

Watt's the problem 2.

Improving the Governance of the Power System to Scale Up Renewables

: Reporting Directors of Korea Power Exchange to the Anti-Corruption
& Civil Rights Commission and Other Cases



Watt's the Problem 02.

Improving the Governance of the Power System to Scale Up Renewables

: Reporting Directors of Korea Power Exchange to the Anti-Corruption

& Civil Rights Commission and Other Cases

Watt's the Problem

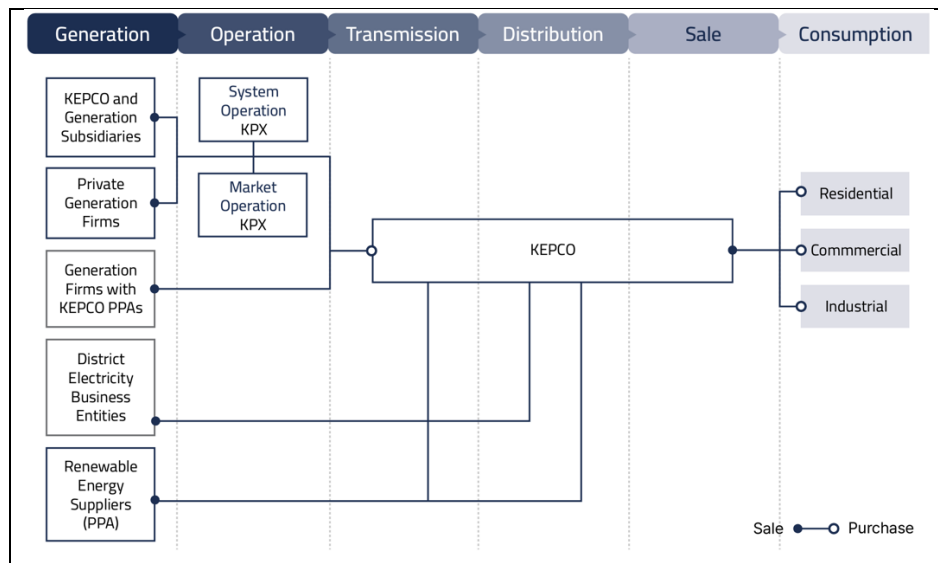
The two main challenges in achieving carbon neutrality are reducing reliance on fossil fuels in the domestic power generation sector and supplying affordable and abundant renewable energy to help businesses respond to the climate crisis and maintain export competitiveness. Achieving these two tasks requires creating transparent, fair, and practical power grid and power market. Watt's the Problem is a series of briefs that delivers research and litigation conducted by Solutions for Our Climate to address and improve issues found in the power market and grid in the process of achieving carbon neutrality and energy transition.

1. Background

■ Korea Power Exchange: Grid and Market Operator

In Korea, Korea Power Exchange (KPX), which is the grid operator, also operates the market (Korea Power Exchange, 2021). Grid operation refers to the operation of all electricity facilities required for the entire process from electricity generation to consumer use,¹ and market operation refers to the operation of the wholesale electricity market through bidding and settlement for electricity generated by power plants (Korea Power Exchange, n.d.).

¹ Electricity has a physical property that requires the supply and demand of total electricity to always match to prevent blackouts. This is why grid operators are needed to oversee and manage how electricity is generated from power plants, travels through the transmission and distribution network, and reaches the end consumer, as shown in Figure 1 above. For example, if power plants are supplying too much power compared to the demand for electricity, the grid operator must shut down generation.

[Figure 1] Structure of South Korea's electricity industry

Source: Kim & Kim (2020)

■ Incorporation of KPX

KEPCO was formerly a monopoly business and also acted as the grid operator, but the grid operation function was separated from KEPCO as multiple companies began to compete in the power generation sector. This is because if a company that owns generation subsidiaries operates the grid, it may discriminate against competitors in the power generation market, such as giving its own subsidiary priority in connecting to the grid.

In April 2001, KPX was established as a non-profit special corporation to ensure open access to transmission and distribution lines and related facilities without discrimination to electricity businesses and consumers (Article 20 of the Electricity Business Act). KPX took over the operation of the grid from KEPCO as an independent organization. The purpose of KPX is to "promote fair and efficient operation of the electricity market and stable operation of the electricity grid" according to its Articles of Incorporation (Article 2 of KPX's Articles of Incorporation).

■ Criticisms regarding the independence and neutrality of KPX

With the expansion of renewable energy, the number of participants in the power market has increased exponentially, unlike the power industry in the past, which was centered on a small

number of large power plants. In line with this change, the role of KPX as an impartial referee has become even more important to collect the voices of various market participants and operate the market and grid fairly.

However, KPX has been criticized for not fairly reflecting the opinions of power market participants, such as by forming a market participant council that includes only KPX and some of its members, such as KEPCO and its generation subsidiaries, SK, GS, and POSCO, and imposing a bidding system without hearing the opinions of market participants. One of the reasons why KPX cannot reflect the opinions of various market participants and makes decisions in closed settings is its non-transparent governance structure.

The board of directors and subcommittees of KPX include executives and employees of KEPCO and its generation subsidiaries, or experts who have performed research or other services for financial compensation from these companies (Myungkyun Choi, Seoyoon Choi, & Gahee Han, 2023). In addition, the decision-making process of KPX's board of directors, subcommittees, and executive nomination committee is closed and not publicly available. The details of discussions, such as how the settlement adjustment factor² is determined by the Cost Evaluation Committee at the end of each year, are not disclosed to the public (Kim, Hye-kyung, September 13, 2018).

2. Legal issues in lawsuits and reports

In March 2024, members of KPX filed a lawsuit to improve the independence of KPX as the grid operator, and in April 2024, Solutions for Our Climate (SFOC) and renewable energy associations jointly filed a complaint with the Anti-Corruption & Civil Rights Commission.

² The settlement adjustment factor is a type of discount rate that was created to limit excess profits of KEPCO's generation subsidiaries and private low-cost generators (nuclear and coal generators). According to an official at KPX, stakeholders such as KEPCO and its generation subsidiaries determine the adjustment factor, and relevant government departments approve and confirm the adjustment factor. However, detailed discussion processes are not publicly disclosed due to a principle of non-disclosure (Myungkyun Choi, Seoyoon Choi, & Gahee Han, 2023).

■ Key issues

In March 2022, the Articles of Incorporation of KPX were amended to allow only the executives and employees of KEPCO and its generation subsidiaries to be appointed as non-executive directors representing members of KPX.

[Table 1] Board Composition of KPX

Executive vs. Non-Executive	Current Affiliation
Executive Directors	KPX
	KPX
	KPX
	KPX
Non-Executive Directors	Ministry of Trade, Industry and Energy (Ex Officio)
	OO University
	OO University
	OO Asset Management
	KEPCO (Ex Officio)
	Korea Hydro & Nuclear Power Co., Ltd. (Ex Officio)
	Korea South-East Power Co.(Ex Officio)
	OO Law Firm

On March 25, 2022, KPX amended the provisions for member representative non-executive directors through a resolution of the board of directors and a resolution of the members committee. Prior to the amendment, the provision stipulated that "a member representative non-executive director shall be appointed by the Minister of Trade, Industry and Energy from among persons serving at the executive level or above of a company that qualifies as a member of KPX." This meant that the opportunity to serve as a member representative non-executive director was open to all

members of KPX. However, in March 2022, this provision was changed to read, "The member representative non-executive director shall be a person who serves at or above the executive level of member companies that have invested under the interim measures of contribution payment in Article 2 of the Addendum (April 2, 2001)." Article 2 of the Addendum (April 2, 2001) stipulates that the capital contribution is to be divided among KEPCO and companies to be separated from KEPCO as new entities (i.e., its generation subsidiaries). According to the amended Articles of Incorporation, **only those who serve at the executive level or above of KEPCO and its generation subsidiaries** are eligible to be appointed as member representative non-executive directors of KPX.

Even during the period from February 1, 2019 to March 1, 2022, prior to the amendment of the Articles of Incorporation, KPX's member representative non-executive directors were executives of KEPCO or its generation subsidiaries (Alio, 2024). In other words, the conflict of interest in which only executives of KEPCO and its generation subsidiaries were appointed as member representative non-executive directors of KPX was already an established practice, but the Articles of Incorporation codified this practice and closed the opportunity for other members to participate as member representative non-executive directors.

This situation can be analogized to a hypothetical situation in which the Korean Baseball Organization (KBO) establishes an independent umpiring committee to impartially officiate games. The purpose of the independent umpiring committee is to officiate games independently of the KBO clubs, just like KPX is an independent grid operator. However, the change in the Articles of Incorporation of KPX in March 2022 is the same as a situation where the articles of incorporation of the independent umpiring committee are amended to allow only some clubs to participate in the independent umpiring committee. For example, of the 10 KBO clubs, only executives from the oldest clubs, the Doosan Bears, Lotte Giants, and Samsung Lions, can be appointed to the independent umpiring committee.

In this way, if only the executives of some clubs are allowed to participate in the independent umpiring committee, it is difficult for players and fans of other clubs to trust that the independent umpiring committee will fulfill its role of officiating fairly. In the case of KPX, only some members

(KEPCO and its generation subsidiaries) participate in the board of directors, making it difficult for other members to acknowledge its impartiality.

■ **Lawsuit to confirm the invalidity of a decision of the KPX board of directors**

In March 2024, renewable energy companies that are members of KPX filed a lawsuit to confirm the invalidity of the board's decision to change the Articles of Incorporation to allow only KEPCO and its generation subsidiaries to be appointed as non-executive directors representing members, claiming that there were procedural and material defects.

● **Procedural defects**

In accordance with Article 54, Paragraph 1 of the Articles of Incorporation of KPX, a majority of the members of the Board of Directors shall vote in favor of a resolution of the board, and a person who has a special interest in the resolution of the board shall not exercise voting rights and shall not be counted in the quorum of the board. In addition, in the case of resolving a matter regarding the relationship between KPX and any member, the member shall not have the right to vote, according to Article 38 of the Electricity Business Act and Article 74 of the Civil Act.

In other words, the executives of KEPCO and its generation subsidiaries should not have been able to vote and should not have been counted in the quorum of the board because they had an interest in the amendment of the Articles of Incorporation. Nonetheless, the three member representative non-executive directors, who were executives of KEPCO, KHNP, and KOSEP, voted in favor of the amendment to the Articles of Incorporation in which they had an interest. The plaintiffs argued that the board resolution was invalid because the votes were counted in violation of the Articles of Incorporation of KPX and applicable laws.

● **Material defects**

The board resolution at issue had material defects in that it contravened the provisions of KPX's Articles of Incorporation. According to Article 2 of KPX's Articles of Incorporation, the purpose of KPX is to contribute to the development of the power industry and the national economy by promoting fair and efficient operation of the power market. Amending the Articles of Incorporation

to allow only some market participants (KEPCO and its generation subsidiaries) to be appointed as member-representative non-executive directors is contrary to the purpose of KPX, which is to promote the fair operation of the electricity market. The plaintiffs claimed that the board resolution was invalid due to these material defects.

■ **Report to the Anti-Corruption & Civil Rights Commission**

In April 2024, SFOC and renewable energy associations filed a complaint with the Anti-Corruption & Civil Rights Commission against three member-representative non-executive directors of KPX for violating the Act on the Prevention of Conflict of Interest Related To Duties of Public Servants Public Officials' Conflict of Interest (the "Conflict of Interest Act").

According to the Conflict of Interest Act, when **(1) a public servant's** performance of his or her duties directly or indirectly creates a benefit or disadvantage to **(2) a person related to the public servant's duties** who is also **(3) a person related with private interests**, the public servant must report such facts and apply for recusal of himself or herself.

Non-executive directors of KPX are employees of public organizations under Article 4 of the Act on the Management of Public Institutions and are therefore (1) public servants. In addition, KEPCO, KHNP, and KOSEP are (2) persons related to the public servant's duties because they directly receive benefits or disadvantages in connection with the performance of their duties as member-representative non-executive directors of KPX. Market participants, such as KEPCO and its generation subsidiaries, must be approved by KPX to participate in the market, and their business is directly affected by the decisions of KPX. For instance, their profits are affected by the price factors and demand response orders determined by KPX.

Finally, under the Conflict of Interest Act, if a public servant or his or her family member serves as an officer, representative, manager, or non-executive director of a certain corporation or organization, the corporation or organization is considered a person related with private interests to the public servant. In other words, the three companies (KEPCO, KHNP Company, and KOSEP)

where the three member-representative non-executive directors serve as executive directors are deemed (3) persons related with private interests.

The three member representative non-executive directors were obligated to report such conflicts of interest and recuse themselves, but they have not fulfilled their obligation to report conflicts of interest since their appointment as non-executive directors of the KPX. SFOC and renewable energy associations have reported them to the Anti-Corruption & Civil Rights Commission for violations of the Conflict of Interest Act.

3. Improving the governance of the power system

To increase the independence of KPX to create a fair market environment for renewable energy businesses, SFOC recommends the following improvements.

- **Market participants should be excluded from the board of directors of KPX**

Market participants should be excluded from the board of directors to ensure that KPX is able to make independent decisions without being influenced by any particular market participant. PJM and NYISO, which serve as grid operators in the eastern U.S., each have bylaws that prohibit members or power market participants from serving on their boards.³ The board of NGEESO, the UK's independent system operator, also prohibits employees of NGET, the transmission grid owner, from serving on its board.⁴ This is in contrast to Korea, where the transmission grid owner, KEPCO, serves as a non-executive director of the grid operator, KPX.

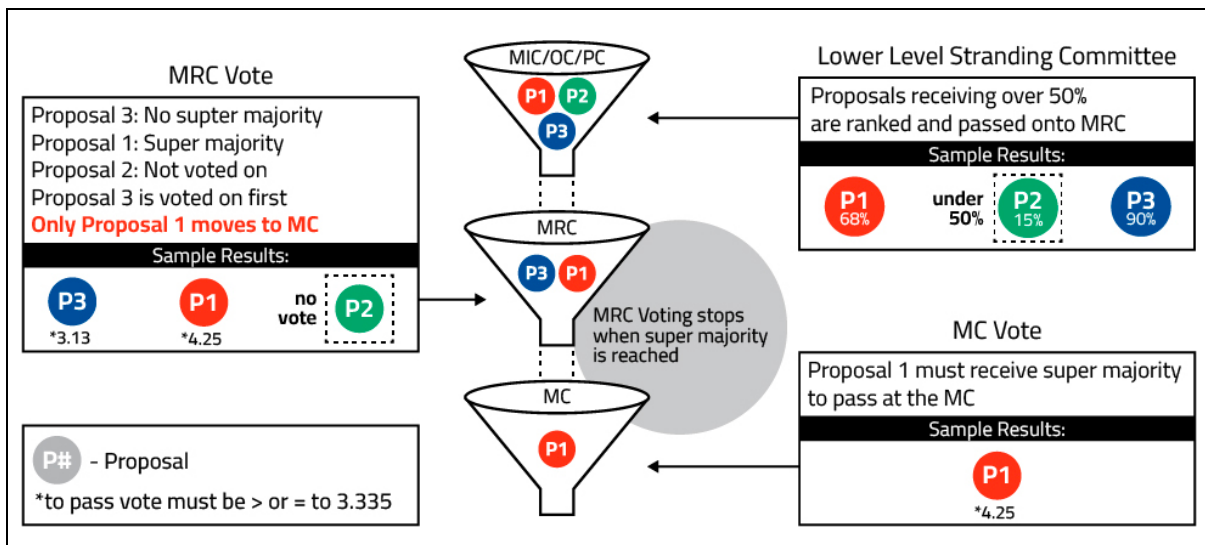
³ See Article 7.2 "Qualifications" of the PJM Operating Agreement; Article 5.01 "Composition Of The ISO Board And Voting" of the NYISO Agreements.

⁴ See Article 2.4.4 of the NGEESO electricity transmission license and Article 19 of the UK Electricity Act.

■ **Decision-making process of KPX must be transparently disclosed**

Unlike KPX, which does not disclose the details of subcommittee discussions, such as the discussions regarding the settlement adjustment factor or proposed amendments to the Electricity Market Operation Rules, PJM in the U.S. holds a final vote at the Members Committee on matters first decided by subcommittees. As shown in Figure 2 below, proposals that receive more than 50% of the votes in the Market Implementation Committee, Operating Committee, and Planning Committee, are considered at the next level, the Markets and Reliability Committee. Most proposals discussed in the Markets and Reliability Committee require a two-thirds majority of members in favor to be discussed at the Members Committee level. The final vote in the Members Committee also requires a two-thirds majority.⁵ The operational mechanisms of the power market are not decided by a small number of members in a closed meeting but are democratically decided in several stages with input from various stakeholders.

[Figure 2. US PJM's subcommittee and plenary voting process]



Source: "At a Glance: The PJM Stakeholder Process" (n.d.).

⁵ Some proposals pass if the number of members in favor exceeds 50% ("At a Glance: The PJM Stakeholder Process," n.d.).

4. Conclusion

At a time when renewable energy is expanding globally and power systems are becoming more decentralized, the role of KPX as an independent system operator is even more important. In 2001, when KPX was incorporated, there were only 10 members, including KEPCO and its six generation subsidiaries. However, by the end of December 2023, KPX had a total of 6,333 members, of which 6,093, or 96%, were solar and wind businesses. As the number of renewable energy businesses expands, KPX needs to ensure its independence from KEPCO and its generation subsidiaries so that it can fairly reflect the voices of various stakeholders. To this end, as mentioned above, (1) market participants should be excluded from the board of directors of KPX, and (2) the decision-making process of KPX should be transparently disclosed.

SFOC's follow-up study will explore the need for transparent information disclosure in the power system, and SFOC will demand disclosure of the decision-making process and rationale for key data such as the settlement adjustment factor.

[Appendix]

There are two main types of grid organizations: transmission system operators (TSO), where the Transmission Owner (TO) doubles as the System Operator (SO), and independent system operators (ISO), where the TO and SO are separate organizations. Energinet, a state-owned company owned by the Danish Ministry of Climate, Energy, and Utilities, is an example of a TSO that owns the transmission network and is also responsible for the operation of the network. In contrast, organizations such as PJM and NYISO in the United States are ISOs that do not directly own the transmission network.

As shown in Figure 3 below, TSOs are further categorized into LISOs and ITSOs based on whether or not the TSO is separate from the generation and retail sectors. LISOs are those where the TSO is established as a separate legal entity from the generation and retail companies but is financially connected to the generation and retail companies through equity ownership. ITSOs are a development one step further from LISOs, in which the ownership of the TSO is completely separate from the ownership of the generation and retail companies (Carella, 2020).

It is worth noting that the European Union's Directive 2019/944 and related literature, such as Sugimoto (2021), assume that **both TSO and ISO regimes are based on the independence of the transmission owner (TO) from the generation and retail sectors.** The ISO system consists of an independent transmission system owner (ITO) and an independent system operator (ISO). However, KEPCO, the transmission grid owner in Korea, cannot be considered a fully independent ITO because it has a monopoly on the sales business and owns generation subsidiaries. Also, KPX, which is the SO, is not independent from the influence of KEPCO and its generation subsidiaries, so it is difficult to define it as a fully independent system operator (ISO).

[Figure 3] TSO and ISO types

	Integrated transmissions functions	Separated transmission functions
Complete independence	<p style="text-align: center;">ITSO</p> <div style="border: 1px dashed red; padding: 5px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 10px;">Generation & Retail</div> <div style="border: 1px solid gray; padding: 5px; display: inline-block;">Trans. Ownership Trans. Operation</div> </div>	<p style="text-align: center;">ISO</p> <div style="border: 1px dashed red; padding: 5px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 10px;">Generation & Retail</div> <div style="border: 1px solid gray; padding: 5px; display: inline-block; margin-right: 10px;">Trans. Ownership</div> <div style="border: 1px solid gray; padding: 5px; display: inline-block;">Trans. Operation</div> </div> <p style="text-align: right; margin-top: -10px;">ITO ISO</p>
Incomplete independence	<p style="text-align: center;">LTSO</p> <div style="border: 1px dashed red; padding: 5px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 10px;">Generation & Retail</div> <div style="border: 1px solid gray; padding: 5px; display: inline-block;">Trans. Ownership Trans. Operation</div> </div>	
Examples ⁶	Denmark (ITSO), Spain (ITSO)	Chile, parts of the eastern United States, South Korea (incomplete ISO)

Source: Leveque, François, et al. (2009)

⁶ Chawla, Mallika & Pollitt, Michael G. (2013)

[References]

- Alio, A. (2024). Power exchange executives. Retrieved from <https://alio.go.kr/item/itemOrganList.do?apbald=C0246&reportFormRootNo=20305>
- "At a Glance: The PJM Stakeholder Process". (n.d.). PJM. <https://www.pjm.com/-/media/committees-groups/stakeholder-process-templates/stakeholder-process-quick-guide.ashx>
- Carella, C. (2020). Unbundling in the European electricity and gas sectors. Florence School of Regulation. Retrieved from <https://fsr.eui.eu/unbundling-in-the-european-electricity-and-gas-secto>
- Chawla, Mallika & Pollitt, Michael G. (2013). Global Trends in Electricity Transmission System Operation: Where Does the Future Lie? *The Electricity Journal*. 26(5). pp. 65-71.
- Electricity Act 1989. (1989). Retrieved from <https://www.legislation.gov.uk/ukpga/1989/29/contents>
- Kim, Joojin & Kim, Jieun (2020). *Renewables 'Go To Jail' in Monopoly: How South Korea's Electricity Governance is Stifling Its Energy Transition*. Solutions for Our Climate.
- Kim, Hye-kyung. (2018. 9. 13.). [Power Market Dissection- 下] KEPCO, power producers to drastically trim profit adjustment 'settlement adjustment factor'. *Seoul Finance*.
- Korea Power Exchange. (2021). 20 years of Korea Power Exchange.
- Korea Power Exchange. (undated). Main Business. Retrieved from <https://www.kpx.or.kr/menu.es?mid=a10401010000>
- Leveque, François, et al. (2009). How to rationalize the debate about 'EU Energy Third Package'? Revisiting criteria to compare electricity transmission organizations. *eui rscas*, 2009(15). Loyola de Palacio Programme on Energy Policy. <https://hdl.handle.net/1814/11028>
- Myungkyun Choi, Seoyoon Choi, & Gahee Han. (2023). *Governance Issues and Policy Recommendations for Electricity Exchanges: Toward Sustainable Change*. Solutions for Our Climate.
- "National Grid Electricity System Operator Limited Electricity transmission licence Special Conditions". (2022, April 30). Ofgem. Retrieved from <https://epr.ofgem.gov>
- "NYISO Agreements". (2013, January 1). NYISO. <https://www.nyiso.com/documents/20142/1399438/iso-agreement.pdf/67c82172-de39-f855-c29e-e04e32e81285>
- "PJM Operating Agreement". (2011, July 14). PJM. <https://www.pjm.com/library/governing-documents>
- Sugimoto, Kota. (2021). Ownership versus legal unbundling of electricity transmission network: Evidence from renewable energy investment in Germany. *Energy Economics*. 2021(99).

Month of publication June 2024

Author Seoyoon Choi, Researcher, Power Market and Grid Team, SFOC
(seoyoon.choi@forourclimate.org)

Contributors Geonyoung Kim, Lawyer, Legal Team, SFOC
(geonyoung.kim@forourclimate.org)

Jihyeon Ha, Head of Power Market and Grid Team/Lawyer, SFOC
(jihyeon.ha@forourclimate.org)

Design Yejin Choi, Designer, Production Team, SFOC
(yejin.choi@forourclimate.org)