

Pathways for Natural Gas DSM in Cold Water Washing in the Metro-Chicago Area

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ENVIRONMENTAL LAW & POLICY CENTER
Protecting the Midwest's Environment and Natural Heritage



Demand Side Management

Natural Gas & Wasted Energy

Cold Water Detergents

Appliances

Current State and Trends

Bill Inserts and Nudge Marketing

Multi-Pronged Approach

Demand-Side Management (DSM)

- DSM is key to creating supply-demand balances for energy providers and ensures least-cost reliability
- Beginning to play a much more serious role in the utility business, models, especially as state and federal regulations continue to grow
- Other key players include appliance and household product manufacturers
- Utilities are often thought of as commodities by consumers rather than services backed by extensive infrastructure
- Such measures are typically focused on electricity consumption, but can be applied to **water, natural gas, and the nexus of the two**



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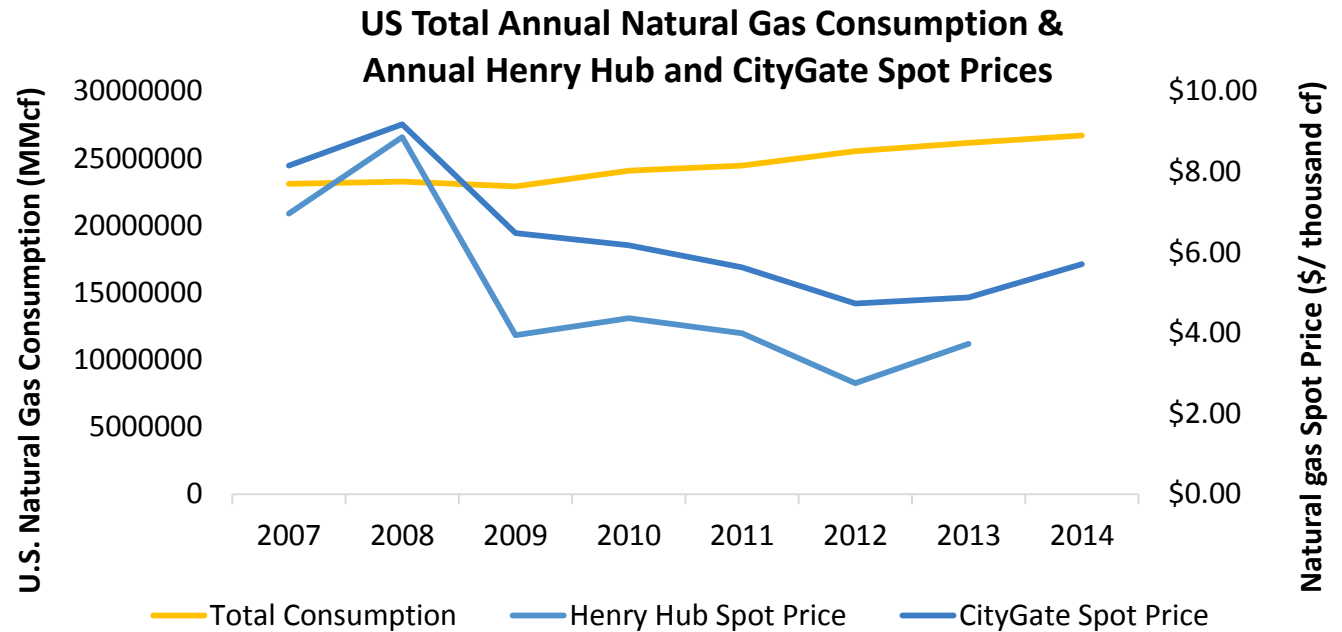
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DSM Challenges Specific to Natural Gas



- As natural gas prices drop nationwide, consumption continues to surge
- Residential natural gas consumption does not rely on precise supply-demand balancing
- Natural gas consumption is highly seasonally dependent

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Drivers of Energy Waste in Natural Gas

A 2014 Energy Center of Wisconsin Study focusing on **North Shore Gas** noted that natural gas wasted energy resulted from:

1. Lack of thermostat setbacks in unoccupied spaces
- 2. Wasted water heating in clothes washing**
3. Heating System Maintenance and Upgrades
4. Lack of water heating set point reductions (e.g. water is 'hot' at 120°F rather than 150°F)

Key Numbers

NG savings in North Shore territory:
300,000 MMBtu

NG Savings in Peoples Gas & Coke Territory:
1.6 Million MMBtu

Making behavioral changes prior to technology changes results in savings that are **on average between 40-60% higher** than working in the reverse order

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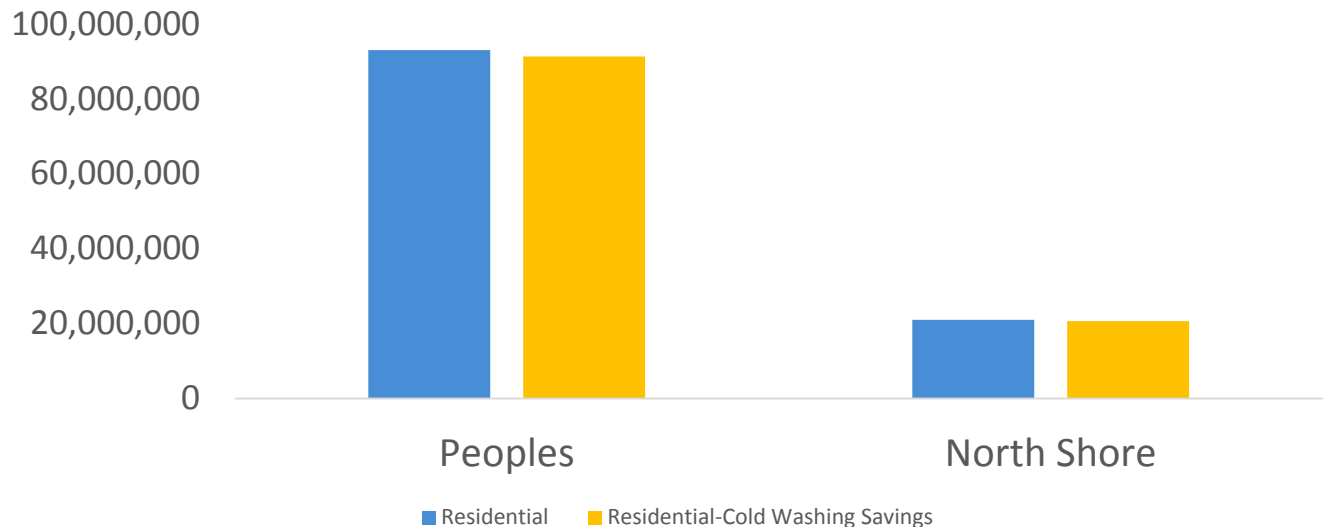
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Natural Gas Consumption in Metro Chicago Area by Utility and County

Energy Savings through Total Warm Water Washing Reduction (MMBtu)



- Behavioral DSM encourages reduced demand as residential technology becomes more efficient
- Customers ensure faster payback on appliances through utility savings
- Decreased risk of supply-side shortages for NG delivery service providers

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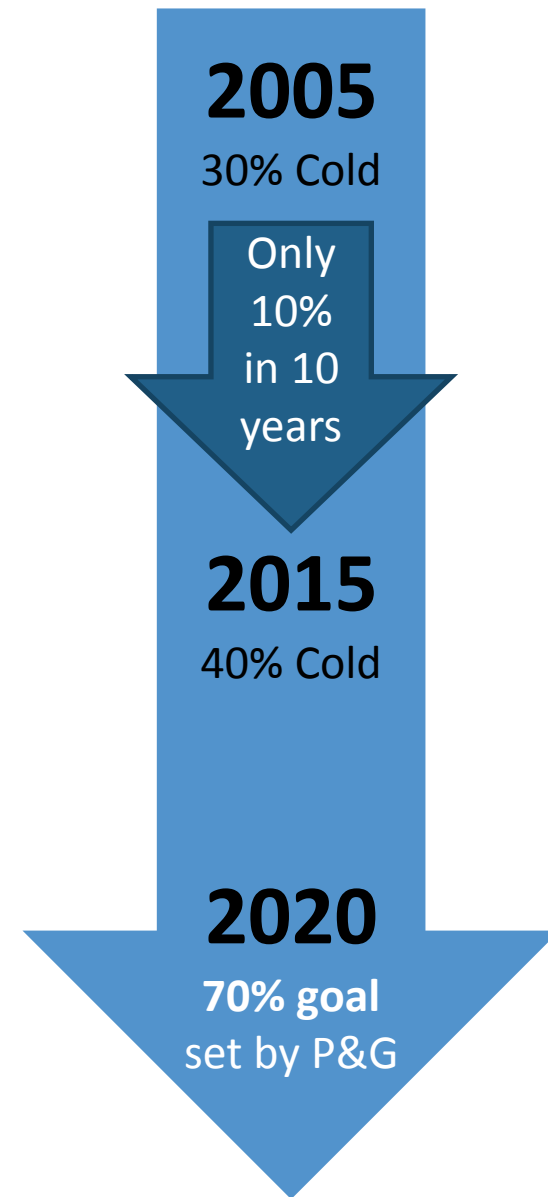
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Opportunity in Cold Water Detergents

- Enzymes are activated at a lower temperature to remove everyday soils and particulates
- Becoming more common, but still challenges to market entry
 - Machine Manufacturer-Detergent producer interactions
 - End-user behavior
 - In 2005, 30% of loads were done in cold water
 - Current washing trends are:
 - 40% Cold**
 - 40% Warm**
 - 20% Hot**



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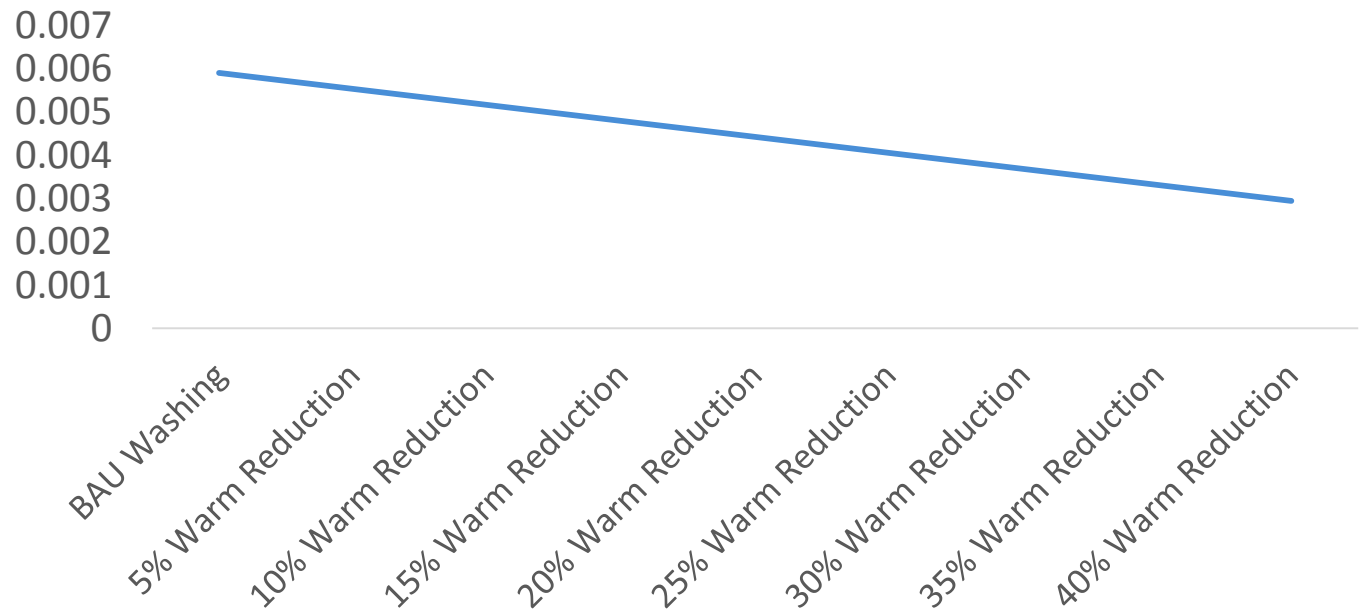
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Opportunities in Appliances

Per Load Energy Consumption with Increased Cold Water Detergent Penetration (MMBtu/Load/Residential Customer)



Ways to Build on Behavioral DSM Savings

- Energy Efficient Washing Machines
- Electric Tankless Water Heaters
- More Energy Efficient Natural Gas Water Heaters
- Replacing vertical-axis washers

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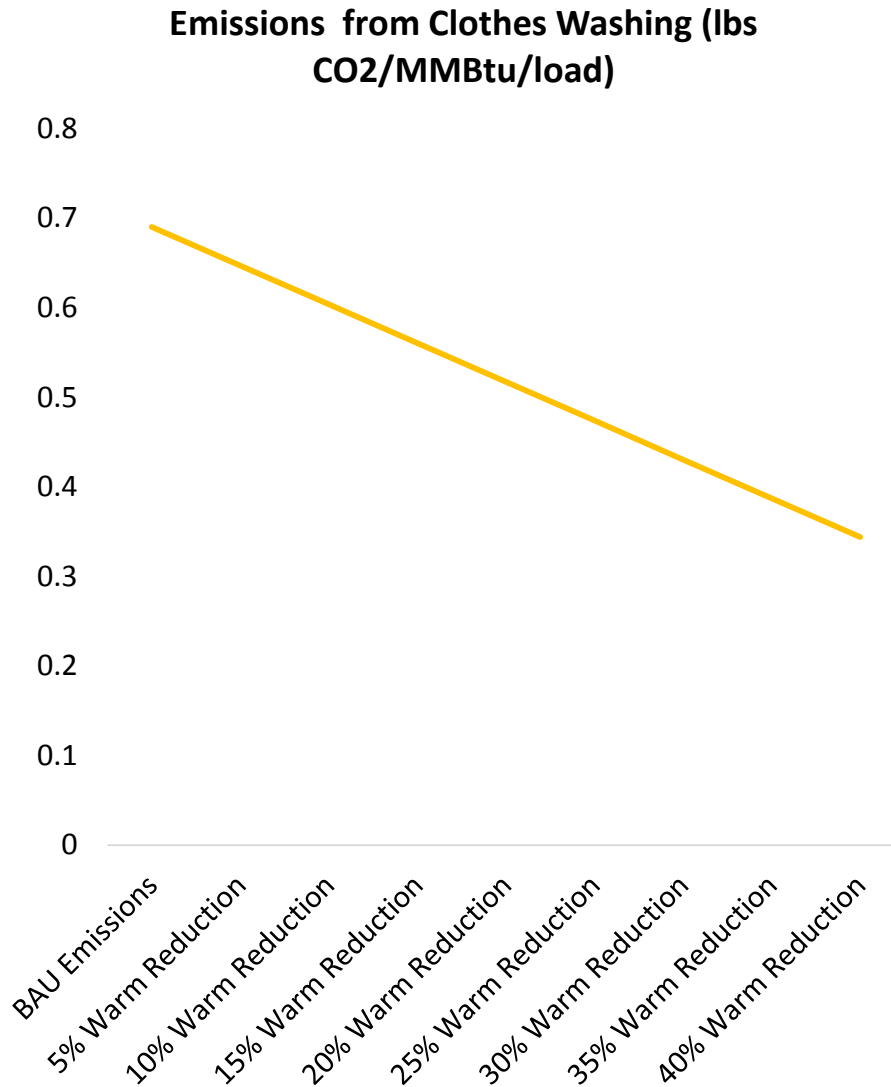
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Current Clothes Washing Trends in the Metro-Chicago area



Key Numbers

Average Weekly Loads per Customer: **5.8**

CO₂ Reduction Potential per 1000 customers: **432.2 tons**

Annual 64-load detergent purchases per household: **~5**

220 ILCS 5/8-103: **2% Consumption Annual Reductions**

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Utility intervention is key to the success of *consumer adoption of energy efficient products and practices*

Bill inserts with can be sent to residences with indicators of consumption relative to comparable customers

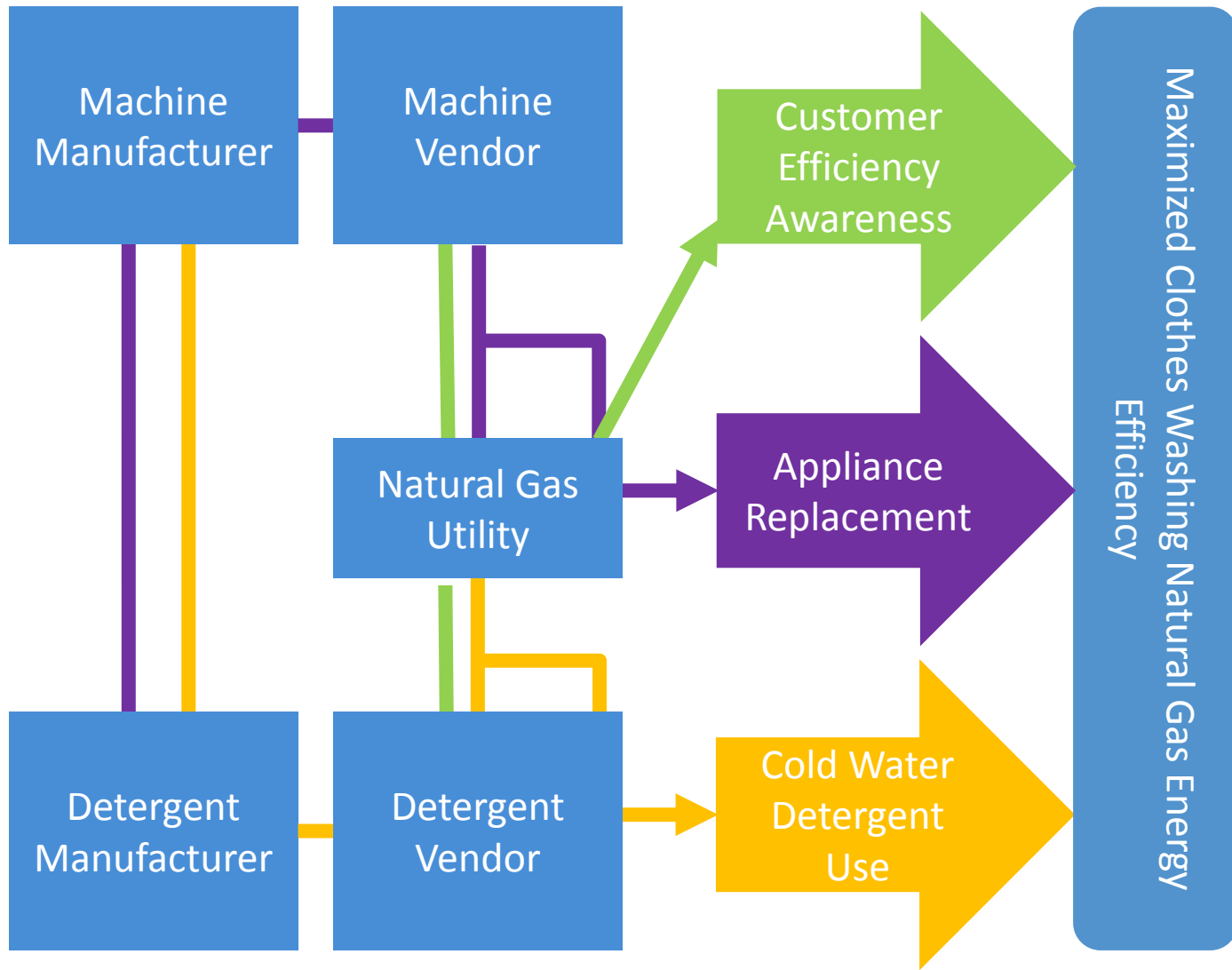
- Suggestions to consumers are small and do not require significant behavioral changes

Partnerships with household products vendors, detergent manufacturers, machine manufacturers and vendors

- Collaborative marketing efforts
- Point of purchase materials at supermarkets and appliance retailers
- Explore opportunities to promote washers that minimize hot and warm water washing with vendors and manufacturers

DSM Initiatives Should be Part of a Multi-Pronged Approach

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- Natural Gas & Wasted Energy
- Cold Water Detergents
- Appliances
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Thank you.

