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S T A N D A R D S

Energy Management Subcommittee

SCTE STANDARD

SCTE 208 2021

**Cable Operator Greenhouse Gas Emissions Data
Collection Recommended Practices**

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1. Introduction

1.1. Executive Summary

SCTE 208 defines the process and function of performing a carbon footprint analysis based on cable operator greenhouse gas emissions (GHG) to establish and measure a baseline or year over year comparison of emissions by which subsequent audits may be compared.

1.2. Scope

A *carbon footprint analysis* is an assessment of an organization's annual operational greenhouse gas emissions in terms of carbon dioxide equivalent. The process consists primarily of a data collection phase whereby operational energy sources are identified and energy use is converted into comparable emissions. An initial analysis establishes a baseline inventory of emissions by which subsequent collections may be compared against year-on-year in a comprehensive carbon emissions reduction plan. The carbon footprint analysis can serve as a reporting mechanism for organizations to communicate their emissions contribution to climate change.

The general trend of many major US and worldwide corporations to collect data and produce greenhouse gas reports suggests that GHG emission management and energy efficiency measures offer a unique business opportunity to increase competitive advantage while adhering to present and future regulations.

Companies in the cable industry, like many other companies who have already made strides in terms of environmental sustainability, can leverage GHG emission management to their advantage by creating stakeholder value and benefitting from cost-savings opportunities.

1.3. Benefits

Creating a carbon footprint analysis report for a carbon reduction plan enables cable operators to measure and compare year over year greenhouse gas emissions performance. Cable operators can position themselves as more socially responsible through the organized and standardized collection of carbon data. Improved operating efficiency and costs can result from setting greenhouse gas emission goals that can be measured based on the SCTE 208 framework. SCTE 208 addresses greenhouse gases that are largely produced by energy consumption and cable operators benefit by:

- Defining macro means of measuring energy usage in a very transparent and reportable structure
- Helping to prioritize the correct data to collect across the various cable operator energy domains such as fleet, operations and supply chain
- Contributing to an industry roadmap for defining reduction targets based on standard data collection sets
- Agencies can look at reports to evaluate performance and ranking as compared to others in similar space (like Dow Jones Indices etc.)

1.4. Intended Audience

Cable operator corporate social responsibility directors/teams, senior management, and energy managers

1.5. Areas for Further Investigation or to be Added in Future Versions

Market-based method of greenhouse gas emissions calculations.

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. All documents are subject to revision; and while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

- No normative references are applicable.

2.2. Standards from Other Organizations

- No normative references are applicable.

2.3. Published Materials

- No normative references are applicable.

3. Informative References

The following documents might provide valuable information to the reader but are not required when complying with this document.

3.1. SCTE References

- <https://www.scte.org/scte/isbe-energy-standards-and-operational-practices-1/>

3.2. Standards from Other Organizations

- <https://www.globalreporting.org>
- <http://www.iso.org/iso/iso14000>
- <https://www.cdp.net/en-US/Pages/HomePage.aspx>
- <https://www.ftserussell.com/products/indices/ftse4good>
- <https://www.spglobal.com/esg/csa/indices/index>
- <http://www.ghgprotocol.org/calculation-tools>
- <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>
- <https://ghgprotocol.org/>

3.3. Published Materials

- https://www.epa.gov/sites/production/files/2016-03/documents/electricityemissions_3_2016.pdf

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5. Abbreviations and Definitions

5.1. Abbreviations

CDP	carbon disclosure project
CNG	compressed natural gas
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
CPE	customer premise equipment
CSR	corporate social responsibility
CSV	comma separated value
E85	ethanol 85
EPA	Environmental Protection Agency
ERP	Enterprise Resource Planning
ESG	Environmental social governance
EU ETS	European Union Emissions-Trading Framework
GHG	Green House Gas(es)
GJ	giga-joule
GRI	Global Reporting Initiative
GSA	US General Service Administration
HFC	hydrofluorocarbon
IT	information technology
kWh	kilowatt hour
LPG	liquefied petroleum gas
MSO	multiple subscriber operator (cable company)
NGO	non-governmental organization
OpEx	operational expenses

OSP	outside plant
PDF	portable document format
PFC	perfluorocarbon
POC	point of contact
RFP	request for proposal
UK ETS	United Kingdom Emissions-Trading Framework

5.2. Definitions

GHG uncertainty calculator	Method for improving estimations of greenhouse gas data that may be difficult or subject to large variables that would skew data over year to year data collection projects.
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6. Unique Cable Operator Situation

Cable operator physical infrastructure is characterized by vast, disaggregated, complicated and asset heavy networks, all of which use energy that translates into carbon emissions that must be quantified in greenhouse gas footprint analysis. The complexity of the physical infrastructure, coupled with the geographic breadth of the network, makes energy data collection very difficult – and existing guidance may not be enough to helpfully instruct a cable operator in the process of an energy or greenhouse gas footprint analysis project.

6.1. MSO Business Description

A large multiple subscriber operator (cable company abbreviated as MSO) delivers video and data services to millions of subscribers across their footprint. This is accomplished via numerous unique cable systems spread across many geographical areas. Each MSO is organized differently, making accounting for carbon potentially challenging. Depending on the MSO, energy accounting may be tied to distinct geographic markets, to operational units, or to customer categories such as residential and commercial. It is important to understand this to ensure data collection is done consistently year over year.

Historically, MSOs have large and complex physical systems that operate in a somewhat de-centralized fashion. Meaning, regional or local teams managed their respective systems without significant corporate oversight. In the last 5-10 years, this has changed significantly. Large and mid-sized MSOs have begun to invest in national infrastructure, such as data centers and network operations centers. They have also moved toward standardizing procedures and have given more functional responsibilities, authority and decision-making to centralized corporate teams. Also, many MSOs are also attempting to consolidate and standardize databases (e.g. data input, data management, reporting) into centrally-accessible warehouses, but this is often a work in progress.

6.2. Infrastructure Description

Energy use from physical infrastructure consists of power consumed by the outside plant (OSP) network and from cable operator real estate portfolio (upstream and leased facilities), which includes both critical and non-critical facilities. The OSP network deploys a large number of distributed power supplies. These power supplies power the optical nodes and RF amplifier equipment used in the network to carry voice, video, and data signals to the subscriber's premise. The real estate portfolio consists of critical facilities, which are headends, hub sites and data centers; and non-critical facilities, which are offices, call centers, warehouses and retail stores. A cable operator's energy footprint is also composed of fuel consumed by staff fleet and company vehicles, as well as business travel (commercial air travel and land travel for

rental cars and reimbursed personal mileage); employee commuting and contracted fleet vehicles (downstream transportation and distribution).

6.3. Management of Energy Data

Cable operators experience data management challenges due complex energy vendor relationships at each organizational level. This challenge is multiplied across vast networks with thousands of utility accounts. As data is primarily housed within the supply-side, not the demand-side, of the energy provider-customer relationship, it can be very difficult to centrally manage energy consumption data. For example, data on electricity consumption at non-critical facilities is kept by the utility provider, and not necessarily by the cable operator, except in cases where electricity bills are managed by a central authority. Due to legacy and non-standard management systems, this data might only exist as paper utility bills, scanned PDF files, or Excel spreadsheets and inventories.

6.4. Data Procurement Challenges

In the cable industry, acquisitions, diversity of business units both vertically and horizontally are typical business attributes. Regional units function separately from one another, and centralized oversight of operations is not necessarily the norm. As such, data procurement can be a huge challenge for the GHG data analysis team from a project management standpoint, as data critical to the reporting is sourced from different points of contact across the company. Specific approaches and recommended methods will be discussed in later sections.

6.5. Limitations of Existing Carbon Data Collection Standards

A number of greenhouse gas data collection methodologies exist that have been developed by non-government originations (NGOs), associations and consultancies that are instructive for conducting analysis for different industries. But due to the unique functional characteristics and business organization of a cable company, existing methodologies intended for use with other industries may not provide enough guidance to conduct a carbon audit in accordance with global standards.

The World Resources Institute’s GHG Protocol Initiative is responsible for international data collection standards. Its publication GHG Protocol Corporate Standard outlines international standards for conducting analysis and reporting of GHG emissions – for different sectors and different-sized companies, much as generally accepted financial accounting and reporting principles are intended to apply universally. It provides guidance on accounting and reporting principles; business goals and inventory design; setting organizational and operational boundaries; tracking emissions over time; identifying and calculating emissions; managing inventory quality; emissions reporting and verification; and setting GHG targets. However, it is not intended to be an instructive manual for conducting a full footprint analysis.

Given the physical complexity of MSOs, different sources of energy and emissions information, and the sheer manpower effort required to source and track the required information, a more specific and instructive standard is needed to ensure that data is collected, normalized and reported in accordance with these international standards.

7. End Game Strategy

Across companies in the telecoms and communications industries, a range of carbon reporting strategies are used, reflecting different “end game strategies” for that carbon data collection and reporting. These are driven largely by the intended audience of the carbon data, as different rollups will inform different

data collection and normalization practices. Likewise, completion, consistency and commitment vary across this spectrum of companies, and this detail reflects the materiality of content driven by stakeholder interests.

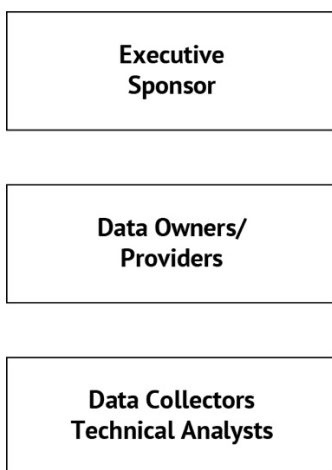
7.1. Determine & Prioritize Key Drivers

There are a number of reasons why a cable operator would initiate GHG footprint analysis. For instance, while some operators may choose to conduct GHG emissions footprint analysis from external stakeholder pressure to define and disclose its environmental actions, other companies may choose to use data to identify areas for improvement in its operations and energy use portfolio. Following are examples of key drivers for initiating GHG emissions data collection project:

- *Enterprise-wide Operational Improvements and Associated Savings*— comprehensive greenhouse gas emissions accounting can be used as an operational management tool, uncovering various inefficiencies that, if addressed, could represent cost saving opportunities. Furthermore, the actual cost savings potential from the correction of such inefficiencies can be modeled and quantified with data collected in GHG emissions data collection, and then used to inform future plans for operational improvement to maximize those cost savings.
- *Energy OpEx Savings* —end-users of the GHG data collection results can identify portions of the cable operator operations that function at sub-optimal energy efficiency. The audit report and can be a base management tool for comprehensive plan to reduce energy consumption in both critical and non-critical facilities, uncovering cost savings potential. The data also reveals where prime targets for energy-use improvement and efforts would have the largest effect on both cost savings and emissions reduction.
- *Initial Step in a Comprehensive GHG Emissions Abatement Plan* — an MSO may seek a long-term action plan to manage and reduce the emissions of the organization and its operations. The first step in implementing such a strategy is to conduct a GHG analysis for a baseline year. Baseline data is the foundation for establishing future emissions reductions goals, progress on which is measured with a repeated audit. Baseline audit data also forms the basis on which the efficacy of new energy efficiency projects, and other abatement strategies, will be assessed. See Section 12 for a discussion of the larger abatement process.
- *Corporate Social Responsibility (CSR) and Environmental Social Governance (ESG)*— employees, customers, investors and other stakeholders’ expectations of corporate ethics and responsibilities are changing. A CSR report, which has become standard practice among publicly traded companies, allows a company to tell its own story about being a good corporate citizen. The environmental portion of the ESG report would contain similar information pertaining to impacts of company operations on planetary concerns such as global warming.
- *Public Disclosure and Reputation Management* —for companies that understand the importance of reputation management, reporting environmental information through leading disclosure channels and third-party organizations can improve public perception.
- *Brand Differentiation* — as the broadband industry evolves, taking a leadership role on key issues, such as the environment, can improve brand value.
- *Preparedness for Future Regulations* — for MSOs that desire to be prepared for possible regulatory changes including the mandatory auditing and reporting of GHG emissions. This may mean having processes and “muscle-tone” in place that meet these requirements in advance and may result in future savings on outsourcing these activities if processes are already in-place.
- *Attracting environmental social governance* ESG factors are rapidly becoming integral to assessing the quality of a company and thus a vital part of investment bodies’ decision-making process. In order to remain competitive in the quest for capital, MSOs must integrate ESG into its business strategies and operations.

7.1.1. *Determine the data collection governance model*

Once it is determined to gather sustainability data either for disclosure (internal or external) or for operational use, a governance model including executive sponsor will be required. The benefit of such a model is twofold. First of all, it will help create a structure of the roles and responsibilities. Secondly, it will help harmonize the data and data collection through a collaborative process, with stakeholders from various business units participating including operations.



7.1.2. *Determine the Internal End-users of the Carbon Data*

There are various organizations within a typical MSO, both at the corporate planning level and the regional/local management level, each responsible for key operational aspects of the business – and each may have different applications for the data resulting from GHG analysis (See Figure 1).

For example, there are corporate outside plant engineers and architects who are responsible for new plant design and implementation, as well as local plant technicians responsible for its maintenance. With fleet operations, vehicle procurement is conducted centrally, but local technical operations teams manage and maintain vehicle fleets on a day-to-day basis.

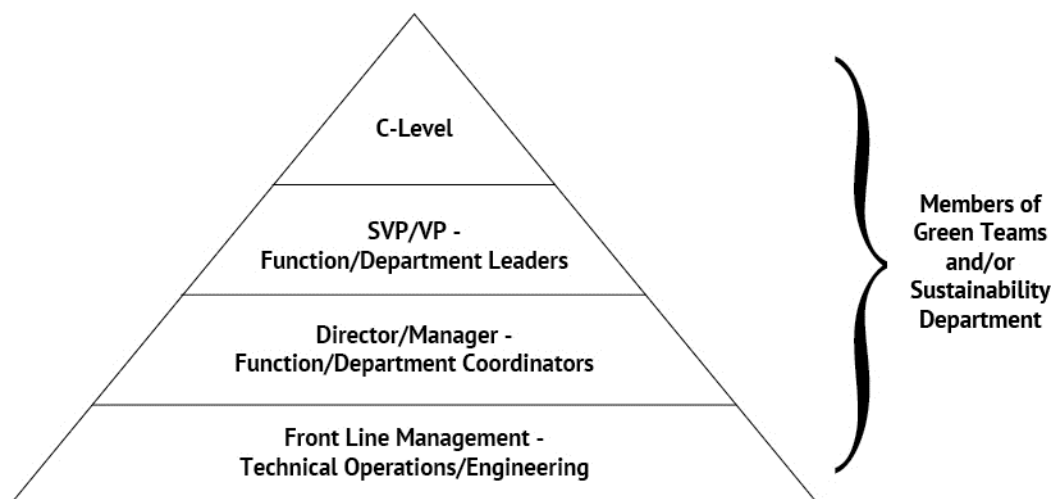


Figure 1 - Management Structure of a Typical MSO

C-level — executives typically may be interested in setting of and progress toward a carbon reduction goal. They set policy around governance and transparency, including public reporting of environmental information.

Function/Department Leaders (SVP/VP) — senior leaders are responsible for program strategy that supports overall corporate objectives. Typically, these include energy- and operational-efficiency initiatives in the MSO’s key area of operations—Outside Plant, Critical Facilities, Real Estate Portfolio and Fleet Operations.

Function/Department Coordinators (Directors/Managers) —these leaders are responsible for implementation of projects that improve efficiency, and reduce costs, energy consumption and carbon emissions within their direct area of responsibility.

Technical Operations/Engineering Front Line Management —these employees manage local fleet teams, critical infrastructure and buildings within specified tolerances, while seeking functional improvement to meet energy efficiency or carbon reduction goals.

Green Teams / Sustainability Departments – these employees may or may not exist at a typical MSO, but are increasingly common as corporate energy, environment and sustainability issues take hold. These employees are responsible for managing these issues internally. Often these teams are cross-functional and include representatives (volunteer or full-time) from different departments at different verticals.

7.1.3. Determine Whether Carbon Data will be Voluntarily Disclosed

The lead data collector *should* determine whether a public disclosure strategy will inform the GHG emissions data collection process – whether driven by the operating region’s legislation, by an investor demand, or for corporate reputational risk. At the time of this publication in 2020, there are no regulations in the United States under which a cable operator must report to remain compliant; only energy-producing companies are required to report emissions under US State and Federal disclosure laws.

There are a variety of public disclosure outlets which companies can utilize to voluntarily report GHG emissions data collected:

Voluntary disclosure type 1 – A corporate report that adheres to a sustainability – reporting framework