**Questions**

1. Why is the use of natural gas more controversial lately (e.g., due to environmental concerns, higher natural gas prices, etc.)?

Burning natural gas for heating buildings and for industrial uses contributes over 25% of the US total greenhouse gas emissions every year – this means that burning natural gas in our homes is one of the primary causes of the climate crisis. Gas prices are rising in most areas of the country at a faster rate than electricity prices. Many recent studies show that gas stoves and other gas appliances create indoor air pollution that can pose serious health risks – especially for kids and seniors. At the same time, innovations with electric heating and cooking makes it attractive and economical to use electricity as the primary source of heat in modern homes.

2. What are the rationales/arguments for getting away from or keeping natural gas?

Arguments for eliminating natural gas in homes and buildings:

a. Electric heating and cooking works better, lowers construction costs and is safer

b. Extracting, distributing and burning natural gas is a primary cause of climate change

c. Burning natural gas in our homes creates dangerous indoor air pollution

d. Natural gas prices are likely to continue to rise faster than electricity prices

e. As temperatures increase, AC is more essential and heat pumps provide cooling as well as heating

Arguments for keeping natural gas

a. Some people like the open flame from gas stoves and fireplaces

b. The gas industry claims that gas heating increases resilience during power outages, but this is not true as most gas appliances will not work, or should not be used in a power outage due to indoor air safety.

3. Which states/cities/areas are currently considering or have recently implemented a ban on natural gas hookups in new construction? Please provide a list.

California has over 50 cities which have implemented bans on gas for new construction and is working on statewide legislation to do the same. Washington has several cities which have also done this and a building code that is statewide which mandates electric heating in new commercial buildings. They are working on similar building codes for residential construction. In Oregon, Eugene is considering a mandate for all electric new construction.

<https://www.canarymedia.com/articles/carbon-free-buildings/washington-state-moves-to-electrify-new-buildings-by-requiring-heat-pumps>

<https://www.sierraclub.org/articles/2021/07/californias-cities-lead-way-pollution-free-homes-and-buildings>

<https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-ban-monitor-west-coast-pushes-new-boundaries-pro-gas-state-bills-stall-69969602>

4. Do you have any data you can share that indicates how many/what % of Americans are switching from natural gas to alternative energy sources lately? (Please provide links)

This year, Electric Heat pump sales have overtaken gas furnaces in the US making them a more popular choice for space heating than gas furnaces. Gas furnace sales are down nearly 7% while heat pump sales are up nearly 5%.

<https://ahrinet.org/Portals/Reports/April2022StatisticalRelease.pdf>

5. What sort of natural gas alternatives are available to homeowners who might consider switching (e.g., electricity, solar, etc.)?

For space heating the most energy efficient solution is an electric heat pump. These devices also deliver air conditioning, which gas furnaces cannot provide. For water heating, a heat pump water heater is the most efficient solution and typically the lowest cost to operate. Even tankless gas water heaters are not as efficient as heat pump water heaters. For cooking, induction ranges and cooktops provide better temperature control, better safety, are easier to clean and produce none of the toxic emissions from natural gas combustion. For fireplace inserts, electric inserts provide a realistic flame and on demand heating without the need for expensive venting and gas plumbing. For clothes drying, electric dryers avoid the carbon emissions from gas clothes dryers and are similar in cost and operating cost.

6. Are municipalities/cities providing any incentives to homeowners to make the switch from natural gas (e.g., rebates, subsidies, etc.)?

Most states have energy efficiency programs which often provide incentives for cost saving appliance upgrades including heat pumps and heat pump water heaters.

7. What are the advantages of switching from natural gas to another energy source? Please indicate how much a homeowner might save or spend more in energy costs if they switch?

For new construction, it is cheaper to build and to operate a home with all electric appliances. This is true all over the US.

<https://rmi.org/insight/the-economics-of-electrifying-buildings/>

For existing homes, it can be more expensive to replace a gas furnace or water heater with a heat pump or heat pump water heater. Since heat pumps include air conditioning, the cost of a heat pump versus a new gas furnace with AC is closer to parity, but might still be slightly more expensive. Once the new unit is installed, it is generally lower cost to operate the heat pump devices, but this is dependent on the relative cost of gas versus electricity. The RMI study showed that the 15 year net present cost of water heating and space heating with heat pumps was lower or similar to the cost of gas appliances with AC in most of the cities they studied. Electric stoves do not produce indoor air pollution are faster to heat, have better temperature control and are easier to clean.

8. What are the drawbacks of switching from natural gas (e.g., expensive installation, ongoing costs, greater inefficiencies possible, impractical cases, etc.)?

There are no drawbacks other than the initial cost. Heat pump water heater installation costs can be higher than replacing an older gas water heater with a new gas water heater. In every other measure, the electric alternative is better performing, provides more comfort, is safer and typically lower cost to operate.

9. How practical, expensive, and realistic is it to switch from natural gas to another energy source? Would homeowners have to replace or retrofit their existing natural gas appliances? Which ones?

It is very practical since gas appliances have a life expectancy of 10 to 20 years. The appliances which need to be replaced are – furnace, water heater, cooktop or range, fireplace insert and clothes dryer, although most homes do not have all of these devices. This can be done gradually and do not need to happen all at once.

10. Who are good candidates for making the switch from natural gas to an alternative energy source and why? Who are not good candidates?

It is easiest and cheapest to build new homes this way in the first place which results in higher performing, safer, more comfortable homes that are cheaper to operate and maintain. Newer existing homes are also easier to convert, and older homes can be more difficult, but all homes can be converted to all electric.

11. What should readers consider carefully before committing to switching from natural gas to an alternative energy source?

If you care about the safety of your family, your comfort and the cost to operate your home, or if you are concerned about climate change, you should replace any of your gas appliances with electric alternatives as they are near their retirement age or as soon as you can.

12. Any other thoughts, tips, or ideas?

Some HVAC contractors and plumbers are most comfortable with gas appliances and may try to convince you that heat pumps need gas backup or that heat pump water heaters are not reliable. If you hear that advice, consult with another installer or plumbing contractor to find one that is more experienced with all electric solutions.

It is also important to make sure your home is well insulated and that furnace ducting is maintained and not leaking. Regardless of your fuel choice this will reduce energy costs and increase home comfort.

13. What is your full name, title, company, city/state location, and email address?

Brian Stewart, Founder, Electrify Now

Portland Oregon

brianstewart@electrifynow.net