Corporate Energy Strategies to Thrive in a Decarbonized World

Why can we use energy as a key metric of productivity?

August 22, 2019

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GWU Director of Professional Education

https://eemi.seas.gwu.edu/online-short-courses
Format

• Introduction & GWU Professional Education Certificates: Ed Saltzberg

• Corporate Energy Strategies to Thrive in a Decarbonized World - Energy as Strategy: Jimmy Jia

• Discussion and Q&A

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- **On the Road to Mass Market Electric Vehicles**: Online October 28 to November 11 (Self paced with three instructor webinars) 20% **Discount code: SSF-20** off the $350 fee
- **The Power Grid and Renewable Energy Project Finance**
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- **How Electricity Markets Work (Regulations and Rates)**

Certificate in Corporate Systems Resilience

- Corporate Energy Strategies to Thrive in a Decarbonized World (Jimmy Jia, December 2020)
- **Enterprise Resilience (Joseph Fiksel)**
- **Life Cycle Analysis in Complex Systems**

Geopolitics of Resources Certificate

Energy, Food, Water, Materials, Human Capital

More information: Contact esaltzberg@gwu.edu
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Decarbonized World

Corporate Energy Strategies to Thrive in a
About me – Jimmy Jia

Currently:
• Managing Director, The Jia Group
• Board Member, Center for Sustainable Energy
• Visiting Scholar, George Washington University
• Adjunct Faculty, Presidio Graduate School

Education:
• BS, MS, Massachusetts Institute of Technology
• MBA, Oxford University

Clients:
• Fortune 500s, municipals, non-profits, higher education
• Quantify energy risks and innovations for improved capital deployment for energy and infrastructure assets

Books:
• Corporate Energy Strategist’s Handbook (Palgrave Macmillan) 2020
1) What is Energy-as-Strategy?
2) How to manage Productive Energy?
3) Case Study: Improving Productivity at Iron Mountain (NYSE: IRM)
4) Structure for this course
Why do we need an energy strategy?

**Buildings** have mechanical systems

**People** have organizational systems

- They function independently today, creating an efficiency gap.
- An energy strategy reconciles these systems.
- To do so, we need to define their “common denominators”.
The unified flows of money, energy, and carbon

Dollars, Energy, and Carbon are inter-convertible

- **Budget Constraints** $ → **Utility Rate** → **Energy Constraints** kWh → **Utility Fuel Mix** → **Environmental Constraints** MCO2E

Strategy Today

This course teaches strategies that take into consideration constraints for finance, energy and carbon.
Energy Strategy Maturity Cycle™

Random Acts Of Greenness

- Recycling initiative
- Bike-to-work day
- Automated switches
- Solar panels
- Energy dashboard
- Water conservation
- Etc.

Metrics-Driven Energy Strategy

- Develop carbon-neutral products
- De-couple carbon consumption from revenue stream

1) Set a Vision
2) Gain Certainty
3) Reduce Risks
4) Initiate Innovations
5) Increase Productivity
Agenda

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Managing the flow of energy

USA commercial electricity expenses
$120 Billion

$36 B

$84 B

Wasted Utilities: 30% of electric consumption

Supply → Transmission/Distribution → Consumption

Energy Efficiency as the tactic to save money
- Saves money (lower bills)
- Equipment resiliency (New equipment)
- Off balance sheet (performance contracting)

Source: EIA 2012
Managing the flow of energy decisions

Productive Utilities: Manage flow of decisions

USA commercial electricity expenses $120 Billion

$36 B

$84 B

NOTE: Energy Efficiency is only one tool to achieve business goals

Source: EIA 2012
Productive consumption of utilities

Productive Utilities: consumed for economic benefit

For the C-Suite (CEO, CFO, COO) and their advisors

• How to align the business strategy and energy consumption to drive operational efficiency.

• Right-sizing the enterprise’s consumption naturally eliminates waste.

• Companies have de-coupled carbon from revenue / profits and developed carbon-neutral products.

• Communicate initiatives with employees, customers, investors and other stakeholders

Source: EIA 2012

USA commercial electricity expenses
$120 Billion

$36 B

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An audacious goal – Zero consumption

USA commercial electricity expenses
$120 Billion

$36 B

$84 B

Productive Utilities: consumed for economic benefit

Energy Strategy to right-size your consumption

A VISION  Why do you consume energy?

A GOAL  What if you could serve clients without consuming energy?

A PLAN  How can you strive to achieve that?

Source: EIA 2012
1) What is Energy-as-Strategy?

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Case Study: Developing Carbon Neutral Products

- NYSE: IRM
- Revenue: $3.5 Billion (2016)
- Employees: 24,000
- Clients in 45 countries
- 94% of the FORTUNE 1000 rely on Iron Mountain for storage and information management services
Q1: Why? A top-down mandate

CEO and SVP Corporate Sustainability knew how much we *spent* but didn’t know how much we *used*.

Investigated the Greenhouse Gas footprint across the organization.

Fossil Fuel *volatility* was buried in their electricity.

Source: 2013 CSR
Q2: How much volatility?

Average Global Fossil Fuel Price Index

- **Natural Gas**
- **Coal**
- **Oil**

Adopted from BP Statistical Review 2016
Q3: Who’s responsible to make decisions?

Utility were a small cost of doing business, managed by each business unit. (~1%)

When aggregated, utilities were a meaningful expense for the corporation ($30-40 million)
Centralized responsibility and accountability

The SVP of Real Estate took responsibility for the $40M budget.

**Challenges:**
- It had a poor track record for being on budget!

**Opportunity:**
- a) Understand how much energy we use,
- b) When we use it,
- c) What we pay for it, and
- d) Where it comes from

These questions revealed the connection between consumption and business outcomes.
Q4: How much energy do we use?

• Hired an intern from the Energy Defense Fund Climate Corps Fellow to create a roadmap for energy efficiency projects.
• Targeted the biggest impacts and best returns
• Data was available for CDP and Sustainability Reporting
• Recommendations were straightforward – LEDs, energy efficiency projects, etc.
Q5: What do we pay for it?

Started investigating solar technologies

Lots of options!
- Own?
- Lease?
- Sign a Power Purchase Agreement (PPA)?

Eventually, installed a 2MW power plant in Ontario.

Little corporate interest to scale until...
Q6: Can we stabilize future costs?

**Challenge #1: Data Center Business**
Small, yet fast growing business unit in the business.
Clients would sign contracts to store data for **15-20 years**.
All gains from Energy Efficiency were wiped out with growth in Data Center business

**Challenge #2**: Electricity from the grid is a pass-through for fossil fuel volatility

**Challenge #3**: If purchasing electricity directly, The longest fossil fuel PPA contract was **3 years**.

**IDEA**: Solar and wind power can be purchased in **15-20 year** contracts.
Team involved for the 1st renewable PPA

- 8 VPs, SVPs
- CFO
- CEO
- Finance
- Procurement
- Legal
- Financial Analysis
- Real Estate

*Revealed the challenges of making a 15-year long purchasing decision for the company*
April 5, 2017
- 30% of all operations
- 100% of all data centers are powered by renewable electricity.

Additional Benefit:
- Can now offer a new product: carbon neutral services
Energy Strategy Maturity Curve™

1) Set a Vision
2) Gain Certainty
3) Reduce Risks
4) Initiate Innovations
5) Increase Productivity

Random Acts Of Greenness

Metrics-Driven Energy Strategy
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4) **Structure for this course**
Structure of this Course

• Module 1: Context and Constraints
• Module 2: Set a Vision
• Module 3: Gain Certainty
• Module 4: Reduce Risks
• Module 5: Initiate Innovations
• Module 6: Increase Productivity
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Energy Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity</td>
<td></td>
</tr>
</tbody>
</table>

Organizational Structure

Energy Activities Statement

- Total Energy
- Operational Energy
- Passive Energy
- Net Energy
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### Risk Prioritization Framework

- **Avoid**
- **Mitigate**
- **Manage**

Impact vs. Lifetime Cost
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Communication
Governance
Behavior Change
In Summary

• When consumption is aligned with corporate strategy, organizations tend to consume just what they need.

• This is usually 30% less than what they are currently consuming due to elimination of wasted consumption.

• Finance, resource consumption, and environmental sustainability are interrelated through your company’s operations.

• A metrics-driven resource strategy can help improve all three outcomes.
Take-away Questions

• *Why* do you consume energy?

• *What if* you could serve clients without needing any?

• *How* could you strive to achieve that?
About the Jia Group

- Align your energy / carbon strategy with corporate goals
- Online consultation
- Energy strategy analysis and evaluation
- Strategy workshop
- Operationalizing ESG indicators and reports

Contact:

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