Cleveland Public Library
DBOOM Solution for Chilled Water Supply
12/14/2018
Cleveland Public Library – Topics for Discussion

- Overview of Siemens ‘DBOOM’ Solution
  - ‘DBOOM’
  - Value Proposition
  - Business Model
- Initial Results Comparison to Cleveland Thermal
- Q&A
Siemens collaborates with you to **design** the energy solution

We **build** and commission the energy solution and validate performance

Siemens will **invest in and own** title to the asset, **you contract for output from the asset**

Long-term, Siemens **operates** and has responsibility for performance metrics

Siemens **maintains** asset(s), ensuring a high level of performance
Value Proposition for Our Cleveland Public Library

No Upfront Capital Investment
- CPL does not pay until DES asset is operational

Asset Ownership & Operations is Siemens Responsibility
- CPL has no long-term responsibility for O&M resources and expertise—Siemens will implement and operate

Replace/Offset Existing Utility Bills/Cost
- CPL payment is similar to current Cleveland Thermal bills and simply lowers those bills/costs

Siemens Solution and Alignment – Contract Direct with Siemens
- Siemens provides a complete turnkey + lifecycle solution (Development, Technical, Financial, Performance without seams to CPL including controls integration)

Investment estimated at $5.1 M per Osborn Study

CPL avoids ~$2.5 M in lifecycle O&M costs and uncertainty.

15-year Savings from ~$1.5 - $4 M when compared to Cleveland Thermal

Siemens can utilize tax benefits of ownership to lower cost to CPL
**Initial Summary of Lifecycle Savings – Across Scenarios**

<table>
<thead>
<tr>
<th>Scenario Comparisons:</th>
<th>Year 1 CHW Pricing</th>
<th>Year 1 Costs</th>
<th>Average Lifecycle Pricing</th>
<th>Lifecycle Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$/Ton-Hour</td>
<td>$'s 000's</td>
<td>$/Ton-Hour</td>
<td>$'s 000's</td>
</tr>
<tr>
<td>#1: Contract Costs to Cleveland Thermal - Status Quo</td>
<td>0.40</td>
<td>$846</td>
<td>0.45</td>
<td>$14,322</td>
</tr>
<tr>
<td>#2: Contract Costs to Cleveland Thermal - Future Rate</td>
<td>0.36</td>
<td>$750</td>
<td>0.41</td>
<td>$13,045</td>
</tr>
<tr>
<td>#3: Contract Costs to Cleveland Thermal+Contribution</td>
<td>0.31</td>
<td>$654</td>
<td>0.37</td>
<td>$11,600</td>
</tr>
<tr>
<td>Siemens DBOOM Solution</td>
<td>0.23</td>
<td>$483</td>
<td>0.25</td>
<td>$7,738</td>
</tr>
<tr>
<td>Electric and Utility Costs</td>
<td>0.06</td>
<td>$130</td>
<td>0.07</td>
<td>$2,341</td>
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<tr>
<td>Siemens Solution: ALL-IN Cost to CPL</td>
<td>0.29</td>
<td>$613</td>
<td>0.32</td>
<td>$10,079</td>
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</tbody>
</table>

**Savings Estimates - Across Scenarios:**

<table>
<thead>
<tr>
<th></th>
<th>Year-1 Savings</th>
<th>Year 1 - $ Savings</th>
<th>Lifecycle Unit Cost Savings</th>
<th>Lifecycle Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$/Ton-Hour</td>
<td>$'s 000's</td>
<td>$/Ton-Hour</td>
<td>$'s 000's</td>
</tr>
<tr>
<td>Siemens vs. Scenario #1</td>
<td>-0.11</td>
<td>$233</td>
<td>-0.13</td>
<td>$4,243</td>
</tr>
<tr>
<td>Siemens vs. Scenario #2</td>
<td>-0.07</td>
<td>$137</td>
<td>-0.09</td>
<td>$2,966</td>
</tr>
<tr>
<td>Siemens vs. Scenario #3</td>
<td>-0.02</td>
<td>$41</td>
<td>-0.05</td>
<td>$1,520</td>
</tr>
</tbody>
</table>

Based on Osborn Engineering study assumptions and Cleveland Thermal Rate analysis and future projections. (PRELIMINARY)
Tax Legislation Incentivizes Clean Energy and Utility Infrastructure Investment

Federal Tax Incentives:
Utility infrastructure (boilers, chillers), Cogeneration and Solar specifically addressed in legislation:
- Year 1 Bonus Depreciation – depreciate entire investment in the first year
- Investment Tax Credits – Tax credit available at completion – 10% for cogeneration, 30% for solar
- Result is ~ 25-50% of investment is paid by federal government in the form of tax savings (IF you are a taxable entity).

Optimal Time: for Tax Exempt customers to collaborate with private sector (taxable) to maximize the tax benefits and solve infrastructure and campus utility infrastructure needs.

The value is substantial .....
**DBOOM Execution Model: Energy Supply Agreement (ESA)**

**Contract Structure**

- **Thermal Utilities (Ton-hours)**
- **Payment**
  - (Capacity + Energy)

**ESA Agreement** (Directly Between Siemens BT and CPL)

- ESA defines operating performance, O&M obligations, commercial terms, payment obligations, end of term options etc.
- Siemens BT is Designing, Building, Owning, Operating and Maintaining the Chiller Plant assets
- Customer is responsible for contracting for electricity and water supply
- Customer does not have responsibility to pay until asset is operational
- Site Lease required for premises access and right to build and operate

**Entering Into Long-term Services/Delivery Agreement**

- Defined Reliability / Availability
- Thermal Utilities (Ton-hours)
- Payment
  - (Capacity + Energy)

**Siemens BT**

**Siemens Financial Services (SFS) Financing**
DBOOM – Energy as a Service Business Model Can Be Applied to All Distributed Energy Technologies

Combined Heat & Power, Central and/or Distributed Boiler and Chiller Plants, Solar PV, Battery Storage and/or Micro-grid Solutions
Financial Innovation: Summary of Key Points

- Overview of Siemens ‘DBOOM’ Solution
  - ‘DBOOM’
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- Q&A
Back-Up Material
Financial Innovation
# Key Risk Ownership – DBOOM Commercial Structure

<table>
<thead>
<tr>
<th>Project Risks</th>
<th>Customer Credit</th>
<th>Development</th>
<th>Technical</th>
<th>Construction Execution</th>
<th>Operating Performance</th>
<th>Contractual &amp; Regulatory</th>
<th>Commodity Prices</th>
<th>Force Majeure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siemens Building Technologies</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Siemens Financial Services</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Assuring ESA</td>
</tr>
<tr>
<td>CUSTOMER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Notes</td>
<td></td>
<td>OEM equipment warranties, with Siemens as solution provider – no seams or pointing fingers</td>
<td>Customer does not pay until COD is achieved.</td>
<td>OEM warranties + Insurance supports long-term operating performance</td>
<td>Contract defines any change in law, regulatory changes that impact contract</td>
<td>Owner responsible for fuel and utility input costs, commodity risk</td>
<td>BT secures insurance (property and business interruption) to mitigate risks.</td>
<td></td>
</tr>
</tbody>
</table>
Tax Value Differential – Taxable vs. Tax Exempt

Relative Investment ($'s)

- Tax Exempt Capital Projects
- Asset Taxable Entity
- Cogen. Assets Taxable Entity
- Solar Assets Taxable Entity

Equivalent Interest Rate (%)

- Tax Exempt Rates
- Capital Projects
- Asset Infrastructure Equivalent Rate
- Cogen. Assets Equivalent Rate
- Solar Assets Equivalent Rate

This Significant Differential Creates Opportunity for New Business Collaboration

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Understanding the customer’s goals and requirements allows Siemens to structure the best financial solution

### Customer Objectives
- What are the key objectives that are driving the project?
- What metrics define success?
- What timelines or milestones need to be kept to ensure success?
- Who are the key stakeholders and decision makers?

### Customer Preferences
- What contractual structures/relationships have worked in the past?
- Do they apply to the current situation/opportunity?
- Potential Preferences or requirements:
  - Own
  - Operate
  - Outsource
  - Term length preference or limitations (x-years)
  - Retain debt capacity / avoid cash outlay
  - Potential off-Balance sheet treatment

### Customer Credit
- What is the specific entity that will serve as counterparty?
- What is the credit rating?
- Are audited financials available?
- What constraints or financial metrics could influence decisions?
- Are there other stakeholders or relevant counterparties that are envisioned in considering financing options?
Siemens Financial Services: Global Presence

SFS provides capital for Siemens as well as for other organizations across the world. Employing more than 3,100 people globally,

1) As of September 30, 2015 | 2) Assets reported according to the Customer Domiciles

North and South America

11.3 [Total assets\(^2\) in billions of €]

Europe, Africa, Middle East, CIS

10.5 [Total assets\(^2\) in billions of €]

Asia, Australia

3.2 [Total assets\(^2\) in billions of €]