Public Comment to Jefferson PUD Commissioners

1 April 2025

Good afternoon, Commissioners

I want to briefly highlight an opportunity for Jefferson PUD to address several pressing challenges. We know the system is under strain. Rising power costs, winter peak loads, aging substations, and state mandates to reduce low-income energy burdens are all converging at once.

Congratulation on the award of the State Home Electrification and Appliance Rebates (HEAR) Grant, and a welcome to your new staff member who will be an excellent addition to the PUD team.

One solution I hope you will consider is an expanded HEAR-type program targeting about 2,500 low-income households who still rely on inefficient electric resistance heating. These older systems are not only expensive for families but also contribute to the PUD's winter peaks, as you know the primary driver of costly substation and circuit upgrades.

By helping these households switch to modern cold-climate heat pumps, Jefferson PUD could help them reduce heating-related consumption by up to 70%. For the average customer at current rates, a heat pump could lower annual heating bills by up to $400 for participating families at today's rates.

For the utility, the program would help reduce winter peak demand, providing much-needed breathing room for the grid. Overall, this could achieve an overall energy saving of about 0.70 aMW, also helping to reduce the PUD's current Tier 2 exposure.

This expanded program would deliver direct benefits to the families who need it most while helping the PUD defer infrastructure costs, reduce Tier 2 power exposure, meet its CETA obligations while saving millions of dollars compared to the current Billing Credit system.

Thank you for considering this as part of your strategy.

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WHY STRATEGIC CONSERVATION?

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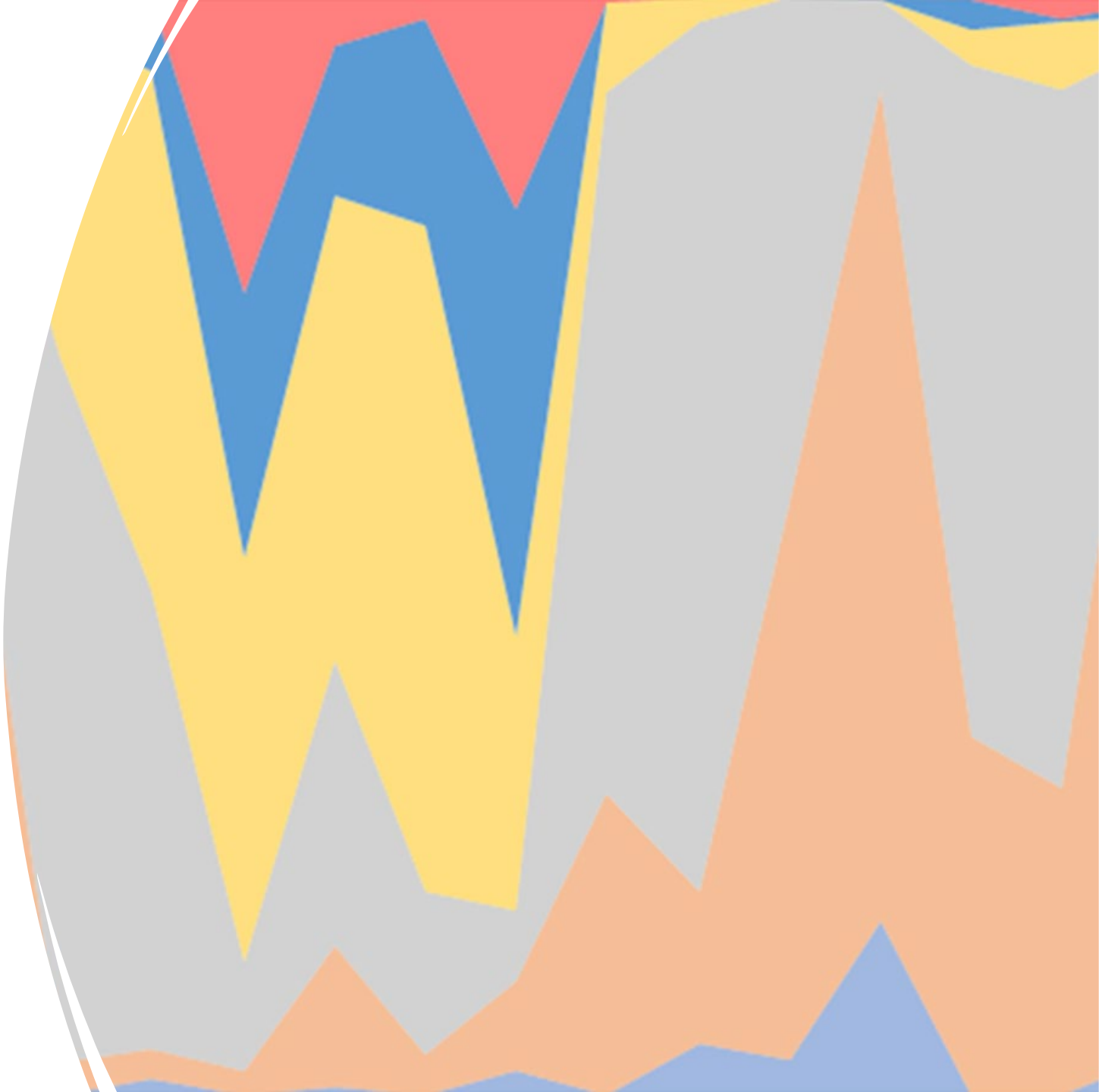
2 April 2025



Two Major Financial Challenges

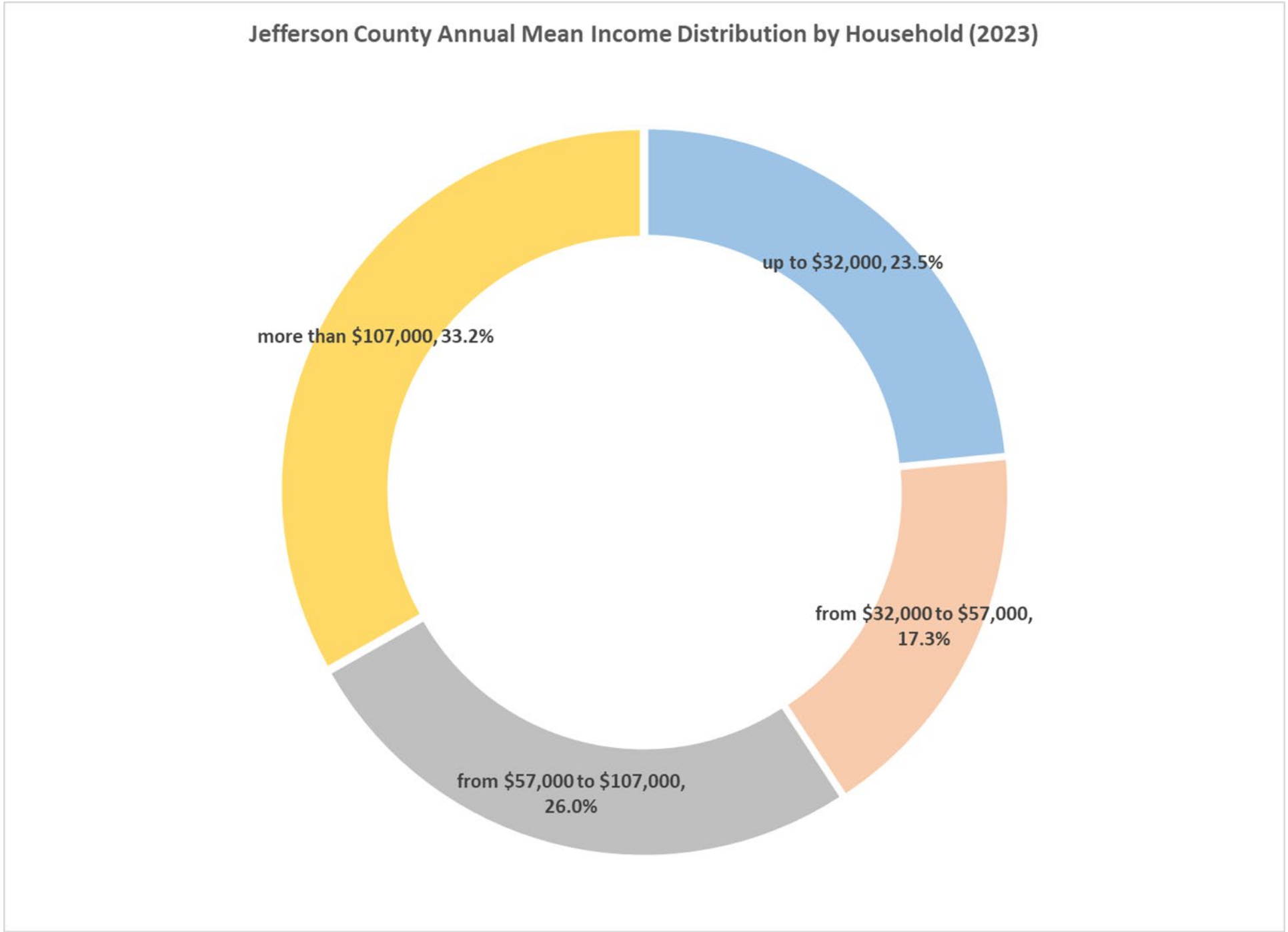
Low-income assistance programs, with an annual funding need of $3.3 million

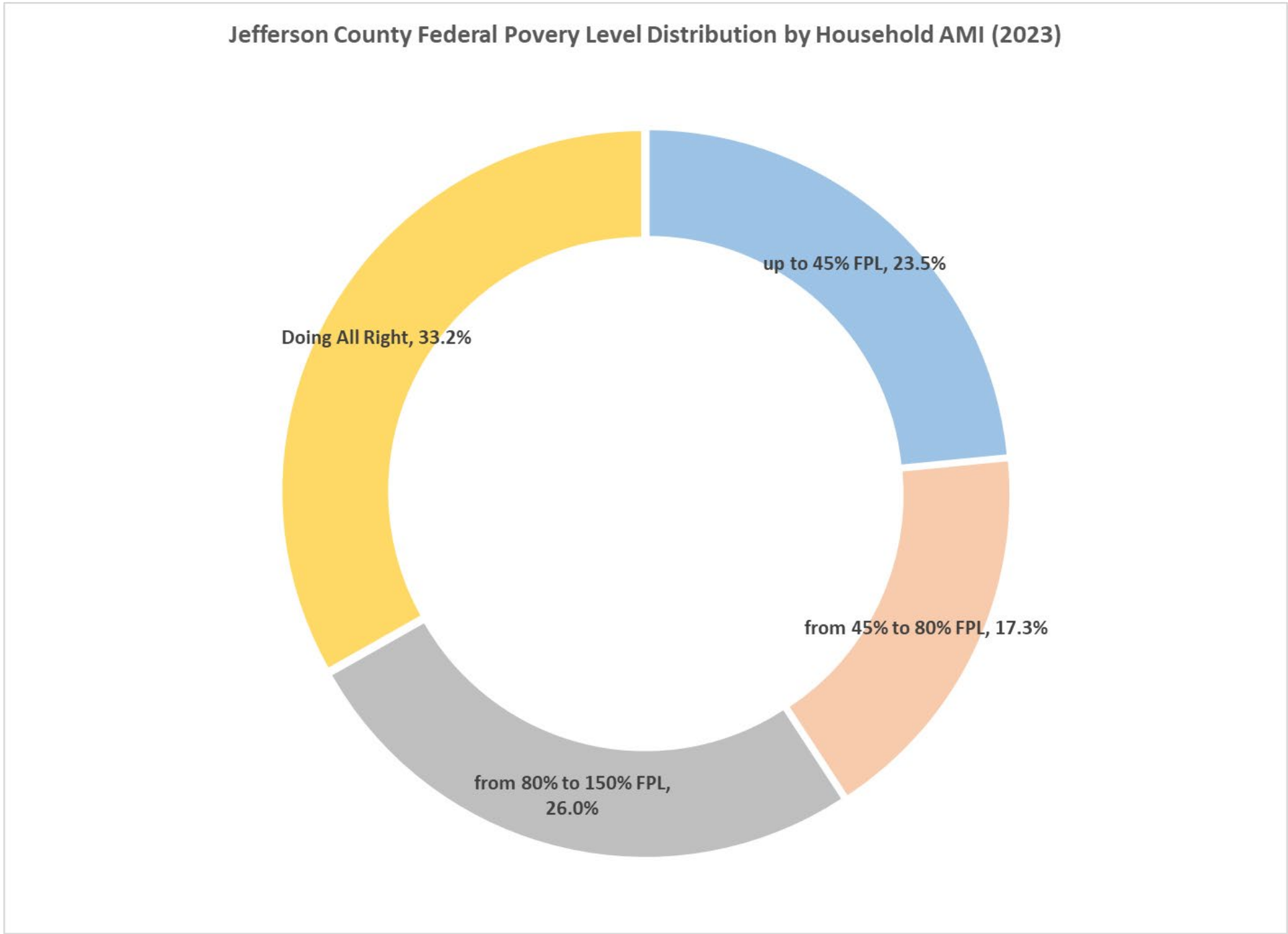
Purchase of higher-cost Tier 2 power (~2 aMW) from BPA or the market

Jefferson County Income Distribution by Household

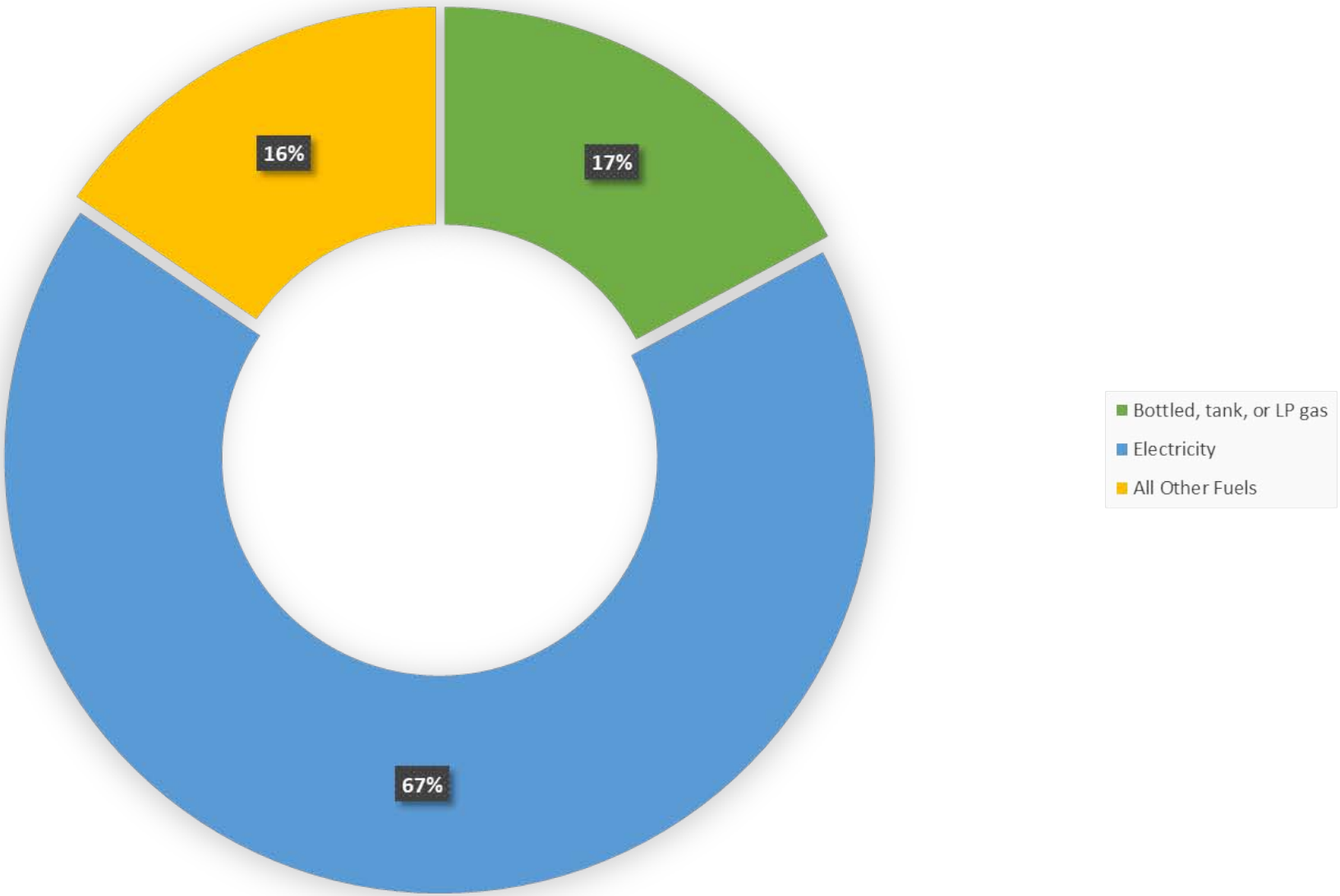
$71,143 AMI in 2023

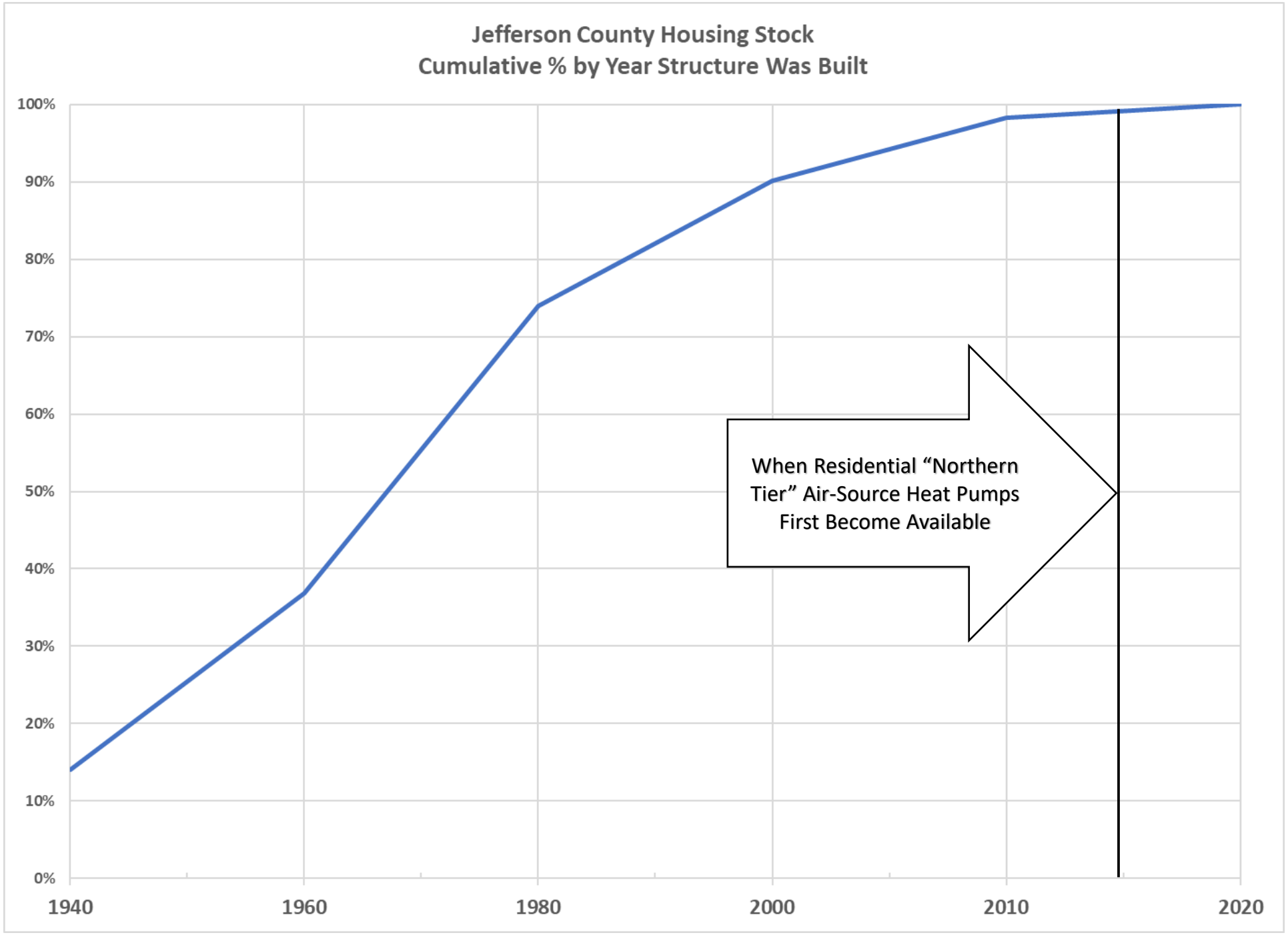
Annual Mean Income	% of households	Federal Poverty Level
up to $32,000	23.5%	up to 45% FPL
from $32,000 to $57,000	17.3%	from 45% to 80% FPL
from $57,000 to $107,000	26.0%	from 80% to 150% FPL
more than $107,000	33.2%	Doing All Right
TOTAL	100.0%	TOTAL

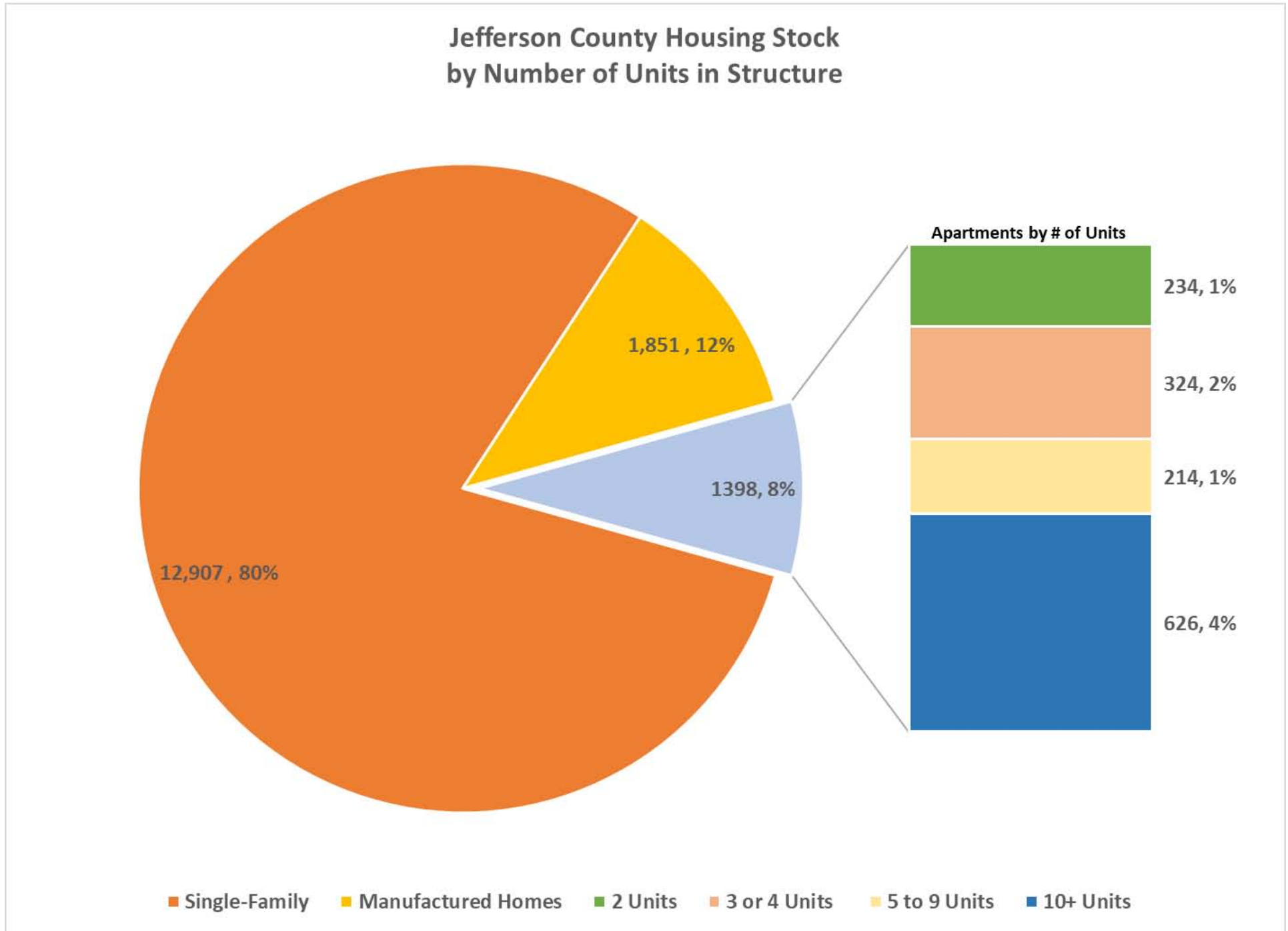

Jefferson County Annual Mean Income Distribution by Household (2023)
up to $32,000, 23.5%
from $32,000 to $57,000, 17.3%
from $57,000 to $107,000, 26.0%
more than $107,000, 33.2%


Jefferson County Federal Povery Level Distribution by Household AMI (2023)
up to 45% FPL, 23.5%
from 45% to 80% FPL, 17.3%
from 80% to 150% FPL, 26.0%
Doing All Right, 33.2%

Home Heating Fuels Used in Jefferson County




Jefferson County Housing Stock
Cumulative % by Year Structure Was Built
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1940
1960
1980
2000
2010
2020
When Residential "Northern Tier" Air-Source Heat Pumps First Become Available


Jefferson County Housing Stock
by Number of Units in Structure
12,907 , 80%
1,851 , 12%
1398, 8%
Apartments by # of Units
234, 1%
324, 2%
214, 1%
626, 4%
Single-Family
Manufactured Homes
2 Units
3 or 4 Units
5 to 9 Units
10+ Units

Model Home Energy Use Example

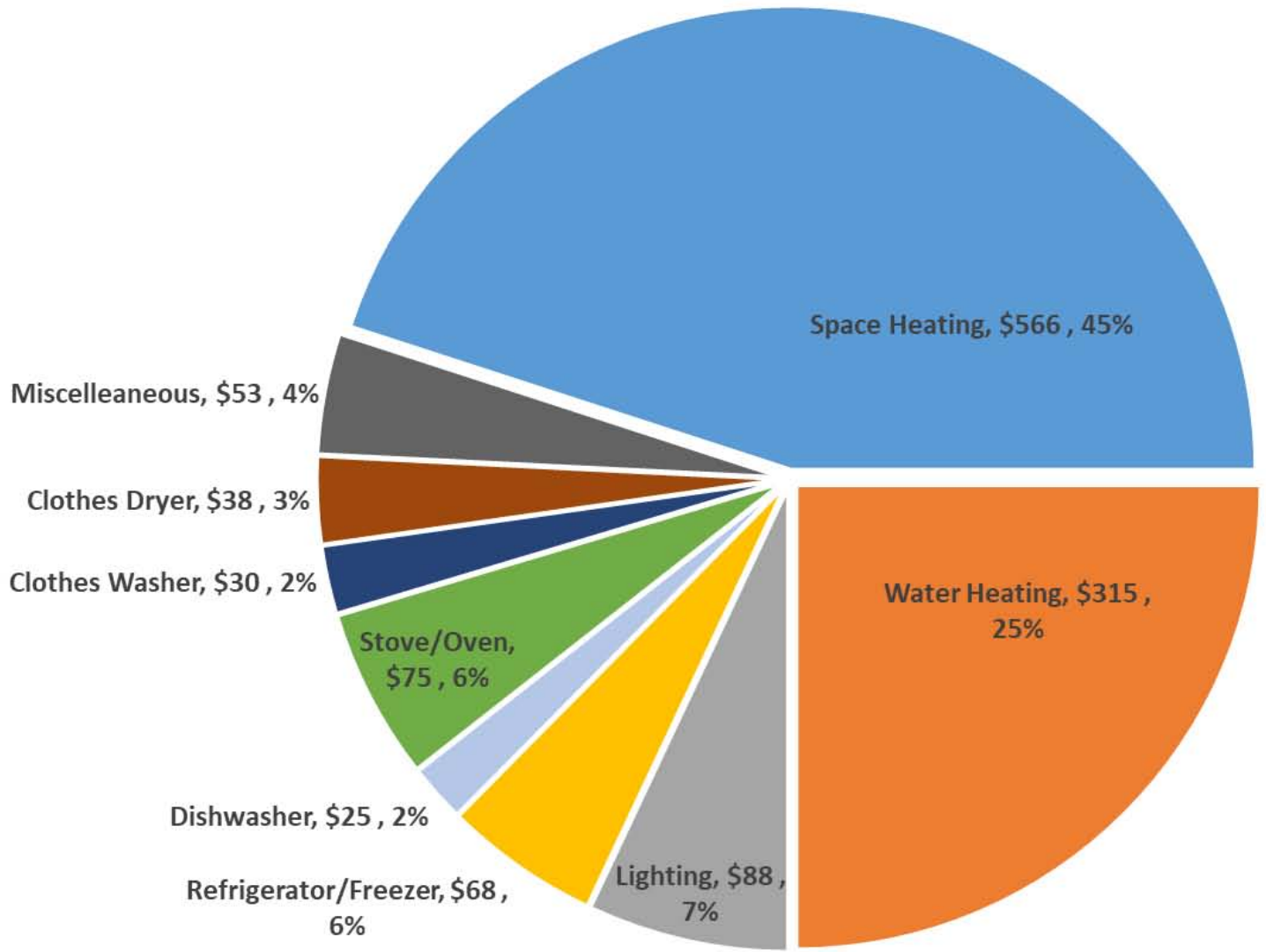
Space Heating

- ~900 ft2 in size
- Power purchased at an average rate of $0.1048/kWh and consumption is 1,000 kWh/month
- Space heating is by electric baseboard heaters; it's the household's largest power consuming end-use

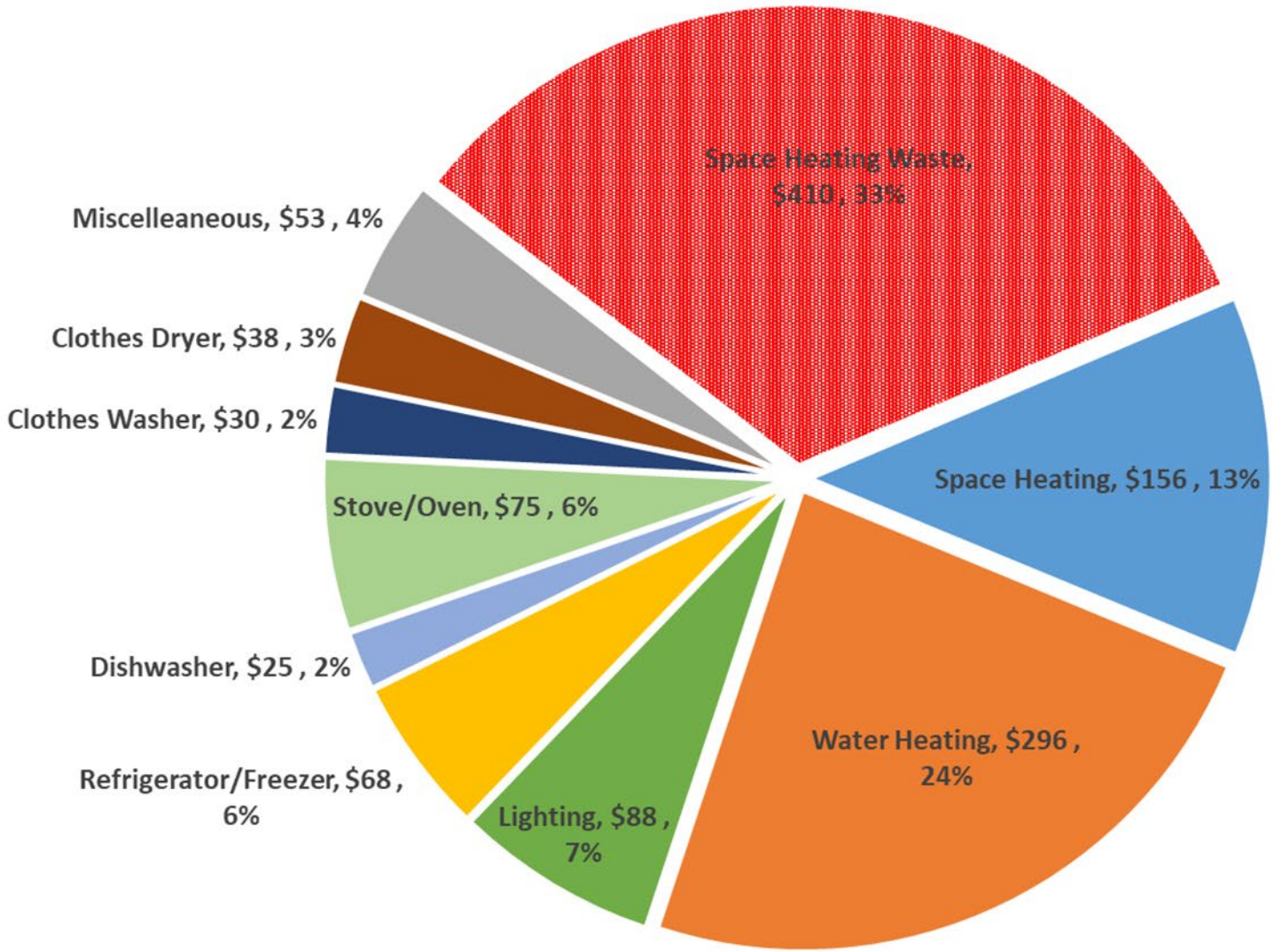
Energy Bills

Compared to using a heat pump, 33% of the home's total electricity use is now wasted, costing an extra $410/year at today's rates

Model Home Electricty Costs by End Use ($/year)



Model Home Space Heating Costs by Function



What About Heat Pump Water Heaters?

Model Home Energy Use Example

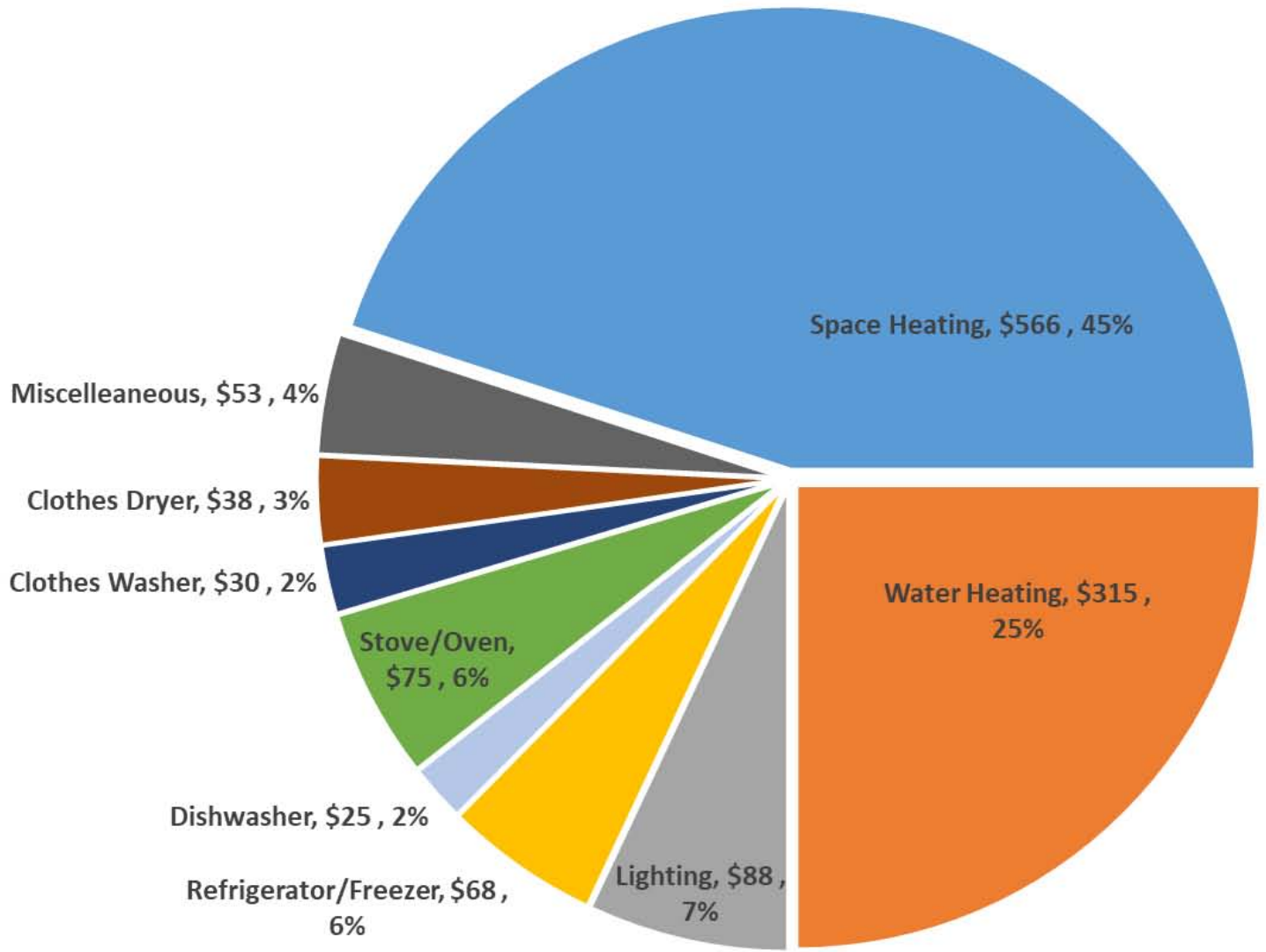
Space & Water Heating

- ~900 ft2 in size
- Power purchased at an average rate of $0.1048/kWh and consumption is 1,000 kWh/month
- Space heating is by electric baseboard heaters; it's the household's largest power consuming end-use
- Electric water heater located in a non-conditioned space

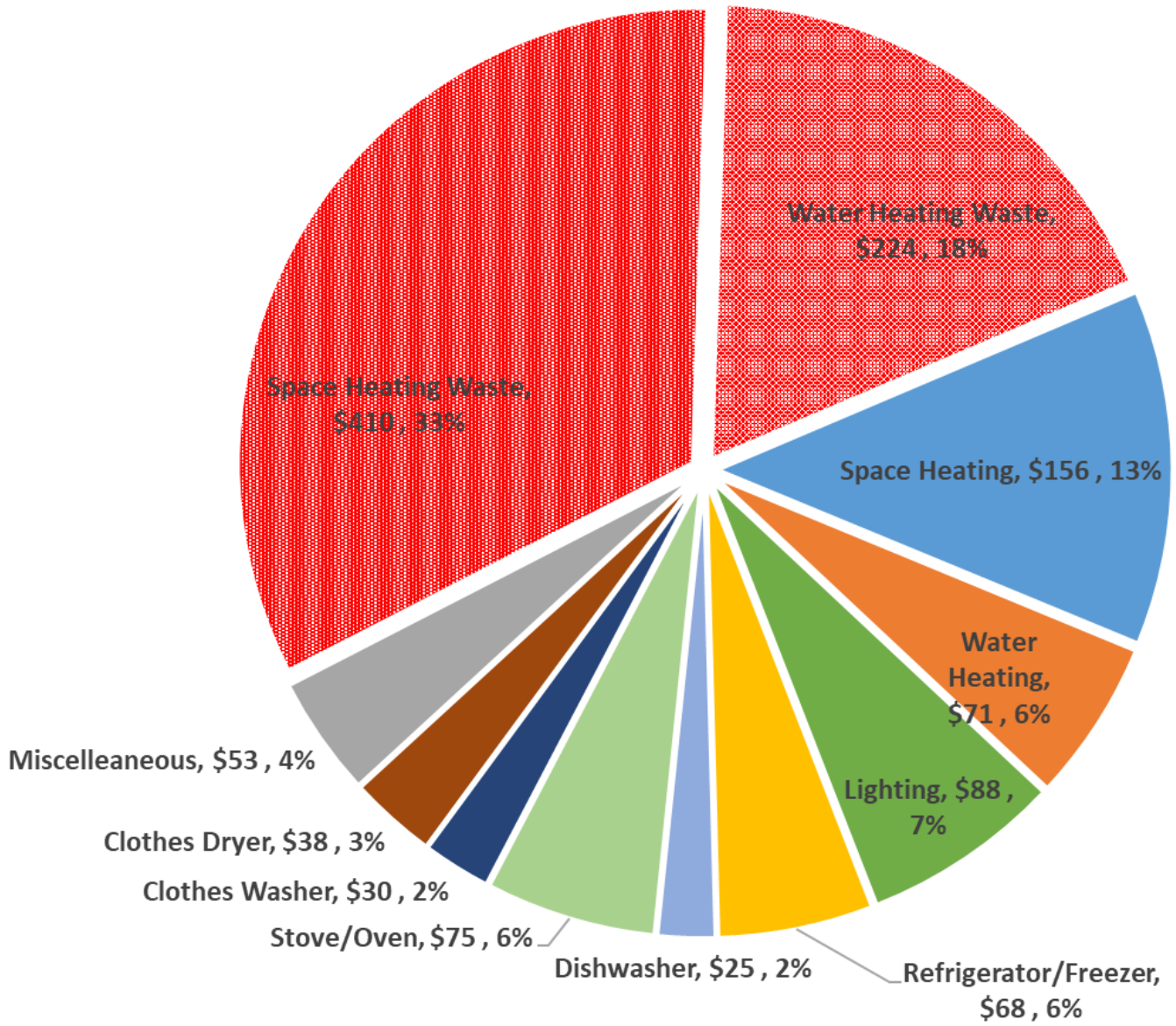
Energy Bills

Compared to using heat pumps, 50% of the electricity used is wasted energy and costs more than $600/year

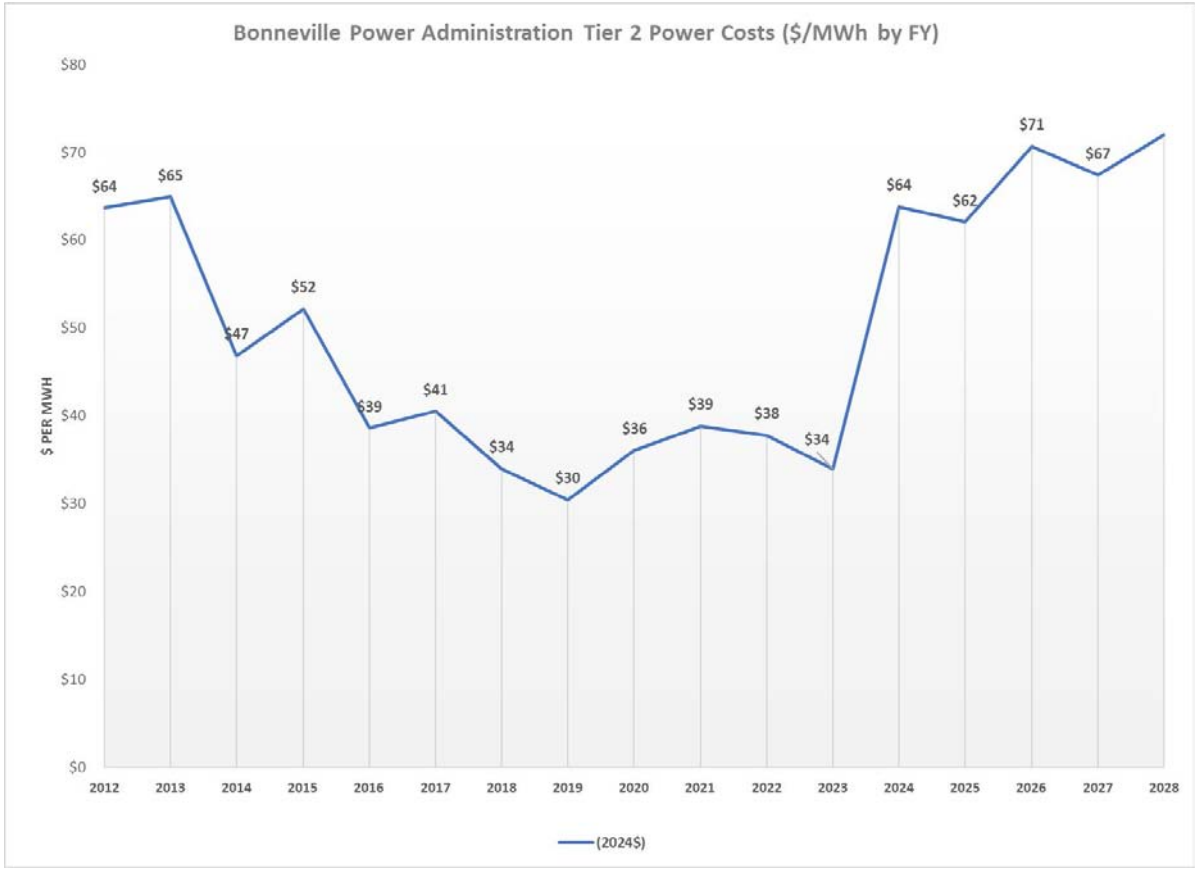
Model Home Electricty Costs by End Use ($/year)

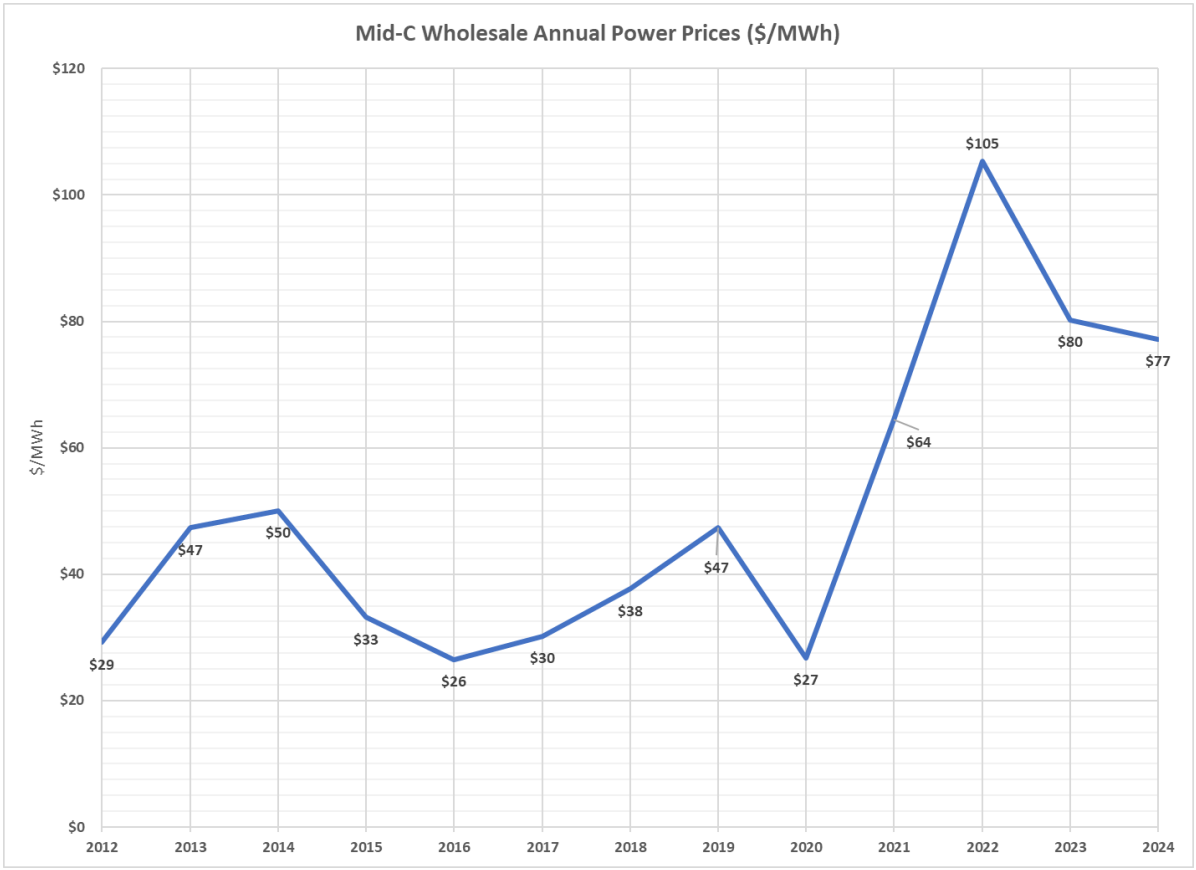


Model Home Space & Water Heating Costs by Function

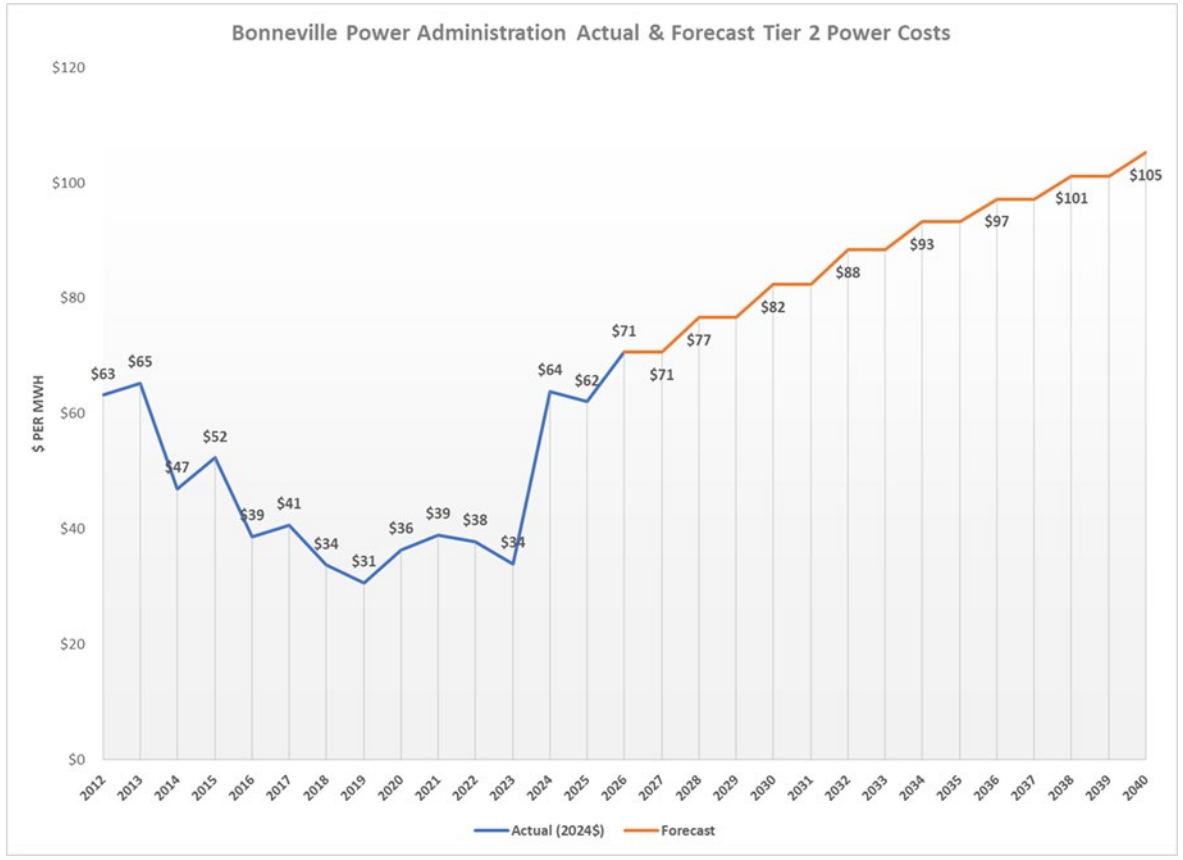


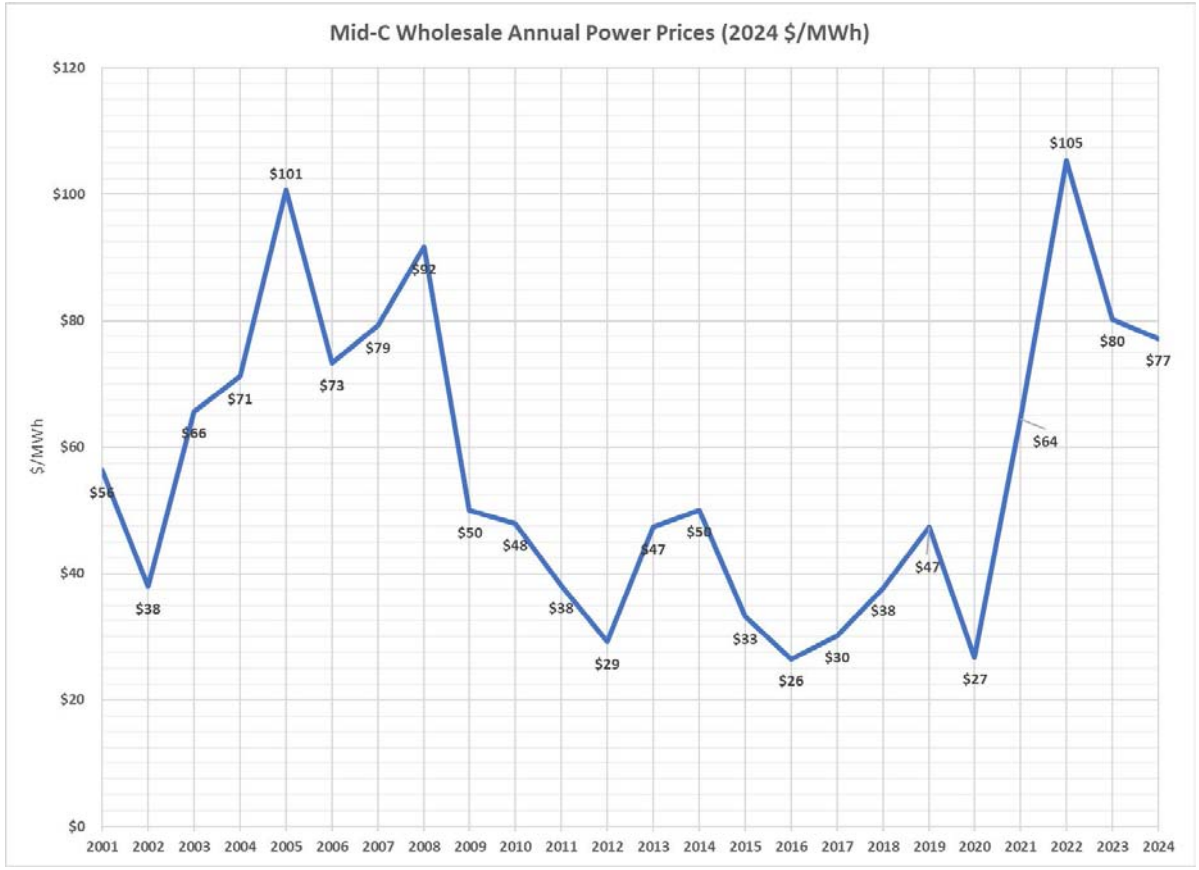
Tier 2 Power Options?





Tier 2 Power Options?

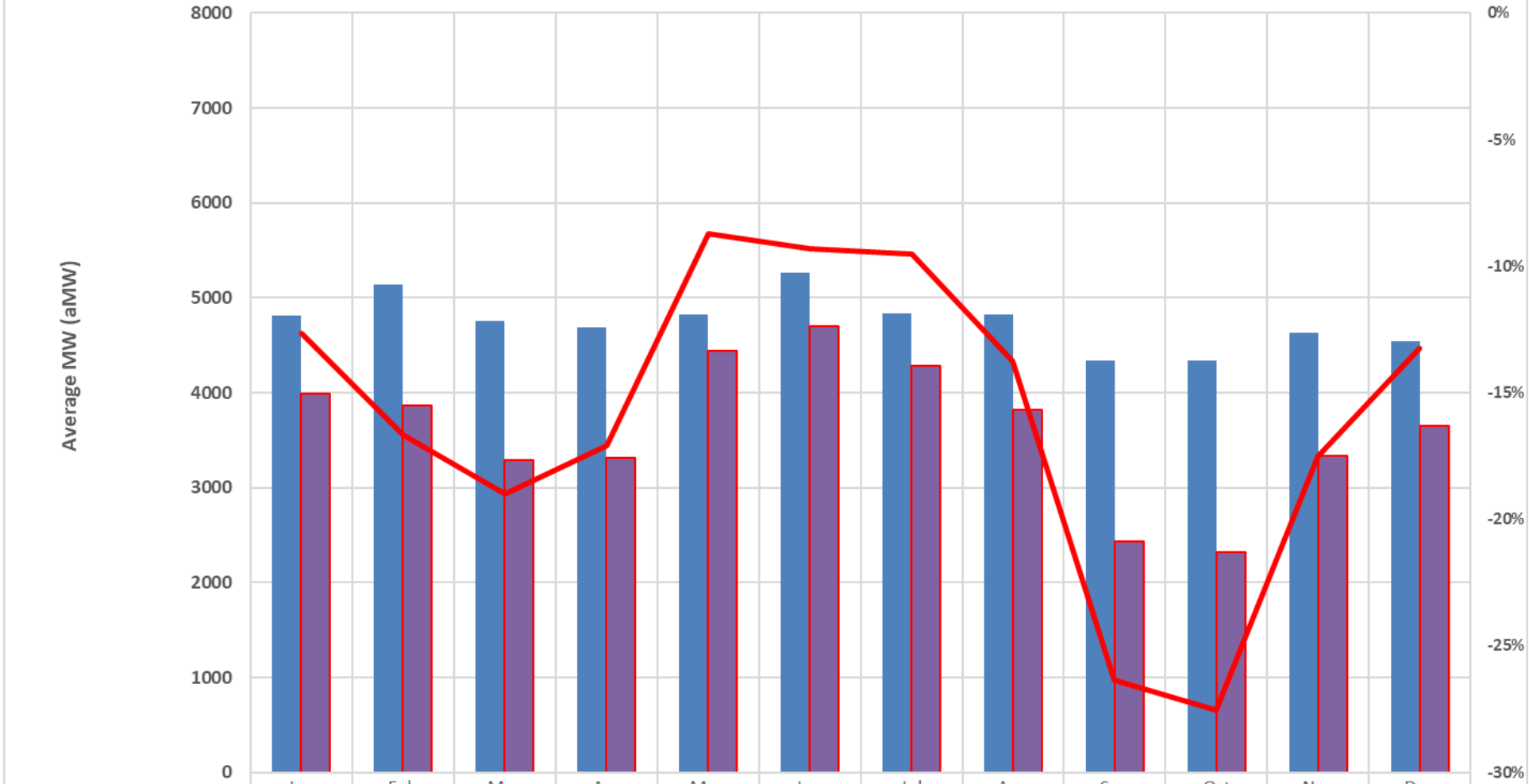




FCRPS Upper Columbia Dams Power Production Analysis

Libby, Grand Coulee & Chief Joseph aMW/Month

1980 to 1991 vs. 2015 to 2024 Periods



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
80-91 Monthly	4,808	5,139	4,752	4,688	4,826	5,262	4,837	4,819	4,341	4,336	4,629	4,545
15- 24 Monthly	3,989	3,867	3,289	3,317	4,439	4,697	4,288	3,825	2,438	2,325	3,340	3,656
Monthly Difference	-13%	-17%	-19%	-17%	-9%	-9%	-10%	-14%	-26%	-28%	-18%	-13%

Strategic Conservation Option - Heat Pumps for Space Heating

PROJECTED CUSTOMER OUTCOMES @ 15 YEARS	Project TOTAL
Annual Energy Savings (kWh/Household)	6,050
less New Cooling Load (kWh/Household)	1,495
net Annual Energy Savings (kWh/Household)	4,555
Customer Life-Cycle Energy Savings	$12,230

PROJECTED UTILITY OUTCOMES @ 15 YEARS	Project TOTAL
Customers	2,500
net Annual Energy Savings (MWh)	11,390
net Average Annual MW (aMW)	1.30
Cumulative Energy Savings (MWh)	170,850
BPA Tier 2 Power Cost Savings (Thousand $)	$15,840
Billing Credit Savings (Thousand $)	$4,155