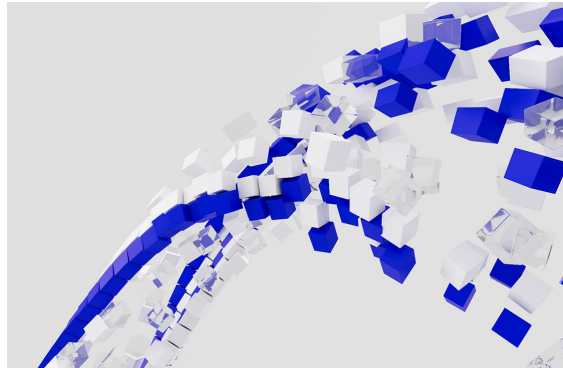


# Digital Sustainability

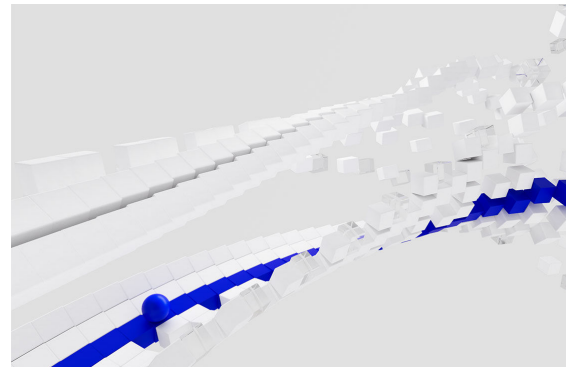
Accelerating climate action  
for hard to abate industries



## Plan

Create a decarbonization strategy built on data, not assumptions

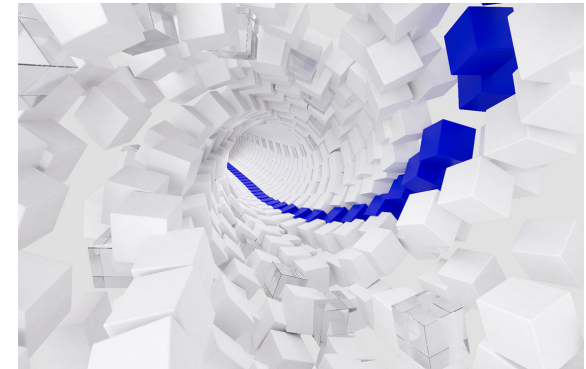
- All the information you need to create detailed climate-action plans.
- Understand your abatement options and make informed decisions.
- Define constraints and optimize your pathway to achieve your goals.



## Measure

Accurately measure, report, and verify your organization's emissions to set an accurate baseline of its carbon footprint and track the progress of your decarbonization programs.

- Emissions inventory—convert estimates to actuals.
- Insights at your fingertips—from enterprise to facility, and even product level.
- A real-time view of your reports.



## Act

Deliver on your organization's decarbonization plan and track progress

- Act on your plan, and continually improve.
- Access a wide range of new energy and climate action technologies and solutions.
- Drive decarbonization with end-to-end digital carbon capture, utilization, and sequestration (CCUS).



# Digital Sustainability: Obligation to Opportunity

Increasing sustainability regulations are applying pressure to corporations globally. E&P operators face a rapidly growing focus on methane emissions.

Industry leaders must efficiently manage sustainability compliance and reporting, maintain access to markets and deploy the right technologies to affordably meet their decarbonization commitments.

Discover how SLB's solutions unlock measurable impact and accelerate your path to value.



# Mandatory emissions reporting has begun ...

## Examples: Compliance reporting in EU & US



### Company ESG reporting

Directive → CSRS

Standard → ESRS

### Emissions Trading Scheme

EU ETS

### EU Methane Regulation

### Carbon Border Adjustment Mechanism

EU CBAM



### Emissions Tracking

US EPA, California



### SEC ESG Reporting

US SEC



### Emissions Trading

California CaT, Oregon ETS,

Washington CCA, Massachusetts ETS RGGI

\* Sustainable Stock Exchanges Initiative [database](#), updated Nov 2023

CSRD = EU Corporate Sustainability Reporting Directive; ESRS = European Sustainability Reporting Standards

US EPA = US Environmental Protection Agency; US SEC = Securities & Exchange Commission;

California CaT = California Cap and Trade; Oregon ETS = Oregon Emissions Trading Scheme;

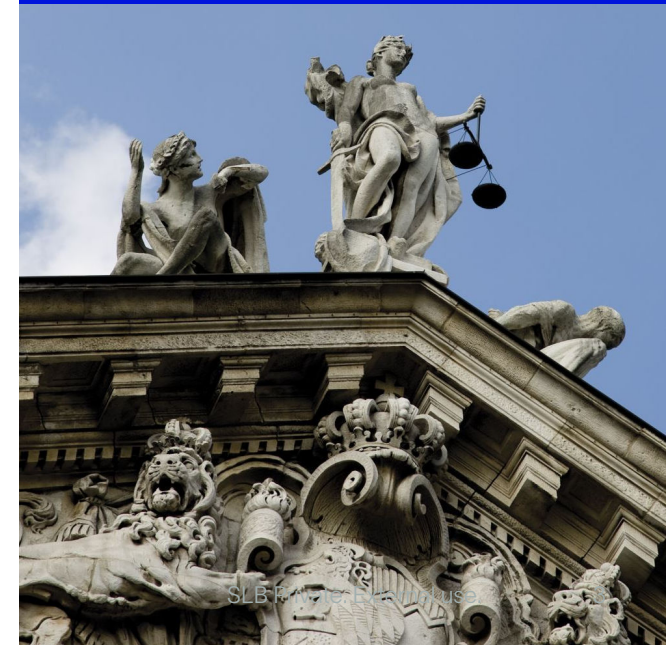
Washington CCA = Washington Climate Commitment Act; ETS RGGI = ETS Regional Greenhouse Gas Initiative

## Ramping up globally



# 38

Stock Exchanges  
with ESG as a listing rule\*



...and  
You need robust  
data to

Claim tax credits

Minimise tax / penalties

Active Management Reporting

Report your emissions externally

Optimise decarbonisation capex & opex spend

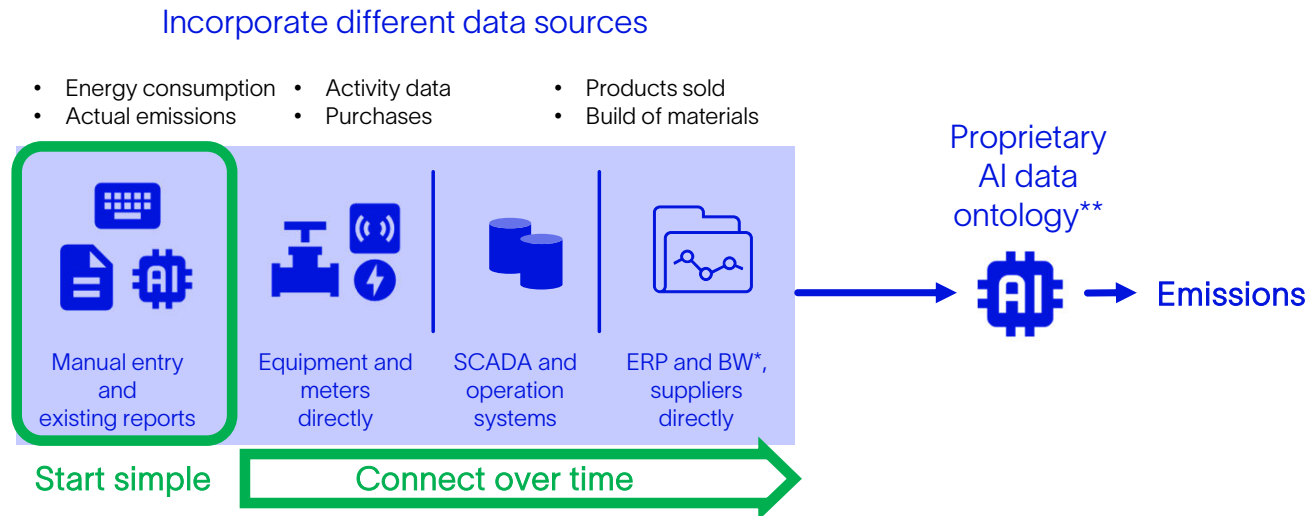
Maintain access to markets

Deliver industry commitments (e.g. OGDC, OGMP 2.0)



# Automate data management at scale

Across systems, facilities and equipment



\* BW = Business Warehouses (connection via APIs)  
ERP = Enterprise Resource Planning  
\*\* Data ontology = Linking data in various formats



- Seamlessly connect to your **existing data sources**
- **Automatically collect data** across the enterprise
- Automatically categorize emissions with **proprietary AI ontology**

SLB Private. External use.

Obligation and  
Opportunity:

Cost Mitigation  
+ Value Creation  
Channels



Workflow Efficiency

\$ ?m



Cost mitigation (e.g. CAPEX/OPEX)

\$ ?Bn  
2025-35



Penalty mitigation (e.g. ETS)

\$ ?m  
2024



Value addition (e.g. credits)

\$ ?m



Access to market

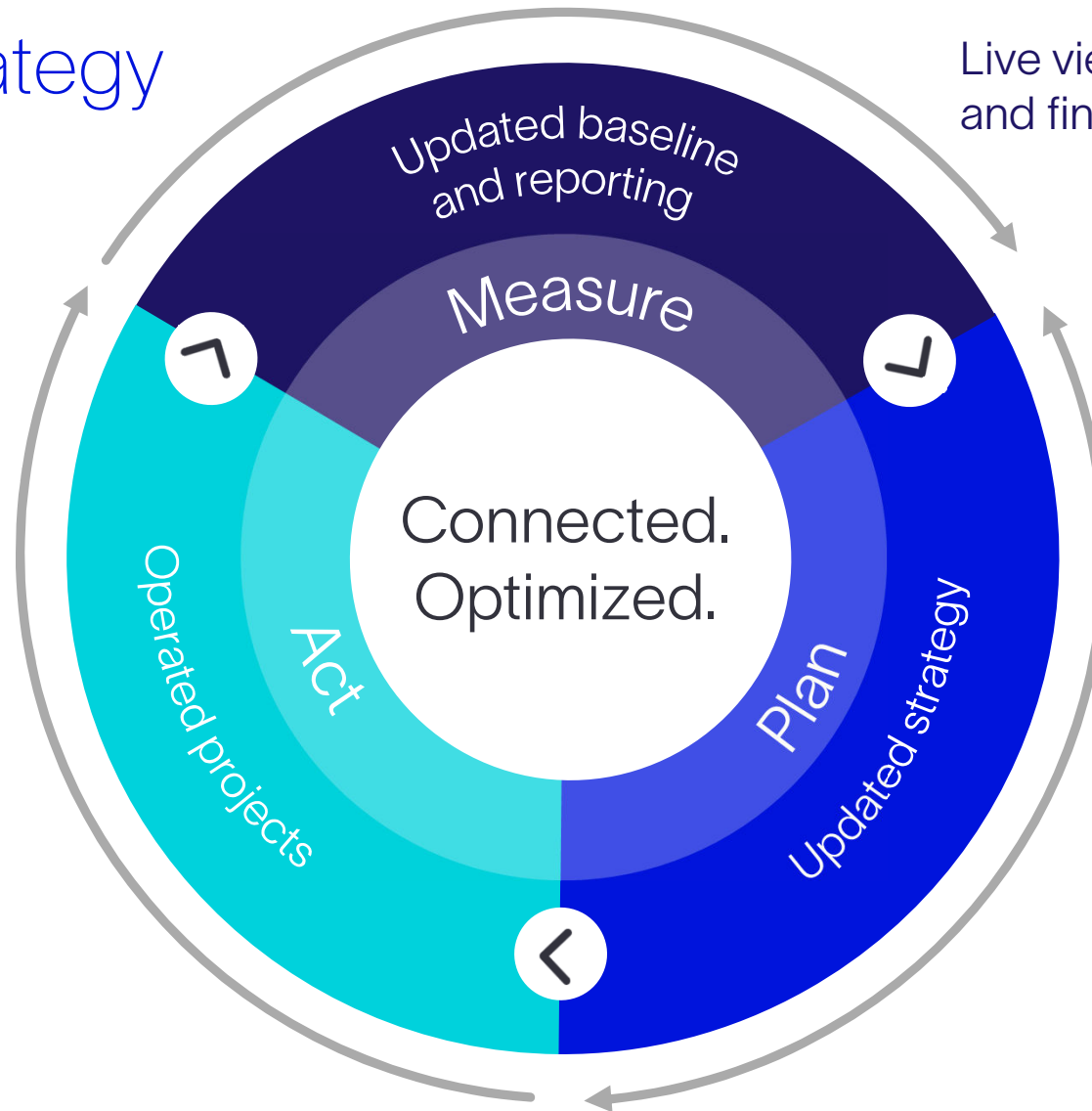
EU Methane

Climate strategy  
delivery

Live view of emissions  
and financial data

Validate performance  
as projects actively  
reduce or remove  
emissions

Decarbonization  
pathways +  
business case



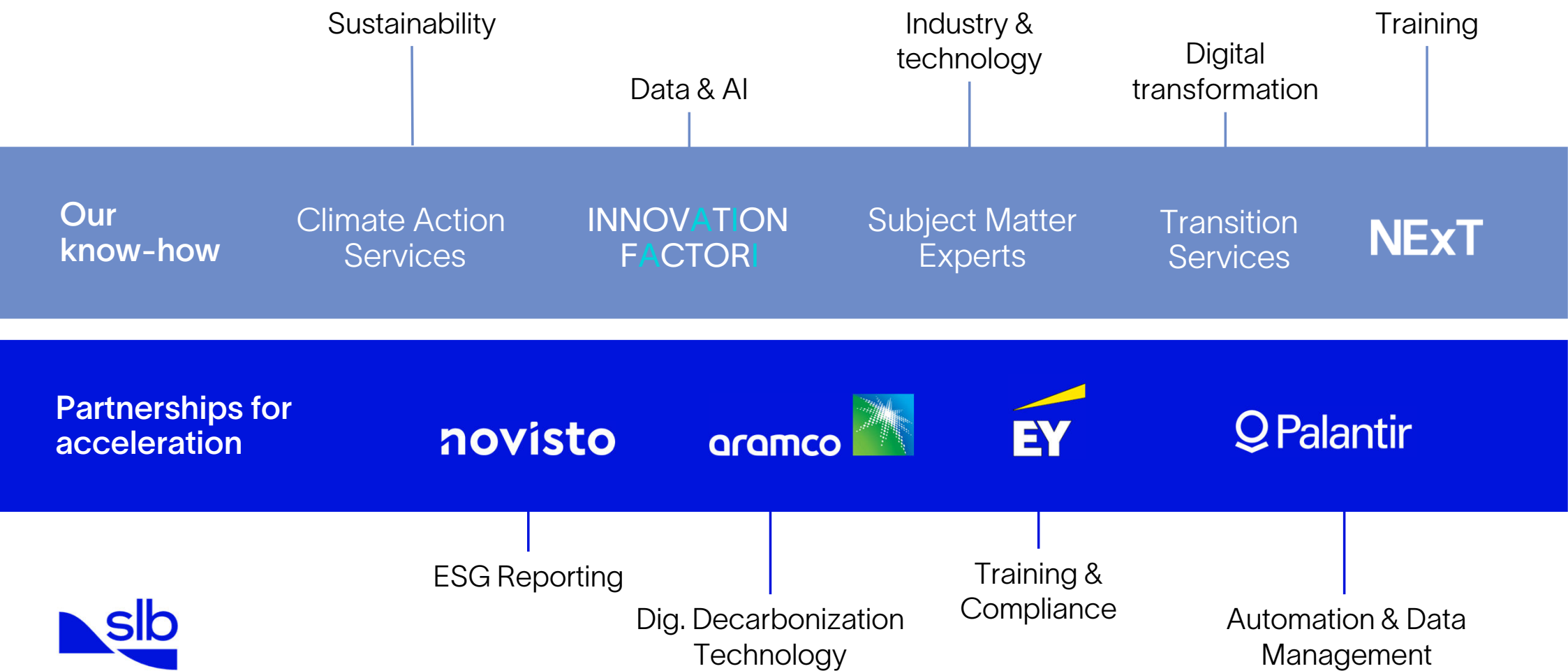


It all begins  
with people  
and partners





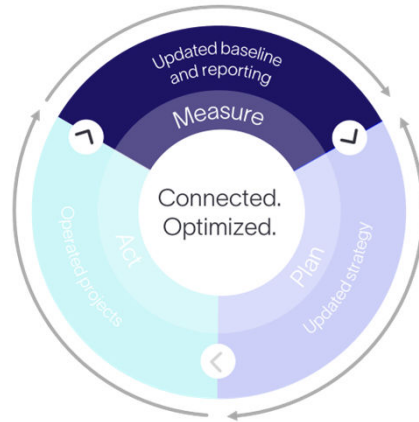
# Services & Partnerships to accelerate decarbonization



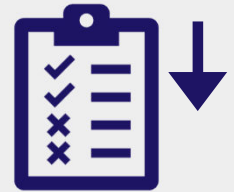
# Measure

Automation +  
Actual Emissions  
OGMP Levels 1-5  
AI Forecasting

[Fuels PCF & ESG  
Reporting not shown in  
this deck – please ask ]



**Less resource  
intensive**



**Audit fee  
Reduction**  
Faster verification



**Penalty Reduction**  
Rapid intervention



**Active Reporting**  
Accelerated interaction



# MEASURE : Emissions Management

Starting from establishing baselines and targets to measuring critical variables across the organization.....

## Automate data ingestion & integration at scale

→ Including high frequency systems, facilities, and equipment.

## Move from estimates to actuals

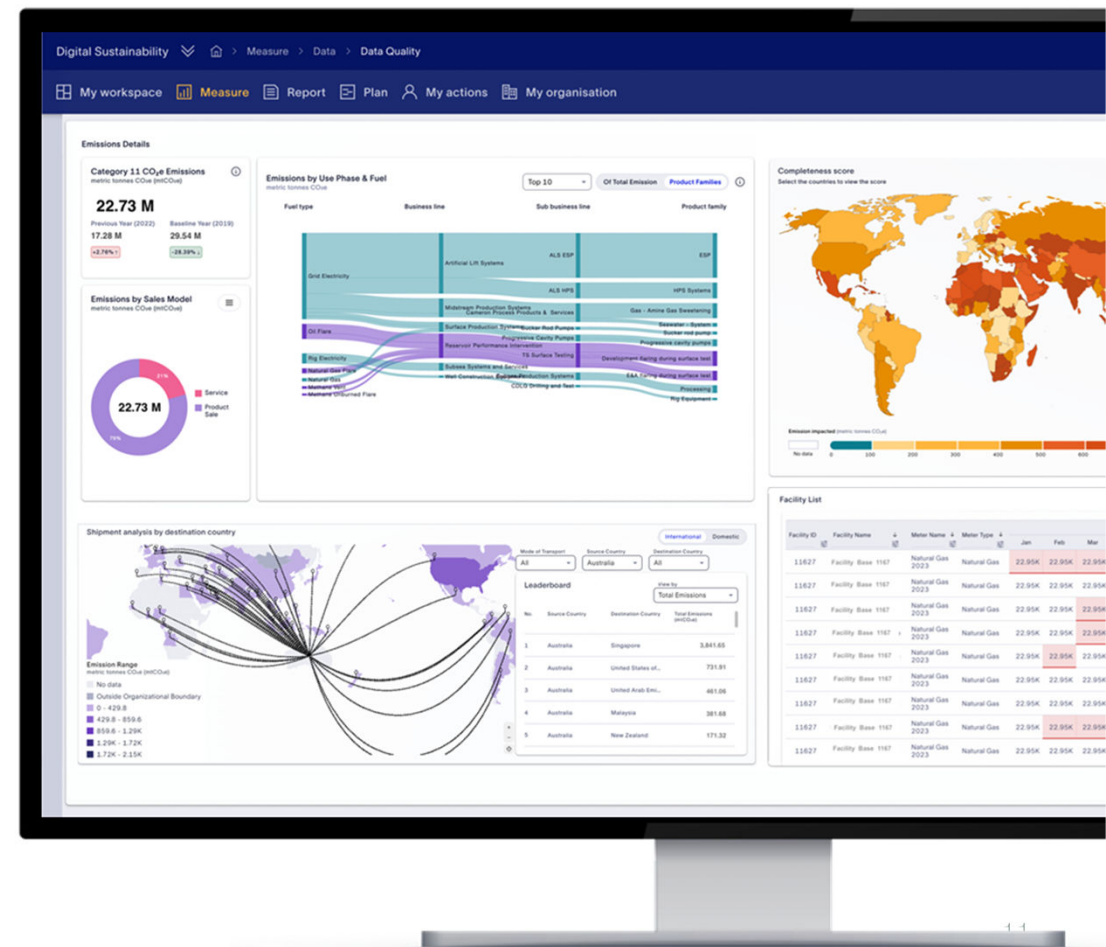
→ Scope 1, 2, and all Scope 3 categories

## Trusted, compliant, verifiable data

→ Collaborate with standards, auditors, and verifiers

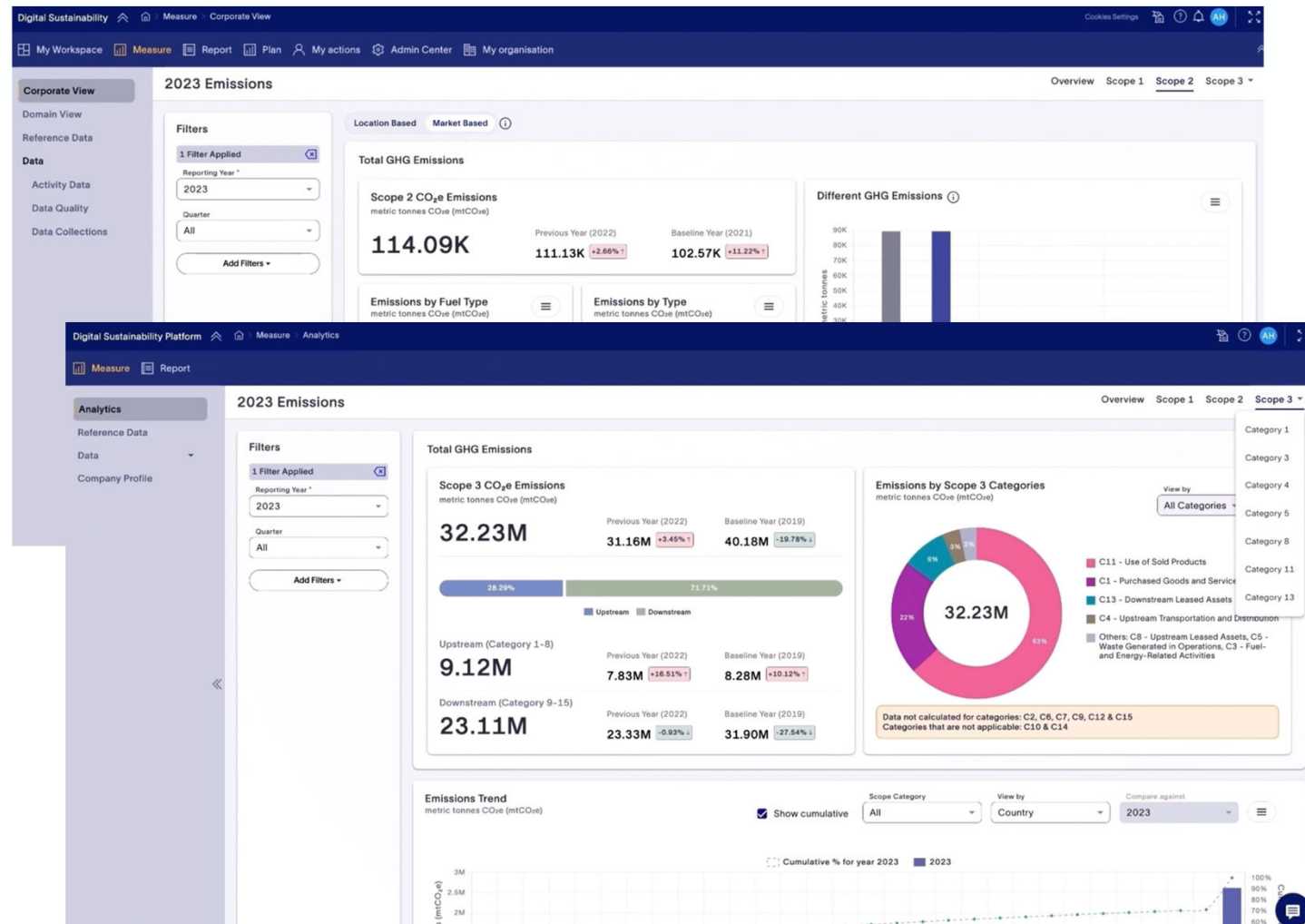
## Domain Focused

→ OGMP and O&G Emission Forecasting



# Comprehensive capture and representation of all GHG emissions scopes

Metrics & targets
Location and market-based Scope 1 & 2 emissions
Material Scope 3 emissions
Progress against targets
Planned use of carbon credits
Industry-based metrics



# Oil and Gas specific metrics and workflows enabled

1. Emissions at **emission source level** (equipment, component or process) including combustion, venting, and fugitive sources
2. Emission estimation methods for **carbon dioxide (CO<sub>2</sub>)**, **methane (CH<sub>4</sub>)** and **nitrous oxide (N<sub>2</sub>O)**
3. Methane emissions calculation aligned with **Oil & Gas Methane Partnership 2.0 (OGMP 2.0)**
4. Support oil & gas industry GHG emissions accounting approaches **Operated and non-Operated assets**
5. **Calculation techniques and emission factors** for estimating GHG emissions for oil & gas industry operations - per API Compendium

## Metrics & targets

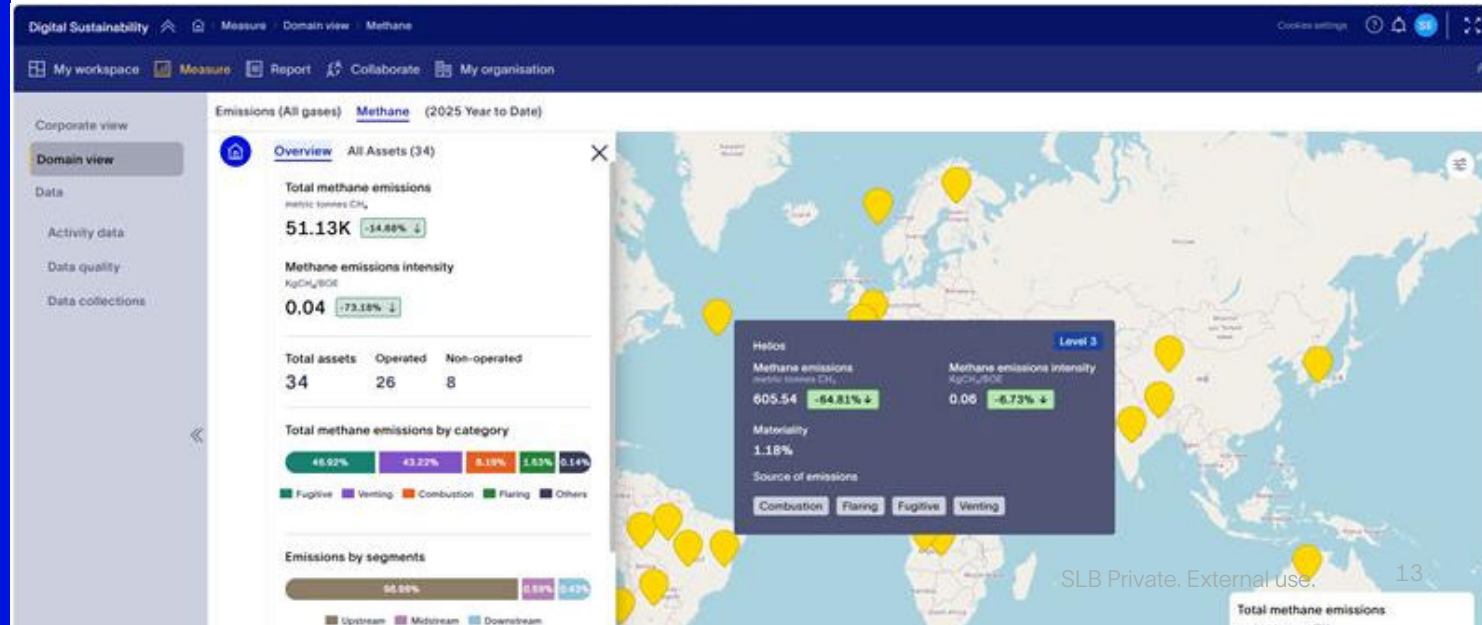
Scope 1 & Scope 2 emissions (location and market-based)

Material Scope 3 emissions

Progress against targets

Planned use of carbon credits

Industry-based metrics





# Data auditability and traceability built in

Essential for limited and reasonable assurance requirements

Risk management
Fair presentation
Materiality
Reporting entity
Connected information



Digital Sustainability

Activity Data - 2024 Emissions

Filters

1 Filter Applied

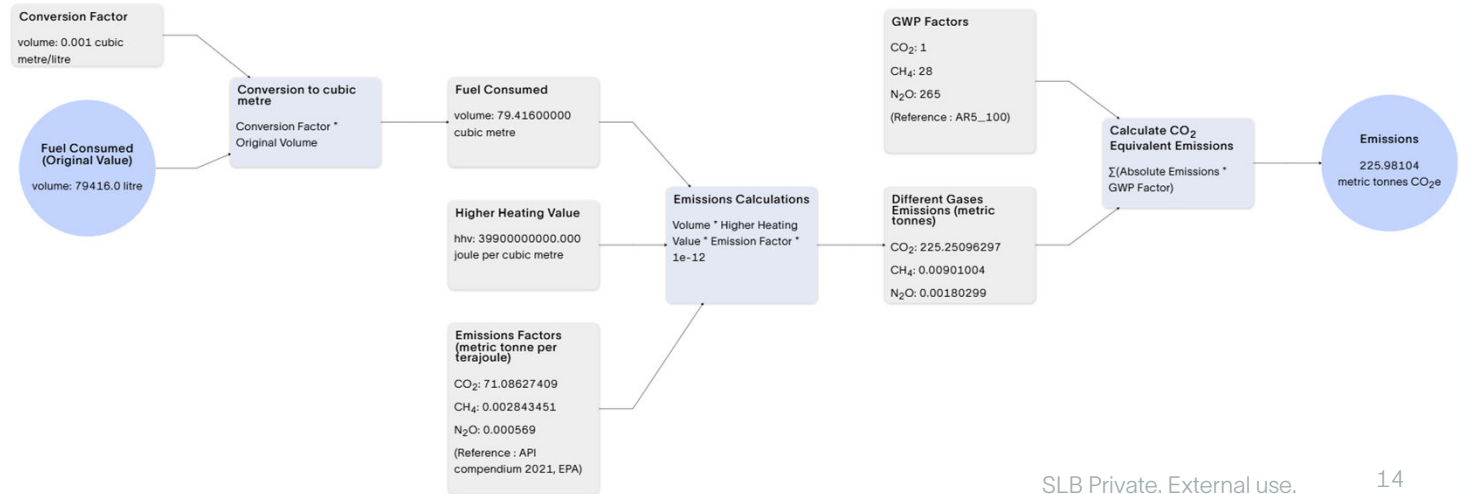
Reporting Year: 2024

Quarter: All

Add Filters

Country	2024 Emissions (mtCO <sub>2</sub> e)
Argentina(ARG)	9.40M
Australia(AUS)	423.15K
Bolivia(BOL)	2.22M
Brazil(BRA)	3.15M
BrazilOil2(BRA-OL2-SQ3Y)	1.29M
BrazilOil3(BRA-OL2-SQ4Y)	1.03M
Jan	172.85K
Feb	164.92K
Mar	171.31K
Apr	164.36K
May	149.10K
Jun	211.45K

Data Lineage	Reporting Status	Scope Category	Emissions Source	Meter Name	Activity	Reporting Type	Consumptions	UoM	Emissions (mtCO <sub>2</sub> e)	Activity ID
	Operational	Mobile	Distillate Fuel Oil No	Hybrid Passenger Cars	-	Actual	833.00	litre	2.37	0e5bd047d38
	Operational	Mobile	Distillate Fuel Oil No	Light-duty Trucks	-	Actual	1.22K	litre	3.28	62fe9a15553d
	Operational	Fugitive	Fugitive Emissions	CO <sub>2</sub> from pipeline leaks	-	Actual	730.00	hours	0.07	e167482353b
	Operational	Flaring	Gas Flare	Incinerators	-	Actual	75.00	million stands	6.95K	856e7e41fe07
	Operational	Stationary	Distillate Fuel Oil No	Combustion turbine-industrial	-	Actual	79.42K	litre	225.98	de301b9bc95
	Operational	Mobile	Distillate Fuel Oil No	Medium Vehicles	-	Actual	876.00	litre	2.36	929cb99ad29
	Operational	Fugitive	Fugitive Emissions	Small reciprocating gas compr	-	Actual	730.00	hours	4.33	50236742de1
	Operational	Mobile	Distillate Fuel Oil No	Small vehicle	-	Actual	1.15K	litre	3.26	068fe9ce472a
	Operational	Mobile	Motor Gasoline	Medium-automobile-highway	-	Actual	1.02K	litre	2.37	693acfb1589a
	Operational	Fugitive	Fugitive Emissions	Dehydrators	-	Actual	219.00	hours	0.44	10280d80603



# Data auditability and traceability built in

Essential for limited and reasonable assurance requirements

Risk management
Location of disclosures
Timing of reporting
Comparative information
Statement of compliance



Digital Sustainability Collaboration Workflow

My Workspace Measure Report Plan My actions My organisation

Collaboration workflow Facility Emissions ...

### Collaboration workflow

Facility Emissions Approval

Pending requests All requests

Request name	Assigned to	Request status	Workflow step	Request ID	Received on
Request for Facility XTRA Battery Facility X Scope 1 - May 24	Unassigned	New	Approve	001152b6-dcf1-494e-axd9-030c5513...	2024-08-22 15:22:48
Request for Facility TranGas Facility X Scope 1 - February 24	Unassigned	New	Approve	002bcad4-c5ac-40fc-8f41-fa0162b6f8...	2024-08-22 15:42:44
Request for Facility BRAOIL3 FAC 2 Scope 1 - June 24	Unassigned	New	Review	00414d28-a882-4445-b12e-b3cd57c8...	2024-08-22 14:40:57
Request for Facility ChanakyaQ Platform F Scope 1 - May 24	Unassigned	New	Review	010534c2-b756-45e5-8241-4a486bda...	2024-08-22 14:38:53
Request for Facility BRAOIL5 Wellhead K Scope 1 - March 24	hmangle@slb.com	Completed	Sign Off	0110c251-4920-4db7-8e26-7db53f08...	2024-08-22 17:19:57
Request for Facility Zenith Gas Processing Facility Z Scope 1 - March 24	Unassigned	New	Review	0110c408-7db7-477b-ab0e-d82e463c...	2024-08-22 14:36:15
Request for Facility NORMA Static Platform O Scope 1 - March 24	Unassigned	New	Review	0144901-c541-490e-83da-62b4ce85...	2024-08-22 14:35:40
Request for Facility Helios Platform Y Scope 1 - February 24	Unassigned	New	Review	01dc828b-0b71-477c-8aba-e11a2ab0d...	2024-08-22 14:33:49

Digital Sustainability Measure Report Plan Collaborate My organisation

Collaboration workflow Emissions Approval

### ← Request for Facility BRAOIL3 Gas Processing Facility A Scope 2 - March 24

Acknowledge Request for clarification Reject Approve

#### Approval timeline history [View dataset details](#)

Review Validate Sign off

Acknowledged by  
hmangle@slb.com  
On  
2024-09-11 10:02:52

Approved by  
hmangle@slb.com  
On  
2024-09-11 10:02:57

Acknowledged by  
hmangle@slb.com  
On  
2024-09-11 10:03:03

Approved by  
hmangle@slb.com  
On  
2024-09-11 10:03:08

Acknowledged by  
sedmundson@slb.com  
On  
2024-09-11 10:05:16

SLB

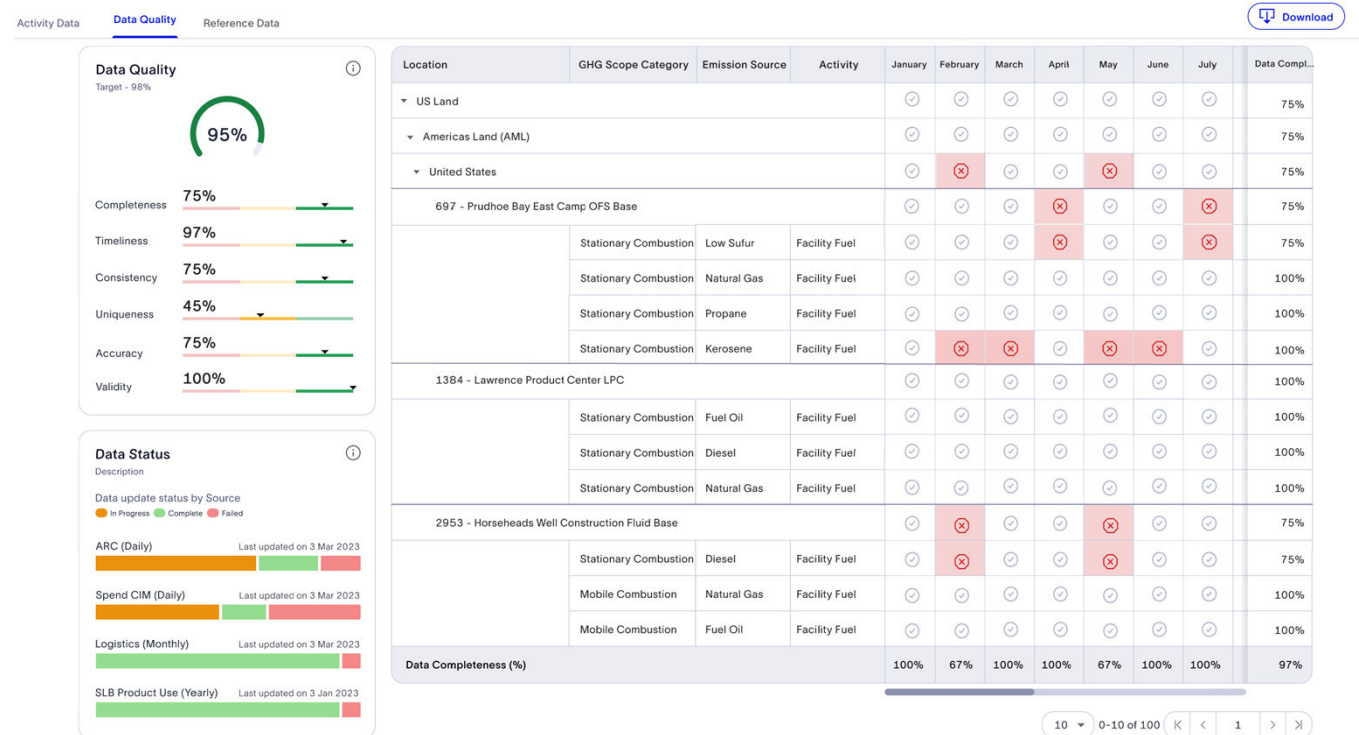
# Data quality checking ensures accurate reporting and facilitates auditing

Judgments, uncertainties and errors

Judgements

Measurements uncertainty

Errors and corrections



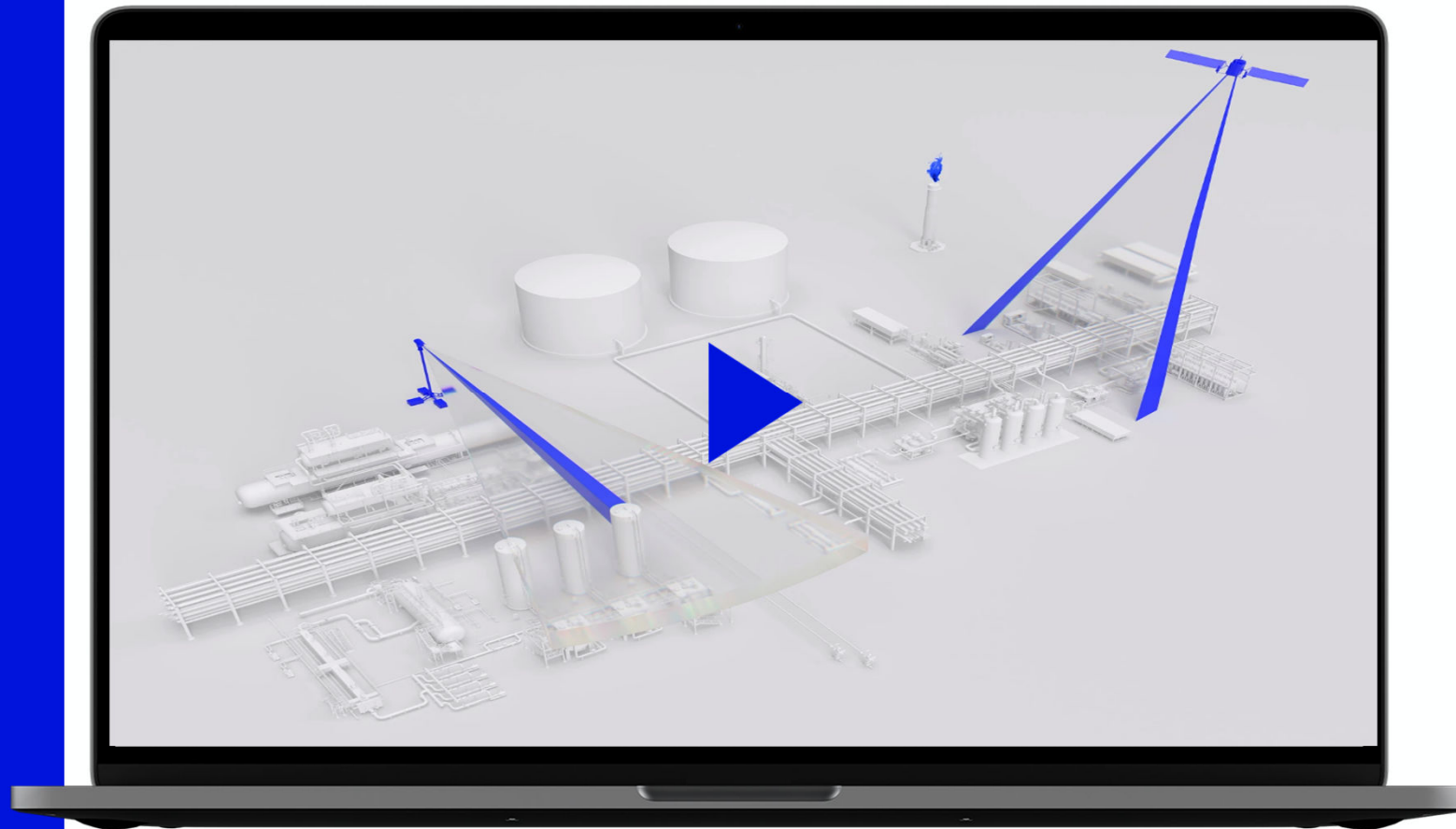
# Measure

## OGMP Level 4 to Level 5\*

Emissions Reconciliation & Attribution

Automated Discrepancy Detection

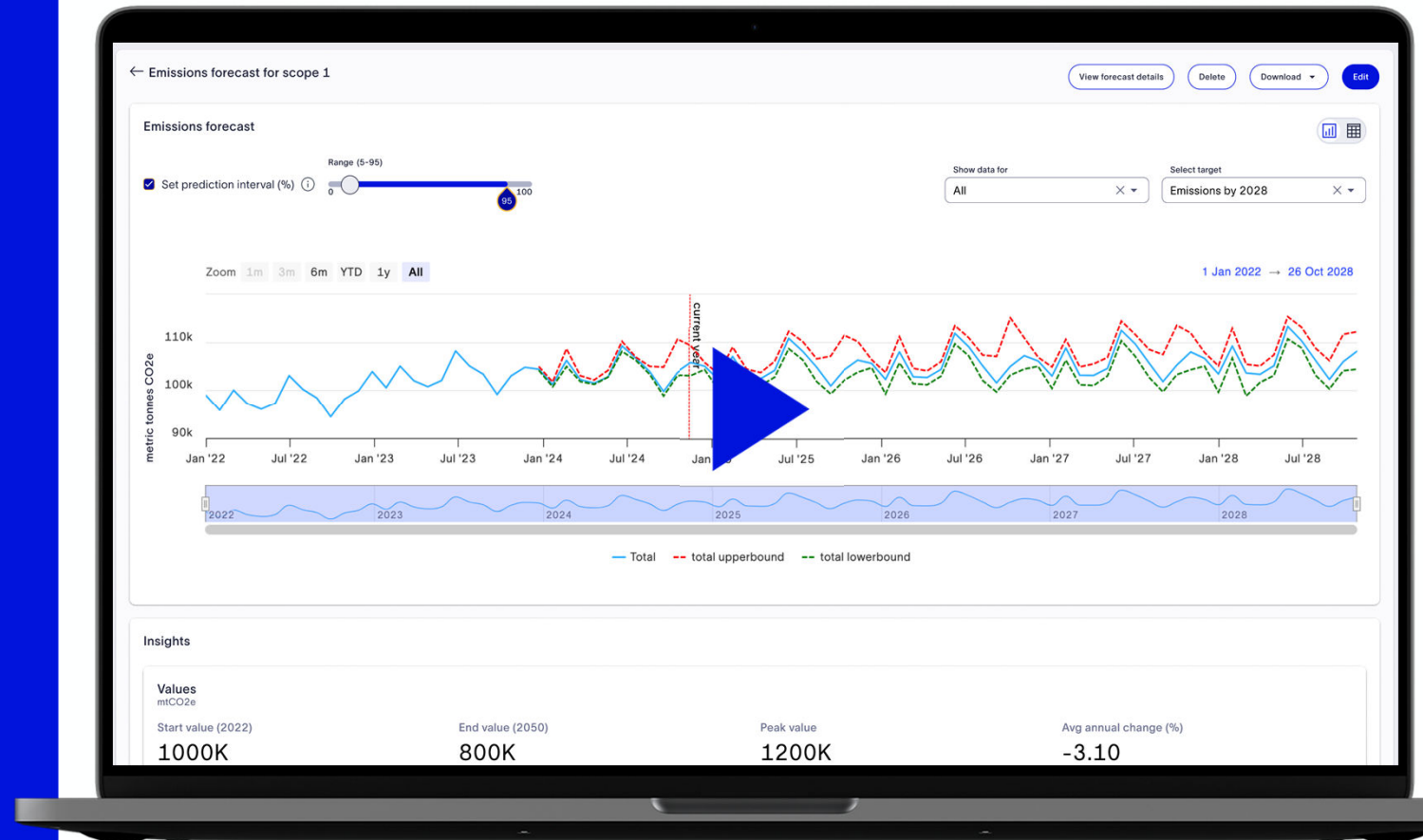
Capture data from sensors to drone and more



# Measure

## AI Emission Forecast

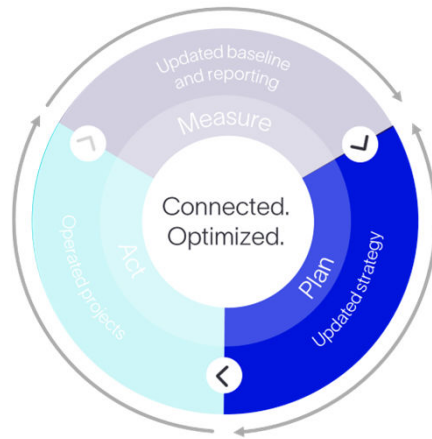
Bridge between our Emissions Management Module and Decarbonization Planning Module





# Plan

Decarbonization  
pathways +  
business case



**Less resource  
intensive**



**Capital Efficiency**  
Optimized Investment



**Operational  
Planning**  
Multiple Planning cycles



# PLAN : Decarbonization scenario planning

From baseline data, to a connected and continuously improved Plan



## Leverage 'Measure' data

→ Integrate data from across your business to define your starting point for Plan

## Optimization of Decarbonization Solutions

→ Optimize Cost, Carbon, Technology and Timing to create multiple decarbonization scenarios.

## Broad-based Action Catalog

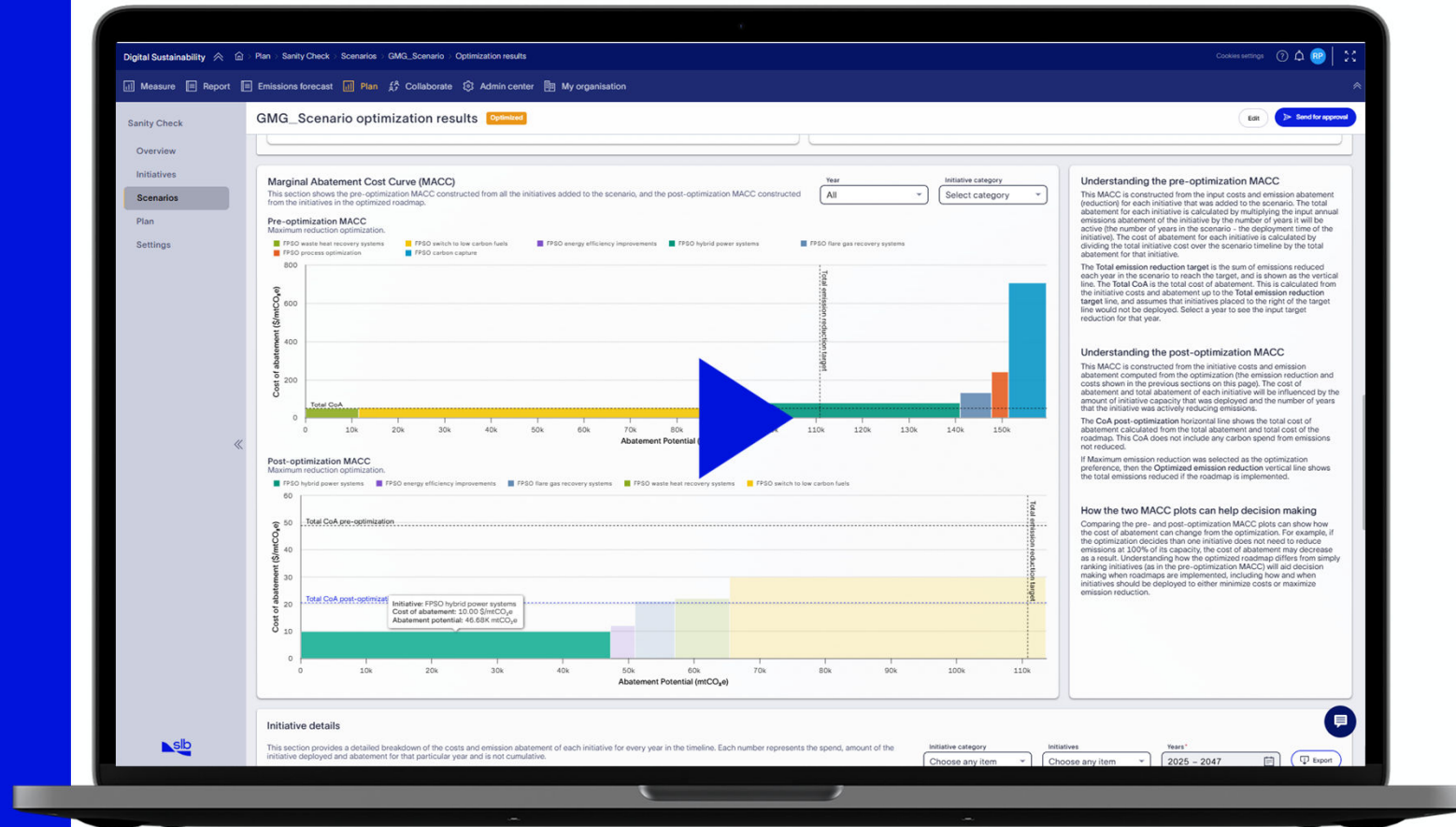
→ Rich library of decarbonization initiatives for MACC generation

## Scenario Planning

→ Create multiple pathway scenarios to optimize decision making.

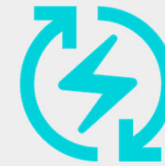
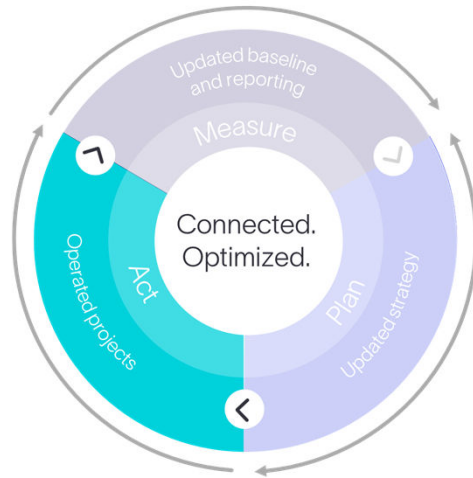
# Plan

## Decarbonization Planning



# Act

Validate performance as projects actively reduce or remove emissions



**Energy Efficiency**  
AI optimized operations



**Design Efficiency**  
End-to-end digital



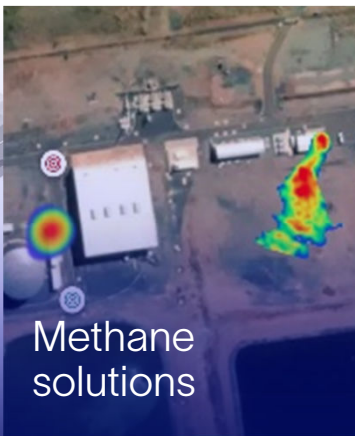
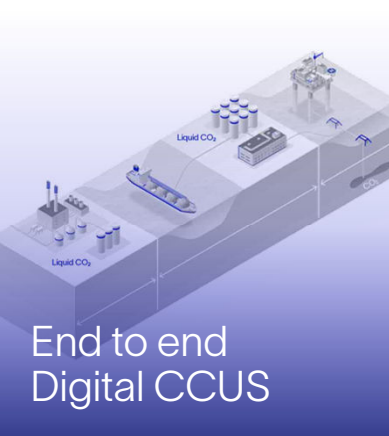
**Safe and efficient**  
Compare to model



**Promise vs delivery**  
Verification



# Act on your decarbonization pathway with commercial SLB technology and beyond



An open  
extensible  
ecosystem



Your own solutions



Other SLB solutions



Novel ecosystem collaborators

Combined Heat & Power

Flare Management System



Example collaborative solution



# Energy Transition Academy

Upskilling our customers



Scan to learn more



## Sustainability starts with people

72%

of hard to abate employers view alignment of talent and skills as critical

49%

of O&G executives don't believe their organization can teach in-demand skills they need

EY, Sustainable future of work research

Company-wide  
Increase Energy Transition competency

Comprehensive  
From sustainability principles to key technologies

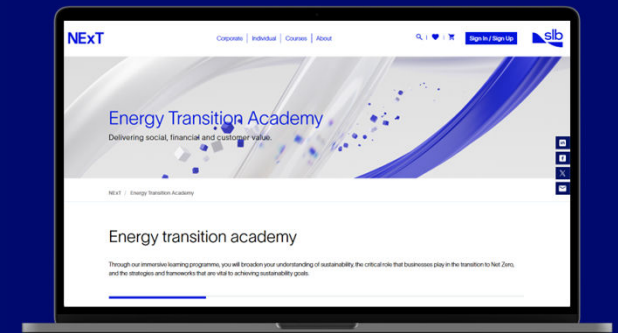
Cost-effective  
Self-paced, 10-hour e-learning course

### Energy Transition Academy Modules

Fundamentals  
Decarbonization  
Technology

- 1 Climate change and sustainability fundamentals
- 2 Sustainable business and circular systems
- 3 Sustainable finance and regulatory landscape
- 4 Greenhouse gas (GHG) accounting
- 5 Planning for net zero
- 6 Transition in the energy industry
  - 6.1 Methane management
  - 6.2 CCUS
  - 6.3 Hydrogen

Powered by  
**NExT**



<https://www.nexttraining.net/energy-transition-academy>

# Thank you



- Contents
- Overview
- Measure
- Plan
- Act
- Climate Action Services
- Training

## Plan

Plan your optimal pathway to meaningful climate action

Evaluate multiple scenarios to find the optimal path to meeting your organization's emissions and financial targets.

- Evaluate different abatement scenarios to select the most suitable technology, project mix, and timing
- Optimize your strategy for emissions reduction and return on investment
- Share results with key stakeholders for efficient decision making

**Benefits**

Plan your decarbonization pathways

Demonstrating the value of decarbonization to your business is a complex task with many uncertainties. SLB's suite of Digital Sustainability Solutions can help you build the optimal business case for decarbonization across all levels of your organization to achieve your targets.

**Enterprise**

Quickly see the emissions and financial impact of your planned abatement initiatives on your forecasts.

Incorporate carbon taxes and regulations into your economic planning.

Drive data and decisions throughout your organizational structure.

**Facility**

Plan investment in abatement projects across your facility.

Forecast emission reduction for your chosen projects that tackle problematic sources.

Create a deployment timeline, optimized for financial return.

**Product/Process**

Take advantage of SLB's industry-leading domain applications to create optimized digital twins of specific processes at your facilities, and our capabilities in Product Carbon Footprint workflows.

[Request a demo](#)

14 Digital Sustainability Accelerating industrial climate action.

Digital Sustainability Accelerating industrial climate action. 15

## Digital Sustainability dynamic brochure

Contains information, videos and contact information for Digital Sustainability

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## Measure Overview

Accurately measure, report, and verify your organization's emissions to set an accurate baseline of its carbon footprint and track the progress of your decarbonization programs.

- Emissions inventory — convert estimates to actuals.
- Insights at your fingertips — from enterprise to facility and even product level.
- A real-time view of your reports.

"It's not just a measurement tool and starts becoming part of the policy making."

UK-based senior advisor on methane measurement and reduction

[Request a demo](#)

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- Training

## Digital Geothermal

**Optimize geothermal performance**

Optimize geothermal performance by using digital twins to simulate and optimize geothermal systems. This allows you to identify areas for improvement and optimize your geothermal systems for maximum efficiency.

Accelerate your geothermal projects with digital profiles

Minimize CAPEX

De-risk your project

Optimize well placement and production

[Request a demo](#)

