



SECRETS TO SUCCESS

PGW and CHP

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Secrets to Success

They're Really Obvious!

Don't Take Anything For Granted
No-Brainer?

Know Your Champion
Find Out What's Important – Really Listen

Box of Tools (besides really listening)
Incentives, Evaluations, Analyses and Databases

Share Success Stories
Increase Credibility – Hone Your Expertise – Actively Promote

Be On the Look Out -- Seize the Day
Policy Changes – Emerging Trends – Success is Cultivated



Secret Revealed

Don't Take Anything For Granted

- ❖ Explain benefits
- ❖ Educate. Educate. Educate.
- ❖ Find out what's important – really listen
- ❖ Be ready to shift
- ❖ Share success stories
- ❖ CHP importance – solution to multiple situations



Secret Revealed

Is CHP a No-Brainer? Make sure.

- Better control of energy costs translates to savings
- Increased energy efficiency
- Free energy
- Carbon footprint reduction
- Increased reliability
- Increased property value
- Increased property marketability
- Corporate sustainability goal attainment

Secret Revealed

Know Your Champion(s)

“What’s Your Core Business?”

- ❖ At any given time, ask yourself, “What’s this person’s goal?”
 - Why were they hired? How do they keep their job?
 - Then you’ll know *that person’s* core business
- ❖ However, that person’s core business is most likely not their company’s core business
- ❖ Nor, is their core business the same core business as that of the many stacks of decision-makers potentially involved with your CHP project
- ❖ One thing is for sure: If it’s a good company/facility, etc.,
 - The “core business” of every individual/department
 - Will stack up to achieve the successful operation of the company
 - Thus delivering the ultimate core business goal for the company
- ❖ You have to get in touch with everyone’s core business and shift messaging as appropriate, as they shift

Be prepared to pursue moving targets!

Secret: Know Your Champion(s)

Find out what's important

- Budget
- Cost
- First costs
- Simplify
- Reliability
- Diversification
- Risk reduction
- Staffing
- Environment
- No complaints
- Comfort
- Low maintenance
- Good corporate citizen
- Award winning
- Cutting edge
- Aesthetics

The Elements of Value Pyramid

Products and services deliver fundamental elements of value that address four kinds of needs: functional, emotional, life changing, and social impact. In general, the more elements provided, the greater customers' loyalty and the higher the company's sustained revenue growth.

SOCIAL IMPACT



Self-transcendence

LIFE CHANGING



Provides hope



Self-actualization



Motivation



Heirloom



Affiliation/belonging

EMOTIONAL



Reduces anxiety



Rewards me



Nostalgia



Design/aesthetics



Badge value



Wellness



Therapeutic value



Fun/entertainment



Attractiveness



Provides access

FUNCTIONAL



Saves time



Simplifies



Makes money



Reduces risk



Organizes



Integrates



Connects



Reduces effort



Avoids hassles



Reduces cost



Quality



Variety



Sensory appeal



Informs

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First Tool:
Every step along the way, you've got to
Really Listen!



Secret Revealed

Box of Tools

PGW Incentives

Large Commercial Customers

- ❖ Offer incentive options
 - CICIP (Commercial Industrial Customer Incentive Program)
 - ✓ Convert capital costs into operational costs
 - Support customer in identifying grant opportunities

Small CHP Applications

- ❖ \$1000/kW for first 20 kW
- ❖ \$750/kW up to 50 kW
- ❖ Special discounted rate for firm gas

PGW Tools: Free Evaluation & Economic Analysis



➤ PGW examines the site



➤ We evaluate multiple options and opportunities



➤ Economic analysis should justify the project

➤ We provide multiple financial options; identify grant money potential



➤ Customer hires a contractor to estimate the capital cost and scope of work



➤ PGW incentive money to offset capital costs and identify potential grants



➤ Customer enjoys savings



More Tools

PECO Act 129 Incentives

The Call for CHP Projects is now open

To get the most current program information visit the CHP website at www.peco.com/chp or reach out via email pecochp@exeloncorp.com or via phone 866-850-0357.

Table 1. CHP Program Incentives

Incentive Type	Incentive Award
Capacity Incentive	\$300/kW: Projects up to 500 kW \$150/kW: Projects between 500 kW up to 1.5 MW \$75/kW: Projects between 1.5 MW and 10 MW <i>Capacity incentives must not exceed 40% of the project cost.</i>
Performance Incentive	\$20/MWh in the first year. <i>The performance incentive is based on net electric generation of the CHP system.</i>
Maximum Total Incentive	<i>No more than 50% of the project cost or \$2,000,000, whichever is lower.</i>

More Tools

Sustainable Development Fund

- Mainly for new technology such as Fuel Cells
- Grants and loans offered

Alternative and Clean Energy Program (ACE Grant/Loan)

- Jointly by the Department of Community and Economic Development (DCED) and the Department of Environmental Protection (DEP), under the direction of the Commonwealth Financing Authority (CFA)





PA PUC CHP Biennial Report

Findings from March 2019 Report

- ❖ No fundamental reason for EDCs or NGCDs to maintain an awareness of the *specifics* of what changed a customer's load (ex. installed a 1 MW combustion turbine CHP system, etc.).
- ❖ For most industrial and commercial customers, installing CHP is simply a matter of dollars and cents.
 - Therefore, CHP owner has no reason to market or promote their system.
 - No reason for the utility to maintain engagement once system is installed.
- ❖ DOE CHP Database established in 2002.
 - Identifies 169 CHP systems in PA at 2,848 MW capacity.
- ❖ PA PUC 2019 Biennial Report identified 74 unique, interconnected CHP systems.
 - 62 of these CHP projects were in the DOE Database.
 - ✓ 12 CHP projects missing.
 - ✓ 20 likely projects to come online in near future.
 - 95 CHP systems are reported in the DOE Database that were NOT reported to the PUC in 2019.
 - ✓ DOE Database includes biogas. PA utilities most likely are not reporting these projects.
 - ✓ DOE Database contains some outdated information.
 - Most systems verified in last 10 years.
 - 34 systems not verified in over 10 years.

PA PUC recognized CHP database helpful to establish body of work and track:

- 1) Progress
- 2) Best practices
- 3) Resources
- 4) Lessons learned



Secret Revealed

Share Success Stories

- ❖ Proof CHP works – successful projects delivered
- ❖ Each CHP project often looked at as unique
 - Many factors translate across the board
- ❖ Build a body of work and make your customers *AWARE* of it!
- ❖ The larger the portfolio – the more designs and solutions available to draw from
 - Sort projects according to multiple factors
 - Learn from experience
 - Replicate success – best practices
- ❖ Builds trust; reduces uncertainty/perceived risk



Secret Revealed

PGW Success Stories

- ❖ More than 22 CHP projects completed and running effectively.
- ❖ Project size varies from 65 kW to 8.8 MW
- ❖ Projects include:
 - Hospitals
 - Hotels
 - College Campuses
 - Nursing Homes
 - Apartment Buildings
 - Commercial & Industrial Buildings

Challenges

- ❖ Customer's and engineer's familiarity with CHP
- ❖ Capital cost of the project
- ❖ Ease of design for engineer
- ❖ Electric utility requirement to tie into their system
- ❖ Incentives to support the project
- ❖ Disruptive to the status quo

PGW Body of Work: Case Studies

PGW Leads By Example

PGW Headquarters

- ❖ 200kW on-site microturbine
- ❖ Reliable system with 99.99% uptime
- ❖ Received various grants to help fund the project:
 - Green Energy Works! Grant
 - ✓ In 2009 PGW approved for \$465,000 grant
 - PECO Act 129 Grant
 - ✓ \$178,000 since installation



Received American Council
of Engineering Companies of Pennsylvania
2012 Diamond Honor Award



Hilton Hotel – Philadelphia, PA

- Three C65 ICHP Turbines
- 365 Room hotel
- Turbines provided hot water for heating, pool, spa, cooking, and domestic

Output

- EPA Award Winner
- Customer left Philadelphia Steam loop
- Under a 3 year payback
- 10th year of operation!



Aimco Philadelphia

APARTMENT HOUSING

- Five high rise buildings in Center City, Philadelphia
- Over \$300,000 in annual net energy cost savings
- Seven 75 kW CHP units



Cathedral Village

RETIREMENT COMMUNITY

- Andorra/Roxborough Philadelphia
- Continuing Care Retirement Facility
- 265 kW ENER-G Rudox Natural Gas Engine
- Installed October 2015



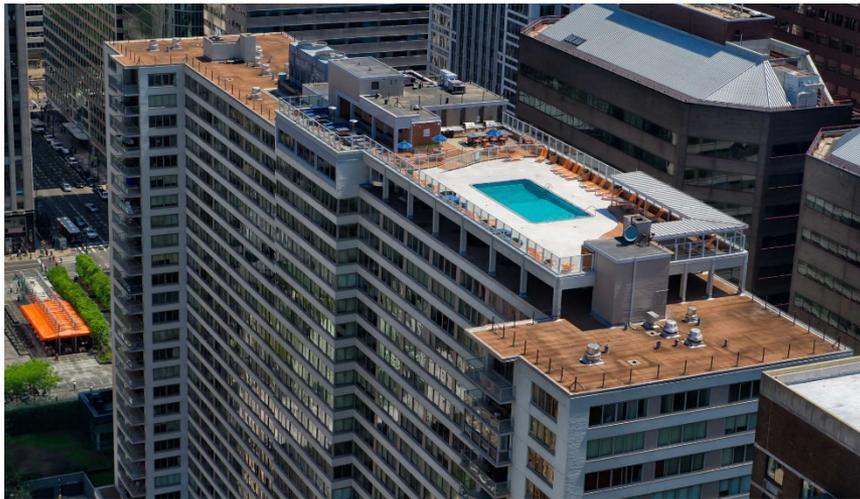
Park Towne Place

- 4 High Rise Buildings and a Town Center located at 22nd and Benjamin Franklin Parkway
- 18 Floors with 940 apartments served by two mechanical rooms
- Heating Loads
 - Domestic Water
 - Dual Temp Heating
- Six 75 kW Aegis units in 2015



The Sterling

- High Rise located at 18th and JFK Blvd
- 29 Floors with ground floor retail, 3 floors commercial and 535 apartments
- Heating Loads
 - Domestic Water High Zone
 - Domestic Water Mid Zone
 - Commercial Heating
 - Dual Temp Heating
- Three 75 kW Aegis units in 2010



Chestnut Hall

- Mid Rise located at 39nd and Chestnut Street
- 10 Floors with ground floor retail and 315 apartments
- Heating Loads
 - Domestic Water
 - Commercial Heating
 - Dual Temp Heating (1/3 of apartments)
- Two 75 kW Aegis units in 2010



Independence Visitor Center – Philadelphia, PA



Aria Torresdale

HOSPITAL

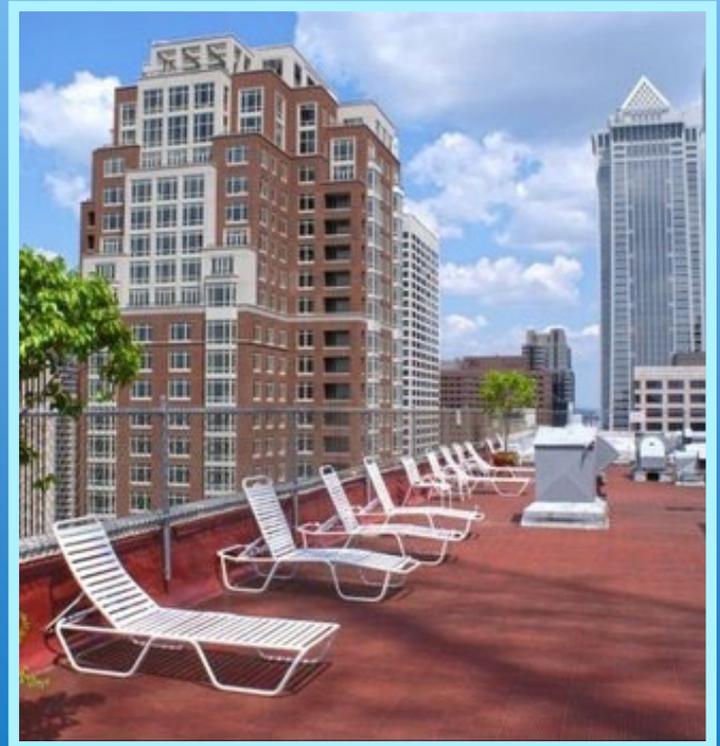
- Northeast Philadelphia
- 258-bed full service hospital
- Generates 1.1 MW – 1/3 of hospital's peak power demand
- Installed May 2016



Rittenhouse Claridge

APARTMENTS

- Rittenhouse Square, Philadelphia
- High rise apartments
- Installed: Three 75 kW Cogen units



Cancer Treatment Centers of America

- Eastern Regional Medical Center
- Cummins Generator C 1100 1.1 MW
- Date Installed: February 2016





FMC Tower – Philadelphia, PA

- ❖ Two C65 ICHP Turbines
- ❖ 800 MBH of hot water for building
- ❖ Brandywine Realty Property

Results

- ❖ MicroTurbines were selected for LEED credits
- ❖ LEED Silver Building
- ❖ Annual utility savings of over \$138,000
- ❖ Microturbines completely cover the cost to heat water throughout the entire building with zero by-product



Opportunity to Reduce Operational Costs

New Technology

Fuel Cell

- ▶ Urban Outfitters at The Philadelphia Navy Yard
- ▶ SDF





Secret: Share Success Stories

Increase Credibility

- ❖ Build competencies and make the case
- ❖ Factors translate across the board
 - “Honey Do” List - Take an example out of the jar – make your case
 - ✓ The Project
 - ✓ The People
 - ✓ The Team
 - ✓ The Company
 - ✓ The Technology
 - Hone your expertise
 - ✓ Experience is very valuable if highlighted effectively



Secret: Share Success Stories

Actively Promote Projects

Educational Sessions

❖ Customers

- CHP events and seminars throughout the year
- CHP site visits
- Newsletter and case studies

❖ Engineers

- Visit A&E firms for CHP Lunch & Learns
- Invitation to speak at customer events and conferences
- Newsletter and case studies

❖ Students

- College and high school classroom visits
- Offer CHP facility tours



Secret Revealed

Seize the Day

Be on the Look Out for Attitude and Policy Changes

❖ Emerging Trends

- Move toward smaller size CHP installations; growth in packaged CHP System offerings
- Growth of interest in Hybrid Distributed Energy Resource (DER) Systems
- Incorporation of CHP with renewables or energy storage
- CHP/DER value for resilience
- Resilience planning and extreme weather events
- Growth of microgrids
- Improves efficiency and reduces operational costs
- Environmental benefits that can be reflected on customer and society

PGW's Attitude: Success is Cultivated

QUESTIONS?



Thank you.

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