities and Exchange Commission at www.sec.gov and the "Forward-looking information" section of our most recent Report on Sustainability and our GHG Emissions Reduction Plan which are available on our website at www.TCEnergy.com.

Comparable EBITDA, comparable earnings, comparable earnings per share, funds generated from operations, and comparable funds generated from operations are non-GAAP measures used throughout this presentation. These measures do not have any standardized meaning under GAAP and therefore are unlikely to be comparable to similar measures presented by other companies. The most directly comparable equivalent GAAP measures are, segmented earnings (losses), net income attributable to common shares, net income per common share, and net cash provided by operations. Reconciliations to the most directly comparable GAAP measures are included as an Appendix to this presentation. Refer to the MD&A in our most recent Quarterly Report for more information about the non-GAAP measures, which section of the MD&A is hereby incorporated by reference. Our Quarterly Report to Shareholders is filed with Canadian securities regulators and the SEC and available at www.TCEnergy.com under Investors.

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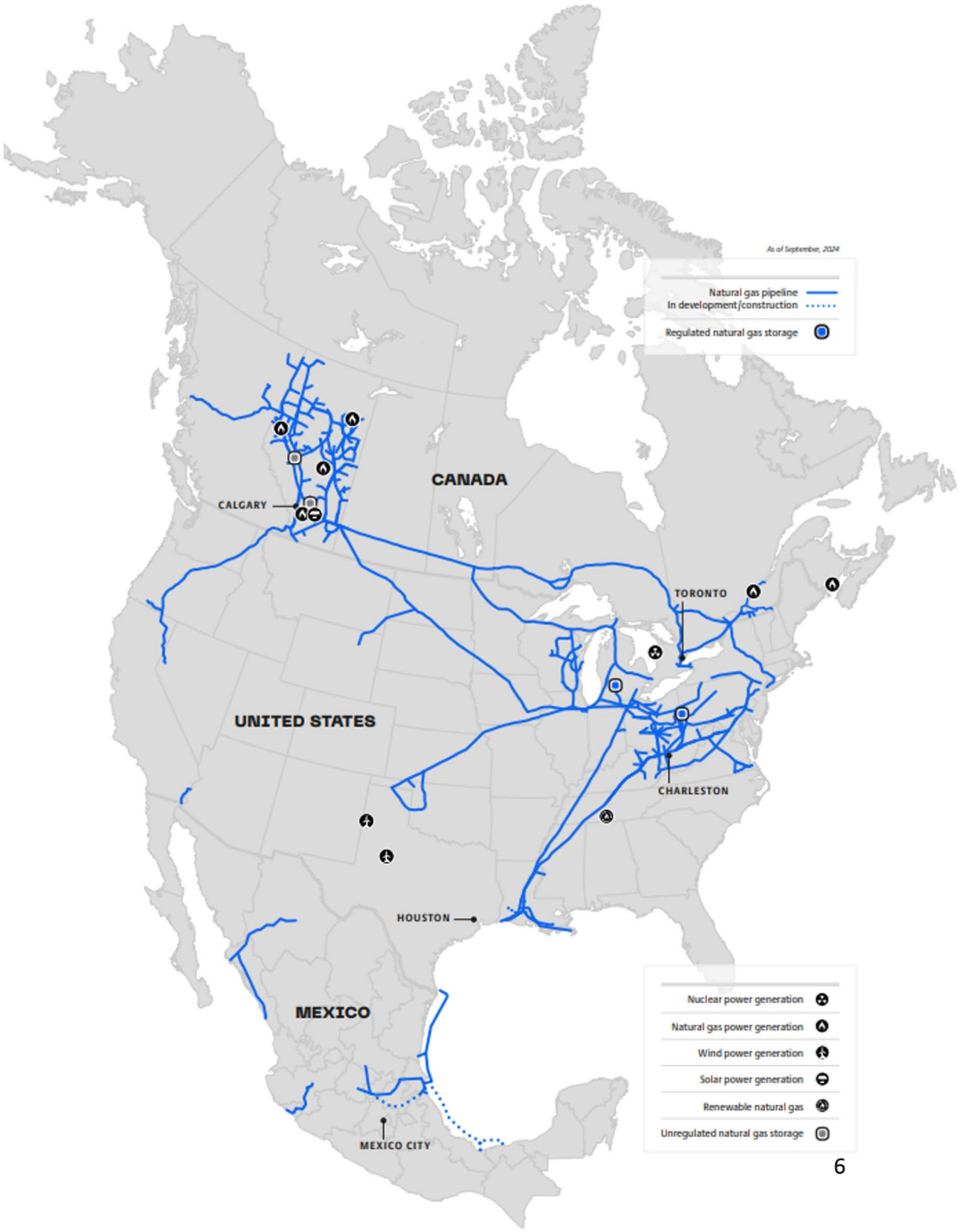
One of North America's Largest Natural Gas Pipeline Networks

58K Miles of Pipeline	**30%** Continental Demand	**650+** BCF Storage Capacity
365 Stations	**1000+** Units	**11.3M** Hp



Business Drivers

- Industry driving towards more sustainable energy future
- Direct alignment with TC Energy's Sustainability Initiatives
- Contribute to company-wide emissions reduction targets

What is COT

The Compression Optimization Tool (COT) combines machine learning, performance engineering, and combinatorics theory to optimize TC Energy's compression fleet.

COT recommends the most fuel-efficient compressor configurations in near real-time, reducing emissions and improving operational sustainability.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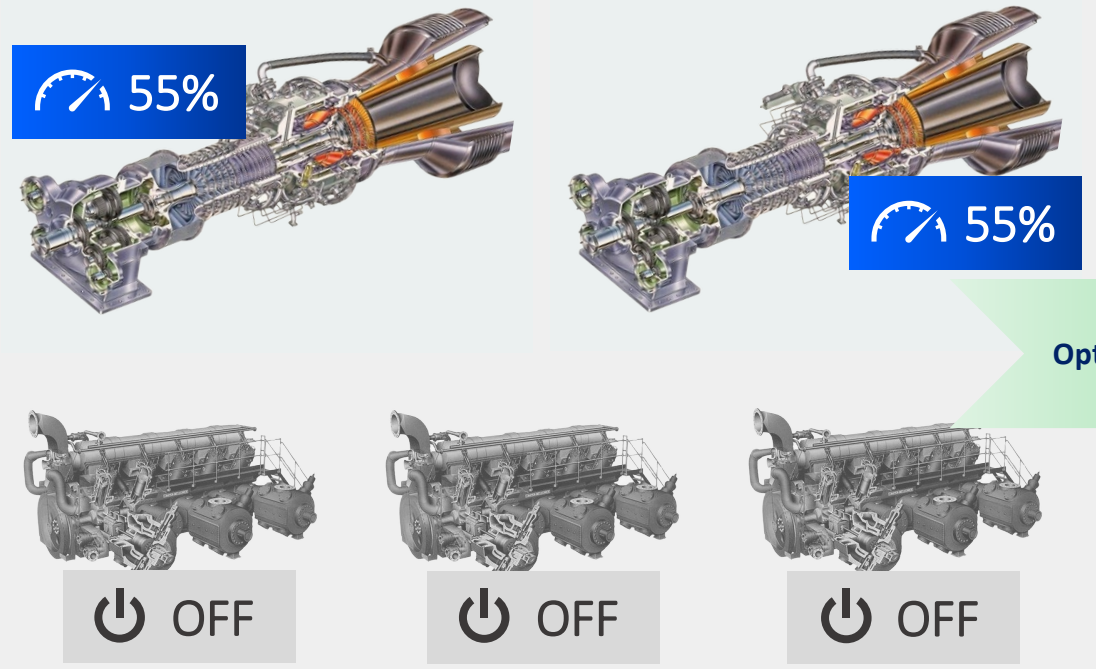
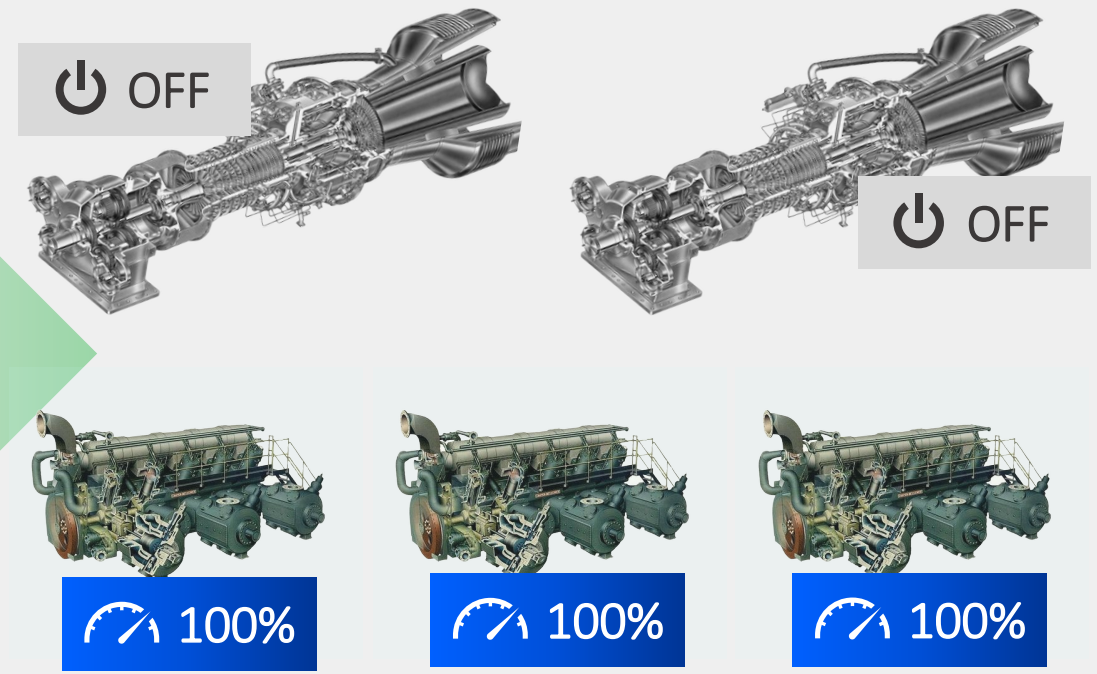
COT Concept

Current Station Configuration



COT Optimization Engine

COT Recommendation



Targets:

Flow	Suction Press	Discharge Press
1,346 mcfd	600 psi	900 psi

☑ Meet current targets with less emissions

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COT Process

People & Process

- Human-in-the-loop approach for initial triage of active opportunities, communication protocols and documentation
- Small, focused team performs initial data analysis and communicates actionable opportunities to Gas Control supervisors
- Team collects and documents relevant feedback and learnings in the COT Findings tool
- Learnings are available for continuous improvement and future decision making

Optimization Strategy

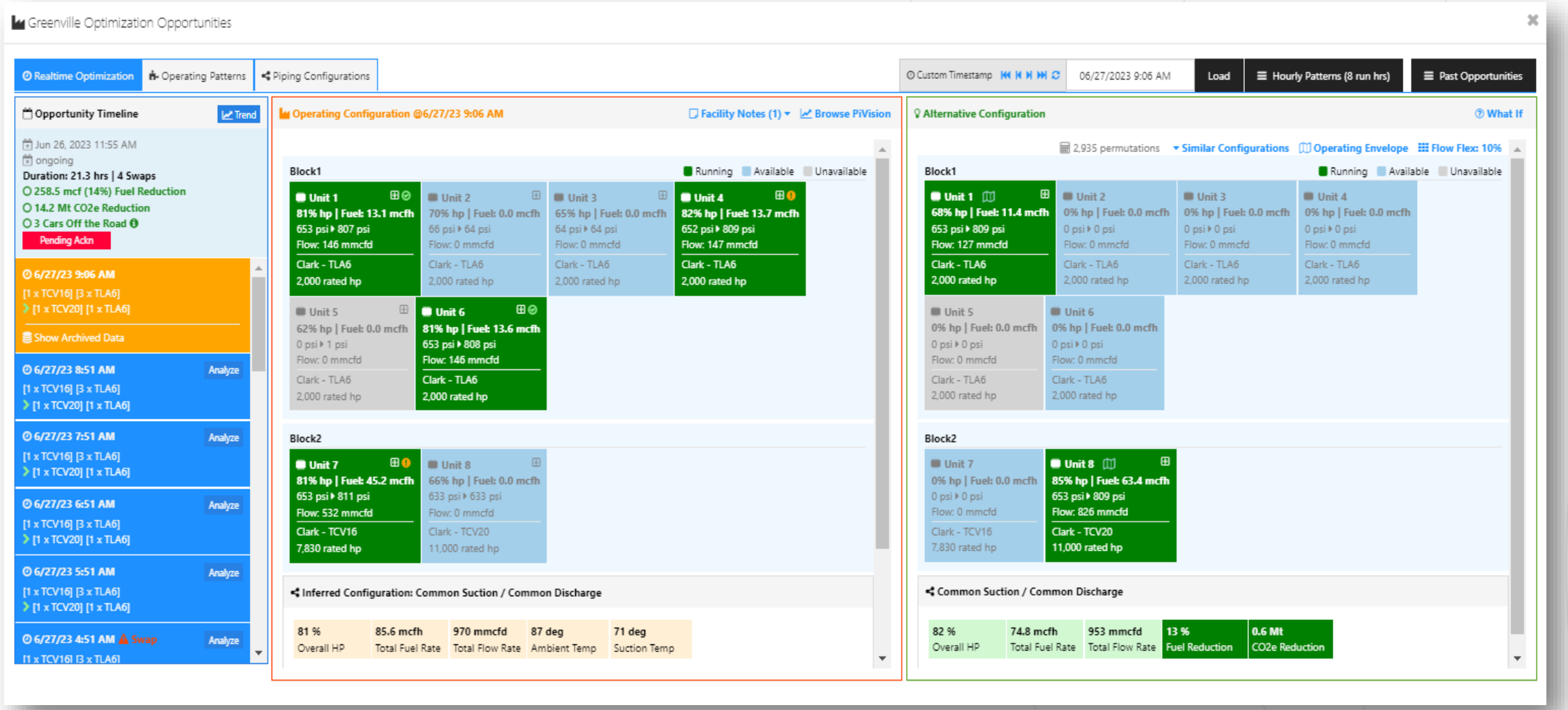
- The COT engine executes every 15 minutes for every station in the US footprint
- An optimization opportunity is flagged if a more fuel-efficient unit configuration is found for a given station (4 consecutive executions)
- Opportunities are exposed on a near real time geospatial dashboard for situational awareness

COT In Action

COT In Action

- Side by Side view of current station configuration and recommended alternative configuration
- Initial triage of the optimization opportunity
  - ✓ Validate real-time data
  - ✓ Validate model outputs (fuel, flow, hp)
  - ✓ Validate inferred targets and station operation mode
- Validate operational flexibility of proposed configuration

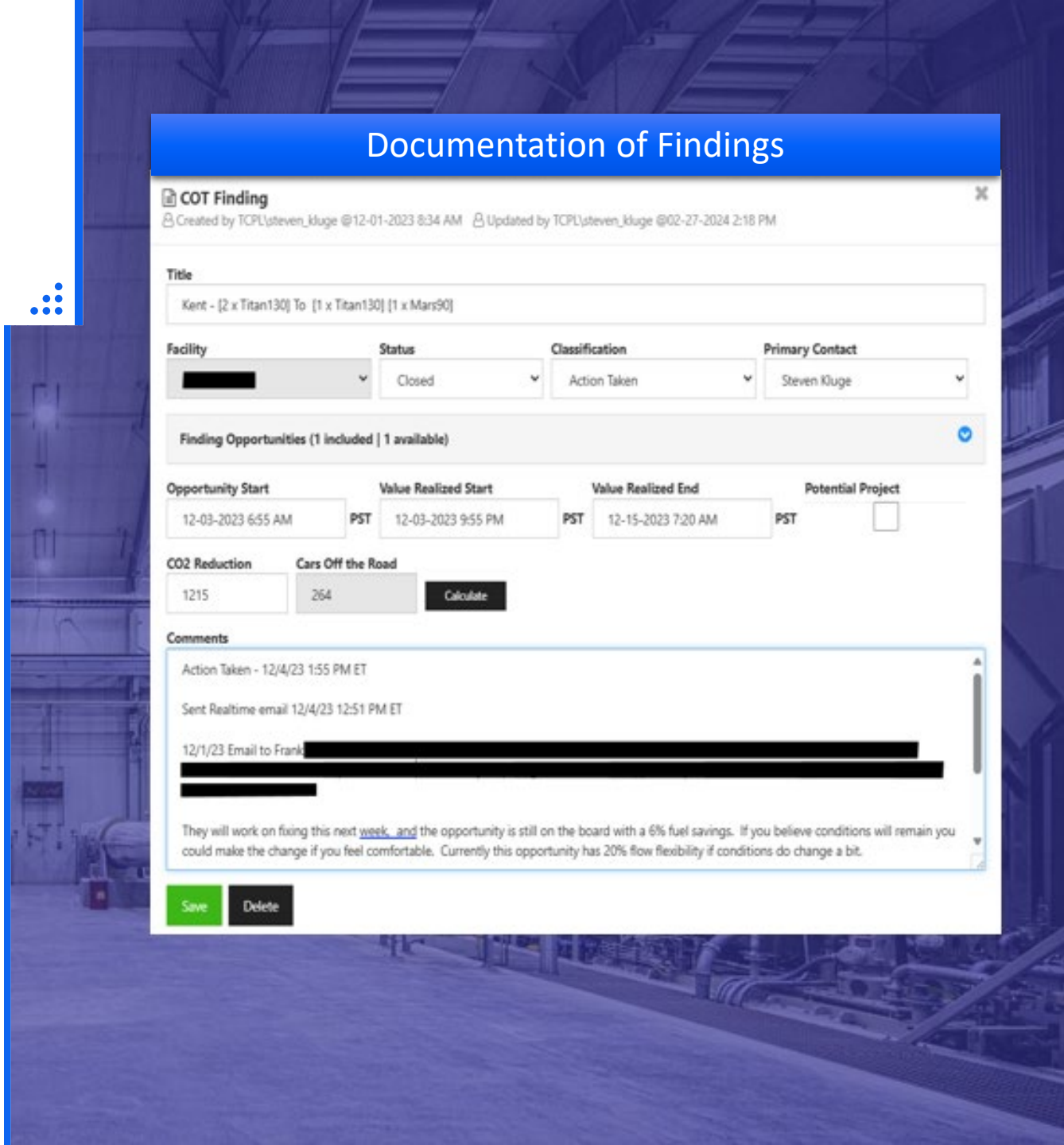
COT In Action



COT In Action

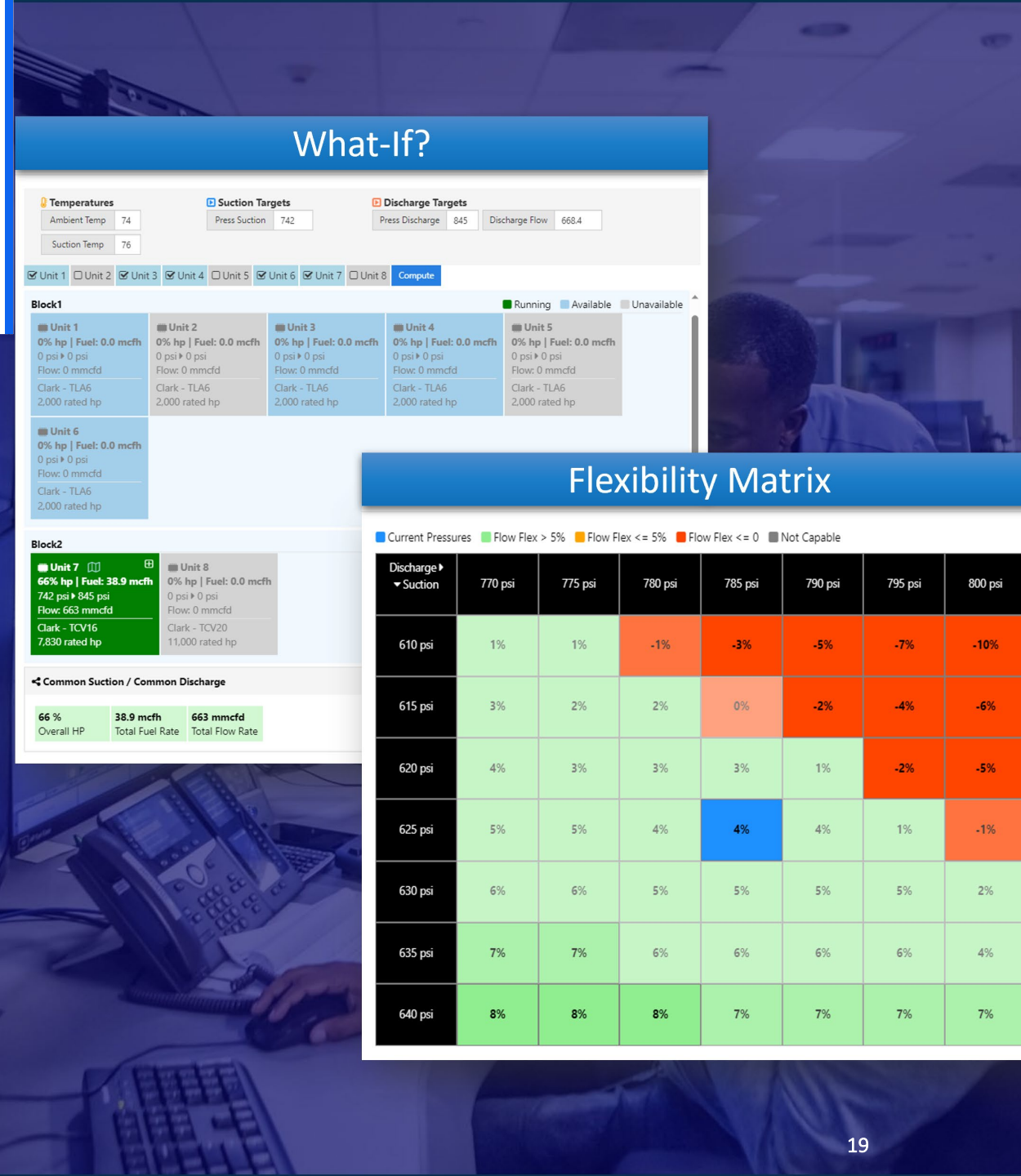
Opportunity Overview

- Check known limitations (facility notes) and prior documented opportunities
- Validate historical real-time date for frequent operational changes
- Check for any known planned maintenance activities



Analytical Tools

- Assess long term feasibility of an active optimization opportunity
- Flexibility Matrix
  - Flow Flexibility is a measure (%) of how much flow can be outputted with the recommended unit configuration
  - Matrix shows theoretical variation of Flow Flexibility with potential changes in pressure conditions at the station
- What-If?
  - Perform “what-if” analysis if future pressure and flow conditions are known
  - Can also account for any planned unit outages



COT Results

June 2023 – January 2025

180

COT Notifications Actioned

54,000

Metric Tons CO2e Reduction

11,800*

Cars Off the Road

- Results only include direct emissions reduction resulted from a COT Notification
- Reductions resulted from lessons learned / culture change are not included

*Cars Off the Road metric is calculated per EPA standards. 1 passenger car driven for a year emits 4.6 Metric Tons of CO2e

CONNECT Dashboards

- Recent Adoption of CONNECT Platform initially for data visualization
- Sync on-premise Real Time Data to the cloud
- Easy to share internally & externally
- Responsive & visually appealing graphics

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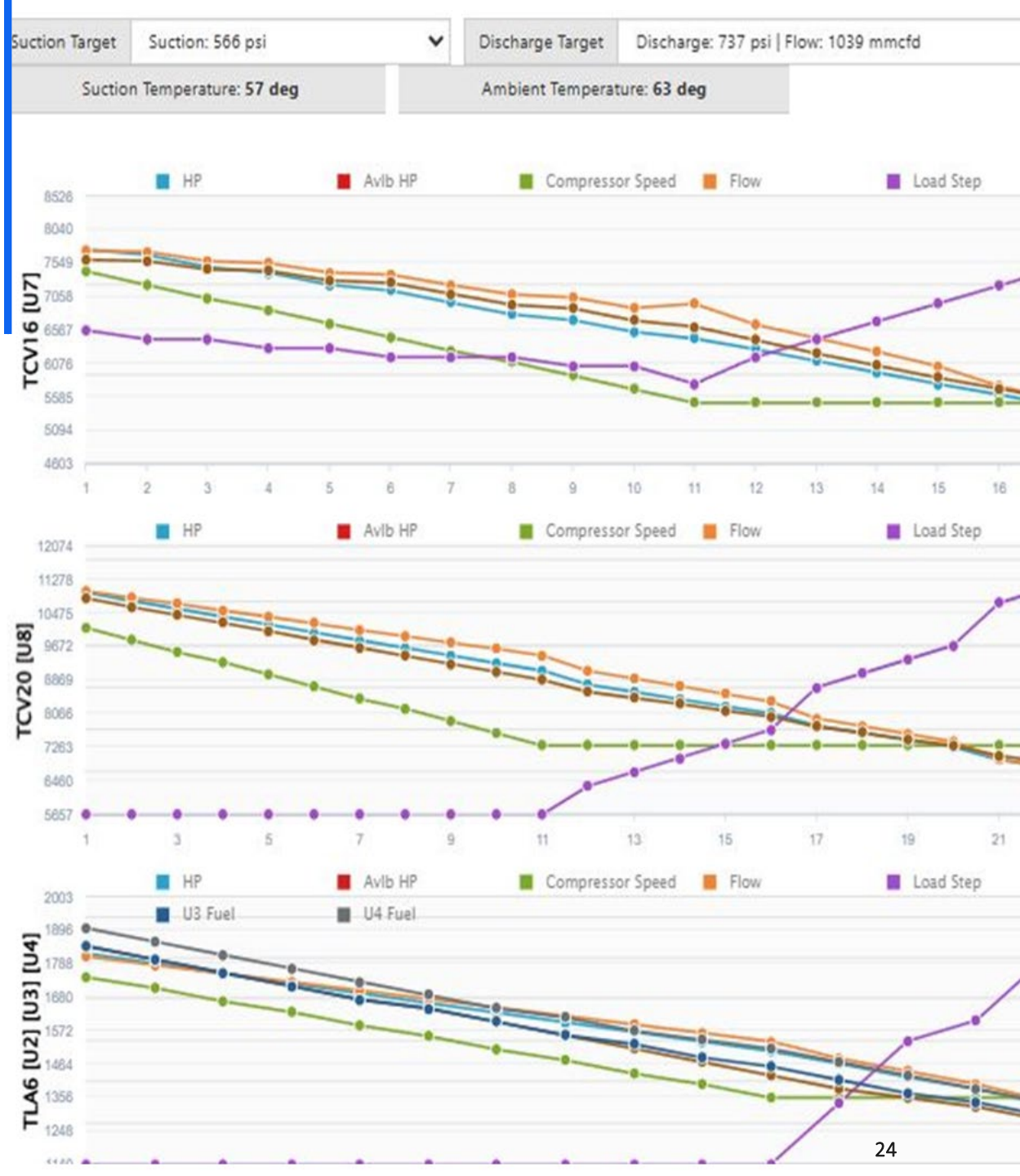
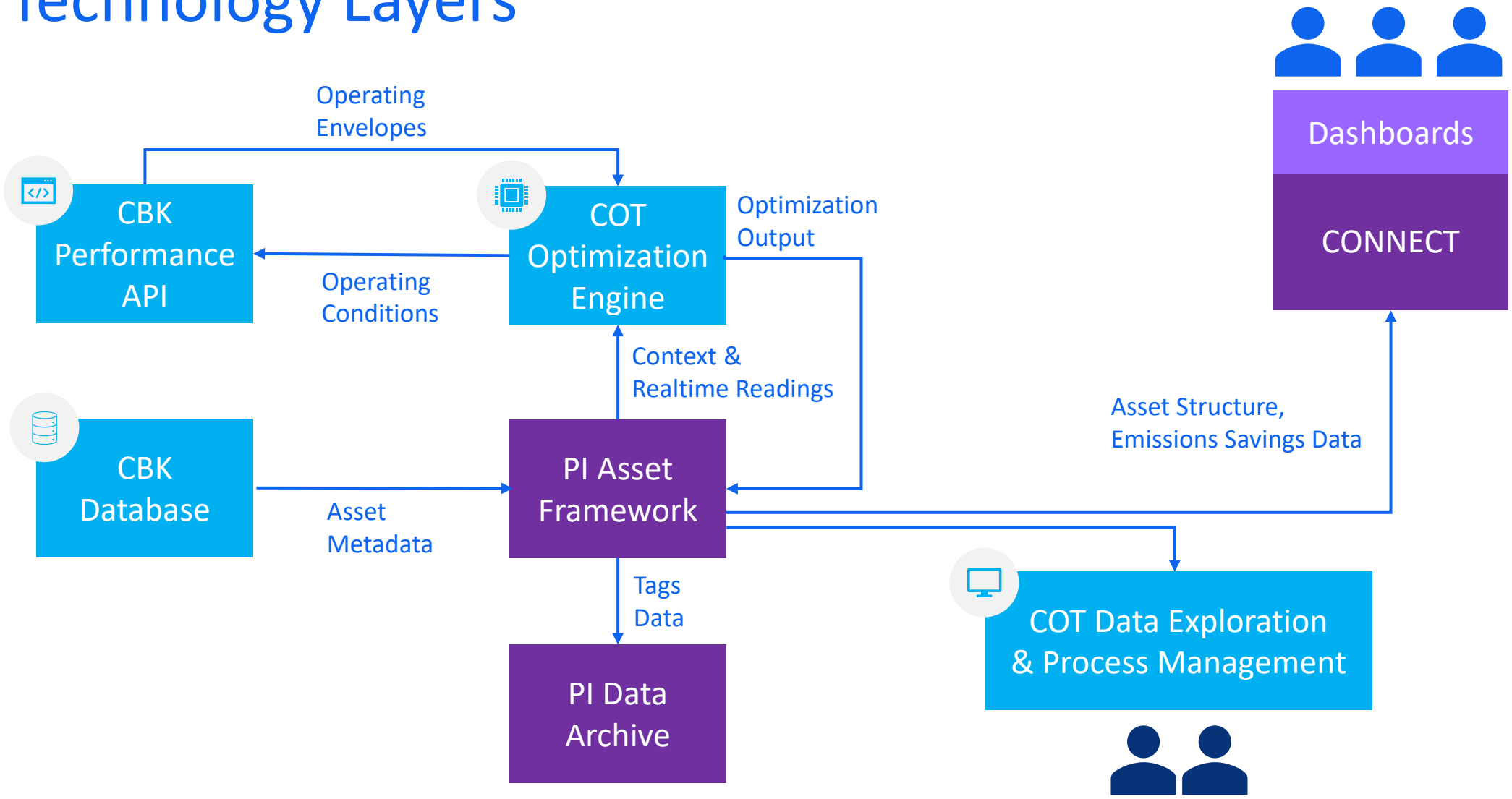
COT Technology

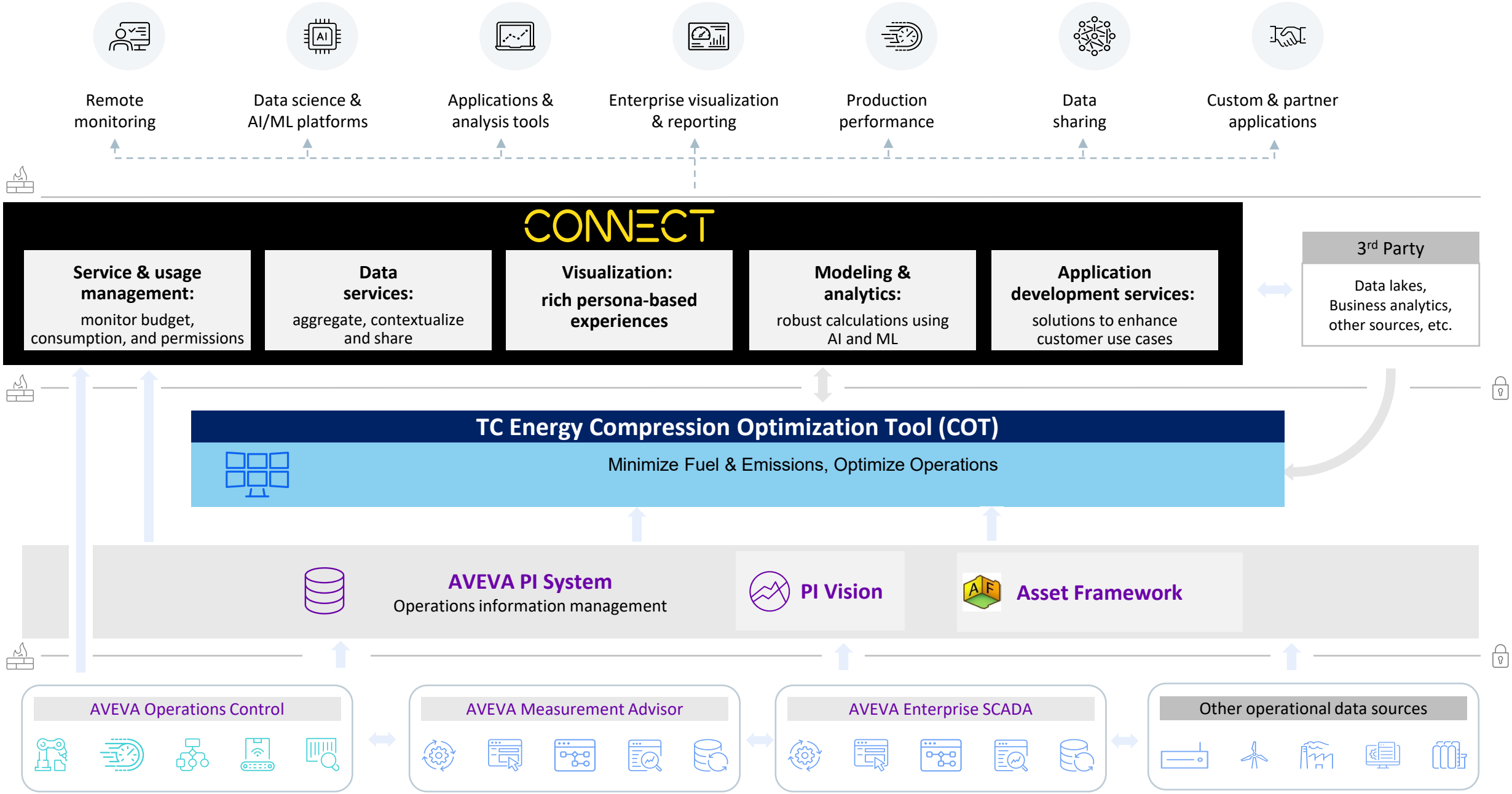
Operating Envelopes

- An operating envelope contains unit operating capabilities (including fuel and flow) at the given pressure and temperature conditions
- Operating envelopes are computed on-the-fly for each compression unit type at the station
- Leverage digitized performance compressor models, operating curves and fuel models (Compressor Book Performance API)
- Combinatorics applied to check all feasible permutations on the operating points across all envelopes (COT Optimization Engine)



Technology Layers




Remote monitoring
Data science & AI/ML platforms
Applications & analysis tools
Enterprise visualization & reporting
Production performance
Data sharing
Custom & partner applications
CONNECT
Service & usage management:
monitor budget, consumption, and permissions
Data services:
aggregate, contextualize and share
Visualization:
rich persona-based experiences
Modeling & analytics:
robust calculations using AI and ML
Application development services:
solutions to enhance customer use cases
3rd Party
Data lakes, Business analytics, other sources, etc.
TC Energy Compression Optimization Tool (COT)
Minimize Fuel & Emissions, Optimize Operations
AVEVA PI System
Operations information management
PI Vision
Asset Framework
AVEVA Operations Control
AVEVA Measurement Advisor
AVEVA Enterprise SCADA
Other operational data sources

Future Work

Recycle Valves	Facility Operation Modes	Alternate Optimizations	System Wide Optimization
			
Account for units running with the recycle valve open	Support multi-mode station operation	Optimize parameters beyond emissions	Perform optimization for the entire pipeline system

Compression Optimization Tool (COT)

TC Energy

CHALLENGES

- TC Energy's Sustainability Initiatives
- Corporate environmental stewardship goals
- Company-wide emissions reduction targets

SOLUTION

- AVEVA PI Asset Framework for asset data contextualization
- Custom Performance API and Optimization Engine
- Fit-for-purpose User Interface for analysis & process management
- AVEVA CONNECT for exposing insights

BENEFITS

- 180 Actioned Opportunities (program to date)
- 54,000 Metric Tons CO2e Reduction
- 11,800 Cars Off the Road

Questions?

Please wait for the **microphone** and state your **name** & **company**

Thank You.