

# EoS Modeling Services

 Oil and Gas Projects using Calsep's EoS Modeling Services and Expertise.



## Unconventionals

Building basin-wide EoS models for more than 30 fluids with gas injection data in Eagle ford and Permian basin.

**Calsep Houston**

## Gas Injection

Robust EoS models using EOR PVT data to capture the phase behavior for enhanced oil recovery projects.

## Asphaltene & Wax

EoS modeling to describe the flow assurance issues arising from asphaltene and wax formation often combined with field-wide EoS modeling and oil-based mud contaminated fluids.

**Calsep Copenhagen**

**Calsep Dubai**

**Calsep Kuala Lumpur**

## Field-Wide EoS Modeling

Fluid sampling data analysis, Quality Check, Clean for Oil-based mud, and EoS modeling for multiple Greenfield and Brownfield projects. Detailed documentation and training provided.

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# 35+ Years of Experience in PVT Modeling

**Calsep's team of consultants covers both routine and specialized PVT projects for example fluid communication, shale plays, asphaltenes, CO<sub>2</sub>-rich systems, wax deposition, and modeling of water and hydrate inhibitors.**

## Unconventionals

In a shale play, PVT data is typically only measured for selected wells, leaving most wells without measured PVT data. Calsep is experienced in building a single, consistent common EoS model for all wells in a play, which can be applied field wide. The experience covers fields with high GOR variation and more than 20 fluid samples ranging from lean gases, to condensates and volatile and black oil.

## Field-Wide EoS Modeling

Field-wide models are advantageous for handling multiple fluids in reservoir zones in communication and/or handling fluids from different reservoirs with similar characteristics. With a field-wide EoS model, multiple fluid samples will have a common component list and a common set of EoS model parameters, which is useful in compositional reservoir simulation studies and in process simulations, where multiple feed streams are mixed.

## What You Can Expect in a Project With Calsep

That you engage with a team of PVT consultants with a wide variety of industry experience including reservoir engineering, PVT laboratories and research in fluid phase behavior. Calsep's consultants are responsive and professional and will meet agreed deadlines. You will get reliable results provided in a detailed report. In the final stage of the project, a knowledge transfer session is conducted. We do our best to ensure transparency and traceability in our work so our clients can feel confident in project results.



**Recent Calsep Projects**

<https://calsep.com/consulting/calsep-projects/>



## Gas Injection

EoS models for reservoir fluids undergoing gas injection for EOR purposes must respond correctly to multiple contacts with injection gas. It is of particular importance that the EoS model provides a correct representation of the amount of gas required to shift the reservoir fluid to a critical composition. Calsep's PVT consultants can develop EoS models that accurately match routine PVT data as well as gas injection data. This includes swelling data with a critical composition and MMP's determined from Slim Tube data.

## Asphaltenes & Wax

Using well-established screening methods Calsep may carry out asphaltene risk analyses in the early stages of field development. Calsep can plan an efficient experimental PVT campaign that will provide data to develop an Asphaltene EoS model, which can be used to simulate asphaltene precipitation in the reservoir, well, pipeline and process equipment. Calsep undertakes wax deposition simulations for wells and pipelines. The simulations are carried out using the fully compositional wax deposition flow simulator, DepoWax. The simulation results give the client valuable information about development with time in pressure drop, temperature profile, and position and thickness of deposited wax.