

# South Korea selects only one bidder for its first clean hydrogen power auction

November 28, 2024

## Korea's wholesale power market

Nuclear

Coal

Gas

Renewables

Clean Hydrogen  
Portfolio Standard  
(CHPS)

Target share of clean hydrogen  
and ammonia power generation

2.1% in 2030

7.1% in 2036

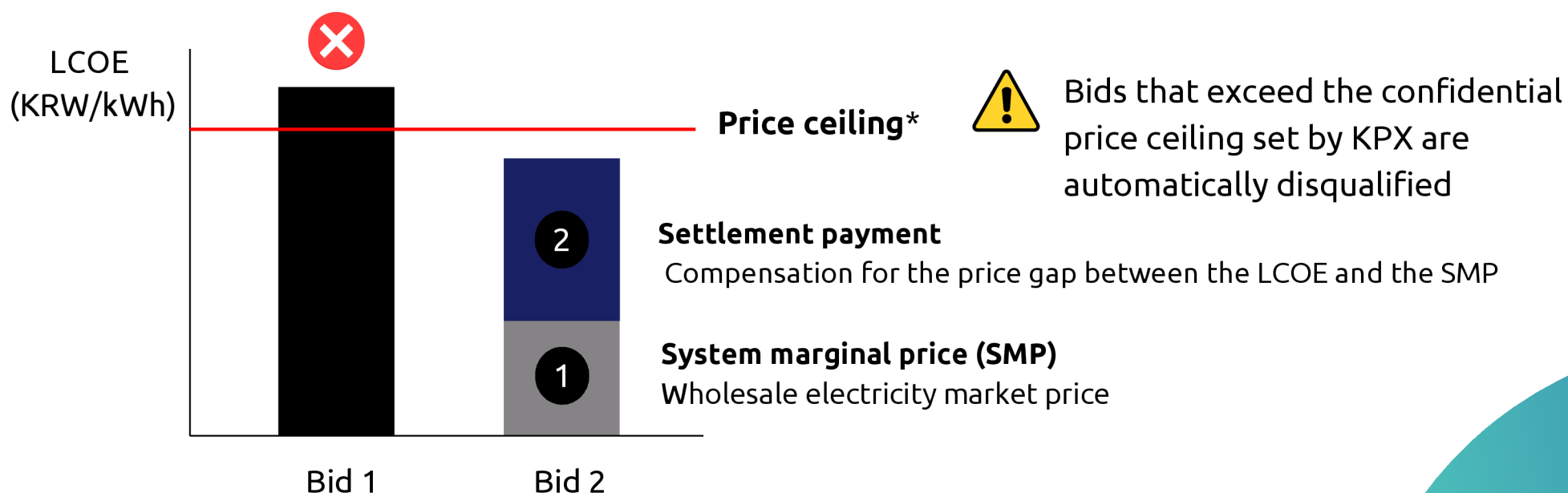
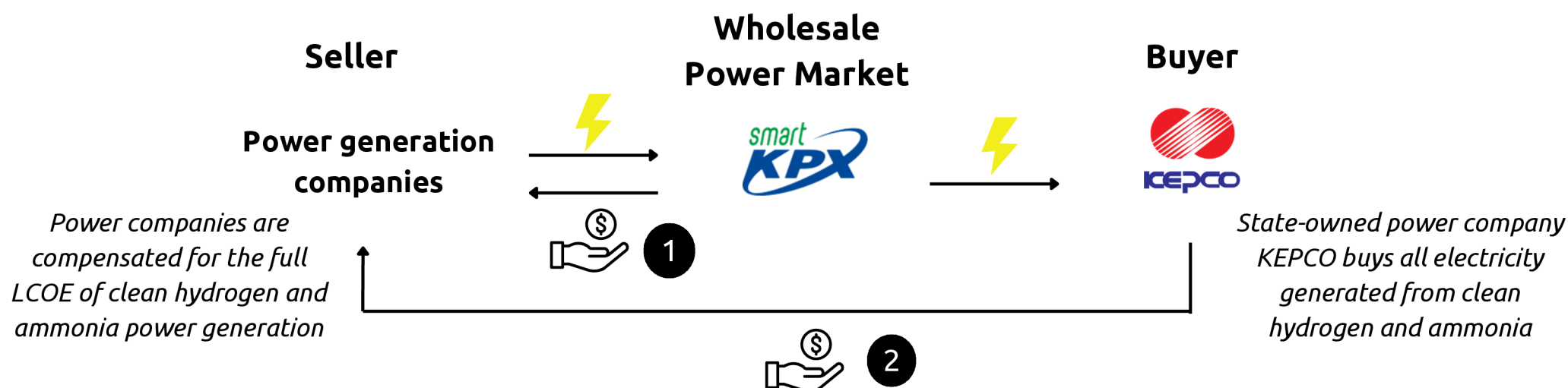
- ➔ Only one out of five bidders was selected for the first round of the CHPS bidding market, covering 11% of the opening volume
- ➔ Four other bids were disqualified because they exceeded the confidential price ceiling
- ➔ To attract more successful bids, the risks related to utilization rate and exchange rate need to be mitigated

# South Korea launched the world's first clean hydrogen power bidding market



The Clean Hydrogen Portfolio Standard (CHPS) establishes a dedicated market to ensure a certain share of power is generated from clean hydrogen or ammonia

## How does the CHPS market work?



*\*There are two price ceilings: one for the total LCOE and another for the indexed fuel cost, which applies only to blue hydrogen or ammonia. Bidders exceeding either of these caps are disqualified*

## Only one out of five bidders was invited for further negotiations



In the first round of CHPS, most bids were disqualified for exceeding the undisclosed price ceiling (estimated around 500 KRW/kWh or 0.36 USD/kWh)

### CHPS 2024 participants and bid details

| Company | Bid capacity | Bid price (approx.) | Selection |
|---------|--------------|---------------------|-----------|
| KOSPO   | 1022 MW      | 0.29 USD/kWh        | Yes       |
| KOEN    | 870 MW       | > 0.36 USD/kWh      | No        |
| EWP     | 1020 MW      | > 0.36 USD/kWh      | No        |
| KOMIPO  | 1019 MW      | > 0.36 USD/kWh      | No        |
| SK E&S  | 1050 MW      | 0.43 USD/kWh        | No        |

Source: Electime (bid price converted from KRW to USD)

\*1 USD = 1400 KRW (Nov 26, 2024)

### The result of the first CHPS round in a glance:

- **A total of 5,782 GWh** in bid volume was submitted, corresponding to 89% of 6,500 GWh opening volume
- **Only 11% (or 750 GWh)** among the opening volume was qualified
- All proposals were based on **ammonia co-firing**, primarily using blue ammonia

# The first CHPS round result revealed the high generation cost of clean hydrogen



There are two main pain points identified for the pilot round:

## 1) Utilization rate not guaranteed

During the power curtailment period, the usage of CHPS power plants is not guaranteed and the loss will not be compensated

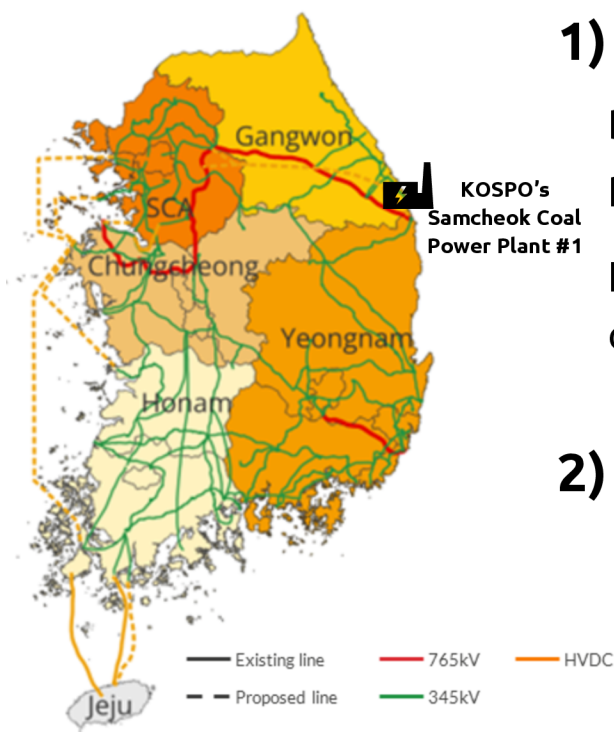
Frequent curtailments on Korea's eastern coast, caused by a lack of high-voltage grid capacity, increase the risk of higher LCOE

## 2) Currency risk



Power companies will be compensated for the LCOE in KRW whereas the payment to fuel supplier is likely to be made in foreign currency (e.g., USD)

This could mean a higher fuel cost when the currency rate is high, spiking up the cost of electricity production



Sources: Aurora Energy, KEPCO

## Our take at Yamna

- The first CHPS round revealed the high cost of clean hydrogen and ammonia power generation
- We expect next year's round to address these risk factors and see more green ammonia projects involved, ensuring greater fuel cost stability



**Yamna, green molecules producer, is closely following up with the Korean CHPS market**

**Looking for a partner to prepare for the next CHPS round?**

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