

Thorium Advances in 2020



2020 has posed many unprecedented challenges to everyone's life and we hope this message finds you healthy and well as we say goodbye to 2020 and look forward to the new Year. The Thorium Energy Alliance was able to use this time to make major updates to our website, we've added a new Thorium Encyclopedia Section and have kept busy with various projects. We've made huge strides developing the ANS Standards for Molten Salt Reactor Safety Design Criteria and Functional Performance Requirements. We've continued our legislative efforts and initiated some R&D into Thorium and related Rare Earth Minerals (more below). We've also initiated projects to expand Thorium-based government funding opportunities through various programs.

We are looking forward to even more progress in the new year as we plan out our goals and milestones for 2021 and are grateful to all the support and encouragement our membership has shown during this past year. Unfortunately, 2020 didn't allow us to host our annual TEA Conference this year but we are looking ahead to next year when we can meet in person at TEAC2021. Most importantly, we are excited to continue advancing Thorium with you in 2021 and beyond.

Internship Available: One of our stated goals for 2021 is to increase our Social Media presence and we are looking for someone who is seeking an internship type role to assist us getting that off the ground. We will also be looking for similar help for a position in grant writing. Please contact us for more information if these opportunities are something you'd be interested in.

BOOTS ON THE GROUND:

We'd like to briefly recap some of the amazing efforts in advancing Thorium within the private and public sectors. These groups and individuals have been hard at work, performing the heavy lifting of real R&D to promote Thorium in Advanced Nuclear, Critical Materials and Medical Applications. The following is a brief list of organizations carrying the torch forward.



The **Thorium Energy Alliance** has been funding some initial R&D into Thorium and critical materials via a strategic partnership opportunity with University and Private Business involvement. The TEA is laying a foundation for further Thorium material research to explore and utilize novel uses for Thorium in a myriad of applications from lighting to catalysts to medical isotopes to name a brief few.

The Thorium Energy Alliance has also been working diligently to continue our legislative pathway to a Thorium Future in Washington DC. As governmental leadership changes, we need to continue our messaging moving forward so that Thorium is a centerpiece of clean and sustainable technology, energy and medical applications.



This has been a great year for **Copenhagen Atomics**. We have doubled our team in 2020 and we plan to double again in 2021. We have all the orders which we can handle right now. We just received yet another order for a molten salt test loop this week from a USA based university.

During the first half year of 2021 we will build 10 of these test loops and start building and designing our first prototype reactor. More about this in later emails.

Copenhagen Atomics started 2020 with a plan of raising between €2½ - 4 mio. in 2020. We have now raised €4.6 mio. which is an important cornerstone in our €12 mio. budget that runs until 2022. We are now confident that we will have sufficient capital to build our prototype reactor by 2022.

This year, we have experienced a significant interest in this new industry from many directions, including investors, politicians, media, etc. Some of the other players in this industry have also received government loans, grants and private investments. We believe that it is great that we now see a whole new industry forming around the molten salt reactor technology, it is much better than if we were the only company. We still envision this industry will employ hundreds of thousands of people before 2030. It is very important that more people get involved at the university level NOW!

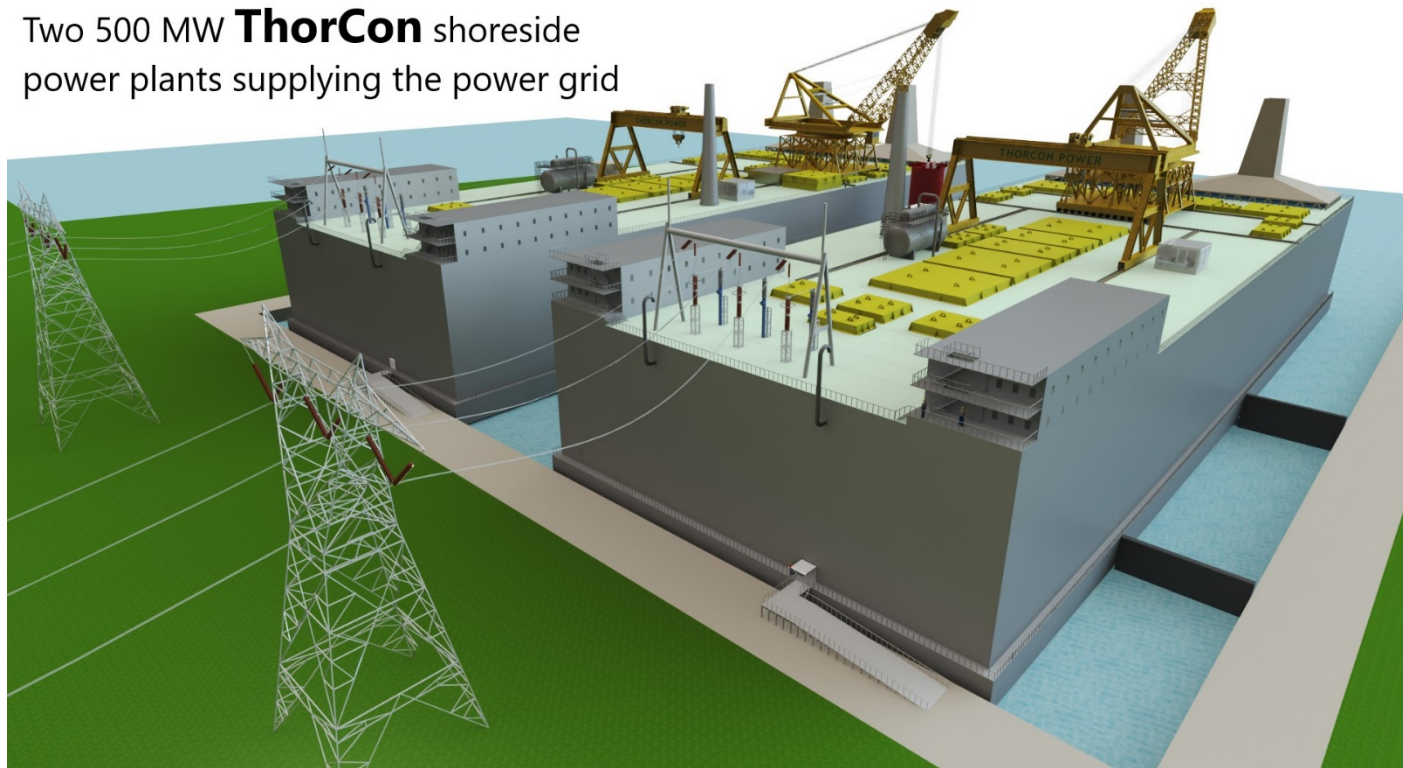
Please also check the [Copenhagen Atomics website](#) for more details on current open positions.

Copenhagen Atomics is in a unique position in this industry as we are far ahead of the other players in terms of building and testing components for reactors. We hope you will help spread the word to your friends and family during this holiday about how thorium molten salt energy can help solve the global green energy transition.

[ThorCon](#) continues to move forward with its [molten salt reactor demonstration program](#) in Indonesia. MOU's regarding its 500 MW power plant have been signed with PLN, the state-owned utility; Indonesia Power, the country's largest power plant operator; with PT PAL, the state-owned shipyard; with the Governor of Bangka who wants the plant located in his province; and with the Ministry of Defense. In July the Indonesian Government gave ThorCon the green light for the demonstration plant.

Site feasibility and grid integration studies are being organized. Preparations for pre-fission testing of the primary power loop have begun. This full-scale version of the reactor will be built and tested at PT PAL's shipyard in Surabaya. An important round of funding has just been successfully completed which will provide the funds required to bring the program to the point where construction on the pre-fission test platform is ready to begin. This is scheduled for 2022.

Two 500 MW **ThorCon** shoreside power plants supplying the power grid



The **Alvin Weinberg Archive Project** has completed the physical processing of the [Alvin Weinberg Collection](#) with removal of all filing cabinets and movement of the Weinberg papers to 126 archival boxes. (Original estimates were 200 boxes but each box ended up holding more papers than anticipated.) We have completed digitizing 105 of the 126 boxes of papers. We hope to complete the scanning the rest of the papers as well as digitize the slide collection in 2021 if we can obtain enough funding. We selected [ArchivEra](#) (a product of Lucidea) as our database to house the digitized collection. We have loaded over half the digital collection and when we finish loading the current digitized images we will prepare to make the database public. The database includes easy search routines and a Finding Aid with embedded links to files. It is exciting and rewarding to bring so many of Alvin's speeches, published papers, handwritten notes, and communications with other scientists out into the light. It is a great way to honor his legacy. The goals for 2021 are to open the database to the public in early 2021, create a Weinberg Corner at the Children's Museum, and finish digitizing the rest of the collection. An exhibit at the Children's Museum is still planned but the date was pushed back due to the Pandemic. [Visit us on fb.](#)

A screenshot of the Alvin Weinberg Archive Collection website. The page features the logo of the Children's Museum of Oak Ridge in the top left corner and a "Make a Request" button in the top right. Below the logo is a navigation bar with tabs for "SEARCH", "ADVANCED SEARCH", "SAVED SEARCHES", "BROWSE SUBJECTS", "FEATURED COLLECTIONS", and "FINDING AID". Underneath the navigation bar is a search box labeled "SEARCH THE ARCHIVES". The main content area includes a black and white photograph of Alvin Weinberg, a man in a suit and tie, standing in front of a wall covered in papers. To the right of the photo is a heading "Welcome to the Alvin Weinberg Archive Collection" followed by a paragraph of text explaining how to browse the collection.

Terra Power has been exploring advanced reactor technology and have recently begun to TerraPower's assessment shows that select materials may be effectively used in Targeted Alpha Therapy for cancer patients. Thorium-229 (^{229}Th), being the source of Actinium-225 (^{225}Ac), is the ingredient of particular interest. More than 100 types of monoclonal antibodies (mAb) have been approved, and a similar number are under development. They are the heat-seeking missiles of cancer treatment that target the proteins expressed by cancers.

According to [James Conca's Sept 22nd article](#) in Forbes "A potential breakthrough: The United States Department of Energy (DOE) Idaho National Laboratory (INL) and the Nuclear Engineering & Science Center at Texas A&M have partnered with [Clean Core Thorium Energy](#) (CCTE) to fabricate a new type of nuclear fuel, called "Advanced Nuclear Energy for Enriched Life", or **ANEEL**.

With a proprietary combination of thorium (Th) and uranium (U), particularly "High Assay Low Enriched Uranium" (HALEU), ANEEL fuel can address several issues that have plagued nuclear power – cost, proliferation and waste. Plus, this fuel, being made-in-America, positions it as a prime candidate for export to emerging nuclear markets."

Thank You - to everyone who has helped us along the way and we want to wish you all a Happy New Year! Please consider making an end-of-year contribution.

John Kutsch
Executive Director

Support the TEA Today!

