AABC Commissioning Group

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# Energy Procurement: Next Level Practices for Today's Energy Management Professional

Course Number: CXENERGY1935

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April 17, 2019

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CONTINUING EDUCATION AIA

# Course Description

Purchasing energy at the best price can be a complex endeavor. It's not enough just to choose what may appear to be the lowest price. To get the highest value for the energy dollar, it pays to take a more strategic approach to sourcing energy. During this deep-dive session, discover next level practices that will enable energy managers to identify how the market is changing, achieve energy savings, control operating costs and monitor energy purchasing performance. Explore real-world case studies as well as instruction on the specific energy procurement requirements set forth by the Department of Energy for the Better Buildings Workforce and used in EMA's Energy Management Professional certification program.

# Learning Objectives

At the end of the this course, participants will be able to:

1. Develop purchasing strategies that support organizational strategies. Recognize the importance of implementing a customized energy management strategy to serve the unique needs of the business. Energy portfolio management is often neglected by many organizations even though it has a considerable potential to reduce costs.

2. Understand how to identify load and product, knowing which accounts are to be sourced and more importantly, the time frame and risk appetite. Make informed choices with an eye on providing both risk mitigation and cost savings.

3. Discover how to get the highest value for the energy dollar through monitored performance, energy consumption patterns, operating costs and market dynamics.

4. Achieve greater energy and sustainability success by tapping into technology and procurement expertise to optimize energy use and uncover operational efficiencies.


# ENERGY PROCUREMENT

Next Level Practices for
Today's Energy Management Professional.

# ABOUT NUENERGEN

NuEnergen is the leading expert in energy management, consulting and solutions. Through personalized service, strategic guidance, insights, analytics, context and clarity across our clients, we partner for results.

We provide an integrated suite of coordinated, strategic services that yield measurable results. Our clients look to NuEnergen for Energy Sourcing, Demand Response services, Sustainability programs, Utility Invoice Cost Recovery and Tracking & Reporting.

## EXPERTISE.

**768,442**

KW Monitored
In Real-Time

## INSIGHTS.

**1,081**

Facilities Enrolled In
Demand Response

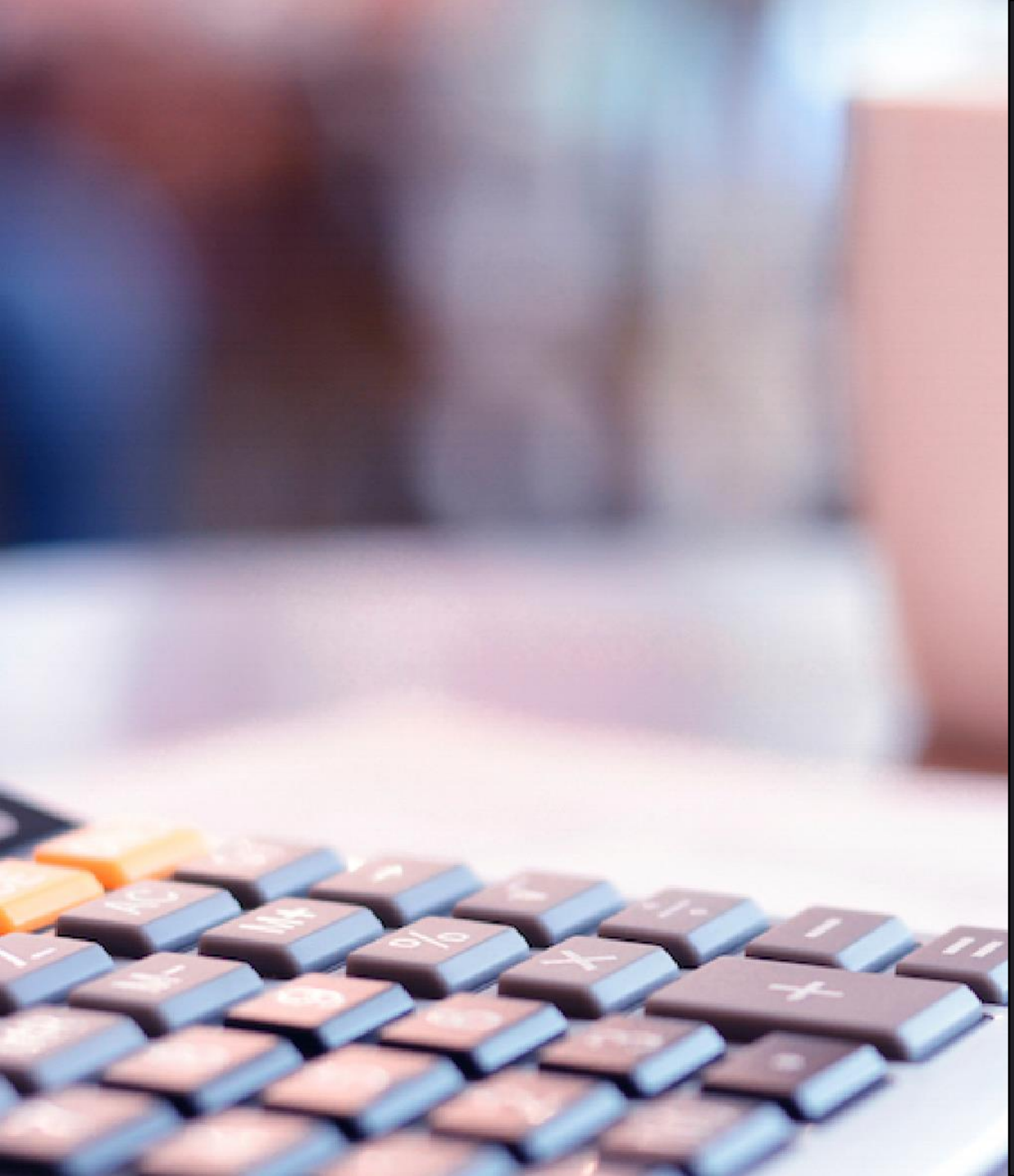
## RESULTS.

**$21,553,549**

Audit Dollars
Recovered To Date

# PROUDLY SERVING

NYC Citywide Administrative Services
MTA
Tiffany & Co.
GSA
Javits Center Marketplace for the World
CBRE
NASA
Red Bull New York
Jones Lang LaSalle
The Port Authority of NY & NJ
Cushman & Wakefield
Elizabeth Public Schools Think • Learn • Achieve • Care
NewYork-Presbyterian The University Hospital of Columbia and Cornell



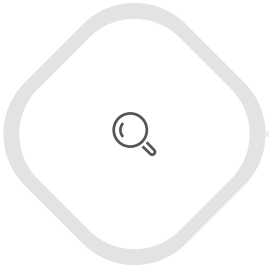
# UTILITY INVOICE COST RECOVERY SERVICES

# UTILITY INVOICE COST RECOVERY OVERVIEW

## WHY IS THIS SERVICE VALUABLE?

- There is an abundance of errors from both the utility and supplier.
- Significant money is often returned back to the end user.
- It can be used as a tool for procurement and budgeting.
- The service is generally contingency fee based. If an auditing company recovers nothing you pay nothing.
- Gain insight into key cost and consumption metrics
  (most firms audit Nat Gas, Electricity, Water).

# PROCESS FOR IMPLEMENTATION



Collection of account information for all commodities being reviewed



Invoices are reviewed for errors

Services company will work with energy providers to resolve errors and recover money

Money is returned to the Client

## CAPACITY CHARGES (ICAP)

Represent approx. 15-20% of the overall supply charges.

## SUPPLIER ISSUES

Include bill miscalculations or unsupported pass through charges (i.e. after Hurricane Sandy many ESCOs tried to pass through charges from the storm).

## METER USAGE ERRORS

Such as the LDC changing the estimated meter usage and the supplier not reflecting the changed usage.

## GROSS RECEIPT TAX CREDITS

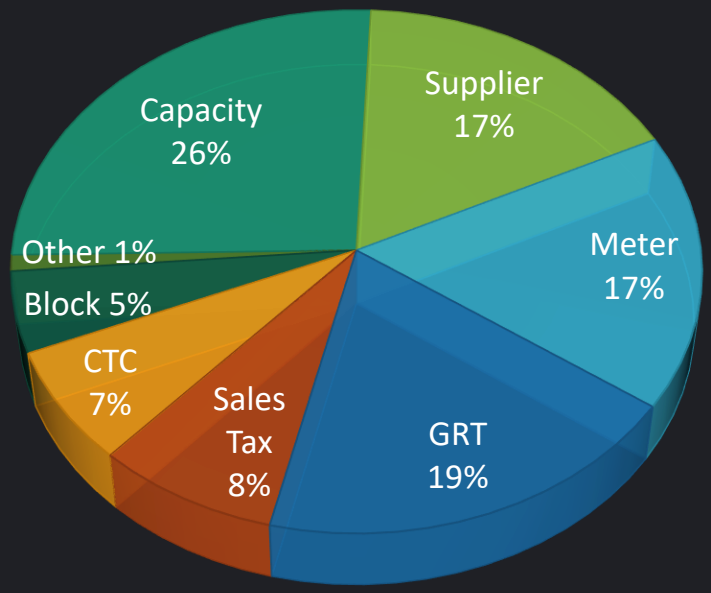
For clients who resell power to tenants.

## SALES TAX EXEMPTION

For most audit companies this is the largest finding because it is the easiest to find typically (except in NJ because the sales tax is hidden on the bill within the supply rate).

## COOLING TOWER CREDITS(CTC)

and other types of findings.



# SUCCESS STORY #1

*Thorough Analysis Generates Results*

**Recovery: $1,184,862**

| | |
|---|---|
| $1,125,000 | GRT |
| $ 21,000 | Heating Oil Rate error |
| $ 38,862 | Steam Incorrect rate |

NEW YORK PRESBYTERIAN

# TRENTON BOARD OF EDUCATION

**Recovery: $235,023**

| | |
|---|---|
| $112,423 | Utility Rate Correction |
| $ 94,600 | Supply rate RFQ Reduction |
| $ 25,000 | Supplier Penalty Fee Correction |
| $ 3,000 | Supplier rate correction |

# SUCCESS STORY #2

*Thorough Analysis Generates Results*

# SUCCESS STORY #3

*Thorough Analysis Generates Results*

**Recovery: $5,992,141**

GSA-DC

| | |
|---|---|
| $1,873,432 | Cap/Tran Overcharge |
| $1,769,422 | Energy Overcharge |
| $1,357,876 | Double billing |
| $ 868,725 | Sales Tax |
| $ 63,897 | Incorrect Meter Reads |
| $ 58,789 | Closed Account |

LINCOLN CENTER

**Recovery: $451,500**

$451,500 Gross Receipt Tax

# SUCCESS STORY #4

*Thorough Analysis Generates Results*

# ENERGY PROCUREMENT AND ANALYSIS

## WHY IS ENERGY PROCUREMENT & ANALYSIS IMPORTANT?

- The cost of electricity and natural gas is large part of a facility operating budget
- An average hospital will spend over 2 million dollars on energy over a three year period
- Compared to a typical commercial building a hospital is 3 times more energy intensive
- Drastic volatility requires expertise and risk management to stay ahead of the curve
- Consulting fee is often insignificant when compared to savings of executing at right and choosing the right product
- Risk management and budgeting

# ENERGY PROCUREMENT

Energy Procurement & Analysis Overview

# BUDGETING & PROCURING ELECTRICITY & NATURAL GAS

- Assessing Risk Tolerance
- Budget & Price Certainty
- Usage Changes
- Consumption Patterns
- ESCO & Utilities Contracts
- Electricity & Natural Gas Futures
- Weather & Storage Adjustments
- Tariff Analysis
- Rebates

# PROCESS FOR ENERGY PROCUREMENT IMPLEMENTATION

1. Identify Load & Product
2. Issue Request for Quotation (RFQ)
3. Manage Supplier Bids
4. Develop a Recommendation
5. Execute a Contract
6. Post Contractual Reviewed

***CASE STUDY**: A tale of two hospitals*
*Properly Hedged Vs. Not Properly Hedged*

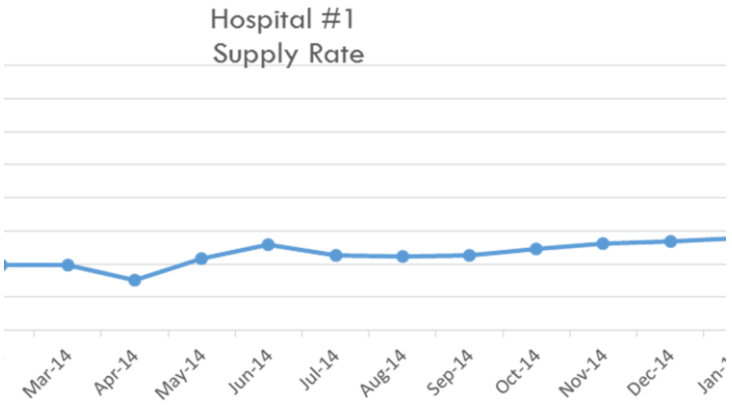
# PROPERLY HEDGED

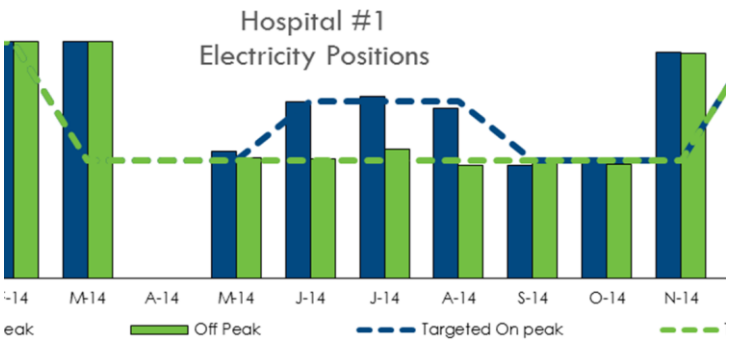
Low appetite for risk and took hedge positions accordingly.

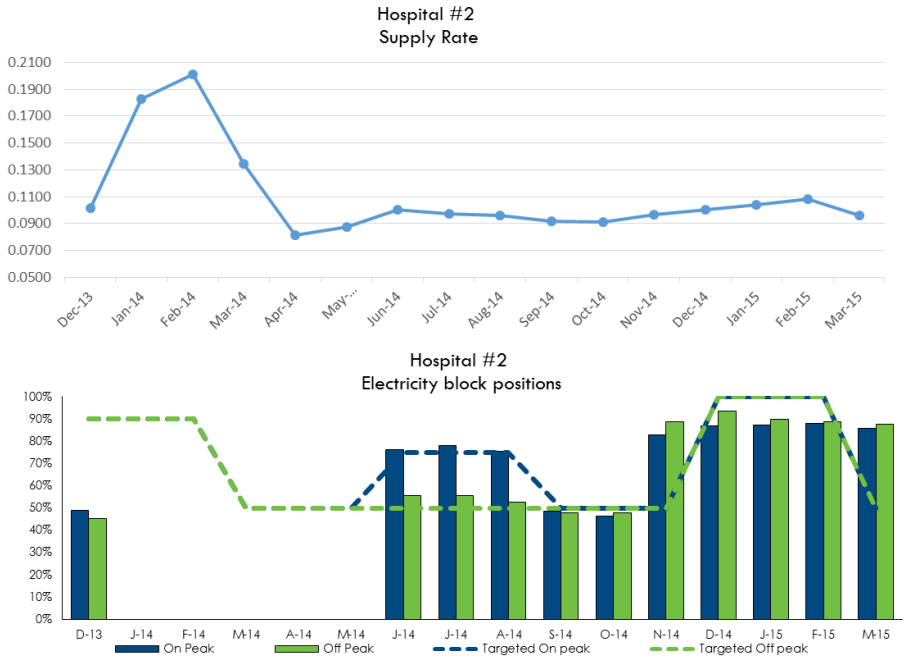
100% hedge for Polar Vortex.

Supply rates are fairly flat.

This hospital was properly hedged and in the future made some changes in "shoulder" months.






# NOT PROPERLY HEDGED

HIGH appetite for risk and did not take hedge positions because they were hoping that prices would come down.

0% hedge for Polar Vortex.

Costs increased by over 150% and paid over $500,000 for this mistake.

Lesson learned: By the following winter they had hedges in place and every month following.

# HOW DO I PROTECT MYSELF FROM EXTREME WEATHER AND PRICE FLUCTUATIONS?

No one can predict with certainty when El Nino and La Nina conditions will be in place and how extreme it's effect will be on weather in the U.S.

It is certainly a RISK factor hospitals and other end-users need to be aware of, especially given the fact that energy markets are at historic lows.

If you have not already hedged your cost of natural gas and electricity it would be advisable to consult with a qualified energy firm.

# WHAT IS YOUR APPETITE FOR RISK? KEY QUESTIONS

What is your risk level? Low/Medium/High.

Strategy? Fixed Full / Block and Index etc.

Time and budget triggers?

Where is your organizational budget right now as it relates to being properly hedged?

Are you prepared for the next weather event?

# SUCCESS STORY #5

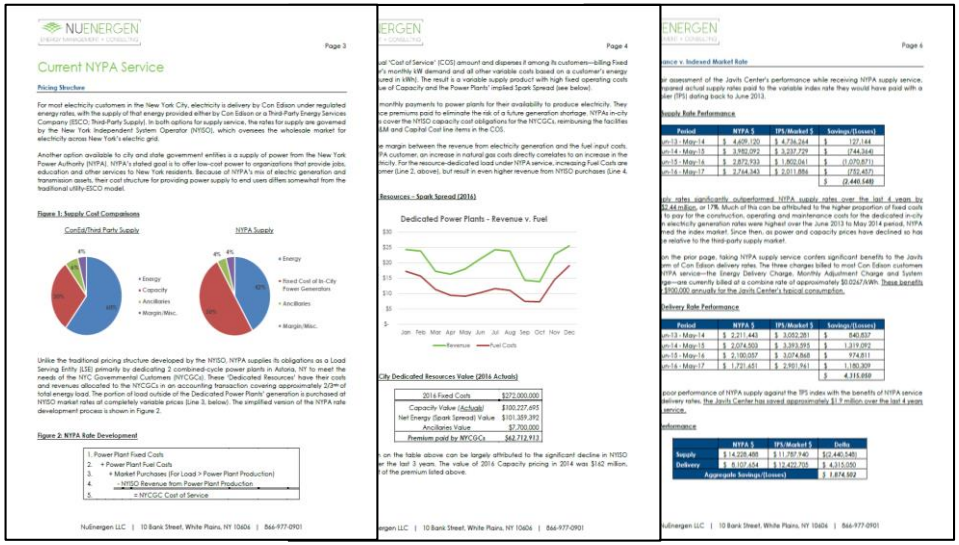
*Thorough Analysis Generates Results*

## JAVITS CENTER ENERGY PROCUREMENT OPTIONS:

1. Buy renewable hydroelectric power as part of a bulk purchase group from the New York Power Authority.
2. Procure through a traditional third party supplier.

NuEnergen was hired to publish a report and brief the senior leadership at the Javits Center to break down the cost-effectiveness of each of these options, develop a strategy going forwards and liaise with NYPA and various third party suppliers to negotiate the ultimate contract. The Javits Center executed a new agreement with NYPA based on our recommendation.

**As part of that new agreement, NuEnergen negotiated new, more favorable terms regarding the calculation of ICAP tags that ultimately will save the Javits Center in excess of $100,000 annually.**


NUENERGEN

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Current NYPA Service

Pricing Structure

For most electricity customers in the New York City, electricity is delivery by Con Edison under regulated energy rates, with the supply of that energy provided either by Con Edison or a Third-Party Energy Services Company (ESCO) Third-Party Supply. In both options for supply service, the rates for supply are governed by the New York Independent System Operator (NYISO), which oversees the wholesale market for electricity across New York's electric grid.

Another option available to city and state government entities is a supply of power from the New York Power Authority (NYPA). NYPA's stated goal is to offer low-cost power to organizations that provide jobs, education and other services to New York residents. Because of NYPA's mix of electric generation and transmission assets, their cost structure for providing power supply to end users differs somewhat from the traditional utility-ESCO model.

Figure 1: Supply Cost Comparisons

ConEd/Third Party Supply

NYPA Supply

• Energy
• Capacity
• Ancillaries
• Margin/Misc.
• Fixed Cost of In-City Power Generation

Unlike the traditional pricing structure developed by the NYISO, NYPA supplies its obligations as a Load Serving Entity (LSE) primarily by dedicating 2 combined-cycle power plants in Astoria, NY to meet the needs of the NYC Governmental Customers (NYCGCs). These 'Dedicated Resources' have their costs and revenues allocated to the NYCGCs in an accounting transaction covering approximately 20%+ of total energy load. The portion of load outside of the Dedicated Power Plants' generation is purchased at NYISO market rates at completely variable prices (Line 3, below). The simplified version of the NYPA rate development process is shown in Figure 2.

Figure 2: NYPA Rate Development

1. Power Plant Fixed Costs
2. + Power Plant Fuel Costs
3. + Market Purchases (For Load > Power Plant Production)
4. - NYISO Revenue from Power Plant Production
5. = NYCGC Cost of Service

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Dedicated Power Plants - Revenue v. Fuel

Revenue

Fuel Costs

2016 Fixed Costs $272,000,000

Capacity Value (Actuals) $100,227,695

Net Energy (Spark Spread) Value $101,359,392

Ancillaries Value $7,700,000

Premium paid by NYCGCs $62,712,913

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Supply Rate Performance

| Period | NYPA $ | TPS/Market $ | Savings/(Losses) |
|---|---|---|---|
| Jan-13 - May-14 | $ 4,609,120 | $ 4,736,264 | $ 127,144 |
| Jan-14 - May-15 | $ 3,982,092 | $ 3,337,729 | $ (744,364) |
| Jan-15 - May-16 | $ 2,872,933 | $ 1,802,061 | $ (1,070,871) |
| Jan-16 - May-17 | $ 2,764,343 | $ 2,011,886 | $ (752,457) |
| | | | $ (2,440,548) |

Delivery Rate Performance

| Period | NYPA $ | TPS/Market $ | Savings/(Losses) |
|---|---|---|---|
| Jan-13 - May-14 | $ 2,211,443 | $ 3,052,281 | $ 840,837 |
| Jan-14 - May-15 | $ 2,074,503 | $ 3,393,595 | $ 1,319,092 |
| Jan-15 - May-16 | $ 2,100,057 | $ 3,074,868 | $ 974,811 |
| Jan-16 - May-17 | $ 1,731,651 | $ 2,991,961 | $ 1,180,309 |
| | | | $ 4,315,050 |

| | NYPA $ | TPS/Market $ | Delta |
|---|---|---|---|
| Supply | $ 14,228,488 | $ 11,787,940 | $(2,440,548) |
| Delivery | $ 8,107,654 | $ 12,422,705 | $ 4,315,050 |
| Aggregate Savings/(Losses) | | | $ 1,874,502 |

# JAVITS CENTER EARNS THEIR LARGEST PAYMENT EVER IN DEMAND RESPONSE

In December 2018, NuEnergen presented Javits Center with a check for more than $500,000 – representing their largest-ever DR earnings, thanks to their summer 2018 participation.

SUCCESS STORY #6

*Thorough Analysis Generates Results*

# DEMAND RESPONSE OVERVIEW

NYISO
CON EDISON
PJM

## WHAT

- Utility's pay program enrolled customers to reduce energy consumption during peak energy periods.

## WHY

- To avoid brown-outs/black-outs and help protect the electrical grid during times of peak energy demand. It's more effective for the Utilities to incentive consumers rather than import power from another source.
- Congested, large cities like NYC, the transmission lines on high usage days may be maxed out, so it would be impossible to bring in more electricity from outside of NYC

## PROGRAM BENEFITS: win-win for all

1. New source of significant recurring revenue
2. Good neighbor award for contributing to a reliable grid
3. Supports facility sustainability goals

# THOROUGH ANALYSIS GENERATES RESULTS.

This concludes The American Institute of Architects
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