Docket No. 18-057-T05 Technical Conference

November 19, 2018

Dominion Energy®

RNG to CNG Process

Market CH4

Green Attributes can be assigned to any CH4 supply that is physically connected

Operationally, we treat RNG Supplier like transportation customer.

RNG Supplier

Pipeline quality RNG is produced

Green Attribute

CH4

Pipeline quality RNG is injected

Commercial Pipeline

Green attribute and CH4 can be separated

DEU City Gate (Receipt Point)

CH4 Customer

$

$

Supply/usage must balance (TIC applies)

Obligated Party

Renewable Identification Number (RIN)

RNG Supplier Sells RIN

RIN Generated upon RNG sell

RNG Supplier's Fleet Customer

DEU NGV Station

Owned by RNG Supplier

RNG Supplier's customer uses DEU issued card

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Utah PSC Staff Questions

1.a. Please explain the RFS program, including any details relevant to the State of Utah.

The following slides also respond to DPU Questions 1 through 5

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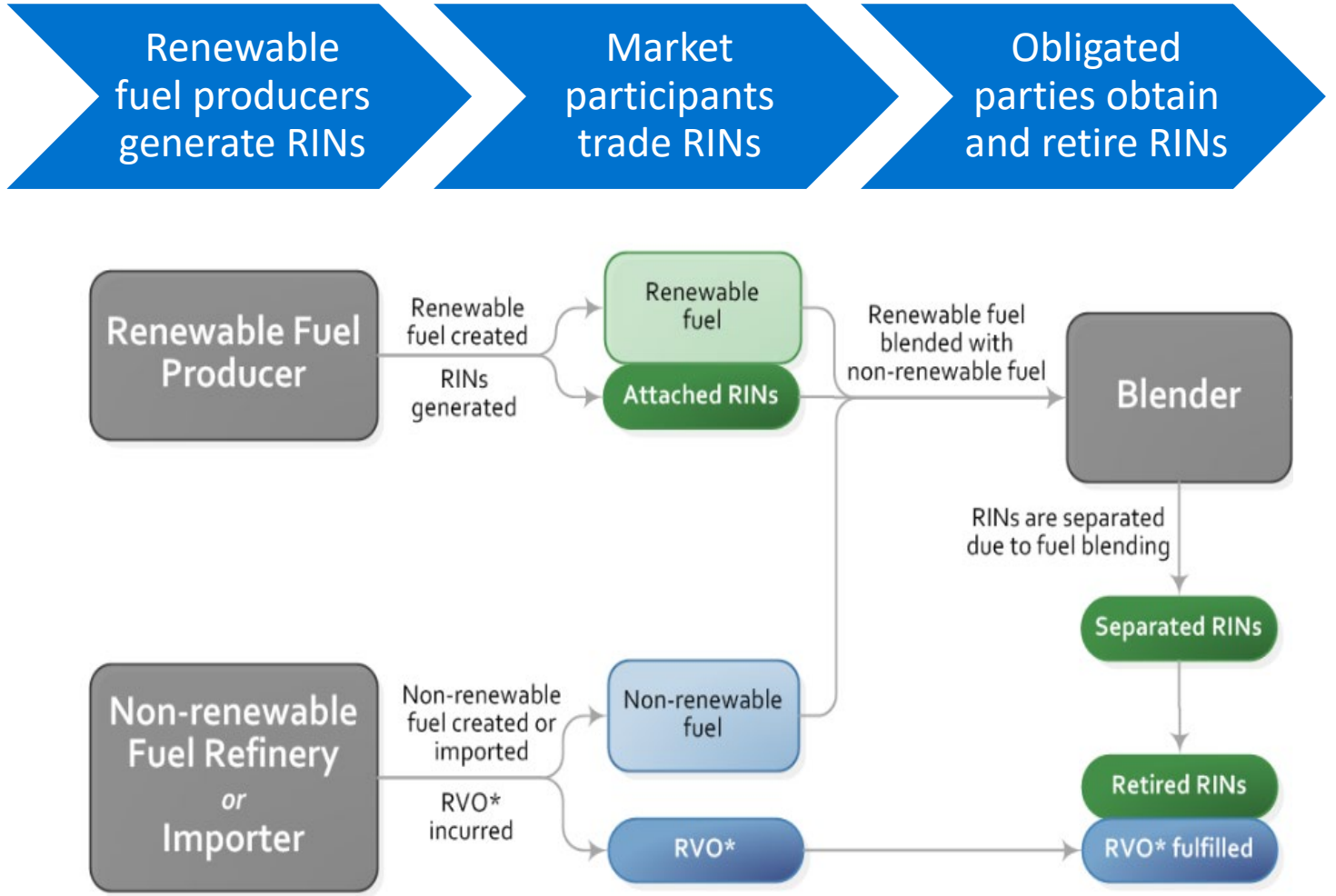
Renewable Identification Number Primer

Similarly to the REC program, RINs are used for compliance, and are the "currency" of the Renewable Fuel Standards:

- RFS: EPA mandated under the Clean Air Act.
- Require certain volume of renewable fuel to replace/reduce petroleum-based fuel
- Obligated parties: refiners and importers of gasoline or diesel
- EPA database to track RIN transactions

RNG (Biogas) eligible for RINs:

- Food waste digester: D5 ($3-$8/MCF)
- Animal waste , landfill, waste water: D3 ($22-$30/MCF)



*Renewable Volume Obligation

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How a RIN is created:

RNG Producer

RNG Sold

CNG/LNG Refueling Station

RIN Generated

-RIN maintained in EPA database

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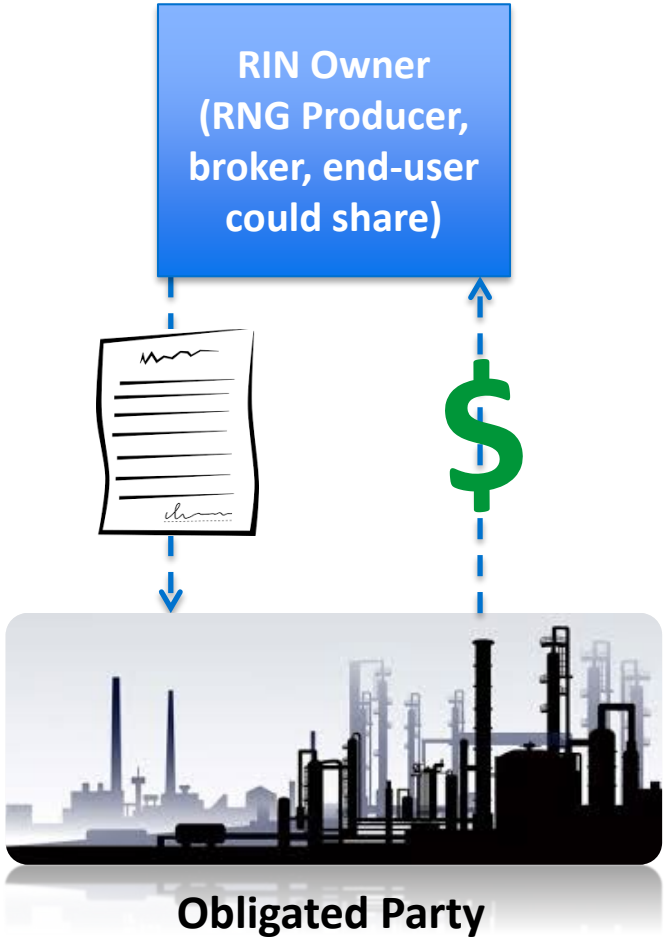
Who Buys a RIN?



-Fuel Refiners and Fuel Importers are **“obligated parties”** of the renewable fuel standards

-Required to include certain percentage of renewable fuel in total portfolio

-The percentage amount is set each year by the EPA and has continued to increase each year under the current administration.

-Percentage amount can be met by purchasing a RIN credit

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Value of a RIN

- There are two RIN categories that renewable natural gas qualifies under: D3 and D5
- In 2018 D3 RINS have traded between $22.50.00-$31.50. D5s have traded between $3.50-$9.30.
- The RIN category depends on the feedstock:

D3 Feedstock	D5 Feedstock
Animal Waste	Food Waste
Water Waste	Mixed (food, waste water, other)
Landfill	

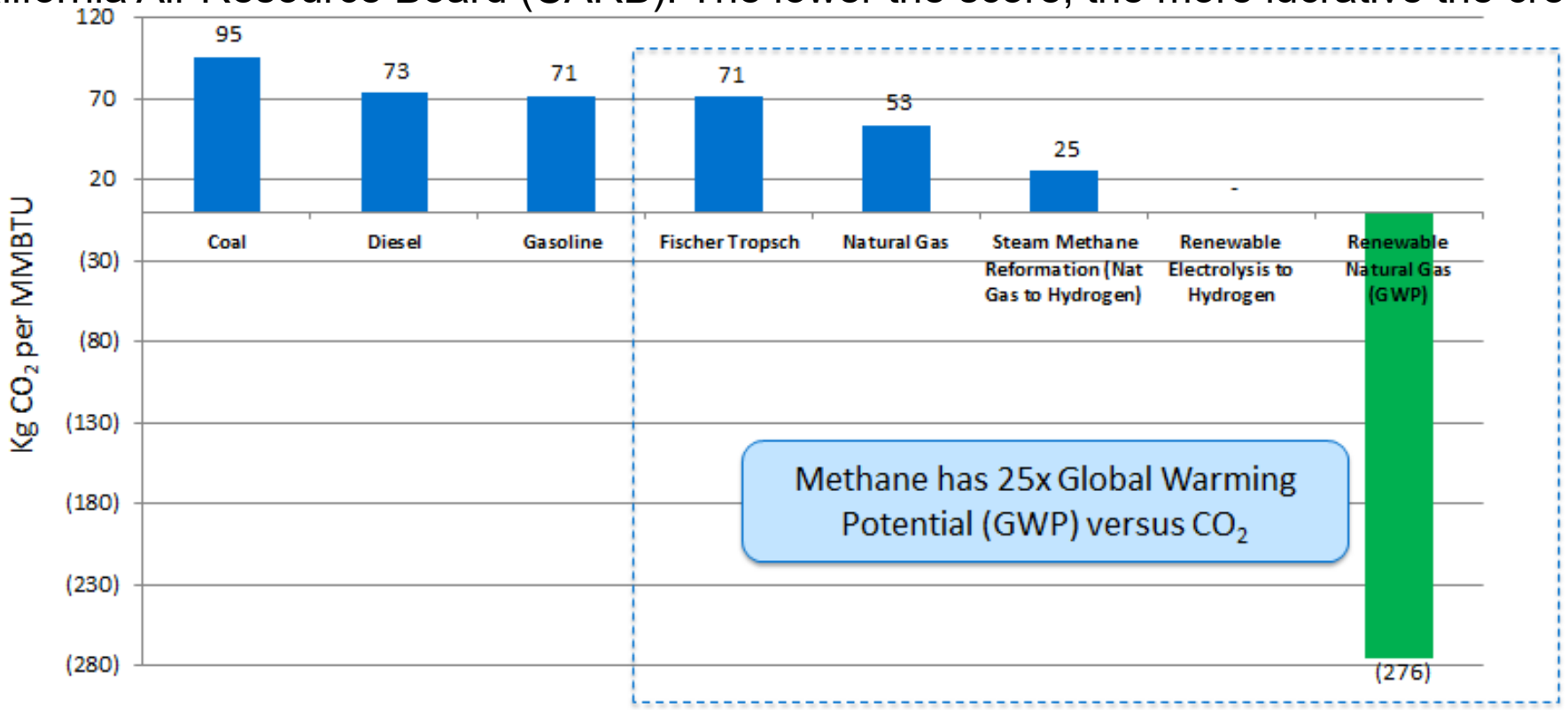
- RNG producers are price takers. The two main drivers of RIN prices are 1) Ethanol supply and demand, and 2) Oil supply and demand. RNG makes up a very small sliver of all RINs generated in the program and has little to no influence in these prices.
- RIN trades and pricing is published by the EPA and can be found at:
  - https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rin-trades-and-price-information
  - Prices are shown by ethanol gallon equivalents. 11.75 RINS are generated per dekatherm of natural gas.

Some Additional RIN Detail

- To qualify for RIN: RNG must be physically connected to the end-use transportation fuel, but does not necessarily need to be moved to that end-use.
    - Green attributes can be contractually separated and re-attached at the point of end-use
- To qualify for RIN credit, the RNG must be generated and used in an approved “pathway”
- Injecting RNG into a pipeline to use as a transportation fuel is considered an approved pathway

Low Carbon Fuel Standard

- In addition to the federal RFS program, California has its own incentive program known as the Low Carbon Fuel Standard (LCFS)
- Oregon has a similar program, and Washington is trending towards creating an LCFS program
- LCFS credit can be earned in addition to the RIN credits, creating a lucrative opportunity for qualified projects
- Under LCFS program, life-cycle carbon emissions are measured for individual projects upon approval by the California Air Resource Board (CARB). The lower the score, the more lucrative the credit.



Source: EIA, Praxair, Extiel GPG, CARB

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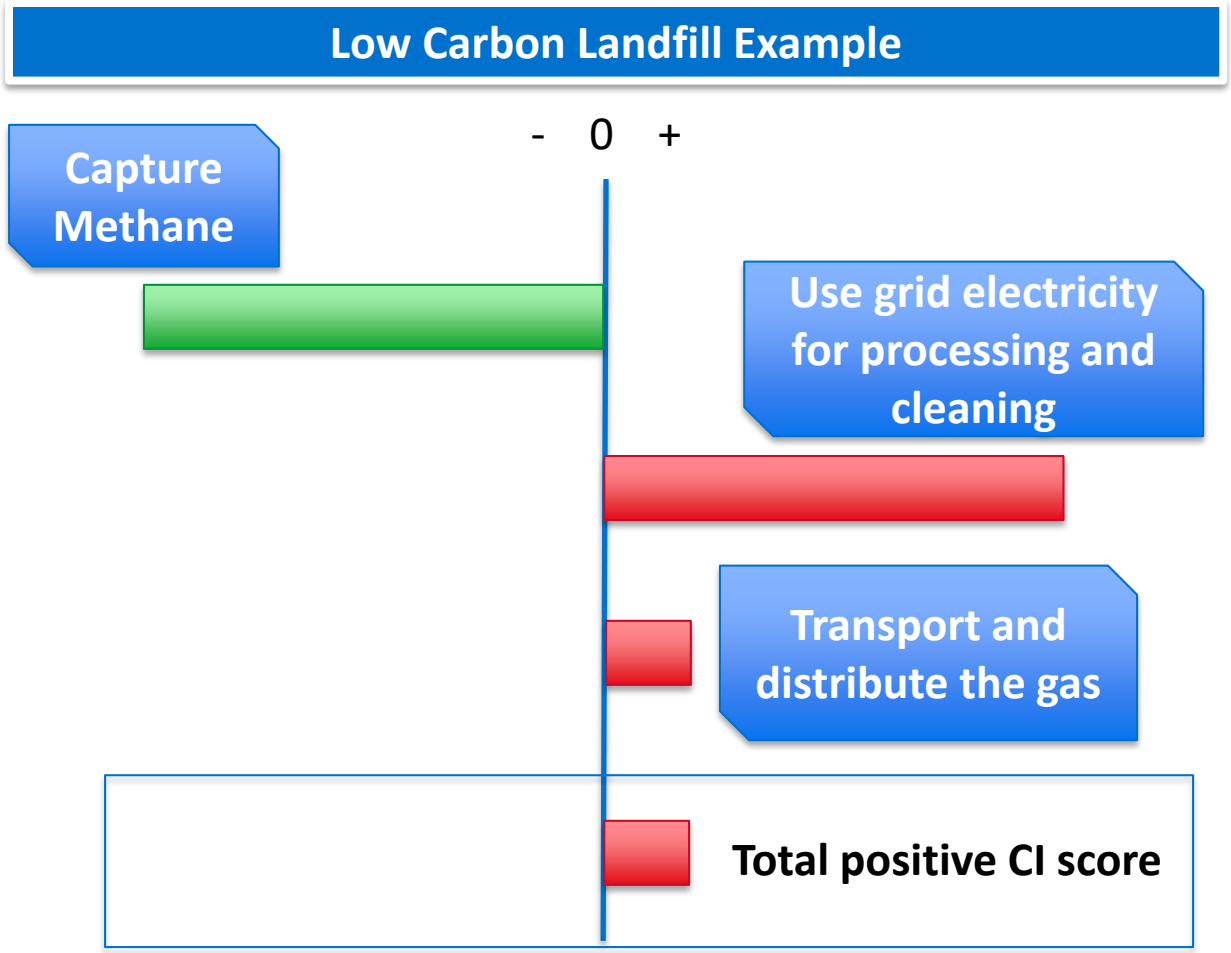
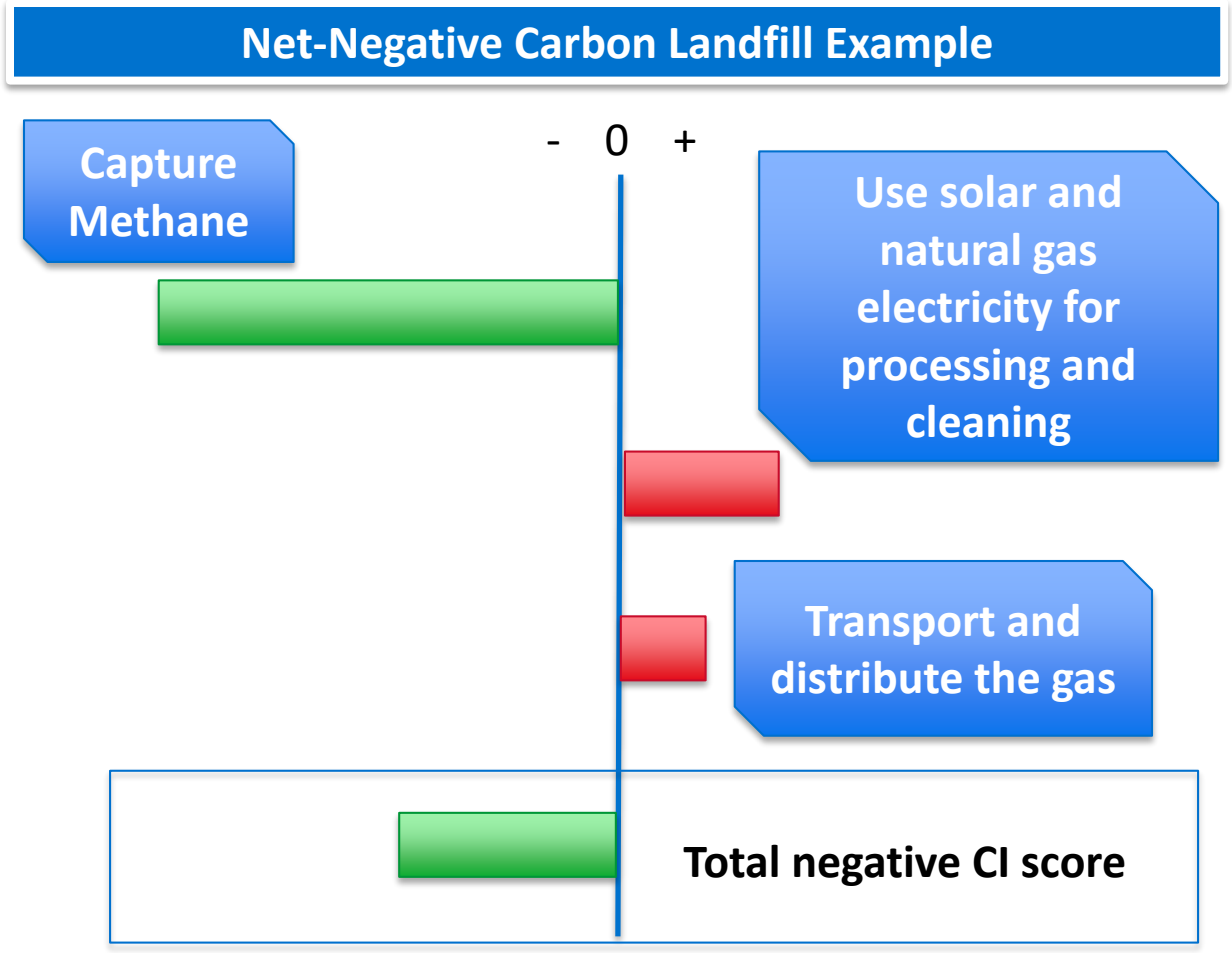
Example of LCFS Carbon Index score:





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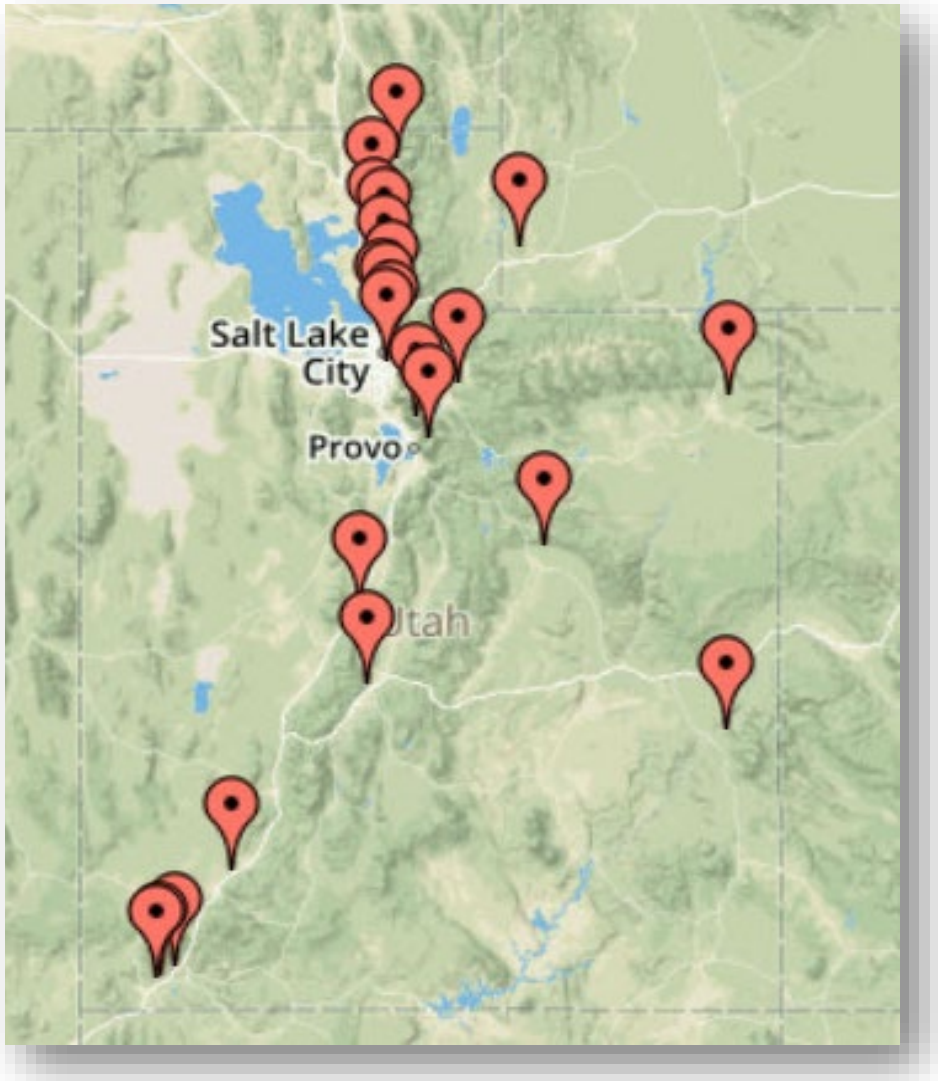
Utah PSC Staff Questions

2.a. Please provide a map illustrating all DEU's existing NGV/CNG fueling stations and each station's fueling capabilities.

See also DPU Questions 10 and 14.

Station Map



The majority of the NGV stations use a 400 CFM sized compressor. This allows for dispensing approximately 3 gallons per minute.

For context, this would allow class 4 and above vehicles with 40 gallon CNG tanks to refuel in 12 minutes.

Two of our stations use 700 CFM sized compressors. This allows for dispensing approximately 5 gallons per minute.

All of these stations would be used under the proposed provision.

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Gallon Sales per Station (2012-2017)

Station	2017	Sales From 2012 - 2017 Low	Average	High
1	144,291	144,291	292,074	397,626
2	113,151	6,198	387,182	842,918
3	217,936	217,936	244,715	403,101
4	9,774	9,774	41,275	65,948
5	49,215	49,215	68,668	119,640
6	40,796	40,796	57,416	80,945
7	0	-	66,149	126,865
8	39,925	39,925	83,016	116,473
9	85,919	85,919	153,372	214,182
10	0	-	108,855	212,522
11	242,724	234,748	266,170	297,760
12	62,560	62,560	123,510	193,885
13	146,789	146,789	253,393	373,541
14	152,486	152,486	370,938	550,447
15	33,641	33,641	32,006	80,423
16	168,025	166,730	251,821	359,289
17	104,708	104,708	170,959	258,303
18	102,601	102,601	171,851	221,454
19	133,238	133,238	184,583	214,423
20	44,354	44,354	77,866	99,851
21	103,132	103,132	259,807	384,084
22	10,785	10,785	12,398	18,876
23	23,419	23,419	47,988	72,655
24	44,717	44,717	71,222	95,723
25	143,656	143,656	200,739	249,296
26	55,221	51,978	74,777	97,916
27	123,325	105,349	74,851	123,325
	2,396,387	**2,258,943**	**4,147,602**	**6,271,469**

The anticipated 2019 total is 3 times lower than the high use.

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Utah PSC Staff Questions

2.b. Please explain how DEU defines "fleet" under this proposal. Please identify the range of fleet characteristics that DEU's current infrastructure is capable of serving (i.e., size of vehicle, size of vehicle fuel tank, etc.). Do DEU's current NGV facility capabilities provide for large-use fleet vehicles (freightliners, school buses, refuse truck fleet, etc.)?

The following slide also responds to DPU question 12 and 13.

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Fleet Characteristics

Class

I

II

III

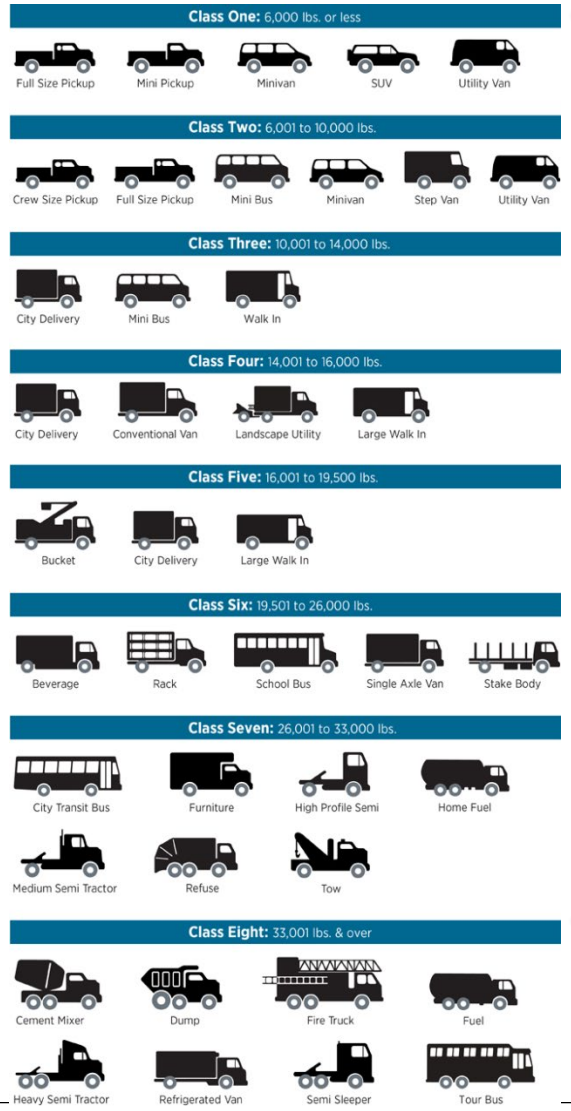
IV

V

VI

VII

VIII



Dominion Energy's stations have historically served Classes I through VII

Capable of refueling class 1-3 vehicles in approximately 5 minutes

Capable of refueling 40 gallon tanks in approximately 12 minutes

Capable of refueling 80 gallon tanks in approximately 24 minutes, however upgrades may be required for some stations depending on location and time of use

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Fleets that have used and may use DEU's CNG Stations

- School buses (example: Jordan School District)
- Refuse trucks (example: Ace Disposal)
- Delivery trucks (example: UPS)
- Small Commercial Fleets
- Government Fleets
- Utility Vehicles

DEU has a history of serving these types of fleets through its NGV stations

Very large class 7 - 8 vehicles ***may*** be able to use some stations depending on the time of day and the location. Any such arrangement would need to be analyzed and vetted prior to offering such service.

Utah PSC Staff Questions

2.C. Will DEU's existing facilities have sufficient capacity to service all fleet types contemplated under the proposed Tariff addition?

d. Does DEU contemplate upgrades to NGV/CNG facilities will be required for DEU's fueling stations to execute the transportation contracts contemplated by the proposed Tariff addition?

In many cases, yes. Any specific request for service through this provision will include a thorough review of each stations capabilities to assure the service can be met. In some cases, upgrades may be required to extend service, depending on the time of refueling as well as the volume requirements. Any upgrades, and associated costs, will be addressed in each individual contract.

Utah PSC Staff Questions

3. Paragraph 21 (at pages 22-23) titled "Compressed Natural Gas Vehicle Infrastructure Investment" of the Stipulation approved in the PSC's June 3, 2010 Order in DEU's 2009 GRC (Docket No. 09-057-16) contains the following provision:

21. The Parties acknowledge that the Company plans to invest up to $14.7 million in Compressed Natural Gas (CNG) infrastructure…after the Company has completed the construction of the reinforcement of the NGV refueling infrastructure referenced above, not to exceed $14.7 million, it will apply for Commission approval of any investment in NGV refueling infrastructure that requires an annual capital expenditure exceeding $1.5 million.

Please provide a list of investments made pursuant to the stipulation in paragraph 21 of the June 10, 2010 Order.

NGV Infrastructure Investment History

Investment History	
2010	$6,691,296
2011	2,211,561
2012	1,809,537
2013	33,390
2014	1,635,897
2015	1,169,288
2016	81,585
2017	468,268
Total	**$14,110,823**

Project Query (Description)	Total Spend
ANGI COMPRESSOR 8986-WOODS CRX	$1,186,082
2011 ANGI 400CFM CNG COMP 8976	1,066,475
UPGRADE CNG REFUELING DNR	852,707
2011 ANGI AIRPORT CNGCOMP 9230	828,399
NGV FACILITY - KAYSVILLE	791,488
NGV FACILITY - HEBER	713,356
NGV FACILITY - WEBER STATE	694,669
INSTALL 400CFM COMP PRICE#8975	674,337
NGV FACILITY LOGAN	626,640
NGV STATION SALINA	568,745
NGV FACILITY MURRAY, UT.	473,281
NGV FACILITY ST. GEORGE.	453,126
NGV FACILITY SCIPIO	450,293
PURCH, CNG COMPRESSOR	420,423
NGV REFUELING FACIL, OGDEN.	393,637
CNG TIME-FILL WEST REGION	388,985
NGV FACILITY SANDY	378,172
PURCHASE SPARE CNG PARTS	377,664
QGC/NGV FUELING FACILITY	367,590
UPG CNG TIME-FILL STATION MOAB	301,191
OTHER	2,103,563
Total	**$14,110,823**

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Utah PSC Staff Questions

4. Line 33-36 states: “In most cases, the Company anticipates charging the RNG transportation customers the Distribution Non-Gas portion of the NGV rate, as well as interruption, imbalance, and charges related to transportation services.”

a. Please identify under what conditions DEU expects that applying this NGV rate structure + interruption, imbalance and administrative charges to an RNG transportation customer will not be the case?

Also see DPU question 9 and OCS question 5.

DPU Questions

6. Exhibit 1.3 identifies 68 landfill gas facilities located throughout the US and Canada that produce biomethane. In all 68 of the descriptions, the natural gas produced from these locations is delivered via pipeline to the end user in California. Please explain why the only market for RNG appears to be in California. Is there any other market or value for RNG or renewable credits outside of California?

7. If the only market is in California, should Utah biomethane producers send the gas to California as well?

Answer: Exhibit 1.3 is the list of projects that have registered to participate in the California LCFS program. The California Air Resource Board publishes all approved projects under this program. This list does not include projects that do not participate in the LCFS program today. The LCFS program makes California a popular destination for RNG producers, however the Company has received interest from RNG producers to deliver RNG to the Utah market.

DPU Questions

8. Exhibit 1.4 identifies a decline in usage at the existing NGV stations over the last five years. Due to the reduced volume, the testimony at line 149 anticipates a higher DNG rate in the future in order to cover the fixed costs of the stations. **How much of an increase in the DNG rate for the NGV stations is anticipated if the volume of gas remains at the current level?**

2013 Load and Cost of Service

@ Full 2013 Cost of Service		
Dth	Prop. Rate	Revenues
678,836	5.44497	3,696,242

2016 Load and Cost of Service

@ Full 2016 Cost of Service		
Dth	Prop. Rate	Revenues
518,463	7.64343	3,962,837

Current Load, 2016 Cost of Service

@ Full 2016 Cost of Service		
Dth	Prop. Rate	Revenues
205,375	18.01290	3,962,837

This price would approximately double the current price at the pump (~$1.70 to $3.40).

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DPU Questions

11. Please provide the monthly sales volume for the individual fueling locations that will likely be used. The monthly sales information should be in the same format as DEU 1.4.

Answer: At this early stage the Company does not have specific volume estimates, however as the total volume increases the Company anticipates that the monthly pattern will follow the historical pattern of usage on the stations.

DPU Questions

15. **Is there an option to sell some of the existing stations instead of allowing the special contract to use all of the existing infrastructure?**

Answer: The Company does not plan to sell any of its current stations at this time.

OCS Questions

1.a. What will the nomination process be for on-system RNG?

Answer: RNG suppliers using the stations under this provision will be responsible for providing their gas to a Dominion Energy receipt point and nominating that gas to a delivery point, similar to a current TSF/TSI customer.

OCS Questions

1. b. **Will settlement be done on a daily basis and will imbalance penalties be charged? Explain how these processes would work?**

Answer: Dominion Energy will collect usage data including time-stamp, customer, supplier, and quantity each time a special issued card is swiped at its NGV stations. This data includes all the information required to apply tariff provisions currently applicable to transportation customers. Transportation imbalance charges will be included in the monthly bill to the RNG supplier.

OCS Questions

1. c. **Should settlement provisions and other procedures/costs (e.g. “penalties, daily imbalance charges and administrative fees”- testimony Lines 191- 192) be codified in a tariff rather than in a contract with a RNG supplier? Explain.**

Answer: The Company anticipates including references within the special contract to the applicable tariff language already in place.

OCS Questions

1. d. Explain the metering facilities required. Who owns and controls them?

Answer: The current card readers on the Company's stations are able to capture the data necessary to extend this service.

The Company will issue the cards and maintain the database to collect the needed usage information.

OCS Questions

1.**e.i. Explain how gas produced on Dominion's distribution system would be transported out of state. What would the process entail?**

Answer: "Green attributes" of RNG can be contractually separated from the physical molecule of gas at one point and assigned to gas at any other point that is physically connected to the same pipeline network. The physical molecule of gas does not need to be transported or nominated to that end use point.

Effectively, if a producer can connect to a commercial pipeline, a network exists to assign the green attributes to gas anywhere in the country.

OCS Questions

1.**e.ii. What would Dominion charge (distribution charge/"wheeling charge") to transport gas off its distribution system, i.e. out of state?**

Answer: Refer to previous question and process slide.

OCS Questions

1.e.iii. Would a service to transport on-system gas production to an interstate pipeline be regulated by FERC? Would this require a different kind of tariff? Would such a gas producer require a direct line to an interstate pipeline?

Answer: As the physical gas will not be transported off-system there is no FERC regulation required.

OCS Questions

1.f. Lines 115 to 117 of the testimony states that the Wasatch Resource Recovery project alone will have RNG capacity to supply 4 to 5 times the current load at the Company's NGV stations.

i. **If an RNG production facility is producing more than what is under contract with Dominion's NGV stations, under what circumstances is the excess gas allowed onto Dominion's distribution system?**

Answer: Any excess gas would either be treated as an imbalance or would have been sold to a TSF or TSI customer.

OCS Questions

1.f. ii. **If excess gas is allowed on the system, how are the DNG, transportation and/or commodity costs determined? Who pays?**

Answer: The customer buying the excess gas on-system would bear the distribution costs (likely through a TSF or TSI contract). No SNG or Commodity is applicable in this case.

OCS Questions

1.f. iii**. Would Dominion accept RNG without knowing the end user of the gas? Please explain.**

Answer: No. All gas delivered to a receipt point on the DEU system must be related to a delivery point and will be subject to imbalance charges when necessary.

OCS Questions

1.g. Should all of the issues above for the transportation of on-system gas production be handled under a new Dominion tariff? Please explain why or why not.

Answer: The Company believes that the provisions of the tariff currently governing transportation service are applicable to an RNG producer transporting gas to DEU's NGV stations, and could be applied within a special contract.

OCS Questions

2. For the Company's proposal to supply RNG to a Dominion NGV station, explain all of the contractual relationships , the parties involved, and which contracts would be brought to the Commission for approval.

Answer: There would be a contractual relationship between the RNG supplier and the Company. The RNG supplier would be very similar to a TSF/TSI customer, meaning the receipt points and delivery points would be specified and gas would be transported daily. A separate contract would include the Company providing the cards that would track the usage at the pump. This contract will be brought to the Commission for approval.

The RNG supplier must also enter into Questline access agreement and other agreements applicable to TSF/TSI customers. These contracts would not be subject to Commission approval.

OCS Questions

3. The proposed new tariff language states: "An RNG production facility under construction…must be placed into service within 18 months of the time transportation to the stations begins."

a. **During this 18 month window, can gas sold at the NGV station be considered RNG even before any gas has been produced by the RNG production facility? Are RINs able to be claimed on the gas sold during this 18 month window (when the RNG facility is under construction)?**

b. **What is the source of the gas provided during this 18 month window when the RNG production facility is under construction? What kind of nomination process will be followed?**

c. **What will the commodity cost of the gas be during this 18 month window when the RNG production facility is under construction? To whom and how will the gas be paid for? Should there be a carrying charge for this gas while the RNG production facility is under construction?**

Answer: Any gas transported to the NGV stations before the RNG production in-service date would not be considered RNG and would not generate RINs. The RNG Supplier would be responsible to supply natural gas during this window. The RNG Supplier would pay for the commodity. No carrying charge would be applied.

OCS Questions

3.d. Why is the 18 month requirement part of the tariff language and not in a contract?

Answer: RNG producers often enter into offtake agreements prior to the in-service date of their construction projects. This 18 month window of time allows for those arrangements to be made prior to the in-service date.

Including this provision in the tariff eliminates any ambiguity as to whether facilities must be in service prior to transportation or not.

OCS Questions

4. The proposed new tariff language states: "Any such supplier must demonstrate a valid pathway for RNG to be used at the Dominion Energy NGV stations." Explain what a valid pathway is and how it would be demonstrated.

Answer: A physical connection must exist between the point of RNG injection and the desired delivery point in order for green attributes to be attached to gas at that delivery point. This provision assures that the RNG can truly be delivered either physically or through the assignment of green attributes.

RNG producers who wish to participate in the RFS market to generate RIN credits must supply this validation to the EPA. The Company would require that the validation provided to the EPA also be provided to the Company to assure the supply provided is RNG.

OCS Questions

6. If the RNG to NGV station process is successful, how would higher future volumes impact near-term NGV rates, e.g. in the next GRC?

Answer: All increased volumes from this service would be included in the test period calculation of the total NGV cost of service in future general rate cases. This would reduce the cost per unit of this class.

OCS Questions

7.a. For the Wasatch Resource Recovery production facility identified on Line 112 of the testimony, who will be claiming the RINs – WRR or the fleet customer? Typically, for RNG used as CNG transportation fuel, who claims the RINs?

Answer: WRR's contracts are not public. Typically the producer would share a portion of the RINs with its offtake customer.

OCS Questions

7. b. What is Dominion's role in the RIN qualification/validation process? Will there be any costs associated with Dominion's role in RIN validation, tracking, etc?

Answer: Dominion Energy will collect the RNG suppliers' station usage data gathered through the card reader and will supply that data to the RNG supplier. The RNG supplier will use this data as part of its RIN compliance process. The RNG Supplier will supply its RIN validation data to the Company.

Dominion Energy has no additional role as it relates to RIN validation/compliance.

OCS Questions

8. The proposed new tariff language uses the term RNG. Should this term be defined in the tariff?

Answer: Yes. The Company supports such a revision to the proposed tariff.