Atlas Agro North America Corp
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To: US Department of the Treasury

Atlas Agro Letter to the Department of Energy (DOE) regarding Argonne National Laboratory's (ANL) 45VH2-GREET 2023 model ("45VH2-GREET model").

Atlas Agro North America Corp is developing a 700ktpa green nitrogen fertilizer project in Richland, WA. The plant (Pacific Green Fertilizer plant or PGF) will be producing over 40ktpa of green H2 from 2027. The PGF project will avoid over 1 million metric tons per year of CO2e emissions compared to best available fossil-based alternative. In addition to reducing US dependence on imports, Atlas Agro will provide farmers with fertilizers that boost crop yield and quality, enable precision farming, reduce environmental impact, and facilitate green crop premiums. PGF is Atlas Agro's flagship facility with the ultimate plan to build multiple of green fertilizer plants across the U.S.

Atlas Agro is completing Front End Engineering and Design on PGF and is scheduled to take Final Investment Decision (FID) by the end of 2024. Investors are willing to provide external capital to fund PGF construction with its attractive economics aided by government subsidies, which importantly requires clarity with respect to U.S. Department of the Treasury's and Internal Revenue Service' (IRS) recently proposed regulations ("IRA Regulations") on the Clean Hydrogen Production Credit established by the Inflation Reduction Act (IRA) ("Tax Credit").

This paper is intended to summarize key practical issue Atlas Agro Team perceives with the adoption of IRA regulations, including selected inconsistencies between

(1) proposed rules explaining the three criteria describing how taxpayers may use energy attribute certificates (EACs) ("IRA Guidance on Three Criteria") and
(2) the 45VH2-GREET model used to determine lifecycle greenhouse gas emissions.

We believe there is an inconsistency between definition of the regions as defined in the IRA Guidance on Three Criteria and the 45VH2-GREET model.

IRA Guidance on Three Criteria. To meet IRA deliverability criteria, the PNW projects are required to source electricity from the Northwest region as defined by DOE's 2023 National Transmission Needs Study (primarily WA, OR and ID). The map is presented in Figure 1 below.

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Figure 1:

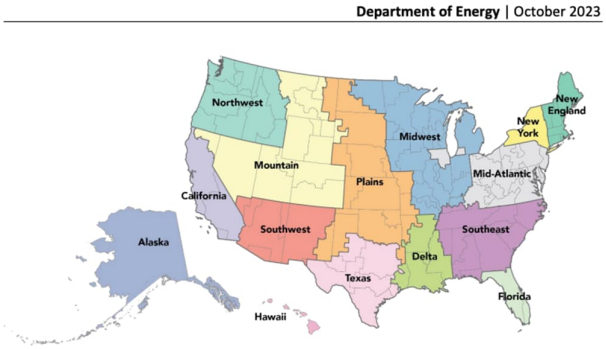


Figure 2:

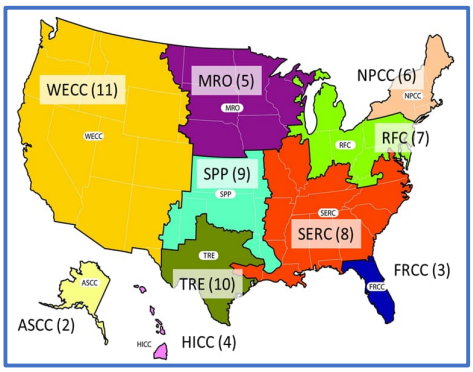
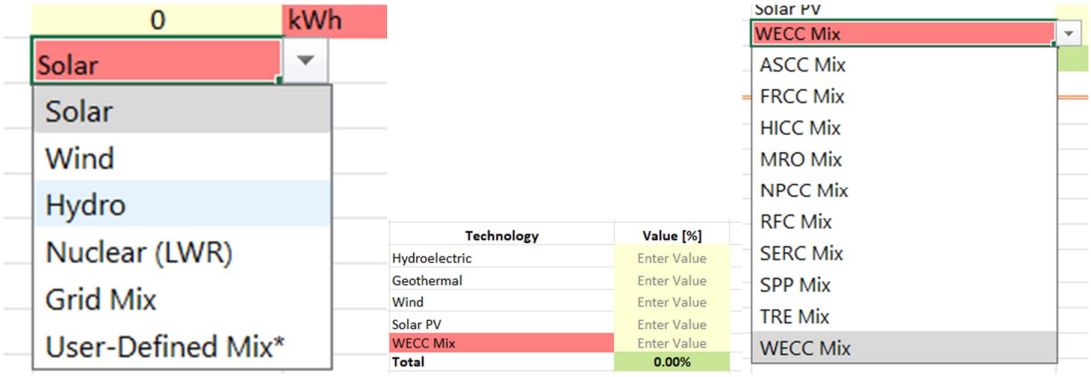


Figure 1 Source: https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf
Figure 2 Source: https://www.energy.gov/eere/greet

At the same time, 45VH2-GREET model is asking developers to determine their lifecycle greenhouse gas emissions based on a pre-defined grid mix as defined in Figure 2, leaving no alternative for hydrogen producers in the Northwest but to use WECC grid emissions for the firming part of the electricity. See 45VH2-GREET model screenshot below.



Source: https://www.energy.gov/eere/greet

Problem: We see this as inconsistent as effectively developers of projects in the Northwest pay a premium to source electricity from a clean and expensive Northwest grid but are forced to use a more carbon-intensive WECC grid dominated by gas and coal to estimate their lifecycle greenhouse gas emissions in the 45VH2-GREET model which consists of a significantly larger geographical area (See Figure 3).

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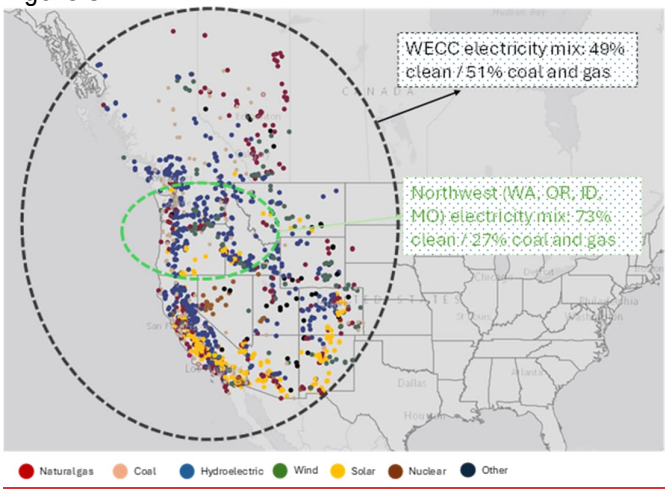
Figure 3:



Source: *Atlas Agro Internal Analysis*

Such inconsistency results in unrealistically high GHG emissions when sourcing a portion of electricity from the grid, effectively penalizing Pacific Northwest ("PNW") hub projects twice:

1. First, with relatively high electricity price they must pay given PNW electricity trades at a premium (further boosted in WA by Cap and Invest program).
2. Second, via 45VH2-GREET model that artificially increases GHG emissions of PNW hydrogen projects by synthetically assuming grid electricity is sourced from the entire WECC.

Current guidelines combined with 45VH2-GREET model make it practically impossible for PNW hydrogen projects to qualify for the Tax Credit above US$1.0/kg of hydrogen assuming continues production / operation (i.e. not intermittent operation) typical for hard to abate chemical industries such as nitrogen fertilizer production.

The Atlas Agro Team has received the following preliminary results based on 45VH2-GREET model and has estimated that if a cleaner PNW grid was instead allowed in the mix, the value of potential IRA 45V credit would have been much more impactful and helped the project economics.

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Grid usage contribution (%)	GHG emissions (kgCO2 / kgH2)	Implied Full Credit ($)
GREET 45V Model Grid Mix Sensitivity		
40%	6.70	0.00
35%	5.80	0.00
30%	5.00	0.00
25%	4.10	0.00
20%	3.30	0.60
15%	2.40	0.75
10%	1.60	0.75
5%	0.75	1.00
3%	0.41	3.00
PNW Mix		
40%	3.43	0.60
35%	3.00	0.60
30%	2.57	0.60
25%	2.14	0.75
20%	1.72	0.75
15%	1.29	1.00
10%	0.86	1.00
5%	0.43	3.00
3%	0.26	3.00

Utility	Carbon Intensity	Units
Washington, WA	186	lb/MWh
Oregon, OR	299	lb/MWh
Idaho, ID	248	lb/MWh
Montana, MT	1031	lb/MWh
PNW weighted average	325	lb/MWh
WECC	694	lb/MWh
BPA	157	lb/MWh

Source:
https://www.epa.gov/system/files/documents/202401/egrid2022_summary_tables.pdf
Atlas Agro Internal Analysis, PNW mix grid is estimated manually

Atlas Agro Team believes that it is worth synchronizing 45VH2-GREET model inputs with the IRA Guidance on Three Criteria's regionality definition to make regulations consistent and to allow fair treatment of hydrogen producers operating continuous production processes (ie require 24/7 "baseload" hydrogen production and electricity supply) relying on more expensive, greener electricity networks.

Such alignment between definition of regions in the IRA Guidance and 45VH2-GREET model is critical for successful project FID in 2024.

We are available to discuss this issue at your convenience should you have any questions.

Best Regards,

Dan Holmes
President, Atlas Agro North America