# Heat Without Fire: Geothermal For A Cleaner, Sustainable Future In New York City

Hurricane Sandy proved that New York City’s energy system is not up to the challenges of the present day.  And, as we have highlighted before, the city faces some major challenges to reducing dangerous air pollution caused by heavy heating fuels.  One promising solution seeking to significantly reduce NYC’s carbon footprint, improve air quality, and increase grid resiliency during storms is geothermal heat pumps.

The U.S. Environmental Protection Agency (EPA) has called ground source heat pumps the “most energy-efficient, environmentally clean, and cost-effective space conditioning systems available.”  Geothermal heat pumps or exchangers, also known as geo-exchange, require no fossil-fuel burning on-site, use 70 percent of their energy from Earth’s renewable sources and are, on average, nearly 50 percent more efficient than gas furnaces.

Last month, I had the honor of watching NYC Mayor Bloomberg sign a bill tasking the New York City Office of Long-Term Planning & Sustainability to study geothermal energy resources and the feasibility of city-wide adoption of geothermal heating and cooling.  As Mayor Bloomberg’s sustainability leadership – in an official capacity at least – comes to an end, his plans to ensure that the city’s mission to find sustainable, cost-effective solutions to combat air pollution are well underway.  Though the geothermal heating and cooling bill is very important, it is only one aspect of the Mayor’s larger PlaNYC effort.

During his speech, Mayor Bloomberg remarked, “So what is geothermal anyway? I am having it installed in the new place I just bought and I know it works and how much it costs but nothing else.”  His words sum up the greatest challenge for geo-exchange yet – lack of awareness.  Geo-exchange technology needs our help to move it out of its prolonged infancy and into the mainstream.

The most common misconception holding it back is that geothermal energy will generate electricity, which is only true if you live atop a volcano. Here, in New York, Earth’s sub-surface temperature isn’t quite hot enough to produce electricity. What it does allow for, though, is a cleaner, resilient, and largely cheaper heating and cooling option for thousands of homes and offices – as the tapped heat not only provides heating in the winter, but also air conditioning in the summer.

Under the guidance of Mayor Bloomberg’s PlaNYC, New York City will set the pace for the rest of the country to make way for efficient, non-fossil fuel burning geothermal.  There are already a few projects underway in hospitals, museums, schools, and the highly anticipated Cornell Tech Campus on Roosevelt Island that stand to benefit from cheaper heating and cooling, cleaner air and a smaller carbon footprint.  The adoption may be challenging, but the reward will be well worth the heat.