

# Electrical Energy Conservation in Water & Wastewater Facilities

September 11, 2007



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The Northeast Utilities System



[www.CTSavesEnergy.org](http://www.CTSavesEnergy.org)

# New Construction, New Equipment

- Involvement with the customer's design team early in the design process yields greater results
  - Typical energy-efficient measures:
    - Lighting and lighting controls\*
    - Motors
    - HVAC systems
    - Refrigeration
    - Variable Frequency Drives (VFDs)
    - Process Improvements
  - Also includes new equipment or equipment replaced at/near the end of its useful lifetime, such as process equipment, process VFDs, air compressors, dryers, freezer doors and process cooling
- \* Lighting projects use watts/square feet calculations relative to ASHRAE baselines





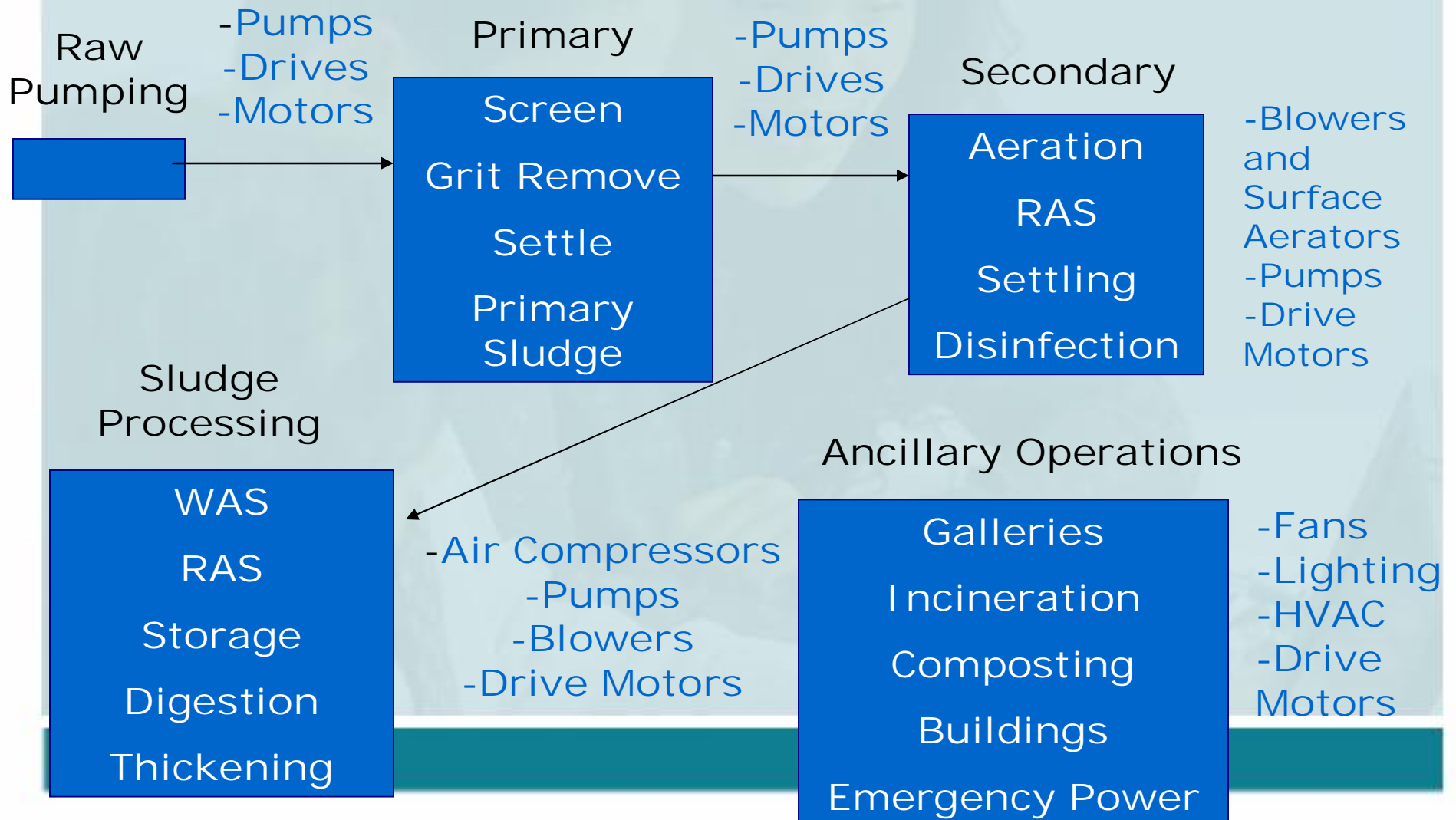
# Retrofit Projects

## *Replacements and Retrofits*

- § Incentives Designed to Pay up to 50% of the Retrofit Cost
- § Targets Small Customers ( $\leq 200$  kW)
- § Targets Large Customers ( $> 200$  kW)
- § Replace Inefficient Building Systems
- § Heating & Cooling System Upgrades
- § Building Control Systems & Repair
- § Retrofit/Replacement of Lighting Systems & Controls (one-for-one)

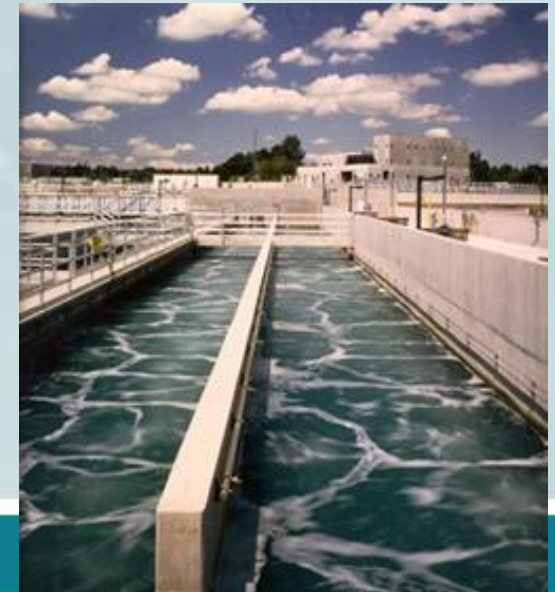


# Unit Processes & Electricity Users



# Energy-Efficiency Opportunities

- Downsizing of pumps, fans and blowers
- Using premium-efficiency motors
- Consider installing VFDs
  - Look for flow throttling on pump and/or fan discharges
  - Automatic control necessary (i.e., flow, pressure or level)
- Lighting upgrading (retrofit or new fixtures)
- HVAC
  - High-efficiency units (EER)
  - Use of heat pumps
  - VAV systems
  - Dual enthalpy control economizers



# Upgrade Opportunities

- 3% of United States total energy use is by water/wastewater facilities
- Use of VFD drives avoids losses from throttle valves/dampers and bypass lines
- Consider use of smaller pumps in lieu of pumps sized for peak flows (review hours of operation)
- Consider use of heat pumps in lieu of electric resistance heat, especially when heat source streams are available
- Considering using DO control for mixing operations
- Efficient lighting

# How do you get involved?

- Whenever purchasing new, or replacing/upgrading electric consuming equipment, engage CL&P
- Consider energy-efficiency alternatives early in planning the project – some of these alternatives may cost more; many will be eligible for incentives
- Sign a Letter of Agreement **prior** to proceeding with the project
  - (The majority of these programs are not rebate programs!)



# Questions?

§ **Call Paul Kuraitis 860.665.3485, [kuraipd@nu.com](mailto:kuraipd@nu.com)**

§ **Internet: [www.cl-p.com](http://www.cl-p.com)**

§ **New Construction Projects**

§ **Lomont White (860) 665-3790**

§ **Major Renovation Projects**

§ **John Matchett (860) 665-3054**



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