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Natural Language Processing for Text-Based Event Extraction: Identifying Events of Interest Related to Worldwide State-Sponsored Civil Nuclear Power

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March 2023

SRNL-STI-2023-00078, Revision 0

Collaborators from the Sanghani Center for Artificial Intelligence and Data Analytics at Virginia Polytechnic Institute and State University: Brian Mayer, Patrick Butler, Nathan Self, Nikhil Muralidhar, and Jacob Miller

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PREFACE OR ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Beginning in FY20, SRNL was funded by the National Nuclear Security Administration's Office of Defense Nuclear Non-Proliferation Research and Development to develop a prototype natural language processing / natural language understating machine learning-based modeling and analysis pipeline to extract and forecast events of interest from massive open data sources. The working hypothesis within the approach is that contextual shifts in key words and phrases act as indicators of events of interest over time. Therefore, by identifying points in time where contextual shifts occur, events of interest can be extracted along with explicit and implicit connections of entities and activities. The development of the preliminary prototype pipeline proved successful, meriting further testing of the pipeline on more broad topical domains and in a worldwide data environment. Therefore, SRNL, in collaboration with the Sanghani Center for Artificial Intelligence and Data Analytics at Virginia Tech, have continued development with a test case of identifying events of interest related to worldwide state-sponsored civil nuclear power in open data sources.

In the first year of this follow-on effort, the team has curated domain-specific data corpuses using an automated scheme and applied the modeling and analysis pipeline. This robust, focused, and efficient approach consists of an ensemble of analyses applied to time dependent word embedding models that are trained on the data corpuses. In this report, the team has demonstrated the capability of the existing pipeline (as development has continued in parallel) by exploring several specific case-studies centered around Rosatom's international activities regarding the planning, construction, operation, and/or shutdown of nuclear reactors. A basic timeline events has been generated by manually cataloging known "milestone" events that have occurred at reactors in Turkey, Finland, Hungary, and Egypt and compared with the output of the modeling pipeline. In this approach, the team has characterized the lead time using the prototype pipeline, as well as the ability to capture relevant information, which proved 100% successful. A deep dive example of the Akkuyu reactor (Turkey) is presented that shows the breadth of information that can be captured using the approach. In this case study, events were extracted pertaining to the planning/construction of Akkuyu including protests from the population, information campaigns in response to the protests, forged regulatory documents and lawsuits, budgetary/shareholder information, geopolitical tensions, and the various construction milestones. This has demonstrated the pipeline's utility as a research aid or real-time event extraction tool, where summary-level information and detailed text extractions from millions of articles or Tweets across long time periods can be generated with significantly less effort than current techniques.

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LIST OF ABBREVIATIONS

SRNL	Savannah River National Laboratory
LLM	Large Language Models

1.0 Introduction

Beginning in FY20, SRNL was funded by the National Nuclear Security Administration's Office of Defense Nuclear Non-Proliferation Research and Development to develop a prototype machine learning-based modeling pipeline to extract and forecast events of interest from open data sources [1]. Using two data sources – Twitter and a broad internet archive consisting primarily of news articles – the team developed a prototype pipeline that was tested on identifying events and indicators of the Savannah River Plutonium Processing Facility prior to its official announcement in May of 2018. The fundamental concept of the pipeline is that contextual shifts in key words and phrases act as indicators of events of interest. Therefore, by identifying these contextual inflection points in time, associated events can be extracted. Based on this, the pipeline was built on a foundation of natural language processing, and more specifically, time dependent (or diachronic) word embedding models. The prototype pipeline proved successful at discernably identifying implicit and explicit connections between the Savannah River Site and plutonium pit production up to two years prior to any official announcement. While the pipeline showed promising results, it was tested in its development on a highly specific topical domain (i.e., fissile core fabrication) and in the widely open data environment of US Government activities and therefore required further testing and development on more broad topical domains and in worldwide, potentially more restrictive, data environments.

In FY22, SRNL has continued development on the pipeline shifting the topical domain to worldwide civil nuclear power. In year one of the project, the team sought to apply the existing modeling pipeline to provide a preliminary measure of the capability in the new data environment and the broader geographical and topical landscape. The event domains of interest were thoroughly outlined in [2]. Broadly summarized, the application of the pipeline is tasked with identifying any events related to the planning, construction, operation, or shutdown of nuclear power plants worldwide, especially with respect to international cooperative efforts involving state-sponsored civil nuclear contractors. Once again, the pipeline has been applied to two data sources: Twitter and a broad internet archive (sourced from newsapi.ai). The acquisition of data and a preliminary high-level characterization of the datasets was described in [3] and demonstrated that domain specific word embedding models could be trained on the individual corpuses as shown by cosine similarity calculations and dimensionality reduction techniques, meriting further exploration using the prototype pipeline.

To explore the datasets further and guide continuing software development, the prototype modeling pipeline has been applied to the datasets individually by training time dependent word embedding models and applying the subsequent analyses. The team has explored several known cases of international cooperation for building civil nuclear reactors to identify events of interest contained within. While the team is building the prototype pipeline to have the capability to search for the occurrence of specific events or event types, the test is performed organically such that no specific events are sought, but rather all possible events of interest that are flagged are returned. As outlined in [2], Rosatom provides several case study examples across the data timeline (i.e., 2014 – 2022) as depicted in Figure 1-1. While the events shown in Figure 1-1 are generally more major milestone events, the pipeline is also expected to capture less significant events along the trajectory of the overall activity, as well as those that capture events related to, but not directly involved in the planning, construction, operation, or shutdown of the reactor itself (e.g., public sentiment, geopolitics, etc.). Long term sentiment shift over years or decades is not uncommon in the analysis space this tool is expected to be deployed. Therefore, by automating the information analysis across long time horizons, patterns that evolved over years or decades can be detected. In this way, the longer-term vision for the pipeline is for application as either an inferential forecasting system or as a research platform such that all relevant information leading up to a known activity can be obtained without the need to manually scour hundreds to millions of articles for the information.

This tool falls in the main category of event of interest detection by automated natural language processing. Finding events of interest from information on the world wide web is not a new or recent goal [4], and yet successfully achieving this goal has proven to be somewhat resistant and recalcitrant to efficient, effective, robust, and reliable automated analysis. The power of the most recent Large Language Models (LLM) based on breakthrough ideas [5] and being developed by major private companies include capabilities of natural language text generation, content summarization, automated event extraction, chatbots, translation, and image generation and are changing the landscape, content, scope, and breadth of information being posted on the web. In some computational areas, these generalized LLMs provide similar features to the tool discussed here, and where overlap occurs, these LLMs can be used for testing, comparison, and independently providing results verification.

In this report, it is demonstrated that the pipeline can be tailored to different event classes and is efficient and effective at uncovering patterns and events of interest while cutting through the noise and chatter. For example, to demonstrate the depth of information that can be automatically returned, a deep dive analysis of all events that are extracted is carried out on the Akkuyu nuclear power plant that is under construction in Turkey. Note that even though the methods used to obtain these results are under continuing development, seeking improvement specifically in the maximally relevant and minimally redundant retrieval of information from the corpuses, in their current condition, they are proving to be insightful and useful. In the following sections, the algorithmic approaches considered and employed by the modeling pipeline will be described and events of interest that have been extracted from the corpus will be presented to demonstrate the level of signal that is contained within.

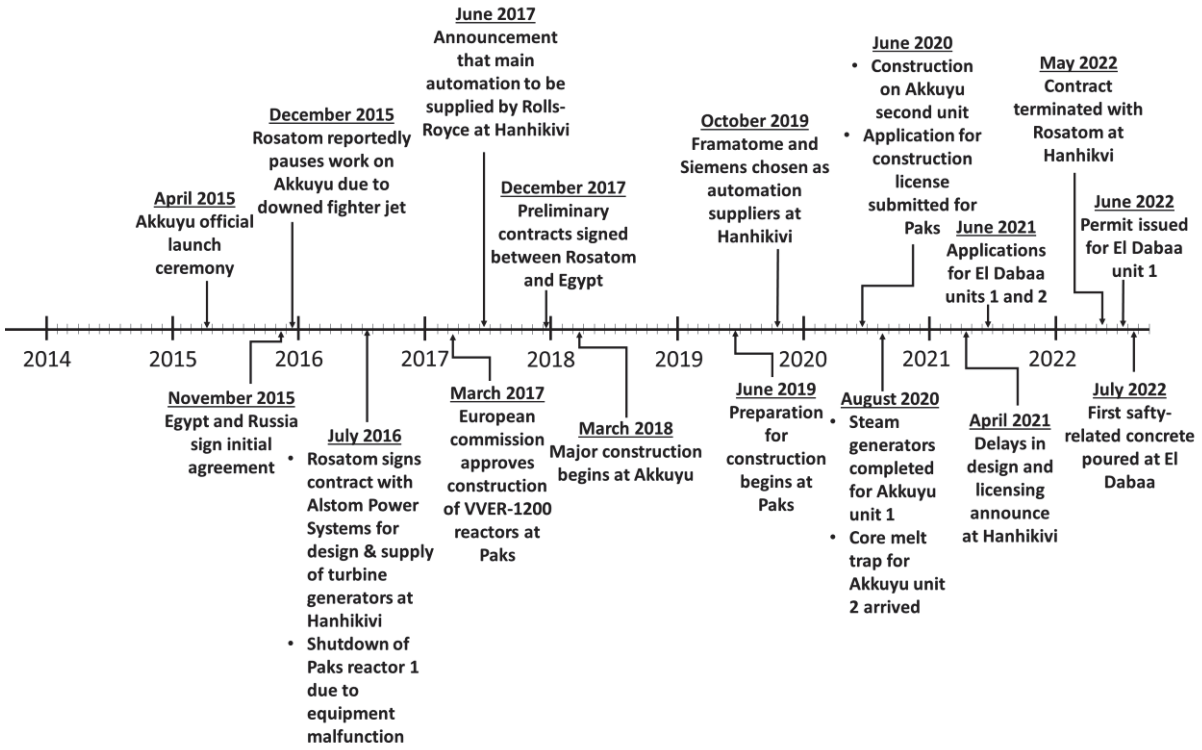


Figure 1-1. Timeline of example events that have occurred regarding Rosatom's international civil nuclear power activities[1].

[1] https://en.wikipedia.org/wiki/Akkuyu_Nuclear_Power_Plant, https://en.wikipedia.org/wiki/Paks_Nuclear_Power_Plant, https://en.wikipedia.org/wiki/El_Dabaa_Nuclear_Power_Plant, https://en.wikipedia.org/wiki/Hanhikivi_Nuclear_Power_Plant

2.0 Algorithmic Approach

The foundation of the modeling pipeline is low-level, domain-specific training of temporal embedding models on text-based data corpuses. Here, the Word2Vec continuous bag of words algorithm, as implemented in the Gensim Python package [6], is used. Subsequently, an ensemble of techniques is applied to analyze the embedding models and identify key points in time where changes to the usage of key words and phrases occur (i.e., identifying contextual shifts) such that events of interest can be extracted from the corpus. The algorithmic workflow from the top-level embedding models to the subsequent enabled techniques, analyses, and outputs is illustrated in Figure 2-2 with a high-level description of each "enabled analysis" below (a more detailed description of the algorithms can be found in [1]).

- ***Similarity Rank Over Time***: References each word embedding model from different time windows to identify a term's percentile rank within the vocabulary, describing the similarity of a word/phrase to a reference word/phrase based on the cosine similarity of embedding vectors (i.e., from most similar to least similar – Enables identification implicit or explicit connections of key terms across time.)
- ***Top N Most Similar Over Time***: References each word embedding from different time windows to identify the top N most similar terms based on the cosine similarity of embedding vectors. (Enables identification implicit or explicit connections of key terms.)
- ***Anomalous Edges by Co-Occurrences***: Constructs a co-occurrence graph across time and computes z-score statistics of edges to identify new/anomalous edges across time. (Enables explicit identification of events or co-occurrences.)
- ***Graph Similarity Comparisons***: Computes a weighted average embedding vector from a graph and applies similarity metrics (e.g., Jaccard Similarity, cosine similarity, Euclidean distance, etc.) across time. (Enables implicit or explicit identification of events.)
- ***Contextual Inflection Points***: Identifies points in time where inflection points occur in the graph similarity comparisons' temporal profile. (Enables implicit or explicit identification of events.)
- ***Inflection Point Matrices***: Combines the inflection point windows across multiple terms to identify points in time where many potentially related events occurred. (Enables implicit or explicit identification of events.)
- ***Identify Text Related to Key Terms Used in Previous Analyses***: Identifies and extracts events of potential interest that occurred at points in time as identified in previous analyses. Note that this step of the algorithmic workflow is a major focus of year 2, with emphasis on extracting maximally relevant and minimally redundant information from the corpuses.
- ***Compare Results using LLM Functionality (Focus area in Year 2)***: Using open-sourced LLM and tool kits to assess how different results might be generated. This is especially important because a LLM might contain (currently, or in future releases) undocumented "rules" or "constraints" that would provide different results than an unfettered system. Hence, while many of the LLMs being released by major corporations have attractive tools, especially in the area of rapid prototyping and deployment, more understanding is required regarding the potential for information bias.

Notably, this pipeline has many hyperparameters that can impact the results, such as the temporal window size of data that is used to train each embedding model, or the number of ranks and nearest neighbors that are included in the embedding graphs. Therefore, the approach used here should not be taken as an optimized parameterization, but rather an exploration of one such subset of the parameters. Once prototyping has been successfully achieved, parameter optimization methods can be employed to develop the optimal solutions.

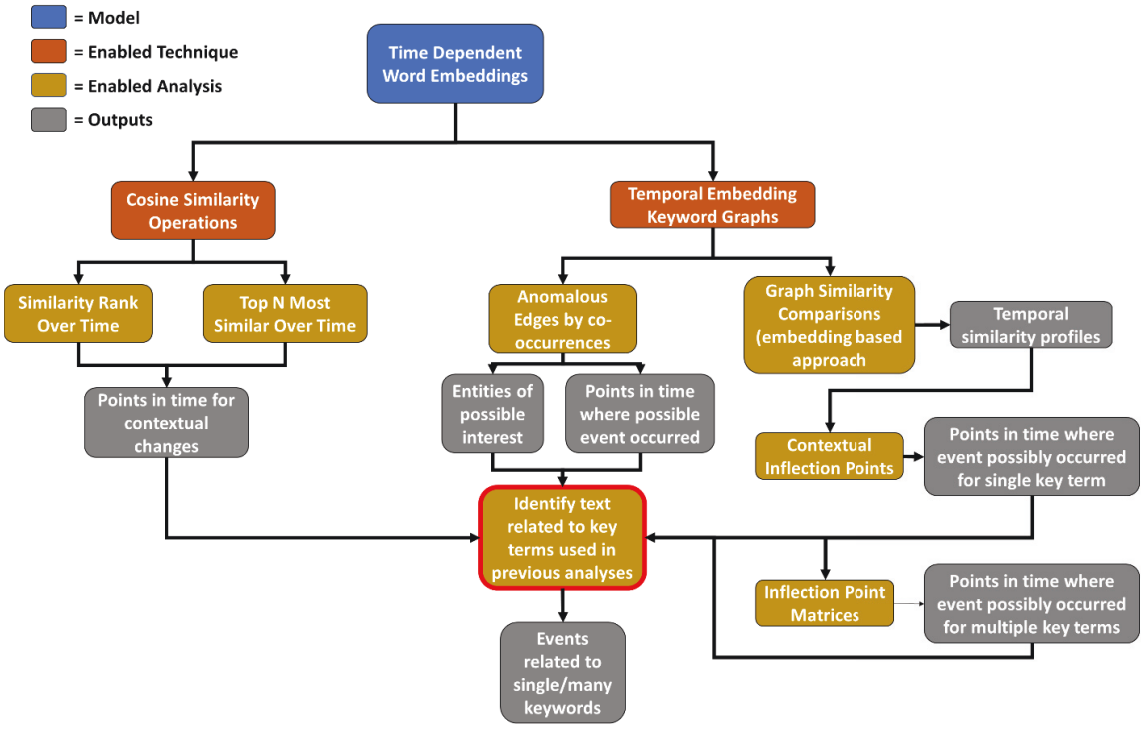


Figure 2-1. Illustration of the algorithmic workflow showing the enabled techniques, analyses, and outputs at each step, which all ultimately enable the extraction of events.

The preliminary prototype modeling pipeline has been applied to the two datasets independently by training time dependent word embedding models and applying the subsequent graph/embedding similarity comparisons to compute temporal occurrences of contextual inflection points. Presented here, the datasets span from August of 2014 through May of 2018 for the Twitter dataset and through August of 2022 for the internet archive dataset (Twitter data from 2018 to 2022 data is being collected). The neural networks that are used to train word embedding models are randomly initialized. Consequently, training a Word2Vec embedding model on the same corpus two separate times results in embeddings that exist in different coordinate spaces. For a given language task, the two models would have near equal performance, but the vector representations of the individual words would not be directly comparable. Because the existing modeling pipeline trains individual embedding models on separate time slices and subsequently compares the embedding representation of key terms across time, it is important to ensure that the vector representations are aligned in the same coordinate space. To accomplish this, the compass aligned embedding [7] approach has been used, which trains a "compass" embedding on the entire corpus prior to any individual time window. Subsequent training of embeddings for individual temporal slices are then pre-aligned with the compass which allows direct comparison of embedding vectors between successive time windows.

Time dependent word embedding models were trained on the Twitter corpus with a 30-day growing window with a fixed starting point in time (i.e., August of 2014). For example, the first time window contains thirty days of Tweets, the second window contains sixty days of Tweets, etc. Upon training the temporal embeddings, embedding graphs are constructed by querying the embedding model for N terms in the vocabulary that have high similarity to the keyword of interest. In addition, the embedding graphs can have multiple ranks, such that the most similar terms to the most similar terms are queried and added to the graph. Both the rank and the number of nearest neighbors used in the construction of the graphs are user-specified. Here, embedding graphs were constructed using 10 to 60 nearest neighbors (in increments of 10) and for 1 to 3 ranks. Subsequently, the graph is used to compute a weighted embedding vector at each time window,

as shown in the example in Figure 2-2, where V_i is the base embedding vector for the nearest neighbor term and w_i is the weight of the nearest neighbor term in the graph. As described in [1], the weight of the nearest neighbor term is computed as:

$$w_n = \left(\frac{R_{w_n} f_{w_n}}{\sum_{i=1}^{n} f_{w_i}}\right)^{-1}$$

where R_{w_n} is the nearest neighbor similarity rank, f_{w_n} is the nearest neighbor term frequency in the corpus, and $\sum_{i=1}^{n} f_{w_i}$ is the cumulative term frequency for all terms in the embedding vocabulary.

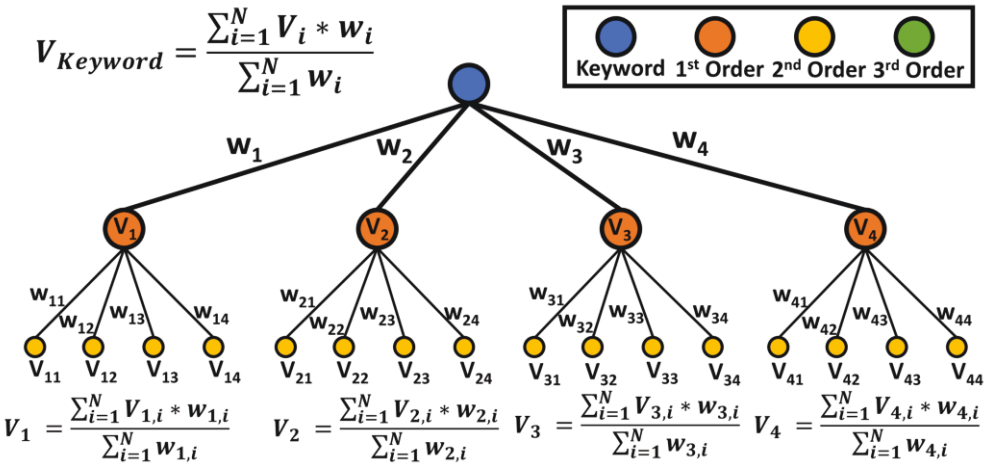


Figure 2-2. Illustration of an embedding graph and the formulation for computing a weighted average embedding vector from the graph.

The internet archive dataset was explored using both the co-occurrence-based approach and the embedding graph-based approach. In the former, the Python package spaCy [8] is used to identify co-occurring entities of type "GPE" (i.e., geopolitical entities), "FAC" (i.e., facilities), "NORP" (i.e., nationalities/religious/political groups), and "ORG" (i.e., organizations). Subsequently, a graph of co-occurring entities is constructed across each one-month time interval, where the number of nodes in the graph and the time window are user-specified and were explored across a variety of cases. In the embedding-based approach, training word embedding models across the entire corpus was significantly more computationally expensive on CPUs than splitting up the corpus. Therefore, a compass was trained on the entire corpus and a rolling 180-day window of articles was used to train each embedding model and embedding graphs were constructed using 10 to 50 nearest neighbors for a single rank. Here, the primary focus will be on the embedding-based approach, but complementary results will be shown for co-occurrences.

3.0 Results

The cumulative and total number of new Tweets added to each of the 30-day, growing window embedding models are shown in Figure 3-1 and the total number of articles that were used to train each embedding model on the internet archive dataset are shown in Figure 3-2. The number of Tweets and articles added to each new embedding model is relatively consistent, excluding the Twitter embedding model from late 2017. Interestingly, the same increase does not occur in the internet archive database. This is likely a result of the filtration of duplicate articles (i.e., exact duplicates, though there are redundant articles) from the internet archive, whereas duplicates such as Re-Tweets are not filtered. This often indicates a single major event that is widely discussed on Twitter. Here, this was identified as being a point in time in which the "Iran Nuclear Deal" was a major part topic of interest on Twitter.

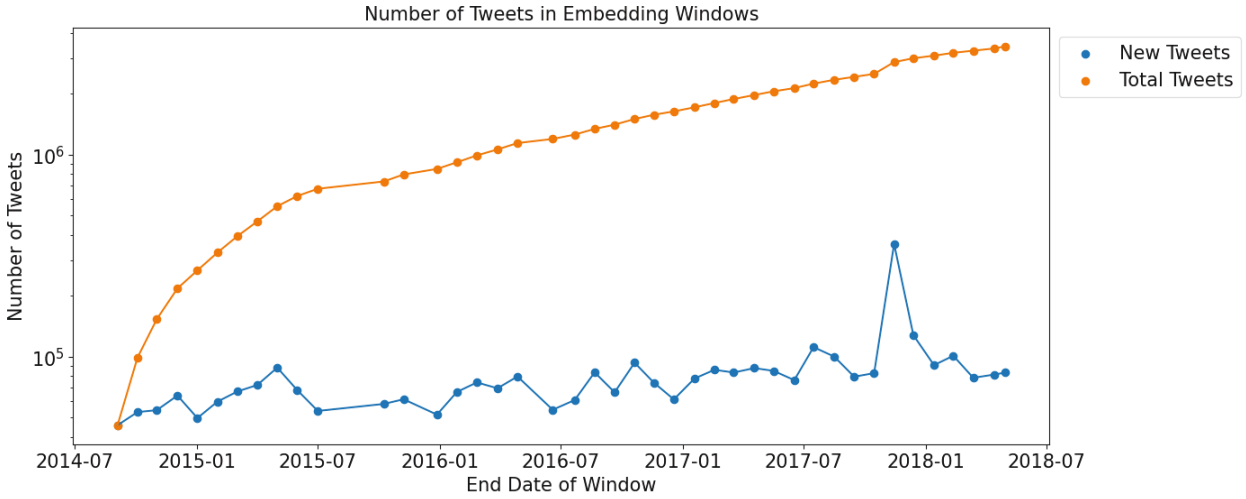


Figure 3-1. Number of new Tweets added at each step of growth for the static, growing window embedding models. Note that in some cases (e.g., July of 2015 to October of 2015) 30 days of Tweets spans a time period greater than 30 calendar days.

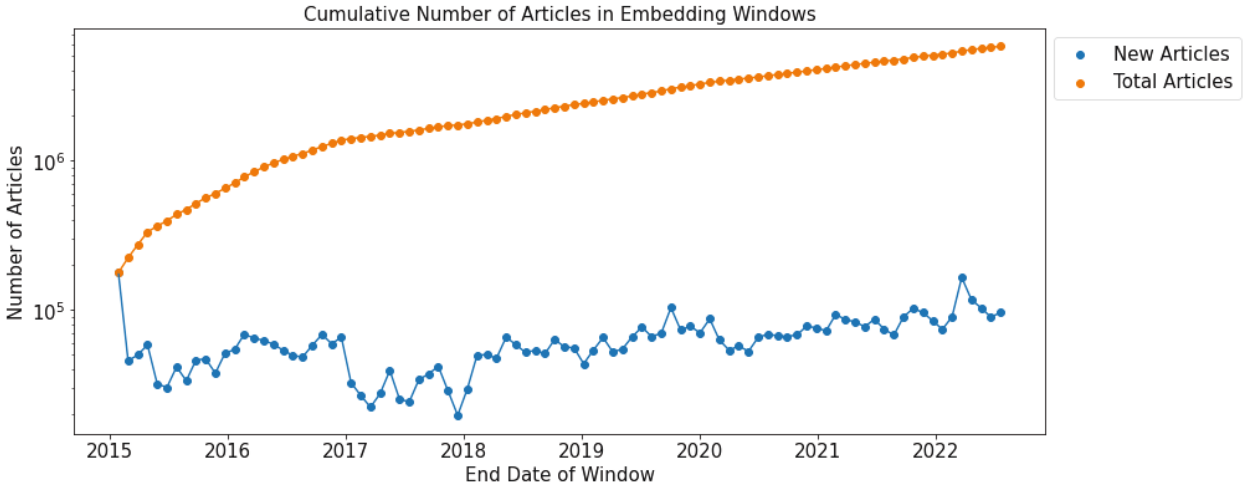


Figure 3-2. Number of articles contained in each embedding window for the 30-day rolling, 180-day embedding window models. Note that each time marker contains 30 days of new articles that are added except the first point in time, which contained the initial 180-day period.

As mentioned in Section 1.0, several case studies of state-sponsored civil nuclear power activities were explored to characterize the performance of the prototype pipeline. For example, within the timeframe of the datasets, Rosatom has undertaken both new and evolving civil nuclear power activities internationally in Turkey (Akkuyu), Egypt (El Dabaa), Finland (Hanhikivi), and Hungary (Paks), to name a few. Using Figure 1-1 as a benchmark, events related to these entities that were extracted from the pipeline, without explicitly searching or introducing bias in the discovery, were explored. Figure 3-3 and Figure 3-4 provide a baseline for the cumulative number of Tweets and total number of articles in each embedding window that contain one of the reactor-specific or country-specific key terms from the case studies. Notably, the occurrence of the term "Russia" is highest in each of the datasets, followed by "Akkuyu" in the Twitter dataset and "Turkey" in the internet archive dataset. The terms "El Dabaa" and "Hanhikivi" are among the least explicitly mentioned terms with only tens to hundreds of mentions across all time windows for both datasets compared to tens of thousands to millions of Tweets or articles in which "Russia" is used. Along

with the cumulative number, it is also important to note the slope of the number of Tweets/articles, as well as points in time where stepwise increases occur. Terms that have a steeper slope in the number of articles would be expected to be related to events that are ramping up over time with potential indicators of an activity of interest increasingly more discoverable. Likewise, stepwise increases in the number of Tweets/articles can potentially indicate a more significant event that was widely discussed and can lead to detectable contextual shifts.

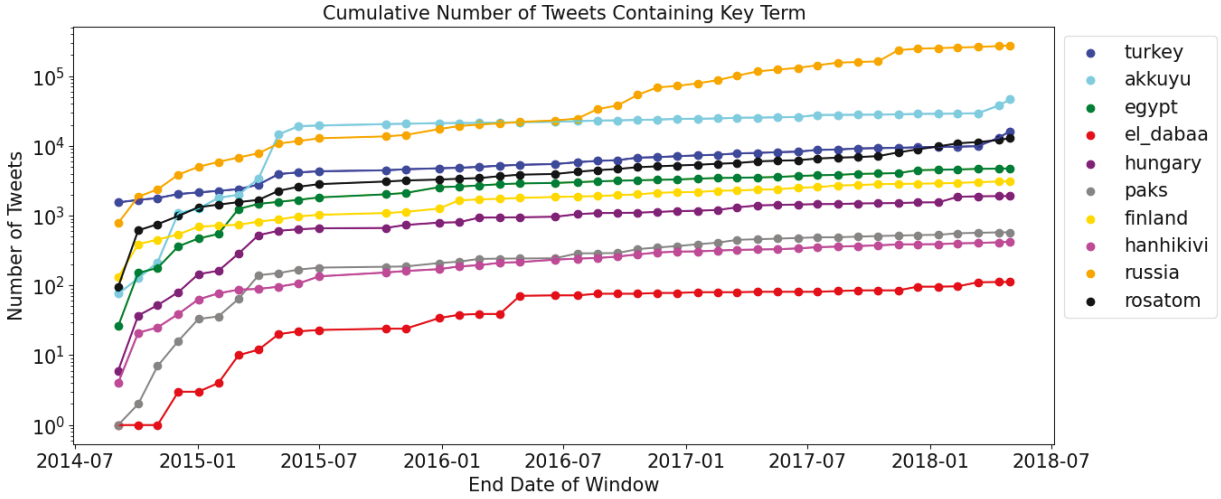


Figure 3-3. Cumulative number of Tweets containing a country- or reactor-specific key term for the case studies of interest in each embedding window.

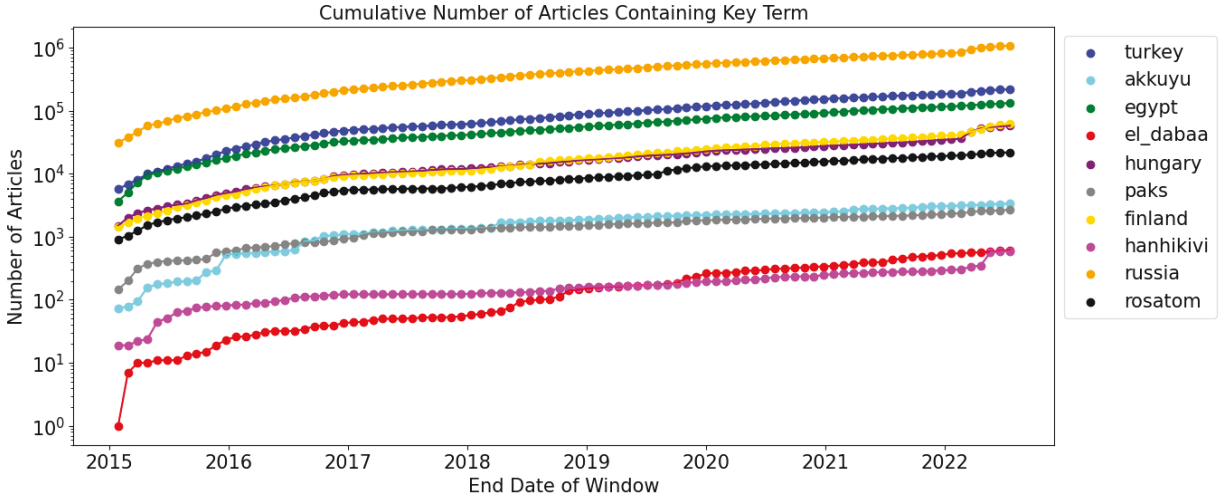


Figure 3-4. Cumulative number of articles containing a country- or reactor-specific key term for the case studies of interest in each embedding window.

Figure 3-5 through Figure 3-8 show the cumulative number of co-occurrences across each embedding window of the country- or reactor-specific key terms with the terms “Rosatom” and “Russia”. Similar to the cumulative number of Tweets/articles, the number of co-occurrences can show points in time with a sharp uptick in the number of co-occurrences which may indicate that explicit new information or instances of potential events have occurred that can lead to contextual shifts. In this way, the co-occurrences for terms of interest can be linked to the contextual inflection point pipeline and provide insights as to whether an implicit or explicit contextual shift may have occurred. Likewise, the number of Tweets/articles can be linked to the co-occurrences, where if the number of Tweets/articles is increasing at a faster rate than the

number of co-occurrences, this can indicate noise (i.e., the frequent occurrence of a term with out-of-context terms) and/or a divergence of the contextual representation of term pairs, which could be reflected in the similarity metrics used in the later stages of the pipeline.

As expected, the general trends in the co-occurrences align well with the number of Tweets/articles containing the terms in each window, where "Turkey" and "Akkuyu" have the highest number of co-occurrences with "Rosatom" or "Russia". Interestingly, "El Dabaa" infrequently occurs with "Rosatom" in early time periods but has a sharp uptick in early 2018 for both datasets. On the other hand, "El Dabaa" has more co-occurrences with "Russia" and both "Russia" and "Rosatom" have more frequent co-occurrences with "Egypt". Referencing Figure 1-1, only initial agreements had been discussed between "Egypt" and "Russia" as of 2015 and the preliminary contracts were awarded in December of 2017 indicating that early co-occurrences were potentially more geopolitically centered than reactor specific. Exploring the Twitter dataset revealed that early uses of "El Dabaa" were not related to nuclear activities, but rather unrelated events around the town of El Dabaa.

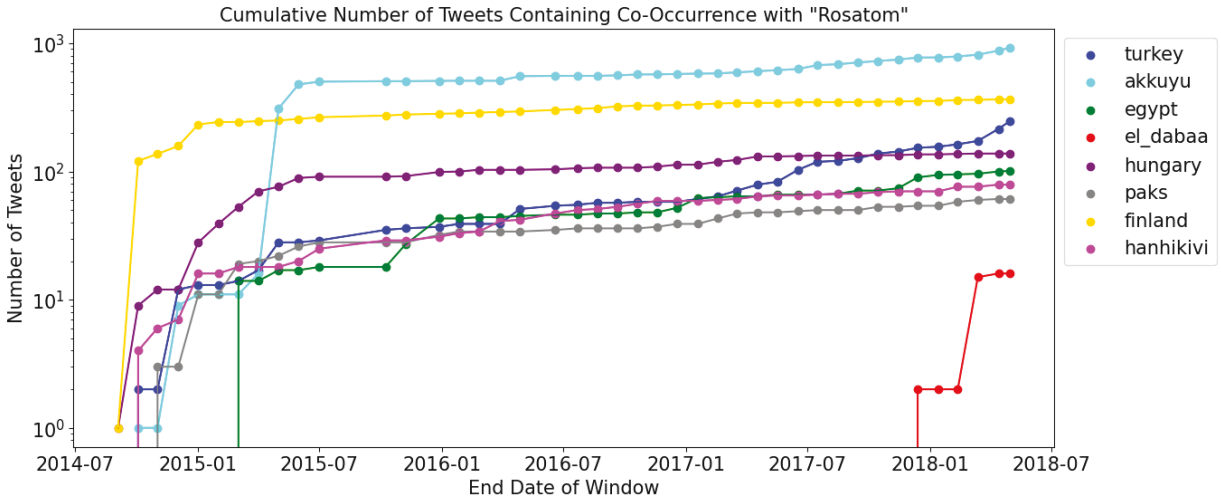


Figure 3-5. Cumulative number of Tweets containing a co-occurring country- or reactor-specific key term and "Rosatom" for the case studies of interest in each embedding window.

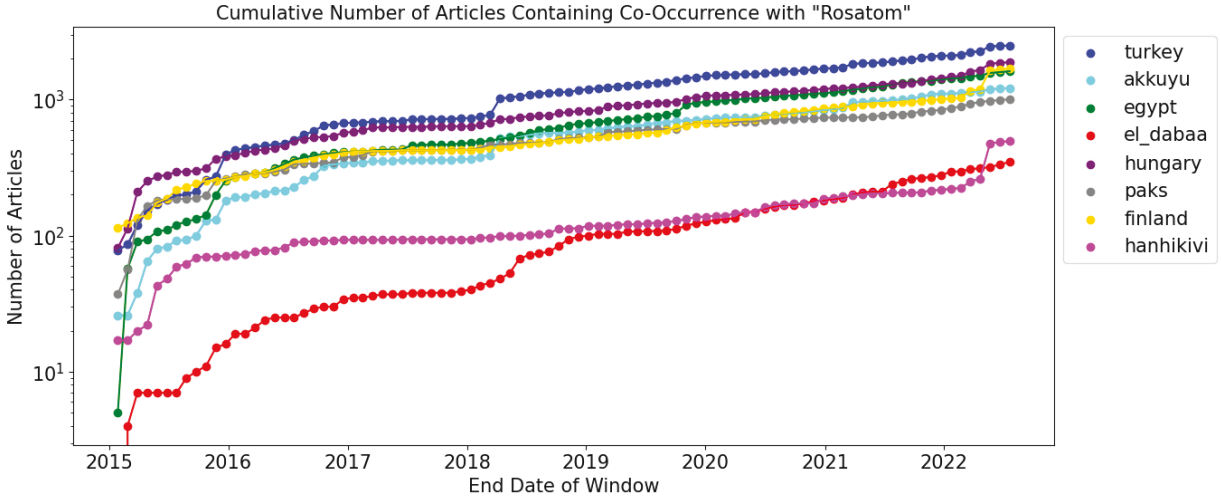


Figure 3-6. Cumulative number of articles containing a co-occurring country- or reactor-specific key term and "Rosatom" for the case studies of interest in each embedding window.

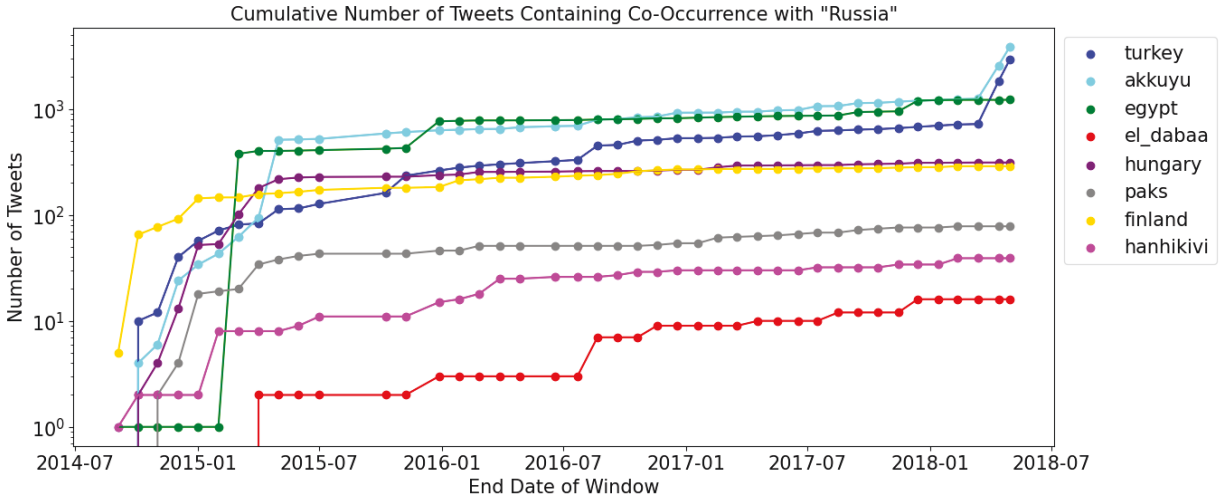


Figure 3-7. Cumulative number of Tweets containing a co-occurring country- or reactor-specific key term and "Russia" for the case studies of interest in each embedding window.

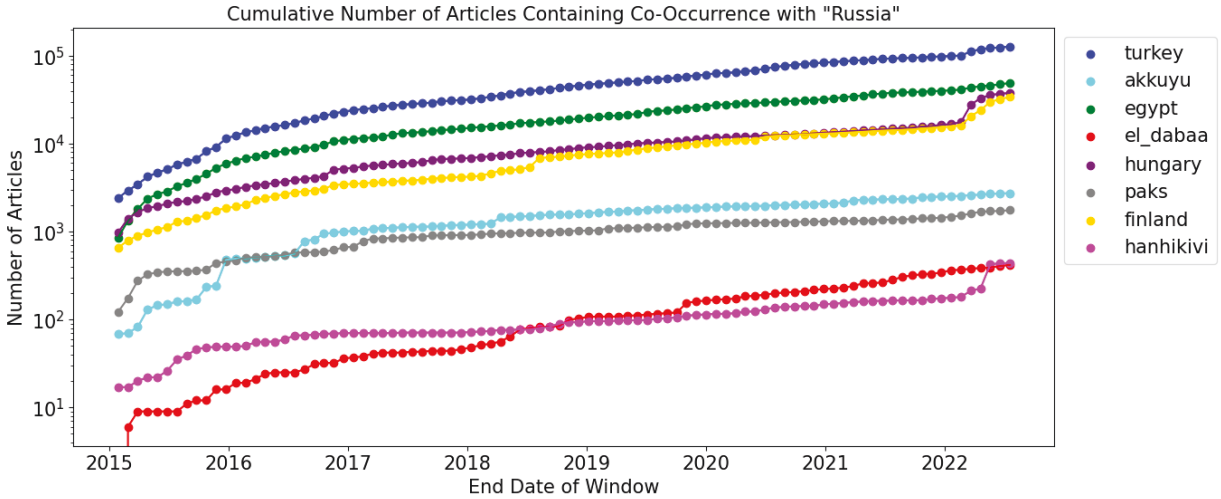


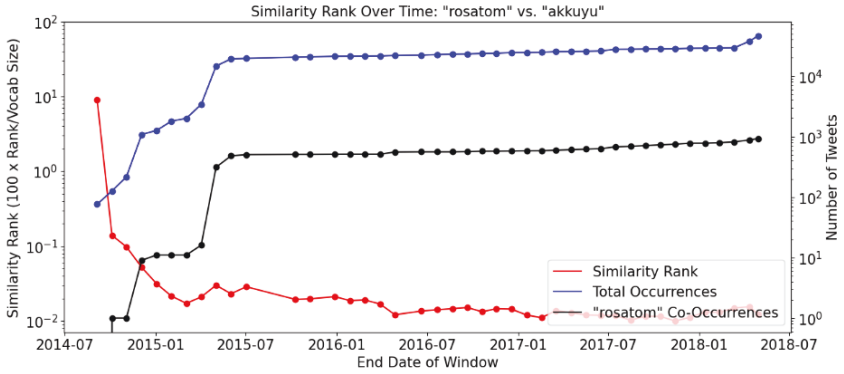
Figure 3-8. Cumulative number of articles containing a co-occurring country- or reactor-specific key term and "Russia" for the case studies of interest in each embedding window.

With each new embedding model, the vocabulary changes through the addition of new words/phrases, or potentially the loss of terms if the windows are rolling. Likewise, the embedding vectors are updated based on the contemporary view of the word/phrase relationships in each corpus. Notably, the embedding vector for a term of interest can shift even as a result of a new contextual representation of unrelated terms and is not necessarily dependent upon a true contextual shift in that specific term caused by an event. For example, at a certain point in time, two entities, "Entity X" and "Entity Y", may be the most similar terms to one another (i.e., as displayed by the cosine similarity). At a later point in time, the relationship between the two entities may remain the same, but with nothing significant happening for either "Entity X" and "Entity Y". If at a later time period, "Entity X" begins a new activity that is widely discussed with a new entity, "Entity Z", the embedding representation may show "Entity X" and "Entity Z" to be the most similar terms at that point in time, shifting the similarity rank of "Entity Y". Such a shift may also result in an implicit increase in the similarity between "Entity Y" and "Entity Z", even if no co-occurrence is shown. In this example, it is possible that there has been no change in the real-world relationship between "Entity X" and "Entity Y", though insights about evolving context around either entity indicate a change has occurred to the information contained within the corpus.

Figure 3-9 shows the similarity rank over time (alongside the cumulative word occurrence/co-occurrence statistics) across the temporal embedding windows for "Russia" and "Rosatom" with the country- and reactor-specific terms for the Twitter embeddings (left) and internet archive embeddings (right). Qualitatively, the rolling windows that were used to train the internet archive embeddings tend to show more oscillation in the similarity rank probably due to the fact that information (i.e., article text) is dropped as the windows roll. Contrastingly, the static growing windows tend to be smoother, as all information is maintained. The rolling versus static window method is a key example of a hyperparameter that should be explored with multiple settings in a real-world application. For example, because no information is dropped from the static growing window model, it may require more significant amounts of information to result in a detectable contextual shift. On the other hand, because the rolling window model loses information, it is possible that implicit connections may be lost over time. Given that the entities or event types may not be known *a priori* in a real-time environment, a combination of the two approaches on both datasets may have merit.

Exploring the similarity rank over time shows that there are a variety of qualitative trends. In some cases (e.g., "Rosatom" and "Akkuyu", "Rosatom" and "Hanhikivi", "Rosatom" and "Paks" – all from the Twitter embeddings), there is a high similarity rank across most of the embedding windows, where a high similarity rank is indicated by a lower number (e.g., "Akkuyu" is primarily ranked within the top 0.1% of the vocabulary with respect to similarity to "Rosatom"). A trend like this might indicate that there is a steady flow of events that are occurring (i.e., frequent discussion about the two entities) across all time periods, all in a similar context. While not necessarily an indicator of change, it demonstrates a strong contextual relationship that may merit exploration to understand the trajectory of events/activities that are occurring. In other cases, word pairs may show periods of time with high similarity rank and periods of time with lower similarity rank. For example, looking at the Twitter embeddings, "Turkey" is initially ranked within the top 10% of the vocabulary with respect to similarity to the term "Russia", but then increases to the top 0.1% from early 2015 to mid-2016 where it steadily retreats to the top 10%. A similar trend is noted for the Twitter embeddings for each of the country specific key terms (i.e., Turkey, Hungary, Egypt, and Finland) when paired with "Russia". This trend indicates a period where a potential event occurs that brings the two terms into close similarity. However, given that country names are broad in context (i.e., countries are involved in many different activities outside of civil nuclear power), the high similarity remains temporarily, and as new events enter the models, the embedding vectors drift. This behavior is also shown by the internet archive embeddings, though the high similarity period tends to be shorter in time. Hence, these types of temporal profiles can potentially provide key time markers for new events. The final qualitative behavior that is shown is that of "Russia" and "El Dabaa", where the similarity is generally increasing across the entire timeline of the data corpuses. In this case, one might expect to see increasing volumes of information over time that are bringing the two terms into higher similarity (i.e., an activity is ramping up).

Coupling the trends in the similarity rank over time with the word occurrence/co-occurrences that were shown in Figure 3-5 through Figure 3-8 reinforces the trends described in the previous paragraph. For example, the occurrences/co-occurrences of "Akkuyu" with "Russia" or "Rosatom" are fairly steady across time when compared to "El Dabaa", which has more sudden step-increases. Similarly, regarding the Twitter embedding example of "Russia" and "Turkey", a large increase in the number of occurrences/co-occurrences is shown around late 2014 to early 2015 and corresponds with a high similarity rank, which levels off in later time periods. In general, an increase the number of co-occurrences leads to an increase in the similarity, especially when the majority of occurrences are also co-occurrences. Contrastingly, an increase in the occurrences alone can lead to a decrease in rank, as shown by "Hungary" and "Rosatom" in the internet archive example.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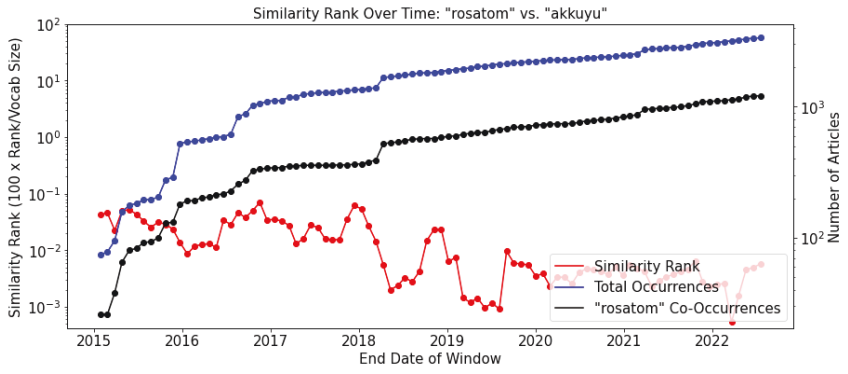
Number of Tweets
End Date of Window
Similarity Rank
Total Occurrences
"rosatom" Co-Occurrences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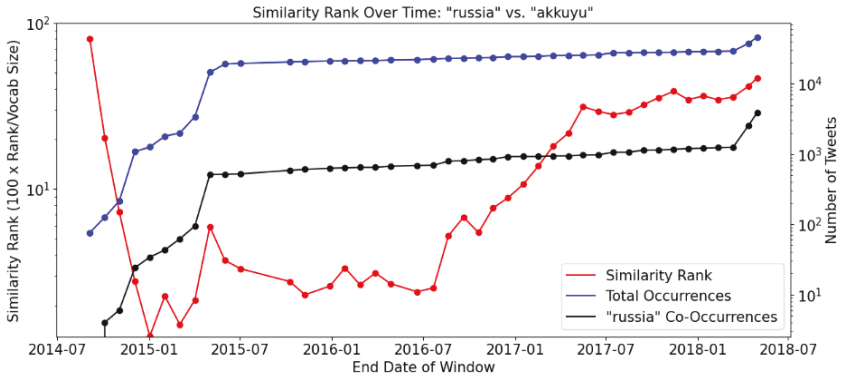
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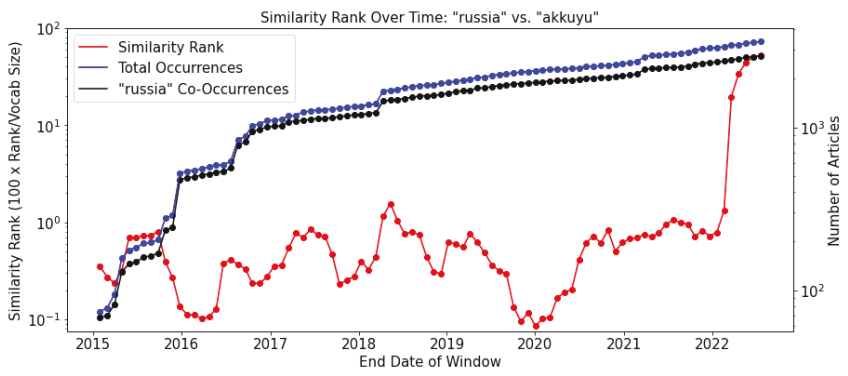
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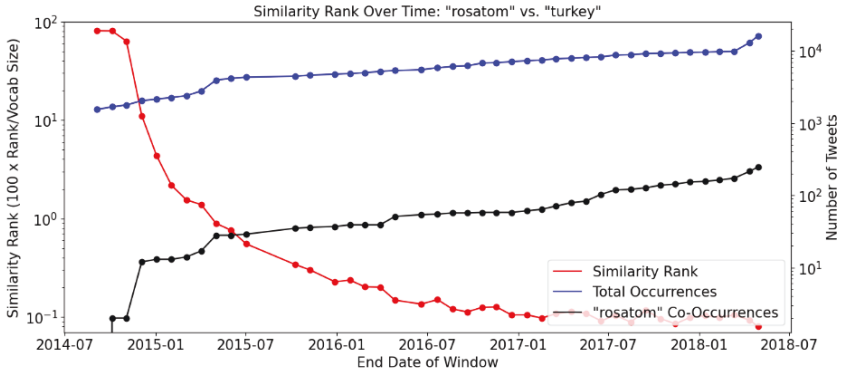
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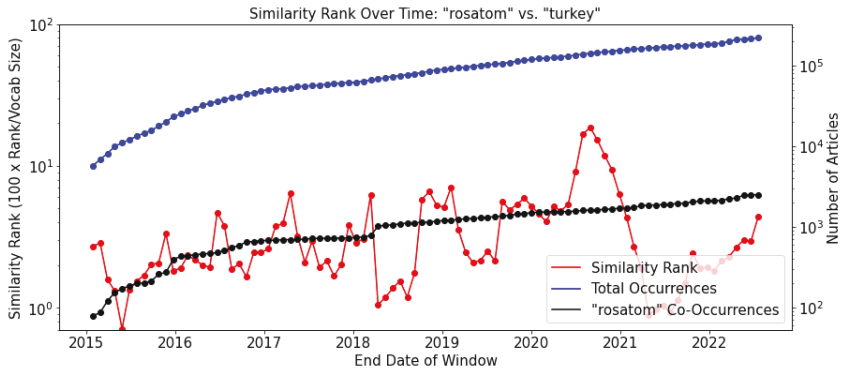
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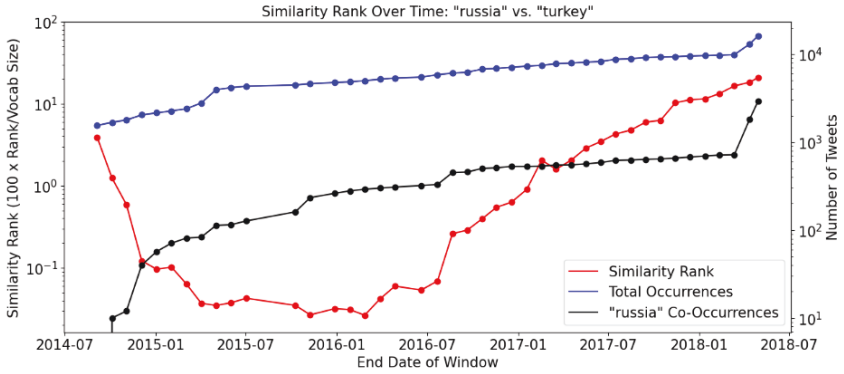
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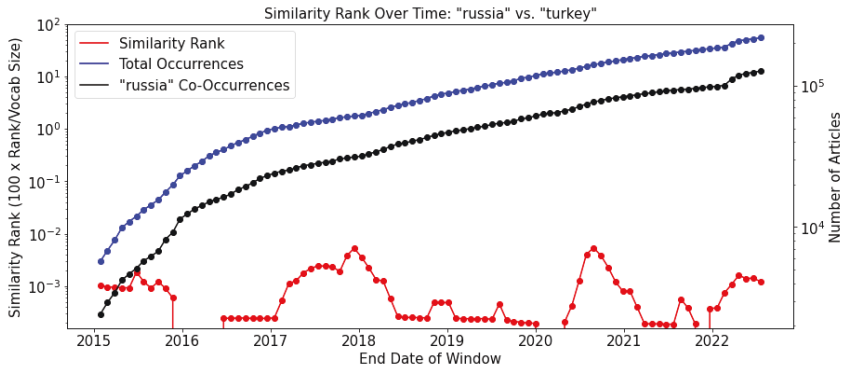
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Similarity Rank
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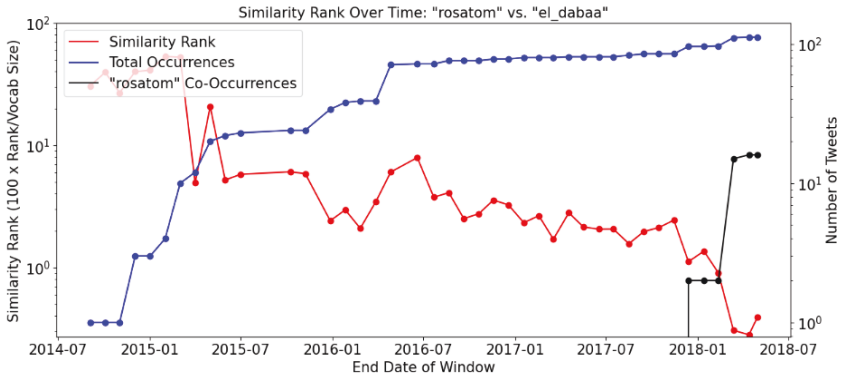
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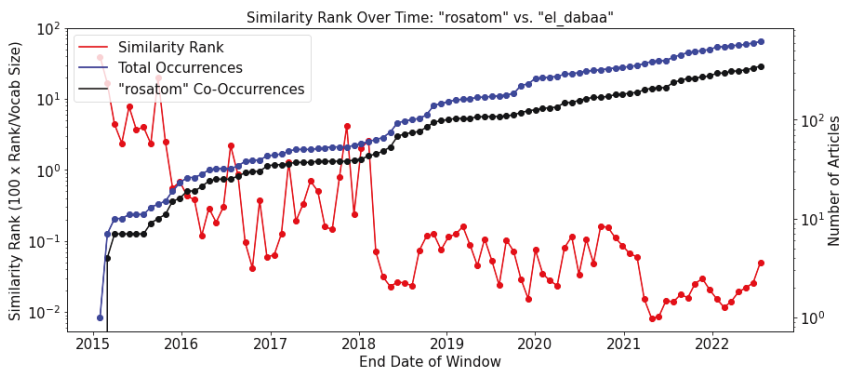
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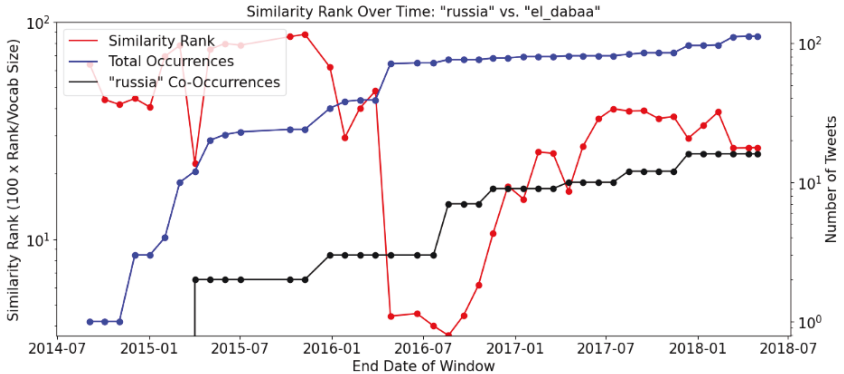
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End Date of Window
Similarity Rank
Total Occurrences
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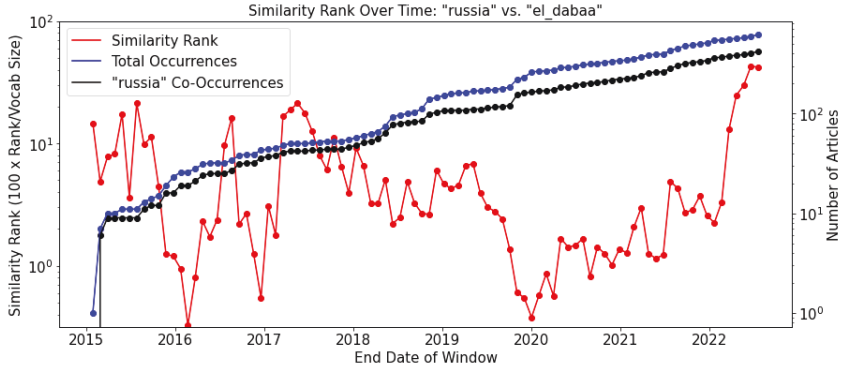
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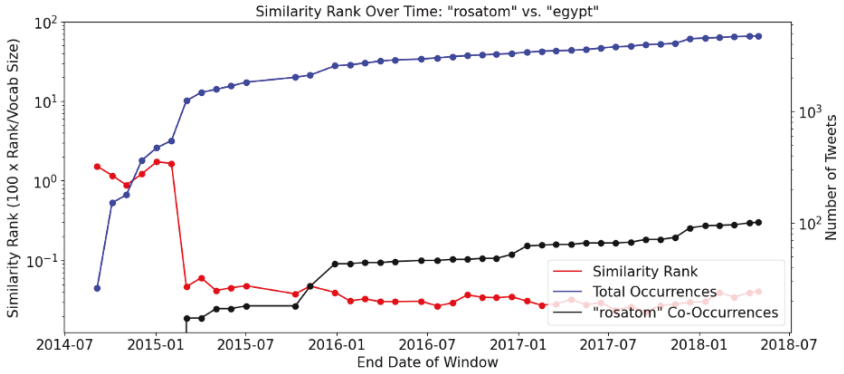
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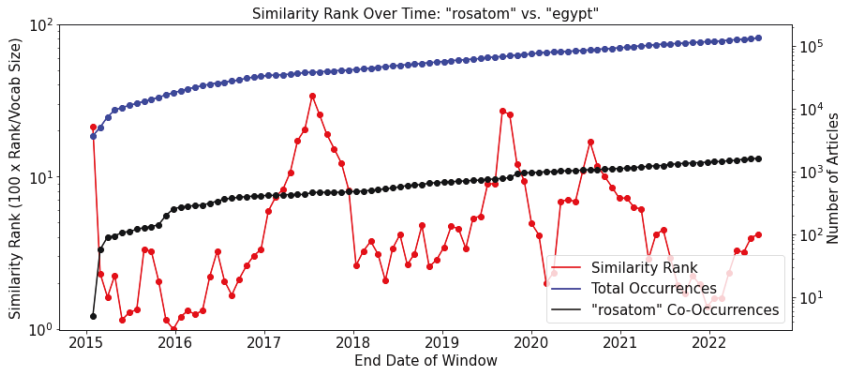
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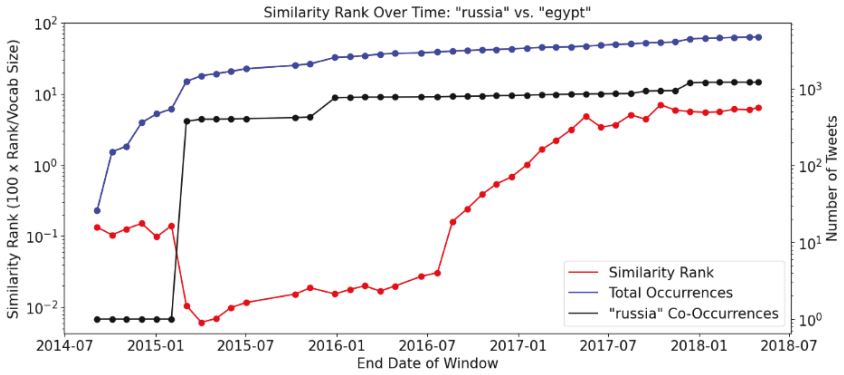
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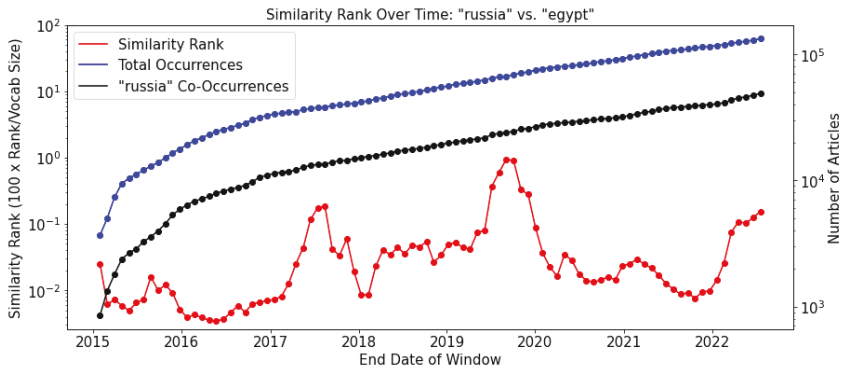
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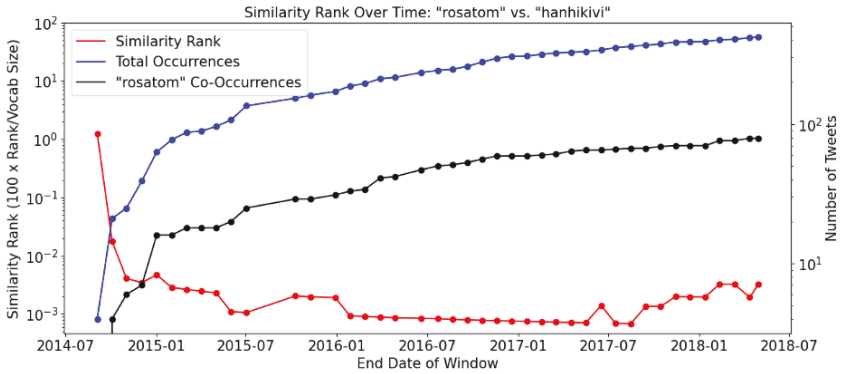
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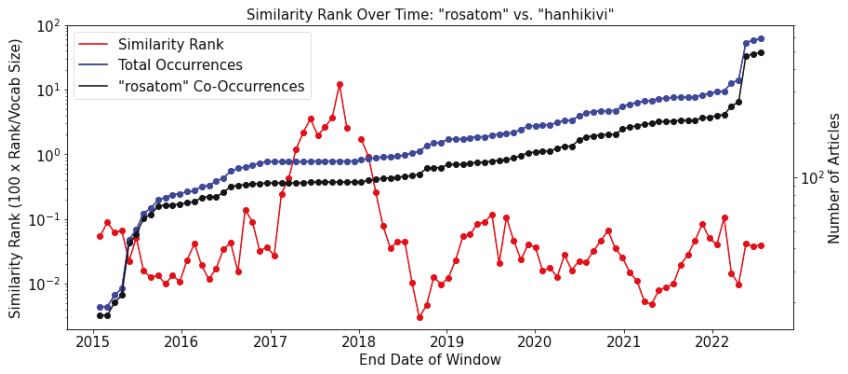
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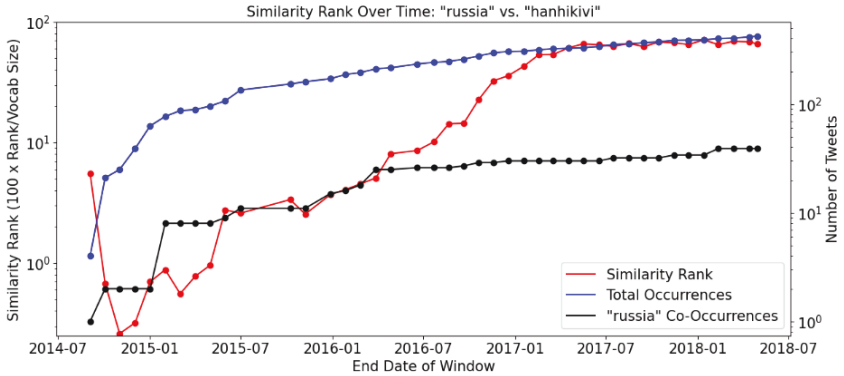
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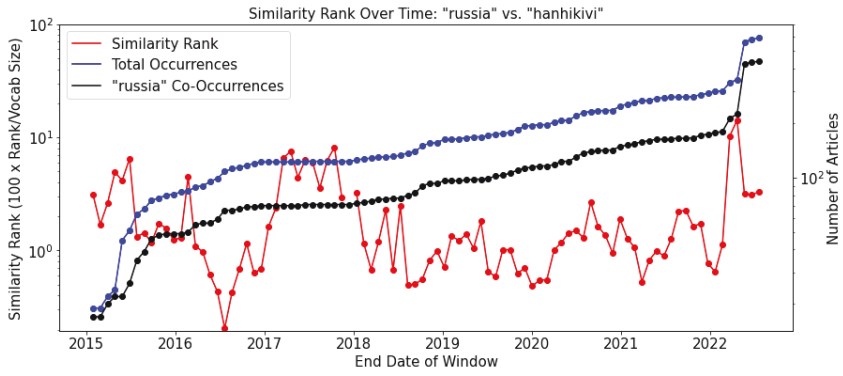
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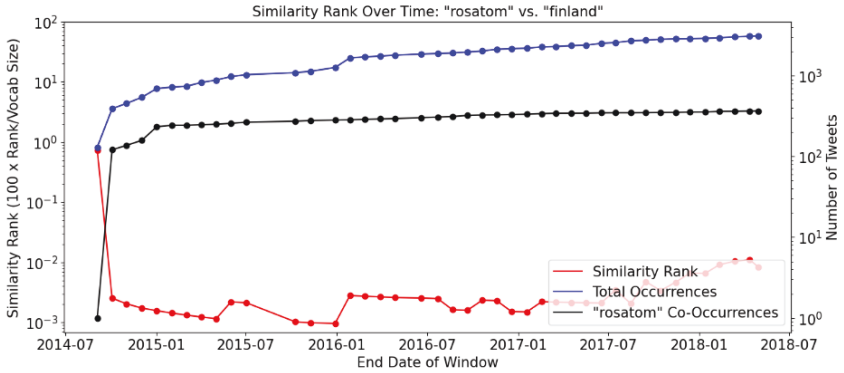
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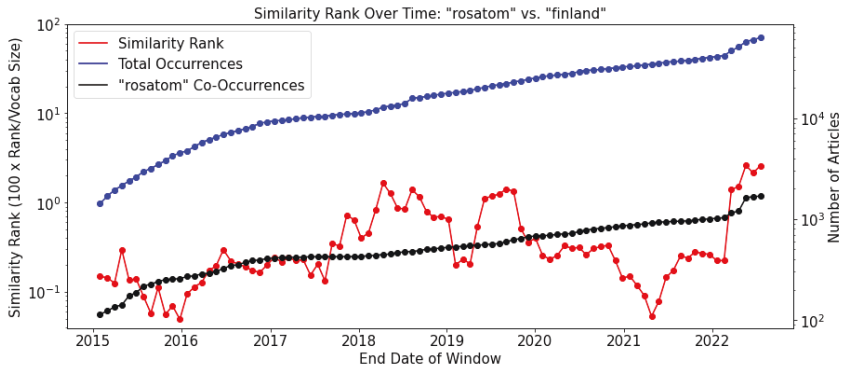
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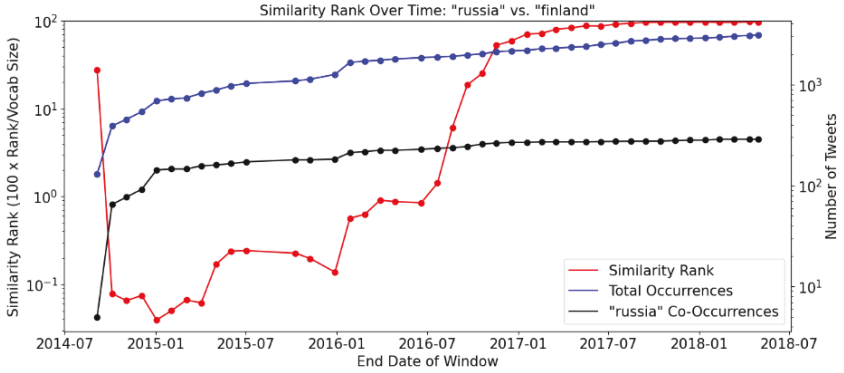
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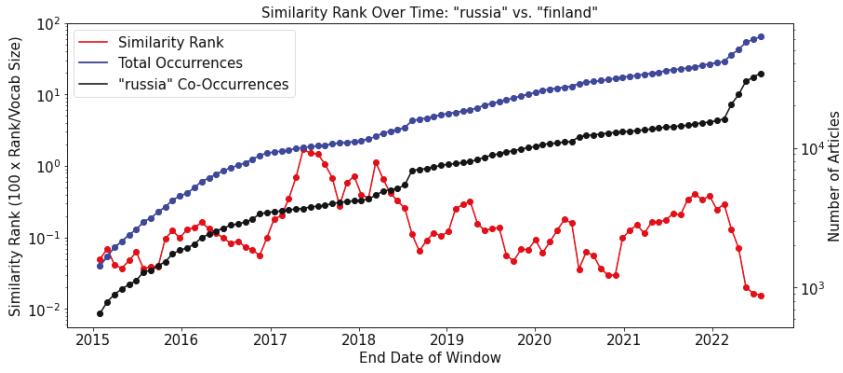
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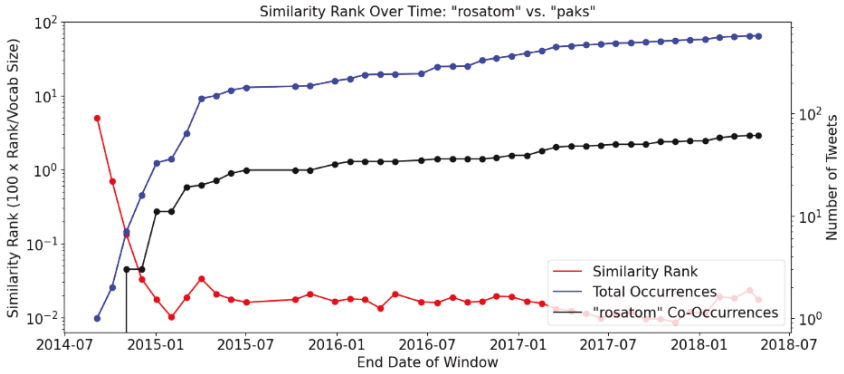
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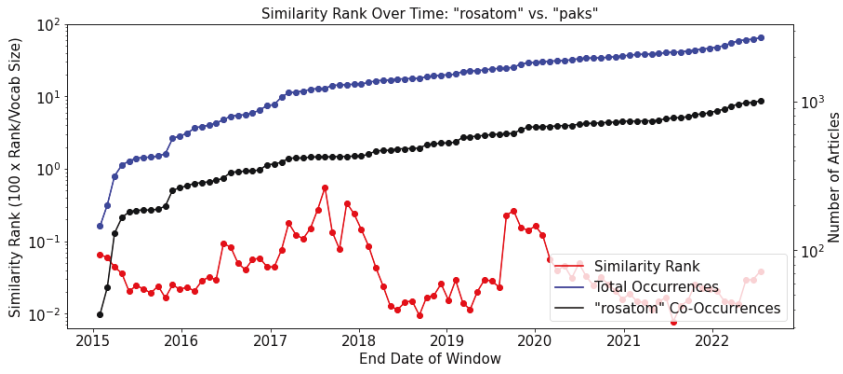
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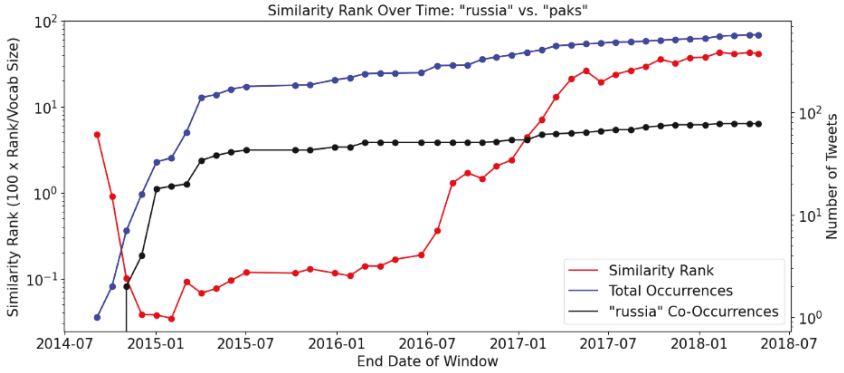
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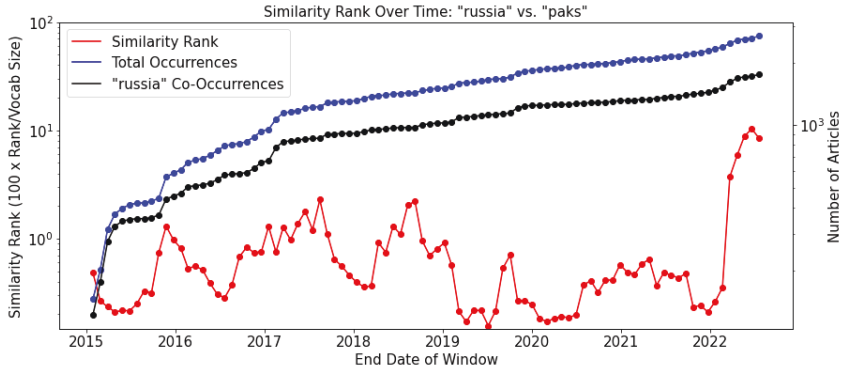
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Similarity Rank
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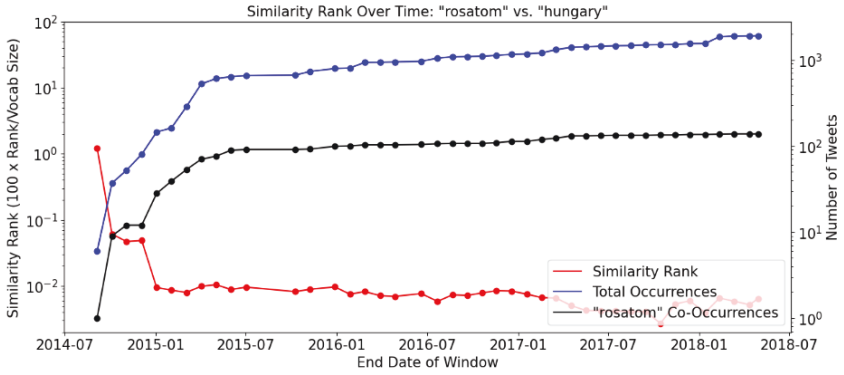
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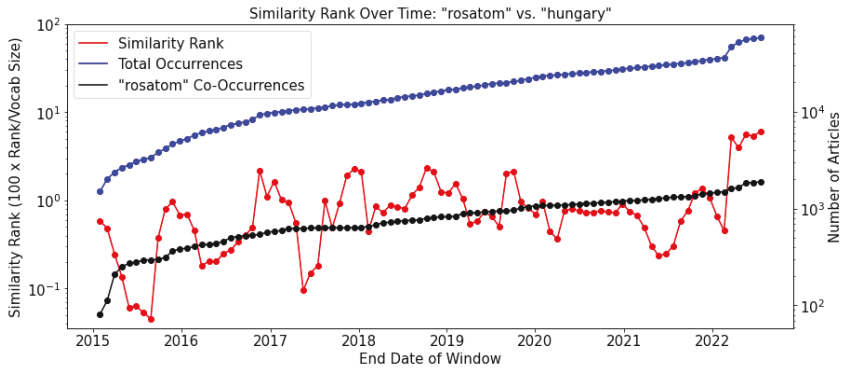
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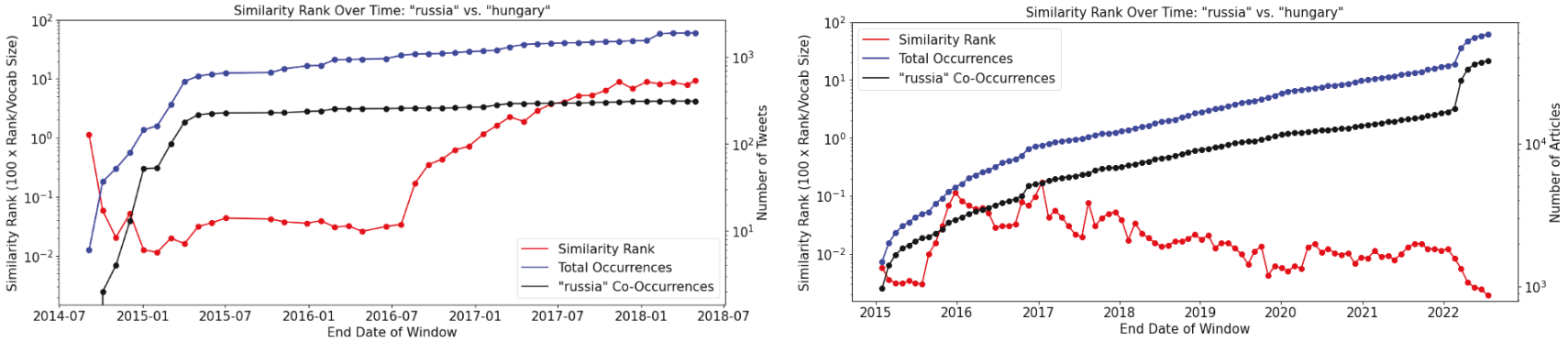

Figure 3-9. Similarity rank over time and cumulative occurrences/co-occurrence statistics for "Russia" and "Rosatom" with respect to the country/reactor-specific terms in the case studies for the Twitter embeddings (left) and internet archive embeddings (right).

The contextual inflection points were computed for each data source and are shown in the contextual inflection point matrices in Figure 3-10 and Figure 3-11. Comparing with Figure 3-9, the contextual inflection points are shown to often correlate to points in time where there are increases in the number of occurrences/co-occurrences of the terms of interest, as well as the similarity rank. For example, the first two contextual inflection points for "Egypt" occur at the embedding models end on 11-2-2014 and 2-1-2015 (which also had an inflection point for "El Dabaa"). In these same time periods, Figure 3-9 shows a sharp increase in the number of occurrences/co-occurrences for the terms.

Having computed points in time where a contextual inflection point exists, the pipeline was used to extract key text (i.e., Tweets, headlines, or sentences) from the corpuses by using cosine similarity matching of the keywords or graph embeddings to the arithmetic mean of all word vectors in Tweets/sentences during the time window of interest. With this approach, entire Tweets or the top 5 most similar sentences from articles were extracted (the number of sentences can be expanded to a user-specified number). The extracted text was compared to Figure 1-1 to identify if these major event milestones were captured allowing evaluation of the pipeline's capability to capture specific events of interest and the lead time of the discovery if a user was purely relying on the inflection points. As shown in Table 3-2, each of the event milestones was captured by the event extraction pipeline with differing degrees of information and perspective from either data source. Importantly, different embedding time window lengths (i.e., a hyperparameter) may be capable of capturing the events at earlier stages and therefore, new techniques are under development for improving the generalizability of this. Notably, the modeling pipeline was applied with all information from the full list of key terms. If earlier lead times are required for specific entities of interest, further noise reduction by excluding off-topic Tweets or articles (i.e., those not containing very specific key terms) may improve the lead times for capturing explicit events of interest. However, the results in Table 3-2 demonstrate good performance with no hyperparameter optimization or noise reduction having been performed and while working on a global scale.

In general, the information from the two data sources provides different vantage points of the events that occur. From Twitter, information is obtained from both personal perspectives and from news outlets, while the internet archive dataset primarily provides more general publication of world events with less opinion. While the perspective differs, significant overlap in the events that could be extracted was identified, which is expected as many Tweets are a summary of a news publication if not pertaining to a real-time update of an activity.

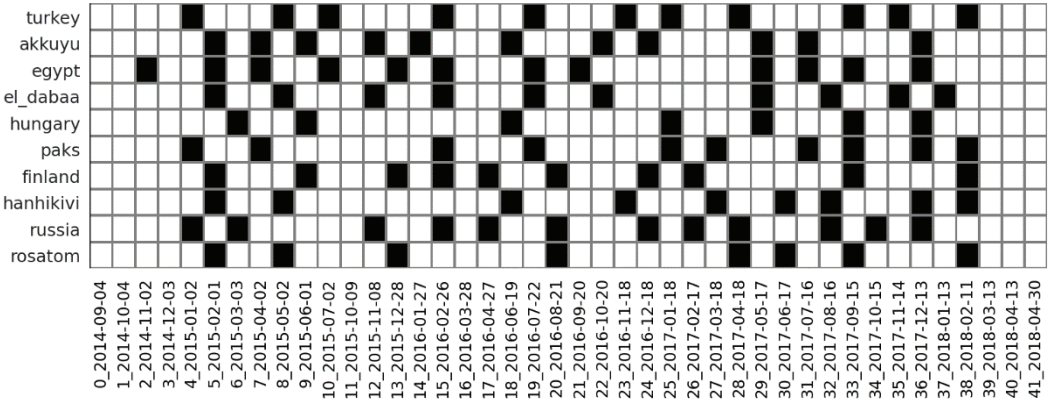

Figure 3-10. Contextual inflection points computed using the graph similarity metrics for the key terms of interest on the Twitter dataset.

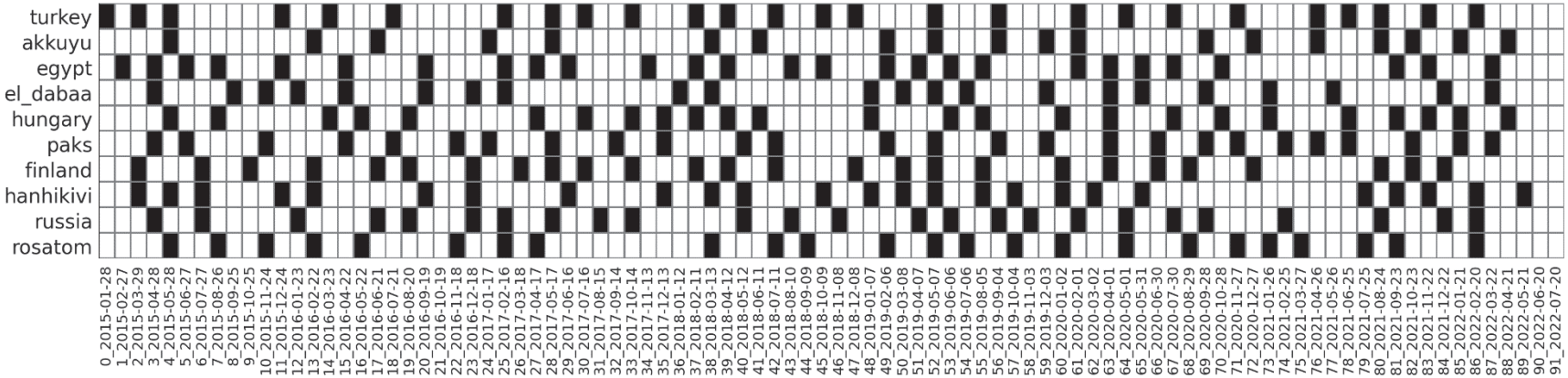

Figure 3-11. Contextual inflection points computed using the graph similarity metrics for the key terms of interest on the internet archive dataset.

Table 3-1. Milestone events along the timeline as shown in listed in Figure 1-1 and extracted text using contextual inflection point timelines for each entity of interest.

Headline Events from Figure 1-1	Earliest Discoverable Inflection Window Date (Twitter)	Extracted Event Tweets	Earliest Discoverable Inflection Window Date (News Articles)	Extracted Event Sentences (Articles)
April 2015: ***Akkuyu*** official launch ceremony	6-1-2015	2015-04-18 Construction of the Nuclear Power Plant in Akkuyu started today.	5-28-2015	2015-04-14 'Ankara - Turkey on Tuesday launched the construction of its first nuclear power plant, a controversial $20bn project slammed by ecologists which Ankara hopes will begin a new era of greater energy self-sufficiency.'
November 2015: ***Egypt*** and Russia sign initial agreement	4-2-2015	2015-02-10 BREAKING! Egypt, Russia ink MoU to build nuclear reactor: Sisi 2015-11-19 JUST IN: Deal Signed For Russia To Build Egypt's First Nuclear Power Plant (AFP)	2-27-2015	2015-02-10 "Russian Deputy Prime Minister Arkady Dvorkovich earlier said Rosatom was ready to participate in Egypt's project to build a nuclear power plant in El-Dabaa in the country's north." 2015-10-29 "It was announced that Russia will build Egypt's nuclear power plant in El-Dabaa after Putin's visit to Cairo in February 2015."
December 2015: Rosatom pauses work on ***Akkuyu*** due to downed fighter jet	1-27-2016	2015-12-20 #nedemeli Birgün's "Akkuyu Nuclear Power Plant Construction Has Stopped"	2-22-2016	2015-12-09 “Russia's Rosatom has stopped construction work at Turkey's first planned nuclear power plant, Turkish energy officials told Reuters on Wednesday, as relations between Moscow and Ankara have soured after the downing of a Russian jet.”
July 2016: Rosatom signs contract with Alstom Power at ***Hanhikivi***	11-18-2016	2016-08-08 Alstom secures turbine generator set delivery contract for Hanhikivi 1 project: Alstom Power…	9-19-2016	2016-08-03 “France's Alstom Power Systems, part of GE, will deliver a turbine generator set for Fennovoima's Hanhikivi 1 nuclear plant”

July 2016: Shutdown of ***Paks*** reactor 1 due to malfunction	7-22-2016	2016-07-14 Hungary says shuts reactor at Paks nuclear plant due to malfunction: BUDAPEST: Hungary shut the first reactor...	11-18-2016	2016-07-24 "N-plant restarts after fault Output of Paks nuclear power plant's Block 1 was back at 100 percent by early afternoon last Friday after a control system malfunction was corrected, a plant official told state news agency MTI."
March 2017: European commission approves construction of VVER-1200 reactors at ***Paks***	3-18-2017	2017-03-06 #EU #Commission clears investment in construction of #Paks2 nuclear power plant in #Hungary with three conditions	5-17-2017	2017-03-06 "The agreement between Budapest and Moscow on joint construction of two additional reactors at the Hungarian Paks nuclear power plant (NPP) is groundbreaking as the sides had overcame all obstacles on the way to the project's implementation, the chair of the Hungarian parliament's foreign affairs committee said Friday."
June 2017: Announcement that Rolls-Royce will supply automation at ***Hanhikivi***	9-15-2017	2017-06-08 Rolls-Royce to supply Hanhikivi 1 nuclear power plant's main automation	3-13-2018	2018-01-16 'Rolls-Royce has been selected as preferred supplier for I&C [instrumentation and control] systems at the VVER-designed Hanhikivi-1 new build project in Finland and has recently signed a contract for I&C licensing support.'
December 2017: Preliminary contracts signed between Rosatom and ***Egypt***	12-13-2017	2017-12-11 #BREAKING Egypt, Russia sign contract to build Egypt's first nuclear plant	1-12-2018	2017-09-06 'Egypt signed an intergovernmental agreement with Russia to collaborate on construction and operation of a plant equipped with four 1200MWe reactors in November 2015.' 2017-12-12 'Rosatom plans to commission the first unit of the El Dabaa power plant in 2026, the company said in a statement after the signing.'
March 2018: Major construction begins at ***Akkuyu***	(End of Database)	2018-03-27 Foundation to be laid for Akkuyu nuclear plant next week with attendance of Erdoğan, Putin: PM… https://t.co/VFDZwJ9sjR	6-11-2018	2018-04-02 "The groundbreaking ceremony for the Akkuyu NPP, which is set to include four units, is expected to be held on Tuesday."

June 2019: Preparation for construction begins at ***Paks***		-	4-9-2019	2019-06-21 'Construction of the first site buildings for the Paks II nuclear plant upgrade project started on Thursday.'
October 2019: Framatome and Siemens chosen as automation suppliers at ***Hanhikivi***		-	2019-10-09	2019-10-02 "Russia's Titan-2 - the main contractor for Fennovoima's Hanhikivi 1 nuclear power plant project in Finland - has awarded a contract to the Framatome-Siemens consortium for the plant's main instrumentation and control (I&C) systems."
June 2020: Construction on ***Akkuyu*** second unit		-	9-28-2020	2020-07-02 'Russian state nuclear corporation Rosatom has begun pouring the first concrete for unit 2 of the Akkuyu nuclear powr plant in Turkey, signalling the start of construction, Turkish Minister of Energy and Natural Resources Fatih Donmez said on 26 June.'
June 2020: Application for construction license submitted for ***Paks***		-	6-30-2020	2020-06-27 'The permission request for building a new nuclear energy power station block in Paks will be submitted to the Hungarian Atomic Energy Authority by Paks II.'
August 2020: Steam generators completed for ***Akkuyu*** Unit 1		-	9-28-2020	2020-06-29 "MOSCOW (UrduPoint News / Sputnik - 29th June, 2020) Atomenergomash, a mechanical engineering division of Russia's Rosatom nuclear power corporation, on Monday announced the completion of steam generators for the first unit of the Turkish Akkuyu nuclear power plant."
August 2020: Core melt trap for ***Akkuyu*** unit 2 arrived		-	9-28-2020	2020-08-28 "Core Catcher for Unit 2 Delivered to Akkuyu NPP in Turkey."
April 2021: Delays in design and licensing announced at ***Hanhikivi***		-	7-25-2021	2021-04-29 'Hanhikivi 28th April 2021 Nuclear power plant construction in north Finland faces delay, increased costs and geopolitical uncertainties.'

June 2021: Applications for ***El Dabaa*** units 1 and 2		-	12-22-2021	2021-07-01 'Rosatom said earlier on Thursday that the Nuclear Power Plants Authority (NPPA) of Egypt handed over the licensing documentation for Units 1 and 2 of El Dabaa NPP construction to the Egyptian Nuclear and Radiological Regulation Authority (ENRRA).'
May 2022: Contract terminated with Rosatom at ***Hanhikivi***		-	5-21-2022	2022-05-02 'Finland's Fennovoima has terminated its contract for the delivery of the Hanhikivi 1 nuclear power plant with Rosatom, "due to RAOS Project's significant delays and inability to deliver the project", a statement said.'
June 2022: Permit issued for ***El Dabaa***		-	6-29-2022 (No inflection point near end of database timeline)	2022-06-29 "'After the authority had ensured that the site is ready for commencing the construction and that no risks shall impact humans, environment or properties, the permit was approved,' the news portal said, citing the statement of the oversight agency."
July 2022: First safety-related concrete poured at ***El Dabaa***		-	7-22-2022 (No inflection point near end of database timeline)	2022-07-22 "'Having its own nuclear energy industry has been a dream for the Egyptian people for more than a half century,' said Egyptian Minister of Electricity and Renewable Energy Mohamed Shaker during the ceremony of the first concrete pouring for the Unit 1 reactor on Wednesday."

A deep dive was performed on events related to the Akkuyu reactor in Turkey to demonstrate the breadth of information that can be extracted using the modeling pipeline. Akkuyu is a particularly noteworthy example case study in the sense that the time period of the datasets captures evolving stages of the reactor development from the initial planning (e.g., environmental impact assessments), and significant milestones in the construction while also nearing the completion of the various reactor units toward the end of the dataset. Additionally, the geopolitical relationship between Russia and Turkey was volatile during this time as a result of conflicts in Syria, Libya, and Ukraine, along with the Covid-19 pandemic, all of which had direct impacts on the developments related to the reactors at Akkuyu. Finally, the Turkish population's perception of the use of nuclear power in Turkey is indicated to be significantly negative, primarily because of concerns regarding earthquake risk and the potential for environmental contamination in the wake of Fukushima.

A summary level of information was generated from the extracted events and is provided in Table 3-2 for the Twitter database from 2014-2018 and Table 3-3 for the internet archive database. A sampling of de-duplicated Tweets and articles that were used to generate the summary are provided in Appendix A and Appendix B. As the team explored events of interest that were extracted, which was performed by using the contextual inflection points as a guide for timing, a noticeable shift could be identified in the corpuses at each period where an inflection point was marked. In other words, a discernable difference in a dominant topic or set of topics could be identified even when persistent topics remained from one time period to another. Notably, substantial detail about the real-world events was obtained, identifying the delivery of various reactor components, protests of the reactors, real-time updates of licensing for various phases, working timelines, funding sources, and on-the-job accidents.

Table 3-2. Summary of information in extracted Tweets during the contextual inflection point timeline from 2014-2018.

Inflection Point Time	Summary of Information Contained in Tweets
2/1/2015	Largely centered around protests and the EIA. EIA was approved in December prior to Putin visit.
4/2/2015	EIA found to be forged. Protests continue. Television advertising starts. Blackouts occur. Groundbreaking occurs. Serious protests occurred with police intervention and protestors locking people inside the facilities.
6/1/2015	Outrage about Putin using the term "genocide" (referring to Armenian Genocide events a century earlier). Continuing protests, primarily online. Energy minister refuses to transfer IAEA report, calling it a "state secret".
11/8/2015	EU calls for Akkuyu to follow laws. Pre-license obtained. Lawsuits from EIA changed laws. Resignation of Director of Akkuyu occurs citing technical flaws. Turkish airspace incident and poor relations between Erdogan and Turkey. Erdogan claims if Russia won't build reactor, someone else will.
1/27/2016	Akkuyu begins campaign in local schools to change view of Akkuyu. Work paused after downed jet. Statements from Putin about fate. Conversation about how much they invested (presuming it could have been done cheaper, as stated by the Japanese) - Putin denies having already spent $3.5b before any major construction.
6/19/2016	Work toward reactor continues. Protesting/anti-nuclear rhetoric. Expropriation decisions made. Russia seeks transfer of 49% of Akkuyu to partners.
10/20/2016	Expert witness in lawsuits. Stated that it is a political decision to continue reactor and Turkish Stream pipeline.
12/18/2016	Partner announced for Akkuyu. Construction resumes. Failure of reactor components in Russia's testing.
5/17/2017	Continued talk of reactor coming online by 2023. More expropriation decisions.
7/6/2017	Licenses granted for electricity production for 49 years. Official award of 49% of shares. European Parliament urges halting of construction.
12/13/2017	Construction officially begins, general conversation and protesting – much less than earlier time periods, but of similar sentiment. Various licenses and work continues.

Table 3-3. Summary of information in extracted articles during the contextual inflection point timeline from 2018-2021.

Inflection Point Time	Summary of Information Contained in Articles
6/11/2018	Ceremonial start of work on Akkuyu. Accelerated delivery of power plant defense systems by Russia. Strengthening ties between Russia and Turkey and talks about Syria. Discussion between Rosatom and Nigeria. Continued protests from Cyprus and Turkish population. 49% of Rosatom's stock in Akkuyu to be sold by 2019. Turkey seeks to double growth.
2/6/2019	Turkey, Russia, and Iran team up economically to combat western sanctions. Russian and Turkish relations strongest in a few years. Continued concerns over Akkuyu safety. Discussions on three nuclear plants being built in the country. Turk Stream gas pipeline continues. Construction permits for Akkuyu second unit received. Putin vows to launch Akkuyu in 2023.
5/7/2019	First pressure vessel completed. 49% of Akkuyu was to be obtained by Cengiz-Kalyon-Kolin, but failed - search for partner continues. European Parliament calls for halt to Akkuyu and suspends admittance. New head of Akkuyu appointed. Foundation for Akkuyu first unit laid and construction permits issued for multiple units. Continued cooperation between Russia and Turkey - High-Level Cooperation Council Meetings. Talks of end to Turkey-Japan cooperation at plant in Sinop. Cracks discovered in foundations laid since groundbreaking ceremony.
9/4/2019	Further discussion on cracks in foundation. Discussions of Russian security forces to be used at Akkuyu. Construction of 2nd unit to start in the fall. Core catcher sent to Akkuyu. Continued discussion over missile defense systems to be used at Akkuyu. Proposed increases in Russian-Turkish investment cooperation. Turkey receives first Russian missile delivery for plant security. First large-scale equipment arrives at Akkuyu. GE involved in supplying turbine generators. Order to accelerate construction. Loans received. Erdogan becomes sole authority over nuclear energy.
12/3/2019	License granted for second unit. Emergency response drills conducted. Trade between Russia and Turkey hailed a success. Funding delays.
2/1/2020	Transmission agreement signed for Akkuyu. Coolant equipment agreement signed with Russian and German firms. Second unit announced to be built in first quarter 2020. Continued consideration of new partner for Sinop plant after deal ended with Japan. First reactor cover welding completed.
9/28/2020	Missile defense systems activated. Work not halted due to Covid-19 as of April 2020. Greece seeks discussions on Akkuyu. Additional equipment shipments received for unit 1. Legal issues arise for Akkuyu due to safety/security concerns. Hiring of engineers at Akkuyu. Foundation of second reactor laid. Steam generators on unit 1 completed. Containment building progressing at unit 1. Speculations about desires for nuclear. Final stages of manufacturing begin for unit 1.
12/27/2020	Reactor pressure vessel arrives at unit 1. Casings for circulation pumps shipped to Akkuyu. License for unit 3 granted - construction to start in spring. Independent construction inspection contract granted. Reactor lid completed for unit 1. Operators' town for Akkuyu under construction. Loans secured for construction. Experimental components deemed qualified for low-pressure turbine rotors.

4/26/2021	Steam turbine delivered by GE. Construction on third unit begins. Explosion at Akkuyu nuclear plant – stated to be from planned drilling and blasting – residential damage reportedly incurred. Akkuyu stated to be fully operational by 2026. Shipments of reactor components from Rosatom subsidiaries. Pressurizer welding completed. Cantilever beam installation complete in second unit. Sustainability loans obtained. First concrete poured at unit 3. Construction on unit 4 announced to begin in 2022. Russia continues education for Turkish citizens to operate Akkuyu. Continued discussion of safety/security. Atommash begins manufacturing of passive safety systems. Russia restricts flights due to Covid, hurting tourism – continues for Akkuyu workers.
8/24/2021	Inspection of equipment by Turkish regulators. More equipment tested, manufactured, and delivered. Reactor pressure vessel installed at unit 1. Third tier of inner containment installed. Continued discussion on environmental impact assessment legal issues. Assembly of unit 1 to be completed by year's end. Construction license for unit 4 to be obtained by year's end.
10/23/2021	Equipment manufacturing, shipment, receipt. Unit 1 to be completed by May 2023, but also indications that it can be opened in 2022. Conversations about Turkish and Russian involvement in Ukraine. Russia to potentially help build other reactors and execute on other defense projects in Turkey.
12/22/2021	License obtained for 4th unit. Further talk of Russia building two more plants. Incident involving fire from blow transformer and reported that three workers have died during construction. More lending secured. Components received and construction implemented. Discussion of earthquake safety.
4/21/2022	More discussion of Russian-Turkish relations and impacts to Turkey amidst conflicts in Ukraine. Reactor pressure vessel delivered for unit 2. Waste handling systems delivered. Discussion of how Ukraine conflict will impact Russian nuclear developments worldwide. More Turkish students receive diplomas in Russia, trained to operate power plant. Welding of main circulation pipeline begins at unit 1. Sanctions on Russia over Ukraine bring uncertainty for construction of Akkuyu – Turkey does not impose sanctions.

4.0 Conclusions

The existing modeling pipeline was applied to extract events of interest related worldwide state-sponsored civil nuclear power. The pipeline proved successful at identifying key event milestones for various case-studies related to Rosatom's international civil nuclear power activities. The deep dive analysis on the Turkish Akkuyu reactor demonstrated the level of detail that can be obtained using the modeling pipeline and was generated in a matter of hours for an information database that spans eight years, proving the utility for research or potentially a real-time event extraction tool. Noteworthy is the ability to be updated in near real-time with the most current information while simultaneously evaluating its importance in the historical context, processing millions of Tweets/articles for a single analysis. This approach integrates short term events with long-term event memory in a transparent manner, allowing for deep inspection, identifying patterns, understanding and summarization of information to put relevant information in the hands of decision makers. With near real-time analysis capability, the effectiveness of decisions can be monitored, providing a mechanism for adjusting responses as events are unfolding. In the second year of the project, the team will prioritize automated summary generation and the extraction of maximally relevant and minimally redundant information when contextual inflection points have been identified while further testing and perfecting the base algorithms and the analysis response speeds. These advancements will be critical as the scale of automated text generation by tools such as ChatGPT, recently released in the wild, proliferate to the point of significantly effecting the nature and extent of publications.

5.0 References

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Appendix A. Example Event Tweets: Akkuyu (2014-2018)

Table A-1. Example event of interest related to Akkuyu extracted from the Twitter corpus.

2014-08-06 Akkuyu EIA report hides earthquake risk http://t.co/jQlNBEKRX3
2014-09-12 4 Transmission Lines to be Established for Akkuyu http://t.co/Arn67McHc2
2014-09-16 #Akkuyu Nuclear Power Plant and Energy Transmission Line EIA Information Meeting could not be held due to protests ;) http://t.co/CriMKd338P
2014-09-18 The excavation works of Mersin Akkuyu nuclear power plant have been completed. http://t.co/8PFZ0ao5O5
2014-09-30 W. N. N. Core catcher for Akkuyu: Russia has designed an advanced core melt trap, or core catcher, for the Akk... http://t.co/fehCXkdHwM
2014-10-10 The first digging in Akkuyu is in March or April http://t.co/YqXnZmZl77 #TRTHaber
2014-10-25 Akkuyu NPP EIA Report made public
2014-11-03 Russians demanded tax deduction for Akkuyu Power Plant's construction materials! 03-11-2014 http://t.co/zPLiFsUgG5
2014-11-06 Born Sahir from the Cyprus Green Peace Movement: Cyprus, 80 km from Akkuyu, will be affected by the slightest radiation leak.
2014-11-04 I made my personal applications against Akkuyu to the Ministry of Environment. Do it too. Letters are available at @Greenpeace_Med. http://t.co/jYsXoEreRr
2014-11-08 The paradise in Mersin Akkuyu is our land. We will not allow the government to make rent areas. Interpress Media Monitoring Center - 1940 http://t.co/l3EB6r1pz6
2014-11-10 At Akkuyu Nuclear Power Plant, which is planned to be built in Mersin, a reactor that has never been tried before will be tried! It's scary to even think about!
2014-11-11 Appeals Against Akkuyu Nuclear Power Plant Filed http://t.co/Sd6fxuP0Gk http://t.co/NUtrsgATgG
2014-11-19 Acceleration of Akkuyu and a trade agreement of 100 billion dollars will be made at the Turkey-Russia High Level Cooperation Council on December 1
2014-11-21 #TURKEY. Putin visits to discuss #Akkuyu nuclear power plant construction http://t.co/nSd51SDkEg
2014-12-01 Akkuyu NPP received EIA approval! The approval was announced on the day when Putin arrives and Putin will talk about "energy cooperation" in Turkey http://t.co/PRSXbM7XJ1
2014-12-03 The government begins negotiations for the 3rd nuclear power plant to be built after Akkuyu and Sinop. let's take notes
2014-12-03 Akkuyu Nuclear Power Plant Technical Evaluation Report Has Been Published; http://t.co/MgZ6NEoKrT @radikal @serkanocakkk @Elifince @melisalphan
2014-12-04 DSP Chairman Masum Türker Has the Russians been promised a base in exchange for the Nuclear Power Plant Akkuyu? http://t.co/mvUOPieBTx
2014-12-25 The Russian Share in the Akkuyu Nuclear Power Plant cannot be reduced below 50% and when it is expropriated, Russia considers it a cause of war. @BugunTV
2014-12-31 Lawsuit filed for cancellation of Akkuyu EIA report - http://t.co/UBMxBtG72g http://t.co/Xcxxrbn8D9
2015-01-12 @melisalphan @ARIFCANGI @YesillerSol Akkuyu individual objections to the EIA report were not taken into account. Reports prepared with fake signatures!
2015-01-12 The engineers who were said to have prepared the nuclear power plant report in Akkuyu were not even working there at that time!
2015-01-17 9 bids were received for the “Turnkey Project Design-Construction Work of Akkuyu NPP Marine Hydrotechnical Structures” https://t.co/jetzFd2zZN

2015-01-17 Interesting! The Russians announced that the Akkuyu Nuclear Power Plant would cost $20 billion.http://t.co/DERXmpOXpb The Minister of Energy says 22 billion
2015-03-13 Russia Spent $3 Billion for Akkuyu Nuclear Power Plant - Energy Hub http://t.co/DoSA8Jairc http://t.co/xhB3LSw151
2015-03-19 Akkuyu Nuclear GM Akhundov: We will get ahead of other countries in nuclear http://t.co/CyTP0SBAbt
2015-03-23 They shamelessly advertised a nuclear power plant. They shamelessly used children. And with bicycles associated with environmentalism! #Akkuyu
2015-03-24 Permits And Finances Delay Akkuyu Nuclear Power Build http://t.co/ScACIHdVHK
2015-03-31 All these power cuts are an effort to tolerate nuclear energy and a fragment of Akkuyu's infrastructure.
2015-04-08 Cengiz Holding to build marine structure at Akkuyu plant... http://t.co/khesxF0CAq
2015-04-10 First Groundbreaking for Akkuyu Nuclear Power Plant http://t.co/krJhj9MQyK
2015-04-12 Construction of Akkuyu Nuclear Power Plant to start on 14 April
2015-04-13 Kiriyenko: Despite the financial difficulties in Russia, necessary resources were obtained for Akkuyu.
2015-04-13 A groundbreaking ceremony will be held within the scope of the Nuclear Power Plant installation in Akkuyu. Mersin NKP on Tuesday, April 14... http://t.co/efgHX9eAQ9
2015-04-14 The groundwork will be laid before the lawsuit filed against the EIA report is concluded. The legal process for #Akkuyu is not over yet.
2015-04-14 Turkey: Anti-nuclear protesters in Mersin/Akkuyu locked groundbreaking ceremony participants in the construction area http://t.co/PgOXBukZoE
2015-04-14 The foundation of the hydrotechnical facilities of Akkuyu Nuclear Power Plant was laid
2015-04-15 Five thousand Russians will work in Akkuyu. This number of people will be provided with employment and accommodation. Ayşenur Arslan
2015-04-15 Kirienko told Anadolu Agency (AA) that the nuclear fuel to be used in the Akkuyu Nuclear Power Plant will not be disposed of directly.
2015-04-17 The pilot in the Akkuyu ad: I've been tricked http://t.co/9UFwA4R89t
2015-04-21 'Russia is given a military base in Mersin' http://t.co/FWMCY0Z4I2 Electricity, which is 4-4.5 cents per kilowatt hour, will be sold for 12.35 cents from Akkuyu
2015-04-19 Used nuclear fuel from Turkey's first nuclear plant, Akkuyu, to be sent to Russia to be re-processed http://t.co/CPd689QPJd
2015-04-20 Turkey leaves the land in Akkuyu to the Russians free of charge. Russia is given a military base in Mersin http://t.co/pBJ3jw3Qsv
2015-04-24 Putin said "Armenian Genocide". It will probably cancel Russia's Akkuyu Nuclear Power Plant business. They had boycotted France in the past.
2015-04-24 Chamber of Environmental Engineers: Akkuyu's Nuclear Wastes Will Be Stored in Earthquake Zone for 7 Years http://t.co/acwMPEj4hB http://t.co/YBf1EFLtbc
2015-04-27 The state's share in Akkuyu is 25 percent http://t.co/KnlxeAJay5
2015-05-06 Akkuyu Power Plant is also built with the build-operate-transfer model http://t.co/7FIjjdHUFg
2015-05-07 The Akkuyu report of the International Atomic Energy Agency requested by the Ministry of Energy, Mersin 1st Administrative Court... http://t.co/dx7O5bHH6u
2015-05-07 Minister Taner Yıldız stated that with the electricity to be produced at the Akkuyu Nuclear Power Plant, 7.2 billion dollars less natural gas bills will be incurred annually... http://t.co/bs2HclKSvV
2015-05-07 The report on the Akkuyu Nuclear Power Plant, prepared by the International Atomic Energy Agency, is not disclosed on the grounds that it is a "state secret".

2015-05-21 2 nuclear power plants with 4,800 MW power in Akkuyu and 4,480 MW power in Sinop. #TheyTalk toAkPartiMaker
2015-05-22 Where is Akkuyu Nuclear Power Plant being built? On the still active Ecemis and Kozan faults, which caused the collapse of 10 great ancient cities in the past.
2015-05-25 PRESIDENT ERDOĞAN said, "THE FOUNDATION OF AKKUYU'S PORT PROJECT WAS LAUNCHED LAST MONTH... WE NEED 120 BILLION DOLLARS OF INVESTMENT UNTIL 2023
2015-06-01 The government says the 2014 IAEA report is out of date. So you are trying to build a power plant in Akkuyu with the ground license of 1976? #No to Nuclear
2015-06-01 The report on Akkuyu NPP, prepared by the IAEA and hidden from the public, was published in Hürriyet today. Details: http://t.co/dFWqngDlTE
2015-06-02 According to the statements in the #hersey program at #Cnnturk, the foundation of Akkuyu Nuclear Power Plant has not even been laid, thankfully. Only the foundation of the port has been laid.
2015-06-09 Russia to sell 49% of Turkey's Akkuyu nuclear project shares in 2016 http://t.co/x162bea7ZO
2015-06-08 #Akkuyu will #showcase in 2016: Russians will receive troops at Akkuyu Nuclear Power Plant… http://t.co/aPcYfI4wfM
2015-06-11 The European parliament opposed the construction of the Akkuyu nuclear power plant. Even if it is done, he wanted the Greek Cypriots and Greece to be consulted :))
2015-06-19 Baku: Putin & Erdogan discuss the construction of the Turkish Stream gas pipeline and the Akkuyu nuclear power plant http://t.co/GrPBZ9MjqE
2015-06-20 EU calls to Turkey to 'follow the law in Akkuyu'
2015-06-25 EMRA/YILMAZ: WITH THE DECISION OF OUR BOARD, AKKUYU NÜKLEER A.Ş. FROM TODAY, 36 MONTHS PRE-LICENSE HAS BEEN GRANTED.
2015-06-29 For example, the cost of the Akkuyu nuclear power plant was said to be 22 billion dollars, but the Japanese announced it as 16 billion. 6 billion always himmet 😉 @necerrahoglu
2015-07-03 Hydraulic engineering facility contract signed for Akkuyu plant - World Nuclear News http://t.co/iEp6wD7edy
2015-07-06 The Constitutional Court annulled the bag law that was enacted to exempt projects such as the 3rd airport, 3rd bridge and Akkuyu Nuclear from the EIA process.
2015-07-06 Quiet signing ceremony at Akkuyu Nuclear! | Chp Agenda http://t.co/LmlB9dbItR
2015-09-03 Akkuyu Nuclear Zone Manager Faruk Uzel resigned, saying the project is full of technical flaws.Description:http://t.co/sgkHLyu6bA http://t.co/shHU21yhtf
2015-09-30 #News Russians have spent $3 billion so far: Akkuyu Nuclear Power Plant (NGS) AŞ General Manager Fuat ... http://t.co/O0ndOj1yDk #Turkey
2015-09-30 The start of Akkuyu was delayed from 2013 to 2015; construction has not started. Now the end date has been moved from 2020 to 2023. http://t.co/JRO71rNvwg
2015-10-05 If we look at the Turkey-Russia agreements, we have blue stream, south stream, samsun-adana pipeline, mersin akkuyu nuclear power plant agreements.
2015-10-07 Erdogan has sorted our cards against Russia: Akkuyu power plant and gas. (We are 60% dependent on Russia. How will this be?) http://t.co/DrgzliJ4gT
2015-10-08 Erdogan to Russia: We will buy natural gas from elsewhere, we will have someone else build Akkuyu http://t.co/85zYunkRtA http://t.co/ggaPdEHowu
2015-10-08 We entered into a serious showdown with Russia, moreover, we are in the process of 2 giant projects such as the Akkuyu nuclear power plant and the Turkish Stream gas line..
2015-10-08 Russian crisis has made a new suitor for Akkuyu - Economy News http://t.co/Wj2UUQMZjQ via @haber7
2015-10-08 After Erdogan's harsh exit, Russia's airspace violation and Akkuyu Nuclear statement

2015-10-09 The Japanese Tohsiba aspired to build the Akkuyu nuclear power plant.
2015-10-09 Former Moscow Commercial Counselor @aydinsezer06, who said "Cancellation is difficult in Akkuyu": Turkey should not come to fill http://t.co/aO93v6OUqd
2015-10-14 No problems between Russia and Turkey in construction of Akkuyu nuke plant http://t.co/DP7og64Bdk
2015-10-14 The Igneada Nuclear Project is about the strained relations with Russia in the Akkuyu project, it is necessary to measure its level of seriousness from international politics.
2015-10-16 Do not worry, Russia will add the cost of this unmanned aerial vehicle to the Akkuyu Nuclear power plant. The solution is very... http://t.co/5G5kg16yQF
2015-10-18 Russia soon announces the cancellation of the Akkuyu nuclear power plant project. They attempted a big robbery in our country with Erdogan, they forgot about us.
2015-10-21 Big explosion at Akkuyu Nuclear Power Plant site! https://t.co/eajPnNSvYo
2015-11-12 The construction of the marine hydrotechnical structures of the Akkuyu Nuclear Power Plant, built by Russia in Mersin, will begin in 2016. @AKKUYUNGSAS
2015-11-18 Akkuyu Nuclear Inc. wants to do information work in schools. Join the campaign against #NuclearTales > https://t.co/oaT8APjk7G
2015-11-19 First Reactor of Turkey’s Akkuyu Nuclear Plant to Start Operating by 2022 https://t.co/HtHdHq6VA1
2015-11-20 Missile attack on Ankara, jet attack on UAV Akkuyu in Istanbul https://t.co/wX6qYBuUHU
2015-11-30 1. While looking forward to Akkuyu Nuclear works, the project may slow down due to the problems with Russia. But Russia or any other
2015-12-15 ANKARA, Dec 14 (Reuters) - There is no reason to halt the planned Akkuyu nuclear power plant with Russia, Turkish Prime Minister Ahmet
2015-12-16 CHP shooter: 'The Russians left Akkuyu, what if the power plant was working?' https://t.co/maX5mhGFEt https://t.co/cYq0XtapOo
2015-12-17 PUTIN: In Turkish Stream, if Brussels becomes the guarantor for Turkey, the project will be realized. Turkey has not yet given permission for the Akkuyu project to start.
2015-12-17 Putin: The decision whether to continue the Akkuyu Nuclear Power Plant should only be taken as a result of commercial evaluation
2015-12-17 V.Putin denied allegations that Russia has already invested $3.5 billion into construction of Akkuyu nuclear power plant in turkey.
2015-12-17 Russia will not cancel Akkuyu Project https://t.co/vdu0OvQEMO https://t.co/2POVDdmucG
2016-01-13 Russia Presented 5,000 Pages of Akkuyu Report to TAEK https://t.co/Aac9zLEk1X https://t.co/2cQbKyTTFW
2016-02-04 It was stated that the registration of 3 Turkish students studying in Russia MEPHI within the scope of the Akkuyu Nuclear Power Plant project was deleted due to the decision of the FSB.
2016-02-09 Berat Albayrak: 'Construction will begin in Akkuyu when the zoning works are completed' https://t.co/G7bjxhaxWE https://t.co/NJcyjt80OA
2016-02-10 #MadenMetal Ukraine offers Turkey nuclear energy cooperation: Nuclear power to be established in Akkuyu, Ukraine... https://t.co/rhzdrr14lY
2016-03-18 @garfunkeller it's chinese work for the 3rd nuclear project I guess. It never stays like that, but I hope the akkuyu will lie down.
2016-04-11 Urgent expropriation decisions in the places where the Akkuyu-Ermenek, Akkuyu-Seydişehir, Akkuyu-Konya energy transmission lines will pass are published in the official gazette 10.4.16.
2016-04-11 285 million TL has been allocated for the urgent expropriation of Akkuyu Nuclear! https://t.co/zpwjbv7EGA https://t.co/qbGvNktBH4

2016-04-12 Blog Post: Turkey Approves Land Purchase For Akkuyu Transmission Line https://t.co/MT881quYBy
2016-04-12 Turkey to nationalise grid lines to serve Akkuyu project https://t.co/Dt4upz6kJi https://t.co/BjYMgiUZJP
2016-04-19 Our CB Erdogan: They made a call to stop the Akkuyu nuclear power plant. So what are we going to do with the 135 nuclear power plants in Europe?
2016-04-22 It is clear that uranium, which will need to be imported for Akkuyu NPP, will bring fuel dependency on top of everything #nukleerehay
2016-04-22 Arslan Eyce: There is a pause in Akkuyu, but many thermal power plant projects are also being put into use. #nuclear
2016-04-27 Russians are looking for partners in Akkuyu! https://t.co/3HWvrKWKy8 #news #Economy https://t.co/kqmsTIHFSE
2016-04-27 Russia to transfer 49 percent of Akkuyu Nuclear Power Plant
2016-04-27 Russian State company Rosatam Akkuyu Nuclear Aş put half of the company on sale Cengiz İnşaat is a bidder for shares https://t.co/7YoeUjh4wg
2016-04-27 #Rosatom's plans for the #Akkuyu project in Turkey do not change - Kiriyenko - or maybe @rosatom comes up with the news himself,... https://t.co/RRtllWZbCt
2016-04-28 A subsidiary of Rosatom, the Akkuyu Nukleer project company, may sell its stake in the Turkish Akkuyu nuclear power plant project, which is ..
2016-05-01 AKP gave Russia a large area around Akkuyu as a bribe. Now it's alright (I wonder?)
2016-07-08 Decision of non-prosecution for the alleged fake signature at Akkuyu Nuclear without an expert review  https://t.co/GcBQ7ULN1D https://t.co/X4zEW66ir9
2016-07-26 Economy Minister Nihat Zeybekci: A political decision has been taken for the continuation of the Turkish Stream and Akkuyu Nuclear Power Plant projects. https://t.co/RRE5t6bkFl
2016-08-08 Putin Erdogan talks aim increase trade 100 billion US Dollars and speed up Construction Akkuyu Nuclear Plant https://t.co/T6e5ym3SLg
2016-08-09 Akkuyu can be a strategic investment for Russia's nuclear capital and AKP, it is a strategic resistance issue for the safety of the Turkish people.
2016-08-11 Akkuyu will be given strategic investment status. 90% tax reduction, government support and premium support in the loan, advantages that Akkuyu will benefit from.
2016-09-01 Turkish-Russian joint fund target Akkuyu and Syria https://t.co/XdyBj8c6NB
2016-10-10 With the decision taken by #Russia and Turkey, the 1 year delay lost in Akkuyu Nuclear Power Plant will be compensated and accelerated.
2016-11-07 Erdogan: We are planning to commission Akkuyu Nuclear Power Plant in 2023
2016-11-14 Construction license application planned for Akkuyu in 2017 https://t.co/9CYEHKMpPD
2016-11-14 Partnership talks between Russian Rosatom and Cengiz-Kolin-Kalyon (CKK) for Akkuyu could be concluded by the end of the year.
2016-11-14 49 percent of Akkuyu Nuclear Power Plant project will be transferred to Cengiz-Kolin-Kalyon
2016-11-21 The never-tested VVER-1200 type nuclear reactor was shut down after failure. Russia announced the malfunction 6 days later. #Akkuyu #Mersin
2016-11-21 The reactor to be used in Akkuyu failed while being tested in Russia. "Is Mersin a test board?"
2016-11-26 100 students from Turkey will go to Russia to receive nuclear training and be assigned to Akkuyu Nuclear Power Plant.
2017-03-02 Some sort of construction work apparently begun at Akkuyu in recent months - it has been halted by court order for… https://t.co/5rFtODsBrj

2017-03-08 Putin and Erdogan will discuss Turkish Stream and Akkuyu NPP https://t.co/8YV2gadF2D https://t.co/SXhmoW5lnq
2017-03-09 Russian-Turkish cooperation on Akkuyu to last 100 years https://t.co/8sub3Vj3BY via @VestnikKavkaza
2017-03-12 Construction, production license applications for Akkuyu nuclear power plant submitted https://t.co/qWtKFVmG9C
2017-05-03 Real estates for Akkuyu will be expropriated immediately https://t.co/KMd7UqgezI https://t.co/9zN7kx0uJz
2017-05-04 The tender for water structures of 3 billion dollars (15% of the power plant cost) of Akkuyu NPP was awarded to pro-Cengiz İnşaat https://t.co/m6tK3Oxxqs
2017-05-15 Immovables in the construction of Akkuyu NPP energy transmission lines will be expropriated https://t.co/tONgGTp5Km https://t.co/Sk923tc0rW
2017-06-04 Excavation for the foundation of Akkuyu will begin in July: https://t.co/se3kNZgsVR via @sputnik_TR
2017-06-15 Akkuyu Nuclear A.Ş. has been granted a production license for the Akkuyu nuclear power plant-EPDK - https://t.co/srz59uvbLu
2017-06-15 For Akkuyu Nuclear Power Plant, a 49-year contract has been granted to Akkuyu Nuclear AŞ to enter into force on 15 June 2017. https://t.co/svcRW9zMX9
2017-06-15 A generation license for the Akkuyu Nuclear Power Plant was granted by EMRA to enter into force on 15 June 2017 for a period of 49 years.
2017-06-19 Cengiz-Kolin-Kalyon consortium will own 49% of Akkuyu Nuclear Power Plant. This time fuck folks to their DNA… https://t.co/SxYZYaOlSG
2017-07-06 From the European Parliament to Turkey: Give up the Akkuyu nuclear power plant project. The project may threaten the entire Mediterranean https://t.co/a2YaG8pr7v
2017-07-12 Sputnik Turkey /// Rosatom to prepare a contract for nuclear fuel shipment to Akkuyu https://t.co/7Ec0yKrlaP https://t.co/d3sqK5dlcd
2017-07-13 Rosatom will ship nuclear fuel to Akkuyu https://t.co/4z3SHc2pMN https://t.co/t3VpCLJSSo
2017-08-02 Turkey: Competition for safety systems at Akkuyu nuclear reactors https://t.co/T6KmVhgCnt
2017-09-15 Rosatom plans to start the construction of Akkuyu Nuclear Power Plant in early March https://t.co/5DAXaxCpLj https://t.co/cqnzo6nENG
2017-09-20 Preparatory work has started at the construction site of Akkuyu Nuclear Power Plant https://t.co/xHj3KVoBk0 https://t.co/sWCTM1aGCP
2017-09-20 Russia's Rosatom begins general construction works at Akkuyu nuclear power plant https://t.co/4SqMZqsSLG - AWESOME
2017-10-01 Akkuyu's turbines are procured from Alstom Power Systems, a French company within the General Electric group. https://t.co/f0on3M3paI
2017-10-04 Sputnik Turkey /// The company under Rosatom will produce the equipment of Akkuyu https://t.co/q393XLZKCe https://t.co/Eiot0ujTz0
2017-10-17 License cancellation lawsuit filed against Akkuyu Nuclear Power Plant in Ankara 18th Administrative Court
2017-10-20 Work permit obtained for Akkuyu Nuclear Power Plant https://t.co/FByJLsMVJY https://t.co/VhUQKcpaBd
2017-11-17 Erdogan announced: The foundation will be laid at the Akkuyu power plant by the end of the month
2017-11-30 @W_Nuclear_News Contract signed for delivery of 4 turbine-generator-condensor sets for Turkish Akkuyu nuclear power plant
2017-11-30 Atomenergomash, General Electric joint venture signs Akkuyu contract #nuclear https://t.co/QWlHub6YGt

2017-12-10 The groundbreaking ceremony of Akkuyu Nuclear Power Plant was held: The foundation stone of Akkuyu Nuclear Power Plant… https://t.co/ruvGOiLfLK

Appendix B. Example Events from Articles: Akkuyu (2018-2022)

Table B-1 Example events extracted from the news article database for "Akkuyu" from 2018-2022. The integer value at the beginning of the table entry identifies the inflection window number. The first list contains the date the article was published and the article title. The next nested list gives a list of sentences and the sentence's cosine similarity to the embedding graph vector or word vector for "Akkuyu".

41 ['2018-04-03', "Erdogan, Putin mark start of work on Turkey's first nuclear power plant"] Erdogan, Putin mark start of work on Turkey's first nuclear power plant [["ANKARA (Reuters) - The leaders of Turkey and Russia marked the official start of work to build T urkey's first nuclear power station on Tuesday, launching construction of the $20 billion Akkuyu plant in the southern province of Mersin.", 0.6561674475669861], ['Speaking at a later news conference wit h Putin, Erdogan said the cost of the project may exceed the planned $20 billion for the 4,800 megawat t (MW) plant, part of Erdogan\'s "2023 vision" marking 100 years since the founding of modern Turke y and intended to reduce Turkey\'s dependence on energy imports.', 0.5773703455924988], ['"When al l four units go online, the plant will meet 10 percent of Turkey\'s energy needs," Erdogan said, adding t hat despite delays Turkey still planned to start generating power at the first unit in 2023.', 0.554754674 4346619], ['The plant will be built by Russian state nuclear energy agency Rosatom and will be made up of four units each with a capacity of 1,200 megawatts.', 0.5248417854309082], ["Russian President Vladimir Putin and Turkey's Tayyip Erdogan marked the start to construction, watching by video link f rom Ankara.", 0.457110732793808]]
41 ['2018-04-03', 'Putin says Turkey wants S-400 Triumph missile systems ASAP'] Putin says Turkey wants S-400 Triumph missile systems ASAP [['The two presidents attended the ceremony to launch the construction of the Akkuyu nuclear power pl ant.', 0.5852715969085693], ['Russia has decided to accelerate the supplies of S-400 surface-to-air mis sile systems to Turkey, President Vladimir Putin said after negotiations with his Turkish counterpart R ecep Tayyip Erdogan in Ankara.', 0.35300934314727783], ['President Putin said during the visit that th e implementation of the contract for the delivery of the S-400 was a priority in the military-technical c ooperation between Russia and Turkey.', 0.34492090344429016], ['On Tuesday, April 3, Putin held tal ks in Ankara with his Turkish counterpart Recep Erdogan.', 0.3407664895057678], ['Russia has confir med the decision to speed up the supplies of Russian S-400 surface-to-air missile systems to Turkey, P resident Vladimir Putin announced at the press conference following the Russian-Turkish talks in the T urkish capital.', 0.30389517545700073]]
41 ['2018-04-03', 'Russia, Turkey ties tighten with nuclear project, Syria talks - Kuwait Times'] Russia, Turkey ties tighten with nuclear project, Syria talks - Kuwait Times [["Their meeting in Ankara opened with Putin and Erdogan, via video conference, launching constructi on of Turkey's first nuclear power station in the Mediterranean Mersin region, a massive project that w ill come online in half a decade.", 0.570732593536377], ['"We are realizing a number of strategic proje cts with the Russian Federation," said Erdogan.', 0.4710366427898407], ['The Akkuyu power station - a project costing over $20 billion and heavily disliked by environmentalists - was already launched onc e before in Feb 2015 but then put on hold due to the row over the downed Russian plane.', 0.45551335 81161499], ["ANKARA: Russian President Vladimir Putin yesterday embarked on a two day visit to R ussia's increasingly close partner Turkey to launch the construction of its first nuclear power plant and coordinate policy on the war in Syria.", 0.4223979711532593], ['The project was launched with Erdog an declaiming "in the name of God!"', 0.40291276574134827]]
41 ['2018-04-05', 'Nigeria gears up for its maiden nuclear power plant after agreements with Russian fi rm'] Nigeria gears up for its maiden nuclear power plant after agreements with Russian firm

[['NAIJ.com checks reveals Akkuyu Nuclear Power Plant is the largest joint project between Russia an d Turkey.', 0.5991918444633484], ['Addressing those gathered at the ceremony, President Putin said: " The first power unit of the Akkuyu nuclear power plant is expected to be launched in 2023.', 0.583421 3495254517], ['Giving his remarks, Turkish President, Recep Erdogan, said the 2023 launch of the nuc lear power plant would coincide with the centenary of the Republic of Turkey.', 0.5278204083442688] , ["Last year, the Nigerian government also signed an agreement with Russia's Rosatom - on constructi on and operation of a nuclear power plant and a research center in Nigeria.", 0.5212788581848145], [" After their opening statements, the leaders of the two countries signed off on the start of construction work and a symbolic button was pressed to mark the pouring of the first concrete into the base of the re actor building of power unit 1 of Turkey's first nuclear power plant.", 0.4895089864730835]]
41 ['2018-04-05', 'Nicosia to protest construction of Akkuyu nuclear plant | Kathimerini'] Nicosia to protest construction of Akkuyu nuclear plant | Kathimerini [['Replying to a question about the ceremony for Turkey\'s first nuclear power plant in Akkuyu that wa s held on Tuesday, Prodromou said that the decision for the construction and operation of this nuclear power plant on the southern coast of Turkey "raises concerns for a possible impact in terms of safety b ecause such a power plant in this area affects our country much more than the largest part of the Turkis h territory."', 0.6179633736610413], ['The Republic of Cyprus will make the necessary representations and protests against the construction and operation of the nuclear power plant in Akkuyu, Turkey, gov ernment spokesman Prodromos Prodromou has told the Cyprus News Agency (CNA).', 0.5696696639 060974], ['Cyprus is more concerned than any other country since the power plant will be situated just a few dozen kilometres from its northern coast, Prodromou said.', 0.42219480872154236], ['[Kathimer ini Cyprus]', 0.40206605195999146], ['He argued: "Turkey did not take into account the grave reservat ions expressed by various quarters, nor did it heed the European Parliament\'s call to terminate the cons truction plans since this is a seismologically vulnerable area."', 0.32311490178108215]]
41 ['2018-04-06', "Cyprus 'Concerned' over Nuclear Power Plant in Turkey"] Cyprus 'Concerned' over Nuclear Power Plant in Turkey [['On Tuesday, Turkish leader Recep Tayyip Erdogan and Russian counterpart Vladimir Putin oversaw a groundbreaking ceremony for the 35-billion kilowatt Akkuyu NPP in Mersin, southern Turkey.', 0.5 595837235450745], ['Cyprus will make the necessary representations and protests towards every direct ion against the construction and operation of the nuclear power plant in Akkuyu, in southern Turkey, G overnment Spokesman Prodromos Prodromou has told the Cyprus News Agency (CNA).', 0.55701142 54951477], ['Cyprus is more concerned than any other country since the power plant will be situated ju st a few dozens kilometers from its northern coast, Prodromou said.', 0.4371626377105713], ['Prodrom ou said that the nuclear power plant "raises concerns for a possible impact in terms of safety because s uch a power plant in this area affects our country much more than the largest part of the Turkish territo ry."', 0.41137176752090454], ["Turkey is largely energy-dependent and it is thought the Akkuyu NPP could supply up to ten percent of the country's needs once it is fully operational.", 0.363303482532501 2]]
41 ['2018-04-06', 'Russia capable of constructing Akkuyu nuke alone: Novak'] Russia capable of constructing Akkuyu nuke alone: Novak [["Russia's state-run company Rosatom will solely complete Turkey's Akkuyu Nuclear Power Plant (N PP) project if no investor partners can be found, Russia's Energy Minister Alexander Novak said Frida y.", 0.5719066858291626], ["Russia's State Nuclear Energy Agency Rosatom will build the plant com prising four units and with a total capacity of 4,800 megawatts.", 0.4914341866970062], ["The intergo vernmental agreement for Turkey's first nuclear plant was signed with Russia in 2010.", 0.4797448515 892029], ['Talks with potential Turkish investors for Akkuyu NPP are ongoing, Novak said.', 0.460701 4060020447], ["On March 28, Rosatom's head Alexey Likhachev said he expected that the 49 percent stake sale would be completed in 2019.", 0.4578343331813812]]
41 ['2018-04-22', 'Turkey aims to double current growth by 2023: Erdogan'] Turkey aims to double current growth by 2023: Erdogan

[['The Akkuyu plant, located in the southern Mersin province, boasts four reactors, each with a capacit y of 1,200 megawatts, and will be built by the Russian State Nuclear Energy Agency, Rosatom.', 0.592 5042629241943], ['Erdogan and his Russian counterpart Vladimir Putin launched the construction of t he power plant at a ceremony in Ankara earlier this month.', 0.5776525735855103], ['Erdogan asked.', 0.3492949903011322], ['"This is the rationale behind the moves ranging from the Akkuyu Nuclear Po wer Plant (NPP) to renewable energy, from domestic car [production] to the defense industry," he adde d.', 0.28808557987213135], ['"We need to double Turkey\'s current growth in order to reach our goals for 2023," the Republic of Turkey\'s centenary, President Recep Tayyip Erdogan told the Foreign Econ omic Relations Board\'s (DEIK) general assembly in Istanbul.', 0.27643534541130066]]
41 ['2018-05-03', 'Scientists raise alarm over Turkish nuclear reactors | Kathimerini'] Scientists raise alarm over Turkish nuclear reactors | Kathimerini [['The 18 scientists made their appeal in a letter against the backdrop of an agreement struck by Mosco w and Ankara for the installation of four nuclear reactors in Turkey.', 0.4532565474510193], ['Listing a series of possible consequences, the scientists raised the alarm, saying that "Turkey plans to obtain 1 0 nuclear reactors by 2030."', 0.2978516221046448], ['A team of Greek scientists have called on the g overnment, the European Union, the International Atomic Energy Agency, NATO and other internatio nal organizations to take measures that will halt the creation of nuclear power facilities in the seismical ly active region of Akkuyu in neighboring Turkey.', 0.2531343996524811]]
41 ['2018-05-30', '$100 bln. trade with Turkey attainable: Russian envoy'] $100 bln. trade with Turkey attainable: Russian envoy [["Yerkhov said that bilateral trade between Turkey and Russia started with shuttle trade in the 1990's, but now the sphere of cooperation has expanded to the extent now that huge infrastructure projects are being implemented, including the Turkish Stream natural gas project and Turkey's first nuclear plant - t he Akkuyu Nuclear Power Plant.", 0.5470353960990906], ["Russia's biggest companies have been inv esting in the Turkish economy for a long time while Turkish companies are operating very successfully in the Russian market.", 0.2945418059825897], ["Cooperation and synergy between Turkey and Russ ia is key to reach trade volume target, says new Russian ambassador to Turkey\n\nTurkey and Russia's desire to expand bilateral trade to $100 billion is demanding but an attainable goal that can be realized with the help of mutual investments globally, Russia's new ambassador to Turkey told Anadolu Agenc y on Monday.", 0.26743221282958984], ['"There are very serious and important investment activities f or Ankara and Moscow in our states that are not limited to only the construction sector.', 0.243749588 72795105], ['Speaking in Ankara after attending the 86th Izmir International Fair, which runs between Aug 18 and 27, where Russia attended as a partner country, Alexei Yerkhov hailed Turkey as a "crucia l" trade partner for Moscow in a wide range of areas including the construction sector.', 0.2415524423 122406]]
49 ['2018-08-15', 'Turkey-Russia-Iran trio aims to mitigate effects of U.S. sanctions, push Washington for talks'] Turkey-Russia-Iran trio aims to mitigate effects of U.S. sanctions, push Washington for talks [['Russian Foreign Minister Sergei Lavrov will visit Ankara on Monday to meet with his Turkish count erpart Mevlut Cavusoglu, in a bid to discuss their economic and trade ties, in particular the building of the Akkuyu Nuclear Power Plant and the Turkish Stream Gas pipeline.', 0.4408718943595886], ["On Sunday, the two nations, together with Kazakhstan, Turkmenistan and Azerbaijan, signed an agreemen t for the collective use of the Caspian sea, the world's largest inland body of water.", 0.2938750088214 874], ['Erdogan said Turkey has many alternative parties to work with economically.', 0.251940578222 2748], ['"Turkey and Russia\'s recent cooperation is important for NATO, Syria and other things, but h as not reshuffled the balance of power broadly," he said.', 0.2246023714542389], ["After Trump's tarif f tweets, Turkish President Recep Tayyip Erdogan called his Russian counterpart Vladimir Putin over bilateral and regional issues, vowing to continue cooperating on defense and energy.", 0.22340209782 123566]]
49 ['2018-10-12', "PACE voices concern over Turkey's Akkuyu nuclear plan - Turkey News"]

PACE voices concern over Turkey's Akkuyu nuclear plan - Turkey News
[['The construction of the plant in the Mediterranean province of Mersin was kicked off by President R ecep Tayyip Erdoğan and his Russian counterpart Vladimir Putin on April 3.', 0.48955318331718445], ['Akkuyu Nuclear Plant in southern Turkey is scheduled to be in operation in 2023\n\nThe Parliament ary Assembly of the Council of Europe (PACE) on Oct. 11 expressed "deep concern" on the constructi on of the Akkuyu nuclear power plant in an earthquake-prone region of Turkey only 85 kilometers fro m the border with Cyprus.', 0.4591555595397949], ['Turkey had also signed a protocol with the Japane se government for the construction of a nuclear power plant in the province of Sinop on the Black Sea coast.', 0.4462706744670868], ['The Akkuyu nuclear plant, comprising four units and with a total capa city of 4,800 megawatts, has an operational date set for the first reactor by 2023.', 0.405066609382629 4], ['In a resolution it adopted, the assembly expressed its deep concern regarding the construction of th e nuclear power plant in an earthquake-prone region of Turkey.', 0.35363051295280457]]

49 ['2018-11-06', 'Trade turnover between Russia and Turkey to reach $30 bln this year, says envoy in Russia']
Trade turnover between Russia and Turkey to reach $30 bln this year, says envoy in Russia
[['Such mega-projects as the Turkish Stream and the construction of the Akkuyu Nuclear Power Plant play a major role," the diplomat noted.', 0.5805981755256653], ['Dirioz pointed to actively developing relations between the countries in the sphere of tourism and added that Turkey will be ready to accom modate 6 million Russian tourists in 2019.', 0.3056752681732178], ["About 5.5 million Russians will spend their holidays in Turkey in 2018, Russia's Association of Tour Operators forecasted.", 0.257571 84624671936], ['The energy sphere plays an important role in this regard, Huseyin Dirioz recalled\n\n MOSCOW, November 6.', 0.2210707813501358], ['/TASS/.', 0.18443161249160767]]

49 ['2018-11-09', "Energy Minister reveals Turkey's nuclear program"]
Energy Minister reveals Turkey's nuclear program
[["Akkuyu, which is being built by Russian Rosatom, will be Turkey's first nuclear power plant, an inv estment that exceeds USD 20 billion.", 0.5847134590148926], ['The second nuclear plant will be built in northern Turkey and will be a co-operation between the Japanese and French consortium.', 0.516357 958316803], ["Details on Turkey's nuclear power plant project were provided by Turkey's Energy Min ister Fatih Donmez.", 0.49129530787467957], ['In his interview with the NTV television network, he s aid Turkey is aiming to build three nuclear power stations.', 0.3068847358226776], ['Our goal is for A kkuyu to be operational in 2023.', 0.2505311667919159]]

49 ['2018-11-19', 'Erdogan, Putin celebrate key step in Russia-Turkey gas pipeline']
Erdogan, Putin celebrate key step in Russia-Turkey gas pipeline
[['Putin said he believed TurkStream and the Akkuyu nuclear power station would become "clear symb ols of the growing development of Russia and Turkey\'s multi-faceted partnership."', 0.4862127304077 1484], ['The onshore section of the pipeline in Turkey still needs to be built and TurkStream expects th e gas to start being pumped at the end of 2019.', 0.47207218408584595], ['Russian President Putin and his Turkish counterpart Erdogan attend a ceremony to mark the completion of the sea part of the Turk Stream gas pipeline in Istanbul\n\nTurkish President Recep Tayyip Erdogan and Russian counterpart Vladimir Putin on Monday marked the completion of the offshore phase of a gas pipeline underneath t he Black Sea, the latest sign of burgeoning co-operation between Ankara and Moscow.', 0.4351862370 967865], ['Erdogan hailed the TurkStream pipeline, which aims to pump some 31.1bn cu m of gas fro m Russia to Turkey annually, as a "new step" in Turkish-Russian energy cooperation, which he said sh owed the "high level" of relations between the two countries.', 0.426891028881073], ['The aim is that half of the gas pumped through the pipeline will go to ensure the energy needs of western Turkish citie s like Istanbul, Bursa and Izmir and the other half sent on to other European countries.', 0.3993578255 176544]]

49 ['2018-12-14', 'Turkey issues limited permit for construction of second unit of Akkuyu NPP, says R osatom']
Turkey issues limited permit for construction of second unit of Akkuyu NPP, says Rosatom

[['The Akkuyu NPP is the project for construction of the first NPP in Turkey\n\nMOSCOW, December 14.', 0.6692258715629578], ['The Akkuyu NPP is the project for construction of the first NPP in Turkey, which is implemented on the basis of the intergovernmental agreement signed between the Russian Federation and the Republic of Turkey in May 2010.', 0.6143329739570618], ["The Turkish Atomic Energy Authority (TAEK) has provided Akkuyu NPP, which implements the first nuclear power plant project in Turkey, with a limited permit for construction of Unit 2 of Akkuyu NPP, Russia's state-run corporation Rosatom said in a statement on Friday.", 0.6051645278930664], ['After having received the limited permit the project company Akkuyu Nuclear has to get the construction license and start concrete pouring of the foundation slab, which will signify a formal start of construction activities at Unit 2 of Akkuyu NPP, the statement said.', 0.4793223738670349], ['The permit allows proceeding with the construction and installation works at facilities of the Unit except for that, which are important for nuclear island safety, Rosatom said, adding that excavation of the foundation pit, engineering surveys and other activities will commence under it.', 0.4216380715370178]]
49 ['2018-12-30', 'Putin gives thumbs up to growing Russia-Turkey ties'] Putin gives thumbs up to growing Russia-Turkey ties [["He specifically mentioned Turkey's first nuclear power plant, Akkuyu, being built by Russia, and the TurkStream pipeline that will bring Russian gas to Turkey.", 0.612415611743927], ['Putin said he wants to see continued development of "mutually beneficial partnership in all areas... in the interests of strengthening peace, security, and stability on the Eurasian continent," in a New Year message to Recep Tayyip Erdogan published by the Kremlin on Sunday.', 0.24301068484783173], ['ERBIL, Kurdistan Region - Russian President Vladimir Putin told his Turkish counterpart he is pleased with growing relations between their countries that will benefit regional security.', 0.22804449498653412], ["Turkey is threatening to launch an attack on the Syrian Kurdish People's Protection Units (YPG).", 0.1990380883216858], ['The two have agreed to coordinate on the ground.', 0.18489068746566772]]
49 ['2019-01-17', 'Akkuyu NPP to get six transmission lines at TL 500 million'] Akkuyu NPP to get six transmission lines at TL 500 million [['On the other hand, in addition to Akkuyu, Turkey will build two nuclear power plants in Sinop and Thrace.', 0.5387501120567322], ['While construction work on the foundation of Akkuyu continues, a total of four units of nuclear reactors with a total capacity of 4,800 MW will be built in the Akkuyu site, with each being 1,200 MW.', 0.47029897570610046], ["This year, there will be significant progress on the six transmission lines that will be established to carry power generated at Akkuyu, Turkey's first nuclear power plant.", 0.4411054253578186], ['The performance program of the ministry revealed that tender work for the lines have been completed, and the transmission lines are planned to be completed before the nuclear power plant comes into operation.', 0.41718223690986633], ['The first power plant will be built with a build-operate model.', 0.4154120087623596]]
49 ['2019-01-23', 'Putin vows to launch first nuclear power plant in Turkey in 2023'] Putin vows to launch first nuclear power plant in Turkey in 2023 [["'The implementation of a large-scale project for the construction of the first nuclear power plant in Turkey, Akkuyu, is under way and complies with the schedule.', 0.5364596247673035], ["Russian President Vladimir Putin hopes that the Akkuyu nuclear power plant, which is now being built in Turkey with Russia's assistance, will be launched in 2023.", 0.51052325963974], ['They are building its first power unit, which we plan to launch in 2023," the Russian leader said at a press conference following Russian-Turkish talks.', 0.36493465304374695], ['According to Putin, this date was named by Turkish President Recep Tayyip Erdogan, since in 2023, the republic of Turkey will celebrate its centenary.', 0.3412286937236786], ['/TASS/.', 0.18443161249160767]]
52 ['2019-02-08', 'Russia produces 1st reactor base for Akkuyu nuke plant'] Russia produces 1st reactor base for Akkuyu nuke plant

[["Manufacture of Atommash-made reactor pressure vessel takes over two years\n\nThe pressure vesse l base for the Akkuyu nuclear plant's first reactor has been manufactured, the project developer compa ny Russian State Atomic Energy Corporation Rosatom said in a statement on Friday.", 0.47888797521 591187], ["Atommash, the Volgodonsk branch of AEM-technology, which operates within Rosatom's machine-building division of Atomenergomash manufactured the reactor pressure vessel base for Turk ey's first nuclear plant, according to the statement.", 0.4278185963630676], ['On Sep. 19, 2017, the Tu rkish Atomic Energy Agency approved AEM-technology as an equipment manufacturer for the Akkuy u plant.', 0.4278075695037842], ['Abbasov confirmed that at present the main workload of the compan y is for export while adding that the company gained the necessary experience by manufacturing and s hipping a set of steam generators for an Indian nuclear power plant in October 2018.', 0.350256592035 2936], ['"The manufacturing cycle of an Atommash reactor pressure vessel takes over two years.', 0.26 264631748199463]]

52 ['2019-02-10', 'Akkuyu nuclear power contractor Rosatom, Turkish IC İçtaş plan to partner up']
Akkuyu nuclear power contractor Rosatom, Turkish IC İçtaş plan to partner up
[['The Russian giant Rosatom started the construction of the Akkuyu Nuclear Power Plant in April 201 8.', 0.6930092573165894], ['In June 2017, the Turkish consortium Cengiz-Kalyon-Kolin signed an agr eement with Rosatom to acquire 49 percent of the Akkuyu nuclear power plant.', 0.586250901222229] , ["The Russian contractor of Turkey's first nuclear power plant Akkuyu, located in the Mediterranean province of Mersin, was reported to be currently in talks with a leading Turkish contractor IC İçtaş.", 0 .5789309740066528], ['Rosatom was also reported to be planning to move its Turkish headquarters to Mersin.', 0.46924737095832825], ['Turkish and Russian energy authorities continuously discuss the pr oject to make it start operation on time.', 0.4628714919090271]]

52 ['2019-03-05', 'New head of Akkuyu nuke plant in Turkey appointed']
New head of Akkuyu nuke plant in Turkey appointed
[['The agreement on the construction of Akkuyu was signed on May 12, 2010 in Ankara between the R ussian and Turkish governments, and on December 13 of the same year Akkuyu Nuclear JSC was regis tered.', 0.55454421043396], ['The Akkuyu project involves the construction of four power units with R ussian WWER-1200 reactor plants of 3+ generation that meet the highest post-Fukushima safety stand ards.', 0.5336565375328064], ["Turkey intends to build another nuclear power plant in Sinop in the no rth of the country with Japan's participation, the construction of the Akkuyu nuclear power plant with t he participation of Russia.", 0.5205246210098267], ['In early April 2018, the Turkish province of Mer sin hosted a groundbreaking ceremony for laying foundation of Turkey\'s first nuclear power plant "Ak kuyu", which was attended by the presidents of Turkey and Russia - Recep Tayyip Erdogan and Vladi mir Putin.', 0.5114542841911316], ['Baku, Azerbaijan, March 5\n\nBy Rufiz Hafizoglu - Trend:\n\nA new head of Akkuyu nuclear power plant in Turkey has been appointed, Trend reports March 5 with re ference to Turkish media.', 0.48218899965286255]]

52 ['2019-03-06', 'Rosatom in search of partners for 49pct stake in Akkuyu']
Rosatom in search of partners for 49pct stake in Akkuyu
[["The Akkuyu project started with this intergovernmental agreement, and Turkey's President Recep T ayyip Erdogan and his Russian counterpart Vladimir Putin launched the construction of the plant via vi deoconference in April 2018.", 0.5544798970222473], ["$20 billion Akkuyu Nuclear Power Plant rece ives license for 1st unit of 4,800-megawatt plant, top company official says\n\nRussia's state nuclear e nergy corporation Rosatom is in negotiations with both Turkish and foreign companies for a new partn er to buy a 49 percent share in the Akkuyu Nuclear Power Plant, Anton Dedusenko, deputy chairman o f Akkuyu Joint Stock Company (JSC), said Tuesday.", 0.5405802726745605], ['Rosatom and participa nts will build the plant comprising four units, each of which has a capacity of 1,200 megawatts.', 0.491 31354689598083], ['Dedusenko also shared that the Akkuyu JSC was granted a license for the 1st unit of the power plant in April 2018 and received limited permit for unit 2.', 0.48551470041275024], ["A Cengiz-Kolin-Kalyon consortium, which was in discussions with Rosatom, the plant's major sharehold er, failed to reach a final agreement and negotiations halted.", 0.40854501724243164]]

52 ['2019-03-13', "European Parliament votes against Turkey's upcoming nuclear power plant"]
European Parliament votes against Turkey's upcoming nuclear power plant
[['According to Sputnik new agency, the European Parliament is trying to disturb Turkish-Russian relat ions as the Akkuyu plant, comprising four units, each with a capacity of 1,200 megawatts, will be built by the Russian State Nuclear Energy Agency, Rosatom.', 0.6017166972160339], ["The Akkuyu plant in Turkey's southern Mersin province is slated to be functional in 2023.", 0.5675308704376221], ["The European Parliament (EP) debated over the construction of Turkey's first nuclear energy reactor, Akku yu, and voted to call on the Turkish government to halts its building on Wednesday.", 0.526443958282 4707], ['The parliament has called on Turkey to halt constructing a nuclear power plant and consult Gr eece and Greek Cypriots for negotiations.', 0.500874936580658], ['Slovakia and Finland are building s imilar nuclear plants.', 0.4432629346847534]]

52 ['2019-03-14', "Foundation for Akkuyu nuclear plant's 1st reactor laid"]
Foundation for Akkuyu nuclear plant's 1st reactor laid
[['The laying of the foundation for the first reactor of the Akkuyu nuclear power plant (NPP) was comp leted on March 8, Russian State Atomic Energy Corporation Rosatom said Thursday.', 0.62797051668 16711], ["Rosatom is constructing Turkey's first nuclear plant in the southern province of Mersin.", 0.6 092691421508789], ['Work at the Akkuyu NPP started with an intergovernmental agreement signed be tween Turkey and Russia on May 12, 2010.', 0.5579057335853577], ["The achievement of laying mor e than 17,000 cubic meters of self-compacting concrete caste for the foundation slab marks a milestone for the Akkuyu NPP's construction, according to Rosatom's statement.", 0.4905656576156616], ['Ros atom and participants will build the plant, which consists of four units, each of which has a capacity of 1,200 megawatts.', 0.4898533821105957]]

52 ['2019-03-15', "EU passes resolution suspending Turkey's admittance"]
EU passes resolution suspending Turkey's admittance
[["The European Parliament also mentioned Turkey's fractious relationships with neighboring states su ch as Cyprus and Greece regarding the Akkuyu nuclear plant Turkey intends to build, as well as (lack of) normalization of diplomatic relations with neighboring Armenia.", 0.4038759171962738], ["(regar ding Turkey's accession into the European Union.)", 0.28058671951293945], ['The assembly noted pas t and ongoing human, civil, and due process rights violations committed by Turkey.', 0.153518363833 42743], ["The European Union adopted a non-binding resolution Wednesday against Turkey's accessio n as a member of the EU.", 0.1464947611093521], ["The body expressed concern over Turkey's lack o f respect for minority religious and cultural rights.", 0.052587877959012985]]

52 ['2019-04-07', 'Akkuyu Nuclear files documents for construction license']
Akkuyu Nuclear files documents for construction license
[['Rosatom said in December 2018 that the Turkish Atomic Energy Authority (TAEK) has provided A kkuyu NPP, which implements the first nuclear power plant project in Turkey, with a limited permit fo r construction of Unit 2 of Akkuyu NPP.', 0.6890823245048523], ['The Akkuyu NPP is the project for construction of the first NPP in Turkey, which is implemented on the basis of the intergovernmental ag reement signed between the Russian Federation and the Republic of Turkey in May 2010.', 0.6460819 244384766], ['Akkuyu Nuclear, the company implementing the project on construction of the first nucl ear power plant in Turkey, filed documents to the Turkish Atomic Energy Authority (TAEK) for a lice nse to build the third unit of NPP.', 0.5644739866256714], ['Akkuyu Nuclear prepared and submitted t he package of documents for the license to build the Unit 3 of the Akkuyu NPP," the company\'s press service responded to the question from TASS.', 0.49303925037384033], ['The permit allowed proceedi ng with the construction and installation works at facilities of the Unit except for that, which are impor tant for nuclear island safety, Rosatom said, adding that excavation of the foundation pit, engineering s urveys and other activities will commence under it.', 0.4176160395145416]]

52 ['2019-04-08', 'Meeting of High-Level Cooperation Council between Russia and Turkey']
Meeting of High-Level Cooperation Council between Russia and Turkey

[['The construction of the Akkuyu nuclear power plant in Turkey is another key energy project.', 0.549 8664379119873], ["Next, the construction of the receiving terminal on Turkey's Black Sea coast has to be completed, so that TurkStream becomes operational before the end of the year, as agreed.", 0.4160 7487201690674], ['Also on the agenda are other promising projects related to supplying modern Russi an military products to the Republic of Turkey.', 0.394430547952652], ['Notably, Russian-Turkish ene rgy cooperation has become truly strategic.', 0.35327401757240295], ['A new gas pipeline, TurkStrea m, will significantly boost the supply of Russian gas to Turkish consumers when it becomes operationa l.', 0.34584876894950867]]
52 ['2019-04-15', "Russia's Rosatom in talks to sell 49 pct stake in Akkuyu nuclear plant | Ahval"] Russia's Rosatom in talks to sell 49 pct stake in Akkuyu nuclear plant | Ahval [["Located in Turkey's Mediterranean coastal town of Mersin, Turkey's first nuclear power plant is a jo int Russian-Turkish project with Russian energy company Rosatom as the majority stakeholder.", 0.60 36463379859924], ['The construction of the Akkuyu nuclear plant located in the southern province of Mersin was kicked off by President Recep Tayyip Erdoğan and his Russian counterpart Vladimir Putin on Apr.', 0.5555115342140198], ["Russia's State Atomic Energy Corporation Rosatom is holding talk s with investors on selling a 49 percent stake in the Akkuyu Nuclear Power Plant construction project, Russian news agency Tass quoted the the corporation's Chief Executive Officer Alexei Likhachev as s aying on Monday.", 0.49871015548706055], ['"We are holding talks with both state-run and private T urkish companies.', 0.1598215103149414], ['It is impossible to do without the permit of the Turkish si de; therefore, the government is certainly involved in these talks.', 0.13863438367843628]]
52 ['2019-04-25', 'Foreign backers set to pull out of Turkish nuclear power project | Ahval'] Foreign backers set to pull out of Turkish nuclear power project | Ahval [["The plant, set to be built with four reactors in Sinop province along the Black Sea, was to be Turkey' s second nuclear power plant, following Akkuyu, currently under construction in cooperation with Rus sia's Rosatom\n\nIn 2013, Turkey signed a contract with Atmea, a Japanese-French consortium compri sing Mitsubishi Heavy Industries and Areva, for the construction of the Sinop plant, which included a build-operate-transfer scheme\n\nAccording to a preliminary agreement, Atmea would own 51 percent of the Sinop plant, while Turkish state utilities company EUAS would take 49 percent and Engie, a Fr ench firm, would operate it.", 0.6147868037223816], ['"It should be noted that the Turkey-Japan deal a nd the Turkey-Russia agreement for the construction of the Akkuyu power station in the southern provi nce of Mersin both contain controversial clauses (articles 8 and 12 respectively) giving Ankara access t o enriched uranium and plutonium," said Oikonomou.', 0.45282021164894104], ['The Japanese-Frenc h consortium that agreed to build a nuclear power plant in Turkey is set to abandon the project, a forme r nuclear inspector at the International Atomic Energy Agency said in an analysis for Greek newspaper Kathimerini on Thursday.', 0.43494558334350586], ['In addition to the setback in Sinop, there are als o delays at the construction of Akkuyu, which started in April last year.', 0.3919985592365265], ['So f ar only the foundation for Unit 1 has been laid, according to Oikonomou.', 0.2785166203975677 5]]
52 ['2019-05-06', "Cracks discovered during construction of Turkey's first nuclear plant | Ahval"] Cracks discovered during construction of Turkey's first nuclear plant | Ahval [['Russia and Turkey signed the agreement for a Rosatom subsidiary to build and operate the Akkuyu p lant in 2010.', 0.6418488025665283], ['Russian state nuclear energy firm Rosatom began construction of the Akkuyu nuclear plant in the southern Turkish province of Mersin last year.', 0.59413743019104] , ['The foundations for the first of four units planned for the Akkuyu nuclear power plant are now ready , he said.', 0.53819340467453], ["Work on Turkey's first nuclear power plant has been held up by fissu res discovered in the foundations, Turkish pro-government outlet HaberTürk reported on Monday.", 0. 47746172547340393], ["But the project hit an early hurdle when Turkey's Atomic Energy Authority (TAEK) discovered fissures in concrete foundations laid since the groundbreaking ceremony in April 2 018, HaberTürk's Olcay Aydilek reported.", 0.3811115324497223]]
56 ['2019-05-16', 'Russian-Turkish relations are developing dynamically -- Russian upper house speak er']

56 ['2019-05-22', "Why 'Putin's personal army' chief visited Turkey"]
Why 'Putin's personal army' chief visited Turkey
[["For example, it could offer security services for the Akkuyu nuclear power plant, which is being constructed by Russia's State Atomic Energy Corp., and the Turkstream natural gas pipeline; Rosgvardiya also could engage in training and exercises with its Turkish partner to ensure public order.", 0.3913329541683197], ['In Russia, Rosgvardiya is responsible for protecting power plants, bridges, dams, ports, tunnels and other critical infrastructure.', 0.35180601477622986], ["Although his Russian delegation's carefully crafted schedule didn't include any direct contact with the Turkish army, NATO's second largest, the visit heralds further military cooperation between Russia and Turkey.", 0.32579654455184937], ["Turkey's pro-Russian newspaper Aydinlik reported that Zolotov's visit wasn't limited to information sharing and that concrete steps were taken during the visit for institutional cooperation between Russian and Turkish interior security units.", 0.30628353357315063], ["Viktor Zolotov, the director of Russia's National Guard, attends a wreath-laying ceremony marking the anniversary of the Nazi German invasion in 1941 at the Tomb of the Unknown Soldier by the Kremlin wall in Moscow, June 22, 2018.", 0.25761544704437256]]

56 ['2019-06-07', 'Construction Of 2nd Unit At Akkuyu NPP In Turkey Expected To Start This Fall - Rosatom - UrduPoint']
Construction Of 2nd Unit At Akkuyu NPP In Turkey Expected To Start This Fall - Rosatom - UrduPoint
[['ST. PETERSBURG (UrduPoint News / Sputnik - 07th June, 2019) The construction of the second power unit of the Akkuyu nuclear power plant (NPP) in Turkey with the participation of Russia is expected to start at the end of summer - early autumn this year, General Director of Rosatom State Corporation Alexey Likhachev said Friday.', 0.5108488202095032], ['Depending on the final decision by the Turkish regulator, we are looking at the end of summer - the beginning of autumn [as the start of construction of the 2nd unit]," Likhachev told reporters on the sidelines of the St. Petersburg International Economic Forum (SPIEF).', 0.27516427636146545], ['"We are now waiting to obtain the main license for the second unit in June-July.', 0.1537635177373886], ['SPIEF began on Thursday and will last through Saturday.', 0.07776595652103424], ['Rossiya Segodnya International Information Agency is an official media partner of the forum.', 0.06038537248969078]]

56 ['2019-06-28', 'Russia Sends Core Catcher To Turkeys Akkuyu Nuclear Power Plant - Manufacturer - UrduPoint']
Russia Sends Core Catcher To Turkeys Akkuyu Nuclear Power Plant - Manufacturer - UrduPoint
[['A core catcher was installed for the first time at the Russia-designed Tianwan NPP in China.', 0.4689052104949951], ['The core catcher for the Akkuyu NPP is an upgraded model.', 0.38847994804382324], ['A core catcher is a unique device designed by Russian nuclear engineers to protect a nuclear reactor in the event of a meltdown.', 0.2985202670097351], ['This is the first time when the Syzran enterprise is responsible for delivering equipment directly to a foreign customer," the company said.', 0.09754591435194016], ['The core catcher is a cone-shaped device installed underneath the reactor and contains a special filler that, in case of an emergency, mixes with the molten core material and ensures its even distribution inside its body.', 0.07891952991485596]]
56 ['2019-06-29', "Turkey President Erdogan says no setbacks in S-400 deal with Russia, 'eyes on delivery' | Malay Mail"]
Turkey President Erdogan says no setbacks in S-400 deal with Russia, 'eyes on delivery' | Malay Mail

[['Erdogan also said it was important for Ankara to finish the first reactor in the Akkuyu nuclear power plant by 2023, adding that non-nuclear equipment at the plant should be procured from Turkey.', 0.5229607820510864], ["Akkuyu is Turkey's first nuclear power plant and is being built by Russia's Rosatom along the Mediterranean coast, for a cost Erdogan has previously said would exceed US$20 billion (RM82.6 billion).", 0.4985753297805786], ['ANKARA, June 29 -- Turkish President Tayyip Erdogan said today there were no setbacks in a deal to procure Russian S-400 missile defence systems, and added that "eyes are on the delivery process", expected in the first half of July.', 0.44180551171302795], ['He added that it was a priority for Turkey that the deal includes the joint production of the systems and a technology transfer.', 0.2814708650112152], ['"Now, I believe eyes are on the delivery process of this issue, but there are no setbacks in our agreement here anyway," Erdogan said.', 0.2319854199886322]]
56 ['2019-06-29', 'Putin Proposes to Erdogan to Step Up Russian-Turkish Investment Cooperation'] Putin Proposes to Erdogan to Step Up Russian-Turkish Investment Cooperation [['Erdogan also addressed the implementation of the Akkuyu nuclear power plant project, recalling that it was important to launch the first unit in 2023.', 0.5033077001571655], ['Putin recalled that Turkey and Russia were implementing joint projects.', 0.43546435236930847], ['The Turkish president also emphasized that the love of Russian tourists for his country gave an additional impetus for the development of the Turkish hospitality industry.', 0.3509296774864197], ['The Turkish president continued by recalling that the next meeting of a joint commission would be held in Turkey.', 0.32068201899528503], ['"I would like to note that we have recently given an impetus to Russian-Turkish relations," Erdogan said.', 0.306790947914123 54]]
56 ['2019-07-12', 'Turkey receives first Russian missile delivery, risking US ire'] Turkey receives first Russian missile delivery, risking US ire [["- Nuclear plant accord -\n\nIn April 2018, the two presidents launch construction of Turkey's first nuclear power station, to be built by Russia's state atomic energy cooperation Rosatom.", 0.4689635038375854 5], ['In October, Russia and Turkey sign an agreement to build the TurkStream gas pipeline that will pump Russian gas under Turkish waters in the Black Sea towards Europe.', 0.43928414583206177], ['The Akkuyu nuclear power plant is expected to be operational by 2023.', 0.40244561433792114], ['- Joint defence production -\n\nIn May 2019, Erdogan says Turkey and Russia will jointly produce the next generation S-500 defence systems.', 0.35702139139175415], ['- Turkish regret -\n\nThere is a thaw in late June 2016 when President Recep Tayyip Erdogan expresses regret about the incident and calls for friendlier ties.', 0.28432708978652954]]
56 ['2019-07-21', "Turkey's Akkuyu nuclear plant facing numerous safety concerns - Birgün | Ahval"] Turkey's Akkuyu nuclear plant facing numerous safety concerns - Birgün | Ahval [["Located in Turkey's Mediterranean coastal town of Mersin, Turkey's first nuclear power plant Akkuyu is a joint Russian-Turkish project with Russian energy company Rosatom as the majority stakeholder.", 0.635341465473175], ['President Recep Tayyip Erdoğan and his Russian counterpart Vladimir Putin kicked off the construction of the plant on Apr.', 0.4907292425632477], ["Top-level officials working at Turkey's Akkuyu Nuclear Power Plant construction project say a series of problems, including lack of design adaptation and a shortage of competent engineers on site, are posing serious safety concerns, left-wing Birgün newspaper reported.", 0.3990030288696289], ["The problem of the cracks, discovered by Turkey's Atomic Energy Authority (TAEK), have since been fixed, however the foundation of the plant remains a problem.", 0.3178156912326813], ['The cooling of the plant is to take place through the waters of the Mediterranean Sea.', 0.2961098253726959]]
56 ['2019-08-01', 'First large-scale Akkuyu NPP equipment arrive'] First large-scale Akkuyu NPP equipment arrive

[["The Akkuyu NPP, Turkey's first power plant project, started with an intergovernmental agreement si gned between Turkey and Russia on May 12, 2010.", 0.6310263872146606], ["'The Akkuyu Project re lies upon the experience of construction and operation of the plants with the same design type in Russi a.', 0.48487648367881775], ["'The safety and reliability of an NPP are laid down long before the start of its operation.', 0.4015738070011139], ['Crucial safety equipment of power plant delivered to Unit 1 construction site, Akkuyu Nuclear Inc. announced\n\nA "core catcher", the crucial safety component o f the Akkuyu Nuclear power plant, has been delivered to the construction site, the Akkuyu Nuclear Inc. said in a statement on Monday.', 0.3913992941379547], ['At present, there are 450 nuclear power plan ts in 31 countries, while 55 plants are under construction around the world.', 0.3912460207939148]]

56 ['2019-08-01', 'Partnerships key to nuclear growth, says GE Steam Power CEO']
Partnerships key to nuclear growth, says GE Steam Power CEO
[["GE Steam Power sees opportunities for further cooperation with Rosatom, in the development of lo w-power nuclear power generation, he said, noting the corporation's launch of the floating nuclear pow er plant Akademik Lomonosov.", 0.44233688712120056], ["In June this year, they announced the start of manufacturing work in Belfort, in north-eastern France, of the Arabelle steam turbine for Turkey's f irst nuclear power plant.", 0.4126549959182739], ['GE Steam Power is supplying the four nuclear turb ine generator sets for the Akkuyu plant under a contract awarded to AAEM.', 0.4025638699531555], ['GE Steam Power has installed 50% of the world\'s steam turbines for nuclear power plants, he said, an d "partnership with Rosatom helps us maintain our leading position".', 0.395122230052948], ['Once ce rtified to do so, EMSS will be able to participate in GE projects around the world, and not only in thos e that it implements together with Rosatom, he said.', 0.37082812190055847]]

56 ['2019-08-16', 'Construction of nuclear power plants to be accelerated in Turkey']
Construction of nuclear power plants to be accelerated in Turkey
[['Turkish President Recep Tayyip Erdogan signed an order to accelerate the construction of nuclear po wer plants in the country.', 0.6112444996833801], ['In early April 2018, the Turkish province of Mersi n hosted a groundbreaking ceremony for laying foundation of Turkey\'s first nuclear power plant "Akk uyu", which was attended by the presidents of Turkey and Russia - Recep Tayyip Erdogan and Vladim ir Putin.', 0.5553412437438965], ["Before Russian President Vladimir Putin's visit to Ankara, the Turk ish Atomic Energy Authority issued a license to build the first unit of Akkuyu nuclear power plant.", 0. 5209319591522217], ['The agreement on the construction of Akkuyu nuclear power plant was signed on May 12, 2010, in Ankara between the Russian and Turkish governments, while on December 13 of the same year Akkuyu Nuclear JSC was registered.', 0.5201965570449829], ['The Akkuyu nuclear po wer plant project involves the construction of four power units with Russian WWER-1200 reactor plan ts of 3+ generation that meet the highest post-Fukushima safety standards.', 0.4765617549419403]]

56 ['2019-08-21', 'Akkuyu plant receives funding from Russian bank']
Akkuyu plant receives funding from Russian bank
[['Construction site of the Akkuyu Nuclear Power Plant during the groundbreaking ceremony in Mersi n, Turkey, April 3, 2018.', 0.5809054970741272], ['On March 8, the laying of the foundation for the fir st reactor of the nuclear power plant was completed and works are in progress for the second unit.', 0.4 540718197822571], ['The intergovernmental agreement was signed between Russia and Turkey in Ma y 2010 for the plant that will consist of four VVER-1200 power units with a total installed capacity of 4,800 megawatts (MW).', 0.429671972990036], ['Sberbank, the first loan supplier for the nuclear proje ct, will provide the seven-year loan to the Akkuyu Nuclear company; a subsidiary of Russian nuclear fi rm Rosatom.', 0.3855571448802948], ["Sberbank, Russia's state-owned banking and financial services company will provide a $400 million loan for the construction of Turkey's Akkuyu nuclear power stati on, the bank announced yesterday.", 0.3132961392402649]]

56 ['2019-08-28', "Erdoğan becomes sole authority over Turkey's nuclear energy"]
Erdoğan becomes sole authority over Turkey's nuclear energy

[["Russia began building Turkey's first nuclear power plant at Akkuyu on the Mediterranean coast in A pril.", 0.5122991800308228], ['Russian firm Rosatom, which is building the Akkuyu power plant, said it would be moving the radioactive waste to Russia, so it is unclear why the law identifies the plant gro unds for nuclear waste storage.', 0.4138319194316864], ['Turkish President Recep Tayyip Erdoğan has become the sole control of the newly established Nuclear Regulatory Authority with the Decree No.', 0.3693658709526062], ['The $20-billion project is due to come online in 2023, the 100th anniversary of the Republic of Turkey.', 0.341042160987854], ['"Radioactive waste and used fuels generated durin g operation of the plants will be stored on the plant grounds for the duration of the business".', 0.24212 16517686844]]
59 ['2019-09-06', 'UPDATE 1-Rosatom wins licence to build second nuclear reactor in Turkey'] UPDATE 1-Rosatom wins licence to build second nuclear reactor in Turkey [['Rosatom is under pressure to complete at least the first of the four reactors by 2023, the centenary of the foundation of the Turkish Republic.', 0.6138137578964233], ["* Rosatom in race to complete first Akkuyu reactor by 2023\n\n* Heavy core catcher to be installed in unit 1 this autumn\n\n* Platform re ady for four reactors, port operational (Adds Komarov comments, background)\n\nBy Geert De Clercq \n\nLONDON, Sept 6 (Reuters) - Russia's Rosatom has won a licence to start building the second of fo ur planned nuclear reactors in Turkey and is preparing to install the first steel equipment on the first un it this autumn, Deputy CEO Kirill Komarov said on Friday.", 0.6076731085777283], ['In April 2018, Rosatom won the licence for the first reactor, for which the foundations are now nearly completed.', 0. 5795847177505493], ['Rosatom has also completed a port to receive heavy components.', 0.53165066 24221802], ['The $20 billion project to build four Russian-design reactors in Akkuyu on the Mediterra nean is one of the largest nuclear new-build projects worldwide and will allow Turkey to join the small club of nations with civil nuclear energy.', 0.49290308356285095]]
59 ['2019-10-29', 'Turkeys Akkuyu NPP Conducts Initial Emergency Response Drills At Construction Site - UrduPoint'] Turkeys Akkuyu NPP Conducts Initial Emergency Response Drills At Construction Site - UrduPoint [["MOSCOW (UrduPoint News / Sputnik - 29th October, 2019) Turkey's Akkuyu nuclear power plant, which is being built with Russia's participation, held at its construction site the first planned emergenc y response drills designed for a scenario in which a hurricane had caused various consequences, the NP P's press service said in a press release on Tuesday.", 0.4502594470977783], ['Such exercises are held annually at all operating Rosatom nuclear power plants.', 0.4228079915046692], ['Over here, at the co nstruction site of Akkuyu NPP, already at the initial construction phase, we are honing the preparednes s of the relevant services for any situations and are actively cooperating in this field with the local auth orities and relevant departments of Turkey," Anastasia Zoteeva, CEO of Akkuyu Nuclear, said, as quot ed by the company\'s press service.', 0.40838363766670227], ['"Emergency drills are an integral HSE [Health, Safety and Environment] element at large industrial facilities, including nuclear power plants, s tarting from the stage of their construction.', 0.28137800097465515], ['The exercise was aimed at "enh ancing the coordination, cohesion and responsiveness of various services in emergency situations," the press release read.', 0.03051934204995632]]
59 ['2019-11-11', 'Diplomatic success reflects on Turkey-Russia trade'] Diplomatic success reflects on Turkey-Russia trade

[['Ankara and Moscow have jointly carried out large projects such as the sale of the S-400 defense systems, TurkStream natural gas pipeline project and Akkuyu Nuclear Power Plant.', 0.5095270872116089], ["Turkish exports to Russia surged 10.6% year-on-year to $3.1 billion in January-October, according to the Turkish Exporters' Assembly (TIM) compiled by Anadolu Agency.", 0.3224278688430786], ["Turkey's exports to Russia surge 10.6% year-on-year to $3.1 billion in first 10 months of 2019\n\nTurkey's exports to Russia increased significantly on an annual basis in the first ten months of the year, thanks to successful diplomatic ties between the two countries, particularly on the Syrian conflict.", 0.27991312742233276], ['Turkey exported items in 27 sectors in during this period, most prominently in fresh fruits and vegetables with $486.4 million.', 0.0650668814778328], ['The highest increase was seen in the defense and aviation sector which rose three fold to hit $17.7 million.', 0.04700009897351265]]
59 ['2019-11-30', "Turkey's first nuclear plant delayed by funding problems - energy expert | Ahval"] Turkey's first nuclear plant delayed by funding problems - energy expert | Ahval [["Completion of Turkey's first nuclear power station is likely to be delayed as the Russian company building it is struggling to secure funding, former diplomat and Bosphorus Energy Club head Mehmet Öğütçü told Turkish daily Sözcü.", 0.5195911526679993], ['A Turkish consortium pulled out of the project last year, citing a failure to reach commercial terms with Rosatom, which owns a 51 percent stake in the project.', 0.4894257187843323], ['A small part of the plant in Akkuyu, southern Turkey, may be opened for political reasons in 2023, the centenary of the founding of the Turkish Republic, Öğütçü said.', 0.4717322587966919], ['But Russian state-owned Rosatom is having difficulties financing the project, which is expected to cost between $20 billion and $25 billion, he said, adding that Western companies were avoiding Akkuyu over concerns about nuclear armament.', 0.4457029700279236], ["A report by the main opposition Republican People's Party this month criticised the terms of the government's deal with Rosatom, which has been guaranteed a price of 12.35 U.S. cents per kilowatt hour in a 15-year power purchase agreement.", 0.13658647239208221]]
61 ['2019-12-11', 'Turkish grid operator signs transmission agreement for Akkuyu NPP'] Turkish grid operator signs transmission agreement for Akkuyu NPP [['Akkuyu Nuclear, owner/operator of the Akkuyu NPP under construction in Turkey by Russian nuclear state corporation Rosatom, on 9 December signed a connection agreement with Turkish Electricity Transmission Company (TEIAS) TEIAS.', 0.6087979078292847], ["The Akkuyu NPP will comprise four units equipped with Russian-designed generation 3+ VVER-1200 reactors and is the world's first nuclear project being implemented based on a Build-Own-Operate model.", 0.5248351097106934], ['All the power lines to be connected to Akkuyu NPP will be built and maintained by the TEIAS, which reports to the Ministry of Energy and Natural Resources.', 0.4652600884437561], ['Currently the project is entirely financed by Russia.', 0.4647155702114105], ["Under the agreement, the power generated by Akkuyu NPP will be transmitted from the Akkuyu NPP switchgear via 400 kV power lines to six transformer substations that are part of Turkey's unified energy system.", 0.44960924983024597]]
61 ['2019-12-29', 'Akkuyu NPP signs coolant equipment agreement with Russian, German firms'] Akkuyu NPP signs coolant equipment agreement with Russian, German firms [['An intergovernmental agreement was signed between Russia and Turkey in May 2010 for the Akkuyu NPP that will consist of four VVER-1200 power units with a total installed capacity of 4,800 megawatts.', 0.547767698764801], ["Turkey has signed an agreement to obtain coolant system equipment for turbine installments at the country's first nuclear power plant in Akkuyu, the Russian State Nuclear Energy Corporation (Rosatom) confirmed Saturday.", 0.46903765201568604], ["To supply equipment for systems that will provide cooling water for turbine capacitors, Rosatom's energy engineering division Atomenergomash, Russian firm NPO TsNIITMASH and Germany's Taprogge GmbH signed a deal with Akkuyu nuclear power plant (NPP).", 0.4656820595264435], ['Foundation for the first reactor of the nuclear power plant was laid earlier on March 8 and works are in progress for the second unit.', 0.40425795316696167], ["Atomenergomash, which manufactures reactor equipment for nuclear power plants in India, Bangladesh, China and Russia, will supply machinery equipment for Akkuyu's four reactors.", 0.40245258808135986]]

61 ['2019-12-30', 'Akkuyu second unit to be built in 2020 first quarter - Latest News'] Akkuyu second unit to be built in 2020 first quarter - Latest News [['An intergovernmental agreement was signed between Turkey and Russia in May 2010 for Akkuyu N PP, first nuclear plant of Turkey that will have four VVER-1200 power reactors with a total installed c apacity of 4,800 megawatts.', 0.606662929058075], ["The construction of the second unit of Turkey's Akkuyu nuclear power plant may start in the first quarter of 2020, Russia's atomic energy corporation Rosatom's Director General Alexey Likhachev has said.", 0.5270688533782959], ['The first reactor of the plant is planned to be operational in 2023.', 0.49590063095092773], ['Rosatom on Dec. 28 announ ced that Akkuyu signed an agreement to obtain coolant system equipments for turbine installments.', 0. 4479008615016937], ['Likhachev said that Titan-2 IC Ictas, a joint venture between Concern Titan-2 J SC and the Turkish construction company IC Ictas, carries out the construction of the plant.', 0.414529 2341709137]]
61 ['2020-01-20', 'Turkey Considering New Partner For Nuke Plant In Sinop'] Turkey Considering New Partner For Nuke Plant In Sinop [["Meanwhile, Turkey's first nuclear power plant (NPP) is progressing well.", 0.6178674101829529], ['An intergovernmental agreement was signed between Turkey and Russia in May 2010 for Akkuyu NP P, which will have four VVER-1200 power reactors with a total installed capacity of 4,800 megawatts.' , 0.6127562522888184], ['The first reactor of the plant is planned to be operational in 2023.', 0.495900 63095092773], ['On Dec. 3, Erdogan vetoed a law that would have delayed the installation of filters on thermal power plants.', 0.42937225103378296], ['On Jan. 1, 2020, Turkey completely shut down five t hermal power plants and one other partially for failure to comply by law to the installation of filters.', 0 .41311225295066833]]
61 ['2020-01-23', 'Russia Completes First Reactor Cover Welding for Akkuyu'] Russia Completes First Reactor Cover Welding for Akkuyu [['An intergovernmental agreement was signed between Turkey and Russia in May 2010 for Akkuyu N PP that will consist of four VVER-1200 power units with a total installed capacity of 4,800 megawatts. ', 0.547767698764801], ["Atommash, the Volgodonsk branch of AEM-technology, which operates alo ngside Russian State Atomic Energy Corporation Rosatom's machine-building division of Atomenergo mash, completed the welding of the reactor cover for Turkey's first nuclear plant, according to the state ment.", 0.5014575719833374], ['The first reactor of the plant is planned to be operational in 2023.', 0.4 9590063095092773], ["The welding of the reactor cover for the first unit of Akkuyu Nuclear Power Pl ant (NPP) has been completed, the reactor's manufacturer Atomenergomash announced on Wednesday. ", 0.4785411059856415], ['Atomenergomash also manufactures reactor equipment for plants in India, Bangladesh, China and Russia.', 0.4177306294441223]]
69 ['2020-04-14', 'The effect of unacceptable resignation on borrowing'] The effect of unacceptable resignation on borrowing [['Despite all the warnings, the construction of the Akkuyu nuclear power plant was initiated by the the n Prime Minister Mr. Erdoğan without a relevant law passed by the Grand National Assembly of Turke y and without a tender, and Russia gained a huge economic and strategic advantage.', 0.405571848154 068], ["In addition to the existing energy dependence, Moscow's hand has been strengthened by the ad dition of pipelines under the Black Sea (there is an agreement to lay two more pipelines too).", 0.33131 01530075073], ['Can this requirement also apply to Azerbaijan?', 0.20981280505657196], ['At a mini mum, in the last 10 months, has Turkey taken an unthinkable step on the S-400 issue, which has hurt A nkara in almost every area of Turkish-US relations and even accelerated the passage of the "Armenian genocide" project through Congress?', 0.19117659330368042], ['Those S-400s, which have been deliv ered to the "Murted" Air Base in Ankara since June 2019, were announced by the President to be activ ated in April.', 0.18151363730430603]]
69 ['2020-04-28', "CONFEDERATION OF PUBLIC WORKERS' UNIONS: 'No Social Distance in W orkplaces, Difficult to Access Disinfectants and Masks'"]

CONFEDERATION OF PUBLIC WORKERS' UNIONS: 'No Social Distance in Workplaces, Difficul t to Access Disinfectants and Masks' [['* The works at the construction of Mersin Akkuyu Nuclear Power Plant have not been halted.', 0.526 8294215202332], ['* Especially in some workplaces affiliated with the Turkish Post (PTT), workers ar e not provided with a sufficient number of protective equipments and disinfectants, alternate working h ours are not observed, the demands of subcontracted workers are not taken into consideration and there is pressure in terms of the number of parcels to be delivered.', 0.1275782585144043], ['* No general medical examination is carried out on personnel.', 0.12288491427898407], ['Personnel are verbally ass igned to work in more than one service in a day.', 0.12262313067913055], ['Over 6,000 people are still working, sometimes 200-300 people enter and leave the site at the same time, the construction sites ar e located in residential areas, the foreign nationals mostly stay in Silifke district and workers are accom modated in ward-like dormitories, which is paving the way for the spread of the disease across Mersin province.', 0.10155137628316879]]
69 ['2020-05-22', "Dendias Decries Turkey's Refusal To Discuss Plant"] Dendias Decries Turkey's Refusal To Discuss Plant [['"Turkey wants to build a nuclear power plant in Akkuyu.', 0.4576929211616516], ["Greek Foreign Minister Nikos Dendias said Wednesday that the construction of a nuclear plant at Akkuyu in southern Turkey is a security concern for the wider region and decried Ankara's failure to discuss the issue with its neighbors.", 0.33330997824668884], ["He also bemoaned Turkey's stance in the Eastern Mediterra nean and the Aegean.", 0.19694705307483673], ['Isn\'t this a danger for Greece?"', 0.16566170752048 492], ['Meanwhile on Wednesday, the Greek Foreign Ministry accused Ankara of trying to "fabricate h istory" after the Turkish Foreign Ministry issued a statement denouncing comments by Greek political parties on the anniversary of the Pontic Genocide - the massacre of ethnic Greeks by the Turks during World War I and the subsequent Greek-Turkish war - as "baseless and delirious."', 0.15304355323314 667]]
69 ['2020-05-27', "Russia ships equipment for Turkey's Akkuyu nuclear plant"] Russia ships equipment for Turkey's Akkuyu nuclear plant [["Russia's Atommash has shipped the first components for the Turkish Akkuyu nuclear power plant b eing built by state nuclear corporation Rosatom.", 0.5332450866699219], ["The Volgodonsk Branch o f AEM Technologies (part of Rosatom's Engineering Division - Atomenergomash) has manufactured a nd shipped embedded parts for a steam generator for unit 1 of Akkuyu NPP.", 0.5317558646202087], ['The Akkuyu NPP includes four power units with VVER-1200 generation 3+ reactors.', 0.5053570866 584778], ['The construction of Akkuyu NPP is the first nuclear project in the world implemented using a Build-Own-Operate model.', 0.48229384422302246], ['Earlier Rosatom said it has stepped up the tra ining of staff for the Akkuyu project and carrying out the exercise in conjunction with nuclear utility R osenergoatom.', 0.4295894205570221]]
69 ['2020-06-08', "Russia's AEM Technologies opens new assembly building"] Russia's AEM Technologies opens new assembly building [["A special site has been constructed at the Volgodonsk branch of Russia's AEM Technologies for the assembly of reactor internals, Rosatom's engineering division Atomenergomash announced on 5 June. ", 0.534423291683197], ['In mid-June, assembly and welding work will take place on the internals of t he nuclear reactor for Akkuyu nuclear power plant in Turkey.', 0.42679494619369507], ['Reactor elem ents have already been assembled at the site.', 0.3894537091255188], ['The site, intended for assembly and welding operations for the internals of reactor pressure vessels, comprises an 11-metre shaft, a baf fle, and a protective tube block, as well as equipment for carrying out various metrological measureme nts.', 0.30749574303627014], ['Previously, such operations were carried out in the workshop.', 0.23824 578523635864]]
69 ['2020-06-21', "Turkey's Russian nuclear power project hits legal hurdle | Ahval"] Turkey's Russian nuclear power project hits legal hurdle | Ahval

[["Officials broke ground on the Akkuyu power plant in 2018, which is set to be Turkey's first nuclear power station and is due to come online in 2023 - the 100th anniversary of the Republic of Turkey.", 0.4187796711921692], ["Russia's $20 billion nuclear power project located in Mersin on Turkey's Mediterranean coast has long come under fire over safety and environmental concerns, including claims of large cracks in the concrete foundations due to loose and unstable ground in the area.", 0.3606395721435547], ['Lawyers involved in the case hd also said that the Russian power power plant could pose a national security threat to Turkey.', 0.3400883972644806], ['But engineers and workers began ringing alarm bells over a potential nuclear disaster soon after its inception, and a group of NGOs filed a lawsuit with a Turkish court demanding for construction to be halted.', 0.28709396719932556], ['How this latest development will play out in the ambitious Russian-Turkish joint-venture remains to be seen.', 0.23867589235305786]]

69 ['2020-06-22', "Engineers take jobs at Turkey's first nuclear plant after trainings in Russia - Latest News"]
Engineers take jobs at Turkey's first nuclear plant after trainings in Russia - Latest News
[['The laying of the foundation for the first reactor was completed in March 2019.', 0.48938503861427307], ['I have started working at the [Akkuyu nuclear power] plant now," she added.', 0.4826361835002899], ["Application for new license\n\nRosatom, Russian state-owned nuclear company, has officially applied for a license to build the fourth reactor of Turkey's first atomic power station.", 0.4744623005390167], ['The Turkish Nuclear Regulatory Authority (NDK) has recently received the application for the construction of the last reactor of the Akkuyu Nuclear Power Plant.', 0.4603637754917145], ["Some 6,500 workers has been working in the construction of the plant's first two units, which are expected to start generating energy in 2023 and 2024.", 0.42476555705070496]]

69 ['2020-06-26', "Akkuyu Nuke Power Plant's 2nd Reactor Foundation Laid"]
Akkuyu Nuke Power Plant's 2nd Reactor Foundation Laid
[['An intergovernmental agreement was signed between Turkey and Russia in May 2010 for Akkuyu that will consist of four VVER-1200 power units with a total installed capacity of 4,800 megawatts.', 0.43777379393577576], ['Donmez hailed the plant, the first reactor of which will start operations in 2023, as one of the most powerful and safe in the world.', 0.4361155033111572], ["Turkey's President Recep Tayyip Erdogan and his Russian counterpart Vladimir Putin presided over the plant's groundbreaking ceremony held on April 3, 2018, via a videoconference from Ankara.", 0.3126443028450012], ['In preparation for employment at the plant, the Energy and Natural Resources Ministry and the Ministry of National Education agreed to update the curriculum to include nuclear education in vocational high schools, especially in Mersin where the plant is located.', 0.2031715363264084], ['"When we start the construction of all four units, around 15-16 thousand people will work here," Donmez said.', 0.1538196206098345]]

69 ['2020-06-29', 'Rosatom Finishes Steam Generators For 1st Power Unit Of Turkish Nuclear Plant - UrduPoint']
Rosatom Finishes Steam Generators For 1st Power Unit Of Turkish Nuclear Plant - UrduPoint
[["MOSCOW (UrduPoint News / Sputnik - 29th June, 2020) Atomenergomash, a mechanical engineering division of Russia's Rosatom nuclear power corporation, on Monday announced the completion of steam generators for the first unit of the Turkish Akkuyu nuclear power plant.", 0.5058940052986145], ['"The Volgodonsk Branch of JSC \'AEM-technology\' Atommash (a part of machine-building division of Rosatom State Corporation - Atomenergomash) has finished the production of Steam Generators PGV-1000 MKO set for Akkuyu NPP (Turkey) Power Unit 1," Atomenergomash said in a statement.', 0.481776922941207 9], ["The power plant is being constructed in Turkey's Mersin province and is designed to feature four units equipped with VVER-1200 reactors with a total capacity of 4,800 megawatts.", 0.42585402727127075], ["This will be the country's first nuclear power plant.", 0.3575590252876282], ["The steam generator is designed to convert thermal energy into steam that rotates the power unit's turbines to produce electricity.", 0.2673901617527008]]

69 ['2020-07-02', 'Containment building of first Akkuyu unit takes shape']

Containment building of first Akkuyu unit takes shape [["The 4800 MWe plant will comprise four VVER-1200 reactors and is expected to meet about 10% of Turkey's electricity needs.", 0.5262937545776367], ["'The installation of the containment\'s second tier brings us one step closer to the completion of construction of the Power Unit 1," said Sergei Butskikh, JSC Akkuyu Nuklear first deputy CEO and director of the nuclear power plant construction.', 0.5151978731155396], ['JSC Akkuyu Nuklear noted that work is now being carried out simultaneously for three of the four units planned at Akkuyu.', 0.48344290256500244], ["Rosatom's first build-own-operate venture, the USD20 billion project is based on an inter-governmental agreement signed between Russia and Turkey in May 2010.", 0.47386401891708374], ["The installation of the second tier of the reactor building's internal containment has been completed at unit 1 of the Akkuyu nuclear power plant under construction in Mersin province, southern Turkey.", 0.4711310863494873]]
69 ['2020-07-09', 'Kataysky Pumping Plant to supply pumps to Akkuyu'] Kataysky Pumping Plant to supply pumps to Akkuyu [["The 4800MWe Akkuyu nuclear power plant will have four VVER-1200 reactors and is expected to meet about 10% of Turkey's electricity needs.", 0.500064492225647], ["Rosatom's first build-own-operate venture, the $20bn project is based on an inter-governmental agreement signed between Russia and Turkey in May 2010.", 0.49383920431137085], ['Tenders were conducted by Titan 2, the general contractor and supplier of pumps for Akkuyu NPP.', 0.4560600817203522], ['KNZ participated independently for one of the contracts - to supply of pumping equipment for four power units of Akkuyu NPP.', 0.39245226979255676], ['In 2020, the plant plans to ship products worth RUB94 million to nuclear plants.', 0.30917757749557495]]
69 ['2020-07-10', "Turkey's Erdogan may be seriously pursuing his nuclear ambitions: Expert"] Turkey's Erdogan may be seriously pursuing his nuclear ambitions: Expert [['Along Turkey\'s Mediterranean coastline, the Russians are building four large civilian nuclear power reactors at the Akkuyu Nuclear Facility," Spacapan said.', 0.40472251176834106], ['Russia will own and operate the facility, and it is well-established that Moscow uses all of its energy assets -- not just fossil fuels -- for coercion," he said, adding that the nuclear facility is a "bad investment" because Russia will only pay for the first reactor in the facility and the Turkish government will have to secure the financing for the other three reactors.', 0.4011780917644501], ['Since the Akkuyu project began, Turkish engineering students have become the second largest national group studying nuclear sciences in Russia, where hundreds of Iranian and North Korean scientists came before them," he said.', 0.33077776432037354], ["'The Akkuyu facility doesn\'t make Turkey less dependent on foreign powers.', 0.29983168840408325], ["Ankara said that the purpose of the plant was to reduce Turkey's dependence on gas imports to meet electricity demand, but Spacapan said that didn't ring true for Turkey.", 0.2908001244068146]]
69 ['2020-09-10', 'Final Stage Begins for 1st Reactor Manuf. of Akkuyu NPP'] Final Stage Begins for 1st Reactor Manuf. of Akkuyu NPP [["The final manufacturing stage of the first reactor of Akkuyu Nuclear Power Plant (NPP) has started, AEM-technology, which operates alongside Rosatom's machine-building division of Atomenergomash, announced on Thursday\n\nSpecialists at Atommash, the Volgodonsk branch of AEM-technology, have started the check assembly of the reactor vessel, its internals and cover.", 0.5473716855049133], ['The first reactor of the plant is planned to be operational in 2023.', 0.49063464999198914], ['An intergovernmental agreement between Turkey and Russia was signed in May 2010 for the Akkuyu NPP, which will house four VVER-1200 power units with a total installed capacity of 4,800 megawatts.', 0.47225645184516907], ['In the future, the check assembly will significantly reduce the time required for the installation of the reactor with internals at the site of the NPP under construction.', 0.42694252729415894], ['A check assembly is a key operation during which the assembly of all manufactured internals and the reactor cover with the reactor vessel is checked.', 0.4215429127216339]]
72 ['2020-11-11', "First RPV arrives at Turkey's Akkuyu nuclear plant"] First RPV arrives at Turkey's Akkuyu nuclear plant

[["'The vessel complete with the thrust and support rings has covered a distance of nearly 3000 kilometers from JSC AEM-Technology branch Atommash in Volgodonsk to the site of Akkuyu Nuclear Power Plant - the first NPP in Turkey," said Sergei Butckikh, first deputy chief executive officer - director of the NPP under construction.', 0.5809381008148193], ['The $20bn Akkuyu nuclear power plant will comprise four units with Russian designed VVER-1200 generation 3+ reactors.', 0.48972195386886597], ["The 330t reactor pressure vessel (RPV) for unit 1 of Turkey's Akkuyu nuclear power plant has been delivered to the construction site.", 0.43394148349761963], ['The Nuclear Regulatory Authority (NRA) and independent inspection organisations accredited by it conducted inspections and checks at all stages of manufacture of the reactor pressure vessel at Atommash plant, Akkuyu Nuclear said.', 0.412812739610672], ['Last month, four steam generators for the first power unit have been delivered to the construction site from Atommash.', 0.38674163818359375]]
72 ['2020-11-16', 'Casings for the main circulation pumps shipped to Akkuyu'] Casings for the main circulation pumps shipped to Akkuyu [['The $20bn Akkuyu nuclear power plant will comprise four units with Russian designed VVER-1200 generation 3+ reactors.', 0.48972195386886597], ['The Petrozavodsk branch of AEM-Technologies said on 14 November that it had completed a shipment of equipment for unit 1 of the Akkuyu nuclear power plant under construction in Turkey.', 0.4606022536754608], ['The reactor pressure vessel for Akkuyu 1 was delivered to the site earlier in November.', 0.45228132605552673], ['Once the tests and inspections are completed, the equipment is prepared for shipment.', 0.33019208908081055], ['Igor Kotov, General Director of AEM-Technologies, noted that Petrozavodskmash, despite all the difficulties, was able to ensure the shipment of a set of RCP housings - complex nuclear equipment of the first safety class - within the required time frame.', 0.29310327768325806]]
72 ['2020-11-17', 'Turkish authorities grant license for construction of third unit of Akkuyu NPP'] Turkish authorities grant license for construction of third unit of Akkuyu NPP [['Akkuyu NPP is the first nuclear power plant to be built in Turkey\n\nANKARA, November 17.', 0.6220793724060059], ['Akkuyu NPP is the first nuclear power plant to be built in Turkey.', 0.611555695 5337524], ["'The license for construction of the third power unit of Akkuyu NPP has been granted.', 0.5582138299942017], ['The project is being implemented by Akkuyu Nuclear (part of Rosatom) based on the intergovernmental agreement signed by Russia and Turkey in May 2010.', 0.502249538898468], ["Turkey's Energy and Natural Resources Ministry announced on Tuesday that a license for construction of the third power unit of Akkuyu Nuclear Power Plant (NPP) has been granted.", 0.493665486574173]]
72 ['2020-11-20', "Akkuyu NPP's 3rd Unit Construction to Begin Next Spring"] Akkuyu NPP's 3rd Unit Construction to Begin Next Spring [["Construction of the third unit of Turkey's Akkuyu Nuclear Power Plant (NPP) is planned to start next spring, Kirill Komarov, first deputy director general for corporate development and international business of Rosatom, said on Friday\n\nKomarov, speaking to reporters in Sochi, said a construction license has already been granted for the third unit of the Akkuyu NPP.", 0.6178744435310364], ['An intergovernmental agreement was signed between Turkey and Russia in May 2010 for Akkuyu NPP, first nuclear plant of Turkey that will have four VVER-1200 power reactors with a total installed capacity of 4,800 megawatts.', 0.5748270153999329], ['The first reactor of the plant is planned to be operational in 2023.', 0.4938800036907196], ['Rosatom filed all the necessary documents for the fourth unit in May which will be the last license the company needs to obtain, according to Komarov.', 0.33840030431747437], ["The plant's groundbreaking ceremony held on April 3, 2018 with the participation of Turkey's President Recep Tayyip Erdogan and his Russian counterpart Vladimir Putin via video conference call from Ankara.", 0.25302261114120483]]
72 ['2020-11-30', 'ASSYSTEM : Assystem wins new independent construction inspection contract for Akkuyu Nuclear Power Plant'] ASSYSTEM : Assystem wins new independent construction inspection contract for Akkuyu Nuclear Power Plant

[['AKKUYU NÜKLEER ANONİM ŞİRKETİ, part of Russian State Atomic Corporation ROSATOM, awarded Assystem with the new six-year contract that will serve as a continuation to its current role at Akkuyu, delivering supervision of the construction of facilities important to the nuclear safety of the A kkuyu NPP in accordance with the "Regulation on Construction Inspection of NPPs", that entered into force with the Official Gazette No: 30024, dated 31/3/2017 by the Nuclear Regulatory Authority of Tu rkey.', 0.5303099751472473], ['Assystem wins new independent construction inspection contract for A kkuyu Nuclear Power Plant\n\nParis-La Défense, 30 November 2020, 5.35 p.m. (CET) - Assystem S.A . (ISIN: FR0000074148 - ASY), an international engineering group, has been selected to oversee the c onstruction of the Akkuyu nuclear power plant (NPP) in Turkey, as part of a major international engine ering deal at the end of a tender process conducted in compliance with the Unified Industry Procureme nt Standard of the State Atomic Energy Cooperation "ROSATOM".', 0.5067678093910217], ['This col laboration between Assystem and ROSATOM follows successful cooperation on Akkuyu since 2011 where Assystem, through its Turkish subsidiary Assystem Envy (acquired in 2016), has delivered site parameters monitoring program including initial and design stage site surveys, detailed hydrogeologica l surveys and site inspection and safety.', 0.46462908387184143], [': +33 (0)6 83 28 04 15\n\nAttachm ent\n\nPR Akkuyu Construction Contract Eng', 0.4415111541748047], ["Assystem is also supporting ROSATOM with engineering services delivered to the Hanhikivi NPP project in Finland and has exper ienced teams, with expert knowledge of VVER technology and the international nuclear regulatory fra mework, who are committed to supporting ROSATOM's international programme of nuclear investme nt.", 0.4285479187965393]]
72 ['2020-11-30', 'Reactor lid completed for Akkuyu unit 1'] Reactor lid completed for Akkuyu unit 1 [["The 4800 MWe plant will comprise four VVER-1200 reactors and is expected to meet about 10% of Turkey's electricity needs.", 0.537707507610321], ["Rosatom's first build-own-operate venture, the U SD20 billion project is based on an inter-governmental agreement signed between Russia and Turkey i n May 2010.", 0.5045540928840637], ["The Volgodonsk branch of Russia's AEM Technology has co mpleted the manufacture of the reactor cover for unit 1 of the Akkuyu nuclear power plant under const ruction in Turkey.", 0.4868740141391754], ['AEM Technology, a subsidiary of Russian state nuclear c orporation Rosatom, said reactor lid manufacturing is a lengthy process and takes up to one-and-a-half years.', 0.45364415645599365], ['The reactor head, like the reactor pressure vessel (RPV), belongs to t he items of equipment of the first category of seismic resistance, AEM Technology said.', 0.38119789958000183]]
72 ['2020-12-01', "Operators' town for Akkuyu under construction"] Operators' town for Akkuyu under construction [['Titan-2 is the main contractor for the construction of the Hanhikivi 1 NPP in Finland and the Akkuy u NPP in Turkey and is the general contractor for the construction of new power units at the Leningrad NPP.', 0.6896897554397583], ['Russian-Turkish company Titan2 IJ Ichtash Inshaat Anonim Shirketi i s building a residential complex for workers near the Akkuyu nuclear power plant in Turkey.', 0.4997797906398773], ["The $20bn, four-unit Akkuyu nuclear power plant is being built by Russia's Rosatom under a build-own operate model.", 0.4988987147808075], ['The town is some 2.5km from the Akkuy u NPP construction site.', 0.4642176330089569], ['Today we are ready to start construction and install ation work.', 0.38768908381462097]]
72 ['2020-12-18', "Russia's Sovcombank to lend up to $300 mln to Turkey's Akkuyu Nuclear for NPP construction"] Russia's Sovcombank to lend up to $300 mln to Turkey's Akkuyu Nuclear for NPP construction

[["The first reactor of the Akkuyu NPP is planned to be put into operation by 2023, Daily Sabah quoted Turkey's energy ministry as saying in November.", 0.6007573008537292], ["'The construction of the Akkuyu NPP in Turkey is progressing at a good pace.', 0.5992558002471924], ["ANKARA (Turkey), December 18 (SeeNews) - Russia's Sovcombank said on Friday it will lend up to $300 million (244.8 million euro) to Turkish construction company Akkuyu Nuclear, a subsidiary of Russia's state-owned nuclear energy corporation Rosatom, for the construction of the Akkuyu nuclear power plant (NPP) in Turkey.", 0.5572888851165771], ['Rosatom owns 99.2% of project company Akkuyu Nuclear which implements the project for construction and operation of the power plant.', 0.5424185991287231], ['In 2010, Turkey and Russia signed a cooperation agreement for the construction of the power plant worth an estimated $20 billion.', 0.44516608119010925]]
72 ['2020-12-22', 'Energomashspetsstal : Has Introduced A New Technology To Manufacture Parts Of Steam Turbine Rotors For...'] Energomashspetsstal : Has Introduced A New Technology To Manufacture Parts Of Steam Turbine Rotors For... [["'Successful completion of the qualification work has allowed the EMSS to start serial production of parts of low-pressure turbine rotors for GE that will be installed on Akkuyu NPP under construction in Turkey.", 0.4920772910118103], ["As a result, in October 2019, the plant started manufacturing two experimental forgings 'Shaft' and 'Disk'.", 0.43479517102241516], ["'The preparation work to get GE's qualification has been carried out at the EMSS for a long time and was completed in the fall of 2019.", 0.309379518032074], ["In a short time, EMSS' teams developed production process plans to manufacture rotor shanks and discs and got approved them by GE'.", 0.2961556613445282], ["To date, orders for the manufacture of rotors have already entered manufacturing'.", 0.29114678502082825]]
76 ['2021-03-10', 'Erdogan, Putin remotely start nuclear reactor construction'] [['Alexei Druzhinin\n\nISTANBUL (AP) -- The presidents of Turkey and Russia remotely inaugurated the construction of a third nuclear reactor at the Akkuyu power plant in southern Turkey Wednesday, vowing to continue their close cooperation.', 0.6468247175216675], ['The presidents of Turkey and Russia have remotely inaugurated the construction of a third nuclear reactor of Akkuyu power plant in southern Turkey, vowing to continue their close cooperation.', 0.6336094737052917], ['The presidents of Turkey and Russia have remotely inaugurated the construction of a third nuclear reactor of Akkuyu power plant in southern Turkey, vowing to continue their close cooperation.', 0.6336094737052917], ['The presidents of Turkey and Russia have remotely inaugurated the construction of a third nuclear reactor of Akkuyu power plant in southern Turkey, vowing to continue their close cooperation.', 0.6336094737052917], ['The presidents of Turkey and Russia have remotely inaugurated the construction of a third nuclear reactor of Akkuyu power plant in southern Turkey, vowing to continue their close cooperation.', 0.6336094737052917]]
76 ['2021-01-12', 'General Electric : GE Steam Power delivers first Arabelle steam turbine module ahead of schedule for Akkuyu nuclear power plant | MarketScreener'] [['Commenting on the event, Andrey Nikipelov, CEO of Atomenergomash, said: "For the first time ever, the enterprises of Rosatom\\'s Mechanical Engineering Division involved in the Akkuyu project, have started to produce turbine island equipment in accordance with European standards.', 0.5096074342727661], ["Akkuyu is Turkey's first nuclear power plant and when completed, it will deliver 4.8 gigawatts (GW) of CO2 free electricity.", 0.45550060272216797], ['Baden, Switzerland - -GE Steam Power (NYSE:GE) delivered the first Arabelle steam turbine module for the Akkuyu nuclear power plant from its Belfort factory in France.', 0.411138653755188], ["- As part of its supply contract for the turbine islands' main equipment, GE delivered the first Arabelle equipment for Akkuyu nuclear power plant, ahead of schedule, to Atomenergomash.", 0.38275060057640076], ['This is the outcome of successful strategic partnership between two heavy manufacturing giants - Atomenergomash of Rosatom and GE.', 0.3682549297809601]]
76 ['2021-01-20', 'Houses damaged in controlled explosion in nuclear power plant site']

[['Mersin, the people of Mersin do not want a nuclear power plant in Akkuyu.'", 0.5068472623825073] , ["An explosion occurred at the Akkuyu Nuclear Power Plant site in Turkey's eastern Mediterranean p rovince of Mersin yesterday (January 19).", 0.48271265625953674], ['The governor\'s office has anno unced that "a damage assessment commission has been established to assess the damages to houses an d greenhouses in Büyükeceli region as a result of the planned explosion that occured at the Akkuyu Nu clear Power Plant Site."', 0.36283063888549805], ['Main opposition Republican People\'s Party (CHP) Mersin MP Ali Mahir Başarır has made a statement after the explosion and said that they, as citizens, do not want to experience such troubles any longer:\n\n"Another explosion occurred in Akkuyu, Mersi n.', 0.23933003842830658], ['Please, if you construct a nuclear [plant], do it somewhere which is not a n earthquake zone, do it somewhere outside Mersin, in a less dangerous geography.', 0.2267126441001 892]]
76 ['2021-02-10', 'Akkuyu fully operational by 2026, says project CEO'] [['Under the terms of the agreement, Rosatom established a project company in Turkey, Akkuyu Nükle er.', 0.6057558059692383], ['Russia and Turkey signed an intergovernmental agreement in May 2010 f or the construction of the Akkuyu nuclear power plant on the southern coast of Turkey in Mersin provi nce, which will comprise four VVER-1200 reactors with a total capacity of 4800 MW.', 0.5929558277 130127], ['The four nuclear power units under construction in Turkey will be commissioned one per ye ar between 2023 and 2026, Anastasia Zoteeva, CEO of the Akkuyu Nükleer AS project company, said in a television interview with Bloomberg HT on 8 February.', 0.48741352558135986], ['Construction work at the Akkuyu site has not been interrupted by the pandemic, she said.', 0.48681142926216125], ["Under a long-term contract, Akkuyu Nükleer is responsible for plant's design, construction, maintena nce, operation and decommissioning.", 0.4839087724685669]]
76 ['2021-02-19', 'Energomashspetsstal : EMSS summed up the results of the enterprise for year 2020'] [['The finished products will be installed at the Akkuyu NPP which is now under construction in Turke y.', 0.7181326746940613], ['The key objects of supplies in year 2020 were shipments for Kudankulam NPP (India), Akkuyu NPP (Turkey), Tianwan NPP (China) and Xudapu NPP (China).', 0.6782085299 491882], ['ReturnSubscribe for new articles See also: At the EMSS PJSC accepted the blanks for Unit 3 of the Akkuyu NPP The Nuclear Regulatory Agency of the Republic of Turkey has extended the cert ificate of Energomashspetsstal PJSC for the manufacture of blanks for the equipment of the Akkuyu N PP Energomashspetsstal Has Introduced A New Technology To Manufacture Parts Of Steam Turbine Rotors For Akkuyu NPP\n\nAttachments\n\nOriginal document Permalink\n\nDisclaimer\n\nEnergom ashspetsstal PAT published this content on 19 February 2021 and is solely responsible for the informat ion contained therein.', 0.4916486144065857], ['Also it will be continued works on the production of b lanks for the nuclear power plants which are under construction in India, Turkey and China.', 0.410529 16646003723], ["It is discussed the prospects of supplying our products to Egypt for the 'El-Dabaa' nu clear power plant.", 0.3734681010246277]]
76 ['2021-03-01', 'Akkuyu / Russia Completes Pressuriser Welding For Turkey Nuclear Plant'] 76 ['2021-03-01', 'Rosatom Head May Attend Reactor Groundbreaking Ceremony At Turkeys Akkuyu NPP - Source - UrduPoint'] [['Rosatom oversees the construction of the NPP.', 0.7644667625427246], ["The Akkuyu NPP is Turke y's first-ever nuclear power plant.", 0.6477595567703247], ["MOSCOW (UrduPoint News / Sputnik - 01st March, 2021) Alexey Likhachev, the director general of Russia's state nuclear agency Rosatom is expected to attend the ceremony marking the start of construction of the third reactor at the Turkey-bas ed Akkuyu nuclear power plant (NPP), billed as the first-ever nuclear power plant in the country, a sou rce told Sputnik.", 0.6081084609031677], ['It will have four nuclear units equipped with Russian-desig ned generation 3+ VVER reactors with the capacity of 1200 megawatt each.', 0.3950492739677429], [' On Monday, Kremlin spokesman Dmitry Peskov confirmed that the preparations for the teleconference are currently underway.', 0.3123941421508789]]
76 ['2021-03-03', 'Cantilever Beam Installation in Akkuyu NGS Second Unit Reactor Building Has Be en Completed']

[['In the Akkuyu NGS second unit reactor building, the installation of the Cantilever Beam, the second large-sized component of the Corrector (KT) equipment, has been completed.', 0.38858380913734436] , ['Sergei Butckikh, Director of Construction Works of NGS commented on the completion of the work on the cantilever beam equipment installation as follows: "The cornerstone equipment consists of thre e parts: body, cantilever beam and guide plate.', 0.3154677152633667], ['Later, with the assembly and concreting of the protection vessel, the assembly of the support beam will begin and the construction o f the pressure vessel core shell will continue.', 0.29735347628593445], ["This complex engineering de sign is one of the few elements that enables the reactor to meet the most modern international safety re quirements and is an important component of the plant's safety system.", 0.2818244993686676], ['Befo re installation, it took about a month and a half to install the Cantilever Beam on a custom skid.', 0.263 83501291275024]]
76 ['2021-03-09', 'Akkuyu Nuclear receives sustainability loans from Sovcombank'] [["'Not only is Akkuyu NPP the first nuclear power plant to be built in Turkey, it is also the world\'s fir st nuclear power plant to secure direct \'sustainable\' financing for its construction," he said.', 0.547308 2065582275], ["In November last year, Turkey's nuclear regulatory authority (Nükleer Düzenleme Kur umu - NDK) issued a construction licence to Akkuyu Nuclear for unit 3 of the plant, which is in Mersi n province, in southern Turkey.", 0.5194880962371826], ['Comprising four VVER-1200 units, the Ak kuyu NPP project will be the first in the global nuclear industry to be implemented according to the Bu ild-Own-Operate model.', 0.5180861353874207], ["JSC Akkuyu Nuclear, a subsidiary of Russia's Ros atom, said today it had received two loans of up to USD200 million and USD100 million, respectively, for a period of seven years from Sovcombank to finance the construction of the Akkuyu nuclear powe r plant in Turkey.", 0.512930154800415], ["Anton Dedusenko, deputy chairman and managing directo r for sustainable development and shareholder relations at Akkuyu Nuclear, said the Akkuyu nuclear p ower plant construction project is a 'flagship' project in several ways.", 0.4509640336036682]]
76 ['2021-03-10', 'First concrete poured for Akkuyu unit 3'] [['The Akkuyu NPP construction project, the first in Turkey, is being implemented by Akkuyu Nuclear following an intergovernmental agreement signed between Russian and Turkey in 2010.', 0.70066118 24035645], ['The Akkuyu NPP with four VVER-1200 units is being constructed on a build-own-operat e basis by Rosatom, with commissioning of the first unit planned for 2023.', 0.6584415435791016], [" First concrete was poured for the third unit of Turkey's Akkuyu NPP on 11 March.", 0.5862835645675 659], ["'Just three years after the start of construction of the Akkuyu NPP, we are starting full-scale co nstruction work at the third power unit.', 0.5407236814498901], ["'Construction and commissioning of the station will provide 10% of Turkey\'s electricity needs.', 0.5212839841842651]]
76 ['2021-03-10', 'Akkuyu nuclear power plant 4th reactor construction will begin in 2022 - Erdogan'] [['A specially created company, Akkuyu Nukler, is responsible for the construction of the station, over 99% of which is owned by Rosatom.', 0.6291136145591736], ['The first unit of the Akkuyu NPP is pla nned to be commissioned by the 100th anniversary of the republic, in 2023.', 0.6057779788970947], [' The construction of the first unit of the Akkuyu NPP began in April 2018, the second in June 2020.', 0. 5582980513572693], ['Rosatom has already handed over the documents for obtaining a license for the construction of the fourth and last block of the station to the Turkish regulatory authorities.', 0.5363559 126853943], ["The construction of Turkey's first nuclear power plant is taking place based of an interg overnmental agreement signed between Russia and Turkey in May 2010.", 0.5166212320327759]]
76 ['2021-03-10', 'Erdogan, Putin hail joint nuclear plant as symbol of friendship'] [['Turkish engineers are receiving training in Russia to operate the plant in the future.', 0.56491440534 59167], ["The construction of the plant, Turkey's first ever, started in 2018.", 0.5643711090087891], [" The plant's first unit, out of a total of four, is scheduled to be operational in 2023, the centennial of the republic's foundation, Erdogan said.", 0.5391912460327148], ["Russia's Rosatom has a 99.2 per cent st ake in Akkuyu.", 0.5386070609092712], ["A Russian-built nuclear power plant in Turkey, set to go on line in 2023, represents close cooperation between the two countries, both country's presidents said on Wednesday.", 0.523777425289154]]

76 ['2021-03-25', 'Atommash begins manufacturing passive safety systems for Akkuyu NPP'] [['The Akkuyu NPP, the first in Turkey, is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.6497842073440552], ['The pl ant with four VVER-1200 units is being constructed on a build-own-operate basis by Rosatom, with co mmissioning of the first unit planned for 2023.', 0.563142120838165 3], ["The Volgodonsk branch of AEM-Technologies (part of Rosatom's mechanical engineering division - Atomenergomash) has begun to manufacture containers for the passive core bay system (SPZAZ) for unit 1 of the Akkuyu NPP und er construction in Turkey, Atommash said on 24 March.", 0.5473071932792664], ["The design and co nstruction is carried out by Rosatom's Engineering Division and Atomenergomash is supplier of equip ment for the reactor plant and the turbine hall for all four units.", 0.46959152817726135], ['Atommash will manufacture SPZAZ hydraulic tanks for Akkuyu units 1&3.', 0.2791799306869507]]
76 ['2021-04-15', 'Russia restricts air service with Turkey and suspends flights to Tanzania - Russia Ne ws Now'] [['Apart from that, the crisis center has allowed chartered flights to ensure continuation of the construct ion of the Akkuyu nuclear plant.', 0.4587278962135315], ['According to the Kommersand daily, from 60,000 to 70,000 Russian nationals, who had connecting flights in Turkey, may have problems with th e return to Russia.', 0.31346192955970764], ['/TASS/.', 0.2870204448699951], ['According to Russian Deputy Prime Minister Tatiana Golikova, air service with Tanzania and Turkey will be resumed as so on as the coronavirus situation in those countries stabilizes.', 0.2825992703437805], ['Meanwhile, Goli kova noted that Russian nationals staying in Turkey would be able to return home by chartered flights.' , 0.21877440810203552]]
76 ['2021-04-19', 'More equipment for Akkuyu NPP'] [['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.7004159688949585], ['Also o n 31 March, Atomenergomash subsidiary, Energomashspetsstal (EMMS) began serial production of ro tor parts for the Akkuyu NPP.', 0.6680114269256592], ['The Akkuyu NPP, with four VVER-1200 unit s, is being constructed on a build-own-operate basis by Rosatom, with commissioning of the first unit planned for 2023.', 0.6584415435791016], ['EMMS has been supplying blanks for the Akkuyu plant si nce 2016.', 0.634435772895813], ['NIIIS plans to start manufacturing of APCS equipment for Akkuyu NPP in the fourth quarter of this year.', 0.4676787853240967]]
80 ['2021-04-27', 'Turkish regulator inspects equipment for Akkuyu'] [['Representatives of the Turkish Nuclear Regulatory Authority (NDK) on 19 April visited Russian ma nufacturers of equipment and materials intended for the Akkuyu nuclear power plant being built in Me rsin province by Rosatom.', 0.5827397108078003], ["The NDK delegation visited the production site o f Izhorskiye Zavody in St Petersburg, where the reactor pressure vessel for unit 2 of the Akkuyu NPP i s being manufactured, as well as many other components of the plant's main equipment.", 0.4970922470 0927734], ['Turkish legislation requires that all factories supplying equipment and materials for the A kkuyu NPP should be subject to NDK certification.', 0.4955683946609497], ['Frolov said NDK is clos ely supervising all stages of the manufacture of blanks and equipment for the Akkuyu NPP to ensure c ompliance with regulatory documents and licenses issued by the regulator.', 0.3543347418308258], ['B efore this equipment is sent to the NPP construction site, we need to make sure that it is manufactured i n accordance with all safety standards and requirements."', 0.3518507480621338]]
80 ['2021-06-01', 'More equipment under manufacture for Akkuyu NPP']

[['EMSS has been supplying blanks Akkuyu NPP since 2016.', 0.6917698979377747], ['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an intergovernmental ag reement signed between Russian and Turkey in 2010.', 0.6604284644126892], ["Ukraine's Energomas hspetsstal (EMSS), a subsidiary of Rosatom's engineering division Atomenergomash, on 31 May signe d a new contract for the supply of billets for the Akkuyu NPP under construction in Turkey.", 0.65730 94129562378], ['The Akkuyu NPP, with four VVER-1200 units, is being constructed on a build-own-o perate basis by Rosatom, with commissioning of the first unit planned for 2023.', 0.649567961692810 1], ["Inspectors from Turkey's Nuclear Regulatory Agency undertake regular supervisory audits of the enterprise as well as acceptance inspections of manufactured products together with the customer, Akk uyu Nuclear.", 0.2947998046875]]
80 ['2021-06-02', 'Rosatom: the 1st reactor pressure vessel installed at Turkish Akkuyu NPP'] [['The technology has successfully proven itself at many NPP construction projects in China, Japan, Bu lgaria and Russia, including the construction of the Leningrad NPP-2 power units with VVER-1200 re actors.', 0.5859733819961548], ['Unit 1 reactor pressure vessel (RPV) installation is completed at the Akkuyu NPP construction site.', 0.5103321671485901], ['After the RPV installation, construction wor kers will proceed with concreting the reactor shaft, install bearings for the Main Circulation Pipeline c omponents and steam generators.', 0.40171366930007935], ['Mersin province (Turkey), June 2 - Nefte gaz.RU.', 0.3970995843410492], ['Sergei Butckikh, 1st Deputy CEO of Akkuyu Nuclear, said:\n\nThe installation of the reactor pressure vessel of Unit 1 is one of the main events within this year On April 21, we mounted a support ring on which the reactor vessel is installed It is a structural element of the r eactor plant, designed to secure the vessel, keep it from horizontal and vertical displacements when ex posed to loads And now the reactor vessel has been installed in the design position Completing of the RPV installation will allow us to continue work on the reactor shaft construction The RPV installation was carried out under the Open Top technology, through the uncovered top of the cylindrical part of th e reactor building.', 0.3668529689311981]]
80 ['2021-06-10', 'Third tier of inner containment installed at Akkuyu 1'] [['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.6604284644126892], ['The A kkuyu NPP, with four VVER-1200 units, is being constructed on a build-own-operate basis by Rosato m, with commissioning of the first unit planned for 2023.', 0.6495679616928101], ['The third tier of th e internal containment shell has been installed at unit 1 of the Akkuyu NPP under construction in Turk ey, project company Akkuyu Nuclear said on 7 June.', 0.5868442058563232], ['"Just a week ago, we i nstalled the reactor vessel at the first power unit, and now we have passed another key stage of constru ction: installing the third tier of the inner containment," said Sergey Butskikh, First Deputy General Di rector and Director of the NPP under construction at Akkuyu Nuclear.', 0.5243330001831055], ['The r eactor buildings of the Akkuyu NPP project have a double containment shell.', 0.524055004119873]]
80 ['2021-06-25', 'Environmental Impact Assessment (EIA) In Turkish Environmental Laws - Environ ment - Turkey']

[['In another dispute regarding this issue, a lawsuit was filed against the Wind Power Plant located by n ear the immovables owned by the plaintiffs demanding the annulment of the "EIA Not Required" decis ion.', 0.2807157337665558], ['The 14 Chamber of the Council of State (with its decision numbered 20 14/390 E. and 2015/7788 K.) ruled in favor of the investor stating that: "It was concluded that there wa s no unlawfulness in the subject matter transaction and there was no legal basis in the decision of the A dministrative Court which annulled the transaction subject to the lawsuit since; the general rule is that t he judgement must be made as of the date when the subject matter transaction was established and rive r-type power plants with an installed power of 10 MW or more are subject to Selection and Eliminatio n Criteria according to the Environmental Impact Assessment Regulation in effect on the date of the pr ocess, which was published on the Official Gazette 16.13.2003 numbered 25318, hydroelectric power plants under this value are excluded from the scope of the EIA Regulation without being subject to Sel ection and Screening Criteria, the installed power of the hydroelectric power plant intended to be estab lished by the intervening Company is 2.06 MW which is below 10 MW.', 0.22961370646953583], ['A gain, contrary to the earlier precedent of the Council of State; in an action for annulment application to the "EIA Positive" report issued to the Akkuyu Nuclear Power Plant, the Plenary Session of the Admin istrative Law Chamber (PSALC) decided that, if the subject of a project is a nuclear power plant, every citizen living in the country has legal standing to sue even if they do not reside in the region or own an y immovable property (with its decision numbered 2015/3251 E. and 2015/3205 K).', 0.227460235357 28455], ['According to Article 19 of the Regulation, in the case that it is determined that the project ow ner does not comply with the undertakings made regarding the final EIA Report or Project Promotion File, the Ministry or the district Governorship may allow a time-frame for one (1) time to the project o wners to comply with the undertakings which shall not exceed one (1) year.', 0.22441574931144714], ['If the undertakings are not met within this time, the investment shall be suspended and the decision re garding its suspension shall not be lifted until the project meets the undertakings.', 0.221841111779212 95]]
80 ['2021-07-06', 'Russia tests low speed turbines for VVER-TOI reactors'] [['Kursk-II NPP will be the first power plant with these reactors.', 0.519920825958252], ['Since 2017, AAEM has been supplying equipment for complete steam turbine units for the Akkuyu NPP.', 0.48492 65217781067], ['A total of four Arabelle low-speed steam turbines will be installed at the Akkuyu NPP in Turkey.', 0.46251365542411804], ["AAEM (a joint venture of Rosatom's mechanical engineering d ivision Atomenergomash and GE Steam Power) was established in 2007 to complete the turbine rooms of Russian-designed NPPs using the GE Steam Power Arabelle steam turbine technology.", 0.3789615 9291267395], ['The 1255MWe new generation low-speed turbine was designed and developed by the e mployees of the special design bureau of LMZ Turbina, taking into account the requirements of the inn ovative VVER-TOI project, as well as in accordance with the requirements and with the active support of Rosatom.', 0.3251936435699463]]
80 ['2021-07-14', 'Cargo testing completed of pump casings for Akkuyu NPP'] [['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.6604284644126892], ['The A kkuyu NPP, with four VVER-1200 units, is being constructed on a build-own-operate basis by Rosato m, with commissioning of the first unit planned for 2023.', 0.6495679616928101], ["The Petrozavodsk branch of AEM-Technologies JSC (part of Rosatom's mechanical engineering division Atomenergom ash) said on 8 July it had carried out cargo tests of two casings for the main circulation pumping units (MCPU) for unit 2 of the Akkuyu NPP being built in Turkey.", 0.5799983739852905], ['The purpose of the cargo tests is to control the strength of the welded seams between the trunnions and the reactor coo lant pipeline (RCP) body.', 0.22257618606090546], ['The main circulation pump is circulates the coola nt from the reactor to the steam generators and operates under a coolant pressure of about 160 atmosph eres and at a temperature of 300 degrees.', 0.1611429750919342]]
80 ['2021-07-15', 'Atommash manufactures the first steam generator for Akkuyu 2']

[['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.6604284644126892], ['The A kkuyu NPP, with four VVER-1200 units, is being constructed on a build-own-operate basis by Rosato m, with commissioning of the first unit planned for 2023.', 0.6495679616928101], ["Atommash, the V olgodonsk branch of Russia's AEM-Technologies part of Rosatom's mechanical engineering division Atomenergomash) has manufactured the first steam generator for unit 2 of the Akkuyu NPP under con struction in Turkey.", 0.6133825182914734], ['After all openings of the steam generator are closed wit h special plugs, the first and second circuits were filled with distilled water.', 0.19119860231876373], ['Manufacturing a steam generator includes the assembly and welding of housings from separate shells and nozzles, the manufacture of bottoms, drilling of the primary circuit collectors, the manufacture of c oils and the installation of internals, as well as a set of control measures.', 0.1755528450012207]]
80 ['2021-07-20', 'Atommash assembled half-shells for Akkuyu unit 1'] [['The Akkuyu NPP construction project is being implemented by Akkuyu Nuclear following an interg overnmental agreement signed between Russian and Turkey in 2010.', 0.6604284644126892], ['The A kkuyu NPP, with four VVER-1200 units, is being constructed on a build-own-operate basis by Rosato m, with commissioning of the first unit planned for 2023.', 0.6495679616928101], ["The Volgodonsk branch of AEM-Technologies (part of Rosatom's mechanical engineering division Atomenergomash) s aid on 19 July that it had assembled six half-shells for the passive core bay system (SPZAZ) tanks for unit 1 of the Akkuyu NPP under construction in Turkey.", 0.5116252303123474], ['Atommash will ma nufacture SPZAZ hydraulic tanks for units 1 and 3 of the Akkuyu NPP.', 0.47081848978996277], ['SP ZAZ belongs to the second stage of passive NPP safety systems.', 0.46886488795280457]]
80 ['2021-07-22', "Assembly of Akkuyu NPP's first unit to be finished by end of year - Latest News"] [['An intergovernmental agreement for the Akkuyu NPP, which is currently under construction, was si gned between Turkey and Russia in May 2010.', 0.6345909237861633], ["The first unit of Turkey's fir st nuclear power plant will be taken online in 2023 in accordance with the initial planning, Dmitriy Ro manets, the deputy director of construction works at the Akkuyu Nuclear Power Plant (NPP), told Dem irören News Agency.", 0.5865756869316101], ['Romanets and his colleagues gained experience in a v ery similar nuclear power plant construction in Belarus before arriving in Mersin for the $20 billion pr ojects in 2015.', 0.4999260008335135], ['The plant will have four VVER-1200 power reactors upon c ompletion.', 0.47673845291137695], ["Akkuyu NPP's design was copied from the Novovoronezh NPP in Russia, but the technology and safety measures were further developed after the Fukushima nuclear disaster caused by an earthquake and a tsunami in Japan in 2011.", 0.4723823666572571]]
80 ['2021-08-12', 'Foundation pit construction for unit 4 of Akkuyu nuclear plant underway'] [["Turkey's first nuclear power plant will become the world's largest nuclear construction center, where four power units will be built simultaneously, according to Akkuyu Nuclear JSC First Deputy CEO an d Director of the Akkuyu NPP under construction, Sergei Butckikh.", 0.6004961729049683], ['- Comp any expects to receive construction license for Unit 4 this year to begin full-scale construction works, s ays official\n\nPreparations for the construction of Unit 4 of the Akkuyu nuclear power plant are under way, according to the project company developing the plant, Akkuyu Nuclear JSC on Thursday.', 0.53 11562418937683], ['The construction of the concrete blinding of the reactor and the foundation slabs f or the turbine buildings will begin followed by reinforcement of the slabs, he said.', 0.37832081317901 61], ['Excavation for the construction of the reactor building, the turbine hall, the auxiliary reactor buil ding and other main facilities of Unit 4 are being carried out in an area of 655 square meters.', 0.33824 068307876587], ["The building works follow the issuance of a Limited Work Permit (LWP) by Turke y's Nuclear Regulatory Authority on June 30 this year.", 0.3026561141014099]]
80 ['2021-08-16', '4th Unit Works Started at Akkuyu NPP']

[["Preparations have begun for the construction of Unit 4 at the Akkuyu NPP site, Turkey's first nuclea r power plant (NGS).", 0.6183985471725464], ["Thus, Akkuyu NPP will be the world's largest nuclear construction center where four power units will be built simultaneously.", 0.5277612209320068], ['Se rgei Butckikh, First Deputy General Manager of AKKUYU NÜKLEER A.Ş and Director of NGS Con struction, said, "This year, we hope to obtain a construction license for Unit 4 and start full-scale constr uction work on the unit early next year.', 0.4916253387928009], ['The pit excavation works for the con struction of the reactor building, turbine building, auxiliary reactor building and other main facilities of Unit 4 are being carried out on an area of 655 m2.', 0.33929020166397095], ['The works are carried o ut in accordance with the Limited Work Permit given by the Nuclear Regulatory Authority of the Repu blic of Turkey on 30 June 2021.', 0.30472792739868 16]]
82 ['2021-08-26', 'Atommash begins manufacture SPZAZ hydraulic tanks Akkuyu 1'] [["Atommash, the Volgodonsk branch of Russia's AEM-Technologies (part of Rosatom's mechanical e ngineering division Atomenergomash) has begun welding the hulls and bottoms of the passive core ba y system (SPZAZ) for unit 1 of the Akkuyu NPP (under construction in Turkey, Atomenergomash said on 25 August.", 0.5697225332260132], ['Rosatom is building four VVER-1200 reactors at Akkuyu, u nder a build-own-operate model.', 0.5538152456283569], ["The 4800 MWe plant when completed is e xpected to meet about 10% of Turkey's electricity needs.", 0.5157037377357483], ['The SPZAZ belon gs to the second stage of passive NPP safety systems.', 0.47846898436546326], ['Construction of the fi rst unit began in 2018, with start-up planned for 2023.', 0.4102250039577484]]
82 ['2021-09-02', 'Shipment of Steam Generators Produced for the 2nd Unit of Akkuyu NPP Started'] [['The Akkuyu NPP project includes four power units with 4+ generation VVER-3 reactors, each of wh ich will be equipped with 1200 steam generators.', 0.5172926187515259], ['Atommash, a branch of A EM Technologies A.Ş, which is part of Atomenergomash A.Ş, the machine building division of Russia n State Atomic Energy Corporation Rosatom, has started the shipment of steam generators produced fo r the Second Unit of Akkuyu Nuclear Power Plant (NGS).', 0.48014795780181885], ['Akkuyu NPP, th e first nuclear power plant project in the world built with the "Build, Operate, Own" model, will consis t of VVER-1200 type 3+ generation 4 reactors.', 0.4793320000171661 4], ['As a result, we are starting t he shipment of the set for the second unit of the first nuclear power plant in Turkey today.', 0.4330118 8945770264], ['AEM-Technologies General Manager Igor Kotov said: "The construction of the first of the 4 steam generators was completed 8 months ahead of schedule.', 0.4135112762451172]]
82 ['2021-09-02', 'Steam generators for Akkuyu 2 being delivered to construction site'] [["Russia's Atommash, the Volgodonsk branch of AEM-Technologies (part of Rosatom's mechanical e ngineering division Atomenergomash), said on 1 September that it had begun shipping steam generator s for unit 2 of the Akkuyu NPP under construction in Turkey.", 0.617524266242981], ['Rosatom is bui lding four VVER-1200 reactors at Akkuyu, under a build-own-operate model.', 0.5538152456283569], ["The 4800 MWe plant when completed is expected to meet about 10% of Turkey's electricity needs." , 0.5157037377357483], ['?Marmara and the Dardanelles Strait to the Aegean and Mediterranean Seas and finally to the Akkuyu NPP construction site.', 0.47203317284584045], ['Construction of the first u nit began in 2018, with start-up planned for 2023.', 0.4102250039577484]]
82 ['2021-09-08', "Akkuyu 3's pressure vessel takes shape"] [["Russia's state atomic energy corporation Rosatom is building four VVER-1200 reactors at Akkuyu, under a so-called BOO (build-own-operate) model.", 0.48509764671325684], ["The 4800 MWe plant i s expected to meet about 10% of Turkey's electricity needs.", 0.4594418704509735], ['Construction of the first unit began in 2018, with startup planned for 2023.', 0.4075402617454529], ["Atomenergomas h is in the process of manufacturing the reactor pressure vessel for Turkey's new Akkuyu 3 reactor.", 0. 40026357769966125], ['The elliptical bottom of the reactor vessel for a VVER-1200 unit is made in se veral stages from a seamless forged billet in the form of a tube 6 metres long, with an outer diameter of 2.5 metres, and weighing 96 tonnes.', 0.2047647386789322]]
82 ['2021-09-09', 'Atommash begins manufacture of reactor bottom for Akkuyu 3']

[['Rosatom is building four VVER-1200 reactors at Akkuyu, under a build-own-operate model.', 0.553 8152456283569], ['Also on 7 September, Akkuyu Nuklear, the project company for the Akkuyu NPP, said another group of 24 Turkish students had been selected to study at the Peter the Great St Petersbur g Polytechnic University (SPbPU) as part of the training programme for plant operators.', 0.544095575 8094788], ['An intergovernmental agreement between Turkey and Russia on cooperation in the constru ction and operation the Akkuyu NPP in Mersin province was signed in 2010.', 0.5425646305084229], ["Atommash, the Volgodonsk branch of AEM-Technologies (part of Rosatom's mechanical engineerin g division Atomenergomash) has started a long-cycle operation to manufacture the bottom of the react or pressure vessel (RPV) for unit 3 of the Akkuyu NPP under construction in Turkey.", 0.53745514154 4342], ["After receiving a master's degree from SPbPU, they will be employed at the Akkuyu NPP.", 0 .5203949809074402]]
82 ['2021-09-09', 'Second Layer of Inner Protection Shell Installed on Power Unit No. 2 of Akkuyu NP P'] [['Independent divisions, by sea St. Petersburg, Akkuyu NPP was delivered to the construction site, wh ere it was assembled in a single layer.', 0.5490294694900513], ['The reactor buildings of Akkuyu NPP power units are equipped with double protection shells.', 0.5338483452796936], ['In this way, the main tenance operations of the nuclear reactor are carried out during the operation phase of the NPP.', 0.445 74761390686035], ['AKKUYU NUCLEAR INC. Sergey Butckikh, First Deputy General Manager - D irector of Construction Affairs, stated: "Another important event of 2021 has been completed and the s econd ECC layer of the reactor building of the second unit has been installed at the design location.', 0. 44502392411231995], ['The second layer of the inner protection shell (IKK) was installed in the reacto r building of the second power unit of the Akkuyu Nuclear Power Plant (NGS).', 0.4438850283622741 7]]
82 ['2021-09-17', 'Turkey expects first reactor of Akkuyu NPP to be built by May 2023, says Erdogan'] [['"The construction of the first unit of the Akkuyu NPP, which involves 3,000 Russian and 10,000 Tur kish engineers, will be completed by May 2023.', 0.7558209300041199], ['Turkey expects that the con struction of the first reactor of the Akkuyu nuclear power plant will be completed by May 2023, Turkis h President Tayyip Erdogan said on Friday.', 0.6553902626037598], ['During his trip to Mersin, Erdog an visited the construction site of the Akkuyu NPP.', 0.654926598072052], ['Akkuyu Nukleer is the op erator of the construction.', 0.5583027601242065], ['The construction of the first unit of the Akkuyu N PP began in April 2018, the second in June 2020.', 0.5531993508338928]]
82 ['2021-09-25', "One of the World's Most Powerful Construction Cranes Has Been Commissioned in Akkuyu NPP Construction"] [['Another crane of the same model was brought to the Akkuyu NPP construction site due to the need t o ensure the assembly of large-sized cargo and structures at the construction sites of the second and thi rd power units.', 0.5088167190551758], ['The first Liebherr LR13000 crane was installed at the Akkuy u NGS construction site in August 2019.', 0.49648573994636536], ['The second Liebherr LR 13000 m odel crawler mobile crane was installed and commissioned at the Akkuyu Nuclear Power Plant (NGS) construction site.', 0.4674758017063141], ['AKKUYU NUCLEAR INC. Sergei Butckikh, First Deput y General Manager and Director of NGS Construction, said in a statement: "While planning the imple mentation of important construction activities, it was decided to bring a similar Liebherr LR 13000 cra ne, which is currently in service in the first power unit.', 0.4258388578891754], ['The crane was locate d in Italy before being transported to the Akkuyu NPP site and was shipped from there to the Eastern C argo Terminal by sea.', 0.416639506816864]]
82 ['2021-09-28', 'Putin, Erdogan to hold first face-to-face talks since onset of pandemic']

[['They held regular telephone conversations and this past March, they participated in a special online ceremony heralding the launch of a project to build a third reactor at the Akkuyu nuclear power plant in the Mersin Province of Turkey.', 0.49148988723754883], ['/TASS/.', 0.31934595108032227], ['Russian President Vladimir Putin (r) and his Turkish counterpart Recep Tayyip Erdogan (l)\n\nSOCHI, September 29.', 0.28719910979270935], ["One of the most sensitive issues regarding Russian-Turkish economic cooperation is Ankara's purchase of Russia's S-400 missile systems.", 0.2785075902938843], ["Director General of the Russian International Affairs Council Andrey Kortunov believes that Putin and Erdogan may touch upon Turkey's military-technical cooperation with Ukraine, in particular, the supply of drones that can be used in Donbass.", 0.2557179629802704]]
82 ['2021-09-29', 'Raw Part of Akkuyu NGS Reactor Base Made in Atommash'] [['in Volgodonsk.', 0.5391252040863037], ['Akkuyu NPP, built in Turkey, is the first project in the nuclear industry to be implemented with the "BUILD-OPERATE-OWN" model.', 0.5141986012458801], ['The design and construction of the power plant is carried out by the Engineering Department of the Russian State Corporation Rosatom.', 0.5072651505470276], ['Finally, an operation to open the raw pipe for the construction of the reactor base of Unit 3 of the power plant was carried out at the Volgodonsk branch of AEM -Technology, which is part of the engineering department of the Russian State Atomic Energy Agency Rosatom.', 0.4407893717288971], ['The project includes four power units with "3+" generation Russian VVER reactors with increased safety and improved technical and economic features.', 0.42012399435043335]]
82 ['2021-09-29', 'Main Elements of the Reactor Shaft Installed on the 2nd Power Unit of Akkuyu NPP'] [['Akkuyu Nuclear AŞ First Deputy General Manager and NGS Construction Director Sergei Butckikh stated the following on the subject: "The installation of support and thrust beams is among the most important events of 2021 in the construction of the second power unit of Akkuyu NPP.', 0.5884072184562683], ['In the construction area of the reactor compartment of the 2nd power unit of the AKKUYU Nuclear Power Plant (NGS), the construction of the reactor shaft continues.', 0.4707842767238617], ['The successful completion of the assembly offers the possibility to continue the construction work of the reactor shaft.', 0.3749959468841553], ['Previously, the dry reactor guard, a 9-ton safety and biological protection element, was installed in the reactor building of the second power unit, which ensures the safe operation of the nuclear power plant in emergency situations, including a 142-magnitude earthquake.', 0.36464712023735046], ['Before the assembly of the reactor shaft components, the installation of the reactor pressure vessel, the heart of the nuclear power unit, was carried out.', 0.34506604075431824]]
82 ['2021-09-29', 'First power unit of Akkuyu NPP can be opened in 2022, Erdogan says'] [['"I visited the Akkuyu NPP; construction is on track.', 0.6465283632278442], ['The first power unit of the Akkuyu nuclear power plant (NPP) can be opened next year, President of Turkey Recep Tayyip Erdogan said on Wednesday during talks with Russian President Vladimir Putin.', 0.5123431086540222], ['Construction of the nuclear power plant is implemented on the basis of the intergovernmental agreement signed by Russia and Turkey in May 2010.', 0.43320465087890625], ['I believe we will be able to open the first power unit of NPP in the next year.', 0.4285659193992615], ['The power plant with the installed capacity of 4,800 MW will generate about 35 bln kWh after completion of construction\n\nSOCHI, September 29.', 0.3843211233615875]]
82 ['2021-09-30', 'Turkey, Russia mull fighter jet, submarine partnership'] [["Akkuyu is Turkey's first nuclear power plant that is being built by Russia's state nuclear energy firm Rosatom in the southern Mersin province.", 0.5148628950119019], ["Russia could also be involved in the construction of Turkey's second and third nuclear power plants, Erdoğan said, while Putin suggested developing platforms for space launch platforms.", 0.452436657598114], ['The initial unit of the plant is aimed to be completed by May 2023.', 0.40096160769462585], ['"We spoke to Mr. Putin about building two more nuclear plants, besides Akkuyu.', 0.398550808429718], ['The two countries signed a cooperation agreement in 2010 and began the construction in 2018.', 0.3548482656478882]]

82 ['2021-09-30', 'Erdogan Declares He Will Collaborate With Russia in Armaments, Space'] [['The Akkuyu nuclear reactor, already constructed by Russia in southern Turkey, is not yet online.', 0.5198358297348022], ['Turkish President Erdogan will collaborate with Russia regarding space exploration, submarines and warships, he declared on Friday, adding that his country still intends to purchase a second installment of the same Russian defense system that it first bought in 2019.', 0.37058669328689575], ['Speaking to journalists who accompanied him to the town of Sochi on Wednesday, the Turkish leader said that he discussed defense and military issues with Putin, but adding that he also discussed how the countries might build "a second and third nuclear reactor."', 0.3155956566333771], ['He further stated that there will be collaboration between Russia and Turkey regarding joint construction of (war)ships" he noted before adding that they will also explore the possibility of building submarines together.', 0.3148343861103058], ["Erdogan stated that his country will work with Russia to jointly produce jet engines, warships and submarines, during a meeting he held with Russia's longtime President Vladimir Putin.", 0.2897118330001831]]
82 ['2021-10-22', 'Atommash manufactures the reactor bottom for Akkuyu 3'] [['In 2010, Turkey and Russia signed an intergovernmental agreement on cooperation in the construction and operation the Akkuyu NPP in Mersin province.', 0.5425646305084229], ['AEM-Technologies General Director Igor Kotov noted: "The implementation of the project to construct Turkey\'s first NPP is under close scrutiny at the highest state level.', 0.5201460719108582], ["The 4800MWe plant when completed is expected to meet about 10% of Turkey's electricity needs.", 0.5157037377357483], ["The Volgodonsk branch of AEM-Technologies (part of Rosatom's mechanical engineering division, Atomenergomash) has completed manufacture of the elliptical bottom of the reactor vessel for unit 3 of the Akkuyu nuclear power plant, under construction in Turkey.", 0.5148306488990784], ['Rosatom is building four VVER-1200 reactors at the site, under a build-own-operate model.', 0.5083392858505249]]
85 ['2021-10-25', 'PAO TMK : TMK supplies MMK with high-tech equipment for its steelmaking operations | MarketScreener'] [['High-tech INGENIUM products have also been used in the nuclear industry for the construction of Akkuyu NPP in Turkey and Kursk NPP in Russia.', 0.5858756303787231], ['The ETERNO plant supplied its products for upgrading the steelmaking operations of Severstal and the BOF shop at Chelyabinsk Metallurgical Plant (part of Mechel Group), as well as retrofitting Novolipetsk Steel (part of NLMK Group) and the Aksu Ferroalloys Plant in Kazakhstan.', 0.42266902327537537], ['25.10.2021\n\nTMK supplies MMK with high-tech equipment for its steelmaking operations\n\nETERNO, part of TMK, has manufactured and delivered to Magnitogorsk Iron & Steel Works (MMK) steelmaking equipment - a customized design EAF bath.', 0.15167108178138733], ['"As part of expanding its product line, TMK designs customized integrated engineering solutions for the steelmaking industry.', 0.14756882190704346], ['We provide MMK with knowledge-intensive solutions to produce high-quality steel for flat-rolled products, which are then supplied to our facilities to make large-diameter pipe," noted Denis Makienko, TMK\'s Director for Machine-Building Business Development.', 0.11037430167198181]]
85 ['2021-10-29', 'Rosatom obtains license for construction of Unit 4 of Akkuyu NPP in Turkey'] [["Akkuyu Nuclear, a company of the Russian state nuclear corporation Rosatom, has received a license for the construction of the fourth unit of the Turkish nuclear power plant Akkuyu, the company's press service reported.", 0.610465407371521], ['"The Nuclear Regulatory Board approved the construction license for the 4th power unit of the Akkuyu Nuclear Power Plant (NPP) in the name of Akkuyu Nuclear JSC.', 0.5961840748786926], ['The construction of the first unit of the Akkuyu NPP began in April 2018, the second in June 2020.', 0.5835989713668823], ['This company was established especially for this project and it is fully owned by the Russian nuclear corporation Rosatom (over 99%)\n\nThe Akkuyu power plant will consist of four power units with a capacity of 1200 MW each.', 0.5629966259002686], ['Akkuyu Nuclear is the operator of the construction.', 0.5251692533493042]]
85 ['2021-11-09', 'Turkey to begin work on 2 more nuclear power plants: Erdoğan']

[['We plan to commission the first unit of the Akkuyu Nuclear Power Plant (NPP) in 2023," President Recep Tayyip Erdoğan told an opening ceremony for the power plants via video link from the capital Ankara.', 0.5961002707481384], ["Akkuyu is being built by Russia's state nuclear energy firm Rosatom.", 0.547451913356781], ["Erdoğan and his Russian counterpart Vladimir Putin in March launched the construction of the plant's third reactor, out of a total of four.", 0.5366163849830627], ["Following a meeting with Putin in September, Erdoğan said Russia could also be involved in the construction of Turkey's second and third nuclear power plants.", 0.5258635878562927], ["These will follow the country's first nuclear power plant, Akkuyu, which is being built in the southern Mersin province.", 0.5118250846862793]]
85 ['2021-11-14', "Three workers die in construction site for Turkey's first nuclear power plant, says worker | | Ahval"] [['Akkuyu nuclear power plant is expected to become operational by 2023, the centenary of the Turkish Republic.', 0.6165544986724854], ['The Akkuyu plant has been fraught with controversy since construction began, and earlier in April Greek Foreign Minister Nikos Dendias called on Turkey to "reach an understanding with its neighbours" regarding the plant.', 0.5627109408378601], ["Three workers, two Turkish citizens and one Russian, have lost their lives in workplace accidents in the construction site for the Akkuyu nuclear power plant, in Turkey's southern Mersin province, according to a worker speaking to the press.", 0.49952805042266846], ['The Russian-Turkish joint venture also saw small fires in late October, due to a transformer failure in a thunderstorm.', 0.4040408730506897], ["The Russian national was working on the plant's nuclear core, and he also fell to his death.", 0.4030323028564453]]
85 ['2021-11-17', "Sberbank lending $800 mln to Turkey's Akkuyu Nuclear for NPP construction"] [['The Akkuyu NPP is the first nuclear power plant under construction in Turkey.', 0.6823471784591675], ["ANKARA (Turkey), November 17 (SeeNews) - Russia's Sberbank said on Wednesday that it is granting an $800 million (707.0 million euro) loan to Turkish construction company Akkuyu Nuclear, a unit of Russian state-owned nuclear energy corporation Rosatom, to build the Akkuyu nuclear power plant (NPP) in Turkey.", 0.6523606777191162], ["'Sber was the first lender to Rosatom\'s large-scale construction of a modern NPP in Turkey in 2019.', 0.632914125919342], ['Earlier this year, Daily Sabah quoted president Recep Tayyip Erdogan as saying that the construction of the first unit of Akkuyu NPP will be completed by May 2023.', 0.6317383646965027], ['In order to finance the construction of Akkuyu NPP the bank opened two lines of credit with the value of $500 million and $300 million for seven years, it said in a statement adding that the funds will be allocated for the construction of four NPP units.', 0.4465413987636566]]
85 ['2021-11-19', 'VVER-TOI: the latest evolution'] [['AEM-technology facilities are now manufacturing equipment for nuclear units at Rooppur (Bangladesh), Akkuyu (Turkey), Kudankulam (India), Tianwan (China), Xudapu (China) and Kursk II (Russia).', 0.4781913459300995], ['The Russian-designed VVER-TOI is based on the engineering solutions used for a nuclear power plant with VVER-1200 reactors.', 0.4497565031051636], ["AEM-Technology (a subsidiary of AtomEnergoMash, Rosatom's mechanical engineering division), the only Russian manufacturer capable of making a complete nuclear steam generator, is also the manufacturer for the VVER-TOI.", 0.4150429964065552], ['Kursk II is the first project to use the VVER-TOI and it has four new power units with a capacity of 1300MW each.', 0.4066697359085083], ['The reactor vessel and steam generators for Kursk II-1 were manufactured in 2020 and shipped in April 2021.', 0.39106041193008423]]
85 ['2021-11-23', 'Components headed to Akkuyu']

[["Akkuyu is being built by Russia's state nuclear company Rosatom.", 0.5778664350509644], ['The first reactor at Akkuyu began construction in April 2018 and is scheduled to start up in 2023.', 0.5201380252838135], ["Last week, Rosatom's main manufacturing subsidiary Atomenergomash announced it had made most of the components for one of Akkuyu 1's passive safety systems, the so-called SPZAZ tanks.", 0.5148619413375854], ["The company's internal magazine, Strana Rosatom, said it is the world's largest nuclear construction site, with 13,000 people working on a daily basis towards four large reactors.", 0.4779600501060486], ["Meanwhile, at Atomenergomash's Petrozavodsk plant, the main circulation pump for Akkuyu 2 was assembled and checked.", 0.46051061153411865]]
85 ['2021-12-14', 'Akkuyu 1 pump station foundation under construction'] [['Construction workers have begun constructing the foundation slab for the pump station at unit 1 of the Akkuyu nuclear power plant under construction in Turkey, Akkuyu Nuclear announced.', 0.5873224139213562], ['In 2010, Turkey and Russia signed an intergovernmental agreement on cooperation in the construction and operation the Akkuyu NPP in Mersin province.', 0.5474500060081482], ['The vessel will then deliver the equipment to the Akkuyu NPP berth.', 0.5429125428199768], ['Akkuyu Nuclear First Deputy CEO and director of the NPP under construction Sergei Butskikh noted: "Development of the foundation pit for the pump station of unit 1 started in December last year.', 0.5410179495811462], ["The 4800MWe plant when completed is expected to meet about 10% of Turkey's electricity needs.", 0.49397605657577515]]
85 ['2022-01-14', '1th Layer of Inner Protection Shell Installed on Akkuyu NGS 5st Power Unit'] [['The reactor buildings of Akkuyu NPP power units are equipped with double protection shells.', 0.5705077052116394], ['In the reactor compartment of the 1st Power Unit of Akkuyu NPP, the fifth layer of the inner protection shell (IKK), which is one of the main elements of the safety system, providing the protection of the reactor building, acting as a support for the pipe and polar crane inlets that serve during the operation of the nuclear reactor, was installed.', 0.42717286944389343], ['First Deputy General Manager - NGS Construction Director Sergei Butckikh evaluated the completion of the assembly process of the 5th layer of the IKK as follows: "The main challenge in performing the installation was that the fifth layer was a transition element between the cylindrical and domed parts of the shell.', 0.3149470388889313], ['After the installation of the fifth layer, the height of the reactor building of the 1st Power Unit increased by 6,5 meters, reaching 43,1 meters.', 0.26029857993125916], ['The IKK consists of a steel layer and special concrete that seals the reactor building.', 0.2513543367385864]]
85 ['2022-01-19', 'Constructor Of Turkeys Akkuyu NPP Says Location Safe Against Earthquakes - UrduPoint'] [['The Akkuyu NPP was inaugurated in April 2018 to become the first nuclear power plant built in Turkey.', 0.6840490102767944], ["Russian project company Akkuyu Nuclear, responsible for the construction of the Turkey-based Akkuyu nuclear power plant (NPP), pushed back on Wednesday against reports of local media questioning the plant's seismic safety\n\nAt the same time, there are 12 seismic recording systems on-site to monitor the situation, with data being regularly sent to the Kandilli Observatory and Earthquake Research Institute.", 0.5122165679931641], ['The plant will feature four power units equipped with Russian-designed generation 3+ VVER reactors.', 0.46318182349205017], ['The first unit is expected to be commissioned in 2022, while the remaining three will be connected to the grid by 2026.', 0.4049927592277527], ['The capacity of each power unit is up to 1,200 megawatts.', 0.3188554644584656]]
88 ['2022-01-25', 'Why Turkey wants to mediate in Ukraine crisis - News About Turkey']

[["Erdogan's government has a long list of interests to consider, including the stability of the Turkish S traits and the Black Sea, the Akkuyu nuclear power plant that the Russians are building in southern Tur key, the security of gas supplies from its pipelines with Russia, the importance of Russian and Ukraini an holiday-makers for its tourism sector, the Russian markets of Turkish fruit and vegetable exporters, the many projects of Turkish construction companies in Russia, its hopes to expand its influence in the Caucasus after helping Azerbaijan in the Nagorno-Karabakh war in 2020 and its ongoing operations in Syria and Libya.", 0.2540815770626068], ["While Turkey desperately needs to cool the tensions, Ukra ine's occasional use of Turkish-supplied armed drones in Donbass stands out as a potential headache fo r Ankara.", 0.14261741936206818], ['On Jan. 19, the Kremlin reiterated it would welcome Turkish eff orts to "influence the Ukrainians and persuade them to fulfill [existing] agreements and commitments" -- a reference to the so-called Minsk Accords of 2015.', 0.12806852161884308], ['As a result, he has zi gzagged between backing the muscular attitude of the United States and Great Britain, backed by Pola nd, Estonia, Latvia and Lithuania, and the more cautious approach of European countries such as Germ any, Austria and Hungary.', 0.12614725530147552], ['But at the same it squeezes Turkey over its ties with Russia, including the S-400s, Germany over its desire to maintain the Nord Stream 2 gas pipeline with Russia, Finland and Sweden over their nonalignment policy that keeps them outside NATO and a ny NATO member averse to the prospect of Europe becoming the theater a new bipolar influence war akin to the Cold War.', 0.12613894045352936]]
88 ['2022-02-02', 'Reactor Pressure Vessel of Second Power Unit Reached Akkuyu NPP'] [["Meanwhile, the reactor pressure vessel for the 3rd Power Unit of Akkuyu NPP continues to be manu factured at Atommash, the Volgodonsk branch of AEM Technology A.Ş., which is under Rosatom's en gineering unit Atomenergomash.", 0.5658623576164246], ['The production of the reactor pressure ves sel of the 2nd power unit of Akkuyu NPP started in March 2019 at Izhorsk Factories.', 0.5187031030654907], ['The reactor pressure vessel, designed to be installed on the second power unit of the plant, arr ived at the NGS construction site.', 0.48531031608581543], ['AKKUYU NUCLEAR INC. Sergei Butc kikh, First Deputy General Manager and Director of NGS Construction, said: "The manufacture and sh ipment of the main equipment for Akkuyu NPP is carried out in strict accordance with the set schedule .', 0.4530887007713318], ['New materials and equipment produced for Akkuyu NPP were delivered to the Eastern Cargo Terminal located on site.', 0.4272289574146271]]
88 ['2022-02-16', "PAO Trubnaya Metallurgicheskaya Kompaniya : TMK manufactures Russia's first mobile hot metal mixer | MarketScreener"] [["TMK ETERNO's high-tech products have also been used in the nuclear industry for the construction of Akkuyu NPP in Turkey and Kursk NPP in Russia.", 0.541384220123291], ["The ETERNO plant h as supplied its products for the upgrading of Severstal's the steelmaking operations and the BOF shop a t Chelyabinsk Metallurgical Plant (part of Mechel Group), as well as retrofitting Novolipetsk Steel (par t of NLMK Group) and the Aksu Ferroalloys Plant in Kazakhstan.", 0.4627384543418884], ['The new high-tech product was custom-made and delivered to EVRAZ United West Siberian Metallurgical Plan t (EVRAZ ZSMK).', 0.2698672115802765], ['The lead time from engineering and the development of technical documentation to final shipment was two years.', 0.22938208281993866], ["TMK ETERNO' s portfolio includes several dozen implemented engineering solutions within its new lineup of heavy en gineering products.", 0.168231546878814 7]]
88 ['2022-02-24', 'Rosatom: Waste compactor ready for shipment to the Turkish Akkuyu NPP']

[['Nukem said:\n\nThe high-pressure press for the Akkuyu NPP is a tested and effective solution that is used in nuclear facilities in Russia, China, Ukraine and other countries and has proven itself through many years of operation Rosatom is building 4 VVER-1200 reactors at Akkuyu, under a so-called buil d-own-operate model.', 0.4905610978603363], ["The 4800 MWe plant is expected to meet about 10% of Turkey's electricity needs.", 0.45626020431518555], ['The factory acceptance tests were carried out in the presence of representatives of the Titan-2 construction firm and the Akkuyu Nukleer AS project company.', 0.44096142053604126], ['Construction of the 1st unit began in 2018, with startup planned for 2023.', 0.38335052132606506], ['A high-pressure press for the treatment of solid radioactive waste s at the Akkuyu nuclear power plant under construction in Turkey has passed factory acceptance tests.', 0.37761205434799194]]
88 ['2022-02-26', 'Work Accident Statement from Akkuyu Nuclear A.Ş.'] [['Akkuyu Nuclear A.Ş.', 0.38002991676330566], ['KazanIn the statement, which was stated that the fi re occurred around 17.00 yesterday, it was stated that "A Russian national worker, who was one of the employees of the subcontractor company, was seriously injured and lost his life in the pre-assembly ar ea next to the 1st unit of the Akkuyu NPP construction site, while a metal structure was being erected." ', 0.36097878217697144], ['In the statement made by Akkuyu Nuclear A.Ş., it was reported that an inv estigation was launched regarding the accident and necessary action would be taken against those resp onsible.', 0.27781057357788086], ['.', nan], ['In the statement that the judicial process regarding the ac cident started, it was also stated that the causes of the incident were started to be investigated by a spec ial commission.', 0.23725813627243042]]
88 ['2022-03-02', 'Main Equipment Has Been Installed In The First Power Unit Of Akkuyu NPP'] [['The installation of some main equipment components of the reactor facility has been completed in th e reactor building of the 1st Power Unit of Akkuyu Nuclear Power Plant (NGS).', 0.484184414148330 7], ['Making a statement on the subject, AKKUYU NÜKLEER A.Ş First Deputy General Manager and NGS Construction Director Sergey Butckikh said, "By installing the steam generators, we are one step closer to the welding process of the main circulation pipeline, where the circulation of the first cycle c ooler will take place, which is the milestone of the construction of the first power unit.', 0.4477658271 789551], ['After the installation of the steam generators is completed, the preparatory stage for welding works of the main circulation pipeline connecting the main equipment of the first cycle of the NPP be gins.', 0.41740870475769043], ['A single power unit of nuclear power plants with VVER-1200 type re actors is equipped with four main circulation pump units.', 0.39910435676574707], ['However, the saf e operation of the NPP is ensured by reducing the capacity of the power unit with two pumps in operati on.', 0.3807637786865234]]
88 ['2022-03-06', "Russia's nuclear power exports: will they stand the strain of the war in Ukraine?"] [['Of the 57 nuclear reactor constructions initiated between 2011 and 2022, 13 involved Rosatom.', 0.5 481557250022888], ['Rosatom has a lot in the pipeline.', 0.5303056240081787], ["In Hungary, another EU member, Rosatom's Paks II nuclear plant is clearly in jeopardy.", 0.5027819275856018], ['It had a lready started building - or was expected to start construction soon - on plants in China, India, Banglad esh, Turkey, Hungary, Belarus, Finland and Egypt.', 0.43877920508384705], ['Interest in nuclear powe r plant construction slumped in the wake of the Fukushima incident in 2011.', 0.4185694754123688]]
88 ['2022-03-07', '24 More Turkish Students Received Diplomas in Russia for Akkuyu NGS'] [['We are Akkuyu NÜKLEER A.Ş.', 0.626185953617096], ['We are waiting for all of them at Akkuyu NPP construction site.', 0.5879906415939331], ['Interned at the Leningrad Nuclear Power Plant during the training, the group studied the equipment production process for the Akkuyu NPP at the Izhora pla nt and at the "Atommash" enterprise in Petrozavodsk.', 0.48791980743408203], ['Graduates who have completed their graduation thesis in January will start working on the construction of Akkuyu NPP this summer.', 0.45802581310272217], ['st. Petersburg, the Turkish students of the Peter the Great Polytec hnic University (SPBPU) completed their training in the specialty "Nuclear Power Plants: Design, Ope ration and Engineering" as part of the operational personnel training program for the Akkuyu Nuclear Power Plant (NGS).', 0.4503796696662903]]

88 ['2022-03-16', 'Turbo Generator of the 1st Unit of Akkuyu NPP Arrived on the Site'] [['Sergey Butckikh, First Deputy General Manager of AKKUYU NÜKLEER A.Ş and Director of Nuclear Power Plant (NGS) Construction Works, said in a statement on the subject: "The stator of a turbo generator is the heaviest equipment of a nuclear power plant.', 0.5027157664299011], ['The turbo generator reaching the Akkuyu NPP site consists of two main parts, the rotor and the stator.', 0.4949215948 5816956], ['The stator, turbo generator rotor and low pressure cylinder, which are the main equipment of the turbine plant of the 1st power unit of Akkuyu Nuclear Power Plant, were delivered to the Eastern Sea Cargo Terminal at the Akkuyu NPP construction site.', 0.4827226996421814], ["After the inspection according to the highest quality standards, the turbine plant's equipment is delivered to the Akkuyu NPP construction site by sea.", 0.4529014527797699], ["After the turbine plant's equipment was unloaded with the help of a crane, it was transferred to special load platforms with motorized modular carriers, and from there it was transported to the temporary storage area at the Akkuyu NPP construction site .", 0.42159515619277954]]
88 ['2022-03-21', 'The most crucial assembly operation of the year started at Akkuyu NPP Unit 1'] [['Welding of the main circulation pipeline (MCP), a key assembly operation scheduled for 2022, has started in the reactor building of Akkuyu Nuclear Power Plant Unit 1.', 0.5123305320739746], ['MCP connects the main equipment of the reactor plant - reactor, steam generators, and reactor coolant pumps, thus shaping the NPP primary circuit.', 0.38851383328437805], ['Akkuyu Nuclear CEO Anastasia Zoteeva said:\n\nWelding of the main circulation pipeline is one of the key stages in the power unit construction While reactor vessel is often compared to the heart of a nuclear power plant, the main circulation pipeline is its main artery During the NPP operation water at a temperature up to 330 degrees C continuously circulates through it Only special pipes with 70 mm wall thickness can withstand such loads, therefore pipeline welding is a complex and high-tech operation, which is subject to the most stringent requirements The completion of the welding operation will be the starting point for open reactor circulation tests At this stage we will check the free flow of the pipelines, perform their post-installation cleaning, and confirm the readiness of the equipment for the next stage - reactor start-up Installation of the main circulation pipeline includes not only assembly and welding of pipes, but also high-temperature treatment of joints followed by a special build-up welding on the inside of the pipeline.', 0.3340552151 2031555], ["It provides corrosion resistance to the pipeline, increases durability of welded joints and ensures the pipeline's operating lifetime of at least 60 years, as stipulated by the project design.", 0.3000976 1452674866], ['Mersin Province, March 17 - Neftegaz.RU.', 0.2976922690868377]]
88 ['2022-03-31', "War Sanctions Snag Russia's Building of Nuclear Plant in Turkey"] [["Rosatom, the sole owner of the Turkish plant and the world's biggest supplier of nuclear fuel and reactors, hasn't been sanctioned.", 0.5517688393592834], ['Work on the first Turkish reactor, known as Akkuyu 1, began in 2018, with engineers starting on Akkuyu 2 two years later.', 0.5487118363380432], ["Ankara and Moscow have discussed potential problems, including securing equipment that must be ordered from third countries by the builder, Russia's state-controlled Rosatom Corp., said a top Turkish official directly involved in the plant's construction.", 0.47292381525039673], ['Erdogan on Feb. 2 said two of four planned reactors at the Akkuyu site on the Mediterranean coast would be online in 2023.', 0.45019465684890747], ["Sanctions imposed over the invasion of Ukraine are complicating Russia's construction of a $20 billion nuclear power plant in Turkey, according to two Turkish officials.", 0.36304327845573425]]

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