
The Evolution of Global Energy Governance: Scenario Analysis with a Focus on the G20

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Abstract

This study addresses global energy governance and its future evolution. While governance plays an essential role in securing the sustainability of energy and the environment, the current global energy governance has limitations: fragmentation and failure to reflect changes in the global energy landscape. This study provides future scenarios on how global energy governance will evolve, focusing on the G20. Then, each scenario is presented with its strengths, weaknesses, opportunities, and threats. The G20 has promoted global energy cooperation to address challenges such as the energy trilemma since 2009 and is increasing its contribution as one of the most influential platforms for energy cooperation. Until now, the G20 has positioned itself between a symbolic and substantial platform. Nevertheless, this group will increase its influences on global energy governance and its contribution to global energy cooperation.

Keywords: International organization, global energy governance, G20, scenario analysis.

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1 Introduction

The trilemma of global energy governance is the necessity of simultaneously addressing the issues of energy security, energy equity, and environmental sustainability (World Energy Council, 2016). These three energy issues demand urgent multilevel political actions (Cherp, Jewell, and Goldthau 2011, 75). Sufficient, stable, and affordable energy is the key to development, as it provides a basis for civilization, while clean energy is a precondition for stable climate conditions, which is crucial for the survival of humans and the preservation of the environment. By 2050, the world will have to support nine billion people as compared to almost seven billion people in 2014. The stress on the energy system and the global climate would be intensive without a reduction in carbon-emitting consumption paths. A collaborative study conducted by the International Energy Agency (IEA) and the International Renewables Agency (IRENA) (2017, 13) presents that around 70% of the global energy supply mix would need to be low carbon. The report indicates global annual investments worth about USD 3.5 trillion would be required between 2016 and 2050 to achieve a probability of 66% of staying on the path to below 2 degrees, compared to 1.8 trillion in 2015 (IEA/IRENA 2017).

In the face of this energy trilemma, the World Energy Council (2016) has identified five key areas that encompass transforming energy supply, advancing energy access, addressing affordability, improving energy efficiency and managing demand, and decarbonizing the energy sector. Dealing with the energy trilemma must involve the governments, industries, and societies because the challenges are ‘massive, urgent, global and systemic’ (Cherp, Jewell, and Goldthau 2011, 76). The tasks require significant policy interventions, aggressive carbon pricing, and additional technological innovation (IEA/IRENA 2017, 13). Thus, the role of the governments is decisive, not only in building the necessary consensus for the transformation, but also in adopting institutions, norms, and markets. Moreover, as leadership has become more imminent in the provision of global public goods, the role of global governance and cooperation is receiving more attention than ever. The guiding paradigms include protecting the environment, guaranteeing free markets that ensure access to and exchange of goods, services, and technologies, and promoting sustainable development. Energy security and climate change together form the third guiding paradigm for sustainable and equitable development. Ensuring access to affordable, reliable, sustainable, and modern energy for all is Sustainable Development Goal 7 defined in the United Nations (UN) process. However, achieving this goal is a challenge.

2 Global Energy Governance and Limitation

Global energy governance is a kind of system composed of countries and organizations for international energy cooperation. It has been a popular theme in energy policy research (e.g., Dubash and Florini 2011; Gosh 2011; Lesage and Van de Graaf 2016). Recent research agrees that the current state of global energy governance does not fully reflect and respond to the energy trilemma. The first limitation is that it is highly segmented and fragmented without appropriate coordination (Dubash and Florini 2011). There is no inclusive institution, neither thematically nor in terms of membership. This governance gap stems from the reluctance or inability of the traditional international fora to play an active role, the tension between transboundary governance and national sovereignty over energy, and the fragmentation of energy issues and governance institutions.

At the same time, the fragmented energy governance amplifies the contours of a multipolar world. It coincides with the multilateralism crisis (e.g., WTO, Energy Charter Treaty) and the growing tendencies towards regionalization or even economic selfhood. The consequence may be a growing disorder. The changing energy landscape is driving the emergence of new regional hubs and shifting the gravity of transactions. The trends of demand surge in Asia, the Middle East, and North Africa, unconventional oil and gas production, and various energy transitions affect the global energy trade, capital shift and wealth flows, and the distribution of influence and power among countries. Furthermore, energy policy is still a national prerogative, even in supranational regional organizations such as the European Union (EU). As a consequence, '[i]nternational energy policy is a hitherto underdeveloped policy field' (Leal-Arcas and Filis 2013). Energy security is closely related to national security in many countries. This tight knot is the reason for the reluctance to adopt a collective approach. Attempts at international governance are hampered by the variety of interests, positions, and capabilities of different countries. Different governments have diverging interests and urgency in reforming international energy governance (Bradshaw 2010).

Another limitation of the current global energy governance became evident over the past decade: the global energy governance structure does not reflect the current world energy landscape appropriately (Westphal 2016). In particular, while OECD countries are sufficiently incorporated into the energy governance structure, the new powers such as China, India, Brazil, and South Africa are integrated to a much lesser extent to the existing institutions and regimes (Energy Research Institute and Grantham Institute,

2016). The limited participation of Asian countries (in particular, that of China and India) is an imminent issue as those countries are significant determinants of energy consumption and climate change at the global level. In terms of present and future energy challenges, these loose ties or even missing links might prove to be an obstacle. Global governance mechanisms of the 'old energy world' should be adapted to the new platform (Westphal 2016). The energy landscape and the roles and positions of states are transforming rapidly. Although traditional approaches have categorized producer, consumer, and transit countries, these distinctions are blurring. The primary example is the U.S., which is transforming from a consumer (importing) country into a producer (exporting) country. The international implications of these developments are profound in the geoeconomic and geopolitical realm, as well as for multilateral governance. The exposure, vulnerability, and sensitivity of countries to issues such as supply crises and price fluctuations, as well as the cost and benefit calculation with respect to specific energy paths and transactions, are transforming. The transition to a world using more sustainable energy will dramatically alter the system as the value will shift from the energy source to the conversion into secondary and final energy services. The availability of technology is becoming more critical (Goldthau 2017, 203–204). Moreover, a pathway in line with the Paris Agreement will imply massive shifts of trade and capital flows, producing winners and losers from the energy transition. Hydrocarbon-abundant countries such as Saudi Arabia and Russia face a depreciation of their reserves and a subsequent shrinking of their revenues.

What adds to these accrued deficiencies in global energy governance is the enfolding crisis of the West. In the past, the U.S., in joint cooperation with European countries, drove energy governance directed toward energy security, the functioning of markets, and the Paris Agreement. Any hindrance to the pursuit of these goals may have a profound impact on the future provision of public goods, which are essential for coping with the energy trilemma. The U.S. course of energy dominance under the new Trump Administration, coinciding with the EU searching for cohesion, has eroded the leadership of the West, which has fundamental implications for the energy market order. Diverse approaches to organizing the energy sector and energy trade deepen existing differences. Since the 21st century, the pendulum is swinging back from free markets to state-interventionist/mercantilist strategy to secure access to hydrocarbons. This paradigm shift has coincided with a break in the dominance of the Western countries in the global economy. The advent of the BRICS is resulting in a restructuring of international energy markets, both at

a political/regulatory level and a structural level (Ziegler and Menon 2014). Two decisive differences determine each country's respective energy market order. The first key difference is the specific relationship between the state and the market and the extent to which 'states or markets are seen as the main device for coordinating industrial—and state—behavior' (CIEP 2004, 84). It is yet to be seen how an 'America First' doctrine adds to the picture. The second difference is the scope of governance arrangements, geographically and thematically. The energy landscape is in flux, and the issue at stake is not just the institutional architecture but also the guiding paradigms behind it.

3 Emergence of the G20 in Global Energy Governance

In the following, we focus on the G20's role in addressing the energy trilemma, promoting the paradigms, and strengthening the coordination among the existing energy governance, to better integrate old and new powers. Theoretically, the G20 is positioned to steer a global energy transition, exert leadership, and provide global public goods. It comprises of countries that are of utmost importance for an energy transition and includes significant energy producers, consumers, and crucial players in existing international institutions. Along with the G7 countries (Canada, France, Germany, Italy, Japan, the U.K., and the U.S.), the G20 includes Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Russia, South Korea, Saudi Arabia, South Africa, Turkey, and the EU. Thus, the G20 unites a representative group of industrialized countries and new powers with a potential outreach into their regions. Furthermore, it includes all permanent members of the UN Security Council and the primary financiers of international organizations.

Given its sheer weight, any move by the G20 will mean a difference for the global energy mix and GHG (greenhouse gas) emissions. The G20 consumes 95% of the world's coal, more than 70% of global oil and gas, and has produced 80% of total CO₂ emission (IEA/ IRENA 2017, 35). If the G20 members agree on joint action, it will produce meaningful signaling effects on the world and considerable influence on international policy-making, making it an ideal forum to steer an energy transition by complementing existing institutions and bringing more coherence to the global energy architecture (Huang, 2009; Lesage, Van de Graaf, and Westphal 2010). Such a group can exercise the steering function by deliberating and coordinating national policies, encouraging international cooperation (Van de Graaf and Westphal 2011), holding up the dominant paradigms, and providing global commons. Moreover, the G20 currently covers an extensive range of issues. The G20

works beyond specific silos, dealing with nexus challenges in international policy-making. In addition to its finance track, which still cores to the G20 agenda, covering issues of international finance and economics, it now works on a wide range of issues in the Sherpa track, such as sustainable development, energy, anti-corruption, climate change, employment, and food security. Furthermore, the group's members have vital roles in other energy institutions, thus enabling the countries to channel dialogue and drive stringent and coherent action. It can press advantages from various energy governance institutions in different footholds. Finally, the aligned platform for international business people provides the G20 with the opportunity to straddle public-private sector lines. This linkage is potentially a mechanism to be exploited by sequencing and channeling targeted actions.

4 Recent Achievements of the G20 Energy Group

The G20 began to address energy matters under the U.S. presidency in 2009 when its members declared to phase out harmful and inefficient fossil fuel subsidies. During the same year, the focus on specific global energy issues was shifted from the G7/G8 to the G20 in 2009. Then, the G8 advanced an integrated energy and climate agenda between 2005 and 2008, which aimed to reach out to the new emerging powers in the Heiligendamm/L'Aquila Process 2007/2008. The G7 transformed back into an exclusive OECD club in 2014 when Russia was excluded after the Ukraine crisis. It pursued an agenda of tackling climate change and energy security (primarily natural gas), as evidenced by the summits such as 2014 Brussels and 2015 Elmau. In 2009, the G20 committed to abolishing fossil fuel subsidies and work on improving the functioning of energy markets. The determination also represented a response to the financial and economic crises as they committed themselves to a resilient, sustainable, and green recovery. Since then, the G20 has continued to monitor the phasing-out stages of fossil fuel subsidies. As an example, the IEA, OPEC, OECD, and the World Bank published reports tracking fossil fuel subsidies (IEA/OPEC/OECD/World Bank 2010; IEA/OPEC/OECD/World Bank 2011). In 2013, the G20 endorsed a methodology for voluntary peer reviews (G20 2013). The first voluntary peer-reviews of the G20 were conducted by the U.S. and China in 2015 and submitted the final reports in 2016. Germany and Mexico participated in the review in 2017, and Indonesia and Italy did so in 2018. Argentina and Canada are currently conducting the review process. As the chair country for the G20 in 2011, France included the issue of energy price volatility as it did in its

G8 agenda. The chair country also made a transparency initiative pushing the improvement of the Joint Organization Data Initiative (JODI) and providing more insights into price reporting agencies. A common concern over oil price volatility, which is detrimental to both consumers and producers, was also a driver of this process for transparency.

Since 2013, the G20 has been addressing energy issues more comprehensively. An energy working group was established in 2012, which has been functioning under the title 'Energy Sustainability Working Group' since the Russian presidency of 2013. In the 2014 G20 held in Brisbane, Australia, the G20 Principles on Energy Collaboration (G20 2014b) were endorsed. The document set up a direction for efforts to make international energy institutions more representative and inclusive. Under the Chinese presidency, this agenda was named 'Global Energy Architecture.' The 2009 commitment to a resilient, sustainable, and green recovery has been fulfilled since 2014 through an expansion of the collaboration on energy efficiency, energy access, and renewable energy. In the area of energy efficiency, the members of the G20 initialized their collaboration at the 2014 summit in Brisbane with the 'Energy Efficiency Action Plan' (G20 2014a). The members successfully agreed on expanding their activities in this area. In 2016, the "G20 Energy Efficiency Leading Programme", led by respective countries, was inaugurated with eleven areas for effective and flexible collaboration (G20 2016a). The G20 mandated the International Partnership for Energy Efficiency Cooperation (IPEEC) to organize the program.

The G20 affirms its support for the target of the Energy Sustainability Development Goals to substantially increase the share of renewable energy by 2030. The G20 action on renewable energy is presented in 'G20 Deployment of Renewable Energy' and 'the Toolkit of Voluntary Options' developed by IRENA (G20 2015c). These outputs suggest the next five options as particularly beneficial as G20 action: '(1) in-depth and country-specific analyses of renewable energy costs and reduction potentials, (2) exchange of good practice examples on enabling national policy frameworks, (3) development of renewable energy-specific risk mitigation instruments, (4) country-specific assessment of renewable energy technology potential and development of roadmaps, and (5) support for the sustainability indicators and further actions by the Global Bioenergy Partnership (GBEP), in close cooperation with IRENA and IEA Bioenergy'. In addition, the G20 members aim to explore the potential for increased regional infrastructure connectivity and cross-border investment to enable higher levels of investments in renewable energy. It confirms to continue the support for international cooperation,

including capacity building for developing countries and encouraging the use of existing cooperation platforms.

In 2015, the ‘G20 Energy Access Plan’ was endorsed to voluntarily collaborate on this issue under the Turkish presidency (G20 2015a). The G20 Energy Ministers and the Chinese presidency endorsed three action plans in 2016: the ‘G20 Voluntary Action Plan on Renewable Energy’, (2) the ‘G20 Energy Efficiency Leading Programme’, and (3) ‘Enhancing Energy Access in Asia and the Pacific: Key Challenges and G20 Voluntary Action Plan’ (G20 2016). In 2017, the German presidency pushed the efforts of shifting investments into an energy transition to enhance energy efficiency. Implementing the Paris Agreement through the ambitious Nationally Determined Contributions and the Action Plans as well as adapting the finance track to the goal of sustainable development were the paradigms behind the 2017 G20 meetings (G20 2017).

Argentina played the role of the presidency in the 2018 G20, which was fulfilled by a southern hemisphere country for the first time. The energy group was named ‘Energy Transitions Working Group (ETWG)’ for underlining the importance of transitions into low carbon energy systems. The group’s main agenda included energy transitions, energy efficiency, renewable energy, data transparency, and energy access and affordability. The presidency endorsed the ‘G20 Energy Minister Communiqué,’ and drew five deliverables for each agenda. The ETWG coordinated by the Argentine presidency differentiated itself from the previous ones by emphasizing energy transitions contributing to economic growth as well as GHG reduction, digitalization securing the transparency of energy data, and behavioral change enhancing energy efficiency (G20 2018).

Japan chaired the most recent G20 in 2019. The country combined the energy group and the environment group and held a ministerial meeting for both energy ministers and environment ministers. However, as a weakness, essential issues in the energy sector were partly diluted by authentic environmental issues such as biodiversity loss and marine pollution. The joint group introduced the concept of ‘3E+S’: Energy Security, Economic Efficiency, and Environment and Safety and underlined innovation for enhancing the four pillars. The presidency endorsed ‘Communiqué’ and ‘G20 Karuizawa Innovation Action Plan on Energy Transitions and Global Environment for Sustainable Growth’ as the primary outcomes of the joint group (G20 2019). Besides, the group presented several deliverables underlining innovation on hydrogen as well as previous agenda such as energy transitions, investment, energy efficiency, and renewable energy sources.

To conclude, the G20 has continually stepped up their voluntary cooperation in energy areas such as subsidies, market transparency and price volatility, international energy collaboration, energy efficiency, energy access, and renewable energy. However, as the G20 comprises countries with very distinct and diverse policies and perspectives, its agreements have been compromised in the absence of binding clauses. This extensive range of composition is why the group focuses on less controversial issues, only partly living up to its potential as a steering committee. Nevertheless, the G20 is believed to be the only comprehensive platform where major international energy organizations cooperate with major countries, while coordination of all energy issues within global energy governance has not been sufficient in itself. In this regard, the G20 is considered to play a more critical role in global energy governance and the resolution of global energy challenges (Andrews-Speed and Shi 2016).

5 Scenario Analysis Focusing on the G20

This study provides future scenarios on how global energy governance will evolve, with a focus on the G20. More specifically, assuming the influences of emerging countries, which in reality are new powers in the multipolar world, the study suggests four scenarios regarding a future of global energy governance, where the G20's role in each scenario is distinguished. There are two main actors in global energy governance: countries and international energy organizations. As such, the factors can be categorized into three levels: the national level, the international energy organization level, and the external environment level. As both will and capability determine an actor's behavior (Viteles 1953), the country-level factors include each country's attitude towards the current global energy governance, such as willingness to change the governance or to remain without any change and its capability. In line with this, the international energy organization-level factors will include each organization's attitude and capability. The external environment level factors may encompass global economic growth, global peace or conflict, and global energy market changes, among others. However, a reflection of all these factors will bring an extreme number of scenarios.¹ Moreover, there are more factors to affect global energy governance. For example, a powerful country can be much more influential in changing governance vis-à-vis an international organization. Thus, following Schoemaker's (1995)

¹For example, four types composed of attitude and capability, which 196 countries and 40 international organizations addressing energy may have, will bring 2^{472} scenarios.

methodology, we focus on two factors considered to be the most critical and inclusive of other uncertainties because addressing all these factors is too complicated to predict a future.

The first driver is the concession which emerging countries will provide to advanced countries in exchange for a reformation of global energy governance.² The other is the overall support of emerging countries for the G20 as the central platform of global energy governance. In adopting the two factors, we started with a request of emerging countries for a change. As governance structure does not change without members' intention to change, we focused on who makes a request. Then, we concluded that the most meaningful request for a reformation of global energy governance would come from emerging countries such as China and India. In 1975, the OECD countries accounted for 60% of global energy consumption (IEA 2013). It decreased to 43% in 2011, and the World Energy Outlook of IEA in 2013 projected it to be around one-third by 2035. This decrease came from the increase in the share of the emerging countries. Also, the increase enhanced their power in the energy market. Hence, we initially focused on requests for changing the current governance from emerging countries. However, despite the significance of the requests from emerging countries, unless advanced countries decide to change the governance structure, it will not change. We can see a clear example in the case of the International Monetary Fund's (IMF's) voting rights reformation. Although the adjustment was officially agreed upon within the IMF, the actual adjustment was implemented after the U.S. Congress's approval in 2015 (BBC 2015). This happened because advanced countries, particularly the U.S., currently hold a major share of power to change the current structure.

Moreover, advanced countries would accept a change only if it benefits them. Thus, their decision will depend on concessions provided by emerging countries. For example, emerging countries can agree to adopt higher levels of observance in areas such as CO₂ emission reduction and intellectual property rights protection if requested by advanced countries. Emerging countries can also accept a suboptimal share within international organizations of other sectors such as trade, finance, and others. This reasoning has led to the adoption of 'concession of emerging countries' as the first factor. Furthermore, as mentioned above, until now, the G20 has been the most probable candidate

²Advanced countries refer to major countries within the current global energy governance. Considering each country's influences within the governance, the G7 countries are included in this category. Meanwhile, emerging countries in the G20 include Argentina, Brazil, China, Indonesia, Russia, Saudi Arabia, and the Republic of South Africa.

to function as the central platform of global energy governance. However, emerging countries within the G20 have different preferences. For example, Saudi Arabia supports the International Energy Forum located in Riyadh, and Turkey remained reluctant to support any reformation of the current global energy governance at the 2015 G20 (Shin 2016). Hence, we chose the overall support of emerging countries to make G20 the central platform of global energy governance as the second factor. If all emerging countries in the G20 request that it should be the central platform for international energy cooperation, the support will be significantly meaningful. However, if none of them want the G20 to play that role, the support will not exist. In adopting the two factors, we acknowledge the significant influence of the G2 (i.e., the U.S. and China). We underscore that the two drivers reflect their influences: the first factor affecting the U.S.'s position and the second factor representing China's position. As a next step, following Schoemaker's methodology (1995), we derived four scenarios by applying the two factors in a two by two matrix, as depicted in Figure 1. For each scenario, we conducted a SWOT (strengths, weaknesses, opportunities, and threats) analysis to evaluate their internal characteristics and external environment (Andrews 1971).

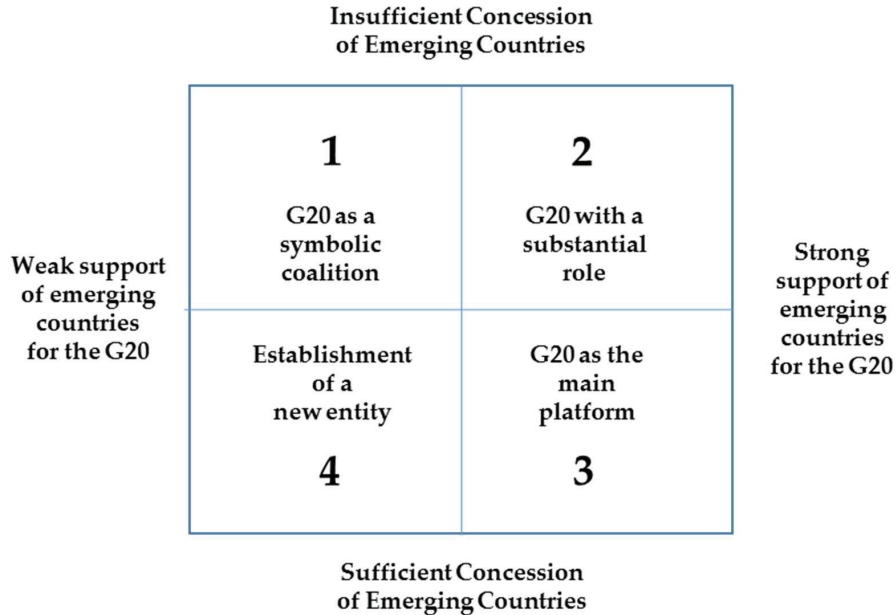


Figure 1 The four scenarios of evolution of global energy governance.

1. Scenario 1: The G20 as a Symbolic Coalition

In the first scenario, the G20 will remain at a symbolic position rather than performing concrete actions. This scenario will be realized when both the degree of concessions and support are reduced from their current status. This scenario has a high likelihood because existing international energy organizations can take full advantage of their expertise and capabilities they already possess for encouraging international energy cooperation. Also, this scenario assumes a gradual improvement in cooperation. However, emerging economies will not sufficiently contribute to international energy cooperation in this scenario, as their participation is limited. Furthermore, coordination between international energy organizations, which is one of the main limitations of the current global energy governance, will not be effective, and it will be another weakness of this scenario. With regard to the external aspects, global recognition of the expertise of existing international energy organizations can work as an opportunity in realizing this scenario. In contrast, the pressure to reform the current global energy governance, particularly from emerging countries, still works as a threat, thus lowering the feasibility of this scenario.

2. Scenario 2: The G20 with a Substantial Role

The second scenario will be realized when the concessions are not sufficient, and the overall degree of support of the emerging countries for the G20 is sufficient. In this scenario, the G20 will play a substantial role in global energy governance but not a central role. Internal advantages of this scenario will be the contributions of the G20 as well as the existing international energy organizations. In particular, the G20's linkage with the summit where political leaders of members meet together and its various working groups can enable it to participate in energy cooperation more effectively. In contrast, it will still be challenging to coordinate all the international energy organizations and the G20 under the lack of a central player within the governance structure. The external opportunity for the realization of this scenario is a limitation of existing international energy organizations. In other words, an increasing number of energy problems will require solutions related to various fields, and the G20, which encompasses diverse working groups, will be able to address them as an indispensable participant in the governance. This situation will request the G20 to play a more substantial role. However, if it fails to differentiate itself from existing international energy organizations,

some countries will continue to be dissatisfied with the current governance, and their request for reformation will be a threat to this scenario.

3. Scenario 3: The G20 as the Central Platform

In the third scenario, the G20 will play a primary role as the central platform in global energy governance to coordinate international energy cooperation. This scenario will be realized when both the concessions and the support of emerging countries for the G20 are sufficient. The strength of this scenario lies in the authority the G20 has and its linkage with various working groups. In addition, as the role of a central player is established, the coordination of international energy organizations will become more feasible. However, it would be a critical weakness if the diverse positions of the member countries make it difficult for the G20 to address sensitive issues. External opportunities for the realization of this scenario include more pressure for the reformation of the current global energy governance, the need to address energy problems in collaboration with diverse fields, and stronger coordination among multiple international energy organizations. However, when the G20 assumes a central role, excessive expectations and demands regarding its role and contribution can pose a threat.

4. Scenario 4: The Establishment of a New Platform

The final scenario is the creation of a new international entity to coordinate international energy cooperation at the central position of global energy governance. This scenario will be realized when the concessions are sufficient and the support of emerging countries is weak. The internal advantages of this scenario include the entity's flexibility to reflect changes in the new international energy environment and its ability to effectively coordinate the international energy organizations from the establishment stage onward if agreed upon by the countries. However, this scenario is disadvantageous in that its establishment would require a high cost, and it may suffer from insufficient capacity in coordination as compared to the G20. The fact that the international energy market and the environment are rapidly changing will be an external opportunity because the new entity can be advantageous in reflecting changes. However, the new entity will face a demand for differentiation from existing international energy organizations as well as the G20, which can be a threat to this scenario. Table 1 summarizes the results of the Strength-Weakness-Opportunity-Threat (SWOT) analysis of the four scenarios.

Table 1 SWOT analysis result of the four scenarios

	Scenario 1	Scenario 2
Strengths	<ul style="list-style-type: none"> – Expertise of the existing IEOs – Gradual reformation and stability 	<ul style="list-style-type: none"> – The G20's additional contribution to global energy cooperation
Weaknesses	<ul style="list-style-type: none"> – Less participation of emerging countries – Insufficient coordination among IEOs 	<ul style="list-style-type: none"> – Difficult coordination among IEOs including the G20
Opportunities	<ul style="list-style-type: none"> – Respect to the existing IEOs' expertise 	<ul style="list-style-type: none"> – Increasing demand for multidisciplinary approach
Threats	<ul style="list-style-type: none"> – Pressure for reformation 	<ul style="list-style-type: none"> – Complaints about the current structure
	Scenario 3	Scenario 4
Strengths	<ul style="list-style-type: none"> – Coordination of IEOs – Powerful influence of the G20 	<ul style="list-style-type: none"> – Flexibility to reflect new energy markets – If approved, effective implementation
Weaknesses	<ul style="list-style-type: none"> – Difficulty in reaching an agreement within the G20 	<ul style="list-style-type: none"> – Costs of establishing a new entity – Less influence of the entity vis-à-vis the G20
Opportunities	<ul style="list-style-type: none"> – Increasing demand for close interaction and coordination among IEOs 	<ul style="list-style-type: none"> – Rapid changes in the energy market such as climate change issues
Threats	<ul style="list-style-type: none"> – A high level of expectation about the G20's role and contribution 	<ul style="list-style-type: none"> – Pressure to differentiate from the existing IEOs and the G20

6 Discussion and Conclusions

The current global energy governance is evolving despite several limitations. However, it seems to be at crossroads, where the initiative for governance and leadership for addressing the energy trilemma will not come exclusively from the OECD countries. As emerging countries have a more considerable

influence on the global energy landscape, its evolution will need to reflect this power shift. This study paid attention to the increasing influence of emerging countries and their request for reformation as a primary driver of governance evolution. The request is expected to lead to a reformation through concessions provided by emerging countries to advanced countries in exchange for accepting the request for reformation. Thus, we adopted concession as the first main factor affecting governance evolution. In addition, as emerging countries have different positions even within the G20, we chose the degree of overall support of emerging countries for the G20 as the central platform of global energy governance. This study suggested four scenarios derived from these two factors: (1) G20 as a symbolic coalition, (2) G20 with a substantial role, (3) G20 as the central platform, and (4) the establishment of a new platform. Then, we analyzed the strengths, weaknesses, opportunities, and threats of each scenario.

The G20 has positioned itself in the middle of the first and second scenarios. This position currently seems to move towards the second scenario as its role is changing from a symbolic to a more substantial one. It is not yet indisputable whether it will move into the third scenario or not. If both the concessions and the support from emerging countries are sufficient, the G20 will play the most central role in global energy governance and cooperation, as suggested by the third scenario. Then, the group will be the entity with the highest authority for solving energy challenges at the global level. In addition, considering some negative feedback from the G20 member countries about the cost of establishing a new organization, the fourth scenario is less likely to be realized, at least until now. Nevertheless, the more the exclusion of emerging countries in global energy governance due to their limited share, the stronger their desires to reform the governance. The desires seem to consider various options to change the current structure. One of the most promising candidates is the G20. In governance evolution, whatever the realized scenario may be, the G20 is expected to play a more significant role than it currently does. Governments will find out this group to be a more helpful floor for drawing global cooperation.

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Biography



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