

Correction to Characterization Factors for Thermal Pollution in Freshwater Aquatic Environments [Environmental Science & Technology 2010, 44, 9364–9369 DOI: 10.1021/es102260c]. Francesca Verones, Marlia Mohd Hanafiah, Stephan Pfister, Mark A. J. Huijbregts, Gregory J. Pelletier, and Annette Koehler

An error was found in the conversion of the characterization factors for thermal emissions to ReCiPe eco-points. This leads to a large overestimation of the importance of thermal emissions to the overall environmental impacts of nuclear power generation using once-through cooling systems. The relevance of thermal emissions now constitutes 0.01% instead of 90% of the total environmental impact (see updated Figure 2). Therefore, the conclusion that thermal emissions are principally relevant for the total environmental impact cannot be maintained. Accordingly, the difference in total environmental impact between power generation with once-through cooling systems and cooling towers becomes rather small for the cases investigated.

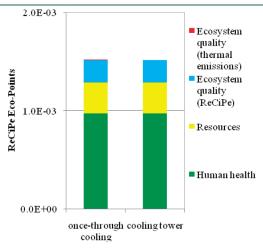


Figure 2. Total damage (expressed in ReCiPe Eco-points) of 1 kWh of nuclear electricity generated in BWRs with a once-through cooling system and alternatively with a cooling tower. The results are divided into the three different areas of protection (Human Health, Resources and Ecosystem Quality). Impacts caused by thermal emissions, which add to ecosystem quality damage, are displayed separately.

For freshwater ecosystem quality, thermal emissions now contribute 49% instead of >98% of the whole freshwater impact in the case of a once-through cooling system (updated Tables S21 and S22 in the Supporting Information). Although the relative contribution of thermal emissions is also largely reduced here, the conclusion that thermal emissions of once-through cooling systems can significantly contribute to freshwater ecosystem quality in a life cycle context remains valid.

■ ASSOCIATED CONTENT

Supporting Information. Additional information including updated Tables S21 and S22. This material is available free of charge via the Internet at http://pubs.acs.org.

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