

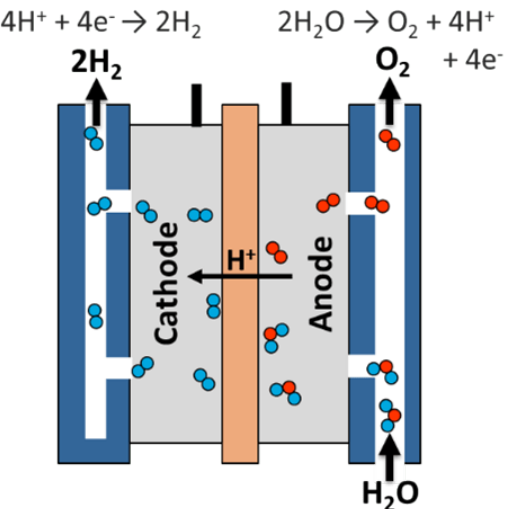
UT Energy Week Panel: Hydrogen Generation and Distribution

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Approaches for green hydrogen production

electrolysis + renewable energy

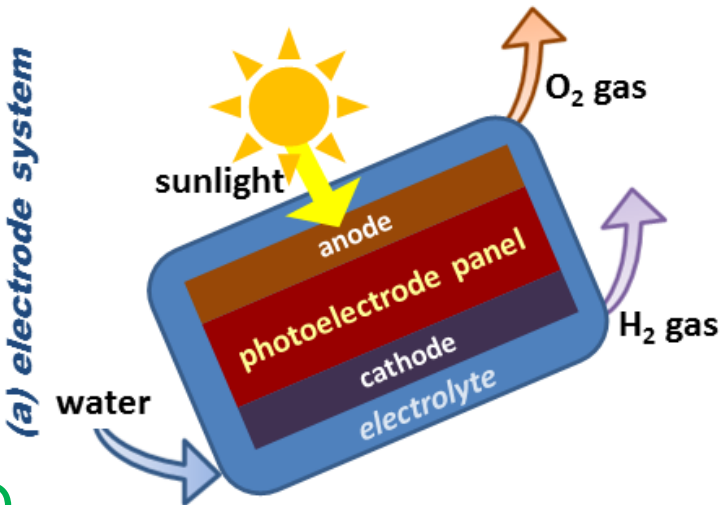


+



or

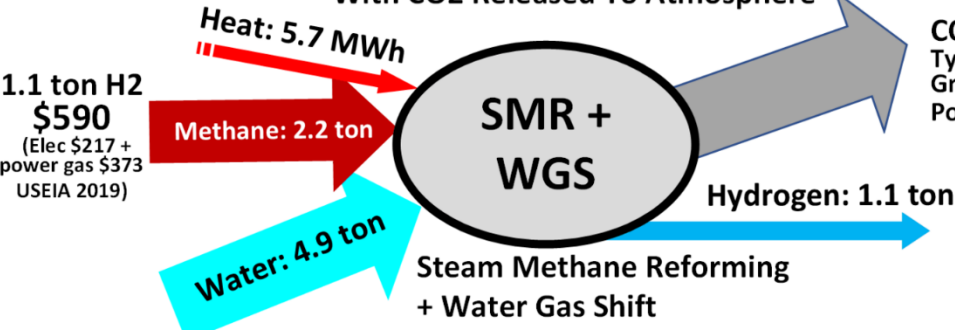
photoelectrochemical water splitting



[<https://www.energy.gov>]

VS.

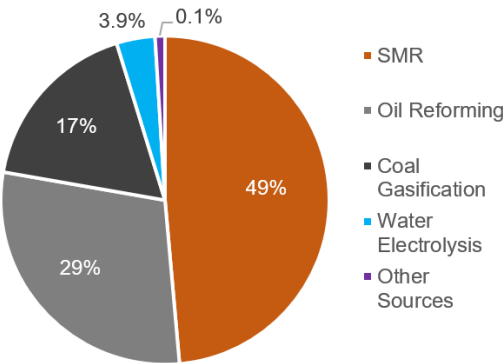
Most Common Hydrogen Production Method
With CO₂ Released To Atmosphere



[https://en.wikipedia.org/wiki/Steam_reforming]

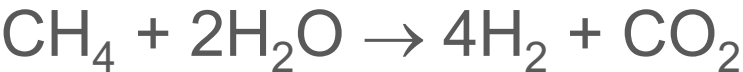
<https://mrsec.utexas.edu>

Global Hydrogen Production by Method

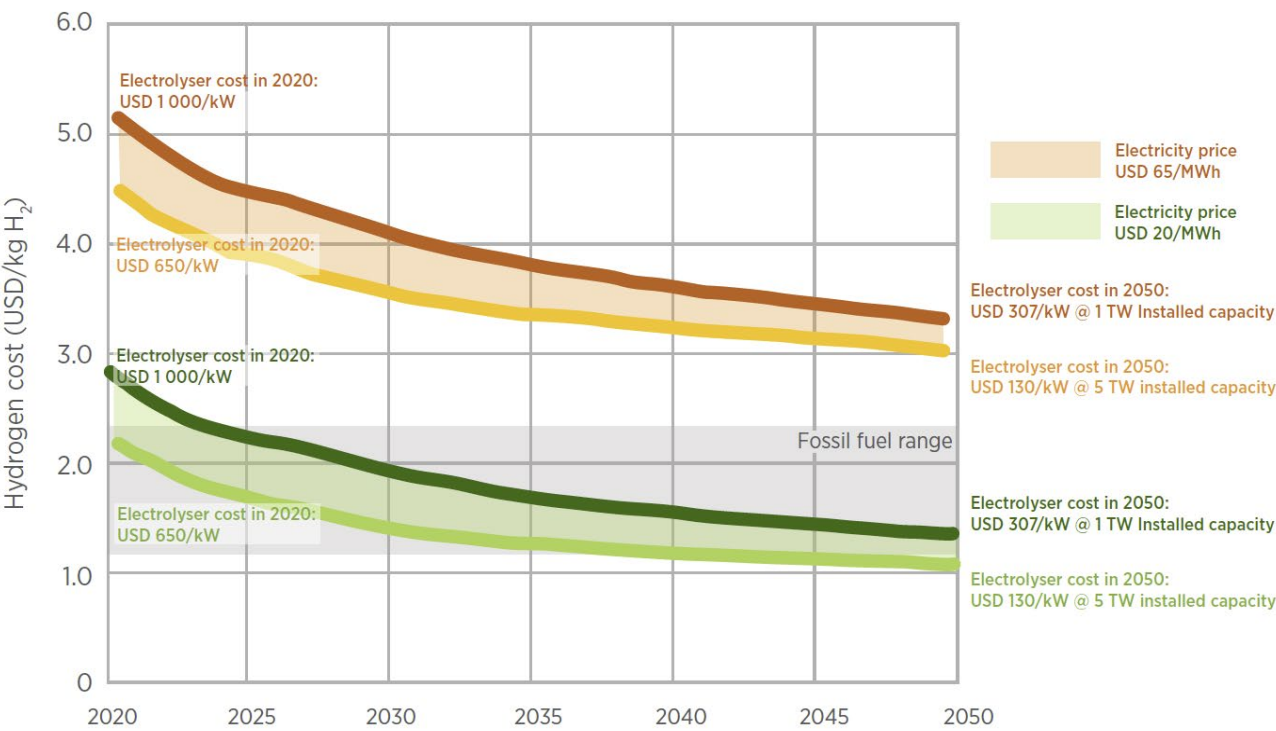


(Dincer & Acar, 2015)

<http://etylab.ece.utexas.edu>



Cost Reductions via Scaling and Technology Advances

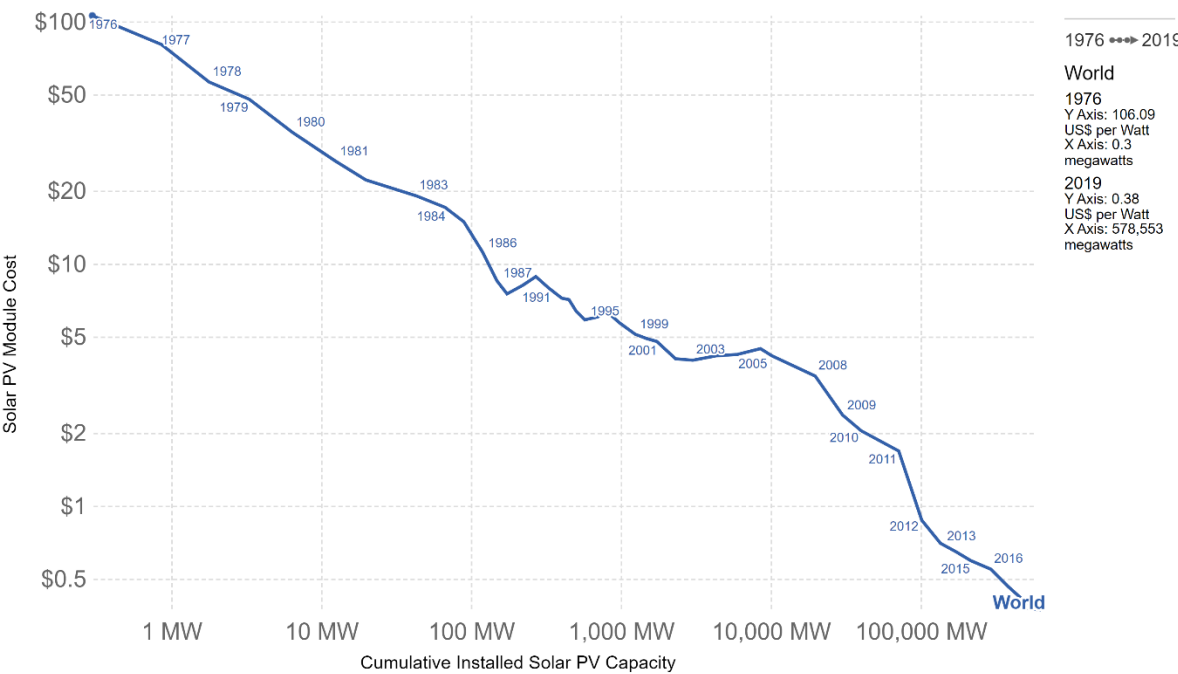


[International Renewable Energy Agency (2020)]

projected cost reductions for green hydrogen production via electrolyzers

Solar PV module prices vs. cumulative capacity

Solar photovoltaic (PV) module prices are measured in 2019 US\$ per Watt. Cumulative installed solar PV capacity is measured in megawatts. This represents the 'learning curve' for solar PV.



Source: Lafond et al. (2017); IRENA Database

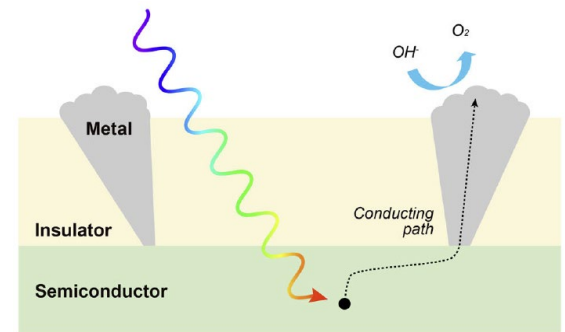
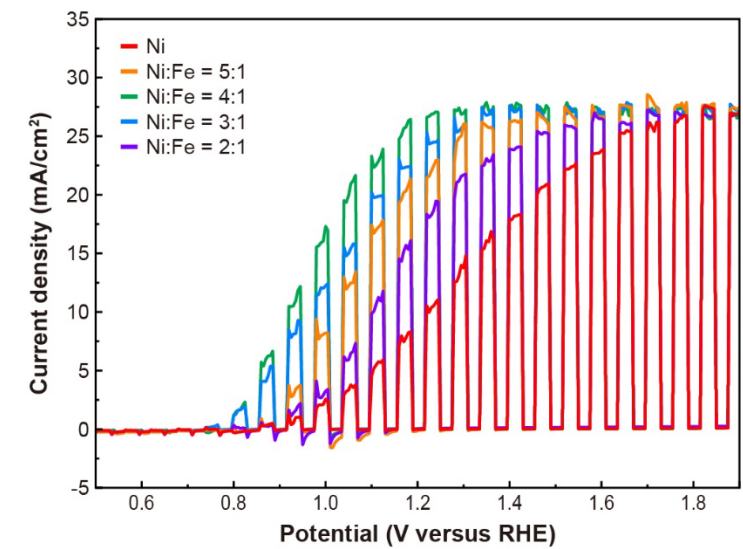
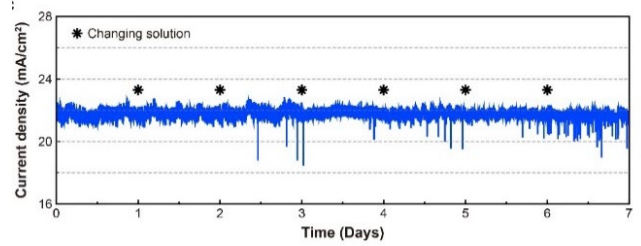
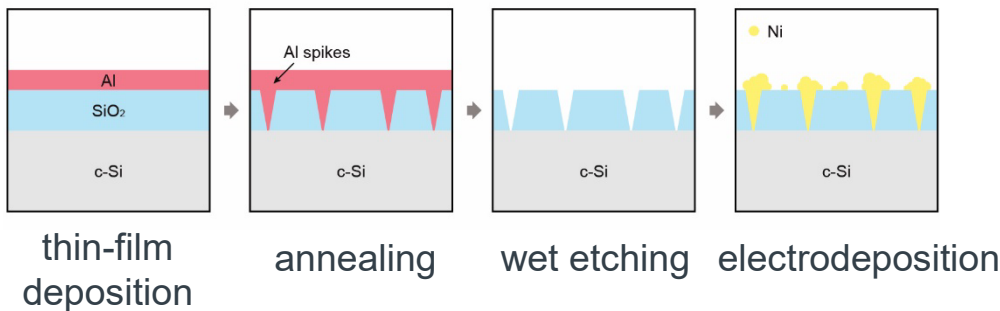
OurWorldInData.org/renewables • CC BY

[<https://ourworldindata.org>]

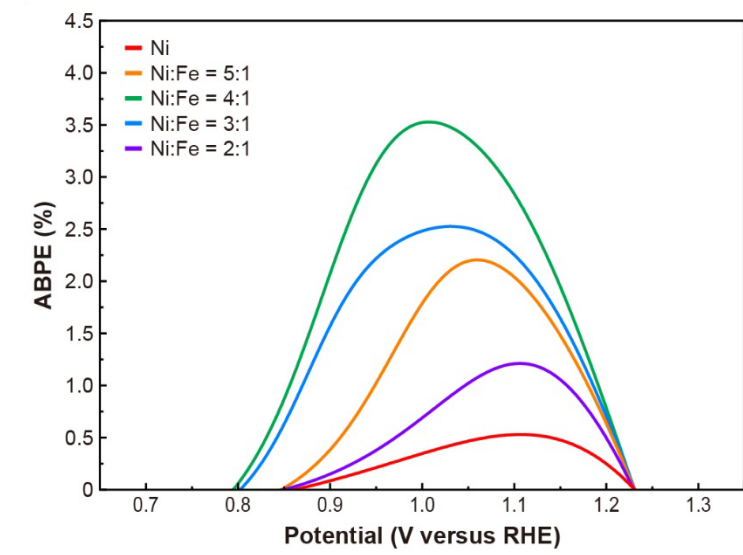
historical cost reductions via scaling for silicon photovoltaic modules (solar panels)

Low-Cost Wafer-Scale Fabrication of Si-Based Photoelectrodes for Solar Water Splitting

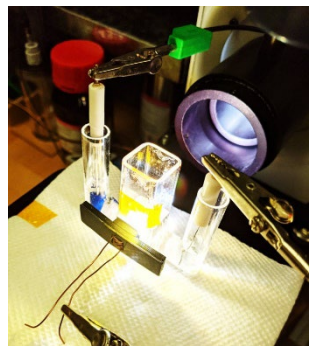
scalable, lithography-free fabrication processes:



[S. Lee, ..., E. T. Yu, *Nature Commun.* 12, 3982 (2021).]



[S. Lee, ..., E. T. Yu, *in preparation* (2022).]



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