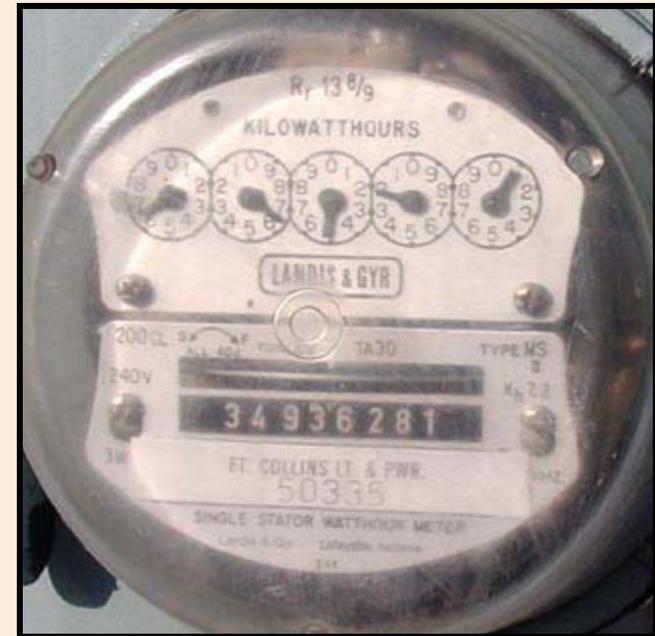


Your Electric Bill: Take Control

Doug Swartz

**Fort Collins
Utilities**

February 25, 2009

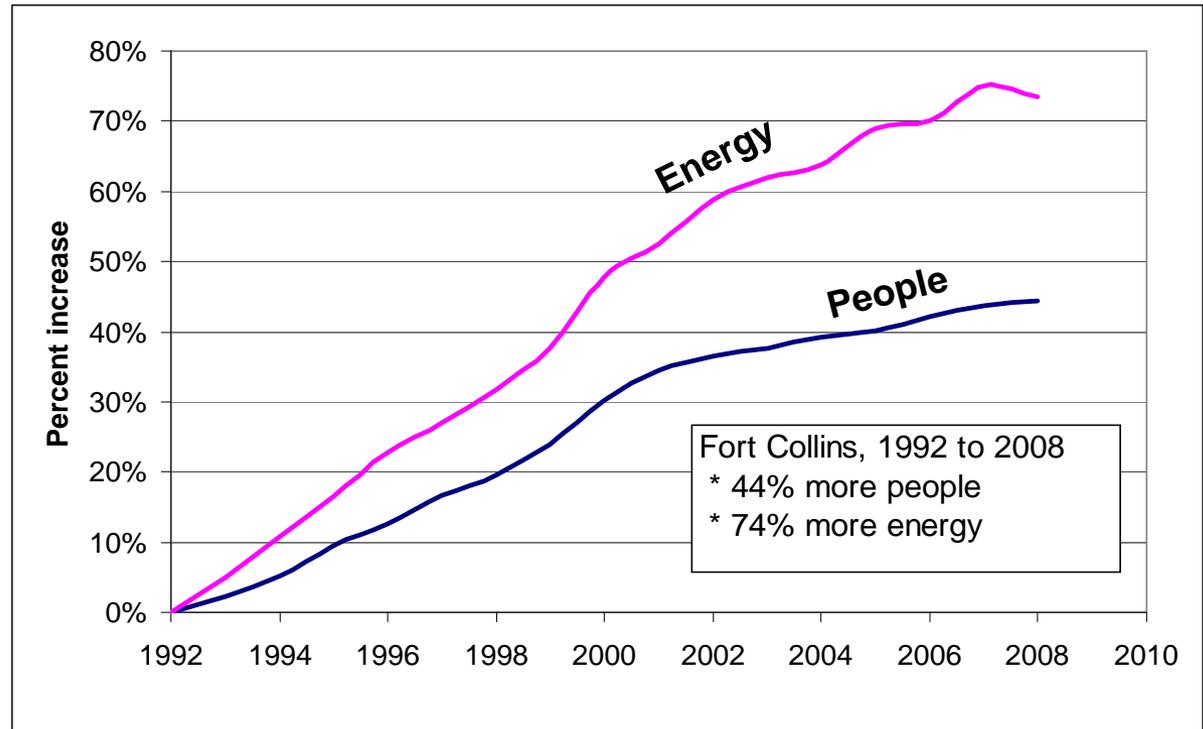


Please help us make this a zero-waste event series.

Sponsored by: Fort Collins Utilities,
Natural Resources and Transportation Planning

Why is This Important?

- Your wallet
- Trends
- Energy Policy 2009



More stuff, on more of the time . . .

Goals

- Increase your knowledge and curiosity about your electricity use.
- Provide ideas and tools to help you take more control.
- Empower you to reduce your electrical footprint.

Program

- Understanding your electric bill
- How does your usage stack up?
- Where do those electrons go?

BREAK + DOOR PRIZES

- Taking control



Questions as we go

Understanding Your Electric Bill

Did You Bring Your Electric Bill?



Fort Collins Utilities
Customer Service
300 S. College Ave.
Hours: 8 a.m. to 5 p.m., weekdays

Phone: (970) 212-2900
E-mail: utilities@focgov.com
Web: www.focgov.com/utilities

| Account Number | Customer Name | Service Address | Bill Date | Date Due | Amount Due |
|----------------|--------------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | Utilities Customer | 1234 Any St. | 01-26-09 | 02-25-09 | \$80.97 |

See reverse side for customer information and explanation of abbreviations.

Billing and Payment Summary

| | | |
|--|----|--------|
| Payment due last billing period | \$ | 113.65 |
| Payments received since last billing | \$ | 113.65 |
| Charges for this billing period due 02-25-09 | \$ | 80.97 |
| Your bank account will be drafted for the amount due | \$ | 80.97 |

| Service | Rate Code | Service Date Period | Days | Meter Readings Previous | Multiplier | Usage | Charge | |
|-----------------------------------|-----------|---------------------|------|-------------------------|------------|----------|---------|---------|
| Electric Energy | E100 | 12-11-08 01-20-09 | 34 | 47732 | 48535 | 1 | 832 kWh | \$18.45 |
| Stormwater | E101 | 12-11-08 01-20-09 | 34 | | | | | \$9.29 |
| Wastewater | W221 | 12-11-08 01-20-09 | 34 | | | 3278 WQA | | \$24.86 |
| Water | | 12-11-08 01-20-09 | 34 | 808521 | 904844 | 1 | 6217 | |
| Base Charge | W825 | | | | | | | \$12.72 |
| Tax 1 | W220 | | | | | 6217 GAL | | \$12.24 |
| Green Energy | E721 | 12-11-08 01-20-09 | 34 | | | 1000 kWh | | \$13.60 |
| Washer Rebate | J100 | | | | | | | \$0.00 |
| Sub-total | | | | | | | \$75.96 | |
| City Sales Tax | | | | | | | \$1.98 | |
| Total charges this billing period | | | | | | | \$80.97 | |

| Water Billing History | | | | |
|-----------------------|------|--------------|---------|--|
| Read Date | Read | Jan. to Oct. | Std/Cl. | |
| 11-25-08 | 34 | 8717 | 951 | |
| 12-11-08 | 35 | 8817 | 956 | |
| 11-11-08 | 35 | 8828 | 957 | |
| 10-11-08 | 35 | 8838 | 958 | |
| 09-16-08 | 34 | 8847 | 959 | |
| 08-16-08 | 31 | 8857 | 959 | |
| 07-17-08 | 28 | 8867 | 962 | |
| 06-19-08 | 26 | 8872 | 976 | |
| 05-15-08 | 26 | 8262 | 224 | |
| 04-11-08 | 24 | 5795 | 184 | |
| 03-14-08 | 22 | 4882 | 158 | |
| 02-14-08 | 21 | 3296 | 114 | |
| 01-14-08 | 20 | 2672 | 98 | |

| Electric Billing History | | | | |
|--------------------------|------|--------------|---------|----|
| Read Date | Read | Jan. to Oct. | Std/Cl. | |
| 11-25-08 | 34 | 851 | | |
| 12-11-08 | 35 | 840 | | 21 |
| 11-11-08 | 35 | 712 | | 21 |
| 10-11-08 | 35 | 612 | | 18 |
| 09-16-08 | 34 | 527 | | 17 |
| 08-16-08 | 31 | 415 | | 16 |
| 07-17-08 | 28 | 362 | | 16 |
| 06-19-08 | 26 | 287 | | 16 |
| 05-15-08 | 26 | 198 | | 16 |
| 04-11-08 | 24 | 154 | | 16 |
| 03-14-08 | 22 | 100 | | 16 |
| 02-14-08 | 21 | 800 | | 20 |
| 01-14-08 | 20 | 780 | | 22 |



Make checks payable to Fort Collins Utilities. Return this portion with payment to ensure proper credit. [Thank you!](#)

| Account Number | Service Address | Bill Date | Date Due | Amount Due |
|----------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | 1234 Any St. | 01-26-09 | 02-25-09 | \$80.97 |

DO NOT PAY - amount owed will be drafted on the bill due date.

UTILITIES CUSTOMER
1234 ANY ST
FORT COLLINS CO 80525-1837

FORT COLLINS UTILITIES
PO BOX 1580
FORT COLLINS CO 80522-1580



Fort Collins Utilities
 Customer Service
 330 S. College Ave.
 Hours: 8 a.m. to 5 p.m., weekdays

Phone: (970) 212-2900
 E-mail: utilities@fcgov.com
 Web: www.fcgov.com/utilities

| Account Number | Customer Name | Service Address | Bill Date | Date Due | Amount Due |
|----------------|--------------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | Utilities Customer | 1234 Any St. | 01-26-09 | 02-20-09 | \$80.97 |

See reverse side for customer information and explanation of abbreviations.

Billing and Payment Summary

| | |
|--|-----------|
| Payment due last billing period | \$ 113.65 |
| Payments received since last billing | \$ 113.65 |
| Charges for this billing period due 02-20-09 | \$ 80.97 |
| Your bank account will be drafted for the amount due | \$ 80.97 |

| Service | Rate Code | Service Date From | To | Days | Meter Readings Previous | Present | Multiplier | Usage | Charge |
|-----------------------------------|-----------|-------------------|----------|------|-------------------------|---------|------------|----------|----------|
| Electric Energy | E100 | 12-17-08 | 01-20-09 | 34 | 47703 | 48535 | 1 | 832 KWH | \$59.48 |
| Stormwater | H101 | 12-17-08 | 01-20-09 | 34 | | | | | \$9.29 |
| Wastewater | Q221 | 12-17-08 | 01-20-09 | 34 | | | | 5275 WQA | \$24.66 |
| Water | | 12-17-08 | 01-20-09 | 34 | 498627 | 504844 | 1 | 6217 | |
| Base Charge | WB20 | | | | | | | | \$12.72 |
| Tier 1 | W220 | | | | | | | 6217 GAL | \$12.24 |
| Green Energy | E731 | 12-17-08 | 01-20-09 | 34 | | | | 1000 KWH | \$10.60 |
| Washer Rebate | J100 | | | | | | | | -\$50.00 |
| Sub-total | | | | | | | | | \$78.99 |
| City Sales Tax | | | | | | | | | \$1.98 |
| Total charges this billing period | | | | | | | | | \$80.97 |

| Read Date | Days | Use in Gals | Gal/Day |
|-----------|------|-------------|---------|
| 01-20-09 | 34 | 6217 | 182 |
| 12-17-08 | 30 | 5957 | 198 |
| 11-17-08 | 33 | 6608 | 197 |
| 10-15-08 | 29 | 5928 | 204 |
| 09-16-08 | 29 | 5951 | 205 |
| 08-18-08 | 32 | 7072 | 221 |
| 07-17-08 | 29 | 7051 | 243 |
| 06-18-08 | 34 | 9415 | 276 |
| 05-15-08 | 28 | 6292 | 224 |
| 04-17-08 | 29 | 5725 | 199 |
| 03-19-08 | 29 | 4502 | 156 |
| 02-19-08 | 32 | 5596 | 174 |
| 01-18-08 | 35 | 6470 | 184 |

| Read Date | Days | Use in kWh | kWh/Day |
|-----------|------|------------|---------|
| 01-20-09 | 34 | 832 | 24 |
| 12-17-08 | 30 | 640 | 21 |
| 11-17-08 | 33 | 712 | 21 |
| 10-15-08 | 29 | 572 | 19 |
| 09-16-08 | 27 | 529 | 19 |
| 08-20-08 | 34 | 679 | 19 |
| 07-17-08 | 29 | 962 | 19 |
| 06-18-08 | 34 | 681 | 20 |
| 05-15-08 | 28 | 506 | 18 |
| 04-17-08 | 29 | 566 | 19 |
| 03-19-08 | 29 | 530 | 18 |
| 02-19-08 | 32 | 655 | 20 |
| 01-18-08 | 35 | 790 | 22 |



Make checks payable to Fort Collins Utilities. Return this portion with payment to ensure proper credit. Thank you!

| Account Number | Service Address | Bill Date | Date Due | Amount Due |
|----------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | 1234 Any St. | 01-26-09 | 02-20-09 | \$80.97 |

DO NOT PAY - amount owed will be drafted on the bill due date.

UTILITIES CUSTOMER
 1234 ANY ST
 FORT COLLINS, CO 80525-1637

FORT COLLINS UTILITIES
 PO BOX 1580
 FORT COLLINS CO 80522-1580

Your City bill includes ALL City of Fort Collins utility services:

Electricity

Green Energy

Stormwater

Wastewater

Water

(and some rebates)

NOT Natural Gas

Note:

City of FC Utilities bills will be available on-line very soon.



Fort Collins Utilities
Customer Service
 330 S. College Ave.
 Hours: 8 a.m. to 5 p.m., weekdays

Phone: (970) 212-2900
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| Account Number | Customer Name | Service Address | Bill Date | Date Due | Amount Due |
|----------------|--------------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | Utilities Customer | 1234 Any St. | 01-26-09 | 02-20-09 | \$80.97 |

See reverse side for customer information and explanation of abbreviations.

Billing and Payment Summary

| | |
|--|-----------|
| Payment due last billing period | \$ 113.65 |
| Payments received since last billing | \$ 113.65 |
| Charges for this billing period due 02-20-09 | \$ 80.97 |
| Your bank account will be drafted for the amount due | \$ 80.97 |

| Service | Rate Code | Service Date From To | Days | Meter Readings Previous Present | Multiplier | Usage | Charge |
|-----------------------------------|-----------|----------------------|------|---------------------------------|------------|----------|----------|
| Electric Energy | E100 | 12-17-08 01-20-09 | 34 | 47703 48535 | 1 | 832 KWH | \$59.48 |
| Stormwater | H101 | 12-17-08 01-20-09 | 34 | | | | \$9.29 |
| Wastewater | Q221 | 12-17-08 01-20-09 | 34 | | | 5275 WQA | \$24.66 |
| Water | | 12-17-08 01-20-09 | 34 | 498627 504844 | 1 | 6217 | |
| Base Charge | WB20 | | | | | | \$12.72 |
| Tier 1 | W220 | | | | | 6217 GAL | \$12.24 |
| Green Energy | E731 | 12-17-08 01-20-09 | 34 | | | 1000 KWH | \$10.60 |
| Washer Rebate | J100 | | | | | | -\$50.00 |
| Sub-total | | | | | | | \$78.99 |
| City Sales Tax | | | | | | | \$1.98 |
| Total charges this billing period | | | | | | | \$80.97 |

Monthly charges

Water Billing History

| Read Date | Days | Use in Gals | Gal/Day |
|-----------|------|-------------|---------|
| 01-20-09 | 34 | 6217 | 182 |
| 12-17-08 | 30 | 5957 | 198 |
| 11-17-08 | 33 | 6608 | 197 |
| 10-15-08 | 29 | 5928 | 204 |
| 09-16-08 | 29 | 5951 | 205 |
| 08-18-08 | 32 | 7072 | 221 |
| 07-17-08 | 29 | 7051 | 243 |
| 06-18-08 | 34 | 9415 | 276 |
| 05-15-08 | 28 | 6292 | 224 |
| 04-17-08 | 29 | 5795 | 199 |
| 03-19-08 | 29 | 4502 | 156 |
| 02-19-08 | 32 | 5596 | 174 |
| 01-18-08 | 35 | 6470 | 184 |

Electric Billing History

| Read Date | Days | Use in kWh | kWh/Day |
|-----------|------|------------|---------|
| 01-20-09 | 34 | 832 | 24 |
| 12-17-08 | 30 | 640 | 21 |
| 11-17-08 | 33 | 712 | 21 |
| 10-15-08 | 29 | 572 | 19 |
| 09-16-08 | 27 | 529 | 19 |
| 08-20-08 | 34 | 679 | 19 |
| 07-17-08 | 29 | 952 | 19 |
| 06-18-08 | 34 | 681 | 20 |
| 05-15-08 | 28 | 506 | 18 |
| 04-17-08 | 29 | 566 | 19 |
| 03-19-08 | 29 | 530 | 18 |
| 02-19-08 | 32 | 655 | 20 |
| 01-18-08 | 35 | 790 | 22 |

Make checks payable to Fort Collins Utilities. Return this portion with payment to ensure proper credit. Thank you!

| Account Number | Service Address | Bill Date | Date Due | Amount Due |
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UTILITIES CUSTOMER
 1234 ANY ST
 FORT COLLINS, CO 80525-1637

FORT COLLINS UTILITIES
 PO BOX 1580
 FORT COLLINS CO 80522-1580

Monthly Charges

Electric Energy

| Service | Rate Code | Service Date | | Days | Meter Readings | | Multiplier | Usage | Charge |
|-----------------|-----------|--------------|----------|------|----------------|---------|------------|-----------------------------------|----------|
| | | From | To | | Previous | Present | | | |
| Electric Energy | E100 | 12-17-08 | 01-20-09 | 34 | 47703 | 48535 | 1 | 832 KWH | \$59.48 |
| Stormwater | H101 | 12-17-08 | 01-20-09 | 34 | | | | | \$9.29 |
| Wastewater | Q221 | 12-17-08 | 01-20-09 | 34 | | | | 5275 WQA | \$24.66 |
| Water | | 12-17-08 | 01-20-09 | 34 | 498627 | 504844 | 1 | 6217 | |
| Base Charge | WB20 | | | | | | | | \$12.72 |
| Tier 1 | W220 | | | | | | | 6217 GAL | \$12.24 |
| Green Energy | E731 | 12-17-08 | 01-20-09 | 34 | | | | 1000 KWH | \$10.60 |
| Washer Rebate | J100 | | | | | | | | -\$50.00 |
| | | | | | | | | Sub-total | \$78.99 |
| | | | | | | | | City Sales Tax | \$1.98 |
| | | | | | | | | Total charges this billing period | \$80.97 |

Monthly Charges

| Service | Rate Code | Service Date | | Days | Meter Readings | | Multiplier | Usage | Charge |
|-----------------|-----------|--------------|----------|------|----------------|---------|------------|---------|---------|
| | | From | To | | Previous | Present | | | |
| Electric Energy | E100 | 12-17-08 | 01-20-09 | 34 | 47703 | 48535 | 1 | 832 KWH | \$59.48 |

Days ↓

Electricity Use ↓

Cost ↓

34 days

832 kWh

\$59.48

kWh = kiloWatt-hours

Monthly Bill Calculation

Example: Energy use = 832 kWh for the billing period

2009 Residential Energy Service, R Rate (e.g. E100)

Fixed charge = **\$4.02 per month***

Variable charge = energy use x cost per unit of energy

= 832 kWh x **\$0.06867 per kWh***

= \$57.13

Total cost for electricity = \$4.02 + \$57.13 = \$61.15

* These numbers include all fees and taxes

For Another Program . . .

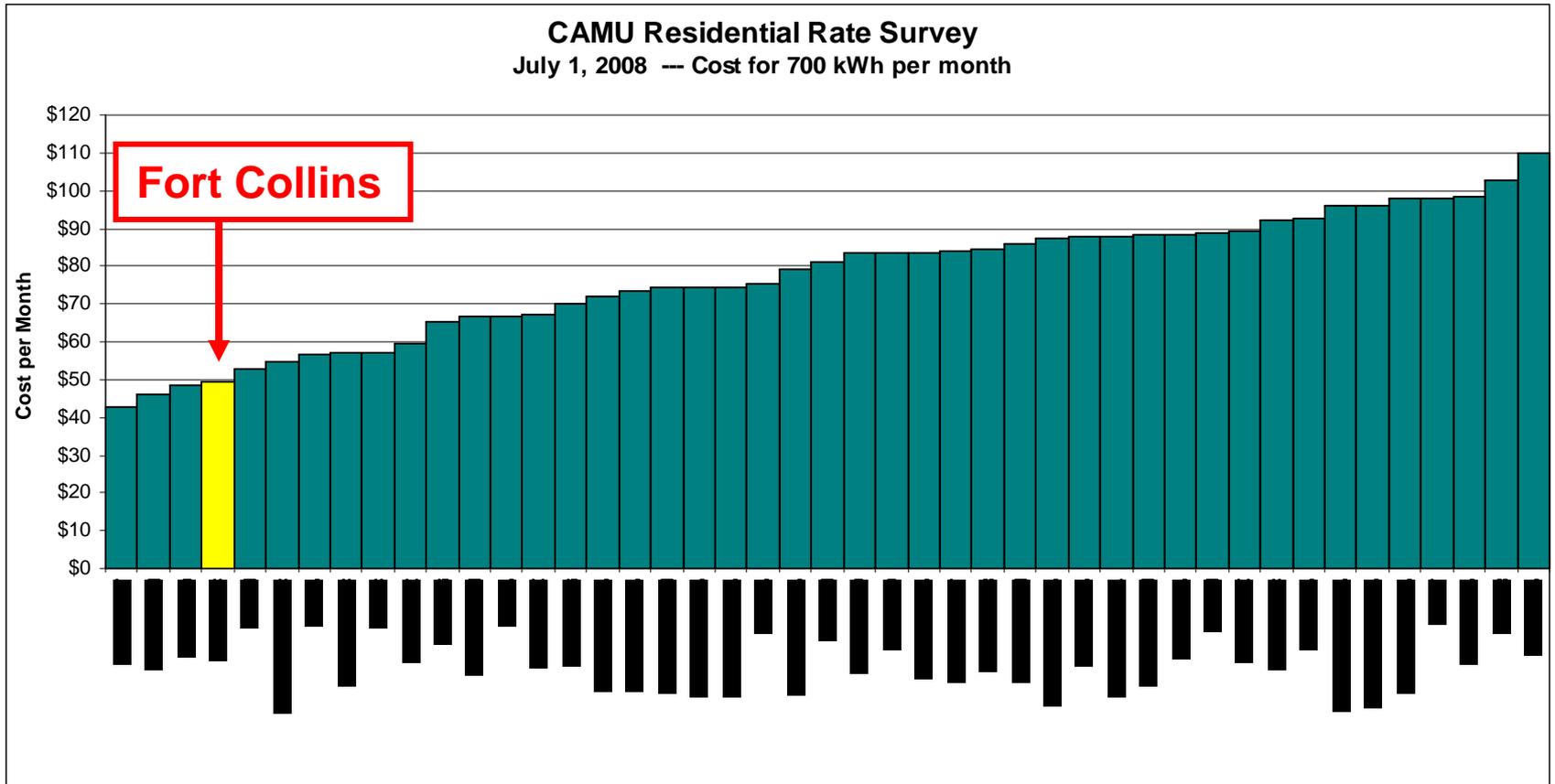
- More details on rate components
- Other residential electric rates
- Green Energy

Want more detail?

www.fcgov.com/utilities “Electric Rate Schedule”

or call Customer Service, 970-212-2900

Colorado Electric Rates



How Does Your Usage Stack Up?

832 kWh

Good?

Bad?

Fair to middlin'?

Step 1 = Your Usage

 kWh/month

Average monthly electric usage



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| Account Number | Customer Name | Service Address | Bill Date | Date Due | Amount Due |
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|-----------------------------------|-----------|----------------------|------|---------------------------------|------------|----------|----------|
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| Green Energy | E731 | 12-17-08 01-20-09 | 34 | | | 1000 KWH | \$10.60 |
| Washer Rebate | J100 | | | | | | -\$50.00 |
| Sub-total | | | | | | | \$78.99 |
| City Sales Tax | | | | | | | \$1.98 |
| Total charges this billing period | | | | | | | \$80.97 |

Water Billing History

| Read Date | Days | Use in Gals | Gal/Day |
|-----------|------|-------------|---------|
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| 12-17-08 | 30 | 5957 | 198 |
| 11-17-08 | 33 | 6608 | 197 |
| 10-15-08 | 29 | 5928 | 204 |
| 09-16-08 | 29 | 5951 | 205 |
| 08-18-08 | 32 | 7072 | 221 |
| 07-17-08 | 29 | 7051 | 243 |
| 06-18-08 | 34 | 9415 | 276 |
| 05-15-08 | 28 | 6292 | 224 |
| 04-17-08 | 29 | 5795 | 199 |
| 03-19-08 | 29 | 4502 | 156 |
| 02-19-08 | 32 | 5596 | 174 |
| 01-18-08 | 35 | 6470 | 184 |

Electric Billing History

| Read Date | Days | Use in kWh | kWh/Day |
|-----------|------|------------|---------|
| 01-20-09 | 34 | 832 | 24 |
| 12-17-08 | 30 | 640 | 21 |
| 11-17-08 | 33 | 712 | 21 |
| 10-15-08 | 29 | 572 | 19 |
| 09-16-08 | 27 | 529 | 19 |
| 08-20-08 | 34 | 679 | 19 |
| 07-17-08 | 29 | 962 | 19 |
| 06-18-08 | 34 | 681 | 20 |
| 05-15-08 | 28 | 506 | 18 |
| 04-17-08 | 29 | 566 | 19 |
| 03-19-08 | 29 | 530 | 18 |
| 02-19-08 | 32 | 655 | 20 |
| 01-18-08 | 35 | 790 | 22 |

**Electric
 billing
 history**



City of Fort Collins

Make checks payable to Fort Collins Utilities. Return this portion with payment to ensure proper credit. Thank you!

| Account Number | Service Address | Bill Date | Date Due | Amount Due |
|----------------|-----------------|-----------|----------|------------|
| 01234567-89-1 | 1234 Any St. | 01-26-09 | 02-20-09 | \$80.97 |

DO NOT PAY - amount owed will be drafted on the bill due date.

UTILITIES CUSTOMER
 1234 ANY ST
 FORT COLLINS, CO 80525-1637

FORT COLLINS UTILITIES
 PO BOX 1580
 FORT COLLINS CO 80522-1580

Your Usage

Use in kWh

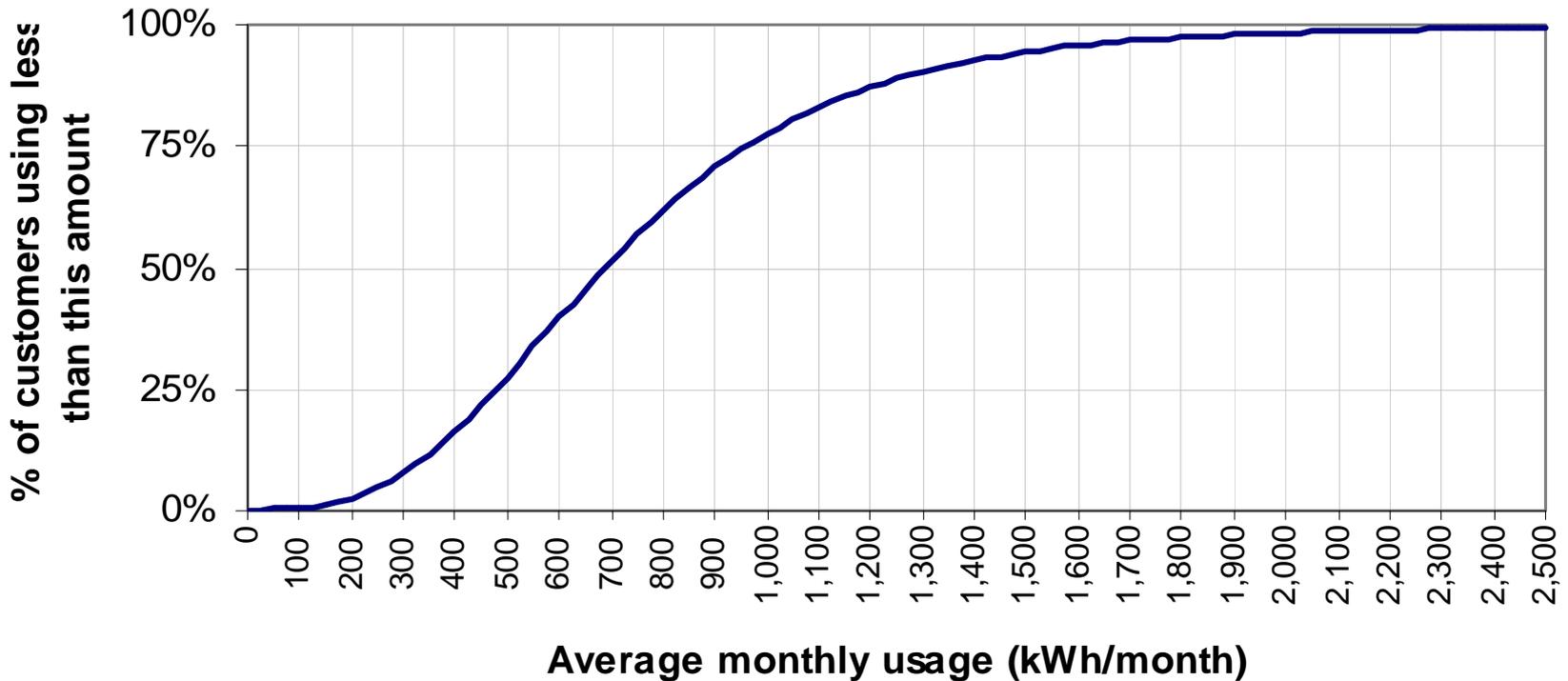
| Electric Billing History | | | | |
|--------------------------|------|------------|--|---------|
| Read Date | Days | Use in kWh | | kWh/Day |
| 01-20-09 | 34 | 832 | | 24 |
| 12-17-08 | 30 | 640 | | 21 |
| 11-17-08 | 33 | 712 | | 21 |
| 10-15-08 | 29 | 572 | | 19 |
| 09-16-08 | 27 | 529 | | 19 |
| 08-20-08 | 34 | 679 | | 19 |
| 07-17-08 | 29 | 562 | | 19 |
| 06-18-08 | 34 | 681 | | 20 |
| 05-15-08 | 28 | 506 | | 18 |
| 04-17-08 | 29 | 566 | | 19 |
| 03-19-08 | 29 | 530 | | 18 |
| 02-19-08 | 32 | 655 | | 20 |
| 01-18-08 | 35 | 790 | | 22 |

Annual
average
= 614 kWh
per month

Monthly average usage = Sum 12 months, divide by 12

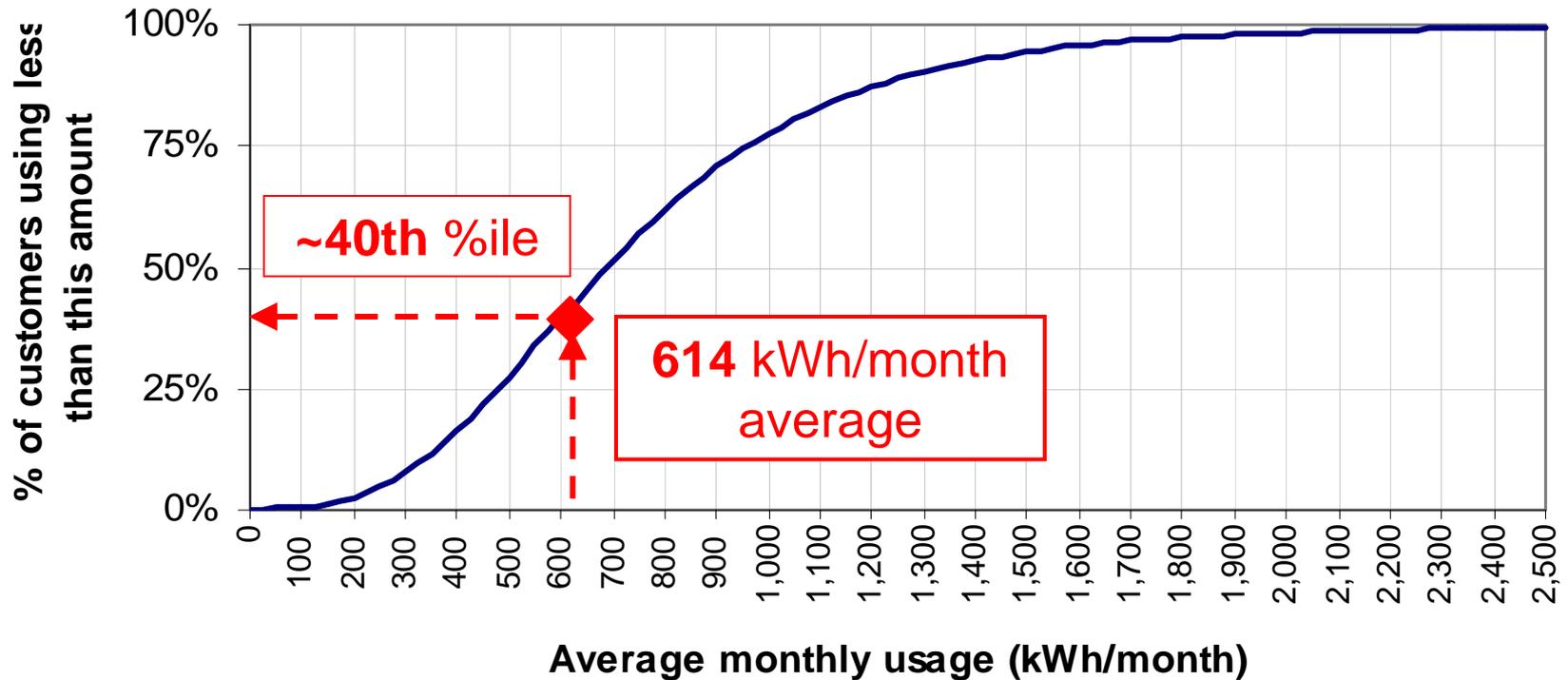
Step 2 = Benchmark Data

FC Utilities Residential Customers Monthly Average Electric Use
Single Family, Non-Electric-Heat Homes, 2008



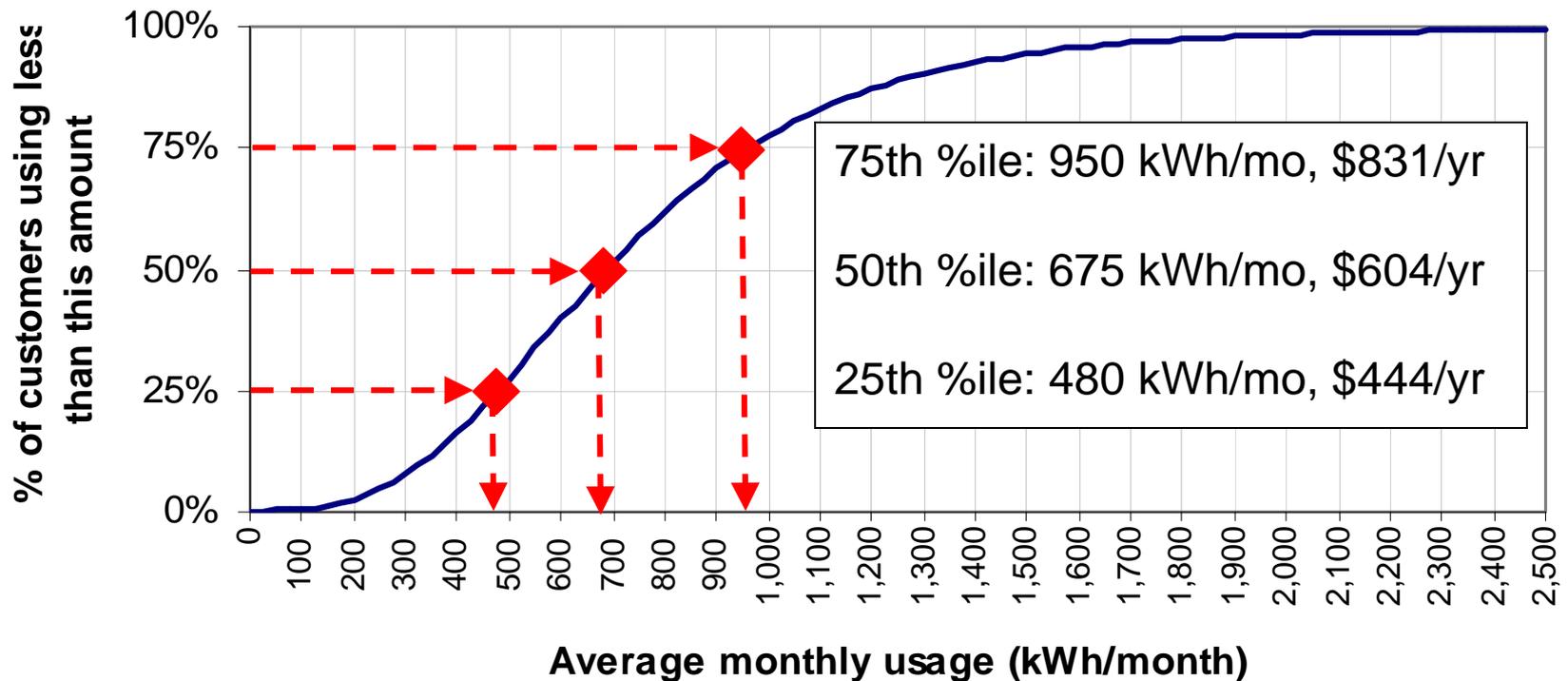
How Your Usage Stacks Up

FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008



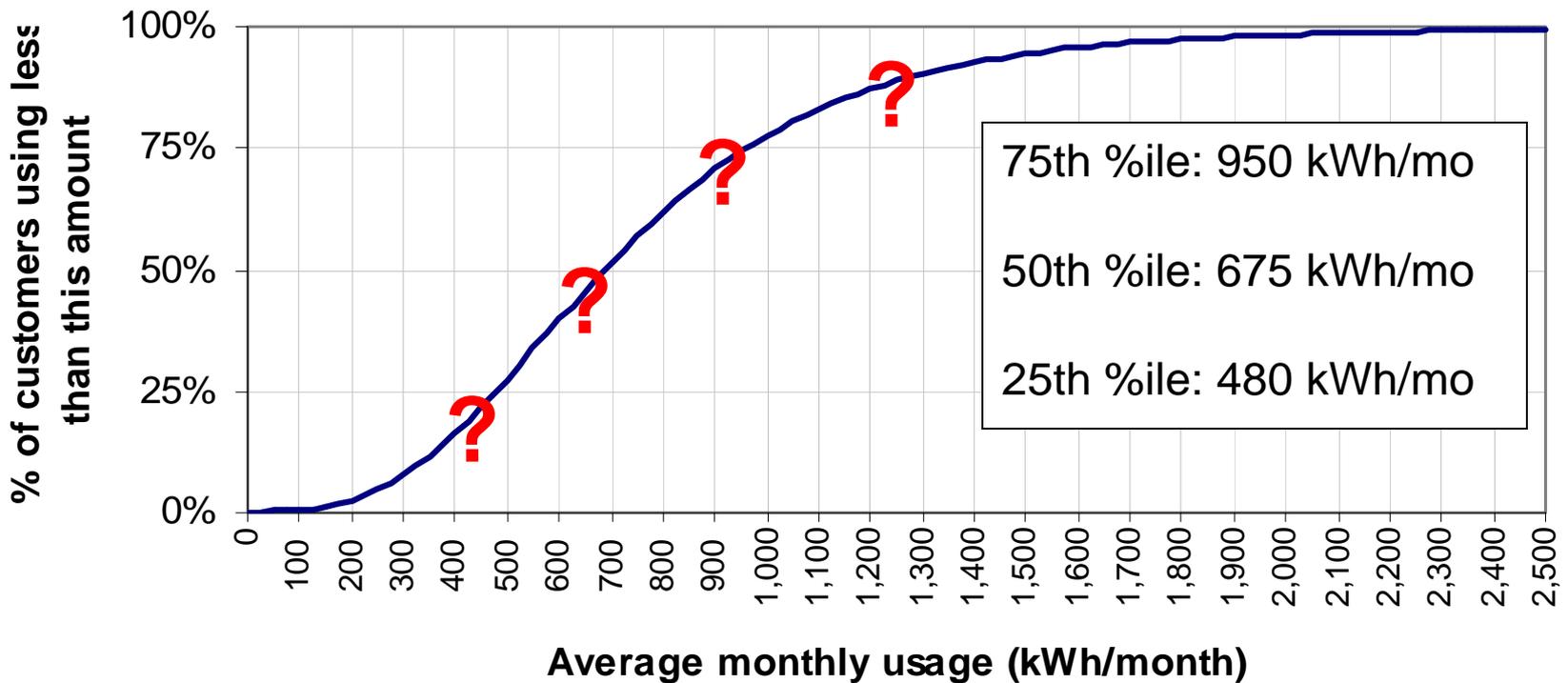
Benchmark Data

**FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008**

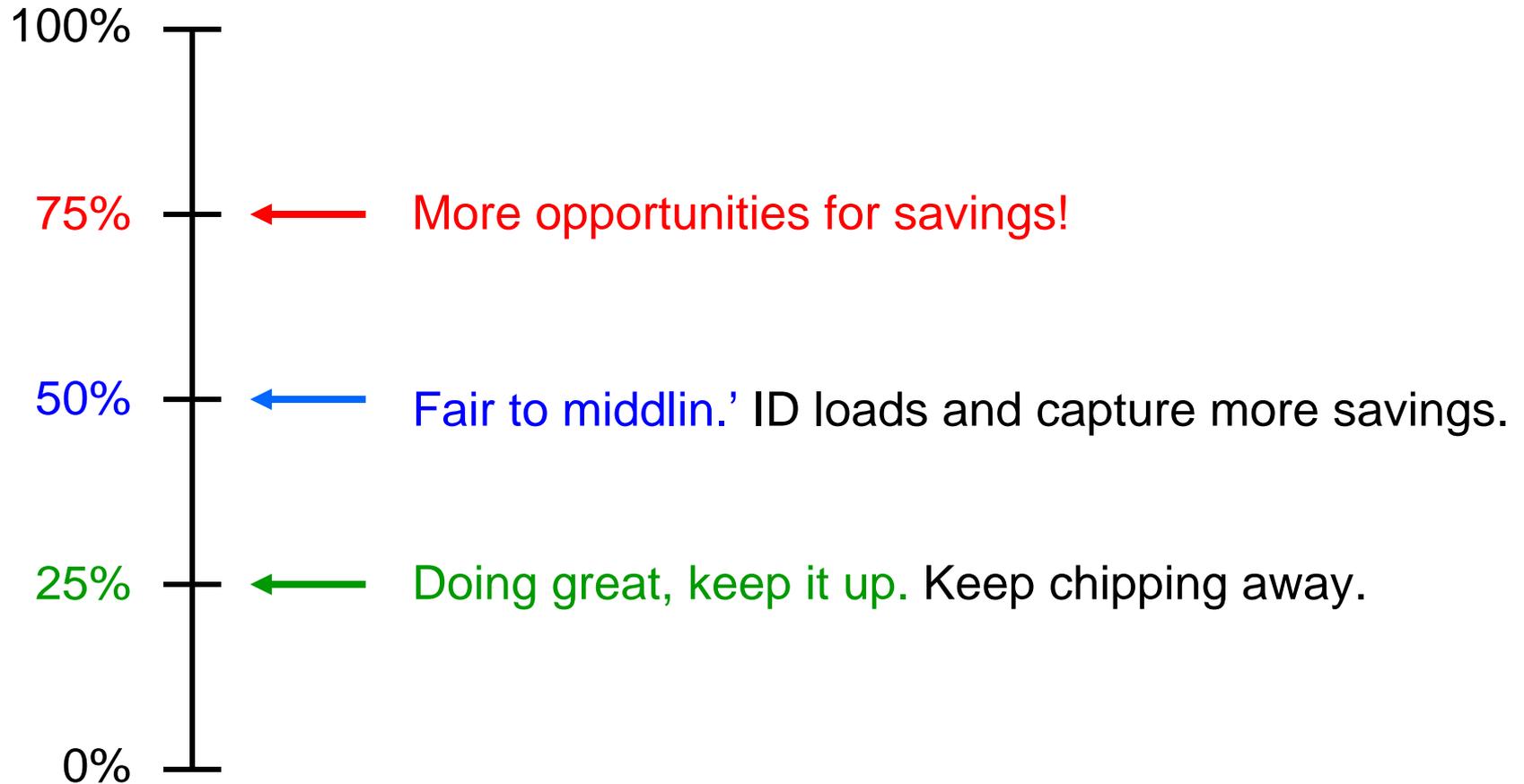


Your Average Use?

**FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008**

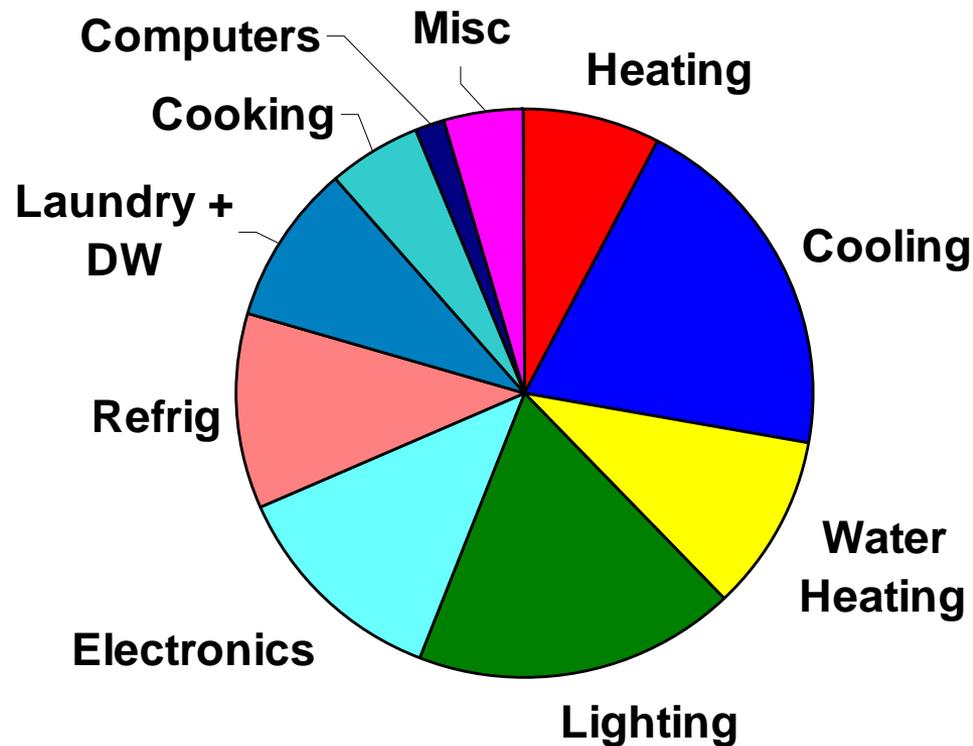


Opportunities



Where Do Those Electrons Go?

Residential Electricity Use



National Data

Buildings Energy Data Book (DOE)
Electricity Consumption by End Use

Residential Electricity Use

- Every house is different
- Lifestyles vary
- Fort Collins climate

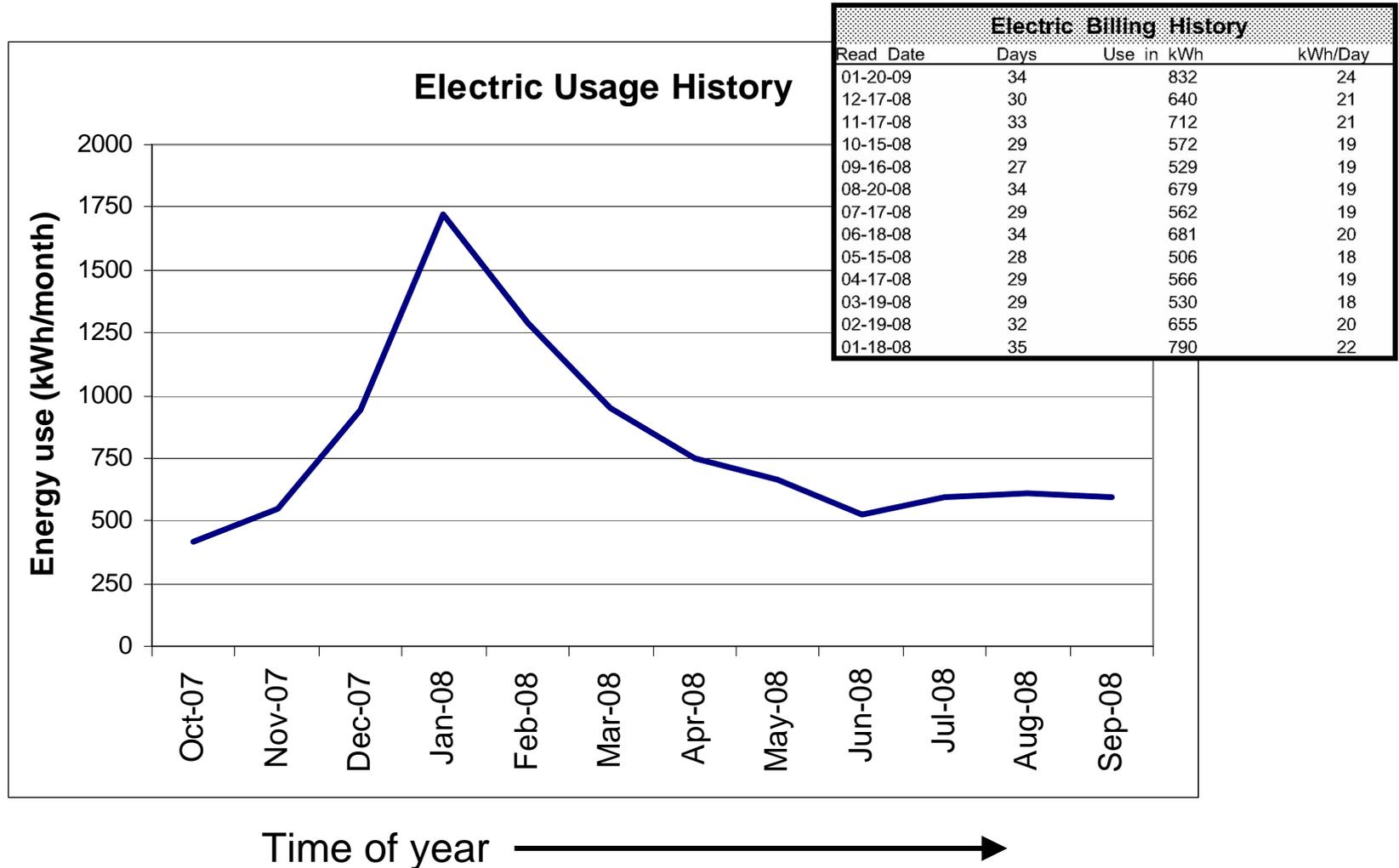


Most important:
YOUR house!

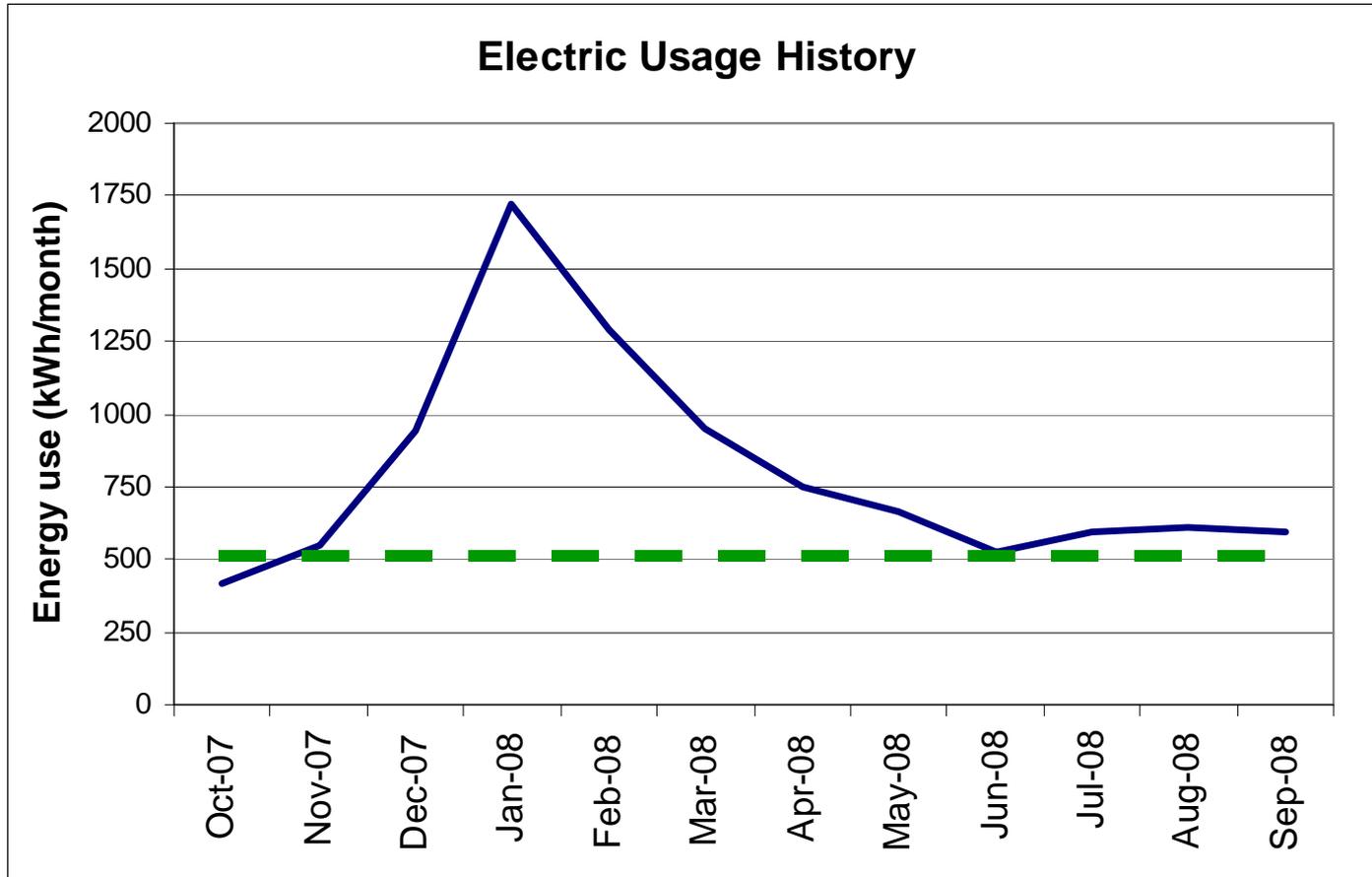
Look for Clues

| Electric Billing History | | | |
|--------------------------|------|------------|---------|
| Read Date | Days | Use in kWh | kWh/Day |
| 01-20-09 | 34 | 832 | 24 |
| 12-17-08 | 30 | 640 | 21 |
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| 07-17-08 | 29 | 562 | 19 |
| 06-18-08 | 34 | 681 | 20 |
| 05-15-08 | 28 | 506 | 18 |
| 04-17-08 | 29 | 566 | 19 |
| 03-19-08 | 29 | 530 | 18 |
| 02-19-08 | 32 | 655 | 20 |
| 01-18-08 | 35 | 790 | 22 |

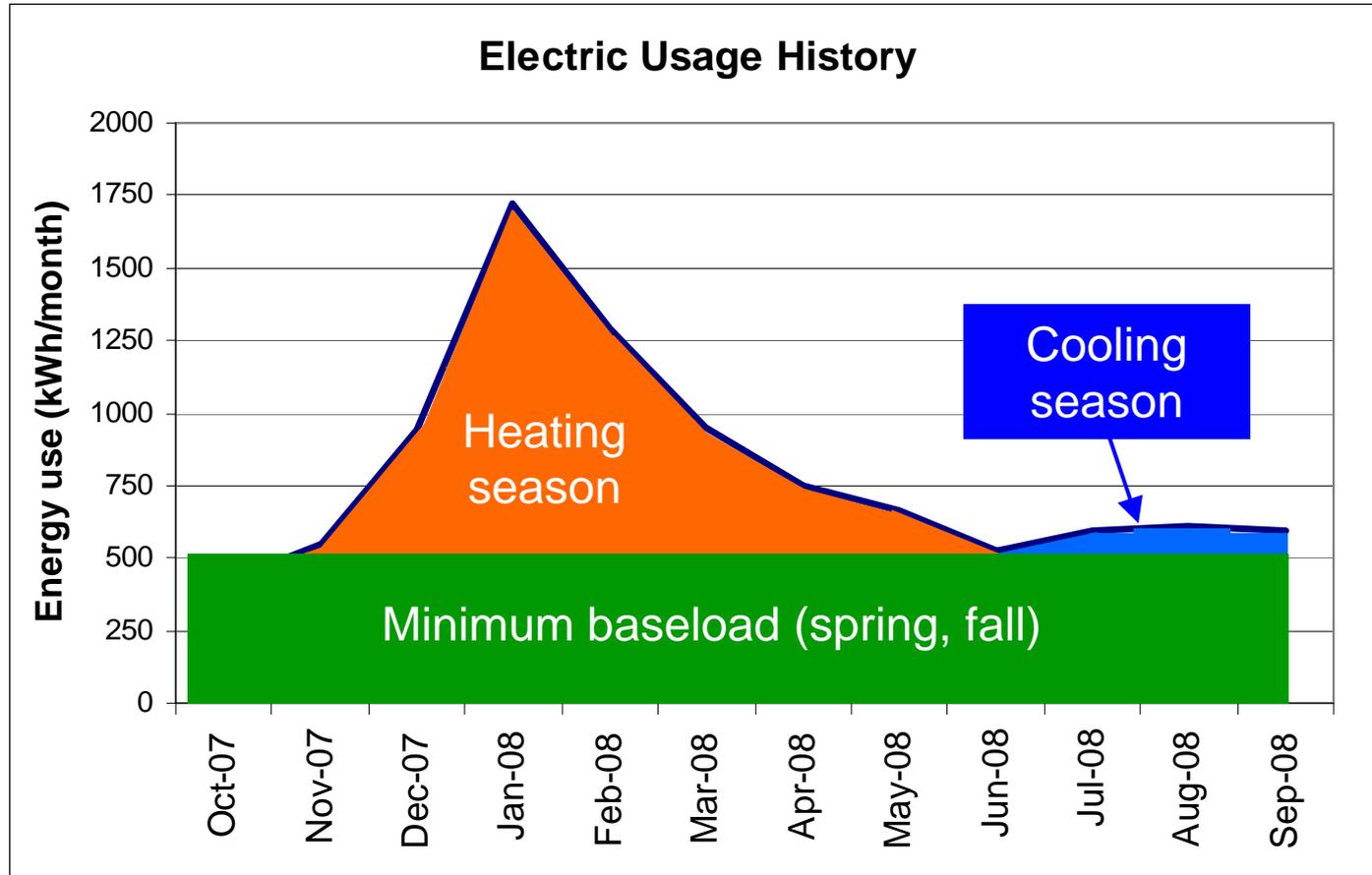
Look for Clues



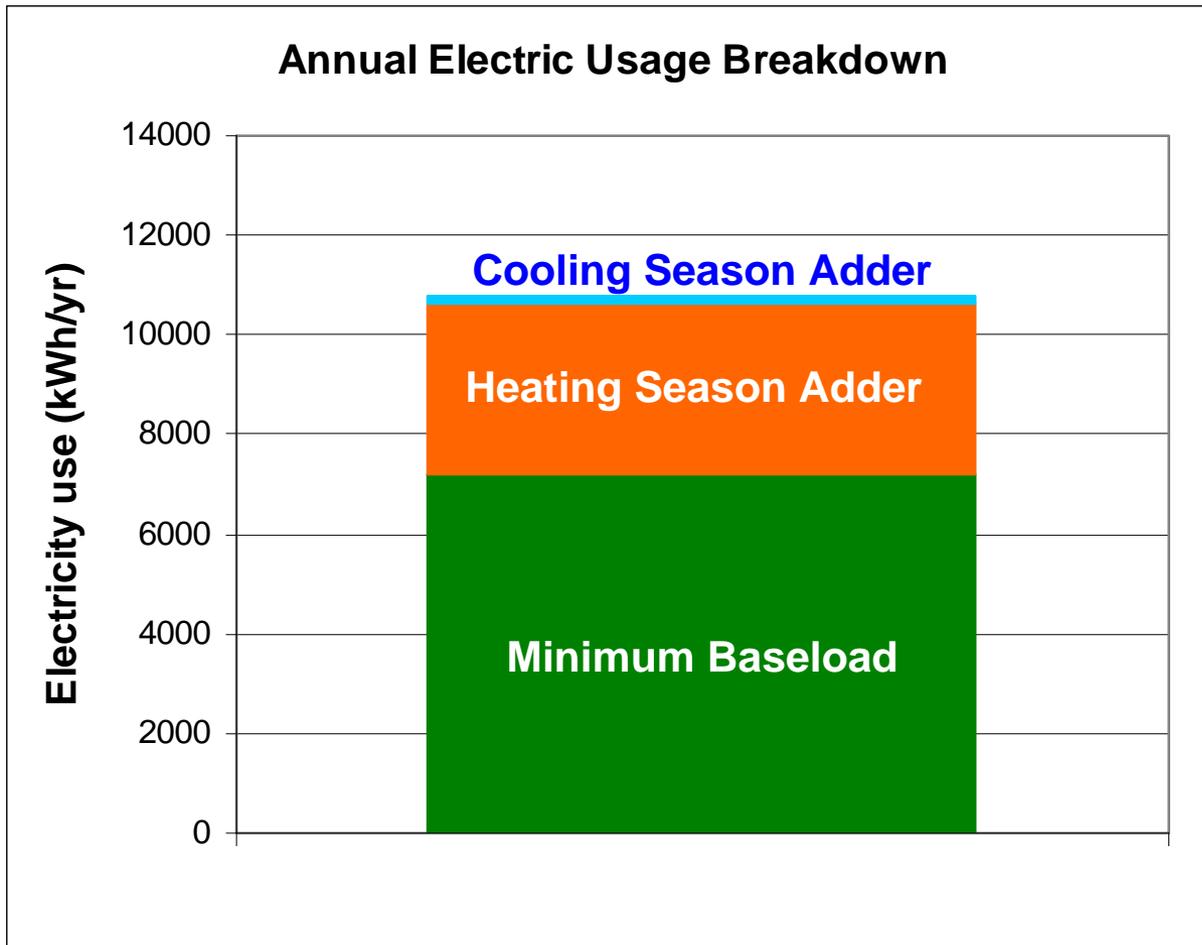
First Cut – Seasonal



First Cut – Seasonal

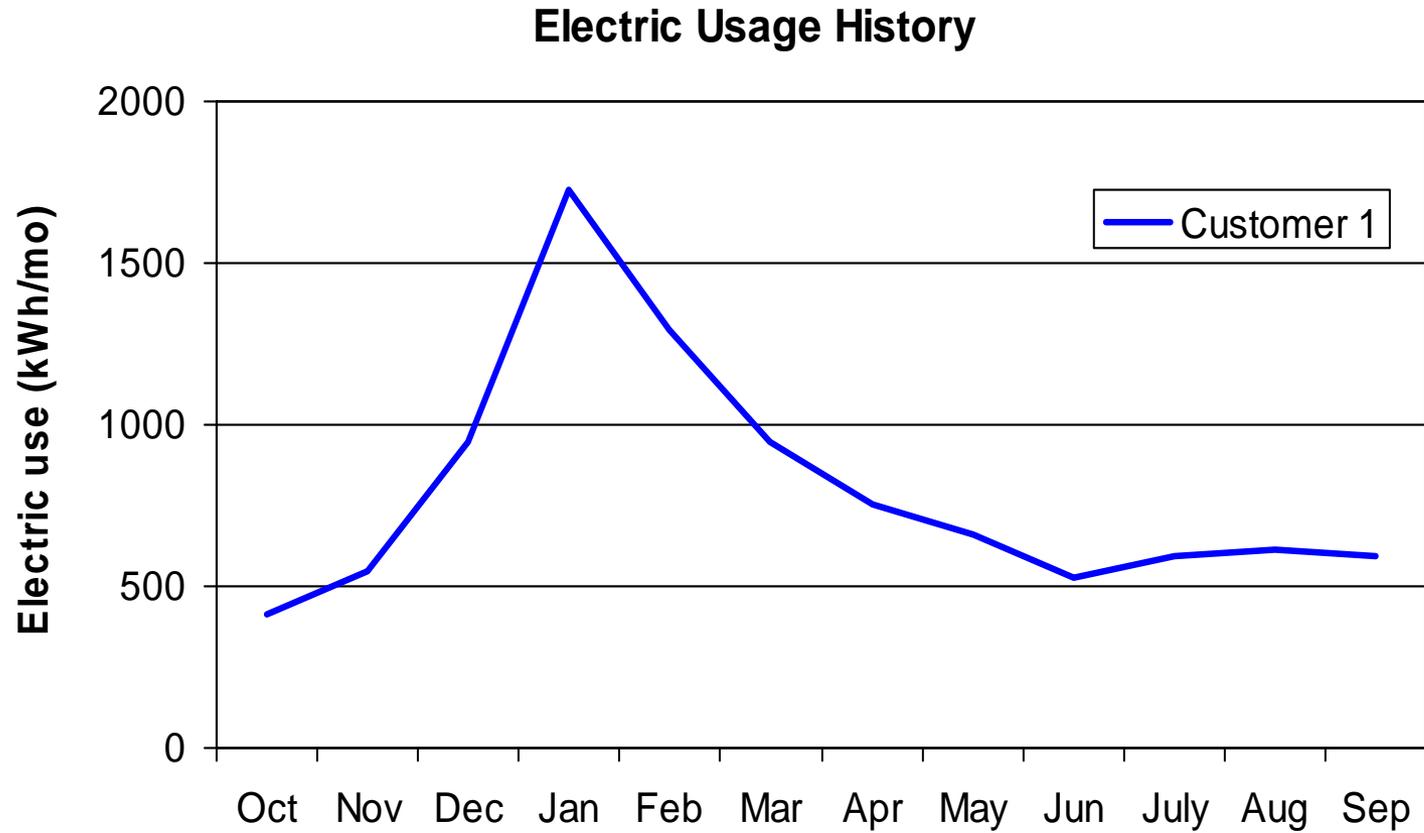


Where to Look First?



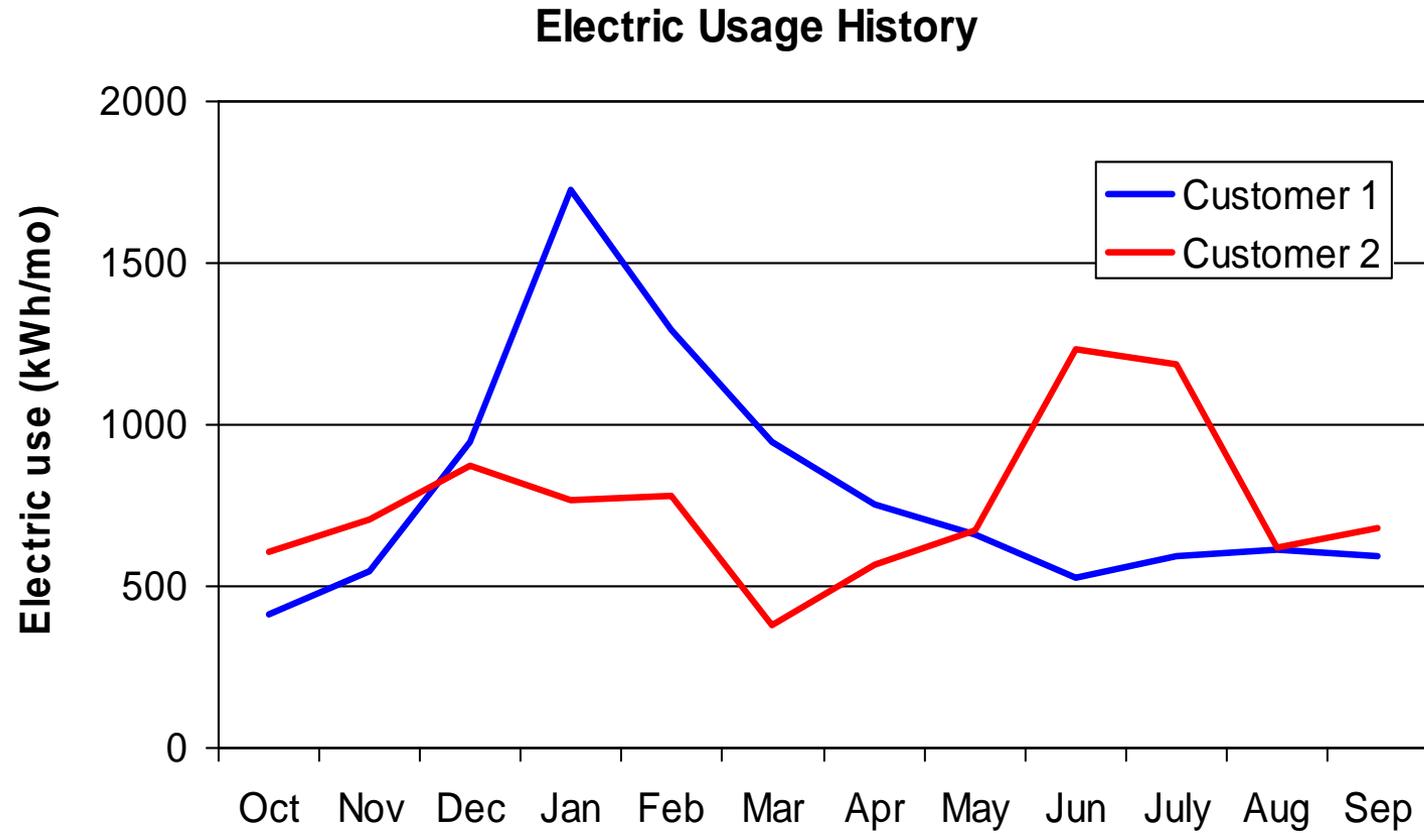


Every House is Different



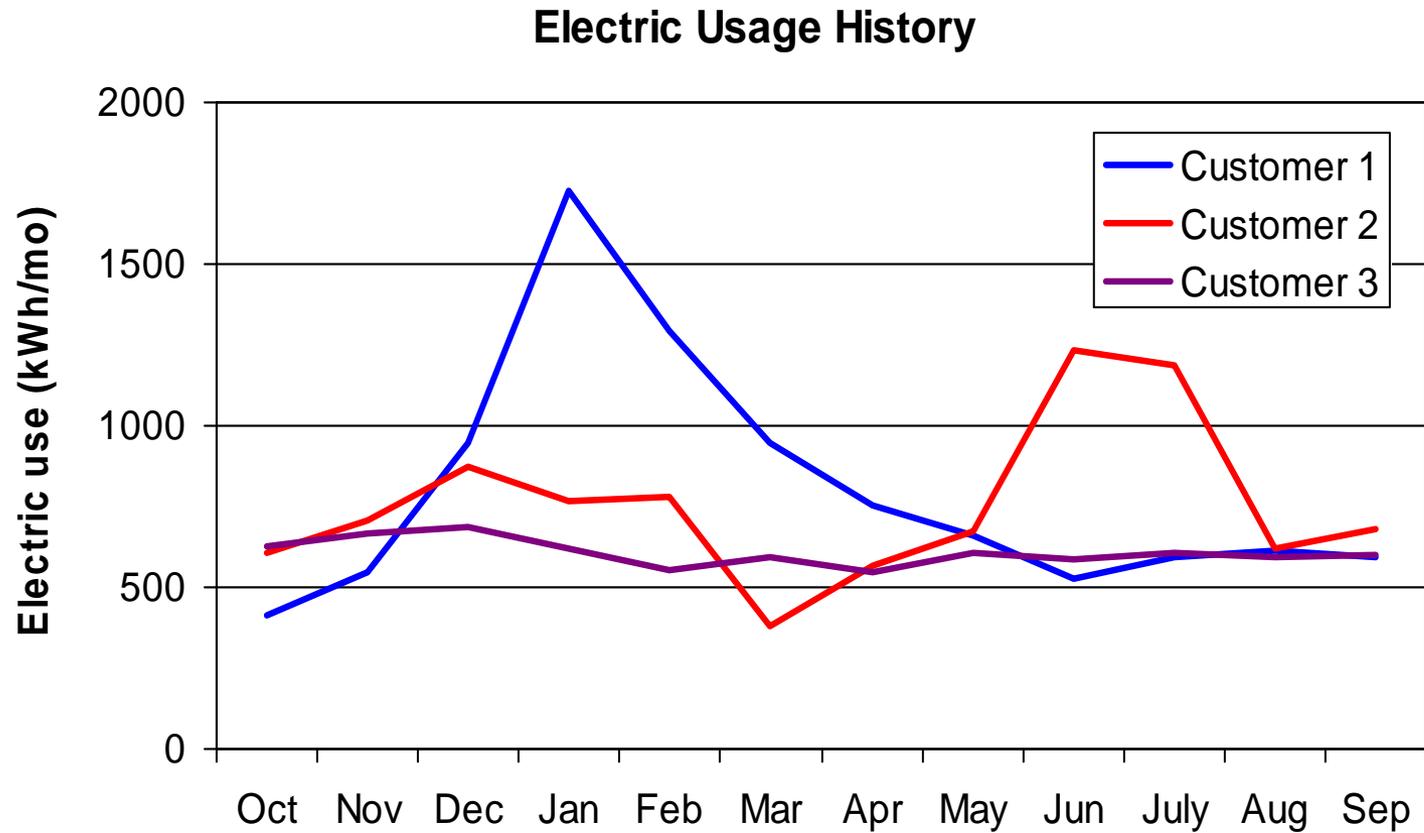


Every House is Different

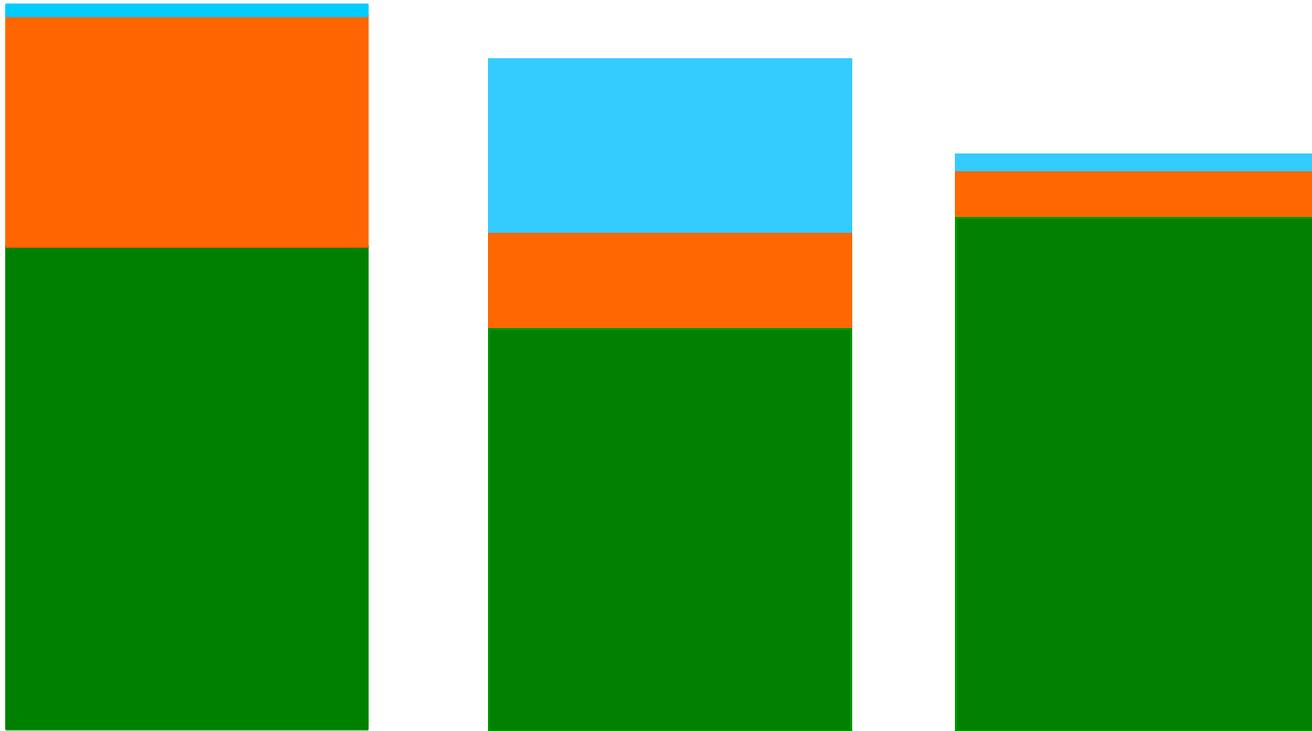




Every House is Different



Where to Look First?



House 1

Family 1

House 2

Family 2

House 3

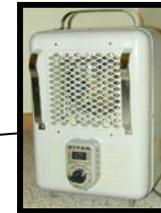
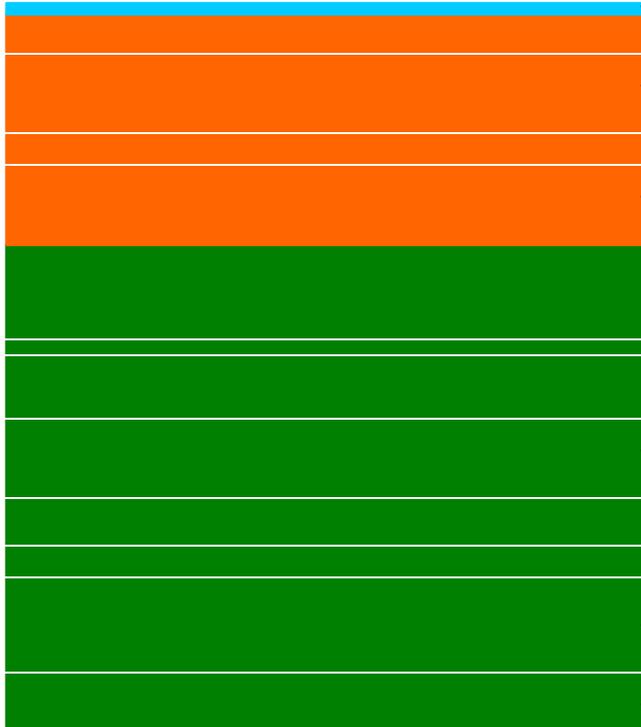
Family 3

Second Cut – End Uses



Second Cut – End Uses

Many pieces = total electricity use



Typical End Uses: Baseload

Minimum Baseload

Refrigeration
Lighting
Entertainment
Computers
Ventilation
Laundry
Cooking
Phantom loads

Typical End Uses: Winter

Heating Season Adder

Air handler fan
Electric space heat
Increased baseload uses

Minimum Baseload

Refrigeration
Lighting
Entertainment
Computers
Ventilation
Laundry
Cooking
Phantom loads

Typical End Uses: Summer

Cooling Season Adder

Minimum Baseload

AC compressor

Air handler fan

Fans

Baseload uses: more or less

Refrigeration

Lighting

Entertainment

Computers

Ventilation

Laundry

Cooking

Phantom loads

More Tools
More Clues

Basic Electricity

Energy Use = Power x Time

Watt-hours = Watts x Hours



kiloWatt-hours = Watt-hours / 1000

kWh

Reminder: 1 kWh costs about 7 cents in FC

Basic Electricity

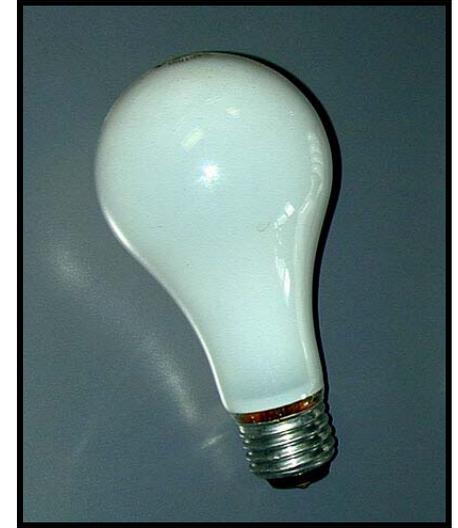
Example: 100W light bulb, 5 hrs/day

Power = 100 Watts

Time = 150 hrs/month

Energy Use = 100 Watts x 150 hrs/month
= 15,000 Watt-hours/month
= 15 kWh/mo

Electricity cost: About \$1 per month, \$12 per year



Where to Get the Data?

Accuracy

Guesstimates

Labels

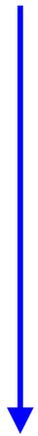
Tables

On-line calculators

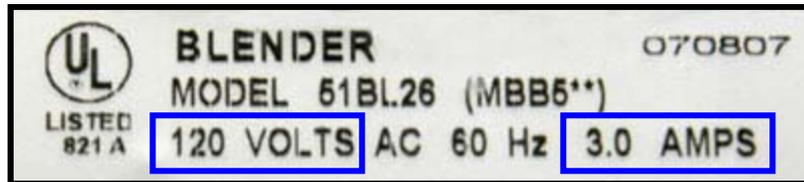
Measurements

Power

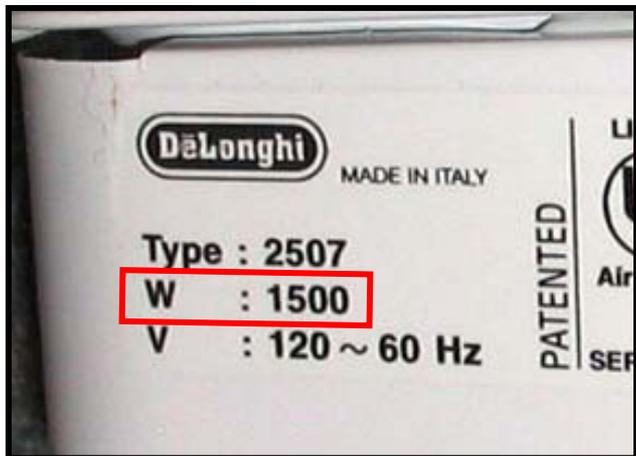
Time



Labels



Power



A place to start

Different formats

Some more useful than others

V, A labels overestimate W



Tables

U.S. Department of Energy
Energy Efficiency and Renewable Energy *Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable*

A Consumer's Guide to Energy Efficiency and Renewable Energy

Your Home | Your Vehicle | Your Workplace | Products & Services | Renewable Energy | Information Resources | Home

Your Home

| | |
|-------------------------------------|---|
| Apartments | |
| Appliances & Electronics | |
| Shopping for Energy Efficiency | |
| Estimating Energy Use | Estimating Appliance and Use |
| Energy Efficiency Standards | If you're trying to decide whether to invest in a new appliance or you'd like to determine your current energy consumption, you can estimate appliance energy consumption. |
| Power-Controlling Devices | Formula for Estimating Energy Consumption |
| Turning Off Computers | You can use this formula to estimate annual energy consumption: |
| Designing & Remodeling | $(\text{Wattage} \times \text{Hours Used Per Day} \div 1000) = \text{kWh consumption}$ |
| Electricity | (1 kilowatt (kW) = 1,000 Watts) |
| Energy Audits | |
| Insulation & Air Sealing | Multiply this by the number of days you use the appliance to determine the annual consumption. You can then estimate the energy consumption of an appliance by multiplying the kWh per year by the number of appliances consumed. |
| Landscaping | |
| Lighting & Daylighting | |

Aquarium = 50 – 1210 Watts

Typical Wattages of Various Appliances

Here are some examples of the range of nameplate wattages for various household appliances:

- Aquarium = 50-1210 Watts
- Clock radio = 10
- Coffee maker = 900-1200
- Clothes washer = 350-500
- Clothes dryer = 1800-5000
- Dishwasher = 1200-2400 (using the drying feature greatly increases energy consumption)
- Dehumidifier = 785
- Electric blanket- *Single/Double* = 60 / 100
- Fans
 - Ceiling = 65-175
 - Window = 55-250
 - Furnace = 750
 - Whole house = 240-750
- Hair dryer = 1200-1875
- Heater (*portable*) = 750-1500
- Clothes iron = 1000-1800
- Microwave oven = 750-1100
- Personal computer
 - CPU - awake / asleep = 120 / 30 or less
 - Monitor - awake / asleep = 150 / 30 or less

Power

On-Line Calculators

| Kitchen Appliances | | |
|--|---|--|
| In order to determine how much your kitchen appliances cost for general usage, select the appliances you want to calculate for by checking the Include box, or if applicable, the drop down box value, then select the amount of time the appliance will be on. (In the case of the dishwasher and coffee pot, you will enter the number of uses instead of minutes.) In this set of calculations, an electric water heater is assumed. These results are calculated using national averages for a typical device. Some devices will obviously vary. | | |
| Freezer | <input type="checkbox"/> None | Time <input type="text" value="1 day"/> |
| Refrigerator Combo | <input type="checkbox"/> Auto defrost, 17.5 cu. ft. | Time <input type="text" value="1 month"/> |
| Range, large eye, medium temp | <input type="checkbox"/> Include | Time <input type="text" value="10 minutes"/> |
| 350 Degree Oven | <input type="checkbox"/> Include | Time <input type="text" value="30 minutes"/> |
| Frypan, 1200 watts | <input type="checkbox"/> Include | Time <input type="text" value="30 minutes"/> |
| Insta-Hot Water 750 watts, 1/2 Gallon | <input type="checkbox"/> Include | Time <input type="text" value="1 month"/> |
| Microwave Oven | <input type="checkbox"/> None | Time <input type="text" value="5 minutes"/> |
| Dishwashing | <input type="checkbox"/> None | # Loads <input type="text" value="1 load"/> |
| Coffee maker | <input type="checkbox"/> Include | # Pots <input type="text" value="30 pots"/> |
| <input type="button" value="Calculate"/> <input type="button" value="Clear Values"/> | | |
| All of this electrical power would cost <input type="text" value=""/> on your electric bill. | | |

Power
Time

| Calculate your electric cost | |
|---|---|
| Device / Wattage | Amount used per day |
| <input type="text" value="100 (100-watt light bulb)"/> | <input type="text" value="5 hrs./day"/> |
| Cost of Electric. | Days used per month |
| <input type="text" value="7¢ (ID,ND,NE,WA,WV)"/> | <input type="text" value="30"/> |
| Kilowatt Hours used: <input type="text" value="15"/> kWh/mo. | |
| Cost per month: \$ <input type="text" value="1.05"/> | |
| Cost per year: \$ <input type="text" value="12.60"/> | |

Don't rely on these results without understanding the limitations. For example, your computer might use more or less electricity than my computer. (See the accompanying article to figure out how much electricity something uses.) Also, your cost of electricity may be wrong even if you choose the correct state, because electrical rates vary within a state. (More on [how they charge you.](#))

Measurements



Power
Time

Several options

- Increased accuracy
- Each has appropriate use
- How much do you want to learn?
- Where are you on the Geek Scale?

Measurements



Total Geek

Data logging,
individual circuit
measurements

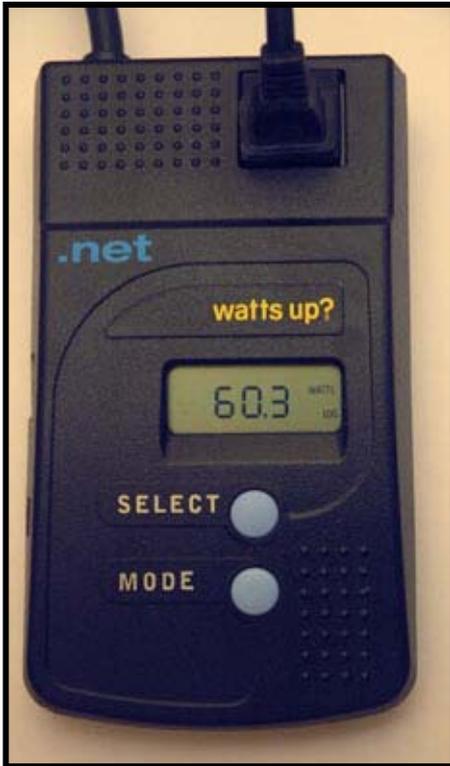
**Motivated
Energy Sleuth**

Whole-house
monitor

**Regular
Jane/Joe**

Appliance meters

Measurements



Appliance meters (\$25 to \$100+)

- Any 120V plug-in appliance
- Instantaneous data (W, V, A)
- Cumulative data (time, kWh)
- Can NOT measure:
 - Hardwired load (furnace, lighting)
 - 240V (stove, electric dryer, AC)

Power
Time

Measurements

Refrigeration

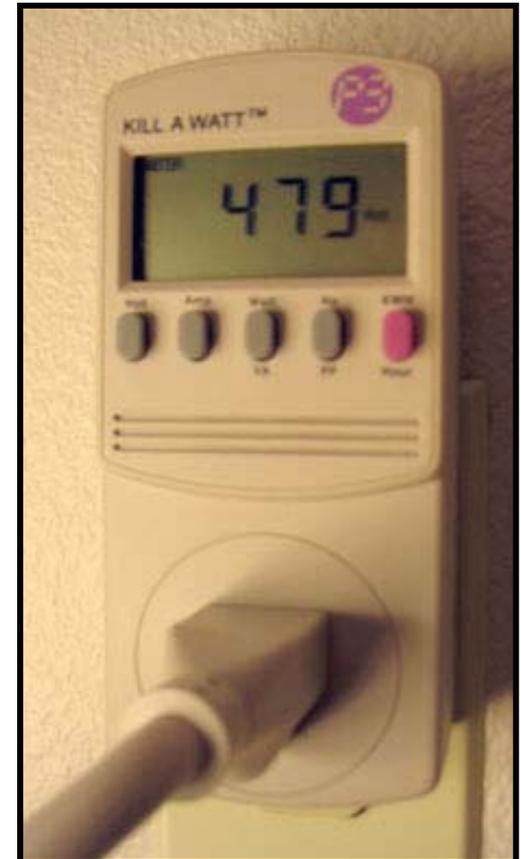
| Appliance | Hours | kWh | kWh/day |
|--------------|-------|------|---------|
| Refrigerator | 72 | 5.98 | 2.0 |
| Freezer | 58 | 2.95 | 1.6 |

| Appliance | Projected energy use (kWh) | | |
|----------------------------|----------------------------|------------|-------------|
| | Day | Month | Annual |
| Refrigerator | 2.0 | 61 | 730 |
| Freezer | 1.6 | 49 | 584 |
| Total refrigeration | 3.6 | 110 | 1314 |

Washing machine

| # loads | kWh | kWh / load |
|---------|------|------------|
| 4 | 0.67 | 0.17 |

| Typical # loads/wk | Projected energy use (kWh) | | |
|--------------------|----------------------------|-------|--------|
| | Week | Month | Annual |
| 5 | 0.8 | 3.6 | 44 |



Measurements



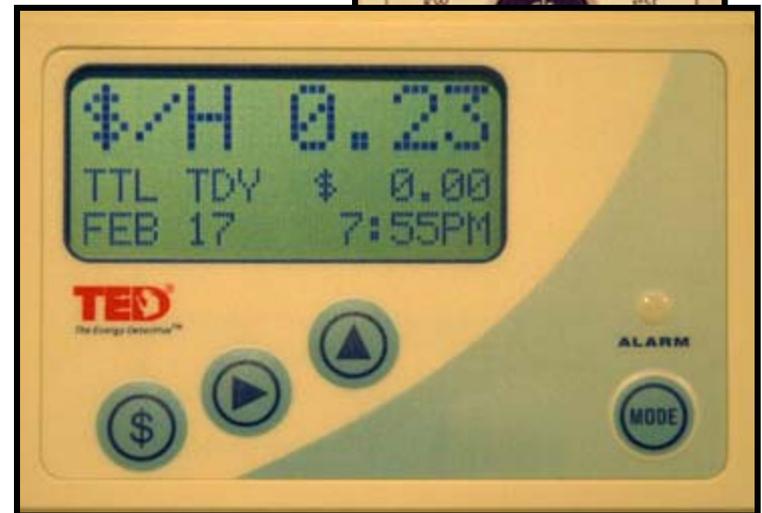
Borrow a Kill-A-Watt meter
from Fort Collins Utilities:
no charge for a week

Power
Time

Measurements

Whole-house displays (\$100-150)

- Instantaneous: W, \$\$/hr
 - Observe daily patterns.
 - See how power changes when an appliance is turned on.
 - See results of changes.
- Cumulative: kWh and \$\$
 - Program rate
 - Manual reset

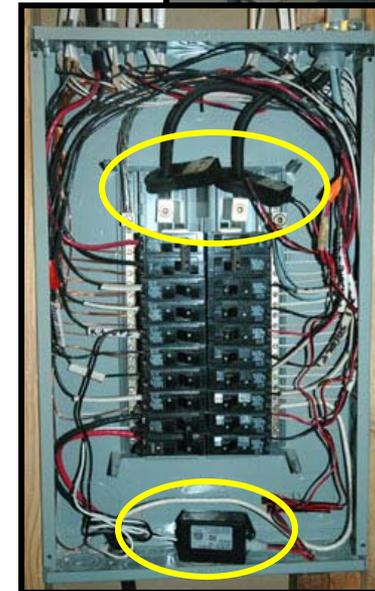


Power
Time

Measurements

Whole-house displays

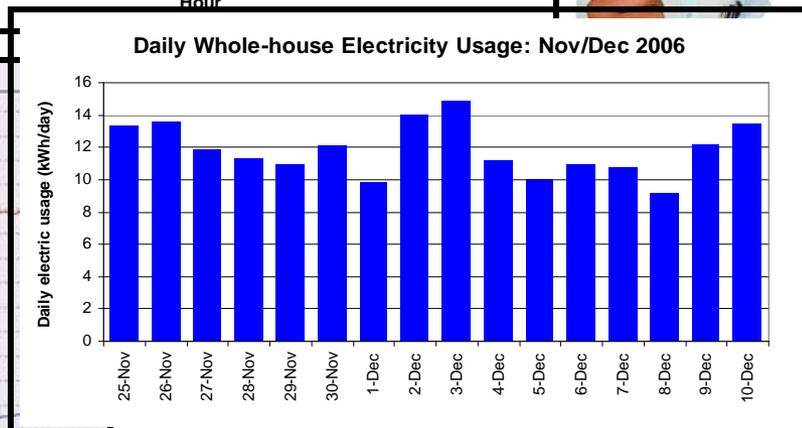
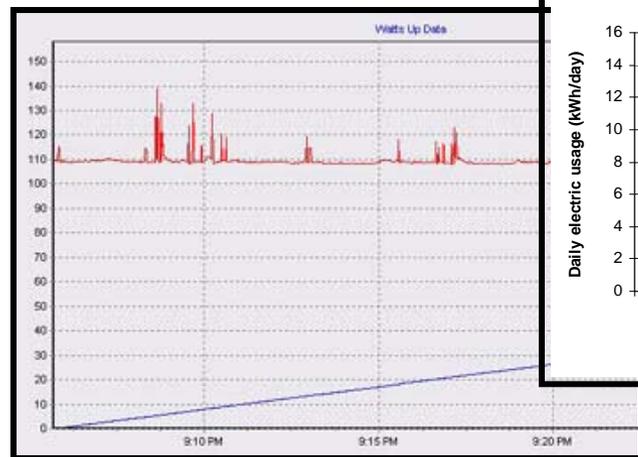
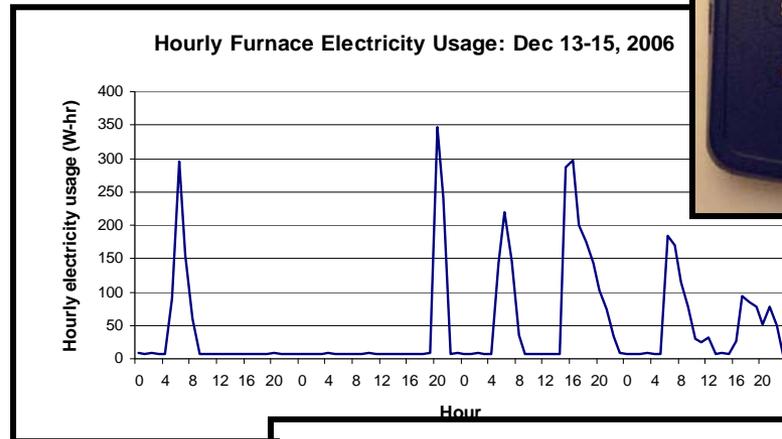
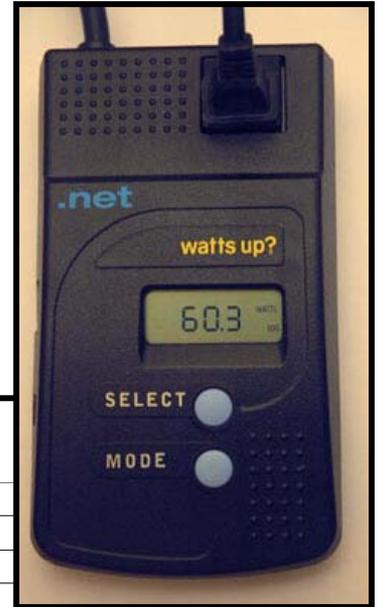
- Good choice for big loads, less useful for small loads
- Some displays log data.
- Installation
 - Clamp-on sensor at meter . . . or hardwire into electrical panel (customer or licensed electrician)
 - Clamp-on: most meters, not all
 - **NOTIFY Fort Collins Utilities Meter Shop!**



Measurements

Data-logging (\$130 and up)

- Watts vs. time, kWh
- Trends
- Nighttime loads
- Whole house, individual loads
- Big loads, small loads



Power
Time

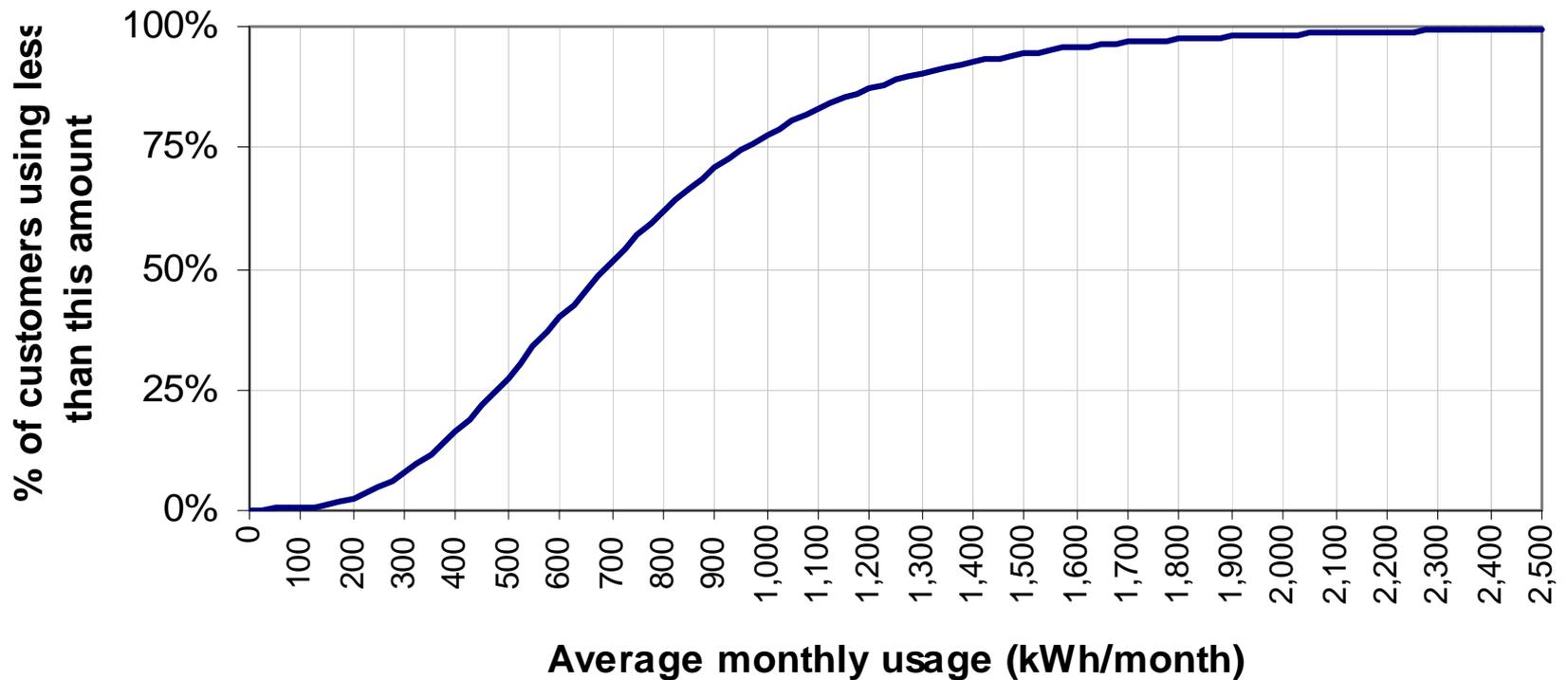
Assembling the Clues

One House, One Family

- 2700 sf townhome, built 1996
- Energy-efficient design
- Family of four: parents + two teenage girls
- Not too much electronic stuff
- Energy-conscious lifestyle
- No sacrifices
- Average monthly electric usage
 - 1996-2007: 295 kWh per month
 - 2008: 272 kWh per month

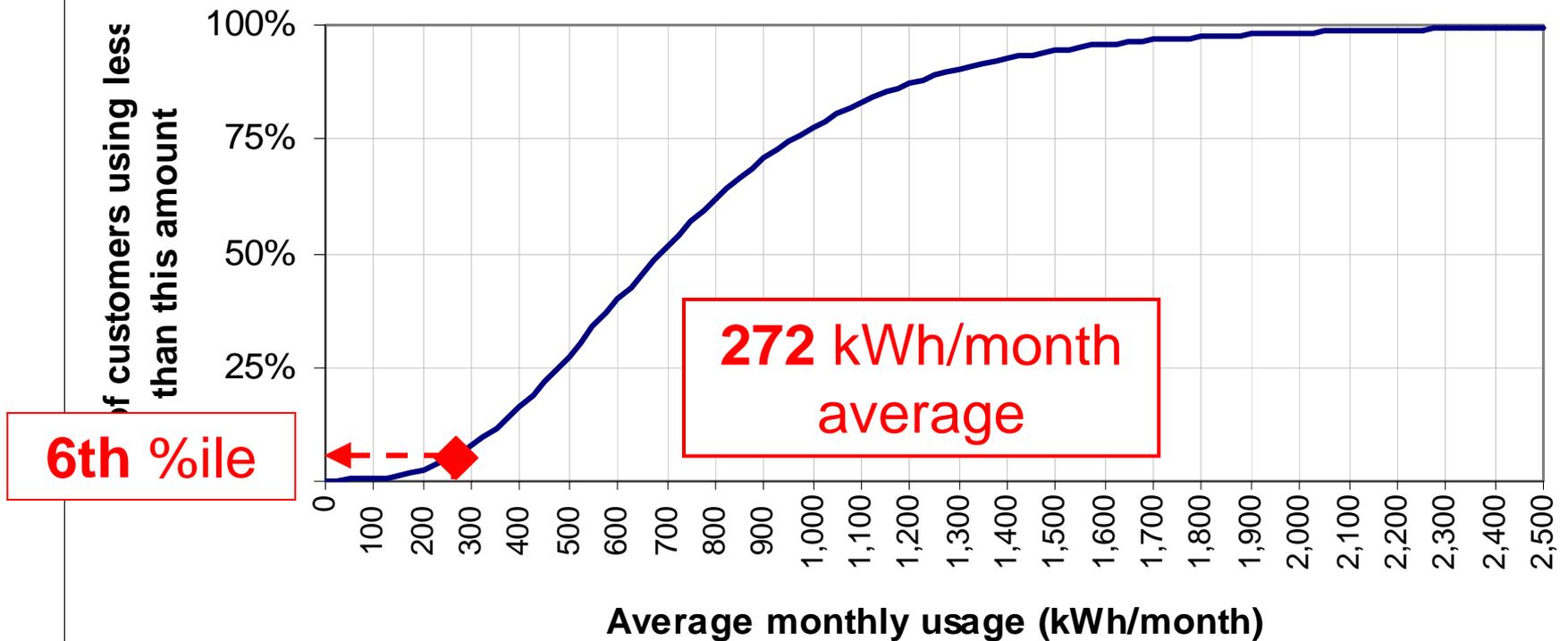
Benchmark Data

**FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008**



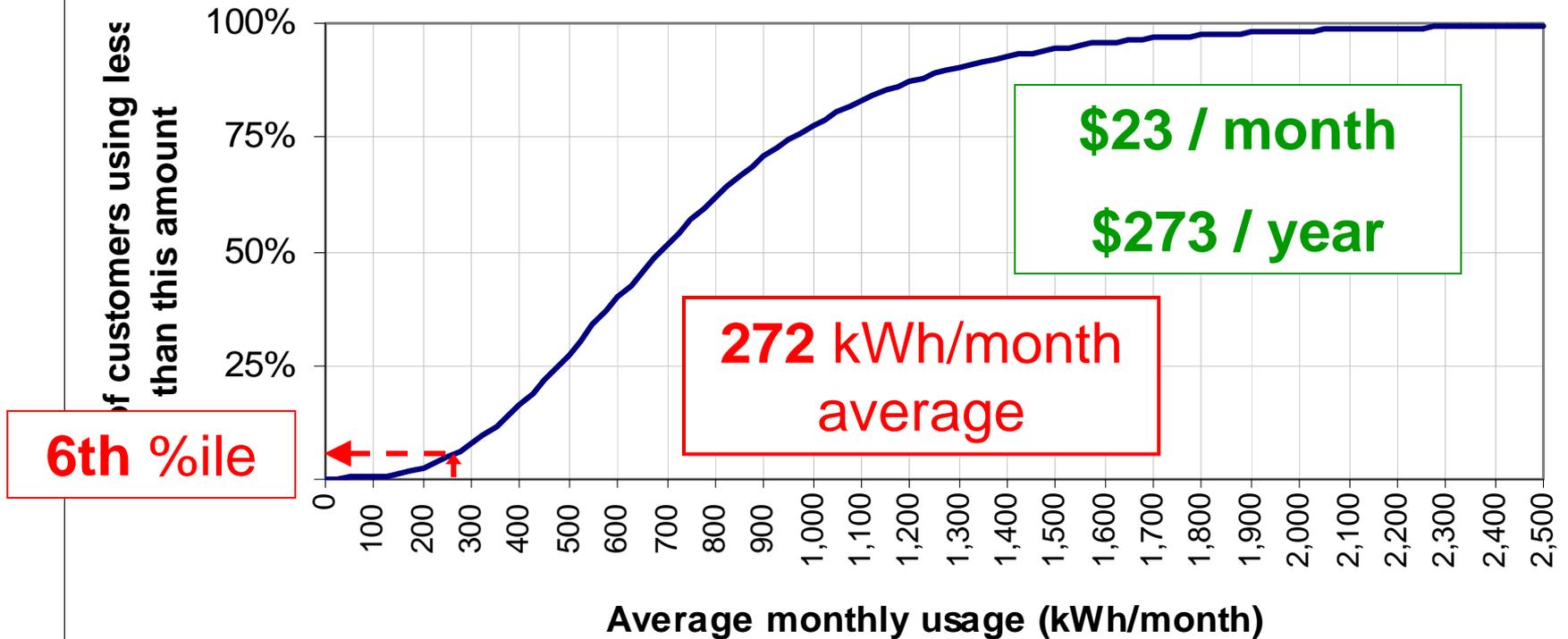
One House, One Family

FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008

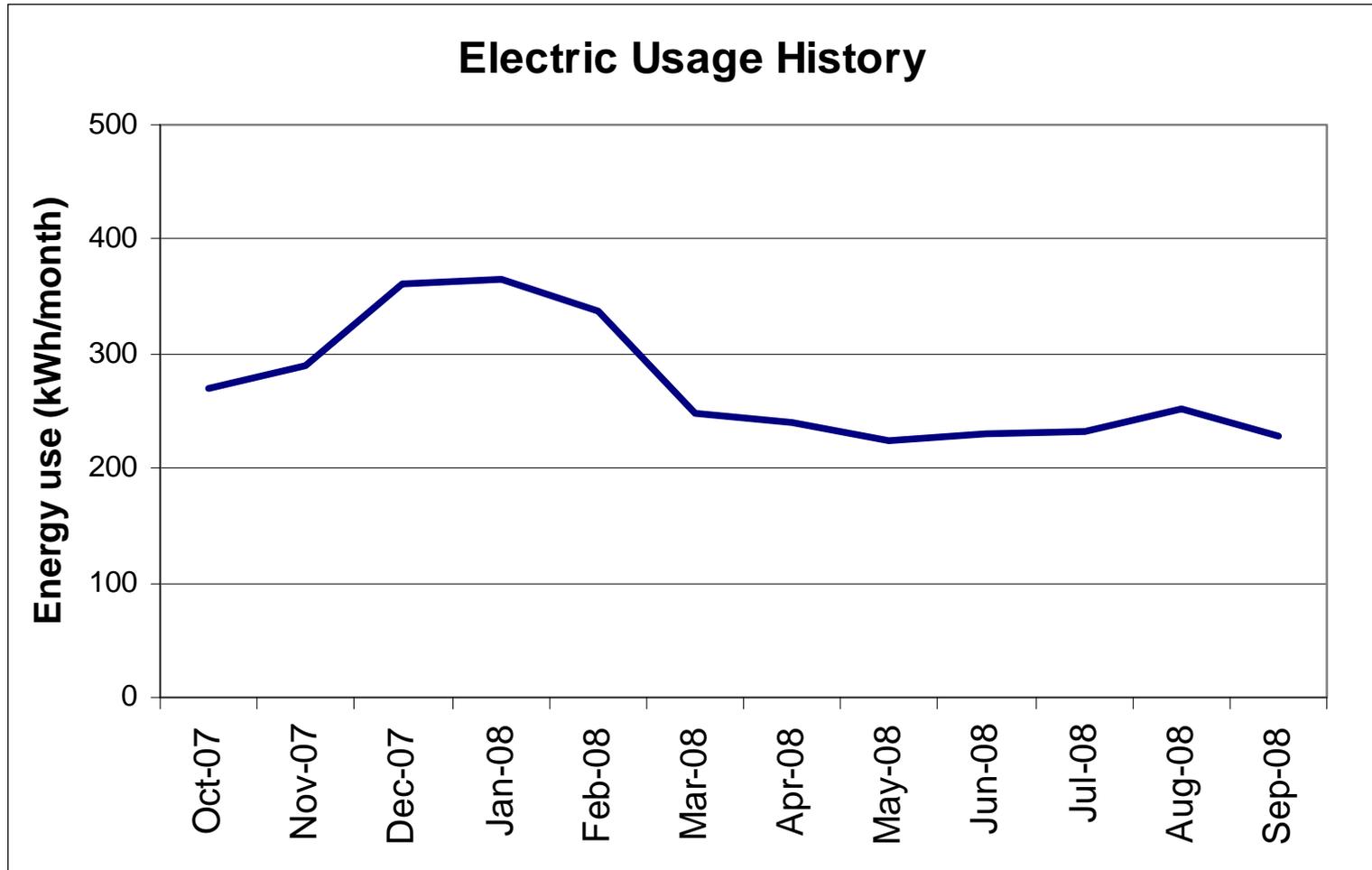


One House, One Family

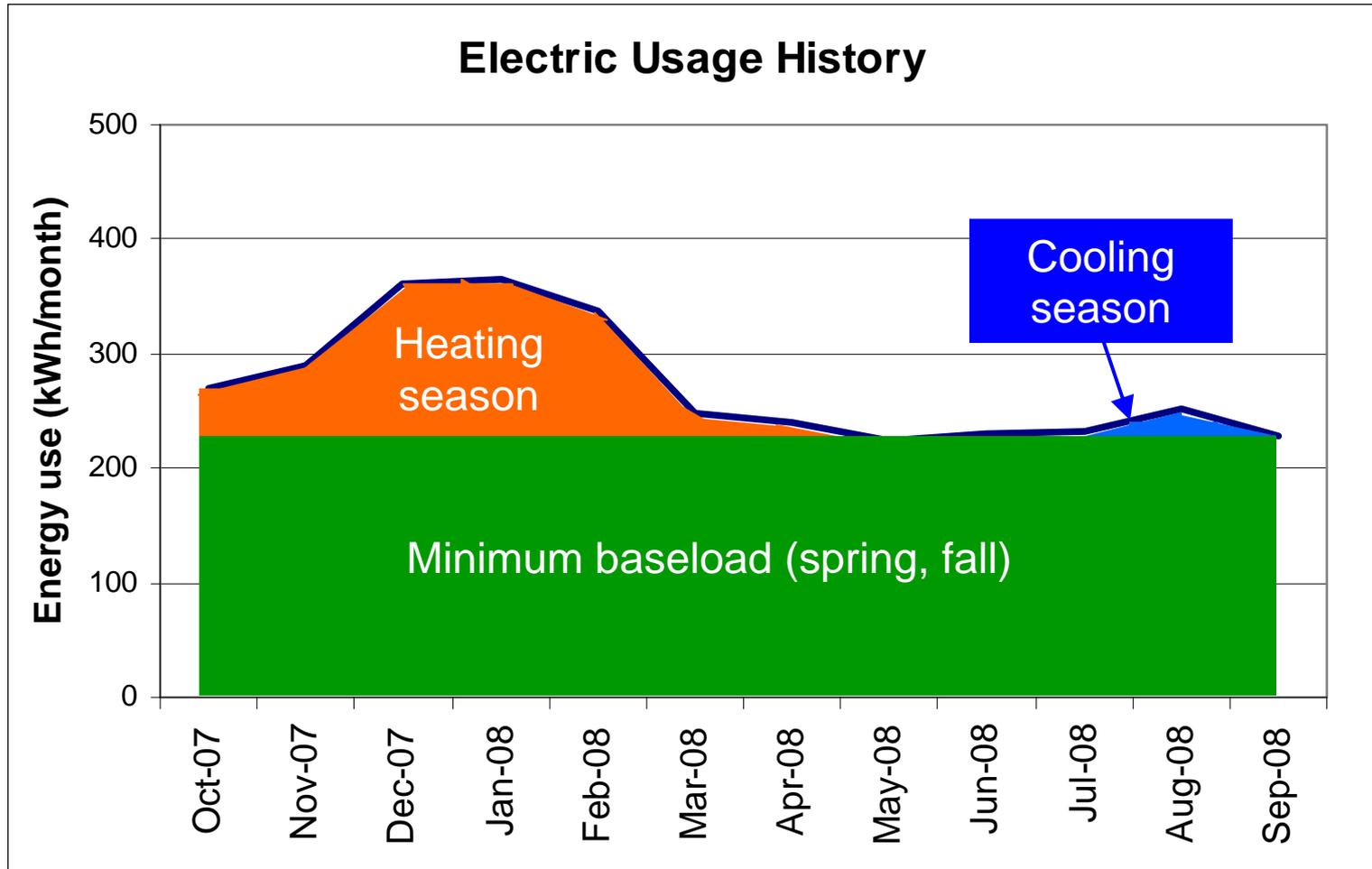
FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008



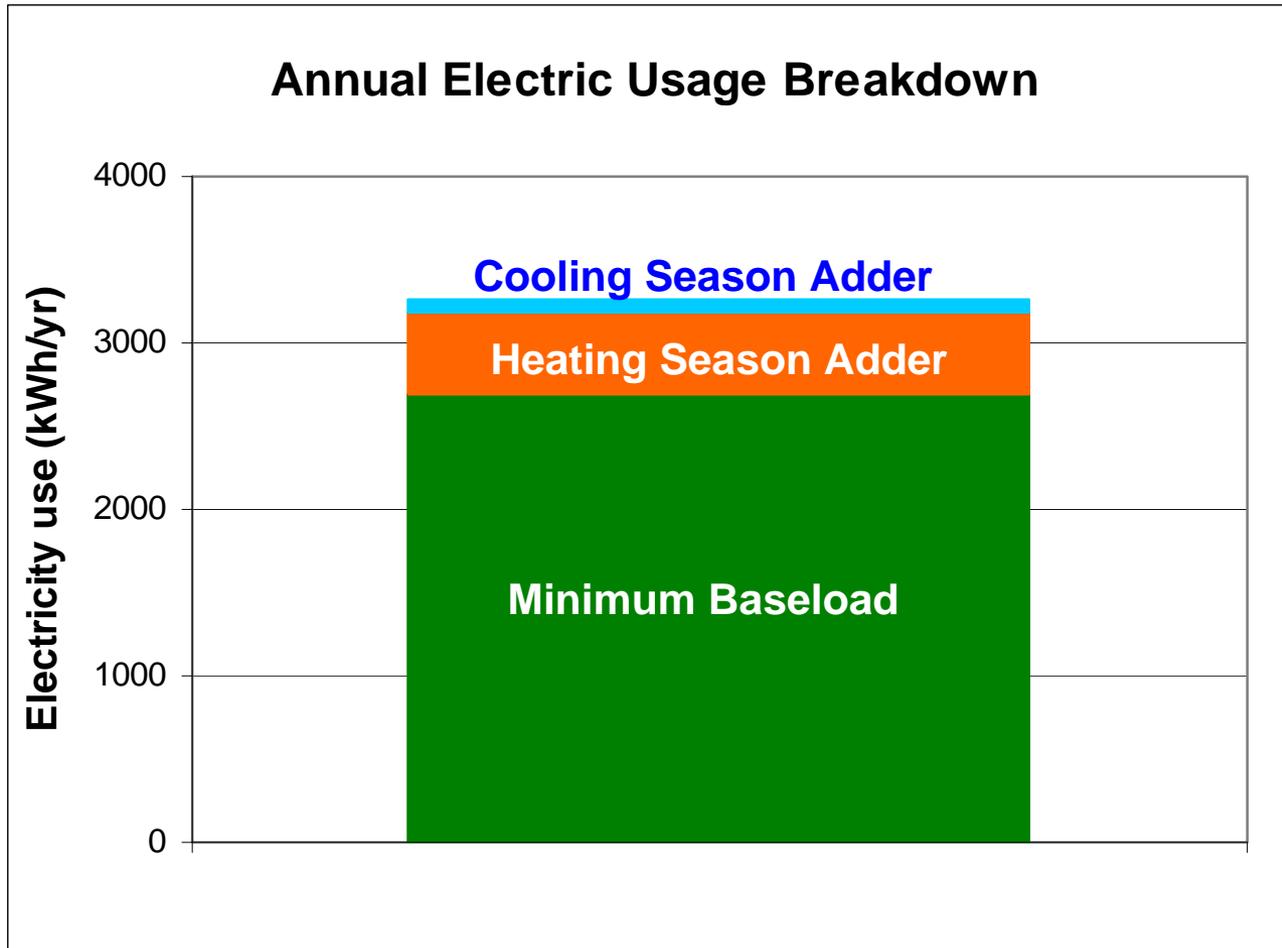
One House, One Family



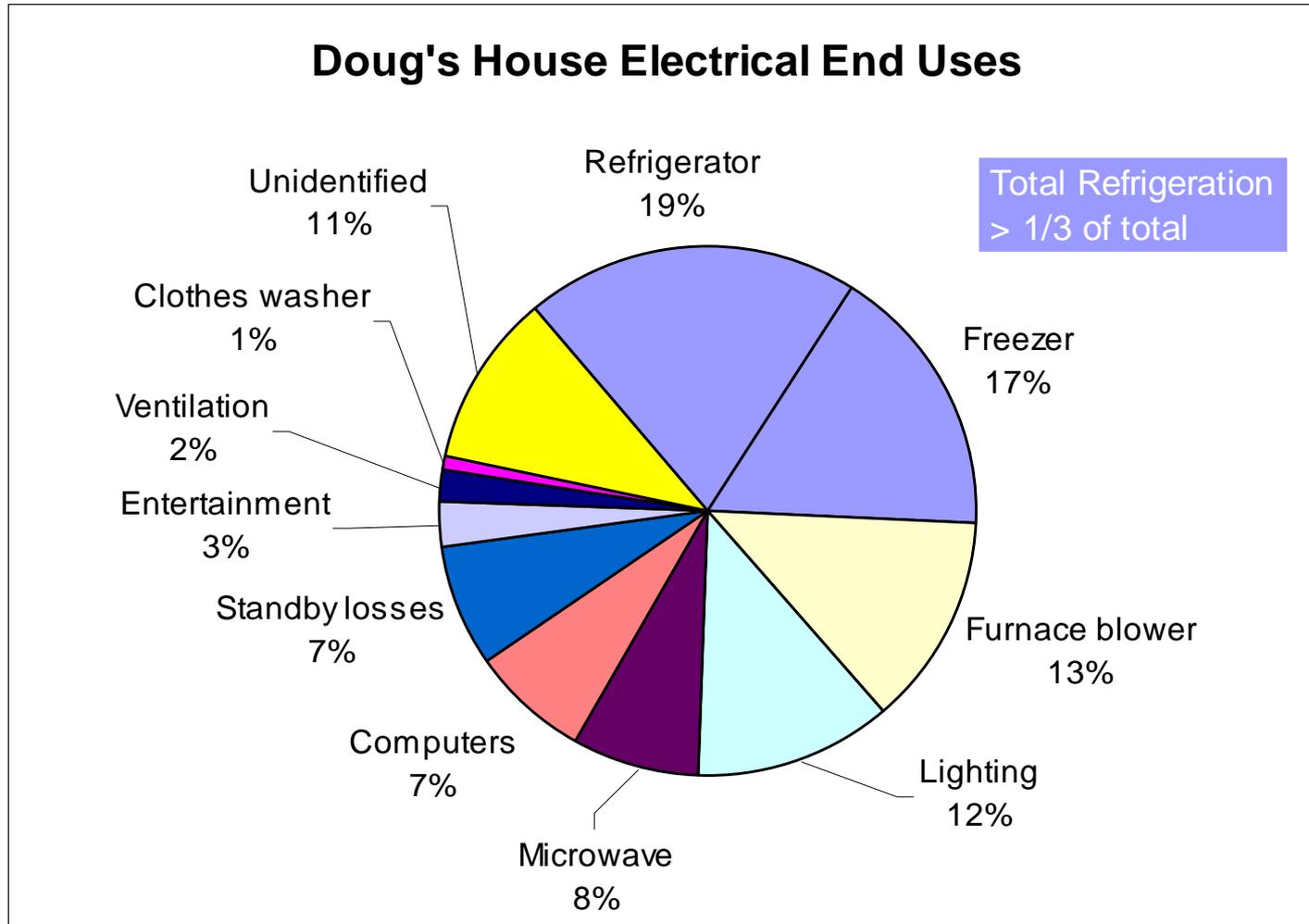
One House, One Family



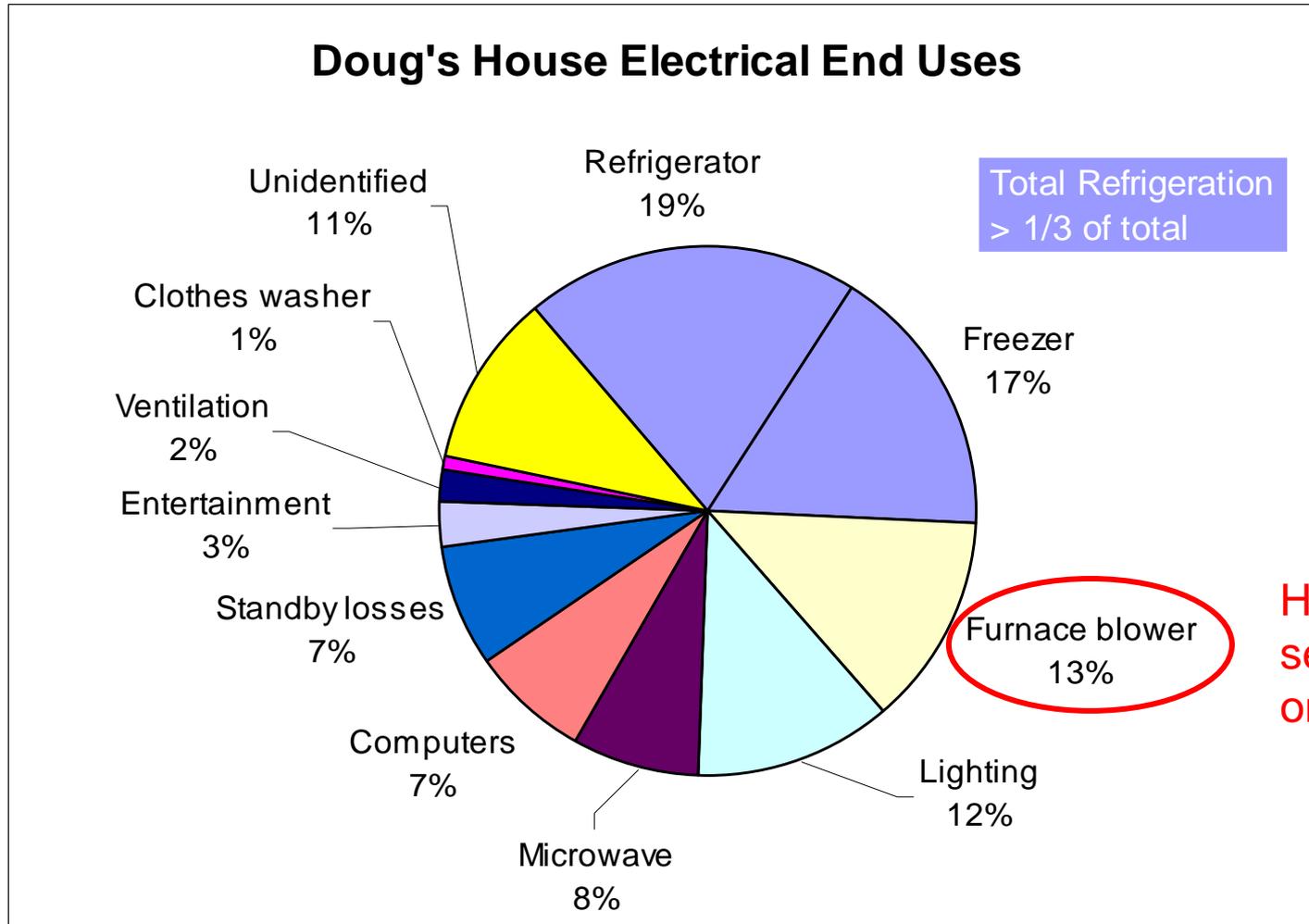
One House, One Family



One House, One Family



One House, One Family



Electrical Use: Taking Control

Big Picture

Big Picture

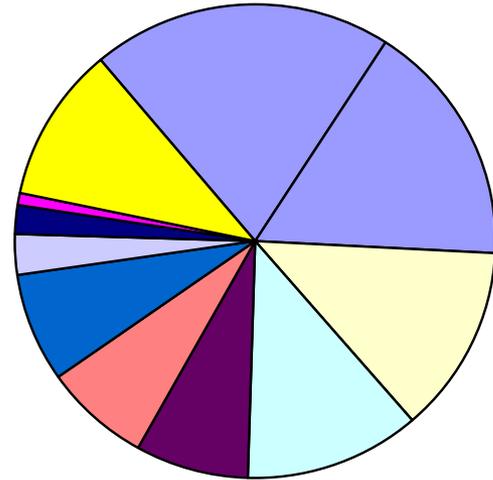
Your electric usage:

It's up to you!

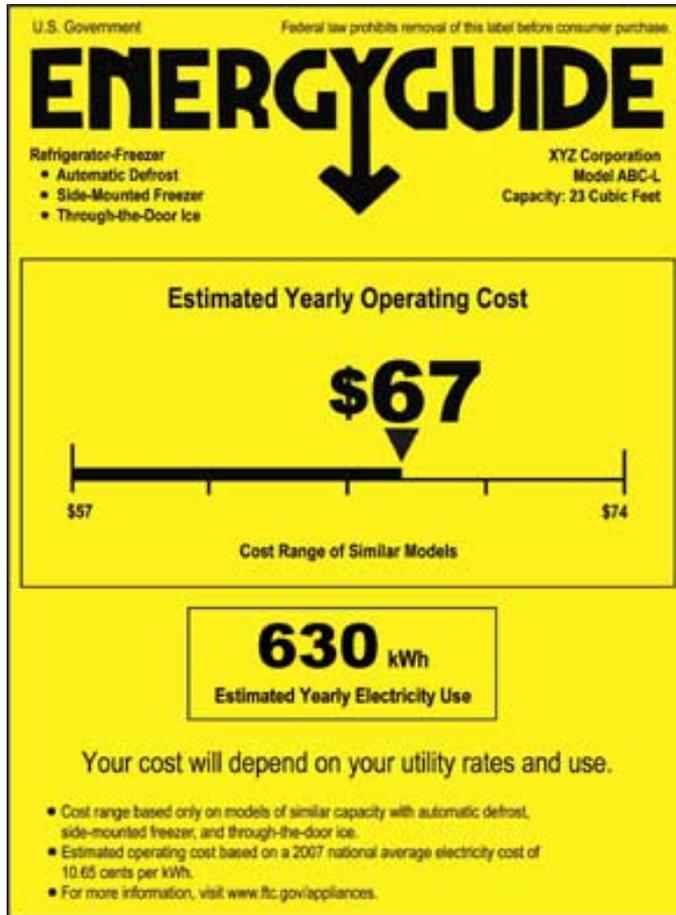
(Your electric utility can help.)

Big Picture

- Start with the big users
 - Does it create heat?
 - Does it remove heat?
 - Is it used many hours?
- Small users add up
- Do you need this energy-using device?
- Can you turn it off?



Useful Information



End Uses

- Refrigeration
- Lighting
- Air handler motor
- Space heating
- Space cooling
- Laundry
- Computing
- Phantom loads

End Use: Refrigeration



- Typically among top users
 - Baseload
 - 24/7 operation
- Fridge #1
- Fridge #2?
- Freezer?
- Kegorator?

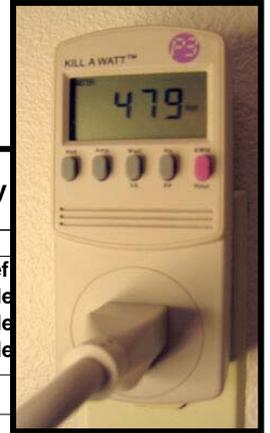
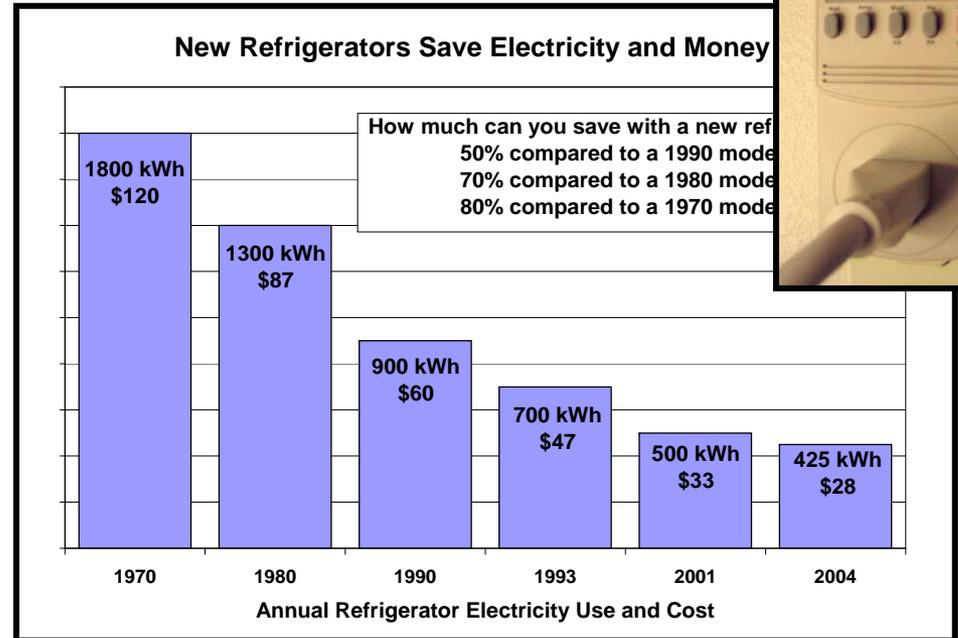


300 W x 8 hrs/day = 72 kWh/mo, \$60/yr

End Use: Refrigeration

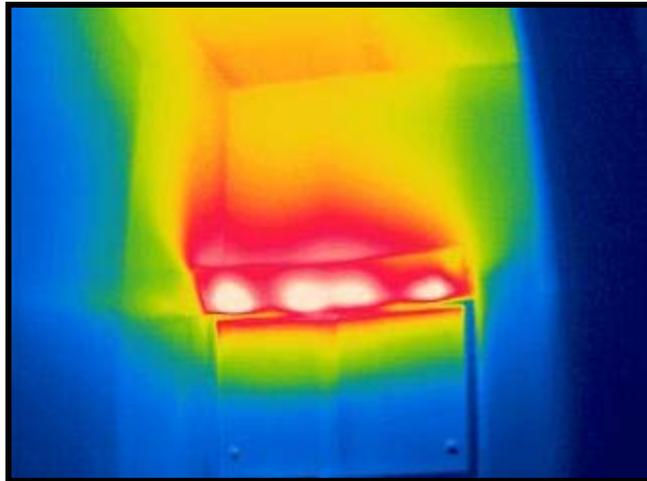
Take control

- EE success story
- Appliance meter
- High user: replace
- Fridge #2: unplug
- Recycling: **\$35 incentive**
- Air flow, condenser coils, gasket, defrost



End Use: Lighting

- Often 10% to 20% of use
- More during winter
- Electric space heat

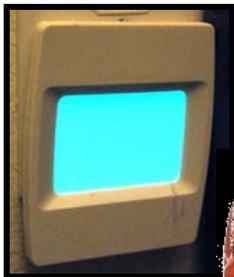
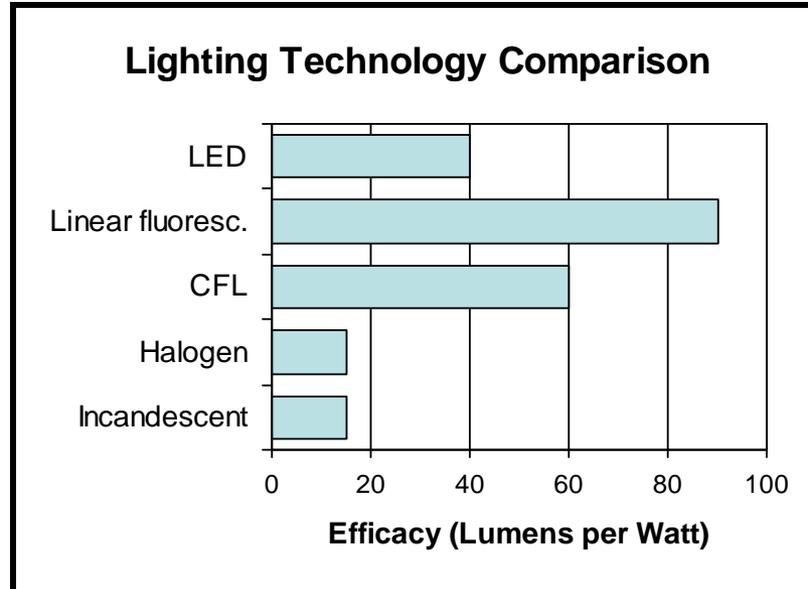


20 sockets x 60 W/socket x 2 hrs/day = 72 kWh/mo, \$60/yr

End Use: Lighting

Take control

- Technology
 - Fluorescent
 - LED
 - Both: longer life



CFL incentives at several FC retailers



End Use: Lighting



Take control

- Task lighting
- Controls
 - Manual
 - Automatic

End Use: Air Handler Motor

- Blower motor
 - Typical = Permanent Split Capacitor
 - 1/3 to 3/4 HP ~ 350 to 750 W
- Energy use
 - Hrs / day: varies
 - Some homes 24/7
(filtration, circulation)



$350 \text{ W} \times 6 \text{ hrs/day} = 64 \text{ kWh/mo}, \$4.50/\text{mo}$

$750 \text{ W} \times 24 \text{ hrs/day} = 540 \text{ kWh/mo}, \$38/\text{mo}, \$454/\text{yr}$

End Use: Air Handler Motor

Take control

- Reduce heating + cooling loads
 - Insulation + air sealing
 - Solar gains
- Replacing H/C eqpt: “right-size”
- Replace with efficient motor
 - (Ducts must work with equipment)
- Don't operate PSC motor 24/7



ECM

BPM

End Use: Space Heating

Electric
space
heaters



1200 to 1500 W
typical

Efficiency?



1500 W x 5 hrs/day = 225 kWh/mo, \$16/mo

End Use: Space Heating

A8, The Coloradoan, Thursday, February 12, 2009 www.coloradoan.com
©2009 UNIVERSAL MEDIA SYNDICATE, INC. SPECIAL ADVERTISEMENT FEATURE ADVERTISEMENT FOR HEAT SURGE, LLC 3939 EVERHARD RD., CANTON OH 44709

Amish mantle and miracle invention help home heat bills hit rock bottom

Miracle heaters being given away free with orders for real Amish fireplace mantles to announce the invention that helps slash heat bills, but Amish craftsmen under strain of winter rush force household limit of 2

Save money: only uses about 8¢ electric an hour; so turn down your thermostat and never be cold

By MARK WOOD
Universal Media Syndicate

(UMS) Everyone hates high heat bills. But we're all sick and tired of simply turning down the thermostat and then being cold.

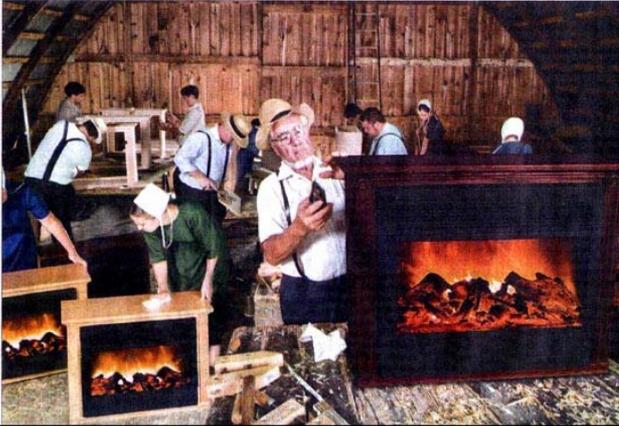
Well now, the popular HEAT SURGE® miracle heaters are actually being given away free to the general public for the next 48 hours starting at precisely 8:00 a.m. today.

The only thing you need to do is call the National Distribution Hotline before the 48-hour deadline with their order for the handsome Amish Fireplace Mantle. Everyone who does is instantly being awarded the miracle heater absolutely free.

This is all happening to announce the HEAT SURGE Roll-A-Glow® Fireplace which actually rolls from room-to-room so you can turn down your thermostat and take the heat with you anywhere. That way, everyone who gets them first can immediately start saving on their heat bills.

Just in time for winter weather, portable Amish encased fireplaces are being delivered directly to the doors of all those who beat the deadline.

These remarkable fireplaces are



“Miracle heater”



HEAT SURGE® Fireless Flame

How It Works: The HEAT SURGE miracle heater is a work of engineering genius from the China coast so advanced, you simply plug it into any standard outlet. It uses only about 8¢ of electric an hour on the standard setting. **Yet, it produces up to an amazing 5,119 BTU's on the high setting.** So watch out, a powerful on board hi-tech heat turbine silently forces hot air out into the room from the vent so you feel the bone soothing heat instantly. It even has certification of Underwriters Laboratories coveted UL listing. It also comes with a limited full year replacement or money back warranty plus a 30-Day Satisfaction Guarantee.



Hot air only comes out of the top vent

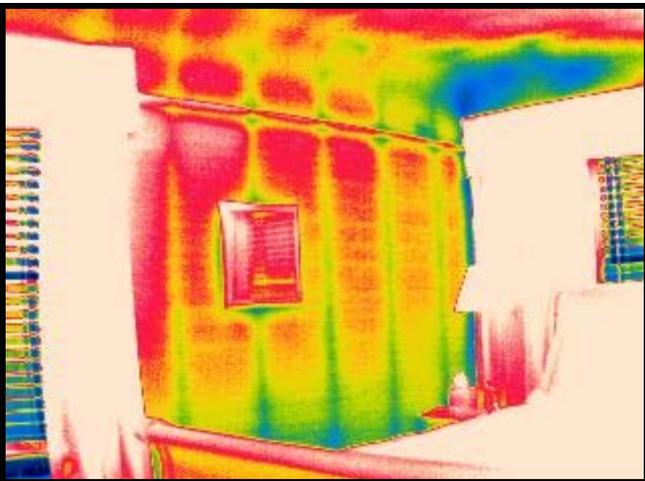


The hi-tech silent heat turbine takes in cold air

“produces up to an amazing 5,119 BTU'S on the high setting.”

(5119 Btu/hr
= 1500 W)

End Use: Space Heating



Take control

- Space heater may be a smart choice
- Space heater may be treating symptom
 - Why is heater needed?
 - Fix root cause: heat loss, heat distribution
 - Potential year-round benefits

End Use: Space Cooling



Air conditioning

Three loads:

- Compressor
- Air handler blower motor
- Condenser fan

2000 to 5000 W

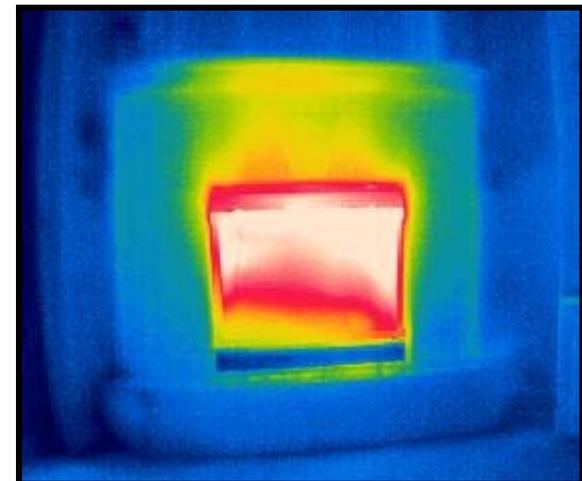
Often not running as designed

$3500 \text{ W} \times 5 \text{ hrs/day} = 525 \text{ kWh/mo}, \$37/\text{mo}$

End Use: Space Cooling

Take control

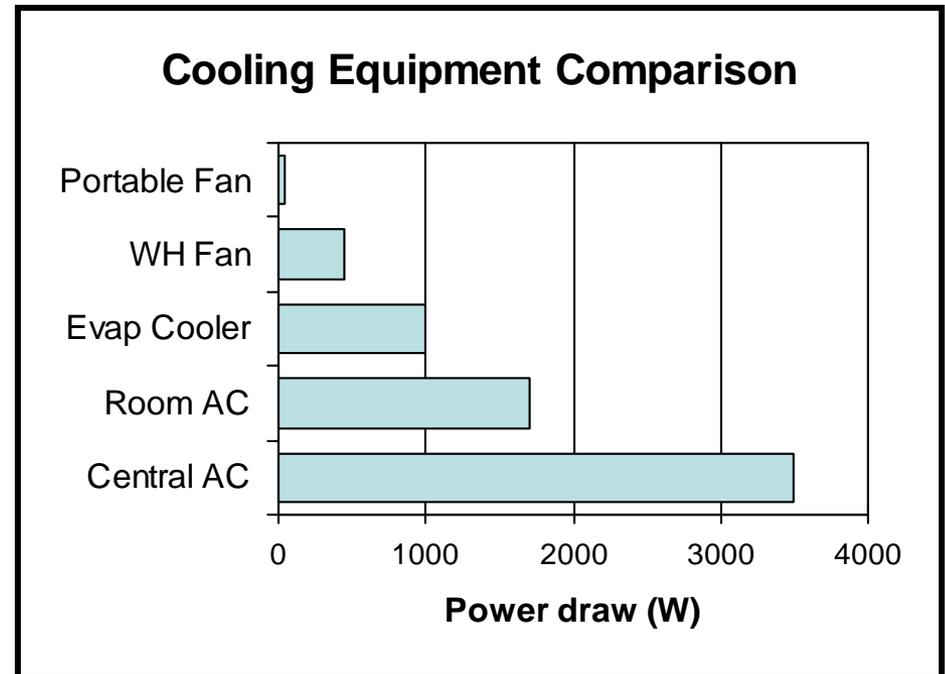
- Keep the heat out
 - Increase insulation
 - Increase shading
 - Reduce internal gains



End Use: Space Cooling

Take control

- Use less energy-intensive cooling strategies



End Use: Space Cooling

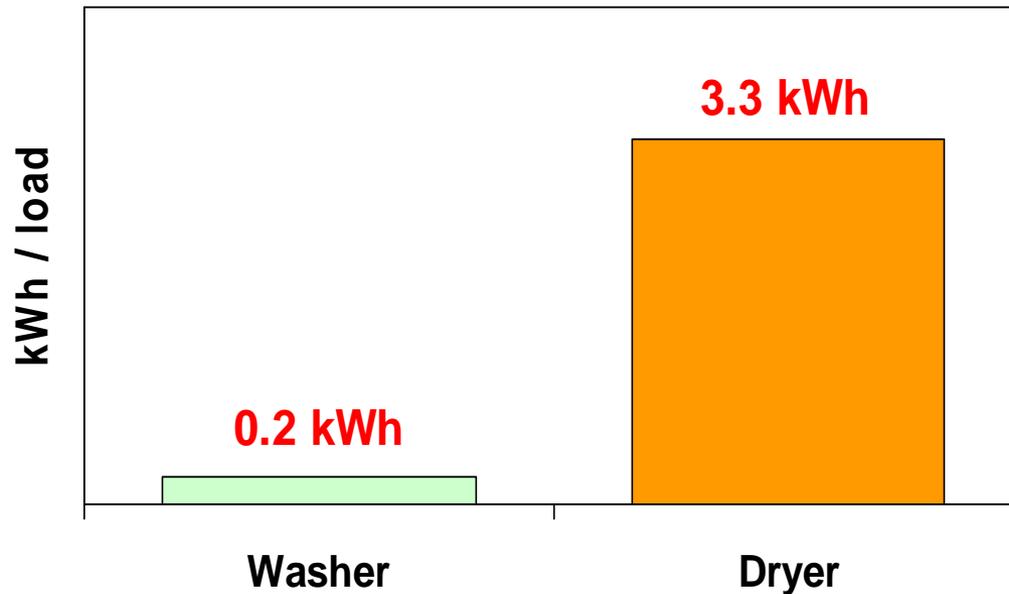
Take control

- AC
 - Existing system
 - Get it running right
 - CheckMe!
 - New / replacement system
 - Right-size (Bigger is not better)
 - Commissioning



End Use: Laundry

Laundry: Electricity per Load



- How many loads per week?
- Electric dryer?

(Gas WH assumed)

4 loads/wk x 3.5 kWh/load = 61 kWh/mo, \$51/yr

End Use: Laundry

Take control

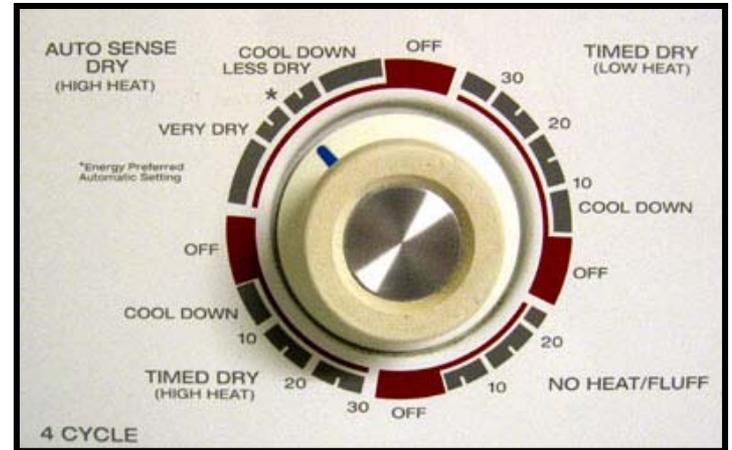
- ENERGY STAR washer
 - Less electricity for washer
 - Much less water
 - Much less water heating energy
(or use cold water)
 - Much less detergent
 - Extract more water
 - \$50 incentive



End Use: Laundry

Take control

- Drying
 - Electric dryer
 - Start with drier clothes
 - Clean vent + lint filter
 - Control with moisture sensor
 - Passive solar clothes dessicator



End Use: Computing

- Computers
- Accessories
 - Monitors
 - Speakers
 - Printers
 - Gaming
 - Network devices
- Power draw: on + “off”



**Power draws
vary widely**

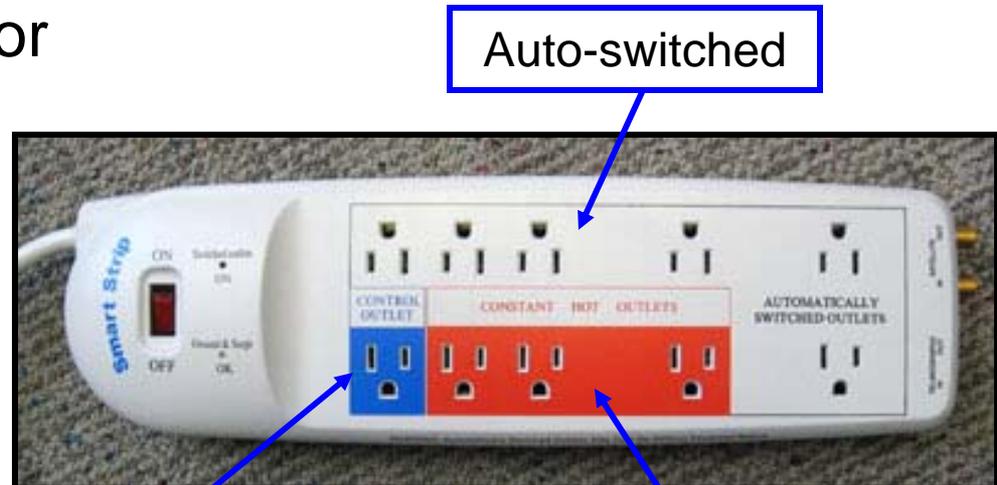


65 W average x 720 hrs/mo = 47 kWh/mo, \$39/yr

End Use: Computing

Take control

- Turn off when not in use
 - Power strips
 - “Smart” power strips
 - Occupancy sensor



Auto-switched

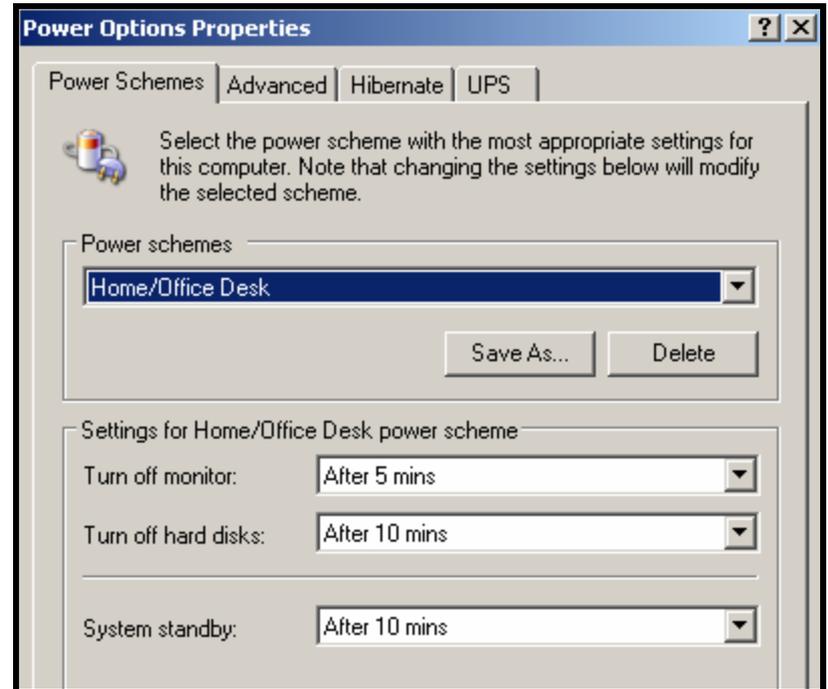
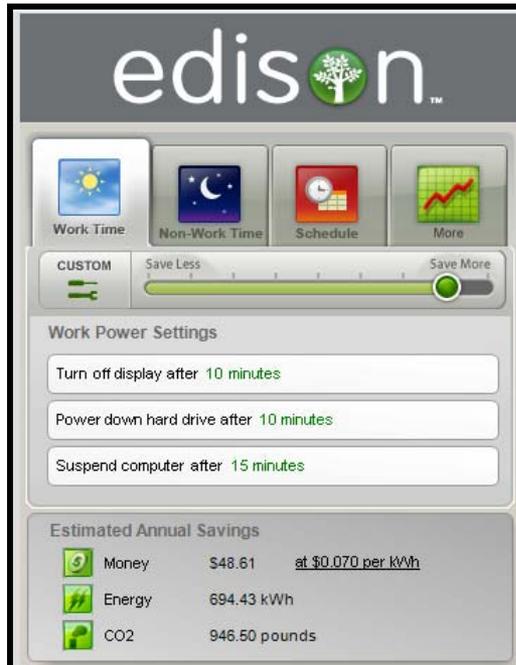
Control device

Always on

End Use: Computing

Take control

- Power management



Must be enabled to work

Screensaver not power mgmt

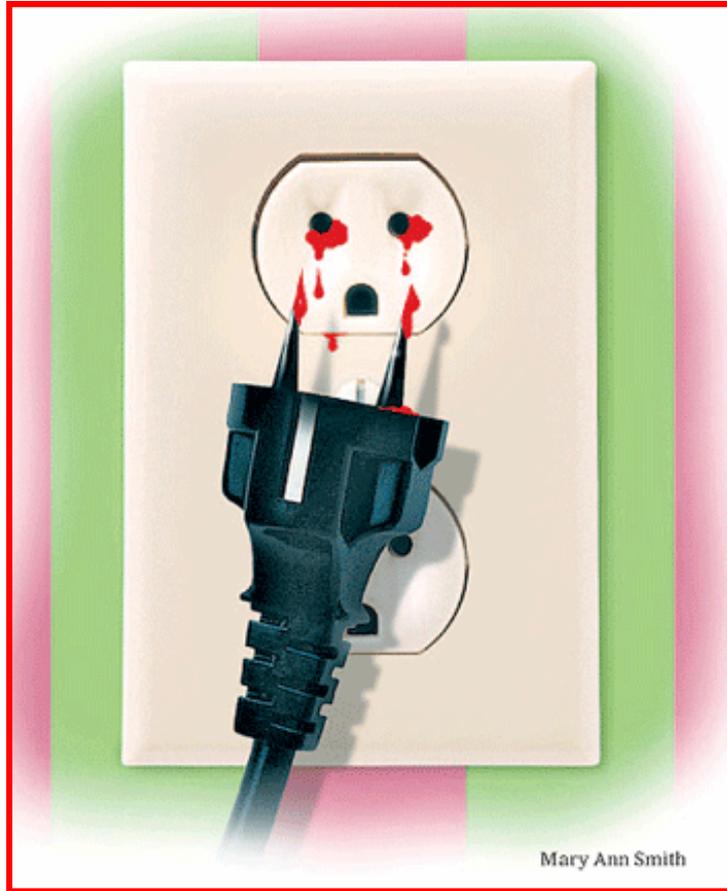
End Use: Computing

Take control

- Purchasing: buy efficiency
 - Laptop
 - Power supply efficiency
 - Flat screen LCD monitor
 - ENERGY STAR
 - Research BEFORE you buy



End Use: “Phantom Loads”



“Watt Suckers”

“Vampire Power”

“Leaking Electricity”

End Use: “Phantom Loads”

- Electricity used when device is not performing primary function
 - “Off” = “Standby”
 - Transformers / Chargers
 - “Always-on” displays
- 1 to 30 W each, adds up
- Devices proliferating



**5% to 10%
of home energy use**

The Department of Energy estimates that, in the average home, 40 percent of all electricity used to power home electronics is consumed while the products are turned off.

100 W average x 720 hrs/mo = 72 kWh/mo, \$61/yr

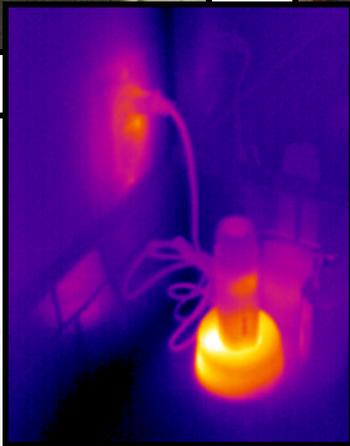
End Use: “Phantom Loads”



These units are turned “off.” Why are they producing heat?



End Use: "Phantom Loads"



End Use: “Phantom Loads”

Take control

- Do an inventory
 - Take some measurements
 - Can you turn it off?
 - 10 sec to turn on power strip
 - 1 min to reboot computer
 - 2 hours to reprogram cable box
 - Research BEFORE you buy
 - ENERGY STAR
- (Reduce summer heat gains)



End Use: Other Stuff

The list goes on

- Hot tub
 - Stock tank heater
 - Bird bath heater
 - Engine block heater
 - Powered attic ventilator
 - Steam humidifiers
 - Patio snowmelt
 - Pottery kiln
 - Waterbed heater
 - Dehumidifier
 - Electric blanket
 - Heat tape
 - Gutter heaters
 - Ventilation fans
 - Radon fan
 - Coffee maker
 - Electric range
 - Microwave oven
 - Rice cooker
 - Powered attic ventilator
 - Aquarium pumps, heaters
 - Pool pumps, heaters
 - Pond pumps, heaters
- Etc.

Review

Assemble the Clues



City of Fort Collins Utilities
 Fort Collins Utilities
 Customer Service
 300 S. College Ave.
 Hours: 8 a.m. to 5 p.m., weekdays
 Phone: (970) 213-2900
 E-mail: utilities@fcgov.com
 Web: www.fcgov.com/utilities

| Account Number | Customer Name | Service Address | Bill Date | Date Due | Amount Due |
|----------------|--------------------|-----------------|-----------|----------|------------|
| 0123456789-1 | Utilities Customer | 1234 Any St. | 01-26-08 | 02-05-08 | \$80.97 |

Billing and Payment Summary

Payment due last billing period: \$113.88
 Payments received above last billing: \$113.88
 Charges for this billing period due 02-05-08: \$80.97
 *Your same account will be drafted for the amount due: \$80.97

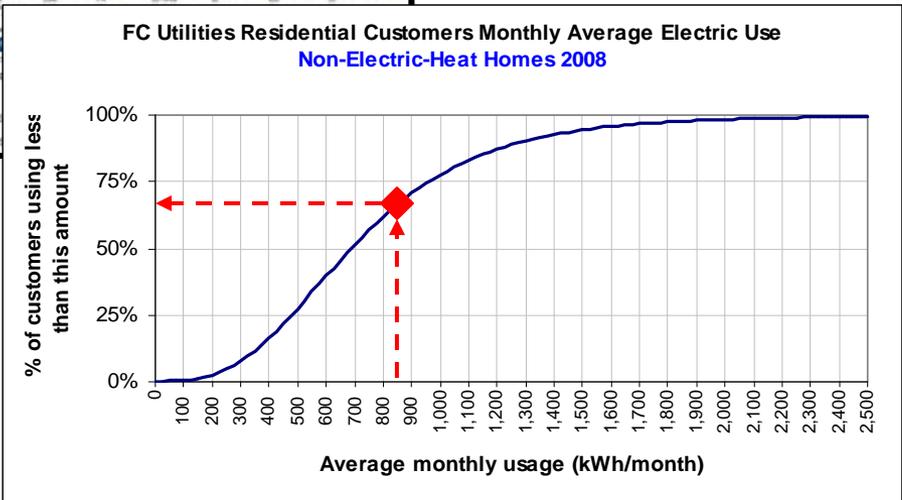
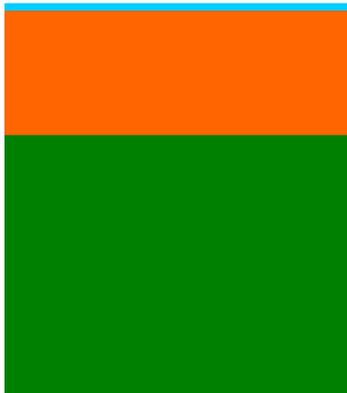
| Service | Rate Code | Service Date | Days | Water Readings | Multiplier | Usage | Charge | |
|-----------------------------------|-----------|--------------|----------|----------------|------------|-------|-----------|----------|
| Electric Energy | E100 | 12-17-08 | 01-20-08 | 47722 | 48535 | 1 | 832 kWh | \$99.48 |
| Stormwater | W101 | 12-17-08 | 01-20-08 | 34 | | | 5278 INGA | \$28.28 |
| Wastewater | W201 | 12-17-08 | 01-20-08 | 34 | | | 5278 INGA | \$24.66 |
| Water | | 12-17-08 | 01-20-08 | 48627 | 50884 | 1 | 5217 | \$12.72 |
| Base Charge | W520 | | | | | | 5217 GAL | \$12.24 |
| Green Energy | E121 | 12-17-08 | 01-20-08 | 34 | | | 1000 kWh | \$15.60 |
| Washer Rebate | J100 | | | | | | | \$1.98 |
| Sub-total | | | | | | | | \$158.36 |
| City Sales Tax | | | | | | | | \$1.98 |
| Total charges this billing period | | | | | | | | \$80.97 |

Water Billing History

| Read Date | Read | Use (gals) | Read Date | Read | Use (gals) |
|-----------|-------|------------|-----------|-------|------------|
| 01-20-08 | 48627 | 50884 | 01-20-08 | 48627 | 50884 |
| 12-17-08 | 47722 | 48535 | 12-17-08 | 47722 | 48535 |
| 11-14-08 | 46827 | 47635 | 11-14-08 | 46827 | 47635 |
| 10-11-08 | 45927 | 46735 | 10-11-08 | 45927 | 46735 |
| 09-08-08 | 45027 | 45835 | 09-08-08 | 45027 | 45835 |
| 08-05-08 | 44127 | 44935 | 08-05-08 | 44127 | 44935 |
| 07-02-08 | 43227 | 44035 | 07-02-08 | 43227 | 44035 |
| 06-02-08 | 42327 | 43135 | 06-02-08 | 42327 | 43135 |
| 05-02-08 | 41427 | 42235 | 05-02-08 | 41427 | 42235 |
| 04-02-08 | 40527 | 41335 | 04-02-08 | 40527 | 41335 |
| 03-02-08 | 39627 | 40435 | 03-02-08 | 39627 | 40435 |
| 02-02-08 | 38727 | 39535 | 02-02-08 | 38727 | 39535 |
| 01-02-08 | 37827 | 38635 | 01-02-08 | 37827 | 38635 |
| 12-02-07 | 36927 | 37735 | 12-02-07 | 36927 | 37735 |
| 11-02-07 | 36027 | 36835 | 11-02-07 | 36027 | 36835 |
| 10-02-07 | 35127 | 35935 | 10-02-07 | 35127 | 35935 |
| 09-02-07 | 34227 | 35035 | 09-02-07 | 34227 | 35035 |
| 08-02-07 | 33327 | 34135 | 08-02-07 | 33327 | 34135 |
| 07-02-07 | 32427 | 33235 | 07-02-07 | 32427 | 33235 |
| 06-02-07 | 31527 | 32335 | 06-02-07 | 31527 | 32335 |
| 05-02-07 | 30627 | 31435 | 05-02-07 | 30627 | 31435 |
| 04-02-07 | 29727 | 30535 | 04-02-07 | 29727 | 30535 |
| 03-02-07 | 28827 | 29635 | 03-02-07 | 28827 | 29635 |
| 02-02-07 | 27927 | 28735 | 02-02-07 | 27927 | 28735 |
| 01-02-07 | 27027 | 27835 | 01-02-07 | 27027 | 27835 |
| 12-02-06 | 26127 | 26935 | 12-02-06 | 26127 | 26935 |
| 11-02-06 | 25227 | 26035 | 11-02-06 | 25227 | 26035 |
| 10-02-06 | 24327 | 25135 | 10-02-06 | 24327 | 25135 |
| 09-02-06 | 23427 | 24235 | 09-02-06 | 23427 | 24235 |
| 08-02-06 | 22527 | 23335 | 08-02-06 | 22527 | 23335 |
| 07-02-06 | 21627 | 22435 | 07-02-06 | 21627 | 22435 |
| 06-02-06 | 20727 | 21535 | 06-02-06 | 20727 | 21535 |
| 05-02-06 | 19827 | 20635 | 05-02-06 | 19827 | 20635 |
| 04-02-06 | 18927 | 19735 | 04-02-06 | 18927 | 19735 |
| 03-02-06 | 18027 | 18835 | 03-02-06 | 18027 | 18835 |
| 02-02-06 | 17127 | 17935 | 02-02-06 | 17127 | 17935 |
| 01-02-06 | 16227 | 17035 | 01-02-06 | 16227 | 17035 |
| 12-02-05 | 15327 | 16135 | 12-02-05 | 15327 | 16135 |
| 11-02-05 | 14427 | 15235 | 11-02-05 | 14427 | 15235 |
| 10-02-05 | 13527 | 14335 | 10-02-05 | 13527 | 14335 |
| 09-02-05 | 12627 | 13435 | 09-02-05 | 12627 | 13435 |
| 08-02-05 | 11727 | 12535 | 08-02-05 | 11727 | 12535 |
| 07-02-05 | 10827 | 11635 | 07-02-05 | 10827 | 11635 |
| 06-02-05 | 9927 | 10735 | 06-02-05 | 9927 | 10735 |
| 05-02-05 | 9027 | 9835 | 05-02-05 | 9027 | 9835 |
| 04-02-05 | 8127 | 8935 | 04-02-05 | 8127 | 8935 |
| 03-02-05 | 7227 | 8035 | 03-02-05 | 7227 | 8035 |
| 02-02-05 | 6327 | 7135 | 02-02-05 | 6327 | 7135 |
| 01-02-05 | 5427 | 6235 | 01-02-05 | 5427 | 6235 |
| 12-02-04 | 4527 | 5335 | 12-02-04 | 4527 | 5335 |
| 11-02-04 | 3627 | 4435 | 11-02-04 | 3627 | 4435 |
| 10-02-04 | 2727 | 3535 | 10-02-04 | 2727 | 3535 |
| 09-02-04 | 1827 | 2635 | 09-02-04 | 1827 | 2635 |
| 08-02-04 | 927 | 1735 | 08-02-04 | 927 | 1735 |
| 07-02-04 | 27 | 835 | 07-02-04 | 27 | 835 |

Electric Billing History

| Read Date | Read | Use (kWh) | Read Date | Read | Use (kWh) |
|-----------|-------|-----------|-----------|-------|-----------|
| 01-20-08 | 47722 | 48535 | 01-20-08 | 47722 | 48535 |
| 12-17-08 | 46827 | 47635 | 12-17-08 | 46827 | 47635 |
| 11-14-08 | 45927 | 46735 | 11-14-08 | 45927 | 46735 |
| 10-11-08 | 45027 | 45835 | 10-11-08 | 45027 | 45835 |
| 09-08-08 | 44127 | 44935 | 09-08-08 | 44127 | 44935 |
| 08-05-08 | 43227 | 44035 | 08-05-08 | 43227 | 44035 |
| 07-02-08 | 42327 | 43135 | 07-02-08 | 42327 | 43135 |
| 06-02-08 | 41427 | 42235 | 06-02-08 | 41427 | 42235 |
| 05-02-08 | 40527 | 41335 | 05-02-08 | 40527 | 41335 |
| 04-02-08 | 39627 | 40435 | 04-02-08 | 39627 | 40435 |
| 03-02-08 | 38727 | 39535 | 03-02-08 | 38727 | 39535 |
| 02-02-08 | 37827 | 38635 | 02-02-08 | 37827 | 38635 |
| 01-02-08 | 36927 | 37735 | 01-02-08 | 36927 | 37735 |
| 12-02-07 | 36027 | 36835 | 12-02-07 | 36027 | 36835 |
| 11-02-07 | 35127 | 35935 | 11-02-07 | 35127 | 35935 |
| 10-02-07 | 34227 | 35035 | 10-02-07 | 34227 | 35035 |
| 09-02-07 | 33327 | 34135 | 09-02-07 | 33327 | 34135 |
| 08-02-07 | 32427 | 33235 | 08-02-07 | 32427 | 33235 |
| 07-02-07 | 31527 | 32335 | 07-02-07 | 31527 | 32335 |
| 06-02-07 | 30627 | 31435 | 06-02-07 | 30627 | 31435 |
| 05-02-07 | 29727 | 30535 | 05-02-07 | 29727 | 30535 |
| 04-02-07 | 28827 | 29635 | 04-02-07 | 28827 | 29635 |
| 03-02-07 | 27927 | 28735 | 03-02-07 | 27927 | 28735 |
| 02-02-07 | 27027 | 27835 | 02-02-07 | 27027 | 27835 |
| 01-02-07 | 26127 | 26935 | 01-02-07 | 26127 | 26935 |
| 12-02-06 | 25227 | 26035 | 12-02-06 | 25227 | 26035 |
| 11-02-06 | 24327 | 25135 | 11-02-06 | 24327 | 25135 |
| 10-02-06 | 23427 | 24235 | 10-02-06 | 23427 | 24235 |
| 09-02-06 | 22527 | 23335 | 09-02-06 | 22527 | 23335 |
| 08-02-06 | 21627 | 22435 | 08-02-06 | 21627 | 22435 |
| 07-02-06 | 20727 | 21535 | 07-02-06 | 20727 | 21535 |
| 06-02-06 | 19827 | 20635 | 06-02-06 | 19827 | 20635 |
| 05-02-06 | 18927 | 19735 | 05-02-06 | 18927 | 19735 |
| 04-02-06 | 18027 | 18835 | 04-02-06 | 18027 | 18835 |
| 03-02-06 | 17127 | 17935 | 03-02-06 | 17127 | 17935 |
| 02-02-06 | 16227 | 17035 | 02-02-06 | 16227 | 17035 |
| 01-02-06 | 15327 | 16135 | 01-02-06 | 15327 | 16135 |
| 12-02-05 | 14427 | 15235 | 12-02-05 | 14427 | 15235 |
| 11-02-05 | 13527 | 14335 | 11-02-05 | 13527 | 14335 |
| 10-02-05 | 12627 | 13435 | 10-02-05 | 12627 | 13435 |
| 09-02-05 | 11727 | 12535 | 09-02-05 | 11727 | 12535 |
| 08-02-05 | 10827 | 11635 | 08-02-05 | 10827 | 11635 |
| 07-02-05 | 9927 | 10735 | 07-02-05 | 9927 | 10735 |
| 06-02-05 | 9027 | 9835 | 06-02-05 | 9027 | 9835 |
| 05-02-05 | 8127 | 8935 | 05-02-05 | 8127 | 8935 |
| 04-02-05 | 7227 | 8035 | 04-02-05 | 7227 | 8035 |
| 03-02-05 | 6327 | 7135 | 03-02-05 | 6327 | 7135 |
| 02-02-05 | 5427 | 6235 | 02-02-05 | 5427 | 6235 |
| 01-02-05 | 4527 | 5335 | 01-02-05 | 4527 | 5335 |
| 12-02-04 | 3627 | 4435 | 12-02-04 | 3627 | 4435 |
| 11-02-04 | 2727 | 3535 | 11-02-04 | 2727 | 3535 |
| 10-02-04 | 1827 | 2635 | 10-02-04 | 1827 | 2635 |
| 09-02-04 | 927 | 1735 | 09-02-04 | 927 | 1735 |
| 08-02-04 | 27 | 835 | 08-02-04 | 27 | 835 |



Calculate your electric cost

Device / Wattage: Amount used per day:

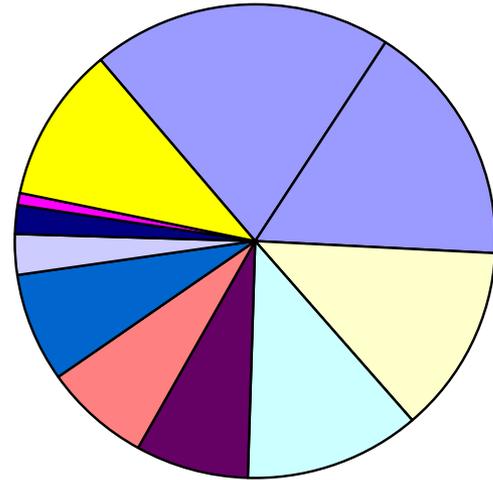
Cost of Electric: Days used per month:

Kilowatt Hours used: kWh/mo.
 Cost per month: \$
 Cost per year: \$

Don't rely on these results without understanding the limitations. For example, your computer might use more or less electricity than my computer. (See the accompanying article to figure out how much electricity something uses.) Also, your cost of electricity may be wrong even if you chose the correct state, because electrical rates vary within a state. (More on [how they charge you](#).)

Big Picture

- Start with the big users
 - Does it create heat?
 - Does it remove heat?
 - Is it used many hours?
- Small users add up
- Do you need this energy-using device?
- Can you turn it off?

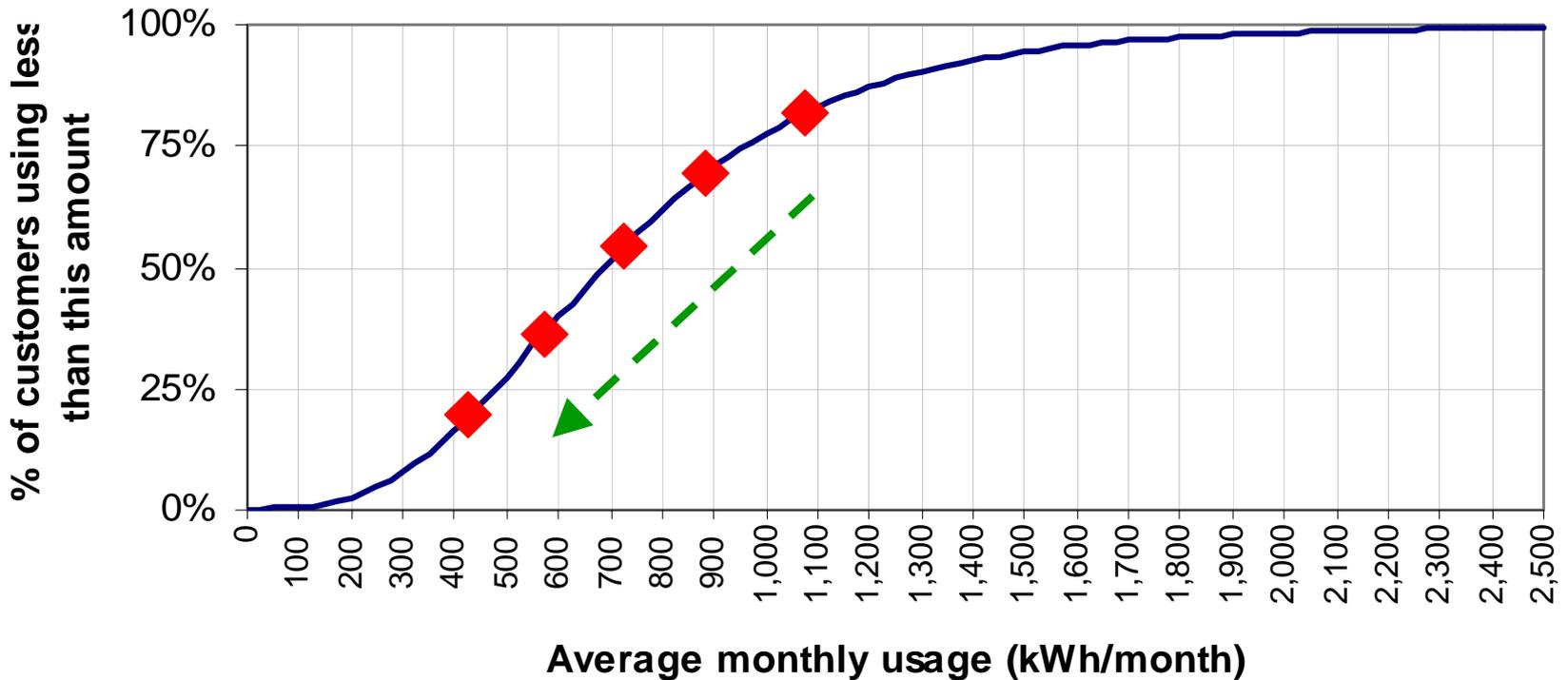


Take Control

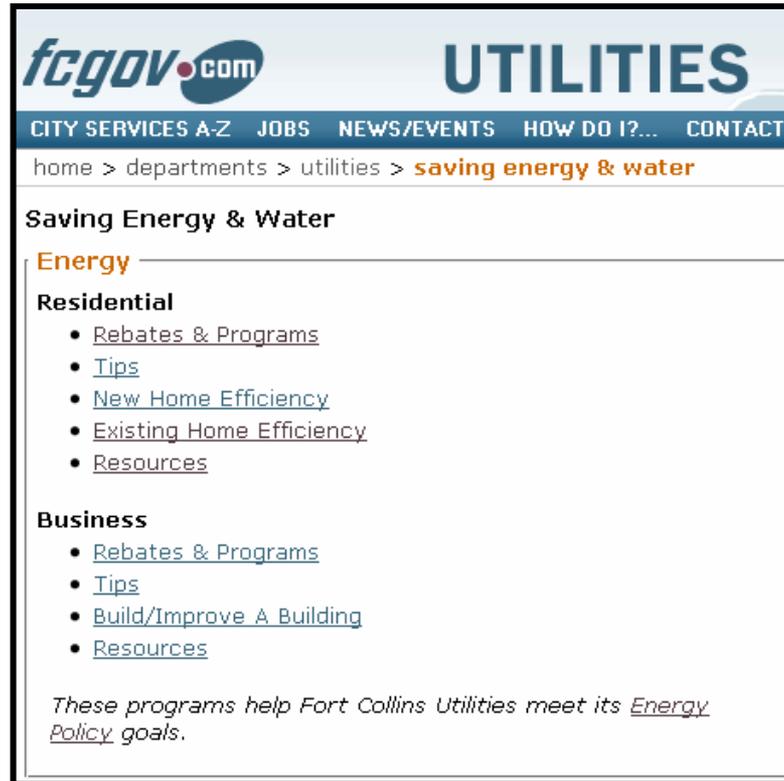


Take Control

**FC Utilities Residential Customers Monthly Average Electric Use
Non-Electric-Heat Homes 2008**



Your Electric Utility Can Help



The screenshot shows the website interface for Fort Collins Utilities. At the top left is the logo for fcgov.com. To the right of the logo is the word "UTILITIES" in a large, bold, blue font. Below the logo and "UTILITIES" is a navigation bar with links for "CITY SERVICES A-Z", "JOBS", "NEWS/EVENTS", "HOW DO I?... ", and "CONTACT". Below the navigation bar is a breadcrumb trail: "home > departments > utilities > saving energy & water". The main content area is titled "Saving Energy & Water" and has a sub-section for "Energy". Under "Energy", there are two categories: "Residential" and "Business". Each category has a list of links: "Rebates & Programs", "Tips", "New Home Efficiency", "Existing Home Efficiency", and "Resources". At the bottom of the page, there is a paragraph of text: "These programs help Fort Collins Utilities meet its Energy Policy goals."

www.fcgov.com/conservation

970-221-6700