

ALTERNATIVES TO STEEL PIPES WITHIN NATURAL GAS DISTRIBUTION NETWORKS

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Canada has an extensive natural gas distribution networks in place and is actively expanding, with domestic sales increasing by 10% between 2005 and 2007. The aim of this project is to demonstrate the economic and ecological benefits of using alternatives to steel pipe within natural gas distribution systems.

Over 50% of natural gas sold by distribution companies in Canada is sold to high volume clients: power generation, industry and commercial enterprises. Traditional polyethylene pipe is used at pressures under 400 kPa, which is unable to facilitate the pressures required to deliver gas to these clients. Steel pipe is currently used instead, but requires regular maintenance and service work to keep the line operating safely. Alternatives to steel piping require minimal post-installation maintenance while upholding the safety standards and quality of gas delivered.

Alternatives to steel pipe for gas distribution systems are analyzed for suitability, taking into account maintenance, installation, joining, cost, corrosion and ecological impacts. These include high-pressure polyethylene and nylon pipe, both of which can accommodate pressures up to 1000 kPa or more, but have limited use within Canada. Experimental data, government regulations and precedents set by other countries are investigated to provide a complete picture of these alternatives. The next step is to further develop how alternatives to steel pipe are used in the production and long-range transportation of natural gas.