Comprehensive Energy Management
“A New Model”

Case Study Ohio State University and Ohio State Energy Partners’ 50-year agreement for comprehensive energy management

Objective
Present a summary of:
- Project development and execution
- Structure and operational scope
- Risks and benefits
- Perspectives on the keys to success in the process and project

Conclusion This new model (and many possible derivations of this model) for energy management can present a win/win arrangement for campuses and vendors
Footprint & Energy Profile

- 490 buildings on ≈ 2,000 acres
- 100,000 people daily
- 1,300 hospital beds
- 14,000+ student residence beds
- 3 stadiums = 120,000 seats
- Elect., gas, steam, chilled water
- 3 high voltage substations
- 110 MW peak demand
- 2.9 million MMBtu's of steam
- $115 million annual spend
- High reliability requirements
The IDEA
Comprehensive Energy Management
Achieving optimization through an enterprise-wide systems approach to energy

- Systems operations management
  - Operate, maintain, and expand utility systems with a constant focus on the impacts and benefits to the enterprise
  - One vendor with extensive relevant expertise, scale, and reach

- Energy Efficiency management
  - Overcome a one-building-at-a-time approach

- Financial resource management
  - Enables redirection of existing financial resources (debt capacity) to support its core academic missions
Project Development

Collaboration from Concept to Delivery

Rebuilding your ship while at sea under full sail.

- Prior to issuing RFQ
  - Extensive internal university discussion
  - Engaged external financial and legal advisors
  - Open campus-wide meetings to discuss the project
  - 3 internal advisory groups

- From RFQ to RFI to RFP
  - Frequent conversations with bidders
  - Contacted 100+ companies for RFQ
  - Multiple meetings with firms during the RFI phase
  - Open Q&A log – 1000+ asked and answered questions
  - Multiple meetings with firms during the RFI phase
### Project Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Internal discussions begin</td>
</tr>
<tr>
<td>2012</td>
<td>External advisors engaged</td>
</tr>
<tr>
<td>2013</td>
<td>Possibility of RFQ announced to campus</td>
</tr>
<tr>
<td></td>
<td>University-wide town hall meetings</td>
</tr>
<tr>
<td>2014</td>
<td>RFQ Issued</td>
</tr>
<tr>
<td></td>
<td>RFQ Closed</td>
</tr>
<tr>
<td>2015</td>
<td>RFI Issued</td>
</tr>
<tr>
<td></td>
<td>Open-forum for students</td>
</tr>
<tr>
<td></td>
<td>RFI Closed</td>
</tr>
<tr>
<td>2016</td>
<td>RFP Issued</td>
</tr>
<tr>
<td></td>
<td>RFP Closed</td>
</tr>
<tr>
<td></td>
<td>Proposal review and scoring</td>
</tr>
<tr>
<td></td>
<td>Board of Trustees approves award</td>
</tr>
<tr>
<td></td>
<td>Financial close &amp; start of operations</td>
</tr>
<tr>
<td>2017</td>
<td>Board of Trustees approves award</td>
</tr>
<tr>
<td></td>
<td>Financial close &amp; start of operations</td>
</tr>
</tbody>
</table>

Sometimes, not knowing the length of the road before you, is what makes the journey seem possible.

- 100 + companies contacted for RFI
- 40 of 44 qualified in RFQ
- 10 teams respond to RFI
- 6 teams invited to RFP
- 3 proposals received
- 1 selected
Innovative Financing

- Multiple tranches of debt across a ProjectCo / HoldCo structure to optimize ratings, financing costs, and tenors
- Unique structure with 2 vehicles designed to get better overall financing conditions
- Vehicles rated by Fitch:
  - OSEP: A-
  - OSEP HoldCo: BBB
  - Reflects the high degree of revenue stability over the long-term agreement
## Client Decision Criteria

<table>
<thead>
<tr>
<th>Client Decision Criteria</th>
<th>Design Build Agreement</th>
<th>Performance Contracting Agreement</th>
<th>Thermal Services Agreement</th>
<th>Power Purchase Agreement</th>
<th>Master Energy Agreement</th>
<th>Concession Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Tenor</td>
<td>1 to 3 Years</td>
<td>10 to 15 Years</td>
<td>25 Years (Typical)</td>
<td>25 Years (Typical)</td>
<td>25 Years (Typical)</td>
<td>25-99 Years</td>
</tr>
<tr>
<td>Funding Source</td>
<td>Client</td>
<td>Client or ENGIE</td>
<td>ENGIE</td>
<td>ENGIE</td>
<td>ENGIE</td>
<td>ENGIE</td>
</tr>
<tr>
<td>Funding Type</td>
<td>KHC</td>
<td>Client/ENGIE/Project Finance</td>
<td>ENGIE/Project Finance</td>
<td>ENGIE/Project Finance</td>
<td>ENGIE/Project Finance</td>
<td>ENGIE/Project Finance</td>
</tr>
<tr>
<td>Technical Scope: Main Focus</td>
<td>ALL</td>
<td>ECMs</td>
<td>Central Plant</td>
<td>Solar/Wind/CHP</td>
<td>All including ECM</td>
<td>All including ECM</td>
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<tr>
<td>Turn-Key (EPC, O&amp;M, Funding)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Life Cycle Risk Transfer</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>Performance Guarantees</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>End of Term Buyout Provisions</td>
<td>None</td>
<td>To be Negotiated</td>
<td>To be Negotiated</td>
<td>To be Negotiated</td>
<td>To be Negotiated</td>
<td>To be Negotiated</td>
</tr>
<tr>
<td>Option for Value Monetization</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
ENGIE-Axium proposal

Strongest proposal

ENGIE N.A. and Axium Infrastructure U.S. formed a new consortium “Ohio State Energy Partners” to combine their expertise for this project.

$1.165 billion closing payment to Ohio State
- Largest single addition to the University endowment
- $150 million earmarked for Academic Collaboration – scholarships, faculty chairs, and philanthropy

No jobs lost – adding new jobs

Improve campus energy efficiency
- ≥ 25% within 10 years

Smart meters deployment throughout campus

$50 million Energy Advancement and Innovation Center
Alignment of mission, shared risks and rewards, and flexibility to look at the long-play are keys to a successful partnership.

**50 – year Partnership**

- Operate main campus Utility Systems
  - Electricity, natural gas, steam & condensate, chilled water, geothermal generation plants and distribution
- Capital investments
  - Energy conservation measures – all of campus
  - Existing system improvements and replacements
  - Utility system expansions to serve new campus facilities
- University facilities planning and design
- University continues to buy energy supplies
- Academic Collaboration
Scope of the Agreement – Structured Fee

- **Operations & Maintenance Fee**
  - 3 Year average of actual costs, starting with the university’s costs
  - CPI adjusted

- **Fixed Fee**
  - Adjusted for inflation

- **Variable Fee**
  - 50/50 Debt/Equity on capital investments
  - ROE = formula
    - Based on 5 states approved ROEs for public utilities
    - First 5 years = 9.35%
  - Debt = “yield to worst” Barclays, Baa US Corp. Investment Index

University pays a monthly fee to Concessionaire = O&M + Fixed + Variable

Year 1 fee is in-line with the university’s prior year costs
Scope of the Agreement – Revenue Risks and Rewards

- **Variable Fee Investments**
  - Company earns a return on capital invested
  - ECM investments support the KPI targets
  - University must approve the investments

- **Operations & Maintenance Fee**
  - Costs above the cap are the company’s risks
  - Costs below the cap are the company’s benefit

- **Performance Standards and KPIs**
  - Penalties for missed standards
  - Reward for exceeding EUI 25% reduction target and doing so under for $250 million
Scope of the Agreement – Performance Targets

- **Performance Standards**
  - The company must meet or exceed current university standards and practices

- **Key Performance Indicators**
  - 13 KPIs across 8 categories
  - Charges for KPI events – escalate with the severity and/or repetitiveness
  - Built-in flexibility

- **University must approve the company’s capital investments**
  - Annual cycle with a Five-Year Plan, flexibility built-in
  - Energy Advisory Committee
  - University has estimated the 25% EUI improve cost to be $250 M over 10 years
### KPI Calculation for Electricity Unplanned Outage Hours

<table>
<thead>
<tr>
<th>Annual Score</th>
<th>0 Consecutive Event Years</th>
<th>2 Consecutive Event Years</th>
<th>3 Consecutive Event Years</th>
<th>4 Consecutive Event Years</th>
<th>5 Consecutive Event Years</th>
<th>6 Consecutive Event Years</th>
<th>7 Consecutive Event Years</th>
<th>8 Consecutive Event Years</th>
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</thead>
<tbody>
<tr>
<td>% of Availability</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
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<tr>
<td>Target 100.00% - 99.996%</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
<td>$ - $</td>
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<tr>
<td>99.995% - 99.994%</td>
<td>$ 500,000</td>
<td>$ 1,000,000</td>
<td>$ 2,000,000</td>
<td>$ 4,000,000</td>
<td>$ 8,000,000</td>
<td>$ 10,000,000</td>
<td>$ 10,000,000</td>
<td></td>
</tr>
<tr>
<td>99.993% - 99.992%</td>
<td>$ 1,000,000</td>
<td>$ 2,000,000</td>
<td>$ 4,000,000</td>
<td>$ 8,000,000</td>
<td>$ 10,000,000</td>
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<tr>
<td>99.991% - 99.990%</td>
<td>$ 2,000,000</td>
<td>$ 4,000,000</td>
<td>$ 8,000,000</td>
<td>$ 10,000,000</td>
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</tr>
<tr>
<td>99.989% - 99.988%</td>
<td>$ 4,000,000</td>
<td>$ 8,000,000</td>
<td>$ 10,000,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>99.987% - 99.986%</td>
<td>$ 8,000,000</td>
<td>$ 10,000,000</td>
<td></td>
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</tr>
<tr>
<td>&lt; 99.982%</td>
<td>$ 10,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Examples: For illustration purposes only**

<table>
<thead>
<tr>
<th>Annual Score</th>
<th>KPI Event</th>
<th>Consecutive Event Years</th>
<th>Average Consecutive Year Score</th>
<th>KPI Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year A</td>
<td>99.997%</td>
<td>No</td>
<td>0</td>
<td>99.997% $ - $</td>
</tr>
<tr>
<td>Year B</td>
<td>99.992%</td>
<td>Yes</td>
<td>0</td>
<td>99.992% $ - $</td>
</tr>
<tr>
<td>Year C</td>
<td>99.988%</td>
<td>Yes</td>
<td>2</td>
<td>99.990% $ 1,000,000</td>
</tr>
<tr>
<td>Year D</td>
<td>99.995%</td>
<td>Yes</td>
<td>3</td>
<td>99.992% $ 1,000,000</td>
</tr>
<tr>
<td>Year E</td>
<td>99.995%</td>
<td>Yes</td>
<td>4</td>
<td>99.993% $ 2,000,000</td>
</tr>
<tr>
<td>Year F</td>
<td>99.981%</td>
<td>Yes</td>
<td>5</td>
<td>99.990% $ 10,000,000</td>
</tr>
<tr>
<td>Year G</td>
<td>99.998%</td>
<td>No</td>
<td>0</td>
<td>99.998% $ - $</td>
</tr>
<tr>
<td>Year H</td>
<td>99.994%</td>
<td>Yes</td>
<td>0</td>
<td>99.994% $ - $</td>
</tr>
<tr>
<td>Year I</td>
<td>99.983%</td>
<td>Yes</td>
<td>2</td>
<td>99.995% $ 8,000,000</td>
</tr>
<tr>
<td>Year J</td>
<td>99.996%</td>
<td>No</td>
<td>0</td>
<td>99.996% $ - $</td>
</tr>
</tbody>
</table>
- **University**
  - Do not assume bidders understand the university processes
  - Do not assume the deal is perfectly designed from the start
  - Encourage bidder questions and provide detailed responses
  - Flex with changes to the market

- **Bidders**
  - Have abundant patience for complex university processes
  - Be willing to consider unique provisions
  - Flex with changes to the market
  - Avoid deal fatigue

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4 bidders may ask the same question 10 times with different wording each time. Keep talking until both sides understand the real question and its answer.

Over a multi-year development period an economic (e.g. taxes) outlook can change a bidder’s perspective and valuation of a deal.
Keys to a successful process – Building the Teams

- **Legal Expertise**
  - P3 infrastructure deals
  - Utility regulation
  - Concession contract drafting

- **Financial Expertise**
  - Develop potential bidders for a very unique deal
  - Valuations - specifically infrastructure deals (e.g. M&A)
  - Help bidders avoid deal fatigue

- **Technical Expertise**
  - Expertise in utility infrastructure
  - Independent engineering assessments

Find the right external advisors to enhance the internal expertise

In addition to specific subject matter experts, the project must have a champion(s) that understands the entire deal
**Keys to a successful process – Communication**

- **Internal stakeholders communications**
  - Clear message of the project objectives
  - Leadership’s public commitment to the project purpose
  - Continual communication with stakeholders
  - Audience-specific messages to stakeholder groups
  - Welcome dialogue, even from protestors

- **Bidder communications**
  - Q&A log for all bidders
  - Multiple iterations of the agreement
  - Digital data room – 50,000 + files
  - One-on-one meetings with bidders

1. Say what you are going to say.
2. Say it.
4. Repeat.
5. Repeat.

**Dealing with sensitive & competitive information**
Keys to a successful process – Data & Due Diligence

University
- Meet/speak to bidder references, ask how the company handles emergencies and disputes
- Gather all operations and technical data together
  - Load profiles - Equipment specs – O&M records – System performance records – Capex forecasts
- One-on-one meetings with bidders

Bidder
- Gather valuable data through all available mechanisms
  - Some bidders used the open nature of the university to spend time walking through buildings, talking to vendors, contractors, and former employees
- Insist on the opportunity to speak with the current system operations personnel
Keys to a successful process – A True Partnership

Keys to Success

- Balanced risks and rewards
- Flexibility
- A dispute resolution staircase
- Diligent attention and advocacy
- Alignment

The Partnership

Make it easier to succeed than to fail
Focus on the Partnership
- If the partnership becomes adversarial, both sides lose
- Both sides must have goals that are technically and economically feasible
- Build an agreement that, where possible, provides mutual incentives/motivations
- Acting independently, either party would take a similar action

Build in intentional flexibility
- 2,665 pages of contract is not enough to capture all possibilities

Establish clear and concise results requirements
- BUT, be less detailed and prescriptive on how such results are achieved
- Strong unambiguous requirements with included forgiveness and tolerance
Keys to a successful Partnership – Dispute Resolution

- Have a strong contract, but don’t rely on it for common sense
  - “Let’s go to the contract” should not be the most frequent response to minor issues

- Build a long (and perhaps steep) dispute escalation staircase, for example
  - Level 1 – Operating personnel
  - Level 2 – Senior directors
  - Level 3 – Executive VPs
  - Level 4 – Third party mediation/arbitration
  - Level 5 - Litigation
Keys to a successful Partnership – Attention & Advocacy

- After the agreement is in place, the work has only just begun
  - Company and university should plan for senior management that will be solely dedicated to the success of the partnership.

  - They will communicate with each other almost daily
    - *(and sometimes multiple times a day, and nights, and holidays, and vacations, and…..)*

  - They need the authority to reach agreeable solutions, which should almost eliminate the need to climb beyond level 2 of the dispute resolution process

  - Each must not only advocate for their respective organization, but for the other’s organization as well
The university and the company must have a close alignment of needs, capabilities, and corporate values.

Throughout the RFQ-RFI-RFP process, the university clearly and repeated stated its values and goals relative to its academic mission, its commitment to operating sustainably, and its desire to create a new model for comprehensive energy management. These were the lenses through which the university evaluated bidders and their proposals.

The decision to enter into the 50-year Long Term Lease and Concession Agreement was made only after the university was confident that the deal would be a mutually beneficial partnership capable of advancing our stated values and goals.
<table>
<thead>
<tr>
<th><strong>Ohio State Energy Partners</strong></th>
<th><strong>The Ohio State University</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Stable, long-term investment in assets</td>
<td>▪ Stable, long-term investor operator</td>
</tr>
<tr>
<td>▪ Positive history and forecast</td>
<td>▪ Achieve efficiency and sustainability goals</td>
</tr>
<tr>
<td>▪ Steady and predictable returns and cash flows</td>
<td>▪ Steady and predictable cash flows</td>
</tr>
<tr>
<td>▪ Distributed utility system operations</td>
<td>▪ Distributed utility system operations</td>
</tr>
<tr>
<td>▪ Aligns with core strengths</td>
<td>▪ Not the university’s core strengths</td>
</tr>
<tr>
<td>▪ District systems, single owner/customer</td>
<td>▪ Campus systems, single vendor</td>
</tr>
<tr>
<td>▪ Opportunity to be an industry leader</td>
<td>▪ Opportunity to be a university leader</td>
</tr>
<tr>
<td>▪ Academic collaboration and Innovation</td>
<td>▪ Redirect capital to academic mission</td>
</tr>
<tr>
<td>▪ Showcase a new energy management model</td>
<td>▪ Showcase a new energy management model</td>
</tr>
</tbody>
</table>
The Ohio State University & Ohio State Energy Partners

**Conclusion**

- **Presents a win/win arrangement for campuses and vendors**
  - Allows for the redirection of university resources
  - Provides the concessionaire with stable cash flow and long-term investment growth
  - Allows both parties to do what they do best
  - A balance of risk for both parties

- **There are many possible variations of the model**
  - Asset transfer vs. asset lease
  - Including commodity supply
  - Upfront payment alternatives
  - Shared investments options