

# Fossil Fuels, the Main Culprit behind KEPCO's Deficit

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The Korean electricity market mainly led by KEPCO is heavily reliant on fossil fuels. 90% of the increase in electricity generation cost is attributed to coal and LNG fuel price spike. KEPCO is struggling financially because of its structurally unprofitable model while continuing to invest in stranded assets at home and abroad. If the government decides to subsidize KEPCO through taxpayer's money, KEPCO's economic burden primarily caused by the excessive usage of fossil fuels will be transferred to every household.

## 1. KEPCO in Deficit and Background

- In the first quarter of 2022, Korea Electric Power Corporation (KEPCO) suffered its largest-ever operating loss of 7.8 trillion KRW.<sup>1</sup> At the end of 2021, KEPCO's net debt was 40 trillion KRW. As the size of corporate bonds issued by KEPCO in the first quarter of 2022 exceeds 10 trillion KRW, it is expected that it will soon reach the cap on bond issuance.<sup>2</sup>
- This summer and winter, it is forecasted that KEPCO's deficit will worsen as the international fuel price and electricity demand will continue to rise. In the second half of 2022, the total operating loss of KEPCO will amount to 30 trillion KRW and net loss (during the term) will be 24 trillion KRW. There are concern that KEPCO could fall into capital impairment within three years if international fuel prices continue to rise.<sup>3</sup>
- International oil and coal prices are soaring due to the prolonged Russia-Ukraine war. The price of Australian coal for power generation (bituminous coal), which accounts for more than half of the coal imported into Korea, rose 280% from that of April 2021, reaching US\$292/ton. The price of natural gas for power generation rose 190% from that of April 2021, reaching 1,236 KRW/Nm<sup>3</sup>.<sup>4</sup>

1 KEPCO, (Press release) KEPCO's operating loss amounted 7.8 trillion won in Q1, 13 May 2022

2 The issue amount of debentures shall not exceed two 2 times the sum of the equity capital and reserves of the Corporation. (Korea Electric Power Corporation Act)

3 Hana Financial Investments, Equity Research: utilities, 4 May 2022

4 Ibid.

- The problem is that KEPCO is the only electricity seller in Korea which buys and sells electricity to consumers through coal and LNG-based power generators. Therefore, if fuel costs rise, the amount of money that KEPCO should pay power generators also increases. This leaves KEPCO with a significant risk associated with volatility in fossil fuel costs.
- Since 67% of Korea's electricity is produced through generators that use fossil fuels such as coal and LNG, KEPCO is vulnerable to rising international fuel prices. In particular, about two-thirds of them are produced by power generation assets owned by KEPCO through its power generation subsidiaries, indicating that the domestic electricity market mainly led by KEPCO is overly dependent on fossil fuels.
- In order to overcome the current financial crisis, KEPCO announced an emergency plan which entails the sale of domestic assets and overseas power plants (including the Cebu power plant in the Philippines).<sup>5</sup> In April, the Yoon Administration's Transition Committee announced a plan to better implement Generation Cost Reflective Pricing Scheme to account for the cost of electricity generation, yet the fuel cost adjustment freeze remains until the second quarter of 2022.
- Meanwhile, Standard & Poor's (S&P), an international credit-rating agency, lowered KEPCO's stand-alone credit profile by one level, from "bbb-" to "bb+". However, KEPCO's long-term credit rating is maintained at "AA," the same as South Korea's national credit rating, based on the likelihood the government support.

## 2. Main Reasons for KEPCO's deficit

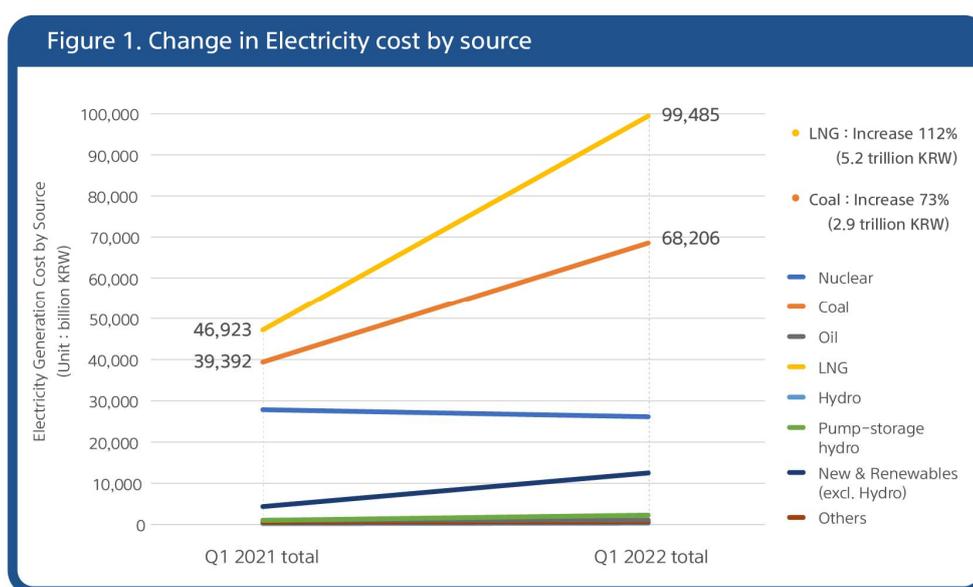
- South Korea's electricity market is based on the Cost Based Pool pricing system, where System Marginal Price (SMP) is directly influenced by international fuel prices. The SMP in the first quarter of 2022 was approximately 181KRW/kWh with a maximum price of 197KRW/kWh, which is a 137 % increase from the previous year. Accordingly, the total electricity generation cost of the first quarter grew to 21.3 trillion KRW, which is 75 % higher (9.1 billion KRW) when compared to the same quarter last year.<sup>6</sup>
- In Q1 of 2022, the unit price given to coal power plants was approximately 155KRW/kWh, and that to LNG power plants reached 247KRW/kWh. Due to this

<sup>5</sup> KEPCO, (Press release) KEPCO's operating loss amounted 7.8 trillion won in Q1, 13 May 2022

<sup>6</sup> KEPCO, Korea Monthly Electric Statistics, April 2022

increase in price, the amount of payment made to coal power plants increased by 73 % (2.9 trillion KRW) compared to Q1 last year and reached 6.8 trillion KRW. The total settlement payment to LNG power plants increased by 112% (5.2 trillion KRW) and reached 9.9 trillion KRW.

- As a result, of the 9.1 trillion KRW increase in electricity generation cost, LNG (5.2 trillion KRW) and Coal (2.9 trillion KRW) contributed more than 90% of the increase.<sup>7</sup> **(See Figure 1)**

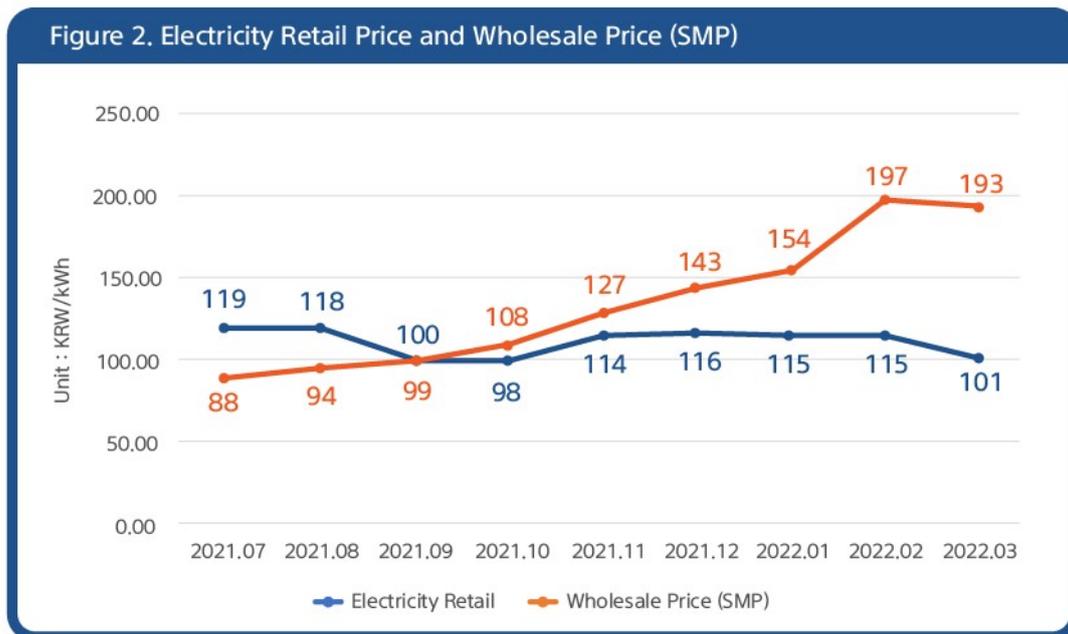


\*Excl. Renewable Energy Certificate (REC) price settlement. REC price didn't contribute significantly to the increase of power generation cost

- In order to reflect the increase in international fossil fuel prices, 'the Generation Cost Reflective Pricing Scheme' was introduced in July 2021. However, concerned with inflation, the government refused to follow the scheme – worsening KEPCO's deficit. This resulted in KEPCO buying electricity at 181KRW/kWh and selling it at 110KRW/kWh on average during Q1 2022.<sup>8</sup> **(See Figure 2)**

7 KEPCO, Korea Monthly Electric Statistics, April 2022

8 Ibid.



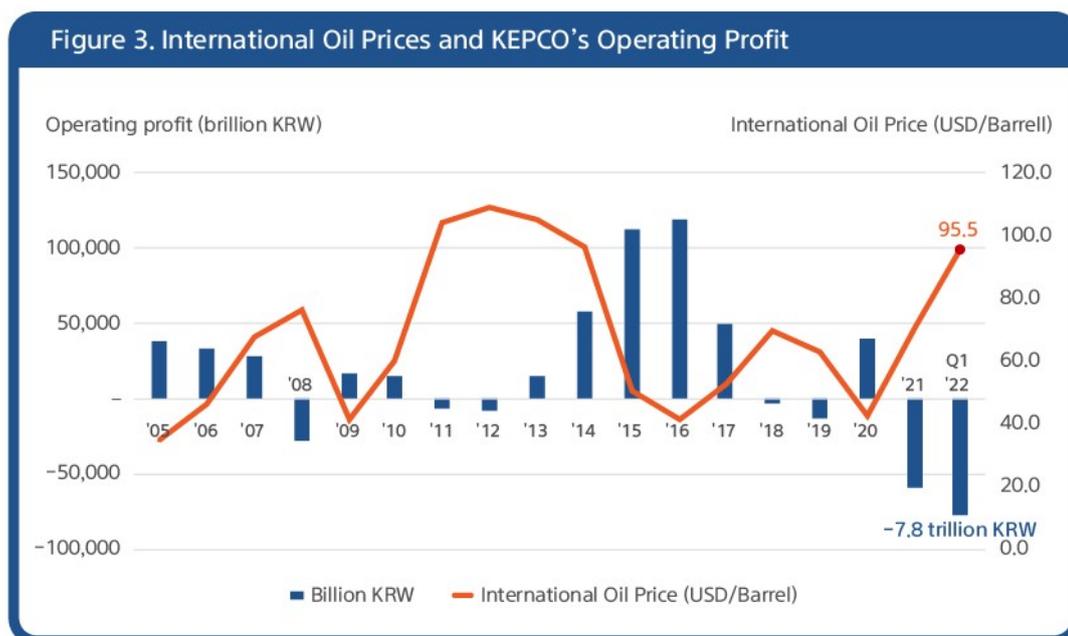
- KEPCO claims that due to increased international fossil fuel prices, the unit price should be adjusted by 33.8KRW/kWh but the maximum adjustment possible is 3KRW/kWh per quarter. Therefore, KEPCO's request to increase electricity by 3KRW/kWh was turned down by the government. Consequently, KEPCO is bearing the cost increase caused by excessive exposure to fossil fuels with its own capital.<sup>9</sup>
- KEPCO's current deficit is not only caused by fossil fuel volatility. KEPCO has been increasing the risk of capital impairment by making overseas investment decisions that go against the global coal-phase-out trend. For example, KEPCO's development project at the Bylong Coal Mine in New South Wales, Australia, was rejected by the Australian authorities in 2019 due to environmental concerns such as carbon emission, leaving investment worth more than 800 billion KRW stranded.<sup>10</sup>
- In addition, in the case of Java 9 and 10, Korea Development Institute (KDI) 's preliminary feasibility study result showed that KEPCO's investment return is about - 8.83 million USD (10.6 billion KRW).<sup>11</sup> This is because the Indonesian government is reducing the size of coal-fired power generation as the unit price of renewable energy generation in Indonesia continues to fall whereas the unit price of coal-fired power generation continues to rise.

<sup>9</sup> KEPCO, (Notice) Fuel cost adjustment in Q2 of 2022, 29 March 2022

<sup>10</sup> Hankyoreh, KEPCO's Bylong Coal Project in Australia was canceled, 10 February 2022

<sup>11</sup> The Economist, KEPCO going against the global coal-phase-out trend, 11 July 2022

- While KEPCO's financial situation is worsening, overseas coal-fired power plant development projects such as Java 9 and 10 are expected to further KEPCO's investment loss. In the end, KEPCO's high dependence on fossil fuels is aggravating KEPCO's deficit situation due to increased electricity production costs and the current structure in which the costs cannot be recovered.
- If the government uses taxpayers' money to improve KEPCO's financial situation, the cost of KEPCO's dependence on fossil fuels and companies (55% of total electricity use) will be transferred to every household.
- As long as KEPCO actively uses coal and LNG to power its plants, the Korean power market will remain vulnerable to the global fossil fuel price. Considering that carbon tax on fossil fuels and environmental costs are increasing globally, this situation will persist. **(See Figure 3)**



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