

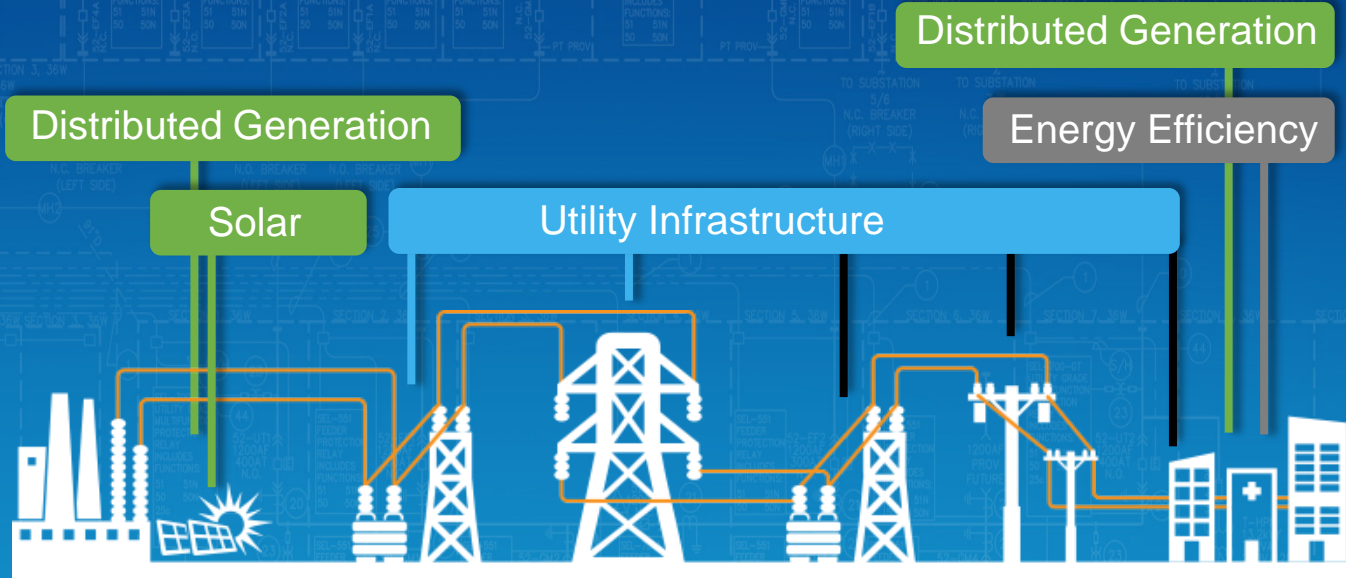
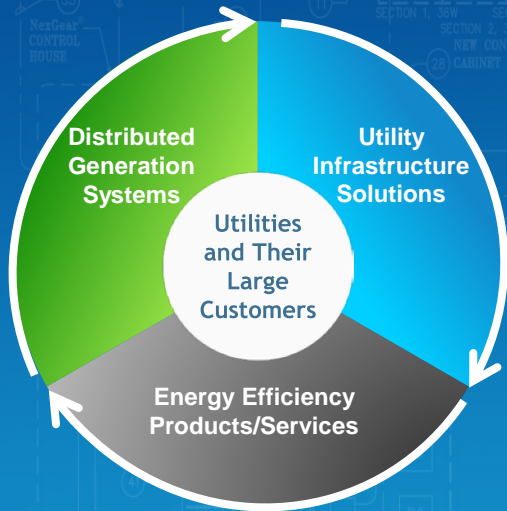


PowerSecure, Inc.

Jim McDonald

Advanced Energy NYC- 6/16

PowerSecure: Solutions Across the Grid



PowerSecure: What We Deliver

– Distributed Generation

- Reciprocating Engines (Diesel & NG)
- Solar
- Co-Gen & Prime Power
- Storage

– Infrastructure

- T&D – EPC Services up to 345kV (Inc Energized Support)
- Metal Clad Switchgear up to 35kV
- Micro-Grid

– Energy Services

- Retail and Utility LED Lighting Products
- ESCO Services - Mechanical, Electrical, Water Systems, Lighting
- Prime Power & Co-Gen CHP



Acronyms and Jargon

- Sustainability-The quality of not being harmful to the environment or depleting natural resources, and thereby supporting long-term ecological balance:
- Resiliency- toughness; the capacity to recover quickly from difficulties, or a Storm named Sandy. (see Reliability)
- NSPS/Tier IV- Federal EPA Rule on New Sources
- NESHAP- Fed Rule for existing Sources
- “Green”

“Pollution vs. Emissions

- Direct Health Impacts.
 - Death
 - Cancer
 - Heart Disease
 - Asthma
 - Autism ?
- Indirect Health Impacts.
 - Sea Levels Rising
 - Increased Storm Damage

Pollution vs. Emissions- What is your priority?

- **Today – Immediate Health Effects**
 - NO_x - asthma, contributor to ozone
 - CO- death
 - PM – Cancer, Asthma, Heart and Lung Disease
 - Sulfur Dioxide – Acid Rain
 - Mercury- Autism
- **Tomorrow – Harmless- except for potential GW effects**
 - CO₂
 - Methane
 - Water Vapor
 - N₂O

December 8, 2015

Schools in Beijing are closed and outdoor construction halted as the Chinese capital's first ever pollution "red alert" came into effect.



Ultra Clean Diesel – A Bridge to a Renewable Horizon



POLLUTION: In NYC- 3 Layers of Regulations

- Federal
 - NSPS- New Sources
 - Tier IV Final **Certified**: As of 1/15
 - Tier IV “Equivalent” not acceptable per EPA
 - 100 Rule Removed Last Year
- State
 - Rule 222 – Existing Sources doing DR
 - NOx 2.3 Grams (at Full LOAD) – Not to Exceed
 - PM Limits
- City
 - NY City Air Code 271
 - Tier IV Emissions Levels To the Current Tier at that time of Certificate of Operation

NY CITY “DG” Rule Int. 271

CPT- 24-149.6.

*Any Stationary generator registration on or after July 1 2014 or renewal on or after January 2018 requires that “such stationary generator is equipped with an engine **Certified** to the Tier four emissions standards established by the US EPA as set forth in Table 1 of Section 1039.101 to Title 40 of CFR or to any subsequent US EPA agency emissions standard that is at least as stringent.*

DG: New Rules for Demand Response

EPA's rejected 100 hour exemption on diesel generators:

<http://www.forbes.com/sites/peterdetwiler/2016/05/04/clock-strikes-midnight-on-emergency-generators-and-demand-response/#69280d1d638f>

May 1, 2015, the DC Federal Court of Appeals rejected the longstanding EPA 100 hour exemption for diesel generators participating in Demand Response and provided a one-year stay for enforcement of this verdict.

Consequently, as of May 1, 2016, emergency diesel generators are not permitted to participate in Demand Response issued by ISO/RTOs, such as NYISO and PJM. For some diesel generators that do participate this summer, mandatory performance testing will be required within 180 days.

Potential EPA fines of \$37,500 per occurrence could be assessed beyond this date.

POWERBLOCK

DG: New Rules for Demand Response

DEC NYS Rule Part 222 : <http://www.dec.ny.gov/regulations/104280.html>

The NYS DEC Rule Part 222 effectively states, as of May 1, 2016, that NYC > 200kW diesel generators used for economic gain must meet new emission requirements. Prior to summer 2016 DR participation, all owners that used diesel generators in the last two years for Demand Response needed to report this to the DEC to receive a one year extension to comply with this rule.

This Rule puts limits on NOx and PM Pollution.

Important to note, starting May 1, 2016, the testing of diesel generators during 1p – 8p is forbidden May – September 30th of each year.

DG: New Rules for Demand Response

Proposed New York City Int. 271: NSPS's Tier 4 Final limits would be likely required on nearly all emergency and DR-eligible generators in the City.

§ 24-149.6 Any stationary generator registration on or after 1 July 2014, or renewal on or after 1 January 2018, requires that “such stationary generator is equipped with an engine certified to the tier four emissions standards established by the United States environmental protection agency as set forth in table one of section 1039.101 of title forty of the code of federal regulations or to any subsequent United States environmental protection agency emissions standard for such engine that is at least as stringent.

Air pollution is a significant environmental threat in New York City, contributing to an estimated 6% of all annual deaths.

EMISSIONS- GHG (Waders)

- Diesel has long been proven as the better “fuel economy” option because of BTU content of the Fuel.
- A Diesel BUG acts as a “Zero Emission Spinning Reserve” and is up and producing kW within 10 seconds of startup.
- Taking into consideration Line Losses and Utility Portfolios – on site Ultra Clean Diesel Generation represents a 10-40% reduction in GHG emissions.
- Nothing has proven to be more reliable.

What is “Green” – final thought

Green is produced *by reflected light* that radiates back with a predominant wavelength of 495-570 Nanometers.

If you are in the dark- there is no Green.

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Thank you!

