

## Selected Open-Source Solutions for Sustainable Finance: An Overview\*

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### Abstract

Integrating environmental, social, and governance (ESG) imperatives into financial practices is critical for cultivating sustainable economies and addressing pressing global climate challenges. Despite the acknowledged potential of open-source technologies to enhance transparency and foster collaborative innovation, a significant gap exists in the literature regarding their tangible contributions to sustainable finance. This study seeks to bridge this void by conducting a comprehensive analysis of prominent open-source tools that facilitate climate-aligned investments, precise carbon footprint quantification, and advanced data-driven risk management. Employing a qualitative review methodology, the research meticulously examines tools such as PACTA (Paris Agreement Capital Transition Assessment), the Science Based Targets initiative's Temperature Alignment Tool, Cloud Carbon Footprint, the AWS Sustainability Insights Framework, and blockchain-based carbon accounting platforms. The functionalities, industry adoption trajectories, and overall impact of these tools on advancing sustainable finance objectives are critically assessed. The findings reveal that these open-source solutions are instrumental in augmenting transparency and inclusivity, enabling financial institutions, policymakers, and developers to collaboratively navigate and mitigate climate-related risks. By integrating cutting-edge technologies like machine learning algorithms and blockchain architectures, these tools effectively counteract greenwashing phenomena and facilitate precise emissions monitoring. This study underscores the pivotal role of open-source platforms in empowering stakeholders to contribute to a resilient and accountable financial ecosystem, thereby aligning with global sustainability goals. These insights enrich the existing body of research by highlighting the practical applications and inherent benefits of open-source tools in sustainable finance. They provide a valuable foundation for future academic inquiry and industry innovation in this critical field, emphasizing the necessity for continued exploration and adoption of open-source solutions to meet global climate objectives.

**Keywords:** open source, sustainable finance, fintech, climate finance, ESG, Paris Agreement