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Geopolitics of the Saudi Nuclear program

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Scope

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Geopolitics of the Saudi Nuclear program

by Silvia Boltuc*

English

Riyadh has strived to establish its nuclear energy program to diversify its economy, create new job opportunities, localise industrial facilities, and improve living standards. The Saudi energy transition attempts to reduce the Kingdom's dependence on oil revenues since the recent oil price crises, increasing domestic oil demand, and market turmoil due to the pandemic. This research wants to examine Riyadh's energy transition promoted in Saudi Vision 2030 and its possible repercussions on the regional and international geopolitical chessboard. This paper also investigates how nuclear energy might support Saudi foreign policy since international actors as Russia and China are getting closer to the Saudi Kingdom overshadowing the United States. Besides, this study highlights the pro & cons of the Saudi nuclear energy program and the possibility that Riyadh will use its nuclear facilities to pursue the national production of nuclear weapons.

Key Words: Saudi Arabia, energy, Saudi Vision 2030, nuclear energy program, geopolitics

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Introduction

Until now, the general definition of Saudi Arabia has been that of an oil-based monarchy. After the first oil deposit discovery in 1938 and since World War II, the Saudi monarchy started commercial oil production, and shortly oil sales accounted for almost all exports. The oil sector supported the rise of Saudi GDP and contributed significantly to shaping the country and Saudi society more modern and dynamic. Oil revenues have also helped Saudi Arabia become a key player in the Gulf and an indispensable actor in the energy market.

The hydrocarbons have represented the primary national income, and the petrochemical industry has allowed the Saudi Government to provide subsidies to the population in exchange for loyalty to the Saudi family and *de facto* abandonment of participation in political life. During the years marked by substantial oil revenues, the country has witnessed the construction of necessary infrastructure, the rise of the education level and the general improvement of living conditions.

Due to the oil price crisis in 2014 and the market contraction, Saudi Arabia registered a 15% deficit of GDP in the following years, and the Government was forced to use the national reserves. Recently, due to the Covid-19 pandemic and the price war with Moscow, Riyadh is once again facing a severe market shock. As Riyadh did in the past, today the Saudi Government is also balancing revenue lost by cutting the national budget. In foreign policy, even though the Saudi monarchy has attempted to stabilise crude oil prices by negotiating with the members of the Organization of the Petroleum Exporting Countries (OPEC+) to reduce the oil production,[1] Riyadh might face more future problems since oil prices can remain very volatile because of the progressive transition to renewable energy, the lack of investor confidence in the oil sector that is no longer guaranteed, and the rise of new actors who could enter into the oil market because of oil prices drop.[2]

Even if renewable energies replace the oil market because of Saudi's lowest-cost production, Riyadh will still be able to produce for a long time and boost production at

[1] Lawler, Alex (2021) *OPEC oil output falls in February on Saudi additional cut – survey*, Reuters. Link: https://www.reuters.com/article/oil-opec-survey-int-idUSKBN2AT2ES.

[2] Domonoske, Camilla (2020) *Oil Demand Has Collapsed, And It Won't Come Back Any Time Soon*, NPR. Link: https://www.npr.org/2020/09/15/913052498/oil-demand-has-collapsed-and-it-wont-come-back-any-time-soon; Boltuc, Silvia (2021) *Scenario geopolitico della crisi petrolifera*, ASRIE Analytica. Link: http://www.asrie.org/2021/02/scenario-geopolitico-della-crisi-petrolifera/.

the lowest cost (comparing Saudi prices with other international competitors).[3] Therefore, the Saudi Kingdom is attempting to diversify and modernise its energy production through considerable investments in new technologies and alternative energy.

Since the 2014 oil price crisis, Saudi Arabia has faced an existential challenge for the national future, and the necessity of diversifying the country's revenues has affected domestic policies. In 2016 King Salman bin Abdulaziz Al Saud and his son Mohammed bin Salman Al Saud launched an ambitious economic and social reform plan called *Saudi Vision 2030* to overcome the national economic crisis. In brief, Saudi Vision 2030 wants to reduce the Saudi Kingdom's dependence on oil revenues, favouring the emergence of a solid private sector. International media and analysts had covered and investigated the Saudi strategy, which faced the first big challenge in 2020 when the pandemic tremendously affected the entire world, causing negative consequences on the global economy.[4]

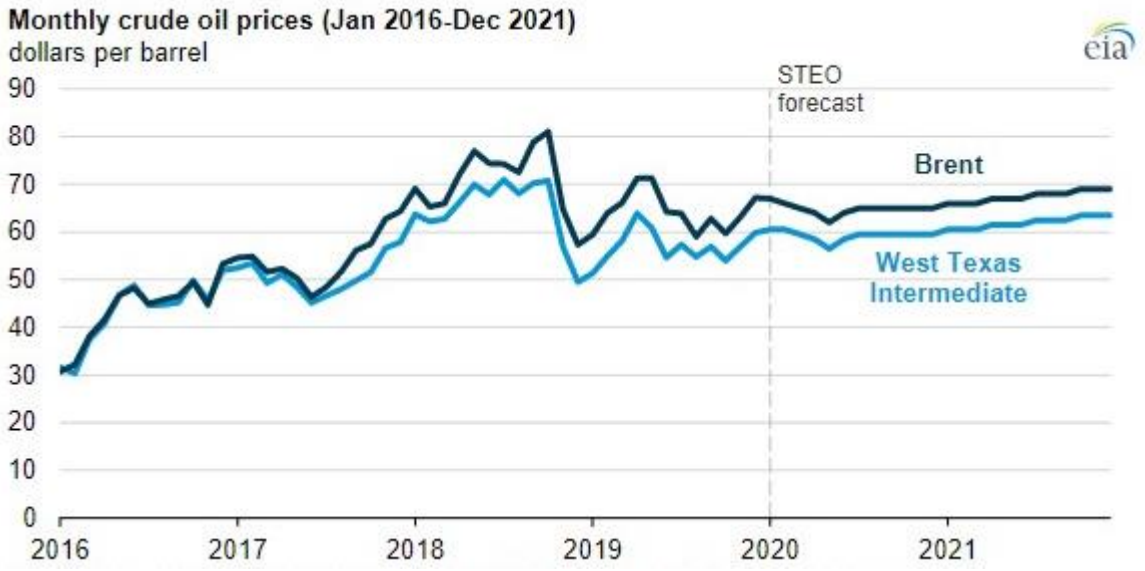

Figure 1 Monthly crude oil prices from January 2016 to December 2021. Source: EIA (2020) *EIA forecasts crude oil prices will fall in the first half of 2020, then rise through 2021*. Link: https://www.eia.gov/todayinenergy/detail.php?id=42535.

Saudi authorities have also established a Public Investment Fund (PIF) to attract foreign investors without achieving hoped results. Due to the oil price crisis and the re-

[3] Said, Summer & Faucon, Benoit (2021) *Saudi Arabia to Cut Oil Production Sharply in Bid to Lift Prices*, The Wall Street Journal. Link: https://www.wsj.com/articles/saudi-arabia-russia-reach-compromise-on-opec-plus-production-plan-11609857544.

[4] Grand, Stephen & Katherine Wolff (2020) *Assessing Saudi Vision 2030: a 2020 Review*, Atlantic Council, p.2. Link: https://www.atlanticcouncil.org/wp-content/uploads/2020/06/Assessing-Saudi-Vision-2030-A-2020-review.pdf.

cent pandemic, the Government has not been able to face significant spending to realise massive reforms, so this situation has affected different economic sectors causing socio-economic problems (i.e., the Government has not created enough new jobs as promised and the transformation of the private sector is still partial).[5] This negative trend has recently changed thanks to Covid-19 vaccines, intentional regulation, and the perception of increasing immunity that has positively influenced the markets. For instance, the decisions taken by OPEC+, OPEC+'s monthly meetings, and the restriction in shale production have momentarily stabilised the oil market. Even though oil producers' countries have strived to counter the pandemic's negative consequences, it should be noted that the oil market is volatile, and its evolution during and after Covid-19 is hard to predict.

The countermeasures adopted due to the pandemic might completely change when oil demand recovers. For this reason, Saudi circles and OPEC+ members are concerned about market stability because a strong oil demand might push individual producer to sell a considerable amount of product. Furthermore, according to KAPSARC Oil Market Outlook (KOMO) 's projections,[6] other factors could destabilise the oil market as the consistent growth of Libyan oil supply, the Iranian attempt of doubling its production, the Venezuelan strategy to play a more decisive role in the energy market exploiting the first period of the new US Administration as Iraq's fiscal problems.[7]

In managing their oil policies, the Saudis also closely follow the evolution of the non-OPEC+ strategies. According to the King Abdullah Petroleum Studies and Re-

[5] The Economist (2018) *Saudi Arabia's economic reforms are not attracting investors. Or creating jobs.* Link: https://www.economist.com/middle-east-and-africa/2018/12/22/saudi-arabias-economic-reforms-are-not-attracting-investors; Saudi Leaks (2020) *KSA's foreign investments deepen failure of Muhammad bin Salman*. Link: https://saudileaks.org/en/ksas-foreign-investments-deepen-the-failure-of-muhammad-bin-salman/.

[6] KAPSARC (2021) *KAPSARC Oil Market Outlook (KOMO)*. Link: https://www.kapsarc.org/research/publications/kapsarc-oil-market-outlook-6/; SIEW (2021) *KAPSARC Oil Market Outlook: Global Oil Demand to Increase by 4.2 MMb/d in 2021*. Link: https://www.siew.gov.sg/newsroom/articles/detail/2021/03/01/kapsarc-oil-market-outlook-global-oil-demand-to-increase-by-4.2-mmb-d-in-2021#:~:text=Enquiry-,KAPSARC%20Oil%20Market%20Outlook%3A%20Global%20Oil%20Demand%20to%20Increase,4.2%20MMb%2Fd%20in%202021&text=The%20latest%20KAPSARC%20Oil%20Market,average%20of%2096%20MMb%2Fd.

[7] In this context, it is important to mention the fact that China is buying millions of barrels of Venezuelan and Iran heavy crude despite the US sanctions. Cf. Kassai, Lucia (2021) *Doctored and Rebranded Oil Blacklisted by U.S: Winds Up in China*, Bloomberg. Link: https://www.bloomberg.com/news/articles/2021-01-22/china-imports-oil-doctored-to-skirt-u-s-sanctions-on-venezuela; Hong, Brendon (2021) *China is still brimming with Iranian oil*, Atlantic Council. Link: https://www.atlanticcouncil.org/blogs/iransource/china-is-still-brimming-with-iranian-oil/.

search Center (KAPSARC), the economy and investments will limit non-OPEC+ countries under pressure until oil prices rise. For instance, the US shale industry will need time to recover because the sharp drop in production had reduced investments in the sector.

Bearing in mind the unstable future of the oil market, Saudi Arabia has planned to invest monetary funds into green energy and nuclear energy to diversify energy production and increase economic development.

The Saudi race for nuclear energy

Figure 2 Planned Nuclear Power Plants in Saudi Arabia: Umm Huwayd and Khor Duweihin. Source: Mills, Robin (2018) *Saudi Arabia: Energy Landscape*, NPEC Fellowship Retreat. Link: http://npolicy.org/Articles/March%202018%20Drafts/Mills_Saudi_PPT.pdf.

Nuclear energy plays a crucial role in Saudi energy reform. Riyadh is promoting industrial localisation in Saudi Arabia to create new job opportunities and diversify its economy.[8] Thanks to this strategy, Saudi citizens might work inside industrial plants and supply and distribution chains. Furthermore, transferring foreign know-how in Saudi Arabia might transform the Kingdom into a logistic hub modernising the industrial sector and differentiating its exports.

[8] Pastor, Luca (2018) How can we increase the industrial localization in Saudi Arabia?, Linkedin. Link: https://www.linkedin.com/pulse/how-can-we-increase-industrial-localization-saudi-arabia-lucas-pastor/; Von Hammerstein, Robin (2020) *The business of localization: Insights for success in the Saudi renewables market*, Apricum. Link: https://www.apricum-group.com/the-business-of-localization-insights-for-success-in-the-saudi-renewables-market/.

Nuclear power might be the right choice for the future of Saudi Arabia, considering that these infrastructures are more efficient and produce a higher amount of energy than renewable energies such as solar, geothermal and wind plants.[9] In addition, nuclear power plants are relatively safe and sustainable as well as not being subject to fluctuations in production.[10]

Since establishing nuclear power plants involves massive initial investments, the Saudi Government has launched tenders to find joint ventures, investors, and partners in new technologies.[11]

According to KAPSARC, creating a nuclear industry in Saudi Arabia will reduce unemployment, raise average wages, and help the Kingdom meet its desalination needs. The level of freshwater supply in Saudi Arabia is below the minimum per capita set by the United Nations.[12] Saudi ambitions are not limited to the construction of reactors. During a conference in Abu Dhabi, Hashim bin Abdullah Yamani, at that time the president of the King Abdullah City for Atomic and Renewable Energy (KA-CARE), stated that Saudi Arabia should exploit the economic opportunities of nuclear energy and proceed autonomously and independently with the extraction of uranium. Yamani highlighted that uranium extraction might be the Kingdom's first step to achieve self-sufficiency in nuclear fuel production.[13]

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[9] DeRosa, Tom (2015) *Renewables vs Nuclear: Do We Need More Nuclear Power?*, Renewable Energy World. Link: https://www.renewableenergyworld.com/storage/renewables-vs-nuclear-do-we-need-more-nuclear-power/; Rhodes, Richard (2018) *Why Nuclear Power Must Be Part of the Energy Solution*, YaleEnvironment360. Link: https://e360.yale.edu/features/why-nuclear-power-must-be-part-of-the-energy-solution-environmentalists-climate#:~:text=Nuclear%20power%20releases%20less%20radiation,energy%20sources%20or%20fossil%20fuels.&text=Third%2C%20nuclear%20power%20releases%20less,any%20other%20major%20energy%20source.;

[10] McParlin, Kelly (2019) *Is Nuclear Energy Safe?*, Nuclear Energy Institute. Link: https://www.nei.org/news/2019/is-nuclear-energy-safe.

[11] Westall, Sylvia; El Gamal, Rania & Kalin, Stephen (2019) *Saudi plans to invite bids for nuclear power project in 2020: sources*, Reuters. Link: https://www.reuters.com/article/us-saudi-nuclear-idUSKCN1RG1LL.

[12] Atomnaja jenergija (2020) *V Saudovskoj Aravii vypushhen doklad o perspektivah razvitija jadernoj jenergetiki v strane*. Link: https://www.atomic-energy.ru/news/2020/04/24/103198. Saudi Gazette (2020) *Saudi nuclear projects can meet desalination needs and generate jobs*. Link: https://live.saudigazette.com.sa/article/592142/BUSINESS/Saudi-nuclear-projects-can-meet-desalination-needs-and-generate-jobs.

[13] Westall, Sylvia (2017) *Saudi Arabia to extract uranium for 'self-sufficient' nuclear program*, Reuters. Link: https://www.reuters.com/article/us-saudi-nuclear-idUSKBN1CZ1ON.

Saudi National Atomic Energy Project (SNAEP) and international agreements

As part of the Vision 2030 and energy diversification program, Saudi Arabia has launched the Saudi Atomic Energy Project (SNAEP).[14] The project includes a Large Nuclear Power Plant (LNPP), several Small Module Reactors (SMRs),[15] the Nuclear Fuel Cycle, i.e., the fossil fuel production cycle, and a legislative framework that regulates safety in the sector.

Saudi Arabia started cooperating with several foreign companies and countries to import new technologies, localise the industrial power plants, and transform the country into a logistic hub. For instance, in 2020, KA-CARE commissioned French engineering group Assystem to conduct environmental and feasible studies on the impact of the first nuclear power plant.[16] Previously, in 2018, the Saudi Kingdom had awarded a contract to the Australian company Worley Parsons to provide consulting related to project governance, resource management, project services, training, and compliance of LNPP, small modular reactors and the nuclear fuel cycle. Before 2018, the Australian company completed the LNPP site selection study for KA-CARE.[17]

The SNAEP envisages the creation of a Nuclear Holding Company that will own the LNPP consisting of two reactors and the supply chain that starts from the uranium extraction to the power plant and manages the investments. The power plant will have a reactor with an electrical capacity of 1200-1600 megawatts to support the national power grid for the entire year.[18]

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[14] Saudi National Atomic Energy Project (SNAEP) official website: https://www.ka-care.gov.sa/en/snaep/Pages/ov.aspx.

[15] The small modular reactors (SMRs) are composed of high-temperature gas-cooled reactors (HTGR) and small integrated nuclear reactors (SMART) that will be able to serve the petrochemical industry, oil refining, mining and it is used for the desalination of seawater. Cf. Undecided with Matt Ferrel (2020) *Small Modular Reactors Explained – Nuclear Power's Future?*. Link: https://www.youtube.com/watch?v=cbrT3m89Y3M.

[16] Assystem (2020) *Assystem Radicon has been qualified as environmental consultant class A in Saudi Arabia*. Link: https://www.assystem.com/en/news/assystem-radicon-has-been-qualified-as-environmental-consultant-class-a-in-saudi-arabia/; World Nuclear News (2020) *UAE, Saudi nuclear regulators strengthen cooperation.* Link: https://world-nuclear-news.org/Articles/UAE-Saudi-nuclear-regulators-strengthen-cooperatio.

[17] Worley Parsons (2018) *KA-CARE awards PMO agreement for Saudi National Atomic Energy Project*. Link: https://www.worley.com/news-and-media/2018/nov-ka-care.

[18] World Nuclear Association (2021) *Nuclear Power in Saudi Arabia*. Link: https://www.world-nuclear.org/information-library/country-profiles/countries-o-s/saudi-arabia.aspx.

Because now Saudi Arabia uses a significant amount of fossil fuels for thermal applications in water desalination facilities, refineries, petrochemical plants, small modular reactors might offer a valid alternative, diversify energy production, and support the Saudi market characterised by a consistent presence of intermittent renewables.[19]

In December 2018, the South Korean companies Kepco Engineering & Construction and Korea Hydro & Nuclear Power (KHNP) signed a Memorandum of Understanding (MoU) with Saudi Arabia[20] to develop a project to construct a SMART reactor jointly[21]. This MoU strengthened the partnership between the two countries since Seoul is one of Riyadh's eight key partners (together with the United States, Japan, United Kingdom, Germany, France, and India) for the realisation of Saudi Vision 2030 while the Saudi Kingdom is South Korea's largest oil exporter, the leading construction partner, and the main training partner in the Middle East.[22]

The Saudi-South Korean cooperation in nuclear energy dates back to 2015 when the two sides agreed on sharing experience and organising specialisation training for Saudi technicians.[23] Seoul signed the MoU and stressed the importance to cooperate with Riyadh because Saudi Arabia represents an outstanding market where South Korea might export new technologies. Given that the Atomic Energy Research Institute (KAERI) has designed and developed an integrated desalination plant based on the SMART reactor, which produces 40,000 m3 of water per day and 90MWe of power cheaper than a gas turbine, the Seoul-Riyadh partnership might become profitable for both parties. Therefore, in January 2020, KA-CARE signed with the Minister of Science and ICT of South Korea a revised pre-project engineering contract with the final goal of establishing the allocation of financial resources, defining the terms of collaboration among KA-CARE, Korea Hydro & Nuclear Power (KHNP), and Korea Electric Power

[19] Associazione Italiana Nucleare (2020) *Dagli Small Modular Reactors l'impulso al futuro del nucleare*. Link: http://www.associazioneitalianaanucleare.it/dagli-small-modular-reactors-limpulso-al-futuro-del-nucleare/.

[20] World Nuclear News (2019) *Korea, Saudi Arabia to cooperate on SMAR deployment*. Link: https://www.world-nuclear-news.org/Articles/Korea,-Saudi-Arabia-to-cooperate-on-SMART-deployme.

[21] The System-integrated Modular Advanced ReacTor (SMART) is a 330 MWt pressurized water reactor with integral steam generators and advanced safety features. The unit is designed for electricity generation (up to 100 MWe) as well as thermal applications, such as seawater desalination, with a 60-year design life and three-year refueling cycle. Cf. SMART Power Co., Ltd (n.d.) *SMART Technology: Development History*. Link: http://smart-nuclear.com/tech/d_history.php.

[22] Arab News (2019) *DiplomaticQuarter: South Korea, Saudi Arabia share common dream, says diplomat*. Link: https://www.arabnews.com/node/1576861/saudi-arabia.

[23] SMART Power Co., Ltd (2015) *MOU signed between MISP and K.A.CARE*. Link: http://smart-nuclear.com/project/partnership.php.

Corporation, and setting up the joint venture SMART EPC. Saudi authorities promoted this agreement seeking to involve KHNP in the project because the South Korean company's expertise in building and operating power reactors would have reduced the risk of constructing the SMART reactor's first unit. Thanks to this partnership, Riyadh aims to localise SMART reactors' production and become the logistic hub for their export.[24]

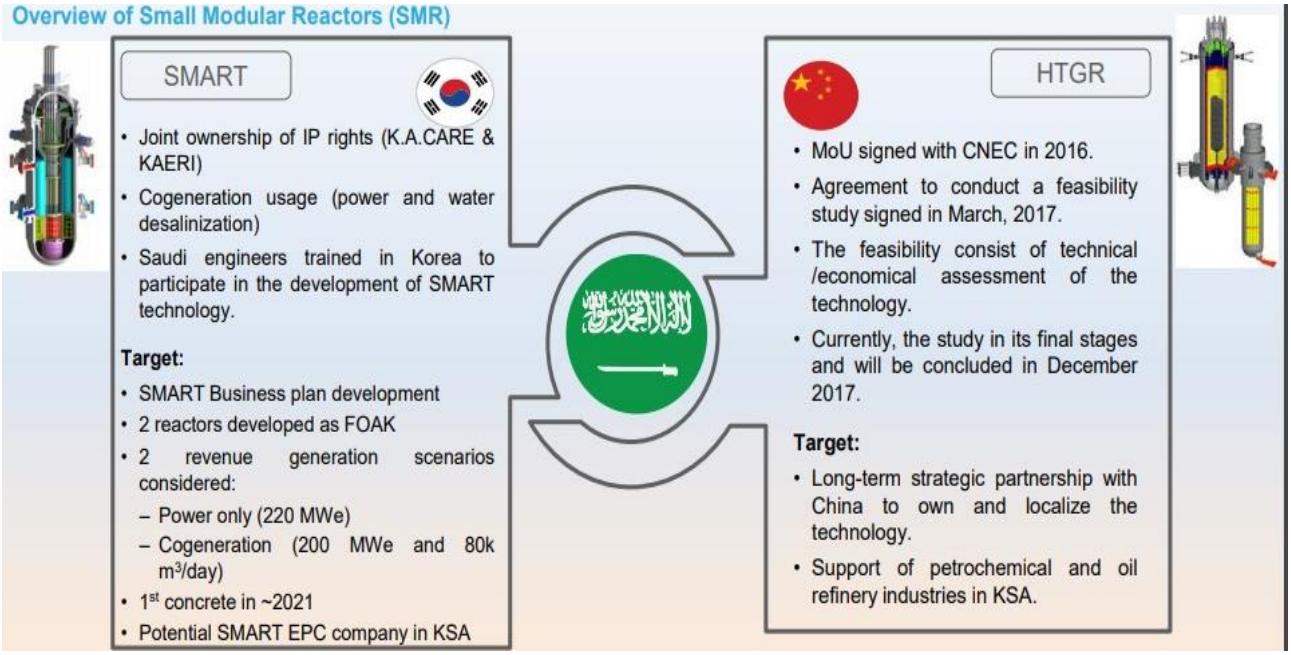

Figure 3 Saudi agreements with South Korea and China to support the national nuclear program. Source: Abuaish, Rashad (2017) *Saudi National Atomic Energy Project*, Ka-CARE. Link: https://gnssn.iaea.org/NSNI/SMRP/Shared%20Documents/Workshop%2012-15%20December%202017/Saudi%20National%20Atomic%20Energy%20Project.pdf.

Saudi Arabia has also signed an MoU with China Nuclear Engineering Corporation (CNEC) to construct the high-temperature gas-cooled reactors (HTGRs)[25] . At the same time, the Russian company Rosatom State Nuclear Energy Corporation was the winner of the tender for the realisation of two high-capacity nuclear power plant on the Gulf Coast. China and Russia have been actively involved in the Saudi nuclear energy program. In 2015, Riyadh signed an Intergovernmental Agreement with Russia on Peaceful Nuclear Technology Cooperation followed in 2017 by the Peaceful Use of

[24] Pulse (2020) *Korea, Saudi Arabia to set up Korea's SMART reactor construction JV*. Link: https://pulsenews.co.kr/view.php?year=2020&no=13894.
[25] Chang, Lyu & Meidong, Hu (2016) *China Nuclear to bring nuclear power to Saudi Arabia*, ChinaDaily. Link: https://www.chinadaily.com.cn/business/2016-01/21/content_23175711.htm.

Atomic Energy Cooperation Program while the company China National Nuclear Corporation (CNNC), in partnership with the Saudi Geological Survey, has conducted the feasible preliminary study on uranium and thorium resources.[26]

Saudi nuclear program, security and geopolitics

Riyadh planned to activate the entire nuclear fuel cycle in the country. There are some doubts about the Saudi nuclear program because it might be used for military purposes. It is cheaper and more advantageous to buy nuclear energy than establishing facilities and nuclear power plants which produce enriched uranium. Several economists and experts have highlighted that the entire nuclear fuel cycle from uranium extraction to nuclear waste management produces benefits only when the country has more than ten nuclear power plants. The military purpose of the Saudi nuclear program finds evidence in Riyadh's statements regarding the country's necessity of developing nuclear weapons as Tehran has done.

Furthermore, the Saudi desire to establishing the entire nuclear fuel cycle might coincide with the necessity of quickly developing a military nuclear program. Since the Saudi Kingdom has repeatedly refused to sign the non-proliferation agreement, the international arena has arisen its suspicious on the Saudi nuclear program even though Riyadh has constantly repeated that the only purpose of the national nuclear energy strategy and the enriched uranium is that of producing nuclear fuel for energy domestic demand and power plants. Despite no clear evidence that Saudi Arabia is enriching uranium beyond the permitted level and for military reasons, Riyadh wants to exercise its right to produce its nuclear weapons to counter Iranian threats.[27]

Moreover, there is the risk that Pakistan might supply Saudi Arabia with nuclear weapons or support the Saudi nuclear military program. Taking into account that since 1970 Riyadh has invested consistent funds in the Pakistani nuclear program, Saudi

[26] Reuters (2017) *Saudi Arabia signs cooperation deals with China on nuclear energy*. Link: https://www.reuters.com/article/saudi-china-nuclear-idUSL8N1LB1CE; Amlot, Matthew (2020) *Russian state nuclear firm advances in bid process for Saudi project: Rosatom*, Al-Arabiya News. Link: https://english.alarabiya.net/business/energy/2020/02/10/Russian-state-nuclear-firm-advances-in-bid-process-for-Saudi-project-Rosatom.

[27] Sanger, David E. & Broad, William J. (2018) *Saudis Want a U.S. Nuclear Deal. Can They Be Trusted Not to Build a Bomb*, The New York Times. Link: https://www.nytimes.com/2018/11/22/world/middleeast/saudi-arabia-nuclear.html; Withorne, Jamie (2019) *Saudi Arabia's Suspect Missile Site and the Saudi Nuclear Program*, Middlebury Institute of International Studies at Monterey – James Martin Center for Nonproliferation Studies. Link: https://nonproliferation.org/saudi-arabia-briefing-dc/.

Arabia might push Pakistan to support the Kingdom with technology transfer, technical training, uranium enrichment or nuclear weapons.[28] In the same context, it is possible to read the agreement among KA-CARE, the Jordanian Atomic Energy Commission and the Jordanian Uranium Mining Company (JUMCO) to professionally train a group of Saudi technicians in uranium exploration, uranium oxide development, and the feasibility study.[29]

Riyadh seems not to fully trust Washington's ability to contrast Tehran and stop the Iranian nuclear program. In this circumstance, instead of exploiting its partnership with Islamabad to acquire nuclear weapons or boost its national nuclear program, Riyadh has preferred to cooperate with Beijing to exert pressure on the United States in different sectors.[30]

Beijing's cooperation with Riyadh follows the steps of the Belt and Road Initiative. First of all, China wants to expand its influence in the Middle East to counter the US presence and foreign policy. Secondly, Beijing is obsessed with energy importing to support the national demand and industry program, and the Saudi oil reserves might fit with the Chinese needs. Finally, it is evident that China has enormously invested in domestic and foreign nuclear energy programs; thus, the partnership with Saudi Arabia can give Beijing another market where it exports its technologies.[31]

Iran and Israel have expressed their concerns about the Saudi nuclear program. The Israeli Minister of Energy, Yuval Steinitz, asked the Head of the Central Intelligence Agency for reassurance on the peaceful intention of the Saudi nuclear program going as far as to request to stop it.[32] Undeniably, Tel Aviv has attempted to prevent Riyad's

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[28] Van Dyke, Kimberly & Yetiv, Steve A. (2011) Pakistan and Saudi Arabia: The Nuclear Nexus, *Journal of South Asian and Middle Eastern Studies*, Vol. 34(4), pp. 68-84; Young, Michael (2018) *Does Saudi Arabia Intend to Develop a Nuclear Weapons Capacility?*, Malcom H. Kerr Carnegie Middle East Center. Link: https://carnegie-mec.org/diwan/75723; Henderson, Simon (2019) *Money for Missiles? Reassessing the Saudi Visit to Pakistan*, The Washington Institute for Near East Policy. Link: https://www.washingtoninstitute.org/policy-analysis/money-missiles-reassessing-saudi-visit-pakistan.

[29] Saudi Agency Press (2019) *King Abdullah City for Atomic and Renewable Energy announces launch of national cadre development program in uranium mining*. Link: https://www.spa.gov.sa/viewfullstory.php?lang=en&newsid=1897109.

[30] Raseef22 (2020) *Baʿd al-Kashf ʿan "taʿāwuna nuwaiy" bayna as-Saʿudiya wa aS-Ṣiyna…mā hiya jawānib hadhā al-taʿawuna wa ufuqah?*. Link: https://raseef22.net/article/1079360.

[31] Chaziza, Mordechai (2020) *Saudi Arabia's Nuclear Program and China*, Middle East Institute. Link: https://www.mei.edu/publications/saudi-arabias-nuclear-program-and-china; Riedel, Bruce (2020) *Saudi Arabia's relations with China: Functional, but not strategic*, Brookings. Link: https://www.brookings.edu/articles/saudi-arabias-relations-with-china-functional-but-not-strategic/; Haoran, Sun (2020) *Solid China-Saudi friendship*, Global Times. Link: https://www.globaltimes.cn/content/1195426.shtml.

[32] Zapol'skis, Aleksandr (2018) *V sojuze Izrailja i SShA pobezhdaet Saudovskaja Aravija*, CypLive. Link: https://cyplive.com/news/news-world/v-soyuze-izrailya-i-ssha-pobezhdaet-saudovskaya-araviya.html.

possible nuclear weapons production even though Israel refused to sign the Nuclear Non-Proliferation Treaty (NPT).[33]

According to local and international sources, Saudi Arabia has cooperated with Beijing to establish a plant located in a desert area near the Saudi city of Al-Uyain (30 km north-west from Riyadh) proper to produce the 'yellowcake uranium'.[34] Saudis negated the existence of this infrastructure while the Chinese embassy in the United States refused to comment on the matter. The Kingdom's agreement with the International Atomic Energy Agency (IAEA) does not force the Saudi to disclose any information on the yellowcake production facilities considering that this concentrated powder does not represent a threat until converted into hexafluoride of uranium. Therefore, Saudi Arabia has not violated any international agreement even though Riyadh's nuclear program is under continuous examination.[35]

Although the Saudi Government has consistently confirmed the peaceful purpose of its nuclear program, Iran has repeatedly accused Saudi Arabia of developing nuclear weapons. The Iranian ambassador and permanent representative of the United Nations, Kazem Gharibabadi, accused the Saudis of seeking an excuse to justify their nuclear weapons program.[36] On the other hand, several diplomats reported that the IAEA found uranium traces at two Iran facilities inspected after months of Tehran's obstructionism.[37]

Conclusion

The main narrative is that the Saudi Kingdom needs to diversify its energy production because the heavy dependence on oil production and exports have shown its weakness since the oil price crisis. Therefore, Saudi Vision 2030 might be interpreted as Riyadh's

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[33] Reuters (2010) *Israel rejects call to join anti-nuclear treaty*. Link: https://www.reuters.com/article/us-israel-nuclear-treaty-idUSTRE64S1ZN20100529.

[34] Yellowcake (also called urania) is a type of uranium concentrate powder obtained from leach solutions.

[35] Strobel, Warren P., Gordon, Michael R. & Schwartz, Felicia (2020) *Saudi Arabia, With China's Help, Expands Its Nuclear Program*, The Wall Street Journal. Link: https://www.wsj.com/articles/saudi-arabia-with-chinas-help-expands-its-nuclear-program-11596575671; Masterson, Julia & Bugos, Shannon (2020) *Saudi Arabia May Be Building Uranium Facility*, Arms Control Association. Link: https://www.armscontrol.org/act/2020-09/news/saudi-arabia-may-building-uranium-facility; Borger, Julian (2020) *Pompeo pressed on claims China is helping build Saudi uranium facility*, The Guardian. Link: https://www.theguardian.com/world/2020/aug/19/mike-pompeo-alleged-saudi-arabia-uranium-facility-yellowcake-china-democrats.

[36] Motamendi, Maziar (2020) *Iran: Saudi Arabia 'scapegoating' its pursuit of nuclear arms*, Al Jazeera. Link: https://www.aljazeera.com/news/2020/11/18/iran-saudi-arabia-scapegoating-its-pursuit-of-nuclear-armament.

[37] Murphy, Francois & Irish, John (2020) *Exclusive: IAEA found uranium traces at two sites Iran barred it from, sources say*, Reuters. Link: https://www.reuters.com/article/us-iran-nuclear-iaea-idUSKBN2AJ269.

response to the national socio-economic problems and the opportunity to transform the country into a modern logistic hub. This is partially true because Saudi Vision 2030 is the strategy that should support the Kingdom's energy and economic transition and the attempt to counter the domestic growing oil demand, which will tremendously limit Saudi oil exports. Considering that the national oil demand will reduce Saudi revenues, Vision 2030 is Riyadh's strategy to develop the domestic economy and still support the country's development.

The energy transition involved massive investments, especially in the nuclear sector. As mentioned before, Riyadh should invest billions of dollars in setting up nuclear power plants and facilities to support the entire nuclear fuel cycle. The recent oil crisis and the pandemic have hugely hit the Saudi economy, and there is the risk that Riyadh will not be able to afford its energy transition program and Saudi Vision 2030's goals.

The international arena is constantly monitoring the Saudi nuclear race because of its geopolitical implications. China, Russia, and Pakistan (and South Korea) are directly involved in Riyadh's nuclear program because they might provide know-how, new technologies, and investments. On the other hand, Israel, Iran, and the United States are concerned about Riyadh's nuclear program because of several speculations on the Saudi attempt to establish its nuclear weapons production and raise the country to the level of other nuclear powers. Also, India is monitoring the Saudi nuclear program considering Pakistan's role in nuclear supplies to Riyadh and Islamabad-New Delhi confrontation on Kashmir.

On the one hand, Saudi Arabia is promoting and investing in the construction of nuclear power plants to support the energy transition, create new work opportunities, localise Saudi industrial production, and decrease Saudi dependence on oil revenues. On the other hand, whether Saudi Arabia will accomplish its mission to complete the national nuclear program, there will be mutations in the regional geopolitical balances.

Since the recent Saudi – US relations have been mined by Khashoggi's case, Washington might lose its grip on Riyadh and be incapable of controlling/contrasting the Saudi nuclear program. At the same time, other geopolitical actors (China, Russia) are getting closer to Saudi Arabia, and their cooperation in the energy sector might heavily affect the market and the international arena.

Saudi Vision 2030 is Riyadh's attempt to improve its economic development and the geopolitical leverage to make Saudi Arabia less dependent on US control and become an influential key regional and international actor.

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As part of series of reports in which ASRIE Analytica researchers examine the geopolitical implications of national strategies, this report explores the role of the Makhachkala Sea Trade Port in the Russian Caspian Sea policy. In particular, this investigation stresses the Kremlin's strategy to transform the Makhachkala Sea Trade Port into a logistic hub challenging the near Baku International Sea Trade Port and strengthening the Russian-Iranian cooperation in the Caspian region.