IEEE SA STANDARDS ASSOCIATION

planet positive 2030

Strong Sustainability by Design

INTRODUCTION

An initiative supported by the IEEE Standards Association

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IEEE

Strong Sustainability by Design - Version 1 (Draft)

Request for Input

Public comments are invited on the first version of ***Strong Sustainability by Design: Prioritizing ecosystem and human flourishing with technology-based solutions*** that identifies specific issues and pragmatic recommendations regarding sustainability and climate change to achieve "Planet Positivity" by 2030.

This draft compendium has been created by committees of the Planet Positive 2030 Initiative[1] that is supported by IEEE Standards Association (IEEE SA). The Planet Positive 2030 Initiative community is composed of several hundred participants from six continents, who are thought leaders from academia, industry, civil society, policy and government in the related technical and humanistic disciplines. At least one hundred fifty members of this community have contributed directly and have worked to identify and find consensus on timely issues.

The document's purpose is to identify specific issues and candidate recommendations regarding sustainability and climate change challenges to achieve "Planet Positivity" by 2030, defined as the process of transforming society and infrastructure by 2030 to:

- Reduce GreenHouse Gas (GHG) emissions to 50% of 2005 emissions by 2030[2]
- Significantly increase regeneration and resilience of earth's ecosystems[3]
- Be well on the path to achieving net zero GHG emissions by 2050 and negative GHG emissions beyond 2050
- Continue to widely deploy technology as well as design and implement new technological solutions in support of achieving technological solutions designed and deployed to achieve "Planet Positivity"

In identifying specific issues and pragmatic recommendations, the document:

- Provides a scenario-based challenge (how to achieve "Planet Positivity by 2030") as a tool to inspire readers to provide contextual technical and general feedback as part of this RFI.
- Advances a public discussion about how to build from a "Net Zero" mentality to a "Net or Planet Positive" ("do more good") societal mandate for all technology and policy.
- Continues to build a diverse and inclusive community for the Planet Positive 2030 Initiative, prioritizing the voices of indigenous and marginalized members whose insights are acutely needed to help ensure technology and other solutions are valuable for all. Of keen interest is how we can encourage more in-depth participatory design in our processes.
- Inspires the creation of technical solutions that can be developed into technical standards (IEEE Standards Association, for example ICT and power & energy related standards, IEEE P7800™ series) and associated certification programs.
- Facilitates the emergence of policies and regulations; regulations that would potentially be interoperative between different jurisdictions (countries).

[1] Planet Positive 2030is part of The Sustainable Infrastructures and Community Development Industry Connections program

[2] As described in the United Nations Climate Change Conference (COP 21) Paris Agreement of 2015.

[3] According to the High Ambition Coalition for Nature and People, "In order to address both the biodiversity crisis and the climate crisis, there is growing scientific research that half of the planet must be kept in a natural state….experts agree that a scientifically credible and necessary interim goal is to achieve a minimum of 30% protection by 2030." Protection for land and water of "30 x 30 by 2030" was recommended during COP15 United Nations Convention on Biological Diversity.

By inviting comments for *Strong Sustainability by Design*, the Planet Positive 2030 community provides the opportunity to bring together multiple voices from the related scientific and engineering communities with the general public to identify and find broad consensus on technology to address pressing environmental and social issues and proposed recommendations regarding development, implementations and deployment of these technologies.

Details on how to submit public comments are available in the **Submission Guidelines**.

Comments in response to this request for input will be considered by the Planet Positive 2030 Initiative committees for potential inclusion in the first public edition of *Strong Sustainability by Design* ("*Strong Sustainability by Design*, First Edition") anticipated to be made available to the general public during the fourth quarter of 2023.

- For further information, learn more at the Planet Positive 2030 Initiative website.
- For our Frequently Asked Questions (beyond RFI submission), please click here.
- Get in touch at: PlanetPositive2030@ieee.orgto get connected to a committee or any other reason.
- Please, subscribe to our newsletter here.

If you're a journalist and would like to know more about the Planet Positive 2030 Initiative, please contact: Standards-pr@ieee.org

Disclaimers

*Strong Sustainability by Design*isnotacodeofconduct or a professional code of ethics. Engineers and technologistshavewell-establishedcodes,and we wish to respectfully recognize the formativeprecedentssurroundingissuesof sustainabilityandtheprofessionalvalues these codes represent. These codes provide the broad framework for the more focused domain addressed in this document, and it is our hopethat the inclusive, consensus-building processaround its design will contribute unique value to technologists and society as a whole.

This document is also not a position, or policy statement, or formal report of IEEE or anyother organization with which is affiliated. It isIntendedtobeaworkingreferencetoolcreated in an inclusive process by those in the relevant scientific and engineering communities prioritizingsustainability considerations in their work.

A Note on Affiliations Regarding Members of Planet Positive

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A Note Regarding Recommendations in This Document

Strong Sustainability by Design is being created via multiple versions that are being iterated over the course of two to three years. Planet Positive2030 is following a specificconcurrence-building process where members contributing content are proposing “candidate” recommendations so as not to imply these are final recommendations at this time. This is also why the word, “Draft” is so prominently displayed.

Our Membership

Planet Positive2030, an initiative supported by the IEEE Standards Association as part of the Industry Connections Program, Sustainable Infrastructures and Community Development program (SICDP) currently has more than 400 expertsinvolved in our work, and we are eager for new voices and perspectives to join our work.

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Strong Sustainability by Design: Prioritizing ecosystem and human flourishing with technology-based solutions

Introduction

Imagine the future we[4] can build together.

This is the vision driving the work of **Planet Positive 2030**, an initiative created and supported by the IEEE Standards Association[5] that brings together a global, diverse, open community of experts to help chart a path for all people to achieve a flourishing future for 2030 and beyond.

The first step to imagine this future is to recognize the planet Earth and all its ecosystems form a part of all of us[6]. The air we breathe, the water we drink, and the food earth provides comprise who we are. We cannot continue to treat planet Earth as a "resource" from which to be extracted - planet Earth is finite with finite resources. We should, instead, prioritize the health of our planetary biosphere and recognize that we humans are a part of the system, not above it or outside it.

In 1987, the United Nations Brundtland Commission defined "sustainability" as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".[7] This implies "sustainability" is the long-term resilience of people and the planetary biosphere in unison. Achieving sustainability for millennia to come requires a shift from the zeitgeist of competition defining the Anthropocene[8] era to a culture of care for the land and one another, a 'culture of sustainability', the ultimate goal/vision we can imagine, share, and achieve together.

A key intersection for sustainability involves technology and the context of how and when it is applied and/or used. Quoting *Herbert Simon (1916–2001), Nobel prize laureate 1978, A. M. Turing award 1975:*

> "We must look ahead at today's radical changes in technology, not just as forecasters but as actors charged with designing and bringing about a sustainable and acceptable world. New knowledge gives us power for change: for good or ill, for knowledge is neutral. The problems we face go well beyond technology: problems of living in harmony with nature, and most important, living in harmony with

[4] 'We' refers to 'all of us people' - our responsibility for 'Now' and 'Future Generations' of humanity and the earth's biosphere

[5] Planet Positive 2030 is part of the Sustainable Infrastructures and Community Development Industry Connections program of IEEE SA.

[6] "Us"refers to all people on Earth.

[7] See the definition of "sustainable development" on page 41 of *Our Common Future: Report of the World Commission on Environment and Development* from the UN General Assembly, Development and International Economic Co-operation: Environment, A/42/427 (annex), originally published 4 Aug. 1987.

[8] From Anthropocene by Andrew Goudie:"PaulCrutzen and colleagues introduced the term 'Anthropocene' (e.g., Crutzen 2002; Steffen, et al. 2007) as a name for a new epoch in Earth's history—an epoch when human activities have 'become so profound and pervasive that they rival, or exceed, the great forces of Nature in influencing the functioning of the Earth System."

> each other. Information technology, so closely tied to the properties of the human mind, can give us, if we ask the right questions, the special insights we need to advance these goals."[9]

The Planet Positive 2030 process builds on IEEE experience considering the potential positive and negative impacts of the applications of technologies on people[10]. It leverages previous work and vision created by IEEE taking an in-depth look at Artificial Intelligence, its applications and potential impacts as detailed in *Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems*:[11]

> "Ultimately, our goal should be **eudaimonia**, a practice elucidated by Aristotle that defines human well-being, both at the individual and collective level, as the highest virtue for a society. Translated roughly as 'flourishing,' the benefits of eudaimonia begin with conscious contemplation, where ethical considerations help us define how we wish to live."[12]

Human well-being has many facets: health, education, social networks among others. Fundamentally, it is dependent on planet Earth, its climate, and the health of the earth's ecosystems. It requires that nature be honored, that we as individuals and organizations recognize and respect planetary boundaries, the role of and limits to natural capital. This leads to the concept of **Strong Sustainability.**

Most notably, "Strong Sustainability" builds on the concept of "Sustainability" and stipulates that substitutability of natural capital and ecosystem services (by manufactured capital) be severely restricted to ensure availability of these resources for future generations, for human existence and well-being. The "consumption of natural capital is usually irreversible" (for example, loss of biodiversity).[13]Strong Sustainability provides boundary conditions for technological design and implementation based on the reality that earth's ecosystems will function and evolve as they will despite any human economic or cultural imperatives.

Put simply: We need Nature. Nature doesn't need us.

It is this recognition of our need to account for and honor earth that the title of our compendium is ***Strong Sustainability by Design: Prioritizing ecosystem and human flourishing with technology-based solutions***. Eudaimonia must embody conscious contemplation, 'healing', and conservation of our natural world with a healthy atmosphere and ecosystems for all the living organisms it contains.

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[9] Salvatore T. March and Fred Niederman, "The Future of the Information Systems Discipline: A Response to Walsham,"*Journal of Information Technology* 27, no. 2 (2012), https://doi.org/10.1057/jit.2012.10. Includes quote by Herbert A. Simon (2000).

[10] "Technology and Society," IEEE Society on Social Implications of Technology (SSIT), https://technologyandsociety.org.

[11] The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, *Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems*, 1sted. (IEEE, 2019).

[12] In *Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems*, the first three principles are:

1. **Human Rights** – Artificial Intelligence Systems (AIS) shall be created and operated to respect, promote, and protect internationally recognized human rights.
2. **Well-being** – Artificial Intelligence Systems (AIS) creators shall adopt increased human well-being as a primary success criterion for development.
3. **Data Agency** – Artificial Intelligence Systems (AIS) creators shall empower individuals with the ability to access and securely share their data, to maintain people's capacity to have control over their identity.

[13] JérômePelenc, Jérôme Ballet, and Tom Dedeurwaerdere, "Weak Sustainability versus Strong Sustainability, brief for GSDR 2015.

The name of the Planet Positive 2030 Initiative tells the story of how we[14] are approaching and doing our work:

- **Planet**: Our focus. The earth we must heal, protect, and sustain for humans and nature to flourish for seven generations[15] and beyond.

- **Positive**: Our purpose. The design to give back more to the planet with technology than is removed and not to harm the biosphere/planet[16].

- **2030**: Our urgency. The timeframe guiding our work inspiring responsible, bold, systems thinking to inspire accountable contextualized solutions, standards, policy, and pragmatic change.

Each chapter of *Strong Sustainability by Design* begins with a "Planet Positive vision of 2030" written as if the expert committee members authoring the content are in that future positive reality where our two "impossible goals"[17] have been achieved. Discussions of "Issues" and "Recommendations" provide a pathway to get from today's reality to the visions of 2030 as will be complemented by the feedback received as part of this process.

Many experts have collaborated, cooperated, and shared their insights to prepare this living document.

Now we call on you, on all interested people, to provide advice, input, and suggestions.

You are invited.

Imagine the future we can build together.

Your participation and insights will help build this future.

To achieve Planet Positivity for 2030 and beyond.

[14] We—the many contributors and participants of the Planet Positive 2030 Initiative.

[15] For more information about the Seventh Generation Principle, see the 30 May 2020 blog post of the Indigenous Corporate Training, Inc., entitled "What is the Seventh Generation Principle?"When involving Indigenous communities, it is recommended to consider and prioritize the rights of Indigenous peoples, includingthe principle of free, prior, and informed consent. , For more details, see: UN Human Rights, Office of the High Commissioner, "Free, Prior and Informed Consent of Indigenous Peoples,"from Sept. 2013.

[16] Versus a "climate neutral" mindset.

[17] Goal One:Transform society and infrastructure to achieve Planet Positive 2030 meansreducing GreenHouse Gas (GHG) emissions to 50% of 2005 emissions by 2030 and significantly increasing regeneration and resilience of Earth's ecosystems (as noted in the UN Convention on Biological Diversity's First Draft of the Post-2020 Global Biodiversity Framework from 5 July 2021, created as part of COP 15 UN Biodiversity Conference).Goal Two: Identify the current technological solutions that need to be deployed widely as well as technology gaps for which we need to design, innovate, and deploy new technological solutions to reach Planet Positive 2030.

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