Understanding the Alaska System

Fiscal Systems Seminar

August 28, 2023

AM session

https://youtu.be/E1kgchyM4_Y

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be in the know

IN3NERGY EXPERIENCE

- 5 decades of domestic and international energy experience from 3 critical perspectives
  - Petroleum Production Company
  - Government
  - Service Company
- **Fiscal Experience** - Designed or redesigned petroleum fiscal systems for multiple countries, for example:
  - New countries like East Timor with no prior energy production or infrastructure,
  - Rebuilding countries like Iraq with extensive energy assets just emerging from years of war and conflict
  - Sophisticated major producing countries like Saudi Arabia and Kuwait opening to foreign investors
  - Master energy plans and production sharing contract design for Middle East, AsiaPac and Latin American countries
- Have been advising Alaska on petroleum taxation since 2007, but not during passage of SB21

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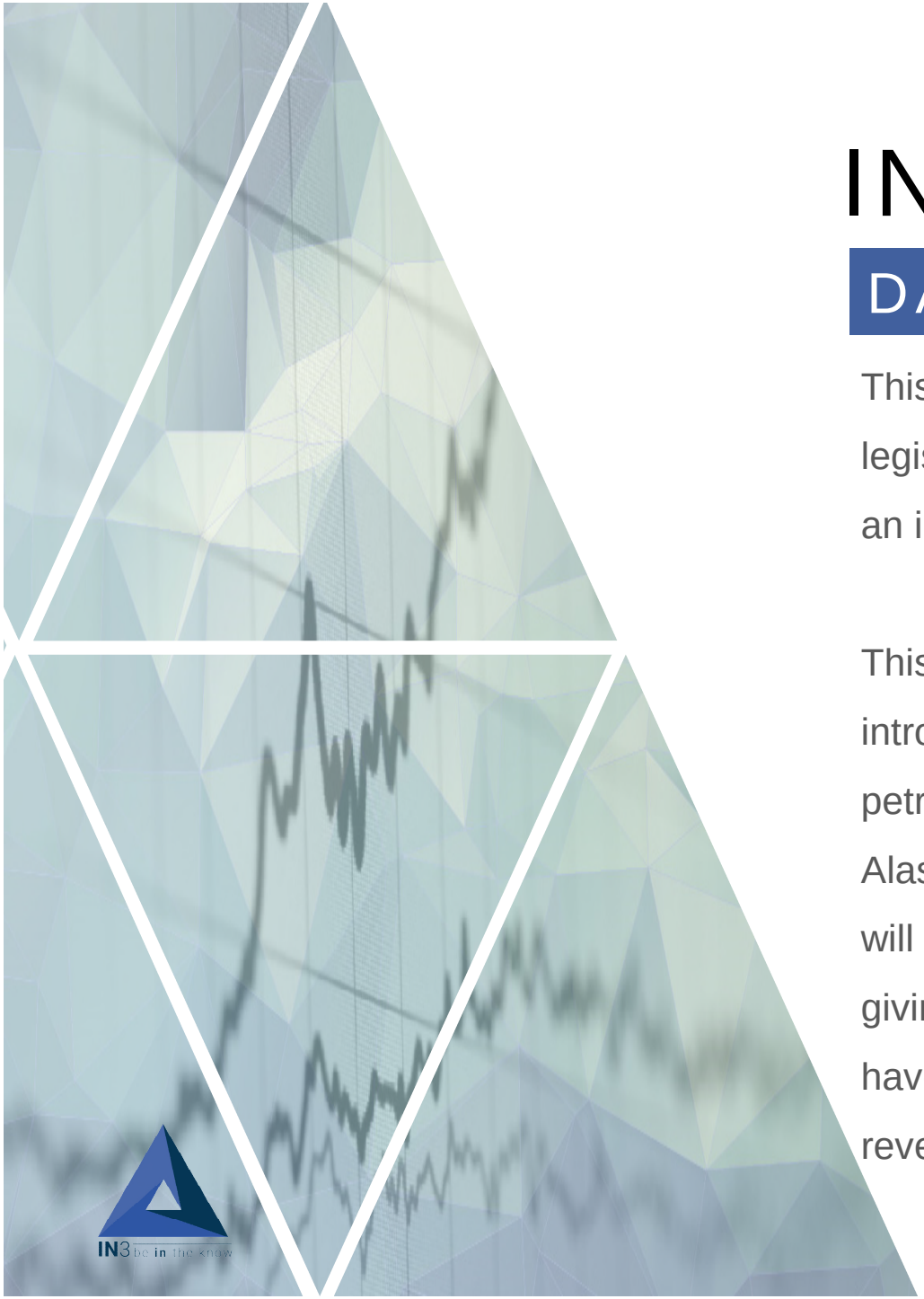

INTRODUCTION

DAY 1 SUMMARY

This two day workshop is intended to give legislators, their staff and other interested parties an insight into petroleum fiscal systems.

This training was designed to give a high-level introduction to the oil and gas industry, petroleum fiscal systems and most specifically Alaska's petroleum taxation. The key concepts will be generally explained with an end goal of giving a preview of the challenges governments have in putting together laws, regulations and revenue sharing for hydrocarbon development.

COURSE AGENDA

Day 1 AM

INDUSTRY BACKGROUND

Nomenclature
Hydrocarbons
Global Market

Day 1 PM

INTRO TO FISCAL SYSTEMS

Fiscal Systems:
Principles
Components

Day 2 AM

FISCAL SYSTEMS DEEP DIVE

Project Economics
Fiscal Systems:
Design
Intro to Alaska Tax

Day 2 PM

ALASKA DEEP DIVE

Alaska Fiscal System
Order of Operations

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Day 1 AM session

EXPECTATIONS FOR THE DAY

DAY 1

- This is a training and information sharing session primarily for the benefit of state legislators and their staff
- Our intent is to provide background and context on petroleum fiscal policy design and Alaska's current fiscal system for oil and gas
- We want you to be prepared and able to make informed decisions and understand the impact of ideological approaches
- Please do not hesitate to ask questions anytime during the presentation
- We are available through the week for individual or small group follow up sessions to answer questions or provide additional detail

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WHAT DO YOU HOPE TO LEARN?

DAY 1

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INTRODUCTION

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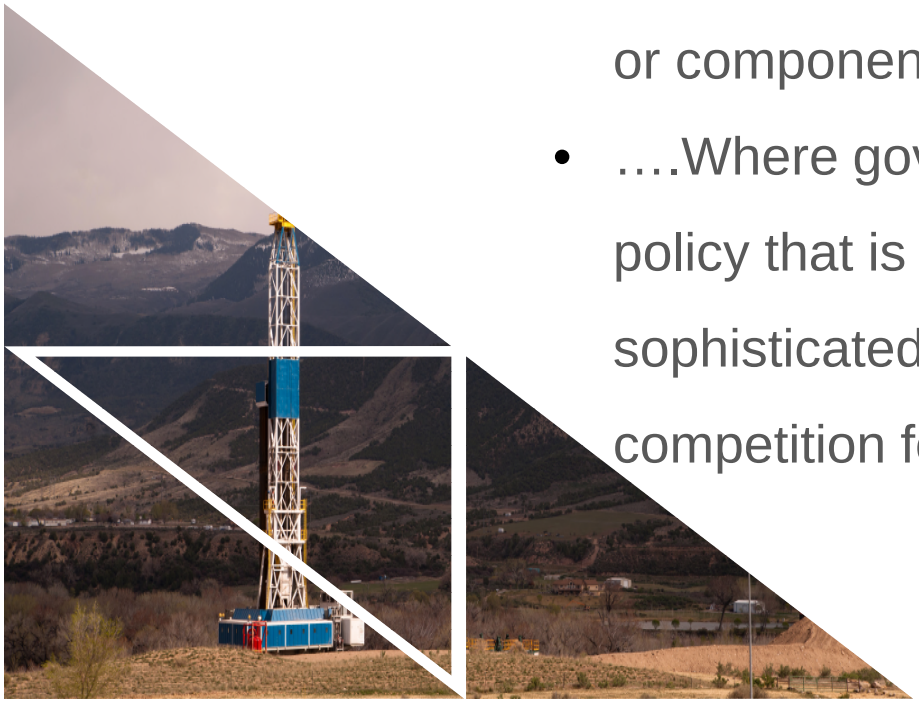
INSIGHT. INQUIRY. INGENUITY.

OIL & GAS INDUSTRY

CHANGE IS THE ONLY CONSTANT

- The Petroleum industry is continually changing, thus it's important to balance preparing for the future while addressing the present….
- … in a global market, where no single region, player, or component is isolated from another, and…
- ….Where governments need to set petroleum fiscal policy that is responsive to a complex and sophisticated business environment in a global competition for oil company investment dollars



WHY DO WE NEED FISCAL SYSTEMS?

FRAMEWORK FOR HOW TO DO BUSINESS

- The stewardship responsibility of **governments** is the 'optimal' development of its mineral resources
  - Multi-generational wealth
  - Growth of industries/economy
  - Quality of life (health, education, safety, environment)

- The goal of most **oil companies** is to make a profit and meet investor expectations (which are not all the same)
  - Shareholders
  - Debt Holders
  - Private Equity
  - Joint Venture Partners

- The challenge is to find overlap between the two sets of goals

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THERE ARE TWO SIDES TO THE EQUATION

KEY TO UNDERSTANDING IMPACT OF FISCAL TERMS

- Oil companies use many different economic criteria for deciding where and when to invest, e.g.
  - IRR *internal rate of return or interest rate on their money*
  - ROI *return on investment*
  - NPV *present value of future cash flows*
  - Payout *time to get investment back*

- Economics are generally supplemented with a risk assessment, e.g. :
  - Reservoir/Drilling
  - Proximity to supplies and markets
  - Fiscal stability
  - Worker skill base

- **Time,** along with product price and costs, has a big impact on economics, risk assessment and decision making

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GOVERNMENT CHALLENGES

ALASKA IS IN GLOBAL COMPETITION FOR INVESTMENT DOLLARS

- The ever-present challenge for governments:
  - How much value can be extracted from the oil companies, sometimes referred to as the “Fair Share” and still keep them investing and bringing on new developments?
  - How do we compare to other places the oil companies can invest?
  - What aspects of a fiscal system should be compared between regimes? Headline tax rate is only a small part

- The State of Alaska is competing with numerous other opportunities in the lower 48 and internationally. What might make sense just looking at Alaska centric evaluations as a ‘fair share’ might not be beneficial to Alaska in competition for capital

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NOMENCLATURE

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INDUSTRY NOMENCLATURE

UNDERSTANDING PETROLEUM INDUSTRY TERMS

- The petroleum industry is full of exclusive terms, with industry specific definitions
  - ***It is easy to come away with an incorrect or incomplete understanding of what was said or intended***

- Some terms used interchangeably related to this training:

GOVERNMENT ENTITY	GOVERNMENT GUIDELINES	GOVERNMENT SHARE OF VALUE*	PRIVATE COMPANY
• Government • State • Sovereign • Regulator	• Fiscal regime • Fiscal policy • Oil and gas taxation • Petroleum Taxation • Fiscal Structure • Fiscal System	• Government take • Government share • State take • State share	• Producer • Oil company • Oil and gas company • Petroleum company • Contractor • Operator • Energy company

**Daniel Johnston has a paper on the many different/inconsistent ways this is calculated*

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INDUSTRY NOMENCLATURE

EASILY ACCESSIBLE RESOURCES FOR UNDERSTANDING

- A good reference for oilfield terms, acronyms and concepts is the Schlumberger Energy Glossary
  - https://glossary.slb.com
  - Started in 1998, over 4,800 terms explained

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RESOURCES vs RESERVES

TERMS ARE NOT INTERCHANGEABLE

- Petroleum **RESOURCES** and petroleum **RESERVES** are often ***incorrectly*** used interchangeably. They have very different meanings

- **RESOURCES** represents the quantity of hydrocarbons that based on available data can reasonably be said to likely exist within a set of geographical boundaries

- **RESERVES** are a subset of **RESOURCES** being the quantity of *discovered* hydrocarbons that are *commercially recoverable* with *proven technology* based on *defined conditions* (i.e. costs and prices)
  - Oil companies are bound by very detailed rules for defining **RESERVES** with those rules mainly being set by various stock exchange regulators such as the SEC in the US
  - **RESERVES** are used to value a company, and as an asset for loans and financing

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OIL & GAS INDUSTRY

GLOBAL FUNDAMENTALS THAT DRIVE FISCAL POLICY

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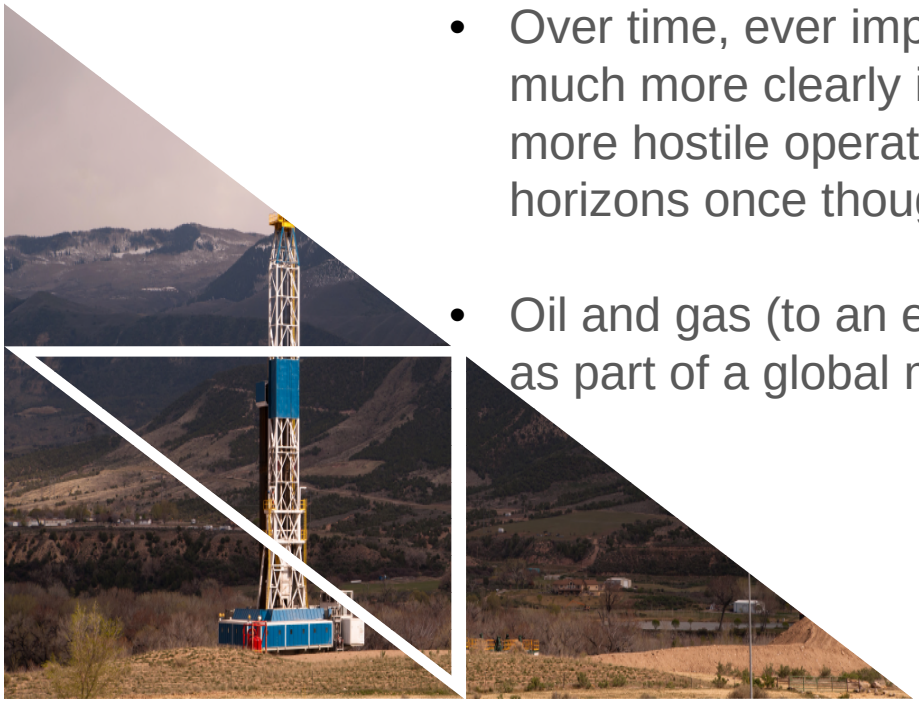
OIL & GAS INDUSTRY

GENERAL CHARACTERISTICS

- For centuries, people have been accessing numerous oil and gas reservoirs around the globe
- The “modern” history of oil and gas development dates back to the mid 1800s (Pennsylvania, Azerbaijan)
- Over time, ever improving technology has allowed us to “see” much more clearly into the ground, drill deeper and longer in more hostile operating environments, and produce from horizons once thought impossible (shale)
- Oil and gas (to an ever increasing extent) are interconnected as part of a global market



HYDROCARBONS

CONVENTIONAL TO UNCONVENTIONAL

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WHAT IS A FOSSIL FUEL OR A HYDROCARBON?

THE FUNDAMENTAL STRUCTURE

- **Hydrocarbon:** an organic compound containing only carbon and hydrogen and includes petroleum, natural gas, coal, and bitumen

- They serve as fuels and lubricants as well as raw materials for the production of many of our everyday items, including plastics (your cell phone and computer, water bottles, baby toys), fibers (your clothes), synthetic rubbers (car parts), solvents, explosives, and industrial chemicals

Source: Merriam-Webster, Britannica

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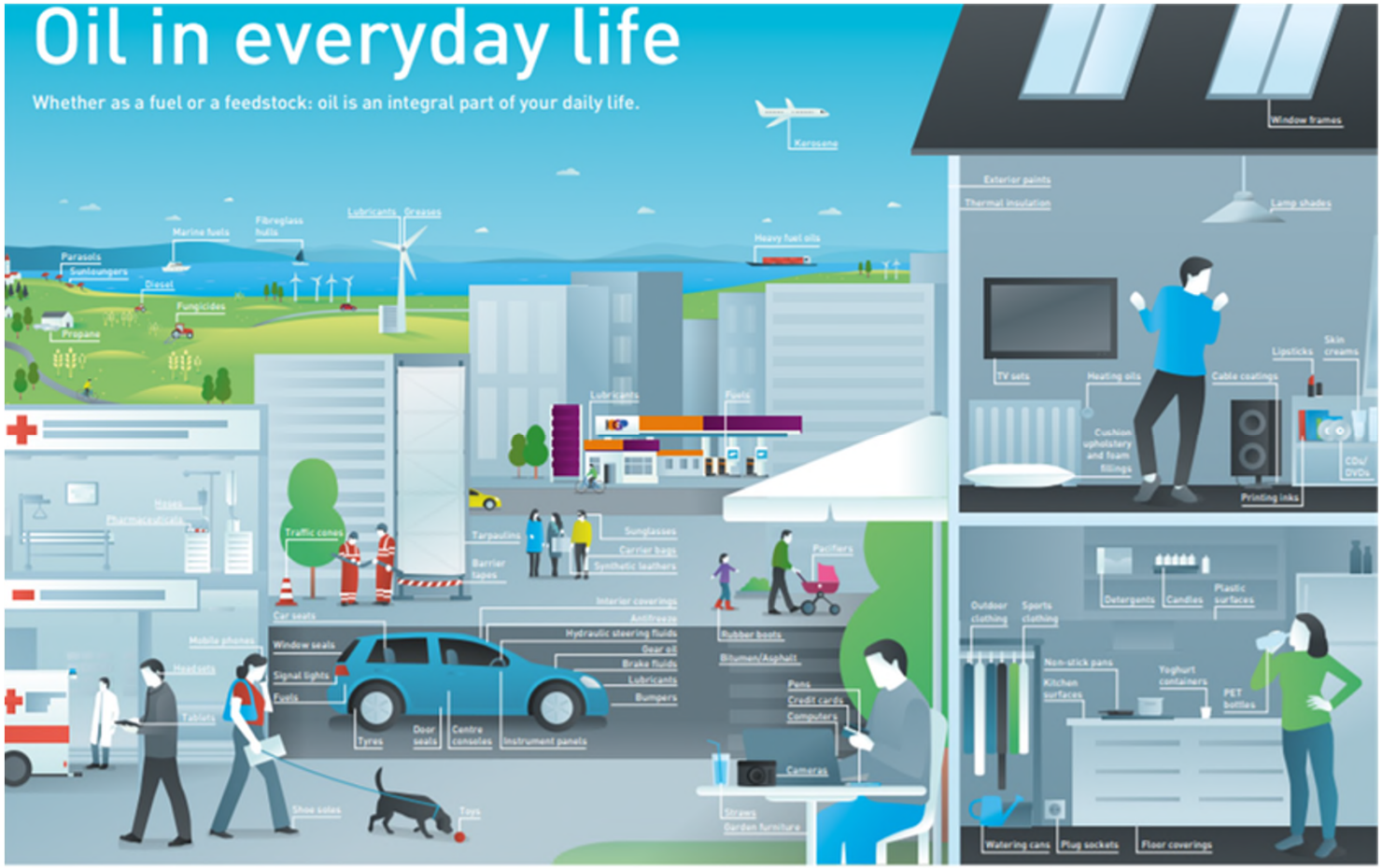
HYDROCARBONS ARE IN EVERYTHING

MODERN SOCIETY HIGHLY DEPENDENT ON FOSSIL FUELS

- The transition away from hydrocarbons will not be rapid as hydrocarbons are present in almost every aspect of our daily lives



Source: International Association of Oil and Gas Producers

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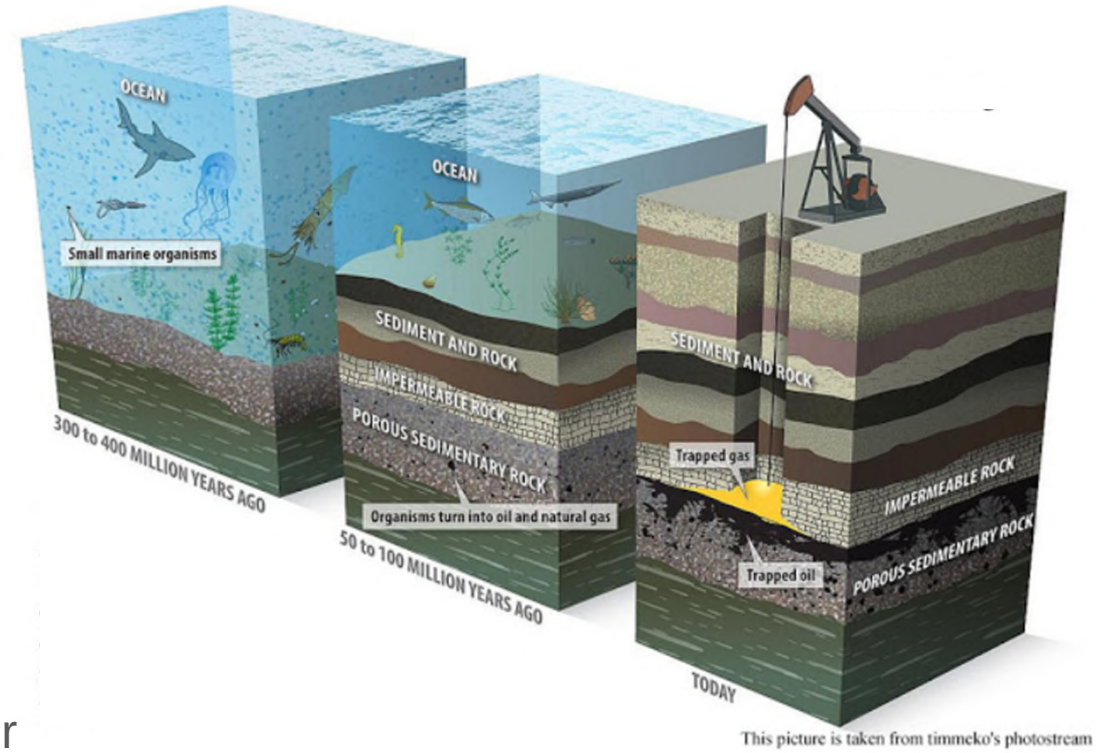
MILLIONS OF YEARS TO CREATE

NOT UNIFORM, NON-RENEWABLE RESOURCE

- Organic material dies and decomposes
- After 300-400 million years of heat and compression, non-renewable sources are created
- This process creates the differing types of hydrocarbons
- Governments must consider that its resources are finite and of a given specification when designing fiscal policy



This picture is taken from timmeko's photostream

Source: Offshoreengineering.com

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CRUDE OILS ARE NOT ALL THE SAME

DIFFERENT KINDS OF CRUDE OIL

- The specifications of produced crude oil can vary significantly from one field to another
- The value of a barrel of crude oil, and the costs to produce that barrel, are dependent on the quality and specifications of the crude
- Crude types are classified from Light to Heavy (**API Gravity**)
  - Lighter crudes are similar to water in their density and ease of flowing
  - Heavier crudes can be quite dense and flow like peanut butter
- Crude quality can also be Sweet or Sour (**Sulfur** content)
  - Oil with sulfur content greater than 0.5% is considered sour
  - Sour crudes require more expensive specialty materials for transport and refining due to their corrosion capabilities and high potential for environmental damage
- Crude oil is priced regionally against a 'marker crude'
- Value differences from one crude to the next can be as much as 20%
  - Quality banks, as used for TAPS, adjust for quality differences

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ALL NATURAL GAS IS NOT THE SAME

THERE ARE MANY DIFFERENT MARKET SPECIFICATIONS

- Produced gas can vary quite significantly from one field to another
- Natural gas is primarily made up of methane (**dry gas**), but can also include amounts of heavier hydrocarbons such as ethane and propane (**wet gas**)
- Dry gas tends to be produced from reservoirs with little crude oil (**non-associated gas**) and wet gas tends to be produced from predominantly crude reservoirs (**associated gas**)
- Like crude, natural gas can be sweet or sour (contains H_2S or CO_2)
- End use markets require natural gas in a narrow range of heating content, otherwise known as BTUs/cubic foot

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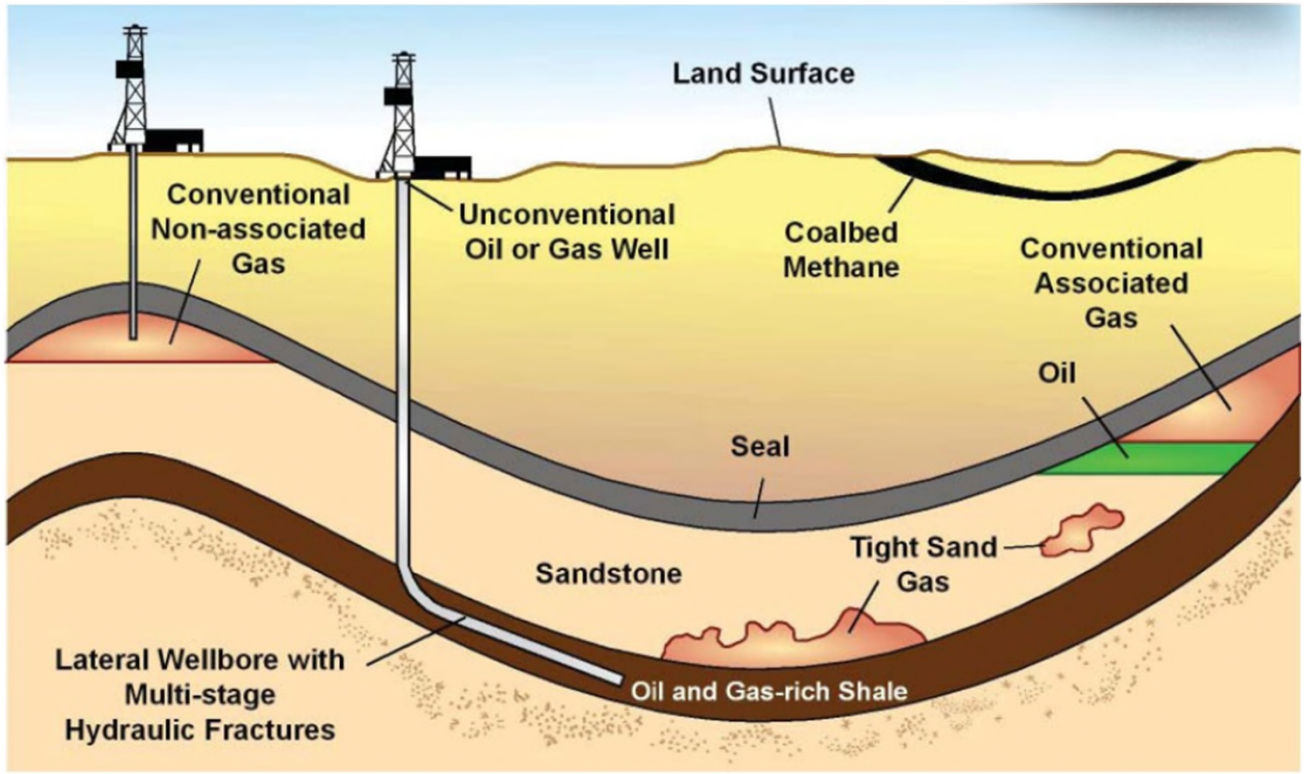
RESERVOIRS ARE NOT UNIFORM EITHER

CONVENTIONAL AND UNCONVENTIONAL

- Evolving oil field technology has opened up new sources of both oil and gas
- New unconventional resources, such as shale formations, bring different unit cost structures as well as very different production profiles



Source: EIA

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WHY IS THIS RELEVANT IN FISCAL SYSTEMS?

DIFFERENT FISCAL TREATMENT

- Some regimes treat oil and gas (and sometimes NGLs) differently
  - All oil separate from all gas
  - Oil and associated gas separate from non-associated gas
  - NGLs can be treated as upstream oil, upstream gas or midstream
  - Transportation of the produced hydrocarbons can be treated as upstream, midstream, or downstream

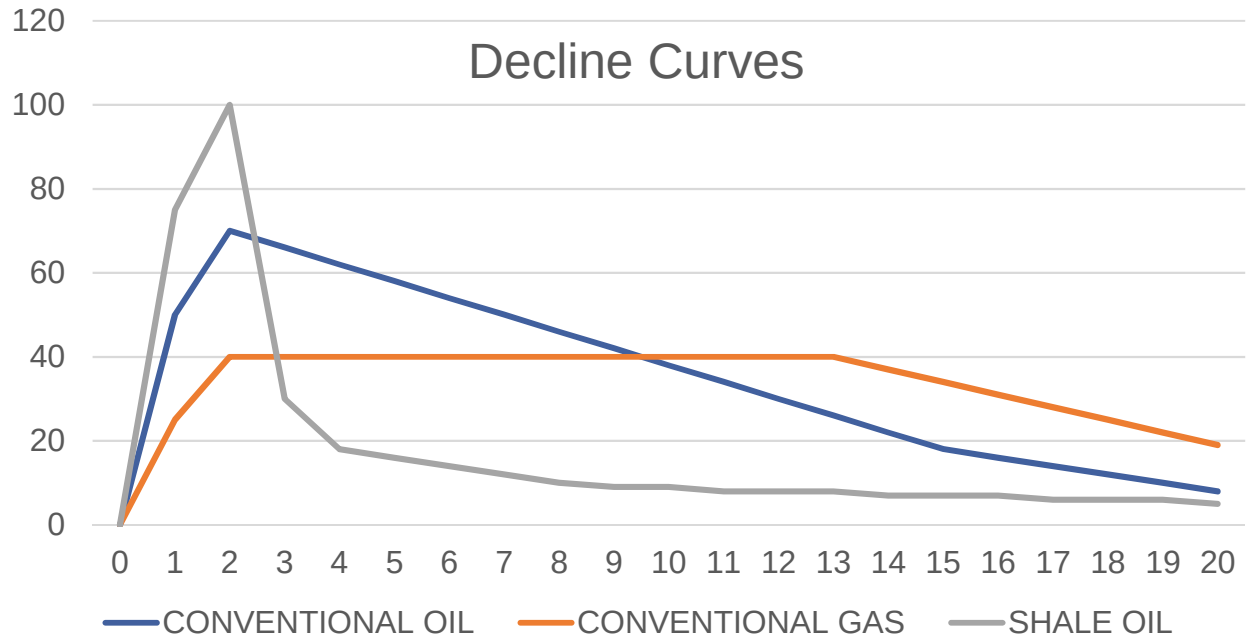
- The hydrocarbon designation (oil, gas, NGL) is used to define deductibility of costs, eligibility for incentives and applicable tax rates

- In practice, it is difficult to separate costs associated with producing the different types of hydrocarbons

PRODUCTION CURVES ARE NOT UNIFORM

SHAPE OF PRODUCTION IMPACTS PROJECT ECONOMICS

- Conventional oil, unconventional oil and natural gas are usually produced very differently based on a number of drivers
- Fiscal regimes must be responsive across a range development and production scenarios



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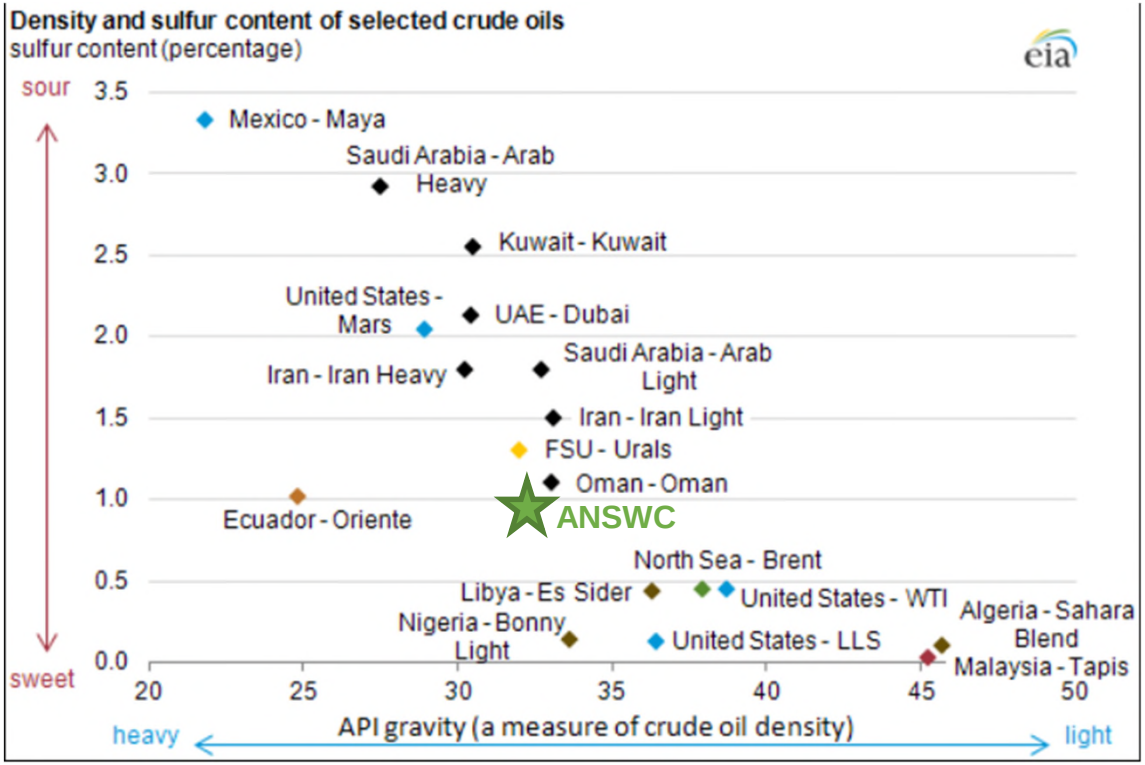
HOW IS CRUDE OIL PRICED ACROSS THE GLOBE?

FOR ALASKA IT IS ANS WEST COAST

- Globally there are a number of marker crudes defined by their physical characteristics (light, heavy, sweet, sour, API) and location
- All other crude oils are priced relative to marker crudes with adjustments made for quality and location differentials



Source: EIA

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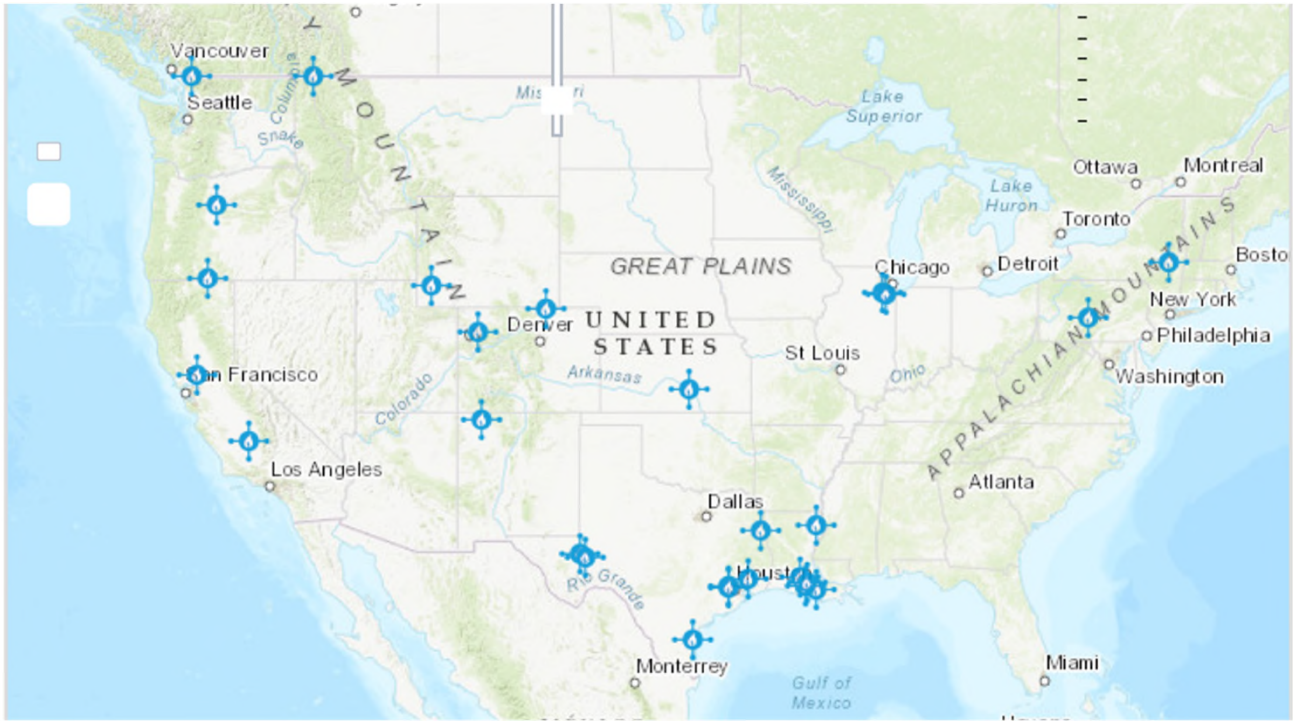
HOW IS NATURAL GAS PRICED ACROSS THE GLOBE?

MORE REGIONAL VERSUS GLOBAL

- Like with crude, produced natural gas is priced relative to a pricing hub with adjustments for heating content, quality and location
- Unlike crude which trades in a defined range globally, natural gas prices can vary quite significantly from region to region



Source: EIA

DEFINING VOLUMES OF OIL AND NATURAL GAS

HOW TO COMBINE THE TWO

- **Bopd -** Oil is usually discussed in terms of barrels of oil per day
- **MMcfd -** Natural gas is usually discussed in terms of millions of cubic feet per day
- **boepd -** When oil and natural gas are combined they are discussed in terms of or barrels of oil equivalent per day
- On an energy parity basis 6000 cf of gas = 1 barrel of oil
  - LNG design of 3.6 bcf/d would be 600,000 boepd
- On price parity basis (where 1cf is 1000Btu)
  - $6/barrel = $1 MMBtu
  - $80/barrel would have a gas price parity of $15/MMBtu
    (In the US currently, oil is +/- $80 with gas price < $3MMBtu)

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INDUSTRY STRUCTURE

HOW IT'S ORGANIZED

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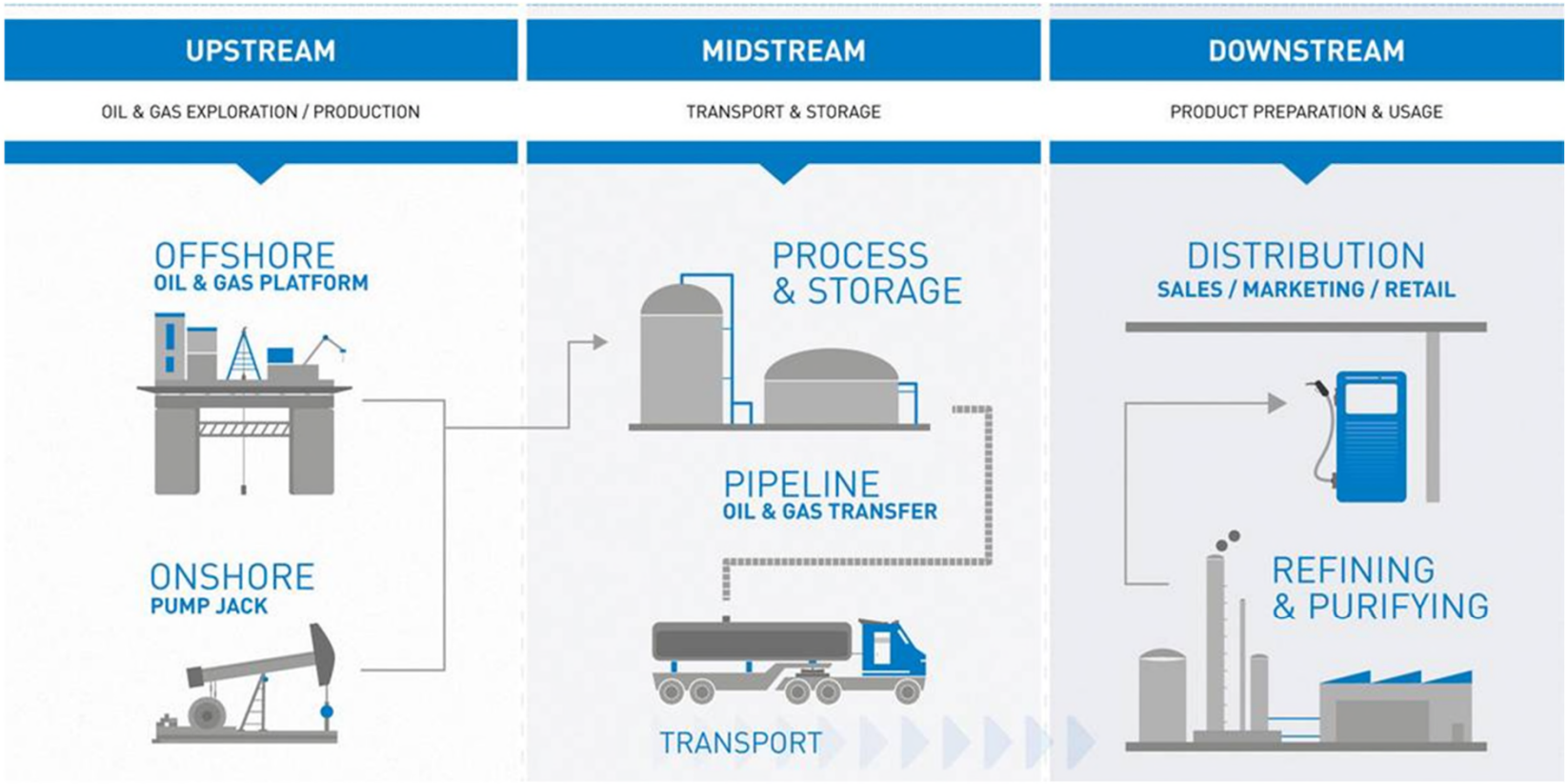
THE INDUSTRY VALUE CHAIN

FROM A RESOURCE TO END USER

- The oil and gas industry is broadly categorized into 3 sectors: **Upstream, Midstream,** and **Downstream**



Source: www.ecom-e.com

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THE INDUSTRY VALUE CHAIN

FISCAL SYSTEM DESIGN MUST CONTEMPLATE ENTIRE VALUE CHAIN

- The oil and gas industry is broadly categorized into 3 sectors: **Upstream, Midstream,** and **Downstream**

Petroleum Fiscal Policy	Separately Regulated	Highly competitive
High Risk High Reward	Lower Risk Lower Return	Lower Risk Lower Return
Full of Unknowns	Well Defined	Some Price Regulation

- Midstream and Downstream activities impact Upstream Value and Economics

Source: www.ecom-e.com

WHO ARE THE MAIN UPSTREAM PLAYERS

THREE KEY PLAYERS

- Three Principal Players
  - Governments or resource owners
  - Energy companies
  - Service companies

- **Governments** or **resource owners** grant rights to energy companies to develop and monetize their oil and gas resources
  - Like Alaska, many governments are just the regulatory authority and are not directly involved in operations. Their role is to enforce applicable laws and regulations and to ensure the resource is optimally developed
  - At the other end of the spectrum, in addition to being the regulatory authority other governments participate in operations through their NOC or national oil company
  - A few countries further divide the regulatory function into one agency and the commercial function into another

WHO ARE THE MAIN UPSTREAM PLAYERS

THREE KEY PLAYERS

- **Energy companies** fulfill many roles while providing necessary capital, people, and technology resources
  - Upstream exploration, appraisal and development
  - Production and abandonment
  - Some participate in Midstream and Downstream activities
  - Most importantly they bring experience, especially for large project management

- **Service companies** provide the tools, technology and manpower resources to:
  - Explore for hydrocarbons
  - Drill and produce hydrocarbons
  - Responsibly abandon operations

GLOBAL MARKET

FUNDAMENTALS & MARKET FORCES

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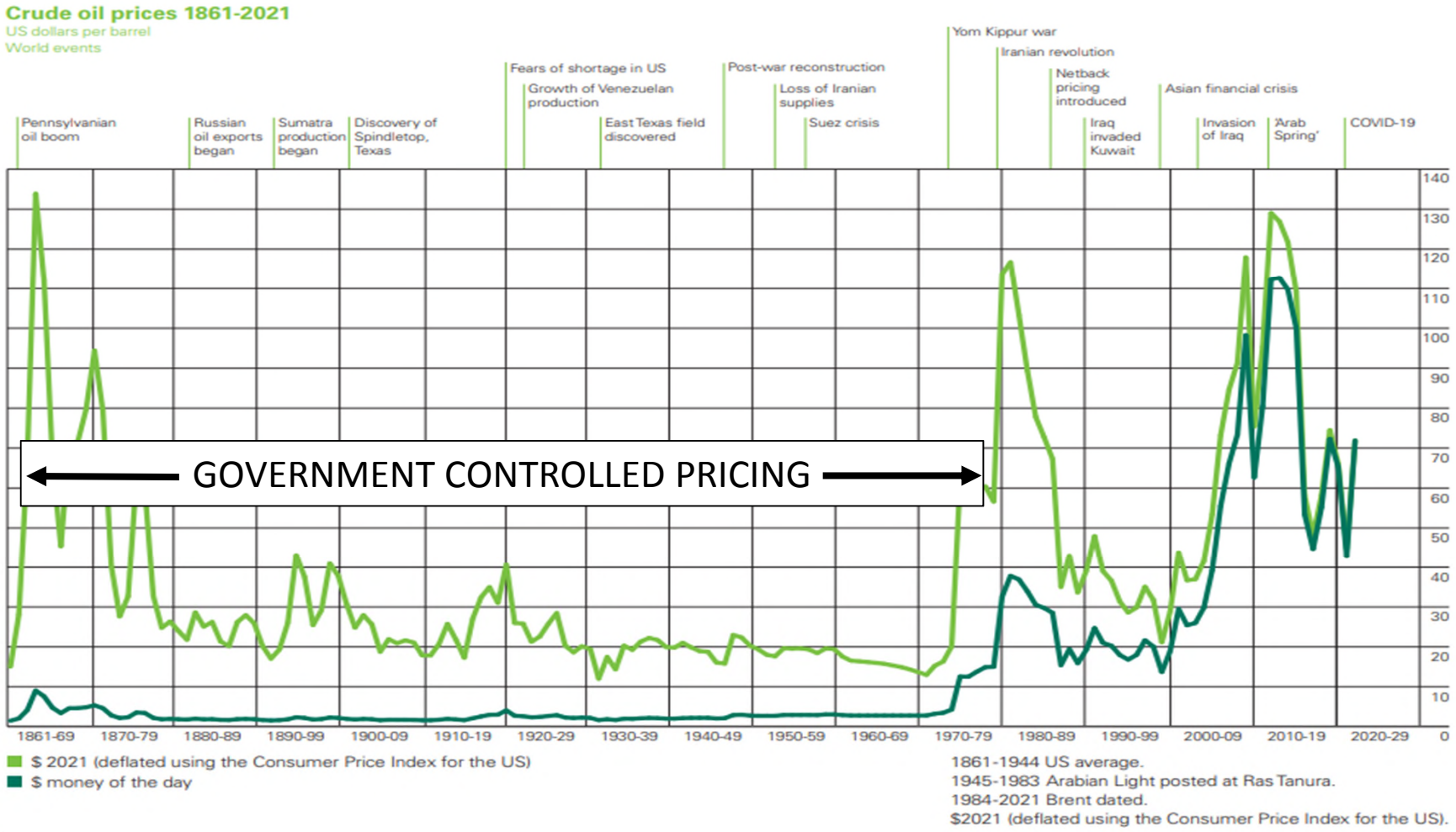
COMPETING IN A GLOBAL INDUSTRY

EXCELLENT PUBLIC DATA SOURCES

- There are many publicly available sources of information about the global energy industry
  - Government Agencies
    - EIA, IEA, EITI
  - Oil Companies
    - SLB (Schlumberger) energy glossary
    - Annual reports, analyst presentations, 10Ks
  - Investment Companies/ Banks
    - Goldman Sachs, Citi Bank, Deutsche Bank, etc
  - Other
    - Energy Institute Statistical Review of World Energy
    - American Petroleum Institute
    - Consultants, law firms, online publications

FISCAL SYSTEMS HAVE TO CONSIDER VOLATILITY

MANY FACTORS INFLUENCE PRICE



BP Statistical Review of World Energy 2022

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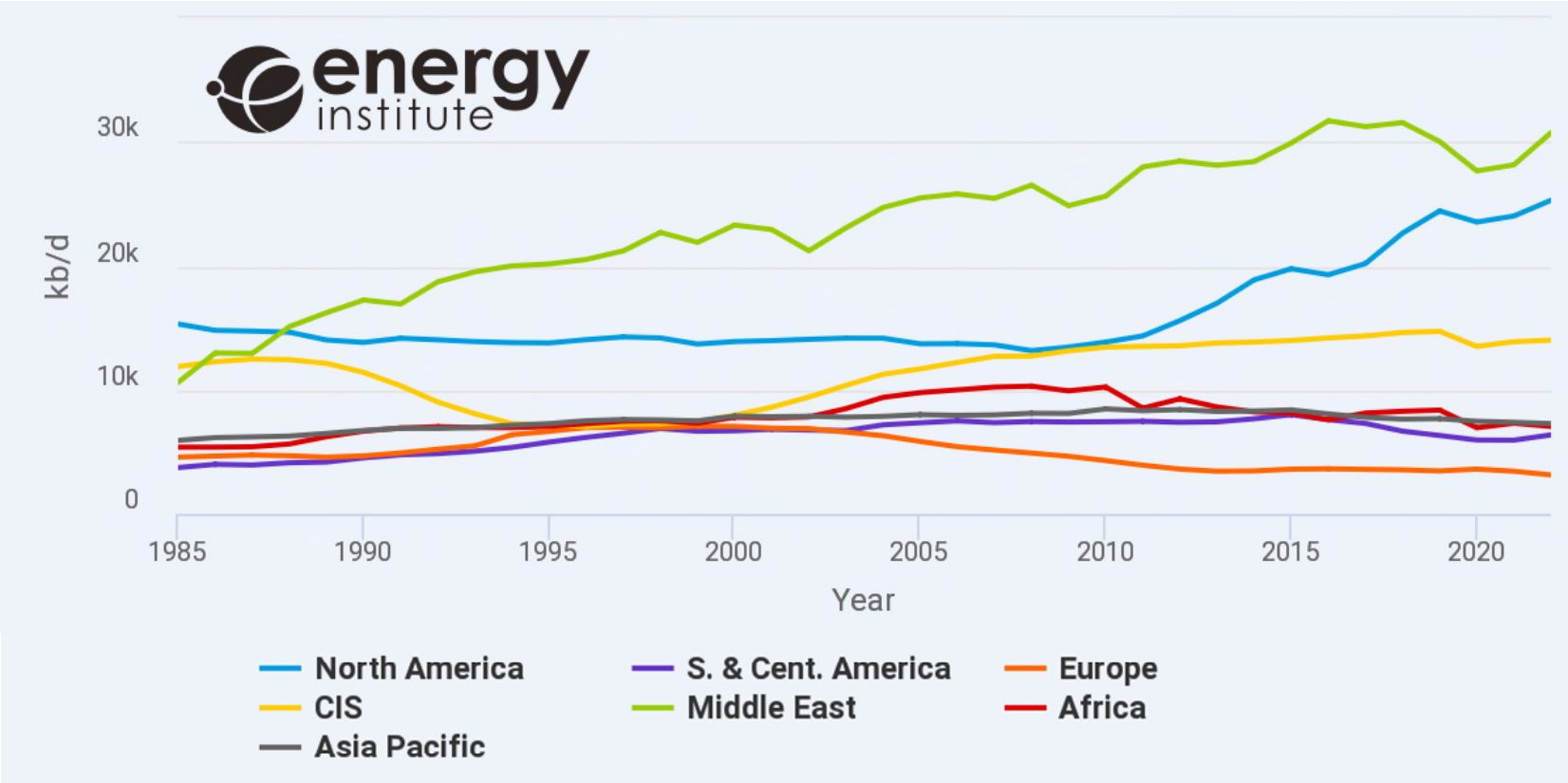
OIL PRODUCING REGIONS COMPETE GLOBALLY

ALASKA IS IN COMPETITION FOR INVESTMENT WITH ALL OF THESE REGIONS



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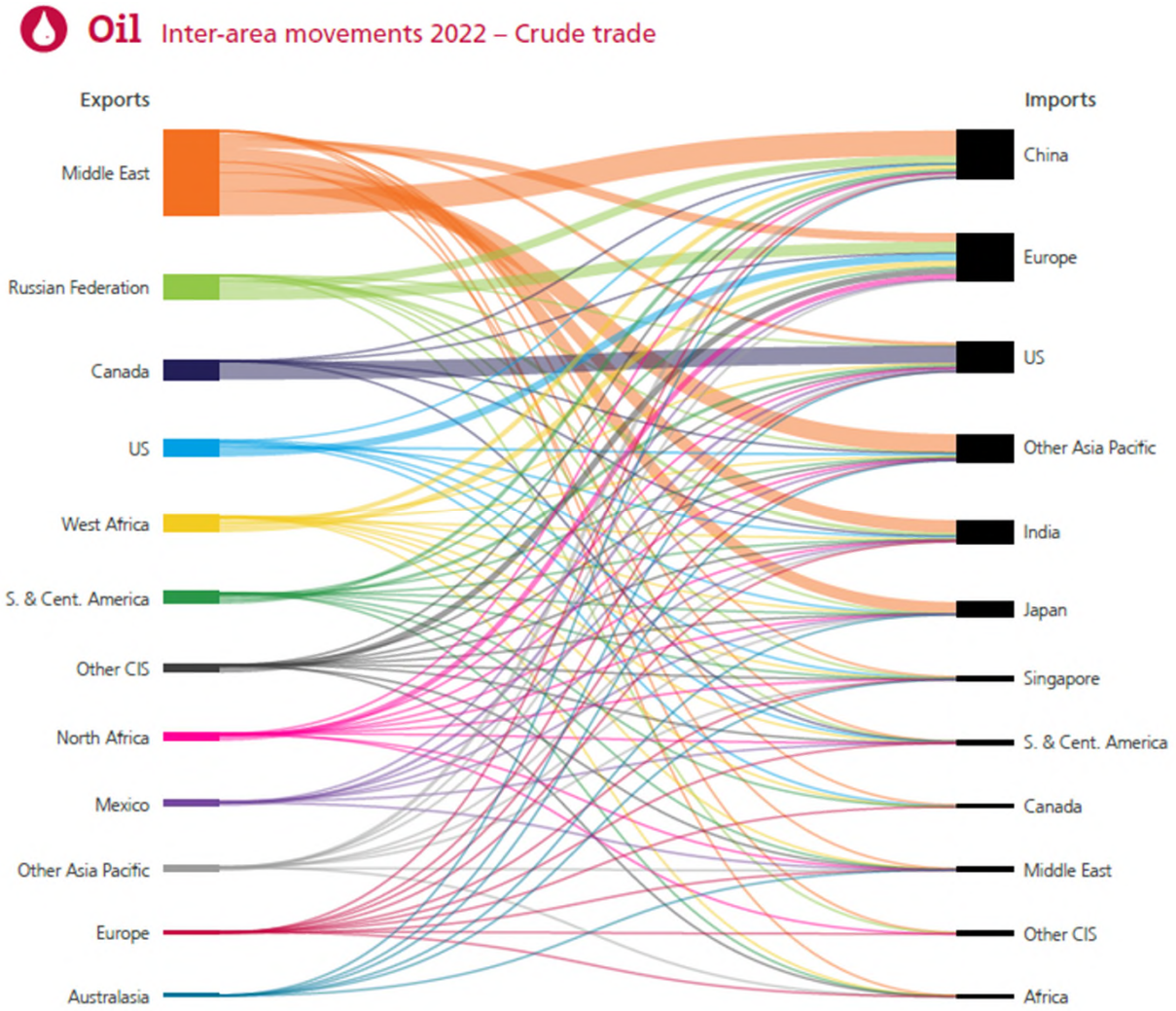
CRUDE OIL GLOBAL TRADE MOVEMENTS

EI STATISTICAL REVIEW 2022

- Crude oil can be transported by:
  - Pipeline
  - Tanker
  - Trucking
  - Rail
- Highlights global interdependencies
- Insight into geopolitical issues



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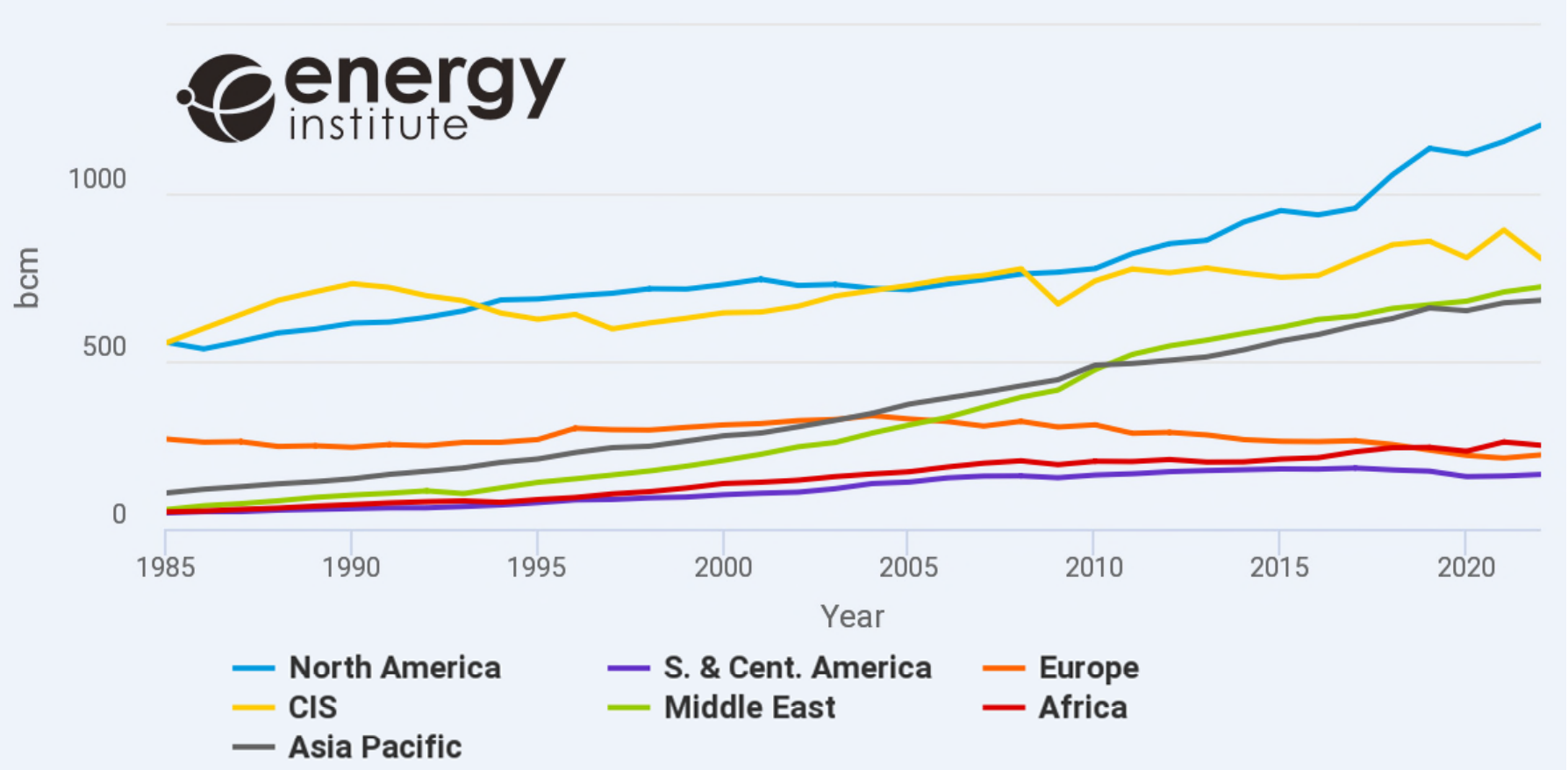
GAS PRODUCING REGIONS COMPETE GLOBALLY

ALTHOUGH ALASKA ISN'T COMMERCIALLY PRODUCING GAS, STILL IN COMPETITION FOR INVESTMENT CAPITAL



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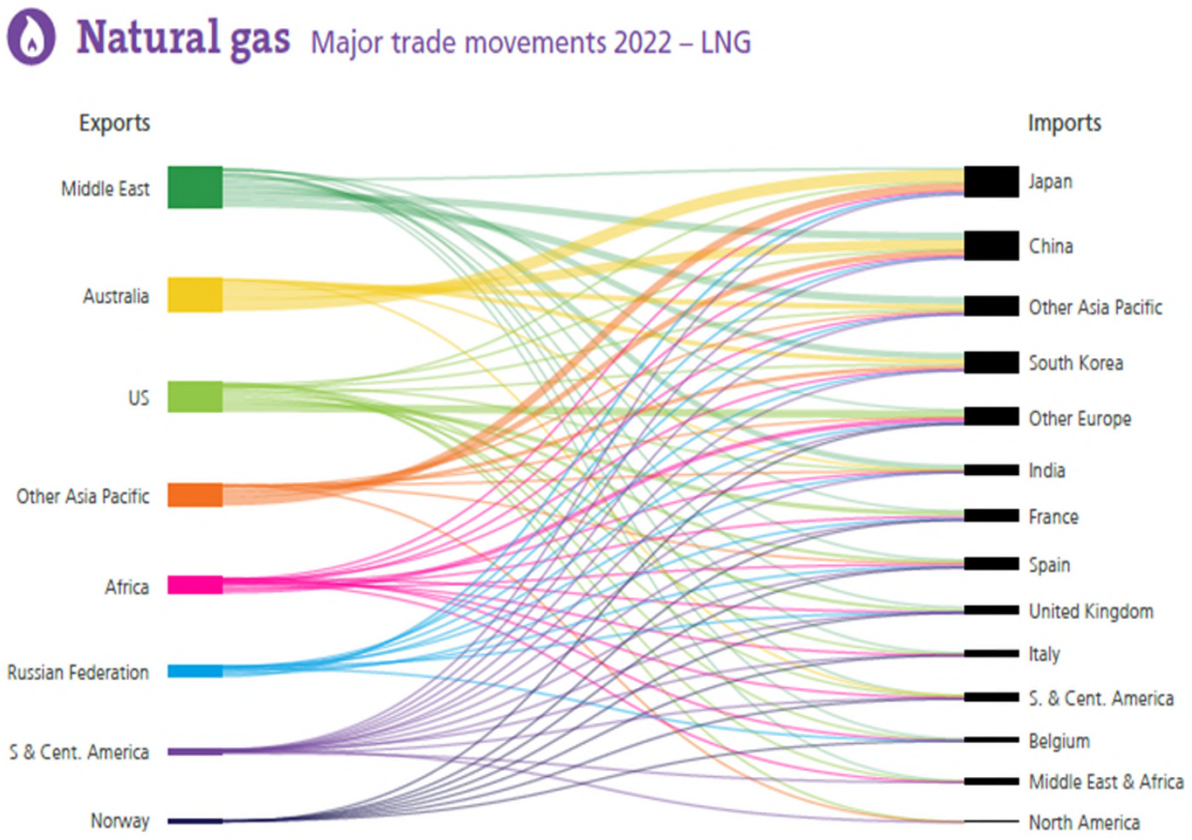
GAS GLOBAL TRADE MOVEMENTS- LNG

EI STATISTICAL REVIEW 2022

- Natural gas transported as LNG must go through:
  - Liquefaction
  - LNG Transportation
  - Regasifcation
- This is the competitive field for Alaska LNG



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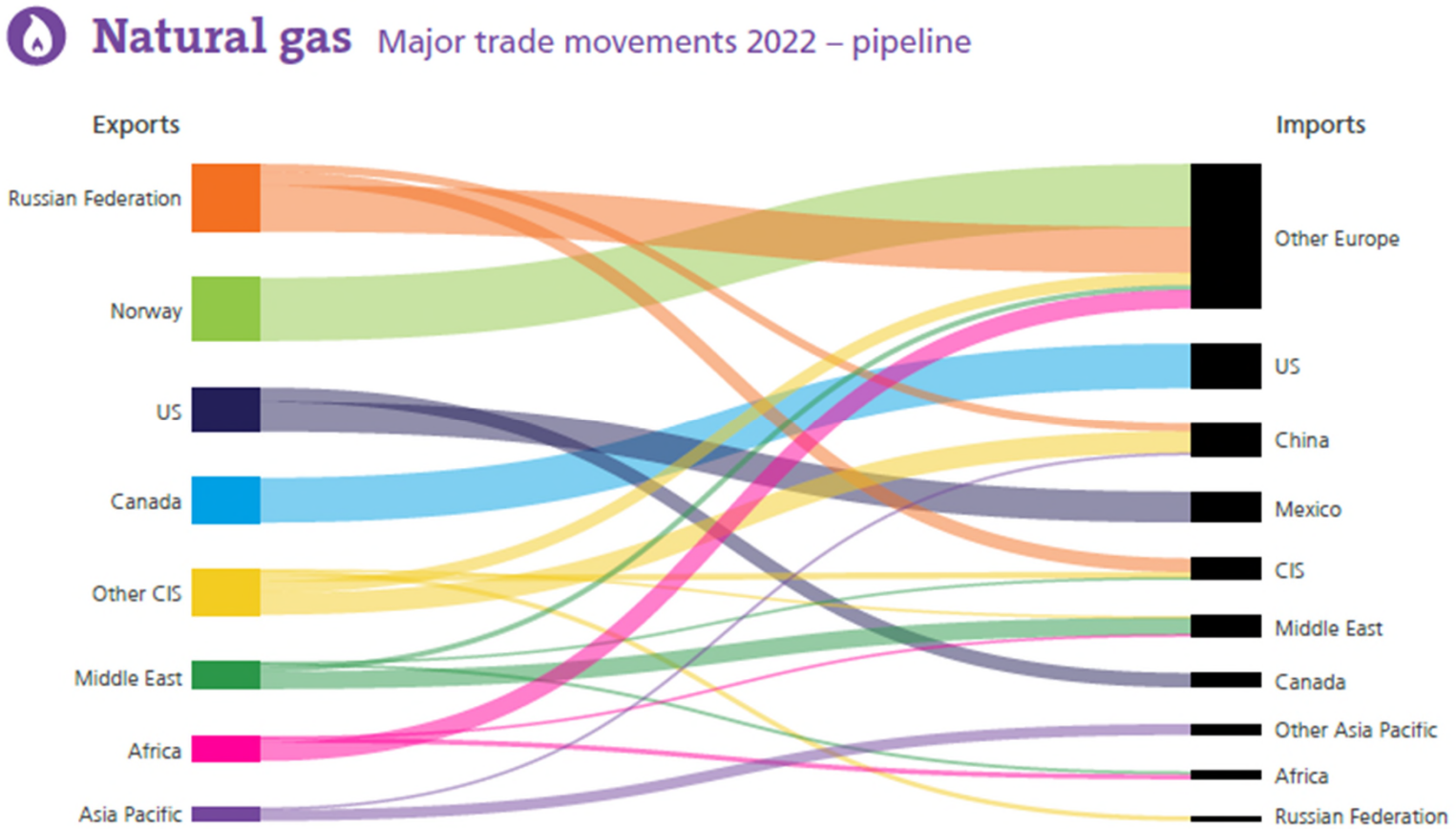
GAS GLOBAL TRADE MOVEMENTS- PIPELINE

EI STATISTICAL REVIEW 2022

- Trade movements are susceptible to many geopolitical factors



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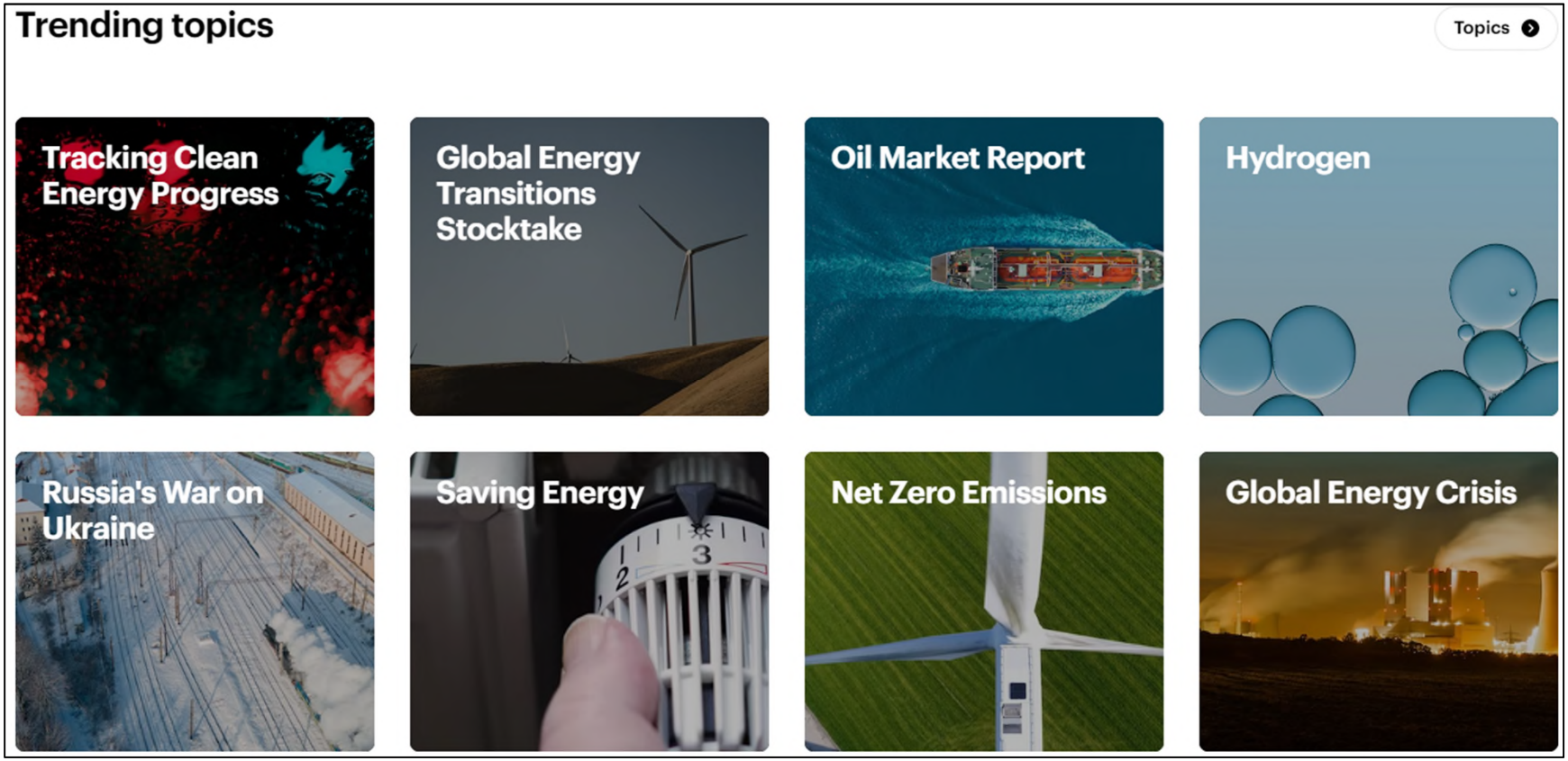
TRENDING TOPICS IN THE GLOBAL MARKET TODAY

MANY FACTORS ALASKA CANNOT CONTROL



Source: IEA

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CLIMATE CHANGE IS THE NEW DRIVER

BUT HYDROCARBON PRODUCTION IS NOT DISAPPEARING

- The energy transition to a renewable and sustainable future is now at the forefront of the oil and gas industry
- Collaborative agreements such as the Paris Agreement and REPowerEU, and national agreements such as the US Inflation Reduction Act, are creating the framework for the green movement in law and regulation
- Those opposed to the oil and gas industry are now targeting the financial sector
  - Discouraging financing to the industry, especially sensitive areas like the arctic
  - Proposing requirements which raise costs to produce, making projects less economically viable
- **Despite the momentum behind the transition, the IEA reports that by 2050, fossil fuels will still be producing almost half of the energy supply globally**

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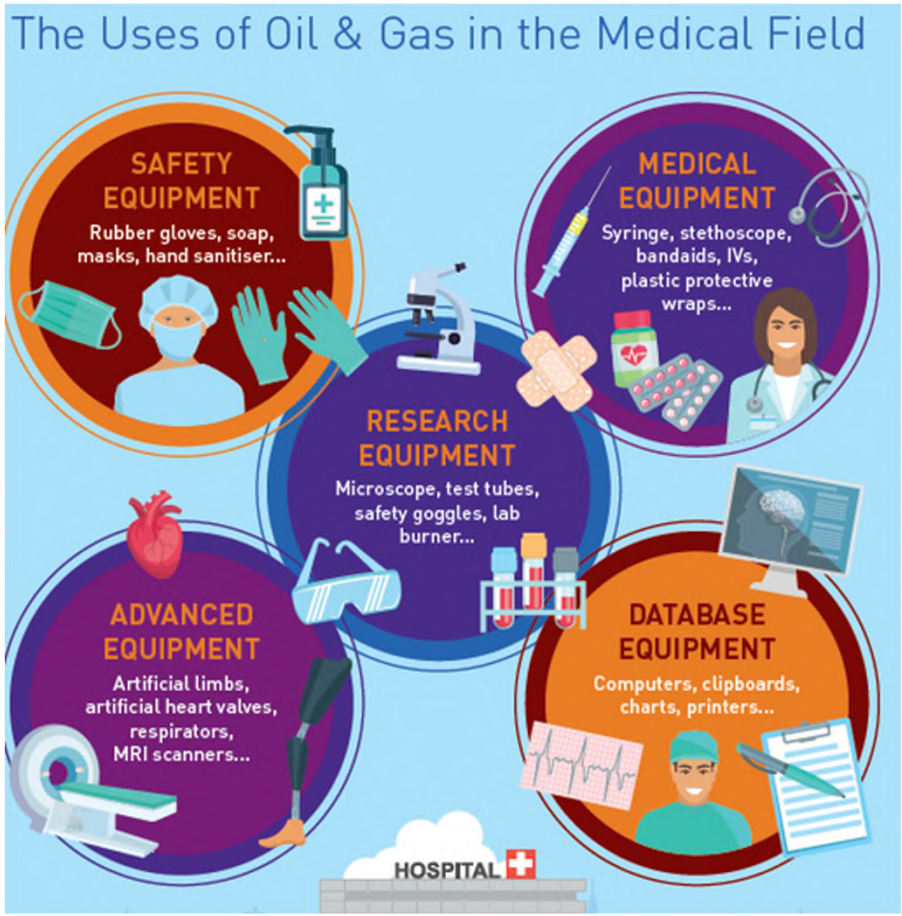
FOSSIL FUELS NOT ALL EASILY REPLACEABLE

POWER GENERATION AND TRANSPORTATION ARE JUST PART

- Large scale, renewables are focused mostly in transportation and power generation
- Small scale, consumers have the power to make differences at home, for example reusable grocery bags
- All other hydrocarbon uses like goods used in daily life- renewables cannot replace these key products
- **Research is underway, but needs more time**



Source: International Association of Oil and Gas Producers

PETROLEUM CRITICAL TO OUR ECONOMY

STILL A DEMAND FOR ALASKA PRODUCTION

- The world's appetite and desired pace for going green is bigger and faster than technology and infrastructure will be able to provide

Adhesive	Contact lenses	Preservatives	Medical Equipment	Skis
Anesthetics	Computer Parts	Football Cleats	Operating Room Essentials	Soap
Antifreeze	Cortisone	Football Helmets	Parachutes	Speakers
Antihistamines	Cosmetics	Golf Balls	Perfumes	Sun Glasses
Antiseptics	Crayons	Guitar Strings	Petroleum Jelly	Surf Boards
Artificial limbs	Dentures	Hair Coloring	Pharmaceuticals	Synthetic Rubber
Artificial Turf	Deodorant	Hair Curlers	Pillows	Tape
Aspirin	Detergents	Hand Lotion	Plastics	Telephones
Balloons	Dishes	Heart Valves	Purses	Tires
Ballpoint Pens	Dyes	House Paint	Refrigerators	Toothbrushes
Bandages	Enamel	Ink	Roofing	Toothpaste
Basketballs	Eyeglasses	Insect Repellent	Rubbing Alcohol	Trash Bags
Cameras	Fertilizers	Insecticides	Safety Glasses	Umbrellas
Candles	Fishing Boots	Laptops	Shampoo	Upholstery
Clothes	Fishing lures	Life Jackets	Shaving Cream	Water Pipes
Construction Materials	Fishing Rods	Luggage	Shoes	Wheels

- Hydrocarbons will still be needed for some time and Alaska can still benefit by producing its resources

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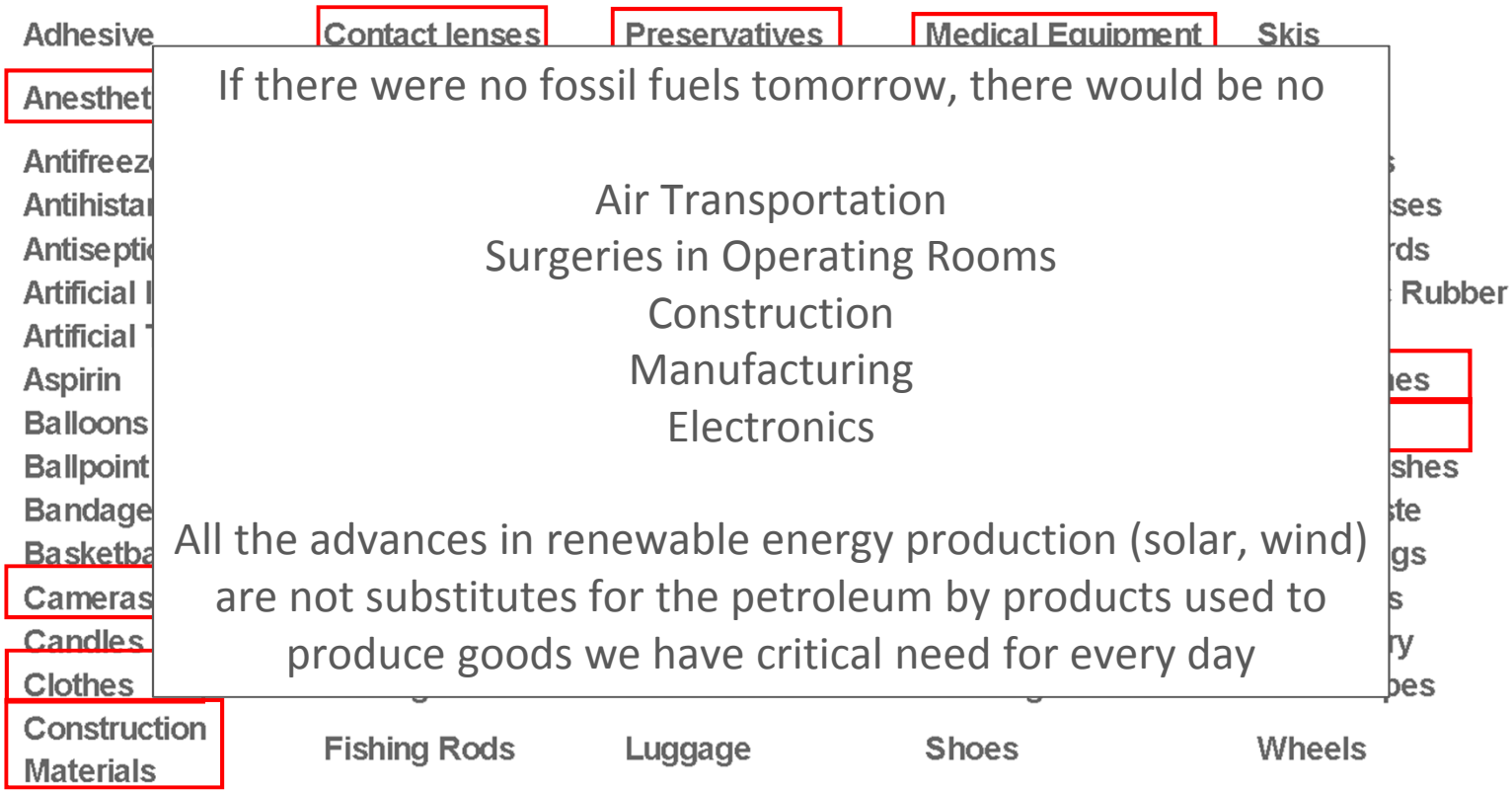
PETROLEUM CRITICAL TO OUR ECONOMY

STILL A DEMAND FOR ALASKA PRODUCTION

- The world's appetite and desired pace for going for green is bigger and faster than technology and infrastructure will be able to provide



- Hydrocarbons will still be needed for some time and Alaska can still benefit by producing its resources

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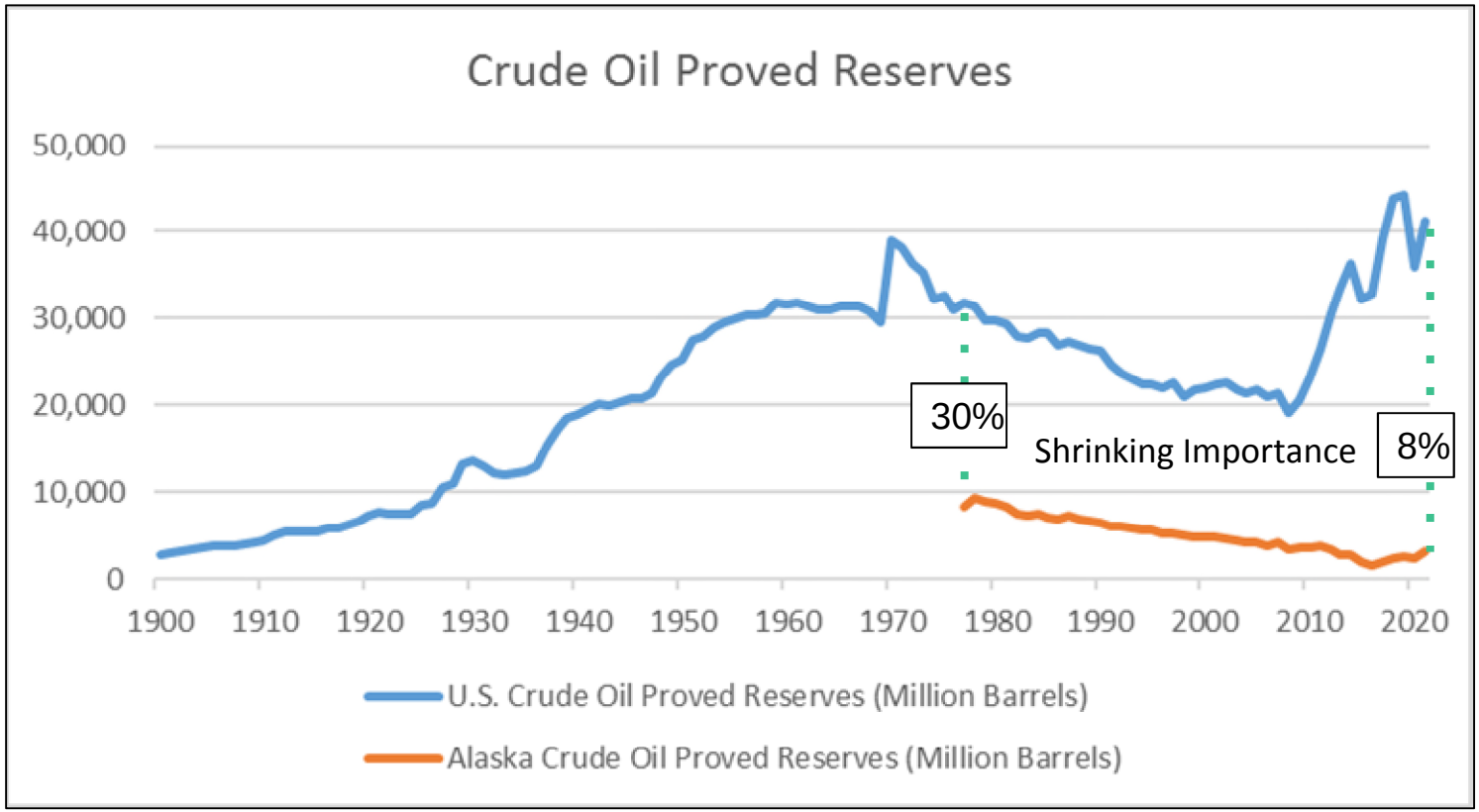
ALASKA COULD FULFILL ONGOING DEMAND

BUT NEEDS TO COMPETE FOR CAPITAL



U.S. Energy Information Administration

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ALASKA CAN COMPETE

ALL THE NECESSARY FACTORS ARE PRESENT

- Vast quantities of known hydrocarbons able to produce for decades more with proven operators, technology, and support industries
- Remaining a producing state with growing investment for the long term will ensure TAPS continues to be operational and the state generates long term wealth
- Progress towards a viable LNG project will allow the state to produce gas resources, adding to the revenue success of oil production
- State can help de-risk projects to compete for capital
  - Leasing, permitting
  - Tax system, regulation
  - Industry advocate
- Is Alaska's fiscal policy prepared to capture potential upside from industry changes? Can Alaska adapt and respond quicker than competing states or countries?

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THANK YOU

QUESTIONS?

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be in the know

Rich@in3nergy.com

Christina@in3nergy.com

in3nergy.com