Continuous improvement through technology

Benefits of technology

• Improve efficiency – lower GHG emissions and water use.
• Recover more resource in development areas.

Disciplined approach

• Lab scale → field pilots → commercial projects
• Improved understanding of physical process
• Optimize commercial development

Liquid addition to steam for enhancing recovery (LASER) project

• Addition of solvent to mid/late life cycle steam in existing CSS wells reduces bitumen viscosity
• LASER has been applied at 10 pads in Cold Lake

Solvent assisted – steam assisted gravity drainage (SAGD) pilot

• Addition of solvent to steam in dual SAGD well configuration
• Pilot initiated in late 2009

Cyclic solvent process (CSP) pilot

• Non-thermal cyclic solvent injection
• Significantly reduced GHG emissions and water use
• Single cycle test with C3 in 2009
• Multi-well pilot with three horizontal wells and new pad facilities started operation in June 2014
LASER project

Bitumen uplift in 2 LASER cycles

CSP pilot

SA-SAGD pilot

T13 Pad