Luling Wetland Carbon and Nutrient Pilot Project

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Tierra Resources

• Mission to conserve, protect, and restore wetland ecosystems by creating innovative solutions that support investment into wetlands.

• The first globally to introduce wetland restoration to carbon markets in 2012.

• Tierra Foundation: 501(c)3 to expand research and practices that increase resilience through wetland and water management.
Carbon Goals

- Apply the ACR methodology
- Determine cost-saving measures
- Produce commercially viable carbon credits
- Compensate landowner for the use of their land without additional cost to parish or citizens
- Demonstrate public-private partnerships that leverage carbon finance
- Prove the commercial viability of wetland carbon credits
- Quantify co-benefits
Pilot Nutrient Goals

• Quantify nutrient reduction co-benefits

• Pilot is applicable toward nutrient reductions resulting from coastal restoration:
  • Sediment diversions
  • Storm water management

• Nutrient credit trading has been identified by CPRA as a potential funding mechanism

• Entergy wants to support private investment into coastal restoration.
Nutrient Credit

• Credit = a unit of pollution reduction usually measured in pounds equivalent.
  – A point source over-controlling its discharge.
  – Nonpoint source installing best management practices (BMPs) beyond its baseline.
  – Source EPA

• No nutrient credit methodology currently exists to monitor and quantify nutrient reductions from wetland restoration.

• Comite Resources developed the monitoring and quantification protocol that will be third-party verified.
Luling Wetland Carbon (and Nutrient) Pilot!
Key Equation

Nutrient credit = removal efficiency in lbs - uncertainty

Nutrient Credit = \((\frac{\text{Conc}_{\text{pipe}} - \text{Conc}_{\text{out}}}{\text{Conc}_{\text{pipe}}}) \times (1 - \text{UNC})\)

*Mean annual flow calculated from DMRs*
# Nutrient Credits

<table>
<thead>
<tr>
<th>Year</th>
<th>TP lbs removed</th>
<th>TN lbs removed</th>
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</thead>
<tbody>
<tr>
<td>2006</td>
<td>7,434</td>
<td>18,815</td>
</tr>
<tr>
<td>2007</td>
<td>2,543</td>
<td>10,812</td>
</tr>
<tr>
<td>2008</td>
<td>12,290</td>
<td>30,795</td>
</tr>
<tr>
<td>2009</td>
<td>9,964</td>
<td>30,794</td>
</tr>
<tr>
<td>2010</td>
<td>8,240</td>
<td>23,317</td>
</tr>
<tr>
<td>2011</td>
<td>8,473</td>
<td>25,775</td>
</tr>
<tr>
<td>2012</td>
<td>12,144</td>
<td>41,952</td>
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<tr>
<td>2013</td>
<td>12,946</td>
<td>49,210</td>
</tr>
<tr>
<td>2014</td>
<td>10,576</td>
<td>41,644</td>
</tr>
<tr>
<td>2015</td>
<td>11,927</td>
<td>84,601</td>
</tr>
<tr>
<td>2016</td>
<td>10,952</td>
<td>46,339</td>
</tr>
<tr>
<td>2017</td>
<td>9,919</td>
<td>84,312</td>
</tr>
<tr>
<td><strong>Total lbs</strong></td>
<td><strong>117,409</strong></td>
<td><strong>488,366</strong></td>
</tr>
<tr>
<td><strong>- 5% UNC</strong></td>
<td><strong>5870</strong></td>
<td><strong>24,418</strong></td>
</tr>
<tr>
<td><strong>Total credits</strong></td>
<td><strong>111,538</strong></td>
<td><strong>463,947</strong></td>
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</tbody>
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Transaction Process

- Project Developer submits credit application to LDEQ
  - Credit application includes Project Design and Management Plan
  - LDEQ verifies

- Credit buyer shall submit a WQT plan.
  - Facility or permittee document w details of trade
  - Incorporates trading elements into a permit
  - A voluntary WQT plan only contains pertinent info
Nutrient Trade

- Entergy can demonstrate a voluntary nutrient trade:
  - St Charles Parish Little Gypsy Power Station
  - No nutrient discharge from facility
  - strictly voluntary
- No real driver for them to purchase credits
- Will increase the value of the carbon offsets to have real monitored, quantified, and verified nutrient reductions.
Questions for LDEQ

• Guaranteeing quality:
  – Standardized quantification and monitoring protocol for wetland restoration.
  – Template Project Design and Management Plan

• How would risk or uncertainty be calculated?
• What units?
• What time frame?
• Who acts as the third-party verifier?
  – LDEQ
  – Certified verifiers
Conclusions

• How do you incentivize participation?
• Restoration projects will require monitoring and potentially modeling
• Will mitigation banks be eligible?
• Carefully crafted for CPRA sponsored project to be eligible
  – Public conservation funds
  – Trading areas are applicable to coastal restoration
Thank You!

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