

## AVAILABLE REPORTS

→ IRAN

### OIL AND GAS PERSPECTIVES IN IRAN ZAGROS AND PERSIAN GULF AREAS

Sooner or later, after some twenty years of isolation, Iran is bound to experience a new petroleum boom. To-date, exploration remains at the level left by western consortia in the late seventies. Outside of the hypergiant gas fields, many of which remaining to be found, and the large oil fields already under reactivation, which will both require huge investments, a wide range of possibilities remains for mid-size companies and independents and may lead to the discoveries of giant fields.

The most promising of these resides in the revamping of deep exploration that was initiated by the Consortium in the late 70's and resulted in some fifteen discoveries, a good half of which being oil fields. The appraisal of these discoveries and the exploration of nearby giant structures will undoubtedly bring about onshore reserves the industry is no longer accustomed to book.

The application of modern geophysical techniques in proven areas, horizontal drilling associated with 3-D seismic on heavy oil discoveries in the Gulf's Burgan sands, the extension of the exploration zone of the mountainous Zagros Area by the use of heliportable rigs, the subtle traps of the Gulf that older seismic data were unable to image but whose presence is proven by wells, are all low-cost exploration opportunities.

They all hinge upon the geological knowledge that was, for the most part, lost with the departure of Western companies in the late seventies.

This report addresses all these questions and opportunities in detail. It is done by a former exploration manager of the Consortium, and includes a risk analysis for each play.

Numerous unpublished and interpreted field data, logs, cross-sections, structural maps, burial history plots, source rock and reservoir characteristics and distribution, and 11 large-scale composite maps are included. The report is available on CD-ROM.

#### **About the author**

During a long career with Elf, the author led the exploration activities of EGOCO in Iran, which resulted in the discoveries of the giant gas and condensate fields of KANGAN and AGHAR. He was then Elf's Deputy District Manager for the Middle-East in the 1970s.

He spent the 1980s in staff positions at Elf headquarters on worldwide activities, creating and managing the department of worldwide strategic studies (DES); he

became coordinator for worldwide programs, studies and asset evaluation, and then counsel to the General Manager for Eastern Countries who reported directly to the President of the group.

He is now an independent consultant and provides studies based on his long experience in asset evaluation and exploration investments.

# **OIL AND GAS PERSPECTIVES IN IRAN** **ZAGROS AND PERSIAN GULF AREAS**

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#### **7.2 Gas Exploration Areas**

For this entire chapter, reference is made to **Enclosure 9**.

##### **7.2.1 Gas of the Main Province (Western Fars, Central Gulf)**

###### **7.2.1.1 Gas in the Western Fars**

A large number of structures remains to be drilled. They can be categorized in three groups:

- The first group, including Kuh-E Hava, corresponds to depths and general conditions identical to that of Kangan (top of the objective around 2000-2500m, elevation around 1000m) and potential reserves of 100'000 MMm<sup>3</sup> or more per prospect.  
Only Hava, Karbasi and Shanul (already discovered) belong to this group.
- A second group is composed of structures of smaller dimensions with a potential between 50'000 and 100'000 MMm<sup>3</sup> and the depth of the top of the objective around 2500-3000m. No structures of this type have yet been drilled but their general shape permits the selection of more than ten of them that have serious chances of success.
- A third group corresponds to large-sized structures such as Bushgan or Sim, but where the top of the objectives will be at more than 3000-3500m, or even 4000m in the case of Bushgan, and will therefore present economic conditions clearly less favorable. Potential reserves can still be important for each structure because of higher pressures, and they can match that of Kangan.

The success rate of these various proposed leads should be high and it can therefore be stated that the Western Fars contains gas reserves that are much greater than the ones already discovered.

The fluid in the first two groups of structures will be gas condensate. However, it is not excluded that, because of depth, structures of the third group contain dry gas, or even gas with inert components and sulfur similar to that of Mand.

###### **7.2.1.2 Gas in the Central Gulf**

Until now, each deep well drilled on a proven structure encountered gas in the Permo-Triassic.

This is the case in Salman, but also in Iropco F-2, Farsi B-1 or Resadah.

Discoveries outside of Salman remain to be appraised. Salman reserves would be of the order of 100'000 to 150'000 MMm<sup>3</sup> of oil and 85 MMbc.

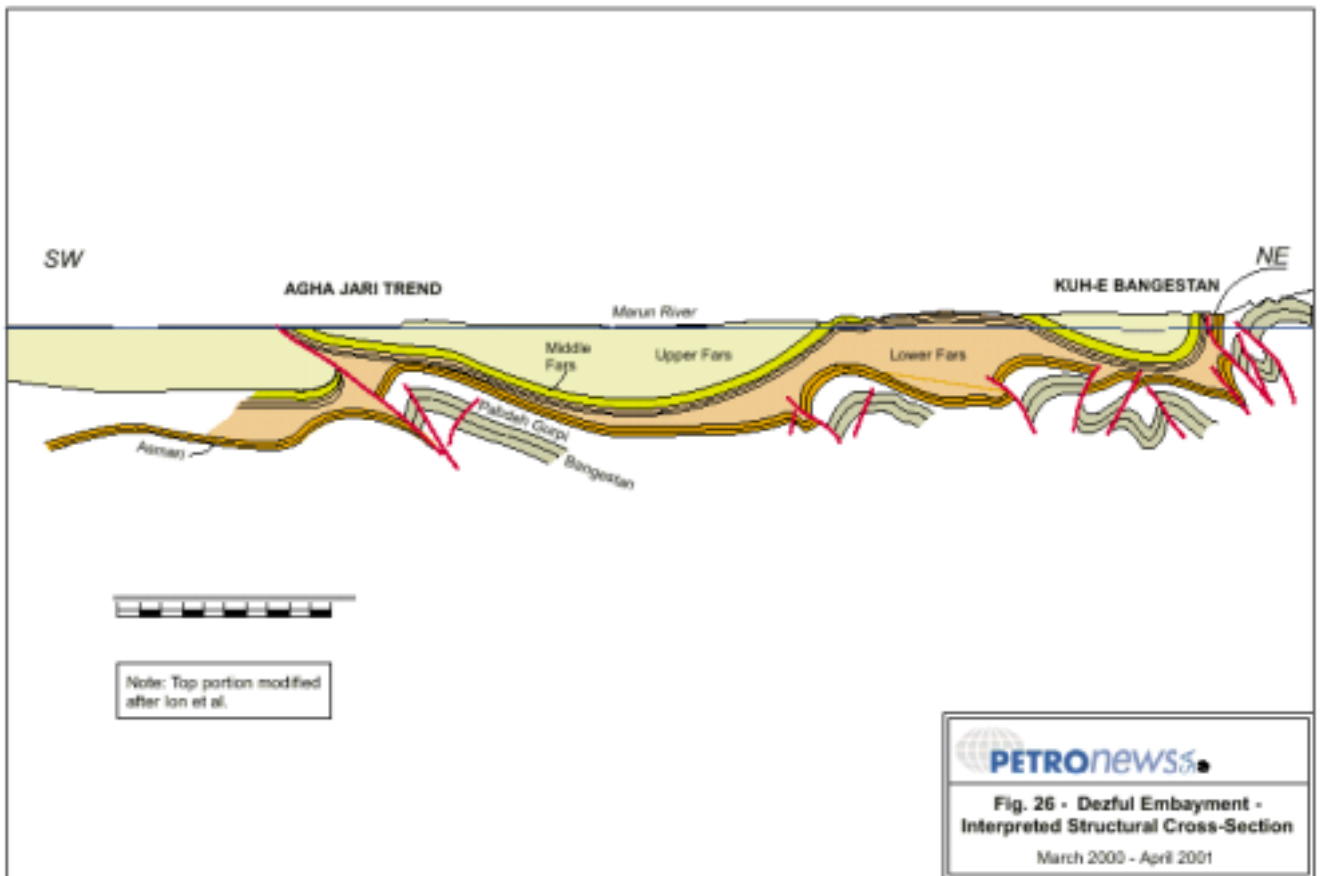
It is not excluded that Farsi B, Iropco F and Farur reach these values in a best-case scenario.

Other smaller-sized structures, such as Dopco G or Iminoco D, will add to this

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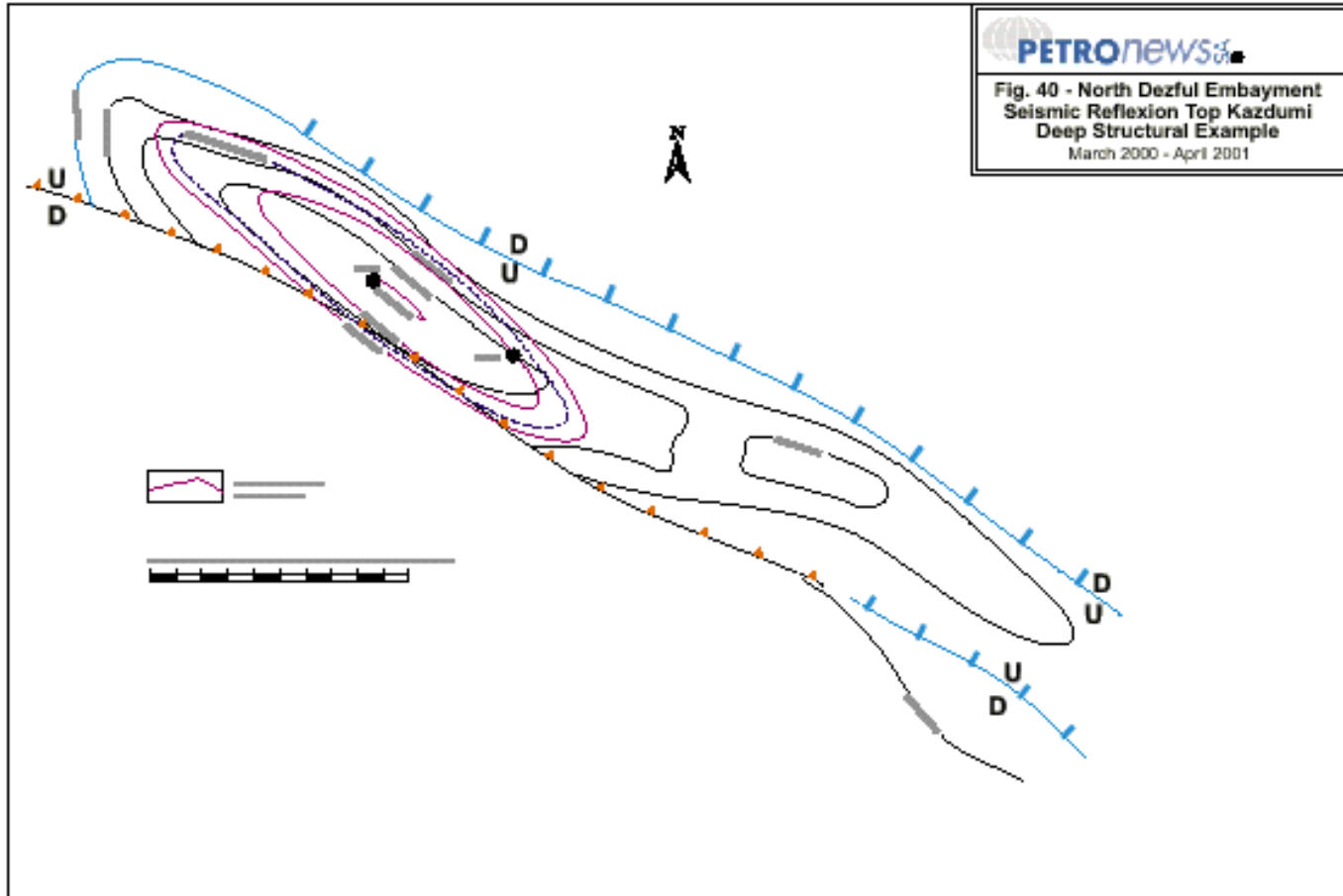
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**Example of Structural Cross-Section**



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**Example of Structural Map**



## OIL AND GAS PERSPECTIVES IN IRAN ZAGROS AND PERSIAN GULF AREAS

### Example of Logs

