ORACLE®

Environmental Accounting & Reporting

Measure, Manage, Report, Reduce Waste

Lianda Prinsloo – Oracle Sales Consultant

SAOUG SOUTH AFRICAN ORACLE USER GROUP Oracle User Conference 2011 interaction | information | independence

Agenda

- Environmental Accounting and Reporting
  - What and Why?
  - Business Pressures
  - Operational Challenges
- Solution Overview

What is an Eco-Enterprise?

Eco-Efficiency

Reduce waste, use resources productively, and minimize your carbon footprint

Eco-Innovation

Innovate product design and service offerings based on green processes

Eco-Transparency

Provide oversight and transparency on sustainability metrics

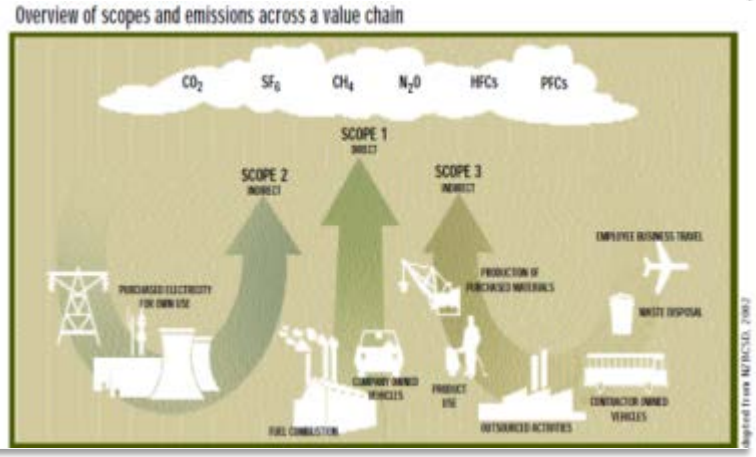
Why Environmental Accounting and Reporting?

International Protocols and Regulatory Bodies

GHG Protocol: Created by the WRI and the WBCSD is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. (www.ghgprotocol.org/). In 2006, it was adopted as the basis for its *ISO 14064-I: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

Categorization of Emission Types by GHG Protocol

- Scope 1: Direct GHG Emission – From sources owned or controlled by the organization.
- Scope 2: Energy Indirect GHG Emission - From the generation of imported electricity, heat or steam consumed by the organization.
- Scope 3: GHG emission that arises from greenhouse gas sources that are owned or controlled by other organizations (i.e. business travel and waste disposal)



CDP – Carbon Disclosure Project: Collects data on greenhouse gas emissions, water management and climate change strategies on behalf of institutional investors, purchasing organizations and government bodies. Over 3,000 organizations in 60 countries around the world measure and disclose environmental data through CDP. (www.cdproject.net)

GRI – Global Reporting Initiative: Developed a widely recognized Sustainability Reporting Framework that sets out the principles and Performance Indicators that organizations use to measure and report their economic, environmental, and social performance. (www.globalreporting.org)

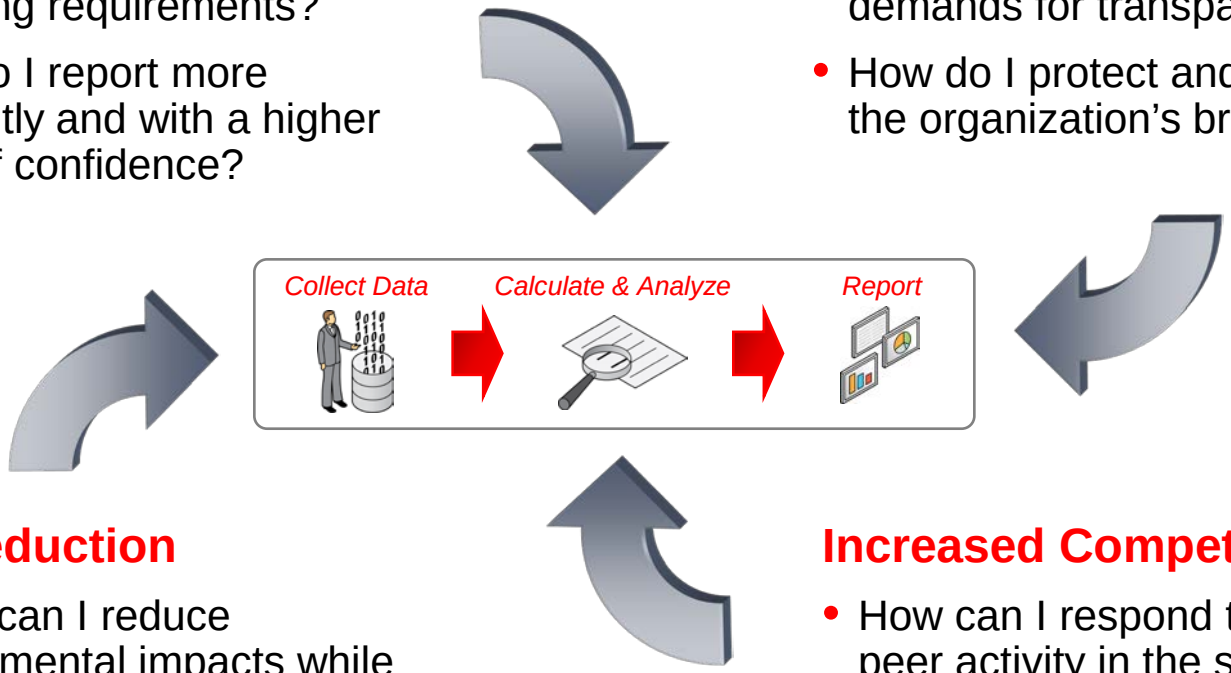
Business Pressures

Regulatory Pressure

- How do I meet my regulatory reporting requirements?
- How do I report more efficiently and with a higher level of confidence?

Stakeholder Pressure

- How do I meet increasing demands for transparency?
- How do I protect and build the organization's brand?



Cost Reduction

- Where can I reduce environmental impacts while also reducing costs?
- How do benchmark and share best practices across the organization?

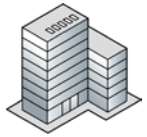
Increased Competition

- How can I respond to the peer activity in the space?
- How can I increase margins and gain market share?

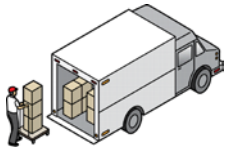
Operational Challenges

Environmental Impact Sources

Facilities

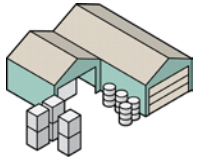


Mobile Assets



Suppliers

Other Sources



Multiple, Fragmented Systems
- Silos of information
- Inefficiencies

Manual, Error-Prone Processes
- Data extraction and transformation
- Adjustments and eliminations

Aggregation

Accounting Challenges
- Standards
- Currencies
- Access Control
- Auditability

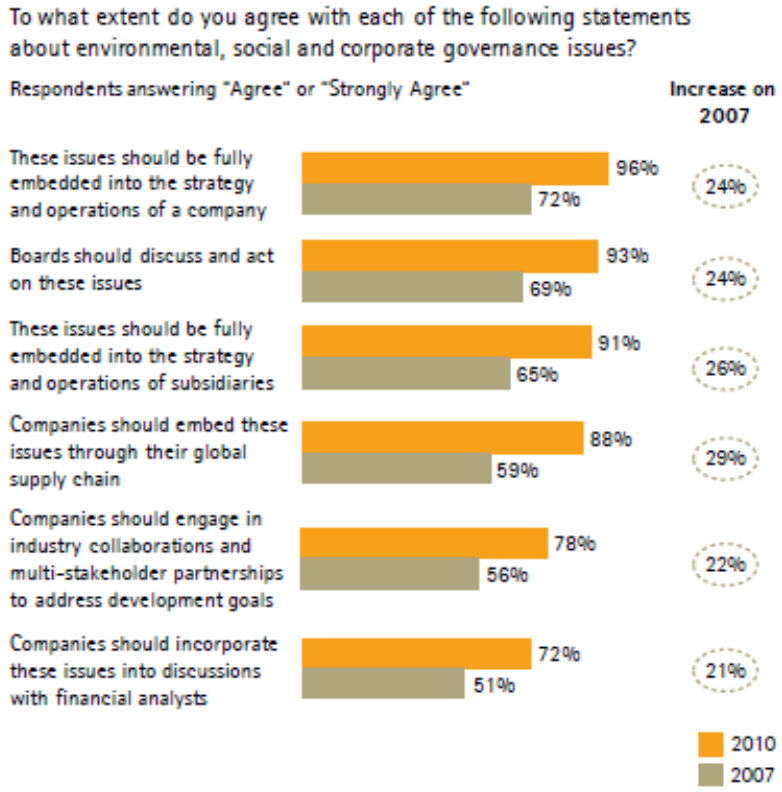
Lack of Actionable Business Data
- Unreliable
- Latency

- ✗ Lengthy reporting process with weak internal controls
- ✗ Complex systems that cannot identify new opportunities
- ✗ Disconnect between strategy and execution

Sustainability: A New Business Imperative

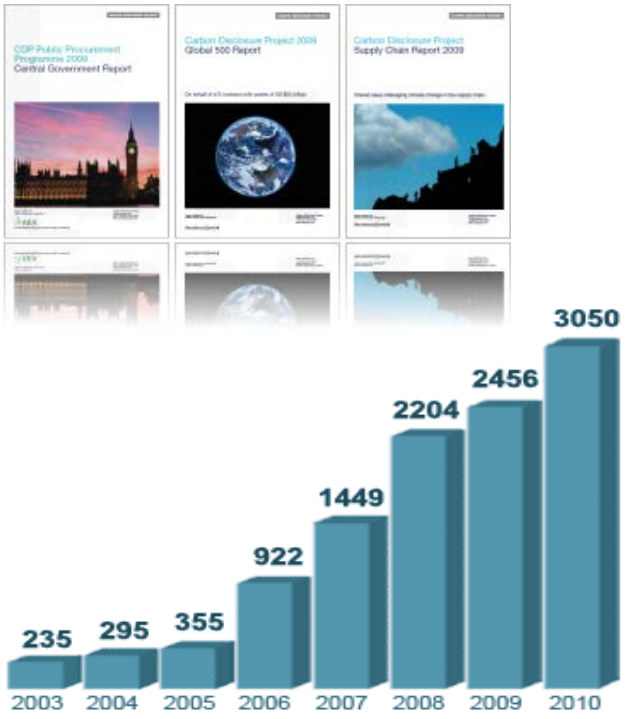
Megatrend Increasingly Among the Top Business Priorities for CEOs

New Mind Set: Sustainability issues should be embedded in core business



Source: United Nations Global Compact CEO Survey 2010

More companies are reporting on greenhouse gases & other metrics



Source: Carbon Disclosure Project 2010

"In the context of increasing awareness of the business and societal risks of climate change, corporate carbon emissions (and the energy consumption that creates them) are being scrutinized as a crucial indicator of business performance. And the spreadsheet data that most companies use to estimate their carbon footprint will not withstand that scrutiny from customers, regulators, and shareholders — enterprises need a new system of record based on verifiable data and automated processes..."

Forrester Research, Inc.

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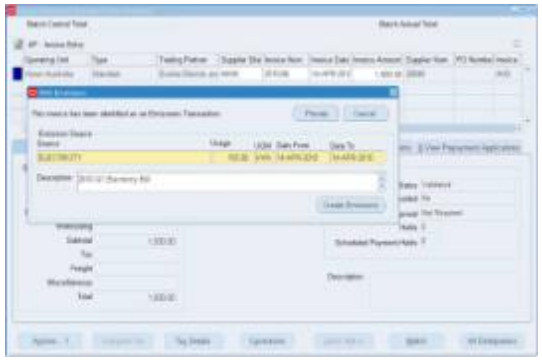
Source: *The Evolution of Enterprise Carbon and Energy Management Software*, Daniel Krauss, Forrester Research Inc., December 2010

Solution Overview

Oracle Environmental Accounting & Reporting

Automated, Auditable Collection of GHG and Environmental Data

- Data collection using EBS Financials
- Emissions calculation following Greenhouse Gas Protocol
- Pre-built OBIEE reporting and analytics tools, including responses to the Carbon Disclosure Project
- Rapid implementation as embedded ERP system component
- Proven solution built on market leading technology



Data collection in Financials

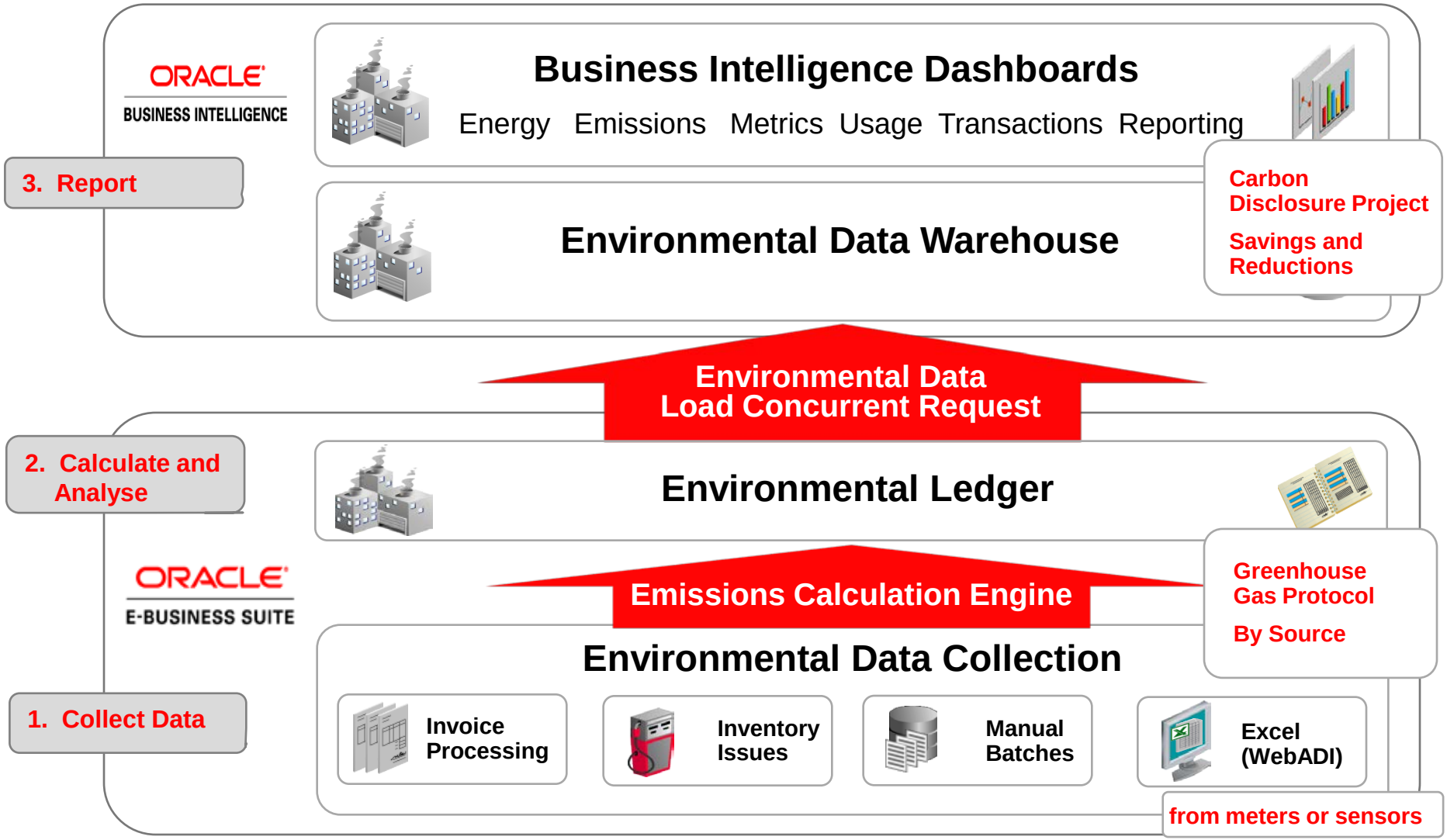
OBIEE Dashboards

✓ **Increase Data Collection Efficiency and Reliability**

✓ **Comply with Global Greenhouse Gas Regulations**

✓ **Improve Environmental and Financial Performance**

Oracle Environmental Accounting & Reporting



Oracle Environmental Accounting & Reporting

Enables you to…

❶ **Automate Environmental Data Collection**

Leveraging Existing Business Processes

❷ **Calculate Greenhouse Gas Emissions**

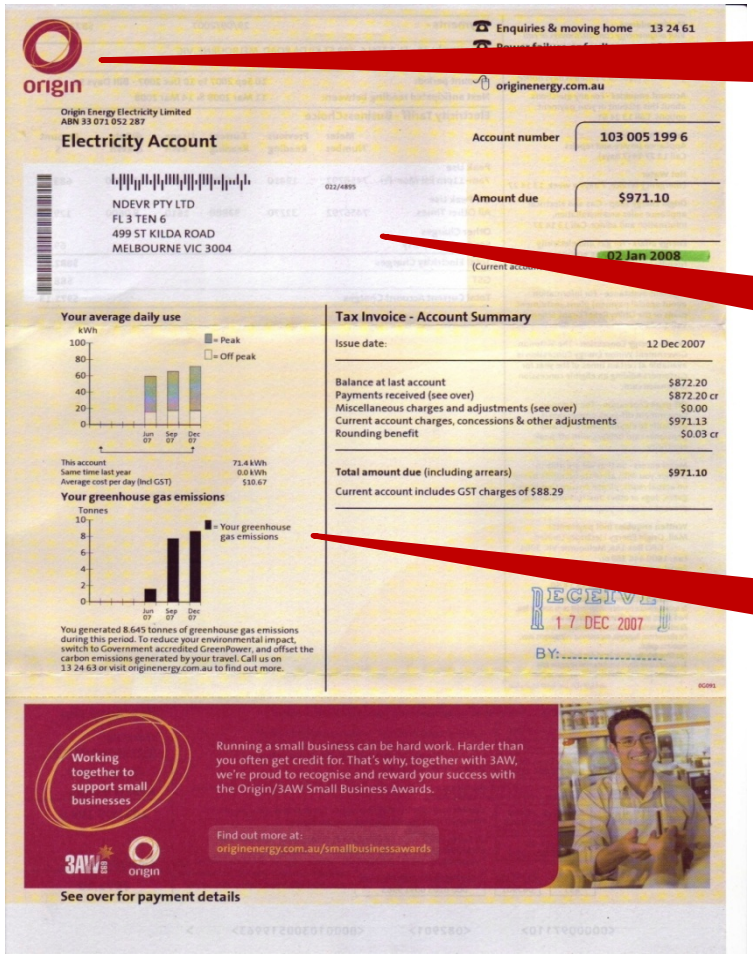
Auditable and in Line with Global Standards

❸ **Analyze KPIs and Comply with Regulations**

Meet Internal Reduction Targets and Report Externally

Collect the data

Example: Electricity Bill & Invoice (Scope 2)


origin

Origin Energy Electricity Limited
ABN 33 071 052 287

Electricity Account

Enquiries & moving home 13 24 61

originenergy.com.au

Account number 103 005 199 6

NDEVR PTY LTD
FL 3 TEN 6
499 ST KILDA ROAD
MELBOURNE VIC 3004

Amount due $971.10

02 Jan 2008

Your average daily use

kWh
100
80
60
40
20
0
Peak
Off peak
Jun 07
Sep 07
Dec 07

This account 71.4 kWh
Same time last year 0.0 kWh
Average cost per day (Incl GST) $10.67

Your greenhouse gas emissions

Tonnes
10
8
6
4
2
0
Your greenhouse gas emissions
Jun 07
Sep 07
Dec 07

You generated 8.645 tonnes of greenhouse gas emissions during this period. To reduce your environmental impact, switch to Government accredited GreenPower, and offset the carbon emissions generated by your travel. Call us on 13 24 63 or visit originenergy.com.au to find out more.

Tax Invoice - Account Summary

Issue date: 12 Dec 2007

Balance at last account	$872.20
Payments received (see over)	$872.20 cr
Miscellaneous charges and adjustments (see over)	$0.00
Current account charges, concessions & other adjustments	$971.13
Rounding benefit	$0.03 cr
Total amount due (including arrears)	$971.10

Current account includes GST charges of $88.29

RECEIVED
17 DEC 2007
BY:

Working together to support small businesses

Running a small business can be hard work. Harder than you often get credit for. That's why, together with 3AW, we're proud to recognise and reward your success with the Origin/3AW Small Business Awards.

Find out more at:
originenergy.com.au/smallbusinessawards

3AW origin

See over for payment details

Supplier is set up as a supplier of sources of emissions.

Organization/Facility is set up and flagged for operational control, equity control, etc.

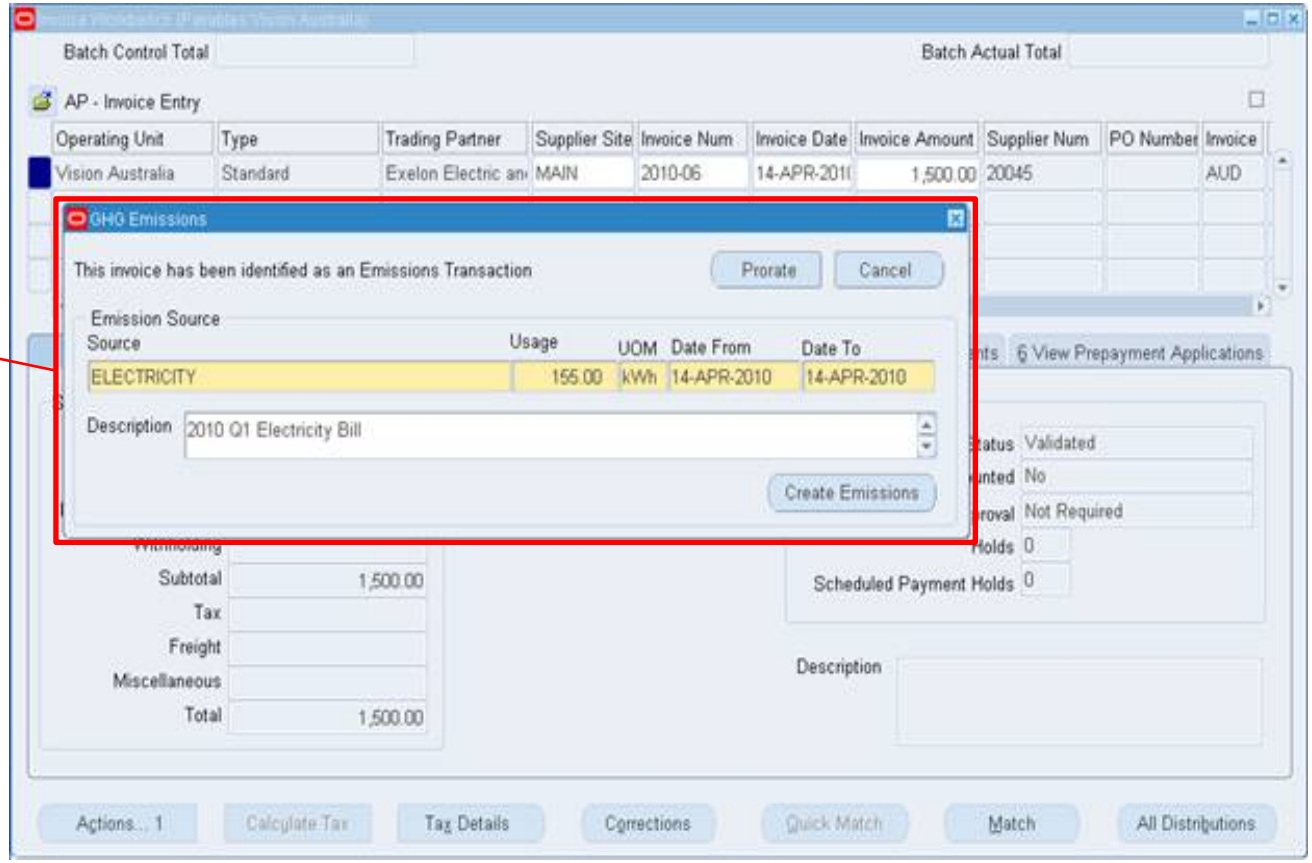
Electricity is set up as an emission source with energy and CO2-e emission factors

Integration Into Invoice Entry Screen

Capturing Necessary Data Directly in Existing Business Processes

- Automatically detects when additional data needs to be entered
- Values default data based on setup

On detecting an invoice as being a GHG transaction, a pop screen automatically appears to enter usage



Collect the data

Example: Diesel Purchases (Scope 1)

Diesel is set up as a source of emission.

Diesel of a particular grade is set up as an Inventory Item and is linked to a source of emission (Transport Fuel Oil)

Diesel Oil (Normal Grade) is issued to an Asset (Truck) using Inventory Misc Issue Transaction

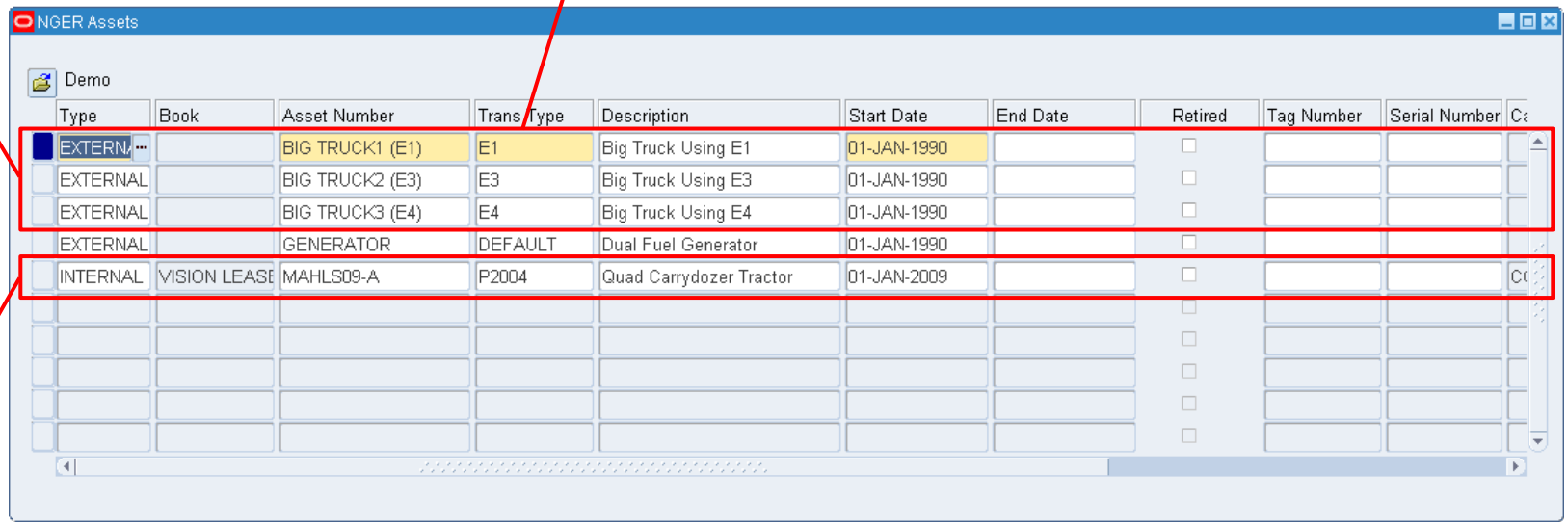
Associate Environmental Impacts with Assets

Issue Fuel Consumption To Fleet Vehicles Or Other Assets

- Leverage Assets already defined in ERP
- Set up external Assets as needed

EXTERNAL assets are ones that do not exist in Oracle Assets

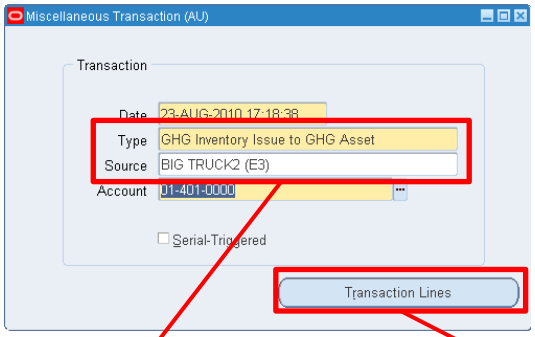
Trans Type – Engine Type
Will have different emission factors



INTERNAL assets are ones that do exist in Oracle Assets

Allocate Environmental Impacts to Assets

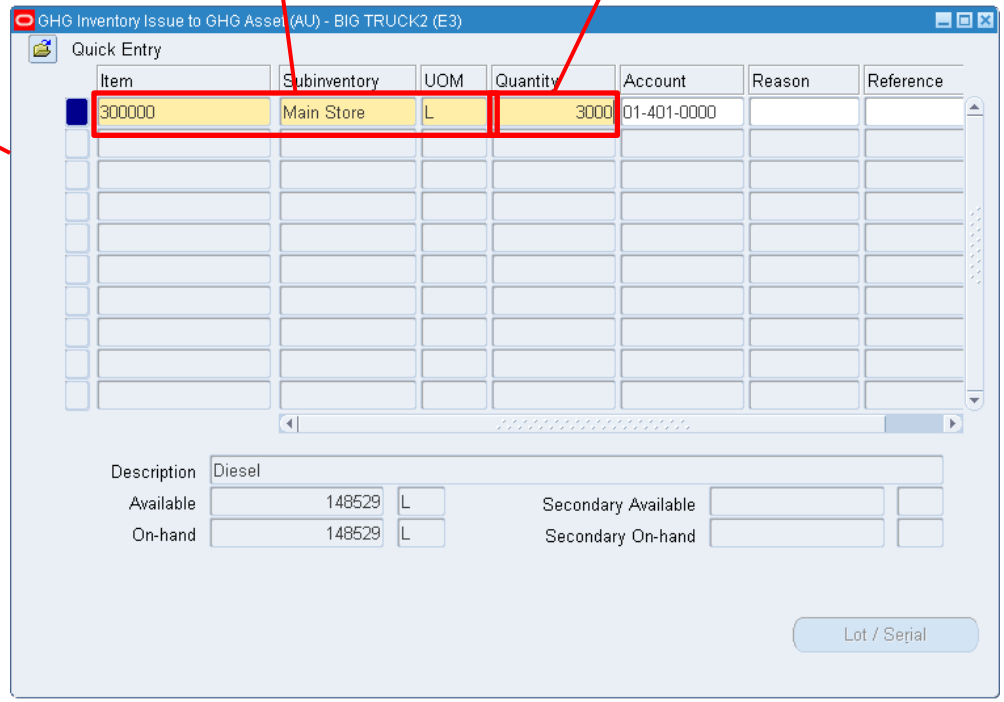
Using the Standard Miscellaneous Transaction Screen In Inventory



On selecting the type, user is automatically prompted for the associated Asset

The system will determine the Item code, sub -inventory and unit of measure based on setup

The User enters the usage & commits the transaction



Key Benefits for Data Collection

Leveraging Existing Business Processes

- Reduced environmental data management costs
- Ensure data completeness and avoid manual errors
- Flexibility and scalable data collection mechanisms
- Leverage existing IT investments
- Minimize organizational impact
- Maintain data integrity and security with single source of truth
- Consistent end user experience
- Rapid time to value

Oracle Environmental Accounting & Reporting

Enables you to…

❶ **Automate Environmental Data Collection**

Leveraging Existing Business Processes

❷ **Calculate Greenhouse Gas Emissions**

Auditable and in Line with Global Standards

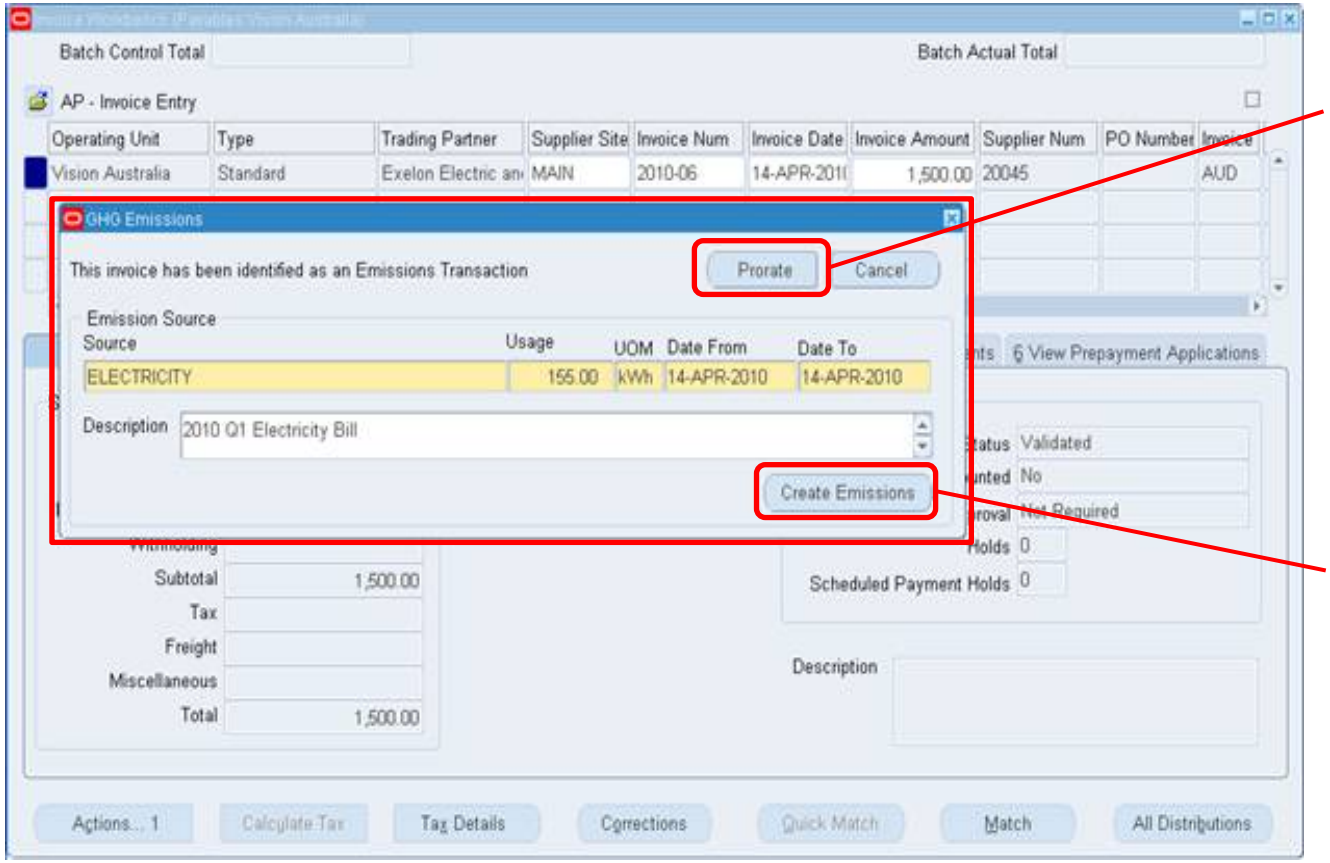
❸ **Analyze KPIs and Comply with Regulations**

Meet Internal Reduction Targets and Report Externally

Integration Into Invoice Entry Screen

Capturing Necessary Data Directly in Existing Business Processes

- Once necessary data is entered users can calculate the associated emissions
- Emissions can be pro-rated over multiple periods as needed

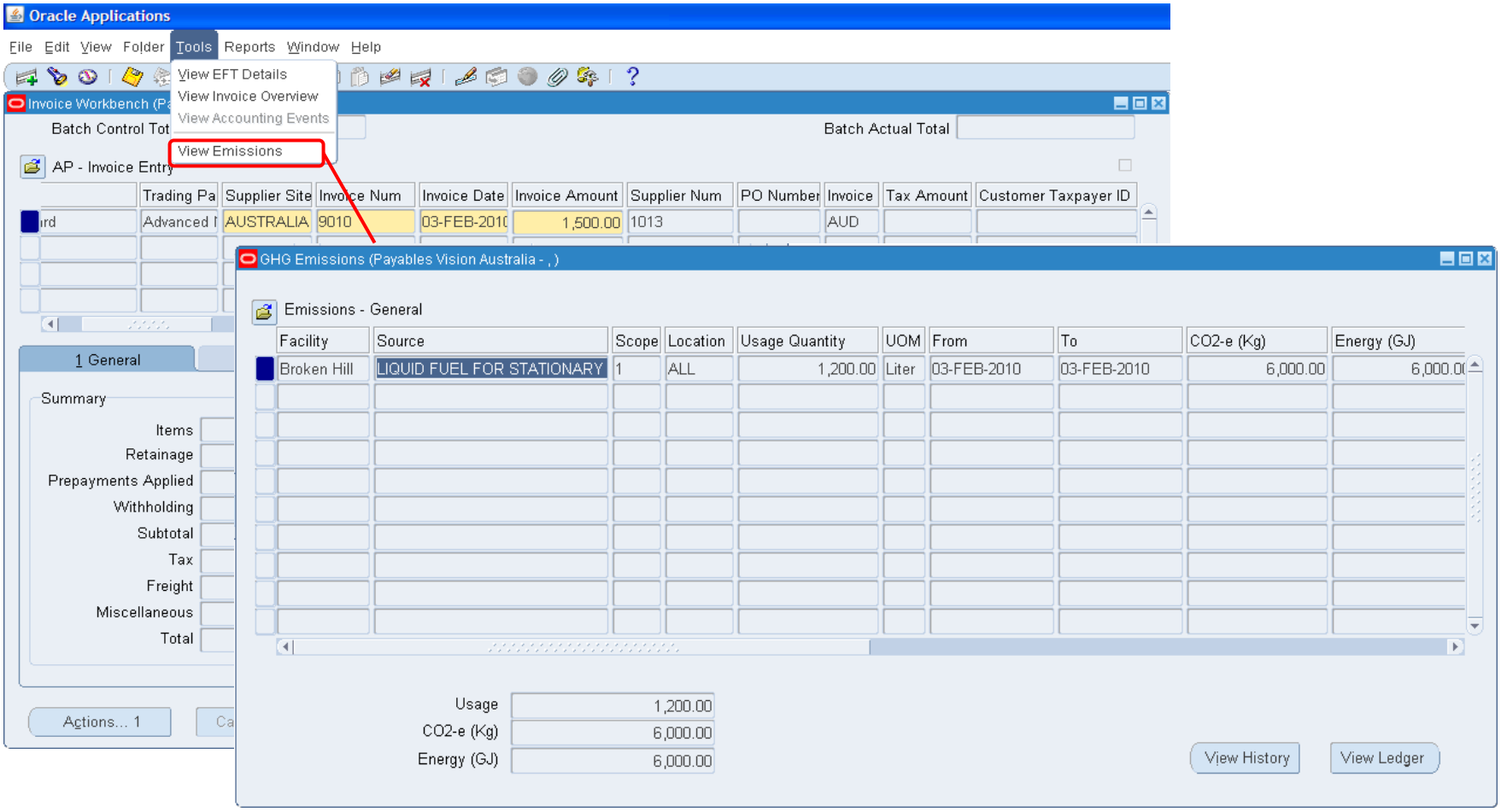


Allow allocation of the usage across over time period

Calculates the emissions and closes the screen

Viewing Emissions Integrated to Invoice Entry

Emissions 'Ledger' Stores Emissions Associated With Invoice



Calculate the Emissions

Environmental Specifications

Source	Energy (Content) Factor (GJ/t)	Emission Factor (kg CO2-e/GJ)		
		CO_2	CH4	N_2O
Black Coal	**27.0**	**88.2**	**0.03**	**0.2**

Data Source: National Greenhouse Accounts (NGA) Factors, Department of Climate Change & Energy Efficiency, Australian Government

Environmental Transactions

Source	Transaction Quantity (t)	Source Type	Scope*	Transaction Mode
Black Coal	**20,000**	**Consumed**	**1 (Direct)**	**Manual Entry**

* Based on GHG Protocol Emission Scope

Environmental Emissions Calculation API

Environmental Accounting

Energy Consumed in GJ	Emissions		
	Emission Type	Emissions in kgs of CO2-e	Scope
540000	**CO_2**	**47,628000** (20,000 x 27.0 x 88.2)	**1 (Direct)**
	CH4	**16,200** (20,000 x 27.0 x 0.03)	
	N_2O	**108,000** (20,000 x 27.0 x 0.2)	
	Cumulative Total	**47,752,200**	

Key Benefits for Emissions Calculations

Auditable and in Line with Global Standards

- Ensures compliance with regulatory standards for GHG reporting
- Identifies of Scope 1, 2, and 3 emissions
- Automatically determines correct emission factor
- Enables easy changes to emissions factors over time
- Provides complete audit trail for entries and updates
- Reduces data assurance costs

Oracle Environmental Accounting & Reporting

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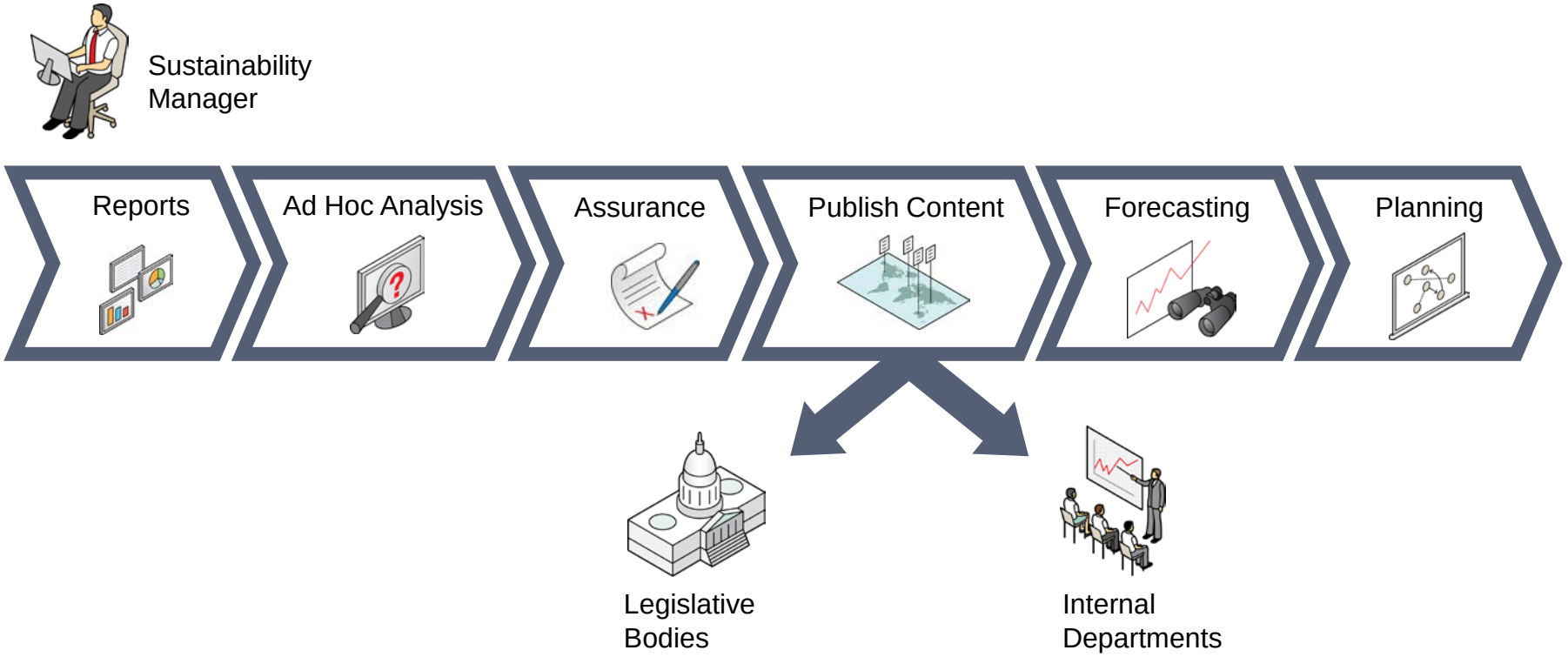
Meet Internal Reduction Targets and Report Externally

Environmental Reporting

Satisfy Multiple Needs Using Common Data

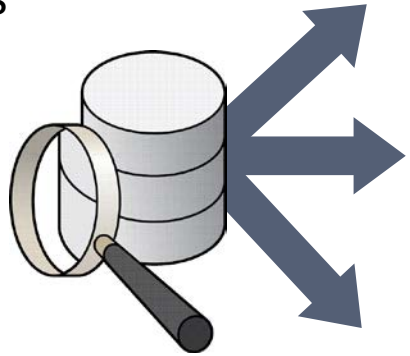
- Create reports for both internal and external reporting
- Leverage data for forecasting and business planning



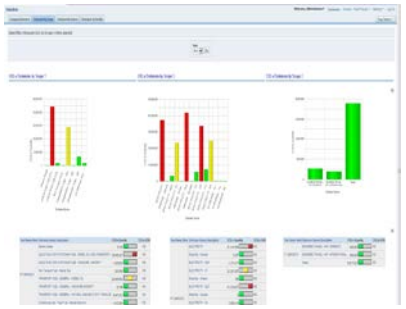
Provide Visibility & Drive Performance

With Oracle Business Intelligence Analytics

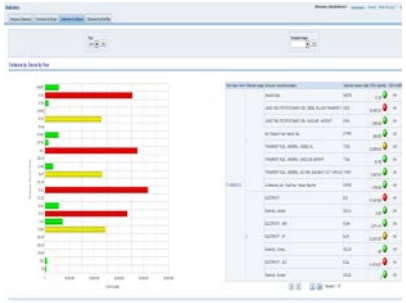
- View pre-built OBIEE reporting and analytics tools
- Configurable OBIEE dashboards to track areas of risk
- Manage performance against targets
- Drill down into graphical output of past, current, and projected data
- Analyze historical trends
- Define variance thresholds and receive alerts
- Publish and distribute reports in multiple formats



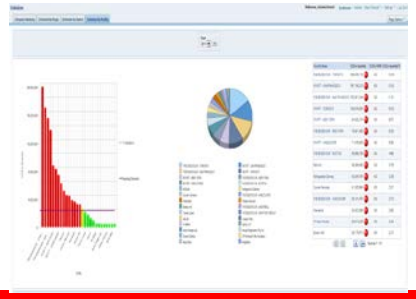
Emissions by Scope



Emissions by Facility

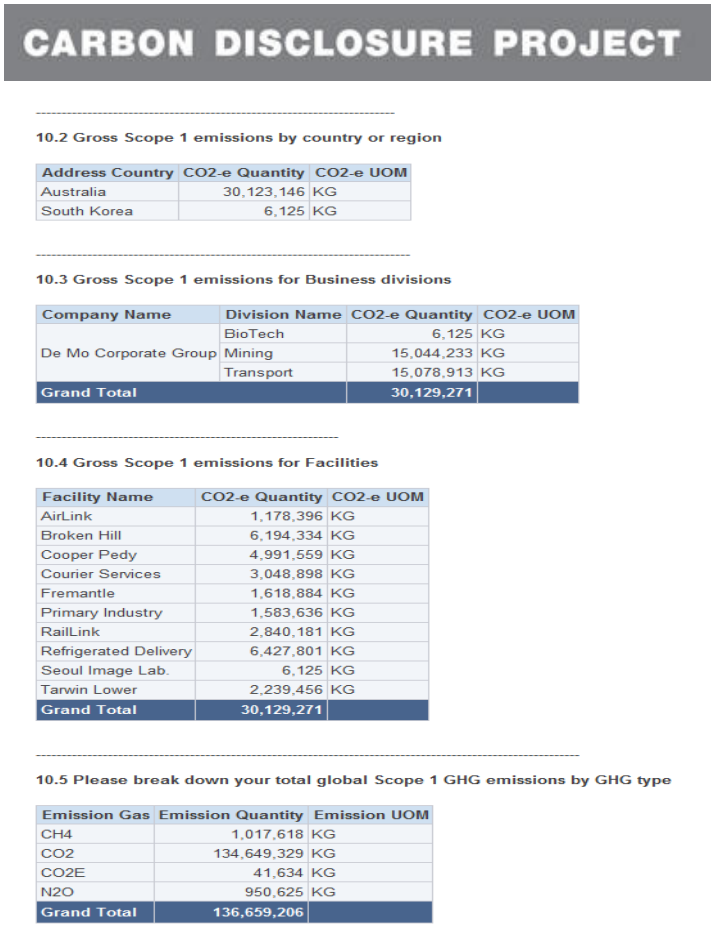


Emissions by Source



Report To External Constituents

Pre-Built Reports and Custom-Built Reports



CARBON DISCLOSURE PROJECT

10.2 Gross Scope 1 emissions by country or region

Address Country	CO2-e Quantity	CO2-e UOM
Australia	30,123,146	KG
South Korea	6,125	KG

10.3 Gross Scope 1 emissions for Business divisions

Company Name	Division Name	CO2-e Quantity	CO2-e UOM
	BioTech	6,125	KG
De Mo Corporate Group	Mining	15,044,233	KG
	Transport	15,078,913	KG
Grand Total		30,129,271	

10.4 Gross Scope 1 emissions for Facilities

Facility Name	CO2-e Quantity	CO2-e UOM
AirLink	1,178,396	KG
Broken Hill	6,194,334	KG
Cooper Pedy	4,991,559	KG
Courier Services	3,048,898	KG
Fremantle	1,618,884	KG
Primary Industry	1,583,636	KG
RailLink	2,840,181	KG
Refrigerated Delivery	6,427,801	KG
Seoul Image Lab.	6,125	KG
Tarwin Lower	2,239,456	KG
Grand Total	30,129,271	

10.5 Please break down your total global Scope 1 GHG emissions by GHG type

Emission Gas	Emission Quantity	Emission UOM
CH4	1,017,618	KG
CO2	134,649,329	KG
CO2E	41,634	KG
N2O	950,625	KG
Grand Total	136,659,206	

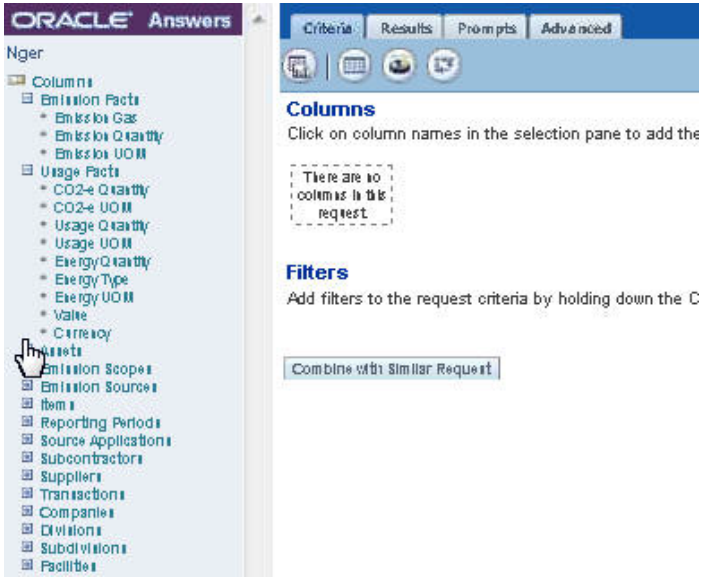
- Pre-built OBIEE reporting and analytics tools include responses to the Carbon Disclosure Project
- Highly configurable OBIEE dashboards enable quick report creation for other mandated and voluntary reporting schemes such as
  - Climate Registry (USA)
  - EPA 40 CFR Part 98 Rule (USA)
  - Carbon Reduction Commitment (UK)
  - National Greenhouse and Energy Reporting (Australia)

Create Custom KPIs

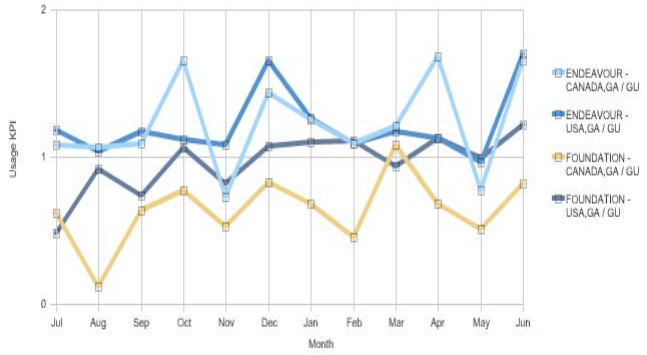
User Defined Metrics

- Define custom key performance indicators to more deeply analyze key metrics
- Normalize data to operational metrics
- Use drag-and-drop environment in OBIEE to create custom reports
- Rich end user interaction features

Creating New Reports with BI Answers



Example: Water Usage per Number of Guests



Key Benefits for Analytics and Reporting

Meet Internal Reduction Targets and Report Externally

- Scalable and market leading business intelligence platform
- Rapid creation of environmental reports
- Formatted reports to meet external reporting needs such as the Carbon Disclosure Project
- Flexible reporting capabilities for quick ad hoc analyses
- Multiple delivery formats including spreadsheets, email, and PDF
- Enables management to targets and continuous improvement
- Powerful insights into high opportunity areas for emissions reductions, energy savings, and cost savings

What Customers Are Saying…

Customers Successfully Using the Solution

Because our GHG emission reporting is now incorporated into our financial reporting systems, and based around accounts payable data entry, we now have complete confidence that the data is an accurate measurement of energy consumption. Oracle Environmental Accounting and Reporting Solution provides a solid foundation for meeting Abigroup's internal and external reporting requirements and also feeding into our clients' own energy and emissions reporting obligations"

– Sarah Marshall, National Environment and Sustainability Manager

"We can view the greenhouse gas and energy figures for each of our facilities on a daily basis. Before we had this solution in place, we had to download the data from the JD Edwards system and manipulate it in Microsoft Excel, which would take a couple of months. Now, it takes a couple of days to get the data and enter it into the Australian Government Web site. Data accuracy is far better too."

– Ian Wade, Executive General Manager

Oracle Environmental Accounting & Reporting

Integrated with financial accounting to leverage existing business processes and maintain a single source of truth	Increase Data Collection Efficiency and Reliability
Accurate, repeatable, and verifiable methodologies for greenhouse gas calculation in accordance with global standards	Comply with Global Greenhouse Gas Regulations
Support for multiple reporting standards, shorter reporting cycle times, internal KPI tracking, and flexible ad hoc reporting	Improve Environmental and Financial Performance

Hardware and Software
Engineered to Work Together