

Thorium Energy Alliance

The Future of Energy

John Kutsch

**THANK YOU
FOR COMING**

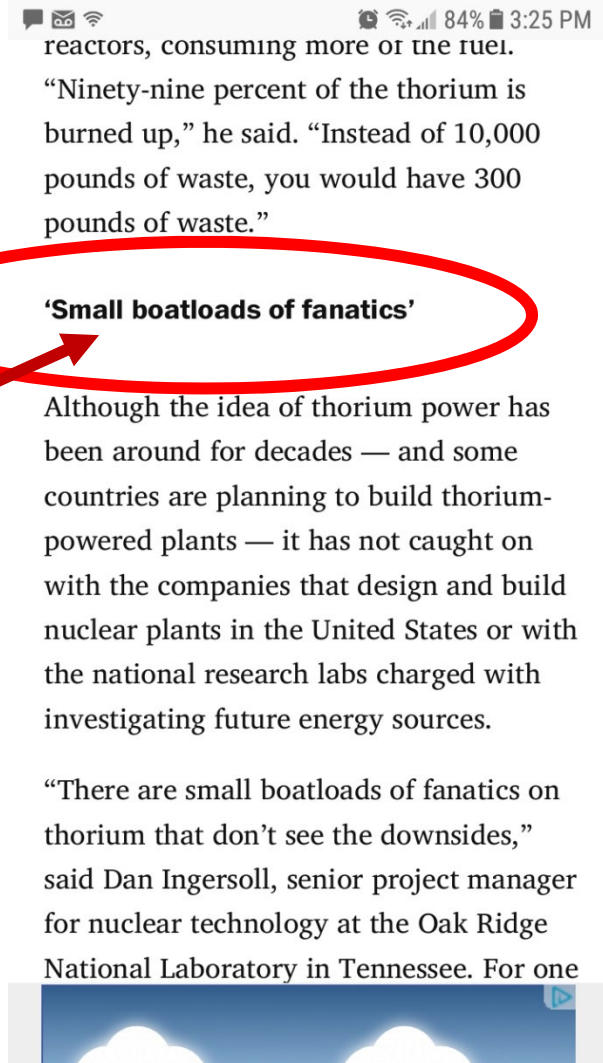
Please Regard the Pollard Safety Announcement

Thorium Will Power The World

Thorium Energy Alliance

After 10 years
We are not so much a
“Boat Load of Fanatics”
There is progress

Not Helpful



Thorium Will Power The World

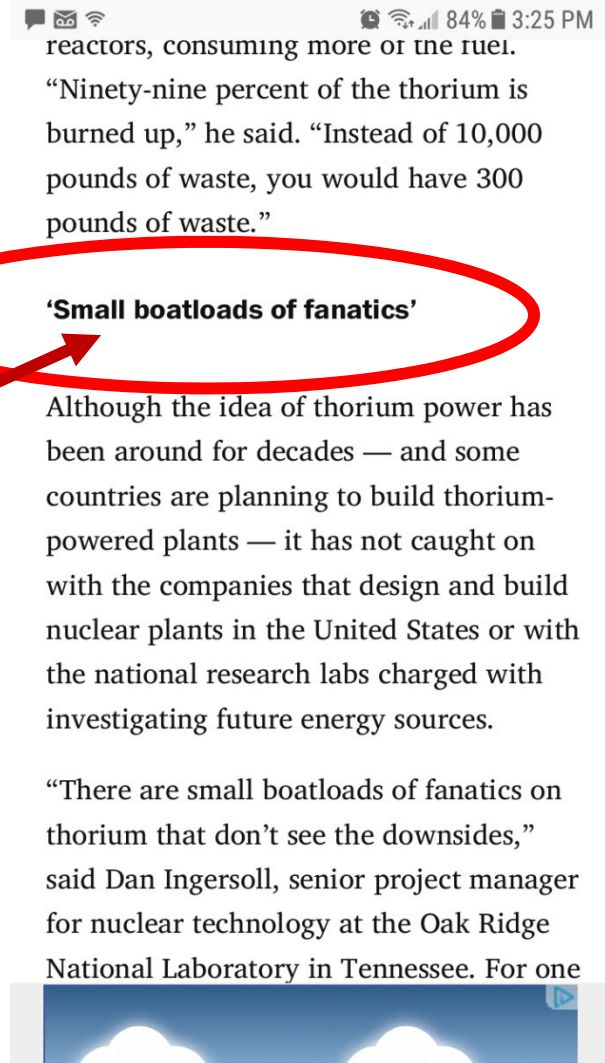
Thorium Energy Alliance

After 10 years
We are not so much a
“Boat Load of Fanatics”
There is progress

But we also do not have
Enough successes

It is taking MUCH too long

Not Helpful



Thorium Will Power The World

Thorium Energy Alliance



... And in the House,
The Tipton Companion Bill

*Thorium Rare Earth Cooperative
21st Century Manufacturing Act
(H.R. 4410)*

There is Renewed hope for Policy

116TH CONGRESS
1ST SESSION

S. 2093

To provide for the establishment of the Thorium-Bearing Rare Earth Refinery Cooperative, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JULY 11, 2019

Mr. RUBIO introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To provide for the establishment of the Thorium-Bearing Rare Earth Refinery Cooperative, and for other purposes.

Thorium Will Power The World

Thorium Energy Alliance

We have all not done enough to support non-energy uses and markets for Thorium

Lighting



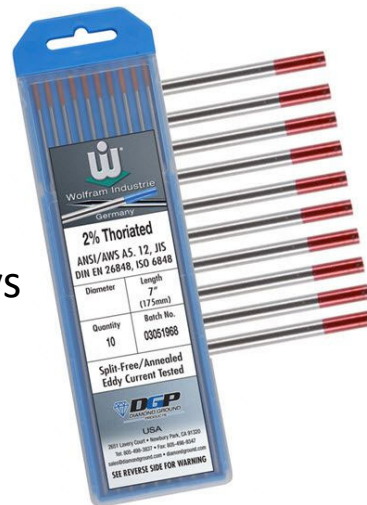
Chemical Processes



Medicine



Alloys

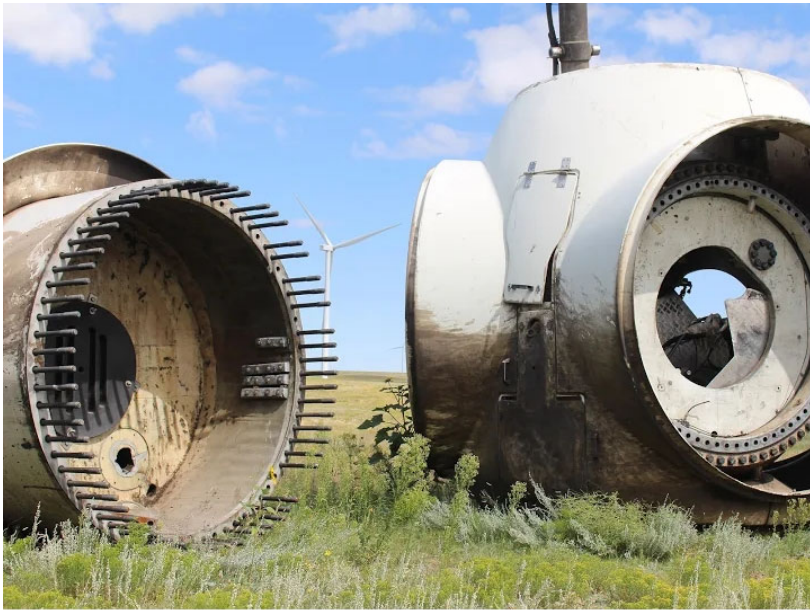


- Mag-Thor
- Mg-Th-Zr
- Mg-Th-Zn-Zr
- Mg-Ag-Th-(rare earth) - Zr

Thorium Will Power The World

Thorium Energy Alliance

These Ideas of Renewables are still Critically Flawed



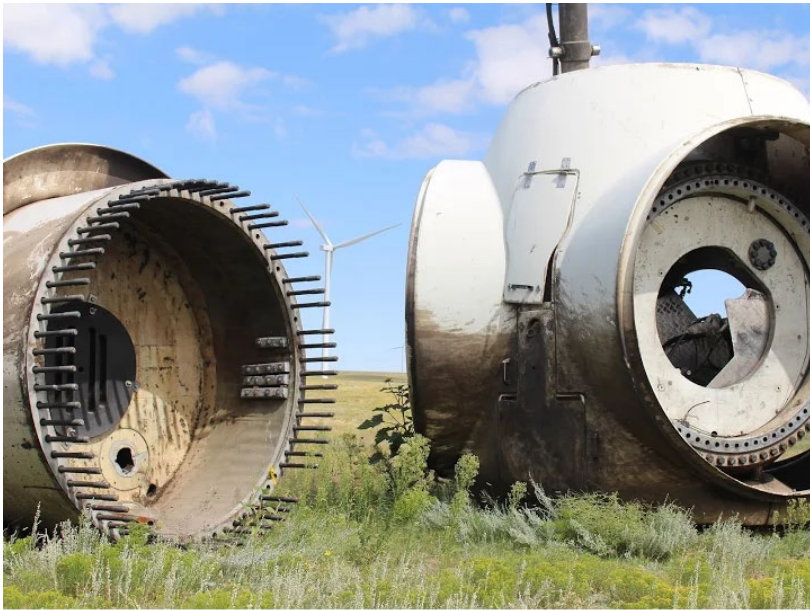
These old wind turbine hubs will be scrapped.
Christina Stella/Harvest Public Media



Thorium Will Power The World

Thorium Energy Alliance

These Ideas of Renewables are still Critically Flawed



These old wind turbine hubs will be scrapped.
Christina Stella/Harvest Public Media

BUT THEY ARE WINNING !



Thorium Will Power The World

Thorium Energy Alliance

We need to come away from this conference
With the most exciting message to share
We need to Change millions of Minds Now.



Yelling won't work – what will ?

Thorium Will Power The World

Thorium Energy Alliance

We need to come away from this conference
With the most exciting message to share
We need to Change millions of Minds Now.



People listen to people like themselves
– we need more allies

Thorium Will Power The World

Thorium Energy Alliance

**Help T.E.A. Reach Out To
Influencers Like These . . .**



Herbie Hancock



Seth McFarland



Robert Downey jr.



Beau Willimon
(what if he wrote a
whole show about
All of this?)



Andrew Yang

Thorium Will Power The World

Thorium Energy Alliance

I do not have “Hope”

Thorium Will Power The World

Thorium Energy Alliance

I do not have “Hope”

Hope is a distraction

Thorium Will Power The World

Thorium Energy Alliance

I do not have “Hope”

Hope is a distraction

I have Work

Thorium Will Power The World

Thorium Energy Alliance

I do not have “Hope”

Hope is a distraction

I have Work

If we do our Work
Then we can Win

Thorium Will Power The World

Thorium Energy Alliance

I do Believe Energy Equals Wealth

Thorium Will Power The World

Thorium Energy Alliance

I do Believe Energy Equals Wealth

I know we can get out of
these nightmares and
solve these problems



National Security



Climate



De-Industrialization

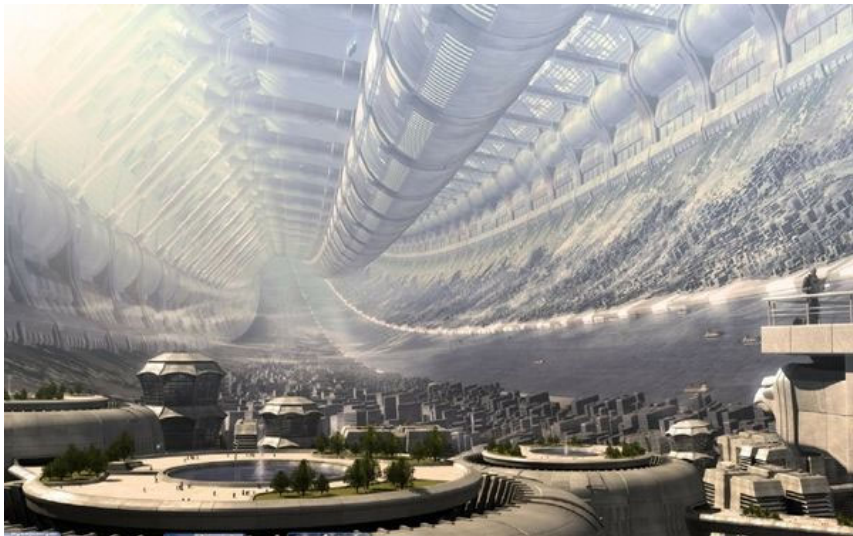


Thorium Will Power The World

Thorium Energy Alliance

I do Believe Energy Equals Wealth

I know we can get out of
these nightmares and
solve these problems



We Can Be
Interstellar

Thorium Will Power The World

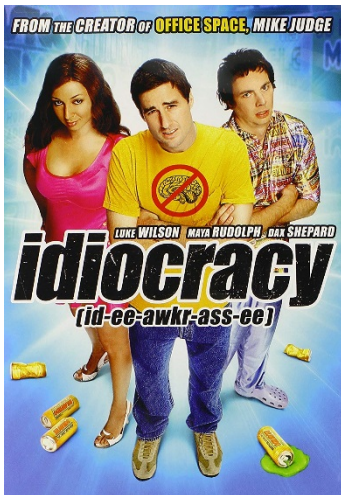
Thorium Energy Alliance

I do Believe Energy Equals Wealth

I know we can get out of
these nightmares and
solve these problems

We Can Be
Interstellar

Not Idiocracy



Thorium Will Power The World

Thorium Energy Alliance

Tomorrow Land Can Be More
Than a Crappy Ride in Disneyland



Thorium Will Power The World

Thorium Energy Alliance

If we are successful , It can be our future



Thorium Will Power The World

Thorium Energy Alliance

If we are successful , It can be our future



Thank You – You Are the Future of Energy

Thorium Will Power The World

Thorium Energy Alliance

Hydrogen Needed to Replace a Single Day of Liquid Road Fuels

Daily Production and Replacement Needed

392 Million Gal Gasoline = 392 Million Kg of H₂ per Day

45 Million Gal Ethanol = 27 Million Kg of H₂ per Day

209 Million Gal Diesel = 235 Million Kg of H₂ per Day

(No Jet Fuel or Boat, or Heating Oil)

(Not representing electric vehicle penetration)

654 Million Kg of Hydrogen is Needed per Day

About 2 billion Kg H₂ for all Fuels and Processes per Day

Energy Information Agency

https://www.eia.gov/energyexplained/index.php?page=oil_refining#tab4

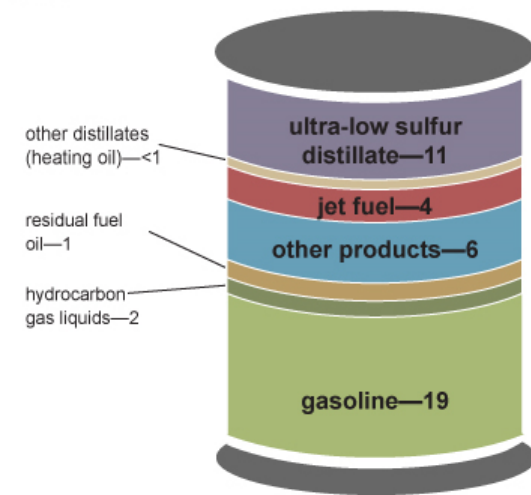
**1 Kilogram Hydrogen
Equals:**

1.00 Gallon of Gasoline

1.631 Gallon of Ethanol

0.893 Gallon of Diesel

**Petroleum products made from
a barrel of crude oil, 2018**
gallons



Note: A 42-gallon (U.S.) barrel of crude oil yields about 45 gallons of petroleum products because of refinery processing gain. The sum of the product amounts in the image may not equal 45 because of independent rounding.

Source: U.S. Energy Information Administration, *Petroleum Supply Monthly*, April 2019, preliminary data

Thorium Will Power The World

Thorium Energy Alliance

Thank You – You Are the Future of Energy

4:30 Thorium Prize

4:45 Cocktail Reception

5:40 Myriam Tonelotto

6:00 Movie : Thorium – the far side of nuclear

Thorium Will Power The World