

# Herman Acuna, P.E.





## Executive Vice President Ryder Scott Board of Directors

Herman is experienced in management planning and decision-making processes amidst a climate of competition and risk. In addition to providing advice in the areas of economic analysis, strategic planning, negotiation strategies, contract evaluation and conflict resolution and coordinating large high-stake projects in the Caspian and Middle East regions, he is an expert in the evaluation of reserves and future income under a variety of fiscal terms and model contracts. Herman has also been involved with implementing Corporate Reserves Management Systems for several companies in his career.

Prior to joining Ryder Scott, he spent 10 years with Exxon Mobil. Herman has Bachelor's and Master's degrees with honors in Petroleum Engineering from the University of Tulsa. He is a registered engineer with the state of Texas.

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# CONSISTENT WITH RESERVES DISCLOSURES VALIDATION AND VERIFICATION OF GHG STATEMENTS

SEPTEMBER 15, 2021



HERMAN G. ACUÑA  
EXECUTIVE VICE PRESIDENT

Risk Assessment Feasibility Studies Economic Due Diligence United Nations Classification Framework  
Utilization and Sequestration Authenticate Greenhouse Gas Assertions Surface and Sub-Surface Integration

- Introduction and context
- GHG statements and projects
- GHGs and their CO<sub>2e</sub> equivalency
- Validations versus Verifications (V/V)
- Reconciling GHG V/V with other forward looking statements such as reserves disclosures

Ryder Scott Company



**Numbers to Count On. Experts to Trust.**



SUSTAINABLE ENERGY CONSULTING

# INCREASED SEC INTEREST

Public Statement  
March 15, 2021

## Public Input Welcomed on Climate Change Disclosures



Acting Chair  
Allison Herren Lee

*On March 3, 2021 the SEC Division of Examinations announced the 2021 Examination Priorities with Enhanced focus on Climate-Related Risks*

*In light of demand for climate change information and questions about whether current disclosures adequately inform investors, public input is requested from investors, registrants, and other market participants on climate change disclosure.*



<https://www.sec.gov/news/press-release/2021-39>

*The Securities and Exchange Commission (SEC or Commission) has periodically evaluated its regulation of climate change disclosures within the context of its integrated disclosure system. In 2010, the Commission issued an interpretive release that provided guidance to issuers as to how existing disclosure requirements apply to climate change matters.*

*Since 2010, investor demand for, and company disclosure of information about, climate change risks, impacts, and opportunities has grown dramatically. Consequently, questions arise about whether climate change disclosures adequately inform investors about known material risks, uncertainties, impacts, and opportunities, and whether greater consistency could be achieved. In May 2020, the SEC Investor Advisory Committee approved recommendations urging the Commission to begin an effort to update reporting requirements for issuers to include material, decision-useful environmental, social, and governance, or ESG factors.*

# COMMISSION GUIDANCE REGARDING DISCLOSURE RELATED TO CLIMATE CHANGE



- *Although some information relating to greenhouse gas emissions and climate change is disclosed in SEC filings, much more information is publicly available outside of public company disclosure documents filed with the SEC as a result of voluntary disclosure initiatives or other regulatory requirements.*
- *This interpretive release is intended to remind companies of their obligations under existing federal securities laws and regulations to consider climate change and its consequences as they prepare disclosure documents to be filed with us and provided to investors.*
  - *Description of business*
  - *Legal Proceedings*
  - *Risk Factors*
  - *Management’s discussion and analysis*
  - *Impact of legislation and regulation*

SECURITIES AND EXCHANGE COMMISSION  
17 CFR PARTS 211, 231 and 241  
[Release Nos. 33-9106; 34-61469; FR-82]  
EFFECTIVE DATE: February 8, 2010

- Mandatory Greenhouse Gas Reporting
- On January 1, 2010, the EPA began, for the first time, to require large emitters of greenhouse gases to collect and report data with respect to GHG
- EPA estimates that over 10,000 facilities will report, accounting for 85% - 90% of U.S. GHG emissions
- The threshold for reporting is 25,000 metric tons CO<sub>2</sub>e or more per year for most sources

## MANDATORY REPORTING REQUIREMENTS

- UNFCCC Submissions
- Effort Sharing Decision
- EU Regulation 525/2013
- EU Regulation 749/2014

- 40 CFR 98

## VOLUNTARY REPORTING STANDARDS

- Green House Gas Protocol
  - Scope 1 (Direct)
  - Scope 2 (Indirect)
  - Scope 3 (Full Life)
- ISO 14064
  1. GHG Inventories
  2. GHG Projects
  3. Validation and Verification
- ISO 14065 & 14066
- API Standard GHG
- Global Reporting Initiative (GRI)
- Carbon Disclosure Project



- State Req.:
  - California
  - Colorado
  - Louisiana
  - New Mexico
  - Texas

- **Canada's Greenhouse Gas Pollution Pricing Act**

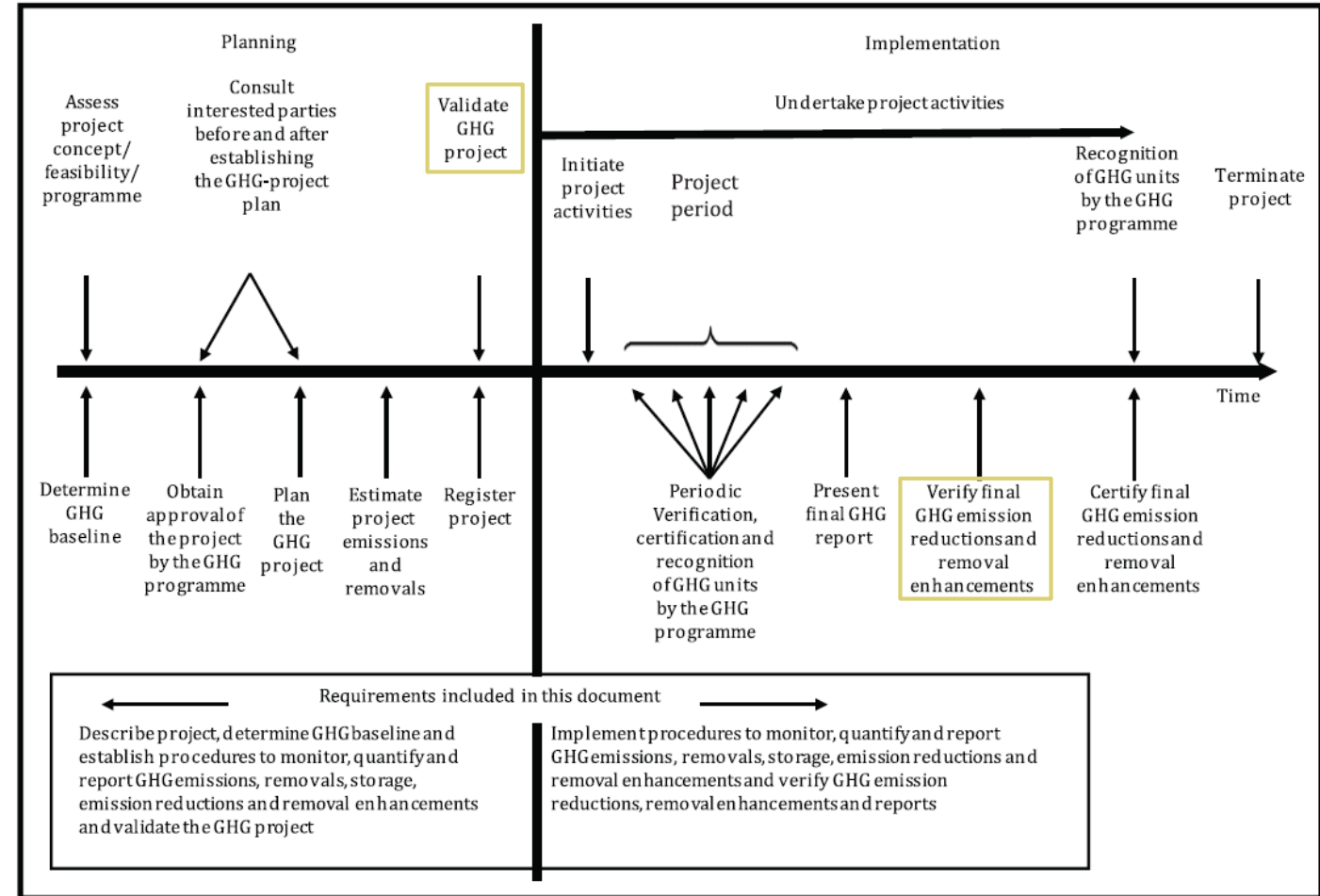


# GHG STATEMENT

- The statement of greenhouse gas emissions provides investors and other capital providers with the information needed to understand the company's contribution to global GHG emissions and associated operational implications and initiatives
- A quantitative analysis and report of the entity's GHG emissions based on evidence
  - Organizational boundaries, geographical, project and reporting boundaries
  - Inventory of sources, sinks and reservoirs (SSRs)
  - GHG Protocol Scopes (Scope 1: Direct, Scope 2: Indirect-purchase of electricity, heat or steam, Scope 3: Indirect full product cycle)
  - Represented period
  - Participation in any GHG Program

# GHG STATEMENT & PROJECT

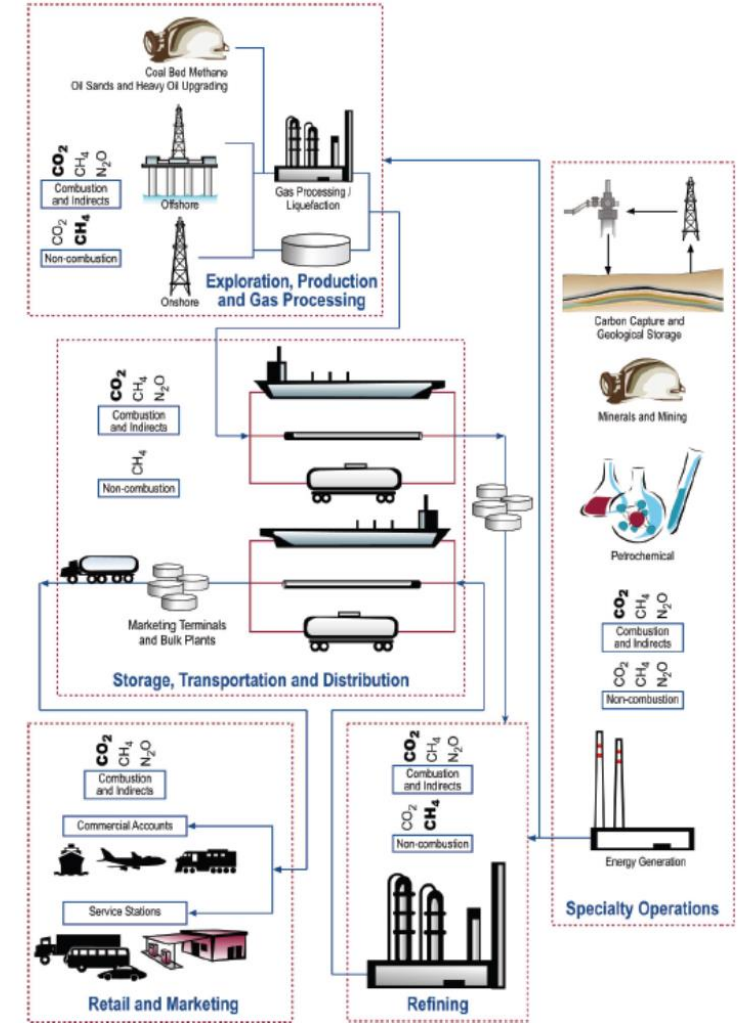
- A GHG Baseline is a quantitative reference(s) of GHG emissions and/or GHG removals that would have occurred in the absence of a GHG project and provides the baseline scenario for comparison with project GHG emissions and/or GHG removals.<sup>1</sup>
- A GHG Project is an activity or activities that alter the conditions identified in the baseline scenario which cause GHG emission reductions or removal enhancements.<sup>1</sup>



1. ISO 14064-3

# GHG STATEMENT

- The figure shows Oil and Gas Industry Sectors and GHG Emissions<sup>1</sup>.
- A GHG Project may target any of these sectors.
- The V/V may be limited to that GHG Project or a larger boundary depending of the scope of the GHG Statement.

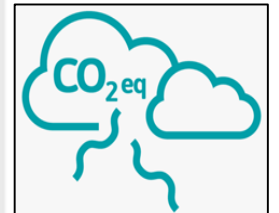


1. IPIECA/IOGP/API Compendium of Greenhouse Emissions Methodologies for the oil and gas industry

# GHG STATEMENT

- Within the boundaries of the evaluation the GHG sources should be inventoried and listed (controlled, related, affected by the GHG project).
- Verify Completeness: Include all relevant sources and document exclusions
- Example of Scope 1 (Direct) GHG sources in upstream operations:

SOURCE		SOURCE	
Drilling Rigs	Combustion engines	HC Storage	Working, breathing, flashing
	Drill mud degassing	Dehydrators & Separators	Reboilers & fugitive emissions
Well Completions	Flaring & venting	Loading/Offloading	Fugitive emissions
	Emissions from WH assemblies	Pumps, valves & piping	Fugitive emissions
	Emissions from rod pumps	Stacks & flares	Flaring & venting
Pneumatic Devices	Fugitive emissions	Turbines	Combustion
Compressors	Combustion engines	Engines general	Combustion
	Fugitive emissions	Controllers & Relief Valves	Venting & fugitive emissions
Heater Treater	Combustion heaters		
	Venting, fugitive emissions		



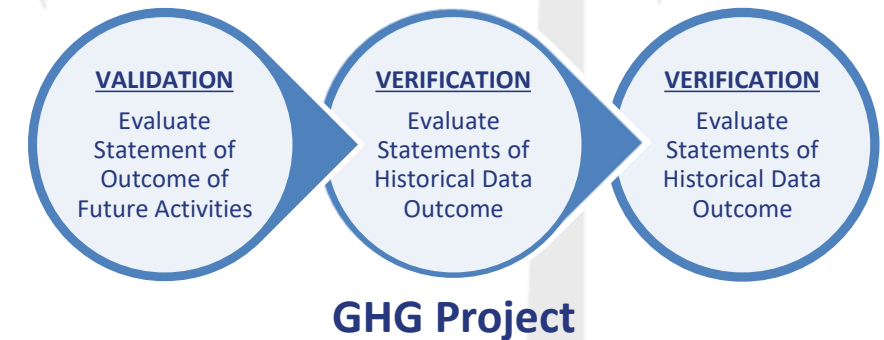
# GHGs AND THEIR CO<sub>2</sub>e

- CO<sub>2</sub> (Carbon Dioxide)
- CH<sub>4</sub> (Methane)
- N<sub>2</sub>O (Nitrous Oxide)
- Fluorinated GHGs
  - HFCs (hydrofluorocarbons)
  - PFCs (perfluorocarbons)
  - SF<sub>6</sub> (sulfur hexafluoride)
  - NF<sub>3</sub> (Nitrogen trifluoride)
  - Other fluorinated gases
- Global warming potential (GWP) of GHGs is an index based on radiative properties of the GHGs relative to CO<sub>2</sub>
- Carbon Dioxide Equivalent (CO<sub>2</sub>e) – reporting a GHGs as CO<sub>2</sub>e based on its radiative properties calculated using the mass of a given GHG multiplied by its GWP

Species	MT CO <sub>2</sub> e
CO <sub>2</sub>	1
CH <sub>4</sub>	25
N <sub>2</sub> O	298
HFCs	14,800
CF <sub>4</sub>	7,390
SF <sub>6</sub>	22,800

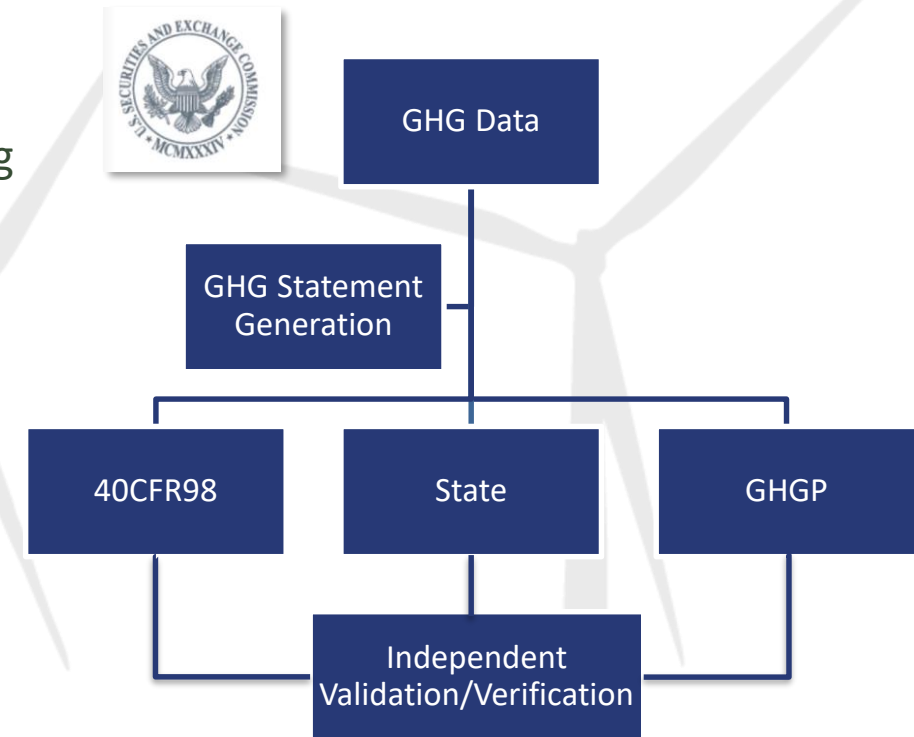
# VALIDATION AND VERIFICATION OF GHG STATEMENTS

- Validations and verification of GHG statements is one of the consulting services related to GHG strategy and management
- In response to initiatives being developed and implemented to limit greenhouse gas concentrations in the atmosphere.
  - Quantification, monitoring, reporting and verification of GHG emissions & removals
- Objective of the GHG validation or verification is to provide confidence to all parties that rely upon such GHG assertions.
  - Complete an objective, evidence based assessment of the statements
- Contains certain principles that the validating & verifying consultant should demonstrate & follow



# 3<sup>RD</sup> PARTY VALIDATIONS & VERIFICATIONS

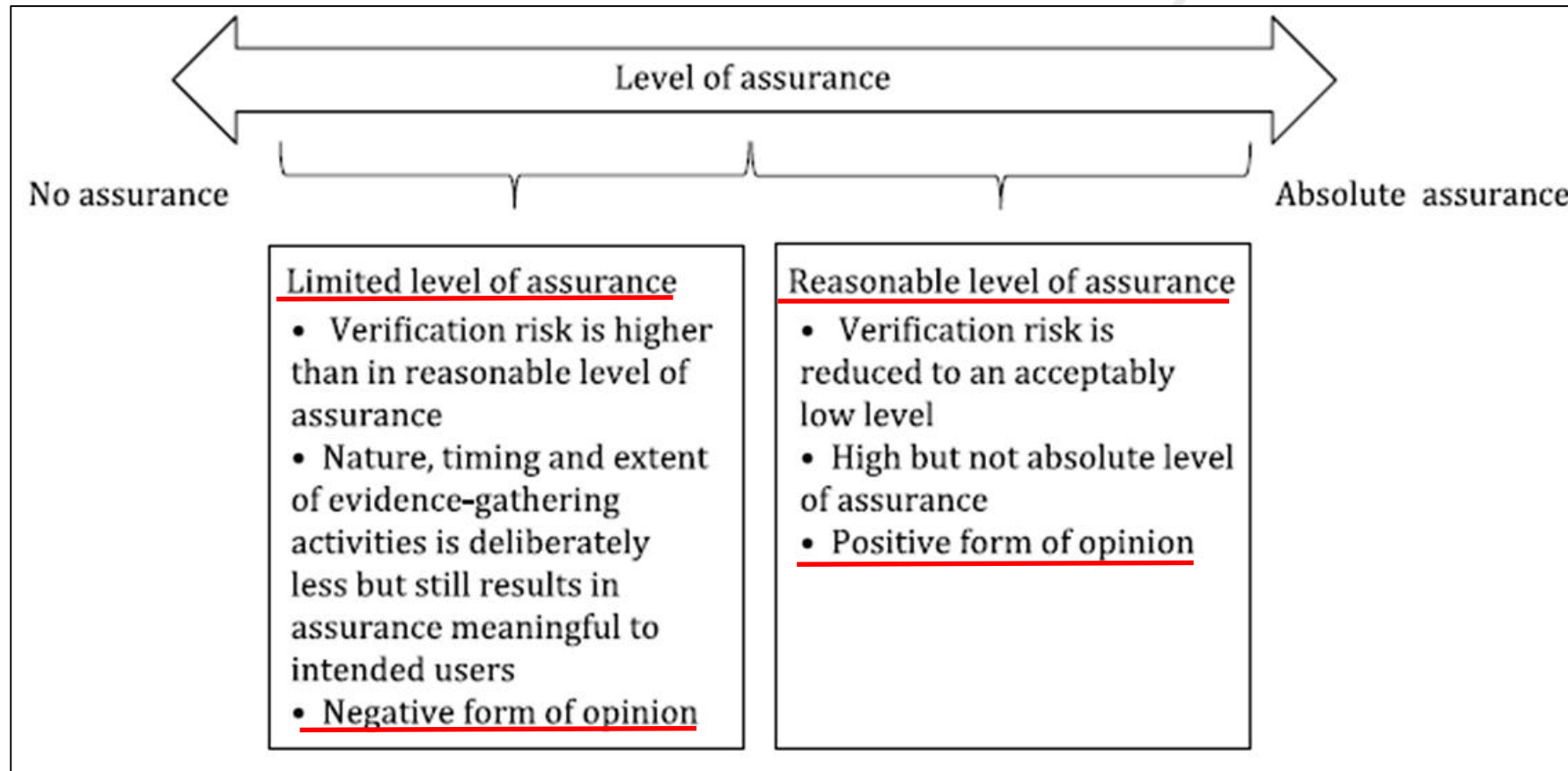
- The independent V/V process is independent of the GHG program that an entity is required or has volunteered to report.
  - 40CFR98, State, UNFCCC, GHG Protocol, Canada’s GHG Pollution Pricing Act, etc.
  - Reporting landscape is rapidly changing
- While the reporting requirements may vary, the data and engineering principles behind the generation of the GHG statements by an entity remain materially the same.
- In general, emissions for a particular source are the product of the source-specific emission factor (EF)<sup>1</sup> and the activity factor (AF). Using the GHGs’ GWP values, GHG emission estimates are expressed in terms of CO<sub>2</sub>e and/or CO<sub>2</sub>e per unit of product (Emissions Intensity).
- For many GHG emission sources, there are multiple options for determining the emissions, often with different accuracies.



$\text{Emission Inventory} = \sum_{i=1}^{\# \text{ sources}} EF_i \times AF_i$	$\text{CO}_2\text{e, tonnes} = \sum_{i=1}^{\# \text{ Greenhouse Gas Species}} (\text{tonnes}_i \times \text{GWP}_i)$
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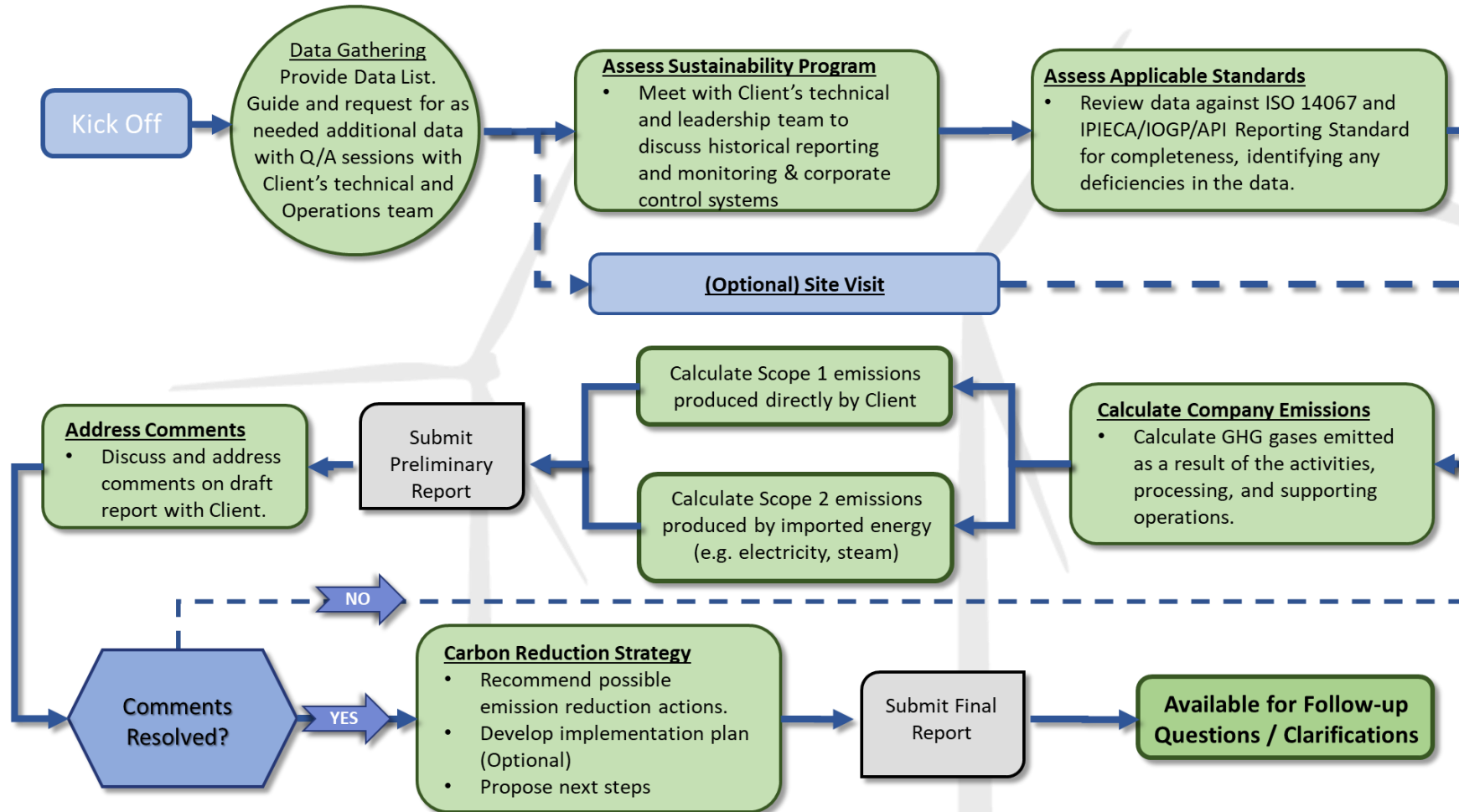
<sup>1</sup> Emission Factors (EFs) may be specific to climate change regulations

# ESTABLISH V/V LEVEL OF ASSURANCE



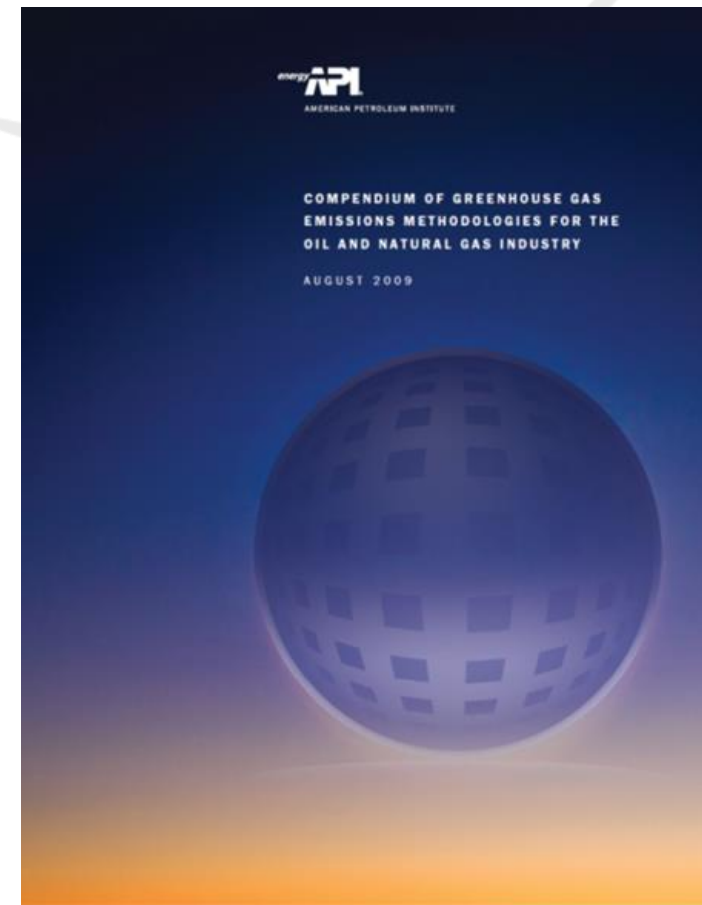


# V/V APPROACH



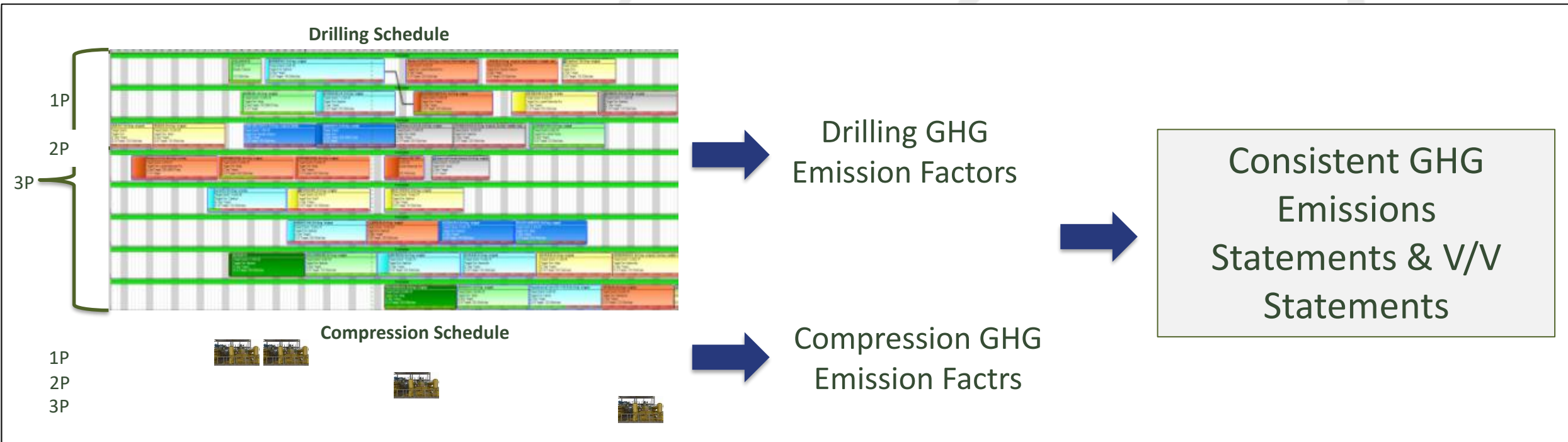
# QUANTIFICATION OF GHG EMISSIONS AND REMOVALS

- Identify and document all relevant GHG sources, sinks and reservoirs within the defined boundaries
- Select and use quantification methodologies that minimize uncertainty and yield accurate, consistent and reproducible results
- Identify and document its data for each source or sink classified as direct or indirect emissions and removals
- Except in the case of measurement of emissions and removals, the organization shall select or develop models for the quantification approach.



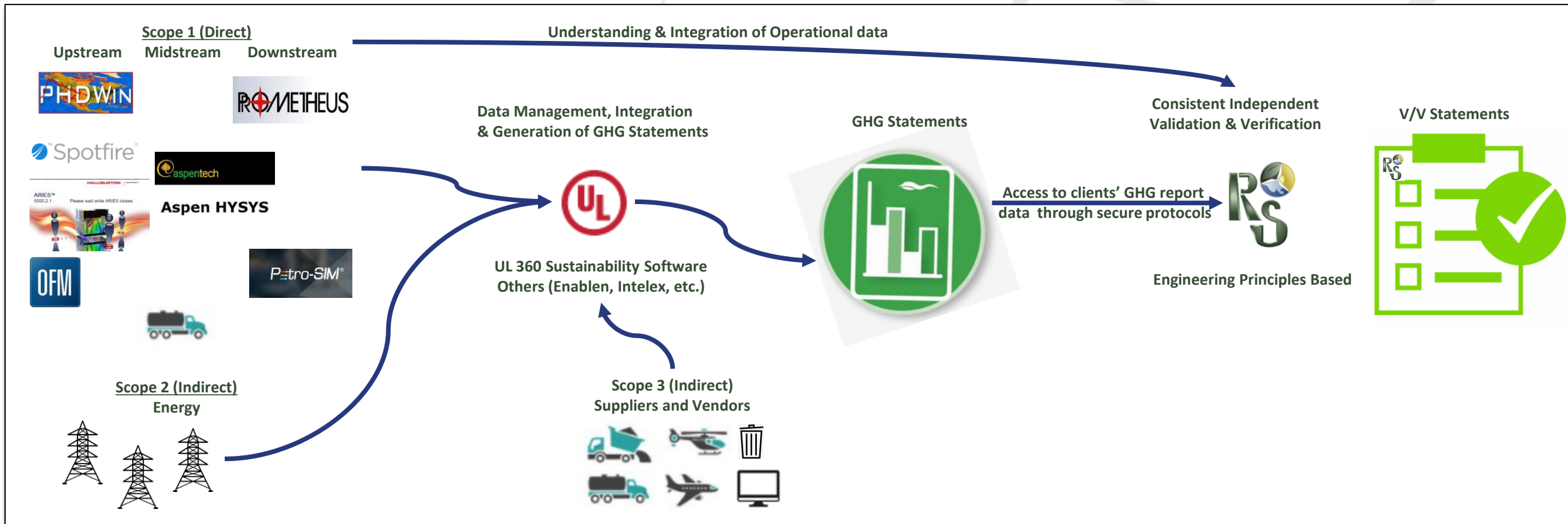
# 3<sup>RD</sup> PARTY V&V CONSISTENCY

- Ryder Scott provides added assurance that the GHG forward looking statements are consistent with the activities required to achieve the reserves and resources disclosed to the public and financial markets.
  - This becomes more important as the SEC and other regulatory bodies increase scrutiny of GHG Statements.



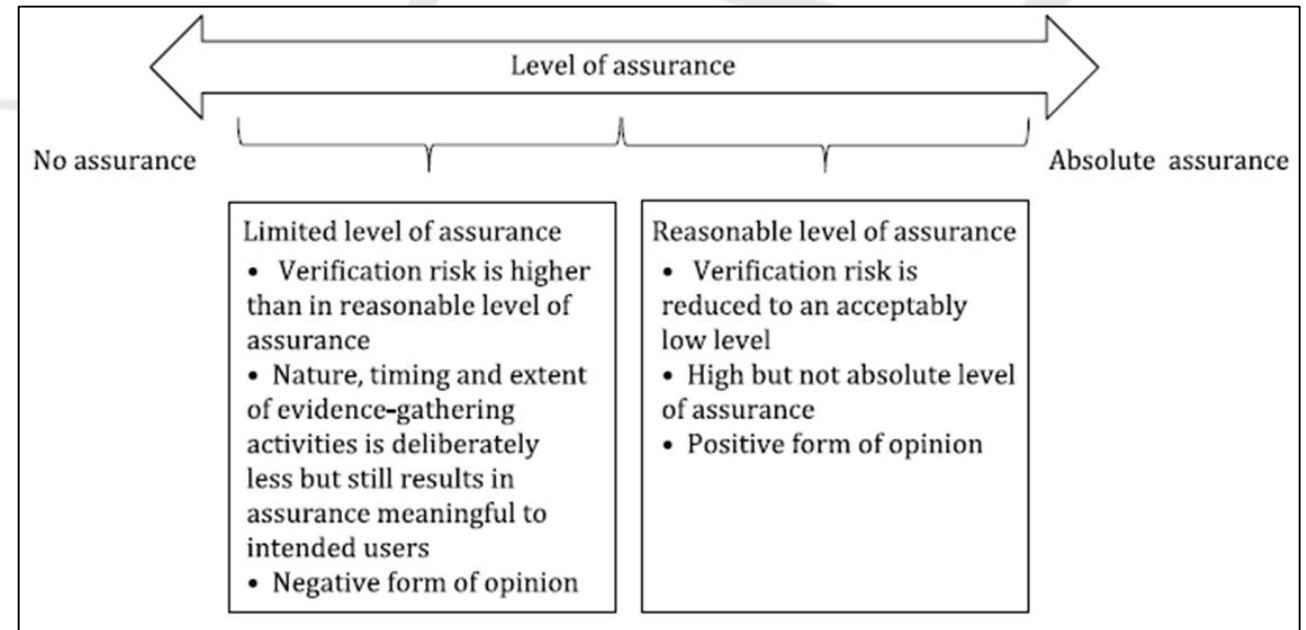
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# V/V REPORT OR STATEMENT

- Confirm completion and communicate results.
- Conclude GHG statement is free (or not) of material differences .
- Issue validation or verification statement.
- Maintain validation or verification records.
- Consider appropriate action if facts discovered after the verification statement can result in material changes.



# CONCLUSIONS

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- A validation and verification process is an independent review of GHG statements to provide additional corporate controls and assurance and to provide confidence to interested parties.
- Consideration of an integrated V/V exercise that takes into consideration company disclosures, such as reserves statements, makes the GHG more transparent and robust.
- V/V engagements can vary in scale and scope. Establishment of the evaluation boundaries and inventories is key to the success of the evaluation.
- Ryder Scott stands ready to assist its clients to establish a GHG strategy and reporting process.

# THANK YOU



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