



**GQR : WS I**

May 28, 2009

## วัตถุประสงค์หลัก

เพื่อให้ความรู้แก่สมาชิกในการพัฒนาองค์กรตนเองให้เป็นองค์กรที่ปล่อยก๊าซเรือนกระจกน้อยหรือองค์กรคาร์บอนต่ำ

## วัตถุประสงค์รอง

1. เพื่อประเมินปริมาณการปล่อยก๊าซเรือนกระจกขององค์กร
2. เพื่อศึกษาวิธีการลดการปล่อยก๊าซเรือนกระจกขององค์กร
3. เพื่อศึกษาวิธีการชดเชยการปล่อยก๊าซเรือนกระจกขององค์กร

## การดำเนินการ

1. คัดเลือกอาสาสมัครจำนวน 3 องค์กรเพื่อเข้าร่วมกิจกรรม GQR
2. สมาชิก TBCSD ทั้งหมดเข้าร่วมการสัมมนาเชิงปฏิบัติการ (WS) ทั้งหมด 4 ครั้ง โดย 3 องค์กรอาสาสมัครจะนำความรู้ที่ได้จาก WS แต่ละครั้งกลับไปปฏิบัติ และนำผลที่ได้รับมาแบ่งปันให้แก่เพื่อนสมาชิกฟังใน WS ครั้งถัดไป
3. สรุปผลการดำเนินงานและร่วมแบ่งปันประโยชน์ที่ได้รับจากการเข้าร่วมกิจกรรมใน WS ครั้งสุดท้าย

## รายละเอียดการอบรมเชิงปฏิบัติการ

**WS1** การแสดงความรับผิดชอบต่อสังคม (CSR) และ การประเมินการปล่อยก๊าซเรือนกระจกจากทางอ้อม (Assessment of indirect GHG emission)

**WS2** การจัดทำบัญชีการปล่อยก๊าซเรือนกระจกจากทางตรง  
(Assessment of direct GHG emission)

**WS3** แนวทางการดำเนินการเพื่อลดและชดเชยการปล่อยก๊าซเรือนกระจก  
(Carbon reduction and offsetting schemes)

**WS4** สรุปผลการดำเนินการ



# **Why this WS is important to your Business**

- Monitor to identify current status on resources consumption
- Assess the corporate GHG emission
- Carbon reduction commitment (CRC) by setting a target
- Implementation towards carbon reduction, i.e., reducing energy, adjustment of raw material, etc.
- Offset carbon footprint to become low carbon or carbon neutral



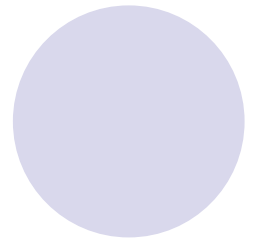
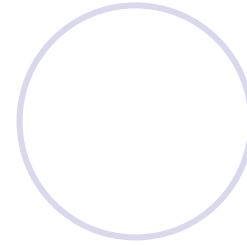
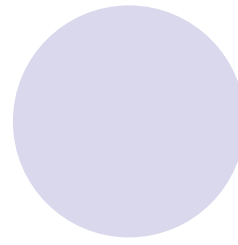
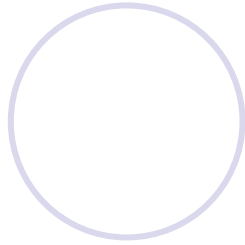
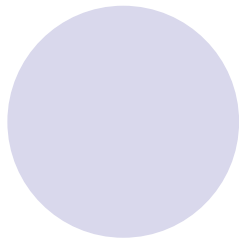
## **Another business benefits:**

- Managing GHG risks and identifying reduction opportunities
- Demonstrating social responsibility and public reporting
- Recognition for early voluntary action
- Differentiating the company in environmentally conscious marketplace
- Possibility in GHG markets



# **GHG Protocol Corporate Standard (revised version)**

- The Greenhouse Gas Protocol Initiative launched in 1998 is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI), a U.S.-based environmental NGO, and the World Business Council for Sustainable Development (WBCSD).
- The Initiative's mission is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards for business and to promote their broad adoption.



- The *GHG Protocol Corporate Standard* provides standards and guidance for companies and other types of organizations preparing a GHG emissions inventory.
- It covers the accounting and reporting of the six greenhouse gases covered by Kyoto Protocol- carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF<sub>6</sub>).





# Objectives of the GHG protocol standard

- To help companies prepare a GHG inventory that represents a true and fair account of their emissions, through the use of standardized approaches and principles.
- To simplify and reduce the costs of compiling a GHG inventory.
- To provide business with information that can be used to build an effective strategy to manage and reduce GHG emissions.
- To increase consistency and transparency in GHG accounting and reporting among various companies and GHG programs.



# **Advantages of GHG Protocol Corporate Standard**

- Policy neutral
- Compatible with many existing GHG programs such as the World Wildlife Fund (WWF) Climate Savers, the U.S. Environmental Protection Agency (EPA) Climate Leaders, the Climate Neutral Network, and the Business Leaders Initiative on Climate Change (BLICC), California Climate Action Registry (CCAR), World Economic Forum Global GHG Registry
- User-friendly for non-technical company staffs



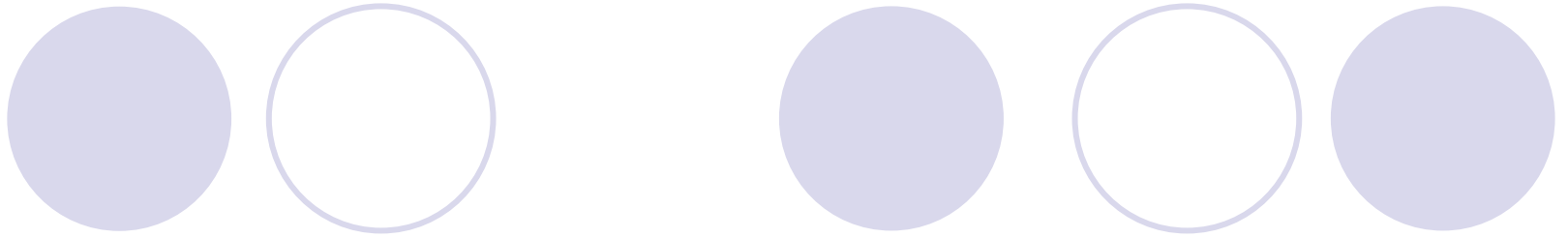
## **Inventory Boundary**

- The boundary of GHG assessment should be firstly clarified. Equity share approach and control approach are the most common methods to identify the inventory boundary.
- Equity share follows the ownership of the company while the control approach will account the GHG over the controlled facilities.



# Classification of Corporate GHG emission

1. *Direct GHG emissions* are emissions from sources that are owned or controlled by the company.
2. *Indirect GHG emissions* are emissions that are a consequence of the activities of the company but occur at sources owned or controlled by another company.

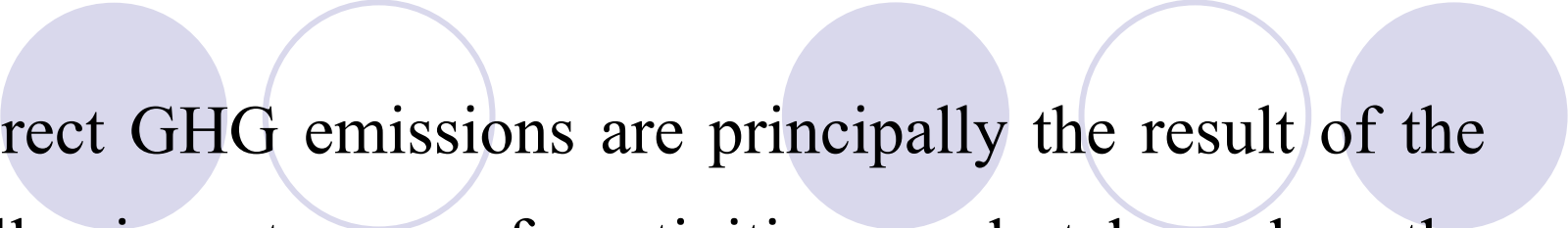


- Three “scopes” (scope 1, scope 2, and scope 3) are defined for GHG accounting and reporting purposes. Scopes 1 and 2 are carefully defined in this standard to ensure that two or more companies will not account for emissions in the same scope.
- Companies shall separately account for and report on scopes 1 and 2 at a minimum.

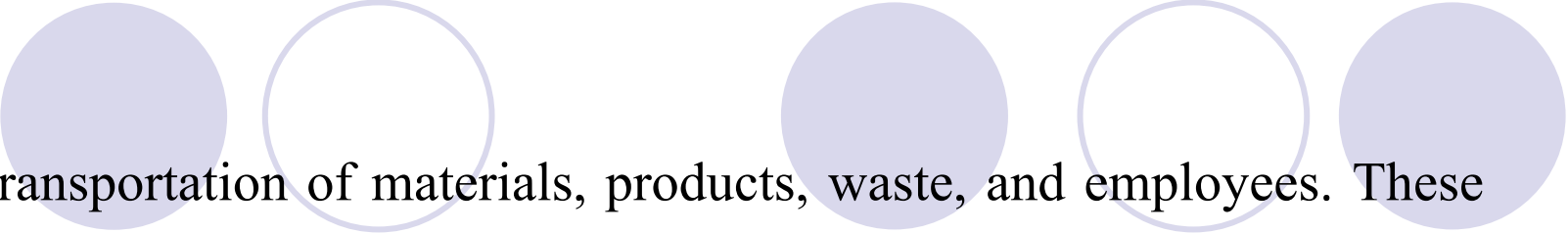


## **Scope 1: Direct GHG emissions**

- Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled equipments.; emissions from chemical production in owned or controlled process equipment.
- Direct CO<sub>2</sub> emissions from the combustion of biomass shall not be included in scope 1 but reported separately.

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- Direct GHG emissions are principally the result of the following types of activities undertaken by the company:

- Generation of electricity, heat, or steam. These emissions result from combustion of fuels in stationary sources, e.g., boilers, furnaces, turbines.
- Physical or chemical processing.
  - Most of these emissions result from manufacture or processing of chemicals and materials, e.g., cement, aluminum, adipic acid, ammonia manufacture, and waste processing.

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- Transportation of materials, products, waste, and employees. These emissions result from the combustion of fuels in company owned/controlled mobile combustion sources, e.g., trucks, trains, ships, airplanes, buses, and cars.
  - Fugitive emissions. These emissions result from intentional or unintentional releases, e.g., equipment leaks from joints, seals, packing, and gaskets; methane emissions from coal mines and venting; hydrofluorocarbon (HFC) emissions during the use of refrigeration and air conditioning equipment; and methane leakages from gas transport.





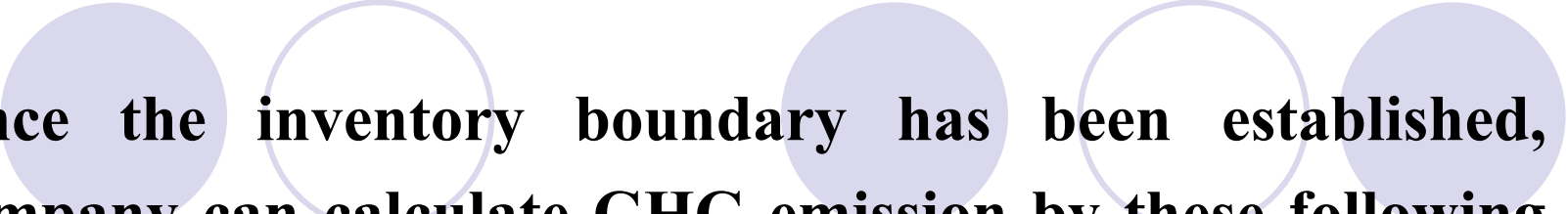
## **Scope 2: Electricity indirect GHG emissions**

- Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company.
- End-consumers of the purchased electricity do not report indirect emissions associated with transmission and distribution (T&D) losses in scope 2 because they do not own or control the T&D operation.



## **Scope 3: Other indirect GHG emissions**

- Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions besides the scope 2. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company.
- Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; use of sold products and services; landfill of waste generated in operations; leased assets, franchises, and outsourced activities.



**Once the inventory boundary has been established, company can calculate GHG emission by these following steps:**

1. Identify GHG emissions sources
2. Select a GHG emissions calculation approach
3. Collect activity data and choose emission factors
4. Apply calculation tools
5. Roll-up GHG emissions data to corporate level

# Information required is likely to include the followings:

- Information about the company's main activities and GHG emissions (types of GHG produced, description of activity that causes GHG emissions)
- List of (and access to) persons responsible for collecting GHG emissions data at each site and at the corporate level (name, title, e-mail, and telephone numbers)
- Information about the company/groups/organization (list of subsidiaries and their geographic location, ownership structure)

# **Information required is likely to include the followings:**

- Documented procedures for identifying sources of emissions within the organizational and operational boundaries
- Information on other assurance processes to which the systems and data are subjected (e.g. internal audit, external reviews and certifications)

# Information required is likely to include the followings:

- Data used for calculating GHG emissions. This might, for example, include:
  - Energy consumption data (invoices, delivery notes, weighbridge tickets, meter readings: electricity, gas pipes, steam, and hot water, etc.)
  - Production data (tonnes of material produced, kWh of electricity produced, etc.)
  - Raw material consumption data for mass balance calculations (invoices, delivery notes, weighbridge tickets, etc.)
  - Emission factors (laboratory analysis etc.)



# **Information required is likely to include the followings:**

- Description of how GHG emissions data have been calculated
- Emission factors and other parameters used and their justification
- Assumptions on which estimations are based
- Information on the measurement accuracy of meters and weight-bridges (e.g., calibration records), and other measurement techniques

# Information required is likely to include the followings:

- Documentation on what, if any, GHG sources or activities are excluded due to, for example, technical or cost reasons
- Information gathering process
- Description of the procedures and systems used to collect, document and process GHG emissions data at the facility and corporate level



# Information required is likely to include the followings:

- Description of quality control procedures applied (internal audits, comparison with last year's data, recalculation by second person, etc.)
- Other information such as information on uncertainties, qualitative and if available, quantitative



# Common guidance on reporting to corporate level

- A brief description of the emission sources
  - A brief description of the emission sources
  - A list and justification of specific exclusion or inclusion of sources
- Comparative information from previous years
- The reporting period covered
- Any trends evident in the data



# Common guidance on reporting to corporate level

- Progress towards any business targets
- A discussion of uncertainties in activity/fuel use or emissions data reported, their likely cause, and recommendations for how data can be improved
- A description of events and changes that have an impact on reported data (acquisitions, technology upgrades, changes of reporting boundaries or calculation methodologies applied, etc.)