



Operation Green Apple Forum

Going Green for Green



Operation Green Apple

Operation Green Apple is a not-for-profit organization dedicated to helping deliver proven, energy reduction measures and methodologies designed to reduce energy consumption and the carbon footprint of New York City.

1 Provide information on how to improve energy efficiency....

2 Provide a medium to match funds with owners so they can actively contribute and participate in greening New York City....

3 Help to clarify and define some of the 'headline statements'....



Carbon, Carbon, Carbon.....

Information on Carbon Emissions

Annual Carbon Emissions in NYC

- 20 light fixtures operating 3,000 hours per year: 4,500 lbs/CO₂
- Residences with 250 apartments consuming 350,000 gallons heating fuel annually: 9,100,000 lbs/CO₂
- Commercial offices with 25 floors with a natural gas hot water heater uses 8,000 therms/year resulting in 83,000 CO₂ annually.
- NYC Carbon Footprint estimated at 4,600 lbs/person = 4.6B lbs/year CO₂

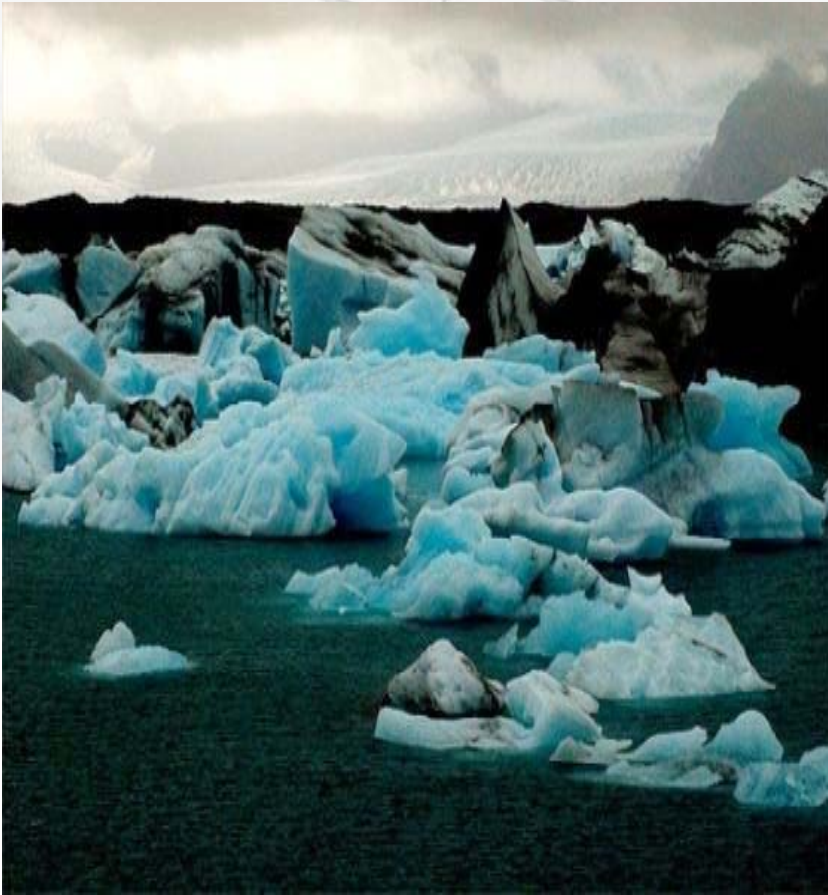
Carbon Emission Consumers

- One tree consumes 48 lbs/CO₂ annually
- All of the trees in the United States consume 30% of its total human generated emissions.
- Mayor's 1 million tree initiative will sequester about 48 million lbs/CO₂ per year



Global Warming

What's the big deal?



Global Warming Facts

- Waters will be warmer and more hurricanes will form
- Disease carrying insects will migrate north to warmer climates
- Polar bears were listed as threatened under the U.S. Endangered Species Act because their sea ice habitat is melting away.

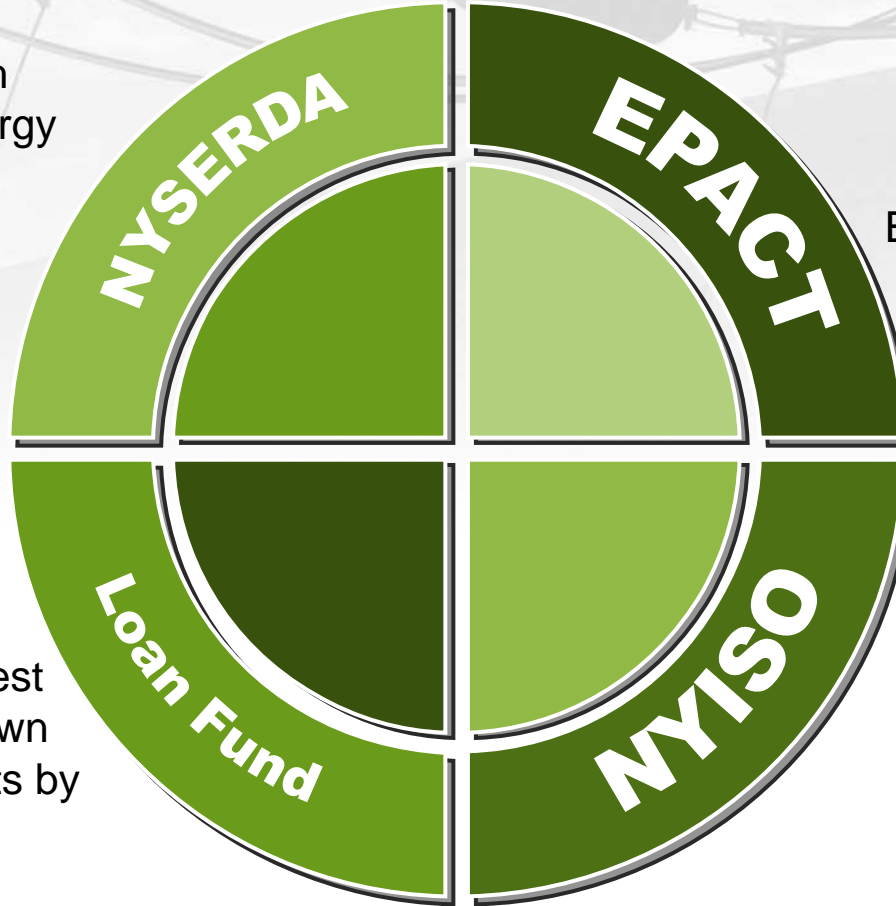


Funding Chart

Various Funding Sources to Help Lower Your Project Costs

NYSERDA Offers Cash Grants for Verified Energy Savings

Federal Energy Policy Act offers Tax Deductions for Energy Efficiency Improvements

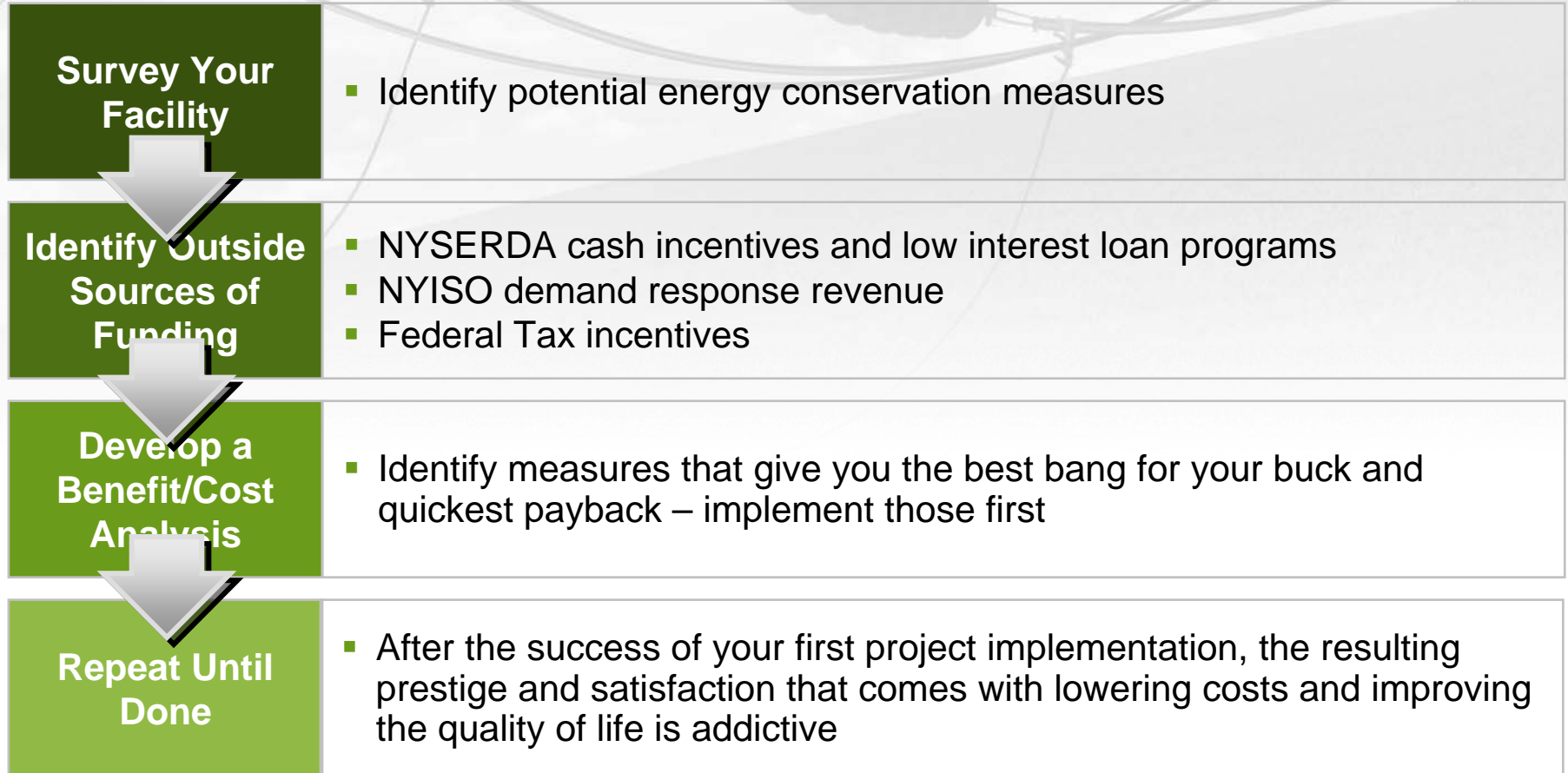


NYSERDA's Low Interest Loan Program buys down Con Ed territory projects by 6.5%

NYISO Demand Response Programs Offer Ongoing Revenue Streams for Active Participation

How do we begin?

What resources are available?



Summary of Actual Measures

Go Green for Green

| Measure (cost) | Savings/Yr | Outside Grants | Simple Payback (yrs) | Annual CO2 Reduced |
|--|------------|----------------|----------------------|--------------------|
| Upgrade 400 Ton Chiller (\$500,000) | \$120,000 | \$150,000+ | 2.9 | 700,000 lbs |
| Upgrade 500 light fixtures (\$50,000) | \$19,000 | \$7,000+ | 2.2 | 130,000 lbs |
| Convert four elevator MG sets (\$200,000) | \$29,000 | \$17,000+ | 6.3 | 170,000 lbs |
| Install 500 kW of NG fired Cogen (\$1,000,000) | \$300,000 | \$450,000+ | 1.8 | 750,000 lbs |

What is Demand Response?

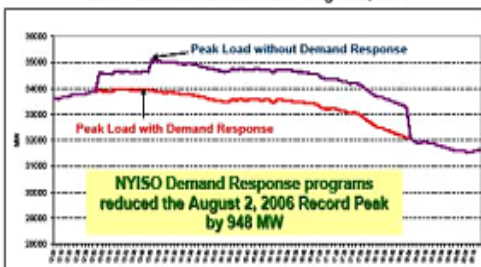
A responsible method of protecting NYC's electric grid



- New York was the pioneer in developing an electrical infrastructure (The Grid)
- Today, our population and demand for electricity is taxing this grid on a daily basis resulting in brown outs, black outs, and other power quality problems

Shaving the Peak

New York State Record Peak - August 2, 2006



- Participants agree to be on “stand by” and curtail electric demand, or generate on-site power during Grid Emergencies
- Participants are paid annually to be on stand-by even if no grid-emergencies are raised

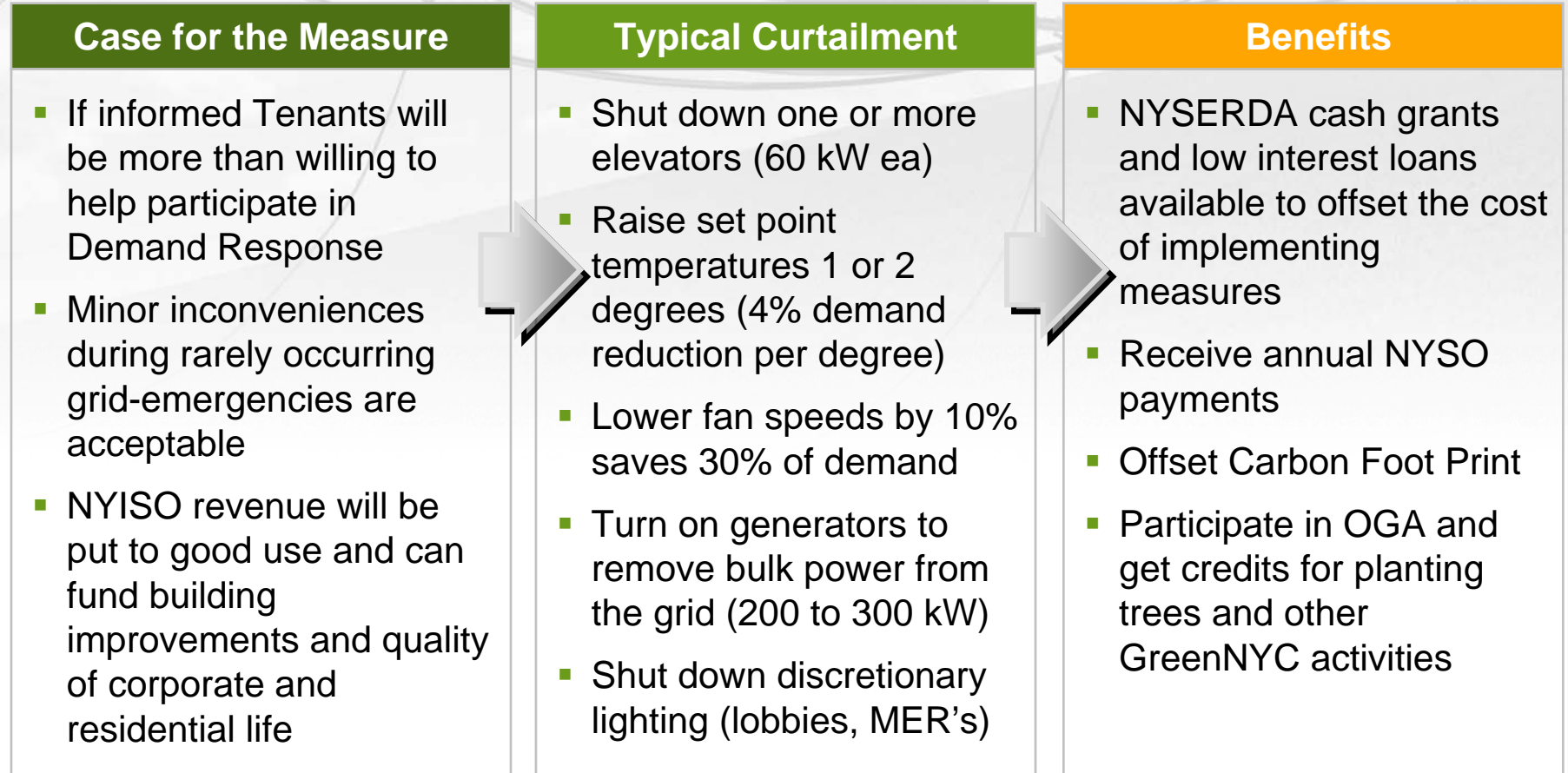
Summary of Actual Demand Response Measures

Go Green for Green

| Measure (cost) | Annual NYISO Payment | Outside Grants | Cost To Implement | CO2 Reduced Per occurrence |
|--|----------------------|----------------|-------------------|----------------------------|
| Use Steam Chillers to offset 1.3 MW of electric chillers | \$40,000 | \$4,800 | \$2500 | 1,300 lbs |
| Rewire 2 MW Emergency Generator Distribution System | \$50,000 | \$210,000 | \$350,000 | 2,000 lbs |
| Shut down 2 elevators, reduce fan speed curtail lighting | \$9,000 | \$35,000 | \$55,000 | 250 lbs |
| Turn on 350 kW emergency generator | \$7,000 | \$30,000 | \$45,000 | 350 lbs |

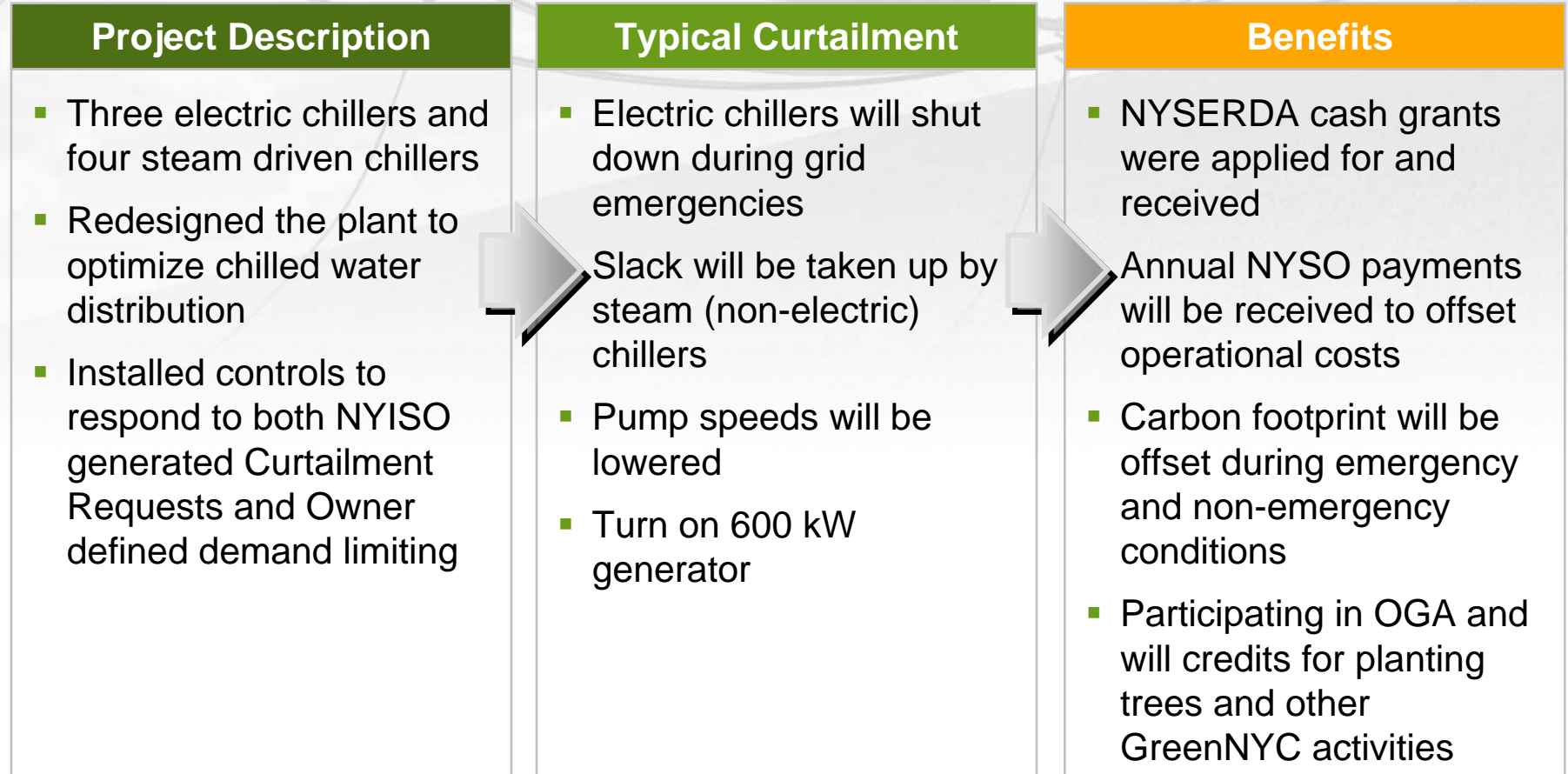
How do we participate in Demand Response?

We can't curtail, our tenants will be inconvenienced



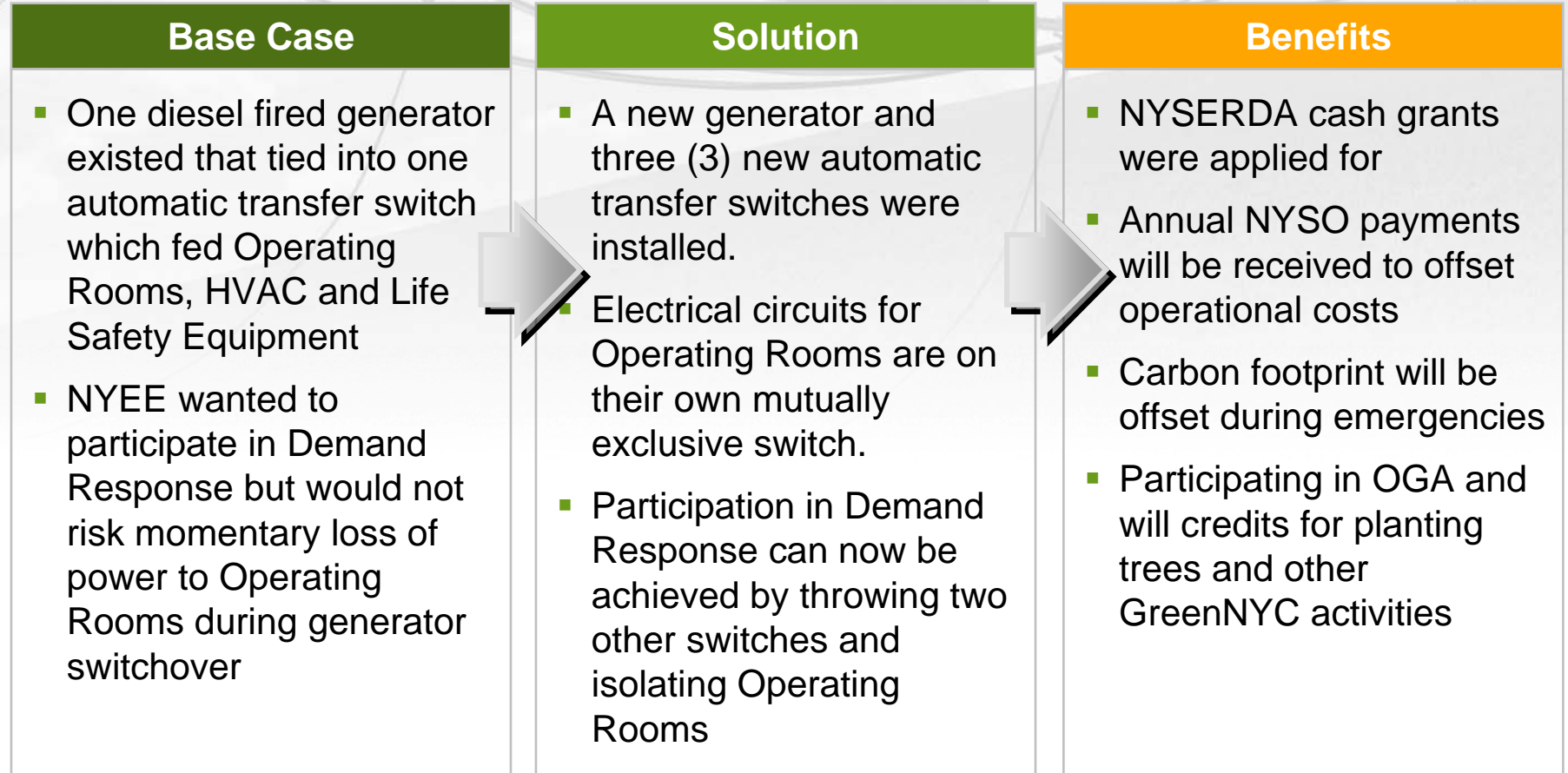
Case Study: Lincoln Center for the Performing Arts

Implemented a 2,600 kW Curtailment Apparatus



Case Study: New York Eye and Ear

Desegregated Electric Circuits into Critical and Non Critical Components



How can we help?

Reduce your energy costs and carbon footprint by next quarter

- 1 Survey your facilities
- 2 Identify list of energy conservation measures
- 3 Identify outside sources of funding (NYSERDA, NYISO, etc)
- 4 Develop a benefit/cost analysis of potential measures
- 5 Select a measure and implement it
- 6 Go to Step 5 and repeat until you're done



Do You Have Any Questions?

We would be happy to help.

