



# **LAWS OF SARAWAK**

## **Chapter 85**

### **ENVIRONMENT (REDUCTION OF GREENHOUSE GASES EMISSION) ORDINANCE, 2023**

Sarawak LawNet



**ENVIRONMENT (REDUCTION OF GREENHOUSE GASES  
EMISSION) ORDINANCE, 2023**

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Sarawak LawNet

ENVIRONMENT (REDUCTION OF GREENHOUSE GASES  
EMISSION) ORDINANCE, 2023

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LAWS OF SARAWAK

**Chapter 85**

**ENVIRONMENT (REDUCTION OF GREENHOUSE GASES  
EMISSION) ORDINANCE, 2023**

*An Ordinance for the protection of the Environment in Sarawak by reduction or abatement of emission of greenhouse gases into the atmosphere, adoption of strategies towards net zero carbon emissions, low carbon solutions and the transition towards clean renewable energy.*

[1<sup>st</sup> March, 2024, except for Part IV]  
(Swk. L.N. 180/2024)

**WHEREAS** Environment is not in any of the legislative lists in the Ninth Schedule of the Federal Constitution and therefore is a residual matter by virtue of Article 77 thereof.

**WHEREAS** land, forests and water are subject matters under List II (State List) in the Ninth Schedule of the Federal Constitution;

**WHEREAS** the emission of greenhouse gases from activities on land, forests and water or any human activities which affects the Environment shall be regulated by the law passed by the Legislature of Sarawak;

**WHEREAS** Sarawak has set the target to achieve net zero carbon emission by 2050; and

**WHEREAS** in pursuant thereto, strategies, action, plans and incentives towards reduction or abatement of greenhouse gases emission to achieve net zero carbon emission in the State should be provided for by way of legislation.

NOW IT IS ENACTED by the Legislature of Sarawak as follows—

PART I  
PRELIMINARY

**Citation and commencement**

1.—(1) This Ordinance may be cited as the Environment (Reduction of Greenhouse Gases Emission) Ordinance, 2023, and shall come into force on such dates as the Minister may, by notification, in the *Gazette* appoint.

(2) The Minister may appoint different dates for the coming into force of different parts or provisions of this Ordinance.

**Interpretation**

2.—(1) In this Ordinance—

“accredited external auditor” means any person registered with the Board as an accredited external auditor in accordance with Rules made hereunder;

“atmosphere” refers to the airspace above the land and Sarawak waters which is waters above the continental shelf off the coasts of Sarawak;

“Board” shall have the same meaning assigned to it under the Natural Resources and Environment Ordinance, 1993 [*Cap. 84 (1958 Ed.)*];

“business entity” refers to any corporation, company, firm or partnership undertaking any of the activities belonging to the Economic Sectors stipulated in the First Schedule and any plant, factory or premises used for the undertaking of such activities;

“carbon capture” means the process capturing greenhouse gases generated through manufacturing, production, or other industrial processes or activities of scheduled economic sectors in the First Schedule so as to prevent greenhouse gases build up in or discharged into the atmosphere;

“Carbon Credit Units” means a unit of account representing one tonne of Emissions Reductions verified in accordance with a Carbon Standard and this Ordinance and any applicable Carbon Standard Rules and held in a Carbon Register;



“Carbon dioxide equivalent” in relation to greenhouse gases, means the mass of the greenhouse gas multiplied by its global warming potential value as specified in the Second Schedule;

“carbon emission” refers to the emission or release into the atmosphere of any greenhouse gases specified in the Second Schedule;

“Carbon Register” means:-

(a) the Carbon Credit Units Register established under this Ordinance; or

(b) an electronic database system or other system that is established and operated by or under a Carbon Standard or on their behalf including the holding, delivery, retirement, cancellation, and replacement of Carbon Credit Units in accordance with applicable Carbon Standard Rules;

“Carbon Standard” means a program or standard administrated by a mandatory or voluntary domestic or international GHG program, certification, scheme, protocol pursuant to which any activity or project for reduction, abatement and capture and storage of greenhouse gases is formally accepted and registered pursuant to the Carbon Standard Rules and in respect of which Carbon Credit Units are issued for into a Carbon Register;

“Carbon Standard Administrator” means the Carbon Standard Administrator appointed under section 11(3);

“Carbon Standard Rules” shall have the same meaning assigned to it under Section 70B of the Forests Ordinance, 2015 [*Cap. 71*] and includes any amendment, modification, replacement or substitution thereof;

“Carbon Storage Rules” shall have the same meaning assigned to it in the Land (Carbon Storage) Rules, 2022 [*Swk. L.N. 349/2022*] and includes any amendment, modification, replacement or substitution thereof;

“carbon trading” means the buying, selling, trading of Carbon Credits Units in accordance with this Ordinance and Carbon Standard Rules in the voluntary or regulated markets

within Malaysia or outside in international emission trading exchanges or mechanisms established pursuant to the Paris Agreement or in the open market;

“Controller” shall have the same meaning assigned to it under the Natural Resources and Environment Ordinance, 1993 [*Cap. 84 (1958 Ed.)*];

“CO<sub>2</sub>” or “carbon dioxide” refers to carbon dioxide in its gaseous, liquid, liquefied or solid form including CO<sub>2</sub> in CO<sub>2</sub> streams;

“Emissions Reductions” shall have the same meaning assigned to it under Section 70B of the Forests Ordinance, 2015 [*Cap. 71*] and includes any amendment, modification, replacement, or substitution thereof;

“facility” means any building, premise, platform, site or place on land within Sarawak either onshore or offshore where CO<sub>2</sub> is emitted in consequence of any process or activity of the scheduled economic sectors specified in the First Schedule and includes the owner or occupier of the facility;

“Government” means the State Government of Sarawak;

“greenhouse gases” or “GHG” means any carbon dioxide, methane, nitrous oxide, hydrofluorocarbon, perfluorocarbons, sulphur hexafluoride and any other substance recognised as greenhouse gas by the United Nation Framework Convention on Climate Change (UNFCCC);

“low carbon solutions” means such measures, actions or programmes taken or adopted by any facility, commercial or industrial corporation or organisation for reduction of carbon emission in Sarawak or towards decarbonisation of operation or industrial process;

“Minister” means the Minister having responsibility for the environmental sustainability;

“Nationally Determined Contribution” means the Nationally Determined Contribution submitted by Malaysia, from time to time, to the UNFCCC in accordance with the Paris Agreement including any amendment, treaty or agreement in replacement or substitution thereof;

“Paris Agreement” shall have the same meaning assigned to it under the Forests Ordinance, 2015 [*Cap. 71*] and includes any amendment, modification, replacement or substitution thereof;

“petroleum” shall have the same meaning assigned to it under the Oil Mining Ordinance [*Cap. 85 (1958 Ed.)*] includes any amendment, modification, replacement or substitution thereof;

“Registrar” means the person appointed under Section 32 to maintain, administer and make entry into the Carbon Credit Units Register;

“scheduled economic sector” means those economic sectors stipulated in the First Schedule;

“State” means the State of Sarawak;

“storage sites” shall have the same meaning assigned to it under the Carbon Storage Rules and includes any pipeline or terminal for the conveyance of greenhouse gases for storage or sequestration at the storage site; and

“usage” in reference to carbon dioxide means the processing or conversion of carbon to other products for industrial or other uses.

(2) In this Ordinance, any reference to—

(a) “carbon emission threshold” means the level of carbon emissions determined by the Majlis Mesyuarat Kerajaan Negeri upon recommendation of the Board for the purpose of sections 8(1) and 24 and published by notification in the *Gazette*;

(b) “registered business entity” means any corporation, company, firm, partnership, plant, factory, or premises registered under section 5 and belonging to any of the economic sector in the First Schedule and includes any person who is the owner or operator thereof; and

(c) “prescribed form” means a form prescribed by Rules made under section 57.

**Application**

- 3.—(1) This Ordinance shall apply to:
- (a) the scheduled economic sectors specified in the First Schedule;
  - (b) the activity of voluntary reduction or abatement, capture and storage of greenhouse gas towards Emissions Reductions of such gases into the atmosphere by any process carried out in any facility on land whether onshore or offshore of Sarawak;
  - (c) the activity of promoting and regulating the energy transition toward green, renewable energy and adaptation of low carbon solutions; and
  - (d) the issuance of Carbon Credit Units for any activity or project to capture and store greenhouse gases undertaken in accordance with the State law in Sarawak and the registration, trading, retirement and cancellation of such Carbon Credit Units.
- (2) The compliance with this Ordinance shall not relieve any person or economic sector from compliance or observance of any other laws relating to environmental quality or climate change which are in force in Sarawak.
- (3) This Ordinance shall be read together with the Land (Carbon Storage) Rules, 2022 [*Swk. L.N.349/2022*] and the Forests (Forest Carbon Activity) Rules, 2022 [*Swk. L.N. 350/2022*] in so far as these latter Rules are applicable.

**PART II****REDUCTION OF EMISSION OF GREENHOUSE GASES****Power of Minister to formulate policies, etc.**

4. The Minister, with the approval of Majlis Mesyuarat Kerajaan Negeri, shall be responsible for developing and formulating policies and strategies for:
- (a) reduction or abatement of greenhouse gas emission in the State from activities or projects related to the use or occupation of land, forests and in waters within the territory of the State;
  - (b) mitigating the effects of climate change in the State;

(c) decarbonization and transition towards a low carbon solutions in the State towards attaining net zero carbon emissions;

(d) the provision of incentives or other rewards and the issuance of Carbon Credit Units for activities or projects undertaken in accordance with this Ordinance or other State law for the capture and the storage of greenhouse gases; and

(e) promotion of energy saving through the production and use of solar power and measures to be taken to improve or attain high energy performance rating for non-domestic buildings or dwellings.

### **Registration of persons and business entities undertaking activities in the scheduled economic sectors**

5.—(1) All persons or business entities undertaking any of the activities in the scheduled economic sectors, shall within ninety days of the coming into force of this Ordinance register with the Controller in the prescribed form.

(2) A Register of all persons and business entities registered under subsection (1) shall be maintained at the principal office of the Board and the Register may be inspected by any person upon payment of administrative charges as may be determined by the Board.

(3) Where any person or business entity fails or neglects to register with the Controller pursuant to subsection (1), he shall be guilty of an offence and upon conviction, be liable to a fine not exceeding fifty thousand ringgit or imprisonment not exceeding one year or, to both.

### **Submission of Carbon Emission Report**

6.—(1) Any person undertaking any of the economic activities on land, water and forest areas in the State which belong to any of the scheduled economic sectors shall, within ninety days from the date of the registration under section 5, submit to the Controller, a report on the carbon equivalent emission level resulting from the economic activities undertaken by him (referred to in this section as a “carbon emission report”).

(2) A carbon emission report shall comply with the accounting and reporting standards in the latest edition of the Greenhouse Gas Protocol

published by the World Business Council for Sustainable Development and World Resources Institute or any other accounting and reporting standards as may be approved by the Controller and comply with the Scope of reporting of GHG emission level to be determined by the Board in accordance with rules made under section 57 and without prejudice to the foregoing shall contain the following:

(a) Greenhouse Gas emission level based on the Scope determined by the Board, as at the date of the report;

(b) application or adaptation of low carbon solutions to reduce emission level to the carbon emission threshold stipulated pursuant to section 8;

(c) if GHG has been captured and stored, the volume of GHG captured and stored; and

(d) any other relevant information, data or document which the Controller deems necessary.

(3) The Controller may require a carbon emission report required under this section to be verified by an accredited external auditor.

(4) Any person who fails or neglects to submit a carbon emission report required under this section or a report which contains any information or particulars which is false shall be guilty of an offence and upon conviction, shall be liable to a fine not exceeding fifty thousand ringgit or imprisonment not exceeding one year, or to both.

### **Reporting Period**

7. —(1) The reporting period for the first carbon emission report required under section 6, shall be submitted within the period stipulated therein but may be extended by the Controller in writing (hereinafter referred to as “the first reporting period”).

(2) The subsequent carbon emission reports shall be for the period of each calendar year ending 31<sup>st</sup> of December after the first reporting period.

(3) The subsequent carbon emission reports under subsection 2 shall be submitted to the Controller on or before the 28<sup>th</sup> of February of each year or within such extended period as the Controller may approve in writing.

(4) Any person or registered business entity who fails or neglects to comply with the requirements of subsection (1) or (2) shall be guilty of an offence and upon conviction shall be liable to a fine of up to fifty thousand ringgit or imprisonment of up to one year or, to both.

### **Regulating and controlling greenhouse gas emissions**

**8.**—(1) Where the carbon emission report submitted under section 7 shows that the carbon emission level of that registered business entity has exceeded the carbon emission threshold as determined by Majlis Mesyuarat Kerajaan Negeri by notification published in the *Gazette*, the Controller may: -

(a) direct the registered business entity to submit to him, for his approval, a plan, verified by an accredited external auditor for reduction or abatement of carbon emission to the said threshold level within a period specified in the direction; and

(b) in the event the plan is approved by the Controller with such terms and conditions, as he may impose but when implemented, fails to reduce the GHG emission level to the said threshold, the registered business entity shall be required to capture and store the greenhouse gases in accordance with this Ordinance or any other written law relating to capture and storage of greenhouse gases in the State.

(2) In the event that the registered business entity is unable or unwilling to reduce the GHG emission level to the threshold referred to in subsection (1), he shall be liable to payment of carbon levy imposed under section 24.

### **Voluntary Reduction or Abatement or Capture of Greenhouse Gas**

**9.**—(1) Any facility, which is not listed in the scheduled economic sector in the First Schedule but whose process or activity results in carbon emission, may take measures to mitigate, reduce, abate or capture and store the greenhouse gas to reduce carbon emission for the purpose of applying for issuance of Carbon Credit Units under this Ordinance.

(2) Before the commencement of the process of mitigation, reduction, abatement or carbon capture and storage, the owner or the operator of the facility shall notify the Board by submitting to the Board in a prescribed form specifying the following:

(a) the precise nature of the process generating the greenhouse gas;

(b) the volume of greenhouse gas or CO<sub>2</sub> intended to be reduced, abated, or captured and stored;

(c) details of the particulars of the method or processes deployed for the reduction and abatement of carbon emission including the utilization of such greenhouse gases for any other purpose or application;

(d) if carbon capture and storage is to be undertaken, the storage site wherein the captured CO<sub>2</sub> will be stored together with a copy of the licence or storage permit issued under the Carbon Storage Rules;

(e) the mode of conveyance of the captured CO<sub>2</sub> to the storage site; and

(f) such other particulars on Emissions Reductions as the Controller may require.

(3) Commencement of the process of greenhouse gas reduction, abatement, and capture and storage of greenhouse gases shall not take place until the prescribed form in subsection (2) is submitted to the Controller.

(4) The facility which reduces, abates, and captures greenhouse gas shall notify the Controller in writing on the use of the captured greenhouse gas for any purpose or application and shall submit an annual report, not later than the 28<sup>th</sup> February of every calendar year, to the Controller on the volume of captured greenhouse gas used for the said purpose and the description, quantity and value of the products derived from the use or application of the captured greenhouse gas during the previous year ending 31<sup>st</sup> December.

(5) The Controller may require any report required to be submitted under this section to be verified by an accredited external auditor.

(6) In the event that any registered business entity intends to be issued with Carbon Credit Units for activities or projects undertaken under this section to reduce, abate or capture and store greenhouse gases, the information or data contained in any report submitted under



this section for the issuance of Carbon Credit Units shall also be verified by any Carbon Standard Administrator.

**Restriction on flaring and venting of Petroleum or Greenhouse Gases**

**10.** —(1) No person shall flare and vent petroleum or greenhouse gases in any part of the State, whether onshore or offshore, without the consent by the Controller in writing in accordance with the rules made under section 57.

(2) Where the Controller is satisfied that there has been non compliance with subsection (1), he shall immediately issue a Stop Order to the person flaring and venting the petroleum or greenhouse gases to direct him to forthwith cease the flaring and venting thereof.

(3) If the person to whom the Order made under subsection (1) fails, neglects or refuse to comply with the Order:

(a) the Controller or any person duly authorized by him may enter any land, premises or facility where flaring or venting of petroleum or greenhouse gases takes place and take such measures, as may be necessary, to stop or discontinue the flaring or venting of petroleum or Greenhouse gases; or

(b) apply to the High Court for an Order directing the person to cease forthwith the flaring or venting of petroleum or greenhouse gases and to pay a financial penalty of not less than five hundred thousand ringgit.

(4) Any person who fails, neglects or refuse to comply with an Order made by the Court under subsection 3(b) shall be guilty of contempt of Court and the Controller may apply to the Court, in accordance with procedures laid down by the Rules of Court, for an Order of committal against any person who does not comply with the said Order.

PART III  
CARBON CREDIT UNITS

**Activities or projects approved for issuance of Carbon Credit Units**

**11.—(1)** For the purposes of this Ordinance, and subject to subsection (2), any person undertaking the following activities or projects in the State shall be entitled for Carbon Credit Units:

- (a) carbon capture and use of the captured CO<sub>2</sub> for other applications or in the making of other products;
- (b) permanent storage of CO<sub>2</sub> at storage sites approved under the Carbon Storage Rules;
- (c) the direct capture or removal of CO<sub>2</sub> from the atmosphere in accordance with the rules made hereunder;
- (d) forests carbon activities under the Forests (Forest Carbon Activity) Rules, 2022 [*Swk. L.N. 350/2022*]; and
- (e) projects reducing energy consumption or using low carbon solutions including solar or wind energy and measures to be adopted to reduce electricity consumption and improve energy performance ratings in non-domestic buildings or dwellings, to reduce or abate carbon emission.

(2) The undertaking of all such activities and projects shall comply with applicable Carbon Standard Rules and carbon reduction emissions levels verified under Voluntary Carbon Markets (VCM) standards or by other Carbon Standard Administrator.

(3) For the purpose of this Part, the Carbon Standard Administrator shall be an international organisation for certification and verification of verified carbon standards and the issuance and registration of Carbon Credit Units appointed by the Board by notification in the *Gazette*.

**Application for entitlement to the Carbon Credit Units**

**12.—(1)** Application for issuance of Carbon Credit Units for undertaking activities or projects for reduction or abatement of carbon emission in the State shall be made to a Carbon Standard Administrator.

(2) The Carbon Standard Administrator, upon being satisfied that the entitlement to the Carbon Credit Units has been verified and confirmed based on the submission in subsection (1), shall determine, in accordance with section 13, the number of Carbon Credit Units to be issued for the activity or project referred to in subsection (1) having regard to the applicable Carbon Standards.

(3) Such application made in subsection (1) shall be notified to the Registrar in a prescribed form, among others contain, on following:

(a) full details and description of the activity or project undertaken;

(b) volume of CO<sub>2</sub> captured and either used for other applications or the making of other products or where there are stored permanently;

(c) report of the verification undertaken by a Carbon Standard Administrator for the issuance of Carbon Credit Units; and

(d) such other details as the Registrar may require.

(4) The Carbon Standard Administrator shall notify the Registrar:

(a) the issuance of Carbon Credit Units under subsection (2) and provide him with all details of the Carbon Credit Units issued including the name of the owner of such Carbon Credit Units; and

(b) any subsequent trading, sale, transfer, cancellation, or retirement of the Carbon Credit Units issued.

(5) It shall be the duty of the person undertaking the activities or projects in the State which have been issued with Carbon Credits Units to ensure that the Carbon Standard Administrator furnish to the Registrar all the information required under subsection (4) and if so required, provide written authorization to the Carbon Standard Administrator to furnish the same to the Registrar.

(6) The Registrar upon receipt of the information referred to in subsection (4) shall make appropriate entry in the Carbon Register

relating to the issuance, sale, transfer, cancellation, and retirement of Carbon Credit Units:

Provided that the Registrar shall not register any Carbon Credit Units unless he is satisfied that the issuance thereof complied with the criteria specified by Majlis Mesyuarat Kerajaan Negeri by the rules made under section 57.

### **Crediting period**

**13.** The crediting period for the Carbon Credit Units shall be determined by the applicable Carbon Standard Rules and in accordance with guidelines issued by the Registrar relating to each activity or project.

### **Determination of the number of Carbon Credits Units**

**14.** The number of the Carbon Credit Units which a person undertaking such activity or project in the State resulting in Emissions Reductions is entitled, shall be determined in accordance with rules made under section 57.

### **Carbon Credits Plan**

**15.** Where any person who undertakes the carbon capture under this Ordinance intends to seek validation of his scheme for carbon capture and storage for the issuance of Carbon Credit Units, he shall comply with rule 49 of the Carbon Storage Rules.

### **Government's Right to Carbon Credit Units**

**16.** Without prejudice to sections 18 and 19 of this Ordinance and rule 50 of the Carbon Storage Rules, the Minister may after consultation with the Registrar determine that such number of the Carbon Credit Units, which the Government is entitled to, and such Carbon Credit Units shall not be traded or sold in any emission trading scheme or carbon markets outside Malaysia.

### **Levies on Carbon Credit Units**

**17.** Majlis Mesyuarat Kerajaan Negeri may, by Order to be published in the *Gazette*, impose such levies on any dealing of Carbon

Credit Units issued for activities or projects for reduction or abatement or capture and storage of CO<sub>2</sub> undertaken in the State.

### **Trading of Carbon Credit Units**

**18.**—(1) Carbon Credit Units may be traded in:

(a) voluntary carbon markets; or

(b) any emission trading scheme or market approved by guidelines issued by the Registrar under subsection (2),

in accordance with the applicable Carbon Standards Rules or any rules made under section 57.

(2) The Registrar, with the approval of the Minister, may issue guidelines for the trading of the Carbon Credit Units including those belonging to the Government, such guidelines shall include, but not limited to, types of market where such Carbon Credits Units be traded, sold or exchanged or be part of a Carbon Offset scheme allowed under an applicable Carbon Standard Rules.

### **Sale and other dealings of Carbon Credit Units**

**19.** —(1) Sale of Carbon Credit Units issued for activities or projects in the State shall be carried out in accordance with the applicable Carbon Standards Rules, and such sale shall be reported electronically to the Registrar by the submission of a prescribed form and shall be subject to subsection (2).

(2) The sale of such Carbon Credit Units shall be subject to payment of carbon levy as provided under section 24.

### **Retirement of Carbon Credit Units**

**20.** —(1) A Carbon Credit Units may be retired, in accordance with the applicable Carbon Standard Rules, when a carbon storage site to which the Carbon Credit Units relates to, is closed under the Carbon Storage Rules.

(2) The retirement of a Carbon Credit Units occurs when the Unit is sold or purchased and taken out of circulation forever, never to be

traded and exchanged or has been used for the payment of carbon levy as provided under section 24.

(3) Where a Carbon Credit Units has been offset or has been claimed against the amount of greenhouse gas emission from a business facility, plant or premises, it shall be retired and taken out of circulation to ensure that it is not claimed twice.

(4) Where there has been any retirement of Carbon Credit Units, the Carbon Standard Administrator with whom the Carbon Credit Units are registered and the person who immediately prior to such retirement who is the owner of the Carbon Credit Units, shall report the same electronically in a prescribed form, to the Registrar who shall then make an appropriate entry in the Carbon Register.

#### **Issuance of Carbon Credit Units**

**21.**—(1) Notwithstanding any other provisions in this Ordinance, prior to the issuance of any Carbon Credit Units for activities or projects undertaken in the State towards reduction or abatement of emission of greenhouse gases, the validation and verification of such activities or projects shall be carried out in accordance with this Ordinance or Carbon Standard Rules by Carbon Standard Administrator and the criteria for the issuance of such Carbon Credit Units as stipulated by rules made under section 57 shall be satisfied.

(2) All costs and expenses for the validation and verification of the activities or projects for the issuing of Carbon Credit Units shall be borne by the party seeking issuance of Carbon Credit Units.

#### **Crediting of Carbon Credit Units**

**22.**—(1) Any registered business entity may apply to the Registrar to open an account in the Carbon Register to which the number of Carbon Credit Units lawfully belonging to that entity, may be entered.

(2) Subject to the conditions of this Ordinance, Carbon Credit Units entered in such account may be used for payment or settlement of the carbon levy imposed under section 24.

### **Carbon Price**

**23.** The price of the Carbon Credit Units issued pursuant to this Part shall be determined by the Majlis Mesyuarat Kerajaan Negeri in accordance with the rules made under section 57.

## **PART IV**

### **LEVIES AND PENALTIES**

#### **Carbon levy**

**24.—(1)** Where the carbon emission at a facility of any registered business entity, as recorded in the carbon emission report submitted to the Controller under section 6, exceeds the carbon emission threshold determined by the Majlis Mesyuarat Kerajaan Negeri under section 8, and the registered business entity is unable or unwilling to mitigate, abate or reduce the carbon emission level to the said threshold, there shall be imposed on that registered business entity a penalty in the nature of a carbon levy.

(2) The amount of the carbon levy imposed under subsection (1) shall be assessed based on the formula of  $A \times B$  where –

(a) A is the carbon dioxide equivalent of the total amount of greenhouse gas emission recorded in the carbon emission report referred to in subsection (1), rounded up to the nearest metric tonne; and

(b) B is the carbon levy rate as determined by Majlis Mesyuarat Kerajaan Negeri by notification in the *Gazette*.

(3) The carbon levy charged under subsection (1) accrues as a liability of the registered business entity at the end of the reporting period for which the carbon levy is assessed and shall be paid in accordance with this Part.

(4) Notwithstanding anything under this section, the registered business entity who has been given approval by the Controller for his plan submitted under section 8(1)(b) shall not be imposed levy under this section during the period stipulated in the plan for reduction of carbon emission:

Provided that the registered business entity shall, at all times, comply with all the conditions and requirements of the said approved plan.

#### **Assessment of carbon levy**

**25.**—(1) Upon receipt of the submission of an emission report for any reporting period, the Controller shall, within thirty days of receipt thereof in accordance with the rules made under section 57, assess:

(a) the amount of the carbon levy to be paid by the registered business entity; and

(b) the number of Carbon Credit Units that the registered business entity shall surrender for the payment of the carbon levy or any part thereof.

(2) On completion of the assessment under subsection (1), the Controller shall issue to the registered business entity a notice of assessment.

#### **Appeal against assessment**

**26.**—(1) Any person who is aggrieved with an assessment made under section 25 may, within twenty-one days of receipt of the notice of assessment, appeal against the assessment to a Tribunal constituted by the rules made under section 57 and the procedure, hearing and disposal of such appeal shall be in accordance with the said rules.

(2) Notwithstanding any appeal lodged under subsection (1) the amount of carbon levy stipulated in the notice of assessment issued under subsection 25(2) shall be paid on due date, but if the assessment is cancelled, varied or reduced, the amount of the carbon levy or such amount that had been varied or reduced shall be refunded to the aggrieved party.

#### **Remission and relief**

**27.** The Minister may, with the approval of Majlis Mesyuarat Kerajaan Negeri, subject to the rules made under section 57, grant any



relief or remission of the carbon levy or financial penalty imposed thereon under such terms and conditions as he may impose.

**Payment of Carbon levy and financial penalty**

**28.**—(1) The carbon levy for a reporting period shall be paid within thirty days from date of receipt of the notice of assessment issued under section 25(2) or within such extended period as the Controller may approve in writing.

(2) The payment of carbon levy under subsection (1) may be made by:

(a) the retirement of Carbon Credit Units in the Carbon Register account of the registered business entity at such portion of the total carbon levy and financial penalty, as may be determined by Majlis Mesyuarat Kerajaan Negeri by notification in the *Gazette* ; or

(b) such form or manner as the Controller may direct in writing, in full or any part thereof, if at the time when payment of the levy is due, there is either insufficient Carbon Credit Units in the Carbon Register account, to pay the carbon levy or if the Carbon Register account had been closed or suspended.

(3) The number of Carbon Credit Units that shall be surrendered for retirement under subsection 2(a) is the number assessed by the Controller to have a total carbon price equal to the amount of the carbon levy assessed, rounded up to the nearest Carbon Credit Units.

(4) Notice of surrender of any Carbon Credit Units shall be given in a prescribed form to the Registrar by the person who has the Carbon Register account for the Carbon Credit Units surrendered.

(5) Upon receipt of the Notice of Surrender, the Registrar shall record the Carbon Credit Units in the Carbon Register as retired and notify any other Registry where the Carbon Credit Units may also be registered as retired, and the registered business entity is treated as having paid the carbon levy assessed against that business entity to the extent of the total carbon price of the carbon credited so surrendered.

(6) If the registered business entity shall fail or neglect to make full payment of the carbon levy within the period stipulated under subsection (1):

(a) a financial penalty of eight per centum or, such other amount as may be determined by Majlis Mesyuarat Kerajaan Negeri by notification in the *Gazette*, of the amount of carbon levy assessed and remaining unpaid shall be imposed;

(b) the Controller shall serve written notice of demand on that registered business entity to pay the carbon levy and financial penalty within thirty days from the date of demand; or

(c) any carbon levy assessed, and financial penalty imposed, if not paid, after the period stipulated in paragraph (b), may be recovered from the registered business entity as a civil debt due to the Government who may sue for such carbon levy, financial penalty, and costs, on full indemnity basis, incurred for legal proceedings instituted for the recovery thereof.

#### **Cancellation and removal of Carbon Credit Units**

29.—(1) Where—

(a) a registered business entity has failed to make full payment of any carbon levy under section 28 (2) or (3) then without prejudice to the recovery thereof under section 28(6)(c); and

(b) that registered business entity has Carbon Credit Units in its Carbon Register account;

the Registrar, may upon the request of the Controller, supported by a certificate that the carbon levy and financial penalty had not been paid by the registered business entity, cancel the Carbon Credit Units and remove it from the Carbon Register account, and the registered business entity is treated as having paid the carbon levy or the financial penalty imposed or both to the extent of the price of Carbon Credit Units so cancelled and removed:

Provided the amount of carbon price of Carbon Credit Units cancelled shall not exceed an amount of twenty per cent of the Carbon levy and financial penalty as stated in the certificate, which shall be conclusive

evidence of the balance outstanding and may be recovered by the Government as a civil debt.

(2) Where any Carbon Credit Units in a Carbon Register account for a registered business has been obtained by fraud or other unlawful means, the Registrar may cancel and remove it from that Carbon Register account.

(3) Any registered business entity that has any Carbon Credit Units cancelled or removed under subsection (1)—

(a) is not treated as having paid any carbon levy or financial penalty in relation to the registered business entity to which the registry account relates, to the extent of the carbon price of the Carbon Credit Units so cancelled and removed; and

(b) is not entitled to any refund on the Carbon Credit Units.

(4) The Registrar shall issue notice to the registered business entity to show cause why the Carbon Credit Units stated in the notice should not be cancelled and removed prior to cancelling and removing Carbon Credit Units under this section;

(5) Upon cancellation and removal of Carbon Credit Units under this section, the Registrar shall make appropriate entry in the Carbon Register of such cancellation and removal and notify electronically any other Register in which the Carbon Credit Units is registered.

### **Refund of Carbon levy**

**30.** No registered business entity is entitled to any refund of any Carbon levy paid under this Part save and except in accordance with section 26.

### **Payment into the State Consolidated Fund**

**31.—**(1) All moneys collected from carbon levy and financial penalty shall be paid into the State Consolidated Fund.

(2) The Dewan Undangan Negeri may appropriate any amount from the State Consolidated Fund to be paid into the Climate Change Fund during any financial year to meet the objective of that Fund.

## PART V

## REGISTRAR FOR CARBON CREDIT UNITS IN SARAWAK

**Appointment of Registrar**

**32.**—(1) The Minister shall appoint any public officer to be the Registrar for the Carbon Credits Register established under section 34.

(2) The appointment may be for such period and on such terms as to remuneration and other privileges, as the Minister may determine, and the person may be eligible for re-appointment.

**Duties and roles of the Registrar**

**33.** The Registrar shall:

(a) have custody and control of the Carbon Register of the Carbon Credit Units issued for activities and projects in the State;

(b) enter into the Register of all Carbon Credit Units issued under this Ordinance or under the Forests (Forest Carbon Activity) Rules, 2022 [*Swk. L.N. 350/2022*];

(c) register all transactions relating to the Carbon Credit Units including sales, retirement, and cancellation thereof including any Carbon Credit Units in a Register account used for payment of carbon levy;

(d) ensure no double counting of the Carbon Credit Units;

(e) to record in the Carbon Register all information and data contained in the Register kept under Rule 27 of the Forests (Forest Carbon Activity) Rules, 2022 [*Swk. L.N. 350/2022*];

(f) record all activities and projects from which the Carbon Credit Units has been issued;

(g) maintain Register accounts for Carbon Credit Units of registered business entities including records of retirement, cancellation and removal of Carbon Credit Units therefrom;

(h) ensure accuracy, consistency and transparency of reporting for issuance of Carbon Credit Units;

(i) communicate with Carbon Standard Administrators on all matters pertaining to the Carbon Credit Units issued for activities or projects in Sarawak; and

(j) prepare and submit to the Minister, for information of Majlis Mesyuarat Kerajaan Negeri at the end of every calendar year, the number of Carbon Credit Units verified, issued, sold, or retired and any other matters connected with the Carbon Credit Units issued for activities or projects in Sarawak.

### **Carbon Credit Units Register**

**34.**—(1) The Registrar shall keep and maintain an electronic Register at the Ministry having responsibility for environment sustainability, a Carbon Register, to register and keep record of all Carbon Credit Units issued for activities or projects undertaken in Sarawak in accordance with this Ordinance and any other written law.

(2) The Carbon Register shall be in the prescribed form by rules made under section 57.

(3) All entries shall be made electronically by the Registrar, or any person authorized by him.

(4) Notwithstanding subsection (3), the Carbon Register can be kept in any other form for reference and record purposes but the electronic Carbon Register shall prevail upon any inconsistency.

### **Relationship with other Registers for Emission Trading Systems and other markets**

**35.** The Registrar shall ensure that all information, data, and records in the Carbon Register is updated from time to time and transmitted electronically or notified to other relevant Carbon Registries established under the applicable Carbon Standard Rules for issuance and trading of the Carbon Credit Units.

### **Submissions of returns to Federal Government**

**36.** The Registrar shall submit all data and other information of Emissions Reductions levels and targets in the State, Carbon Capture and Carbon Storage, Carbon Credit Units, and other relevant information to the Federal Government for the purposes of inclusion and reporting Malaysia's Nationally Determined Contribution to the

UNFCCC, and ensure that corresponding adjustment for the State are included by the Government of Malaysia in the Nationally Determined Contribution in accordance with the Paris Agreement.

#### **Authority to issue guidelines by Registrar**

**37.** The Registrar, in consultation with the Minister, may issue such guidelines as he deems fit and necessary to facilitate the application or implementation of Parts III and IV of this Ordinance and the rules made under section 57.

### **PART VI**

#### **OFFENCE AND PENALTIES**

##### **Offence committed by a body corporate**

**38.** Where a person charged with an offence under this Ordinance, or the rules made under section 57, is a body corporate, every person who, at the time of the commission of such offence, is a Board member, director, Chief Executive Officer, General Manager, Manager or officer of that body corporate may be charged jointly in the same proceedings with the body corporate, and where the body corporate is convicted of the offence charged, every such Board member, director, Chief Executive Officer, General Manager, Manager or officer shall be deemed to be guilty of the offence.

##### **Offence committed by partner, servant or agent**

**39.** Any person who would have been liable to any penalty for anything done or committed if the thing had been done or committed by him personally shall be punished with the same penalty if the thing has been done or committed by his partner, agent or servant.

##### **General Penalty**

**40.** Any person who fails to comply with any of the provisions of this Ordinance, rules made under section 57 or Order issued under this Ordinance shall be guilty of an offence and shall be penalized with a fine not exceeding one hundred thousand ringgit or imprisonment for a term not exceeding five years, or to both.

### **False information**

**41.** Any person who makes a statement which he knows to be false or does not believe to be true, or otherwise knowingly misleads the Controller or any other person in the exercise of his powers under this Ordinance commits an offence and upon conviction be liable to a fine not exceeding thirty thousand ringgit or imprisonment not exceeding one year, or to both.

### **Power to investigate an offence**

**42.—**(1) The Controller or any authorized officer or any police officer not below the rank of Inspector or any police officer in charge of a police station (referred to in this section collectively as an “investigating officer”) may carry out investigation into any offence, and in carrying out such investigation, the investigating officer may exercise all or any of the special powers in relation to police investigation provided in the Criminal Procedure Code [*Act 593*].

(2) Any investigating officer may in writing require the attendance before himself of a person who appears to be acquainted with the facts and circumstances of the case or is suspected of being concerned with the offence under investigation.

(3) If the person who is so required to attend fails to comply therewith, the investigating officer may report such failure to a Magistrate who will issue a warrant to secure the attendance of that person.

(4) An authorized person or any Investigating Officer referred to in subsection (1) shall be issued with an authority card to be signed by the Controller.

(5) Whenever such investigating officer exercises any of the powers under this Ordinance, he shall, on demand, produce to the person against whom the power is being exercised the authority card issued to him under subsection (4).

### **Examination of persons acquainted with case**

**43.—**(1) An investigating officer making an investigation under this Part may examine orally any person who may be acquainted with the facts and circumstances of the case.

(2) Such person shall be legally bound to answer all questions put to him by the investigating officer, but the person may refuse to answer any question the answer to which would have a tendency to expose him to a criminal charge or penalty or forfeiture.

(3) A person making a statement under this section shall be legally bound to state the truth whether or not the statement is made wholly or partly in answer to any question.

(4) The investigating officer shall first inform that person of the requirements of subsections (2) and (3).

(5) A statement made by a person under this section shall, whenever possible, be reduced to writing and signed by the person making it or affixed with his thumb print, as the case may be, after it has been read to him in the language in which he made it and after he has been given an opportunity to make any correction he may wish.

#### **Power of Arrest**

**44.**—(1) Any offence under this Ordinance and the rules made under section 57 shall be a seizable offence within the meaning of the Criminal Procedure Code [*Act 593*].

(2) Any officer authorized by the Controller, or any police officer may, without warrant, arrest any person reasonably suspected of having been concerned in any such seizable offence or if the person refuses to give his name and residence, or gives a name and residence which such officer has reason to believe is false, or that he will abscond.

(3) Every officer making an arrest under this section shall, without unnecessary delay, take or send the person arrested to the officer in charge of the nearest police station.

(4) Where the person arrested under this section is required, for the purposes of investigation, to be detained for more than twenty-four hours, section 47 shall apply.

#### **Power to release on personal bond**

**45.**—(1) Any person arrested under this Ordinance or the rules made under section 57, unless remanded, may be released on a personal bond with or without surety by the Controller or any investigating officer.



(2) The amount of every personal bond executed shall be fixed with due regard to the circumstances of the case as being sufficient to secure the attendance of the person arrested when so required.

### **Search and Seizure**

**46.** If it appears to an authorized officer or a police officer that there is reasonable cause to believe that in any building or place or on any land there is concealed or deposited any document or relevant materials in respect of which an offence is being or has been committed, the documents or relevant materials is likely to be removed, he may exercise, upon, and in respect of the building, place or land, all the powers available to him under any written law in full and ample manner as if he were authorized to do so by a warrant under such written law.

### **Where investigation cannot be completed within 24 hours**

**47.—**(1) Whenever any person who is arrested under section 44 or whose attendance is secured by a warrant under section 42(3) in connection with an offence under this Ordinance or the rules made under section 57, and the investigation cannot be completed within the period of twenty-four hours and there are reasonable grounds for believing that the accusation or information against him is well-founded, the investigating officer investigating the case under section 42 may deliver him to the nearest police station to be released on a bond or police bail or to be detained thereat pending arrangement to produce the person before a court of competent jurisdiction.

(2) Where a person is brought before a Court under subsection (1), the investigating officer shall comply with section 117(1) of the Criminal Procedure Code [*Act 593*] and the Court shall have the powers over that person as are provided in section 117(2) of that Code.

### **Diary of proceedings in investigations**

**48.—**(1) Every investigating officer making an investigation shall day by day enter in his investigation diary setting forth—

- (a) the time at which the instruction, if any, for investigation reached him;
- (b) the time at which he began and closed the investigation;

- (c) the place or places visited by him; and
- (d) a statement of the circumstances ascertained through his investigation.

(2) Notwithstanding anything contained in the Evidence Act 1950 [Act 56], an accused person shall not be entitled, either before or in the course of any inquiry or trial, to call for or inspect any such diary:

Provided that if the investigating officer who has made the investigation refers to the diary for the purposes of section 159 or 160 of the Evidence Act 1950 [Act 56], such entries only as the officer has referred to shall be shown to the accused, and the Court shall at the request of the officer cause any other entries to be concealed from view or obliterated.

#### **Power to Compound**

**49.**—(1) The Controller or any officer authorized by the him by notification in the *Gazette* (“referred to as an “authorized officer”), may, with the consent in writing of the Public Prosecutor or any person appointed by him under section 376(3) of the Criminal Procedure Code [Act 593], accept from any person who has committed an offence under this Ordinance or the rules made under section 57, a sum not exceeding one half of the maximum amount of the fine provided for the offence has been committed.

(2) All sums of money received under this section shall be credited to the State Consolidated Fund.

(3) Any power vested in an authorized officer by notification under subsection (1) may, at any time, be withdrawn by the Controller, by notification in the *Gazette*.

#### **Power to Conduct Prosecution**

**50.** Prosecution of any offence under this Ordinance or any rules made under section 57 may be conducted by the Public Prosecutor or any person authorized by him under section 377(b) of the Criminal Procedure Code [Act 593].

PART VII  
MISCELLANEOUS

**Civil liability**

**51.** The prosecution of any person for an offence under this Ordinance is not a bar to any claim or action by the Government, or the Board for the recovery of any loss, damage or injury caused by that person or for which he may be vicariously liable.

**Fees, levy, etc.**

**52.—(1)** The Majlis Mesyuarat Kerajaan Negeri shall determine the amount of fees, dues, levies or financial penalties to be imposed in respect of any matter regarding which fees, dues, levy or financial penalty is to be paid.

(2) All fees, dues, levies or financial penalties collected or received under these sections shall be paid to the State Consolidated Fund.

(3) Save as provided in subsection (1), the Board may impose any charge, as it deems fit, for the better administration of this Ordinance.

**Exercise of Power by the Controller**

**53.** Where under this Ordinance or any rules made under section 57, the power is vested in the Controller to give consent, authorization or grant any permit, he shall give effect to any direction given to him by the Minister, which is not inconsistent with this Ordinance or such rules.

**Service of Documents**

**54.** Part V of the Electronic Sarawak Government Activities Ordinance, 2022 [*Cap. 82*] shall apply to the service or communication of any document, including notice and notification, required to be served or communicated under this Ordinance or any rules made under section 57.

### **Amendment of Schedules**

**55.** Majlis Mesyuarat Kerajaan Negeri may, by Order published in the *Gazette* amend any of the Schedules in this Ordinance.

### **Advisory Panel**

**56.—**(1) Majlis Mesyuarat Kerajaan Negeri may appoint an Advisory Panel comprising of persons with relevant knowledge, expertise and experience to advise the Government on matters relating to Climate Change, Carbon Capture, Utilisation and Storage, Carbon Credit Units, pricing and carbon levy.

(2) The functions, duties and the procedures of the Advisory Panel and incidental matters related to it may be determined by the rules made under section 57.

### **Rules**

**57.—**(1) Majlis Mesyuarat Kerajaan Negeri may make rules generally for carrying out the provisions of this Ordinance and, in particular, those rules may provide for—

(a) submission of carbon emission reports to the Controller and the reporting standards and requirement to be adopted;

(b) qualifications and registration of accredited external auditors;

(c) assessment of carbon levy and appeals against such assessment;

(d) the establishment of a Tribunal to hear appeals against assessment and its procedures;

(e) rectification of carbon register and carbon register accounts of a registered business entity belonging to the scheduled economic sector;

(f) the direct capture or removal of greenhouse gases from the atmosphere and matters incidental thereto;

(g) voluntary capture of greenhouse gases by any plant, facility or premises not belonging a scheduled economic sector;

(h) determination of carbon price for Carbon Credit Units issued under this Ordinance and the amounts of Carbon Credit Units that can be used for offset;

(i) regulating the registration, sale, transfer, retirement, cancellation and removal of Carbon Credit Units issued under this Ordinance;

(j) setting carbon emission thresholds for the purposes of this Ordinance;

(k) the energy performance of specific type of facilities and energy performance ratings for such facilities and matters incidental thereto;

(l) the monitoring of carbon emission threshold or level at any registered business entity;

(m) the relief, remission or refund of carbon levy and financial penalty;

(n) the criteria for acceptance or eligibility of Carbon Credit Units for registration in the Carbon Register of Carbon Credit Units;

(o) the regulating the flaring and venting of petroleum or greenhouse gases;

(p) the prescribing of fees, dues, levies, or financial penalties imposed under this Ordinance;

(q) the prescribing of any form in respect of any matter to be carried out under this Ordinance; and

(r) any thing which requires to be prescribed or provided for as may be necessary or expedient for giving full effect to the provisions of this Ordinance.

*FIRST SCHEDULE*

Economic Sectors

(Sections 3 and 9)

**A. OIL AND GAS SECTOR**

Exploration, production and processing of petroleum or gas whether onshore or offshore Sarawak and all activities related to carbon capture and storage.

**B. ENERGY SECTOR**

Generation, production and transmission of electricity.

**C. OTHER SECTORS**

Such other economic sectors as Majlis Mesyuarat Kerajaan Negeri may determine by notification published in the *Gazette*.

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*SECOND SCHEDULE*

Greenhouse Gases and Global Warming Potential

No	Greenhouse Gas	Chemical formula of greenhouse gas	*Global Warming Potential (100-year) <sup>1</sup>
1	Carbon dioxide	CO <sub>2</sub>	1
2	Nitrous oxide	N <sub>2</sub> O	273
3	Methane	CH <sub>4</sub>	27.9
4	Sulphur hexafluoride	SF <sub>6</sub>	24,300
<i>Hydrofluorocarbons (HFCs):</i>			
5	HFC-23	CHF <sub>3</sub>	14,600
6	HFC-32	CH <sub>2</sub> F <sub>2</sub>	771
7	HFC-41	CH <sub>3</sub> F	135
8	HFC-125	CHF <sub>2</sub> CF <sub>3</sub>	3,740
9	HFC-134	CHF <sub>2</sub> CHF <sub>2</sub>	1,260
10	HFC-134a	CH <sub>2</sub> FCF <sub>3</sub>	1,530
11	HFC-143	CH <sub>2</sub> FCHF <sub>2</sub>	364
12	HFC-143a	CH <sub>3</sub> CF <sub>3</sub>	5,810
13	HFC-152	CH <sub>2</sub> FCH <sub>2</sub> F	21.5
14	HFC-152a	CH <sub>3</sub> CHF <sub>2</sub>	164
15	HFC-161	CH <sub>3</sub> CH <sub>2</sub> F	4.84
16	HFC-227ca	CF <sub>3</sub> CF <sub>2</sub> CHF <sub>2</sub>	2,980
17	HFC-227ea	CF <sub>3</sub> CHF <sub>2</sub> CF <sub>3</sub>	3,600
18	HFC-236cb	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1,350
19	HFC-236ea	CHF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	1,500
20	HFC-236fa	CF <sub>3</sub> CH <sub>2</sub> CF <sub>3</sub>	8,690
21	HFC-245ca	CH <sub>2</sub> FCF <sub>2</sub> CHF <sub>2</sub>	787
22	HFC-245cb	CF <sub>3</sub> CF <sub>2</sub> CH <sub>3</sub>	4,550
23	HFC-245ea	CHF <sub>2</sub> CHF <sub>2</sub> CHF <sub>2</sub>	255
24	HFC-245eb	CH <sub>2</sub> FCHF <sub>2</sub> CF <sub>3</sub>	325
25	HFC-245fa	CHF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	962
26	HFC-263fb	CH <sub>3</sub> CH <sub>2</sub> CF <sub>3</sub>	74.8
27	HFC-272ca	CH <sub>3</sub> CF <sub>2</sub> CH <sub>3</sub>	599
28	HFC-329p	CHF <sub>2</sub> CF <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	2,890
29	HFC-365mfc	CH <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	914
30	HFC-43-10mee	CF <sub>3</sub> CHF <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	1,600
31	HFC-1132a	CH <sub>2</sub> =CF <sub>2</sub>	0.052
32	HFC-1141	CH <sub>2</sub> =CHF	0.024
33	(Z)-HFO-1225ye	CF <sub>3</sub> CF=CHF(Z)	0.344
34	(E)-HFO-1225ye	CF <sub>3</sub> CF=CHF(E)	0.118
35	(Z)-HFO-1234ze	CF <sub>3</sub> CH=CHF(Z)	0.315
36	HFO-1234yf	CF <sub>3</sub> CF=CH <sub>2</sub>	0.501
37	(E)-HFO-1234ze	trans-CF <sub>3</sub> CH=CHF	1.37

38	(Z)-HFO-1336	$\text{CF}_3\text{CH}=\text{CHCF}_3(\text{Z})$	2.08
39	HFO-1243zf	$\text{CF}_3\text{CH}=\text{CH}_2$	0.261
40	HFO-1345zfc	$\text{C}_2\text{F}_5\text{CH}=\text{CH}_2$	0.182
41	3,3,4,4,5,5,6,6,6-Nonafluorohex-1-ene	$\text{C}_4\text{F}_9\text{CH}=\text{CH}_2$	0.204
42	3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooct-1-ene	$\text{C}_6\text{F}_{13}\text{CH}=\text{CH}_2$	0.162
43	3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10, 10-Heptafluorodec-1-ene	$\text{C}_8\text{F}_{17}\text{CH}=\text{CH}_2$	0.141
<i>Perfluorocarbons (PFCs):</i>			
44	PFC-14	$\text{CF}_4$	7,380
45	PFC-116	$\text{C}_2\text{F}_6$	12,400
46	PFC-218	$\text{C}_3\text{F}_8$	9,290
47	PFC-C-318	cyc (- $\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2$ -)	10,200
48	PFC-31-10	$\text{C}_4\text{F}_{10}$	10,000
49	PFC-41-12	n- $\text{C}_5\text{F}_{12}$	9,220
50	PFC-51-14	n- $\text{C}_6\text{F}_{14}$	8,620
51	PFC-61-16	n- $\text{C}_7\text{F}_{16}$	8,410
52	PFC-71-18	$\text{C}_8\text{F}_{18}$	8,260
53	PFC-91-18	$\text{C}_{10}\text{F}_{18}$	7,480
54	PFC-1114	$\text{CF}_2=\text{CF}_2$	0.004
55	PFC-1216	$\text{CF}_3\text{CF}=\text{CF}_2$	0.09

Note:

*\*GWP values are based on the Sixth Assessment Report of the Intergovernmental Panel on Climate Change or any updated version.*



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