



**A unique team
at your service**

Coalbed Methane and Coal Seam Gas Services

The comprehensive one-stop-shop for all CBM Appraisal, Development and Production Consulting Services, from Subsurface to Surface, Evaluations to Assurance, Process to Management Advisory.

LEAP Energy is a leading provider of coalbed methane (CBM) geosciences and engineering services, acquired through experience in worldwide coal basins.

Our consultants have demonstrated technical and project management expertise acquired through engagements in multiple coal basins, assisting clients at different stages of the life of CBM assets, from exploration to exploitation.

We have authored and consolidated efficient workflows to assist fast-turnaround evaluation of CBM assets, and ensures the deployment of best practices on all our projects.

With operating offices in Kuala Lumpur and Brisbane, representative offices in Oman, India and Indonesia, LEAP Energy is an international oil and gas consulting and technology delivery group.

We have provided consulting services to both IOCs and NOCs

Our expertise covers the areas of Due Diligence and asset reviews, Exploration and Appraisal support, Field Development Planning, technology trialing and selection, CBM Drilling and Completions, Stimulation, Surface Facilities and Pipeline Engineering, Economics and Commercial Evaluations.

Wherever your asset is within the E&P lifecycle, from exploration to exploitation, we can help you with the challenges you are facing

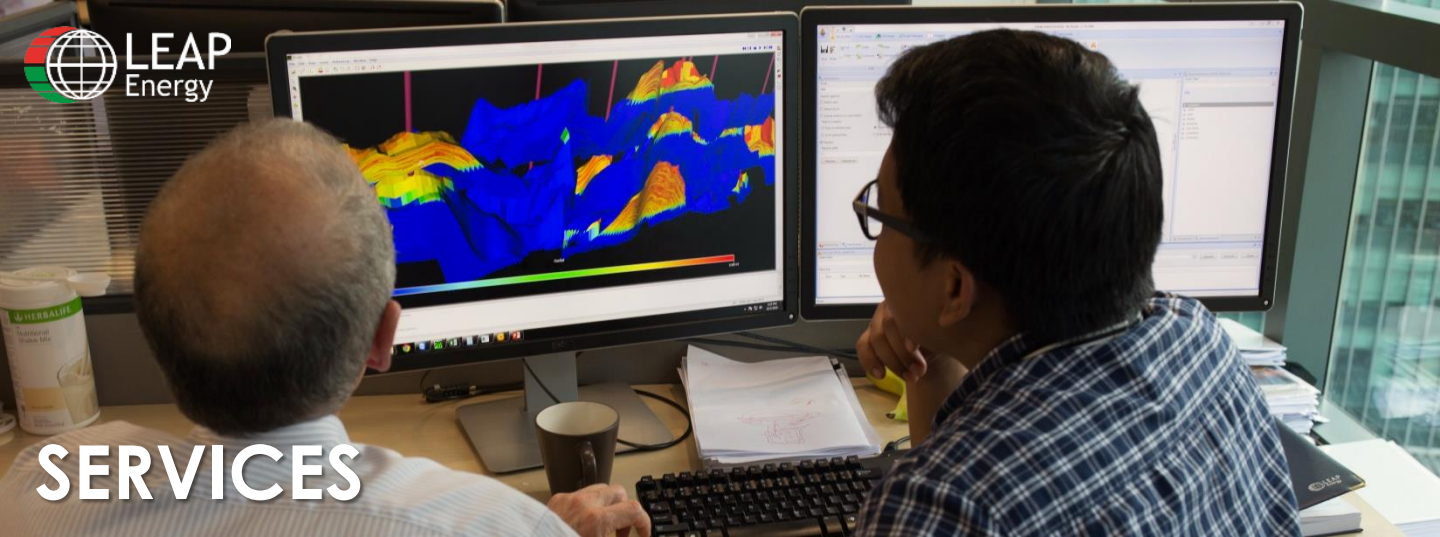
We also conduct technical courses and seminars on coalbed methane to support the capability development of our clients.

In addition, we have developed our own technology (DOT.CBM): a unique proprietary field development optimisation software, which combines powerful data analysis, production history-matching and forecasting and economic screening.

By working with us, you will benefit from access to the best practices and latest technologies relevant to CBM exploration, development and exploitation challenges.

Our consultants work closely with you to ensure that project results are consistent with your business plan and strategy. To do this, our team of skilled geoscientists, engineers, project managers and others focuses on technical, technological and project management solutions to meet your needs. We will deliver quality and timely results and help your organisation achieve its goals.

**Experience.
Expertise.
Technology.**



SERVICES

CONSULTING

EXPLORATION AND APPRAISAL

- Exploration and Prospectivity Analysis
- Appraisal Design and Planning
- Pilot spacing studies
- Data acquisition design
- Technology trialling and evaluation

RESERVOIR STUDIES

- Advanced static and dynamic modelling
- Area and Field Development Planning
- Well spacing studies
- Full Field Modeling and Reviews

PRODUCTION OPTIMISATION

- Well and Reservoir management studies and reviews
- Production technology services
- Flow assurance modelling and reviews

SUBSURFACE SPECIAL STUDIES

- Fracture modelling studies
- Advanced Geophysics and Quantitative Interpretation

TECHNO-COMMERCIAL CONSULTING

- Asset acquisition and divestment support and coordination
- Reserves Auditing and Certification Support

WELL AND COMPLETION ENGINEERING

- Drilling and Completion Design
- Workover Design
- Well management and planning
- Well scheduling optimisation
- Assurance reviews
- Cost Analysis

FACILITIES ENGINEERING

- Surface facilities front end design
- Pipeline front end engineering
- Cost and Schedule preparation and analysis
- Assurance reviews

CORPORATE AND MANAGEMENT

- CBM Management Advisory
- Project Assurance Reviews
- Contract Auditing
- Technology Advisory
- Process and Workflow design and implementation

MANPOWER

SUBSURFACE

- Exploration Geologists
- Reservoir Engineers
- Geomodellers
- Seismic Interpreters
- Petrophysicists

SURFACE FACILITIES AND INFRASTRUCTURE

- Surface Facility Engineers
- Process Engineers
- Pipeline Engineers

WELLS

- Drilling Engineers
- Completion Engineers
- Fracture Stimulation Engineers
- Production Technologists

PRODUCTION

- Production Engineers
- Petroleum Engineering
- Artificial Lift Specialists

OPERATIONS

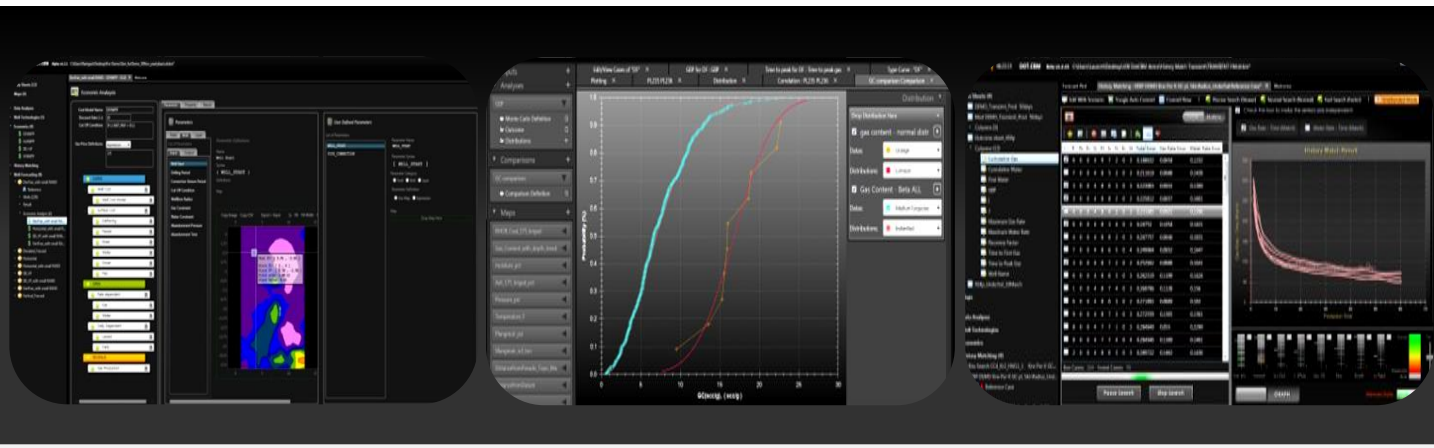
- Drilling and Completions Engineers
- Mud Engineers
- Operations Geologists
- Wellsite Geologists
- Operations Engineers

SOFTWARE

- Unconventional resources modelling and forecasting (DOT.CBM)
- Production Optimisation – CFO (Constrained Forecast Optimisation)
- Multi-rig well scheduling Optimisation
- Customised applications for Clients

TRAINING

- CBM Development Planning
- Uncertainty Management
- Advanced Reservoir Modelling
- CBM to LNG



PRODUCTION FORECASTING

- Generate rapid full-field, static model based forecasts
- Advanced material balance production forecasting, multi-well and multi-layer
- Fast numerical scheme for transient production behaviour
- Perform uncertainty and variability assessments
- Forecast alternative well & completion concepts, with a comprehensive constraints handling capability

FIELD DEVELOPMENT PLANNING OPTIMISATION

- Forecast alternative drilling schedule, well technology and spacing concepts
- Automated type curve generation
- Identify optimum drilling and completion concepts
- Optimise field production through constraints
- Support decision under uncertainty

ECONOMIC EVALUATION

- Perform field and sector economic evaluation using a variety of pre-defined and user-defined indicators
- Detailed and scalable complexity of cost templates.
- Development concept ranking for Field Development Planning decisions

WELL TECHNOLOGY SELECTION

- Rapidly create well plans using an automated well trajectory building tool
- Automated Computation of well technology costs across the field

DATA ANALYSIS

- Develop property models using powerful data fitting functionalities
- Perform advanced statistical data analysis, correlations and analogue benchmarking
- Generate stochastic simulation for probabilistic volume assessment

REPORTING

- Easy export of data, text, figures, tables and maps in most recognized formats
- Drag'n'drop functionality for copying data and graphics to MS Office applications
- Generate cross plot from multiple source of data

MAPPING and VISUALISATION

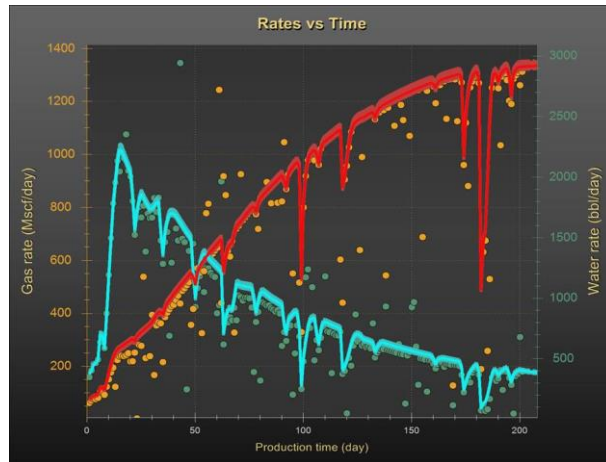
- Visualise, edit and generate maps of reservoir properties
- Perform upscaling and downscaling
- Automated visualisation of reservoir simulation outcomes for high-grading analysis
- GIS functionality and map overlay capability

PRODUCTION HISTORY MATCHING

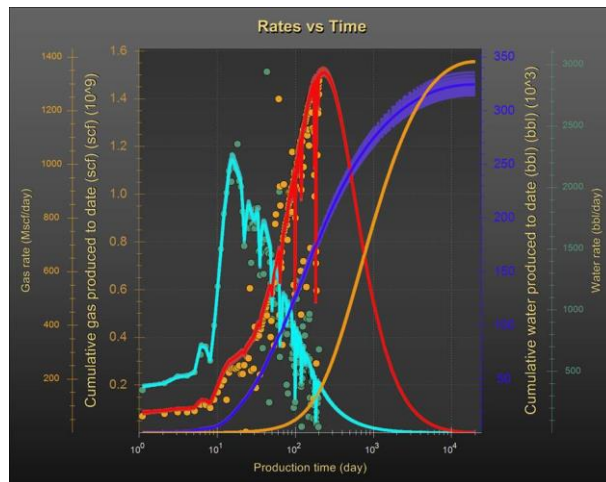
- Match pilot well production with multiple solutions
- Generate matching parameter ranges for reservoir characterisation input
- Finite-Elements numerical and Material-balance
- Multiple global search algorithm including evolutionary stochastic methods

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

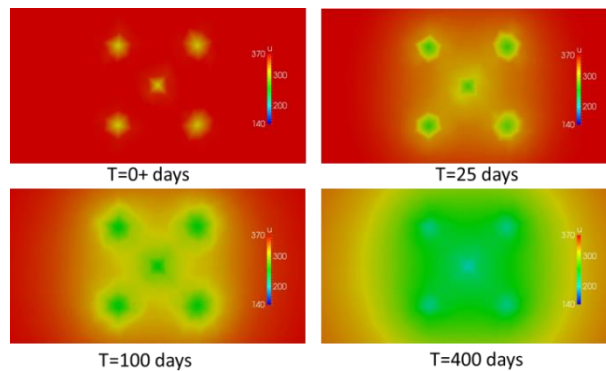
History Matching



History Match + Forecasting



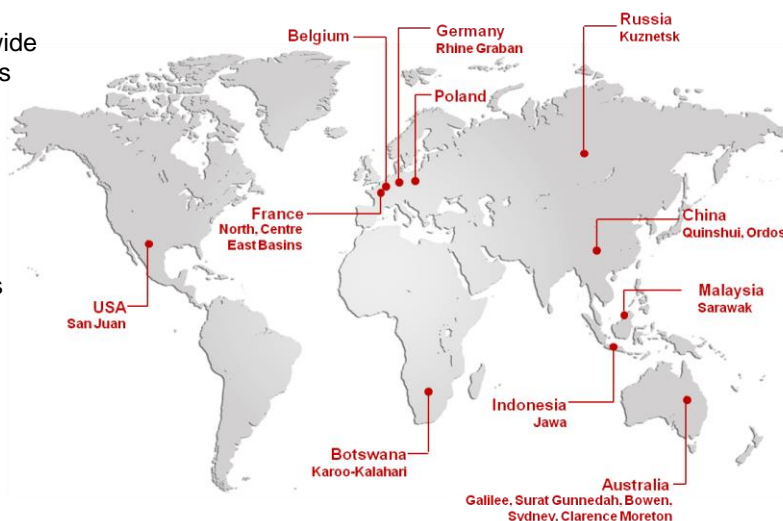
Well Spacing Optimisation Using PTA



Progressive Solutions

LEAP Energy consults and provides services to a wide range of IOCs and NOCs involved in CBM. Projects undertaken include:

- Reservoir characterisation
- Seismic interpretation
- Geological modelling
- Reservoir modelling
- Preparation of multiple Field Development Plans
- Pipeline gathering system reviews
- Cost analysis and benchmarking for wells and surface facilities



Demand is increasing for our specialist capability in CBM well and field history-matching as well as development planning optimisation. Our growing client base includes:

- Santos - GLNG
- Origin - APLNG
- QCLNG
- Arrow Energy
- Essar Oil India
- PETRONAS Australia Pty Ltd
- KOGAS
- Senex
- Westside
- Nu Energy Indonesia
- Vico

Publications

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

Dr. Dmitry Kuzmichev, Head of Technology, "Integrated static-dynamic modelling workflow for unconventional fields (CBM)" and "Space of solutions prediction for assisted history matching of gas fields" SPE ATW "Reservoir Modeling & Simulation - Challenges and Latest Development" 27-30 October 2013, Ho Chi Minh City, Vietnam

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