

## From Stimulus to Sustainability

*Stimulus Eligible Programs for Buildings*

## The Basics of the Stimulus

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). The ARRA seeks to stimulate the economy's sustainable growth by creating jobs and improving the energy efficiency and environmental sustainability of our government's infrastructure.

As facility managers of government buildings, there are new opportunities to make high-performance improvements to your programs around energy

### 3D TRASAR<sup>®</sup> Cooling Tower Controller

The patented and award-winning 3D TRASAR Technology for Cooling Water reuses water by monitoring the stress and impurities placed on the system. By monitoring 26 parameters, the water in your cooling system is optimized and automated to ensure clean heat transfer without wasting water, energy and chemicals.



*Scaled Up Chiller Wastes Energy*

Energy Wasted by Carbonate Deposit in Chiller				
kWhr Cost	10 mil thick	50 mil thick	100 mil thick	200 mil thick
\$0.04	\$ 8,800	\$ 42,200	\$ 80,400	\$ 156,700
\$0.06	\$ 12,600	\$ 62,000	\$ 116,200	\$ 216,500
\$0.08	\$ 16,400	\$ 81,800	\$ 152,000	\$ 276,300
\$0.10	\$ 21,400	\$ 104,200	\$ 196,600	\$ 373,200

**Assumptions:**  
 per 1,000 tons of cooling                      24/7/365 operation

### 3D TRASAR Technology - Key Aspects

- Automated cycle control, saving water, energy and chemicals
- Winner of a 2008 Presidential Green Chemistry Challenge Award
- Proven technology with more than 8,500 installations
- Nalco 360™ Service (24/7/365 alarm and troubleshooting service)
- Prevents scale, corrosion and microbiological fouling



**3D TRASAR installations have saved an annual estimate of 62.9 billion gallons of water (238 million cubic meters) globally.**

conservation, renewable energy generation and water and energy efficiency. Whether you've received a funding allocation or you are in the process of applying for one, Nalco's proven and award-winning technology can help you maximize your stimulus funding opportunities.

### Key Nalco Technologies and Services

- Cooling Tower Water Re-Use
- Boiler Water Re-Use
- Improved coil heat exchanger efficiency

### 3D TRASAR Solid Program: A Sustainable Solution

Need To Go Green? Sustainable solutions have been an integral part of Nalco R&D for more than 80 years. Our most recent advancement combines 3D TRASAR Control with solid TRASAR chemistry. The 3D TRASAR Solid Program provides all the benefits of 3D TRASAR control using solid chemistry to reduce the use of water.



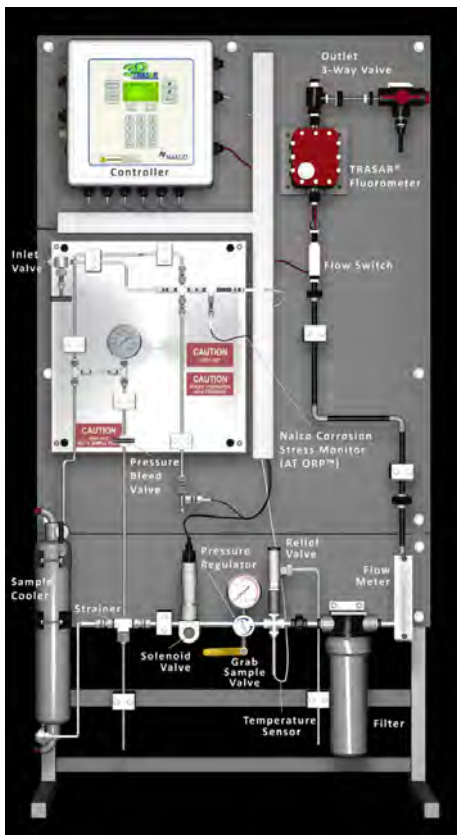
### Benefits of 3D TRASAR Solid Program

- Ease of use with lightweight 15-pound pails (recyclable pails)
- No water to ship saves money
- Uses the same water-saving 3D TRASAR controller

*Increasing Cycles Saves Water*

Millions of Gallons of Make-up Water per Year						
HVAC Cooling Tonnage	Cycles of Concentration					
	3.0	4.0	5.0	6.0	7.0	8.0
100	2.00	1.80	1.70	1.60	1.55	1.50
200	4.00	3.60	3.40	3.20	3.10	3.00
500	10.00	8.90	8.40	8.00	7.80	7.70
1000	20.10	17.90	16.80	16.10	15.60	15.30
1500	30.20	26.80	25.10	24.10	23.50	23.00
2500	50.30	44.70	41.90	40.20	39.10	38.30
5000	100.50	89.60	83.80	80.40	78.20	76.60

To obtain your water savings, apply your local water and sewer costs to the water savings thru increased cycles.



### 3D TRASAR Boiler Technology

3D TRASAR automation and control is now available for boiler water treatment. This new advancement of the 3D TRASAR platform assures the same level of control for your boiler system. Nalco's patented technology saves water, prevents pre-boiler corrosion in the feedwater system and eliminates scale formation inside the boiler that results in costly repairs, wasted water and costly heat transfer loss.

#### Boiler Scale Causes Energy Losses

Deposit Thickness	Efficiency Reduction	Excess Fuel Costs
1/128"	2-4%	\$8,200-\$14,700
1/64"	4-6%	\$14,700-\$22,700
1/32"	6-9%	\$22,700-\$32,000
1/16"	9-12%	\$32,000-\$45,000
1/8"	12-16%	\$45,000-\$60,000

### Technology Features

- Next-generation fluorescence tracing technology is used to control boiler scale and deposits
- The patented Nalco Corrosion Stress Monitor™ (NCSM) detects and reacts to preboiler corrosion stress
- Identifies potential causes of system variability and upset conditions
- Web & alarm enabled

### COIL-FLO® Service

As part of Nalco's HVAC Performance Optimization program, the COIL-FLO coil-cleaning program is a unique innovation to restore HVAC performance, conserve energy and water, reduce operating expenses and protect your assets. This professional service provides unmatched results in the industry and eliminates the impact of fouled coils on your ability to efficiently cool the air in your facility. Importantly for stimulus programs, there is a substantial labor component to the service.

#### Cleaning Coils Can Provide Instant Payback

Every 1° delta T improvement in a 1,000-ton cooling system:

- Saves \$4,000 in energy costs
- Eliminates 20 Tons of Greenhouse Gases
- Improves cooling capacity by 5.3%

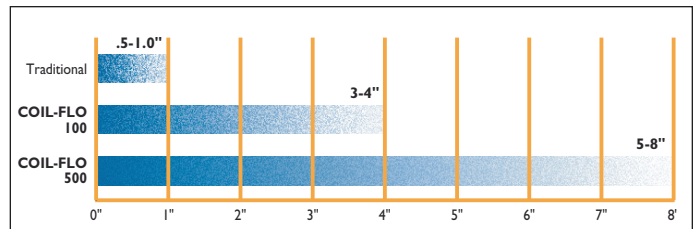
**Note:** The above assumes 1,500 cooling hrs, 0.75 kw/ton efficiency, \$0.10/kwh



### COIL-FLO Program Features

- A turnkey approach to cleaning coils
- Patented deep cleaning process
- Applied biostat eliminates sticky biofouling for up to 6 months

*Complete Coil Penetration - Unmatched Cleaning Results.*



## Nalco Company and Our Longstanding Commitment to Sustainability

Nalco has been improving our customer's energy performance and environmental sustainability since long before the American Recovery and Reinvestment Act of 2009 was enacted. Since our founding, Nalco has expanded its offerings to further reduce emissions of water, gases and solid waste to the environment. Today we support more than 70,000 customer locations in 130 countries with a full range of offerings that make sense environmentally, socially and financially.

Internally, specific initiatives are in place to minimize the amount of waste we (Nalco) create; the materials we introduce into the environment through emissions, and in particular, the amounts of greenhouse gases we release.

**Waste Minimization:** Over the past seven years, the total amount of waste generated by Nalco's manufacturing operations worldwide has been cut by 29.4%, despite a 16.9% increase in production volume.



**The Global Waste Index (GWI)** shows that a 14.2% reduction was achieved three years ago, despite a 5.2% increase in production volume.

**Toxics Release Inventory (USEPA TRI):** TRI reports chemical releases for nearly 650 chemicals in the United States and shows that Nalco has reduced emissions to water by more than 60% over the last eight years, including a 10.7% reduction a few years back.

**Greenhouse gas emissions (GHG):** Nalco has committed to reduce GHG emissions from its plants by

18% (as a ratio of gas emissions to production) by 2012. Over the last eight years, our total emissions have decreased by 1.3% despite a production increase of 17%.

**Energy consumption:** During the past five years we have reduced our energy consumption per unit of production by just over 3%, despite a 17% increase in production volume. As part of our commitment to improving our environmental performance, our manufacturing plants around the world are undergoing a comprehensive program of accreditation to the environmental management standard ISO14001.

### NALCO

**North America: Headquarters** – 1601 West Diehl Road • Naperville, Illinois 60563 • USA  
**Energy Services Division** – 7705 Highway 90-A • Sugar Land, Texas 77487 • USA

**Europe:** Richtistrasse 7 • 8304 Wallisellen • Switzerland

**Asia Pacific:** 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930

**Latin America:** Av. das Nações Unidas 17.891 • 6º Andar 04795-100 • São Paulo • SP • Brazil

[www.nalco.com](http://www.nalco.com)

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ENERGY STAR, the U.S. Environmental Protection Agency's (EPA) national program for superior energy management, designates Nalco Company as an ENERGY STAR service and product provider (SPP).