American Public Power Association
Accounting and Finance Spring Meeting

Natural Gas Prepayments
Potential O&M Savings

April 26, 2019
Questions About A Gas Prepay Transaction

1. Are Prepayments Legitimate Transactions?
2. Are Savings Real?
3. Are Prepayments Risky?
4. Are Prepayments Worth the Time and Effort?
5. How can I participate?
Are Prepayments a Legitimate Transaction?

- Between 1994 and 1999, 21 deals totaling $2.2 billion with an average term of 10 years were done under an interpretation of IRS rules.

- August 1999, IRS raised concerns, proposed new regulations, closing down market.
  - 2003, the IRS issued rules expressly permitting deals.

- From 2005-2008, the bulk of gas prepay transactions were completed, as clear rules and a conducive market drove the volume of deals.

- Since the 2008 financial crisis, new transactions have not been common as market interest rate levels and risk factors were not conducive to new deals for suppliers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Deals</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2005</td>
<td>5</td>
<td>$1.2 billion</td>
</tr>
<tr>
<td>2006</td>
<td>13</td>
<td>$10.3 billion</td>
</tr>
<tr>
<td>2007</td>
<td>14</td>
<td>$9.1 billion</td>
</tr>
<tr>
<td>2008</td>
<td>3</td>
<td>$1.7 billion</td>
</tr>
<tr>
<td>2009</td>
<td>3</td>
<td>$2.4 billion</td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>$1.6 billion</td>
</tr>
<tr>
<td>2011</td>
<td>-</td>
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<td>2</td>
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<td>2</td>
<td>$1.5 billion</td>
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2019 Transactions

Gas Prepay Transactions: 2014 - February, 2019

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<tr>
<th>Underwriting Firm</th>
<th>Par</th>
<th># Issues</th>
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<tr>
<td>RBC</td>
<td>$7,523</td>
<td>11</td>
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Prepay Bond

- **Issuer**: Tennergy
- **Underwriter**: RBC
- **Par**: $545 million
- **Structure**:
  - Segmented
  - $3.7 million in 5 year, fixed rate put bonds
  - $541 30 year fixed

Participants

- Brownsville Energy Authority (TN) 6%
- Municipal Energy Acquisition Corp (TN) 4%
- The Board of Public Utilities of Humboldt (TN) 17%
- Jackson Energy Authority (TN) 34%
- Memphis Light, Gas and Water (TN) 15%
- Middle Tennessee Natural Gas Utility District 10%
- City of Monroe (NC) 9%
- City of Murray (KY) 5%

Gas Supplier

- RBC

Commodity Swap Counterparty

- JP Morgan
## 2019 Transactions

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<thead>
<tr>
<th>Prepay Bond Issuer</th>
<th>Main Street (aka The Gas Authority aka MGAG)</th>
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<tr>
<td>Underwriter</td>
<td>JP Morgan and Wells Fargo</td>
</tr>
<tr>
<td>Par</td>
<td>$695 million</td>
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<tr>
<td>Structure</td>
<td>Fixed, 30 Year</td>
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<tr>
<td>Participants</td>
<td>The Gas Authority</td>
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| Gas Supplier       | Macquarie                                    |
| Commodity Swap     |                                              |
| Swap Counterparty  | JP Morgan, RBC                               |

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Prepay Bond

Issuer: Northern California Energy Authority (SMUD JPA)
Underwriter: Goldman Sachs
Par: $540 million
Structure:
- $16.8 million Put Bond (3 and 4 year maturity)
- $522.8 million 30 year fixed (Put back to NCEA in 5 years)
Participants: SMUD
Gas Supplier: J Aron (Goldman Sachs affiliate)
Commodity Swap Counterparty: RBC
Benefits of a Natural Gas Prepay Program

Public Power Issuers can use participation in a natural gas prepayment transaction to provide savings to ratepayers with several significant benefits:

- **Provides savings over time:** Participants could expect to generate ~10% on natural gas quantities delivered under the pre-pay structure compared to spot market purchases (similar to a bond refunding, this is market rate sensitive).

- **Diversification of long term natural gas supply reliability:** By having long-term supply contracts at specified delivery points.

- **Provides for a favorable risk allocation:** Participants’ obligation is generally limited to paying for natural gas that is delivered. In case of delivery default, participants have no legal obligation for the bond debt. Worst case is that the participant has to find replacement supply with index pricing.

- **Recently, rating agencies have provided favorable reviews:** Natural gas prepay deals, and would exclude natural gas prepay bonds from the calculation of participants’ debt metrics since these transactions typically involve a conduit issuer.

- **Several options:** Can “lead” or “participate”
Sometimes this structure feels like.....
Sample Natural Gas Prepayment Structure

1 **Prepayment**: Issuer prepays Supplier for approximately 30 years of natural gas deliveries, entering into a Prepaid Agreement.

2 **Public Power Entity**: Under a Gas Supply Contract, Supplier agrees to sell 100% of the gas delivered on a pay-as-you-go basis at a price equal to the applicable monthly market index less a discount (Discount is FIXED at closing of the bond transaction).

3 **Commodity Swap**: Issuer enters into a fixed-for-floating Commodity Swap with commodity swap counterparty to facilitate its ability to sell specified gas volumes required to be delivered to Holland BPW at market-referenced prices. Supplier enters into a mirror fixed-for-floating Commodity Swap with the swap counterparty.

4 **Debt Service**: Issuer pays debt service semiannually on Series 2019 bonds issued to fund the prepayment for natural gas.

5 **Investment Agreement**: Monthly, Issuer deposits revenues received into debt service account investment agreement. Semiannually, funds are withdrawn to meet debt service.

**Note**: QIR would need to advise on financial and commodity swaps.
Segmented Structure of Gas Prepay

- For this new wave of gas prepay deals, many of the same features, but with lessons learned from the impact of the credit crisis.

- Final terms may go out thirty years, but most deal now reset every five years (segmented).

- Less reliance on third parties with less counterparty risk – no GIC provider (or provided by supplier), no surety provider, and more risk mitigation by supplier/guarantor.

- Benefit is less, but still very substantial at up 10-15% per MMBtu first 5 years.
  - Initial 5 year benefit “locked in” once bonds are issued and transaction closes.
  - Subsequent periods could be higher or lower – but never lower than 15-20 cents (deal could come down) and this savings threshold is stipulated in the agreements.
  - Suppliers will guarantee minimum future savings, or allow participants to stop taking gas.
  - IMPORTANT STRUCTURING ELEMENT: in some deals, if Supplier cannot meet minimum discount at a remarketing point, Participant would be allowed to walk away permanently, allowing for Qualified Use to be used in optimal manner. In other deals, participant would still be obligated in future remarketings to take gas if minimum discount is reached again.
  - Ultimately, future discounts still dependent on different between corporate discount rate vs tax-exempt borrowing rate, whether at 5-year spot or longer term.
Tennergy versus Main Street

“Segmented Deal”

Discount set at each segment - but a minimum threshold established

Segment 1  Segment 2  Segment 3  Segment 4  Segment 5  Segment 6

Issue Bonds  Final Gas Delivery

Basically “Groundhog Day” at each segment

“Fixed Deal”

Discount set for 30 years

30 Year Fixed Rate Bond Transaction

Issue Bonds  Final Gas Delivery

20 Year Participants

30 Year Participants
## Economic Drivers of the Gas Prepay Savings

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
<th>Impact on Gas Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term of the Prepaid Gas Agreement</td>
<td>Time period from the delivery date to final maturity of the Agreement</td>
<td>The longer the term, the greater the quantity of gas and the associated discount</td>
</tr>
<tr>
<td>Natural Gas Price Curve</td>
<td>A series of forward prices at which parties can purchase gas at fixed prices</td>
<td>The higher and/or steeper the gas price curve, the greater the gas discount</td>
</tr>
<tr>
<td>Gas Supplier’s Discount Rate</td>
<td>Gas Supplier’s cost of funds expressed as a spread over LIBOR swaps</td>
<td>The higher the funding spread, the greater the gas discount</td>
</tr>
<tr>
<td>Tax-Exempt Bonds’ Trading Levels</td>
<td>Gas prepaid bonds trading levels expressed as a spread over MMD benchmark rates</td>
<td>The lower the credit spread, the greater the discount</td>
</tr>
<tr>
<td>Yield spread between taxable (LIBOR) and tax-exempt (MMD) market</td>
<td>Relationship between taxable and tax-exempt markets</td>
<td>The wider the spread in bps, the greater the discount</td>
</tr>
</tbody>
</table>
Favorable Risk Allocation - “Take-and-Pay”

Under the “take-and-pay” legal structure of the gas prepay transaction and the assurances from the Supplier, Participant is protected against many of the risks / concerns associated with a gas prepay transaction.

### Risk

- **Supplier default on gas delivery**
- **Participant receives too much gas and is unable to have Qualified Use and/or has to meet renewable mandates in the future**
- **Debt obligation could obligate Participant over long-term**
- **Rating agency treatment of gas prepay debt**
- **Commodity swap or investment GIC provider counterparty fails to perform**

### Mitigation

- Participant only pays for gas if/when Supplier delivers the natural gas
- Supplier/Guarantor assumes debt obligations in the event of Supplier default
- Supplier/Guarantor will remarket the gas to qualified entities to ensure compliance with Qualified Use
- Debt is non-recourse to Participant, and the obligation is take and pay. Rating agencies do not count prepay transactions as debt or fixed costs of the Participant.
- Documents allow for replacement of swap and GIC provider; Supplier is GIC provider (thus no add’l risk)
- Supplier/Guarantor bears the risk of the counterparty’s performance and in the event of default, the swap “tears up”. Worst case is deal comes down with no ongoing risk for Participant.
The Gas Supply Portfolio

Natural gas prepay transaction represents diversification and cost savings opportunity, while fitting into established natural gas (and hedging) programs:

- Most Public Power Issuers purchase natural gas from a variety of suppliers, ranging in quantity and term now;

- Adding this transaction to address its overall gas needs could be appropriate – ultimately the entity should identify a “comfortable level” of MMBtus for a prepay – baseload needs

- Remaining supply represents:
  - Risk mitigation in the event of changes in carbon legislation
  - Represents additional opportunities over time to capture savings from future prepaid transactions
  - Hedge against emerging technologies and changes in customers’ preferences

- Diversifying participation in natural gas prepay programs – both on suppliers and the discounts available in the transactions – fits within many public power’s risk management guidelines
Gas Pre-pay Considerations

A natural gas prepay is a complicated transaction but given the currently low level of gas prices and the discount afforded, many issuers are considering these as a means to reduce O&M costs:

- Level of complexity can be significantly
- Communication with the Board could be extensive
  - Moving from the realm of financial to operations (physical delivery)
  - More than a bond transaction
  - Commodity swap agreements, gas supply agreements, disclosure, legal…financial swaps if variable rate debt is used
- Given the complexity of transaction, many times, the counterparty is “sole sourced”
  - Enables the terms of the transaction to flow through all of the agreements and the entire structure
  - For example, the “tear up” nature of the transaction at certain points in time adds complexity and difficulties if other firms are used
  - The “sole source” nature essentially enables the credit rating of the gas supplier to be used for the bond transaction
- Constituents and ratepayers opinions and concerns (30 years of fossil fuel)
- Transaction is reactive to market conditions, similar to a bond refunding.
  - Could elect to proceed, but rates, spreads and commodity prices could move so that the pre-pay would be put on the shelf until market conditions improve.
Gas Pre-pay Considerations

- **Amount of Natural Gas Supply; Qualified Use of Gas**
  - Qualified volumes for a prepay transaction require gas or energy to be used for existing historical service territory
  - Substantial additional qualified use on which to obtain savings and potential additional transaction

- **Timing / amount of 5 year savings per MMBtu**
  - Savings available is likely to vary over time, as we have seen in past ten years
  - Break-evens for long-term deals are already high, and strong reason to believe that Participants could capture higher discount to maturity at remarketing (if taxable / tax-exempt ratios change favorably)

- **Choice of Supplier and Underwriter**
  - Deals are getting done – “aggregators” are looking for volumes
  - New entrants more risky; proven form by the banks that have been doing these for the past decade
  - Participant may want gas at different delivery points; experience with various delivery points important

- **“Switch” feature is an option to incorporate for some of the commodity suppliers.**
  - Upon Participant providing notice, the pre-pay *switches from gas to power*
  - Unclear what type of power (green vs brown) or timing (peak versus off-peak)
New Variations of a Prepay Transaction: Renewables

- **Modeled after natural gas prepay transactions:**
  Uses many of the same documents and structures of the natural gas prepay transactions

- **New Transaction for the market:**
  First mover in this space – although the natural gas prepay bonds are an established product

- **Can provide savings over time:**
  Expectation of 5-10% on existing and future renewable energy quantities delivered under the pre-pay structure compared to spot market purchases / current contracts

- **Can provide savings over time with current renewable PPAs:**
  Basis for the transaction is the ability to novate current PPAs to the Renewable Energy Supplier. As these roll-off, participant could nominate other prepays or assume there is a consistent market energy need

- **Favorable risk allocation:**
  Obligation is generally limited to paying for P99 that is delivered at PPA price less a discount. Risk generally related to lack of production and opportunity cost (future spot prices may be lower or future transactions may produce higher savings)

- **Rating Agency Treatment:**
  Recently, rating agencies provided favorable reviews of natural gas prepay deals, excluding renewable prepay bonds from the calculation of the offtaker’s debt metrics if using another issuer (conduit)
Questions About A Gas Prepay Transaction

1. Are Prepayments Legitimate Transactions?
   Yes. IRS complaint…have to have a “need” for the commodity

2. Are Savings Real?
   Yes. Public Power utilities have saved billions in fuel costs through the dozen+ prepay transactions. However, must be comfortable with the level of savings and what happens after the first “segment”

3. Are Prepayments Risky?
   Manageably so. Risk is that of lost opportunity – must be happy with current savings versus future savings

4. Are Prepayments Worth the Time and Effort?
   Yes if ~10% savings on natural gas is important

5. How can I participate?
   Can drive the train or ride in the train as a participant