| **Table 1 – 340-253-8010**  **Oregon Clean Fuel Standard for Gasoline and Gasoline Substitutes** | | |
| --- | --- | --- |
| **Calendar Year** | **Oregon Clean Fuel Standard (gCO2e per MJ)** | **Percent Reduction** |
| 2015 | None (Gasoline Baseline is 98.62 for 2016-2017, 98.64 for 2018, and 98.06 for 2019 and beyond) | |
| 2016\* | 98.37 | 0.25 percent |
| 2017 | 98.13 | 0.50 percent |
| 2018 | 97.66 | 1.00 percent |
| 2019 | 96.59 | 1.50 percent |
| 2020 | 95.61 | 2.50 percent |
| 2021 | 94.63 | 3.50 percent |
| 2022 | 93.15 | 5.00 percent |
| 2023 | 91.68 | 6.50 percent |
| 2024 | 90.21 | 8.00 percent |
| 2025 and beyond | 88.25 | 1. percent |

\*Initial compliance period is a two-year period for 2016 and 2017.

| **Table 2 – 340-253-8020**  **Oregon Clean Fuel Standard for Diesel Fuel and Diesel Substitutes** | | |
| --- | --- | --- |
| **Calendar Year** | **Oregon Clean Fuel Standard (gCO2e per MJ)** | **Percent Reduction** |
| 2015 | None (Diesel Baseline is 99.64 for 2016-2017, 99.61 for 2018, and 98.74 for 2019 and beyond) | |
| 2016\* | 99.39 | 0.25 percent |
| 2017 | 99.14 | 0.50 percent |
| 2018 | 98.61 | 1.00 percent |
| 2019 | 97.26 | 1.50 percent |
| 2020 | 96.27 | 2.50 percent |
| 2021 | 95.29 | 3.50 percent |
| 2022 | 93.81 | 5.00 percent |
| 2023 | 92.32 | 6.50 percent |
| 2024 | 90.84 | 8.00 percent |
| 2025 and beyond | 88.87 | 10.00 percent |

\*Initial compliance period is a two-year period for 2016 and 2017.

| **Table 3 – 340-253-8030**  **Oregon Clean Fuel Standard for Alternative Jet Fuel** | |
| --- | --- |
| **Calendar Year** | **Oregon Clean Fuel Standard (gCO2e per MJ)** |
| 2015 | None (Diesel Baseline is 99.64 for 2016-2017, 99.61 for 2018, and 98.74 for 2019 and beyond. The fossil jet baseline is 90.97.) |
| 2019 | 90.80 |
| 2020 | 90.80 |
| 2021 | 90.80 |
| 2022 | 90.80 |
| 2023 | 90.80 |
| 2024 | 90.80 |
| 2025 and beyond | 88.87 |

| **Table 4 – 340-253-8040**  **Oregon Carbon Intensity Lookup Table** | | | |
| --- | --- | --- | --- |
| **Fuel** | **Pathway Identifier** | **Pathway Description** | **Carbon Intensity Values (gCO2e/MJ)** |
| **Total Lifecycle Emissions** |
| Gasoline | ORGAS001 | Clear gasoline - based on a weighted average of gasoline supplied to Oregon | 100.14 |
| ORGAS002 | Imported blended gasoline (E10) – 90% clear gasoline & 10% corn ethanol based on Midwest average. Cannot be used to report exports except when the specific gallon was also imported under this fuel pathway code. | 98.06 |
| Diesel | ORULSD001 | Clear diesel, based on a weighted average of diesel fuel supplied to Oregon | 100.74 |
| ORULSD002 | Imported blended diesel (B5) – 95% clear diesel & 5% soybean biodiesel. Cannot be used to report exports except when the specific gallon was also imported under this fuel pathway code. | 98.74 |
| ORULSD003 | Imported blended diesel (B20) – 80% clear diesel & 20% soybean biodiesel. Cannot be used to report exports except when the specific gallon was also imported under this fuel pathway code. | 92.68 |
| Compressed Natural Gas | ORCNG001 | North American NG delivered via pipeline; compressed in OR | 79.98 |
| Liquefied Natural Gas | ORLNG001 | North American NG delivered via pipeline; liquefied in OR using liquefaction with 80% efficiency | 86.88 |
| Liquefied Petroleum Gas | ORLPG001 | Liquefied petroleum gas | 80.88 |
| Electricity | ORELEC100 | Solar power, produced at or directly connected to the site of the charging station in Oregon, subject to OAR 340-253-0470 (3). | 0 |
| ORELEC101 | Wind power, produced at or directly connected to the site of the charging station in Oregon, subject to OAR 340-253-0470 (3). | 0 |
| Hydrogen | ORHYF | Compressed H2 produced in Oregon from central steam methane reformation of North American fossil-based NG | 120.68 |
| ORHYFL | Liquefied H2 produced in Oregon from central steam methane reformation of North American fossil-based NG | 157.29 |
| ORHYB | Compressed H2 produced in Oregon from central steam methane reformation of biomethane (renewable feedstock) from North American landfills | 116.76 |
| ORHYBL | Liquefied H2 produced in Oregon from central steam methane reformation of biomethane (renewable feedstock) from North American landfills | 149.70 |
| ORHYEG | Compressed H2 produced in Oregon from electrolysis using Oregon average grid electricity | 205.38 |
| ORHYEB | Compressed H2 produced in Oregon from electrolysis using BPA average grid electricity | 31.65 |
| ORHYER | Compressed H2 produced in Oregon from electrolysis using solar- or wind-generated electricity | 13.11 |

| C:\Users\mgoldst\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\5ZP7N75R\pansm.tiff**Table 5 – 340-253-8050**  **Summary Checklist of Quarterly Progress and Annual Compliance Reporting Requirements** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Parameters to Report** | **Gasoline & Diesel Fuel** | **Ethanol, Biodiesel & Renewable Diesel** | **CNG, LNG & LPG** | **Electricity** | **Hydrogen & Hydrogen Blends** |
| Company or organization name | x | x | x | x | x |
| Reporting period | x | x | x | x | x |
| Fuel pathway code | x | x | x | x | x |
| Transaction type | x | x | x | x | x |
| Transaction date | x | x | x | x | x |
| Business Partner | x | x | x | x | x |
| Production Company ID and Facility ID | n/a | x | n/a | n/a | x |
| Physical transport mode code | x | x | x | x | x |
| Aggregation | x | x | x | x | x |
| Application / EER | x | x | x | x | x |
| Amount of each fuel used as gasoline replacement | x | x | x | x | x |
| Amount of each fuel used as diesel fuel replacement | x | x | x | x | x |
| \*Credits/deficits generated per quarter (MT) | x | x | x | x | x |
| **For Annual Compliance Reporting (in addition to the items above)** | | | | | |
| \*Credits and Deficits generated per year (MT) | x | x | x | x | x |
| \*Credits/deficits carried over from the previous year (MT), if any | x | x | x | x | x |
| \*Credits acquired from another party (MT), if any | x | x | x | x | x |
| \*Credits sold to another party (MT), if any | x | x | x | x | x |
| \*Credits retired within LCFS (MT) to meet compliance obligation, if any | x | x | x | x | x |

| C:\Users\mgoldst\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\5ZP7N75R\pansm.tiff  **Table 6 – 340-253-8060**  **Oregon Energy Densities of Fuels** | |
| --- | --- |
| **Fuel (unit)** | **MJ/unit** |
| Gasoline (gallon) | 122.48 (MJ/gallon) |
| Diesel fuel (gallon) | 134.48 (MJ/gallon) |
| Compressed natural gas (therm) | 105.5 (MJ/therms) |
| Electricity (kilowatt hour) | 3.60 (MJ/kilowatt hour) |
| Denatured ethanol (gallon) | 81.51 (MJ/gallon) |
| Clear biodiesel (gallon) | 126.13 (MJ/gallon) |
| Liquefied natural gas (gallon) | 78.83 (MJ/gallon) |
| Hydrogen (kilogram) | 120.00 (MJ/kilogram) |
| Liquefied petroleum gas (gallon) | 89.63 (MJ/gallon) |
| Renewable hydrocarbon diesel (gallon) | 129.65 (MJ/gallon) |
| Undenatured anhydrous ethanol (gallon) | 80.53 (MJ/gallon) |
| Alternative Jet Fuel (gal) | 126.37 (MJ/gallon) |

| C:\Users\mgoldst\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\5ZP7N75R\pansm.tiff  **Table 7 – 340-253-8070**  **Oregon Energy Economy Ratio Values for Fuels** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Light/Medium Duty Applications (Fuels used as gasoline replacements)** | | **Heavy-Duty/Off-Road Applications**  **(Fuels used as diesel**  **replacements)** | | **Aviation Applications**  **(Fuels used as jet fuel**  **replacements)** | |
| **Fuel/Vehicle Combination** | **EER Value Relative to Gasoline** | **Fuel/Vehicle Combination** | **EER Value Relative to Diesel** | **Fuel/Vehicle Combination** | **EER Value relative to conventional jet** |
| Gasoline (including E10) or any other gasoline-ethanol blend | 1 | Diesel fuel (including B5) or any other blend of diesel and biodiesel or renewable hydrocarbon diesel | 1 | Alternative Jet Fuel | 1 |
| CNG Internal Combustion Engine Vehicle (ICEV) | 1 | CNG, LNG, or LPG (Spark-Ignition Engines) | 0.9 |  |  |
| Electricity/Battery Electric Vehicle or Plug-In Hybrid Electric Vehicle | 3.4 | CNG,LNG, or LPG(Compression-Ignition Engines) | 1 |  |  |
| Electricity/On-Road Electric Motorcycle | 4.4 | Electricity/Battery Electric Vehicle or Plug-In Hybrid Electric Vehicle | 5 |  |  |
| Propane/Propane Forklift | 0.9 | Electricity/Battery Electric or Plug-in Hybrid Transit Bus | 5 |  |  |
| Hydrogen/Fuel Cell Vehicle | 2.5 | Electricity/Fixed Guideway Light Rail | 3.3 |  |  |
|  |  | Electricity/Fixed Guideway Streetcar | 2.1 |  |  |
|  |  | Electricity/Fixed Guideway Aerial Tram | 2.6 |  |  |
|  |  | Electricity/Electric Forklift | 3.8 |  |  |
|  |  | Electricity/Electric TRU (eTRU) | 3.4 |  |  |
|  |  | Hydrogen/Fuel Cell Vehicle | 1.9 |  |  |
|  |  | Hydrogen/Fuel Cell Forklift | 2.1 |  |  |

| **Table 8 – 340-253-8080**  **Oregon Substitute Fuel Pathway Codes** | | |
| --- | --- | --- |
| **Fuel** | **Fuel Pathway code** | **CI (gCO2e/MJ)** |
| Substitute CI for Ethanol. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | ETH0116 | 40 |
| Substitute CI for Biodiesel. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | BIOD0116 | 15 |
| Substitute CI for Renewable Diesel. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | RNWD0116 | 15 |
| Substitute CI for E10 Gasoline. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | ORGAS0116 | For 2019: 96.59  For 2020 and beyond: 96.00 |
| Substitute CI for B5 Diesel. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | ORULSD01165 | For 2019: 97.26  For 2020 and beyond: 96.71 |
| Substitute CI for B20 Diesel. This pathway may only be used to report transactions that are sales or purchases without obligation, exports, loss of inventory, not for transportation use, and exempt fuel use. | ORULSD011620 | 84.45 |

| **Table 9 – 340-253-8090**  **Oregon Temporary Fuel Pathway Codes for Fuels with Indeterminate CIs** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Fuel** | **Feedstock** | **Process Energy** | **FPC** | **CI (gCO2e/MJ)** |
| Ethanol | Corn | Grid electricity, natural gas, and/or renewables | ORETH100T | 77.35 |
| Sorghum | Grid electricity, natural gas, and/or renewables | ORETH101T | 93.35 |
| Sugarcane and Molasses | Bagasse and straw only, no grid electricity | ORETH102T | 57.09 |
| Any starch or sugar feedstock | Any | ORETH103T | 100.14 |
| Corn Stover, Wheat Straw, or Sugarcane Straw | As specified in OR-Greet 2.0 | ORETH104T | 41.05 |
| Biodiesel | Any feedstock derived from animal fats, corn oil, or a waste stream | Grid electricity, natural gas, and/or renewables | ORBIOD200T | 47.30 |
| Any feedstock derived from plant oils except for Palm-derived oils | Grid electricity, natural gas, and/or renewables | ORBIOD201T | 65.03 |
| Any feedstock | Any | ORBIOD202T | 100.74 |
| Renewable Diesel | Any feedstock derived from animal fats, corn oil, or a waste stream | Grid electricity, natural gas, and/or renewables | ORRNWD300T | 39.26 |
| Any feedstock derived from plant oils except for Palm-derived oils | Grid electricity, natural gas, and/or renewables | ORRNWD301T | 56.55 |
| Any feedstock | Any | ORRNWD302T | 100.74 |
| Biomethane CNG | Landfill or Digester Gas | Grid electricity, natural gas, and/or renewables | ORCNG500T | 63.96 |
| Municipal Wastewater sludge, Food Waste, Green Waste, or Other Organic Waste | Grid electricity, natural gas, and/or parasitic load | ORCNG501T | 50 |
| Biomethane LNG | Landfill or Digester Gas | Grid electricity, natural gas, and/or renewables | ORLNG501T | 80.44 |
| Municipal Wastewater sludge, Food Waste, Green Waste, or Other Organic Waste | Grid electricity, natural gas, and/or parasitic load | ORLNG502T | 65 |
| Biomethane L-CNG | Landfill or Digester Gas | Grid electricity, natural gas, and/or renewables | ORLCNG502T | 84.65 |
| Municipal Wastewater sludge, Food Waste, Green Waste, or Other Organic Waste | Grid electricity, natural gas, and/or parasitic load | ORLCNG503T | 70 |
| Biomethane CNG, LNG, L-CNG | Dairy Manure | Grid electricity, natural gas, and/or parasitic load | ORLCNG504T | -150 |
| Electricity | Coal, Natural Gas, Hydroelectric Dams, Wind Mills, etc. | Oregon average electricity mix | ORELEC600T | 135.00 |
| Any Gasoline Substitute Feedstock-Fuel Combination Not Included Above | Any | Any | ORSG800T | 100.14 |
| Any Diesel Substitute Feedstock-Fuel Combination Not Included Above | Any | Any | ORSD801T | 100.74 |

| **Table 10 – 340-253-8100**  **Oregon Summary of Indirect Land-Use Change Values for Crop-Based Biofuels** | | |
| --- | --- | --- |
| **Feedstock** | **ILUC Value (gCO2e/MJ)** | |
| Corn Ethanol | 7.60 |  |
| Sorghum Ethanol | 19.40 |  |
| Sugarcane Ethanol | 11.80 |
| Soybean Biodiesel or Renewable Diesel | 29.10 |  |
| Canola Biodiesel or Renewable Diesel | 14.50 |  |
| Palm Biodiesel or Renewable Diesel | 71.40 | S |