1. Come up with an estimate for the annual rewards given out by the (full) Casper and sharding mechanisms. Currently, an expected value is 10 million ETH staking at 5% interest, which is 500,000 ETH per year (~0.22 ETH per block).

2. Come up with a maximum acceptable long-run worst-case-scenario state size. I would suggest 500 GB. Note that in practice, the state size would likely be 1-2 orders of magnitude lower than this; this is just a long-run upper bound.

3. To make sure it's not long-run possible for the state to exceed 500 GB, storing 500 GB should cost 500,000 ETH per year, so storing 1 byte should cost 0.000001 ETH per year. A 24000-byte contract would cost 0.024 ETH (~$15) per year; a 250-byte account would cost 0.00025 ETH (~$0.15) per year.

With sharding, the maximum acceptable state size would be per-shard, so the above fees would be decreased by a factor of 100.

One natural objection is: but won't fixing the storage fees in ETH lead to unacceptable fees if ETH rises or falls too much? The answer is: this is quite possible, but transaction fees are not expected to be any less volatile. They were certainly less volatile back in 2011-2017, but that was only because blocks were not full (for bitcoin or ethereum), and so de-facto fees were centrally planned by core devs and miners who adjusted them downwards in response to public pressure every time the fees got too high; with full blocks this is not possible, and so tx fees are [even more volatile](#) [than prices](#).