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A white paper by the
Coin Laundry Association
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Sustainability Matters: Environmentally Focused Initiatives for Self-Service Laundry Owners

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'Green' Initiatives For the Self-Service Laundry Industry

What does it mean to be "green?"

Every human activity—including those that take place in self-service laundries—affects the natural environment in some way. Sometimes human activity can change the environment for the better, but quite often that activity changes the environment for the worse.

One way this may occur is through *inefficient use or overuse of natural resources*. As far as the activities of self-service laundries are concerned, this might mean perpetuating the use of low-efficiency appliances that guzzle natural gas and carbon-generated electricity, or continuing to operate aging washers that produce excessive amounts of gray water.

Human activity also *may release harmful agents into the environment*. Think of the detergent, chlorine bleach and other chemicals released in wash water – or the gas-fired emissions, heat and lint discharged from dryers, as well as the emissions from fossil-fuel-generated electricity used by the laundry.

In the most general sense, "green" practices aim to minimize—or better yet, eliminate altogether—the negative impact that our activities have on the environment. And in the best possible scenario, green practices may even improve the environment.

There are many commonalities among the green practices applied by service industries—particularly concerning various aspects of energy conservation.

But, as the following paper will demonstrate, self-service laundries may provide the perfect example of an industry in which green business practices align perfectly with sound business practices—and, in fact, more often than not are one in the same.

1 Shades of Green

What is the definition of a "green self-service laundry" in today's marketplace?

If one were to ask the owners of a dozen businesses—laundries or otherwise—for the definition of a "green business," one almost certainly would get a dozen different answers.

But at the most basic level, those answers all likely would boil down to this one: "A green business is one that is as energy-efficient as possible, as sustainable as possible, and which conserves resources in every way possible."

However, transforming a commercial enterprise into a green business does not happen with the flip of a

switch. It takes time, planning and investment. Moreover, sometimes financial, physical or regulatory obstacles may hinder or prevent a business from meeting all of the green objectives that it might reach under ideal conditions. Government, industry and academia alike have long acknowledged this fact; one common way they have used in their discussions to convey the impact of various environmental initiatives is to refer to them in various gradations—or "shades" of green.

In the self-service laundry industry, for example, if a laundry has traded out its old topload washers that used as much as 33 gallons of water for new, higher-capacity frontloaders that use as little as 11 gallons—but that laundry still uses an older, less-efficient water heater—it might be considered a **"light green"** laundry.

Likewise, a laundry that has updated all of its machines, has an ultra-high-efficiency water heater and has replaced its florescent tubes with LED lighting might be called **"medium green."**

Finally, a laundry that features all new high-efficiency machines and water heating, LED lighting, an ozone wash option—and solar collectors on the roof—might be considered **"bright green."**

But, of course, greenness also is a continuum, with many shades in between these three examples – each one shaped by various factors such as local utility costs, market demographics, financial resources and whether the building housing the laundry is owned or leased.

But there also is a **"greenest green," a shade of green that takes the concept of greenness out of the economic realm entirely, and into** the realm of *environmental stewardship.*

Of course, a self-service laundry is a business – one that exists to generate revenue. So, should an owner entertain the notion of environmental stewardship? In most cases, it is limited by the operator's own business practices and goals. For most owners, environmental stewardship may be a *potential goal* that is lower on the agenda – or perhaps merely an incidental positive byproduct of creating a more efficient and, therefore, greener laundry.

But for a growing, if small, number of self-service laundry operators, environmental stewardship is a *basic principle* that guides all of the owner's business decisions. It tempers every facet of the enterprise – from building construction to laundry equipment to the daily activities of the owner and his or her employees – and results in the very greenest of laundries.

In such laundries, every aspect – equipment, water heating, lighting, HVAC and climate control, floor plan, building design and construction materials – is selected and put in place with the preservation of nature as the primary goal.

But the fact is that self-service laundries are simply becoming greener every day, as a function of moving to a higher level of efficiency – with or without any strongly held convictions concerning environmental responsibility on the part of operators.

That's because any time a machine older than seven or eight years old is replaced in any self-service laundry,

the piece of equipment that replaces it is one that consumes less utilities – and the utilities it does consume are expended more efficiently because of the higher level of control the machine's newer technology offers to operators and customers.

2 Boosting the Bottom Line

What tangible reasons are there for laundry owners to want to incorporate "green" initiatives into their business plans?

The simplest answer is: Money.

Profitability

Perhaps the easiest way to express it is that "the green in your laundry produces green in your pocket." It's a plain fact that the most obvious and common green initiative – replacing old machines – while it may be the most expensive to implement, also generates the most long-term financial benefit.

UTILITY COSTS. Newer laundry equipment simply makes more efficient use of the utilities it consumes. In that sense, it is greener than older equipment. As a store's washers, dryers, water heaters get greener, utility expenses decrease. And the lower a laundry's utility costs are as a percentage of revenue, the more profitable the laundry will be.

WATER. Of all the utilities a laundry uses – water, electricity, natural gas or propane – water deserves special mention for two growing reasons: *scarcity* and *cost.*

Scarcity. Whether it is due to long-term weather cycles or more significant climate change, water shortages have begun to impact large areas of the United States, particularly in the Southwest. Droughts and declining spring melts have shrunk river flows and lowered reservoirs in areas stretching from southern California to Texas, triggering allocation cuts and water-use restrictions. Scarcity of any resource drives up its cost and availability to customers, so better usage practices just make financial and operational sense.

Cost. Water and sewer rates have been rising across the country, regardless of water availability. However, while municipalities can exert some control over water costs to customers, they cannot control the aging and decay of the water distribution and sewage systems that serve them. All across the nation, long-postponed infrastructure investments can no longer be put off. And the expense of those investments passed through to customers can substantially inflate the cost of water and sewer rates. Laundry owners can minimize the impact of such increases on their bottom lines by taking every measure to reduce the consumption and outflow of water from their stores.

SPEED. More efficient, "greener" machines use less water and extract more of the water that is used, shortening wash and dry times and providing laundry customers with a faster "in and out," thereby freeing up machines for others to use and potentially increasing traffic to the business.

Marketability

It goes without saying that no one wants to spend more time than necessary in a laundry, so equipping with greener, more efficient equipment that gets customers in and out of a store faster also can help improve the *customer experience*, and cultivate *customer loyalty*.

Other green, money-saving improvements – such as newer, energy-efficient lighting that also brightens the work area, as well as energy-saving structural and mechanical changes that aid in providing a more comfortable temperature in the building – also help improve the customer experience.

Taken together, such byproducts of greening a facility – speed, brightness and comfort – provide the operator with an opportunity to market a laundry where customers can do wash faster, in a more welcoming and comfortable setting.

Moreover, depending on market demographics, a growing number of consumers also will choose businesses that market themselves as green – particularly when laundries make the effort to educate them to the fact that *"green" does not mean "more expensive."*

Community Standing

A self-service laundry – particularly in a small or rural community – may be the largest consumer of water in a given town. In such situations, particularly in water-strapped communities, communicating the fact that a self-service laundry uses machines that consume less water per pound of clothes than those used in the average home can help moderate any perception that the business is a water guzzler.

Instead, "going green" in a public way can help convince municipalities, water and sewer departments, and "city fathers" that the laundry is not a problem, but rather an important asset to the community because it saves water that would be wasted if clothes were washed at home or at a multi-housing laundry room in a less efficient way. Likewise, making a good effort to limit discharges of lint and emissions – along with maintaining a bright, clean facility – can enhance a laundry's reputation as a good member of the community.

Being green, therefore, can become an important aspect of a laundry's efforts to eliminate negative perceptions and cultivate a good public image in ways that can enhance the business's bottom line.

Security

Governments and corporations have a name for it: "continuity of operations planning." It simply means being prepared to operate under emergency conditions.

In addition to the pressures on water and sewer prices described above, homes and businesses in recent years also have faced other challenges to their utility supplies – such as spikes in the cost of natural gas because of distribution limitations during cold winters and higher prices for liquid propane.

When those challenges emerge, the greenest laundries – those that use water and energy most efficiently – are best positioned to absorb and ride out such price increases, continue operations with less financial impact and outlast competitors.

3 Best Practices

What are some best practices for today's "green" self-service laundry businesses?

As we have begun to see above, there are a number of basic actions that provide the foundation for a green laundry, most of which involve replacing or updating the equipment that constitutes the guts of the enterprise – washers, dryers, water heaters and HVAC systems.

While updating equipment is one of the most basic activities for greening a laundry, there is a full range of best practices – some that involve equipment, and some that do not – which also generate financial, operational and environmental benefits.

Core Equipment

WASHERS. As most operators are well aware, washers manufactured during the last five years or so are more efficient than washers built even as recently as several years prior to that. Operators today can purchase and program machines with an eye toward containing operating costs and lowering the use of water, hot water and energy resources, while still giving customers more control over each wash load. New machines use *less water* and *less energy,* and feature higher levels of *programmability* in terms of cycles, speeds and water temperature.

Technologies that enable this superior performance include:

- ***Microprocessor controls*** that reduce the number of water exchanges from five to three.
- ***Highly sensitive pressure transducers*** that give operators greater control of water levels than older pressure switches.
- ***Improved washer designs*** that reduce the amount of "dead water" below the drum.
- ***Higher G-force extraction speeds*** that reduce water in clothes, lowering energy use for drying.

Equipping a laundry with new washers is probably one of the most basic moves an owner can make toward creating a green enterprise.

DRYERS. Washers manufactured for commercial use have benefited from many technical improvements over the past decade, but dryers somewhat less so. However, going back a bit further, perhaps over a 20-year period, dryers have in fact become more efficient. There are dryers today that can remove moisture from a load of clothes using about two-thirds of the energy of a machine built 20 years ago. One key energy-saving development in gas dryers over that period has been the move from standing pilots to spark ignition. Most of the green best practices pertaining to dryers have to do with two issues outlined lower in this section – *maintenance* and *education.*

WATER HEATERS. Energy prices historically have helped to encourage the efficiency of water heating technology. A heating system's overall efficiency is gauged by a number of factors, including how efficiently

the heat from the energy source is transferred to the water; how much heat is lost over time while (if) the water is stored in "standby" mode; and how much heat is lost as the heated water circulates toward the point where it is used.

The efficiency of water heating systems that use a storage tank can vary by design, as well as by how well-insulated the heating and circulation system is. As might be expected, higher-efficiency tank-based systems are more expensive than the lower-efficiency ones, but can prove more of a bargain as energy costs increase. Consequently, an owner who re-equips a laundry with a high-efficiency water heater likely would satisfy two goals at once – making more efficient use of energy and helping to offset the financial pressures of rising energy costs. And some operators who use storage-based water heaters have cut energy use further by installing controls that time water heating to align with business hours.

The greenest of laundries are the most likely to consider the use of tank-less water heating systems that heat water only as it is required, eliminating the need to repeatedly reheat a large supply of water because of usage or standby heat loss. They are compact and provide an "unlimited" supply of hot water. However, depending on the volume of water a laundry typically uses, it may need several such heaters, potentially reducing the efficiency gains.

Water heaters requiring makeup air should be housed in an isolated and insulated room.

HVAC. Properly managing heating, ventilation and air conditioning systems is essential to running a green laundry. If managed and maintained effectively, a properly adjusted HVAC system will accomplish several objectives – ensuring customer comfort, proper machine operation and longevity, and energy efficiency.

As with washers, dryers and water heaters, it is a simple fact that an operator who invests in a properly sized *high-efficiency HVAC system* will get more mileage out of the energy the laundry uses for heating and cooling. But operators can perform a range of other actions to ensure effective and energy efficient operation of a laundry's HVAC system, such as:

- ***Using timers or other controls*** to dial back operation during slower business hours, or to restart systems shortly before opening time rather than run them at reduced levels during closed hours.
- ***Applying tinted window film and awnings*** to South- or West-facing windows to reduce heat buildup from the afternoon sun – particularly in southern climates – and/or installing double- or triple-paned windows to increase thermal resistance (the "R factor").
- ***Adding sufficient insulation*** to ceilings and walls to tighten up the structure and increase the effectiveness of heating/cooling systems and the retention of conditioned air.
- ***Ensuring that dryers are located in an isolated and insulated room*** away from other conditioned spaces.
- ***Sealing up all HVAC ductwork*** to ensure there are no leaks.

Maintenance

None of the core equipment listed above will operate with the peak energy efficiency of a truly green laundry without proper and regular maintenance.

Moreover, the most efficient equipment on the market often may turn out to be that which requires the most diligent attention to regular maintenance, cleaning and adjustment to operate at maximal performance.

WASHERS. In addition to performing regular service, cleaning and preventive maintenance, operators should regularly check the supply and drain lines that transport water to and from each machine, making sure that inlets and outlets are clear, that hoses are not leaking, that drains are not clogged, and that valves are functioning properly.

DRYERS. In addition to scheduling regular service and preventive maintenance, operators know that lint is the key issue when it comes to dryers. For optimal performance, machine life and energy efficiency, lint screens need to be kept clean, motors vacuumed and exhaust vents cleared on a regular schedule. Other factors – the correct installation of exhaust venting, a sufficient supply of makeup air for dryers and a proper BTU-CFM balance for each machine – also contribute to dryers' overall energy efficiency.

HVAC. Lint also attacks HVAC systems. Filters, ductwork and vents need to be cleaned more often than in other types of businesses. Also, like other mechanical systems, HVAC systems operate at peak performance when they receive service and preventive maintenance on a regular basis.

OTHER. On-premise toilets, as well as restroom and customer service sinks, suffer the same valve and connection failures as other plumbing fixtures and, thus, require regular monitoring and maintenance to prevent drips, leaks and water waste.

Lighting

Re-lamping a store by changing out old T12 florescent lighting in favor of new, more efficient and longer-lasting lighting solutions such as next-generation, low-wattage *T8* or *T5* florescent lighting or LED lighting is a way not only to cut energy consumption and trim electric bills, but also to brighten the work area. Because florescent lights contain mercury, a neurotoxin that calls for special disposal, operators should opt for LED lighting when possible.

Re-lamping projects may involve replacing fixtures entirely or simply retrofitting existing ones. Utilities and municipalities often offer incentives and/or rebates for installing energy-efficient solutions such as LED lighting. These perks range from free cost estimates to cash incentives – and all the way to free fixtures and installation.

Operators also can install other lighting technology, such as occupancy or vacancy sensors for restrooms to prevent energy from being wasted by lights that are left on after use. Timers, for lighting and signs – as well as for fans and other devices – also help eliminate energy from being used unnecessarily.

Supplementing artificial lighting by adding natural lighting solutions such as *skylights* or *light tubes* is another option that can provide a portion of a laundry's lighting with zero energy consumption. Light tubes – because

they are in essence simple pipes with highly reflective interiors – can be flashed on a rooftop similar to an exhaust pipe. Most tubes are designed to reflect light downward without conveying solar heat, so they are well suited to hotter climates.

Recycling

Many localities now have some level of recycling in their communities. Operators can make it easier to remove items like paper, cardboard and plastic containers from the waste stream by providing receptacles onsite for empty detergent packaging, paper cups and other recyclables – or even reusing some materials such as detergent bottles.

Not many years ago, local recycling was not the common practice it is today. By staying current on simple, environmentally sound measures practiced by socially responsible companies like Whole Foods and others, owners can adopt such new practices as they emerge and help propagate them throughout their communities.

Education

Even when a laundry operator installs the most efficient technology available – technology that allows a customer to wash with less water, use less hot water, extract more water to cut drying time and use less detergent – customers tend to stick to old habits and beliefs, convinced that a lot of water, extra cycles, hot water, and extra detergent and chlorine bleach will produce a cleaner wash.

An operator who wants to run a truly green laundry will educate customers through multiple means – posted instructions, informational posters and, in the case of an attended laundry, the helpful advice of an attendant – to teach them about the advantages of new, superior machines and to coach them on their proper use, as well as in the use of safer detergents and oxygen bleaches.

Ideally, a laundry would train customers to use efficient machines in an efficient manner – that is, to make them realize that cold water is viable for most fabrics, that they need to use less of today's modern detergents to get a clean wash, and that wash that is tossing in a few gallons of water in a frontloader will come out cleaner than wash that was submerged in a toploader, which uses at least twice as much water and more energy.

Some customers who refuse to learn and adapt may respond to a bit of coercion. For example, an owner could use multi-level vending to charge more for hot water, thereby putting an economic premium on the use of more resources and encouraging more use of cold water.

However, some customer training goes beyond water, energy and chemistry. An operator also has the opportunity to communicate the laundry's green activities to customers as more than simple, practical actions taken for financial gain or to glean savings, but rather as measures to promote environmental stewardship in which the customers can play a role.

Construction

As noted in the preceding discussion on HVAC, having a well-insulated, weatherized facility with well-controlled climate is an essential part of a green operation.

MATERIALS. In addition to making sure the space is tight and weatherized, the greenest operators also would ensure that materials used in the construction and/or upkeep of the space are recycled or sustainable, and pay attention to finer details – such as whether materials, cleaning solutions, sealants and paints used in the laundry contain volatile organic compounds that emit unhealthful vapors.

PASSIVE HEATING AND COOLING.

ENTRANCES. Air-lock/sheltered entries ensure the integrity of conditioned air inside the facility.

Many green upgrades to the laundry premises may be limited by whether or not an operator owns the building, or whether a certain investment to improve the laundry space makes financial sense under the terms of the lease and the time remaining on it.

However, tying back to the previous topic – education – an operator also may have a role to play in educating his or her landlord as to the benefits of enhancing value of the leased premises with the installation of LED lighting, tighter insulation or other environmentally sound improvements.

4 Energy Conservation

What are the leading areas in which laundry operators can conserve energy and save money within their stores?

It has been said that a self-service laundry is a business that simply packages utilities for sale. One utility is water, and the other is energy – whether in the form of natural gas, propane or electricity.

As noted above, one of the key goals of a green laundry is to save energy, and to use whatever energy that is expended for the business in the most efficient manner possible.

The previous sections have made it clear that an operator can conserve energy and save money through four primary means:

ADOPTING THE LATEST WASHER, DRYER AND WATER-HEATING TECHNOLOGY. Machines and water heating are the heart and soul of a laundry, so they are responsible for a lion's share of a laundry's energy consumption. Machines that incorporate the newest technology are simply more energy-efficient and more programmable to give owners more control over energy use. And, in a laundry with old machines, switching to new washers that use a fraction of the water of old machines also will slash water and sewer expenses by anywhere from one-third to one-half. Changing to tankless water heaters or condensing tank water heaters can reduce energy consumption, but owners also can increase efficiency in low-tech ways – such as insulating a water heater's tank and distribution lines.

ENSURING THAT HVAC, EXHAUST VENTING AND AIR SUPPLY SYSTEMS OPERATE EFFICIENTLY. This means properly conditioning the air for both people and machines. Without proper air control, a laundry

can be a hot, humid and potentially unhealthy environment. In southern climates especially, the dollars spent on cooling a laundry can skyrocket during hot weather. Using some of the methods described earlier, operators can significantly trim back costs to cool the facility, as well as keep machines operating as they should. As noted earlier, ensuring that dryers are insulated and isolated far enough away from the other areas of the facility is a key consideration in preserving the integrity of the conditioned air in those spaces.

RE-LAMPING WITH HIGH-EFFICIENCY LIGHTING. Advanced high-efficiency, low-wattage solutions give off as much or more light while consuming a fraction of the electricity of older lights.

REGULARLY MAINTAINING ALL ASPECTS OF THE LAUNDRY TO KEEP IT AT PEAK ENERGY EFFICIENCY. Maintaining all aspects of a facility to ensure that the whole operation supports the goal of peak energy efficiency is an environmentally sound practice and makes good business sense. On the business side, an operator who fails to pay close attention to all aspects of a facility likely will consistently spend a larger percentage of gross revenue on energy and equipment repair and replacement than one who schedules regular service and preventive maintenance. That operator also will be more prone to lose customers and revenue due to out-of-service machines and to run down the value of the business.

5 In With the New

How does the age of a store's equipment impact its operating costs?

As demonstrated above, equipment age clearly affects operating costs.

While equipment manufacturers still emphasize the durability and reliability of their machines, the main focus of their marketing today is utility savings. The reason, of course, is the rising cost of those utilities – the very "raw materials" that laundries package and sell.

The problem is not so much the age of the machine itself – a 10-year-old topload washer may have a good 10 years of dependable mechanical life left – but rather the age of the technology in that washer that is the main concern today. Cars provide a good analogy: An old gas-guzzler will transport a person between Points A and B just as well as a new hybrid, but it will consume several times more fuel than the hybrid.

The impact on operating costs is clear: An owner who replaces 15- to 20-year-old washers with new, high-efficiency ones may cut utility costs in half.

As a rule, stores with older washers have consumed utilities at a cost of 25 percent to 35 percent of gross revenues, depending on vend prices. In a store updated with new equipment, that percentage can to be cut by 15 percent to 20 percent.

Older machines just cost more to run. Replacing them is a financial consideration. But laundry owners with a broader view of what a green business is also will consider the environmental costs of operating older

machines – including the amount of fresh water and energy resources that are being wasted, and the excess amount of gray water that is being discharged – as equal motivations for replacing older equipment.

6 Taking the Initiative

What are some other sustainable, eco-friendly practices laundry owners can adopt?

Everyone buys or establishes a self-service laundry with the goal of making money.

Most of the green initiatives discussed so far in this paper accomplish the dual task of increasing revenues *and* satisfying the "green" goal of using fewer resources, and using them more efficiently.

Those initiatives, aside from the investments required to implement them, are relatively "painless" in that they also are sound business practices that can be easily justified from a strict bottom-line perspective.

However, many of the next steps in "greening up" a laundry – although they may shave a few percentage points off a laundry's expenses – generally require a greater commitment to the idea of sustainability and environmental responsibility. Many of these initiatives require a bit of time and effort to implement, often involve additional investment and, from a business perspective, may generate only a marginal gain, or perhaps none at all. Some of the key ones are outlined below.

Reducing Chemistry
Self-service laundries discharge waste water into the environment, so it is important for a green laundry to control and minimize the use of wash chemistry.

OZONE WASHING. This technology, which uses specialized ozone-generating equipment to oxidize water so that it provides cleaning and disinfection with low-temperature water and less chemistry, has found increasing application in a self-service laundry setting. On the plus side, it eliminates the amount of cleaning agent that is released into the environment. On the negative side, it requires additional equipment and electricity to implement, and can raise concerns among customers who may doubt the effectiveness or hygiene of a process that uses lower temperature water and less detergent.

HIGH EFFICIENCY (HE) LAUNDRY DETERGENTS. Promoting the use of these concentrated, low-sudsing detergents – specifically designed for use with low-water, high-efficiency washers – is both an environmentally sound practice and a way to ensure customers use machines to their full benefit. Seeking out, promoting and selling the HE detergents with the most eco-friendly chemistry will ensure that an owner has done what he or she can to address the issue in a responsible way.

AUTO-INJECTION. While most customers still prefer to use their own detergent, some laundries have added wash options that include auto-injection in their largest machines. This prevents overuse of chemistry and allows the introduction of eco-friendly detergents. However, it also adds another level of expense and complexity – as well as additional maintenance and repair – that many owners would prefer to avoid.

Further Reducing Energy Consumption

Most new HVAC and water heating systems produce far less impact on the environment than previous generations of technology. But investing a bit more to adopt ultra-efficient technology means that an owner has done everything he or she can to become green within the limits of current technology.

HIGH SEER (SEASONAL ENERGY EFFICIENCY RATIO) AIR CONDITIONING. While most new A/C systems are more efficient than the ones they replace, high-SEER-rated units with variable speed compressors are the state of the art for increased efficiency.

ADVANCED WATER HEATING. *Condensing gas tank water heaters,* which store water and remove and use latent heat from exhaust, is arguably the most efficient and practical high-efficiency water-heating solution; and, as a replacement, they occupy the same footprint as a traditional heater. While they typically operate at about 95 percent thermal efficiency or higher, they are best suited to softer water and require PVC venting because of the acidic condensate they produce. *Condensing tankless water heaters* have similar efficiency ratings, require less space and provide "just in time" hot water.

Further Reducing Water Consumption

REPROGRAMMING MACHINES. The most diligent owners also conserve water by eliminating the largest possible amount of water they can from their machines' wash programs; for example, by reprogramming to eliminate prewash cycles, cutting back the number of rinses and/or reducing water levels. Moreover, by decreasing the amount of water that must be pumped in and out of machines, optimal reprogramming also cuts energy use and reduces the outflow of waste water.

MARKETING "QUICK WASH." Related to reprogramming efforts, owners also can market the shorter wash times as separate wash options geared toward getting customers in and out faster.

7 Striking a Balance

What are the specific costs of "going green," and what types of ROI can laundry owners expect from their "green" initiatives?

All laundries are different – with different utility costs; different vend prices; different demographics; different tax, lease and debt situations; and different management styles and objectives. Consequently, with so many variables, there is no *definitive* answer as to how much return on investment one can anticipate by investing in green initiatives.

Moreover, costs may range significantly, depending on how green an operator decides to go. While not all environmentally friendly choices cost more than their traditional alternatives, there nonetheless are many green upgrades that, in fact, do have a higher cost to implement than those that are not green.

As has been demonstrated above, washers and dryers are the biggest consideration. Choosing advanced, microprocessor-controlled, energy-efficient laundry equipment packages over basic models that do not

feature this sort of technology and programming flexibility may cost a buyer 15 percent to 20 percent more at the time of purchase, but the premium can be recouped in only a few years, and the equipment may last for as long as 15 years after that.

While an investment in any kind of new *washer* or *dryer* generates a cycle-by-cycle ROI, that ROI is enhanced by lower operating expenses when the new machine consumes less utilities. Likewise, when it comes to *HVAC* and *water heating* upgrades, the greener and more efficient the new equipment is, the greater the immediate savings will be to help offset the more costly investment. As for *lighting*, as noted above, a utility or municipality may offer incentives or rebates that involve sharing the cost of – or even fully paying for – new, more efficient lighting and fixtures. If an incentive covers the entire cost, the significant drop in electricity expense translates to an instant boost to profit with no investment at all.

The bottom line is that replacing old solutions with new, more efficient technology will substantially reduce utility expenses, and create a new situation that leaves more revenue on the table without a corresponding increase in utility expenses. And, after deducting the cost of the equipment and any debt service associated with it from that new revenue, the difference is additional profit.

OTHER CONSIDERATIONS. The ROI of a specific upgrade project also may be influenced by other factors that can affect the time it takes for an operator to remake the investment and generate additional returns.

The gain generated by a project to replace a given laundry's 20-year-old washers, for example, may hinge on a range of other variables – including the cost of major changes to electrical service, impact fees, or modifications in mounting foundations, drains or flooring. The project also may involve a change to the equipment mix. And, depending on customer demographics and the specific kind of new equipment that is brought in, an owner may decide to increase vend prices or offer new vend options. All of those factors will affect the ROI and payback period.

8 Beyond the Basics

After you've done the "basics"–newer equipment, lighting, recycling, weather-proofing the facility, etc.—what's next? What are some "green" initiatives that laundry owners may not be considering?

Nearly all of the "basic" initiatives discussed so far provide some measure of financial benefit to the operators who implement them.

But, for some owners, being green is a personal lifestyle choice that also reaches into their businesses. These are operators who look beyond bottom-line considerations to seek out and adopt innovative practices in their businesses that may offer some incidental financial benefit, but which they pursue primarily because it is "the right thing to do."

When it comes to being truly "green," this is where the rubber meets the road. Here are some innovative ideas from owners at the forefront of the green self-service laundry industry. They typically require a small investment of time rather than money:

HANGERS. If a laundry has wash-dry-fold or drycleaning service, ask customers to bring back hangers and/or plastic garment bags.

SMARTPHONE COUPONS/INTERNET ADS. Cut paper waste by using smartphone coupons instead. Use e-marketing in the place of paper-based efforts.

ECO-FRIENDLY LAUNDRY PRODUCTS. Sell only those products that are free of harsh chemicals and fragrances. Promote the use non-toxic dryer balls as an alternative to chemical-laden dryer sheets.

RESTROOM FACILITIES. Install low-flow toilets and faucets, and consider the use of waterless urinals.

SUBSCRIPTIONS. Rather than buying magazine subscriptions for customers to read while they wait, ask them to bring in and leave their old ones to share.

LINT. Make lint available for recycling and reuse in arts and crafts. (It can be spun into yarn, used to make a "lint mache," or used in paper-making, among other uses.)

PUBLIC SERVICE. Wash and donate unwanted clothing to shelters and non-profits. Recycle the fiber, zippers and buttons of clothing that is too worn to donate.

LINE DRYING. Providing line-drying services on sunny days. Generally encourage line drying.

PLANTS. Place plants and greenery inside and outside the laundry to establish welcoming and eco-conscious surroundings.

VEHICLES. Ensure that vehicles purchased for company and delivery use are fuel-efficient.

In addition to the simpler measures described above, more ambitious initiatives may include:

CARBON OFFSETS. Purchase carbon offsets to compensate for the carbon emissions produced by the laundry.

GREEN ELECTRICITY. Buy electricity from one of the many commercial sources available across the country. (These encompass a range of green power products. The U.S. Department of Energy offers at state-by state overview on its website at: http://apps3.eere.energy.gov/greenpower/buying/buying_power.shtml.)

Of course, the most ambitious green initiatives in the "other ideas" category – and those that would generate the most additional "green" benefit – also would require the greatest expense and commitment; these include latent energy use, water recycling, and solar energy… all discussed below.

9 On the Horizon

What other types of new green technology may be useful in a self-service laundry setting?

There are a number of major, new and important green technologies that clearly would be useful in a self-service-laundry setting. But, as useful and beneficial as they may be, those technologies – including water reuse, alternative energy generation and venting heat recapture – may not necessarily be *practical* within the context of a typical self-service laundry.

There are a number of potential obstacles:

The *cost* of a technology may be too high. Depending on an owner's long-term business plan, he or she may find the payback period too long in relation to the potential benefit.

In a similar way, there may not be sufficient *efficiency of scale* to make the technology a worthwhile or sensible investment for a particular business.

Furthermore, installation of a technology may be impossible because the operator does not own the building, or because of the limitations of the *physical site* or the conditions or remaining term of the lease.

Nonetheless, the possibilities inherent in these technologies continue to intrigue many green self-service laundry operators.

Water Reuse

Water reclamation and recycling/reuse works well for large commercial laundry facilities that have the necessary space for the requisite equipment and water storage. But, so far, the space limitations of a typical self-service laundry has kept these improvements out of reach to most owners within this industry. Moreover, while the use of recycled wash or rinse water may raise no eyebrows in a commercial setting, it would take a lot of work to make it fly in a self-service laundry environment.

At the same time, solutions that allow the reuse or partial reuse of rinse water as wash water, or that allow facilities to remove impurities from wash water for reuse – through reverse osmosis filtering, for example – continue to draw the interest of operators in water-strapped regions, perhaps someday enough that it will drive the development of scalable solutions.

Solar

There are two primary solar applications in the context of a self-service laundry – water heating and energy generation.

In the first, water is pumped to the roof, heated by the sun, stored for use and fed on demand through the regular water heater, where the temperature is adjusted if necessary. In the second, solar collection panels mounted on the roof and connected to photovoltaic cells turn the sunlight into direct current (DC). An inverter then converts the DC into alternating current (AC) for use as electricity in the business.

Aside from the cost, the primary obstacle to the installation of solar solutions in self-service laundries is not owning the building in which the laundry is housed. There is far more incentive to pursue the idea of installing a solar system when the operator owns the building and thereby is assured of long-term benefit.

SOLAR WATER HEATING. While heating water with the sun onsite seems like a clean, elegant solution to hot water needs – especially in warmer, sunnier climates – there *are* some drawbacks. First, some amount of additional electrical and/or gas-generated energy is required to pump the water to the roof and circulate the water, as well as to further heat it if necessary. Second, large numbers of customers prefer to use self-service laundries after work or at night – when the sun is no longer heating the water and that solar-heated water is, in fact, cooling off.

SOLAR ENERGY. Freestanding solar energy systems are not cheap. Solar panels have found their way onto residential rooftops with the help of incentives and rebates offered by governments and utilities.

As power grids strain from growing usage, utilities and government authorities have been eager to provide other incentives to businesses, such as those that encourage the adoption of energy-efficient lighting. In the scheme of things, replacing lighting is a relatively easy and straightforward way to reduce a lot of strain on the grid. Pacific Gas & Electric, for example, has stated that lighting accounts for about half of all the electricity consumed in retail spaces in California.

But implementing small-scale solar energy solutions, on the other hand, is a more complicated and costly task, and while some utilities and government programs do provide incentives to businesses for implementing solar, there is not the same level of momentum and widespread implementation and support as there is for re-lamping initiatives.

However, outside of financial considerations, there is no reason that a self-service laundry operator who owns the premises and is dedicated to greening up the business could not add a solar component to the business's energy mix. At the same time, an owner would be wise to carefully weigh the potential generating capacity of a solar system against current electricity usage to get a reasonable picture of actual benefit.

Wind Generation

While erecting a wind turbine to provide on-site, wind-generated electricity may be a possibility in some situations, it likely is not a practical option in most circumstances due to cost, physical location or availability of a steady stream of wind. However, as was noted in the previous section, it is quite possible to purchase wind-generated electricity in many areas through a number of commercial green-energy programs.

Heat Recapture

Most of the energy consumed by a dryer is used to generate heat, much of which is lost when exhaust is vented away from the machine. Efforts have been made to recapture that wasted energy to heat water, or to harness it to significantly bolster the efficiency of the dryers that generate it. Residual moisture and lint, however, complicate those efforts. The bottom line, at least so far, is that adding more mechanical complexity just provides one more opportunity for lint to collect – and one more cleaning and maintenance task for the owner – which thereby presents a significant obstacle to adoption.

(Heat has been captured and re-used in unvented condensing dryers, in which a heat exchanger is used to transfer heat from the exhaust air to the inlet air. The condensing water vapor in the exhaust, which is drained off during the process, aids the heat transfer. These electric dryers, however, are less energy-efficient, more expensive to operate, and heat up the surrounding area, making them unsuitable for self-service laundry use.)

Ozone Wash

The use of ozone-injected water to provide a sanitary, detergent-free or low-detergent cold-water wash is one major green technology that could have a clear place in a self-service laundry. Ozone washing actually requires cold water to work. Also, because it requires no (or less) added chemistry, total wash times may be shorter. And, because ozone acts to open fibers, dry times are quicker. However, while ozone systems have found success in large commercial and industrial laundries – as in the hospitality industry – and can be a boon to a self-service laundry with a large wash-dry-fold linen and comforter trade, implementation does present some challenges in a self-service laundry environment.

COST AND SPACE. Ozone systems introduce an additional mechanical system into a self-service laundry's equipment mix – and, beyond the purchase price, additional ongoing maintenance and repair costs. The systems also require additional space, which manufacturers recommend be kept cool and lint-free.

WASHERS. To offer ozone wash on a machine alongside regular hot and cold wash, a washer must have three inlets. The other option is to reserve certain two-inlet washers for ozone only.

PIPING. Ozone requires PVC piping, because it will deteriorate traditional copper, so a secondary plumbing system may be required.

LIMITATIONS. Ozone is not an end-all washing solution. Very soiled items still will require the use of strong detergents and hot water.

CUSTOMER RESISTANCE. In the "sight unseen" environment of large commercial laundries, the use of ozone is transparent to those who use the washed items. In the hands-on world of self-serve, however, some customers may be wary of ozone washing out of concerns over the healthfulness or effectiveness of a cold-water method that employs little or no detergent, which runs counter to the traditional sudsy, hot-water model that most people perceive as the most effective and sanitary way to wash many items. Adoption of ozone washing in a self-service laundry setting is best accompanied by an active, on-site customer education program.

10 Getting the Word Out

How specifically are today's laundry owners marketing the fact that they are "green" businesses? And how have these actions proven successful?

Perhaps the most effective "green" message to customers is the same as the one for operators: "Wash green to save green."

However, at this point in time, most self-service laundry owners *have not* made an effort to publicize or market being green, even if they have installed the most energy- and water-efficient equipment available.

Key Factors

DEMOGRAPHICS. A prevailing attitude among most owners today is that green messaging simply does not resonate with their customer base, which more often than not consists of low-income renters who worry more about a laundry's cost and convenience than whether or not it's green.

In many areas of the country, another perception among owners is that the appeal is *regional;* that urban customers on the West Coast, based on local attitudes, more likely would opt to take their business to green laundries than would customers of laundries located in small towns in the South – just as one example.

There is some truth to that perception. The self-service laundry owners interviewed for this paper who in fact *have* put the most effort into green marketing also are those who adhere the most to a sustainable, green business model, and whose laundries are located in what might be labeled "eco-progressive" locales such as Austin, Texas, and Portland, Ore., where customers on average are more receptive to the green theme.

EXPENSE. Other owners express concerns that customers – familiar with the higher price of things like organic foods compared to non-organic, for example – often interpret green goods and services as being *more expensive.* And, in fact, it seems a perfectly valid conclusion that many customers might walk past a laundry that markets its green-ness in boldface – unless that marketing also references affordability and savings.

At the same time, the overall population as a whole is becoming more aware of the importance of conserving and using resources wisely, so a broader range of the population has at least some sense of knowing that – all things being equal – sustainable practices are better than those that are wasteful.

PUBLIC GOOD. Some green laundry operators point out that there are certain areas of the country where opportunities to play up the efficiency of a laundry as a green community asset may be overlooked. In water-strapped areas, for example, laundries that simply have up-to-date, efficient equipment clearly make more economical use of limited water resources than people who use the kind of washers in most homes and onsite multi-housing laundry facilities.

In such cases, without even uttering the word "green," a laundry could market the fact that it has aligned itself with the interests of the community and that, as an act of good citizenship, it is making an active effort to save water and minimize usage for the entire neighborhood.

Pulling Out the Stops

Owners who market themselves as green range from those who just barely touch on the fact to those who make it a key theme in all of their communications.

Some laundry owners who merely touch on the green theme may do something as simple as adopting the color green and perhaps including a few salient words about sustainability in their advertising and promotions.

However, others – laundries that more actively promote themselves as green or sustainable – go further by reaching out to like-minded members of the customer base and business community through means such as:

SOCIAL MEDIA. Some green laundries use social media such as Facebook as part of their efforts to engage with their communities – posting promotions, photos of customers, and items of general or community interest.

COUPONS. Other laundries find strength by aggregating their promotions with other local sustainable businesses that target green-minded individuals through media such as print, online or mobile coupon books.

PARTNERSHIPS. Similarly, some laundries have been successful in building their customer bases by creating partnerships and relationships with other local sustainable businesses, shops and restaurants to cross-market their offerings.

From a strictly business perspective, going green – if nothing else – provides a measure of market differentiation. And, if done carefully, with an eye toward growing the business without turning off the current customer base, a typical laundry equipped with efficient machines has little to lose and possibly much to gain by incorporating an existing, built-in strength into its marketing efforts.

11 The Way Forward

Where is the "green movement" headed within the self-service laundry industry?

As noted at the beginning of this paper, "green," as it pertains to self-service laundries, is a continuum. It also is a fact that more businesses overall, including self-service laundries, have begun adopting at least a light shade of green when the opportunity presents itself.

The truth is that, for a variety of reasons, self-service laundries – like other businesses – are moving toward green. Sometimes it is because it is simply a good business practice. Other times it is because of the scarcity of resources. Still other times, the motivating factor is social conscience.

At the same time, there still are a large number of self-service laundry operators for whom their laundry is not the primary source of income. Those owners often conduct business just as they did 15 or 20 years ago – running the business mostly in absentia; getting the most out of even the oldest, least-efficient equipment; minimizing new investment; and replacing machines and mechanical systems only when it becomes absolutely necessary.

By comparison, some point out that "going green" – and doing so properly – requires more hands-on management, as well as closer attention to service and maintenance. Moreover, the greenest laundry operators also tend to be the ones who are the most personally involved in the business – and for whom the laundry (or laundries) represent their primary source of income. In short, being "really green" requires more of a commitment.

Changing Times

Growing shortages of water, increased pressures on electricity generation and distribution systems, and – more recently – sometimes spotty availability of natural gas, demand that consumers and businesses alike reduce the quantities of the resources they use and exercise more care in the way they use them.

As in any economic situation, scarcity of a commodity in demand increases its cost. As an industry that depends so completely on water, electricity and gas, self-service laundries must be prepared to adapt their operations to match the available supply and cost of utilities if they wish to remain financially viable. For that reason alone, laundries will become greener, whether they market that fact or not.

As mentioned earlier, some of this greening up is hard for laundries to resist. Free re-lamping offers, rebates on energy-efficient washers and water heaters, and other incentives reduce – and, in the case of lighting, sometimes even eliminate – the cost of re-equipping with green solutions. This also will drive the development of greener laundries.

In many areas of the country, self-service laundries also are in a position to transform the image of the industry by raising public awareness of the greater strain that consumers put on the environment using residential machines, rather than those at their local self-service laundry.

Today, green innovators within the laundry industry often look to commercial laundries for clues to energy efficiency, such as ozone washing and water reclamation.

But, as more self-service laundry operators actively – rather than passively – move in a green direction and learn more about green practices, they (as daily practitioners) likely will be the ones to come up with additional energy-saving ideas that others across the industry also can employ.

The bottom line is that becoming green is not so much a question of "if," but rather of "when."

Or, as one laundry operator put it: "Sustainability is not a trend. It's a way of life."

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