SUSTAINABLE DEVELOPMENT

Link between United Nations Sustainable Development Goals and CSA/ANSI B149.6:20 Code for Digester Gas, Landfill Gas, and Biogas Generation and Utilization – Industry Perspective

Enabling Sustainable Development through Standards

7 AFFORDABLE AND CLEAN ENERGY

United Nations Sustainable Development Goals Addressed:

SDG 7 – Affordable and Clean Energy

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Summary

CSA Group is a leader in research, development, education, and advocacy with the goal of enhancing the lives of Canadians through the advancement of standards in the public and private sectors. CSA Group has developed CSA/ANSI B149.6 *Code for Digester Gas, Landfill Gas and Biogas Generation and Utilization*. This code addresses the production, handling, storage, and utilization of digester gas in wastewater treatment plants, landfill gas at landfill sites, and biogas in biogas systems and, as such, directly concerns engineering, consulting, and design firms. The purpose of this study is to assess how the implementation of this code by industry is contributing to the 2030 Agenda for Sustainable Development by supporting the United Nations Sustainable Development Goals (UN SDGs). The interviews held with industry experts in the field provide the basis for this study.

1 Introduction

CSA/ANSI B149.6 addresses the installation of systems for the production, handling, storage, and utilization of digester gas in newly constructed wastewater treatment plants, landfill gas in newly constructed landfill gas systems, and biogas in newly constructed biogas systems, as well as additions to and upgrading of existing systems.

Considering the 2030 Agenda for Sustainable Development, the objective of this study is to assess the link between the code and the SDGs and their targets.

Through a robust mapping process, connections between the application of CSA/ANSI B149.6 and the following UN SDGs were identified:

6 CLEAN WATER AND SANITATION	**SDG 6** – ensure availability and sustainable management of water and sanitation for all.
7 AFFORDABLE AND CLEAN ENERGY	**SDG 7** – ensure access to affordable, reliable, sustainable and modern energy for all.
11 SUSTAINABLE CITIES AND COMMUNITIES	**SDG 11** – make cities and human settlements inclusive, safe, resilient, and sustainable.

This study focuses on one of the SDGs that is most strongly supported by the code, namely SDG 7. Prior to the interview phase, a general understanding of the code and the SDGs were gathered and used to inform relevant questions to explore this aspect of sustainability and the potential linkages between the code and the SDG as perceived by interview participants. Several interviews were conducted with those who use the code and with industry experts to discuss perspectives related to industry use of the code and its specifications. Industry experts included authors who contributed to the writing of the code, individuals and organizations that use the code, as well as organizations that require the code for use through specific jurisdictional regulations.

This particular study captures the viewpoint of industry experts (engineers) at two public engineering firms located in Ontario, Canada. Both firms have a strong relationship to sustainability policies and practices within their organizations. Both companies have background experience with CSA/ANSI B149.6 and have been implementing the code in their practice for several years.

2 Results and Impact

Based on an SDG mapping analysis, there is a strong link between CSA/ANSI B149.6 and two targets within SDG 7:

> 7.2: *"By 2030, increase substantially the share of renewable energy in the global energy mix".*

> 7.a: *"By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology".*

Over the past ten years, CSA/ANSI B149.6 has been developed and updated to accommodate technological development and emerging sustainability concerns; however, as described by one industry expert, this code has two primary uses. First, it helps reduce and eliminate the need for the release of unburned biogas that is composed of methane (60%) and carbon dioxide (40%), both of which can cause great harm to the environment. Second, the code is focused on allowing the digesters, landfills, and agriculture facilities to function safely.

In relation to target 7.2 and 7.a, the code promotes renewable energy and energy efficiency. The code focuses on three applications: "municipal infrastructure [wastewater treatment facilities], landfills, and agricultural plants". One industry expert explained that energy efficiency stems from the use of biogas to generate not only heat but also electricity, because "landfills produce methane gas … the anaerobic digesters ferment methane to get heat out of it, you put it in boilers to get the heat out … and if you put it in the oven unit, you're not only getting heat out of it, you're getting electricity because the engine which runs on methane, turns an electric motor which produces electricity". This shows that use of the CSA/ANSI B419.6 enables energy efficiency that satisfies components of the SDG 7.

It is important to note that both of the industry experts who were interviewed work for sustainable infrastructure development and consulting firms, with missions committed to responsible stewardship of the environment. However, in their profession, they have not specifically focused on the UN SDGs. Additionally, familiarity with and awareness of CSA/ANSI B149.6 are not wide spread throughout the two organizations but are limited to specific divisions that directly make use of the code. According to the interviewees, there are mentoring and training initiatives underway that aim to enable more employees to work with the code.

Interestingly, while one user noted awareness of the code only with users, the other mentioned a great awareness by technical subcommittees that consist of experts in their specific fields. While standard knowledge of the code is not distributed throughout the entire organization, these technical specialists have a

developed understanding of it and use it in their work processes. This illustrates a gap in knowledge that could be remedied by associating the code with the global sustainability initiative arising from SDG 7.

3 Conclusions and Next Steps

Currently, CSA/ANSI B419.6 is a voluntary code, which means that requirements surrounding its usage is up to the discretion of each jurisdiction. Some provinces such as British Columbia, Alberta, Manitoba, Saskatchewan, and Ontario have adopted the code while others have not. Some jurisdictions consider this code as a design guideline as opposed to a code. A next step to consider could be legal regulation around the use of this code such as having all of Canada and the United States comply with CSA/ANSI B419.6.

Overall, the code supports SDG 7 by promoting energy efficiency through the use of anaerobic digesters in landfills and agricultural facilities. While the SDGs are not the primary driver for the code's use and overall scope, the code benefits the UN SDGs to be achieved by 2030.