

Revolutionizing Heavy Oil
Extraction with RF Heating
Technologies

Low Cost, Low Carbon.

RADIO FREQUENCY HEATING INNOVATIVE TECHNOLOGIES



Key Advantages

- Flexible production method
- Reduced start-up infrastructure costs steam systems
- Lower energy consumption
- Requires little to no water
- Smaller overall environmental footprint
- Power can be applied or turned off to the formation instantly, allowing for the consumption of electrical energy at non-peak times

Reservoir Types

- Deep reservoirs
- Highly heterogeneous and fractured reservoirs
- Shallow reservoirs with limited cap structures
- Reservoirs with high water saturation

Professional Services

- Antenna design:
Multi-physics interactions, matching networks and RF power transmission system
- System design:
RF power, antennas and transmission systems, radiation safety
- Modelling and monitoring
- Comparative studies

RF Heating for Heavy Oil and Bitumen

Acceleware's combined expertise in electromagnetics (EM) and oil and gas uniquely positions the company as a leading provider of technology and consulting services for the use of radio-frequency (RF) energy to heat oil reservoirs in situ. RF heating is an emerging technology with the potential to provide an efficient production solution that competes favourably with, or enhances traditional steam heating and solvent based techniques used for producing heavy oil.

RF heating is achieved by placing an antenna into a well to radiate energy into the formations, lowering the viscosity of oil and allowing for production. This method can provide an economic production solution for both oil sands and carbonate formations, as well as stranded reserves where steam floods or solvent methods alone are ineffective or unavailable.

Simulation Software

AxHEAT, Acceleware's RF heating application, integrates reservoir simulation with EM simulation to accurately model the heating process within a reservoir. The application tracks both the petrophysical and electromagnetic properties of reservoir, as they evolve over time, dynamically adjusting antenna radiating field and heating patterns fluid temperatures, pressures, and viscosities in response to electromagnetic radiation and heating.

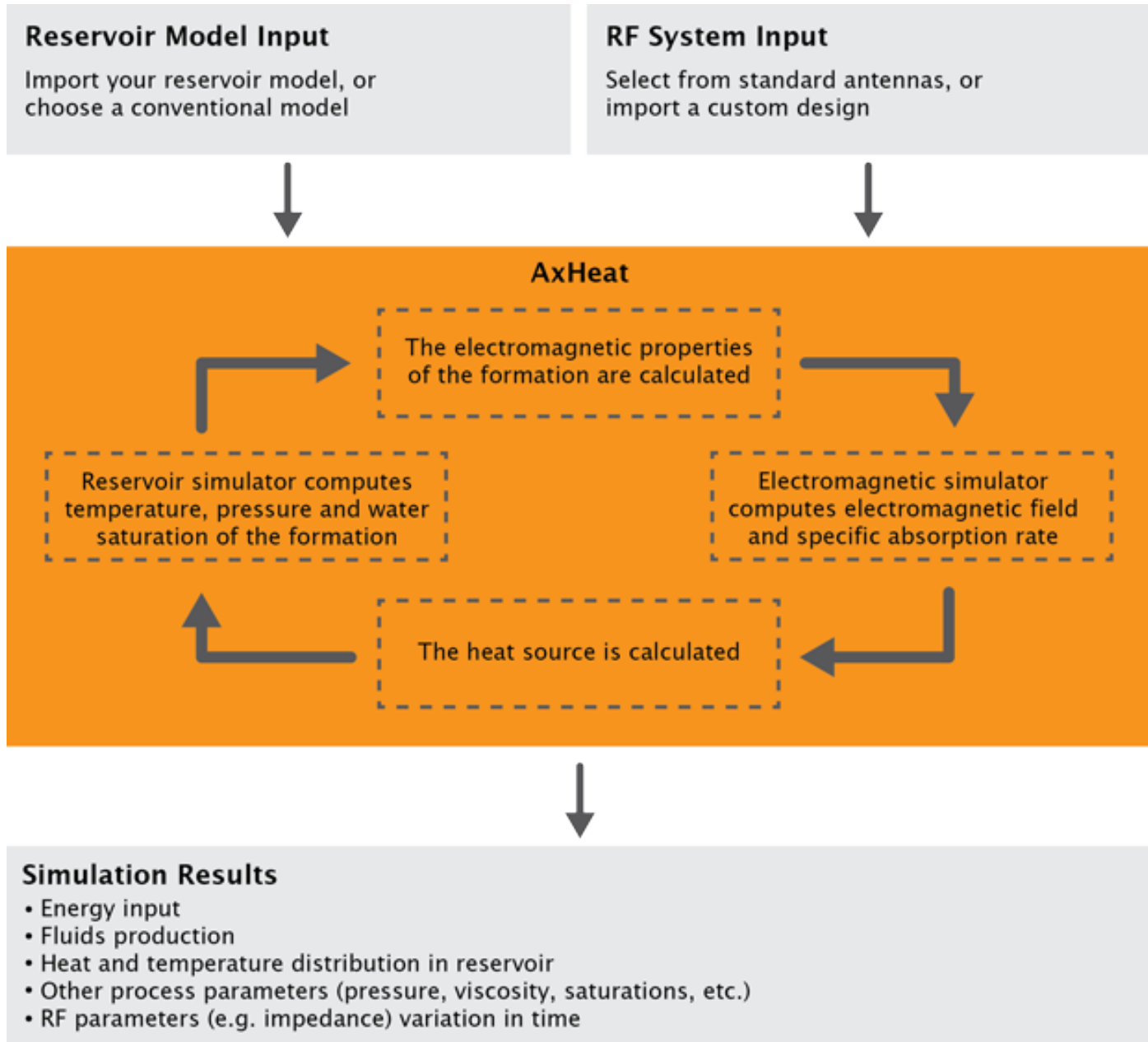
Professional Services

Acceleware provides a range of engineering services to accurately model the RF heating process within a reservoir. Services include antenna design, system design, comparative studies, modelling, and real time monitoring. RF heating solutions can be customized to meet the needs of a wide range of reservoir formations and well geometries - whether shallow or deep, vertical or horizontal.

AxHEAT Application

- Accurately models RF heating within a reservoir
- Integrates reservoir and electromagnetic simulators
- Tracks petrophysical and electromagnetic properties
- Dynamically adjusts the antenna fields and reservoir properties

AxHEAT Simulation Application



Learn More About AxHEAT™

Contact us today to discuss the benefits and applications of AxHEAT.

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acceleware.com/rf-heating