

Clean Heat for Arlington

Sustainable Buildings Now!

Fossil Fuel Free Infrastructure Warrant Article

Frequently Asked **Financial** Questions



Are all-electric systems cost effective to install?

Yes! Cold climate air-source heat pump systems are already a popular alternative to fossil fuel based systems. **These systems are far more efficient and cost effective than the old electric “resistance” heat systems.** Because only one system is needed, rather than a separate furnace and air conditioner, they can be comparable or cheaper to install even before rebates. “Doing it right the first time” is better than requiring expensive retrofits to these homes later.

While each project will be unique, in 2018 consultants NMR Group Inc. issued a report for MassSave in which a 2,500 SF single family Energy code compliant Massachusetts home was modeled. **They found that all electric equipment costs about \$750 more to install, a negligible cost when considering new construction.** But with current rebates and incentives, it can be over \$5,000 cheaper. With the high prices that new homes command in Arlington (98% over \$1 million in 2018 and 2019), the entire heating system contributes a mere 2% to the total cost of the home, so the cost differences are a fraction of a percent. The table below shows data scaled up to a more typical 3,000 SF house:

Construction Costs:	
Rebate Case Example	
Air Source Heat Pump Rebate for new 3,000 SF Single Family Home	
Gas Heat, Domestic Hot Water and central A/C	
Equipment and Installation	\$14,040
Mini Split Air Source Heat Pump and Hot Water	
Equipment and Installation	\$14,494
Alternative Energy Credit	\$2,600
Mass CEC Rebate	\$2,500
Mass Save Rebate	\$1,700
Equipment and Installation Net cost	\$8,174

Source: 2,500 square foot home example: NMR group, RLPNC 17-14: Mini split heat Pump Incremental Cost Assessment: Brookline by-law team research. Costs scaled to 3,000 SF home, with no change to rebates.



How much will it cost to run?

With efficient Stretch Energy code compliant houses, **the operating cost of an air-source heat pump is close to natural gas for new construction and gut renovations.** While every project is unique, the NMR Group report (scaled up to Arlington’s 3,000 SF new house size) suggests that air-source heat pumps may be a little more expensive to run than gas. However, the cost difference of \$49/month would be under 1% of the \$6,000+ monthly costs of a new Arlington home (mortgage, taxes, insurance etc)

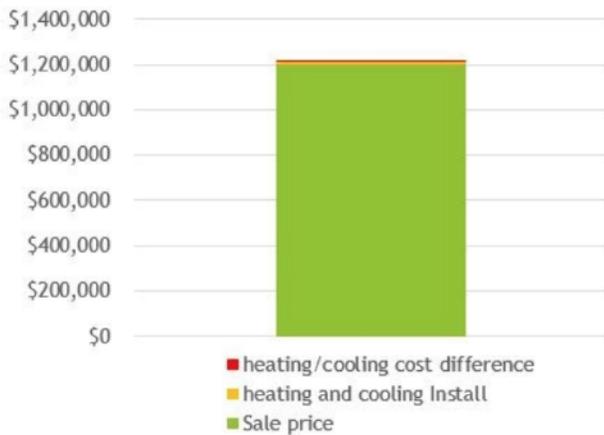
Monthly Operating Costs

3,000 SF new home

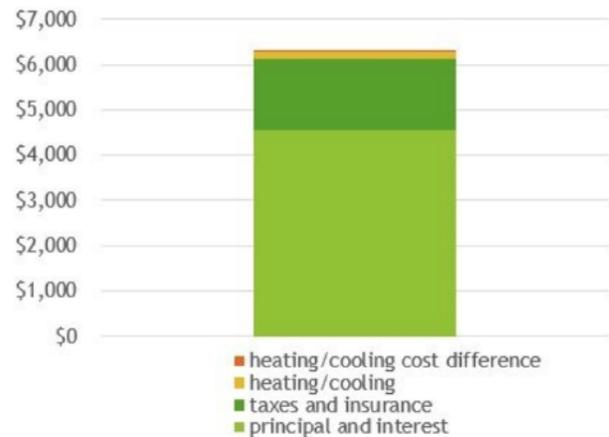
	Traditional Gas	Heat Pump	Cost Difference
Heating	\$125.20	\$173.70	\$48.50
Cooling	\$13.20	\$12.40	-\$0.80
Hot water	\$10.58	\$12.17	\$1.59
Total HVAC	\$149	\$198	\$49

Cost Difference Comparison

Approximate price for a new 3,000 sq' home



Approximate monthly costs for a new 3,000 sq' home



Assuming \$1.50/therm; \$0.2063/kWh; 20% down payment, 4% interest rate on 30yr mortgage. Assumed average price of \$1.2million. Homes sold in 2019 for between \$1million and \$1.5 million had a 3,196 SF average.



Get involved and learn more:

Learn more at www.cleanheatforarlingtonma.org,
and contact us to volunteer
or ask questions.

