

# Inflation Related Terminology

Many terms are thrown around when discussing inflation and the related components (e.g. rewards/interest), we try to define and clarify some commonly used concept here:

## **Total Current Supply [SOL]#**

The total amount of tokens (locked or unlocked) that have been generated (via genesis block or protocol inflation) minus any tokens that have been burnt (via transaction fees or other mechanism) or slashed. At network launch, 500,000,000 SOL were instantiated in the genesis block. Since then the Total Current Supply has been reduced by the burning of transaction fees and a planned token reduction event. Solana's Total Current Supply can be found at <https://explorer.solana.com/supply>

## **Inflation Rate [%]#**

The Solana protocol will automatically create new tokens on a predetermined inflation schedule (discussed below). The Inflation Rate [%] is the annualized growth rate of the Total Current Supply at any point in time.

## **Inflation Schedule#**

A deterministic description of token issuance over time. The Solana Foundation is proposing a disinflationary Inflation Schedule . I.e. Inflation starts at its highest value, the rate reduces over time until stabilizing at a predetermined long-term inflation rate (see discussion below). This schedule is completely and uniquely parameterized by three numbers:

- Initial Inflation Rate [%]
- : The starting Inflation Rate
- for when
- inflation is first enabled. Token issuance rate can only decrease from this
- point.
- Disinflation Rate [%]
- : The rate at which the Inflation Rate
- is reduced.
- Long-term Inflation Rate [%]
- : The stable, long-term Inflation Rate
- to be
- expected.

## **Effective Inflation Rate [%]#**

The inflation rate actually observed on the Solana network after accounting for other factors that might decrease the Total Current Supply . Note that it is not possible for tokens to be created outside of what is described by the Inflation Schedule .

- While the Inflation Schedule
- determines how the protocol issues SOL, this
- neglects the concurrent elimination of tokens in the ecosystem due to various
- factors. The primary token burning mechanism is the burning of a portion of
- each transaction fee. 50% of each transaction fee is burned, with the
- remaining fee retained by the validator that processes the transaction.
- Additional factors such as loss of private keys and slashing events should
- also be considered in a holistic analysis of the Effective Inflation Rate
- .
- For example, it's estimated that 10-20% of all BTC have been lost and are
- unrecoverable and that networks may experience similar yearly losses at the
- rate of 1-2%.

## **Staking Yield [%]#**

The rate of return (aka interest ) earned on SOL staked on the network. It is often quoted as an annualized rate (e.g. "the network staking yield is currently 10% per year").

- Staking yield
- is of great interest to validators and token holders who wish
- to delegate their tokens to avoid token dilution due to inflation (the extent
- of which is discussed below).
- 100% of inflationary issuances are to be distributed to staked
- token-holders in proportion to their staked SOL and to validators who charge a
- commission on the rewards earned by their delegated SOL.\* There may be future consideration for an additional split of inflation

- - issuance with the introduction of Archivers
- - into the economy. Archivers
- - are network participants who provide a decentralized storage service and
- - should also be incentivized with token distribution from inflation issuances
- - for this service. - Similarly, early designs specified a fixed percentage of
- - inflationary issuance to be delivered to the Foundation treasury for
- - operational expenses and future grants. However, inflation will be launching
- - without any portion allocated to the Foundation.
- Staking yield
- can be calculated from the Inflation Schedule
- along with the
- fraction of the Total Current Supply
- that is staked at any given time. The
- explicit relationship is given by:

## Token Dilution [%]#

Dilution is defined here as the change in proportional representation of a set of tokens within a larger set due to the introduction of new tokens. In practical terms, we discuss the dilution of staked or un-staked tokens due to the introduction and distribution of inflation issuance across the network. As will be shown below, while dilution impacts every token holder, the relative dilution between staked and un-staked tokens should be the primary concern to un-staked token holders. Staking tokens, which will receive their proportional distribution of inflation issuance, should assuage any dilution concerns for staked token holders. I.e. dilution from 'inflation' is offset by the distribution of new tokens to staked token holders, nullifying the 'dilutive' effects of the inflation for that group.

## Adjusted Staking Yield [%]#

A complete appraisal of earning potential from staking tokens should take into account staked Token Dilution and its impact on the Staking Yield. For this, we define the Adjusted Staking Yield as the change in fractional token supply ownership of staked tokens due to the distribution of inflation issuance. I.e. the positive dilutive effects of inflation.