



BCarbon Methane Protocol Overview

Thursday, January 25th 2024

About BCarbon



- Houston-based – 501c(3) Carbon Credit Registry and Innovation Hub, founded in 2021
- 4 Active Protocols
 - Soil, Forestry, Living Shorelines, and Methane Well Plugging (MCR)
- Research and Outreach Programs
 - Grasslands Soil Carbon Sequestration
 - Mass Timber w/ Rice Management Corporation
 - Texas Climate Smart Initiative
 - Small Landowner Carbon Collaborative with Prairie View and US BCSD

www.bcarbon.org



Protocol Development

- Version 1 submitted to full stakeholder group for feedback in May 2023
- Version 1 passed in June 2023
- Version 1.1 edits for practicality submitted to methane subgroup
- Version 1.1 passed by methane subgroup in November 2023



Clarification on Terminology

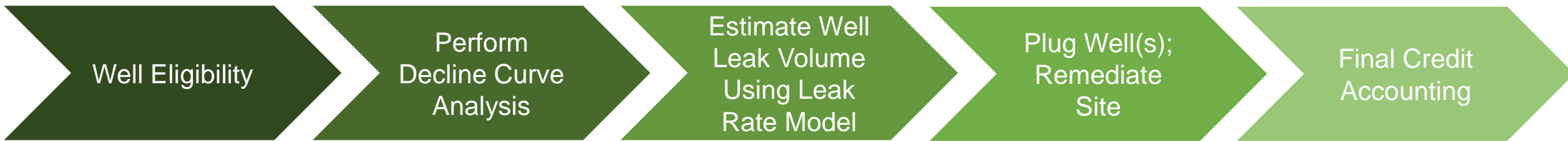
- BCarbon defines "orphaned wells" as wells without a solvent operator that require additional plugging measures to fully decommission the well
- BCarbon defines "abandoned well" to describe unplugged wells that are not currently in production and which have a known, solvent operator.
 - Other states/jurisdictions may refer to these wells differently
 - It is the category, not the specific term, that is relevant for the purposes of eligibility



Our Methodology

- Issue carbon credits for plugging eligible wells using historical production decline curve analysis combined with a leak estimation model
- Interested parties should submit a Letter of Intent to begin contract execution

How are the carbon credits calculated?

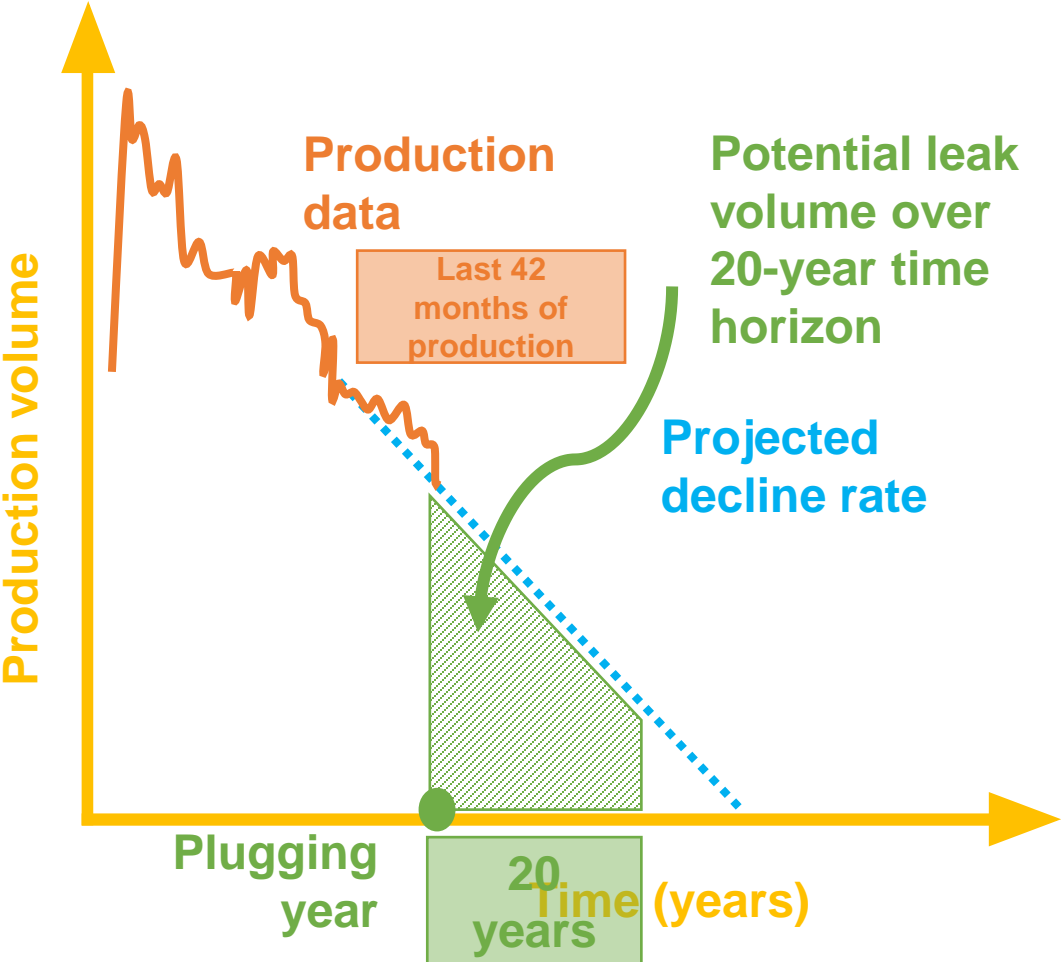


Step 1: Eligibility of Projects

- Well(s) must be physically located in US or Canada
- On-land or on-shore wells (over freshwater) registered with the appropriate regulator as an oil or natural gas well (considering estuarine wells)
- Well(s) must be compliant with all regulations
- Well(s) must be transitioned to a non-producing status, or has had no net production in past 3 months
- Developer must do pre-plugging test to confirm well is leaking



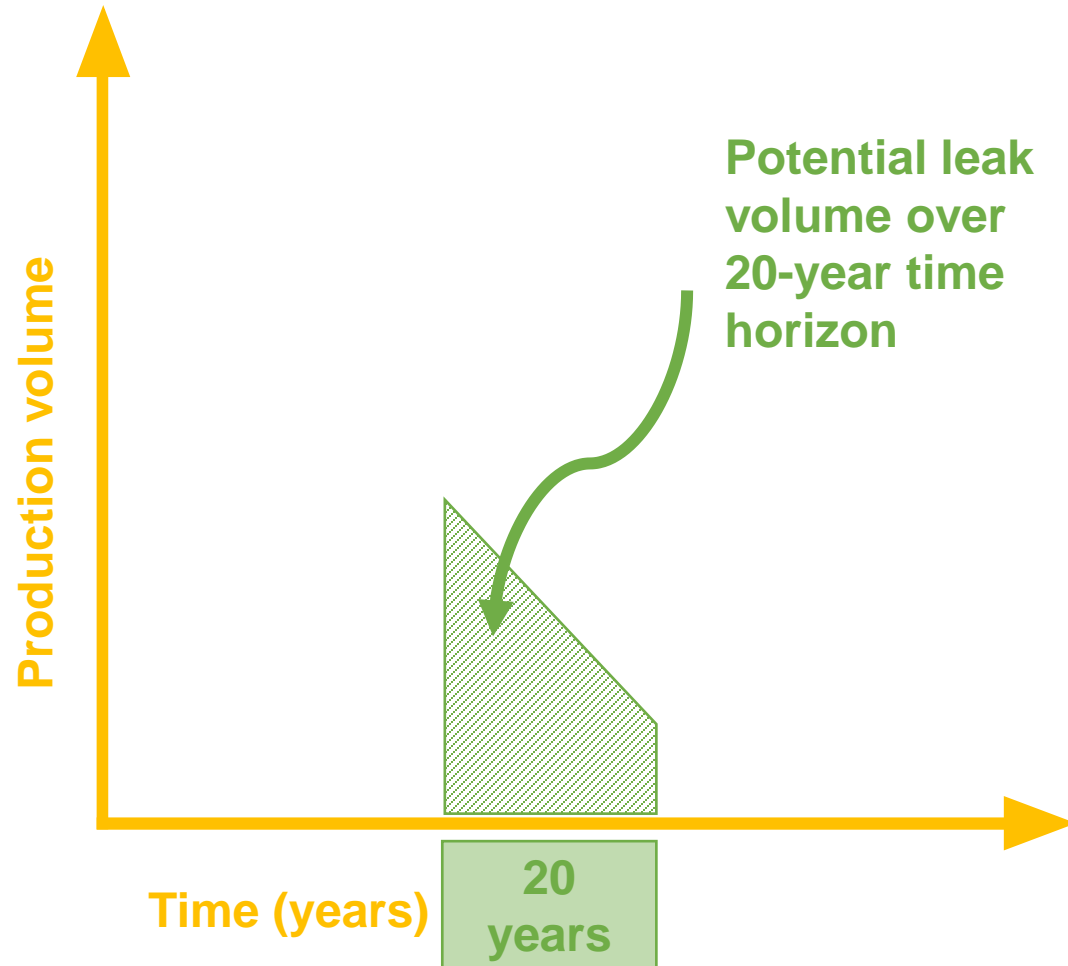
Step 2: Decline Curve Analysis



Decline curve analysis is conducted by the project developer



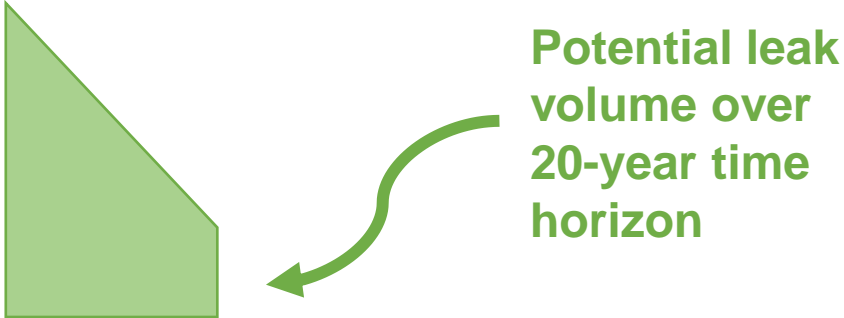
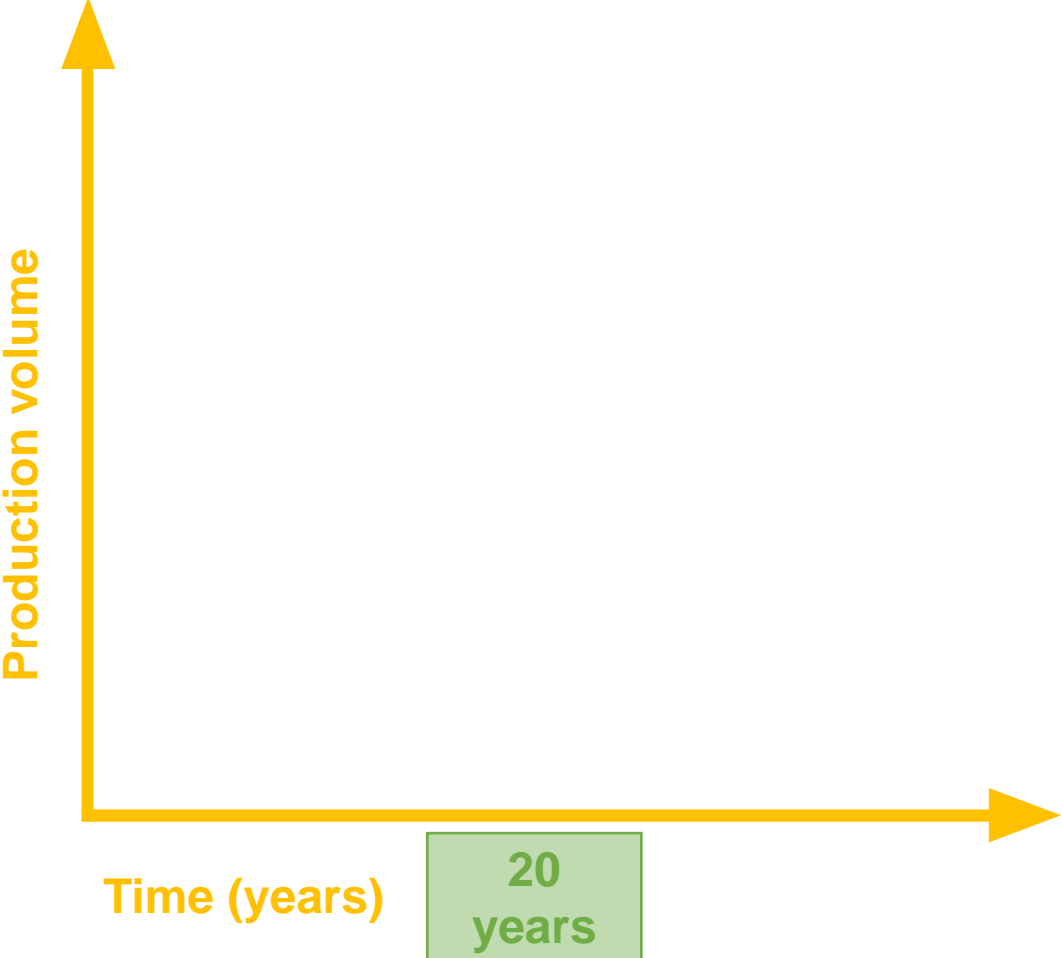
Step 3: Produce Leak Rate Model



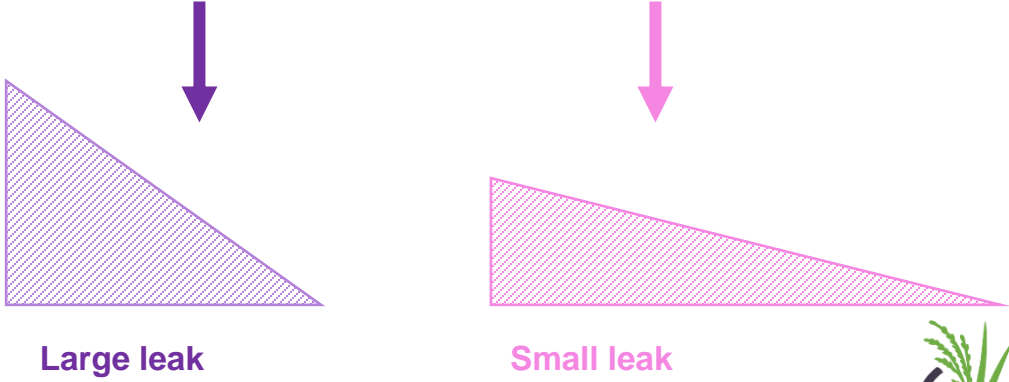
Leak rate model
conducted by the project
developer



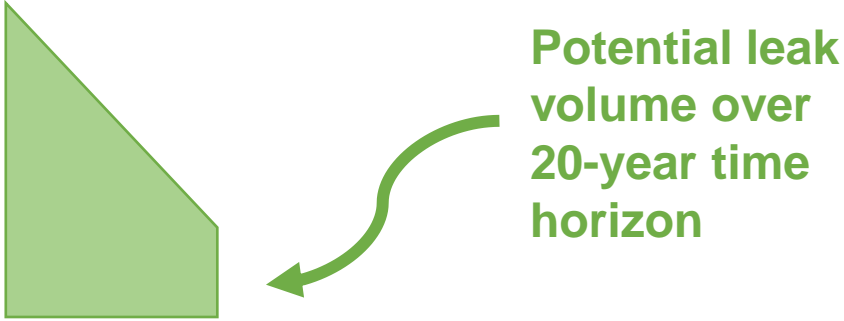
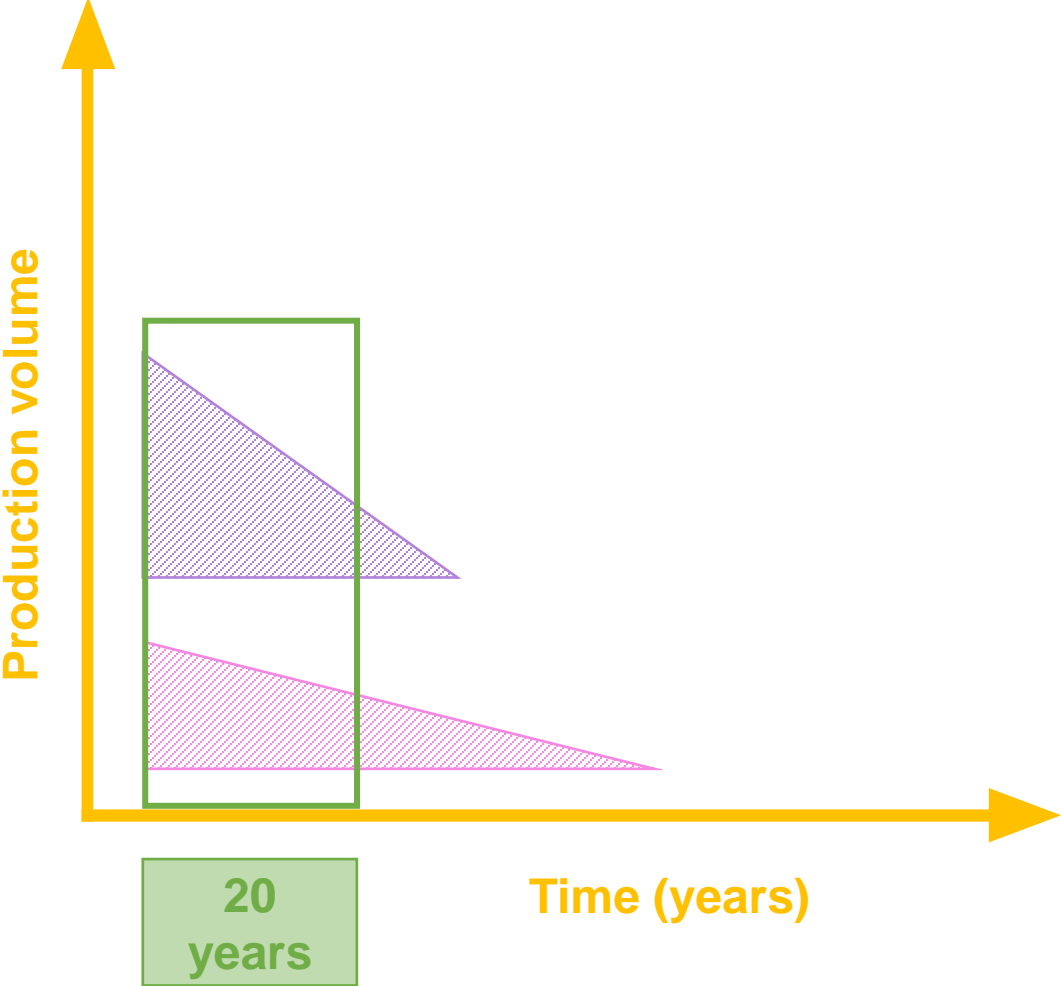
Step 3: Produce Leak Rate Model



Take the 20-year volume and model it at 2 different leak rates



Step 3: Produce Leak Rate Model



Take the 20-year volume and model it at 2 different leak rates as outlined in protocol and template spreadsheets

Credits are calculated from a weighted sum of the probabilities of a small vs. large leak from the 20-year potential volume



Step 4: Plug well(s) and remediate site

- Plug the well(s) in accordance with local regulations
- Remediate the site in accordance with the local regulator
- Post-plugging test confirms the well has been plugged and is no longer leaking



Step 5: Final Credit Accounting

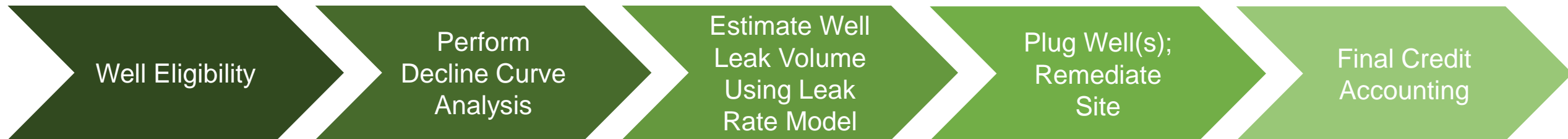
Project developer to do final project emissions calculations

$$N = (G - TPE) \times (1 - D)$$

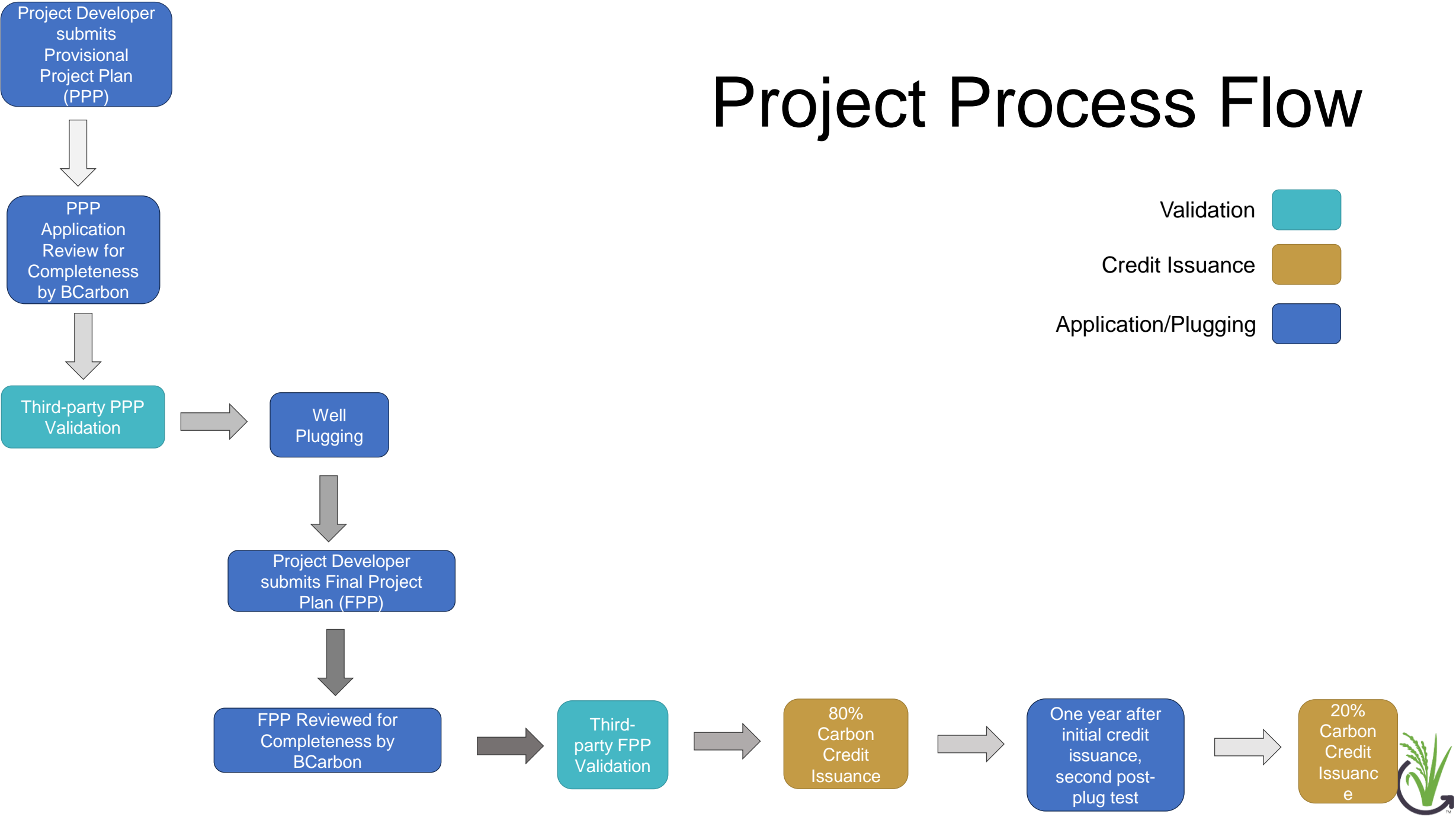
N	Net Emissions Reductions
G	Gross Emissions Reductions
TPE	Total Project Emissions
D	Uncertainty Discount (5% of total credits)



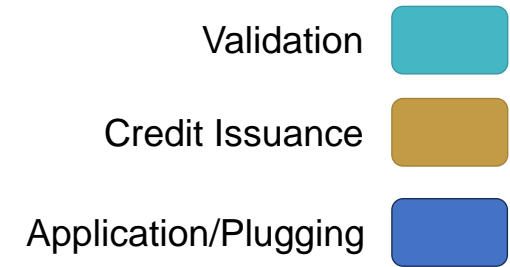
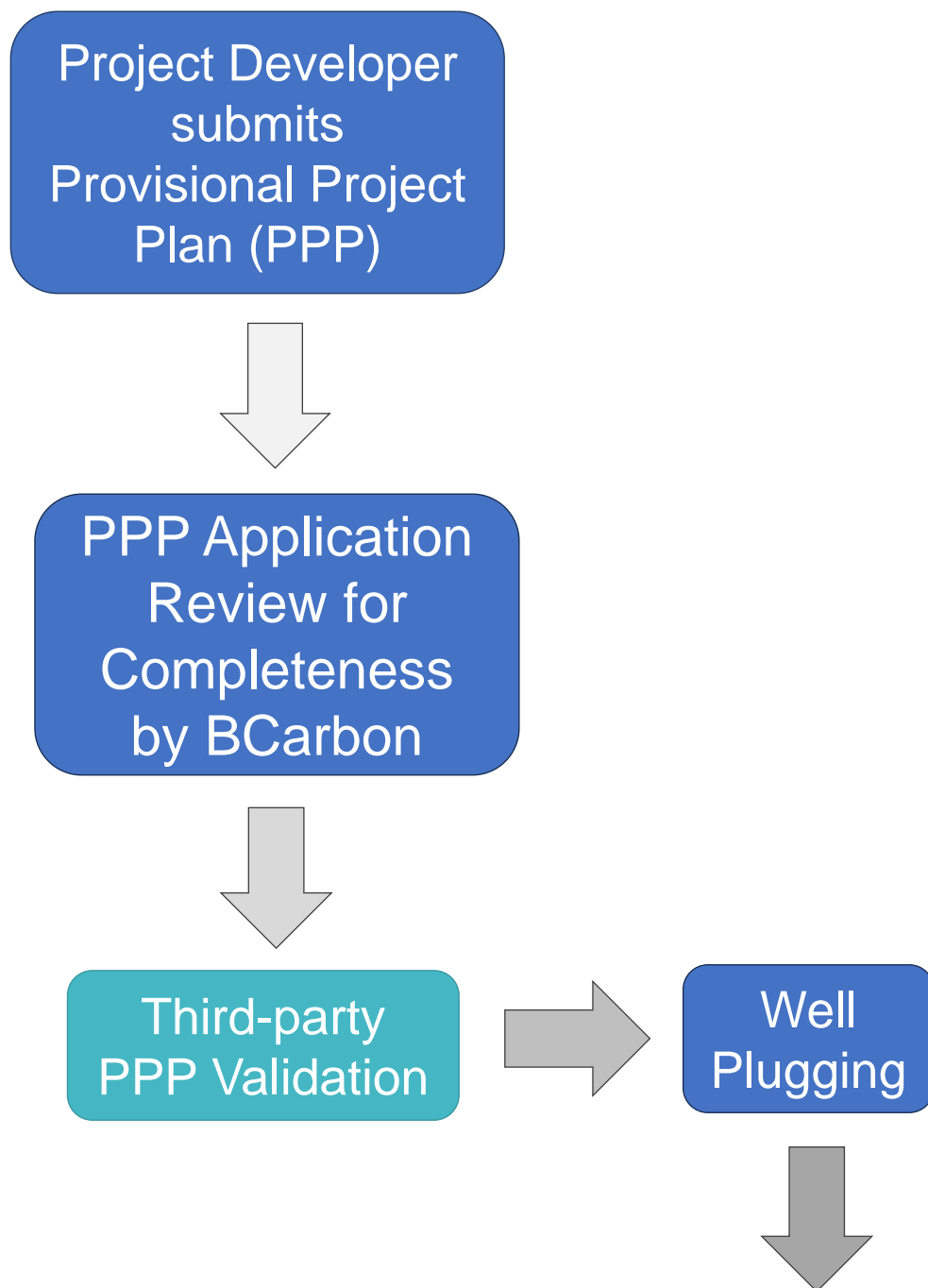
Carbon Credit Calculations Summary



Project Process Flow



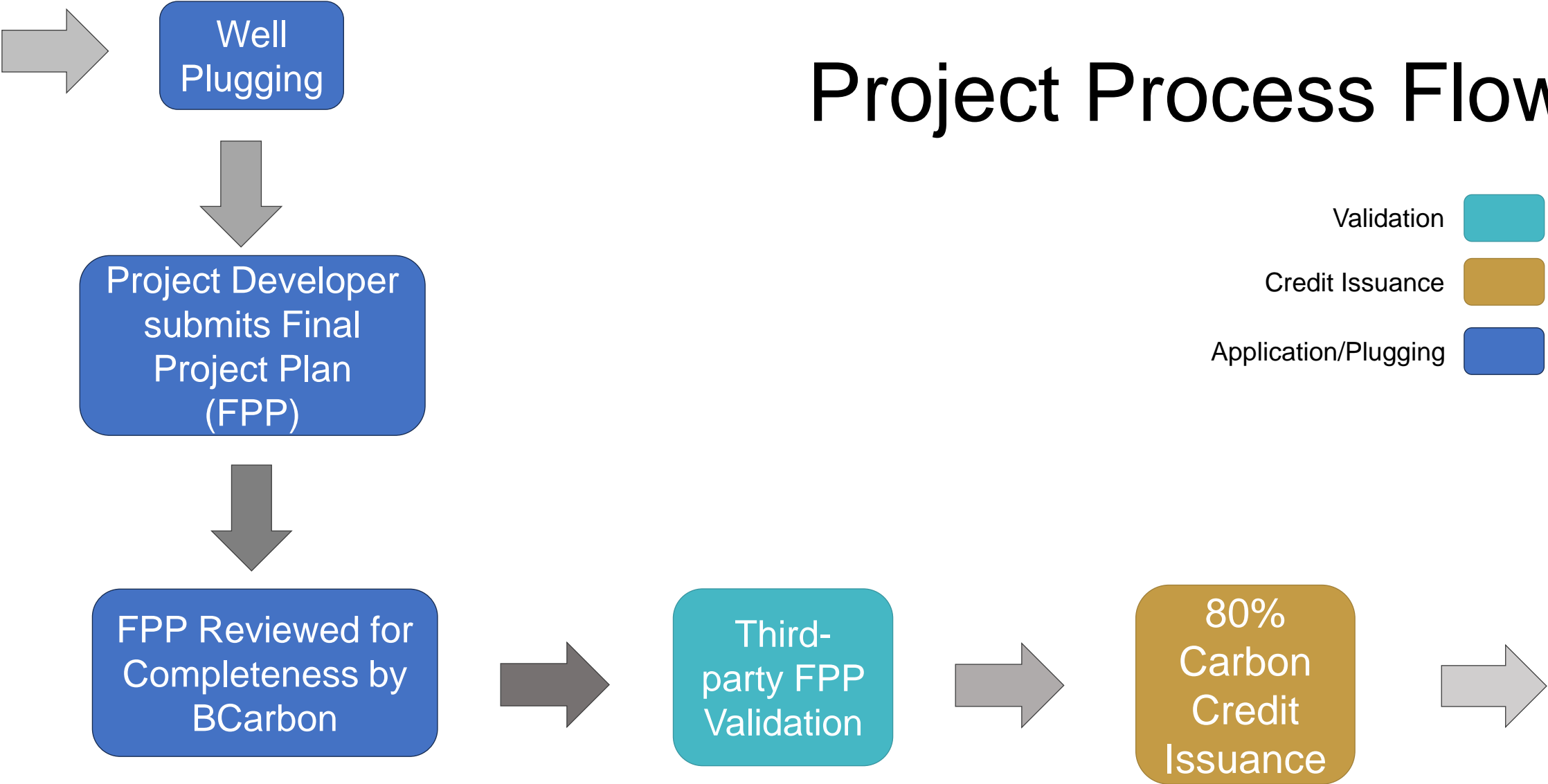
Project Process Flow



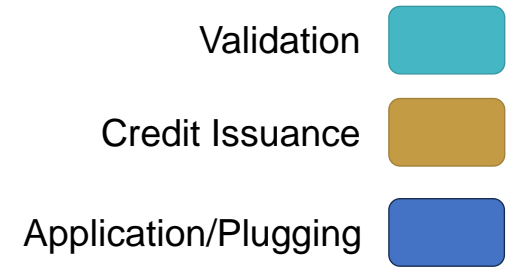
Project Developer is responsible for Validation costs



Project Process Flow

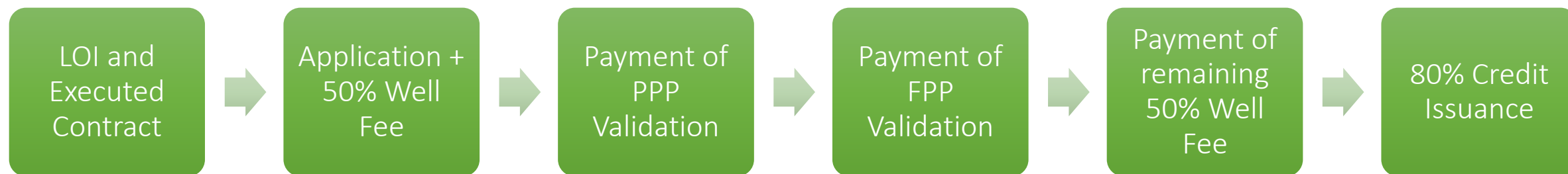


Project Process Flow



Application Process and Associated Fees

Project Developer to submit payments to BCarbon in the following order:



Additional FPP data

- Aquifer and Water Wells
- Sensitive Receptors and Environmental Justice Data
- Endangered Species
- Agricultural Land and Soil Analysis
- Land Reclamation
- Other Co-benefits



To learn more...

- All application materials and documents can be found at our website: <https://bcarbon.org/methane>
- melanie.martin@bcarbon.org
- Email an LOI to BCarbon to begin the process
- For general BCarbon questions, please email info@bcarbon.org



Controlling Air Pollution from the Oil and Natural Gas Operations

CONTACT US

- Oil and Natural Gas Air Standards Home
- Basic Information
- Actions and Notices
- Implementation

EPA's Final Rule for Oil and Natural Gas Operations Will Sharply Reduce Methane and Other Harmful Pollution.

December 2, 2023 -- EPA has issued a final rule that will sharply reduce emissions of methane and other harmful air pollution from oil and natural gas operations -- including, for the first time, from existing sources nationwide. The final action includes New Source Performance Standards to reduce methane and smog-forming volatile organic compounds from new, modified and reconstructed sources. It also includes Emissions Guidelines, which set procedures for states to follow as they develop plans to limit methane from existing sources. Oil and natural gas operations are the largest industrial source of methane pollution in the U.S.

Methane is a climate "super pollutant" that is more potent than carbon dioxide and is responsible for approximately one third of current warming resulting from human activities. Rapid, sharp cuts in methane can generate near-immediate climate benefits and are a crucial addition to cutting carbon dioxide in slowing the rate of warming of Earth's atmosphere.

Regulatory Documents

- Final Rule and Regulatory Text (pdf) (5.9 MB)
- Regulatory Impact Analysis (pdf) (3.3 MB)
 - Supplementary Material for the Regulatory Impact Analysis: Report on the Social Cost of Greenhouse Gases (pdf) (8.8 MB)

Note: EPA reposted this file on 12/5/23 to correct bookmark errors.
 - Additional Information on the Social Cost of Greenhouse Gases Report

Fact Sheets

- Key Things to Know About EPA's Final Rule for Oil and Natural Gas Operations (pdf) (184.1 KB)
- La EPA publica una norma final para reducir el metano y otros agentes contaminantes de las operaciones de petróleo y gas natural (pdf) (173.3 KB)
- EPA's Final Rule for Oil and Natural Gas Operations: Overview (pdf) (183.7 KB)
 - Cuestiones importantes a saber sobre la norma final de la EPA para reducir el metano y otros agentes contaminantes de las operaciones de petróleo y gas natural (pdf) (184.7 KB)
- Technical Fact Sheet: Appendix K: Requirements for Using Optical Gas Imaging, Applied to Natural Gas Processing Plants (pdf) (180.9 KB)

Tables

- Table of Covered Sources by Site: EPA's 2012, 2016 and 2023 Rules (pdf) (227.7 KB)
- Summary of Requirements: Final New Source Performance Standards and Emissions Guidelines (pdf) (248.2 KB)

Presentation

- EPA's Final Rule for Oil and Natural Gas Operations (pdf) (370.5 KB)

Upcoming Trainings

EPA will hold trainings in early 2024 to provide an overview of the final rule for communities, Tribes, tribal environmental professionals and small businesses. The Agency also will hold trainings on how to apply to use alternate test methods for detecting methane and on how to apply to be EPA-certified for the Super Emitter Program. We will post information on the trainings on this web page as they are scheduled.

EPA's New Methane Oil & Gas Rule: Impacts on Carbon Crediting for Voluntary Well Plugging



Methane Rule published December 2023

**ENVIRONMENTAL PROTECTION
AGENCY**

40 CFR Part 60

**[EPA-HQ-OAR-2021-0317; FRL-8510-04-
OAR]**

RIN 2060-AV16

**Standards of Performance for New,
Reconstructed, and Modified Sources
and Emissions Guidelines for Existing
Sources: Oil and Natural Gas Sector
Climate Review**

Key Questions to Discuss:

1. What does the rule require?
2. On what timeline?
3. Are orphan & idle wells covered by the rule?
4. How does this impact eligibility under the BCarbon MCR Protocol?

Disclaimer: opinions, not legal counsel!



Implications of Methane Rule for Generating Credits

Under BCarbon Rules and Concepts of Additionality – no credit can be issued if a *legal obligation to plug* exists at the time of application for credits

Immediate Issue – What is the status of idle and orphan wells under the EPA's new methane regulations?



Structure Under Section 111 of the Clean Air Act: New Source Performance Standards (NSPS)

- Section 111(c) issued New Source Performance Standards (NSPS)
 - Applies to new sources constructed on or after December 6 2022 or later
 - **EPA 0000b** is the NSPS for new sources
- Section 111(d) – Requires states to develop State Implementation Plan (SIP) to implement NSPS to Existing Sources constructed before December 6, 2022
 - **EPA 0000c** is the “Emission Guidelines” for SIP development
 - States have 2 years to develop rules
 - States have 5 years to implement rules



New Wells



- Wells built after 12/6/22
- Rule applies directly to new wells
- Requires wells to be monitored and controlled until plugged (***closure plan... which is fairly onerous***)
- “Outlaws” orphaning going forward (i.e. closure plan requirements)
- Existing orphaned wells not implicated (because they are not new)



Existing Wells



- Wells built before 12/6/22
- States must develop equivalent requirements to EPA's through a SIP process
- EPA outlined specific well closure requirements in the model rule
- Model rule “outlaws” orphaning going forward (i.e. closure plan requirements)
- Existing orphaned and idle wells implicated??? Not clearly stated that they are.



Orphaned And Abandoned Wells - Are They Covered?



- Not covered for next two years
- Final rule is silent beyond two years
- Response to comments is silent.

*Must States address orphaned wells in
their SIPs as existing wells???*



Applicability & Definitions

- The rule applies to “**designated facilities**” - “any existing facility which emits a designated pollutant and which would be subject to a standard of performance for that pollutant if the existing facility were an **affected facility**.” See 40 CFR 60.21a(b).
- “**Affected facility**” - “each existing well that **produces associated gas** which commenced construction before December 6, 2022.”
- “**Associated gas**” - the “natural gas from well operated primarily for oil production that is released from the liquid hydrocarbon during the initial state of separation after the wellhead. Associated gas product begins at the startup of production after the flow back period ends. Gas from wildcat or delineation wells is not associated gas.”



Applicability Assessment

- Based on the use of the word “***produce***” and “***associated gas***”—it appears that EPA is talking about just producing wells as opposed to non-producing abandoned wells, but this is not express.
- EPA’s rule also subcategories the Emissions Guidelines for existing wells into two subcategories based on the amount of emissions (40 tons of methane per year)—essentially implying ***there is some production in the wells covered by these rules.***



Multiple states have questions about Orphaned Well inclusion...



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR



Governor Mark Gordon, Chairman | Tom Kropatsch, State Oil & Gas Supervisor
Commissioners Jenifer Scoggin | Erin Campbell | Jimmy E. Goolsby | Ken Hendricks



But comments on Orphan Well Status *Not Addressed* in EPA response



What did the proposed rule say about orphaned wells?

EPA is trying to prevent more orphaned wells by “**outlawing**” **future abandonment**

Federal Register / Vol. 86, No. 217 / Monday, November 15, 2021 / Proposed Rules

63241

*“The EPA has identified the following potential strategies to reduce air emissions from these sources. The first strategy is to employ practices and procedures to ensure proper well closure. Under this strategy, the EPA could focus on well closure requirements **aimed at preventing future abandonment** of unplugged wells and **halt the growth of this unplugged population**. Given that all wells eventually reach their end of life, this strategy could be applied to both new and existing wells. Under the NSPS, for example, the EPA could require owners or operators to submit a closure plan describing when and how the well would be closed and to demonstrate whether the owner or operator has the financial capacity to continue to demonstrate compliance with the rules until the well is closed and to carry out any required closure procedures per the rule. This demonstration could require some financial assurance or bonding if the Agency determines the financial capacity of the owner or operator to continue to assure compliance with the rule is in doubt.”*





Summary

- Lots of lawsuits coming
- More orphaned wells as the result of the rules
- Existing orphaned wells likely to be included in some states plans and excluded from others—resulting in lawsuits
- **Opportunity to get ahead of this process and pursue voluntary closings and credits!**

BCarbon Analysis

- Our legal position is:
 - **Orphan and idle wells are not covered by the EPA Rule as it relates to existing sources due to definition of “affected facility” and “associated gas.”**
- BCarbon considers plugging idle and orphan wells to be fully additional, as plugging is not required under regulation and states will need assistance with plugging orphan wells
- BCarbon will work with state agencies who are willing to include voluntary carbon market plugging concepts into their SIPs as acceptable actions to address methane leaking from orphaned and idle wells.

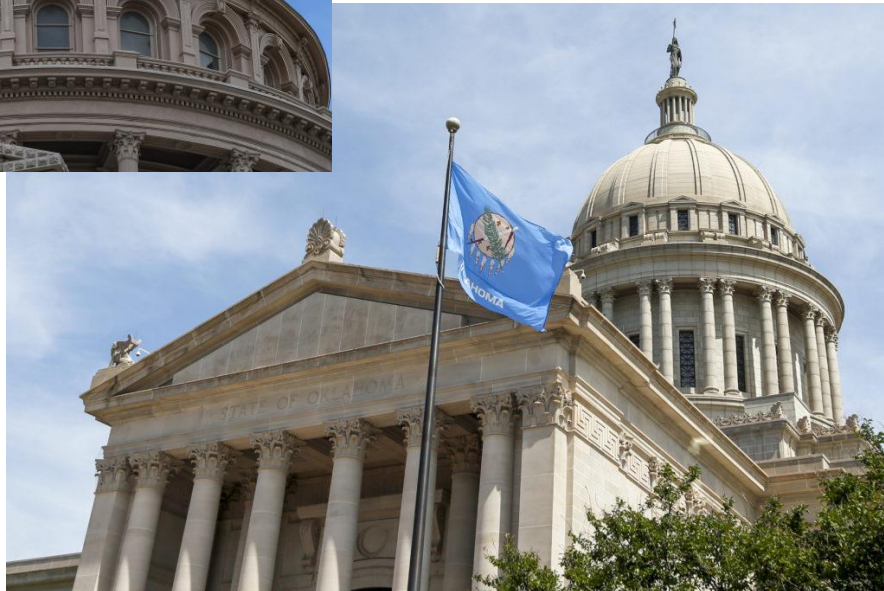


Concept under development:

Carbon Credits + State Implementation Plans



Possible to include methane plugging protocols for orphan and idle wells in SIP as an alternative pathway that is not required



Offers the possibility of immediate action to address orphan and idle wells

