

As consumers seek more efficient options to heat or cool their homes and attempt to avoid reliance on the unpredictable fossil fuel market, they're increasingly turning to sustainable methods. Since 1983, we've been offering commercial and residential customers alternatives to traditional forms of heat like oil or baseboard electric through our innovative Nordic® geothermal heat pumps.

We've developed this guide to help HVAC installers and renewable energy experts understand more about geothermal heat pumps for residential and commercial applications. You'll also learn how partnering with Maritime Geothermal Ltd. can help you grow your business.

Why Transition to Geothermal Energy?

Geo-exchange is an innovative way to collect the free, renewable heat present in the ground and efficiently and effectively transfer it into a residential or commercial building. Unlike oil, or natural gas furnaces, heat pumps don't convert a fuel heat, but instead pump and concentrate free energy from the ground into a home or building. Since the underground energy is already owned by the property owner and only has to be pumped into the structure, geothermal heat pumps have achieved the status of the most efficient and reliable form of eco-friendly heating and cooling on the market today. With average COPs of over 4.0, our Nordic® heat pumps will drastically cut down on your customers' heating and cooling bills and provide them with decades of comfortable and consistent space heating—all with minimal impact on the environment.

Geothermal energy is an abundant low-level heat source, which, when concentrated, renders an even and comfortable temperature in the home, regardless of the outside temperature. Unlike conventional heat sources, such as oil, there won't be spikes in temperature or blasts of cold air during the heating cycles. The system is controlled by an automatic "change-over" wall thermostat, and in contrast to a wood or pellet burning stove, there is no need to actively manage the system. Your customers will be delighted with the "set it and forget" nature of geothermal heat pumps.

How Do Geothermal Heat Pumps Function?

A geothermal heat pump system has three main parts: the ground loop field (the source of energy), the heat distribution system within the home (the sink), and the heat pump itself. The ground loop field consists of a series of plastic pipes buried approximately six feet underground or alternatively in vertical boreholes typically 150 to 450 feet in depth. During the heating season, an antifreeze fluid colder than the surrounding ground is circulated from the heat pump in the home through the underground closed loop. Low-grade energy is picked up by the heat pump via a refrigeration process. The heat pump then concentrates the low-grade energy, bringing it up in temperature and distributing the heat into the home via a conventional heat distribution system such as ductwork or radiant in-floor heating.

In the summer, changing the direction of refrigerant flow inside the heat pump reverses the heat pump cycle. The heat from the air in the home is removed by the heat pump and deposited at temperatures from 70°F to 100°F (21°C to 37°C) into the ground loop fluid, which circulates through the underground pipes. The earth is cooler than the fluid and absorbs the heat, and the cooled fluid is cycled back into the building to repeat the process. Most geothermal heat pumps also have the option to deposit heat into a domestic hot water tank as well as the ground loop, providing free domestic hot water during the cooling season.

Where Does Geothermal Energy Come From?

In its most simplified definition, geothermal energy is the energy stored in the earth's crust. This energy has two main sources: the earth's core, and the sun. The earth is like a large solar panel, storing more energy than we'll ever need to heat even large commercial buildings. This means the ground will remain consistently warm below the surface, at a temperature normally equivalent to the average of the mean annual air temperature, even in the dead of winter. This source of energy is harnessed by the heat pump and used to heat homes and commercial buildings.

Geothermal energy should not be confused with **geothermal electricity** because these are two different things. Geothermal electricity is generated from high temperature geothermal energy, like the type found near magma conduits, hot springs, geysers, water wells or other similar circulating fluids. The extremely high temperature heat from this liquid is captured in a power station and used to heat water or similar fluid. That fluid is what turns the turbine in the generator, thereby producing electricity.

Choosing the Right Geothermal Heat Pump Manufacturer

When you're ready to grow your business with geothermal heat pumps, it's crucial that you choose the right partner: a manufacturer who can offer you reliable support, the products that your customers are looking for, and who can react quickly when you need technical support.

Over the course of our three decades in business, our dealers have benefitted from their close relationship with Maritime Geothermal Ltd., our quick and efficient support, and the innovative and flexible range of heat pumps we provide.

There are several reasons why Maritime Geothermal Ltd. is the ideal heat pump manufacturer to choose when you want to expand your business:

- We're dedicated to building long-lasting and fruitful relationships with our dealers.
- We provide the assistance and resources needed to grow a successful business.
- We have the most extensive range of heat pumps on the market.
- · We're able to help our dealers achieve significant margins.
- Our full warehouse of heat pumps and replacement parts allows for same day shipping, enabling you to keep your customers happy.

Maritime Geothermal Ltd. Advantage

We know that our dealers' businesses depend on getting the right product for the job, and we take that seriously. When you work with Maritime Geothermal Ltd., you'll have access to a full suite of residential liquid-to-air, liquid-to-water, and liquid-to-air & water heat pumps from three quarters of a ton to six ton capacity, and an extensive commercial product selection including large-scale water-to-water heat pumps up to 85 tons, suitable for even the largest development. Whatever your target market, you can satisfy their geothermal requirements with a Nordic® product.

We're agile enough to design and manufacture niche heat pumps to suit your customers' needs, and in much smaller quantities than larger producers. Whereas many other heat pump manufacturers would require a significant order quantity to create a custom product, we are happy to discuss creating heat pumps for specific projects, even if the quantity is smaller.

We take our dealers' comments and product evaluations seriously, and they have had an impact on our products. In fact, many of our products have been created or improved based on feedback from our installers. We strive to make your heat pump installation easier and more efficient.

Our EMW Series heat pump is an example of a completely unique product that we developed based on installer feedback. These heat pumps are liquid-to-water units

specifically designed for radiant in-floor systems. Within a single cabinet is a liquid-to-water heat pump with a buffer tank, back up heat, floor circulator, expansion tank and all control electronics. We pre-select all of the components required for simplified installation and job site documentation. This removes the need to source other parts, preventing delays or ill-fitting components, and saves space in the mechanical room. Everything is pre-made and pre-sized to fit the heat pump. This is a product you'll only get with Maritime Geothermal Ltd.

Dealer Support Capabilities

Your relationship with your supplier can have a noticeable impact on your business, and we believe you can't over-emphasize the importance of a good supplier-customer relationship. When you're determining which manufacturer to work with you want to know you're in good hands. Many of our service technicians have over a decade of experience with us, and they're masters in troubleshooting heat pump issues and providing support. Our longstanding team members who design and manufacture our Nordic® products are some of the most experienced in Canada.

Experience is one thing, but being able to take advantage of it is something else. Our dealers will always be able to speak directly to a member of the team if they need support from us or if there are any concerns about products, parts, or warranty. You'll be able to access the help you need when you need it—without navigating through phone menus, leaving voice mails, or sending emails. We want our relationship with our dealers to be as efficient and long-lasting as our heat pumps!

Margins

As we continue to improve our processes and fine tune our service offering, we decided to work directly with our dealers. This gives us the opportunity to offer the best possible prices, without having to turn to a wholesaler or a distributor. On average, our dealers have saved up to 23% by sourcing Nordic® products directly from Maritime Geothermal Ltd. You'll always get our best possible price, and we think that helps to start our relationship off on a great foot.

Another benefit of working with us directly is that you'll already have your main points of contact established. That's particularly helpful when you need to get service or support quickly and don't have time to wait for an intermediary to speak to you, then speak to us, then speak to you.

Stock Availability

Maritime Geothermal Ltd. proudly manufactures our Nordic® products here in Canada, and because we undertake all the fabrication ourselves, we have an extensive range of heat pumps always in stock, ready to be shipped at a moment's notice. Many of our most popular heat pumps are manufactured and tested in advance so they're ready to go with just a quick call to us.

Similarly, our replacement parts are available in our warehouse, and we can get warranty or replacement parts en route on the same day.

While we're confident that you'll feel our products stand on their own, we don't think they're the only advantage of Maritime Geothermal Ltd. When you're looking for a partner to grow with, choosing one that offers unparalleled support, the best products and extensive knowledge about the industry will have a huge impact. That's why we're happy to offer all of those things as standard to all of our dealers. We're looking forward to helping you succeed!

Ready to join the Maritime Geothermal Ltd. Team?

Get in touch today! **Call 1-506-756-8135** to speak to a member of the team and learn more.