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Services

Managing Environmental Data with the Oracle Cloud

Configure the Oracle ERP Cloud and Oracle Cloud Analytics to capture environmental data, calculate emissions and track energy, water and waste usage in your operations

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INTRODUCTION

In response to regional and global regulations as well as stakeholder requests for voluntary reporting, organizations are increasingly looking to measure their sustainability-related impacts – economic, environmental, and social – and incorporate those metrics into their operations and reporting. Furthermore, entities in both the public and private sectors realize that optimizing sustainability performance is good for the bottom line as well as for society. Monitoring key metrics such as energy, waste, and water usage leads to reductions in greenhouse gas emissions as well as operational efficiency improvements, cost savings, and improved brand reputation.

These pressures drive a requirement to provide sustainability-related data that is comprehensive, auditable, and timely. Existing “bolt on” approaches utilizing manual or bespoke solutions have a high operational cost and weak data security and audit-ability.

The optimal approach is to embed environmental-related data collection and reporting into the mainstream of business operations and associated IT infrastructure. Customers can leverage Oracle ERP Cloud Solutions and Oracle Analytics Cloud (OAC) to achieve this.

Highlights

- Capture energy usage and other environmental data through Oracle Cloud ERP transactions
- Calculate GHG emissions in Oracle Cloud Analytics
- Build reports, dashboards and key performance indicators (KPIs).

CAPTURE ENVIRONMENTAL DATA

Measuring environmental performance and setting targets are critical steps towards becoming more productive, more profitable, and more sustainable. When armed with factual data, organizations can benchmark and affect behavioral change to significantly reduce environmental impacts.

Businesses can monitor and report their energy, water and waste impact by tracking invoices in their financial systems and capturing usage at the invoice line level. Monitoring data at the invoice level enables usage to be measured at the corporate group level, by business unit, or by facility. By tracking usage over time, organizations can analyze historical information to identify trends and best practices.

Once organizations identify the sources of environmental impact material to their organizations and the vendors who supply these products and services, they can configure Oracle Cloud Procurement and Payables solutions by enabling additional information fields – called descriptive flexfields - and value sets to classify and capture:

- **environmental sources**, such as electricity, transport fuels, coal, industrial materials, water or waste
- **suppliers** and **products** generating an environmental impact
- **emission** and **energy factors** for items or activities whose use creates emissions and consume or produce energy
- **environmental source type**, **usage** and **unit of measure** at the invoice line level
- **greenhouse gases** classification (scope 1, 2 and 3) for energy-related sources according to the GHG protocol

Buyers can either capture usage data at invoice entry or data can be directly uploaded in batches via an application programming interface (API). A custom workflow can be triggered during account payables processing to identify transactions that require additional information. If a supplier is marked as an environmental supplier, the workflow can mandate the entry of the associated environmental source, usage, and unit of measure before validating and approving the invoice.

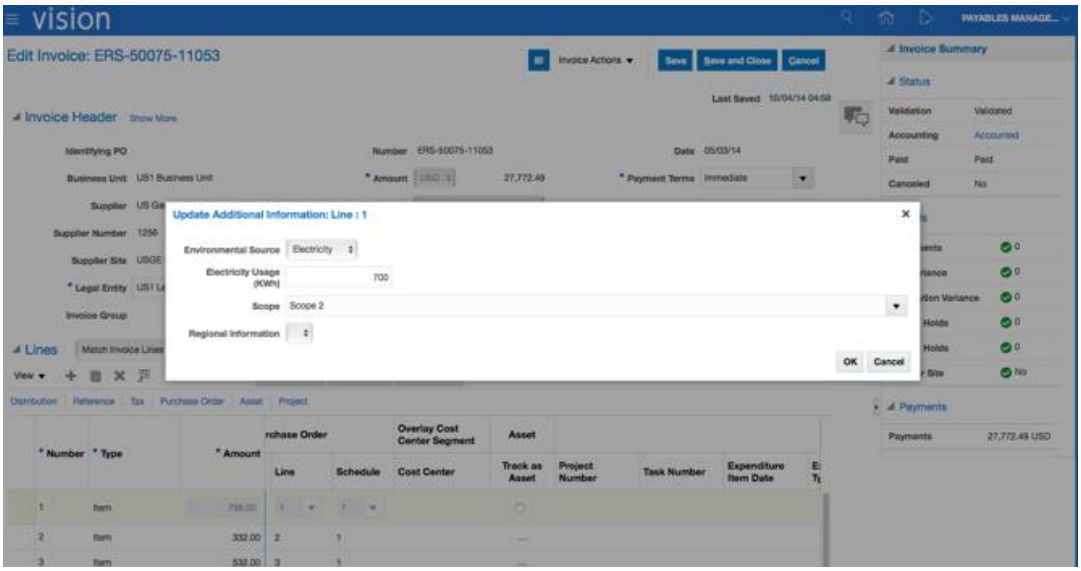

Figure 1: Capturing Electricity Usage Data at Invoice Line Level

Glossary

- **Emissions:** The release of greenhouse gases into the atmosphere.
- **Emission Source:** An emission source is an item or activity whose use creates emissions and / or consumes or produces energy.
- **Emission Factor:** A factor that converts activity data into GHG emissions data (e.g., kg CO2e emitted per liter of fuel consumed).
- **Energy Factor:** Factor used to calculate the amount of energy consumed or produced by an emission source.
- **Global Warming Potential:** A factor describing the radiative forcing impact of one unit of a given GHG relative to one unit of CO2.
- **Greenhouse Gas Inventory:** A quantified list of an organization's GHG emissions and sources.
- **Greenhouse Gases (GHG):** the seven gases covered by the UNFCCC: carbon dioxide (CO2); methane (CH4); nitrous oxide (N2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF6), and nitrogen trifluoride (NF3).
- **Greenhouse Gas Protocol** (GHG Protocol): International accounting tool to measure, account, and classify greenhouse gas emissions.
- **Scope 1:** GHG emissions from sources that are owned or controlled by an organization.
- **Scope 2:** GHG emissions resulting from the generation of electricity, heat, or steam purchased by the organization.
- **Scope 3:** GHG emissions from sources not owned or directly controlled by the organization but are related to the organization's activities.

This configuration enables organizations to derive environmental and other sustainability metrics with an approach similar to how they manage their financial accounting, including a complete audit trail given that the usage data matches the financial account of the associated transaction and the associated facility. This approach presents users with a familiar and consistent experience while ensuring data security, accuracy, and consistency.

REPORT AND ANALYZE ENVIRONMENTAL DATA

Oracle Data Visualization Cloud, a feature of Oracle Analytics Cloud (OAC), enables users to create graphical indicators that illustrate on a timely basis whether the organization is performing above, below, or in-line with the targets so that corrective actions can be taken as needed to successfully execute on sustainability initiatives. The data also serves as the basis for forecasting and planning activities and help aligns sustainability initiatives with the core business goals and strategies of the organization.

Once the data is captured in the Oracle ERP Cloud it can be uploaded or automatically synched in Oracle Data Visualization to perform emission calculations and conversions as needed and create reports and dashboards. This can be augmented by uploading additional data from smart meters, fleet management systems, or reference databases.

Energy data can be transformed using company-specific emission factors (or publicly available emissions factors) into a volume of carbon dioxide emissions at the corporate, facility, and sub-facility level. These calculations can be easily configured within Oracle Data Visualization.

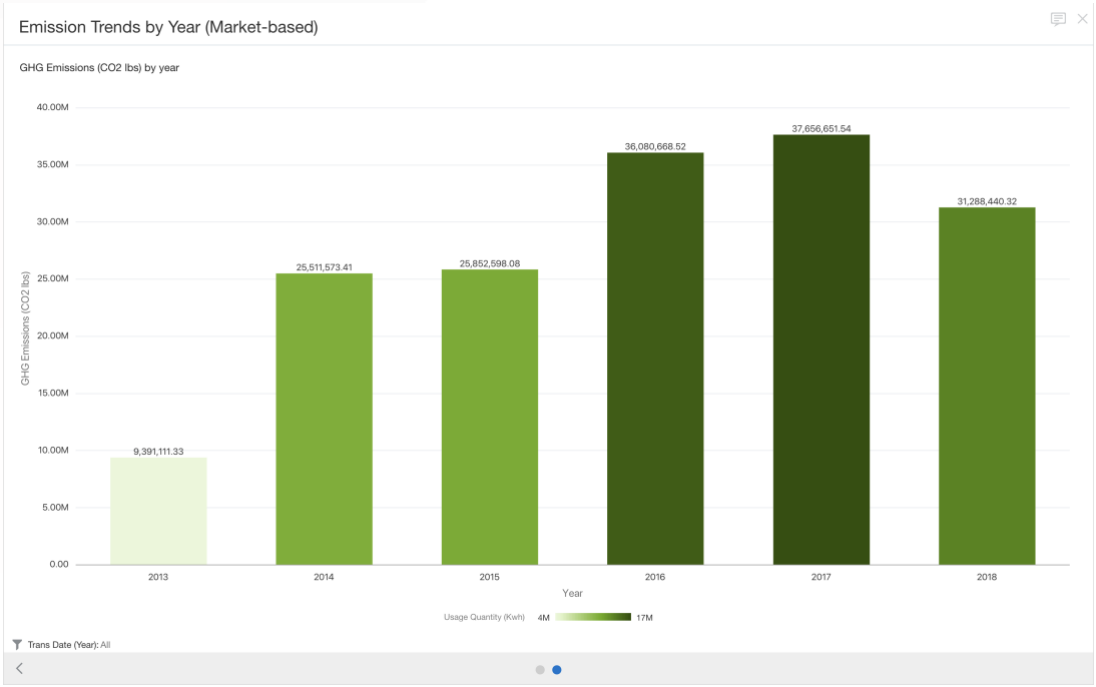

Figure 2 – GHG Emissions (CO_2 lbs) Trends by Year

Oracle Data Visualization Cloud

- Automatically visualize data as you drag and drop attributes, charts, and graphs
- Change layouts to present new insights
- Answer questions quickly with online search and guided navigation
- Combine different data sources
- Empower everyone in your organization to uncover insights using data

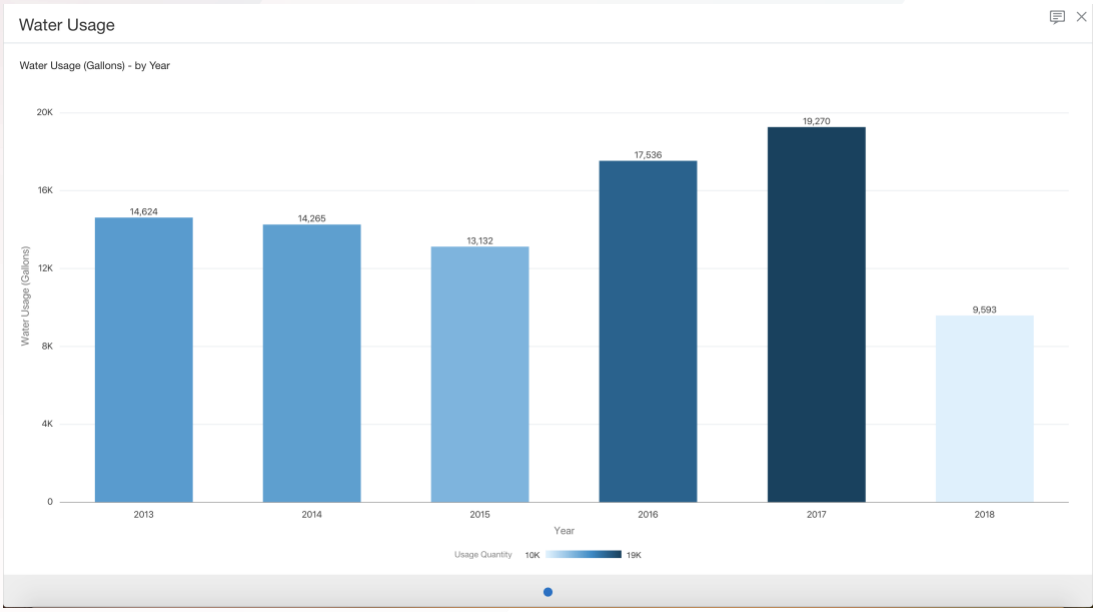

Figure 3 - Water Usage Trends by Year

Oracle Cloud Analytics delivers a comprehensive and secure platform that takes into account the various needs of your users with solutions that connect them to the information they require. Modern analytics are predictive, self-learning, and adaptive to help you uncover hidden data patterns.

CONCLUSION

Monitoring key metrics such as energy, waste, water, greenhouse gas emissions, as well as other sustainability metrics leads to continuous improvement opportunities that drive increased operational efficiency and ultimately cost savings. The ideal way to achieve this is to embed environmental-related data acquisition and reporting into the mainstream of business operations and associated IT infrastructure. Depending on the existing investments that have been made in Oracle, organizations can leverage existing data and business processes by using a number of different solutions including Oracle ERP Cloud and Oracle Cloud Analytics. These offerings provide the ability to measure and manage sustainability initiatives, embed sustainability considerations into core business processes, and ultimately enable organizations to be more sustainable while also contributing to the bottom line.

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Integrated Cloud Applications & Platform Services

White Paper **Managing Environmental Data with the Oracle Cloud**
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