LEAP Energy Technology Solutions develops advanced solutions for Clients which are not offered by industry standard software packages. Working with our clients, we identify the solution sought and develop the software specific to their requirements. In this edition, we give an overview of LEAP Energy Technology Ventures and the growing range of software products available.

“Our mission is to provide focused solutions that meet the specific requirements of the technical challenges our clients face in a timely and cost effective manner” said Laurent Alessio, Managing Partner in Kuala Lumpur. “In addition to this we are also supporting software solutions offered by other software developers that we believe have a direct benefit to our clients” added Laurent.

Our existing software solutions relate to CBM Reservoir Modelling, Waterflood Optimisation, Stochastic Volume Calculation, Production Optimisation and History Matching. In addition LEAP and Actenum Corporation of Canada recently announced an agreement to work together on the rollout of Actenum’s oil and gas scheduling optimisation software solutions.

LEAP and ACTENUM Media Announcement

VANCOUVER, BC, 15 October 2013 – Actenum Corporation, a Canadian software company providing operational scheduling and optimization solutions to the oil & gas industry, and LEAP Energy, an international subsurface consulting and technology delivery provider with offices in Brisbane, Australia and Kuala Lumpur, Malaysia, today announced the signing of an exclusive agency agreement.

Under the terms of the agreement, LEAP Energy will promote and sell Actenum’s solutions and provide technical support to Actenum clients in Australia, New Zealand, and South East Asia. LEAP Energy’s professional services team will also participate in the implementation of Actenum solutions as they are deployed to regional clients.

“We are delighted to establish this relationship with LEAP Energy,” said Paul Maurer, Actenum CEO. “Our expertise in assisting oil & gas companies with complex operational scheduling, together with LEAP Energy’s established capabilities and regional business relationships, will allow us to serve clients in the region more effectively, and continues the expansion of Actenum’s global presence.”

Chris Connell, LEAP Energy Managing Partner in Brisbane, said: “Actenum software solutions are unique in enhancing productivity and collaboration in the oil and gas sector, and will bring important benefits to local clients. We look forward to success for both parties as we move ahead.”

RECENT SPEAKING ENGAGEMENTS

Mr Laurent Alessio, Managing Partner, “Multi-Realisation Full-Field History-Matching For CBM Resources a New Approach with Global Optimisation Coupled with Geo-Statistical Filtering” SPE Asia Pacific Oil & Gas Conference and Exhibition, 22–24 October 2013, Jakarta, Indonesia


OUR TEAM

LEAP Energy Technology Ventures comprises a team of engineers, applied mathematicians and programmers dedicated to developing software solutions to efficiently address complex problems. The award winning team is internationally recognised and has established a track record of excellence.

The success of the team is founded on the collaborative arrangement with the oil and gas professionals from our sister company – LEAP Energy. This ensures that software solutions are technically robust, fit for purpose and user friendly.

“Whilst the industry has delivered a range of software tools that can applied to many projects, there are significant benefits that can be achieved in developing problem driven solutions to enhance data management and analysis as well as providing efficiency gains for the Client” commented Dmitry Kuzmichev.
TECHNOLOGY AND SOFTWARE
LEAP Energy Technology Ventures has developed a range of commercial and custom made software packages based on international knowledge and global experience. Some of the solutions developed are summarised below.

DOT.CBM - Development Optimization Toolkit for CBM
A Software shortlisted for APICTA Award nomination
A multi-disciplinary reservoir characterisation, static and dynamic modelling tool designed to support field development planning efforts for Coalbed Methane resources.

The software provides a structured environment for data analysis, property modelling and forecasting of production under uncertainty. Pre-programmed and user-defined workflows allow for an auditable relationship between reservoir property ranges, spatial trends and type curve outcomes.

All features are wrapped in a user-friendly interface allowing for easy navigation through all modules, easy export of outputs, integration with other applications and advanced 2D and 3D graphics.

DOT.CBM has been utilised on projects for several major oil and gas companies in Australia and Asia. Internal evaluation is being undertaken by more companies as they strive to both enhance and streamline work flows and decision analysis.

DOT.CBM 2D Finite-Element Simulator
The latest enhancement in the suite of DOT.CBM modules is the 2D Finite Element Simulator.

Features include:
- Iterative and time auto-adaptive solver
- Robust numerical schemes
- Multi-layer engine
- Integrated meshing solution for both structured and unstructured grids
- Integrated interpolation solution to convert properties between different grids
- Vertical and horizontal wells support
- Tilted-systems support
- Faults support
- Pressure and saturation transients
- Wells management (time changing constraints and BHP)

CFO - Constrained Forecast Optimization
CFO allows the generation of the best field production strategies under constraints. The optimisation procedure allows the generation of capacity forecast upsides as an objective function and to date has established application in type curve based forecasts. Multiple facility arrangements can be generated to perform powerful well production scheduling.

DynHM - Assisted History Match
Assisted history-matching tool coupled with a third-party client proprietary numerical simulation software. Using advanced global and local optimization search algorithms and multiple objective functions, it manages the parameter search and continuously high-grade the history match results. The tool is equipped with innovative solution space search visualization, and automated sensitivity analysis.

POSEIDON – Mature Oil Field Waterflood Optimisation
POSEIDON provides practical solutions to complex, high-well count problems that are not adequately addressed in conventionally static-dynamic modelling workflows.

POSEIDON represents a fully embedded workflow within a proven software solution using an innovative blend of classical reservoir engineering techniques and advanced optimisation algorithms.

Features include:
- Production Allocation - Innovative multi-phase, pressure compliant allocation tool. Integrates static and dynamic property model and workover/intervention history.
- Well & Reservoir Connectivity - Quantifies the degree of interaction between wells to optimise alternative waterflood patterns
- Integrated Reservoir Performance Screening - Deploying a systematic screening process, rapidly assesses the opportunities and locations over a large field
- Remaining Oil Mapping - Assesses areas of unswept oil, in sufficient detail to plan new wells
- Development Planning And Forecasting - Ensure activities are prioritised consistently and according to historical performance. Applying adequate risk.

POSEIDON functionality is successfully applied for a few oil field studies to improve the production allocation and reservoir heterogeneity understanding. Some of the POSEIDON functionality was initially built as customized product for a major client.

SVC - Stochastic Volume Calculation
The deterministic approach is used in SVC to generate volume assessments based on the low, mid and high range values for GRV and petrophysical uncertainties. The user defines the dependencies and correlation between uncertainties along with the various segments and reservoirs. A Tornado Chart is then generated from the grouped dependency outputs. Finally from the top selected uncertainties from the Tornado chart, the HClIP multipliers are extracted, which along with the probability of occurrences of high, mid and low probabilities are used in the calculation of HClIP versus cumulative probability curve. One of the important highlights of the SVC deterministic module is that users also have an ability to perform volumetric assessment based on the grouped values or the container (for each segment and reservoir combination) values.

Important enhancements in development are:
- Pre-processing of log data to generate suitable ranges for input into the volumetric
- Curve fitting
- Enhancement of probabilistic calculations

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