Stellar Development Foundation

475 Brannan St, Suite 400
San Francisco, CA 94107
hello@stellar.org

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Technical Standards specifying certain requirements of Markets in Crypto Assets Regulation (MiCA) - second consultation paper
European Securities and Markets Authority
201-203 Rue de Bercy
75012 Paris, France

Submitted via: www.esma.europa.eu

Subject: Response to consultation on crypto sustainability methodologies

To Whom It May Concern:

The Stellar Development Foundation (SDF) is pleased to submit a response to the European Securities and Markets Authority (ESMA) consultation on technical requirements of the Markets in Crypto Assets (MiCA) regulation. This response addresses specific questions raised in the consultation paper related to sustainability. We appreciate the opportunity to inform the important work of ESMA to draft regulatory technical standards and create indicators designed to assess the sustainability impacts of blockchain consensus mechanisms.

Overview of SDF and the Stellar Network

By way of background, SDF is a U.S.-based nonstock, nonprofit organization that contributes to the development and growth of the Stellar network and the "Stellar ecosystem" – the individuals, developers, and businesses who build on or interact with Stellar. Stellar is an open-source blockchain network that connects the world's financial infrastructure. Founded in 2014, SDF helps maintain Stellar's codebase, supports the technical and business communities building on the network, and serves as a speaking partner with policymakers, regulators, and institutions. Our mission is to create equitable access to the global financial system, using the Stellar network to unlock the world's economic potential through blockchain technology.

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From a technology standpoint, Stellar is a publicly available, decentralized, fast, scalable, and sustainable network for financial products and services. It is both a cross-currency transaction system and a platform for digital asset issuance that offers unique asset issuer controls. The Stellar network does not privilege any form of currency or digital asset over another: instead, it provides the ability to efficiently and reliably trade any kind of value in a transparent and efficient way. Financial institutions and fintechs worldwide issue assets and settle payments on the Stellar network, which saw more than 70 million payments processed in Q2 2023.

The Stellar network brings together digital assets and traditional finance. As an open, interoperable payments platform, Stellar has an engaged developer community and strong documentation and software tools that support integration and connection to the network. The core protocol is complemented by ecosystem protocols (SEPs) that facilitate interoperability between financial entities connected to blockchain infrastructure and the traditional banking system. Through these SEPs, the Stellar ecosystem is unique in focusing on connections between traditional financial markets and distributed ledger technology. For example, MoneyGram International in 2022 announced MoneyGram Access, a first-of-its-kind global on/off-ramp service for digital wallets utilizing the Stellar network. With the launch of this program, users of digital wallets integrated with MoneyGram can now move seamlessly from cash to digital assets to cash again–all without requiring a bank account or credit card. MoneyGram International agents, as the designated on- and off-ramps, perform required compliance screening, ensuring that strong know-your-customer mechanisms remain in place. MoneyGram Access creates an important bridge between digital assets and cash, demonstrating that blockchain can–and should be–interoperable with traditional financial infrastructure.

Response to Relevant Consultation Question

Q6: Do you agree with ESMA's description on the practical approach to assessing the sustainability impacts of consensus mechanisms? If not, what alternative approach would you consider suitable to assess these impacts?

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SDF strongly supports ESMA's efforts to create a harmonized approach to assessing both the positive and the adverse sustainability impacts of blockchain consensus mechanisms. Many blockchain protocols are considering environmental, social and governance (ESG) issues in their efforts to innovate. Not all blockchain protocols are the same; for example, they may vary in their purposes and levels of environmental impact. A key component of these protocols is the consensus mechanism, which is the defined approach to validate transactions and prevent malicious activity. Each consensus mechanism has advantages and disadvantages regarding decentralization, security, and scalability. Adjustments to these – often competing – attributes can unlock opportunities to make the respective blockchain more sustainable.

While we acknowledge that research in this area is still developing and that the blockchain industry remains nascent, we disagree that it is too early to design a standardized methodology to assess sustainability impacts. In partnership with a global consulting firm, SDF has developed an assessment tool that regulators can use to gauge the sustainability impacts of various consensus mechanisms, and we hope this framework informs ESMA's development of its own assessment methodology.

SDF in 2022 enlisted PricewaterhouseCoopers (PwC) to develop an assessment framework (the Blockchain Sustainability Framework) that allows organizations to evaluate their environmental footprint as they look to take advantage of this emerging technology. In its report, PwC applied this framework to the Stellar network and assessed its electricity consumption and emissions. The Stellar network uses a consensus mechanism that is not Proof of Work or Proof of Stake but Proof of Agreement (PoA). PwC's report determined that the energy consumption of PoA is significantly lower than consensus mechanisms used by other blockchain protocols. The research concluded that the Stellar network uses:

- An estimated 481,324 kWh of energy per year, equivalent to the CO2 emissions from 40.5 homes' annual electricity use.
- 0.00032 kWh of energy per transaction, equivalent to 0.017 smartphones charged.

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- 173,243 kg of CO2 in estimated emissions per year, equivalent to the greenhouse gas emissions from 33.7 homes' annual electricity use.

- 0.00011 kg of CO2 emissions per transaction, equivalent to 0.013 smartphones charged.

The Blockchain Sustainability Framework can help inform stakeholders of potential environmental impacts. The framework measures the cumulative environmental footprint of blockchain operations, factoring in electricity use, greenhouse gas emissions, e-waste, embodied carbon and differences in consensus mechanisms, and provides:

- Environmental impact methodology to quantify blockchain's footprint.
- Comparative assessments using a common framework to evaluate blockchains with a sustainability lens.
- Blockchain simulation modelling to project future impacts as networks scale.

The World Economic Forum (WEF) Crypto Impact Sustainability Accelerator (CISA)–of which SDF was a member–has also created a comprehensive mapping of the energy consumption of blockchain networks. We encourage ESMA to also take this framework into consideration. The goals of WEF CISA were to accelerate progress around ESG targets for the crypto ecosystem, bridge gaps in understanding between public and private sectors, and share a cohesive narrative that highlights how the digital assets sector can lead in contributions to ESG. Under the WEF CISA initiative, SDF worked together with other industry leaders to map the energy consumption of different blockchain protocols and its consensus mechanisms and developed recommendations on how to create comprehensive impact analyses.[1]

While the environmental pillar within ESG is important, SDF encourages ESMA and other EU regulators and policymakers to take a comprehensive look at ESG, one that does not focus on environmental effects in a vacuum, but considers

[1] World Economic Forum, Crypto Impact Sustainability Accelerator, Guidelines for Improving Blockchain's Environmental, Social and Economic Impact, 2023

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and balances the social and governance effects of the technology as well. SDF supports the development of methodologies and frameworks that can help

stakeholders assess the social and governance impacts of blockchain protocols and better understand the role this technology can play in advancing ESG efforts broadly. As part of this work, SDF in September 2023, in collaboration with PwC, released a comprehensive framework that financial services providers can use to assess and enhance the "social handprint" of their products and services – how those products and services contribute to greater financial inclusion, economic development, and sustained business growth. The framework and its accompanying white paper support companies in their efforts to promote social impact and good governance, create new avenues for underserved communities to access the global financial system, unlock new payment corridors that spur competition, and develop solutions that increase accountability and transparency, among others.

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SDF appreciates the opportunity to respond to the consultation and would be pleased to provide additional information that ESMA might find useful.

Sincerely,

Candace Kelly

Candace Kelly
Chief Legal Officer & Head of Global Policy and Government Affairs
Stellar Development Foundation