

# New Initiative

## Leakage Emissions

Following up on the discussion after Water Loss 2022 in Prague, the IWA WLSG is proposing an initiative that seeks to quantify the impact that unmanaged leakage has concerning avoidable carbon emissions. Through this initiative we will be linking unchecked leakage to carbon emissions, in an effort to educate those outside the industry on the ecological importance of managing non-revenue water. We believe this because the Paris Accords have influenced governments and corporations alike to act in a way that changes how we operate as a society to limit the mean rise in global temperature to below 2 degrees Celsius above pre-industrial levels. To achieve this goal, it is stated that global emissions should be reduced to net-zero by 2050 at the very latest. This has led global entities to an increase in funding of cleaner initiatives that seek to decarbonize our energy infrastructure and supply chain. By establishing Leakage Emissions as a relevant metric, we are confident that we can inspire these same parties to enhance legislation and corporate involvement in a way that could incentivize funding of much needed practices and improvements to our water infrastructure, thus curbing both non-revenue water and Leakage Emissions.

Understanding Leakage Emissions begins with the knowledge that unchecked leakage, otherwise known as Real Loss, has consumed carbon intensive energy resources through extraction, treatment, and pumping. Each volumetric unit of Real Loss equates to a measurable unit of carbon emissions. Reducing Real Losses directly reduces waste of carbon intensive energy.

This initiative would gather data on carbon emitting energy that is used to produce and transport water that ends up as Real Loss, thus producing Leakage Emissions. Upon collection of this data, we will publish the findings to support the theory that Real Loss is a serious contributor to global carbon emissions. We will also publish methodology that will assist utilities in calculating how much their carbon emissions are associated with Real Loss. Finally, the findings and methodology will be used to create a system in which utilities are generating verifiable credits that will represent tonnes of carbon that has been avoided as utilities identify and volumetrically reduce their Real Losses. These credits can be purchased by sustainably minded entities to represent tangible carbon emission reductions as a part of their corporate sustainability strategy to achieve Net Zero by 2050 or sooner. It is anticipated that the proceeds from these credits will infuse much needed capital to accelerate Real Loss reduction.

The Initiative shall comprise the following activities:

- ❖ Implement Leakage Emissions as an additional measure that the IWA WLSG Water Balance will report for a utility using the previously established process guide.
- ❖ Establish a comprehensive list of energy consuming equipment such as pumps, meters, treatment equipment, and other devices used by a utility.

- ❖ Establish a measurable carbon footprint associated with utility leakage and reactive repair and state its global impact.
- ❖ Establish how many tonnes of CO<sub>2</sub> are emitted on a leakage volumetric basis for a utility. This will not be the same for every utility.
- ❖ Establish a process that will guide a utility in measuring its Leakage Emissions
- ❖ Construct a program that will incentivise and reward utilities to generate Carbon Leakage Credits (CLC). This program will be constructed in a way that will allow third parties to participate by funding the improvements that will generate these credits that they can then retire to represent a reduction in carbon emissions.
- ❖ Cooperate with independent governing bodies or a carbon registry that will verify and validate the legitimacy of CLCs.

The expected deliverables are:

- ❖ Link Carbon Emissions to the IWA Water Balance
- ❖ Leakage Emission Tracking Methodology Guide
- ❖ Position Paper
- ❖ Presentations

In order to make the results as internationally applicable as possible it will be desirable to form a working group for the Initiative which will consist of people from as many countries and disciplines as possible (WLSG Members, International Funding Agencies, Regulatory Bodies, etc.)

Initial milestones for progress are suggested as follows:

<b>September 2022</b>	Launch the new initiative and request for interest
<b>October 2022</b>	Identify interested professionals and build a team to work on the initiative and request for contributions
<b>December 2022</b>	Compile available research from which to launch the Initiative
<b>March 2023</b>	Finalize first white paper that will quantify Leakage Emissions and define CLCs.
<b>June 2023</b>	Deliver report on findings and present to international funding forums, industry and trade association meetings, and conferences.
<b>July 2023</b>	Incorporate Leakage Emissions metrics into the IWA WLSG Water Balance.
<b>July 2023</b>	Begin publishing and communicating findings with relevant governing bodies and carbon offset registries
<b>December 2023</b>	Establish Carbon Leakage Credit program.
<b>April 2024</b>	Present Findings

We believe the results from this Initiative will be of great value to both the Water Loss Industry and the global effort to reach carbon neutrality by 2050. This Initiative will also contribute to furthering knowledge in both developed and developing countries to enable them to further enhance the sustainability of their systems.

Proposal document put forth for review by Steve Cavanaugh, P.E., IWA-WLSG member