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China's Geoeconomic Strategy: The Case of State Grid's European Investments[+]

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Abstract

This paper studies the case of the Chinese company State Grid (SG) and its internationalisation roadmap into Europe. The aim is to comprehend how a transnational State-owned enterprise can be an instrument of the Chinese geoeconomic strategy. Despite its economic and strategic importance, there is still a research gap about SG and its role in China's geoeconomic strategy. By examining the SG internationalisation path into Europe, between 2012 and 2019, we identify the geopolitical impacts of the Chinese strategy. Although SG's investments can be capitalised on important economic gains, they entail geopolitical effects that might collide with host countries' economic security.

Keywords: *State Grid, China, geoeconomics, internationalisation, FDI*

1. Introduction

This paper uses the State Grid (SG) internationalisation path to Europe as a case study to understand the implementation of Chinese geoeconomic strategy.

In 2016, in terms of revenues, 69 of the 100 biggest economic entities in the world were companies, the remaining 31 being countries (Global Justice Now, 2016). Despite their economic dimension, the study of significant companies as international actors has not been an important topic in international politics (Babic, Fichtner, and Heemskerk, 2017). There is, however, a growing interest in the role of Chinese transnational State-owned enterprises (TSOE) in the global political economy arena (Jiang and Sinton, 2011; Xu, 2012; Backaler, 2014; Grieger, 2017). This interest has a strong connection with the upsurging debate on China's[1] rise in international economic relations, one of the most momentous events since the end of the Cold War (Alves, 2011).

TSOE are considered geoeconomic instruments worthy of specific analysis (Blackwill and Harris, 2016); China's TSOE hold a leading position, hosting 18 per cent of the world total (UNCTAD, 2017). Chinese energy TSOE stand out globally. According to *Fortune* (2020), China has three energy TSOE on the world top five of the biggest companies in terms of revenues, including the company in the current case study, State Grid (SG).

Although the literature on the oil TSOE is prolific (e.g., Jiang and Sinton, 2011; Zhao, 2012; Francisco, 2013; Zhang, 2015; Vermeer, 2015; Meidan, 2016; Jin and Wu, 2017), despite its economic and political weight, investigations that focus on SG belong to a single author, Xu (2012 and 2017). Thus, there is an extensive research gap about this TSOE, a limitation and a challenge for our study. We aim to supply further insights into the understanding of Chinese contemporary

geoeconomic strategy by analysing the relationship between the Chinese State geoeconomics strategy and the internationalisation of its TSOE, using SG investments in Europe as a case study.

Europe assumes a particular role, for example, in the Global Energy Interconnection (GEI) project, being home to a myriad of Chinese investments within this scope.

In the context of Chinese geoeconomic strategy, this is one of its most iconic plans in the realm of energy since it consists of interconnecting all the world's grids.

This article analyses the internationalisation process of the SG using a geoeconomic approach, aiming at answering the following research question: how does the SG's internationalisation process to Europe contribute to China's geoeconomic strategy? The case study methodology is applied on the SG's internationalisation roadmap to Europe, from 2012, with the acquisition of 25 per cent of the capital of the Portuguese transmission system operator (TSO) company, REN, until 2019, when the first European Union (EU) Foreign Direct Investment (FDI) screening regulation was approved.

The case study research plan is part of a qualitative methodological approach, centred on a comprehensive and detailed analysis of a specific case or cases (Creswell and Creswell, 2018), thorough exhaustive inquiry (Bryman, 2012). Therefore, we believe the case study method is the most appropriate for addressing an underexplored subject (the SG).

Representativeness, which relates to the theory (Yin, 2018), is also essential for case studies (Bryman, 2012). Being one of the leading Chinese TSOE in a vital sector, displaying a vast and impressive internationalisation process, SG meets the criteria to be a critical case for a geoeconomic approach.

To develop our argument, we begin by discussing the concept of Geoeconomics and the role of TSOE as instruments of State capitalism

(Section 2). Using the theoretical framework of Blackwilll and Harris (2016), we analyse the Chinese geoeconomic strategy for the power sector in the third section. Afterwards, we focus on SG in Sections 4 and 5, briefly characterising its background and internationalisation roadmap. Section 6 traces a roadmap of SG investments in Europe, addressing their contribution to the Chinese geoeconomic strategy. Section 7, before the conclusion, is about SG's unsuccessful investments in Europe. The analysis of these investments complements the comprehensive study of SG's contribution to China's geoeconomic strategy.

2. Geoeconomics and Power Companies

The available literature shows us that there is not a unanimous definition of Geoeconomics. There is, however, a significant ordeal in finding a clear definition of the concept. After being popularised by Luttwak in 1990, the concept of Geoeconomics can be discussed in the context of different theoretical approaches (Mattlin and Wigell, 2015): as a form of statecraft, as economic geography, or from a constructivist perspective. This article follows the first approach, which is seen, simultaneously, as an analytical framework (Scholvin and Wigell, 2017).

For our purposes, we find it more suitable to rely on Blackwill and Harris (2016), who define Geoeconomics as the use of economic means to achieve geopolitical goals. According to Cohen (2014), geopolitics is an analytical model for the consequences of the interaction between geography and politics. Therefore, Geoeconomics would be the study of changes to the world geopolitical system resulting from economic activity.

In the intersection between renewable energy and geopolitics, one must note a shift in strategic concerns as renewable energy substitutes

fossil fuels. This shift carries different consequences: since renewable energy originates from several sources, import countries no longer rely on few strategic suppliers (Scholten and Bosman, 2016). Simultaneously, there is an increased dependence on physical infrastructures, storage technology, and the management of intermittent sources (*ibid.*). According to these authors, a scenario of increasing international cooperation in this sector changes the main energy geopolitical concerns, from resources control towards the "control over grid management, and in this way, energy markets" (p. 281).

Although the economic reforms aiming at the liberalisation of the Chinese economy started years ago, the visible hand of the State remains essential, notably in critical sectors (Kurlantzick, 2016). This economic model has come to be known as State Capitalism (Xing and Shaw, 2013). It acts not only in standard ways, as property companies and banks, but also through less explicit means, namely, the financial repression in the banking sector, with the allocation of savings and foreign exchange reserves for funding the internationalisation of its TSOE (Yueh, 2013).

The Chinese State uses several types of geoeconomic practices, such as sovereign funds (Mazzucchi, 2018) or traditional diplomatic action (Zhang, 2015), but the TSOE are the preferable choice (Blackwill and Harris, 2016) since they are the most fitted for this objective due to direct State control (Kurlantzick, 2016).[2] Also, the Chinese energy companies are mostly TSOE.

Unlike the prediction of some scholars, this type of company has thrived in the global economy in recent years (Shirley, 2018). The theoretical analysis of the behaviour of TSOE divides into two approaches, a developmental-based and a political one (Cuervo-Cazurra, Inkpen, Musacchio, and Ramaswamy, 2014). The first approach derives from market concerns, and the second one centres on the government's

ideological and strategic interests. The governments often use both approaches to justify the creation of TSOE.

As for their internationalisation goals, multinationals aim mainly to maximise profits, while TSOE must also attend to social and political goals, respectively, domestic and overseas (Musacchio and Lazzarini, 2018). The commercial drivers are also present. Backaler names the following ones for the Chinese TSOE: advanced technology, international management talent, global brands, and new markets (Backaler, 2014). However, they must coexist with the geoeconomic strategy of their home State.

It is interesting to analyse how an enterprise, in this case, a power grid enterprise, can produce geopolitical effects.

First, there are leverage issues. High dependence on an Extra-European State promotes energy security concerns (Mazzucchi, 2018). Investments in other countries' grids might result in "significant leverage over the development of the beneficiary's infrastructure", as the investor can influence the company decisions even if it does not control the invested company (Otero-Iglesias and Weissenegger, 2020: 604).

Chinese investments might also follow a logic of reward or punishment for the host State's political behaviour (Reilly, 2016), i.e., increase or reduce the Chinese investments in a specific country according to its compliance with Chinese requests. As Norris (2010) shows, one of the possible externalities of economic interactions is transforming the target country's interests.

Even in the case of solely commercial-driven investment, there are also unintended geopolitical consequences by adding new foreign policy options for the host government (Blackwill and Harris, 2016).

Standard setting, as well, must be highlighted. Once a neutral issue, nowadays it influences global markets, as it conditions "connectivity and technological interoperability" (Seaman, 2020: 31) and, therefore, can be

an area of competition, especially with the rising of China, thus "not immune to strategic, geopolitical, and geoeconomic considerations" (p. 8). Standards are a crucial geoeconomic challenge because governments use them to promote their interests and companies, resulting in the current competition between China, the USA, and the European Union (Rediker, 2015). While keeping a low profile, this type of power has global consequences (Bradford, 2016). China is well aware of this trend, by enhancing its initiative, China Standards 2035, to gain first mover leverage in standards definition for emergent industries (de la Bruyère, 2021).

In direct relation with the previous concerns, this TSOE spearheads a wider geoeconomic strategy for the electricity sector, in which China plans to connect all the world power grids by 2050 (*South China Morning Post*, 21st January 2016). Grid interconnection stands for, *per se*, a clear geopolitical concern. Fischhendler, Herman, and Anderman (2016) identify four types of geopolitical bottlenecks that could hinder grid interconnections: zero-sum mentality, grid dependency aversion, political stability, and energy security-economy dilemma. These issues relate to the decision-makers perception of the geopolitical impacts and may contribute to the host country's reaction to the SG investments' geopolitical effects.

3. China's Geoeconomic Strategy

Overall, Chinese strategy relies, according to Romana (2005), on instrumentalising the international community, using a pragmatic approach beyond the offensive/cooperative paradigm. It aims to increase China's social, economic, and technological conditions while improving government internal support and global influence. Gonçalves (2011) assesses China to be a realist player, striving for relative gains, while the

hegemonic power (the USA) pretends to contain China's economic development (Mendes, 2017). Thus, China's geoeconomic strategy stands as neo-mercantilist (Cunha, 2012; Wigell 2015).

According to Backaler (2014), the central government goals underlying the support for Chinese companies' internationalisation include using Chinese foreign exchange reserves, obtaining natural resources to sustain economic growth, and expanding its soft power by creating national champions. As the *Fortune* (2020) ranking suggests, SG has raised from a national champion to a global champion.

Chinese government labels some sectors as strategic, energy included, and provides significant support to the internationalisation path of these sector's companies (Meidan, 2016). Like other key sectors, the Chinese energy TSOE expansion strategy is supported by massive public funding (Wübbeke, Meissner, Zenglein, Ives, and Conrad, 2016), although enjoying a considerable degree of freedom pursuing State goals (Mazzucchi, 2018). Since March 2018, energy investments abroad do not require prior approval, only reporting to the National Development and Reform Commission (NDRC) (Grant, Kaiding, Eow and Ma, 2018). There has been a growing tendency towards liberalisation in the electricity market; however, it is still dominated by TSOE, with just a residual presence of foreign enterprises (Hernández Alva and Li, 2018).

The Chinese State has supported internationalisation in several key strategies in a progressive techno-nationalist effort to ascend into the developed countries' group (Cunha, 2016). Within these grand projects, the State funnels large-scale financial resources to TSOE, mainly through two public banks, China Development Bank (CDB) and the Export-Import Bank of China (Exp-Imp Bank) (Kong and Gallagher, 2016).

Besides public funding, SG has also been able to obtain international financing through the markets. For example, in 2020, SG

managed to obtain a 220 million USD loan from foreign banks and 100 million USD from the Chinese ICBC to perform 2.2 billion USD worth of acquisitions of Chilean power companies (*Latin Lawyer*, 31st July 2020). While Xu (2017) refers to the international credibility of SG (Xu, 2017), top rating agencies classify SG as A+ since they match SG rating with China's sovereign rating (Fitch Ratings, 22th May 2020).

The first significant plan for the internationalisation of Chinese companies with governmental support was the *Go Out* strategy, presented in the 1990s and officially launched in 2001 (Shambaugh, 2013; Cunha, 2012). However, authors such as Xu (2017) suggest that it might have served to legitimise the already ongoing internationalisation strategy of some of the leading Chinese national oil companies. Institutionally, the *Go Out* policy is led by the Ministry of Commerce (MOFCOM) and the National Development and Reform Commission (NDRC), with their importance deriving from the fact that Chinese FDI is a product of government engineering, rather than one driven by advantages of domestic industries, as it usually happens in the most advanced market economies (Li, 2010).

The SG, considering investments and construction contracts, has expanded to five continents (AEI and Heritage, 2020). This internationalisation strategy fits the global aim of the *Go Out* policy; this company has moved from domestic sectoral dominance to international dominance, and the goal of influencing international standards is well stated in the company reports. SG has already reported positive results in this regard: so far, it has led the creation of 75 international standards and applied 488 national standards abroad (SG, *CSR Report 2019*).[3]

In 2013, China's leadership launched the Belt and Road Initiative (BRI). From the historic Silk Road's framework, linking Asia to Europe, China created a Eurasia-centred infrastructure-building project to be deployed into the twenty-first century. The combination of sea and land

dimensions is a Herculean initiative involving countries that host 70 per cent of the world population (Godement, 2015). The bulk of the investment, estimated as 890 billion US dollars, would mainly come from CDB (*China Daily*, 28th May 2015). The nature of this project, however, is not consensual. China presents it as a win-win opportunity, while some researchers see it as a more self-interest expansionist plan (Duarte, 2017). The endpoint would be "new China centred supply chains" (Eder and Mardell, 2019: para. 3).

The GEI project emerges from the BRI framework. This long-term plan was proposed in 2015 by President Xi Jinping at the United Nations Sustainable Development Summit and was led by SG (*Global Times*, 11th May 2017). This strategic vision consists of interconnecting electricity grids at a global level by 2050, which will be done in a three-step process: up until 2020, all countries should develop clean energy and grids; from 2021 to 2030, border connections will be constructed; and from 2031 to 2050, it will be the time for the transcontinental connections (*South China Morning Post*, 21st January 2016).

In 2015, the Chinese authorities drew up another plan, named *Made in China 2025*. Inspired by the German *Industry 4.0*, this initiative promotes the Chinese intelligent manufacturing industry (Kennedy, 2015). It consists of upgrading Chinese domestic production of core components and promoting Chinese tech companies, improving China's position in the global value chains, and achieving self-sufficiency in hi-tech industries.

Following *Made in China 2025*, the Chinese authorities drew another strategic plan, *China Standards 2035*, another driver of the country's geoeconomic strategy, of increasing importance (Chipman Koty, 2020). Alongside this plan, China's government, in the latest five-year plan for 2021-2025, prioritises domestic consumption and reduces foreign dependence (Gatti, 2020).

The main objectives of the Chinese State for the electricity companies are framed in those major plans: to create global champions and to establish global standards – *Go out* (and *Global Standards 2035*); to booster intercontinental interconnectivity – BRI; and to lead technology innovation and global value chains – *Made in China 2025* (Mazzucchi, 2018).

Underpinning all plans is the core purpose of making China the leading great power, promoting sustainable development based on technologic innovation, emphasising knowledge and opportunity evaluation (Xi, 2018). Alternatively, as Holslag (2016) puts it, it shapes the world economy to China's advantage. That is the core principle behind China's geoeconomic strategy.

4. SG's Domestic Stronghold

SG was created during the 2002 industrial restructuring. The Chinese State wanted to promote efficiency, investment, and, where none existed, competition (Xu, 2012). The previous company, the State Power Corporation (SPC), took hold of the bulk of China's entire power grid and almost 50 per cent of the national generation capacity (Hernández Alva and Li, 2018). In 2002, SPC was divided into two State-owned enterprises, the SG and the Southern Power Grid, with the country's grid being asymmetrically divided between them to the benefit of SG in terms of territory coverage (Xu and Chen, 2006).

This reform (the creation of SG) initiated the fourth phase of the Chinese power sector regulations (Wilson, Yang and Kuang, 2015). According to the same authors, the first phase corresponded to absolute State control (1949-1985), the second to gradual opening (1985-1997), and the third (1998-2002) to a separation of functions

between government and businesses, wherein SG predecessor company, SP, was created (Xu and Chen, 2006).

Xu (2012) assesses SG to be a beneficiary of the reform processes. SG, along with other flagship TSOE, by having been released too quickly from State control, consolidated its position before the institutionalisation of an effective regulator. It is noteworthy to mention that there is not an energy ministry in China since 1985. Therefore, the National Energy Administration (NEA) acts as an energy ministry (Meidan, 2019). This agency is subordinated to the NDRC, a super ministry agency, which, in turn, depends directly on the State Council (Hart, Zhu and Ying, 2019).

In the Chinese conceptualisation of socialism, the Party's leadership over the companies is an advantage that should be reinforced (Xi, 2018). Alongside the hierarchy in the power sector, SG is institutionally subordinated to the State-Owned Assets Supervision and Administration Commission (SASAC). As a main Chinese TSOE, its administrators are appointed by the Party Personnel Department in coordination with the SASAC. Occasionally, the Politburo itself nominates the administrators in what might be considered a game of political influence between factions. Therefore, it is crucial to the whole system's efficient and sustainable functioning that the top positions should be appointed by the Party's oligarchy (Xu, 2012). In addition, 39 per cent of the employees are members of the Party, and the Chairman is the Party Secretary in subsidiary companies (SG, *CSR Report 2017*).

Due to domestic market dominance[4] and its lack of transparency, Chinese grid companies have an essential role in electricity price setting (Hart, Zhu and Ying, 2019). As the main grid operator and a central TSOE, SG is a powerful player in China, political and economically (Xu, 2012), a sort of electricity leviathan (*South China Morning Post*, 21st January 2016). While SG is no longer part of the government

budget, it enjoys easy access to loans from the Chinese public and commercial banks. That accessibility would not be considered an abnormal status within an industry framework that is capital intensive, if not for the excessive power that SG holds (Xu, 2017).

In contemporary China, businesses hold considerable autonomy in decision making, provided they remain aligned with State interests (Li, 2010). Therefore, the relationship between the State and SG is essential to understanding the success of this company. Xu (2012) names the reasons behind the SG-government connections. SG's internal monopoly can be justified for technical and social reasons: the former relates to the reduced private interest in investing in a public access area that requires massive investments, such as electricity transmission; the latter reveals the strong relation of electricity supply, labelled as critical infrastructure, with social and economic development. These reasons, combined, can explain the company leaders' proximity to the political power.

The first Chairman of SG was a former Electricity Vice-Minister, Zhao Xizheng, whom Zhenya Liu replaced in 2004 due to retirement (Tsai, 2010). Liu led the SG for almost 12 years, which made him known for being the "father" of the Ultra-high-voltage (UHV) lines (Reuters, 17th May 2016). He retired in 2016 (*JQK News*, 17th January 2020), having assumed the role of Chairman of Global Energy Interconnection Development and Cooperation Organisation (GEIDCO) afterwards (GEIDCO, 2016), to deploy the plan to interconnect the national grids globally.

From 2016 onwards, there have been four different SG's leaders: Shu Yinbiao (2016-2018), Kou Wei (2018-2020), Mao Weiming (2020-2021), and Xin Baoan (from 2021) (*JQK News*, 17th January 2020; *Hoje Macau*, 19th January 2021). When justifying the successive replacements, analysts point to Beijing's desire to have a leadership in SG that facilitates the planned market reform (Reuter, 17th May 2016;

Fortune, 2020). It is noteworthy to refer that, in 2020, the nominated president for SG did not come from the power sector (*JQK News*, 17th January 2020).

From debuting in the 46th position in 2004, in 2016, SG reached the second position on the ranking of the world's top enterprises in terms of revenues (*Fortune*, 2020).[5] Most of the time, SG displays the typical private companies' behaviour: it operates like a monopolistic enterprise, with great interest in eliminating the competition, which it succeeds by acquiring the control of competitors, national and internationally (Xu, 2012). However, the political goals are present and are explicitly declared, e.g., in SG top management's own words (2019: 106), since it aims to fulfil the Chinese leadership goal of establishing "a community of a shared future for mankind." Moreover, when Beijing considers that SG leadership does not comply with the official defined goals, there is plenty of evidence, as stated before, of its ability to change the SG's presidency.

5. Overview of SG's Internationalisation Roadmap

Taking advantage of their relative independence at the domestic level, SG started by creating solid foundations in China, increasing its profitability rates and acquiring enterprises in related sectors, which, then, would help in the next step, the international expansion, for the Philippines or Brazil (e.g. Xu, 2012).

In 20212, SG publicly stated, as a target for 2020 to hold 50 billion USD of international assets (Buckley and Nicholas, 2017). By 2018, SG (2019) already had 65.5 billion USD of overseas assets, mainly electricity and gas TSO, which provided gas distribution in Australia, Portugal, and Italy, whereas in Brazil, it has expanded to power distribution and generation.

Although its subsidiaries had acquired engineering and construction contracts abroad before, SG concluded the first internationalisation enterprise in 2008 (Xu, 2017). The company was internationally unknown (*Financial Times*, 12th December 2007) when it won the largest privatisation auction in the Philippines history (Xu, 2017).

In 2010, SG entered the Brazilian market through a successful partnership, having performed eight investment actions until the end of 2017, representing 44 per cent of SG's investments abroad (AEI and Heritage, 2020). The following factors contributed to this success: the global economic crisis, the corruption scandal affecting the leading local electricity investors, high debts and need for investment of local energy companies combined with the Chinese long-term perspectives, and privileged access to particular loans from the Chinese State (Filgueiras, 2016). Also important was SG's competitive advanced technology and expertise, which was essential to overcome the difficulties of transmitting energy from the North of the country (where the leading producers were located) to the South (that hosted the main consumers) (*Dinheiro Vivo*, 25th January 2017).

The third successful internationalisation move of SG headed Portugal, where it bought 25 per cent of REN (national transmission grid operator) in 2012, in an agreement that received support from the CDB, and which would provide 1 billion euros for the REN's debt (Buckley and Nicholas, 2017). With this acquisition, SG entered the European Network of Transmission System Operators for Electricity (ENTSO-E),[6] which, although bringing European TSO together, still has no regulatory power (Mazzucchi, 2018). In 2014 and 2016, SG reinforced its presence in the European market by investing in Italy and Greece's national power grid companies (AEI and Heritage, 2020).

Across the world, SG international investments continued to expand: Brazil (2012, 2016, and 2017), Australia (2012, 2013, 2017, and

2019), Philippines, again, in 2019, Oman (2019), and Chile (2019 and 2020) (AEI and Heritage, 2020).

Besides FDI, SG signed construction contracts for transmission networks in Poland, Myanmar, Russia, Mongolia, and Kyrgyzstan (*Global Times*, 11th May 2017). AEI and Heritage (2020) also refer contracts in Brazil, again the top destination of SG international activity[7] in several periods (2012, 2014, 2015 and 2016), Venezuela (2012), Ethiopia (2013 and 2016), Laos (2015), Egypt (2016), Kenya (2016 and 2018), Pakistan (2016), Ukraine (2019) and Saudi Arabia (2019).

It is worthy to note that the investments in Australia represented a shift in SG financing strategy. For the first time, while benefiting from excellent risk ratings, the company obtained the necessary capital through international financial markets, as a typical multinational enterprise (Xu, 2017). This event benefited SG's power balance with the home government.

As the Chinese leadership moved to reduce power distributors' domestic monopoly, SG has increased motivation for internationalisation (Buckley and Nicholas, 2017). Ng (2016), likewise, refers to the influence of the domestic market in SG expansion overseas, claiming that it would counterbalance a decreased internal demand for SG's main product, the UHV technology. Therefore, SG's expansion is boosted by possible interests to gain relative independence from Beijing and reduced domestic profits.

Regarding the main Chinese geoeconomics plans, the Go Out policy was followed since the very first investment abroad in three main vectors (*People's Daily*, 18th November 2016): cutting-edge technology, more precisely the UHV technology; management experience of large grids; enforcement and improvement of international standards.

The embodiment of the *Made in China 2025* strategy is expressed in the development and export of Chinese UHV technology and smart grid

equipment, as these are key technologies that China aims to dominate globally (Mazzucchi, 2018). In this context, SG endorses the paradigm change of *Made by China 2025*, by implementing a comprehensive industrial strategy centered on "internet+ manufacturing" and "high-end products" (SG, *CSR Report 2017*: 37).

Besides UHV electricity transmission technology that China (and SG) has pioneered, China is to "set global standards and dominate global markets" (CEEESA, 2015: 32). The standard setting is an active effort in SG's international operations (SG, *CSR Report 2019*). This posture fits perfectly with the China Standards 2035 plan.

Technological development and international standards leadership will determine future economic control, especially in an industry that requires large-scale solutions to achieve decarbonisation and efficiency targets (Xu, 2017). SG internationalisation reportedly contributed to those goals by promoting Chinese technological products abroad and disseminating Chinese standards (YIDEK, 6th June 2017).

It is noteworthy to refer that the SG internationalisation process also fulfils the BRI objectives since the company has successful invested in seven countries covered by the Initiative (*China Daily*, 15th March 2018). The Chairman of SG in 2014, Shu Yinbiao, stated that the proposal of President Xi Jinping on the BRI would make interconnectivity promoted by SG with neighbouring countries a concrete option (CET, 9th June 2015). This idea is framed in the GEI plan. The GEICO, an organisation that promotes interconnectivity, was founded in 2016 by SG. It is led by the former SG chairman, Zhenya Liu (GEIDCO 2016).

GEIDCO is a global plan that stretches far beyond the BRI geographic area, as previously claimed. It reportedly has three components (Cornell, 2019): cross-country and cross-continental infrastructure; energy bases in each continent, the poles, and the equator;

and a global platform to manage and trade the interconnected energy.

The difficulties expected for this project are many: lack of political will, trade barriers, technical standards incompatibilities, and lack of capital. However, general commercial advantages promise to contribute to the success of it. The former Chairman also claimed that China could provide electricity to Germany at half the price German producers were able to (*South China Morning Post*, 21st January 2016).

In line with the political objectives of increasing competitiveness, the enterprise has the stated goal of making all investments profitable, with an annual return rate of at least 10 per cent (*Global Times*, 11th May 2017).

Having started later (Xu, 2017), SG's intensive internationalisation profile, both in modes (grid operator, network constructor, or equity investor) and stretch, reveals both patience and persistence. Nevertheless, domestic assets still account for 89 per cent of SG's total assets.[8]

6. SG's Foothold in Europe

As mentioned earlier, SG expansion to Europe started in Portugal in 2012, followed by Italy (2014) and Greece (2016). Those are SG's direct investments in Europe so far.

In Poland, SG had the first Engineering Procurement Construction (EPC) project by a Chinese company in Europe, which started in 2014 and finished in 2018 (SASAC, 26th November 2018). The Poland contract was agreed in the previous year, 2013, as was a Russian EPC contract – both to build power transmission lines (SG, *CSR Report 2013*). More recently, in 2019, SG acquired another contract in Europe, in Ukraine, to construct a wind power farm in partnership with a Norwegian company (SG, *CSR Report 2019*).

The construction contracts contribute to China's geoeconomic strategy by promoting China's products and standards. However, in comparison with direct investment, construction projects are very limited in time and scope. Consequently, their geoeconomic impact is much simpler than direct investments. Because of it, this section focuses on direct investments in Europe and not on construction contracts. First, we characterise the investments and the motivations behind them; then, we address their contribution to China's geoeconomic strategy by analysing their geopolitical impacts.

Compared with other SG destinations, the internationalisation process to Europe falls under a different kind of strategy: by taking advantage of the financial crisis, SG expanded to mature markets with political stability, well-regulated systems, and guaranteed rates of return (Xu, 2017).

As for the Chinese electric strategy for Europe, according to Mazzucchi (2018), it relies on three priorities: security, storage, and UHV. SG promotes both the exports and the standardisation of those components.

A significant part of the SG presence in Europe was through participating in the privatisation programs enhanced by several countries, especially in Southern Europe. Portuguese and Greek Memorandum of Understanding for external financing programs included privatising the respective electric power TSOE. (Government of Portugal, 2011; European Commission (EC), Hellenic Republic and Bank of Greece, 2015). In the case of Italy, there was a clear intention of reducing public debt (Reuters, 24th July 2014).

There were, however, significant differences among host countries. In Portugal, the electric and gas TSO, REN, was wholly privatised, while the Greek and the Italian State remained the majority shareholder

of theirs TSO (IPTO, *Annual Report 2019*; CDP, *Annual Report 2019*).[9] In the current European Union of 27 member-States, only Portugal has an electric TSO wholly detained by private investors; as a gas TSO, besides Portugal, Latvia and the Czech Republic have TSO privately owned entirely (Council of European Energy Regulators (CEER) 2016).

Another difference relies on the acquired rights by SG. Despite being a minority shareholder in CDP, a holding company that is the major shareholder of the referred to Italian companies, SG obtained veto rights (CDP, 2014). The same happened with the Greek TSO. For that reason, the EC considers that SG and the Greek State have "joint control" of the Greek IPTO (EC, 2017: 8).

In terms of SG drivers for those investments, the return rates that stand well above domestic return rates are mentioned in the analysis report of those investments (Reuters, 10th August 2014). Overall, SG reported a 3.2 per cent Return on Equity (ROE) in 2019 (SG, *CSR Report 2019*).[10] For the same year, the ROE for the European companies were 8.2 per cent in the case of the Portuguese REN (REN, *Reports & Accounts 2019*), 10.3 per cent for Greek IPTO (IPTO, *Annual Report 2019*), 18.1 per cent for Italian Terna (Terna, *2019 Annual Report*), 17.4 per cent for Italian Snam (Snam, *Annual Report 2020*) and 23.6 per cent for Italian Italgas (Italgas, *Annual Report 2020*).[11]

While foreign assets represent only 10 per cent of the company's total assets[12] (and the European assets only 1 per cent),[13] in 2019, SG (2020) obtained 59 per cent of its profits from overseas, industrial and financial business. According to several analysts, in 2018, SG would have received in dividends more than 50 per cent of the investment value of the 2012 acquisition of the Portuguese REN (*Dinheiro Vivo*, 15th May 2019).

SG investments in Europe are also assumed to be geoeconomically driven. To GEI's vision, Europe's grids are an essential asset

(Mazzucchi, 2018).

The regional monopoly by a single company comes with competition concerns (Reuters, 10th August 2014). Although being part of the European Union plan for utilities, competition issues are referred to in the Portuguese case (Campos and Vicente, 2016), but mistrusted in the European Commission certifications of the electrical TSOE REN (EC, 2014) and IPTO (EC, 2017). The Italian electric and gas TSOE did not have a recertification process, although the latter had started in 2015. In the following year, the Italian regulator decided to archive the recertification process, evaluating it as unnecessary since the Italian State remained the controlling shareholder of the referred power companies (Deliberazione 16 Giugno 2016, 317/2016/R/EEL; Deliberazione 16 Giugno 2016, 318/2016/R/GAS).

Notwithstanding the interest of placing SG representatives in those companies' board of directors, the focus is not so much on operating the grids but on expanding the SG network in the area, aiming for the interconnection of those grids (Xu, 2017). In fact, regarding the first European investment of SG, in the Portuguese REN, the sources highlight the low profile of SG initiatives. SG was not considered to be an "active investor" in this country (Le Corre, 2018a: 1712), but reportedly being "patient and discreet" (Reuters, 10th August 2014: para. 17), as it does not interfere with the company operations (Xu, 2017).

It is reasonable to draw two main implications from the previous investments spree. At a policy level, SG investments yield a greater dependence of the EU energy policies and energy security issues on Chinese endeavours; at a techno-regulatory field, there is the risk of SG using its subsidiaries to push for the definition of the fittest normative standards, with ENTSO-E (which all the stated electric TSO were part of) as a mean to influence European electricity policy-makers

(Mazzucchi, 2018).

In what concerns the policy level, the Chinese leverage can have multiple layers of geopolitical impact. Otero-Iglesias and Weissenegger (2020) distinguish between direct and indirect security concerns related to *de facto* control *versus* influence over the invested company. In this case study, as SG is not the majority owner of any European company, the concerns relate to influencing decision making. Thus, it is appropriate to address the impact with different levels of analysis, from a broader to a stricter point of view.

In a broader level of analysis, adding to the rising economic rivalry between the major Western States and China, the connection with Beijing is sometimes used by less powerful European countries for leverage against the more powerful ones (Mações, 2019). Otero-Iglesias and Weissenegger (2020) point that it could be used as a "negotiating tool to extract concessions from Brussels in terms of laxer fiscal discipline" (p. 614).

There is the argument that the Chinese investments translate into autonomy and security issues for organisations such as the EU or NATO, being the host countries full members of these organisations (Le Corre, 2018b). A united EU could propel negative consequences for China. Therefore, from a geopolitical perspective, it is in the Chinese interest to promote a divided Europe (Breda, 2015).

There are also competition concerns regarding the extension of the Chinese presence in the European markets, which combines acquiring shares and financial support for multiples companies, resulting in "concentration or dominant positions" (Bongardt and Neves 2014: 24). When the Greek State launched the privatisation process of its electrical TSO, both SG and Terna (which is partially owned by SG) were bidders, raising concerns by the European Parliament (Tamburrano, 9th January 2015).

SG influence over the privatised companies, as in the Italian case, with board members, as well as the instrumentalisation of potential Chinese financing, gives China a "partial framing power" over the "investments Italy's national electricity grid will make" (Otero-Iglesias and Weissenegger, 2020: 610). This power could condition "Europe's electricity grid development", also with impact on equipment acquisitions, which, in turn, can be used for "sabotage" or "surveillance" (*ibid.*: 610, 614).[14]

Furthermore, in line with a traditional approach to national security, there is a shutdown concern. The Philippines' case, in which SG has 40% of the National Grid Corporation of the Philippines, is interesting since it relates to fears about Chinese equipment, Chinese technicians, and the mandatory compliance of Chinese enterprises with the Chinese government's national security interests (*Nikkei Asia*, 3rd March 2020). Due to these security concerns, the Philippine government eventually removed the network operational control from SG personnel in 2015, and limited their access to the country (Xu, 2017). Nevertheless, in November 2019, there was a wide concern from the country's Senate, that China could switch off the power remotely, in case of aggravating disputes with the Philippines on the South China Sea. It was confirmed by technicians that China could in fact turn off the power, but the Filipino President could order an emergency takeover and restore the power within 24 to 48 hours as part of a safeguard from the privatisation process (BBC, 21st November 2019).

In Europe, however, the concerns are not centred on this type of approach. Otero-Iglesias and Weissenegger (2020), who did a case study on this subject, assessed the impacts on the national security of SG investment in Italy. They concluded, using a national security framework of three main threats (denial, sensitive information, and

sabotage), that SG cannot "realistically" disrupt Italian electrical supply (p. 607); that the Chinese company "faces a difficult legal environment for obtaining confidential information" and that it could obtain sensitive technology "elsewhere" (p. 610). Moreover, as SG does not participate in the daily operations of the Italian companies, they also classify as "unrealistic" the probability that SG could sabotage the Italian grid "on their own" (p. 610).

In what concerns the regulatory offensive, there is a reported concrete example related to the Portuguese REN: Lopes and Pinto (2018) indicate that REN serves as a "showcase" (para. 14) to export Chinese electrical equipment to other European TSO. Promoting Chinese equipment is a primary step towards setting international standards for electrical equipment.

Another related issue is the research collaboration: in Portugal, in a joint venture with REN, SG's institute of Electric Power Research created, in 2013, the R&D Nester centre (REN, *Annual Report 2013*); in the following year, SG created two branches of its Smart Grid Research Institute in Germany and the United States (SG, *CSR Report 2014*).[15] In 2016, the Smart Grid Institute was renamed Global Energy Research Institute, Global Energy Interconnection Research Institute (GEIRI), in a move that highlights the importance of the GEI plan (GEIRI, 8th November 2017).

Additionally, there are exchanges of expertise between SG employees and the European companies, as in REN (SASAC, 10th December 2018). This type of cooperation facilitates the promotion of shared standards.

The normative issues equally come with geopolitical consequences. Although in a much less visible way since the geopolitical implications are the indirect result of changes in international technological leadership.

Rühlig (2020) highlights the contribution of the Chinese economic model in changing technical standards setting from a "private self-regulation (…) towards geoeconomic rivalry over technology" (p. 28). EC (2019) confirms this view, stating that China is "an economic competitor in the pursuit of technological leadership" (p. 1).

There is room for cooperation, but it needs the EU and Chinese Governments' involvement to safeguard the "common interests" (Lema, Berger, Schmiz and Song, 2011: 40). As Oertel, Tollmann, and Tsang (2020) affirm concerning climate change cooperation with China, the EU needs to set "clear red lines and benchmarks" (p. 23).

SG investments in Europe, in sum, achieve direct leverage or influence over the destination countries and normative ascendency over the European electrical sector. They are still limited in scope, though, since they have only been successful in entering the capital and management structures of three countries' transmission operators.

7. SG's European Missteps

The unsuccessful investments of SG in Europe, although not completed, shed some light on SG strategy and intentions. There were several cases: Spain in 2012, Belgium in 2016, Finland in 2017, the United Kingdom in 2017 and 2019, and Germany, on two occasions, in 2018.

In terms of context, these countries are in a different situation than the previous ones. Therefore, SG cannot take advantage of their "precarious financial situation" (Otero-Iglesias and Weissenegger, 2020: 611).

In the same year that the deal in Portugal was signed, SG tried to enter the Spanish market. The government, which had shares in the electricity and gas TSO, did not accept to sell to SG due, precisely, to strategic considerations (*Global Times*, 2nd July 2012).

The following misstep occurred in Belgium in 2016. Official Chinese sources, and the GEI, praise the internationalisation of SG as a win-win opportunity for all countries, promoting joint development (Liu, 2017). However, there is another perspective that considers the SG a threat to national security.

To understand it, however, it is mandatory to address an SG investment outside Europe, more precisely in Australia, that happened in the same year. SG had invested in Australia before, but in 2016, the Australian government decided to block SG investment by national security issues (Buckley and Nicholas, 2017).

These fears echoed in Belgium, with the State's security agency advising against SG investment, and variegated concerns emerged: the risk of interference by the Chinese authorities, because, as a Chinese TSOE, SG follows the Chinese State guidelines, therefore the Chinese Communist Party ones; and there was also a risk of technology and consumer data theft, given the links between SG and the Chinese intelligence services (*The Sydney Morning Herald*, 28th September 2016). The intended investment was not successful, not due to national security concerns, but because the owners voted against SG investment on account of tariff issues (Grieger, 2017).

Both the intentions of investment in Finland and the United Kingdom in 2017 were private sell-outs (Reuters, 29th September 2017), where SG did not win (Reuters, 13th December 2017; Sembcorp, *Annual Report 2018*). The second investment attempt in the United Kingdom in 2019 was also a private selling of enterprise shares (S&P Global, 10th July 2019). As it happened with the previous two cases, the investment in the United Kingdom had the same negative outcome (Equitix, 4th December 2019).

In 2018, there was another unsuccessful attempt. SG wanted to acquire 20 per cent of the German 50Hertz, one of the four German

power grid operators. This investment was blocked by the Belgian Elia, which used the right of first refusal and bought the referred 20 per cent itself. Although not publicly stated, and despite the alleged SG lobbying efforts with Berlin (RWR, 14th February 2018), there were suspicions that the German government influenced that outcome through the Belgian government (Marray, 2018).

In May of the same year, SG made a new attempt to buy 20 per cent of the 50Hertz, the sole share that Elia did not own. The debate in Germany was split, with accusations that this purchase would help a subsidiary of SG, Shandong, offering it an unfair advantage in selling equipment for 50Hertz. Naturally, SG denied the accusation.

The current German law only allows State intervention if the purchase is above 25 per cent (*Handelsblatt Today*, 22nd May 2018). In the first attempt, Elia used the right to the first refusal and, the second time, a German State bank intervened. In this way, the German leadership succeeded in blocking SG investment as a temporary solution due to national security concerns over critical infrastructure (Federal Ministry for Economic Affairs and Energy and Federal Ministry of Finance, Germany, 27th July 2018).

Despite the outcome, this is another example of how the internationalisation of SG integrates itself with the *Made in China 2025* strategy and how that might provoke negative reactions because Chinese energy modernisation competes directly with Germany's (Popławski, 2018). Notwithstanding the consequent know-how flow from Germany to China,[16] there was also expected an inverse flow because of the Chinese advantaged development in the field of long-distance electrical transmission, which the German market needs in the short term (*Handelsblatt Today*, 9th February 2018).

As a response to the growing concerns that the surge of Chinese investments in Europe was raising (Percy, 2019), the member states

started to debate the setting up of the first EU FDI screening regulation. The screening mechanism was proposed by the French, German and Italian governments in 2017 (Godement and Vasselier, 2017), but it faced some resistance from the part of smaller EU countries, namely from Northern and Southern Europe (*ibid.*). As a result, in 2019, the approved regulation was informative and consultive, lacking mandatory guidelines (Percy, 2019). Among the main opposers to the screening mechanism, Godement and Vasselier (2017) identified Portugal, Greece, and Finland. Coincidentally, these are countries with significant levels of Chinese FDI (Kratz *et al.*, 2020).

Some argued that energy security issues that relate to technological development could only be addressed internationally. Thus, SG's investment blockages represent a protectionism move, revealing a poorly developed securitisation, especially since SG would not risk its reputation and global operations with practices contrary to national security (Hendrischke and Li, 2016).

The unsuccessful investments confirmed two dimensions of the Chinese geoeconomic strategy regarding SG. On the one hand, there is evidence of an overall Chinese strategy for Europe's grids. It consists of acquiring significant shares in their operator companies (Mazzucchi, 2018), proof of SG's continuous internationalisation attempts heading the European market. The other dimension relates to the growing awareness with security and strategic concerns, which was noted in the Spanish, Belgium, and the German cases, which posits the geopolitical issues are one of the main issues regarding SG internationalisation and the Chinese government dream of a globally interconnected grid (Kraemer, 2019).

Alongside technical and economic issues, the political and the geopolitical dimensions, where States need to choose cooperation efficiency over traditional national security, are critical for this

geoeconomic strategy to succeed (Downie, 2019). Long-term political stability between grid-connected countries gains critical importance due to the interconnection infrastructures life span and the required investment (Xia *et al.*, 2016).

With that in mind, Otero-Iglesias and Weissenegger (2020) conclude, "SGCC and China grasped the future importance of electricity grids and wanted to make sure to have a say in Europe" (p. 612).

In this context, the completion of the Comprehensive Agreement on Investment (CAI) between China and the European Union, in the end of December 2020, can be considered a victory for China's geoeconomics and geopolitical ambitions. Although, except for Ireland, all member states have bilateral investment treaties with China, those only cover post-entry investment. CAI also covers market access. For China, the deal preserves and encourages EU investment in China as a driver of economic growth and technological development, it legitimizes the regime in the eyes of domestic and international public opinion, and it causes a rift in the relations between the EU and the USA, which is favourable to China (Fallon, 2021).

For the EU, the main interests reside in German and French manufacturing and services sectors, host of Chinese investments and source of investments in China, that would gain freer access and the improvement of the level playing field, as well as two dimensions of sustainable development, labour rights and environmental protection (*ITN*, 24th June 2021). The suspension of the ratification process, in May 2021, by the European Parliament, on account of human rights violation in Xinjiang, leaves the the future of the CAI in a precarious situation, due to the ongoing escalade of sanctions from both sides. The stepping out of Angela Merkel, which was the main force behind the agreement, and the entrance of the Green Party into the new German government, a fierce critic of the Agreement, will reinforce the grim

perspectives. We believe the CAI should be kept in standby until further *détente* is to be reached. Meanwhile, the EU is reinforcing its FDI Screening Mechanism and the Anti-Coercion Instrument, as well as it is drafting a prospective bilateral investment agreement with Taiwan (*Nikkei Asia*, 22nd September 2021).

In 2017, the European Commission issued a report to pinpoint possible routes for the GEI plan for China supplying Europe (Ardelean and Minnebo, 2017). The report addressed three main issues:

- The crossing of conflict areas, which occurs in all of the three imagined routes;
- The need for "synergy" between countries, political and regulatory;
- The risk of dependence on less-resourced countries, that could be co-opted "for leveraging political actions" (p. 58).

According to Cornell (2019), China needs to convince the other countries that its GEI project is a win-win opportunity and not just a geopolitical instrument. For the cases analysed in this section, the second stance prevailed. Because of it, SG was unsuccessful in investing in the referred countries.

Nevertheless, the project has reported: "economic benefits" (Xia *et al.*, 2016: 1), especially at a technical level (Cornell, 2019), and in the perspective of countries for whom financial issues are a significant concern.

8. Concluding Remarks

This paper aimed to understand the relationship between SG's internationalisation and the Chinese geoeconomic strategy. We argue that the internationalisation strategy of SG was instrumental for that purpose. We also intended to address an identified research gap.

Our analyses indicate that the internationalisation of this TSOE is fully aligned with the Chinese geoeconomic strategy, following all the major plans. It promotes Chinese technology, exports, internationalisation, and standards. SG expansion to Europe fits into this framework. Given the autocratic specifications of the Chinese regime, the rise of SG on the world stage would not be possible without State support. As a leading TSOE, the SG internationalisation roadmap champions the objectives outlined by the Chinese leadership. This company not only complies with the referred policies, but it spearheaded them – for example, with the GEI plan.

Twenty years ago, it was not predictable that SG presence would have been accepted in other countries' grids (Xu, 2017). Taking advantage of a degraded financial moment, SG successfully entered three European countries. Therefore, SG acquired inherent political leverage in Europe (Mazzucchi, 2018), raising concern that it might hinder the economic security of host countries.

SG might operate overseas as a typical company, following a discrete profile and not interfering with daily operations. SG's internationalisation even seemed to have a preponderance of commercial interests, particularly access to new markets, enabling long-term profitability and safeguarding from domestic regulatory uncertainties. Nevertheless, the highly competitive technology and the desire to create international standards contribute to the distrust and, sometimes, the unsuccess of SG's investments.

Not undermining the importance of capitalising on the opportunities that Chinese investment represents, several European governments worried about the consequences of SG investments, namely: long-term competitiveness, unfair competition, and national security (Conrad and Kostka, 2017). This company follows the Chinese geoeconomic strategy, which, necessarily, entails geopolitical effects. We also

ascertain that, although there are divergent views on China's leverage in EU countries, the impact on economic and national security is, mainly, a long-term concern.

Notes

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1. In this paper, "China" refers to the People's Republic of China.
2. It should be mentioned that the geoeconomic use of enterprises occurs since, at least, the seventeenth century, by the Dutch, Danish, and British (Luttwak, 1990).
3. SG reported having 82810 patents in 2018; double that in 2014, from which 20715 were invention patents (SG, *CSR Report 2018*).

4. SG operations in China cover 88 per cent of the territory (SG, *CSR Report 2019*).
5. Due to the fast-growing Chinese economy, SG, which only partly inherit the assets of Power Grid Company, debuted in Fortune Global 500 ranking in a higher position than Power Grid occupied in 2002, which was 60th.
6. It also entered the gas counterpart of that European organisation, as REN is also a gas TSO (REN, *Report and Accounts 2018*).
7. According to AEI and Heritage (2020) data, Brazil accounts for 37.55 per cent of SG investments overseas and 30.99 per cent of SG construction contracts abroad.
8. The most recent numbers are from the 2019 annual report (last available SG annual report): total assets: 4.1 trillion RMB (625.8 billion USD, with the 6th April 2021 Bank of China middle exchange rate of 1 USD equal 6.552 RMB) and overseas assets worth 65 billion USD (SG, *CSR Report 2019*).
9. Note that SG bought a minority share in a subsidiary company majority-owned by the Italian State, which is the main shareholder of the Italian electric TSOE, Terna, gas TSO, Snam, and gas distributor, Italgas (CDP, *Annual Report 2019*).
10. This is the year from the last available SG annual report.
11. Those ROE were calculated based on Net Income and Shareholders' Equity indicated in each company annual report; only IPTO had the value already calculated.
12. See note 6.
13. We performed our calculation with data retrieved from SG (2019), CDP (2020), REN (2019), IPTO (2020), Terna (2020), Snam (2021), and Terna (2021). The shares of SG were taken into account, and the exchange rate from Euro to USD (because the European companies' annual reports were in Euros) was the average of 1st April 2021 of European Central Bank, of 1 Euro equals 1.1675 USD.

14. Otero-Iglesias and Weissenegger (2020) highlight that the Chinese influence would have more impact if the predictions of a "future scenario where renewables will be the prime source of energy" (p. 613).
15. In the referred report, this information comes side by side with SG participation in international standards.
16. *Handelsblatt Today* (9th February 2018) points out the interest of SG in the German management of renewable sources of energy in the power grid. They also stress SG's interest in the Portuguese REN (Fernandes, 2013).

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