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English Version

Life cycle cost (LCC) and Life cycle assessment (LCA) for ductile iron pipe systems

Coût du cycle de vie (CCV) et analyse du cycle de vie
(ACV) pour les systèmes de canalisations en fonte
ductile

Lebenszykluskosten (LCC) und Lebenszyklusanalyse
(LCA) für Rohrsysteme aus duktilem Eisen

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European foreword

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This document is currently submitted to the CEN Enquiry.

Introduction

Studies on economic and environmental impacts are important for utility decision-makers as they seek to balance budget concerns over immediate and long-term needs across acquisition, operations, and maintenance, and planned end of life. For authorities and engineers designing pipeline systems, the life cycle cost (LCC) and live cycle assessment(LCA) serve as a tool to study various scenarios to determine the right solution for site-specific conditions and community values, as well as to provide the necessary data to support those decisions. Impacts on the circular economy should be taken into consideration too.

The intention of this document, dedicated to DI pipe systems, is to state the concepts of Life Cycle Cost(LCC), Live Cycle assessment(LCA), reference service life (RSL), the functional unit (FU), to define objective methodologies for LCC and LCA, respectively, in order to support customers and users to optimize DI pipe solutions with global cost evaluation, safety requirements and environmental criteria.

1 Scope

This document specifies the evaluation method of life cycle cost (LCC) and Life cycle assessment (LCA) of ductile iron pipes and fittings used for water applications

Informative annexes are included in this document as a compilation of references, consensual factors, and scenarios with different DI pipelines.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 life cycle cost

LCC

cost of an asset throughout its life cycle, while fulfilling the performance requirements

3.2 acquisition cost

all costs included in acquiring an asset by purchase/lease or construction procurement route, excluding costs during the occupation and use or end-of-life phases of the life cycle of the constructed asset

3.3 operation cost

total running costs for water conveyance, including the pumping cost

Note 1 to entry: Operation costs could include rent, rates, insurances, energy, and other environmental/regulatory inspection.

3.4 maintenance cost

total labor, material, and other related costs incurred to maintain pipelines

3.5 end of life cost or revenue

total of costs or fee for disposing of an asset at the end of its *service life* (3.8) or interest period, including costs resulting from pipeline dismantling, waste disposal, and revenue from material recovery

3.6 period of analysis

period of time over which life cycle costs (3.1) or whole-life costs are analyzed

Note 1 to entry: The period of analysis is determined by the client.

3.7 functional unit

FU

the way in which the identified functions or performance characteristics of the product are quantified

[SOURCE: EN 15804]