The supply of safe, affordable and transportable energy is one of the fundamental prerequisites for global economic development. For more than a hundred years, hydrocarbon-based fuels—including oil, coal and gas—have made up the bulk of the world’s energy needs and today remain the only viable option for meeting up to 80 percent of the world’s energy demand forecast to 2030. For the exploration and production of oil and gas, this dependence represents two major challenges.

First, it is becoming much harder to ensure future supply. The E&P industry is investing heavily to maximize production from existing reserves, while simultaneously developing new resources in more challenging environments such as the arctic and deep water. It is also increasing exploration and production in unconventional reserves such as shale gas, shale oil and heavy oil.

Second, it has become imperative that we protect and preserve our environment. E&P activities must leave a smaller operational footprint and provide greater assurance against environmental damage, particularly as the industry continues to explore more sensitive ecological environments.

Given this context, the industry is becoming increasingly dependent on technology as an enabler for future supply. Technologies deployed in E&P activities today offer exceptional breadth and depth compared with the technologies of only a few decades ago. This is exciting from the perspective of young professionals who are joining the E&P industry today, but technology, because of its complexities, can also create barriers to understanding.

In this issue of Oilfield Review, we are launching a series of articles that details the underlying concepts and technologies on which the E&P industry is built. These “Defining …” articles are written to be accessible to a wider audience than the E&P professionals who typically read Oilfield Review.

The first article is “Defining Logging” (see “Discovering the Secrets of the Earth,” page 60). We chose this topic to lead the series because it reflects the origin of Schlumberger in subsurface logging. In the next few issues, we will introduce exploration, drilling, completions and production, before moving into subtopics such as resistivity logging and reservoir modeling.

I hope that you find these articles interesting and that they provide you with a more in-depth knowledge of the technical challenges and technological solutions that encompass the E&P cycle. In addition, it is important that we attract young professionals who are motivated to pursue these challenges for the long term because our industry has a major role to play in the sustainable energy future.

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* GeoMarket is a mark of Schlumberger.