## Land required for generating electricity **FREEING** ENERGY

| Land use         | Electricity gene<br>over 75 years | erated per acre<br>over 25 years | Acres per GWh<br>per year <sup>1</sup> | <b>Reclamation options</b>               |
|------------------|-----------------------------------|----------------------------------|--|--|
| Solar            | 25.00 GWh                         | 8.33 GWh                         | 3 (perpetual)                          | Remove panels or dual-use <sup>2</sup>   |
| Nuclear (mining) | 16.66 GWh                         | 16.66 GWh                        | 0.06 (only once)                       | Very high cost (radioactive)             |
| Coal (mining)    | 11.11 GWh                         | 11.11 GWh                        | 0.09 (only once)                       | Costly (<15% reclaimed)                  |
| Wind             | 2.90 GWh                          | 0.96 GWh                         | 26 (perpetual)                         | Remove turbines or dual-use <sup>2</sup> |
| Hydro            | 2.50 GWh                          | 0.83 GWh                         | 30 (perpetual)                         | Drain dam + restoration                  |
| Biomass          | 0.40 GWh                          | 0.13 GWh                         | 188 (perpetual)                        | Replant trees                            |

Sources at http://fep.link/g104

<sup>1</sup> a GWh is the same as a million kilowatt hours | <sup>2</sup> reclamation may not be necessary because land can be simultaneously used for other purposes Data was gathered from multiple sources and studies. It was normalized here to be illustrative. Actual project land use varies widely by geography.

## **The Freeing Energy Project**

- The mission of the Freeing Energy Project is to educate and inspire energy fans towards accelerating the transition to clean, sustainable energy like solar, wind, and batteries.
- The project has a deep focus on the consumerization of energy technology and its ability to enable affordable, reliable, self generation, or as we call it, local energy.

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Bill Nussey's <u>TED talk</u> on Local Energy



The Freeing Energy podcast series on Apple Podcasts

## For more information on this slide

Sources

- <u>https://www.freeingenergy.com/math/solar-pv-land-acres-hectares-miles-m118/</u>
- <u>https://www.freeingenergy.com/math/wind-land-acres-hectares-miles-m119/</u>
- <u>https://www.freeingenergy.com/math/coal-land-strip-mining-acres-hectares-m126/</u>
- <u>https://www.freeingenergy.com/math/uranium-nuclear-mining-land-acres-m128/</u>
- <u>https://www.freeingenergy.com/math/hydro-land-acres-hectares-miles-m124/</u>
- <u>https://www.freeingenergy.com/math/biomass-bioelectricity-land-acres-m127/</u>

Additional info on this slide

- Check out the source page via this shortcut: <u>http://fep.link/g104</u>
- 🗡 Filecode: LandGWh