

VERMONT SUMMER PROGRAM
4TH TERM 2018
1:00 to 4:00--afternoon session
July 23-August 4

**OIL AND GAS:
PRODUCTION, PIPELINES AND THE ENVIRONMENT**

by
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DAY 1:

Come to class with the following information, legibly written on an index card or piece of paper:

- *Your name, including any nickname you prefer to go by. Give first and last name only.*
- *Your home state or country*
- *Your home law school*
- *Your career goal, if known already.*
- *Your undergraduate university and your degree(s) with your major field of study.*
- *Any work or practice experience that you have had to date, in any field.*
- *Any special goal that you have for this course or reason for taking it.*

Topic 1: The Future of the Energy Industry in an Era of Globalization and Climate Change.

Read in advance: Visit this website link and read the Highlights of Exxon-Mobil's 2017 Energy Outlook to 2040. This takes only a few minutes to review at: <http://corporate.exxonmobil.com/en/energy/energy-outlook/highlights/>. These Highlights are directed at a public audience that is interested in very short presentations with colorful infographics. Then go to this BP link and listen to a 6.19-minute video from BP about its Energy Outlook through 2035: <http://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html>. Listen carefully (indeed, take notes!) to these projections. Be prepared to *discuss in class* the major trends projected in energy supply and demand by these two Western super-majors:

- What fuels are growing the fastest? Oil? Renewables?
- Where is most of the future energy demand arising?
- What transportation sector is driving the demand for gasoline and diesel?
- Will gasoline demand peak? Why or why not?

- How do these company outlooks address the issue of global climate change?
- Key number: Today, the world is about 80% dependent on fossil fuels (oil, gas and coal) for its energy needs. What is the forecasted percentage in 2040?

The full ExxonMobil Energy Outlook to 2040 is 51 pages long, including many photos and is available for your *optional* viewing at: http://cdn.exxonmobil.com/~media/global/files/outlook-for-energy/2017/2017_outlook_for_energy.pdf. A set of key statements and graphics used in this Outlook is posted as **TWEN Item 1-1** (and is also available at: <http://corporate.exxonmobil.com/en/energy/energy-outlook/charts-2017>). Look at the graphics posted here for projections of items like: the growth in the global middle class; the demand for air conditioning; and the countries/regions that will continue to burn coal through 2040. (What country will lead the way?) Most major oil companies have extensive website information. BP is famous for its Statistical Review of Energy, available at www.bp.com, under the link to “energy economics.” BP’s most famous statistical chart shows oil prices since 1861 and aptly depicts the many tumultuous events in petroleum geopolitics in addition to the workings of market forces.

TWEN Item 1-2: Shell Energy Scenarios to 2050: Scramble v. Blueprints (selected pages). Shell's energy scenarios are purposefully quite different from the typical energy outlooks written by other oil companies or by government agencies (such as the International Energy Agency or the US Energy Information Administration). Rather, the scenarios tell stories, presented as narratives, about possible future paths, based on input from many political schools of thought and from experts in the social sciences, world religions, climate change, and socio-economic trends around the globe (such as rising inequality). This Item 1-2 compares the Scramble path scenario with the Blueprint path. **Read only these pages of the report (citations are to page numbers at the bottom of the report): Foreword on p. 4; Introduction pp. 6-8; pp. 13-15; 20-22; and 25-37.** This Shell report was written in 2008-2009, before the global financial crisis was in full effect. Oil prices were soaring and it seemed that the world would be short of oil forever. Shell’s previous scenario had focused on the effect of 9/11 (the World Trade Center bombing) and the corporate financial scandals of Enron and other large corporations that had seriously tarnished the image of capitalism and free markets. This earlier scenario portrayed three global paths: (1) “Flags” (rising nationalism, closing borders to free flows of labor, capital and technology); (2) “Open Doors” (the opposite of Flags--an embrace of globalization and markets as bringing economic development); and (3) “Low-Trust Globalization” (globalization is inevitable, but is not trusted). The “Scramble” path in the Scenario you are reading represents a Flags approach to solving global energy issues, and the Blueprints path takes a collaborative “Open Doors” approach to such issues, especially climate change. Several organizations do scenario planning. The U.S. National Intelligence Council released its Global Trends through 2035 (NIC 2017-001) in January 2017 and it does not paint a pretty picture in any of its three scenarios.

TWEN Item 2: ExxonMobil: Energy and Carbon: Managing the Risks pp. 1-22 and page 30 (chart of greenhouse gas (“GHG”) emissions for types of crude), also available

on the XOM website. This Report, released on March 31, 2014, was written in response to shareholders' requests. It is easily skimmed.

TWEN Item 3: ExxonMobil: 2016 Energy & Carbon Summary, pp 1-2 only. This short document explains that XOM's Energy Outlook forms the foundation of its business decisions and is consistent with the aggregated COP21 Paris climate agreement commitments. Read pages 1-2 (using the document's pagination) as an update to TWEN Item 2 and writing Memo 1.

MEMO 1: Why does XOM think that its reserves will not be stranded in the ground because of climate change policies? *Hand in Memo 1 in class is your answer to this question.**

Optional: A critical assessment by Carbon Tracker of ExxonMobil's "Managing the Risk" appears at <http://www.carbontracker.org/in-the-media/exxon-is-business-as-normal-the-right-strategy/>, titled "Response to Exxon: An Analytical Perspective (2014)." The authors think XOM is discounting the risks with an over-optimistic view of the future role of hydrocarbons.

I will show a Powerpoint that covers the broader geopolitical issues and trends in energy (including coal and renewables) that affect world energy markets today, using material from these three sources and others. We will then discuss in class:

- What implications do the ExxonMobil and Shell future outlooks have for U.S. national energy policy, in your opinion? Do you strongly disagree with any of these projections? Why? What would alter the long-term trends?
- Do you think the forecast by ExxonMobil is BAU (Business as Usual) --an evolutionary change over the next 20+ years, or a revolutionary change?
- What geopolitical events have transpired in the past year or so that you would characterize as Scramble versus Blueprint? Even during the next days in class, tucked away in this peaceful corner of Vermont, there will probably be events that signal one path or the other and that will affect you through the globalization of energy supply and demand.

Day 1: (continued)

In the Coursepack: EEE4: "Oil and Gas Chapter 4."

- **Pp. 132-151 (20 pp)** covering terminology, the oil and gas business, early history; and the oil and gas lease.
- Time permitting, we will answer the questions on page 151 (but no Memo required). Who knows what a DUC is?
- **TWEN Item 4A** is a typical oil and gas lease used for decades in the United States. Most case law precedent involving disputes between Lessees and Lessors derived from an oil and gas lease like this one. More recent leases used in shale plays often have different language for certain provisions, but the basic property right remains the same. For example, often several months pass between the time a well is drilled and the time it is completed (fractured). What if the primary term

of a lease ends after the well is drilled, but not completed: What will happen to the lease, absent a modification?

- **TWEN Item 4B:** The federal OCS lease is even shorter, but it is also a fee simple determinable. Find the provisions that make it so. **TWEN Item 4B** is the OCS lease at issue in a case we read later; **TWEN Item 4C** is the newer BOEM lease, but it is still short (a mere 3 ½ pages long) and has the same granting clause and fee simple determinable structure.

A good glossary of terms used in the oil and gas sector is available at: <http://www.eia.gov/tools/glossary/>. Look up terms that you do not understand as you do the reading. And, be sure to ask in class if I use a term that you do not understand.