Clean Energy States Alliance Webinar

CHP Multi-State Working Group

Hosted by Todd Olinsky-Paul, Project Director, CESA Friday, May 1, 2015



Housekeeping

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Following today's presentation, we will be calling on one representative from each state to present a brief update on your state's interest and activities related to CHP. When we call on your state, please "raise your hand" by clicking the icon to request to be unmuted.

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About CESA

Clean Energy States Alliance (CESA) is a national nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members – mostly state agencies – include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.





Today's Guest Speakers

Dana Levy, Program Manager, New York State Energy Research and Development Authority (NYSERDA)

Val Stori, Project Director, CESA







Incentive Program based on a List of Pre-approved CHP Systems Helps to Boost Uptake & Transform the Market

Dr. Dana Levy of NYSERDA:

NYSERDA CHP thought-leader since 1999.

Recipient of the USCHPA CHP Champion Award in 2007.

Recipient of the NECHPI CHP Champion Award in 2014.



May 1, 2015

Clean Energy States Alliance -- Webinar



Axioms (we hold these truths to be self-evident)

- Public policy objectives encourage the deployment of clean & efficient CHP.
- The perpetual use of publicly-funded subsidies is a less-desirable mechanism than transforming the market to where it can be self-sustaining.
- Incentivizing one CHP project after another helps build competency in the marketplace, but this alone is too passive an approach for achieving "market transformation".
- A well-crafted CHP incentive program is important, but is not enough. The market needs genuine cost reductions in order to reach self-sufficiency.



Vision for CHP: Transform the market to the point where a sufficient swath of customers is willing to implement CHP in the absence of NYSERDA-furnished incentive payments



Approach

Program Administrators can use "the power of the purse" **to re-align the way deals are transacted in the marketplace** in order to (1) achieve genuine cost reductions, and (2) increase customer confidence. Kill-two-birds-with-one-stone by incentivizing CHP projects in a way that creates permanent streamlining of transactions AND delivers reliable projects:

- Facilitating "customer acquisition" will reduce marketing costs.
- Facilitating "replicable project designs" will reduce design errors and the associated performance losses and/or re-work expenses.
- Facilitating "replicable project designs" will reduce uncertainty among Authorities Having Jurisdiction and thereby reduce time and costs for permitting.

A program structured around a "list of pre-approved products furnished by eligible installers" enables these market alignments.

Our 'Aha' Moment

Well-functioning markets align themselves to serve the buying-habits of customers.

The automobile marketplace has many similarities to the CHP marketplace (for example, in a given size range both offer a durable good in the form of standardized products, appeal to mass-markets, and involve sales plus on-going routine mechanical servicing).

NYSERDA is attempting to decode features of the automobile market that can serve as inspiration for supportive interventions in the CHP market.

For example, to mimic the automobile market's resources of independent product reviews (e.g., Consumer Reports, Road & Track, Car & Driver), NYSERDA has vetted and approved modular packaged CHP systems and published a "catalog" which details 141 reliable turnkey products.

NYSERDA's CHP program has mimicked numerous success-features from the automobile market, and continues to actively explore additional opportunities, taking cues from a variety of well-functioning markets.



Packaged

CHP Offered as an Appliance



provide you with a power producing system geared towards peak performance. TEL:

800-969-6121

Vending & Purchasing Habits at "Standardized Products"







Pre-fabbed "Modular" Housing

"Shopping Off The Rack" Comparisons at "Automotive Superstore" Infrequent & Customized

"Mature" Market Features	Example: Automobile Market	CHP Market (mass market)
Standardized Products	Fully-equipped car	Packaged "modular" CHP
Replicates (fleets)	Police cars, Taxi cabs	Supermarkets, Hotels
Shoppers' Guides	Road & Track, Car & Driver, Consumer Reports	NYSERDA CHP "Catalog"



A Customer buys a "Product"

Not an "assemblage of components"

Car:

 A customer buys a car which is a "product" that has been produced from a factory assembly line, as opposed to hiring a mechanic to procure 40,000 components and assemble them into a car https://www.cash.song "One Piece at a T

Johnny Cash song "One Piece at a Time" ... up to now my plan went alright, 'til we tried to put it all together one night, and that's when we noticed that something was definitely wrong ...

CHP:

- The "old way" resulted in a situation where "each project looked like a science experiment"
- The "new way" emphasizes the purchase of a "product" and conveys this image via the "catalog" approach which includes "model numbers"



Warrantees

Bumper-to-Bumper Warrantee

Car:

 If there is a problem with the radio, the car-maker fixes immediately, then seeks to recover from the radio-OEM-supplier (the customer does not suffer without a radio during a long period while the car-maker/radio-OEM argue regarding whom is to blame)

CHP:

• The "new way" includes minimum 5-year bumper-to-bumper warrantee such that the CHP Vendor "integrator" has responsibility to implement immediate fix regardless of root cause of defect (e.g., whether defect in an item supplied by a subcontractor, fault of the Integrator, fault of the Installer, or fault of the Maintainer)



Independent Endorsements

Based on in-depth analytical reviews

Car:

- Consumer Reports Magazine
- Road & Track Magazine
- Car & Driver Magazine

CHP:

 NYSERDA's CHP "Catalog" Version 3 has 13 Vendors with 141 products





CHP Acceleration "Catalog" Program

Program Mechanism:



- Created a catalog of "pre-qualified" systems
 - reputable vendors, reputable components
 - harmony "within the box" (components properly size-matched)
 - bumper-to-bumper coverage (product, installation, service)
 - "turn-key solutions" with adequate local sales & support
- Assigned a specific "rebate" to each system
- Inviting customers to comparison-shop from catalog



CHP Acceleration "Catalog" Program

Catalog Items:

- Clean and Efficient CHP and CCHP
- Integrated Controls Package
- Built-in Data Monitoring Features
- Bumper-to-Bumper Warrantee / single-point responsibility
- 5-year Service Plan
- "Stand-alone" Operability is included in All Packages

Attention CHP Vendors (system "packagers"): Instructions at RFI 2568 for how to get your products added to the Catalog



NYSERDA

Comparability of Benchmarks

Apples-to-Apples



CHP:

- The "old way" had non-standard reference ambient temperatures for performance data (MBtu/hr of hot water production at manufacturer's stated temperature)
- The "new way" NYSERDA asked each CHP Vendor to standardize their data to three reference ambient temperatures (0°F and 59°F and 95°F)



Comparison Shopping -- facilitated via Expos

NYSERDA CHP EXPO



NYSERDA's Combined Heat and Power Expo Is designed to help commercial, industrial, and multifamily building owners and managers connect with pre-approved Combined Heat and Power (CHP) equipment vendors and other organizations offering financial and technical support for the installation of CHP systems. NYSERDA's CHP programs offer support for systems 50 kW and larger.

Building owners, managers, and other representatives are invited to stop by and speak with CHP system vendors, NYSERDA stafr, and U.S. Department of Energy's CHP Technical Assistance Partnership representatives about the various products and services available to capture significant energy savings and Improve the resiliency of their buildings.

Incorporating CHP in LEED-Certified New Construction NYSERDA, in partnership with the USEPA, is

also offering a free seminar for architects and engineers at the Marriott the morning of the Expo. Two hours of PDH credits will be awarded. For more information and to register, visit

chpSeminarMay5.eventbrite.om

CHP-X-brooklyn0515-fs-1-v1 3/15

BROOKLYN

TUESDAY, MAY 5, 2015

Marriott, Brooklyn Bridge | 333 Adams Street Expo Hours – 10:00 a.m. to 3:00 p.m.

Register today: chpExpoBrooklyn.eventbrite.com There is no cost to attend this event.

THE EXPO WILL FEATURE:

 Information from vendors of pre-approved CHP systems featured in NYSERDA's CHP Catalog.

 Information on the support available through NYSERDA's CHP Program (PON 2568).

 Information on FREE technical assistance and project screening offered through the U.S. Department of Energy's Northeast CHP Technical Assistance Partnership.

 Q&A time with representatives from Con Edison, National Grid, NYCEEC, and NY Clean Heat.

REGISTER TODAY: chpExpoBrooklyn.eventbrite.com

Questions? chpAcceleration@nyserda.ny.gov

Please note: NYSERDA's CHP Catalog includes systems for buildings with a monthly electric bill of \$5,000 or more.

For more information on CHP program details, please visit nyserda.ny.gov/chp

NYSERDA

November 22, 2013

The TimesCenter – 242 West 41st Street Expo Hours – 10:00 a.m. to 3:00 p.m. There is no cost to attend this event.

Manhattan

Wednesday, February 26, 2014 Sheraton LaGuardia East Hotel 135-20 39th Avenue, Flushing, NY Expo Hours – 10:00 a.m. to 3:00 p.m. There is no cost to attend this event.

Queens

Wednesday, May 14, 2014 Holiday Inn Albany 205 Wolf Road, Albany, NY Expo Hours – 10:00 a.m. to 3:00 p.m. There is no cost to attend this event.

Alban



Tuesday, May 20, 2014

Sheraton Brooklyn New York Hotel 228 Duffield Street, Brooklyn, NY Expo Hours – 10:00 a.m. to 3:00 p.m. There is no cost to attend this event.

Brooklyn

Wednesday, September 17, 2014 The TimesCenter 242 West 41st Street, Manhattan, NY Expo Hours – 2:00 p.m. to 7:00 p.m.

Register today: chpExpoManhattan.eventbrite.com There is no cost to attend this event.

Manhattan

Friday, October 17, 2014 DoubleTree by Hilton Hotel 455 South Broadway, Tarrytown, NY Expo Hours – 10:00 a.m. to 3:00 p.m.

Register today: chpExpoWestchester.eventbrite.com There is no cost to attend this event.

Westchester

Tuesday, February 10, 2015 Fordham University Bronx, NY 10458 Expo Hours – 10:00 a.m. to 3:00 p.m.

Register today: chpExpoBronx.eventbrite.com

There is no cost to attend this event.





Comparison Shopping via CHP "Catalog"



Example of a Catalog Cut Sheet

Energy		ation. S	Solutions.						_	
Ener-G Rudox Inc			ER265F HW					265 kW		
Descriptio	n									
Type of prime mover		lumber of prime nover units		Synchronous or Inverter		Туре	Eligible for N+1 installation		Qualification Status	
RICE	1			Inverter		CHP	No		Conditionally qualified	
\$455,138 Performa	Fuel in	1		Hot Wa	ater to B	\$375,638 uilding @ 120°F	Hot Water to	Building @) 180°F	
Ambient	MBtu/h (HHV)		Net kW	MBtu/h		Retum °F	MBtu/hr	Return		NOx lbs/MWhr
		2,538	262		1,403	102	1,40			0.3
0°F		2.538	262		1,403	102			176	0.3
59°F		2 538	262		1 403	102	1.40	2	176	03
0°F 59°F 95°F Footprint		2,538	262		1,403	102	1,40	13	176	0.3
59°F 95°F Footprint		2,538 Width	ft		1,403 ength ft		1,40 Height ft		176 Weight	
50°F 95°F Footprint Core system b			ft	12.0		20.3		8.1		lbs
59°F 95°F	* ased on		ft							
50°F 95°F FOOtprint Core system b minimum area Core system b	* ased on 1*		ft	12.0		20.3		8.1		lbs
50°F 95°F Footprint Core system b minimum area Core system b minimum widt Heat Rejectior	* vased on 1 [*]		ft	12.0 12.0		20.3		8.1		lbs 12,870

Vendor Statement

ENER-G Rudox Inc, as part of the ENER-G group offers a range of efficient cogeneration and tri-generation systems from 4kwe to 5Mwe . Ener-G offers turnkey solutions, with in-house capabilities from Project Development, Financing, Design, Assembly, Delivery, Installation, Commissioning and on-going 24/7 maintenance with dedicated remote monitoring facilities based at our US Head office. We stock a full inventory of spare parts for all of our equipment

The demand for energy is ever growing whilst it is becoming increasingly expensive. Businesses and individuals are seeking to reduce their costs and carbon footprint. Ener-G Cogeneration can help.

Ener-G offer flexible finance models, offering access to our energy solutions without the upfront capital expenditure normally required. ENER-G is 100% dedicated to the development of its products and markets and over the years has seen rapid growth, both organically and through acquisition, to achieve a strong global presence within the energy industry. Currently ENER-G operates in the UK, the USA, the Netherlands, Norway, Poland, Hungary, Lithuania, Spain, Italy, Romania, Mexico and South Africa, with partners across the globe.

Vendor Information

Ener-G Rudox Inc 1261 Broadway, Suite 608 New York, NY 10001 (718) 551-7170 Contact Person : Vishnu Barran vishnu.barran@energ-rudox.com www.energ-rudox.com

NYSERDA CHP Acceleration Program PON 2568 Version 3 Revised September 2014 For the most recent version go to http://www.nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities/PON-2568-CHP-Acceleration-Program.aspx

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ENER-G

Energy, Innovation, Solutions

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Reliable Maintenance

CHP:

- NYSERDA requires a minimum 5-year maintenance package c/o the CHP Vendor
- Best service via Vendor-trained technicians
- Best informed via Vendor "service bulletins" for each specific model
- Conduit for feedback to Vendor whenever issues are observed with each specific model (facilitates opportunity for Vendor to conduct data analytics to inspire fixes for problems in the field as well as engineer-out at subsequent products)





Fleets

Replicates of a given item

Car:

- Police cars
- Taxi cabs

CHP:

- Supermarkets
- Hotels



Aspiration: A future where CHP vendors sell a standard product so frequently that they are willing to build some on speculation and have them shrink-wrapped and sitting in their warehouse -- this approaches the market mechanisms where a shopper can pick a car at the auto showroom and drive it home that same day.



Psychology of Decision Making

Rob Sheldon, Managing Director of **Accent Marketing and Research**, spoke of the psychology behind customer decision making and how it should be approached in the same way, whether buying a micro-CHP or a car.

Communicating price was highlighted as a major challenge for any expensive product – with many customers struggling to know what is being sold to them, This highlighted the importance of customer research - like that conducted by Delta-ee and Accent - to "de-mystify" the product and pricing.

Energy & Environment

9th Annual Delta-ee 'Micro-CHP in Europe' Summit: 2014

Summit Highlights

Edinburgh, Scotland

July 2014



Unified Marketing

Example from the Dairy sector (not automobile)

Milk:

- Previously, each dairy farm ran their own advertisements saying "buy milk, buy it from me"
- Now, on behalf of the dairy industry in general, the Milk Processor Education Program runs generic advertisements promoting "buy milk" without differentiating between vendor dairy farms (e.g., the Got Milk? campaign). Concept: a rising tide floats all boats.

CHP:

- NYSERDA is currently running a CHP marketing campaign "CHP is good, each of our vendors is qualified"
- Exit Strategy: Opportunity for "the market" to take this over at some point.



Program Accomplishments

We've proven that this program format:

- Gets good projects (46 projects in 2-years of launch, of which 29 have equipment delivered to the site or further progress, zero attrition).
- Accelerates timelines.
- Drives-down "soft costs" such as customer acquisition.

Transformed the way "deals" occur in marketplace:

- Expanded the tendency toward "healthy" comparison shopping.
- Market embraces a new objective of "partnerships" instead of "sales".
- CHP Vendor (packager/system integrator) at center-of-the-universe.
- Consultants act as "personal shoppers" for building owner clients.



State Leadership

NEW YORK NYSERDA

STATE OF OPPORTUNITY

Standardized/Regionalized Product

Car:

- Buick sold in Albany = 100% identical to Buick sold in Boston
- Buick sold in Albany = 99.9% identical to Buick sold in Phoenix (version in Phoenix has heavy-duty radiator)
- Buick sold in Albany = 99.9% identical to Buick sold in California
 (version in California has extra emissions control)
- Buick sold in Albany = 99.9% identical to Buick sold in Alaska
 (version in Alaska has engine block heater)

CHP:

 Have had initial discussions to "nationalize" the CHP Catalog with regionalized features (MA, CA, NJ, MD, PA, IL, OH, VT, OR) and allies (USDOE, ORNL, ACEEE, CEE, CESA, EPRI, HUD)





Thank You!

www.nyserda.ny.gov/chp NYSERDA 17 Columbia Circle Albany, NY 12203 Dr. Dana L. Levy, D.Eng., P.E. Dana.Levy@nyserda.ny.gov (518) 862-1090 x 3377 NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels.

NYSERDA professionals work to protect our environment and create clean-energy jobs.

NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

Next Steps:

- The entire marketplace will benefit if other states adopted a similar "Catalog" approach (enables Vendors to claim multi-state approval). NYSERDA is eager to work with other states to evolve this.
- NYSERDA seeks your suggestions regarding opportunities for government intervention to initiate CHP market features that mimic successful surrogate markets.



Thank you for attending our webinar

Todd Olinsky-Paul Project Director, CESA todd@cleanegroup.org

Find us online:

www.cesa.org

facebook.com/cleanenergystates

@CESA_news on Twitter

