

Mandatory information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism

Crypto-asset: Concordium (CCD)

N	Field	Content
General information		
S.1	Name	Northstake ApS
S.2	Relevant legal entity identifier	CVR 42818739
S.3	Name of the crypto-asset	Concordium (CCD)
S.4	Consensus Mechanism	Proof-of-stake based consensus called ConcordiumBFT. The Concordium blockchain uses a proof of stake (PoS) mechanism to ensure resource-efficient operation of the network along with enhanced security among participants. Users who hold CCD in their account can either become a validator, i.e., stake some of their CCD and run their own node, or delegate their CCD to existing validators. A delegator has two options: 1) they choose a specific validator and add their stake to that validator's pool, thus increasing that validator's chance of winning the lottery to produce a block, and share some of the rewards; 2) they choose Concordium's passive delegation feature, which provides the delegator with the rewards from sharing their stake between all validator pools, thus reducing the risk of delegating to a single pool that performs poorly, but the reward rate is fixed, and might be lower than for individual staking pools.
S.5	Incentive Mechanisms and Applicable Fees	CCD incentivizes active participation through staking, transaction fees, and governance activities. CCD minting occurs daily, currently at a 4% annual rate set through governance processes. Validator and delegator rewards are derived from newly minted tokens and transaction fees, distributed transparently as follows: 45% to block-producing pools, 45% to a GAS account shared among subsequent validators, and 10% to the Concordium Foundation. The GAS account is a system-level account used to accumulate and redistribute protocol revenues, primarily transaction fees, across validators over time. Pools that produce blocks receive 25% of the contents of the GAS account in subsequent rounds, further promoting consistent validator participation and network reliability. Transaction fees are structured for stability against EUR fluctuations, providing predictable and transparent costs for users.
S.6	Beginning of the period to which the disclosure relates	2025-01-01
S.7	End of the period to which the disclosure relates	2025-12-31
Mandatory key indicator on energy consumption		
S.8	Energy consumption (per year) in kWh	Estimated total annual energy usage for transaction validation and network maintenance: approximately 44,000 to 54,000 kilowatt-hours per year.
Sources and methodologies		
S.9	Energy consumption sources and methodologies	Concordium utilises a PoS consensus mechanism with Byzantine fault tolerance. Energy consumption is estimated using a bottom-up approach, where the primary factor considered is the electricity usage of validator nodes that operate Concordium's client software. The calculation assumes that each validator node runs on an AWS m5.xlarge virtual machine instance, which offers 4 vCPUs and 16 GiB of memory. Based on engineering analysis from Teads Engineering and comparison with c5.xlarge instances, an m5.xlarge instance is estimated to consume approximately 20 to 25 watts when running under normal validator conditions. With an estimated 250 validator nodes active in the Concordium network, this corresponds to a continuous power draw of 5 to 6 kilowatts, or between 44,000 and 54,000 kilowatt-hours annually. This validator-based methodology reflects actual infrastructure usage and is consistent with the hardware specifications and deployment environments recommended for operating Concordium nodes. Sources: Teads Engineering (medium.com/teads-engineering/building-an-aws-ec2-carbon-emissions-dataset-3f0fd76c98ac), Concordium Transparency Report (go.concordium.com). The underlying data covers the period 2024-05-13 to 2025-05-13. All indicators represent estimates. Northstake does not

	account for any offsetting of energy consumption or other market-based mechanism as of today.
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