

# Past, Present and Future for Environmentalism

“Ang hindi marunong lumingon sa pinangalingan ay hindi makakarating sa paroroonan“

- *Jose Rizal*

“One of the signs of a great society is the diligence with which it passes culture from one generation to the next.”

- *Winston Churchill*



SPECIAL REPORT

# Global Warming of 1.5 °C

An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

*“ Pour ce qui est de l'avenir, il ne s'agit pas de le prévoir, mais de le rendre possible. “*

– Antoine de Saint Exupéry, *Citadelle*, 1948

We have already locked in some global warming

The question is how far we plan to take it.

1.5°C is the threshold above which coral reefs have very low likelihood of survival (see SR15)

# Solar Today

## A 45 year legacy

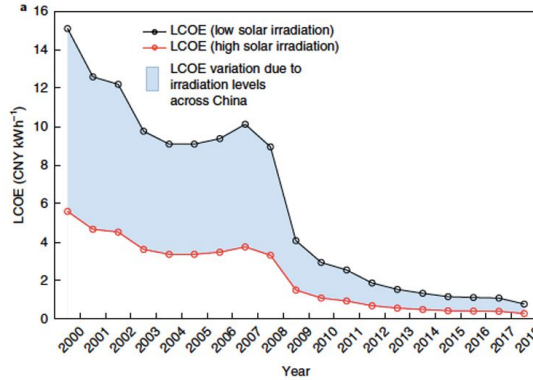
Quickly emerging as the cheapest source of power

The solar industry will be big business in the coming decades

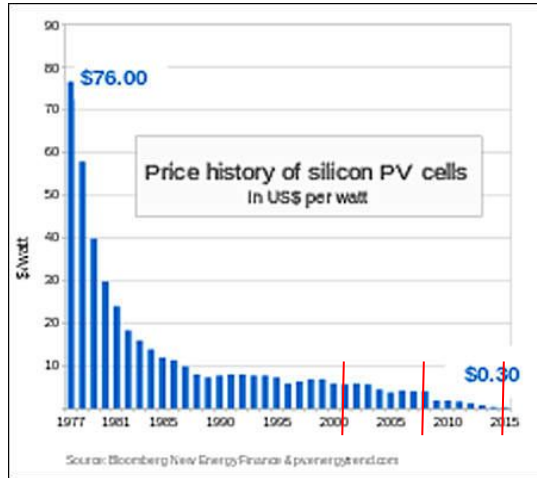
“We think a 40% module, rather than the 22% you can do nowadays with PERC, is what the industry will be doing once we perfect this stacking approach”

“The International Energy Agency now says solar is providing the cheapest energy the world has ever seen. But we’re headed towards a future of insanely cheap energy.”

“It’s a fundamentally different world we’re moving into.”



<https://energypost.eu/chinas-solar-paradox-why-invest-today-when-prices-keep-dropping/>



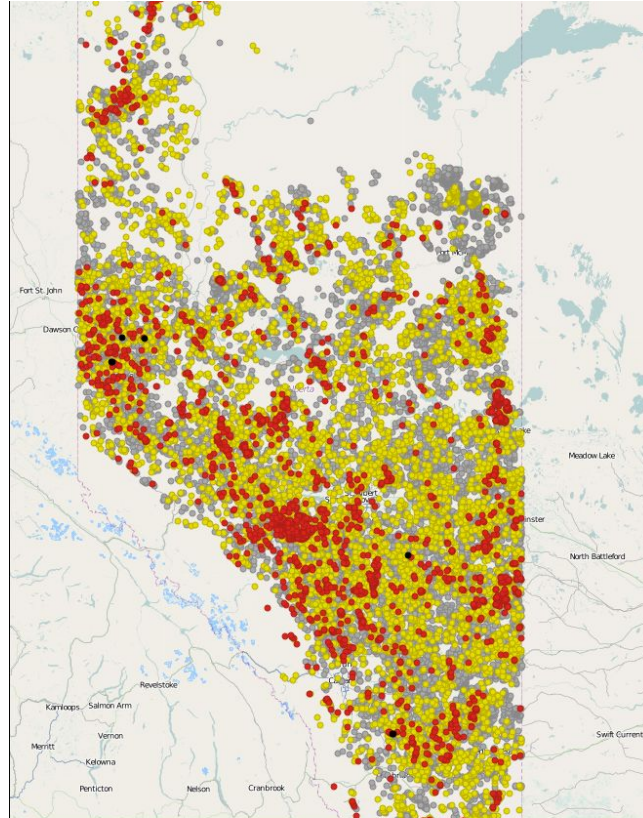
▲ Martin Green and the team that built the first solar cell capable of running at 20% efficiency in 1989. Photograph: University of NSW

<https://www.theguardian.com/australia-news/2021/apr/25/insanely-cheap-energy-how-solar-power-continues-to-shock-the-world>

# The environment's shifting baseline

**Before - A resource that was below ground**

**Next - A resource that is above ground**

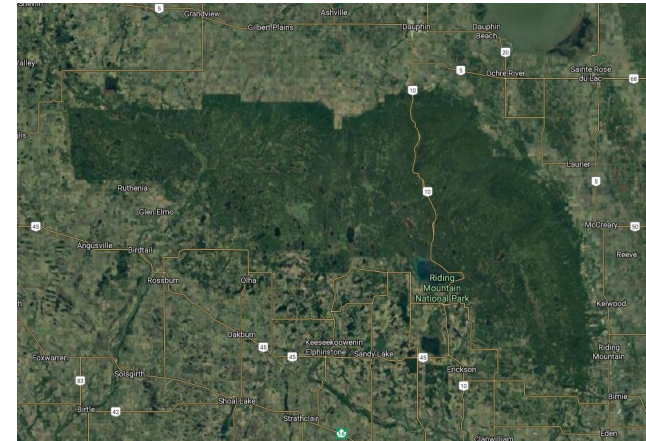


<https://www.verdazo.com/wp-content/uploads/2015/04/Inactive-Wells-Map.png>

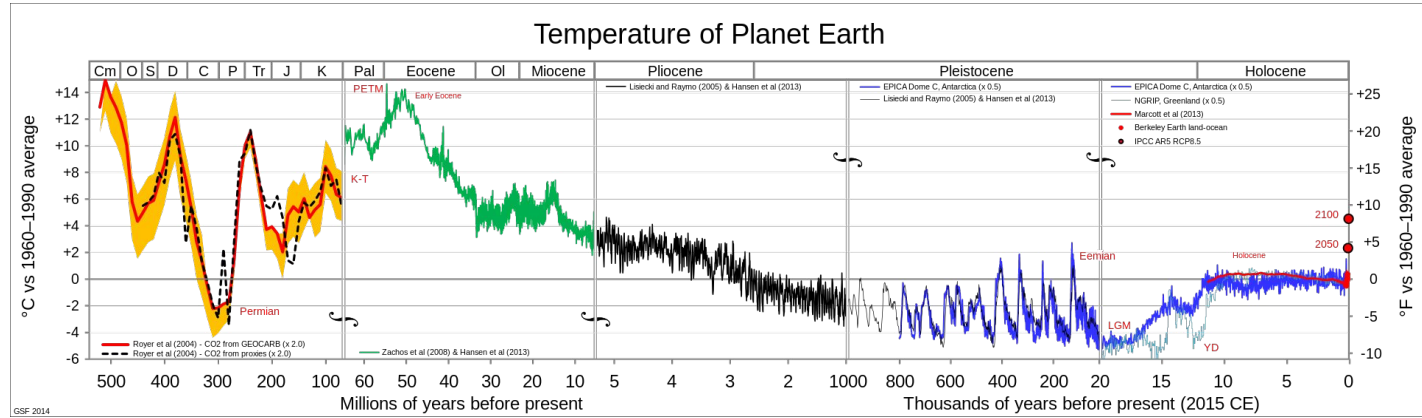
Buffalo Herd 1895 [CM Russell](#)



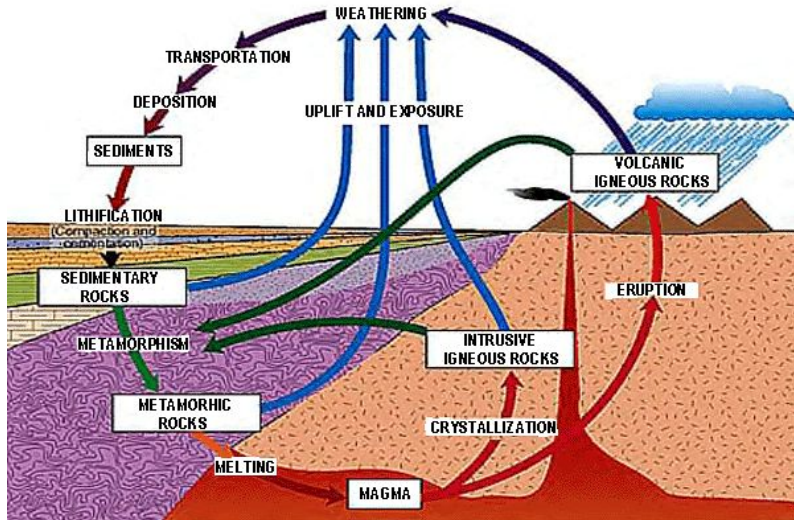
Riding Mountain National Park



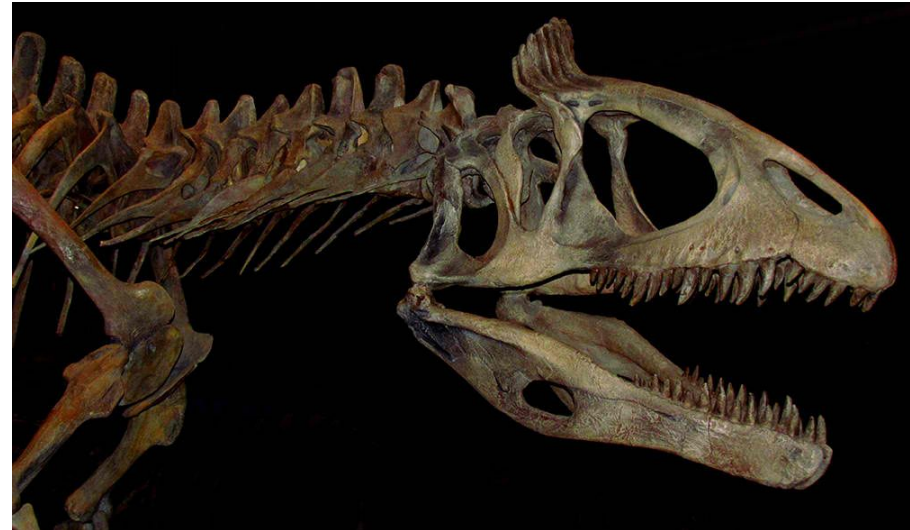
# Nature Before Humanity



[https://en.wikipedia.org/wiki/Geologic\\_temperature\\_record](https://en.wikipedia.org/wiki/Geologic_temperature_record)



<https://clarkscience8.weebly.com/rock-cycle.html>



<https://www.australiangeographic.com.au/blogs/austropalaeo/2016/02/video-hunting-for-antarctic-dinosaurs/>

# Man vs Nature - A Crude History

1. Full of monsters To be conquered
  - Epic of Gilgamesh (~2000BC)
  - Akkadian Collapse due to Drought and maybe volcanism



<https://www.thecollector.com/epic-of-gilgamesh>

[https://www.ideo.columbia.edu/~peter/site/Papers\\_files/Cullen.et.al.2000.pdf](https://www.ideo.columbia.edu/~peter/site/Papers_files/Cullen.et.al.2000.pdf)

# Man vs Nature - A Crude History

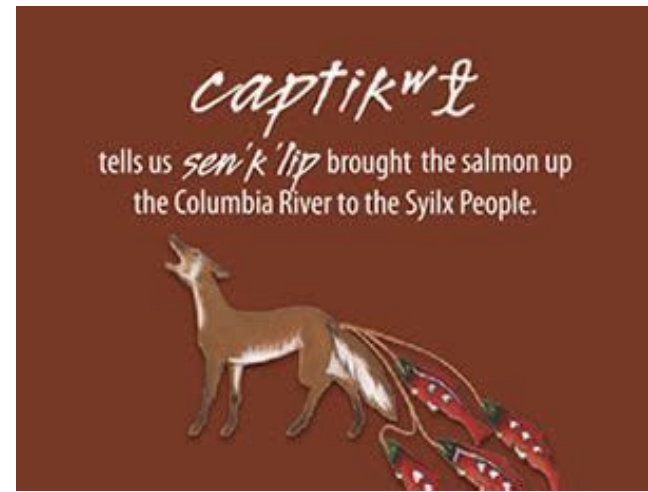
## 2. The frontier & the unknown

20 000 Leagues under the Sea (1864)



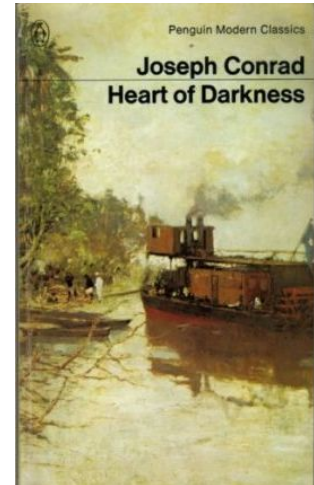
<https://wallsdesk.com/20000-leagues-under-the-sea-96316/20000-leagues-under-the-sea-images/>

Native Traditions  
& stories



<https://www.syilx.org/wellness/resources/books/>

Heart of  
Darkness (1899)



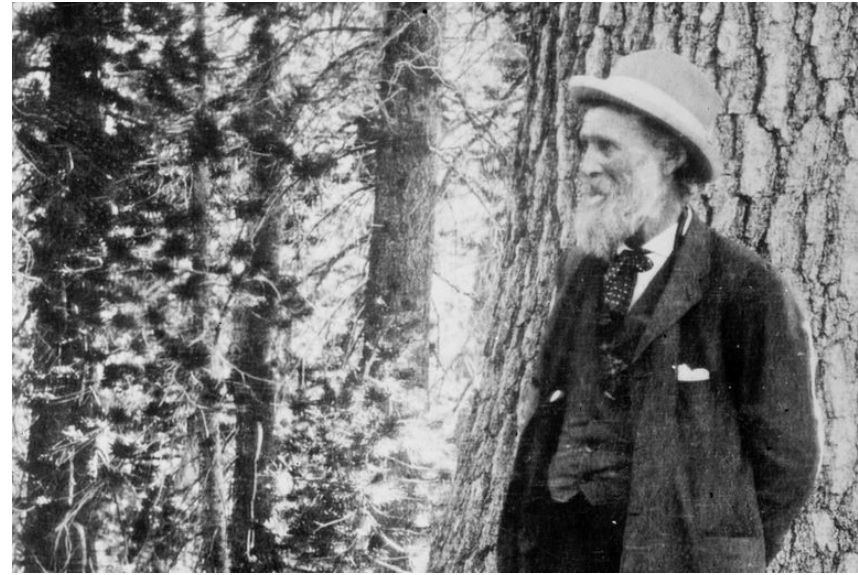
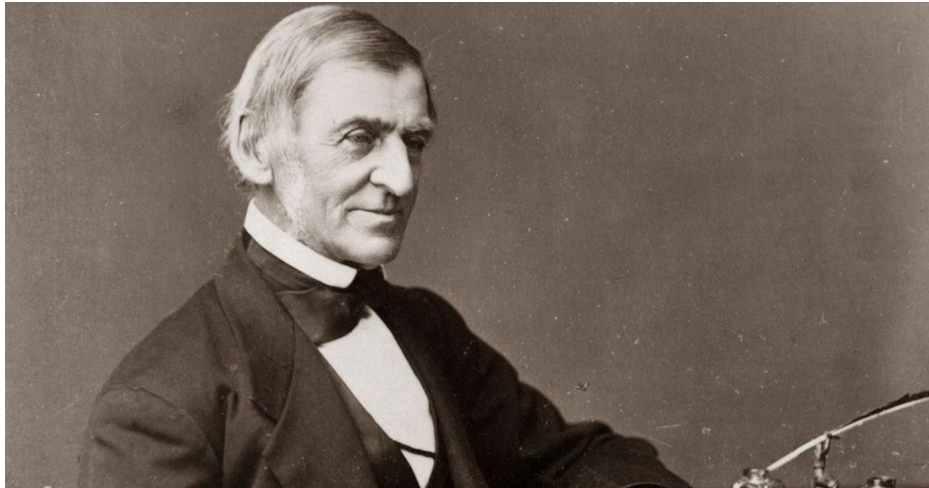
# Man vs Nature - A Crude History

## 3. Place of refuge, object of admiration

“Do not go where the path may lead, go instead where there is no path and leave a trail.”

“The Earth laughs in flowers”

*Ralph Waldo Emerson*



“Of all the paths you take in life, make sure a few of them are dirt.”

“Wilderness is a necessity... there must be places for human beings to satisfy their souls.”

*John Muir*

**\*NATIONAL PARKS MIGHT NOT EXIST WITHOUT THE CONTRIBUTIONS OF THESE MEN\***



# Man vs Nature - A Crude History

## 4. Disaster & Lifeboats, the 1960s

- Ecologists getting it wrong

### Tragedy of the Commons



“A farmer, for instance, will allow no more cattle in a pasture than its carrying capacity justifies. If he overloads it, erosion sets in, weeds take over, and he loses the use of the pasture.”

- *Garrett Hardin*

“There are substitutes for oil; there is no substitute for fresh water.” *\*\*Not Wrong\*\**

“By 1985 enough millions will have died to reduce the earth's population to some acceptable level, like 1.5 billion people.”

- *Paul R. Ehrlich*



# Man vs Nature - A Crude History

## 5. Corporatizing of environmental concern

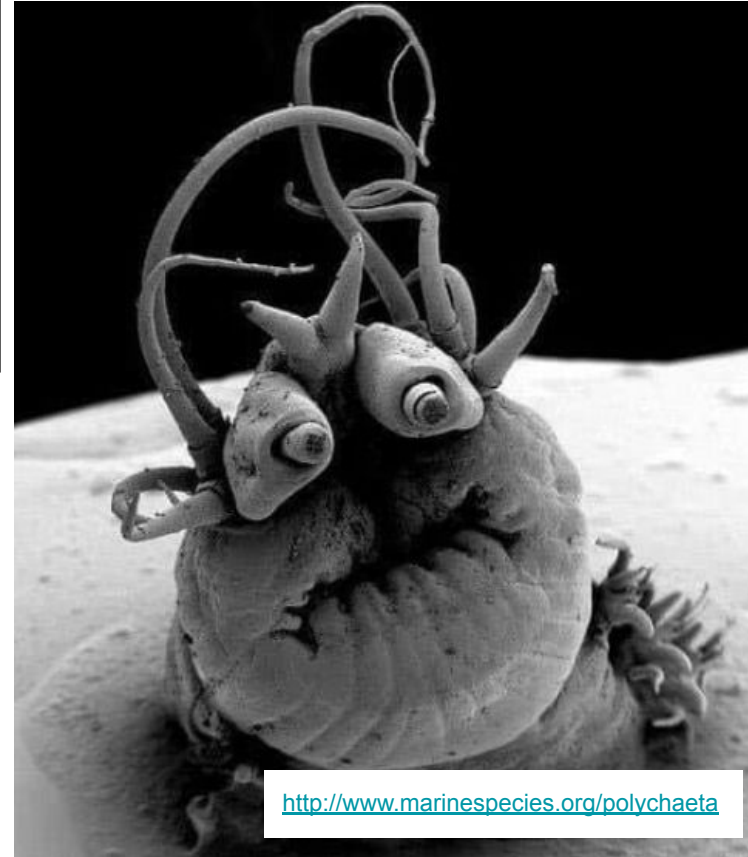
- Most of the world's largest businesses are directly motivated to sell more physical products
- This leads to powerful motivations to keep public focus directed towards certain types of solutions



# Man vs Nature - A Crude History

## 6. Enter Social Media

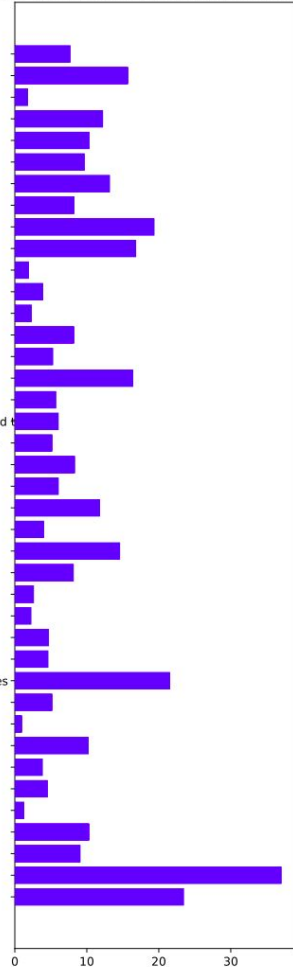
- The Entertaining
- Through a screen
- Greta as Antigone



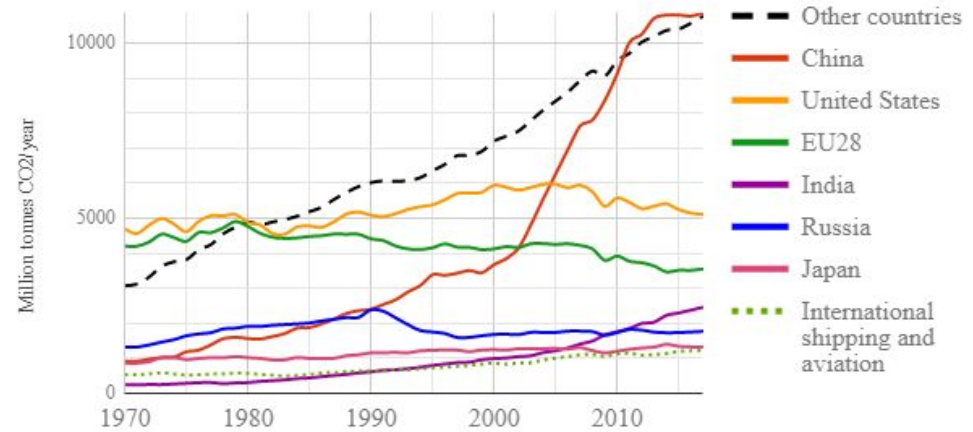
Total CO2 emissions 2017 (gigatons)



2017 CO2 Emissions per person (tons/person)



## World fossil carbon dioxide emission 1970-2017



At current consumption, our 'Carbon Budget' runs out sometime before 2030

Led by China, the rest of the world is rapidly improving their quality of life.

China is still 50% per capita emissions of the US (Canada & Saudi are higher)

A group of hikers, who represent the world community, walks through a desert...



# Individual Carbon Footprint

- Rough estimate of my life in Philippines
- Flights are probably the biggest contributor
- Try it for yourself! Or choose a different calculator!

## RESULTS

Your personal Earth Overshoot Day is:

23. May 

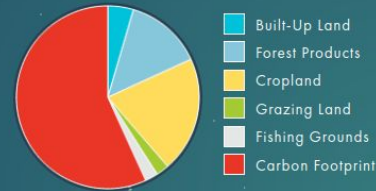
If everyone lived like you, we would need

2.6 Earths 



Why can't I get my Footprint score within the means of one planet? 



## By Land Type



## By Consumption Category



4.4

Your Ecological Footprint   
(global hectares or gha) 

7.2

Your Carbon Footprint  
(CO<sub>2</sub> emissions in tonnes per year)

57

Your Carbon Footprint  
(% of your total Ecological Footprint)

# The Emerging Carbon Market

<http://less.ca>

**Gold Standard**  
Climate Action & Sustainable Development



**VER+**

Robust. Reliable. Verified.

**CSA**  
**STANDARDS**



**less**  
a bullfrogpower company

## Offset my flight

### Thank you!

You have successfully reduced your impact with Less Emissions!

We have received your payment of \$122.35 CAD to purchase 5.098 tonnes CO<sub>2</sub>e of VER+ Standard-Certified Canadian Offsets.

These offsets will be retired to the environment on your behalf.

For your records, we will forward a copy of this confirmation to the email address you provided, [allan.gray@sunEtrike.com](mailto:allan.gray@sunEtrike.com). If you do not receive this receipt, please contact us at [info@less.ca](mailto:info@less.ca) or by telephone at 1-877-573-3669.

Congratulations! You're now lessening your environmental footprint, supporting innovative emissions reductions projects and making the responsible travel decision.

Best regards,  
The Less Team

# SOLARIMPULSE FOUNDATION



[#Beyond1000Solutions](#)

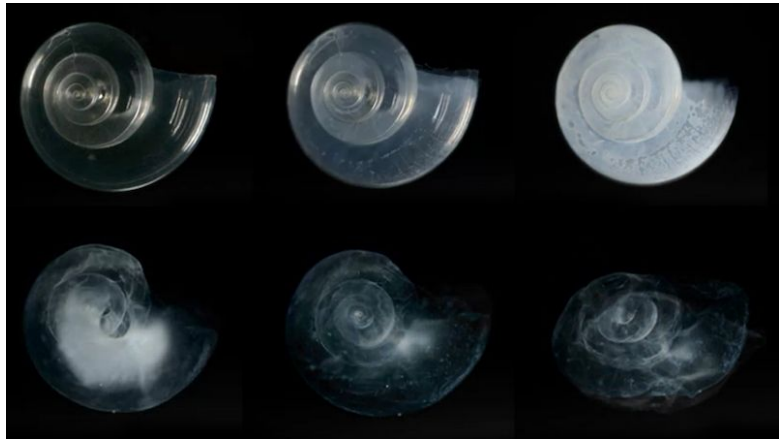
*When I was flying around the world in my solar airplane, I remember looking at the sun that was giving energy to my four electric motors and their huge propellers. There was no noise, no pollution, no fuel... and I could fly forever.”*

Bertrand Piccard





# The Natural Bounty of the Philippines



[What is Ocean Acidification?](#)

[Over 500 species of coral - 8x to 10x more than Mediterranean or Caribbean...](#)

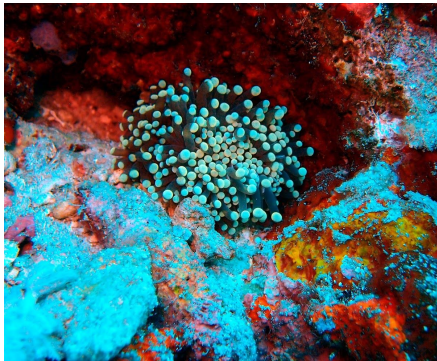
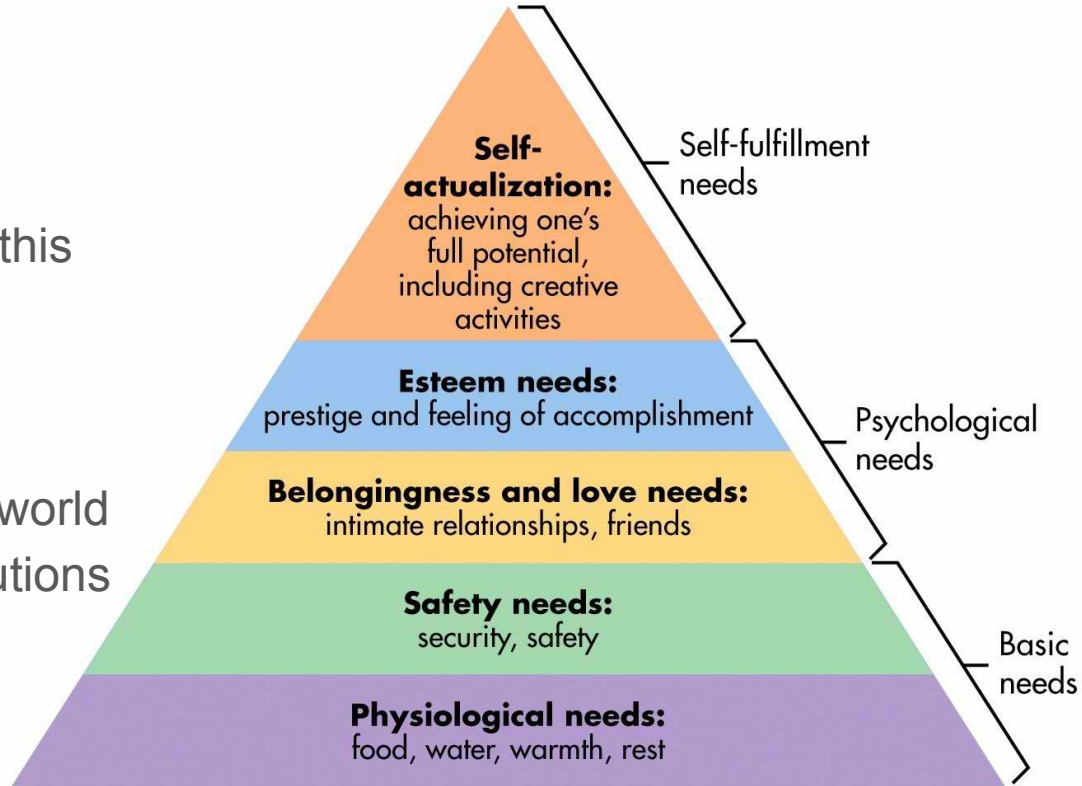


Photo source: <https://www.projectnoah.org/>

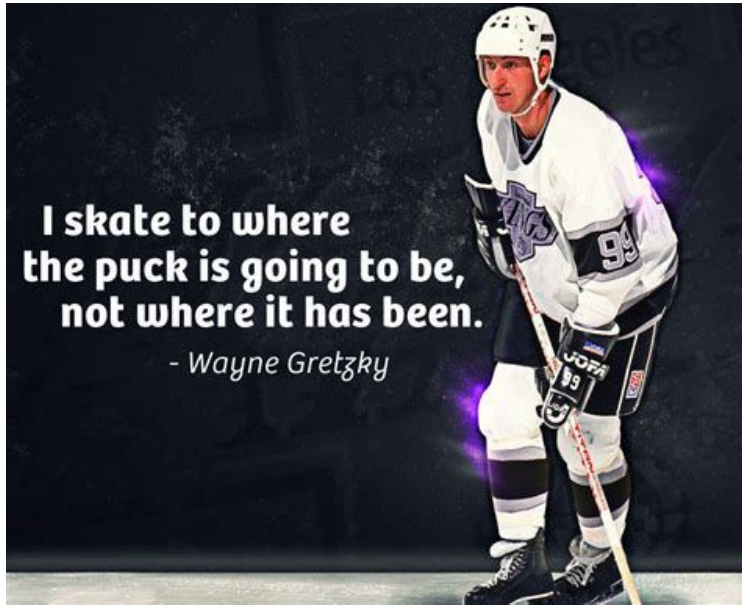
[At risk of joining their cousins](#)

# Sustainability As a career path

- Humanity has never been as affluent as it is today
- Every day, more people move up this hierarchy
- Every day, a larger section of the world economy screams for climate solutions

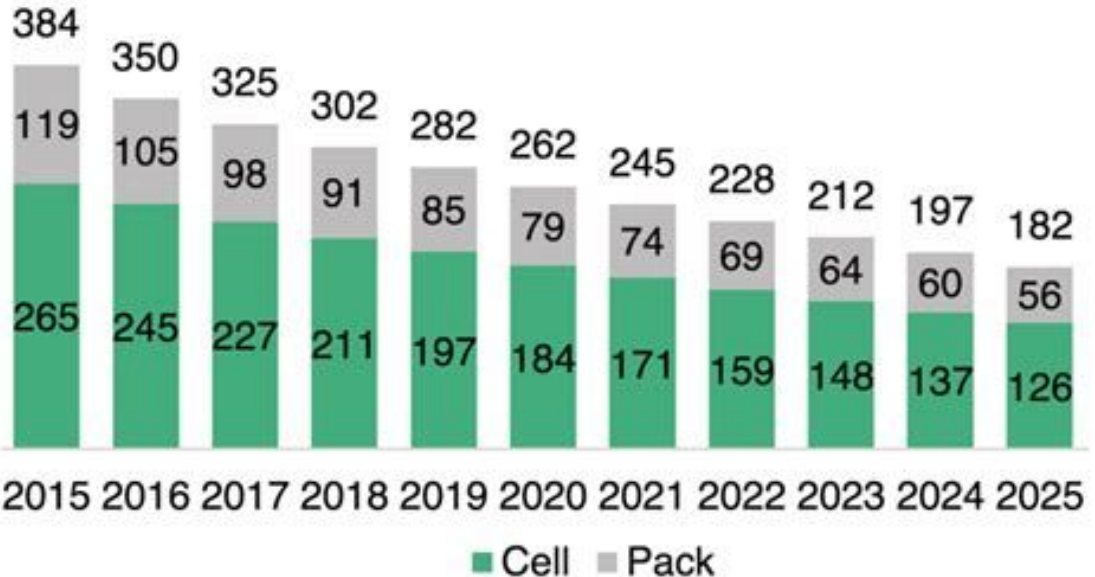


# The Money Shot - *For those who are seeking one*



## Battery Prices Keep Tumbling

Lithium Ion Forecast (\$/kWh)



Source: Bloomberg New Energy Finance

# My thoughts for young professionals considering A career in Sustainability

- Internet and remote work
- Take your health (body, mind and soul) seriously
- Immerse yourself in nature. Live in it. Go off the paths. Learn to swim.



# Closing Thoughts



*Governing the Commons: The Evolution of Institutions for Collective Action".*



“Mathematics is the language in which God has written the universe”

— Galileo Galilei



“Macintosh was created by a group of people who felt that there wasn't a strict division between science and art.

Or in other words, Mathematics is really a liberal art if you look at it from a slightly different point of view.”

Steve Jobs 1990



<http://wall.kabegami.com/detail/85758322/>

