Economics of Water Lease Offers by NPPD and CNPPID

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Considerations and Methods

Considerations:

- Reasonableness of lease price, $/acre and $/acre-foot
- Use of groundwater as a 1:1 replacement supply for leased surface water
- Length of lease and proposed price escalation rate

Methods:

- Irrigation water evaluation model, developed for this purpose
- Other economic principles

Platte Basin Irrigation Water Evaluation Model

Estimates net return to parcel of land under irrigated and dryland crop production

- Estimates $/acre and $/acre-foot return at the NRD level, considering underlying county average yields, prices, cropping patterns, and cost of production
- Considers costs of alternative irrigation water sources and application methods
- County-level irrigation water requirements “borrowed” from Crop Optimizer model from UNL
- Can compare the $ impact of irrigated to dryland conversion, or conversion from surface water to groundwater, or any combination of the two

NPPD lease offer

Basis for the price is consistent with DNR's PBHEP method:

- Impact of converting from irrigated to dryland production: $142-$169/acre, measured as the difference between irrigated and dryland cropland rental rates
- 10% incentive
- "Performance factor": 0.94 - 1.21
- Cost of delivery infrastructure: $7.29/acre
- Total offer: $155 - $232 /acre

NPPD lease offer, cont'd

Observations:

- The $142-$169/acre range is comparable to results from evaluation model: $220/acre impact for conversion from irrigated to dryland for production in CPNRD
- No basis for doubting performance factors or infrastructure costs
- If groundwater simply replaces surface water, the actual impact is near $20/acre due to additional pumping costs, not $142-$220 per acre

CNPPID Lease Offer

Major points:

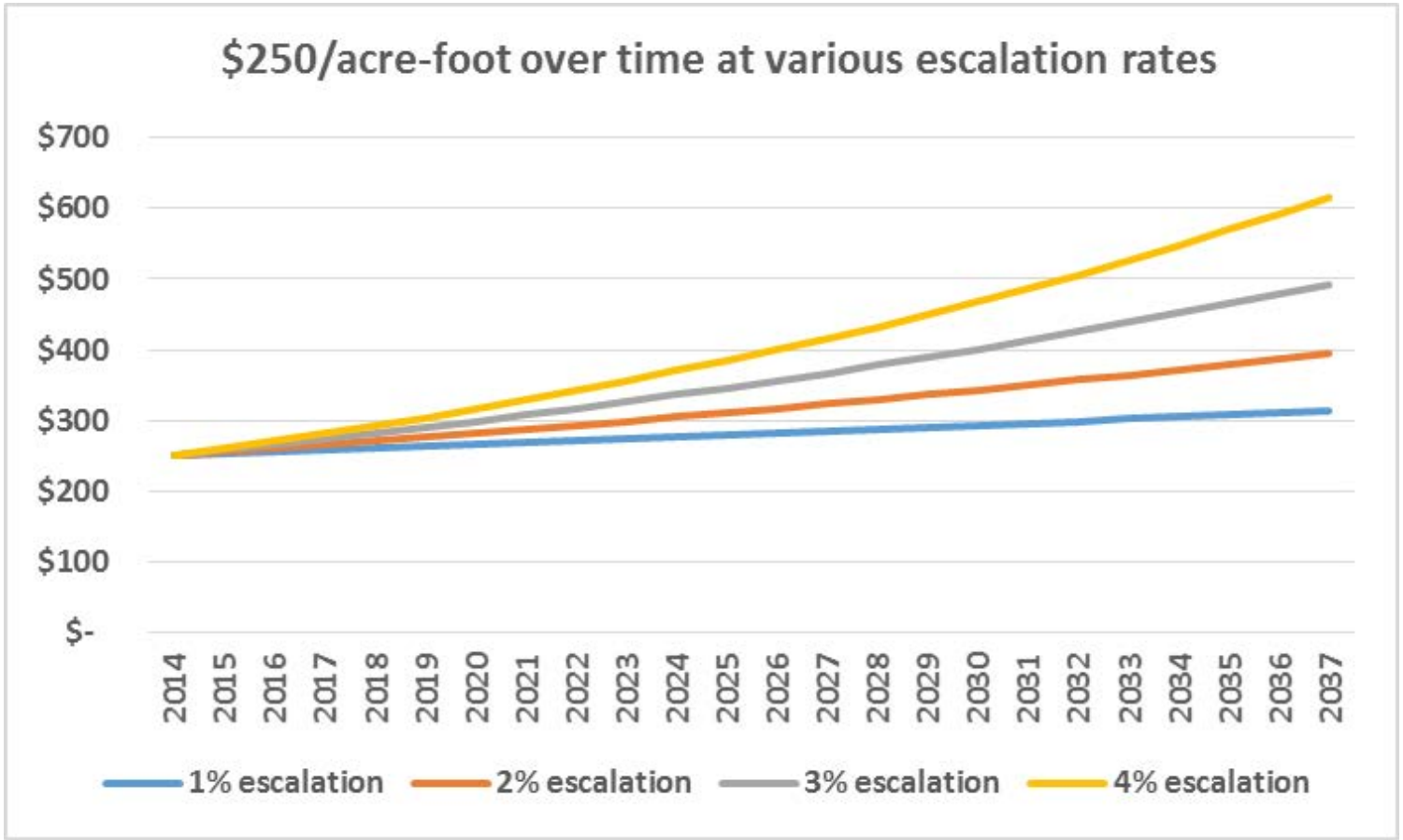
- $250/acre-foot
- Escalation at 4% per year through 2037
- Quantities and other terms yet to be negotiated

Observations:

- $250/acre-foot is comparable to $242/acre-foot calculated for TBNRD
- Having water in storage adds to its potential value
- Escalation rate appears somewhat high

CNPPID lease offer, cont'd

The escalation rate is important!



CNPPID lease offer, cont'd

Escalation Rate:

A 4% rate would appear more reasonable if the alternative use was municipal water supply

- Municipal water rates and impact fees have increased at annual rates exceeding 4% over the last 20 years
- C-BT units have increased at even higher annual rates, especially since 1980

CNPPID lease offer, cont'd

Profitability of irrigated agriculture does not increase at such a steady and high rate:

- Using corn price as a proxy, long-term escalation rates are in the 1.9% - 3.1% range, depending on how measured
- 2%-3% would seem to be a more supportable escalation rate for the lease
- Is there a way to periodically re-evaluate/adjust the escalation rate during the course of the lease?

CNPPID water lease price assuming historical trends for alternative price indices, 1980-2006, applied from 2014-2040