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Nota di contenuto	Intro -- 1 Introduction -- 1.1 Motivation and objectives -- 1.2 Thesis outline -- 2 Need for alternative frac-fluid -- 2.1 Environmental problems -- 2.2 Technical problems -- 2.3 Problem with public acceptance -- 2.4 Alternative frac-fluids -- 3 Light alkanes (C5-C10) -- 3.1 Properties of alternative fluid -- 3.2 Simulation in a fictive model to investigate phase behavior -- 4 Hydraulic fracture modeling -- 4.1 Brief overview of hydraulic fracturing -- 4.2 Mass and energy balance for flow in porous media -- 4.3 Space and time discretization -- 4.4 Numerical model -- 5 Model verification and application -- 5.1 Fracture initiation and propagation -- 5.2 Isothermal MM flow verification -- 5.3 Non-isothermal MM flow verification -- 5.4 Hydraulic fracturing in McCully tight gas reservoir, New Brunswick, Canada -- 6 Hydraulic fracturing optimization in a tight gas reservoir of Germany -- 6.1 Introduction -- 6.2 Model generation and verification -- 6.3 Production history match -- 6.4 Stress state -- 6.5 Important parameter analysis -- 6.6 Frac-fluid flowback -- 6.7 Design proposals -- 6.8 Comparison with previous fracture job -- 7 Rod-shaped proppants -- 7.1 Introduction -- 7.2 Fracture conductivity -- 7.3 Numerical model -- 7.4 Sensitivity analysis -- 7.5 Application -- 8 Conclusions -- 9 References -- Appendix A.

