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## AUSTRALIAN CONSTRUCTORS ASSOCIATION (ACA)

NATIONAL GREENHOUSE AND ENERGY REPORTING ACT 2007 (NGER ACT)

## Industry Discussion Paper Version 2.0 August 2011

Australian Constructors Association (ACA) National Greenhouse and Energy Reporting Scheme Discussion Paper

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## **1.Introduction**

The Australian Constructors Association (ACA) was formed in 1994 to advance the interests of major construction contractors.

The ACA's Mission is to make "the construction industry safer, more efficient, more competitive and better able to contribute to the development of Australia".

The Association has eighteen member companies. ACA member companies have a combined annual revenue in excess of \$AUD 40 billion and collectively employ over 86,000 people in their Australian and international operations.

The Association has established four (4) key objectives:-

- To require the highest standards of skill, integrity and responsibility of member companies.
- To represent the interests of major contractors to government and other decision makers.
- To enhance and promote the status of construction contractors and the industry which they serve.
- To facilitate the exchange of technical information and encourage further research.

ACA member companies are listed in Appendix A.

## 2.Background

The National Greenhouse and Energy Reporting Act 2007 (the NGER Act) was passed on 29 September 2007. The NGER Act introduces a single national reporting framework for the reporting and dissemination of information about greenhouse gas emissions, greenhouse gas projects and energy use and production of corporations.

The NGER Act:

- · underpins the introduction of an emissions trading scheme in the future
- informs government policy formulation and the Australian public
- helps to meet Australia's international reporting obligations, and
- assists Commonwealth, State and Territory government programs and activities to avoid the duplication
  of similar reporting requirements in the States and Territories.

The first annual reporting period began on 1 July 2008.

Corporations that meet an NGER threshold must report their:

- greenhouse gas emissions
- energy production
- energy consumption
- · other information specified under NGER legislation

On 28 January 2009, the Australian Constructors Association hosted a forum with representatives of the Department of Climate Change (now Department of Climate Change and Energy Efficiency – DCCEE) to discuss a range of NGERS reporting issues identified in an ACA workshop held in December 2008.

The ACA NGERS workshop discussed the implications and challenges for members in meeting the requirements of the NGER Act. At the conclusion of the Workshop the need for greater NGER guidance for the contracting sector was highlighted by all ACA members in attendance.

Other industry sectors are experiencing similar challenges and are in the process of creating sector specific NGER Industry View Guidelines.

Noting this, ACA members agreed to develop NGER Act 2007 Industry Discussion Paper for the construction contracting sector in consultation with the GERO.

The intention is for a NGER Act 2007 Industry Discussion Paper to assist ACA members by establishing 'agreed guidelines' on the interpretation of responsibilities under the NGER Act and maximising the collective efforts to address key areas of concern. These Guidelines will benefit the greater contracting sector including small and medium sized enterprises and provide opportunity for knowledge-sharing with other industry groups.

The NGER Regulator has begun auditing registered corporations, including ACA members. Throughout the document you will see **'Important note'** shaded and boxed. The commentary in the box highlights important issues that members need to consider particularly in regards to audits and compliance.

ACA members are now about to embark on the third year of reporting under the NGER framework. During this time, reporting across organisations within the sector has become more standardised and the legislative package has changed over time. The ACA has commissioned the professional services of Ndevr's Matt Drum to update the NGER Guidelines taking into account these developments.

Various levels of consultation have been undertaken with ACA NGER registered members and DCCEE Officers during the development of v2.0 of the ACA NGER Guidelines.

## **3.Discussion of Issues**

## **3.1.** Defining a Facility

From the NGER Supplementary Guidelines – 'Defining Facilities'

"The National Greenhouse and Energy Reporting Act 2007 (NGER Act) creates registration and reporting obligations for controlling corporations whose greenhouse gas emissions, energy consumption and energy production reach certain thresholds.

In order to determine obligations under the NGER legislation, a controlling corporation must assess whether any of its group members have operational control over any facilities that meet one or more of these reporting thresholds. Also central to determining a corporation's obligations under the NGER legislation is correctly defining the boundaries of these facilities.

Correctly identifying a facility is central to assessing obligations under the NGER Act. Applying the definition of a facility to a corporation's particular circumstances will require the examination of a number of parts of both the NGER Act and the NGER Regulations.

The definition of a facility can be found in section 9 of the NGER Act. A facility is an activity, or a series of activities (including ancillary activities) that:

**1** involve the production of greenhouse gas emissions, the production of energy or the consumption of energy; and that

 $\mathbf{2}$  form a single undertaking or enterprise and meet the requirements of the regulations; and

 $\mathbf{3}$ . are attributable to a single industry sector.

What constitutes a facility for the purposes of the NGER legislation is necessarily broad. The NGER Act and Regulations are intended to cover a number of varied and complex situations. They are designed to provide corporations with a degree of flexibility in applying the definition of a facility to their own specific circumstances. "

#### Additional Criteria Applicable to ACA Members

Subdivision 2.4.2 of the Regulations specify the circumstances in which activities form part of a single undertaking or enterprise and Subdivision 2.4.3 specifies what activities are attributable to industry sectors. In particular Regulation 2.22 (3) specifies that if the single enterprise involves construction of infrastructure for the purpose of another activity being undertaken in the future, and both the activity and future activity are under the control of one corporation, then all activities are attributable to the same industry sector as the future activity.

This provision will likely occur in limited situations, and was introduced in an attempt to help organisations more easily attribute activities to a certain industry sector (based on ANZSIC codes) where the same organisation constructs the facility and subsequently operates it. An example might be the construction of a commercial building that is owned and operated by the constructor after the practical completion date. In this instance, the construction emissions and energy may be reported under ANZSIC 671 'Property Operators'.

The Greenhouse and Energy Data Officer (GEDO) may under certain circumstances declare an activity or a series of activities to be a facility, taking into account the provisions of the Act.

#### Applying Criteria 1 in Contract Mining and Construction

Greenhouse gas emissions include direct emissions from combustion of fuel or other energy sources in the use of pumps, excavators, dozers, graders, water trucks, paving machines, generators, trucks, light vehicles, concrete batching plants, quarries etc. Other sources of greenhouse gas emissions may include fugitive emissions from coal mining, anaerobic waste decomposition in landfills or wastewater treatment facilities, and leakage of synthetic gases. These would primarily be Scope 1 emissions. Scope 2 emissions would be emissions from purchased electricity and to a much lesser extent - steam. Scope 2 emissions are applicable where the direct scope 1 emissions associated with the energy source actually occur outside the facility. The NGER

<sup>&</sup>lt;sup>1</sup> 'NGER Supplementary Guidelines *Defining Facilities* 

http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/toolsresources/~/media/publications/greenhouse-report/supplementary-guidelines-facilities-pdf.pdf

legislative framework does not apply to scope 3 emissions or embodied emissions and energy like voluntary programs such as the National Carbon Offset Standard (NCOS) and other ghg and energy reporting schemes. Energy consumed comprises fuels used as above, as well as those not combusted such as lubricating oils and greases, and fossil fuels used to manufacture materials such as asphalt and explosives. Energy production includes electricity generated on-site and any solid, gaseous or liquid fuel extracted from natural sources such as coal.

#### Applying Criteria 2 in Contract Mining and Construction

An activity or a series of activities form part of a single undertaking or enterprise if it produces one or more products or services (the primary production process) at a site. For example, the primary production process might be the construction of a highway which may involve a number of activities such as land clearing, site offices, site compounds, earthworks – excavation, grading and compaction, erosion control and drainage works, concrete paving and curing, landscaping and finishing works. The product produced is a piece of (extension to) the road network. Other ancillary production processes such as concrete batching, pre-cast yards and quarrying may occur at the same site or different sites. In cases where such an activity exists on one site but services several sites, the ancillary test should be applied and may determine that this 'activity' is a separate facility under the Act.

For the construction sector, much of the work carried out is maintaining, renewing or extending existing infrastructure. The product or service being produced by the infrastructure might be clean drinking water (for water supply and distribution networks), sanitation (for wastewater treatment and disposal networks), transportation (for road and rail networks), electricity (for transmission and distribution networks), etc. The scale of works undertaken on this infrastructure includes activities such as re-sleepering a section of railway track, construction of a desalination plant, construction of a sewage treatment plant, construction of a highway bypass, demolition and construction of a signal station, replacement of a rail junction. In many cases ACA member's works enhance the capacity of an existing asset in providing a good or service that is sold to consumers – the primary production process at each site. On this basis these works should not necessarily constitute a facility in their own right, but would be considered an ancillary activity to an existing facility. Where this occurs, operational control must then be applied to determine reporting liability – see section 3.2 of this document.

The exception to this is where a greenfields development is commissioned, for example, a new apartment building. In this case the construction phase constitutes a facility in its own right, which is handed over to the operator on completion. It is important to note and record this hand-over date, often determined by a 'practical completion date', as this is the point in time where reporting liability ceases unless r2.22 (3) –future activity-applies.

ACA members are frequently involved with works on network and pipeline facilities. As per the Regulations, Part 4, Division 4.5, Regulation 4.28 these comprise electricity transmission; electricity distribution; gas supply; water supply, sewerage and drainage services; and telecommunications services. An extension to a network, such as a power line, forms part of the electricity transmission network facility and again may not constitute a facility in its own right.

There are also many types of building related works where the client tends to retain operational control and the works would be considered ancillary activities to the existing facility. These include construction of buildings and car parks on existing defence bases, hospitals, universities and prisons. In each case works are conducted within the facility boundary and under client operating requirements that enable the facility to continue functioning during the period of works.

As described earlier the provisions under s9 of the NGER Act 2007 allow organisations some flexibility when applying the legislation to complex activities. A general rule may however apply:

- Greenfields construction projects considered a primary production process and facility in its own right;
- Brownfields construction/extension/maintenance etc. considered ancillary activities to an existing facility and reportable by the organisation with operational control of that facility.

This should not be considered definitive and the provisions should be applied on a case by case basis where activities <u>differ significantly</u> from one site to the other. Where activities are quite similar from one site to the next, and the reporter has made a considered application of legislation, it may be appropriate to apply the same

reasoning across similar sites to ease the administrative burden and improve consistency.

There may be occasion where it is unclear as to whether or not contractor activities are considered greenfields or brownfields, because of the scope and nature of the works. An example may be the commissioning of a new dam wall beyond an existing structure, or a complete renewal of an existing facility to the point it is no longer fit for its original purpose for a significant period of time. Usually, when considering the appropriate application of the s9, the question key question is: 'Should these activities be considered one facility or two (or more)'?

With this in mind, Ndevr have developed<sup>2</sup> a tool to help remove some of the subjectivity from the facility definition question. This tool, when populated can also form the basis of a corporation's justification and documentation of a particular facility definition and should be used in conjunction with these guidelines. The facility definition analysis tool can be found on the ACA website.

#### Important note:

Members should take care to understand the facility definition provisions and make reasonable efforts to apply them. It is critical to document why a particular position has been taken and reporters should apply the legislation consistently – like for like across activities. Where appropriate members should utilise the facility definition tool or develop their own in-house methods to apply and document s9 and subordinate legislation applying to the facility definition.

#### Other components of Criteria 3

There are other components of Criteria 3 that need to be considered, in particular:

- occur at a single site (regulation 2.16);
- are transport sector activities (regulation 2.19)
- are listed activities (regulation 2.17 or 2.18) that can be attributed to the activities that occur at the main site
- are electricity, gas, water, sewerage or telecommunications activities (regulation 2.20).

#### Single Site:

A construction or contract mining project may have activities on a number of geographical locations in close proximity to each other – e.g., plant yard, fuel storage, upgrades to different locations of a highway, site accommodation, quarrying etc. These activities may be reported under the NGER Act 2007 as a single facility if they are controlled by the same corporation. 'Close proximity' is again somewhat flexible and subjective, and close proximity in a remote mining region may be applied differently to an urban setting.

#### **Transport Activities:**

Most construction activities will have some level of transport of goods and persons attribute to it. This provision only applies where the primary productive process is the transport of goods and/or persons. For ACA members transport activities will usually be ancillary to the primary productive process, rather than be the primary productive process itself. Where the activities or series of activities would be considered a transport facility other provisions apply.

#### **Listed Activities**

A listed activity means an activity of one of the following kinds:

- a. Record keeping;
- b. Communication;
- c. Purchasing materials or equipment;
- d. Managing the employment, training and payment of employees;
- e. Storage (including warehousing) of materials or equipment;
- f. Transport of persons or goods of a kind not covered by regulation 2.19;

<sup>&</sup>lt;sup>2</sup> Developed in-line with the additional information provided by DCCEE under the Facility Definition Supplementary Guidelines and existing legislative provisions.

#### g. Sales promotion;

h. Cleaning and maintaining buildings and other structures;

- i. Maintenance of equipment;
- j. Security and surveillance.

For a corporation to group one or more of the listed activities with activities that occur on the main site:

- the listed activity and the other activities (the main site activities) must occur at different sites;
- all activities must occur within the same State or Territory; and
- all activities must be under the overall control of the same corporation that has overall control of the activities occurring at the main site.

Corporations can group listed activities to one facility, multiple facilities (apportion usage to each – often very difficult) or report the listed activity energy and emissions as a facility on its own.

#### Electricity, gas, water, sewerage or telecommunications activities (networks)

Certain other provisions apply under r 2.20. As mentioned earlier construction activities will often form a part of an existing network activity. Where a greenfields network is being developed, it should be reported as a construction activity unless the future use provision applies (unlikely).

#### Applying Criteria 3 in Contract Mining and Construction

The activities must be attributed to one industry sector as per the industry classification and codes listed in the Australian New Zealand Standard Industry Classification Code 2006 (ANZSIC Code). Typical ANZSIC codes applicable to facilities in this sector include, for example, 310 Heavy and Civil Engineering Construction and 080 Metal Ore Mining, although each facility must be assessed separately.

It is important that members do not use the ANZSIC code to strictly define the facility and exclude any ancillary activities that may not fall exactly in-line with the chosen ANZSIC. For example, 080 Metal Ore Mining may have some maintenance activities as ancillary. These should not be excluded because they are not strictly speaking a Metal Ore Mining activity.

### 3.1. Overall Control

The concept of overall control is used to define the facility boundary. Generally speaking, where it could be substantiated that another primary productive process is taking place, and an 'other' organisation has overall control of this process, it may be considered a different facility and reportable by the other organisation. An example may be an off-grid generator that services more than one mining client. Rather than being considered an ancillary activity to the mine site and reportable as part of the facility, if the generating company is in overall control, and the generation activity is deemed an 'other primary productive process', the generator may become a facility in its own right.

### 3.2. Operational Control

After the facility boundary has been determined, the corporation with operational control of the facility has reporting liability where thresholds are triggered.

'Operational control' is a concept used to identify which controlling corporation (or member of the controlling corporation's group) has control of the facility in question. The corporation with operational control of a facility must report on the energy consumption, energy production and greenhouse gas emissions from that facility when thresholds are triggered.

The NGER Act 2007 states that an organisation holds operational control if it has the authority to introduce and implement any or all of the following at a facility:

- Operating policies
- Health and safety policies
- Environmental policies

If more than one organization is able to satisfy this definition then the organization that has the greatest authority to introduce and implement the Operating and Environmental (not Health and Safety) policies is

taken to have operational control.

Introduction and implementation of the above 'policies' in construction and contract mining are interpreted to mean the following activities:

- Management plans, including project, environmental and health and safety;
- Purchasing, maintaining and refuelling machinery and vehicles; and
- Engagement with regulators.

The determination of operational control for a facility is not immediately clear in some cases, particularly where multiple parties have roles in introducing and implementing operating, environmental and health and safety policies as part of their own operations. Under these circumstances, the question of greatest authority becomes critical.

Operational control can sometimes be difficult to determine, an example might be with a construction corporation (A) who uses sub-contractors (B) to deliver projects to a major client (C). Who needs to report the emissions and energy from the activities, A, B or C? A tool was developed by the Department and adopted by industry to assist.

This tool adopts a balance scorecard type approach and should be applied on a case-by-case basis where operational control is uncertain and could lie with two or more corporations. The scorecard can be used to help corporations decide which facilities they need to report. A completed scorecard may also form part of a corporation's reporting methodology and can demonstrate due consideration of the legislation in regards to operational control and any resulting inclusions or exclusions in the report.

The NGER legislation provides for a self-assessment process, although certain rules and compliance and enforcement provisions are applicable.

Ann example scorecard and blank template are included in Appendix B. An electronic version of the operational control scorecard and the facility definition tool has been provided on the ACA website.

**Important note:** One of the key audit tests is to analyse how an organisation has set their reporting boundaries based on the facility definition and operational control. Reporters must have a rigorous and consistent process in place. Reporters MUST also have an up to date site database that clearly identifies all their projects at any given point, including start and end-dates (practical completion) of operational control. Where exclusions have been made, or operational control lies with a partner/alliance etc. this should also be clearly identified and substantiated.

#### Simplified Approach to Operational Control

After three years of reporting operational control has been tested and agreed on many projects across the sector. The general precedent to date suggests the industry may adopt a simplified approach to operational control in some circumstances. In many cases it appears the **Principal or Head-contractor** will assume operational control, usually the Principal contractor will:

- introduce the majority of operational policies and their staff will implement
- assume responsibility for compliance with environmental requirements, including
  - o environment protection requirements such as disposal of hazardous waste
  - pollution and contamination; and
- must remedy any residual pollution or contamination that occurs at the site assume all (or most) OH&S responsibilities on contracts above \$80,000
- introduce their own project management plans (PMPs) etc. and other systems
- assume management control of the project via the foreman, project leader etc. and imbed other corporate staff to oversee the project, including:
  - OH&S officer
  - o Environmental officer
- 'brand' the project as their won
- supply bulk fuel
- provide site sheds, offices and maintenance depots

The advantage of this approach is that it may reduce the burden of defining operational control (where it appears clear) and improve consistency of approach across the sector.

**Important note:** The simplified approach may not be appropriate in all situations. It remains important that corporations judge each individual project on its merits, and remain aware of any policies and procedures in place that may contradict the simplified approach.

Analysis of standard ISO contracts supports this position and a detailed analysis is included at Appendix C.

Subject to the above tests being applied, the following guidelines are applicable in the contract mining and construction sector. See Appendix D for example operational control scenarios relevant to building and civil engineering which build on these guidelines.

#### Simplified Approach to Operational Control and the Facility Definition -Construction and Contract Mining

Deciding reporting responsibility is a two-step, interlinked approach. First the facility definition is applied and then operational control of the facility is determined. Again based on three years of precedent, it may be possible to take a simplified approach to deciding who has reporting responsibility in certain situations.

#### Construction:

- 3.2.1. Operational control may vary depending upon the nature of some construction and refurbishment activities. Examples of this variation between projects include the following.
- 3.2.2. Integrated Refurbishment Activities e.g. Tenancy fit out. A floor-by-floor commercial office re-fit which occurs whilst the building is still occupied by the tenant. This scenario typically results in an office space being upgraded with tenants being relocated to other areas of the building whilst works are undertaken. Although the construction (Principal) contractor has 'overall control' of the activities that it undertakes within the defined 'fit out' construction works, these activities occur at facilities that remain under the 'operational control' of the tenant or building operator. The construction contractor is still however responsible for reporting any emissions from fuel use to the client for inclusion in their own reporting, should these emissions occur.
- 3.2.3. Discrete Refurbishment Activities e.g. Shopping Centre Expansion. A new wing or major extension to an existing building e.g. retail shopping centre is being undertaken. All electricity supplied to the construction site is separately metered via a temporary power supply to the site and emissions from other fuel sources accounted for by the construction (Principal) contractor. During this time the new extension under construction is treated separately from the existing shopping facility and under the operational control of the construction. The existing centre remains under the operational control of the client. Operational control of the new wing will transfer to the client upon practical completion of the construction works.
- 3.2.4. New Building Construction. A new mixed-use office and retail tower is being constructed. This involves the demolition of an existing building followed by the design and construction of a new building. In this instance the construction (Principal) contractor has operational control of the facility from the time of site possession through to practical completion of the building.

#### **Civil and other Construction:**

- 3.2.5. If a project is construction, maintenance and/or operation of roads, rail, energy, water and other civil infrastructure, operational control may reside with either the client or the principal contractor.
  - a) Projects constructed or operated under the overarching direction, approval or supervision of clients or owners in introducing and implementing operating, health and safety and environmental policies, or clients exercise greatest authority to introduce and implement operating and environmental policies. Under these circumstances, the clients or owners would be considered to have operational control.

- b) Projects where the principal contractor has the greatest authority to introduce and implement operating, health and safety and environmental policies then operational control would be considered to reside with the principal contractor.
- c) Projects where both client and principal contractor share responsibilities to introduce and implement operating, health and safety and environmental policies, then either party could take operational control. There should be a mutual agreement between the parties on who will take operational control recorded in accordance with s22 of the Act.
- d) Projects where a third party is contracted to operate and manage a facility on behalf of the client or owner, and has the authority to introduce and implement operating, health and safety and environmental policies, then the operational control rests with the third party, i.e. contractor. However, if the client/owner and the third party manager share responsibility to introduce and implement these policies, or the client or owner exercises greater authority by providing overarching direction and approval to introduce and implement these policies, then the client/ owner could take operational control

Refer to section 4.3 Operational Control for further guidance on the policies and procedures that may inform the outcome.

#### Mining

- 3.2.6. If a project is the operation and management of mining projects, operational control may reside with either the facility owner or the contract miner.
  - a) Where a third party is contracted to operate and manage a facility on behalf of the facility owner, and has the authority to introduce and implement operating, environmental and health and safety policies, then operational control would be considered to reside with the third party, i.e. the contract miner.
  - b) Where the facility owner exercises greater authority by providing overarching direction, approval or supervision in introducing and implementing operating, health and safety and environmental policies, or exercises greatest authority to introduce and implement operating and environmental policies. Under these circumstances, the facility owner would be considered to have operational control.
  - c) Where the facility owner and the third party share responsibilities to introduce and implement operating, health and safety and environmental policies, then either party could take operational control. There should be a mutual agreement between the parties on who will take operational control recorded in accordance with s22 of the Act.

#### d)

#### Joint Ventures and Alliances

- 3.2.7. Where multiple partners are involved in activities under a Joint Venture or an Alliance arrangement and Operational Control is shared due to the nature of the arrangement, the partners will nominate the reporting party for that Facility. In these cases those parties should formalise the arrangement as per the approved documentation provided by the GEDO The following issues should be considered:
  - a) A Joint Venture nomination is only required under the following circumstances:
    - the Joint Venture or Alliance is an **unincorporated** entity]
    - if it is incorporated it would usually be a controlling corporation with reporting responsibility in its own right due to (unless it has a holding company which becomes the controlling corporation)
    - Operational control cannot clearly be determined due to the nature of the arrangement. This
      often the case in Alliance partnerships where the Alliance itself includes intermingled
      employees, systems and is even branded as the Alliance
    - If any one of the above are not satisfied, reporting responsibility lies with the corporation with operational control (including a newly formed entity when incorporated)
  - b) Any Joint Venture party or Alliance member, which is not nominated as the liable reporting entity, will still be required to provide data to the nominated reporting party to enable all reporting requirements for the Facility to be fulfilled in accordance with the Act.
  - c) It is not appropriate to create companies and structures solely for the purpose of vesting the operational control to avoid greenhouse and energy reporting under the Act.

d) In some cases a particular party to a Joint Venture or Alliance will have greater authority than the other parties due to greater representation at peak decision making level, power of veto, unilateral decision making power, or otherwise as specified in the project agreement. This enhanced decision-making ability could form the basis for determining that the party with the greater authority becomes the responsible entity.

Joint Venture nomination forms, and Supplementary Guidelines can be found at: <u>http://www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/tools-resources.aspx</u>

#### Landfill

- 3.2.8. If a project is operation and management of a landfill facility either the owner or the contractor may have operational control.
  - a) If the landfill owner has greatest authority to introduce and implement operating and environmental policies and controls the weigh bridge, under these circumstances, the owner would be considered to have operational control.
  - b) In cases where the owner is a government body such as a local council the owner has currently no reporting obligations under the NGER Act as the Act is applicable only to "constitutional corporations". However the proposed Clean Energy Bill will affect all forms of business entities, Commonwealth, State and Local Government organisations included. The Clean Energy Bill will enact the Carbon Price, where emissions from landfills over a certain threshold will incur a direct liability. The Bill defines a liable entity as any 'person' from Section 5 of the Clean Energy (draft) Bill:

person means any of the following:

- 18 (a) an individual;
- 19 (b) a body corporate;
- 20 (c) a trust;
- 21 (d) a corporation sole;
- 22 (e) a body politic; 23 (f) a local governing body.
- c) In cases where the contractor or service provider has the greatest authority to introduce and implement environmental and operating policies that cannot be overridden by client's policies in these cases the contractor will be considered as the party with operational control.
- 3.2.9. If a Principal Contractor collects information relating to the NGER Act, the Principal Contractor undertakes this task to comply with the contract only. Collection of such data does not in itself constitute the Principal Contractor as having operational control or being the reporting entity.

However in the interest of all parties, operational control must be tested appropriately and an agreement should be in place outlining which party has operational control. See example Appendix C.

3.2.10. Contractors and subcontractors working in a facility should report greenhouse gas emissions and energy usage from their activities to the corporation that has operational control over that facility.

## 3.3. Vertically Integrated Production Process (VIPPs)

In some instances it may be more practical and efficient to report a series of facilities that are vertically integrated as one 'entity3' under the NGER Act

The NGER Guidelines note that 'vertical integration occurs when the output of one stage of production becomes an input for the next stage and the output of the final stage is sold on the market'. It further details that the various stages of production processes could be at a single location or multiple locations, and that the outputs from an earlier stage of production can be sold on the market as long as they do not account for the highest value for that facility.

In applying this to construction, all vertically integrated activities/processes at more than one site/ location that form part of the primary production process (i.e. road construction, building construction, rail construction etc.)

 $<sup>^3</sup>$  Not to be confused with an business entity (i.e. subsidiary) as described under the NGER Act 2007.

could be reported in the one facility report by the controlling corporation using the ANZSIC industry classification for the primary activity. For example, a precast facility, quarries or concrete batching plants at different locations service a major road construction facility, and service a few small

facilities in the surrounding area. The road construction facility utilises over 80% of the materials produced by the other facilities. The precast facility, quarries and concrete batching plants are controlled by the same corporation that has operational control for the major road construction facility and can choose to report in two ways:

- As a group of facilities for the entire vertically integrated primary production process of road construction (concrete precast, quarries, concrete batching plants) form part of road construction. Greenhouse gas emissions and energy usage from all processes in the one state are reported as one against the one relevant ANZSIC code of road construction; or
- As separate facilities at each separate physical location, in which case it should separately apportion, estimate or report on facilities that are classified into different ANSZIC divisions. For the above example:
  - the concrete precast yard will be Division C Manufacturing ANZSIC Code 203 cement, lime, plaster and concrete product manufacturing
  - Quarries will be Division B Mining ANZSIC Code 091 construction material mining
  - Concrete batching plants will be Division E Construction ANZSIC 329 Construction Services
  - Road construction will be Division E Construction ANZSIC 310 Heavy and civil engineering construction
  - The controlling corporation can group concrete batching plant and road construction as they are in the same ANZSIC division, and apportion greenhouse gas emissions and energy usage to the concrete precast yard and quarries as they are both in separate ANZSIC divisions.

It is important to note that VIPPs can only occur in the one state. Where a VIPP might cross state borders, it needs to be treated as two VIPPS, or two or more facilities if that is more appropriate.

## 3.4. Construction Subcontractor Activity

Based on the principles of the facility definition and operational control, the activities of sub-contractors will often fall inside the reporting responsibility of the head or Principal contractor. Gathering data from many and disparate sub-contractors to a site level has historically proven difficult. The Civil Contractor's Federation (CCF) has developed guidelines, a fact sheet and a calculator to provide smaller contractors the information they need to comply with the Act and supply the site level data to Principal contractors where they need to report.

Sub-contractor data is of importance where subcontractor is using their own fuel sources, rather than a bulk fuel supply provided by the head contractor. In the latter case, it is assumed the bulk fuel dispersals will be captured during the normal course of reporting. However if sub-contractors are using their own fuel on a reportable facility, this information will (usually) need to be provided to the Principal contractor so they can provide a complete report to the GEDO.

To assist this data capture, a standard template has been developed which can be distributed to sub-contracts where they are using their own fuel sources. A template can be found at Appendix E, however it should be recognised that corporations can develop their own variations.

If a sub-contractor's activities on a site are above the facility level threshold (25 ktCO2-e or 100 terajoules) they need to be separately identified. This does not mean they are excluded, or 'netted out' of the reported emissions, they are simply identified in the report.

For context, a sub-contractor will need to consume around 2.59 million litres of diesel to be at the 100 TJ threshold. The contractor details required include:

- ANB or ACN
- Trading Name
- Street Address (i.e. corporate)
- Facility (that the emissions occur at)
- Emissions (tCO<sub>2</sub>-e)

- Energy Consumed (TJ)
- Energy Produced (TJ)

ACA members have amended or will amend their standard subcontract form to expressly require subcontractors to provide NGERS data to the contractor on a regular (normally monthly) basis to enable the contractor to meet its obligations under the NGERS legislation.

Subcontractors that are still operating under the previous standard subcontract form of each of the ACA Members (i.e. without this express obligation) have been or will be formally requested by the ACA Members to provide the NGERS data and to maintain supporting data for audit purposes. Appendix D provides a template for this purpose.

However, the ability of the ACA Members to enforce compliance is limited and members will have to rely on the cooperation and goodwill of the individual subcontractors.

Due diligence in identifying those subcontractors working at the facility who fuel their own vehicles, and requesting energy and emission data, will be followed.

**Important note**: Subcontractors that emit greenhouse gases and consume or produce energy should not be excluded when they are within the Principal's reporting boundary.

## 3.5. Incidental Emissions and Measurement Criteria

For small sources of greenhouse gas emissions and energy at a facility, considered 'incidental', the sources may be estimated using a methodology chosen by the reporting corporation. The method should be transparent, accurate, complete and comparable as defined in s1.13 of the NGER (Measurement) Determination 2008.

Table A below provides a summary of the upper limits for amounts of greenhouse gas emissions or energy that may be considered incidental under the Act.

#### **Table A: Incidental Emission Source Thresholds**

Emissions and Energy from an individual source	Emissions CO2-e	Energy Consumed	Energy Produced
Actual amount from an individual source	3 kt	15 TJ	15 TJ
Percentage of facility totals from an individual source	0.50%	0.50%	0.50%
Actual amount from sources that can be aggregated	12 kt	60 TJ	60 TJ
Percentage of facility totals that can be aggregated	2%	2%	2%

The definition of 'source' is covered in the legislation at s1.10 of the NGER (Measurement) Determination 2008, as sub-categories under:

- Fuel Combustion
- Fugitive emissions
- Industrial Process; and
- Waste

The legislation is silent as to exactly how the source relates to the incidental thresholds. For example is a source all the emissions associated with fuel combustion (diesel), or the emissions from a specific activity – such as the diesel combusted in a particular activity. It is assumed that the latter is applicable, otherwise the 0.5% threshold would see this clause unusable in most circumstances and not achieving its policy intent to reduce the reporting burden for small sources. In short, the Incidental Emissions threshold will be applied to individual items of equipment.

In contract mining and construction, there are many sources of incidental energy and emissions, including use of hand held equipment such as chainsaws etc.

Based on initial research many items of small plant particularly those used in concrete placing such as concrete

vibrators, helicopter rotors and mechanical screeds are likely to represent <0.5% of all 'facility' or typical construction site emissions. Often this plant may be refuelled off-site and or used across multiple jobs limiting the ability to isolate and identify the actual quantity of fuel used at any one facility.

A common estimation technique for small mobile concrete placing equipment deemed to be an incidental source of emissions can be applied based on a factor applied to m<sup>3</sup> of concrete poured. This methodology would apply to commonly used items such as concrete vibrators, trowel machines and mechanical screeds.

Equipment Type	Factor Equipment numb (a) onsite (b)		m3 poured (c)	Est. Litres of fuel consumed	
Vibrator	0.02	(b)	(c) =axbxc		
Trowel Machine	0.08	(b)	(c)	=axbxc	
Motor Screed	0.01	(b)	(c)	=axbxc	

#### **Incidental Fuel Use from Heavy Equipment**

Aside from small equipment, often larger equipment will be used on a short term basis, with emissions and energy from these activities under incidental thresholds. Based on the energy intensive nature of liquid fuels, this is the most applicable threshold. An example of a diesel amount against the energy consumed threshold would be:

Source	Energy Consumed Threshold	Amount
Actual amount from an individual source	15 TJ	388 kL
Actual amount from sources that can be	60 TJ	1,554 kL
aggregated		

Similarly to the small mobile equipment estimations, research has been completed to estimate the hourly burn rates of common types of larger, earthmoving and construction equipment. This information was taken from the Caterpillar Performance Handbook Edition 37. In many instances a sub-contractor may invoice hourly, and not have site level fuel use that is typically required under NGERs. By multiplying the hours of use of an equipment type by the burn rate (see table below) it is possible to estimate, with a reasonable degree of accuracy, fuel consumption at a site level.

Equipment Type	Estimated Fuel* Consumption (litres/hour)
Back-hoe (~92hp)	13.2
Bobcat (~70hp)	10.85
Bulldozer (~148hp)	26
Excavator (~138hp)	20
Other (~100 hp)	10
Road grader (~145 hp)	23
Scraper (~200hp)	57
*The consumption rates above represent a 'high' load facto	or

It is also likely the example above, based on verifiable information could be considered a criterion BBB when it is adopted as an industry wide practice and does not involve a commercial transaction. The advantage of a criterion BBB methodology, means the incidental thresholds no longer apply, however the uncertainty (covered later) – increases.

#### Measurement Criteria – A Guide

The method used to measure a fuel quantity determines the 'measurement criteria' that applies. Every data entry into the government reporting tool, OSCAR, requires a measurement criteria to be entered. Measurement criteria falls in the following categories – A, AA, AAA (for commercial transactions) and BBB for non-commercial transactions. A sub-contractor burning their own (pre-purchased) fuel on the Principal contractor's site would be considered a non-commercial transaction with regards to fuel consumption. The measurement criteria affects the

perceived level of 'uncertainty' of the accuracy of the reported data, with A, AAA, AAA having a lower uncertainty level than BBB. High uncertainty levels may lead to a higher carbon liability going forward.

Ideally, contractors will be able to produce fuel receipts or delivery dockets for quantities used at each site (criteria A) or metering records (criteria AA). This can be difficult as equipment is often fuelled from bulk storage (sometimes un-metered) at depots and used at multiple sites. On other occasions retailer fuel providers will fuel equipment and/or mobile storage tanks on-site yet not provide the contractor an itemised (by site) invoices.

The following table demonstrates some methods that contractors can implement to measure liquid fuel consumption at each site from earthmoving and other equipment use. The methods towards the top of the Table should be considered as best practice, and where possible, contractors should eventually implement these or equivalent systems going forward.

Circumstance	Proposed Measurement Method	NGER	
		Measurement	
O suture standa servine sent su d/su us shile	De sure et forel veterile se include e eite	criteria	
Contractor's equipment and/or mobile	Request fuel retailers invoice includes site	А	
Tuer tariks tueried at site by retailer	name/address and record the amount and ruer types		
	and for each equipment <sup>4</sup>		
Contractor's equipment and/or mobile	Meter <sup>5</sup> bulk fuel storage and utilise log books for	۸۸′	
fuel tanks fuelled at denots from bulk	operators to complete for each piece of equipment <sup>6</sup>		
storage	When fuelling operators record.		
clorage	fuel type		
	guantity (litres)		
	• date		
	<ul> <li>road-registered?</li> </ul>		
	• site		
	<ul> <li>site address, name and client</li> </ul>		
Contractor's equipment and/or mobile	Use <u>'dipping<sup>8</sup>'</u> to estimate bulk fuel storage	AA <sup>9</sup> (if matched	
fuel tanks fuelled at depots from bulk	dispersals and log books for operators to complete	against bulk	
storage	for each piece of equipment. When fuelling,	delivery invoices)	
	operators record:	BBB (if not	
	• fuel type	matched against	
	• quantity (litres)	DUIK delivery	
	• dale	records)	
	<ul> <li>site address name and client</li> </ul>		
	Amounts estimated from dipping will require		
	verification against bulk amounts delivered to depot		
	and must match – adjust for changes in stockpile		
	from one year to the next. For example if log book		
	entries for the year equal 1,000 KL, retailer invoices		
	should equal the same.		
Contractor's own mobile fuel tanks	Meter and log fuel dispatched to each piece of	AA	
used across multiple sites at any one	equipment from the mobile fuelling unit. Record:		
time to fuel equipment by the	fuel type		
contractor. Mobile tanks fuelled from	quantity (litres)		
bulk vessels at depots or directly by	• date		
retaller.	<ul> <li>road-registered /</li> </ul>		
	<ul> <li>Site</li> <li>site address name and client</li> </ul>		
	Verify against retailer invoices		
Contractor's own mobile fuel tanks	Estimate amounts by dipping and log fuel	BBB <sup>10</sup>	

 $\overline{^4}$  In most cases this level of invoicing will not be possible/provided for by retailers

<sup>5</sup> In this example 'meters' are typical flow meters calibrated and used to calculate fuel amounts.

<sup>6</sup> Registration or internal codes can be used to identify individual equipment

<sup>7</sup> This would likely to be considered a 'delivery receipt' fulfilling criteria A requirements for r2.50 of the NGER (Measurement) Determination 2008. Criteria A only applies to commercial transactions – which is deemed to occur at the point of bulk delivery at depots

<sup>8</sup> Dipping involves using a dipstick that has been marked up to equate a certain 'height' (of fuel) in a tank to equal a certain amount based on volume.

<sup>9</sup> This would likely to be considered to meet criteria AA requirements for r2.50 of the NGER (Measurement) Determination 2008.

<sup>10</sup> Criteria BBB can only be used where a commercial transaction does not occur. For this scenario the dispatch of fuel from the mobile unit to the equipment piece is considered not to be a commercial transaction.

Circumstance	Proposed Measurement Method	NGER Measurement criteria
used across multiple sites at any one time to fuel equipment by the contractor. Mobile tanks fuelled from bulk vessels at depots or directly by retailer.	dispatched to each piece of equipment from the mobile fuelling unit. Record: • fuel type • quantity (litres) • date • road-registered? • site • site • site address, name and client	
Contractors do not have any metering installed on mobile or bulk vessels, and no site level invoices to refer too.	Estimate the fuel consumed in the equipment using the Liquid Fuel Consumption Calculator. Hours worked at particular site x hourly fuel consumption of equipment type. (See Liquid Fuel Calculator on ACA website)	BBB <sup>11</sup>
Engine oil	An example of an estimation technique for oils and greases for an earthmoving contractor might be: (hours on site/hours per year) x (sump capacity x oil change per year) e.g.: $(30/1500) \times (15 \times 5) = 1.5$ litres	BBB

Where an incidental method is utilised, the measurement criteria selected in OSCAR is 'other method'.

## 3.6. Estimating and Reporting Small Facilities as a Percentage

It is possible to estimate small facilities as percentages under NGER Regulation 4.26. Again, estimates need to be based on some level of rigor such as representative samples, where the emissions are estimated based on previous year's figures, or a like-for-like approach. This can be useful to reduce the reporting burden where a reporter has responsibility for many small facilities, such as maintenance contracts on telecommunication towers or similar.

A controlling corporation could make an estimate of emissions from small facilities based on the following criteria:

- each facility accounts for less than 2 per cent of the corporate group's total greenhouse gas emissions or energy inventory
- each small facility emits 3 kilotonnes CO2-e or less of greenhouse gases
- produce or consume 15 terajoules or less of energy
- all small facilities for which estimation is used account for 5 per cent or less of the corporate group's greenhouse gas emissions or energy inventory.

## 3.7. Transient Vehicles

Depending on the stage of the project, deliveries to and pick-up from the site can vary significantly. Notably, during site excavation works, a significant number of trucks may enter the site to collect excavated materials for off-site re-use or disposal. The trucks may enter the site and drive some 50m (less in the case of most commercial office sites due to site space constraints) before loading, turning around and leaving the site. This is the same for deliveries of construction related materials.

As road freight transport is addressed separately under the Act and these delivery/collection vehicles do not remain and/ or are not based on the construction site, Entities will not be reporting transient vehicles entering project sites to perform a collection of delivery function. This also includes mobile concrete pumping vehicles which are refuelled offsite and typically stationed on-site or adjacent to the site on a daily basis. ACA believe this example above does not involve a significant level of operational control, and the activities represent and 'encroachment' of the existing transport facility on the construction facility, rather than a requirement to report these small movements as a part of the construction facility.

In some cases vehicles are involved in both supply and installation of materials, notably asphalt and tar seals. These activities come under the overall control of the supplier. Both the ACA and Australian Asphalt Pavement

<sup>&</sup>lt;sup>11</sup> This technique fills the requirement of BBB as it is an 'accepted industry practice' under NGER (Measurement) Determination 2008 Sub-division 2.4.6.

Association (AAPA) agree and advise their members that the supplier reports on energy and emissions during installation, as part of the manufacturing facility from which it is delivered.

## 3.8. Reporting of Temporary On-site Generation

For the 2009/10 reporting period onwards only on-site generators with a capacity of 0.5MW (i.e. 500 kVA) or above, and producing more than 100,000 kWh<sup>12</sup> are required to be reported with respect to 'energy produced'. 0.5MW generators are quite uncommon on a construction site; however less so on mine sites. Due to a legislative anomaly, technically speaking, the energy *consumed* from on-site generation should be reported. This anomaly is due for amendment and is likely to repealed for the 2011/12 reporting year onward. With this in mind, and r1.13 of the NGER (Measurement) Determination 2008 stating that 'reasonable resources...' be applied' with regards to accuracy, reporters should use their own discretion to how this energy consumption is reported. For the very small amounts of energy and appropriate level of effort should be applied.

Where a generator is not metered it may not be possible to determine the kWh used based on the variation in load applied to the generator. Generator output is governed by the load applied, not the capacity of the generator itself, and may therefore vary significantly.

### 3.9. Future Activity

In cases where the principal activity and the future activity are under the overall control of one corporation then NGER Reg. 2.22 applies and the future activity will determine the ANZSIC code.

A greenfield project where company A has overall control of the Design and Construct (D&C) phase but a different company will have overall control of the Operations and Maintenance (O&M) phase will require that during the handover from the D&C to the O&M phase the overall control for the project will change and therewith the ANZSIC codes.

For an existing facility, where company B has overall control of O&M before and after the construction works, energy and emissions from construction activities are reported as part of the original facility under its ANZSIC code.

## 3.10. Salary Packaged Vehicles

Determining operational control over company and leased vehicle fleets particularly where there may be a private vs. business use component has the potential to make accounting for fuel / emissions from these sources very complex.

Novated lease vehicles will be excluded from reporting as these are wholly within the control of the lease holder and may in many cases not be used for business purposes.

All fuel consumed by salary packaged, company and leased vehicles will be reported, as determining and separating out non-business usage is not practical.

## 3.11. Energy Consumed without Combustion

#### 3.11.1. LIQUID FUELS EXCEPT PETROLEUM BASED OILS AND GREASES

A fuel is consumed without combustion when it is used as a solvent or a flocculent, or as an ingredient in the manufacture of products such as paints, solvents or the diesel component used in the manufacture of explosives.

Facilities are required to report if more than 15 kilolitres of any single liquid fuel is consumed without combustion at the Facility in any reporting year.

Reporting is not required if the combined total of liquid fuels consumed without combustion exceeds 15 kilolitres, but the quantities consumed of individual liquid fuels does not exceed the threshold – see r2.68 of the NGER (Measurement) Determination 2008. With regards to diesel in explosives (i.e. ANFO), the diesel component should be reported as

consumed not combusted at point of manufacture only. If the ANFO is combusted at a facility, the diesel component should be reported as

<sup>&</sup>lt;sup>12</sup> See r4.20 1A NGER Regulations 2008

#### 3.11.2. BITUMEN

**Important note:** From (and including) the 2011/12 reporting year, bitumen will no longer be reportable when it is consumed without combustion – Schedule 1 NGER Regulations 2008. See link below for the NGER Regulations 2008.

http://www.comlaw.gov.au/Series/F2008L02230

#### 3.11.3. LUBRICATING OILS AND GREASES

As per NGER Regulation 1.03:

#### Petroleum based greases (PBG)

means:

(a) petroleum based greases and their synthetic equivalents; or(b) oils (including lubricants, fluids and greases) derived from petroleum and their synthetic equivalents, if recycled for use as greases.

#### Petroleum based oils (PBO) means any of the following:

(a) oils (including lubricants or fluids but not greases) derived from petroleum and their synthetic equivalents;

(b) oils (including lubricants, fluids and greases) derived from petroleum and their synthetic equivalents, if recycled for use as oils.

When reporting oils and greases, the use should first be disaggregated between combusted and consumed without combustion. Where consumed without combustion, the thresholds (15 kL) as mentioned in r2.68 of the NGER (Measurement) Determination 2008 apply. Where combustion of oils and greases occurs, the amounts need to be reported as such. The following applications have been identified by DCCEE<sup>13</sup> as combusted and non-combusted:

Considered to be **combusted**:

- Oil used in engines where oil combustion is intended by design would be reported under Division 2.4.5A of the Determination as energy consumption by combustion. (For example, oil used to lubricate internal combustion engines)
- Oil used in engines where oil combustion is not required but usually occurs due to unavoidable design imperfections and machinery degradation would be reported under Division 2.4.5A of the Determination as energy consumption by combustion. (For example, four-stroke engines)
- Oil used in other applications for which oil combustion is not required but occurs because operating the machinery heats the oil to its flashpoint temperature would be reported under Division 2.4.5A of the Determination as energy consumption by combustion.

#### Considered to be consumed without combustion:

 Transmission oil, where oil is not intended for combustion may be reported under Section 2.68 of the Determination, provided the reporting thresholds for PBO within the facility is met.

It should also be considered<sup>14</sup> that petroleum based oils and other fluids would be considered

<sup>&</sup>lt;sup>13</sup> NGER Supplementary Guidelines – Oils and Greases

<sup>&</sup>lt;sup>14</sup> In the author's professional opinion, not mentioned in the Guidelines

consumed without combustion - such as:

- brake fluids; and
- hydraulic oils.

Where PBGs and PBOs are consumed without combustion at less than 15kL (for each 'type') they are not reportable.

See Appendix G for more details on how to report where combusted for stationary and transport (road-registered) purposes and enter the data into OSCAR.

The reporting of oils and greases has become quite complex, due to legislative anomalies and issues where OSCAR does not match the legislative requirements. In many cases oils and greases (combusted) will fall under incidental thresholds. Often it will be effective for organisations to report all oil and greases using method 1 (see screen grab below), to save disaggregating use by combusted vs. non-combusted – which can be difficult when data is extracted from accounts payable. Where amounts are incidental, a conservative estimate (by assuming that all oil and greases are partially combusted) would be considered an appropriate estimation of actual use.

Source: Fuel Combustion/E	inergy (Other Stationary)	Data Entry Number:	1	
Activity Type: Petroleum based g	reases. Non-transport	Data Entry Description	: transport	
			Optional. Used only to help organisations track data entry in OSCAR.	
Status:				
-Usage Details				
Enter the quantity used and asso	ciated details.		Incidental 📰	
The energy consumption can not "Emission Details" section below	be calculated until the metho	ds have been selected for each o	greenhouse gas in the	
For methods 2, 3 & 4 Energy Co	ntent and Emission Factors car	n be entered in the Activity Type	Information page.	
Commercial or Non-commerc	ial Transaction:			
Ommercial				
Non-commercial				
Criteria: 🔺 💌	Invoices issued by the vendor	of the fuel		
Quantity Uni	t Fuel Usage	Energy Content Factor Energy	Content	
100.0000 kL	Combusted	38.800000	3880 GJ	
-Emission Details				
Measurement methods are spec Information" Section below for a	fied in the NGER (Measurement	nt) Determination 2008. Please s	see "Additional Incidental	

**Important note:** Often greases will be provided in kilograms, rather than litres/kL as required in OSCAR. On their material safety data sheet (MSDS) Caltex identify grease as having a specific gravity of approximately 1. Which means a kilogram of grease is equivalent to a litre.

## 3.12. Waste

**Important note**: Division 5.2.1 of the NGER (Measurement) Determination 2008 provides that reporting of fugitive emissions from waste only applies when:

- the landfill was open for the acceptance of waste on and after 1 July 2008; and
- during a year the landfill emits more than 10 000 tonnes of CO<sub>2</sub>-e from solid waste disposal at the landfill.

#### 3.12.1. ON-SITE WASTE TREATMENT

The NGER technical guidelines provide three estimating methods for methane emissions released from the operation of landfill facilities. The DCCEE and the waste industry recommend entities use Method 1 under section 5.4, the Tier 2 First Order Decay (FOD) model provided and used by the Intergovernmental Panel on Climate Change (IPCC). That model requires site specific data on waste volumes and type buried in the landfill. Default degradable organic carbon content factors, decomposition rates and methane generation rates are provided within NGER determinations.

Facilities need to report on the following for waste deposited in a landfill:

- the location of the landfill site by State or Territory;
- the number of years in operation;
- the tonnes of average annual amount of disposal of solid waste over the lifetime of the facility prior to the first year of reporting;
- the total tonnes of waste entering the landfill; and
- the breakdown of the source of the waste (e.g. municipal, commercial and industrial or construction).

In case biological treatment of solid waste occurs onsite method 1 under section 5.22 will be used to estimate emissions from this process

Additionally a facility is required to report on methane flared from the operation of the landfill using one of the methods provided in the NGER guidelines for each gas type released:

- (i) method 1 under section 5.19;
- (ii) method 2 under section 5.20;
- (iii) method 3 under section 5.21;

However at regular construction and or mining sites this might not be an issue.

The above mentioned regulations will apply for organic waste deposited in an onsite landfill. Stockpiles of wood and woodchips stored onsite for further usage will not be reported.

The DCCEE solid waste calculator provides a ready-made tool to calculate the emissions from a single site <u>http://www.climatechange.gov.au/reporting/calculator/index.html</u>

Waste treated on-site at a mining or construction may be considered an auxiliary activity and needs to be reported if the controlling corporation of the entity with operational control of the facility has reporting obligations under the Act. The reporting thresholds for landfill sites of 10 kt CO2-e.

Waste transported off-site does not have to be recorded under the NGER Act.

#### 3.12.2. ONSITE WASTEWATER TREATMENT

#### General reporting on wastewater treatment

Greenhouse gas emissions from domestic and commercial wastewater are the sum of emissions from wastewater treatment and sludge treatment. The total quantity of wastewater treated depends on the size of the population that is generating wastewater.

Section 5.25 of the NGER (Measurement) Determination sets out Method 1 for wastewater handling – domestic and commercial. Method 1 provides a method for estimating emissions in the absence of data on Chemical Oxygen Demand (COD) or Biochemical Oxygen Demand (BOD) estimates of on-site wastewater and sludge.

The following processes will generate emissions and need to be reported:

- collection and transfer of wastewater (methane);
- primary and secondary treatment of wastewater (methane and nitrous oxide);

- bio solid / biogas processing (methane and nitrous oxide); and
- discharge into the aquatic and terrestrial receiving environments (methane and nitrous oxide).

Methane is produced in wastewater systems by anaerobic (without oxygen) metabolism of organic material by microorganisms. Biological nitrogen removal processes convert organic nitrogen and ammonium from waste into nitrogen gas, via nitrification and de-nitrification. Nitrous oxide is produced as a by-product of these waste treatment processes.

Wastewater from temporary wastewater facilities (including septic tanks) will not be recorded under the NGER Act. Wastewater that is discharged through a sewer system will not be reported under the NGER Act. Other wastewater will be reported using the ANZSIC code 281 - Water supply, sewerage and drainage service.

DCCEE have developed a waste water calculator to aid the reporting of emissions from waste water treatment.

http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energyreporting/calculators.aspx

**Important note**: The DCCEE have provided information that ground-water removed and stored from large projects such as tunnelling are unlikely to have reportable emissions; despite the fact they may be heavily laden with sediment.

#### 3.12.3. ANZSIC CLASSIFICATION IN THE WASTE INDUSTRY

In case a company's 'single undertaking' can be classified as 'waste management' all activities, such as landfill operations, remediation, maintenance, operating recycling facilities and waste collection will fall under the ANZSIC classification 292. Waste collection is considered as an ancillary activity and hence is part of the waste management activity.

If a company's single undertaking is waste collection only then the ANZSIC code for waste collection applies and the company is considered a transport business and treated on a state-to-state basis.

## 3.13. Synthetic Gases

Generally speaking the refrigerants that must be reported:

- have a global warming potential (GWP) greater than 1,000
- are contained in a unit with a charge greater than 100 kg (of refrigerant)
- are used in facilities in the following ANZSIC industry classifications:

1.	food product manufacturing (ANZSIC classification, Subdivision 11);
2.	beverage and tobacco product manufacturing (ANZSIC classification, Subdivision 12);
3.	retail trade (ANZSIC classification, Division G);
4.	warehousing and storage services (ANZSIC classification, number 530);
5.	wholesale trade (ANZSIC classification Division F);

Item number '6' above may to apply to ACA members.

The following types of refrigerants have a GWP above 1000:

HFC-23
HFC-43-10mee
HFC-125
HFC-134
HFC-134a
HFC-143a
HFC-227ea
HFC-236fa

For more information on the above HFCs see Appendix H, including common names and uses.

It is likely only some of the HFCs mentioned above would be used by ACA in HVAC systems. Perfluorocarbons (aluminium production) and Sulphur hexafluoride SF<sup>6</sup> (insulated switch gear) are other synthetic greenhouse gases reportable under the NGER Act 2007 however they are unlikely to be used by ACA members.

Corporations need to estimate the fugitive emissions associated with the HFCs which is based on the stock (charge amount) in an equipment type multiplied by the GWP and the default leakage rate of a given equipment type – see below.

From NGER Measurement Determination r 4.102

### 4.102 Method 1

(1) Method 1 is:

$$E_{jk} = Stock_{jk} \times L_{jk}$$

where:

 $E_{jk}$  is the emissions of gas type (j), either hydrofluorocarbons or sulphur hexafluoride, summed over each equipment type (k) during a year measured in CO<sub>2</sub>-e tonnes.

 $Stock_{jk}$  is the stock of gas type (j), either hydrofluorocarbons or sulphur hexafluoride, contained in equipment type (k) during a year measured in CO<sub>2</sub>-e tonnes.

 $L_{jk}$  is the default leakage rates for a year of gas type (j) mentioned in columns 3 or 4 of an item in the table in subsection (4) for the equipment type (k) mentioned in column 2 for that item.

The most efficient way to estimate the stock is to check the equipment name plate. If this does not reveal stock, the manufacturer should be able to assist. Comparing like to like equipment types may also suffice. It is likely higher order methods will be cost prohibitive unless very large stocks of HFCs are held in certain equipment. It is

also likely that HFCs could be estimated as incidental emissions sources under r 4.27 of the NGER Regulations 2008. Refrigerant blends may also need to be considered when estimating stock.

Because of the high GWPs of refrigerants, errors in data capture and/or data entry may equate to large errors hence under or over reporting.

The high GWPs also make it imperative to use the correct units. 'Stock' needs to be reported in tonnes into OSCAR i.e. 100 kg stock = 0.100 tonnes.

OSCAR has been upgraded to calculate HFCs by gas type and leakage rate for the 2009/10 reporting year and differs from the previous version where CO2-e had to be calculated outside of OSCAR and direct entered.

The Greenhouse and Energy Data Officer recognises that reporting on many disparate, small emissions sources can be difficult and is likely to take into account the cost of reporting when corporations estimate fugitives from refrigerants.

ACA members should develop a methodology describing how fugitive emissions from HFCs are to be estimated across the group. The methodology should include evidence of HFC stocks (samples would likely suffice) and estimation techniques – particularly if r 4.27 incidental emissions techniques are used.

Relevant legislative provisions:

Part 4.5 of the NGER Measurement Determination 2008 - '...emissions of hydro fluorocarbons ...'

NGER Regulation 2.04 - '...definition of greenhouse gas...'

## 3.14. Reporting Uncertainty

Reporting Uncertainty is mandatory for the 2010/11 reporting year onwards, and is defined in Chapter 8 of the NGER (Measurement) Determination 2008. Uncertainty reporting essentially requires a doubling of effort for data entry. Every source (except scope 2 electricity and incidentals) must be entered into the DCCEE calculator to ascertain a corporate level uncertainty. It is unlikely OSCAR will automatically calculate Uncertainty in the foreseeable future. The calculator can be found at:

<u>http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/calculators.aspx</u> Some of the key considerations applicable to Uncertainty:

- only applies to scope 1 emissions (electricity excluded);
- only applies to methods 1,2,3 and 4 (incidental emissions and facilities reported as a percentage under r4.26 and r4.27 excluded);
- higher order method Uncertainty is complex, and defined in the GHG Protocol
- requires significant data entry effort;
- facility aggregates should be treated the same as an individual facility with regards to Uncertainty reporting

For detailed guidance on Uncertainty Reporting go to:

http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/calculators.aspx

## 4. Other Important Considerations

## 4.1. Capacity Building and Compliance and Enforcement

Malcolm Turnbull, the Minister for the Environment in the second reading speech for the NGER Bill in August 2007 stated the following:

'It is anticipated that corporations will improve their reporting processes over time. The emphasis of the compliance and enforcement regime in the initial years of the scheme will accordingly be on encouraging compliance, rather than on punitive measures. As the scheme matures, a more stringent approach will be appropriate, particularly with regard to data that will inform emissions trading.'

The initial emphasis on building reporting capacity within registered corporations to achieve compliance, rather than enforcement - that is, trying to get robust data by educating registered entities about the scope of reporting - has also been reiterated by the GERO in correspondence received, and in direct conversation.

From 2010/11 the Department has engaged on a rigorous audit campaign. At the time of publishing, 24 Registered corporations had been audited under the DCCEE pilot scheme within the first year. It is important for organisations to be 'audit ready'. Aside from having in-place robust and verifiable data capture systems, reporters need to have standardised and current documentation that describes their approaches to reporting, includes or is linked to up-to-date project data base' and includes and appropriate level of executive sign-off. ACA members may also wish to engage NGER accredited auditors voluntarily. DCCEE have publicly stated that voluntary audits would significantly reduce an organisation's risk profile and likelihood of a mandatory audit. Voluntary audits by nature are more consultative than the government initiated audits and provide the opportunity for organisations to learn and improve their systems in a practical manner.

### 4.2. Retrospective Decisions

As per advice from the GERO (13 August 2008), in situations where the GERO has made a determination regarding facility 'boundaries' or related matters corporations should act to implement the necessary changes to reporting but will not be expected to retrospectively include data which is no longer available. Since this initial advice was received the DCCEE's position has shifted and organisations have been directed to provide retrospective data where an acquisition/divestment has occurred. Further information

#### 4.3. Legislative amendments

Since the NGER Act 2007 was enacted for the 2008/09 reporting year, numerous amendments have been implemented. A list of these can be found at Appendix I.

### 4.4. Further Information

This guideline has been completed via partnership with ACA members, the Department of Climate Change and Energy Efficiency and NDEVR Environmental Consulting. For further information, please contact:

Matt Drum | Principal Consultant - Environment RABQSA Environmental Auditor | NGER Accredited Auditor (0120/2011) Ndevr Pty Ltd | tel: +61 3 9865 1400 | mobile: +61 406 757 289 web: www.ndevr.com.au | Melbourne - Sydney - Brisbane



## **Appendix A - ACA Member Companies**

Abigroup Limited Baulderstone Pty Ltd BGC Contracting Pty Ltd Bilfinger Berger Australia Pty Ltd Bovis Lend Lease Pty Ltd Brookfield Multiplex Constructions Pty Ltd CH2M Hill Australia Pty Ltd **Clough Limited** Downer EDI Limited Fulton Hogan Pty Ltd John Holland Group Pty Ltd Laing O'Rourke Australia Construction Pty Limited Leighton Contractors Pty Limited Leighton Holdings Limited Macmahon Holdings Limited McConnell Dowell Corporation Limited Thiess Pty Ltd United Group Limited

## Appendix B - Operational Control Scorecard Instructions

#### How to use the scorecard

- 1 Define the facility boundary by applying the appropriate legislation (Section 9 of the NGER Act 2007 and Division 2.4 of the NGER Regulations 2008, Chapter 1 of the NGER Guidelines). www.climatechange.gov.au/reporting
- 2 Fill in the corporate, facility and location details.
- 3 In the appropriate column, list the operational, environmental and OH&S policies that apply to the facility.
- 4 Assign a score to each policy, **1** not very important and **10** very important (policy score) for both the introduction and implementation of policies where applicable.
- 5 For each corporation involved in the activity, give them a score in relation to the policy score as to how much authority they have to introduce and implement the policy (corporate score). E.g. If it is a very important policy, it might have a policy score of 10. Corporation A might have a high degree of authority to introduce, B somewhat and C none. The scores might read: A 8, B 2, C 0. The combined corporate scores should equal the policy score.
- 6 After the scores for the corporations are entered, the scores are added and the corporation with the highest score should be considered to have operational control of the facility and therefore reporting responsibility for the greenhouse gas emissions and energy.

See 'Example' for an illustration of a hypothetical facility in the construction sector and for a template of the overall control scorecard. Please note this is an example only and the weightings and relevant scores are for the purposes of the example only.

Ndevr have developed an electronic version of the operational control scorecard and the facility definition tool which can be found on the ACA website.

#### Example

Facility/Activities description: Lead contractor A is carrying out a construction project (facility) for a client C, and in doing so uses their own staff and equipment and also engage sub-contractors for specific tasks. The sub-contractors purchase their fuel on most occasions. This scorecard (below) refers to all activities carried out by all sub-contractors at this particular facility as the arrangements between the lead contractor and all sub-contractors are fundamentally the same. In most circumstances these sub-contractors work for various clients throughout the year.

#### TABLE 1: Facility/Corporations/interested parties:

Facility name/description:	Address:	Latitude and Longitude (3 decimals): http://itouchmap.com/latlong.html			
Corporation	Address (head office)	ABN			
Lead contractor (A)					
Sub-contractor (B)					
Client (C)					

#### **TABLE2: Operational Control scorecard example:**

	POLICY	Policy Score	Corporate Score A* Lead	Corporate Score B* Sub	Corporate Score C Client
	Design and construction plan (introduce)	10	-	-	10
	Design and construction plan (implement)	10	8	2	-
POI S	Provides fuels for equipment*	10	-	10	-
	Maintenance of equipment	5	-	5	-
ERA G	Determines work hours (introduce)	5	5	-	-
OPI	Determines work hours (implement)	5	3	2	-
	Ability to influence asset purchase	5	2	2	1
	Branding and colours	3	1	1	1
	Long term or short term (long term should result in lower score for the sub-contractor)	10	8	2	-
	Other				
	TOTAL		27	23	12
OLI	Contaminated site audit (introduce)	6	-	-	6
4 O	Noise and dust suppression (introduce)	10	-	-	10
Z	Noise and dust suppression (implement)	10	8	2	-
NME	Fuel types used i.e. biodiesel (introduce and implement)	10	8	2	-
NVIRO AL	Minimum emissions standards/fuel consumption for equipment	7	1	5	1
шн	Other				
	TOTAL		17	9	17
l	Daily operating hours of equipment (introduce)	10	-	-	10
POL	Daily operating hours (implement)	10	5	5	-
	Safety requirements on site (introduce)	10	-	-	10
οτ∝ν	Safety requirements on site -audit (implement)	10	8	2	-
	Other				
	TOTAL		13	7	20
OPERATIO	DNAL CONTROL TOTAL**		57	39	49

For this activity it would appear Lead contractor A has operational control of this facility and is responsible for reporting the emissions and energy associated with this activity if thresholds are triggered.

Notes: \*This is based on the corporation who acquits Fuel Tax Credits

\*\* If the scorecard is equal on completion, operating and environmental polices only should be considered as a 'count-back'. Refer NGER Act 2007 Section 11 (4).

#### TEMPLATE

### Facility/Activity description:

### Facility/Corporations/interested parties:

Facility name:	Address:	Latitude and longitude:
Corporation	Address (head office)	ABN
Trans Corp A		
Sub-contractor B		
Client C		

### **Operational Control scorecard:**

	POLICY	Policy Score	Corporate Score A	Corporate Score B	Corporate Score C
OLICES					
TING P					
OPERA					
	TOTAL				
ENVIRONMENTAL					
	TOTAL				
OH&S POLICES					
	TOTAL				
OPERATIO	OPERATIONAL CONTROL TOTAL**				

For this facility it would appear XXX has operational control of this facility and is responsible for reporting the emissions and energy associated with this facility if thresholds are triggered.

## **Appendix C – Simplified Operational Control**

Party	Operational Control?	Reports?	<b>Justification</b> – (from analysis of standard ISO based contracts between the client, Principal contractor and sub-contractor at a commercial construction project).
Client	No	No	An analysis of the high level contractual obligations demonstrates the Principal contractor has responsibility for key policies. Although the principal often has the ability to suspend the project at any stage, and the Principal contractor must follow a lawful (under the contract) direction from the superintendent, this should not be considered as a veto to operational control, as the vast majority of the operating, OH&S and environmental policies lie with the Principal contractor. The principal is responsible for paying the Principal contractor however; this should not be considered under operational control principles because it is a financial transaction, not operational, environmental or OH&S. <i>See below – Principal contractor justification.</i>
Principal Contractor	Yes	Yes	OH&S policies – under standard contract clauses the 'Principal contractor' is given the authority to discharge the many and varied responsibilities imposed on them under the Occupational Health and Safety Act 2000. The principle contractor has clear authority to introduce and implement OH&S policies across the series of construction activities.
			Environmental Policies – under standard clauses 'the (Principal) contractor' also has the sole responsibility for complying with environment protection requirements such as disposal of hazardous waste, pollution and contamination and must remedy any residual pollution or contamination that occurs at the site. The contractor is also required to meet any other legislative requirements regarding protection of the environment and must ensure subcontractors do the same.
			Operational Policies – throughout standard contracts, many and various key operational policies are introduced and implemented by the Principal contractor, including but not limited to:
			Design obligation and further documents
			Quality plan
			Access to site
			'the contractor has exclusive access to the site from'
			'the contractor may exclude access from the site persons who'
			Samples and colour schemes
			Provision of materials and labour
			'the contractor will provide at its own expense everything necessary for the proper execution and completion of the project'
			Construction methods
			Construction Program
			Project supervision
			Inspections
			Jointly needs to meet the requirements of authorities
			Survey Issues
			Industrial relations management and site agreement
			Existing temporary works, site facilities and services

Party	Operational Control?	Reports?	<b>Justification</b> – (from analysis of standard ISO based contracts between the client, Principal contractor and sub-contractor at a commercial construction project).
			Indemnity by contractor and release of principle
			The contractor is liable and releases the principal from and indemnifies the principal against all claims, liabilities'
			Care of site
			Insurance
Sub- contractor/s	No	No <sup>15</sup>	Although the subcontractor may be responsible for implementing some of the operational, OH&S and environmental policies on-site, the Principal contractor will <i>implement</i> many more and <i>introduce</i> almost all. This is underpinned by typical clauses in Principal contractor to sub- contractor standard contracts such as the 'subcontractor must comply with the main contractors Policies and Guidelines' See Above – Principal contractor justification.

<sup>&</sup>lt;sup>15</sup> Downstream reporter required to provide fuel usage data to the Head contractor with operational control so the Head contractor can report

## **Appendix D – Reporting Boundary Examples**

### Example 1: Integrated Refurbishment Activities e.g. Tenancy Fit out

In this example a commercial building is undergoing a floor-by-floor minor refurbishment to a tenancy space, while the building is still occupied by the tenant. Works involve equipment upgrades, fixtures, construction of internal walls and partitions and installation of furnishings.

Principal Activity	Bank Head Office - Tenancy within a commercial office building.
Secondary and Ancillary Activities	Refurbishment 'Re-fit' works to the Bank Head Office tenanted space.
Facility Boundary	The Tenancy Space occupied by the Bank Head Office constitutes a facility in its own right with only various, discrete spaces coming under overall control of the construction contractor as works are undertaken or progress throughout the Tenancy.
Parties involves in operation of Facility	Building Owner – Responsible for reporting any Base Building and common light and power data.
	Landlord – manages the building and collects NGERs data on behalf of the owner, all major decisions must be approved by the building owner.
	Client (Bank) – Tenant occupying part of the building and funding 'Re-fit' works. Responsible for reporting tenancy electricity use under NGERs if corporate threshold is triggered.
	Principal Construction Contractor – Collect and report any fuel use data (direct Scope 1 emissions) to the Client.
	Subcontractor – Collect and provide any fuel use data (direct Scope 1 emissions) to the Principal contractor.
Possible sources of emissions and energy consumption	Tenant light and power, data centres, office equipment, electrical hand held tools, fugitive emissions from refrigerants in HVAC systems.
ANZSIC Code	622: Depository financial intermediation
Operational Control	In this scenario the tenant remains in operational control of the tenancy which is undergoing minor works. For the duration of those works any existing facility boundaries remain unchanged. Equipment operated by the contractor is captured as part of the tenant's (Client's) power.

### Example 2: Discrete Refurbishment Activities e.g. Shopping Centre Expansion

In this example a retail shopping centre is undergoing a major expansion which involves the construction of a new wing to the existing centre.

Principal Activity	New Build Construction Works
Secondary & Ancillary Activities	N/A
Facility Boundary	All areas under the operational control of the Construction Contractor. Typically includes areas which are secured behind hoardings or site security fencing.
Parties involved in the operation of the Facility	<ul> <li>Client – Maintains operational control over the existing centre. Will take operational control over the new wing at practical completion.</li> <li>Principal Construction Contractor – Takes operational control of the extension works and is responsible for reporting energy use and emissions data from construction activities under NGERs until practical completion.</li> <li>Subcontractor(s) - Collect and provide all NGERs related data to the Principal contractor.</li> </ul>
Possible sources of emissions and energy consumption	Hoists, cranes, light and power, concrete pumps, earthmoving plant, any light and power from tenancies or common areas that have not yet achieved practical completion where the construction manager is deemed to have operational control.
ANZSIC Code	302: Non residential building construction
Operational Control	In this scenario the facility boundary for the construction site temporarily intersects with the existing boundary of the supermarket tenancy within the centre. For the duration of the construction project the facility boundaries are redefined such that the construction manager has operational control of the areas within the construction site until practical completion. The tenant and client retain operational control of the existing of the unaffected areas of the existing facilities.

#### Example 3: New Build Construction

In this example a new mixed-use office and retail tower is being constructed. The site is currently occupied by a building which is to be demolished by a demolition contractor prior to excavation and construction works being undertaken by a construction contractor.

Principal Activity	New Build Construction Works
Secondary & Ancillary Activities	N/A
Facility Boundary	All areas under the operational control of the Construction Contractor. Typically includes areas which are secured behind hoardings or site security fencing.
Parties involved in the operation of the Facility	<ul> <li>Client – Resumes operational control of existing facility at handover to demolition contractor. Client will resume operational control over the building at practical completion.</li> <li>Principal Construction Contractor – Takes operational control of the extension works and is responsible for reporting energy use and emissions data from construction activities under NGERs until practical completion.</li> <li>Subcontractor(s) - Collect and report all NGERs related data to the Principal contractor.</li> </ul>
Possible sources of emissions and energy consumption	Hoists, cranes, light and power, concrete pumps, earthmoving plant, any light and power from tenancies or common areas that have not yet achieved practical completion or are being commissioned, where the construction manager is deemed to have operational control.
ANZSIC Code	302: Non residential building construction
Operational Control	In this scenario the facility has a clearly defined boundary. The client hands over operational control to the demolition contractor who in this instance is a separate entity to the Principal Construction Contractor who will be responsible for construction of the new building. The construction contractor maintains operational control over the facility during construction activities until practical completion. (It is noted that some activities such as civil and or demolition works may occur as part of the Principal Contract or as separately contracted activities. Where this is the case the Operational Control test applies).

# Example 4: Major civil infrastructure construction project (e.g. tollway, desalination plant) being undertaken for a Government department, Government-controlled entity as a Public Private Partnership (PPP) or Build-Own-Operate-Transfer project.

In this example, the project is to be initially operated for profit for a number of years by a party which is not a Government department or Government-controlled entity. At the end of this initial period the project is to be handed back to Government to own and operate. The Government has employed one or more consortia (could be JV's, Alliances, single head contractors or a Special Purpose Vehicle) to undertake the Design, Construction, Operation & Maintenance of the project. The project has triggered the facility threshold and all emissions and energy from the project are reportable.

For the purposes of this example a tollway project will be used.

Principal Activity	Construction (D&C phase), Road Operations (O&M phase)
Secondary & Ancillary Activities	<ul> <li>Design</li> <li>Precast plant</li> <li>Concrete &amp; asphalt batching plant</li> <li>Structural &amp; mechanical fabrication</li> <li>Road construction</li> <li>Drilling &amp; blasting</li> <li>Tunnelling</li> <li>Landscaping</li> <li>Equipment maintenance</li> <li>Water treatment</li> </ul>
Facility Boundary	The project once constructed will be connected to an existing network under the control of one party (i.e. water distribution network operated by Water Authority, road network operated by Roads Corporation), however the project will be operated privately for profit by another corporate entity and therefore constitutes greenfield construction rather than an addition to an existing network. Consequently, the project constitutes a facility in its own right and the boundary of the facility is the project boundary, plus any ancillary activities at satellite sites such as dedicated concrete and precast plant. The boundary of the facility will change once the D&C phase is completed as some ancillary activities will conclude (e.g. precast) whilst others will commence (e.g. customer service outlet in shopping centre)
Parties involved in the operation of the Facility	<ul> <li>Government entity that has contracted one or more parties to Design, Construct, Operate &amp; Maintain the project. This entity retains certain responsibilities for review of performance during the D&amp;C phase.</li> <li>Special Purpose Vehicle such as a publicly listed entity created to deliver the project under the PPP/ BOOT model.</li> <li>D&amp;C JV, Alliance or Contractor employed to deliver all design &amp; construction in accordance with Government &amp; project requirements.</li> <li>O&amp;M JV, Alliance or Contractor employed to deliver all design &amp; construction in accordance with Government &amp; project requirements.</li> <li>Major contractors that have a major role on site and operate under the direction of the D&amp;C or O&amp;M party, depending on project phase.</li> <li>Minor contractors that have a minor role on site and operate under the direction of the D&amp;C party or O&amp;M party, depending on project phase.</li> </ul>
Possible sources of emissions and energy consumption	<ul> <li>Electricity used by site facilities (i.e. offices, workshops), coal preparation plant &amp; draglines</li> <li>Petrol and/or diesel used in light &amp; heavy vehicle transport</li> <li>Diesel oil used in plant and equipment, i.e. lighting, pumps, dump trucks, excavators, dozers, graders, water trucks and light vehicles</li> <li>Diesel oil used for stationary energy (generators) and blasting (explosives)</li> <li>Lubricating oils and greases</li> <li>Waste treatment (i.e. onsite septic tanks)</li> <li>Liquid fuels consumed without combustion (i.e. flocculants)</li> </ul>
ANZSIC Code	The Principal Activity is Construction during the D&C phase, therefore the correct ANZSIC Code is '31: Heavy and civil engineering construction'. At handover, the O&M phase commences and the Principal Activity changes to Road Operations therefore the ANZSIC Code changes. If the same corporation that has operational control of the D&C phase then proceeds to operate and maintain the asset, then the two components should be reported under the O&M [Refer NGER Reg 2.22(3)] If different corporations have operational control during the D&C phase and O&M phase, then it should be reported as two different facilities from the changeover date.

Whilst the Government entity and/or an umbrella Special Purpose Vehicle (e.g. publicly listed entity) has oversight of the project through all phases, this does not translate to Operational Control during either the D&C or O&M phases unless these entities enforce the implementation of their policies day-to-day over those of the D&C and/or O&M parties. Otherwise, during the D&C phase, the D&C party retains Operational Control, and during the O&M phase the O&M party retains Operational Control. The other (minor & major) contractors perform various activities, none of which constitute 'whole of project' operation, therefore they cannot be deemed to have Operational Control of the Facility.

# Example 5: D&C Civil Project which is adding to or upgrading part of a Client's existing network (e.g. new road construction, rail duplication, trunk sewer replacement, new HV power line, telecommunications exchange upgrade, etc.)

In this example, the Client is the operator (and possibly also the owner) of an existing network that constitutes a Facility in its own right (e.g. road network, rail network, water distribution network, electricity distribution network, etc). The Client has retained the D&C contractor to extend or upgrade a portion of the existing network, and has prescribed standards that the works are to be conducted in accordance with (e.g. Sector-specific legislation, Client's standards, power easement, etc). The Client will operate the project as

part of its overall Facility once the D&C phase is completed. The overall Facility (i.e. the network) has triggered the Facility threshold and all emissions and energy from the Facility are reportable.

For the purposes of thi	s example a rail	l project will be ι	used.
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Principal Activity	Rail Freight Operations
Secondary & Ancillary Activities	<ul> <li>Bulk earthworks</li> <li>Road construction</li> <li>Drilling &amp; blasting</li> <li>Track laying</li> <li>Vegetation clearing</li> </ul>
Facility Boundary	The rail network operated by the Client constitutes a facility in its own right, therefore the boundary of the facility is the boundary of the rail network easement
Parties involved in the operation of the Facility	<ul> <li>Operator of the rail network (i.e. Client) has contracted the D&amp;C contractor to upgrade and/or extend a portion of the existing rail network (which remains in operation) and therefore has a major role on site.</li> <li>D&amp;C JV, Alliance or Contractor employed to deliver all design &amp; construction in accordance with Government &amp; project requirements.</li> <li>Other contractors that have a minor role on site and operate under the direction of the D&amp;C party.</li> </ul>
Possible sources of emissions and energy consumption	<ul> <li>Electricity used by site facilities (i.e. offices, workshops)</li> <li>Petrol and/or diesel used in light &amp; heavy vehicle transport</li> <li>Diesel oil used in plant and equipment, i.e. rail grinders, tampers, lighting, pumps, dump trucks, excavators, dozers, graders, water trucks and light vehicles</li> <li>Diesel oil used for stationary energy (generators) and blasting (explosives)</li> <li>Lubricating oils and greases</li> <li>Waste treatment (i.e. onsite septic tanks)</li> <li>Liquid fuels consumed without combustion (i.e. flocculants)</li> </ul>
ANZSIC Code	The Principal Activity conducted at the overall Facility is Rail Operations, therefore the correct ANZSIC Code is '471: Rail Freight Transport'
Operational Control	The D&C contractor performs the design and construction tasks, however this relates to only a portion of the overall Facility and is performed in accordance with the standards specified by the Facility operator. Therefore, the Client retains Operational Control due to having control of the overall Facility, and must report on behalf of the Facility. The other (minor) contractors perform various activities, none of which constitute 'whole of Facility' operation, therefore they cannot be deemed to have Operational Control.

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Example 6: D&C project carried out by a JV, Alliance or other partnership where the Client is a member of the partnership and the Partnership Agreement contains a clause giving enhanced decision making power to the Client over that of the Non-Owner Participants

In this example, the Client is the future operator (and possibly also the owner) of a construction project that constitutes a Facility in its own right. The client has entered into a partnership agreement with various Non-Owner Participants (NOP's i.e. a designer, a construction contractor, etc) to design and construct the project. All members of the partnership are represented on the project's peak decision making body that has direct responsibility for day-to-day management of the project, however the partnership agreement contains a clause giving the Client power of veto, unilateral decision making, or other enhanced decision making power over the NOP's. Whilst the project itself will not trigger the facilities threshold, various members of the partnership trigger the threshold for corporations.

For the purposes of this example a building project will be used.

Principal Activity	Construction (D&C phase), Accommodation (future activity)
Secondary & Ancillary Activities	<ul> <li>Vegetation clearing</li> <li>Bulk earthworks</li> <li>Building construction</li> <li>Mechanical &amp; electrical services</li> </ul>
Facility Boundary	The building once completed will be operated by the Client and will constitute a facility in its own right, therefore the boundary of the facility is the boundary of the building site.
Parties involved in the operation of the Facility	<ul> <li>Client as member of partnership.</li> <li>D&amp;C contractors as members of partnership.</li> <li>Other contractors that have a minor role on site and operate under the direction of the partnership.</li> </ul>
Possible sources of emissions and energy consumption	<ul> <li>Electricity used by site facilities (i.e. offices, workshops)</li> <li>Petrol and/or diesel used in light &amp; heavy vehicle transport</li> <li>Diesel oil used in plant and equipment, i.e. rail grinders, tampers, lighting, pumps, dump trucks, excavators, dozers, graders, water trucks and light vehicles</li> <li>Diesel oil used for stationary energy (generators) and blasting (explosives)</li> <li>Lubricating oils and greases</li> <li>Waste treatment (i.e. onsite septic tanks)</li> <li>Liquid fuels consumed without combustion (i.e. flocculants)</li> </ul>
ANZSIC Code	The Principal Activity conducted at the overall Facility during the D&C phase is Construction, however the Client is involved in the D&C phase therefore the correct ANZSIC Code for the future activity (retail) should used, which is '440: Accommodation'
Operational Control	All members of the partnership are involved in the day to day operation of the Facility during the D&C phase, however the clause in the partnership agreement giving the Client enhanced decision making power at peak decision making level over the NOP's gives the Client the greatest authority to introduce and implement policies. Based on the above, the Client has Operational Control and must report on behalf of the Facility. However, being a partnership, an NOP can accept Operational Control in place of the Client if agreed by all parties to the partnership. The other (minor) contractors perform various activities, none of which constitute 'whole of Facility' operation, therefore they cannot be deemed to have Operational Control. Once the D&C phase is complete, Operational Control will revert to the Client as the operator of the completed Facility (the NOP's have exited the project at this point).

### Example 7: Rail Duplication – Mining Sector

In this example an existing rail line servicing major mining operations is expanded with two additional tracks, upgrades to existing bridges and new overhead wiring. This is a Joint Venture contract consisting of 2 parties - 2 principal contractors. The Client has engaged an EPCM contractor to manage this JV and other contracts the client has entered into (port development, dredging, and other infrastructure). The EPCM contractor is an alliance between a design consultant and an engineering firm. In this instance the Client and the EPCM contractor manage all planning and approvals, specify operating and environmental policies and undertake regular audits and inspections of activities undertaken by the JV and other alliances.

Principal Activity	Heavy and civil engineering construction
Secondary & Ancillary Activities	<ul> <li>Bulk earthworks</li> <li>Road construction</li> <li>Drilling &amp; blasting</li> <li>Track laying</li> <li>Vegetation clearing</li> </ul>
Facility Boundary	The rail network operated by the Client constitutes a facility in its own right, therefore the boundary of the facility is the boundary of the rail network easement
Parties involved in the operation of the Facility	<ul> <li>Client – Mining Company (owner) plays a major role by actively managing all planning and approvals, participating in all decisions and overseeing implementation of all activities along with EPCM</li> <li>The Managing Contractor (EPCM) is responsible for managing a number of project packages subject to JVs, Alliances etc. EPCM plays a major role on site by actively managing planning and approvals, participating in all decisions and overseeing the implementation through inspections, audits and reviews.</li> <li>The Principal Contractors (JV) manage specific construction activities on site that form part of the overall package of works.</li> <li>Rail track specialist contractor and subcontractors.</li> </ul>
Possible sources of emissions and energy consumption	Electricity used by site facilities (i.e. offices, workshops) Petrol and/or diesel used in light & heavy mobile equipment Diesel oil used in plant and equipment, i.e. rail grinders, tampers, lighting, pumps, dump trucks, excavators, dozers, graders, water trucks and light vehicles Diesel oil used for stationary energy (generators) and blasting (explosives) Lubricating oils and greases Waste treatment (i.e. onsite septic tanks, wastewater treatment plants) Liquid fuels consumed without combustion (i.e. flocculants)
ANZSIC Code	The Principal Activity conducted at the overall Facility is Heavy and civil engineering construction therefore the correct ANZSIC Code is 310
Operational Control	Since the client and the EPCM contractor both play a major role by managing planning and policy approvals, operational control will sit with either party. The principal contractors (JV) will need to report their and their subcontractors' emissions and energy use to the party with operational control. However the JV partners need to nominate a reporting party and will need to have an internal agreement in place to share the emerging compliance costs. Specialist Contractor to report directly to EPCM/Client or to the Principal Contractor to collate the report.

### Example 7: New Building Construction Within Existing Controlled Facility (Defence Base)

In this example a new army barracks and mess hall are constructed within the boundary of an existing defence base. A head contractor is engaged by the client (Department of Defence), with several subcontractors doing a significant part of the works.

Principal Activity	New build construction
	<ul> <li>Bulk earthworks</li> </ul>
Secondary & Ancillary Activities	<ul> <li>Vegetation clearing</li> </ul>
	Building construction
Facility Boundary	The defence base operated by the Client constitutes a facility in its own right, therefore the boundary of the facility is the boundary of the base
	<ul> <li>Client – Department of Defence (owner) requires a high level of security checks, sign in and other policies for all parties operating on site. Contractors operate under client EMS and OHS management systems</li> </ul>
Parties involved in the operation of the	
Facility	<ul> <li>The Principal Contractor manages specific construction activities on site</li> </ul>
	<ul> <li>Subcontractors undertake construction activities.</li> </ul>
Possible sources of emissions and energy consumption	Electricity used for light and power Petrol and/or diesel used in light & heavy mobile equipment Diesel oil used in plant and equipment, i.e. dump trucks, excavators, dozers, graders, water trucks and light vehicles, concrete pumps, cranes Diesel oil used for stationary energy (generators) Lubricating oils and greases
ANZSIC Code	The Principal Activity conducted at the overall Facility is Defence (7600).
Operational Control	The Department of Defence has operational control of the Facility.

### Example 8: Replacement of Part of a Sewerage Network

In this example an old section of a sewerage network is being replaced, which involves the construction of a new 2 km long underground sewer, as well as a branch of reticulated sewer pipe network.

Principal Activity	Construction of sewerage pipeline
Secondary & Ancillary Activities	N/A
Facility Boundary	The facility is the sewerage network, which comprises all physically connected pipelines and treatment plants maintained and operated by the client.
	Client – Operates the existing network facility.
Parties involved in the operation of the Facility	<b>Principal Construction Contractor</b> – Collects and provides all NGER related data for the construction works to the client.
	Subcontractor(s) - Collect and provide all NGER related data to the Principal contractor.
Possible sources of emissions and energy consumption	Electricity – light and power, tunnel boring machines. Diesel – demolition, earthworks, clearing, piling, cranage, spoil haulage/stockpiling, grout pumping. Oil, grease, solvents, unleaded.
ANZSIC Code	2812 Sewerage and drainage services (the code of the future activity)
Operational Control	In this scenario works are being done on an existing facility – the sewerage network. The works do not comprise a facility in their own right. Operational control of the facility remains with the client.

## Appendix - E SUBCONTRACTOR DATA FORM

PLEASE	USE ACTUAL IN	NGER I OICED AMO E	Data Cap UNTS WHEF STIMATE OI	D <b>TURE SUBC</b> RE POSSIBLE. IF R APPORTION E	Ontra NOT P NERGY	ctor Form LEASE DESCH USE.	<b>)</b> RIBE THE	METHOD USI	ED TO	COMPANY LOGO
Subcontract	tor Name					Subcontra Reference	ctor (where	Purchase	e order #	Identifier
Subcontract	tor Address					applicable	2)			
Facilitiy (site address	e) name and									
ENERGY TY	ΈE	ACTUAL**	ESTIMATE	Units	ENER	GY TYPE		ACTUAL**	ESTIMAT E ***	Units
Electricity (or	nly if metered)			kWh (kilowatt	Electric	city Generated	vith a			kWh (kilowatt
Non-renewat	ble (from grid)			hours)	capaci	ty $\geq 0.5$ MW or 5	500kVa			hours)
Geothermal)	eg wind, Solar,				kWh) p	baucing >100, ber year	000			
			Fue	I/Lubricants/Sol	vents/Re	efrigerants				
Diesel station	nary*			kL (kilolitres = litres/1000)	Ethano	l Blends (eg E	10			kL
Diesel transp	port			kL	Oil (en	gine oil)				L (litres)
Unleaded Pe	trol Stationary			kL	Oil (no hydrau	n-combusted – lic, gear oil etc	- )			L (litres)
Unleaded Pe	trol Transport			kL	Grease	•				kg (kilograms ) or Litres
Biodiesel (eg include name	B5, B20 – here)			kL (kilolitres)			E	xplosives		
Jet A1 (AVTI	JR)			kL (kilolitres)	Diesel	Component or	ıly			L (litres)
LPG				Kg or kL			Refrigera	nts and Insula	ints	
CNG				cubic metres	HFC-2	3 (CHF3)				kg
Natural Gas				cubic metres	HFC-1 CHF2)	52a (C2H4F2,	CH3			kg
Bulk Solvent WD40, RP7,	s (eg Thinners, etc)			L (litres)	HFC-1 CH2F0	34a (C2H2F4, CF3)				kg
OTHER (As the NGER m determination	specified within easurement n)				SF6					kg
* road registe (including no	ered vehicles are on n-road registered	considered 'tra vehicles) is co	ansport' – eve onsidered 'sta	erything else tionary'	**if am	ounts from invo	biced data	please attach	copies.	
***if amounts (Measureme	estimated, please nt) Determination	e describe the 2008:	method used	d – methods must	t be cons	istent with the	NGER	Subcontracto	or SIGNAT	URE/DATE:
								By signing the re information is ac	epresentativ ccurate and	e authorises that comprehensive.
OFFICE USE:	Job number:					Date Entered:		Entered by:		

- All energy and emissions data provided by the Contractor must meet the relevant quality requirements specified in the Technical Guidelines under the Act.
- All receipts, dockets and records confirming the energy and emissions data provided by the Contractor must be retained by the Contractor in accordance with the Act.
- If the Contractor does not provide all relevant energy and emissions data under the requirements of the Act the Greenhouse and Energy Data Officer may directly seek this information and enforce penalties.
- The Contractor must advise the Principal in writing if they intend/ or are reporting separately under the Act.

## Appendix F GLOSSARY OF TERMS

NGER Act	The National Greenhouse and Energy Reporting Act 2007 establishes the legislative framework for the National Greenhouse and Energy Reporting System.
NGER Regulations	The National Greenhouse and Energy Reporting Regulations 2008 provide the necessary details that allow compliance with, and administration of, the NGER Act.
NGER Reporting (Measurement) Determination	The National Greenhouse and Energy Reporting (Measurement) Determination 2008 (the Determination) provides methods and criteria for calculating greenhouse gas emissions and energy data under the NGER Act. The Determination is updated annually to incorporate up to date emissions factors and refinements to methods.
NGER Reporting Guidelines	<ul> <li>The National Greenhouse and Energy Reporting Guidelines have been developed to help corporations understand their obligations under the National Greenhouse and Energy Reporting Act 2007 (the Act).</li> <li>The Reporting Guidelines are applicable across industry sectors and cover important concepts under the Act and the National Greenhouse and Energy Reporting Regulations 2008 (the Regulations), including:</li> <li>Determining participation</li> <li>Registration</li> <li>Record keeping</li> <li>Deregistration</li> </ul>

## **Appendix G - Reporting Oils and Greases**

Taken from the DCCEE Supplementary Guidelines – Oils and Greases <a href="http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/publications.aspx">http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/publications.aspx</a>

How to enter 1. Se Energy Cor For Parent Under Avai	er combusted PBO and PBG from stationary and transport sources into OSCAR: lect the data entry screen for the facility you wish to add data against. Under the Ginsumption tab, select Add Source/ Activity Data. Source, select Fuel Combustion/ Energy. For Source, select Other Stationary. lable Activity Types select the correct activity type, either item 31 or item 32.	HG Emissions &
Source/Act	ivity Type Selection - GHG Emissions & Energy Consumption	
Sources		
Please select (Measuremer	a source from the list below. Sources are categories of activities including but not limited to those defined by NGER nt) Determination 2008.	
Parent Source:	Fuel Combustion/Energy	•
Source:	Other Stationary	<b>•</b>
Please select Schedule 1 o	activity types from the list below. For those activity types preceded by a number, the number is the item number fro f NGER (Measurement) Determination 2008.	m
Available	Activity Types	A
29 Sludg	e blogas that is captured for compustion (methane only). Non-transport	
21 Detro	lours based eils (ether than natrolours based eil as fuel). Nen transport	
32 Petro	leum based ons (other than perfoleum based on as fuer), Non-transport	
a 32 Fello	e oil isoludina cruda ail condenantes. Non-transport	
34 Other	r astural ass liquide. Non-transport	
35 Gaso	line (other than for use as fuel in an aircraft). Non-transport	-
-Cub facility	Inhasitanca	
Checking the from each su	checkbox will cause all sub-entities to inherit and display the current selection. Selections can be manually removed b-entity in order to undo this action.	1
🔲 Sub-Entiti	es inherit this source and activity type(s) selection	
	OK	ncel

In the **GHG Emissions & Energy Consumption** tab, select **Add activity data** next to the activity source. In this screen you will be able to enter the quantity of PBO or PBG consumed for combustion, as well as the criteria or measurement and method of calculation. Click **Save**.

Note: If you wish to delineate stationary and transport uses, use the Description field in OSCAR as per below. In the **GHG Emissions & Energy Consumption** tab, select **Add activity data**. Under the **Data Entry Description** input field enter **Transport**.

Activity Data Entry - GHG Emissions & Energy Consu	Imption
Source: Fuel Combustion/Energy (Other Stationary) Activity Type: Petroleum based greases. Non-transport	Data Entry Description: Transport Optional. Used only to help organisations track data entry in OSCAR.
Status:	
_Usage Details	
Enter the quantity used and associated details.	Incidental
The energy consumption can not be calculated until the methods have the "Emission Details" section below. For methods 2, 3 & 4 Energy Content and Emission Factors can be Commercial or Non-commercial Transaction: © Commercial © Non-commercial Criteria: A  Invoices issued by the vendor of the section of	ave been selected for each greenhouse gas in entered in the Activity Type Information page. ne fuel
Ouantity Unit Fuel Usage	
100 kL Combusted	
Emission Details Measurement methods are specified in the NGER (Measurement) D Information" Section below for more information.	etermination 2008. Please see "Additional Incidental

Entering Method 1 data when the default emission factor is not used (for 2010-11 onward only)

From the 2009-10 reporting year, corporations can choose to calculate an emission factor for PBO or PBG. For 2010-11 OSCAR allows a corporation to enter their own emission factor for Method 1. This can be done as follows:

1. Follow steps 1-3 above. When the activity data has been selected, in the **GHG Emissions & Energy Consumption** tab select **Add Activity Type Information** next to the activity source.

Facility Emission F	actors —			-
These factors are us of the NGER (Measu factor if any other m	ed to calcula rement) Detr ethod is sele	te the greenhouse ga ermination 2008 and a ected.	s emissions for the activity. The default emission factors are from Schedule 1 re used if Method 1 is selected for a gas. Enter a facility specific emissions	
Gas		Emission Factor		
Carbon Dioxide (C	(O <sub>2</sub> )			
N	Nethod 1	27.900000	kg CO2-e/GJ	
N	lethod 2		kg CO2-e/GJ	
N	lethod 3		kg CO2-e/GJ	
M	lethod 4		kg CO2-e/GJ	
Other	Method		ka CO2-e/GJ	

3. Replace this figure with the new emission factor determined under s2.48A of the NGER (Measurement) Determination and click **Save**. In the below example 20.0 has been entered.

Activity Type Infor	mation - GHG Emissi	ions & Energy Consumption	
Facility Emission Factor	5		
These factors are used to of the NGER (Measuremen factor if any other method	calculate the greenhouse gas t) Determination 2008 and a is selected.	s emissions for the activity. The default emission factors are from Schedule 1 re used if Method 1 is selected for a gas. Enter a facility specific emissions	
Gas	Emission Factor		
Carbon Dioxide (CO <sub>2</sub> )			
Method	1 20.0	kg CO2-e/GJ	
Method	12	kg CO2-e/GJ	
Method	13	kg CO2-e/GJ	
Method	14	kg CO2-e/GJ	
Other Meth	bo	kg CO2-e/GJ	

4. In the **GHG Emissions & Energy Consumption** tab, select **Add activity data** next to the activity source. In this screen you will be able to enter the quantity of PBO or PBG consumed for combustion, as well as the criteria or measurement and method of calculation. Click **Calculate** and the calculation will be displayed. Click **Save** to save this data entered.

or methods 2, 3 & 4	Energy Con	tent and Emission Fact	tors can be entered in the Activity Type Informati	ion page.
ommercial or Non-o	commercial	Transaction:		
Commercial				
Non-commercial				
Criteria: A 💌	Inv	oices issued by the ve	endor of the fuel	
Quantity	Unit	Fuel Usage	Energy Content Factor Energy Content	
100	kL	Combusted	38.800000 3880 GJ	
E <mark>mission Details</mark> — Measurement method	ls are specifi	d in the NGER (Measu	urement) Determination 2008. Please see "Additic	nal <u>Incidental</u>
E <b>mission Details</b> — Measurement methoc Information" Section	Is are specific below for mo	ed in the NGER (Measure information.	urement) Determination 2008. Please see "Additic	onal <u>Incidental</u>
E <b>mission Details</b> — Measurement methoc Information" Section	ls are specifi below for mo Ca	ed in the NGER (Measure information.	Methane (CH4) Nitrous oxide (N2O)	nal <u>Incidental</u>
E <b>mission Details</b> — Measurement methoc Information" Section	ls are specific below for mo Ca Me	ed in the NGER (Measu pre information. r <b>bon Dioxide (CO<sub>2</sub>)</b> thod 1	Method 1 Method 1	onal <u>Incidental</u>
mission Details — Measurement method Information" Section	Is are specifi below for mo Ca Me	ed in the NGER (Measu ore information. rbon Dioxide (CO2) thod 1	urement) Determination 2008. Please see "Addition Methane (CH4) Nitrous oxide (N2O) Method 1 • Method 1 •	onal <u>Incidental</u>
Emission Details — Measurement methoc Information" Section Emissions: Direct Entry	Is are specifi below for mo Ca Me t CO2-e	ed in the NGER (Measu ore information. rbon Dioxide (CO <sub>2</sub> ) thod 1	urement) Determination 2008. Please see "Additic Methane (CH4) Nitrous oxide (N2O) Method 1 • Method 1 •	nal <u>Incidental</u>
Emission Details — Measurement methoc Information" Section Emissions: Direct Entry Emission Factor	ls are specifi below for mo Ca Me t CO2-e	ed in the NGER (Measu ore information. rbon Dioxide (CO2) thod 1	Method 1 Method 1 00000000000000000000000000000000000	onal <u>Incidental</u>

Entering Method 1 data when the default emission factor is not used (for 2009-10 only)

From the 2009-10 reporting year, corporations can choose to calculate an emission factor for PBO or PBG, but OSCAR does not allow a corporation to enter their own emission factor for Method 1 in the 2009-10 reporting functionality. This can be resolved by entering data as follows:

- 1. Follow steps 1-3 above. When the activity data has been selected, highlight Add Activity Data.
- 2. In the Data Entry Description input box, enter 'Method 1 (any other description you may wish to add).

Activity Data Entry - GHG Emissions & Energy	Consumption
Source: Fuel Combustion/Energy (Other Stationary) Activity Type: Petroleum based greases. Non-transport	Data Entry Description: Method 1 - Engine Oil
	Optional. Used only to help organisations track data entry in OSCAR.
Status:	

3. After selecting criteria and quantity of fuel combusted, you will have the ability to select the method of calculation.

4. Here, you will be required to select **Method 2** and enter the direct emissions that have been calculated outside OSCAR. Click **Save**.

-Emission Details -								
Measurement metho Information" Sectior	ods are spe n below for	ecified in the NGER more information.	(Measurement	) Determinat	ion 2008. Please se	e "Additional	Incidental	
		Carbon Dioxide (CO <sub>2</sub> )	Metha	ne (CH <sub>4</sub> )	Nitrous oxide (N <sub>2</sub> O)			
Emissions:		Method 2	<ul> <li>Method</li> </ul>	d1 🗸	Method 1	•		
Direct Entry	t CO2- e	122						
Emission Factor								
Calculated	t CO2- e							E
For each source, add Optional information The method 1 calcula calculation cannot be information may be	litional info may be no ation will b performe required o	ormation is required eeded to perform n e performed if all in id, or another meth n the Other Source	l as detailed in hethod 1 calcul nformation is a od is selected, Data tab and t	the NGER Re ation of emis vailable to pe then the em he Activity T	egulations defined a isions. erform the calculatic issions should be en ype Information scr	s Matters to be id on. Where the me tered directly. Ac een.	ethod 1 dditionally,	
- Book in th		Emissions & Er	oray Conc	umption t		alculate S	ave Ca	ncel
o the activity sources b. For the Co Determination. Clic	e <b>GHG I</b> ≿e. ⊃₂ emiss k <b>Save</b> (	sion factor, add t see figure over	the emissior leaf).	factor cal	culated under S	ection 2.48A (	2) of the	Inext
Facility Emission Fa	ctors —							
These factors are used to of the NGER (Measurem factor if any other meth	to calculate ent) Deterr od is select	the greenhouse gas nination 2008 and are ed.	emissions for th e used if Method	e activity. The 1 is selected	e default emission fact for a gas. Enter a fac	ors are from Sche ility specific emissi	edule 1 ions	
Gas		Emission Factor						
Carbon Dioxide (CO2	) and 1	27 900000	ka CO2-a/C1					
Meth	nod 2	27.900000	kg CO2-e/GJ	1				
Meth	nod 3		kg CO2-e/GJ	1				
Meth	nod 4		kg CO2-e/GJ					
						Save	Cancel	

7. All relevant information has now been added into OSCAR.

Entering PBO or PBG consumed without combustion into OSCAR

1. Select the data entry screen for the facility you wish to add data against. Under the **GHG Emissions & Energy Consumption** tab, select **Add Source**/ **Activity Data**.

2. For Parent Source, select Other Fuel Consumption. For Source, select Energy consumed (not combusted).

lease select Measuremer	a source from the list below. Sources are categories of activities including but not limited to those defined by NGE (t) Determination 2008.	R
Parent Source:	Other Fuel Consumption	•
Source:	Energy consumed (not combusted)	•
lease select chedule 1 o	es activity types from the list below. For those activity types preceded by a number, the number is the item number f NGER (Measurement) Determination 2008.	from
Available /	e biogas that is captured for combustion (methane only). Non-transport	^
30 Other	· biogas. Non-transport leum based oils (other than petroleum based oil as fuel). Non-transport	=
32 Petro	leum based greases. Non-transport e oil including crude oil condensates. Non-transport	
34 Other	natural gas liquids. Non-transport	-
ub-facility	Inheritance	
Checking the rom each su	checkbox will cause all sub-entities to inherit and display the current selection. Selections can be manually remov b-entity in order to undo this action.	ved
Sub-Entiti	es inherit this source and activity type(s) selection	

4. Click **Add activity data**. In this screen you will be able to enter the quantity of PBO or PBG consumed without combustion, as well as the criteria or measurement.

# Appendix H - HFC Descriptors Taken from: <u>http://www.iowadnr.gov/air/prof/ghg/files/HFCS%20and%20PFCS%20Chemical%20Names.pdf</u>

HFCs and PFCs - Chemical Names, Trade Names, and Blends				
Common Name	Chemical Name, Tra	de Names, Blends	Applications	CAS number
Hydrofluorocarbons (HFCs)				
HFC-23	trifluoromethane	Suva 95	low temperature refrigerant, fire	75-46-7
	fluoroform	Genetron 503	extinguishant, plasma etchant,	
	R-23	Genetron 23	semi-conductor manufacturing	
	Freon 23	Klea 23	cleaning agent	
	FE-13	Klea 508		
	FE-36	Klea 5R3		
	Forane FX 220	NARM 503		
HFC-32	difluoromethane	R-407C	component in refrigerant blends	75-10-5
	methylene fluoride	Klea 407A		
	R-32	Klea 407B		
	R-410A	Klea 407C		
	R-407C	Klea 407D		
	Freon 32	Klea 410A		
	Forane 410A (AZ-20)	Klea 32		
	Forane FX 40	Genetron 407C		
	Forane FX 220	AZ-20		
	Forane 407C	EcoloAce 407c		
	Forane 32	HX4		
	Asahiklin SA-39	Solkane 407C		
	Asahiklin SA-45	Solkane 410		
	Meforex 98	Suva 9000		
	Meforex 32	Suva 9100		
	R-410A			
HFC-41	methyl fluoride	R-41		593-53-3
	fluoromethane			
HFC-43-10mee	decafluoropentane		cleaning solvent	138495-42-8
HFC-125	ethane	Forane 507	component in refrigerant blends,	354-33-6
	pentafluoro	Forane FX10	fire extinguishant	
	pentafluoroethane	Forane FX40		
	R-125	Forane FX70		
	FC-125	Suva 125		
	Freon 125	Suva 9000		
	FE-25	Suva 9100		
	Arcton 402A	Suva HP62		
	Arcton 402B	Suva HP80		
	Arcton 408A	Suva HP81		
	Klea 404A	Cooltop R-134a Replace		
	Klea 407A	EcoloAce 404a		
	Klea 407B	Di 44		
	Klea 407C	Meforex 125		
	Klea 407D	Meforex 55		
	Klea 410A	Meforex 57		
	Klea 507A	Meforex 98		
	Asahiklin SA-28	ISCEON 29		
	Asahiklin SA-39	ISCEON 404A		

HFCs and PFCs - Chemical Names, Trade Names, and Blends				
Common Name	Chemical Name, Trad	e Names, Blends	Applications	CAS number
HFC-125	Asahiklin SA-45	ISCEON 507	component in refrigerant blends,	354-33-6
(continued)	AZ-20	ISCEON 59	fire extinguishant	
	AZ-50	ISCEON 79		
	Genetron 404A	ISCEON 89		
	Genetron 125	RX3		
	Genetron 407C	NAF P IV		
	Genetron 408A	NAF \$ 125		
	Genetron HP80	R-404A	7	
	Genetron HP81	Solkane 404A	7	
	Forane 125	Solkane 507	7	
	Forane 404A	Reclin 507	7	
	Forane 407C	HX4	-	
	Forane 410A (AZ-20)	R404a	_	
HFC-134	R-134	tetrafluoroethane		359-35-3
HFC-134a	tetrafluoroethane	Genetron 404A	residential refrigerant,	811-97-2
	norflurane	Genetron 134a	component of refrigerant blends,	
	R-134a	Genetron 407C	foaming agent PS foams, fire	
	FC-134a	HX4	extinguishant, medical	
	Freon 134a	Solkane 134a (F)	propellants, aerosol propellants	
	Asahiklin AK-134a	Solkane 134a (R)	-	
	Asahiklin SA-39	Solkane XG87	-	
	Asahiklin SA-45	HFC-134a	-	
	Cooltop R-134a Replacement	ISCEON 134a		
	Di 24	ISCEON 29		
	Meforex 134a	ISCEON 39TC	-	
	Meforex 55	ISCEON 404A	-	
	Dymel 134a	ISCEON 49	-	
	Formacel Z4	ISCEON 59	-	
	Ecolo Ace 134a	ISCEON 79	-	
	Ecolo Ace 404a	Johnsens Freeze 12	-	
	Ecolo Ace 407c	Klea 134a		
	Floron 134a	Klea 404A	-	
	Forane 134a	Klea 407A	-	
	Forane 404A	Klea 407B	-	
	Forane 407C	Klea 407C	-	
	Forane FX 220	Klea 407D	-	
	Forane FX 70	NAF P III	-	
	Free Zone	Solpower SP34E	-	
	Free Zone RB-276	R404a		
	Freezone	Suva 134a		
	FRIGC	Suva 9000		
	FRIGC FR-12	Suva HP62		
	FRIGC FR-12			
HFC-143	R-143	trifluoroethane		430-66-0

HFCs and PFCs - Chemical Names, Trade Names, and Blends				
Common Name	Chemical Name, Tra	de Names, Blends	Applications	CAS number
	Pei	rfluorinated Compour	nds (PFCs)	
PFC-14	tetrafluoromethane	carbon tetrafluoride	plasma etchant, semi-conductor manufacturing cleaning agent,	75-73-0
	perfluoromethane	R-14	low temperature refrigerant	
PFC-116	hexafluoroethane	Freon 116	plasma etchant, semi-conductor	76-16-4
	perfluoroethane	Klea 508	manufacturing cleaning agent	
	R-116	Suva 95		
	CF-116			
PFC-218	octafluoropropane	Arcton TP5R	plasma etchant, semi-conductor	76-19-7
	perfluoropropane	Arcton TP5R2	manufacturing cleaning agent,	
	R-218	ISCEON 49	low temperature refrigerant, fire	
	FC-218	ISCEON 69-L	extinguishant	
	Freon 218	ISCEON 69S		
	CEA-308	RX3		
	Arcton 412A	ISCEON 89		
	Arcton 509	Meforex 218		
PFC-3-1-10	decafluorobutane	R-31-10	refrigerant, fire extinguishant	355-25-9
	perfluorobutane	CEA-410		
	perfluoro-n-butane	PFC-410		
PFC-318 or PFC-	perfluorocyclobutane	RC-318	plasma etchant, cleaning agent, dielectic, refrigerant, media of	115-25-3
c318	octofluorocyclobutane	Freon 318	polymerization of fluorine- contained polymers, propellant	
	R-c318		in food industry	
PFC-4-1-12	dodecafluorpentane	R-41-12	refrigerant, precision cleaning	678-26-2
	perfluoropentane		solvent	
PFC-5-1-14	tetradecane fluorohexane	R-51-14	refrigerant, precision cleaning	355-42-0
	perfluorohexane	CEA-614	solvent, fire extinguishant	
Other High GWP Greenhouse Gases				
NF <sub>3</sub>	trifluoramine	nitrogen trifluoride	plasma etchant, semiconductor	7783-54-2
	nitrogen fluoride		manufacturing cleaning agent	
SF <sub>6</sub>	sulfur hexafluoride	R-7164	dielectic and insulating gas in electric power equiment; inert filling for double-pane windows; magnesium casting, fire extinguishant	2551-62-4

## **Appendix I – Legislative Amendments**

NGER Legislative Amendments Applicable to the 2010/11 Reporting Year The following legislative amendments have been noted applicable to ACA members NGER reporting requirements.

#### Table 1 Additional information/new advice - non legislative:

Additional Information	ACA Response Required	Link
Reporting of	ACA can now voluntarily report GreenPower	http://www.climatechange.gov.au/govern
GreenPower and	purchased and RECs voluntarily surrendered if	ment/initiatives/national-greenhouse-
Renewable Energy	applicable.	energy-reporting/greenpower-and-
Certificates (RECs)		renewabl-energy-certificates.aspx
Facility definitions under	Ndevr have developed a template scorecard	http://www.climatechange.gov.au/govern
s9 of the NGER Act	approach to help determine complex facility	ment/initiatives/national-greenhouse-
2007	definitions.	energy-reporting/tools-
		resources/publications.aspx
Mergers and	Clarified reporting requirements for acquisitions.	http://www.climatechange.gov.au/govern
Acquisitions	Acquirer organisation required to provide report	ment/initiatives/national-greenhouse-
	from acquired corporation where acquisition does	energy-reporting/tools-
	not occur on 1 July.	resources/publications.aspx
Energy production and	Clarification of energy reporting for internal use.	http://www.climatechange.gov.au/govern
consumption	The requirement to report each energy	ment/initiatives/national-greennouse-
	transformation ensures that all stages of the	energy-reporting/tools-
	energy llow are represented in a registered	resources/publications.aspx
	boundaries	
	Begistered corporations should only report the	
	consumption of an Item 66 energy commodity	
	(such as steam, compressed air or waste das) if it	
	has been acquired from outside the facility	
	boundaries.	
Oils and greases	Oils and greases combusted only required	http://www.climatechange.gov.au/govern
, i i i i i i i i i i i i i i i i i i i	reporting unless over 15KL is consumed by non-	ment/initiatives/national-greenhouse-
	combustion activities.	energy-reporting/tools-
	Engine oil and lubricating greases typically	resources/publications.aspx
	reportable <15KL. Hydraulic oils etc. only	
	reportable >15KL.	
Various other	VIPPs	http://www.climatechange.gov.au/govern
supplementary	CEO sign off	ment/initiatives/national-greenhouse-
guidelines:	Trusts	energy-reporting/tools-
	<ul> <li>Aggregated facilities, reporting by</li> </ul>	resources/publications.aspx
	percentage, incidental emissions	

#### Table 2. NGER Regulations 2008 Amendments:

Amendment	Provision	ACA Response Required	
Requirement to report	R4.17A	ACA formally required to report uncertainty at 95% confidence interval	
uncertainty		of all sources aggregated to the corporate level.	
Bitumen consumed not	Schedule 1	Not reportable post 2010/11	
combusted no longer reportable			
after 2010/11 reporting year			

#### Table 3. NGER (Measurement) Determination 2008 Amendments

Amendment	Provision	ACA Response Required
Provides general requirements for carbon capture and storage as a separate division within Part 1.2 of the Determination which deals with general requirements applicable across all or most of the Determination.	Part 1.2 General, Division	None required unless CCS undertaken in future years. Allows to 'net out' carbon captured and stored in permanent geological formations.
Aligning definitions for stationary and transport energy between gaseous and liquid fuels; and	Part 2.3 Emissions released from the combustion of gaseous fuels, Division 2.3.2 Method 1 — emissions of carbon dioxide, methane and nitrous oxide	Ensure gaseous fuels combusted are disaggregated between transport and stationary and the correct factors in Schedule 1 of the Determination are used. Transport use is in a road- registered vehicle – everything else considered as stationary.
Amends the definition of CODsI to be the sum of the	Part 5.3 Wastewater handling	Ensure waste water calculations

Amendment	Provision	ACA Response Required
two main types of sludge removed from wastewater treated, primary sludge (CODpsI) and waste activated sludge (CODwasI). Definitions of CODpsI and CODwasI are also provided.	(domestic and commercial), Division 5.3.2 Method 1 — methane released from wastewater handling (domestic and commercial)	from domestic/commercial activities meet the requirements.
Provides a relationship between primary sludge (CODpsI) and volatile solids (VSpsI) to allow conversion between the two for those facilities measuring volatile solids. Similarly for CODwasI and VSwasI; and provides definitions for primary sludge and waste activated sludge.	Part 5.3 Wastewater handling (domestic and commercial), Division 5.3.2 Method 1 — methane released from wastewater handling (domestic and commercial)	Ensure waste water calculations from domestic/commercial activities meet the requirements.
Provides for estimation of incidental energy production and ensures consistency with similar sections in the Determination in relation to incidental emissions.	CHAPTER 6 ENERGY Part 6.1 Production	Allows for the use of incidental estimation provisions to be used. Small energy production sources can be estimated with less rigor than typical energy production requirements – reporters can devise their own estimating techniques.
Corrects the carbon content factor for ethane to align with the energy content factor for ethane in Schedule 1 Part 2.	Part 2 Gaseous fuels	
New Scope 2 factors based on updated electricity production data	Part 6 Indirect (Scope 2) emission factors from consumption of purchased electricity from grid	Ensure updated scope 2 EF's are used – see below 2010/11 EF's:IteState, Territory or grid descriptionEmission factor kg CO2-e/k'h77New South Wales and Australian Capital Territory0.9078Victoria1.2379Queensland0.8980South Australia0.7281South West Interconnected System in Western Australia0.3282Tasmania0.3283Northern Territory0.68
Provides default emission factors for new vehicle control standards.	Part 4 Fuel combustion — fuels for transport energy purposes	Euro V engine types reportable
Minor administrative amendments	CHAPTER 8 ASSESSMENT OF UNCERTAINTY Part 8.3 How to assess uncertainty when using method 1	Ensure methods completed correctly