



SUSTAINABILITY ACCOUNTING STANDARD
RENEWABLE RESOURCES & ALTERNATIVE ENERGY SECTOR

BIOFUELS

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #RR0101

Prepared by the
Sustainability Accounting Standards Board®

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Provisional Standard

BIOFUELS

Sustainability Accounting Standard

About SASB

The Sustainability Accounting Standards Board (SASB) provides sustainability accounting standards for use by publicly-listed corporations in the U.S. in disclosing material sustainability information for the benefit of investors and the public. SASB standards are designed for disclosure in mandatory filings to the Securities and Exchange Commission (SEC), such as the Form 10-K and 20-F. SASB is an independent 501(c)3 non-profit organization. Through 2016, SASB is developing standards for 79 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Biofuels industry.

SASB Sustainability Accounting Standards are comprised of **(1) disclosure guidance and (2) accounting standards on sustainability topics** for use by U.S. and foreign public companies in their annual filings (Form 10-K or 20-F) with the U.S. Securities and Exchange Commission (SEC). To the extent relevant, SASB Standards may also be applicable to other periodic mandatory filings with the SEC, such as the Form 10-Q, Form S-1, and Form 8-K.

SASB Standards identify sustainability topics at an industry level, which may constitute material information—depending on a company’s specific operating context—for a company within that industry. SASB Standards are intended to provide guidance to company management, which is ultimately responsible for determining which information is material and should therefore be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB Standards provide companies with standardized sustainability metrics designed to communicate performance on industry level sustainability topics. When making disclosure on sustainability topics, companies can use SASB Standards to help ensure that disclosure is standardized and therefore decision-useful, relevant, comparable, and complete.

SASB Standards are intended to constitute “suitable criteria” as defined by AT 101.23—.32¹ and referenced in AT 701², as having the following attributes:

- *Objectivity*—Criteria should be free from bias.
- *Measurability*—Criteria should permit reasonably consistent measurements, qualitative or quantitative, of subject matter.
- *Completeness*—Criteria should be sufficiently complete so that those relevant factors that would alter a conclusion about subject matter are not omitted.
- *Relevance*—Criteria should be relevant to the subject matter.

Industry Description

The Biofuels industry consists of companies that produce biofuels, such as ethanol and biodiesel, and process the raw materials for production. Biofuels are made from plant- or animal-based organic materials and are used primarily as transportation fuels. Companies typically source feedstocks, which include food and oil crops, from agricultural product distributors. Ethanol and biodiesel are the most widely produced biofuels. Other types are biogas, biohydrogen, and synthetic biofuels. First-generation biofuels are those derived from a variety of edible or non-edible fuel crops and are made through common fermentation, distillation, and esterification technologies. Second-generation biofuels are made from non-edible crops or the non-edible parts of food crops or other plant material, called cellulosic feedstocks, and may require more sophisticated production methods. Third-generation

¹ http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx#at_101_fn7

² <http://pcaobus.org/Standards/Attestation/Pages/AT701.aspx>

biofuels, a nascent market, are produced using algae and advanced technologies. Second- and third-generation biofuels are commonly referred to as advanced biofuels. Biofuels companies' customers are chiefly fuel-blending and fuel-supply companies, including major integrated oil companies. While biofuels are produced worldwide, the publicly listed companies in the Biofuels industry operate primarily in the U.S., though some have operations abroad, notably in India, Brazil, and South Korea.

Guidance for Disclosure of Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Topics

For the Biofuels industry, SASB has identified the following sustainability disclosure topics:

- Air Quality
- Water Management in Manufacturing
- Product Formulation & Impacts on Food Markets
- Lifecycle Emissions Balance
- Management of the Legal & Regulatory Environment
- Operational Safety, Emergency Preparedness, and Response
- Sourcing & Environmental Impacts of Feedstock Production

2. Company-Level Determination and Disclosure of Material Sustainability Topics

Sustainability disclosures are governed by the same laws and regulations that govern disclosures by securities issuers generally. According to the U.S. Supreme Court, a fact is material if, in the event such fact is omitted from a particular disclosure, there is "a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of the information made available."^{3,4}

SASB has attempted to identify those sustainability topics that are reasonably likely to have a material effect on the financial condition or operating performance of companies within each SICs industry. SASB recognizes, however, that each company is ultimately responsible for determining what information should be disclosed within the context of Regulation S-K and other guidance.

Regulation S-K, which sets forth certain disclosure requirements associated with Form 10-K and other SEC filings, requires companies, among other things, to describe in the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section of Form 10-K "any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations. If the registrant knows of events that will cause a material change in the relationship between costs and revenues (such as known future increases in costs of labor or materials or price increases or inventory adjustments), the change in the relationship shall be disclosed."

³ TSC Industries v. Northway, Inc., 426 U.S. 438 (1976).

⁴ C.F.R. 229.303(item 303)(a)(3)(ii).

Furthermore, Instructions to Item 303 state that the MD&A “shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.”²

The SEC has provided guidance for companies to use in determining whether a trend or uncertainty should be disclosed. The two-part assessment prescribed by the SEC, based on probability and magnitude, can be applied to the topics included within this standard:

- First, a company is not required to make disclosure about a known trend or uncertainty if its management determines that such trend or uncertainty is not reasonably likely to occur.
- Second, if a company’s management cannot make a reasonable determination of the likelihood of an event or uncertainty, then disclosure is required unless management determines that a material effect on the registrant’s financial condition or results of operation is not reasonably likely to occur.

3. Sustainability Accounting Standard Disclosures in Form 10-K

a. Management’s Discussion and Analysis

For purposes of comparability and usability, companies should consider making disclosure on sustainability topics in the MD&A, in a sub-section titled “**Sustainability Accounting Standards Disclosures.**”⁵

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, it may be relevant for companies to disclose sustainability information in other sections of Form 10-K, including, but not limited to:

- **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Item 101(c)(1)(xii) expressly requires disclosure regarding certain costs of complying with environmental laws:

Appropriate disclosure also shall be made as to the material effects that compliance with Federal, State and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, may have upon the capital expenditures, earnings and competitive position of the registrant and its subsidiaries.

- **Legal proceedings**—Item 103 of Regulation S-K requires companies to describe briefly any material pending or contemplated legal proceedings. Instructions to Item 103 provide specific disclosure requirements for administrative or judicial proceedings arising from laws and

⁵ [SEC \[Release Nos. 33-8056; 34-45321; FR-61\] Commission Statement about Management’s Discussion and Analysis of Financial Condition and Results of Operations](#): “We also want to remind registrants that disclosure must be both useful and understandable. That is, management should provide the most relevant information and provide it using language and formats that investors can be expected to understand. Registrants should be aware also that investors will often find information relating to a particular matter more meaningful if it is disclosed in a single location, rather than presented in a fragmented manner throughout the filing.”

regulations that target discharge of materials into the environment or that are primarily for the purpose of protecting the environment.

- **Risk factors**—Item 503(c) of Regulation S-K requires filing companies to provide a discussion of the most significant factors that make an investment in the registrant speculative or risky, clearly stating the risk and specifying how a particular risk affects the particular filing company.

c. Rule 12b-20

Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose, in addition to the information expressly required by law or regulation, “such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading.”

More detailed guidance on disclosure of material sustainability topics can be found in the **SASB Conceptual Framework**, available for download via <http://www.sasb.org/approach/conceptual-framework/>.

Guidance on Accounting for Sustainability Topics

For each sustainability topic included in the Biofuels industry Sustainability Accounting Standard, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when preparing disclosures on the sustainability topics identified herein.

As appropriate—and consistent with Rule 12b-20⁶—when disclosing a sustainability topic identified by this Standard, companies should consider including a narrative description of any material factors necessary to ensure completeness, accuracy, and comparability of the data reported. Where not addressed by the specific accounting metrics, but relevant, the registrant should discuss the following, related to the topic:

- The registrant’s **strategic approach** to managing performance on material sustainability issues;
- The registrant’s **relative performance** with respect to its peers;
- The **degree of control** the registrant has;
- Any **measures the registrant has undertaken or plans to undertake** to improve performance; and
- Data for the registrant’s **last three completed fiscal years** (when available).

SASB recommends that registrants use SASB Standards specific to their primary industry as identified in the [Sustainable Industry Classification System \(SICSTM\)](#). If a registrant generates significant revenue from multiple

⁶ SEC Rule 12b-20: “In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made, not misleading.”

industries, SASB recommends that it also consider sustainability topics that SASB has identified for those industries and disclose the associated SASB accounting metrics.

In disclosing to SASB Standards, it is expected that registrants disclose with the same level of rigor, accuracy, and responsibility as they apply to all other information contained in their SEC filings.

Users of the SASB Standards

The SASB Standards are intended to provide guidance for companies that engage in public offerings of securities registered under the Securities Act of 1933 (the Securities Act) and those that issue securities registered under the Securities Exchange Act of 1934 (the Exchange Act),⁷ for use in SEC filings, including, without limitation, annual reports on Form 10-K (Form 20-F for foreign issuers), quarterly reports on Form 10-Q, current reports on Form 8-K, and registration statements on Forms S-1 and S-3. Disclosure with respect to the SASB Standards is not required or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Scope of Disclosure

Unless otherwise specified, SASB recommends:

- That a registrant disclose on sustainability issues and metrics for itself and for entities that are consolidated for financial reporting purposes as defined by accounting principles generally accepted in the United States for consistency with other accompanying information within SEC filings;⁸
- That for consolidated entities, disclosures be made, and accounting metrics calculated, for the whole entity, regardless of the size of the minority interest; and
- That information from unconsolidated entities not be included in the computation of SASB accounting metrics. A registrant should disclose, however, information about unconsolidated entities to the extent that the registrant considers the information necessary for investors to understand the effect of sustainability topics on the company's financial condition or operating performance (typically, this disclosure would be limited to risks and opportunities associated with these entities).

⁷ Registration under the Securities Exchange Act of 1934 is required (1) for securities to be listed on a national securities exchange such as the New York Stock Exchange, the NYSE Amex, and the NASDAQ Stock Market or (2) if (A) the securities are equity securities and are held by more than 2,000 persons (or 500 persons who are not accredited investors) and (B) the company has more than \$10 million in assets.

⁸ See US GAAP consolidation rules (Section 810).

Reporting Format

Use of Financial Data

In instances where accounting metrics, activity metrics, and technical protocols in this standard incorporate financial data (e.g., revenues, cost of sales, expenses recorded and disclosed for fines, etc.), such financial data shall be prepared in accordance with the accounting principles generally accepted in the United States of America (“US GAAP”) and be consistent with the corresponding financial data reported within the registrant’s SEC filings. Should accounting metrics, activity metrics and technical protocols in this standard incorporate disclosure of financial data that is not prepared in accordance with US GAAP, the registrant shall disclose such information in accordance with the SEC Regulation G.

Activity Metrics and Normalization

SASB recognizes that normalizing accounting metrics is important for the analysis of SASB disclosures.

SASB recommends that a registrant disclose any basic business data that may assist in the accurate evaluation and comparability of disclosure, to the extent that they are not already disclosed in the Form 10-K (e.g., revenue, EBITDA, etc.).

Such data—termed “activity metrics”—may include high-level business data such as total number of employees, quantity of products produced or services provided, number of facilities, or number of customers. It may also include industry-specific data such as plant capacity utilization (e.g., for specialty chemical companies), number of transactions (e.g., for Internet media and services companies), hospital bed days (e.g., for health care delivery companies), or proven and probable reserves (e.g., for oil and gas exploration and production companies).

Activity metrics disclosed should:

- Convey contextual information that would not otherwise be apparent from SASB accounting metrics.
- Be deemed generally useful for an investor relying on SASB accounting metrics in performing their own calculations and creating their own ratios.
- Be explained and consistently disclosed from period to period to the extent they continue to be relevant. However, a decision to make a voluntary disclosure in one period does not obligate a continuation of that disclosure if it is no longer relevant or if a better metric becomes available.⁹

Where relevant, SASB recommends specific activity metrics that—at a minimum—should accompany SASB accounting metric disclosures.

⁹ *Improving Business Reporting: Insights into Enhancing Voluntary Disclosures*, FASB Business Reporting Research Project, January 29, 2001.

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Biofuel production capacity	Quantitative	Millions of gallons (gal)	RR0101-A
Production of (1) Renewable fuel, (2) Advanced biofuel, (3) Biomass-based diesel, (4) Cellulosic biofuel ¹⁰	Quantitative	Millions of gallons (gal)	RR0101-B
Amount of feedstock consumed in production ¹¹	Quantitative	Metric tons (t)	RR0101-C

Units of Measure

Unless specified, disclosures should be reported in International System of Units (SI units).

Uncertainty

SASB recognizes that there may be inherent uncertainty when disclosing certain sustainability data and information. This may be related to variables such as the reliance on data from third-party reporting systems and technologies, or the unpredictable nature of climate events. Where uncertainty around a particular disclosure exists, SASB recommends that the registrant should consider discussing its nature and likelihood.

Estimates

SASB recognizes that scientifically based estimates, such as the reliance on certain conversion factors or the exclusion of *de minimis* values, may occur for certain quantitative disclosures. Where appropriate, SASB does not discourage the use of such estimates. When using an estimate for a particular disclosure, SASB expects that the registrant discuss its nature and substantiate its basis.

Timing

Unless otherwise specified, disclosure shall be for the registrant's fiscal year.

Limitations

There is no guarantee that SASB Standards address all sustainability impacts or opportunities associated with a sector, industry, or company, and therefore, a company must determine for itself the topics—sustainability-related or otherwise—that warrant discussion in its SEC filings.

Disclosure under SASB Standards is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. Where such laws or regulations address legal or regulatory topics, disclosure under SASB Standards is not meant to supersede those requirements. Disclosure according to SASB Standards shall not be construed as demonstration of compliance with any law, regulation, or other requirement.

¹⁰ Note to **RR0101-B**—Biofuel categories are defined in CFR §80.14, Title 40—[Regulation of Fuels and Fuel Additives, Subpart M—Renewable Fuel Standard](#).

¹¹ Note to **RR0101-C**—The amount of feedstock consumed in production is defined as feedstock purchases adjusted for changes in inventory throughout the fiscal year.

SASB Standards are intended to be aligned with the principles of materiality enforced by the SEC. However, SASB is not affiliated with or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Forward-Looking Statements

Disclosures on sustainability topics can involve discussion of future trends and uncertainties related to the registrant's operations and financial condition, including those influenced by external variables (e.g., environmental, social, regulatory, and political). Companies making such disclosures should familiarize themselves with the safe harbor provisions of Section 27A of the Securities Act and Section 21E of the Exchange Act, which preclude civil liability for material misstatements or omissions in such statements if the registrant takes certain steps, including, among other things, identifying the disclosure as "forward-looking" and accompanying such disclosure with "meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statements."

The following sections contain the disclosure guidance associated with each accounting metric such as guidance on definitions, scope, accounting, compilation, and presentation.

The term "shall" is used throughout this document to indicate those elements that reflect requirements of the Standard. The terms "should" and "may" are used to indicate guidance, which, although not required, provides a recommended means of disclosure.

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Air Quality	Air emissions for the following pollutants: NO _x (excluding N ₂ O), SO _x , volatile organic compounds (VOCs), particulate matter (PM), and hazardous air pollutants (HAPs)	Quantitative	Metric tons (t)	RR0101-01
	Number of incidents of non-compliance with air quality permits, standards, and regulations	Quantitative	Number	RR0101-02
Water Management in Manufacturing	(1) Total water withdrawn and (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Cubic meters (m ³), Percentage (%)	RR0101-03
	Discussion of water management risks and description of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RR0101-04
	Number of incidents of non-compliance with water quality permits, standards, and regulations	Quantitative	Number	RR0101-05
Product Formulation & Impacts on Food Markets	Top five feedstocks used for biofuels production, by weight ¹²	Quantitative	Metric tons (t)	RR0101-06
	Percentage of feedstock grown in food-insecure countries	Quantitative	Percentage (%) by weight	RR0101-07
Lifecycle Emissions Balance	Lifecycle greenhouse gas (GHG) emissions, by biofuel type	Quantitative	Grams of CO ₂ -e per megajoule (MJ)	RR0101-08
Management of the Legal & Regulatory Environment	Amount of subsidies received through government programs	Quantitative	U.S. Dollars (\$)	RR0101-09
	Discussion of positions on the regulatory and political environment related to environmental and social factors and description of efforts to manage risks and opportunities presented	Discussion and Analysis	n/a	RR0101-10

¹² Note to **RR0101-06**—The registrant shall discuss risks associated with the use of food crop feedstocks and feedstocks grown on arable lands.

Table 1. Sustainability Disclosure Topics & Accounting Metrics (cont.)

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Operational Safety, Emergency Preparedness, and Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR) ¹³	Quantitative	Number, Rate	RR0101-11
Sourcing & Environmental Impacts of Feedstock Production	Description of strategy to manage risks associated with environmental impacts of feedstock production	Discussion and Analysis	n/a	RR0101-12
	Percentage of biofuel production third-party certified to an environmental sustainability standard	Quantitative	Percentage (%) of gallons	RR0101-13

¹³ Note to **RR0101-11**—The registrant shall describe incidents with a severity rating of 1 or 2, including their root cause, outcomes, and corrective actions implemented in response (e.g., technology improvements, operator training, etc.).

Air Quality

Description

Biofuels refineries generate air emissions—including hazardous air pollutants, criteria air pollutants, and volatile organic compounds—that can cause adverse human health and environmental impacts. Some primary substances of concern include particulate matter, nitrogen oxides, carbon monoxide, and sulfur dioxide. Emissions can come from grain-handling equipment, boilers, wastewater treatment, and units for cooling, drying, distillation, and fermentation. Companies that violate emissions standards can face regulatory compliance costs and penalties, as well as higher operating and capital expenditures for emissions-abatement technologies and process improvements. Companies could also face permit restrictions or delays from state and local agencies if their facilities do not meet emissions standards.

Accounting Metrics

RR0101-01. Air emissions for the following pollutants: NO_x (excluding N₂O), SO_x, volatile organic compounds (VOCs), particulate matter (PM), and hazardous air pollutants (HAPs)

.01 The registrant shall disclose its emissions of air pollutants (in metric tons) that are released to the atmosphere as a result of its activities:

- Direct air emissions from stationary or mobile sources that include, but are not limited to, production facilities, office buildings, marine vessels transporting products, and truck fleets.

.02 The registrant shall disclose emissions released to the atmosphere by emissions type. Substances include:

- Oxides of nitrogen (including NO and NO₂ and excluding N₂O), reported as NO_x.
- Oxides of sulfur (SO₂ and SO₃), reported as SO_x.
- Nonmethane volatile organic compounds (VOCs), defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, that participates in atmospheric photochemical reactions, except those designated by the U.S. Environmental Protection Agency (EPA) as having negligible photochemical reactivity.
 - Where regional and national definitions supersede EPA regulations, such as EC Directive 1999/13/EC and Schedule 1 of the Canadian Environmental Protection Act 1999, the registrant may refer to the relevant regulations on VOCs.
- Particulate matter (PM), reported as the sum of PM₁₀ and PM_{2.5}, or all particulates less than 10 micrometers in diameter.
- Hazardous air pollutants (HAPs), defined by the EPA as those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects, which are listed [here](#).

- .03 This scope does not include CO₂, CH₄, and N₂O.
- .04 Air emissions data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data.
- .05 The registrant should discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

RR0101-02. Number of incidents of non-compliance with air quality permits, standards, and regulations

- .06 The registrant shall disclose the total number of instances of non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.
- .07 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the Clean Air Act and other state or local air quality legislation.
- .08 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .09 Violations, regardless of their measurement methodology or frequency, shall be disclosed. These include:
 - For continuous emissions, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
 - For non-continuous emissions, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, and mass or concentrations of specified pollutants.
 - False or inaccurate reporting.
 - Failure to obtain permits.

Water Management in Manufacturing

Description

Biofuel refining is water-intensive. Biorefineries require water for feedstock processing and washing, fermentation, distillation, and cooling. Although water use at biorefineries is modest relative to the quantities consumed during feedstock crop production, it is concentrated and thus may have substantial impacts on local water resources. Facilities may also generate wastewater contaminated with salts, organic compounds, dissolved solids, phosphorus, and chlorine, all of which, if not properly treated, can affect water quality and aquatic life. Depending on their location, biofuel refineries may be exposed to the risk of reduced water availability and related cost increases or operational disruption, as water is becoming a scarce resource worldwide. Furthermore, companies that use a significant amount of water in manufacturing could also face permit restrictions and delays from state and local agencies. Extraction of water from sensitive areas for the purposes of refining, as well as contamination of water supplies due to refining operations, could also create tensions with local communities if these operations add stress to the local water supply. Water efficiency in operations and the proper treatment of effluents are therefore important factors for the financial performance of biofuels companies.

Accounting Metrics

RR0101-03. (1) Total water withdrawn and (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress

.10 The registrant shall disclose the amount of water (in thousands of cubic meters) that was withdrawn from all sources, where:

- Water sources include surface water (including water from wetlands, rivers, lakes, and oceans), groundwater, rainwater collected directly and stored by the organization, wastewater obtained from other entities, municipal water supplies, or other water utilities.
- Disclosure corresponds to CDP Water Questionnaire W1.2a.

.11 The registrant may choose to disclose the portion of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources, where:

- Fresh water may be defined according to the local statutes and regulations where the registrant operates. Where there is no regulatory definition, fresh water shall be considered to be water that has a solids (TDS) concentration of less than 1000 mg/l per the [Water Quality Association definition](#).
- Water obtained from a water utility in compliance with U.S. [National Primary Drinking Water Regulations](#) can be assumed to meet the definition of fresh water.

.12 The registrant shall disclose the amount of water (in thousands of cubic meters) that was consumed in its operations, where water consumption is defined as:

- Water that evaporates during withdrawal, usage, and discharge;
- Water that is directly or indirectly incorporated into the product or service; and
- Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea.
- Disclosure corresponds to CDP Water Questionnaire W1.2c.

.13 The registrant shall analyze all of its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly available online [here](#)).

.14 The registrant shall disclose its water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

.15 The registrant shall disclose its water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RR0101-04. Discussion of water management risks and description of strategies and practices to mitigate those risks

.16 The registrant shall discuss its risks associated with water withdrawals, water consumption, and discharge of water to the environment and describe how it manages these risks.

- Disclosure corresponds to CDP Water Questionnaire W3.1 and W3.2c.

.17 The registrant shall discuss, where applicable, risks to the availability of adequate, clean water resources.

- Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as operating in water-stressed regions, drought, interannual or seasonal variability, and risks due to the impact of climate change.
 - External constraints, such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (e.g., those from local communities, non-governmental organizations, and regulatory agencies), direct competition with and impact from the actions of other users (commercial and municipal), restrictions to withdrawals due to regulations, and constraints on the registrant's ability to obtain and retain water rights or permits.
 - How risks may vary by withdrawal source, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or supply from other water utilities.

.18 The registrant shall discuss, where applicable, risks associated with its discharge of wastewater.

- Relevant information to provide includes, but is not limited to:
 - Environmental constraints, such as the ability to maintain compliance with regulations focused on the quality of effluent discharged to the environment, the ability to eliminate existing and emerging pollutants of concern, and the ability to maintain control over runoff and storm water discharges.
 - External constraints, such as increased liability and/or reputational risks, restrictions to discharges and/or increased operating costs due to regulation, stakeholder perceptions and concerns related to water discharges (e.g., those from local communities, non-governmental organizations, and regulatory agencies), and the ability to obtain discharge rights or permits.
 - How risks may vary by discharges to different destinations, including wetlands, rivers, lakes, oceans, groundwater, rainwater, municipal water supplies, or other water utilities.

.19 The registrant should include a discussion of the potential impacts that these risks may have on its operations and the timeline over which such risks are expected to manifest.

- Impacts may include, but are not limited to, those associated with costs, revenues, liabilities, continuity of operations, and reputation.

.20 The registrant shall provide a description of its short-term and long-term strategy or plan to manage these risks, including the following, where relevant:

- Any water management targets it has set, and an analysis of performance against those targets.
 - Water management targets can include water management goals that the registrant prioritizes to manage its risks and opportunities associated with water withdrawal, consumption, or discharge.
 - Targets can include, but are not limited to, those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, and improving the quality of wastewater discharges.
- The scope of its strategy, plans, or targets, such as whether they pertain differently to different business units, geographies, or water-consuming operational processes.
- The activities and investments required to achieve the plans and targets, and any risks or limiting factors that might affect achievement of the plans and/or targets.
- Disclosure corresponds to CDP Water Questionnaire W8.1, W8.1a, and W8.1b.

.21 For water management targets, the registrant shall additionally disclose:

- The percentage reduction or improvements from the base year, where:
 - The base year is the first year against which water management targets are evaluated toward the achievement of the target.
- Whether the target is absolute or intensity based, and the metric denominator if it is an intensity-based target.
- The timelines for the water management plans, including the start year, the target year, and the base year.
- The mechanism(s) for achieving the target, including:
 - Efficiency efforts, such as the use of water recycling and/or closed-loop systems
 - Product innovations such as redesigning products or services to require less water
 - Process and equipment innovations, such as those that enable the use of less water in manufacturing or operations
 - The use of tools and technologies (e.g., the [World Wildlife Fund Water Risk Filter](#), [WRI/WBCSD Global Water Tool](#), and [Water Footprint Network Footprint Assessment Tool](#)) to analyze water use, risk, and opportunities
 - Collaborations or programs in place with the community or other organizations

.22 Disclosure of strategies, plans, and targets shall be limited to activities that were ongoing (active) or reached completion during the fiscal year.

.23 The registrant shall discuss whether its water management practices result in any additional lifecycle impacts or tradeoffs in its organization, including tradeoffs in land use, energy consumption, and greenhouse gas (GHG) emissions, and why the registrant chose these practices despite lifecycle tradeoffs.

RR0101-05. Number of incidents of non-compliance with water quality permits, standards, and regulations

.24 The registrant shall disclose the total number of instances of non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.

.25 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the discharge of a hazardous substance, failure to monitor wastewater effluent, and effluent limit exceedances (e.g., waste load allocation or whole effluent toxicity).

.26 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).

.27 An incident of non-compliance shall be disclosed regardless of its measurement methodology or frequency. These include violations:

- For continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly, and monthly averages.
- For non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, frequency, and mass or concentration of specified pollutants.

Product Formulation & Impacts on Food Markets

Description

A rising share of food crops such as corn and soy is diverted toward biofuels production worldwide. In addition, the cultivation of inedible crop-based feedstocks could indirectly affect food production by displacing food crops on arable lands. The potential impact on global food prices, availability, and security has engendered government and public concern over the rapid growth of biofuel production. This concept is popularly termed the “food versus fuel” debate. By and large, renewable fuel policies reflect these concerns by progressively increasing the volume of biofuels from non-food crop sources blended with transport fuels. Some governments have even moved to cap the production volume of crop-based ethanol. Given the industry’s reliance on food-crop feedstocks, these policy shifts introduce risks and opportunities. The ability to use alternative feedstocks may become a key competitive driver in the industry, while traditional biofuel production may face limited or reduced policy support, affecting demand or production costs.

Accounting Metrics

RR0101-06. Top five feedstocks used for biofuels production, by weight

- .28 The registrant shall disclose the five feedstocks it consumed in the greatest quantities for biofuel production during the fiscal year and the amount of each feedstock that was used in the production of biofuels, in air-dried metric tons.
- .29 The scope of feedstocks includes those that meet the definition of renewable biomass according to [CFR §80.1401, Title 40—Regulation of Fuels and Fuel Additives, Subpart M—Renewable Fuel Standard—Definitions](#) including, but not limited to, the following types as they are defined in the CFR:
- Planted crops, such as corn, soybeans, sugarcane, and rapeseed
 - Algae
 - Tree residue and trimmings
 - Animal waste material and animal byproducts
 - Yard waste
 - Food waste, such as recycled cooking and trap grease
- .30 Feedstock consumption shall be calculated as purchases of feedstock plus beginning inventory less ending inventory, in air-dried metric tons.
- The amount may include any incidental *de minimis* contaminants that are impractical to remove and are related to customary feedstock production and transport.

Note to **RR0101-06**

.31 The registrant shall discuss risks associated with the use of food crop feedstocks and feedstocks grown on arable lands, and describe how it manages those risks. Risks can include, but are not limited to:

- Market risks, such as competition for feedstocks also used in food (or animal feed) or competition over land that could be used for food (or animal feed) production.
- Regulatory risks, such as production limits on the volume of biofuel from food-crop feedstocks or repeal of federal mandates on production volumes.
- Reputational risks, such as external pressure from governments or other community organizations to use feedstocks that do not affect food resources and negative public perception about biofuel produced from food-crop feedstocks.

.32 The registrant shall discuss its approach to managing risks associated with the use of food crop feedstocks or feedstocks grown on arable lands.

- Relevant strategies to discuss include research and development into alternative feedstocks, feedstock diversification and increased production of biofuels from non-food-crop sources, supplier diversification, partnerships with industry groups or nongovernmental development organizations, and selection criteria to identify different feedstocks.

RR0101-07. Percentage of feedstock grown in food-insecure countries

.33 The registrant shall disclose the percentage of the feedstock that it purchased by weight (in air-dried metric tons) that was grown in food-insecure countries, where:

- Food insecurity is defined by the U.S. Department of Agriculture (USDA) as consistent access to adequate food being limited by a lack of money and other resources at times during the year.
- The registrant shall use the International Food Policy Research Institute [Global Hunger Index Interactive Map](#) to identify countries of food insecurity. Food-insecure countries are those countries with a “Serious,” “Alarming,” or “Extremely alarming” ranking on the GHI index.

.34 The percentage shall be calculated as the amount of feedstock, in air-dried metric tons, that was grown in food-insecure countries divided by the total amount of feedstock purchased, in air-dried metric tons.

.35 Where applicable, the registrant may include a discussion of how feedstock it sources that is grown in food-insecure countries is or is not in direct competition with other edible crops in the region(s) or land that can be used to grow food crops.

.36 The registrant may choose to describe how it is demonstrating a positive contribution toward local food security conditions in food-insecure regions where it operates, in relation to the four pillars of food security developed by the UN Food and Agriculture Organization (food availability, food access, food utilization, and food stability).

- Disclosure corresponds to Roundtable of Sustainable Biomaterials Criterion 6b.

Additional References

Congressional Research Service, [Renewable Fuel Standard \(RFS\): Overview and Issues](#), March 14, 2013.

Roundtable on Sustainable Biomaterials [Food Security Guidelines](#) RSB-GUI-01-006-01 (version 2.2)

[Information](#) on the International Food Policy Research Institute Global Hunger Index

Lifecycle Emissions Balance

Description

The rapid growth in global biofuels production is due in large part to government energy policies, which seek to reduce net greenhouse gas (GHG) emissions from transportation fuels. Most major renewable-fuel policies worldwide require that biofuels achieve lifecycle GHG emissions reductions relative to a petroleum-fuel baseline to qualify for renewable-fuel-mandate thresholds. The biofuel lifecycle emission calculation can include indirect and direct emissions from feedstock crop production and land use, fuel refining, fuel and feedstock transport, and vehicle exhaust emissions. Biofuel producers can directly influence net emissions during the refining process through energy management (fuel use) and process innovation. Furthermore, companies may reduce lifecycle emissions by using feedstocks with lower emissions profiles. Fuel products that achieve a reduction in net emissions can qualify as advanced biofuels, which, based on existing biofuels mandates, are expected to constitute an increasing share of production. Companies may also be able to garner financial incentives from the sale of advanced fuels. Thus, biofuel companies that cost-effectively reduce the net carbon emissions of their products may gain a competitive advantage, leading to revenue growth and increased market share.

Accounting Metrics

RR0101-08. Lifecycle greenhouse gas (GHG) emissions, by biofuel type

.37 The registrant shall disclose its lifecycle GHG emissions (in grams of CO₂-e per megajoule) for each biofuel category it produces, calculated according to the EPA Renewable Fuel Standard 2 (RFS2) requirements, where:

- Lifecycle GHG emissions are defined in the U.S. Clean Air Act Section 211(o)(1) as the aggregate quantity of GHG emissions (including direct emissions and significant indirect emissions, such as significant emissions from land-use changes) related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery of the finished fuel to the ultimate consumer and use of the fuel, where the mass values for all GHGs are adjusted to account for their relative global warming potential.
- The registrant shall disclose its lifecycle GHG emissions for each biofuel type that it produces, where biofuel types include the following, which are disclosed in RR0101-B and based on the U.S. EPA's Renewable Fuel Standard categories: (1) renewable fuel, (2) advanced biofuel, (3) biomass-based diesel, and (4) cellulosic biofuel.

.38 The registrant should disclose all applicable lifecycle GHG emissions results, including those calculated for the California Air Resources Board Low Carbon Fuel Standard Program, the European Union Renewable Energy Directive, and the Roundtable on Sustainable Biomaterials (RSB) certification, if results from any of these calculations are materially different than the results from the EPA RFS2 calculation.

Management of the Legal & Regulatory Environment

Description

The Biofuels industry is heavily dependent on government policies, which create market demand and incentivize supply with tax breaks and other support for feedstock production. The Biofuels industry therefore engages in strategic political and regulatory lobbying related to renewable fuel policy, production tax credits, and feedstock production. While successful lobbying can result in positive short-term gains by supporting the biofuels market, the potential long-term adverse environmental and social impacts from feedstock and biofuels production may result in a reversal of these benefits to reflect the balance of corporate and public interest in those issues, leading to a more burdensome or uncertain regulatory environment. More specifically, traditional biofuels are linked to potential negative environmental and social impacts, resulting in attempts to reduce or remove the support for such fuels and to increase the support for advanced biofuels. However, advanced biofuels, while potentially creating fewer negative externalities, are yet to be produced on a commercial scale in many cases. It is likely in traditional biofuels producers' long-term interests, therefore, to support regulations that account for externalities while working to reduce the externalities of their own feedstock and production. For advanced biofuels, long-term policy support might depend on taking into account the viability of supply and any negative externalities that such fuels themselves may create. Consequently, biofuels companies could benefit from developing a clear strategy for engaging policymakers and regulators that is aligned with long-term sustainable business outcomes and that accounts for societal and environmental externalities.

Accounting Metrics

RR0101-09. Amount of subsidies received through government programs

- .39 The registrant shall disclose the amount of subsidies (in U.S. dollars) it received through government programs during the reporting year, where subsidies include tax credits such as blending and production tax credits, funding for projects such as research and development, import tariffs, direct payments, capital grants, loans and loan guarantees, and any other monetary support received from government departments or programs.
- .40 Government programs include those in the U.S. and internationally at national, regional, and local levels.
- .41 The registrant should disclose the type of biofuel subsidies received and the amount of each, in U.S. dollars, where types of biofuel subsidies can include, but are not limited to, blending and production tax credits, capital grants, direct payments, loans and loan guarantees, surcharges or tariffs on competing products, and funding for projects such as research and development.
- .42 The registrant shall disclose the amount of subsidies as an aggregate amount that was recognized during the reporting year, regardless of the accounting method (e.g., deferral method, flow-through method, or non-US GAAP methods for investment tax credits, etc.).

RR0101-10. Discussion of positions on the regulatory and political environment related to environmental and social factors and description of efforts to manage risks and opportunities presented

.43 The registrant shall identify risks and opportunities it faces related to legislation, regulation, rule making, actions of individual politicians, and the overall political environment (hereafter referred to collectively as “regulatory and political environment”) related to environmental and social factors.

- The scope shall include existing, emerging, and known future risks and opportunities.
- The scope shall include risks and opportunities that may exist within the U.S. at the local, state, and federal levels.
- The registrant may discuss risks and opportunities in international markets.
- The regulatory and political environment related to environmental and social factors includes topics that address the type of feedstocks used in biofuel production, how feedstocks are cultivated, the environmental impacts associated with producing traditional versus advanced biofuels, biodiversity, emissions and effluents, toxic substances, climate change, immigration, food safety, wages, intellectual property, and financial regulations.

.44 Relevant risks include, but are not limited to, risk of increased compliance costs, risk of policy reversal (e.g., trade protections), risk of loss of financial incentives (e.g., reduction or elimination of subsidies, tax incentives, grants, etc.), risk to reputation due to the registrant’s stance and actions related to the regulatory and political environment, risk that the regulatory and political environment may not be aligned with long-term strategy, and risk of misalignment with customers’, investors’, and other stakeholders’ expectations.

.45 Relevant opportunities include, but are not limited to, improved financial conditions (e.g., through trade protections, financial subsidies, tax benefits, etc.), preferential market status (including federal contracts) due to environmental and social practices that are aligned with the regulatory and political environment, improved access to human capital, enhanced brand reputation due to the registrant’s stance and actions related to the regulatory and political environment, and other benefits due to alignment of the regulatory and political environment with long-term strategy.

.46 For each risk and opportunity associated with the regulatory and political environment the registrant has identified, it shall disclose the following:

- For specific pieces of legislation, regulation, or candidates, the registrant shall indicate whether its position is of support or opposition and specify any qualifying statements about the legislation that may affect the registrant’s stance.
- For general environmental and social topics such as climate change, immigration, and other topics associated with the general lobbying issue codes defined by The Lobbying Disclosure Act of 1995, the registrant shall provide a description of the type of regulation or legislation that it supports or opposes.

.47 The registrant shall discuss its efforts to manage risks and opportunities associated with each aspect of the regulatory and political environment it has identified in RR0101-10, where relevant efforts to discuss include the use of each of the following:

- Direct lobbying, as defined by the Internal Revenue Service as “the attempt to influence a legislative body through communication with a member or employee of a legislative body, or with a government official who participates in formulating legislation.”
- Grassroots lobbying, as defined by the Internal Revenue Service as “the attempt to influence legislation by attempting to affect the opinion of the public with respect to the legislation and encouraging the audience to take action with respect to the legislation.”
- Direct or indirect contributions or expenditures in support of, or opposition to, a candidate for public office or a ballot measure.
- Any payments made to trade associations or tax-exempt entities that may be used (where permitted) for lobbying, to make campaign contributions, or to otherwise exert influence on a political campaign or ballot measure.
 - The scope includes political organizations that seek to influence the “selection, nomination, election, or appointment of any individual to Federal, State, or local public office or office in a political organization, or the election of Presidential electors,” as classified under Section 527 of the Internal Revenue Code.
 - The scope includes advocacy organizations, commonly classified as social welfare organizations under Section 501(c)(4) of the Internal Revenue Code.
- Other interactions with regulators and regulatory agencies, such as through legislative testimony, employment of former members of Congress, regulatory agencies, and other public servants.
- Any direct or indirect political expenditure (one-time or recurring) that must be reported to the Federal Election Commission (FEC), the Internal Revenue Service (IRS), or a state disclosure agency.

.48 In addition to its efforts to influence the regulatory and political environment, the registrant shall discuss its overall strategy to manage risks and opportunities associated with each aspect of the regulatory and political environment it has identified, such as the following actions or activities:

- Any changes it has made or plans to make to its business structure or model;
- The development of new technologies or services; and
- Any changes it has made or plans to make to its operational process, control, or organizational structures.

.49 With respect to the emerging or potential future regulatory and political environment, the registrant shall discuss its view of:

- Which outcome is most likely to come to fruition;
- Whether the outcome would impact the registrant and/or the industry as a whole;
- The likelihood the outcome will occur (i.e., a qualitative assessment of certainty or uncertainty);
- The time horizon over which it expects the outcome to occur; and
- The expected magnitude of the impact (e.g., a one-time, acute impact on costs, an ongoing moderate impact on ability to retain employees, etc.).

.50 The registrant should describe whether its stance may align with or differ from its peers, other companies, and the official stance of its trade organization(s) and discuss any relevant reasons for alignment or divergence.

.51 The registrant may choose to disclose its total amount of political spending and a list of the recipients, which includes:

- Any direct or indirect contributions or expenditures in support of, or opposition to, a candidate for public office or a ballot measure.
- Any payments made to trade associations or tax-exempt entities that are used to influence a political campaign (including advocacy organizations, commonly classified as social welfare organizations under Section 501(c)(4) of the Internal Revenue Code, or business leagues, chambers of commerce, boards of trade, and similar organizations classified under Section 501(c)(6) of the Internal Revenue Code).
- Any direct or indirect political expenditure (one-time or recurring) that must be reported to the Federal Election Commission, the Internal Revenue Service, or a state disclosure agency.
- Any direct or indirect contributions to registered lobbyists or lobbying organizations, including contributions made to trade organizations that contribute to political lobbying efforts.

Operational Safety, Emergency Preparedness, and Response

Description

Biofuel production presents operational safety hazards because of the use of flammable and explosive substances, high temperatures, and pressurized equipment. While biodiesel itself is a relatively safe product that is non-flammable and biodegradable, the chemicals used in production can present significant risks if they are not handled safely. Process safety incidents can significantly damage facilities, injure workers, and affect ecosystems and local communities. While the frequency of occurrence of accidents in the industry is relatively low, when they do take place, the outcomes tend to be acute, with severe impacts on financial performance. Damaged facilities can be inoperable for extended periods, resulting in lost revenues and large capital expenditures for repairs. Companies perceived to be at a greater risk for process safety incidents may have a higher cost of capital. Workforce injuries could result in regulatory penalties and litigation. Therefore, companies with a strong safety culture and operational safety oversight can more effectively detect and respond to such incidents, mitigating potential financial risks and improving operational efficiency.

Accounting Metrics

RR0101-11. Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)

.52 The registrant shall disclose its process safety performance using the following indicators, consistent with the process safety reporting element of the American Chemistry Council's (ACC) Responsible Care program, further defined in the Center for Chemical Process Safety's "[Process Safety Leading and Lagging Metrics](#)":

- PSIC, defined as the total (annual) count of all incidents that meet the definition of a Tier-1 process safety incident (PSI) per ANSI/API RP 754.
- PSTIR, defined as the cumulative (annual) count of incidents normalized by man-hours and calculated as the PSIC multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.
- PSISR, defined as the cumulative (annual) severity-weighted rate of PSIs and calculated as the Total Severity Score for all PSIs multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.

.53 The scope of disclosure includes PSIs occurring at company-owned or -operated facilities.

.54 The registrant may choose to separately disclose the same incident rates for Tier-2 process safety events as defined by ANSI/API RP 754 and Center for Chemical Process Safety's "Process Safety Leading and Lagging Metrics."

Note to **RR0101-11**

.55 The registrant shall describe incidents with a severity rating of 1 or 2, including the root cause, outcomes, and corrective actions implemented in response (e.g., technology improvements, operator training, etc.).

Sourcing & Environmental Impacts of Feedstock Production

Description

The Biofuels industry utilizes a variety of plant-based feedstocks as raw materials for production. Most companies producing first- or second-generation biofuels purchase feedstocks from agricultural producers and distributors. A growing proportion of the world's arable land is now occupied by biofuel crops; some of this land is being converted from forestland or rangeland. Unsustainable cultivation practices can have negative environmental externalities, including deforestation and biodiversity loss, soil degradation, and water pollution (the implications of biofuel feedstock cultivation on global food markets is discussed in the Product Formulation & Impacts on Food Markets disclosure topic). These factors could adversely affect feedstock crop yields, both acutely in the near term, because of events such as crop failure, and gradually over the long term. This, in turn, could influence the price and availability of feedstocks for biofuels producers. The increasing frequency of extreme weather conditions and other impacts of climate change could compound the effects of environmental externalities from crop cultivation. Furthermore, the public awareness and changing perception of the lifecycle impacts of biofuels production beyond GHG emissions can affect the broader reputation of and support for the industry, pushing the regulatory environment toward stricter compliance criteria. Biofuel manufacturers that, to the extent possible, increase the transparency of their supply chain and reduce their exposure to feedstock cultivation on lands classified as having high biodiversity value may be able to maintain or gain access to a growing European renewable energy market, where regulations include broader land-use restrictions for feedstock cultivation than those of the RFS. Consequently, vetting supply-chain sustainability and engaging with suppliers to the greatest extent possible to ensure that they are engaged in sustainable operations are important considerations for biofuels producers.

Accounting Metrics

RR0101-12. Description of strategy to manage risks associated with environmental impacts of feedstock production

.56 The registrant shall discuss its strategy to manage the environmental impacts and regulatory risks associated with feedstock production, where risks may include, but are not limited to:

- Risks to feedstock supply and pricing created by climate change impacts such as increased likelihood of extreme weather events, decreased availability of clean water resources, increased competition for arable land, and decreased crop yields due to temperature increases.
- Long-term risks to feedstock supply associated with suppliers' impacts on environmental health including those on biodiversity and soil health that may be due to monoculture practices and/or fertilizer and pesticide use.
- Constraints created by regulation such as compliance with sustainability criteria in renewable fuel mandates (including RFS2 in the U.S. and the Renewable Energy Directive in the E.U.); potential regulatory limits on the types of land where feedstock can be grown; potential limits on what qualifies as renewable biomass; potential for reduction or loss of public or political support for

biofuel mandates due to environmental impacts of feedstock production; and resistance to the use of genetically modified organisms (GMOs).

- .57 The scope of this disclosure excludes risks associated with the impact of feedstock on food markets and lifecycle GHG emissions, which are addressed in RR0101-06, RR0101-07, and RR0101-08, respectively.
- .58 If the registrant identifies availability of clean water resources as a risk to feedstock supply and/or pricing, it shall discuss its vulnerability to feedstock-growing regions with water stress and how it manages the risk of price variability due to sourcing feedstock from these regions.
- The registrant should identify its known sources of feedstock from growing regions with High (40–80%) or Extremely High (>80%) Baseline Water Stress using the World Resources Institute’s (WRI) Water Risk Atlas tool, Aqueduct (publicly available online [here](#)).
- .59 The registrant shall discuss its approach to managing risks and/or opportunities associated with feedstock production, including constraints created by regulation, and limits on availability and price.
- Relevant strategies to discuss include sourcing from feedstock producers that are third-party certified to environmental sustainability standards, diversification of suppliers, using feedstock procurement criteria to choose suppliers for varied feedstocks with fewer environmental impacts or greater adaptability to the effects of environmental externalities (e.g., drought-tolerant or disease-resistant feedstocks), supplier audits, sourcing from regions where the registrant has greater control over feedstock sources, and expenditures on research and development (R&D) for alternative and substitute feedstocks that are less susceptible to environmental externalities.
 - The registrant should disclose the sustainability criteria it uses to assess its feedstock suppliers.

RR0101-13. Percentage of biofuel production third-party certified to an environmental sustainability standard

- .60 The registrant shall calculate the percentage as the amount of biofuel produced (in gallons) that is third-party certified to an environmental sustainability standard divided by the total amount of biofuel produced (in gallons).
- .61 Examples of environmental sustainability standards include the Roundtable on Sustainable Biomaterials (RSB), Roundtable on Responsible Soy (RTRS), Council on Sustainable Biomass Production (CSBP), Roundtable on Sustainable Palm Oil (RSPO), Bonsucro, and International Sustainability & Carbon Certification, as well as other standards with equivalent criteria.
- At a minimum, standards should include the following environmental sustainability topics:
 - GHG and other air emissions, water consumption and quality, soil health, fertilizer and pesticide use, land-use change, biodiversity, and waste management.
- .62 The registrant should disclose the certification schemes to which its biofuel is certified and the percentage of production certified to each scheme.

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