



## Oil & Gas Projects Alternative Selection using Analytic Hierarchy Process: a Case Study

Speaker and first author:

**Stefania Benucci** Auriga Consulting, Rome Italy

Co-author:

**Fabrizio Tallone** Saipem, Fano, Italy

During the feasibility phase of Oil & Gas projects, several solutions are developed and, before Board of Directors sanction, the Top Management needs to be informed about the most promising solution which could be selected to achieve the project goals. Considering that not for all the solutions the design can be fully developed, the alternative selection is normally carried out through a qualitative and relatively subjective analysis: typically the criticality ranking after the Hazard Identification (HAZID). To overcome the uncertainties of this analysis a more detailed and objective approach can be used: the Analytic Hierarchy Process (AHP). This paper describes how the best alternative against several offshore/onshore pipeline routes has been selected. The AHP has been applied just after the HAZID session to take advantage of the knowledge of design specialists belonging to different disciplines. This methodology allows to completely compare different solutions and to mathematically select the best project alternative from all the technical points of view, providing clear justifications for this choice. Finally, through a simple "benefits to costs ratios" analysis, also the costs, deliberately set aside until the benefits of the alternatives are assessed, are included in the analysis and the most promising solution can be identified.

**Keywords:** AHP, Decision Making, Safety Management, Pipeline Route Selection, Cost Benefit.

Paper presented at:



**Auriga Consulting spa**  
P. IVA 12122081008  
R.E.A. nr. RM-1351829

[www.aurigaconsulting.it](http://www.aurigaconsulting.it)  
[info@aurigaconsulting.it](mailto:info@aurigaconsulting.it)

**Sede legale**  
Via G.B. De Rossi, 13  
00161 Roma – Italia

**Sede principale**  
Via Einaudi, 104°  
61032 Fano (PU) – Italia  
Ph: +39 0721 808120

**Sede di Roma**  
Viale Luca Gaurico, 9/11  
00143 Roma – Italia  
Ph: +39 06 54832175

**Sede di Milano**  
Via Valsugana, 15  
20139 Milano - Italia  
Ph: +39 02 92276000

**auriga**  
CONSULTING

