The background of the slide is a photograph of a large industrial facility, possibly a refinery or chemical plant, with numerous pipes, tanks, and structural steel. The image is overlaid with a semi-transparent green filter. The text is centered and reads:

Presentation of

# Active Energy Management at Ashland University:

*A case study*

Presented by

David M. Ferro



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# When planning your strategy...

“I never hit a shot, not even  
in practice, without having  
a very sharp, in-focus  
picture of it in my head.”

- Jack Nicklaus



# Discussion

- ◆ Evolution in energy procurement
  - ❖ yesterday
  - ❖ Today
  - ❖ tomorrow
- ◆ Technology
- ◆ Market data
- ◆ Liquidity
- ◆ Ashland University

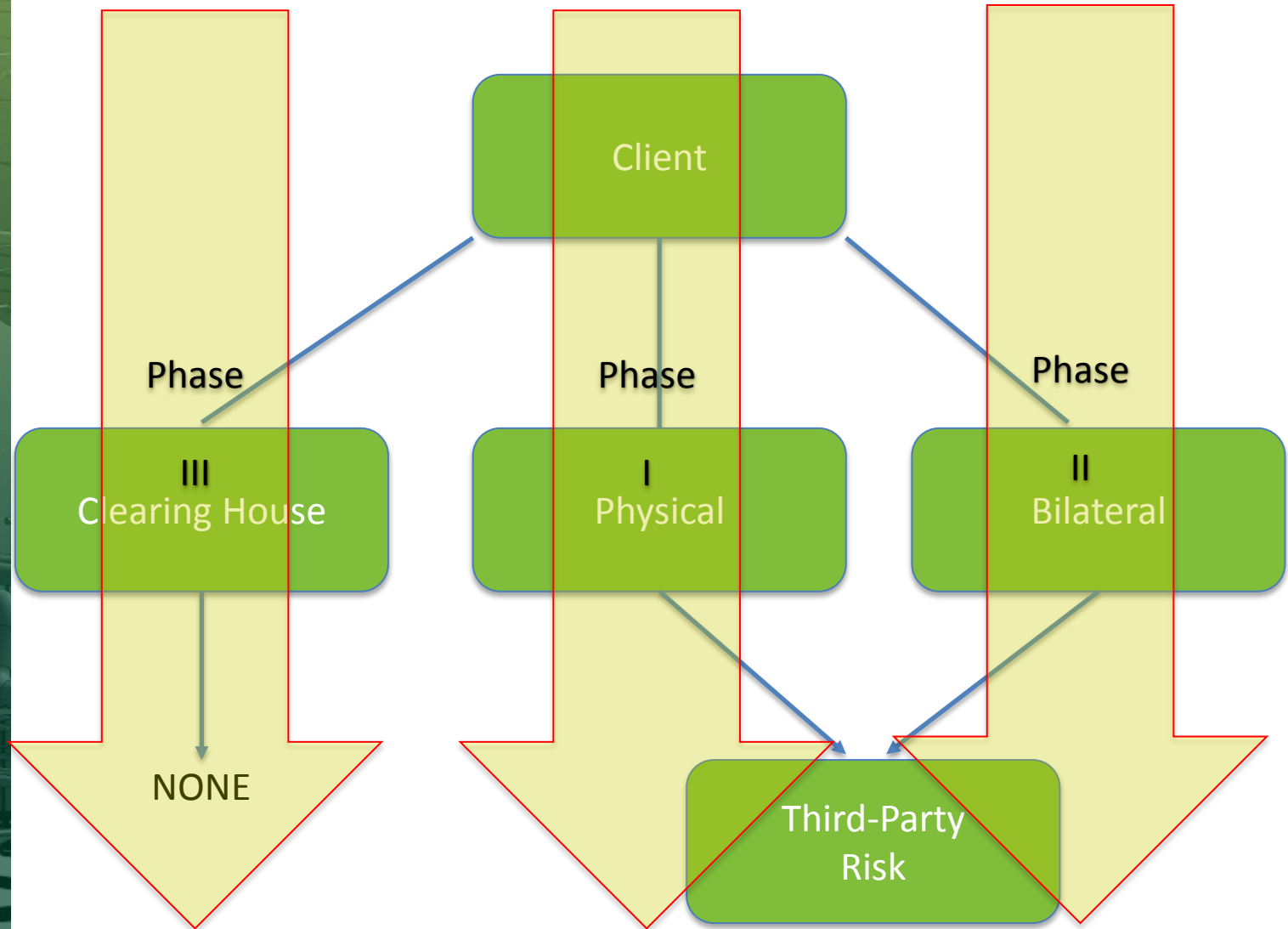
# Some brokers and suppliers are overweight!



- ◆ Some suppliers keep market benefits
- ◆ Bid on experience with like sized clients
- ◆ Brokers often earn more than the supplier
- ◆ Both are at times less than transparent



# Supplier value? Or risk?



# Market Trends

CONTANGO



**Contango** – outer periods trading at premium to near periods

BACKWARDATION



**Backwardation** – outer periods trading at a discount to near period

# Access to data...

Use the left mouse button to click and drag an area of the desktop.

1) Select Commodities    2) Export to Excel    6) Feedback    Commodity Fair Values

Natural Gas: Americas > Nat Gas Futures

Field Fair Value    Show Spot Ticker    View RealTime View    Ticker Actual    Curr Default

92) Outrights    93) Cal Spreads    96) NA Seasonal Strips    97) Euro Seasonal Strips    94) Qrt Strips    95) Cal Strips

Select Commodities

1) Agriculture >	21) Nat Gas Futures
2) Metals >	22) OTC Swaps: US Gulf Coast >
3) Freight >	23) OTC Swaps: US Northeast >
4) Coal >	24) OTC Swaps: US Mid Cont >
5) Oil >	25) OTC Swaps: US West/Rockies >
6) Natural Gas: Americas >	26) OTC Swaps: Canada
7) Natural Gas OTC: Europe	
8) Power: Americas >	
9) Power: Europe >	

Close

AUG 17	2.719	29.190	4.178	1.459
SEP 17	2.715	29.040	4.157	1.442
OCT 17	2.739	29.490	4.223	1.484
NOV 17	2.812	32.760	4.692	1.880

\*Delayed Futures

Zoom 100%

# ERCOT vs. PJM

Field	Unit	Value	Unit	Value	Unit	Value	Unit	Value
92) Outrights	93) Cal Spreads	96) NA Seasonal Strips	94) Qrt Strips	95) Cal Strips	96) NA Seasonal Strips	94) Qrt Strips	95) Cal Strips	96) NA Seasonal Strips
Period	En3vRtPk*	En3vRtOp*	En3vRtAc*	EnlzRtPk*	EnlzRtOp*	EnlzRtAc*	EnlzRtPk*	EnlzRtOp*
Cal 17	30.90	21.10	25.70	31.25	21.10	25.85	31.25	21.10
Cal 18	32.50	21.85	26.85	32.85	21.85	27.05	32.85	21.85
Cal 19	34.50	22.70	28.20	34.85	22.70	28.40	34.85	22.70
Cal 20	37.25	22.95	29.60	37.30	23.00	29.65	37.30	23.00
Cal 21	38.20	22.90	30.20	38.25	22.95	30.25	38.25	22.95
Cal 22	38.30	22.75	30.20	38.35	22.80	30.25	38.35	22.80
Cal 23	39.80	23.65	31.35	39.85	23.70	31.40	39.85	23.70
Cal 24	41.30	24.55	32.55	41.35	24.60	32.60	41.35	24.60
Cal 25	42.85	25.50	33.70	42.90	25.55	33.75	42.90	25.55

92) Outrights	93) Cal Spreads	96) NA Seasonal Strips	94) Qrt Strips	95) Cal	96) NA Seasonal Strips	94) Qrt Strips	95) Cal	96) NA Seasonal Strips
Period	PjmwRtPk*	PjmwRtOp*	PjmwRtAc*	PjmwDaPk*	PjmwDaOp*	PjmwDaAc*	PjmwRtPk*	PjmwRtOp*
Cal 17	39.95	28.70	34.15	40.20	28.20	33.75	39.95	28.70
Cal 18	39.70	27.80	33.35	39.05	27.30	32.75	39.70	27.80
Cal 19	38.75	27.10	32.55	38.60	26.95	32.35	38.75	27.10
Cal 20	38.65	26.90	32.40	38.40	26.75	32.15	38.65	26.90
Cal 21	39.25	26.85	32.75	39.10	26.80	32.65	39.25	26.85
Cal 22	38.75	27.65	32.90	38.65	27.55	32.80	38.75	27.65
Cal 23	39.35	29.00	33.90	39.25	28.90	33.85	39.35	29.00
Cal 24	40.40	29.40	34.65	40.25	29.35	34.55	40.40	29.40
Cal 25	42.10	31.20	36.40	41.95	31.15	36.30	42.10	31.20



# When to buy.....



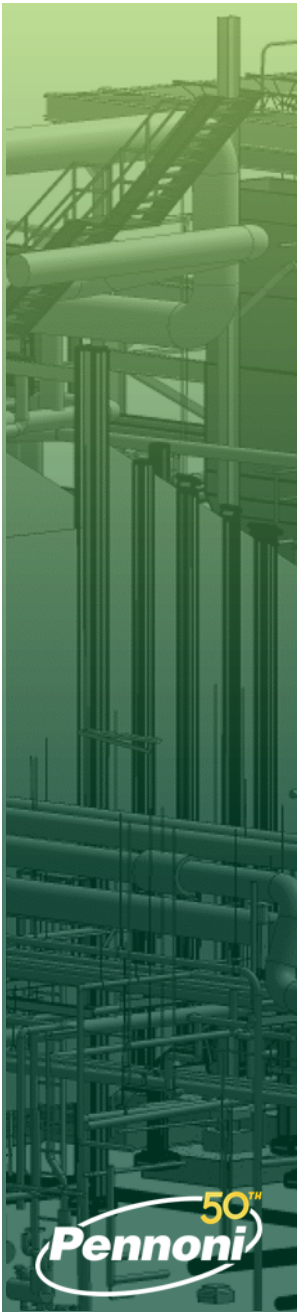
# When to buy... Q2 2021



# When to buy... add Technical



# When to buy... add Technical





# Understand and apply...

Use the left mouse button to click and drag an area of the desktop.

NGK6 COMB Comdty 95) Compare 96) Actions 97) Edit Line Chart

01/30/2015 Study P 1D 3D

Add selected studies to NGK6 COMB Comdty (Open Interest)

Find a Study by title or keyword Clear

Tags

- ▼ All standard studies (93)
- Popular (14)
- New (14)
- Bloomberg (10)
- Momentum/Oscillators (...)
- Moving Aves/Bands (34)
- Patterns (8)
- Statistical (20)
- Support Resistance (15)
- Trend Analysis (17)
- ▶ 3rd Party Studies (169)
- ▶ User Defined

Popular (14)

- Ichimoku
- Mov Avg Convergence/Diverg...
- Moving Avg Oscillator
- Parabolic Studies
- Rate of Change
- Relative Strength Index
- Simple Moving Avg
- Stochastics
- Trading Envelopes
- Williams %R

Selected Studies

Parabolic(0.02,0.2,...)

Description - Bollinger Bands

Bollinger Bands, developed by John Bollinger, are defined using the standard deviation from a simple moving average, an excellent ...

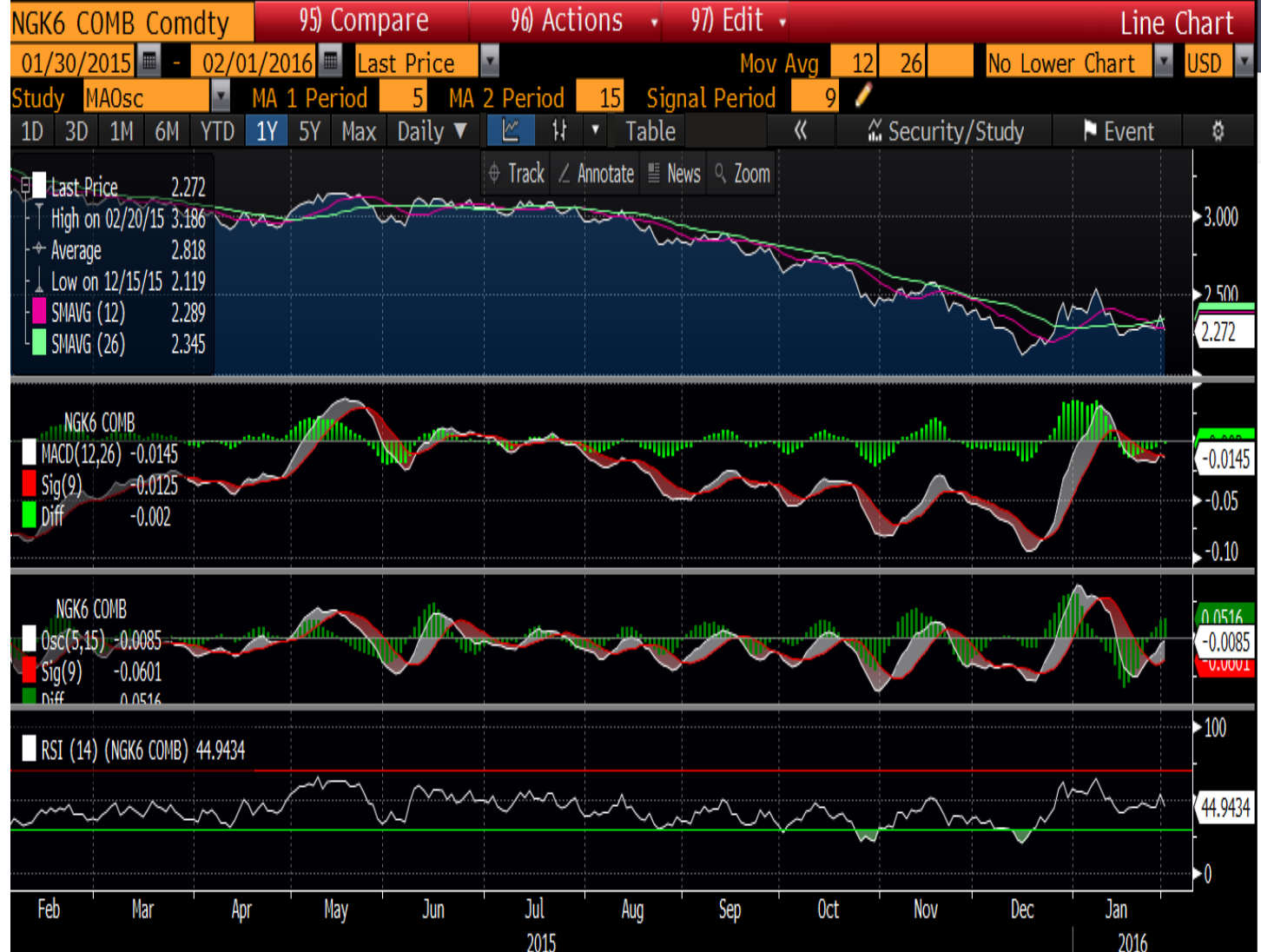
More

1) Update Cancel

Feb 2015 2016

# Implement your indicators...

Use the left mouse button to click and drag an area of the desktop.

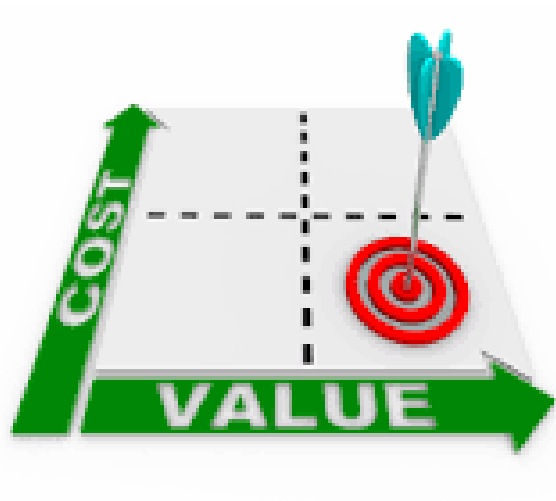


# Ashland University



- ◆ Located in Ashland, Ohio
- ◆ Founded in 1878
- ◆ Central Boiler Plant, Decentralized Limited Chilling Capacity
- ◆ Annual gas usage of 75,000 dths
- ◆ Annual electric usage of 21M kwh's
- ◆ Electric Grid PJM, AEP and First Energy
- ◆ Gas, Columbia of Ohio
- ◆ 26 Buildings
- ◆ Energy Budget \$1.8M

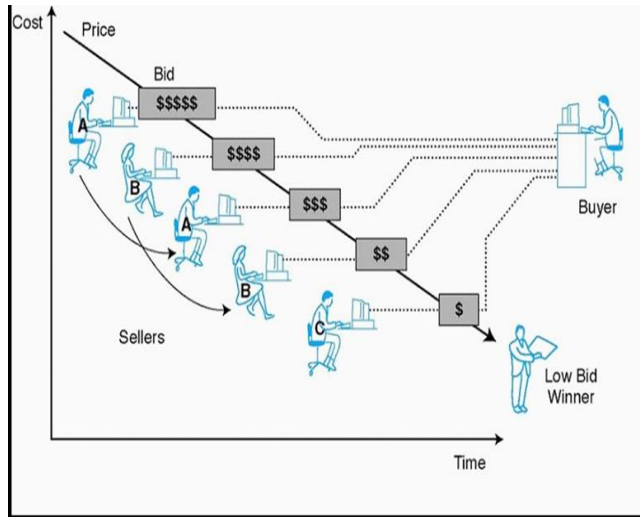
# The need



- ◆ **Stephen Storck – CFO Ashland University**
  - ❖ **Cost reduction**
  - ❖ **Partner with a firm with depth of services and knowledge**
  - ❖ **Innovation and Technology**
  - ❖ **Proven track record**



# What we learned...



- ◆ 3 year historical structures
  - ❖ Power was fixed full requirements with no pass through line items
  - ❖ Natural Gas was – NYMEX plus
- ◆ RFP/Reverse Auction approach

# What we learned...



## ◆ Unfavorable contracts

### ❖ Structure

- ✧ *Financial obligations*
- ✧ *Lack of participation*
- ✧ *Balancing*
- ✧ *Suppliers capability*

### ❖ Pricing

- ❖ Client used “Point-in-Time”

# What we did...

- ◆ Interviewed key staff involved in procurement initiative
- ◆ Determined sites appetite for risk
- ◆ Established benchmarks
- ◆ Identified key services required of the supplier
- ◆ Removed portfolio pricing
- ◆ Established separated independent pool

# The process...





# The results...



- ◆ Immediate cash flow of \$350K
- ◆ Removed mark-ups where applicable
- ◆ 20% savings on the energy alone

# Next steps...

- ◆ Ohio has price risk from the utility
- ◆ Reviewing building data for CHP applicability
- ◆ Creative financing

# Summary

- ◆ Web-enabled system
- ◆ Spreadsheets are good for analytics, but not for tracking data
- ◆ System should track each step in the procurement process
- ◆ System should trigger when opportunities exist
- ◆ Identify and report on your Key Performance Indicators
- ◆ Actual and projected data in the same system

A detailed 3D architectural rendering of a large industrial plant, possibly a refinery or chemical processing facility. The image shows a complex network of pipes, structural steel beams, scaffolding, and large cylindrical storage tanks. The entire scene is overlaid with a semi-transparent green filter. The word "Questions?" is centered in the middle of the image in a white, sans-serif font.

# Questions?



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