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Contingent Supply:
Managing the Logistical Risk of Market-Contingent Acquisition

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This is the fourth piece in the Contingent Supply series, which looks at the operational requirements, financial needs, and economic opportunities involved in using the SPR to stabilize oil markets. Our earlier pieces assessed the SPR in our current moment, examined whether the SPR has the ability to meaningfully impact crude oil prices, and described how the DOE could structure a facility to most effectively maximize domestic oil production. This piece lays out the logistical hurdles that the SPR may encounter while implementing our proposed policy as well as proposed remedies and mitigation tactics.

Introduction

The Biden Administration has conceptually embraced our plan to use strategic SPR acquisitions to boost domestic oil production by finalizing a rule to allow fixed-price acquisition contracts. These fixed-price contracts allow the Department of Energy (DOE) to structure acquisition in ways that fulfill two statutory-guided objectives: (1) to provide the demand certainty necessary to catalyze additional domestic production; and (2) to acquire oil in a market-contingent manner that protects the American consumer from upstream supply losses. However, since SPR acquisition has never been conducted this way, this strategy will likely create novel logistical challenges. In today's piece, we lay out the steps that can be taken to mitigate the risks arising from market-contingent acquisition strategies.

Market-contingent acquisition does increase the risk that sudden shifts in delivery obligations overwhelm the SPR. Thankfully, there are ready-made ways to prevent this outcome. With the SPR acquisition regulation now allowing fixed-price contracts, the DOE can separate financial settlement (payment) from physical settlement (delivery) in order to tailor oil flows to its logistical capacity. Market-contingent contracts can be settled financially when exercised, with physical delivery contingent on SPR capacity. Any remaining risks from physical ownership and delivery considerations can be managed with two sets of techniques, **ex-ante risk mitigation** and **ex-post risk removal**. With these two, the SPR can handle the logistical challenges associated with the added operational complexity of market-contingent acquisition.

Assessing the Logistical Risk

The new rule allows the DOE considerable latitude to shape the agency's approach to market-contingent acquisition. We believe put options – or similarly structured price-contingent forward contracts – represent the design best suited to catalyze additional production. Alternatively, the President could announce a standing order to purchase a certain number of barrels at the given strike price (an implementation of the "price floor").

No matter how the facility is structured, care must be taken to address the new class of risk arising from market-contingent acquisition. When market conditions arise such that the SPR is obligated to accept physical delivery of produced barrels, in the absence of appropriate planning, the scale of the expected inflow could overwhelm the logistical capabilities of the SPR.

To understand this risk, it is best to start with the physical facts. The SPR has some sharp limitations. Estimates vary, but the best available documentation suggests that the SPR could theoretically take in a maximum of 685,000 barrels

per day (this number would likely be lower based on market capabilities, scheduled maintenance, and other factors). Additionally, the SPR's storage caverns have certain capabilities and content limitations (i.e. over the blends of crude oil that can be successfully and safely stored).

Establishing and utilizing a market-contingent acquisition facility without appropriate mitigation and planning would likely exacerbate these risks. If the DOE was required to purchase a substantial volume of barrels outstanding during a price collapse, there is a risk that this collective exercise would overwhelm the physical capacities of the SPR. For example, if market prices fall substantially below the predetermined strike price, participants would be incentivized to exercise the existing stock of put options issued by the SPR. In order to achieve the policy benefits that market-contingent acquisition presents, the DOE should mitigate the physical and logistical risks involved in this approach by separating key processes into distinct streams: financial settlement and physical settlement.

While it may seem counterintuitive, it has long been standard practice in financial markets to separate financial settlement from physical settlement. Where previous rules required the DOE to use an index price for acquisition, the DOE's new rule allows them to make the same division of settlement as other financial market participants.

The old system had substantial costs and the new system represents a significant improvement. Previously, oil producers received little insurance against the risk of a price drop between the dates of financial and physical settlement on a sale to the SPR. All trades were, essentially, on the "spot" market. With a fixed price contract from the SPR, rather than a commitment to buy on the "spot" market, producers would no longer face the risk of a price drop between the dates associated with financial settlement and physical settlement.

To ensure incentives are aligned between the DOE and producers, the SPR facility must have a plan for financial settlement. The easiest way to accomplish this would be to include a clause that would financially settle its put options within a specified time, regardless of the date of physical delivery in the DOE's acquisition contracts. This would limit liquidity concerns for producers in the event of a price crash and maintain the embedded contractual incentives for production while protecting the SPR's physical systems from large, unanticipated inflows.

With financial settlement and physical settlement risks appropriately separated, the SPR can use ex-ante and ex-post techniques to prevent logistical problems from arising due to delivery, storage, and other physical settlement considerations. Though each of these techniques may not individually eliminate all risks, taken together, the following strategies should allow the SPR to use

existing authorities to handle any logistical challenges associated with market-contingent fixed-price acquisition contracts.

Ex-Ante Risk Mitigation

Risks are easiest to address before they arise. Given the relative lack of comparable facilities, it is critical that the DOE appropriately inventory its tools to mitigate the logistical costs of physical delivery before implementing the program. This toolbox includes, but is not limited to, facility design, retention of contractual flexibility, and additional specification of incidental contractual powers.

Our proposed design of the market-contingent acquisition facility (through the sale of put options) should effectively limit the possibility that producers attempt to simultaneously deliver all of the barrels associated with outstanding put options to the SPR. This starts with the total acquisition goal determined by the Secretary in the acquisition strategy. Based on the total volume, options sold should be separated at multiple auctions and spaced at even intervals within a period of time–for example, biweekly, monthly, or quarterly. For example, if the SPR sets a total acquisition goal to acquire 240 million barrels, auctions could be spaced at 20 million per month over a year or 60 million per quarter over a year. This would not entirely *eliminate* the risk, as the option-exercise periods would overlap, but it would still *limit* risk, as each round of auctioned option contracts expires sequentially.

The DOE could take further steps to mitigate physical delivery risk within a given auction by splitting options among several strike prices. If all options sold by the SPR were tied to the same strike price, as soon as the spot falls below that level, all holders would be incentivized to exercise their options at once. Instead, the facility could "waterfall" strike prices in, for example, five dollar increments. Since breakeven prices vary considerably by production type, geographic region, and other factors, producers would likely remain interested in bidding on price insurance at multiple price levels. After determining the ideal maximum strike price during the market analysis (based on an analysis of breakeven prices, production goals, environmental considerations, and other factors), further strike prices would be set at increments downward. Absent a swift and sufficient price decline, the likelihood of all outstanding options being exercised simultaneously would be substantially mitigated.

The solicitation stage within our facility design represents an additional opportunity to mitigate physical delivery risk. This could be accomplished through the inclusion of clauses in solicitation bids that stipulate flexibility on physical delivery as well as other incidental powers. At a minimum, the contract should include a separate delivery schedule allowing for financial settlement prior to

physical settlement. Overall, the DOE should write contracts to maintain the highest degree of delivery flexibility possible for the SPR that does not undermine the program's overall goals. These provisions could be structured so that producers would share the costs of physical settlement, and would be in line with existing solicitations. The following are examples of contractual flexibility:

1. **Set a grace period between exercise and the DOE scheduling delivery.** Following exercise, the SPR would have a 30-day buffer to schedule delivery. This would allow the DOE some time to evaluate the state of the market, the likelihood of additional exercises, and schedule deliveries in a manner that best aligns with the SPR's intake capabilities.

2. **Set a predetermined, extended period of delivery, subject to the DOE's discretion.** The DOE already uses this flexibility: in the March 2020 solicitation for 30MM barrels, the delivery period was between May 1 and June 30, 60 days. The DOE could define delivery periods in a manner that maximizes flexibility–based on the size of the option itself and the length of the strike period. For example, a put option for 100,000 barrels and a strike period of 365 days could have a shorter window, because it can be brought in on a single day, whereas a put for 3,000,000 barrels and a strike period of 2 years could have a longer delivery window.

3. If domestic or global inventories are rising and risk hitting their storage maxima under certain market scenarios, **the DOE could preemptively secure private storage through timespread contracts** (sell a future barrel that would be otherwise due to the SPR, and unwind with an acquisition of an equivalent barrel at a later date).

There are some policy tradeoffs involved in these responses—particularly if shifting the cost-burden onto producers limits or otherwise changes the economics of their investment. Given that they might be required to hold or store their production for a longer period after financial settlement, they might–under extreme assumptions–hold back investment or production to account for that risk, frustrating the original goal of the facility. In the case of put options, the SPR could mitigate this risk by returning some of the option premium in the event that delivery takes extended time, thereby offsetting some portion of the economic risk to producers.

Judicious policymakers should do their best to maintain flexibility while providing producers the necessary incentives to invest. In concert with the aforementioned facility design measures, these provisions would be quite powerful in minimizing the delivery risks. Coupled with measures to remove delivery risk ex-post, the physical complexities associated with selling put options should not be a binding constraint on its use as a policy tool.

Ex-Post Risk Removal

The SPR should ensure its solicitations maintain certain legal authorities to prevent, ex-post, a substantial exercise of existing put options from overwhelming the SPRs logistical capabilities. In real-time, these authorities would allow the DOE to take a series of actions to remove the risk of delivery overwhelming SPR intake capacity. The following describes three scenario on how the SPR would manage risk ex-post (including utilizing the ex-ante authorities described above) to manage and remove the risk of the SPR becoming overwhelmed:

1. In a state of elevated prices: If the market were still elevated relative to the strike prices on put options outstanding, producers would sell their oil on the spot market rather than exercising. This would ease spot price pressure, and the DOE would maintain spare storage capacity that it could use to further boost production following the expiry of a given series of auctioned option contracts (through auctioning another series of put options, through forward contracts, or by waiting to purchase in the future to limit the depth of a price crash).

2. If the price falls but doesn't crash: If the price fell such that some (but not all) of the options were exercised, there would be more limited risk of the SPR being overwhelmed, especially if auctions occurred at multiple strike prices and were spaced over the course of a full calendar year. In this situation, the SPR would schedule deliveries using the existing processes within the predetermined, published parameters from the initial solicitation.

3. The price precipitously crashes: If the price precipitously crashes, producers holding options would rush to exercise and send their barrels to the SPR. The previously described contractual powers would be helpful, but the SPR would ideally include the authority in its solicitation to undertake the following actions (in order of desirability):

- *Contracting for Private Storage and Scheduling Delivery at a Later Date*: The DOE could contract with private entities for storage, such as tankers, boats, terminals, and then schedule for their future delivery. Following the recent releases, the SPR has the financial capacity to do so, and if the DOE were to sell put options, the revenue from the option premiums could also be used towards this end. Storage tends to be very scarce when prices precipitously crash, and thus spare storage capacity and the shape of the crude oil futures curve must be strong considerations when calibrating gross exposure to auctioned put options.

- *Compensate the Holder of the Option until Delivery is Feasible*: The DOE could return some fraction of the option premium (ideally lower than the contango premium), or allow a price adjustment to the producer in exchange for holding DOE-owned oil at the wellhead or in privately obtained storage until delivery becomes feasible.

- *Take the Loss Associated With Contango*: The DOE would engage in a timespread contract by which it would effectively sell the crude oil it acquired through exercised put options at depressed spot prices, only to buy it back at a later, more expensive forward price. The funds would be derived from the release of existing stockpiles and the sale of option premiums.

- *Require Quasi-Pro-Ration or Completion Clauses*: In extreme events pre-specified, the DOE could require, as a condition for participating in auctions, that producers shut-in production or leave wells as "drilled but uncompleted" (DUCs).

Conclusion

No measure described above can single-handedly eliminate all logistical risk associated with fixed-price contracts, but together they represent a powerful framework for minimizing costs to all participants. Whether engaging multiple private entities to temporarily store crude in transit or contracting out multiple deliveries within a single day within the intake capabilities of the SPR, logistical challenges not addressed here might crop up. The SPR has conducted acquisition in a largely uniform fashion for the past few decades.

Nonetheless, the unique upside of put options necessitates a holistic and comprehensive management of these risks. The preceding analysis is intended to demonstrate how the SPR can use its incidental contractual powers to mitigate much of the risk ex-ante, and retain the ability to remove the residual risk ex-post. By mitigating the risks of ceding logistical control, the Administration can unlock the powerful potential of market-contingent acquisition to strengthen our energy security.