



The Megawatt Hour  
an energy decision platform

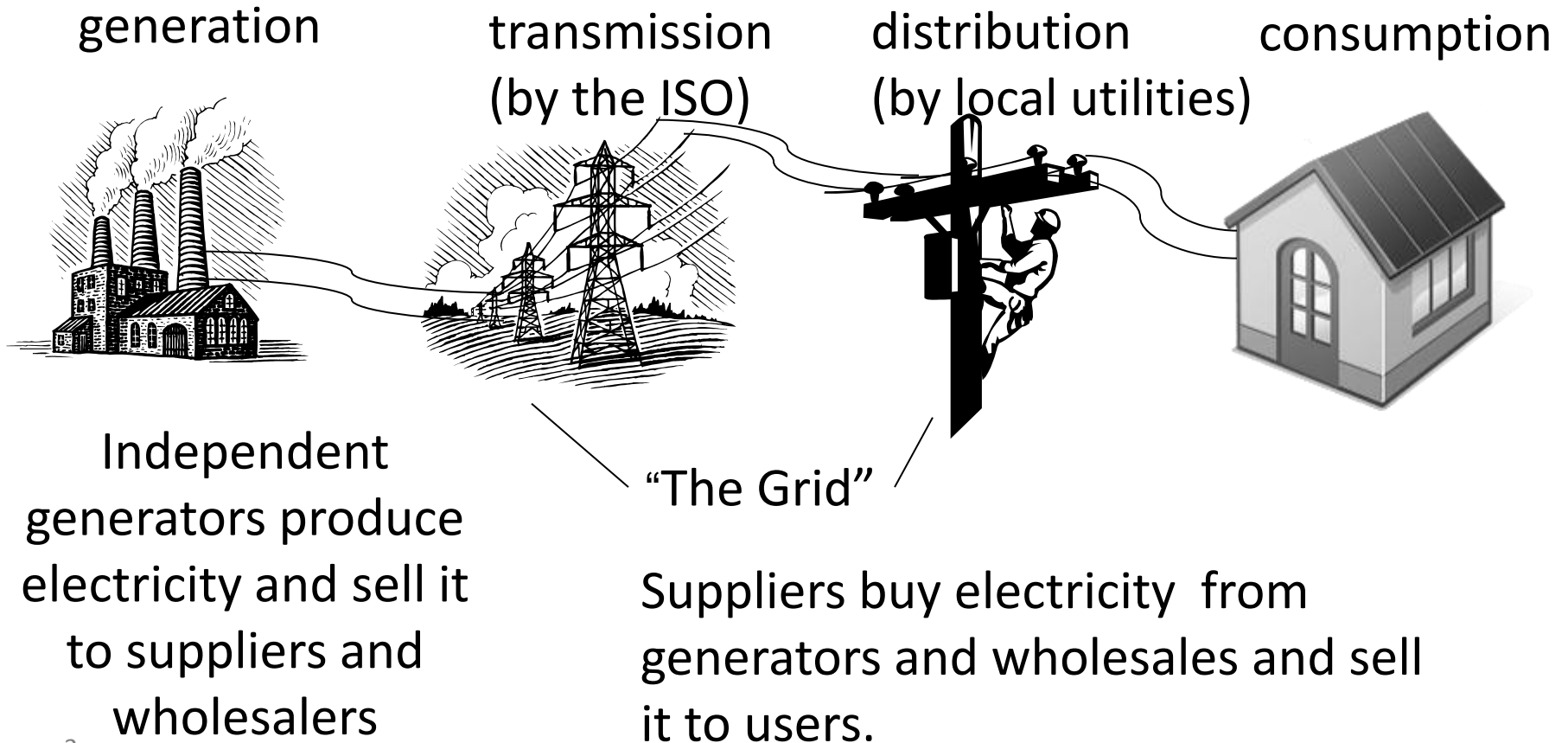
# RECHARGE NY OVERVIEW

- Overview of how electricity markets typically work
  - Current status: electricity supply, transmission and distribution costs
- ReCharge choices and definitions
  - Option 1: ReCharge Market Power- what is it?
  - Option 2: ReCharge Hydro Power – what is it?
- Customer choices and implications
  - Options
  - Other considerations
- Appendix: Additional explanations, Definitions

# How Does Electricity Work?



The Independent System Operator (ISO) and utilities own and maintain transmission and distribution and charge you for it.



# Electricity Markets – non-ReChargeNY



1. Generators produce power.



2. ISO (Independent System Operator) manages the flows, monitors market operations, and maintains reliability.



4. Suppliers (or ESCOs in NY) buy power from generators and sell it to consumers.



3. Utilities like Con Ed or National Grid maintain the wires and pipes

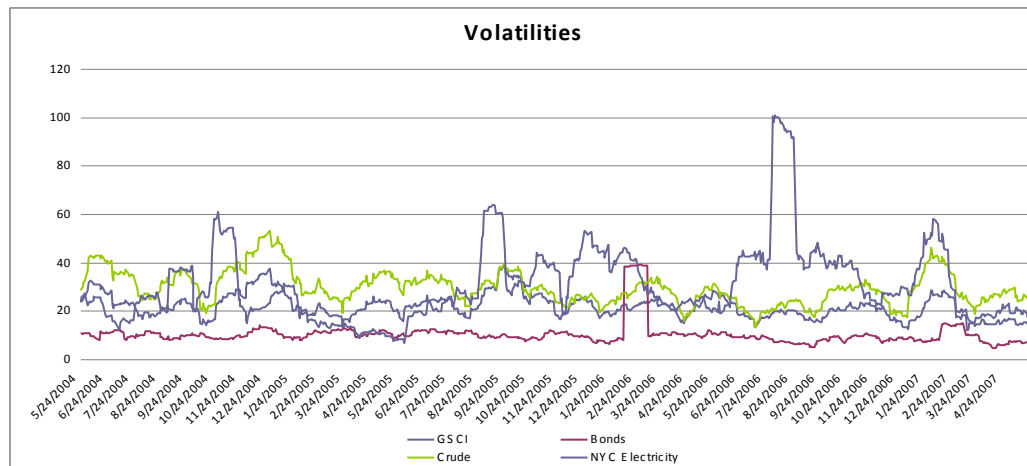


5. Consumers buy power from suppliers, and pay utilities for its transmission and delivery.

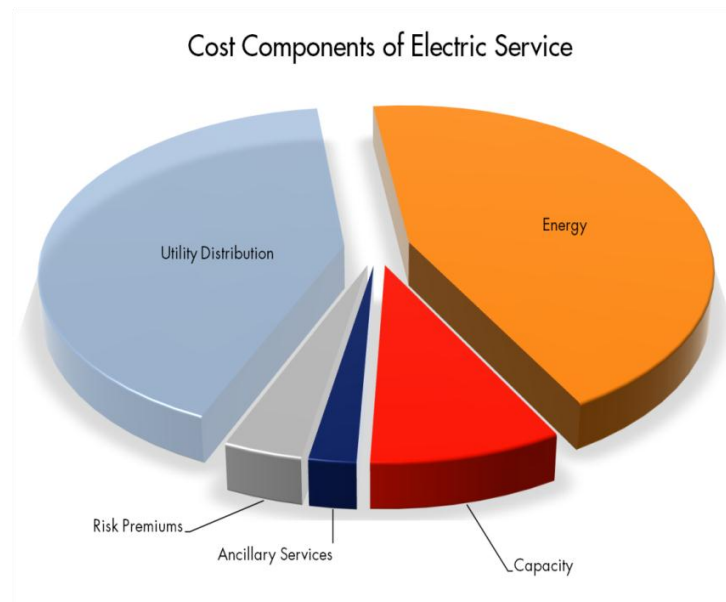
# The Finances of Electricity



- Electricity is
  - traded like any other commodity
  - bought forward in monthly blocks called “strips”
  - not possible to store
  - very price-volatile

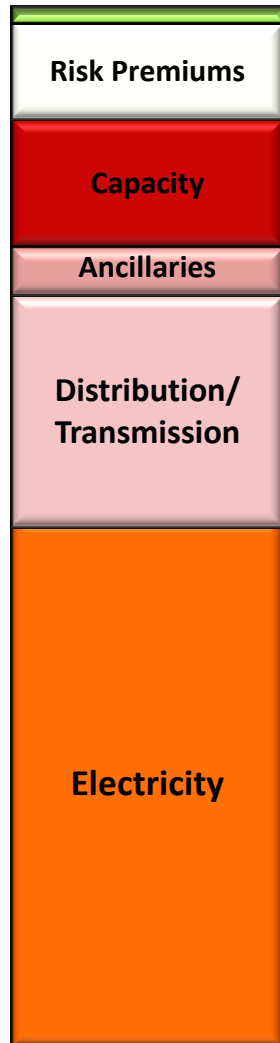


- An Electricity Cost is made up of:
  - Energy
  - Capacity
  - Ancillaries
  - Transmission
  - Supplier Cost plus Credit and Risk Premiums
  - Distribution by local utility



# Components of An Electricity Cost

## What all this means to you, and your bill.



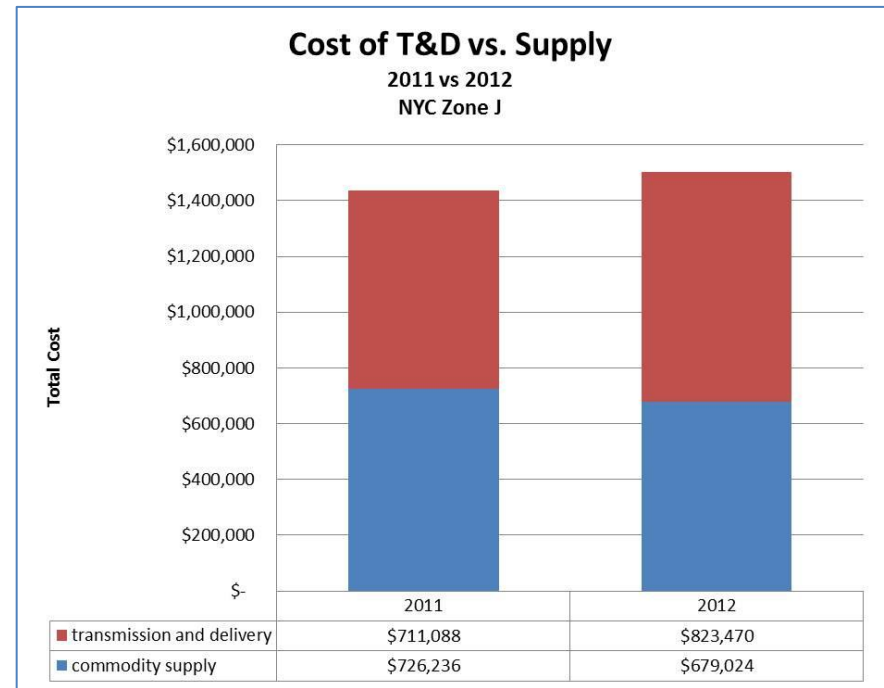
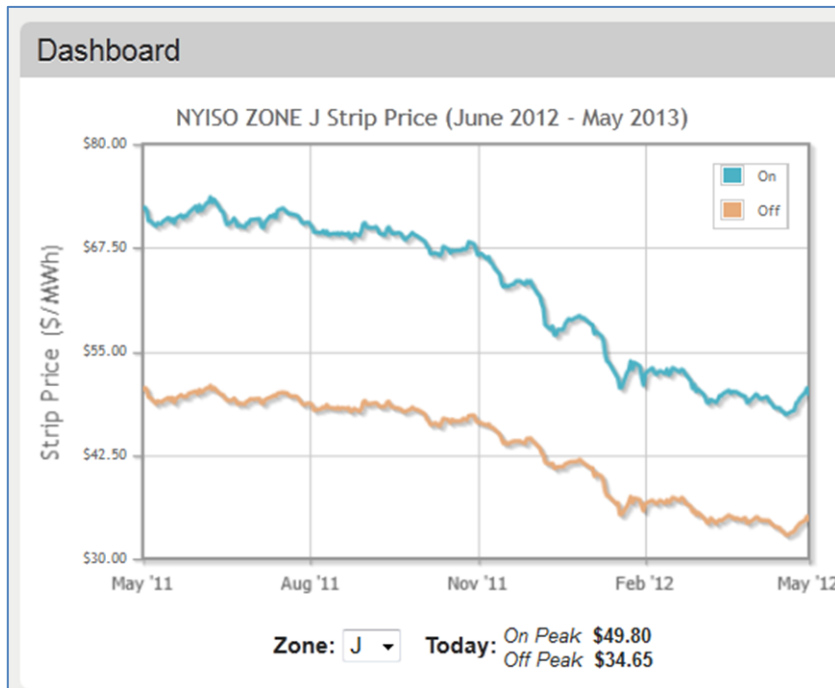
- Electricity and Transmission
  - Paid to supplier who buys the energy from generators or the hourly spot electricity market.
  - Generators sell “forward strips” while suppliers buy hourly/index electricity from the ISO.
- Distribution
  - Paid to utility to maintain the distribution system to your business.
- Ancillaries Charges
  - Generators are paid to stand-by to use their facility for quick response reserves.
- Capacity Charges
  - Generators are paid to stay operable so that on the peak hour of the peak day of the year, enough capacity will be available.
- Supplier Costs and Risk Premiums
  - The supplier charges a fee for their service
  - Credit costs, plus operating fees and premiums paid to fix prices (and assume risk) on part or all of these costs.
- Fees
  - A broker or consultant charges a fee for their service.

# Current Situation – Delivery, Supply, Markets



## All-time low electricity supply costs

## Shift in cost-burden from supply to delivery



# ReChargeNY Options (per NYPA Agreement)



- Option 1: RNY Market Power, includes both:
  - RNY Hydropower allocation AND
  - RNY Market Power allocation
  - Benefits:
    - Below-market energy costs of hydropower, lower cost of capacity, ancillaries and delivery services.
    - “Baseload” fixed price.
- Option 2: RNY Hydropower, includes ONLY:
  - RNY Hydropower allocation
  - Benefits:
    - Below-market energy, reduced capacity, ancillaries and delivery service cost.
    - “Baseload” fixed price.



# ReCharge customers....decisions



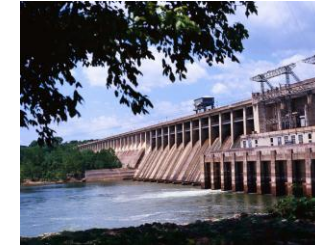
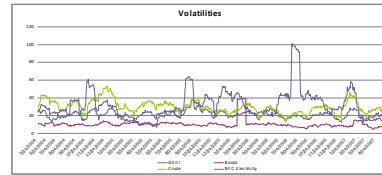
Choose Option 1. **NYPA Hydropower** and **NYPA Market Power** for entire NYPA Allocation (~10-50% of facility load).

or

Option 2. **NYPA Hydropower** for one-half NYPA Allocation (~5-25% of facility load).



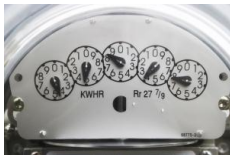
&



and

Choose how to buy the remainder of non-ReCharge power and energy (from utility or from ESCO).

and



If you choose ReCharge Option 1 or 2, receive discounted delivery from your local utility.



# ReCharge Calculations



Hydro	=	Preservation Power	+	ISO Charges	+	Capacity	+	Losses
Blend	=	All Hydro Costs (above)	+	Market Energy	+	Capacity	+	Bad Debt Risk

Example of Billing Methodology			
a	Peak Demand for the Month		100 kW
b	NYPA Allocation "Awarded Allocation"		50 kW
c	Accepted Allocation		25 kW
	<b>Billing Ratio</b>		<b>0.25 = c/a</b>
	Total metered kWh for month		36000 kWh
	NYPA Energy		9000 kWh
d	ICAP tag		120 kW
	<b>ICAP Billing Ratio</b>		<b>0.21 = c/d</b>
	ICAP Billing kW		25 kW

# Implications for non-ReCharge choices



## Typical product options

What Product? [What is an electricity product?](#)

A horizontal slider bar is shown below the product options. The bar is divided into three segments: green for 'Fixed', yellow for 'Block', and red for 'Index'. A white slider knob is positioned at the 50% mark, indicating a 50/50 split between Fixed and Index products.

Understand Product Risk [Download Term Sheet](#)

2011 Budget	Expected	High (Katrina)	Low (Now)
Fixed Product	\$608,900	\$639,400	\$578,500
50% Block	\$601,500	\$930,900	\$594,300
Index	\$601,500	\$1,203,000	\$619,600

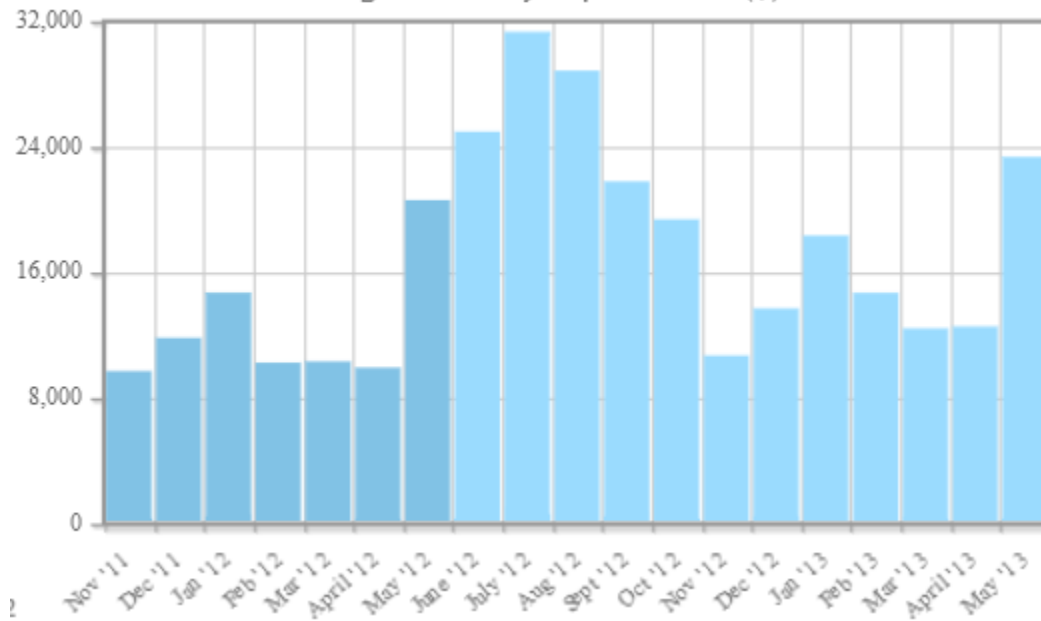
If prices change dramatically, how much will you end up spending? This stress testing tool shows you how different products perform under different market conditions.

Show stress test for which group of accounts:

## Options after taking RNY Power

- Remaining energy and power becomes more expensive to a supplier—especially on a fixed price product.
- Unlikely to get a fixed price for remainder of energy.
- Index load likely will also be more expensive (given usage and hours remaining).

# Visualizing NYPA allocations



- “Baseload” service vs. peak load service.
- Cost to serve remainder of load.

# Key considerations



- NYPA has the right to adjust prices at any time.
  - For HydroPower customers, adjustments can begin in July 2014, for Blend customers, can happen as early as 2013.
- Customers can cancel with 90 days notice; NYPA has the right to refuse cancellation.
- NYPA has the right to cancel with 30 days notice, but must explain the reason for cancellation.
- Savings forecast from ReCharge Options 1 and 2 compared to current market price/forecast.
- Cost of remaining power and energy.
- Forecasted benefit of delivery discounts (in addition to savings from ReCharge Options 1 and 2).
- Commitments/ reporting requirements to NYPA.



# **APPENDIX: EXPLANATIONS AND DEFINITIONS**

# Definitions



## Definitions in NYPA Program Documents

- **Substitute Energy**  
Energy NYPA procures and sells to the Customer to replace RNY Hydropower that would otherwise have been sold to the Customer but for a curtailment event.
- **Supplemental Power –**  
Energy and power for a Customer facility that is not supplied or provided for under the ReCharge NY program.
- **Periodic Rate Adjustment Process**  
Annual review and adjustment of prices for RNY Hydropower and Market Power (Blended rates). Hydropower-only customers will not receive an adjustment until July 2014.
- **“Awarded Allocation” –**  
shall be the total RNY Power allocation award, in kilowatts, made available by the NYPA to the customer.
- **“Accepted Allocation” –**  
shall be that portion, in kilowatts, of an Awarded Allocation that a customer has elected to accept and purchase from the NYPA and that the NYPA is contractually obligated to supply. In any billing period that the NYPA is unable to supply the customer’s entire Accepted Allocation or the customer voluntarily elects to accept an amount less than the Accepted Allocation, the amount actually supplied by the NYPA shall be the Accepted Allocation.

## General Energy Industry Definitions

- **Components of Costs – Energy**  
The power that runs the motors, lights the lights, and turns the meters is the largest component of your electricity cost. The wholesale cost of energy in deregulated markets is known as the Locational Marginal Price (LMP), which is a market-based value that includes power generation costs and the costs of transportation and losses to a specific location. That location is your load zone. The LMP is defined each hour by an auction process administered by the ISO. The LMP prices are publicly available.
- **Components of Costs --Capacity**  
Since electric energy cannot be easily stored, the ISO administers a market for installed generation capacity to insure that, over the long run, adequate generation resources are available to supply load. Each electric account is assigned a capacity obligation and each retail electricity supplier must purchase installed capacity to meet that obligation. The market price is set by annual and/or monthly auction processes that differ among the ISOs. This cost will be the second largest component of your electricity cost.

# Definitions continued...



## General Energy Industry Definitions continued...

- Components of Costs – Ancillaries

Ancillaries (or ancillary services) are required to support secure and efficient operation of the wholesale power system. Short-term (10 to 30 minute) reserve power and regulation (real-time frequency) support are procured by the ISO through market auction processes. Ancillary charges also include smaller charges for other operational costs, fees to pay for the ISO and uplift charges whenever exigencies require operation outside of normal, efficient dispatch. The ISO procures these services directly from generators and independent power producers and then passes the costs through to all retail suppliers of electricity, and, ultimately, to purchasers of electricity. These costs can be quite volatile but are usually less than the cost of installed capacity.

- Components of Costs – Risk Premiums

Wherever a retail contract specifies a fixed charge for the term of the contract, the supplier will seek to hedge the price risk by making purchases in the wholesale forward market. Some components of cost cannot be readily procured in any forward market. For example, ancillary services cannot, usually, be 'hedged' by a forward purchase. Wherever the retail contract price is fixed, but the retail supplier cannot purchase the component in a forward market, there is a price risk to the retail supplier. Suppliers will include these risk premiums in your price. These premiums will be built in to the fixed component of your price—in to your fixed price if that is the product you choose, or in to the fixed adder component of your index with adder.

- Components of Costs – Losses

The electric distribution system requires retail suppliers to purchase a bit more power in the wholesale market than the power measured at your meter. These losses are fairly small (2% to 10%) but can be quite volatile since they are dependent on hour-to-hour load and temperature. The retail supplier must estimate and incorporate the distribution loss factor in to their cost calculations.

- Components of Costs – Margins

The retail supplier must forecast retail loads, schedule wholesale purchases with the ISO every hour, purchase forward supply where appropriate, financially settle with the ISO, and, importantly, post credit for all transactions. The retail supplier, usually, must produce bills for, and collect from, retail customers; collections may be delayed or at risk. The cost for people, systems, and credit to do all these things, in addition to the additional margin needed to run a profitable business, is included in the retail margin. Retail margins are typically from \$0.002 to \$0.004 per kWh, depending on the size and complexity of your products and requirements.



# Current market prices – NY City

