



THE TOWER OF BITCOINS: FINDING THE RIGHT ENERGY COUNTERPARTY

ROBERT MCCULLOUGH

MCCULLOUGH RESEARCH

MAY 15, 2018

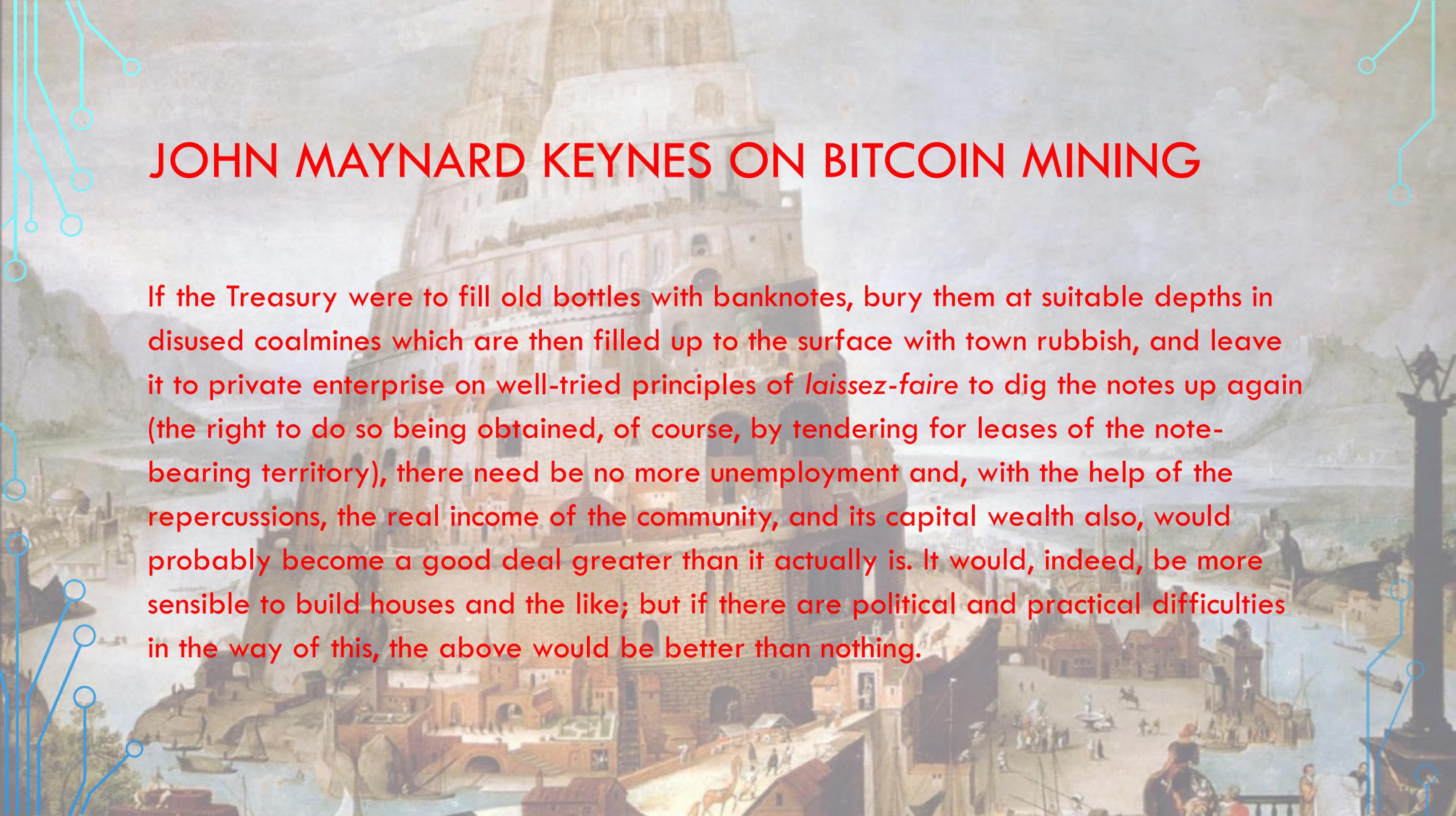
“INVASION OF THE POWER SNATCHERS

- Public utility districts that own five major hydroelectric dams in Washington’s Mid-Columbia region are coping with huge power demands from cryptocurrency miners that threaten low power rates and the region’s agricultural economy.
- Published on April 19, 2018 9:43AM . DAN WHEAT/CAPITAL PRESS
- Dennis Bolz, commission president of the Chelan County PUD, in front of the turbine blade hub display at Rocky Reach Dam north of Wenatchee, Wash. The PUD imposed a moratorium on cryptocurrency mining power requests on March 19



THE ORIGIN OF THE SPECIE

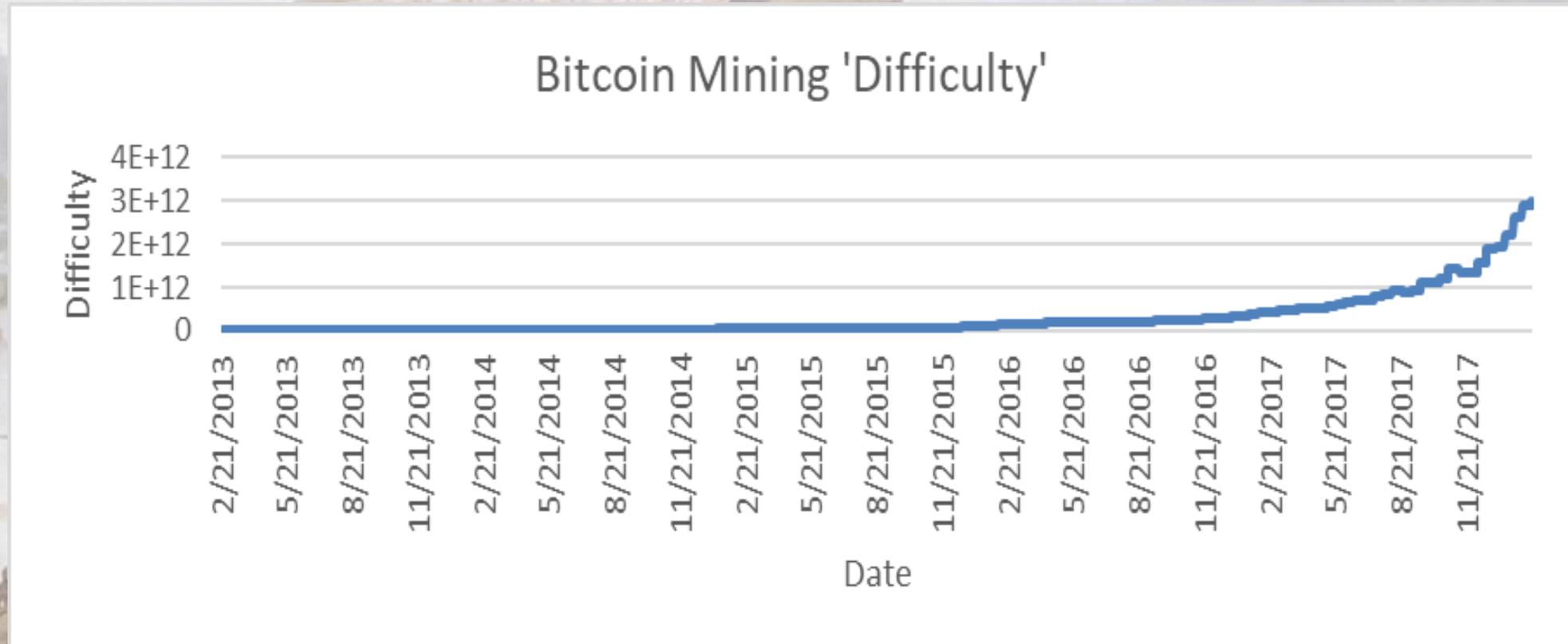
- The unknown originator conflated two interesting, but ultimately, unrelated innovations:
 - Mining
 - Blockchains
- Mining involves creating the illusion of value by creating an increasingly expensive puzzle
- Block chains involves a consensual accounting solution



JOHN MAYNARD KEYNES ON BITCOIN MINING

If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of *laissez-faire* to dig the notes up again (the right to do so being obtained, of course, by tendering for leases of the note-bearing territory), there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is. It would, indeed, be more sensible to build houses and the like; but if there are political and practical difficulties in the way of this, the above would be better than nothing.

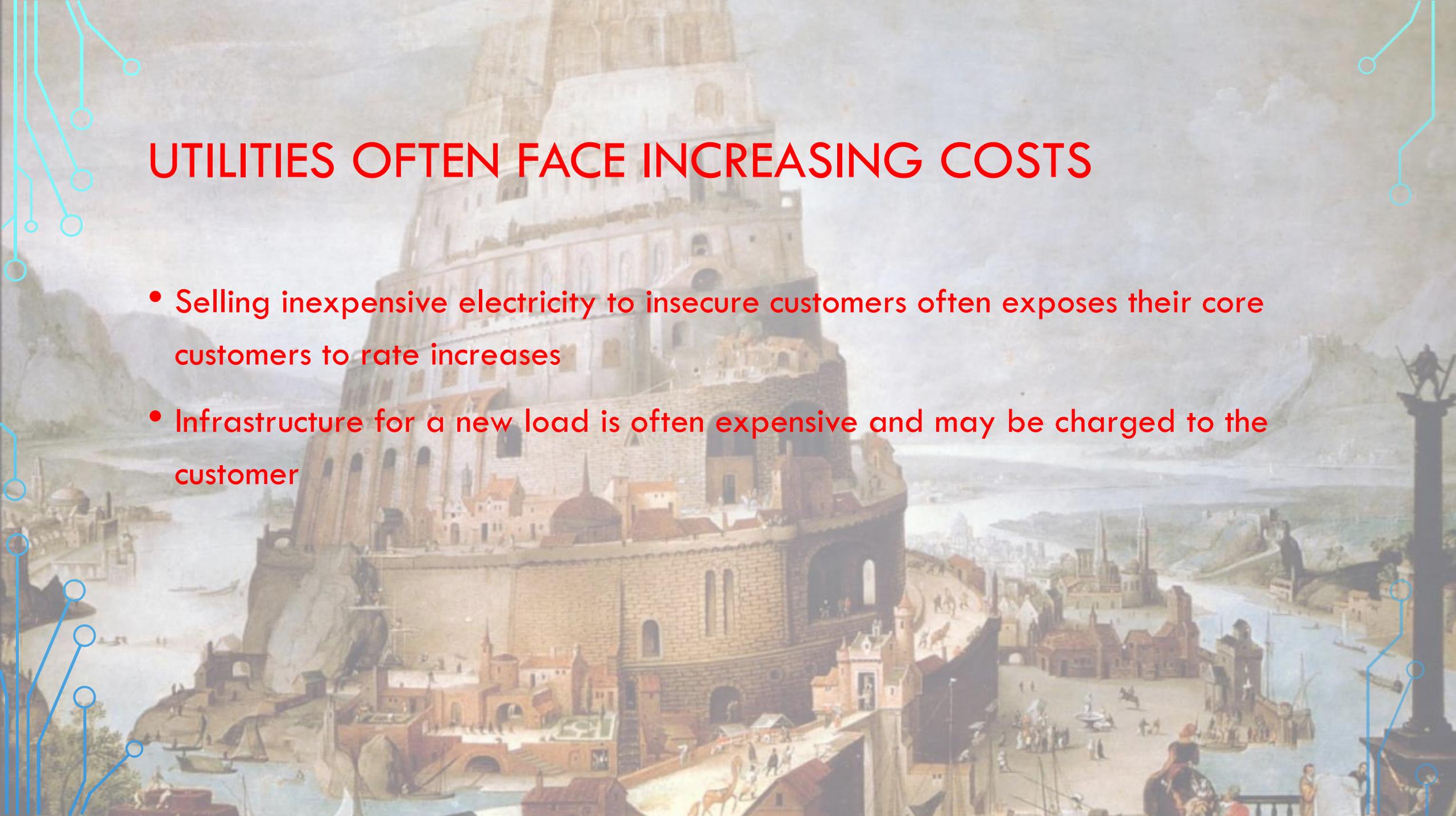
BITCOINS ARE DESIGNED TO BE SCARCER AND SCARCER





COUNTDOWN TO THE END OF MINING

- Bitcoins are limited to 21,000,000
- What happens when the mines are tapped out?
- Does this make miners a doubtful counterparty?



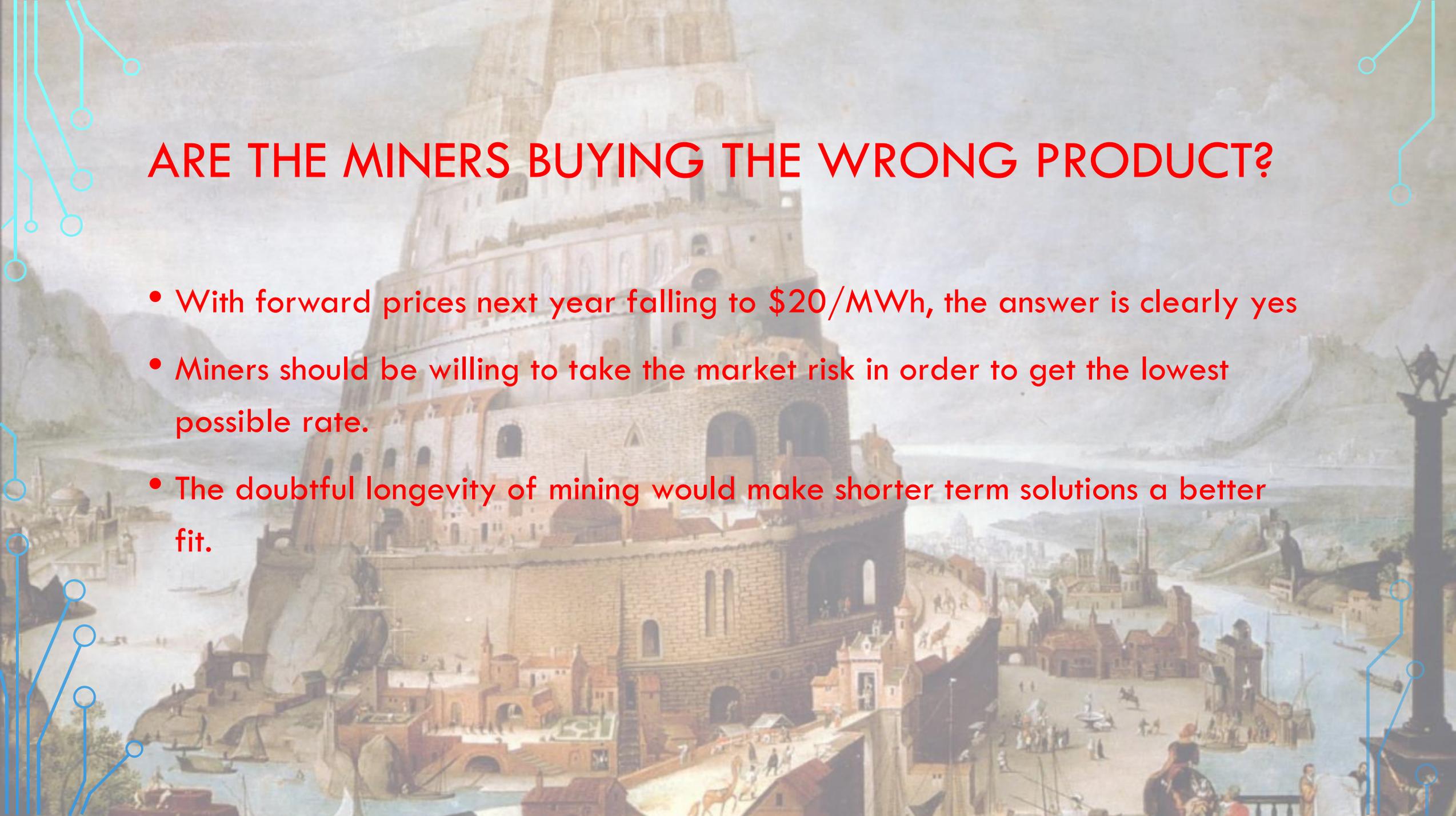
UTILITIES OFTEN FACE INCREASING COSTS

- Selling inexpensive electricity to insecure customers often exposes their core customers to rate increases
- Infrastructure for a new load is often expensive and may be charged to the customer



BLOCKCHAINS (YES)/MINING (NO)

- It seems reasonable that blockchain processing might well be welcomed
- Given the issues with mining, it would see clear that these will be a hard sell



ARE THE MINERS BUYING THE WRONG PRODUCT?

- With forward prices next year falling to \$20/MWh, the answer is clearly yes
- Miners should be willing to take the market risk in order to get the lowest possible rate.
- The doubtful longevity of mining would make shorter term solutions a better fit.



Robert McCullough

McCullough Research

503-777-4616

Robert@mresearch.com