

# Should oil and gas invest in what it knows or what it thinks will be?

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**E**vidence of climate change continues to accumulate and notwithstanding the tension between the rhetoric, the ambition, and the reality of the facts on the ground, we foresee increasing pressure on governments, consumers and the energy industry to decarbonise the production and use of energy. As that pressure mounts, companies need to deal with the uncertainties concerning climate policy and what will constitute good corporate citizenship and good business practice.

EY has looked at energy transition through the lens of asset returns. Firstly, because it's important to companies making decisions today. Investment in an LNG plant or a refinery requires a view on returns dependent upon commodity prices that without a doubt will be impacted by the transition away from fossil fuels. The question is: how much? Secondly, it's our view that the movement of capital, and the speed of energy transition, depends on returns. An oil and gas industry that continues to return value to investors is unlikely to shrink.

There are no small number of uncertainties. We've reduced the variables that will drive oil and gas's role in the energy mix to five:

- Consumer acceptance of Electric Vehicles (EVs) – EVs are increasingly cost and performance competitive, but inertia matters and there is risk that EV market share may grow less quickly than we all expect. If that happens, oil demand may grow for a while.
- Energy efficiency – between 2005 and 2015, the number of vehicles in the world increased by about 4 per cent while the demand for oil increased by about 1.2 per cent. Efficiency was a big part of the difference. That trend will continue, but we don't know the details.
- Relative attractiveness of renewable electricity – eventually, the cost of renewables will stabilise but when and at what level? That will affect the power generation mix and the transition to renewables.
- Future of nuclear and coal – coal has been the fuel of choice to meet growing power demand in developing countries. If the world stands any chance of meeting its climate change goals, this cannot continue. Nuclear is a low-carbon alternative, but the cost of making it safe and palatable to the public appears to be prohibitive.
- Concentration of economic growth – petrochemical, industrial and aviation oil and gas demand are far more sensitive to economic growth in developing countries than in developed countries.

We've combined these variables into four scenarios that encapsulate how we think the energy transition might unfold.

Two of them (The Long Goodbye and Meet Me In Paris) are movement to an electric, renewable future at different speeds. The other two (Slow Peak and Critical Gas) recognise that there are risks specific to oil and gas and that those fuels might take different paths.

## Returns on oil and gas assets

As we said, the focal point of developing the scenarios is returns on assets. The oil and gas business means many things, starting with the oilfield moving down the pipelines to the refineries, LNG plants and petrochemical plants. We've gathered the data on the cost of building and operating those assets, modeled the sensitivity of commodity markets to demand shifts and calculated the cash flows under each of our scenarios.

The key takeaway is that returns are, for the most part, appropriate in the context of the cost of capital deployed in every scenario. The intuition around this is two-fold. First, for most asset classes most of the impact on demand is currently projected to occur at a time when the effects of discounting overwhelm the price impact. Second, under any demand scenario, the industry will have to attract capital and offer competitive returns.

## The no-regrets strategy

Today's oil companies have choices to make. They allocate capital; they recruit, train and organise staff; they deploy technology to respond to customer needs; and they operate their businesses as efficiently as possible. Let's assume oil and gas demand and returns follow the paths that we've laid out.

In every scenario the 'winners' will be those which achieve excellence in executing their portfolio and operating strategies. So, what are the elements of winning execution? We see these as:

- Recognising the impact of these changes early and setting in place business and workforce initiatives – as mapped out below – will provide a competitive advantage.
- Maintaining a license to operate. Health & Safety excellence remains critical here but so does engaging with the wider stakeholder community including investors, whose objectives are changing/evolving.
- Recognising the early signals that will tell us if and when returns will be at their highest, and putting together financing structures to reduce capital cost and calibrate risk.
- High grading portfolios. Taking a hard look at how much things cost and how quickly they pay back. Our intuition is that the trend of dedicating more capital to projects with more rapid (but possibly smaller) returns will continue.



The Four Scenarios				
	Slow Peak	The Long Goodbye	Critical Gas	Meet Me in Paris
Consumer acceptance of EVs	↑	↑↑	↑↑	↑↑↑↑
Efficiency	↑	↑↑	↑	↑↑↑↑↑
Competition between gas and renewables	↑↑	↑↑	↑	↑↑↑↑↑
The future of Nuclear/Coal	→	↑	↓	Nuclear ↑ Coal ↓
Concentration of economic growth	Developing countries	Neutral	Neutral	Developed countries

**Slow Peak. Business as usual:** transportation demand in developing countries surges and defaults to the incumbent technology (ICE), while consumer perceptions about performance slows EV adoption. Growing economies in developing countries drive demand for petrochemicals, energy intense industrial usage and aviation. Peak oil eventually happens, but not soon.

**The Long Goodbye. A renewable (r) evolution:** EVs, distributed generation, renewable generation and battery storage take a place in the market suggested by falling costs. Oil demand peaks, but stock effects, consumer inertia and continued growth in segments other than road transportation (aviation, petrochemicals) keep oil from falling off a cliff.

**Critical Gas. Petroleum lives on, but it's gas and oil now:** oil demand peaks and tails off quickly as consumers migrate from gasoline-powered cars to EVs. Power demand surges as EV charging takes off and developing economies electrify. Carbon-free technologies progress as expected, but capital markets fail to respond. Regulators don't allow coal and nuclear to grow, leaving the market open for natural gas-fired generation.

**Meet Me In Paris. The future is now:** technology improves rapidly. Alternative energy becomes cheap enough quickly enough to displace existing infrastructure. Climate change becomes a top priority for governments across the world. Carbon trading with caps and bans on internal combustion engines consistent with the goals of the Paris Accord are agreed to internationally and implemented quickly. Consumers lead the way with environmental awareness driving dramatic lifestyle changes.

- Optimising cost and capital efficiency. Companies have always wanted to be on the low side of the cost curve and tapering demand highlights that imperative. Heavy investment in digital technologies is a "no regret" move and winners will make the required investment to achieve improved efficiency and effectiveness.
  - Optimising the profit from the molecules that move through the value chain. This will require a strong competency in trading, since no one has access to the best feedstock and product mix all the time. Effective and properly risk-managed trading requires investment in market intelligence gathering, process design and enabling systems.
  - Recruiting, retaining and motivating a workforce with the appropriate core competencies during structural change.
  - Making innovation work in a corporate environment. The footprint of the energy industry will change, and those changes will present opportunities for oil and gas companies to move their portfolio into new areas. Even so, returns will continue to be available in the traditional oil and gas business and a continued focus on operational excellence can deliver a 'no regret' response no matter what future unfolds. Oil and gas companies can continue to invest in what they know, instead of what they think might be. ●
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