MARKET SNAPSHOT

95 MILLION BARRELS™
The current, global oil production for ONE DAY

134.3 BILLION®
BARRELS IN SITU RESERVES IN CANADIAN OIL SANDS

SAGD™ LIMITATIONS

- High capital investment
- Energy intensive
- Greenhouse gas intensive
- Large surface facilities needed to generate steam and treat water
- Cannot access many resource-rich pay zones

HOW THE HARRIS HEATWAVE® ENABLED ESEIEH® PROCESS WORKS:

1. Electrical energy is converted into radio frequency (RF) energy
2. The HeatWave® RF antenna heats the reservoir
3. Solvent is injected to assist the flow of the warmed bitumen
4. The bitumen and solvent drain via gravity to the well and are pumped to the surface
5. The bitumen and solvent are separated
6. Bitumen is transported to market and solvent is recycled

** Typical operating temperature for ESEIEH®. By comparison, SAGD typically operates at 240°C.

30% REDUCTION IN SUPPLY COST
SAGD average supply cost ~$700

RECOV ERY

SOLVENT

RF ENERGY

RF POWER SUPPLY

HEATWAVE®

HEATWAVE® RF ANTENNA

1 2 3 4 5 6

Reduces land disturbance by 30 percent
Reduces waste by-product and is a net water producer
Reduces blowdown ponds
Accelerates closure and reclamation

ENHANCED SOLVENT EXTRACTION INCORPORATING ELECTROMAGNETIC HEATING

REDUCED ENVIRONMENTAL IMPACT
& NET WATER PRODUCER

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• Reduces waste by-product and is a net water producer
• Reduces blowdown ponds
• Accelerates closure and reclamation

RENDERED ENVIRONMENTAL IMPACT
& NET WATER PRODUCER

†† 75% reduction based on a comparison with natural gas as the power source.
††† Source: Goldman Sachs, Cenovus. Goldman Sachs defines breakeven as the US dollar equivalent WTI oil price required to achieve a 10% return.

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* Enhanced Solvent Extraction Incorporating Electromagnetic Heating
** Steam Assisted Gravity Drainage: A technology for recovering heavy crude oil and bitumen
*** Source: http://www.eia.gov/forecasting/steo/report/global_oil.cfm