



*PUGET
SOUND
ENERGY*

School Building Benchmark Survey



RCM Support Services

Prepared by:

Bill Younger, CEM

Sr. Energy Management Engineer

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Project Data

This project was completed in January 2005 using utility tracking databases for school districts participating in PSE's Resource Conservation Manager Program.

The data used represents 13 school districts throughout the PSE service territory from Snohomish, King, Kitsap, Pierce, and Thurston Counties

413 Schools were included in the final survey. The breakdown by school type is as follows:

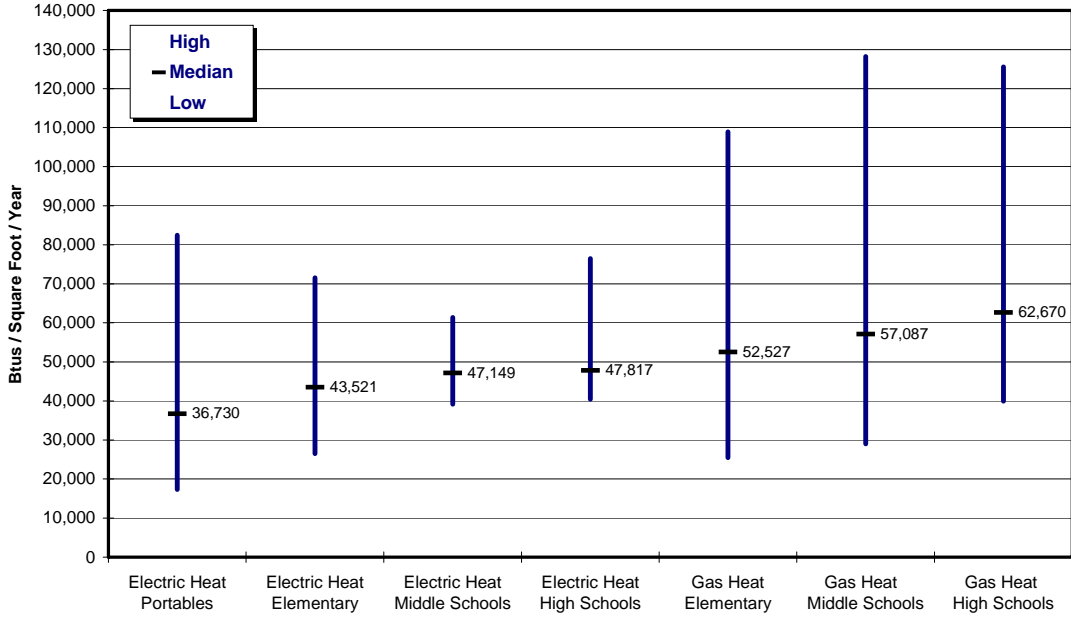
- ◆ 43 Portables
- ◆ 246 Elementary Schools
- ◆ 58 Middle Schools
- ◆ 53 High Schools
- ◆ 13 Other Schools – K-8, Alternative

The energy consumption data is from the 2003 – 2004 school year. The data was reviewed for quality and accuracy and facilities with questionable data were eliminated from the survey.

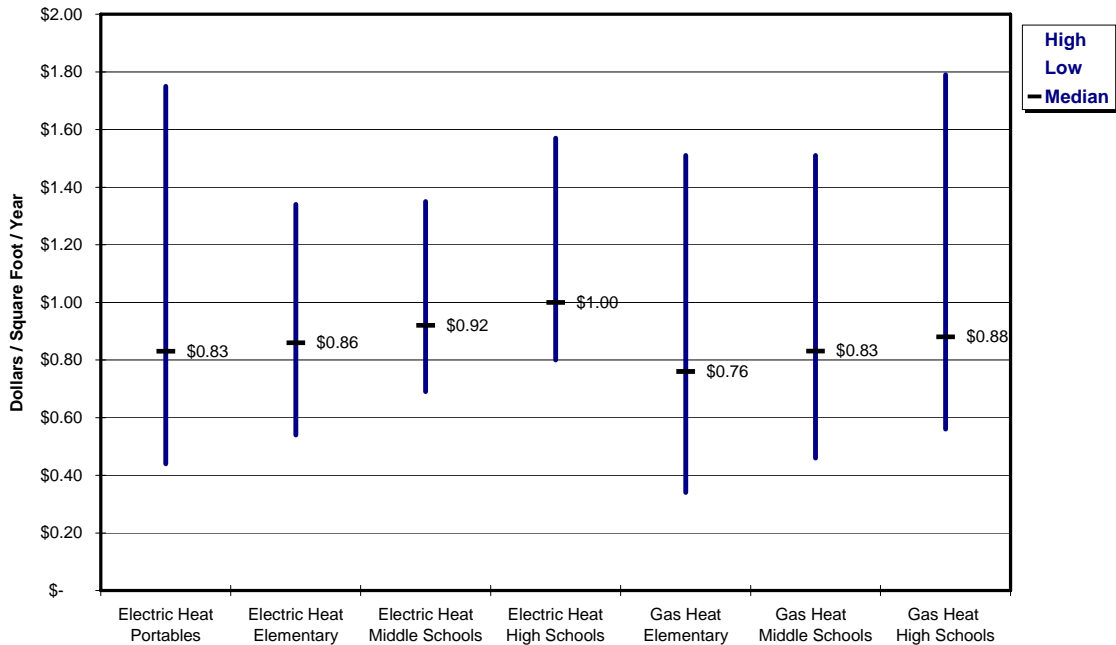
The facilities were sorted by school type and by heating fuel. The charts will display data for All Electric Facilities and Gas & Electric Facilities separately.

Other support facilities and administrative buildings were not included in the survey.

PSE School Benchmarks 2003-2004 School Year Survey of 400 Schools



Annual Energy Costs

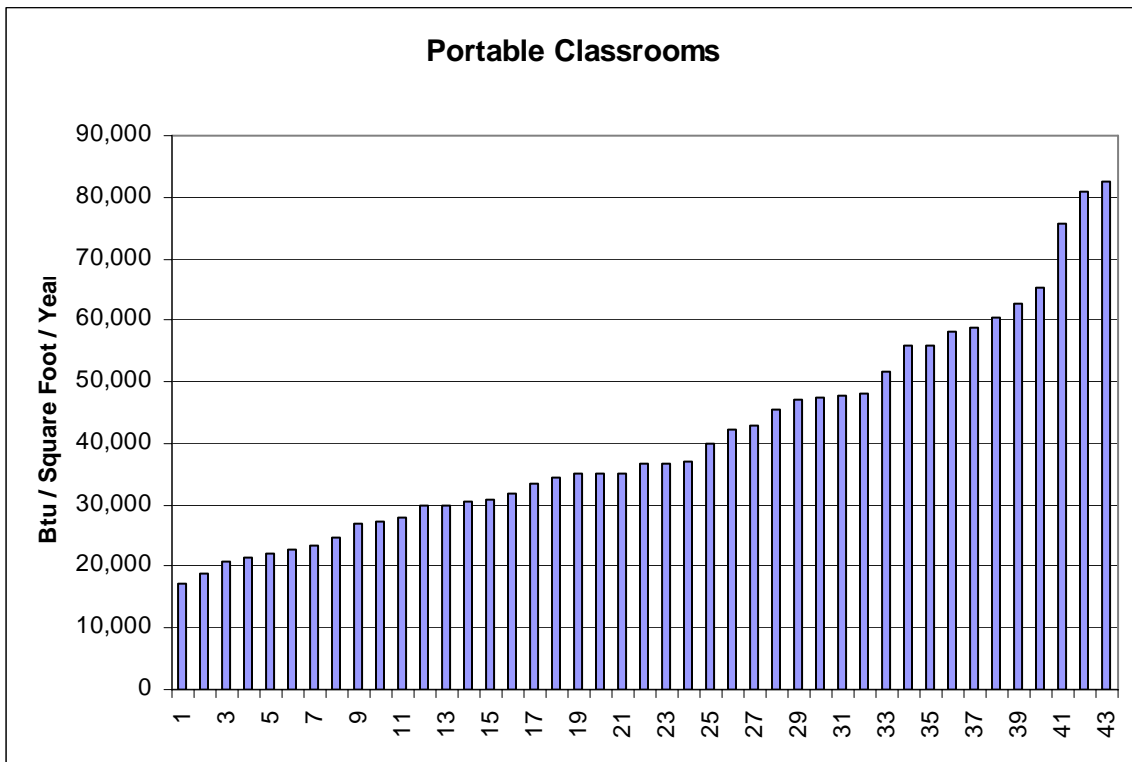


Portable Classrooms

Portable Classrooms

n =43

| | Low | High | Average | Median |
|------------------|----------|----------|----------|----------|
| Btu/Sq.Ft./Year | 17,305 | 82,444 | 40,934 | 36,730 |
| kWh/Sq.Ft./Year | 5.1 | 24.2 | 12.0 | 10.8 |
| \$/Sq.Ft./Year | \$ 0.44 | \$ 1.75 | \$ 0.91 | \$ 0.83 |
| \$/kWh (blended) | \$ 0.069 | \$ 0.087 | \$ 0.077 | \$ 0.077 |

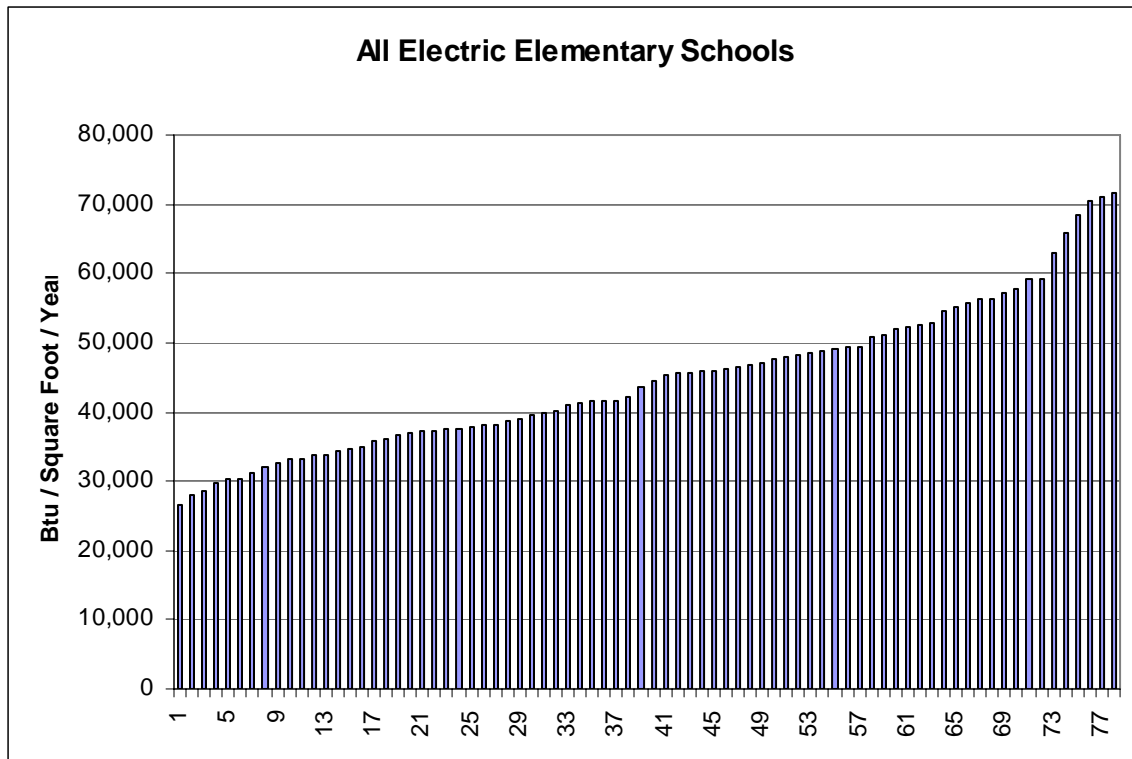


All Electric Elementary Schools

All Electric Elementary Schools

n =78

| | Low | High | Average | Median |
|------------------|----------|-----------|-----------|----------|
| Btu/Sq.Ft./Year | 26,522 | 71,523 | 44,732 | 43,521 |
| kWh/Sq.Ft./Year | 7.8 | 21 | 13.1 | 12.8 |
| \$/Sq.Ft./Year | \$ 0.54 | \$ 1.34 | \$ 0.89 | \$ 0.86 |
| \$/kWh (blended) | \$ 0.045 | \$ 0.081 | \$ 0.069 | \$ 0.069 |
| \$/Student/Year | \$ 50.33 | \$ 212.54 | \$ 100.01 | \$ 90.81 |
| Sq.Ft./Student | 64 | 208 | 113 | 105 |
| kWh/Student/Year | 762 | 3053 | 1478 | 1311 |

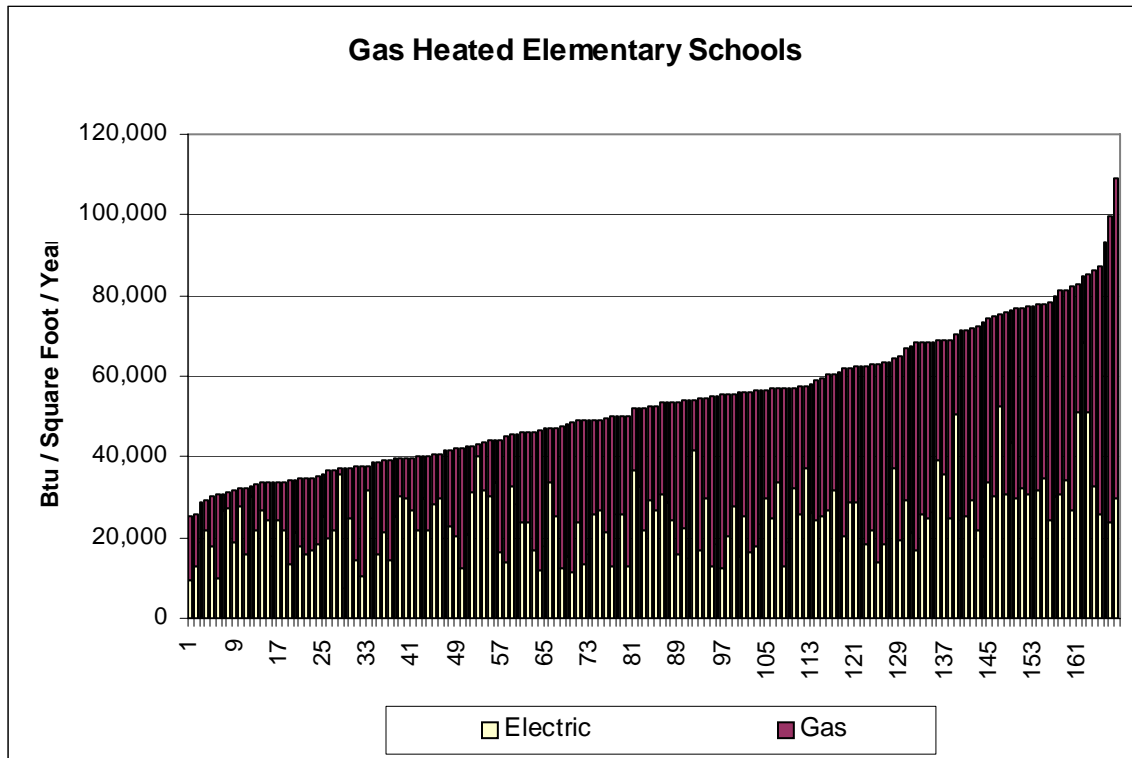


Gas Heated Elementary Schools

Gas Heated Elementary Schools

n = 168

| | Low | High | Average | Median |
|------------------------|----------|-----------|----------|----------|
| Btu/Sq.Ft./Year | 25,448 | 108,942 | 53,833 | 52,527 |
| Btu/Sq.Ft./Year - Elec | 7,598 | 68,545 | 25,059 | 24,563 |
| Btu/Sq.Ft./Year - Gas | 1,766 | 79,175 | 28,774 | 28,187 |
| kWh/Sq.Ft./Year | 2.2 | 20.1 | 7.3 | 7.2 |
| Therms/Sq.Ft./Year | 0.018 | 0.792 | 0.288 | 0.282 |
| \$/Sq.Ft./Year | \$ 0.34 | \$ 1.51 | \$ 0.78 | \$ 0.76 |
| \$/Sq.Ft./Year - Elec | \$ 0.17 | \$ 1.38 | \$ 0.55 | \$ 0.54 |
| \$/Sq.Ft./Year - Gas | \$ 0.02 | \$ 0.60 | \$ 0.23 | \$ 0.23 |
| \$/Student/Year | \$ 45.67 | \$ 177.58 | \$ 89.20 | \$ 84.79 |
| Sq.Ft./Student | 59 | 242 | 118 | 113 |
| kWh/Student/Year | 301 | 1753 | 830 | 769 |
| Therms/Student/Year | 2 | 82.4 | 34 | 30.2 |
| \$/kWh (blended) | \$ 0.056 | \$ 0.097 | \$ 0.075 | \$ 0.078 |
| \$/Therm | 0.69 | 1.03 | 0.81 | 0.81 |

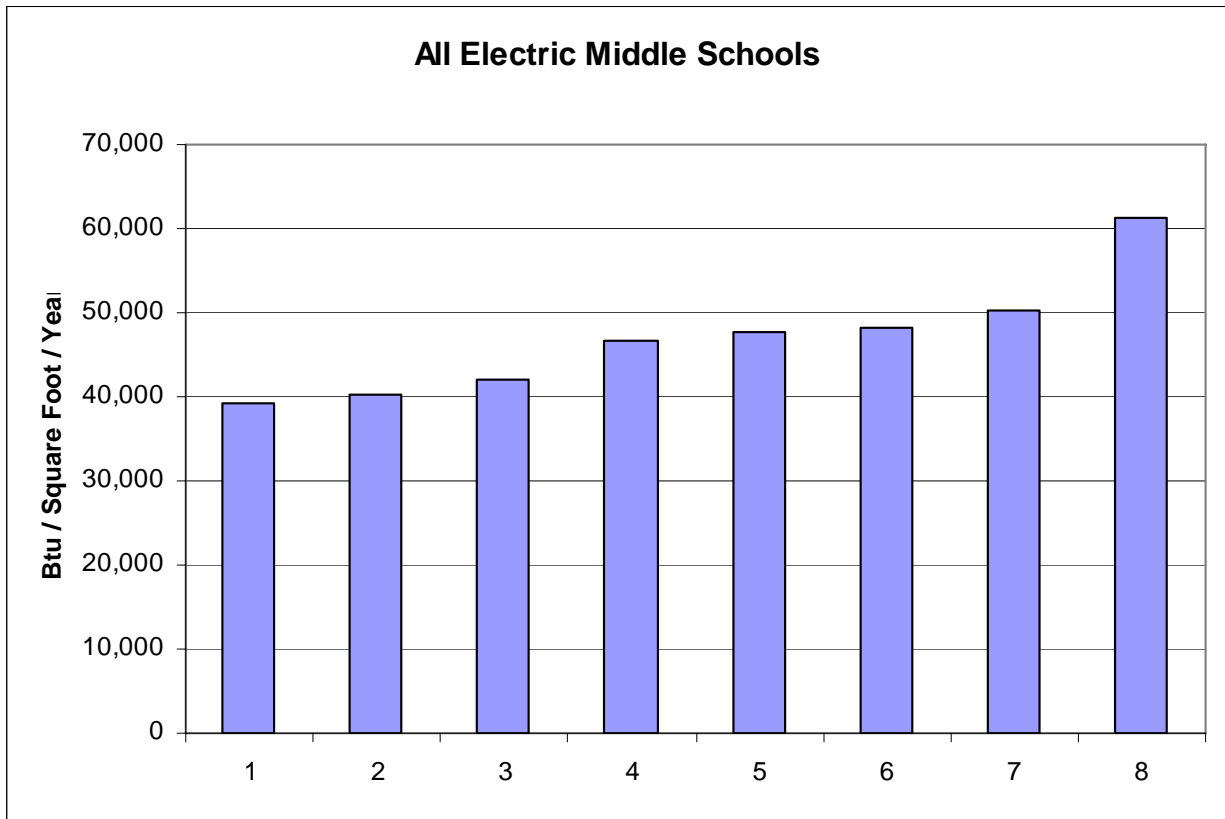


All Electric Middle Schools

All Electric Middle Schools

n =8

| | Low | High | Average | Median |
|------------------|----------|-----------|-----------|-----------|
| Btu/Sq.Ft./Year | 39,139 | 61,376 | 46,949 | 47,149 |
| kWh/Sq.Ft./Year | 11.5 | 18 | 13.76 | 13.81 |
| \$/Sq.Ft./Year | \$ 0.69 | \$ 1.35 | \$ 0.94 | \$ 0.92 |
| \$/kWh (blended) | \$ 0.059 | \$ 0.084 | \$ 0.068 | \$ 0.064 |
| \$/Student/Year | \$ 82.33 | \$ 137.62 | \$ 103.00 | \$ 100.91 |
| Sq.Ft./Student | 80 | 126 | 112 | 118 |
| kWh/Student/Year | 1153 | 1761 | 1524 | 1512 |

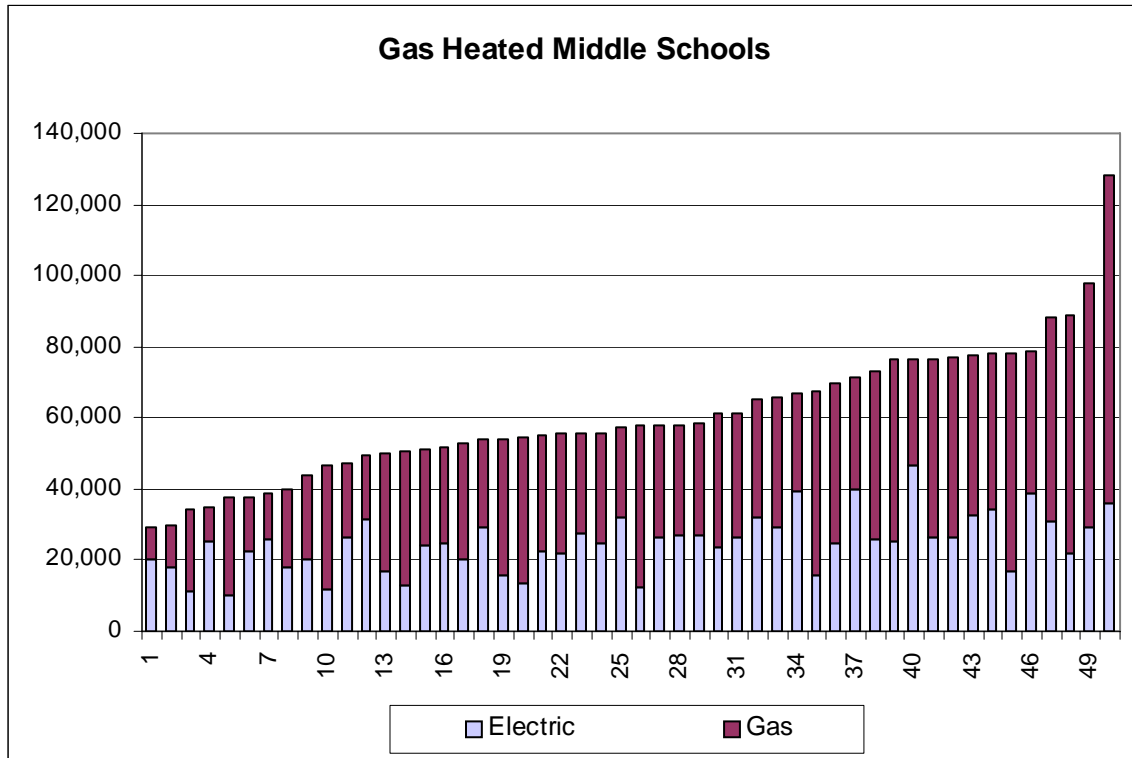


Gas Heated Middle Schools

Gas Heated Middle Schools

n =50

| | Low | High | Average | Median |
|------------------------|----------|-----------|-----------|-----------|
| Btu/Sq.Ft./Year | 29,005 | 128,206 | 60,457 | 57,087 |
| Btu/Sq.Ft./Year - Elec | 10,227 | 46,865 | 24,828 | 25,058 |
| Btu/Sq.Ft./Year - Gas | 8,967 | 92,174 | 35,629 | 32,769 |
| kWh/Sq.Ft./Year | 3 | 13.7 | 7.26 | 7.34 |
| Therms/Sq.Ft./Year | 0.090 | 0.922 | 0.356 | 0.328 |
| \$/Sq.Ft./Year | \$ 0.46 | \$ 1.51 | \$ 0.83 | \$ 0.83 |
| \$/Sq.Ft./Year - Elec | \$ 0.21 | \$ 0.90 | \$ 0.55 | \$ 0.58 |
| \$/Sq.Ft./Year - Gas | \$ 0.07 | \$ 0.73 | \$ 0.27 | \$ 0.25 |
| \$/Student/Year | \$ 58.03 | \$ 252.93 | \$ 112.59 | \$ 106.49 |
| Sq.Ft./Student | 91 | 233 | 137 | 132 |
| kWh/Student/Year | 371 | 1905 | 977 | 882 |
| Therms/Student/Year | 11 | 154.4 | 50 | 46.9 |

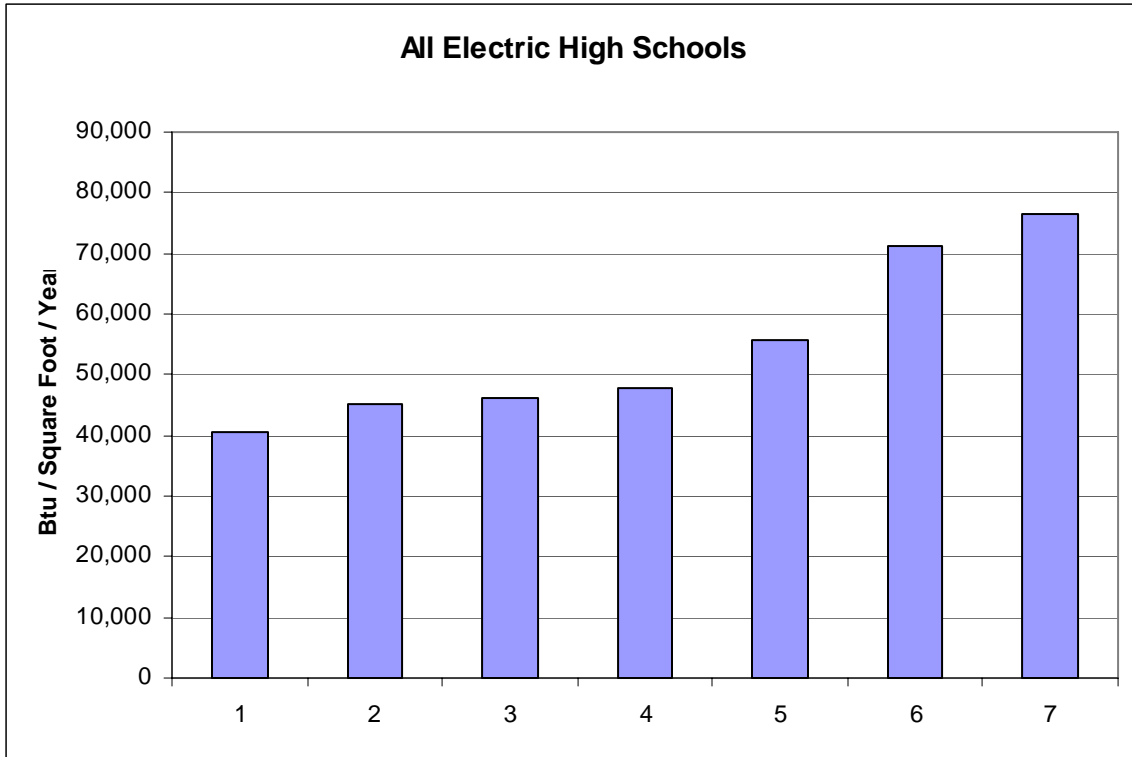


All Electric High Schools

All Electric High Schools

n =7

| | Low | High | Average | Median |
|------------------|----------|-----------|-----------|-----------|
| Btu/Sq.Ft./Year | 40,446 | 76,468 | 54,697 | 47,817 |
| kWh/Sq.Ft./Year | 11.9 | 22.4 | 14.0 | 16.0 |
| \$/Sq.Ft./Year | \$ 0.80 | \$ 1.57 | \$ 1.05 | \$ 1.00 |
| \$/Student/Year | \$ 65.05 | \$ 221.31 | \$ 129.63 | \$ 110.56 |
| Sq.Ft./Student | 65 | 143 | 121 | 128 |
| kWh/Student/Year | 883 | 3194 | 1989 | 1632 |

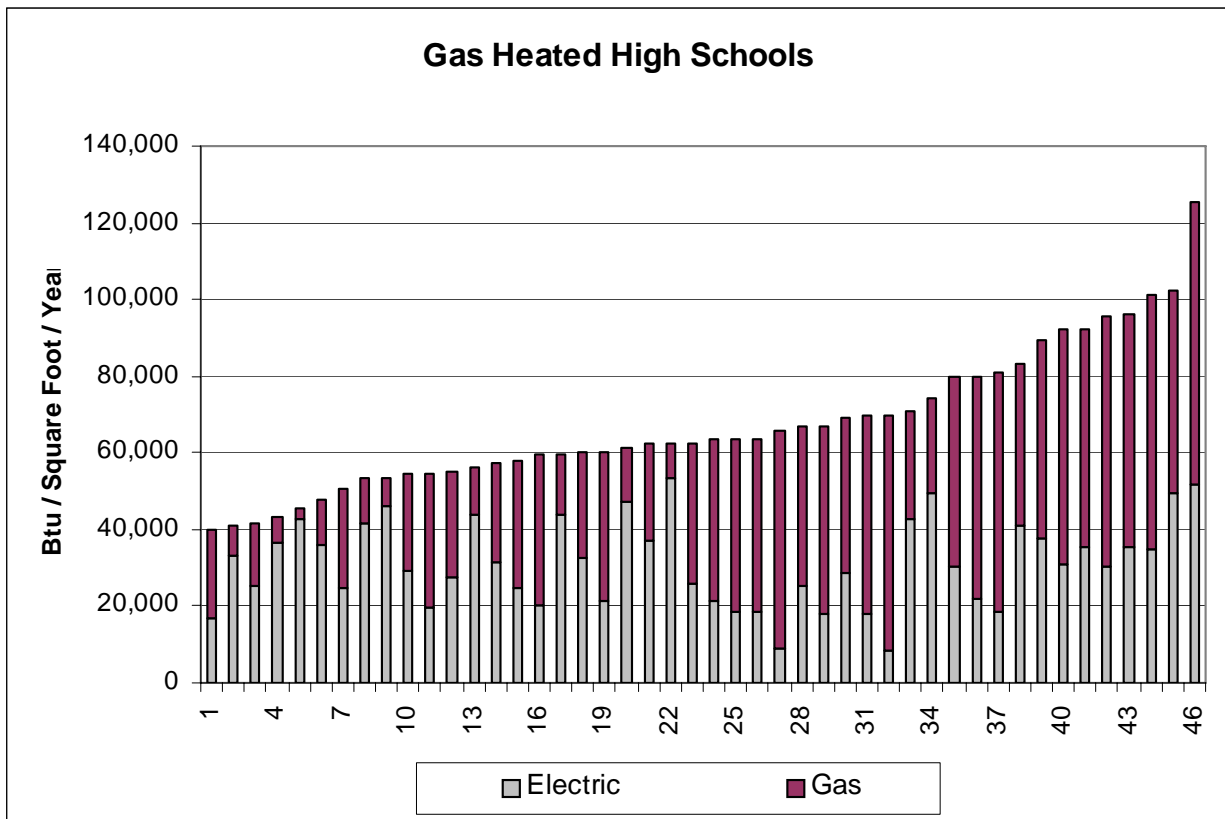


Gas Heated High Schools

Gas Heated High Schools

n =46

| | Low | High | Average | Median |
|------------------------|----------|-----------|-----------|-----------|
| Btu/Sq.Ft./Year | 39,952 | 125,516 | 67,453 | 62,670 |
| Btu/Sq.Ft./Year - Elec | 8,165 | 53,444 | 31,232 | 30,393 |
| Btu/Sq.Ft./Year - Gas | 2,612 | 73,772 | 36,221 | 37,046 |
| kWh/Sq.Ft./Year | 2.4 | 15.7 | 9.2 | 8.9 |
| Therms/Sq.Ft./Year | 0.026 | 0.738 | 0.362 | 0.370 |
| \$/Sq.Ft./Year | \$ 0.56 | \$ 1.79 | \$ 0.92 | \$ 0.88 |
| \$/Sq.Ft./Year - Elec | \$ 0.15 | \$ 1.23 | \$ 0.64 | \$ 0.64 |
| \$/Sq.Ft./Year - Gas | \$ 0.02 | \$ 0.61 | \$ 0.28 | \$ 0.29 |
| \$/Student/Year | \$ 79.25 | \$ 293.01 | \$ 148.45 | \$ 144.33 |
| Sq.Ft./Student | 90 | 298 | 158 | 152 |
| kWh/Student/Year | 610 | 2475 | 1453 | 1482 |
| Therms/Student/Year | 4 | 122 | 56 | 58 |

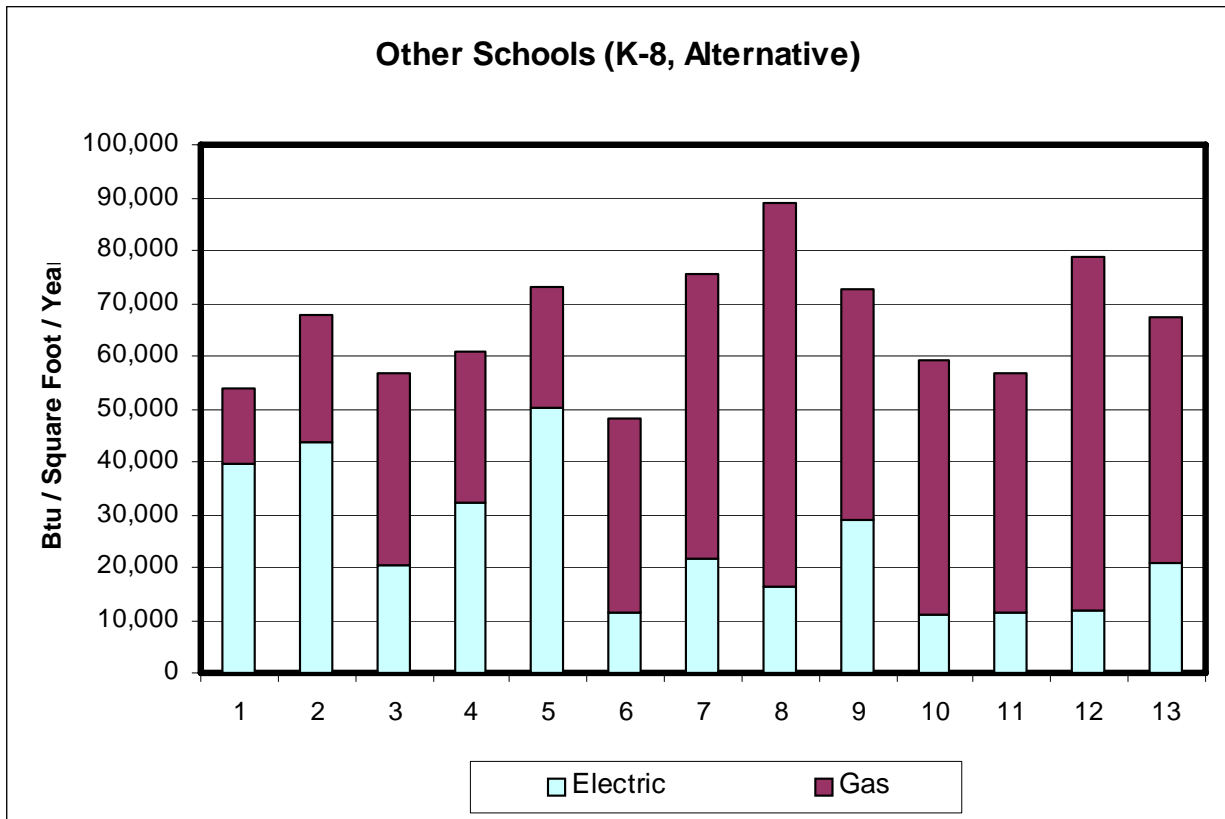


Other Schools

Other Schools (K-8, Alternative)

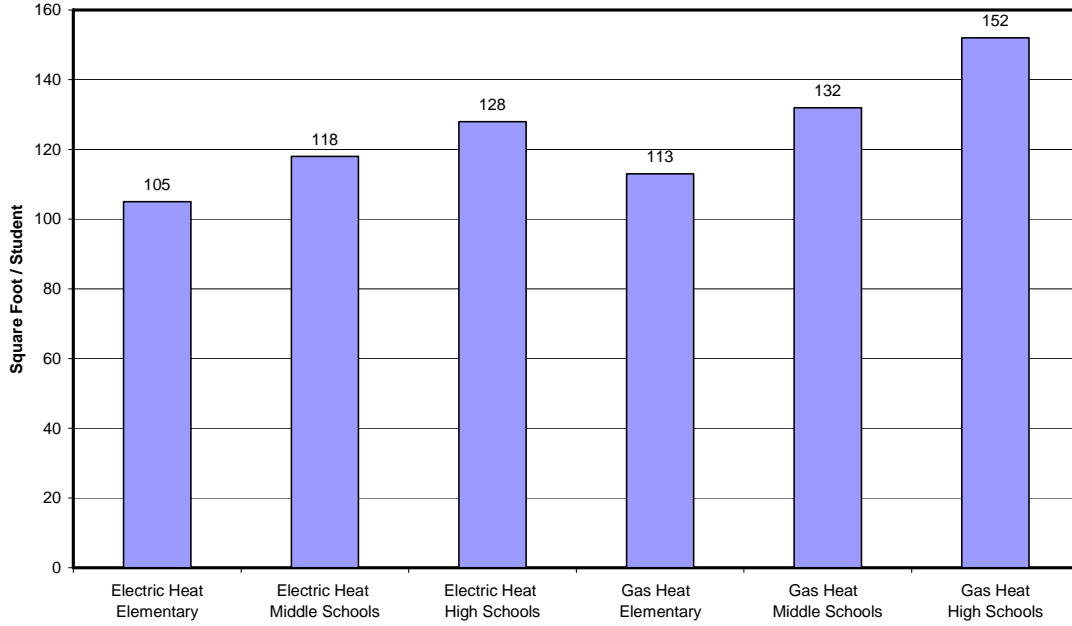
n = 13

| | Low | High | Average | Median |
|------------------------|----------|-----------|-----------|-----------|
| Btu/Sq.Ft./Year | 48,356 | 88,875 | 66,105 | 67,447 |
| Btu/Sq.Ft./Year - Elec | 10,959 | 50,397 | 24,559 | 20,725 |
| Btu/Sq.Ft./Year - Gas | 14,146 | 72,666 | 41,546 | 43,891 |
| kWh/Sq.Ft./Year | 3.2 | 14.8 | 7.2 | 6.1 |
| Therms/Sq.Ft./Year | 0.141 | 0.727 | 0.415 | 0.439 |
| \$/Sq.Ft./Year | \$ 0.51 | \$ 1.27 | \$ 0.81 | \$ 0.82 |
| \$/Sq.Ft./Year - Elec | \$ 0.20 | \$ 1.09 | \$ 0.50 | \$ 0.47 |
| \$/Sq.Ft./Year - Gas | \$ 0.12 | \$ 0.59 | \$ 0.33 | \$ 0.38 |
| \$/Student/Year | \$ 62.27 | \$ 222.08 | \$ 116.05 | \$ 111.63 |
| Sq.Ft./Student | 83 | 216 | 145 | 142 |
| kWh/Student/Year | 395 | 2579 | 1271 | 717 |
| Therms/Student/Year | 21.3 | 138.6 | 75.1 | 52 |



Allocations per Student

Median Student Density



Annual Energy Cost per Student

