



National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Prescribed Production Variables Update) Rule 2021

I, Angus Taylor, Minister for Energy and Emissions Reduction, make the following instrument.

Dated

Angus Taylor [DRAFT ONLY – NOT FOR SIGNATURE]
Minister for Energy and Emissions Reduction

Exposure Draft

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1 Name

This instrument is the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Prescribed Production Variables Update) Rule 2021*.

2 Commencement

- (1) Each provision of this instrument specified in column 1 of the table commences, or is taken to have commenced, in accordance with column 2 of the table. Any other statement in column 2 has effect according to its terms.

Commencement information		
Column 1	Column 2	Column 3
Provisions	Commencement	Date/Details
1. The whole of this instrument	The day after this instrument is registered.	

Note: This table relates only to the provisions of this instrument as originally made. It will not be amended to deal with any later amendments of this instrument.

- (2) Any information in column 3 of the table is not part of this instrument. Information may be inserted in this column, or information in it may be edited, in any published version of this instrument.

3 Authority

This instrument is made under subsection 22XS(1) of the *National Greenhouse and Energy Reporting Act 2007*.

4 Schedules

Each instrument that is specified in a Schedule to this instrument is amended or repealed as set out in the applicable items in the Schedule concerned, and any other item in a Schedule to this instrument has effect according to its terms.

Schedule 1—Amendments

National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015

1 Section 4 (definition of *Safeguard Mechanism document*)

Repeal the definition, substitute:

Safeguard Mechanism document means the document entitled “Safeguard Mechanism: Prescribed production variables and default emissions intensities” published by the Department and as in force on the commencement of the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Prescribed Production Variables Update) Rule 2021*.

Note: In 2021, the document could be accessed from <http://www.industry.gov.au> and is included in the explanatory statement for the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Prescribed Production Variables Update) Rule 2021*.

2 Paragraph 15(1)(b) of Schedule 2

Omit “greater than”, substitute “less than or equal to”.

3 Note after subsection 28(4) of Schedule 2

Repeal the note, substitute:

(5) The default emissions intensity is 0.00380 t CO₂-e per gigajoule of crude oil.

4 Note after subsection 32(3) of Schedule 2

Repeal the note, substitute:

(4) The default emissions intensity is 0.00401 t CO₂-e per gigajoule of liquefied natural gas.

5 After section 47

Insert:

Division 13—Treated steel flat products

47A Treated steel flat products

- (1) Tonnes of treated steel flat products that:
 - (a) are produced as part of carrying on the treated steel flat products activity at the facility; and
 - (b) are flat in profile, such as plate and coil; and
 - (c) have not previously been included as a tonne of treated steel flat products under this section; and
 - (d) have involved the pickling and cold-rolling of hot-rolled steel coil; and
 - (e) have been treated with one or a combination of the following processes:
 - (i) annealing;
 - (ii) metal coating;
 - (iii) painting; and
 - (f) are of saleable quality.

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- (2) The metric in subsection (1) is applicable to a facility that conducts the activity of transforming hot-rolled steel coil, using a combination of physical or chemical processes, into treated steel flat products that:
 - (a) are flat in profile, such as plate and coil; and
 - (b) have involved the pickling and cold-rolling of hot-rolled steel coil; and
 - (c) have been treated with one or a combination of the following processes:
 - (i) annealing;
 - (ii) metal coating;
 - (iii) painting.
- (3) The activity in subsection (2) is the *treated steel flat products activity*.
- (4) The default emissions intensity is 0.144 t CO₂-e per tonne of treated steel flat products.

6 After section 60

Insert:

61 Work of compression applied to natural gas or plant condensate

- (1) Work of compression, in gigajoules, from the energy transferred to natural gas or plant concentrate by compressing it with compressors to assist its delivery to customers or distribution networks as part of carrying on the natural gas transmission activity at the facility.

Note: Compressors used for other purposes, such as natural gas processing, are not included.

- (2) The metric in subsection (1) is applicable to a facility that conducts the natural gas transmission activity and reports emissions under Division 3.3.7 of the NGER (Measurement) Determination.
- (3) The default emissions intensity is 0.253 t CO₂-e per gigajoule.
- (4) For subsection (1) and (3), the work of compression, in megawatt hours, is calculated for each compressor or compressor station (i) over each time increment (h) and summed in accordance with the following equation:

$$\sum_i \frac{Z_{av} R_u T_i}{M_w^{(k-1)/k}} \left(\left(\frac{P_2}{P_1} \right)^{\frac{k-1}{k}} - 1 \right) \times m' \times h_i$$

where:

Z_{av} is the gas compressibility derived from gas compressibility charts or calculated by computer software, at the inlet and outlet conditions averaged over the time increment h (by dividing inlet and outlet results by 2).

R_u is the universal gas constant equal to 8.314 kJ/kmol·K.

T_i is the temperature of the gas, in degrees Kelvin (K), at the compressor suction flange or inlet to the compressor station (as relevant to (i)), averaged over the time increment h.

M_w is the gas molecular weight, calculated from the average gas composition over the time increment h.

k is the heat capacity ratio, derived from gas heat capacity charts or calculated by computer software, for the average gas composition over the time increment h.

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P_1 is the absolute pressure at the compressor suction flange or inlet to the compressor station (as relevant to (i)), measured and averaged over the time increment h , in the same units as P_2 .

P_2 is the absolute pressure at the compressor discharge flange or outlet to the compressor station (as relevant to (i)), measured and averaged over the time increment h , in the same units as P_1 .

m' is the average gas mass flowrate, in units of mass per second, as measured for time increment h (or as converted from a volumetric flowrate measurement if required using the average gas composition over the time increment h).

h_i is the time increment for compressor or compressor station i , selected on the basis of reducing the calculation load while still having sufficient granularity to capture changes in compressor or compressor station work as operating conditions change over time.

Note: An initial time increment of one hour is suggested, to be adjusted with justification based on the variability of the pipeline operating conditions.

7 Subsection 81(2) of Schedule 2

Omit “any or all of wood chips, sawdust, wood pulp and recovered paper”, substitute “pulp”.

8 Note after subsection 81(3) of Schedule 2

Repeal the note, substitute:

- (4) The default emissions intensity is 0.448 t CO₂-e per tonne of rolls of uncoated tissue paper.

9 Subsection 82(2) of Schedule 2

Omit “any or all of wood chips, sawdust, wood pulp and recovered paper”, substitute “pulp”.

10 Note after subsection 82(3) of Schedule 2

Repeal the note, substitute:

- (4) The default emissions intensity is 0.104 t CO₂-e per tonne of rolls of packaging and industrial paper.

11 Subsection 83(2) of Schedule 2

Omit “any or all of wood chips, sawdust, wood pulp and recovered paper”, substitute “pulp”.

12 Note after subsection 83(3) of Schedule 2

Repeal the note, substitute:

- (4) The default emissions intensity is 0.101 t CO₂-e per tonne of rolls of coated or uncoated printing and writing paper.

13 Subsections 84(1) and (2) of Schedule 2

Before “uncoated newsprint” (wherever appearing), insert “coated or”.

14 Note after subsection 84(3) of Schedule 2

Repeal the note, substitute:

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- (4) The default emissions intensity is 0.464 t CO₂-e per tonne of rolls of coated or uncoated newsprint.

15 At the end of paragraph 85(1)(d) (before the note)

Insert:

and; (e) is not used in the newsprint manufacturing activity at the same facility.

16 Note after subsection 85(3) of Schedule 2

Repeal the note, substitute:

- (4) The default emissions intensity is 0.022 t CO₂-e per tonne wet or dry pulp.

17 After section 85

Insert:

Part 42—Ethylene and polyethylene production

86 Ethene (ethylene)

- (1) Tonnes of 100% equivalent ethene (ethylene (C₂H₄)) that is contained within ethene that:
- (a) has a concentration of ethene equal to or greater than 99% by mass; and
 - (b) is produced as part of carrying on the ethene production activity at the facility; and
 - (c) is of saleable quality.
- (2) The metric in subsection (1) is applicable to a facility that conducts the activity of producing ethene (ethylene (C₂H₄)) through the chemical transformation of hydrocarbons to produce ethene that has a concentration of ethene equal to or greater than 99% by mass (the *ethene production activity*).
- (3) The default emissions intensity is 1.96 t CO₂-e per tonne of 100% equivalent ethene.

87 Polyethylene

- (1) Tonnes of pelletised polyethylene that:
- (a) has a standard density equal to or greater than 0.910 g/cm³; and
 - (b) is produced as part of carrying on the polyethylene production activity at the facility; and
 - (c) is of saleable quality.
- (2) The metric in subsection (1) is applicable to a facility that conducts the activity of producing polyethylene through the chemical transformation ethene (ethylene (C₂H₄)) to produce polyethylene with a standard density equal to or greater than 0.910 g/cm³ (the *polyethylene production activity*).
- (3) The default emissions intensity is 0.136 t CO₂-e per tonne of pelletised polyethylene.

- (4) In this section:

standard density, for polyethylene, means the density of polyethylene moulded to a thickness of 1.9 mm using Procedure C of Annex A1 to ASTM D4703-16 (2016).

Note: In 2021, the standard could be accessed from <http://www.astm.org>.

Part 43—Wheat based products

88 Wheat protein products (dried gluten)

- (1) Tonnes of the following products produced as part of carrying on the wheat protein products production activity at the facility that meet the requirements of subsection (2):
 - (a) vital wheat gluten;
 - (b) devitalised wheat gluten;
 - (c) solubilised wheat proteins.
- (2) The requirements for products to be included in subsection (1) are that the products:
 - (a) do not have a moisture content that exceeds 10% (as a gravimetric water content); and
 - (b) for vital and devitalised wheat gluten, have at least 80% crude protein (on a dry solids basis, where nitrogen content is multiplied by 6.25); and
 - (c) for solubilised wheat proteins, have at least 60% crude protein (on a dry solids basis, where nitrogen content is multiplied by 6.25); and
 - (d) exclude added vitamins, minerals, amino acids and optional ingredients on a dry weight basis; and
 - (e) are of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that conducts the activity of producing wheat protein products by the physical and chemical transformation of wheat into one or more of the products listed in subsection (1) that meet the requirements in subsection (2).
- (4) The activity in subsection (3) is the *wheat protein products production activity*.

89 Dried wheat starch

- (1) Tonnes of the following products produced as part of carrying on the dried wheat starch production activity at the facility that meet the requirements of subsection (2):
 - (a) dried wheat starch;
 - (b) modified and resistant starches.
- (2) The requirements for products to be included in subsection (1) are that the products:
 - (a) have a moisture content of no more than 13% (as a gravimetric water content); and
 - (b) have a protein content of no more than 0.35% (on a dry solids basis, where nitrogen content is multiplied by 5.7); and
 - (c) for unmodified dried wheat starch covered by paragraph (1)(a), have a Brabender peak viscosity of no less than 500 Brabender units at 8% solids (on a dry solids basis) when measured in accordance with standard industry practices; and
 - (d) are of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that conducts the activity of producing dried wheat starch through the removal of non-starch fractions of the wheat flour by physical and chemical transformation of wheat into one of the products listed in subsection (1) that meet the requirements in subsection (2).
- (4) The activity in subsection (3) is the *dried wheat starch production activity*.

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90 Wheat based glucose

- (1) Tonnes of the following products produced as part of carrying on the wheat based glucose production activity at the facility that meet the requirements of subsection (2):
 - (a) wheat based glucose syrup;
 - (b) maltodextrin.
- (2) The requirements for products to be included in subsection (1) are that the products:
 - (a) for wheat based glucose syrup, is produced from wheat to a total solids percentage of between 67% to 84%; and
 - (b) for wheat based glucose syrup, has a dextrose equivalent content of not less than 20% (expressed as D-glucose on a dry weight basis); and
 - (c) for maltodextrin:
 - (i) may be dried to a moisture content that does not exceed 10% (as a gravimetric water content); and
 - (ii) has a dextrose equivalent content of between 10% and 20% (expressed as D-glucose on a dry weight basis); and
 - (d) are of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that conducts the activity of producing wheat based glucose through the physical and chemical transformation of wheat starch into one of the products listed in subsection (1) that meet the requirements in subsection (2).
- (4) The activity in subsection (2) is the *wheat based glucose production activity*.

91 Wheat based dried distillers grain

- (1) Tonnes of wheat based dried distillers grain that are produced as part of carrying on the wheat based dried distillers grain production activity at the facility to meet the following requirements:
 - (a) are a minimum of 88% dry matter on a dry solids basis; and
 - (b) are a minimum of 20% crude protein (on a dry solids basis, where nitrogen is multiplied by 6.25); and
 - (c) are of saleable quality.
- (2) The metric in subsection (1) is applicable to a facility that conducts the activity of producing wheat based dried distillers grain through the physical and chemical transformation of the non-fermentable residues of wheat starch products from the production of ethanol, where the residues are dried under heat, into wheat based dried distillers grain.
- (3) The activity in subsection (2) is the *wheat based dried distillers grain production activity*.

Part 44—Ethanol

92 Ethanol—95

- (1) Kilolitres of ethanol produced as part of carrying on the ethanol—95 production activity at the facility that meet the requirements of subsection (2).
- (2) The requirements for ethanol to be included in subsection (1) are the ethanol:
 - (a) is produced with a minimum 95% ethanol content by volume; and

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- (b) is not further processed into ethanol—absolute or beverage grade ethanol covered by sections 93 and 94 or otherwise included in those production variables; and
 - (c) is of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that conducts the activity of producing ethanol through the physical and chemical transformation of feedstocks into ethanol that meet the requirements in subsection (2).
 - (4) The activity in subsection (3) is the *ethanol—95 production activity*.

93 Ethanol—absolute

- (1) Kilolitres of ethanol produced as part of carrying on the ethanol—absolute production activity at the facility that meet the requirements of subsection (2).
- (2) The requirements for ethanol to be included in subsection (1) are that the ethanol:
 - (a) is produced with a minimum 99% ethanol content by volume; and
 - (b) is not further processed into beverage grade ethanol covered by section 94 or otherwise included in the ethanol production variables under sections 92 or 94; and
 - (c) is of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that conducts the activity of producing ethanol through the physical and chemical transformation of feedstocks into ethanol that meet the requirements in subsection (2).
- (4) The activity in subsection (3) is the *ethanol—absolute production activity*.

94 Beverage grade ethanol

- (1) Kilolitres of ethanol produced as part of carrying on the beverage grade ethanol production activity at the facility that meet the requirements of subsection (2).
- (2) The requirements for ethanol to be included in subsection (1) are that the ethanol:
 - (a) would otherwise be eligible as ethanol—95 or ethanol—absolute, but is not included in the tonnes of those products under section 92 or 93; and
 - (b) has been processed to a higher degree of purity than ordinarily required for ethanol—95 or ethanol—absolute, to a standard for use in beverages and other forms of human consumption; and
 - (c) is of saleable quality.
- (3) The metric in subsection (1) is applicable to a facility that produces beverage grade ethanol through the physical and chemical transformation of feedstocks into ethanol that meets the requirements in subsection (2).
- (4) The activity in subsection (3) is the *beverage grade ethanol production activity*.

Part 45—Production variables related to sugar production

95 Raw sugar

- (1) Tonnes of raw sugar that:
 - (a) is produced as part of carrying on the raw sugar manufacturing activity at the facility; and
 - (b) is generally useable in sugar refining activities; and
 - (c) is of saleable quality.

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- (2) The metric in subsection (1) is applicable to a facility that conducts the activity of manufacturing raw sugar through the physical or chemical transformation of sugar cane or other plant matter into raw sugar that:
 - (a) is generally useable in sugar refining activities; and
 - (b) is of saleable quality.
- (3) The activity in subsection (2) is the ***raw sugar manufacturing activity***.
- (4) The default emissions intensity is 0.0311 t CO₂-e per tonne of raw sugar.

96 Exported steam related to the raw sugar manufacturing activity

- (1) Gigajoules of steam that:
 - (a) is generated at a sugar mill by heating water; and
 - (b) is transferred or exported to another facility for use at that facility.
- (2) The metric in subsection (1) is applicable to a facility that:
 - (a) conducts the raw sugar manufacturing activity; and
 - (b) is structured such that energy (including steam and with or without the export of electricity) is intended to be the only output from the facility for a portion of the year under ordinary operating conditions, such as a facility with a seasonal output which exports energy year-round.
- (3) The gigajoules of steam exported must be:
 - (a) measured consistently with the NGER (Measurement) Determination, including the principles in section 1.13 and reporting requirements under the NGER Regulations; and
 - (b) calculated as total steam exported for a reporting period; and
 - (c) unless in conflict with paragraph (a), measured consistently at the facility over time.
- (4) The default emissions intensity is 0.0490 t CO₂-e per gigajoule of steam.