25 Energy Saving Tips
“Easy Money”

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Promoting:

Energy Efficiency in Commercial Food Service
FSTC studies all the ways you use energy and water

An example of the total energy breakdown (BTU) in a full service restaurant.
Food Service Technology Center

Promoting energy efficiency and performance in commercial food service since 1987.

FSTC News:
Redesigned Website Launches
More information and better organization for the ultimate online resource for commercial kitchen energy efficiency.

FSTC Partners with Conservé
The National Restaurant Association's Conservé program offers solutions for sustainability.

10 Ways to Save Natural Gas
These tips will save you money without compromising the comfort, performance or productivity of your kitchen.

Educational Seminars
Go green! Learn about energy efficiency, saving water, sustainability, lighting, and more!

Equipment Rebates
It pays to be efficient! Take advantage of cash incentives on energy saving equipment.

Green Your Restaurant

Being Green is about sustaining the environment and sustaining your bottom line. The FSTC is partnering with NRA's Conservé to introduce the industry's first comprehensive green recognition program. * Learn More

Video Corner
Richard Young explains why choosing energy-efficient appliances is a smart business decision. * Watch More

www.fishnick.com
Tip #1: Install Compact Fluorescent Lamps (CFL)
How much light do you get for your dollar worth of energy?
Don’t make this mistake. Spring lamps are not decorative!
Use CFL Globe Lamps
Downlights: the wrong way!

The reflector is not right for this lamp so the light doesn’t make it down to the table.
Solution...
Screw in CFL flood lamps!
Medium Floods
Small Floods
19 Watt CFL Exterior Floods
Replace 75 Watt Incandescent
Remember, if you have a dimmer you must use a dimming CFL!
(They cost about $18.)
In this exhaust hood are eleven, 75 watt incandescent light bulbs. Replacing them with 20 watt CFL’s can reduce their energy usage by $500 annually.

16 hrs/day @ $0.15/kWh
In the walk-in refrigerator:

Low-temp CFLs for freezers!

Save $50 a year per lamp!

16 hrs/day @ $0.15/kWh
Control Outdoor Lighting

Turn off parking lot lights, soffit lights, menu boards, decorative lights, etc. whenever possible.

Never leave lights on during the daytime!
Tip #2:
Install Low-Flow Pre-Rinse Valves
Pre-Rinse Valves Not Created Equal!

1.6 gpm
$1400/yr

@ 3 hr per day usage

1.6 gpm

2.6 gpm

4.5 gpm

$4000/yr

@ 3 hr per day usage
Install Low Flow Pre-Rinse Spray Valves

Example: Annual Cost to Operate

1 hr of usage per day @ $1.20/therm & $5.00/Unit
Tip #3:
Replace Hand Sink Aerators

Annual Cost

2.20 Standard (Private)
1.50 Low flow
1.00 Low flow
0.50 Standard (Public)
0.375 Ultra low

Flow Rate (gpm)

1 hr of usage per day @ $1.20/therm & $5.00/Unit
Tip #4:  
Turn down drip wells.

💧 Water Charges  
$210/yr

💧 Sewer Charges  
$315/yr

💧 Water Heating  
$830/yr

💧 Grand Total  
$1,355

@ 0.15 gpm

$1.20/therm, $5.00/unit of water & sewer, 24h, 360 d/y, 140°F water
Tip #5: Fix those leaks!

Even a small drip adds up:
• 50,000 gallons/yr
• $350 for water
• $500 for water heating

1.00/therm gas & $5.00 per unit water/sewer
Refrigeration
What is Refrigeration?
It is removing heat from the air in a box
A leaky refrigerator door wastes expensive electricity 24 hours a day - 7 days a week
Keep the Heat Out

Maintain refrigerator doors by:
1. replacing worn gaskets,
2. aligning doors,
3. enabling automatic door closers, and
4. replacing worn or damaged strip curtains.

4 ON THE DOOR
Door Gaskets and Closers

Tip #6:
Make sure that the refrigerator door totally seals off the opening to the refrigerated space.
Typical Mistake

Not Shut = Energy Waste
Tip #7: Auto-Closers For Coolers Or Freezers

The auto-closer should be able to firmly close a door that is within one inch of full closure.
Enable the Auto-Door Closer
Close the Ice Machine
Good Idea!
Tip #8:
Repair/Replace Cooler Or Freezer Door Gaskets

Replace a worn gaskets on coolers and freezers. Make sure that replacement gaskets meet manufacturer's specifications!
...or use a gasket replacement company that will do the whole job for you!
Align doors so they shut all the way
Mis-aligned doors = infiltration and ice on doors
Tip #9:
Install Strip Curtains on Walk-in Doors
or, replace damaged strip curtains!

Half way doesn’t count!
Install Strip Curtains on Walk-In Boxes

Insurance against propped-open doors
Anecdotal research…

In a QSR application, energy monitoring revealed that strip curtains reduced compressor run time by 33%!

Source: Ed Rembecky, Site Controls Ltd.
Tip #10: Keep it Calibrated

There are many ways to save energy in a refrigeration system, but properly setting the temperature is the cheapest and easiest.
Check and properly set defrost time clocks

• Don’t defrost more often than necessary
• Don’t defrost during the peak energy-use periods – Noon to 6pm
The trick is to defrost as little as possible, reducing defrost energy use, while still keeping frost off the evaporator coils.
Tip #11:
Clean Refrigeration Coils and Make Sure There is Good Air Flow!
Keep the Heat Flowing

Maintain refrigerator coils:

1. Clean evaporator coils,
2. Clean condenser coils,
3. Remove obstructions,
4. Maintain the condensate drain lines
Dirty coils = increased energy + early failure
Tip #12:
Insulate rooftop refrigerant lines

These lines full of cold refrigerant are on the hot rooftop
Tip #13: Replace Inefficient Motors

- The fan motors inside a walk-in spin 24 hours a day. These motors are old school workhorses - reliable but not too efficient.
Tip #14:
Turn off the door heaters on reach-in refrigerators (if possible).
Usually rated at 50 Watts each.
Save about $75 a year per door!

@ $0.15/kWh
The difference between dirty and clean:
Tip #15: Don’t block air flow to the evaporator!
… and remove plastic bags from the rear.

Our favorite find!
Tip #16:
Purchase Energy Star Labeled Appliances

ENERGY STAR Categories
www.energystar.gov/cfs

Refrigeration
Hot Holding Cabinets
Fryers
Steamers
Griddles
Dish Machines
Ice Machines
Convection Ovens
New Update – Energy Star Best Practices

Energystar.gov/cfs

Putting Energy into Profit:
ENERGY STAR® Guide for Restaurants

Updated for 2009

www.energystar.gov/ia/business/small_business/restaurants_guide.pdf
Steamer Operating Costs

- **Energy Costs ($)**
  - Steam Generator: $2,660
  - Boilerless: $2,720
  - Total: $5,380

- **Water Costs ($)**
  - Steam Generator: $60
  - Boilerless: $2,040
  - Total: $2,100

**Total Costs ($)**
- Steam Generator: $7,660
- Boilerless: $7,660
- **$5,000 savings**

Costs ($)

Water @ $2.00 / 100 cf  Sewer @ $3.00 / 100 cf  Electricity @$0.15 / kWh
Commercial Kitchen Ventilation

- Optimize
- Rebalance
- Turn off when kitchen is closed
Resource: On-line Design Guides

Design Guide 1
Improving Commercial Kitchen Ventilation System Performance
Exhaust Hood Selection & Sizing

Fundamentals of Kitchen Exhaust
Hot air rises. An exhaust fan in the ceiling could remove much of the heat produced by cooking equipment. But mist in smoke, volatile organic compounds, grease particles and vapor from cooking, and a means to capture and convey the exhaust becomes necessary to avoid health and fire hazards. While an exhaust hood serves that purpose, the key question becomes: what is the appropriate exhaust rate? The answer always depends on the type (and size) of the cooking equipment under the hood, the style and geometry of the hood itself, and how the makeup air (conditioned or otherwise) is introduced into the kitchen.

Design Guide 2
Commercial Kitchen Ventilation
Optimizing Makeup Ventilation Air

Introduction
An effective commercial kitchen ventilation (CKV) system requires balance—air balance that is. And as the designer, installer or operator of the kitchen ventilation system, you may be the first person called upon to perform your own "balancing act" when the exhaust hood doesn't work. Unlike a cooking appliance, which can be isolated for troubleshooting, the exhaust hood is only one component of the kitchen ventilation system. To further complicate things, the CKV system is a subsystem of the overall building heating, ventilating and air-conditioning (HVAC) system. Fortunately, there is no "magic" to the relationship between an exhaust hood and its makeup air...
Optimize the Kitchen Exhaust Hood

How to keep the smoke and heat in the hood.
Tip #17: Push Appliances Back
Tip #18: Add Side Panels
Side Panels in Practice
Tip #19:
Turn off kitchen exhaust and make-up air fans when appliances are off!

Save about $500/yr for each hr/day the hood is off (16’ - 20’ hood)
Tip #20:

Turn off loads when possible!

Pay careful attention to kitchen "plug loads". For instance, turn off holding cabinets, coffee machines, conveyor toasters, steam tables, plate and food warmers, and heat lamps when not needed.

Example: 3 coffee warmers = 270 watts!
Turn off dish machine exhaust hood and tank heater when kitchen is closed.

Hood - save $250/yr

Tank Heater - save $750/yr

@ $0.15/kWh
Tip #21:
Fill dishwasher racks to capacity
– Eliminate 10 dish loads a day - save $450/yr
Water Heating
4 Hot Water Heater “Must-Do’s”

- Insulate
- Allocate
- Regulate
- Activate
Tip #22:
Insulate the water lines.
Saves about $4 to $5/year/foot*

*based on horizontal 1.5 inch pipe, 70° F ambient, indoor installation, 80% efficiency
Bare Hot Water Line
Tip #23:
Allocate the recirc pump operation: use a timer to turn it off at night.
Example savings: $300 a year*

*includes $100 in electric pump energy savings
Tip #24: Regulate the tank temperature by properly setting the thermostat. Example savings: $600 a year
Tip #25:
Activate the automatic flue-damper control: turn it on!
Example savings: $300 a year
Thanks! Be energy wise

save energy, save money, save the environment.

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