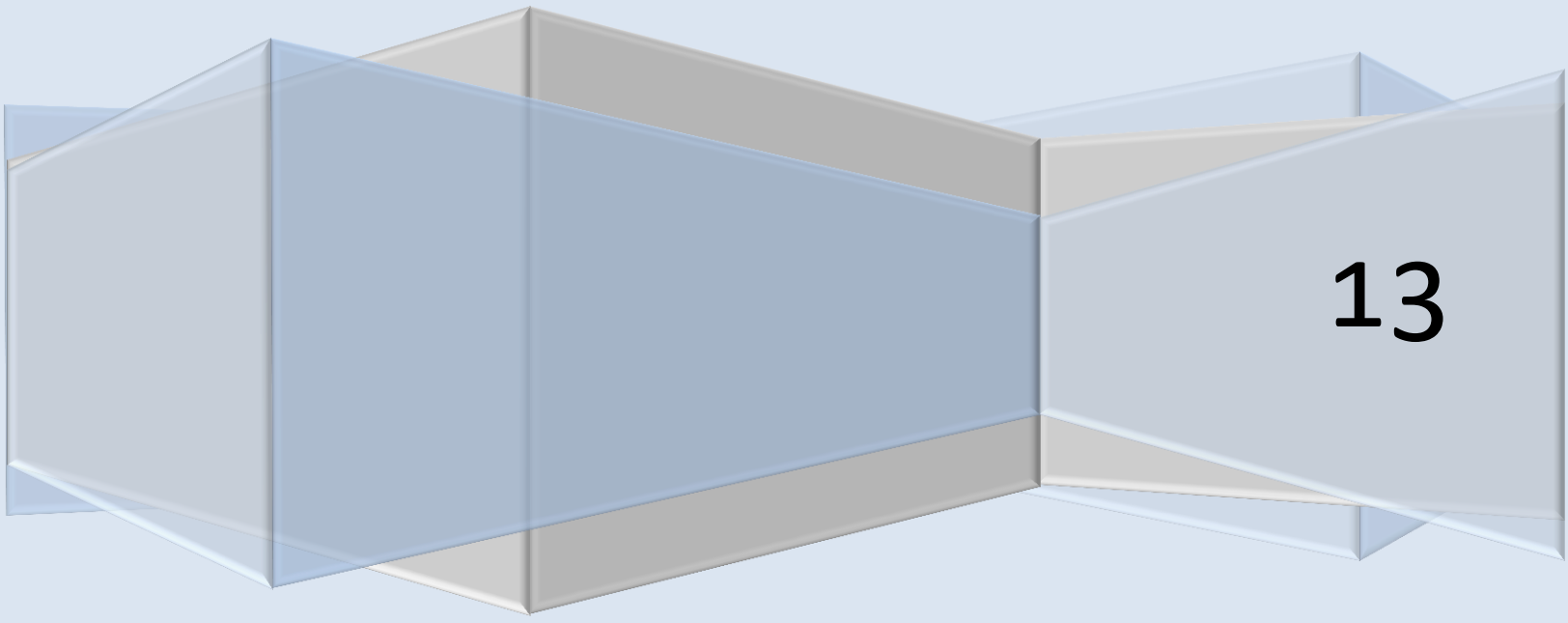
The Future of Geothermal

Whitepaper

Groundheat



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There are several compelling reasons why North America should be concerned about the security of its energy supply for the long term. They include growth in demand, as a result of an increasing population in North America and depletion of existing natural resources.

The reason that geothermal is expected to play an important role in the future is that not only is the skill and knowledge set improving but economies of scale is also applying: we're now drilling with superior technologies and the engineers running processes are more qualified than ever. It is heir apparent that geothermal holds some pretty serious potential as we are trying to predict what a clean energy future will indeed look like. In the past few years many countries have increased their support for the development renewable energy technologies such as geothermal energy. Globally governments have been enacting policies and regulations to promote the geothermal energy heating and cooling systems. Therefore, shallow geothermal energy as new regenerative energy will become the major source of heating and cooling system with time passing. The promotion and wide utilization will undoubtedly support the sustainable development, welfare and environment protection.

The planet is being prepared in more than one ways to be greener than it has ever been before – and one of the critical steps is to seize the skill in terms of imparting the existing knowledge to future policy makers and implementers. Master Courses have been introduced in several universities which include geothermal terms as well as specialized geothermal design courses for individuals who will execute future geothermal activities and efficiencies.

Coming back to the technicalities of it all - Shallow geothermal systems such as open and closed geothermal heat pump (GHP) systems are considered to be an efficient and renewable energy technology for cooling and heating of buildings and other facilities. The numbers of installed ground source heat pump (GSHP) systems, for example, is continuously increasing worldwide and that is an indicating metric that the future is indeed before us. The net energy consumption and greenhouse gas (GHG) emissions or savings by GHP operation, but also to fully examine environmental burdens and benefits related to applications of such shallow geothermal systems by employing a state-of the-art life cycle assessment (LCA).

The latter enables us to assess the entire energy flows and resources use for any product or service that is involved in the life cycle of such a technology. The applied life cycle impact assessment methodology (ReCiPe 2008) shows the relative contributions of resources depletion (34%), human health (43%) and ecosystem quality (23%) of such GSHP systems to the overall environmental damage. Climate change, as one impact category amongst others, contributes 55.4% to the total environmental impacts.

Geothermal Energy is to be understood not, as one homogenous process, but more as consisting of various elements. One of the unique aspects of geothermal heat is that it is found everywhere throughout the world. Call it a “democratic” energy source that anyone can take advantage of, regardless of the conditions at the Earth’s surface, such as the weather.

Despite some of the criticisms that have had to be faced there is little doubt that it should be possible to unite industry, researchers and government to find solutions that are needed support the concept of geothermal heat. Depletion and destruction of our environment warrant a solution that will protect the planet – extreme climatic diversities need the solutions to be more “green.” Politically, environmentally and fundamentally we seem to be on our way.