

The world demand for energy increases with population growth

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Due to greenhouse effect and new targets in CO₂ emission control to avoid to reach more than 2° of Global T° increase at the end of the century will influence more and more the energy mix. Although non-hydrocarbon and renewable sources of energy are increasing the cost of energy will be the key factor for influencing the increase of gas production instead of classical crude oil for hydrocarbons. Integrated companies are already proposing CO₂ reduction along all the value chain from the well to the end of life of products. In this chain the physic of interfacial phenomenon and rheology are playing a key role at different steps. Petroleum industry engineers in exploration and Production fields are studying how to recover more oil in existing reservoirs with EOR (Enhanced Oil Recovery) techniques , including emulsions, in refining and chemistry they develop processes for producing a lot of semi-finished bases for which viscosity control is determinant, and at the end of the chain finished products industries like plastics, elastomers, lubricants industries are developing new molecules which are considered as “fuel economy” or “CO₂ saving molecules” and lowering the greenhouse impact of man activities. In many aspects the work done by Jean Marie GEORGES was a pioneer work, introducing the fuel economy concept long before it has been adopted by developed countries. This paper summarized major problems encountered in the oil industry and enhance the role of tribology and fundamental work done to understand all interfacial phenomenon and attached physics.