

# Society of Petroleum Engineers (SPE)

AIME 150th Anniversary Meeting

03 October 2021

Tom Blasingame — 2021 SPE President



Society of Petroleum Engineers

***Where we came from in oil and gas ...***

# Looking (Way) Back — World Oil Resources (Circa 1920)



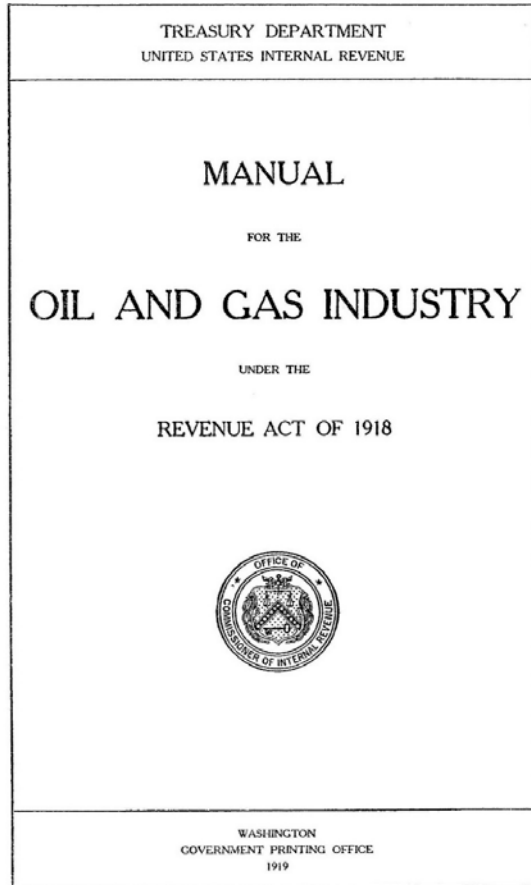
**Map showing distribution and relative size of world's oil resources, prepared under direction of U.S. Geological Survey in 1920.**

# Looking (Way) Back — Early Rules/Regulations



**Tax Manual → Reservoir Engineering**

**Gas Well Testing Manual → Production Engineering**



**U. S. DEPARTMENT OF THE INTERIOR**  
HAROLD L. ICKES, Secretary  
**BUREAU OF MINES**  
John W. Finch, Director

Monograph 7

**Back-Pressure Data on Natural-Gas Wells and Their Application to Production Practices**

By  
**E. L. RAWLINS AND M. A. SCHELLHARDT**

Rawlins, E. L. and M. A. Schellhardt: Backpressure Data on Natural Gas Wells and Their Application To Production Practices, Monograph 7, U.S. Bureau of Mines, Washington, DC, (1936).

***Our petroleum engineering roots stem from the need to define value and production capabilities of oil and gas wells.***



## ***SPE at a glance***



- 1871 — American Institute of Mining Engineers (AIME) formed**
- 1919 — AIME combined with the American Institute of Metals to become the American Institute of Mining and Metallurgical Engineers**
- 1922 — AIME Oil and Gas Committee → Petroleum Division of AIME**
- 1922 — Petroleum Division of AIME ~ 900 members**
- 1945 — Petroleum Division of AIME ~ 2,300 members**
- 1950 — Petroleum Division of AIME ~ 3,700 members**
- 1957 — Petroleum Division of AIME ~ 12,500 members**
- 1957 — Society of Petroleum Engineers (SPE) of AIME is formed**
- 1985 — SPE incorporated separately from AIME in 1985**

***SPE values its engineering and geoscience heritage.***



**1960 — 14,112 Professional members, 694 Student members**  
**1970 — 16,781 Professional members, 901 Student members**  
**1980 — 34,604 Professional members, 4,185 Student members**  
**1990 — 49,768 Professional members, 1,818 Student members**  
**2000 — 46,913 Professional members, 5,005 Student members\***  
**2010 — 71,191 Professional members, 26,000 Student members**  
**2015 — 99,175 Professional members, 68,950 Student members**  
**2020 — 74,742 Professional members, 65,858 Student members**

**\* Student membership became free in 2002 — in 2021, almost 50 percent of student members are in Asia Pacific + Africa.**

***SPE is (by far) the preeminent professional organization in oil and gas.***

# Society of Petroleum Engineers — Milestones



- 1871 — AIME forms in Pennsylvania USA (*happy 150th birthday!*)**
- 1913 — AIME creates oil and gas committee**
- 1949 — 1st issue of Journal of Petroleum Technology (*JPT*) published**
- 1957 — SPE officially founded as constituent society of AIME**
- 1969 — Offshore Technology Conference**
- 1985 — SPE incorporates separately**
- 1993 — Jacques Bosio is the first non-US president**
- 1996 — DeAnn Craig is the first female president**
- 2007 — SPE celebrates 50-year anniversary**
- 2007 — Jaleel Al-Khalifa is the first president from the Middle East**
- 2013 — Unconventional Resources Technology Conference**
- 2013 — Egbert Imomoh is the first president from the Africa**
- 2021 — SPE engages in "exploration of merger" with AAPG**

***SPE seeks to evolve its energy mission, while focusing on core resource.***



# SPE Membership — Historical Trends



Combined Oil Price and Membership Graph

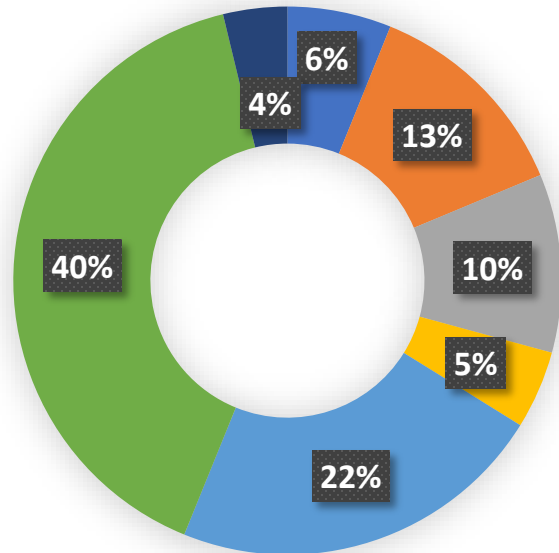


**Membership has grown well — but has fallen sharply due to economics.**

# SPE Membership — Global Demographics (2020)



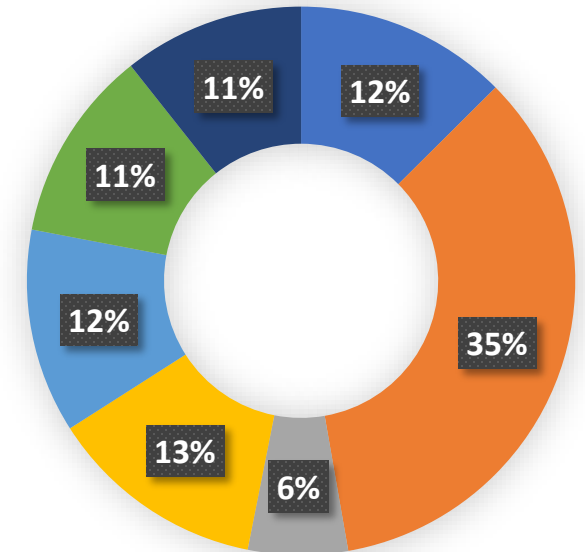
## Professional Members



74,742 members in 144 countries  
204 sections

- Africa
- Asia Pacific
- Europe
- Latin America and Caribbean
- Middle East and North Africa
- North America
- Russia and Caspian

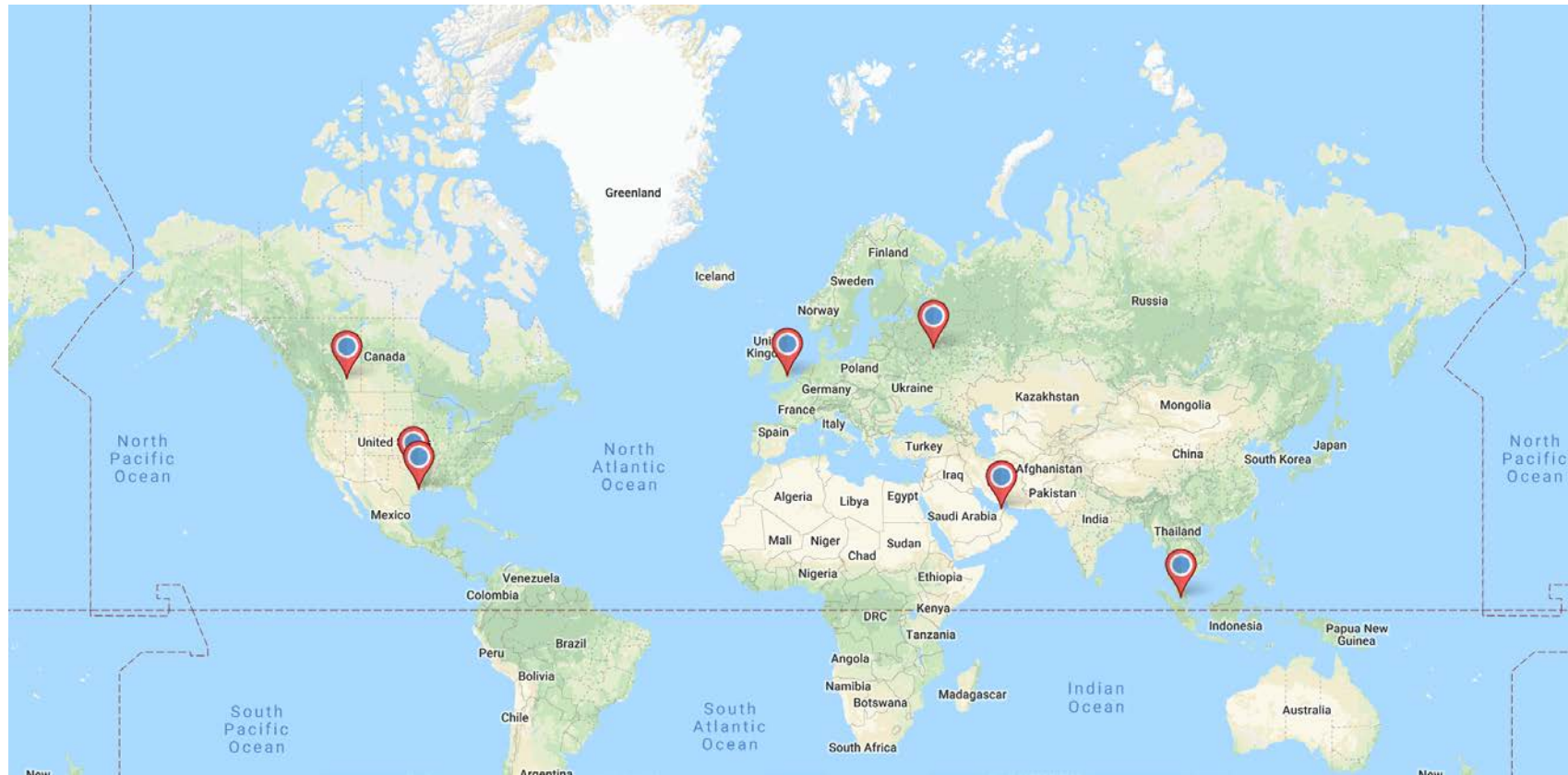
## Student Members



65,858 members in 125 countries  
411 chapters

***Professional membership led by NA + ME (but have a good global mix).***

**Approximately 275 staff in 7 offices**



**Dallas (1946) • London (1991) • Houston (1995) • Kuala Lumpur (1995)  
Dubai (2003) • Moscow (2007) • Calgary (2009)**



## *State of the oil and gas industry*

# Realities of Petroleum Engineering



**Technical Knowledge — Skills, Needs, Standards**  
**(... Has not changed significantly since 1940's)**

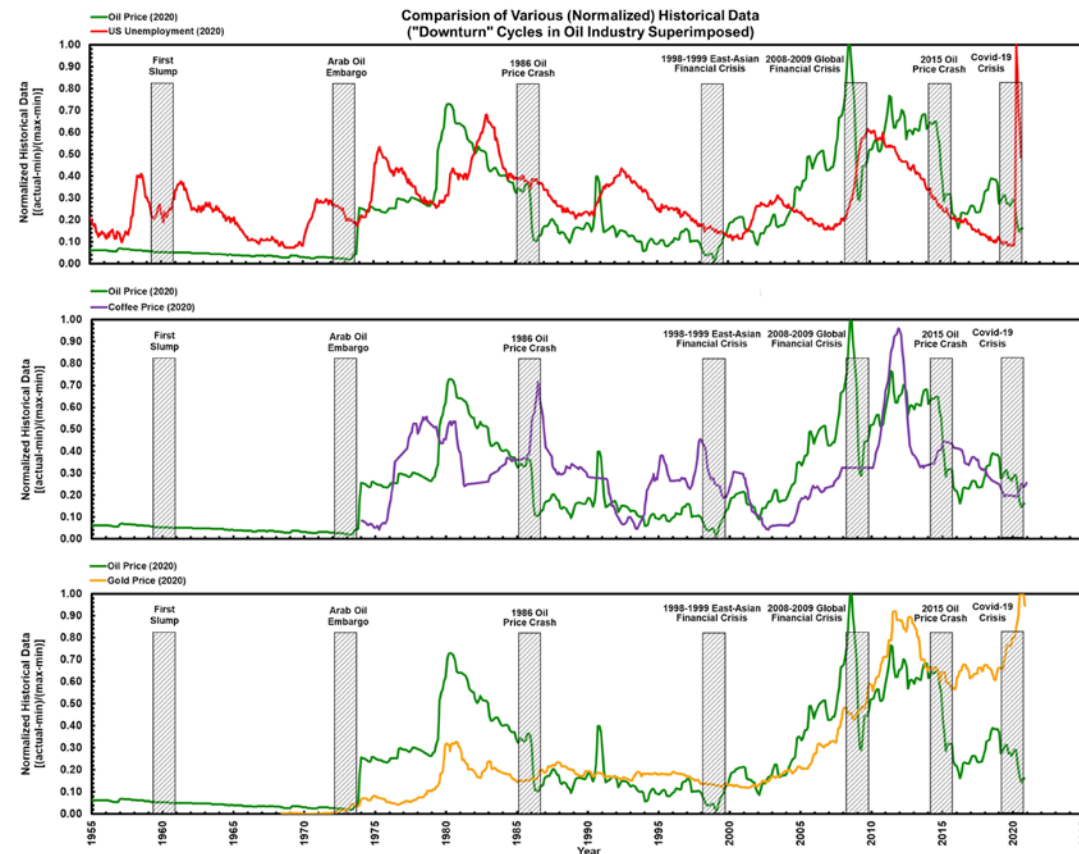
**Commodity Businesses are Cyclical**  
**(... Oil Price Appears to be a Leading Indicator)**

## Skills that Define a Petroleum Engineer:

- General Knowledge/Skills (Math, Engineering, etc.)
- Oil and Gas Drilling Systems
- Production Engineering and Operations
- Petrophysics, Formation Evaluation, and Geology
- Reservoir and Well Performance, Reservoir Fluids
- Petroleum Project Evaluation (Reserves/Economics)
- Integrated/Multidisciplinary Teams

## Emerging Needs/Skills that Must be Emphasized:

- Unconventional Reservoir Technologies
- Statistics/Data Manipulation (*i.e.*, "Data Analytics")
- HSE+S (+ the so-called "Sustainability" aspects)
- ESG = Environmental, social & corporate governance
- Integration: DRLG, CMPL, RESR, PROD, FACL, ...

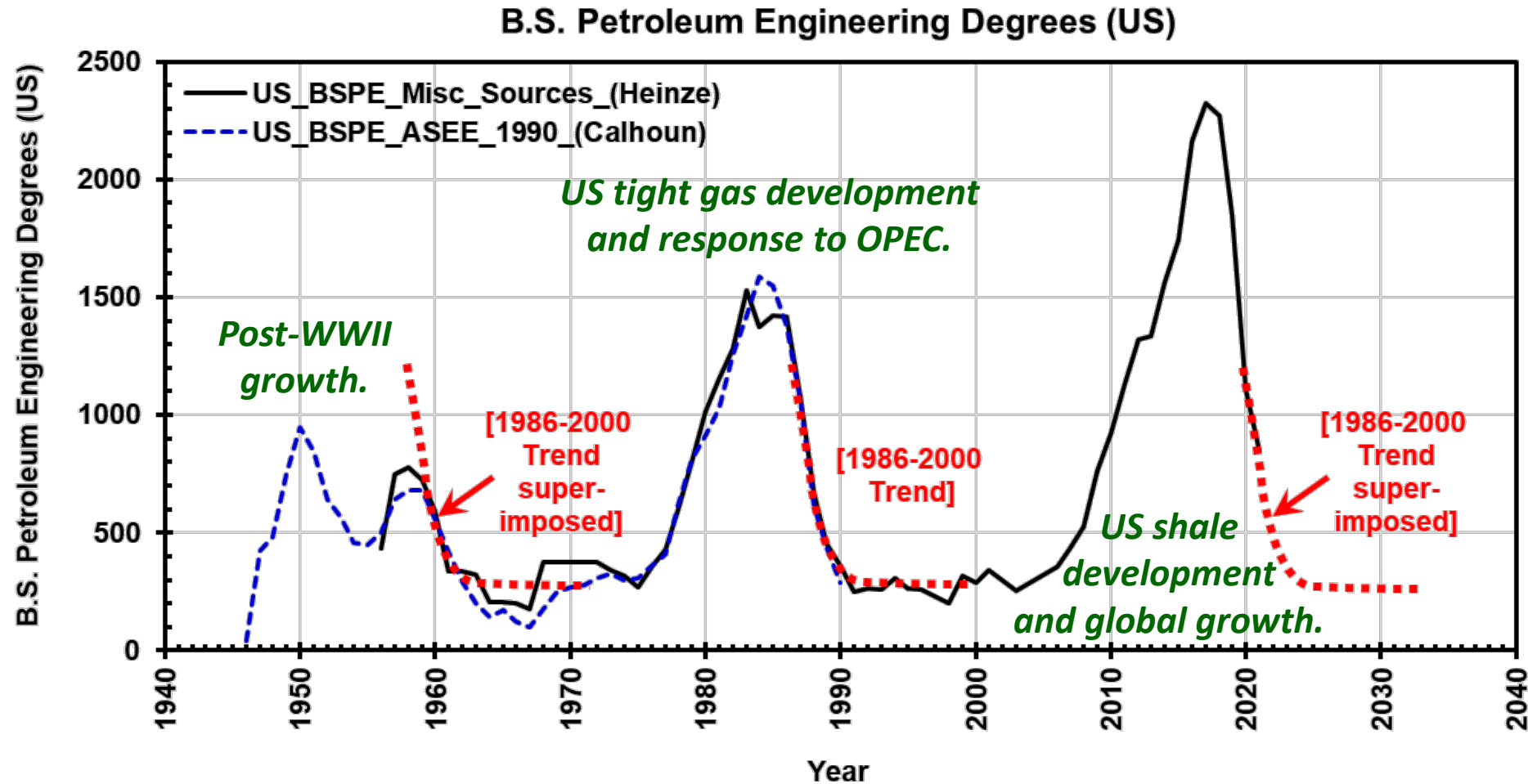


### References:

1. (Unemployment) <https://data.bls.gov/>
2. (Gold Price) <https://goldprice.org/gold-price-history.html>
3. (Oil Price) <https://www.macrotrends.net/1369/crude-oil-price-history-chart>
4. <https://www.macrotrends.net/2535/coffee-prices-historical-chart-data>

**Industry is cyclical, but we need best-in-class Petroleum Engineers.**

# BS Degrees in Petroleum Engineering — Historical Trends



***We tend to over-respond to industry demand.***

## *Energy "Additions"*

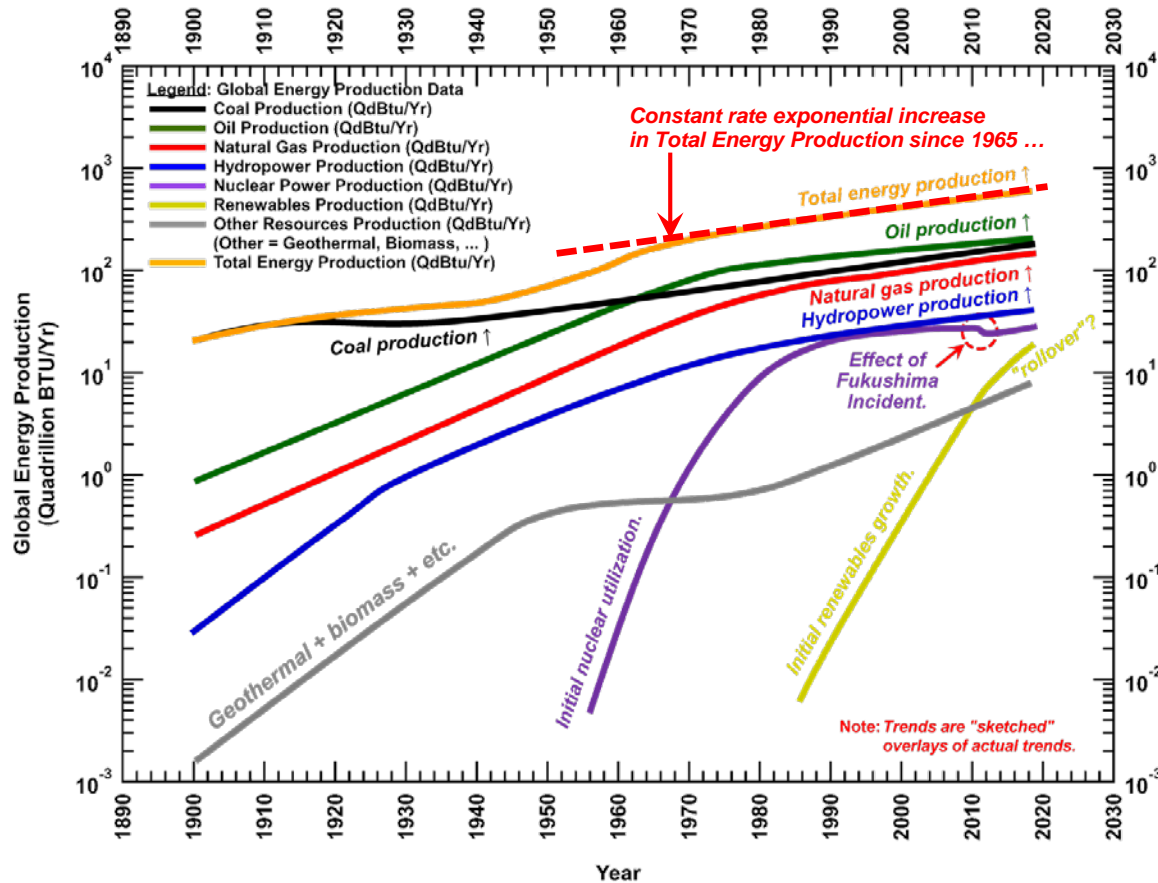
# Energy Transition (or Energy "Addition") — 1/2



## We are Energy Transition™

(... Our world has a gigantic appetite for energy ...)

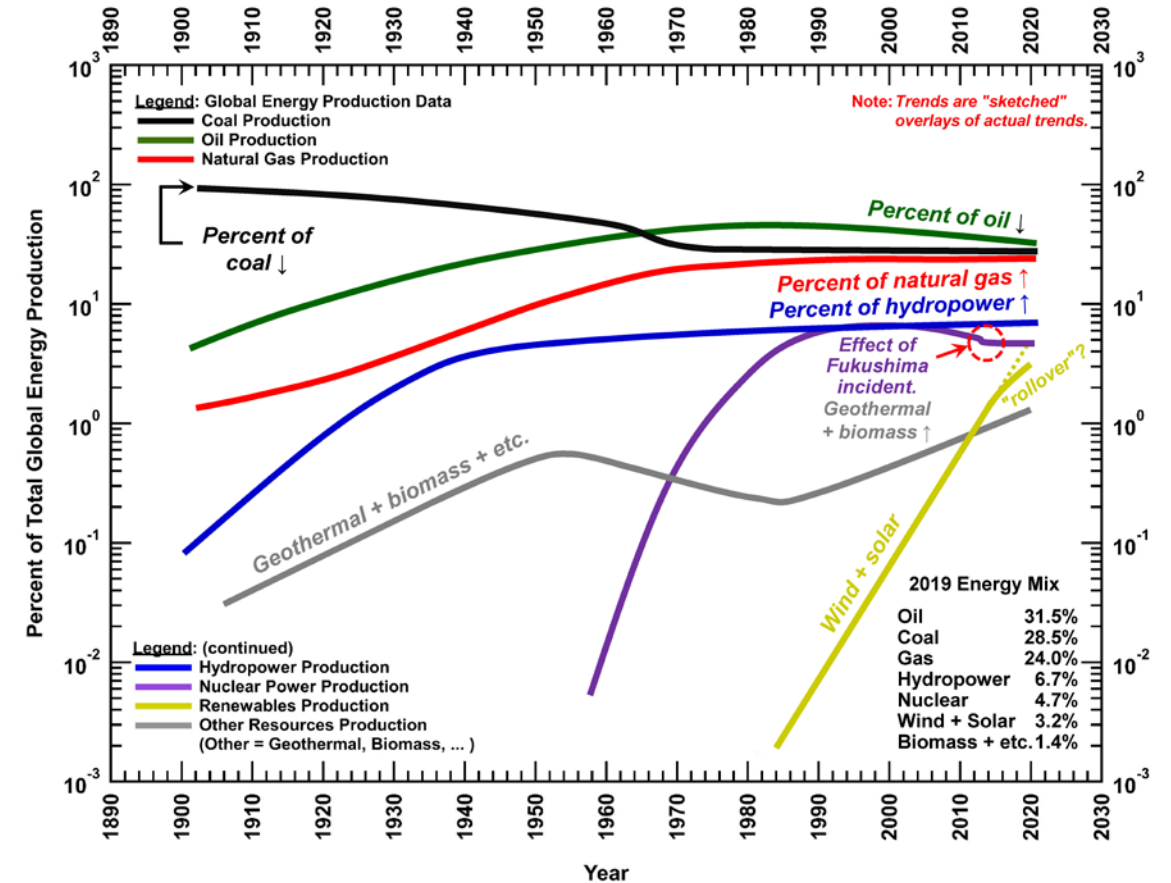
Global Energy Production History (Quadrillion BTU/Yr)  
(Data from Etemad and Luciani, US DOE-EIA)



## We are Energy Transition™

(... Oil and gas are the keys to the future energy mix ...)

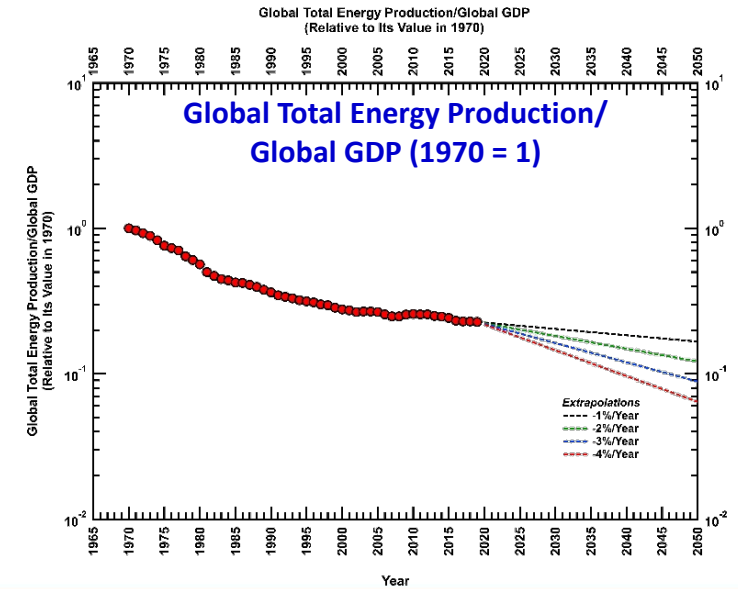
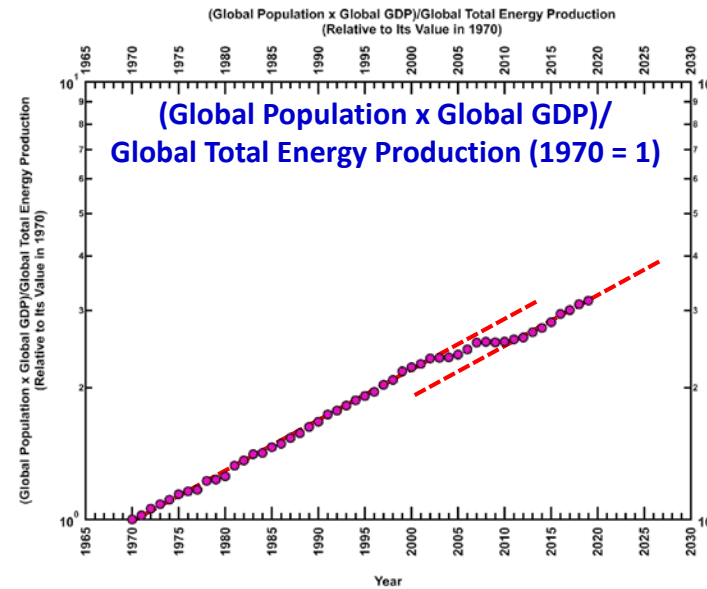
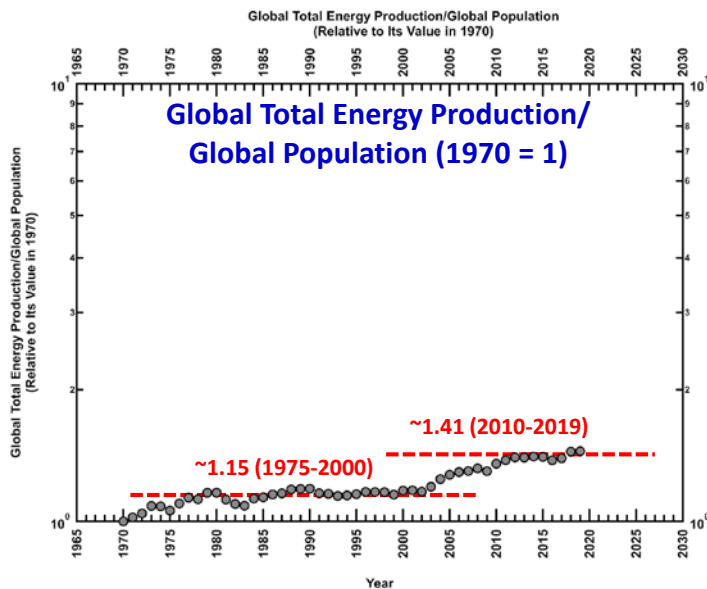
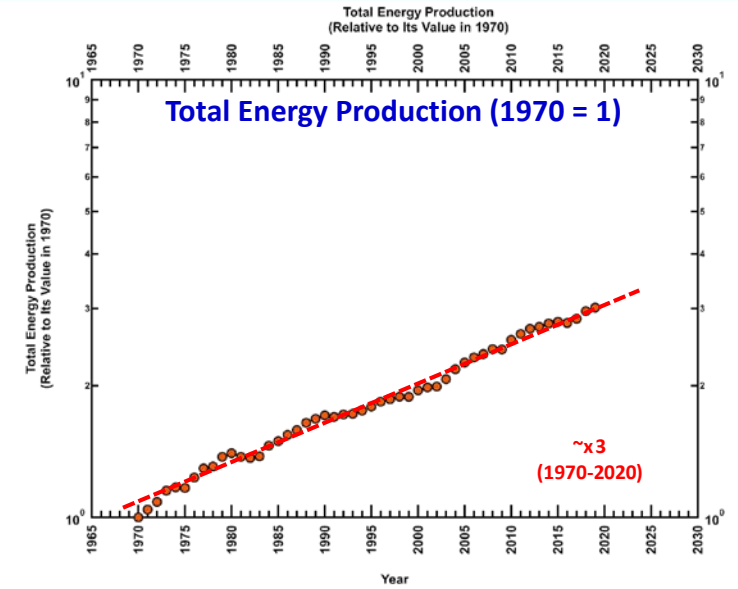
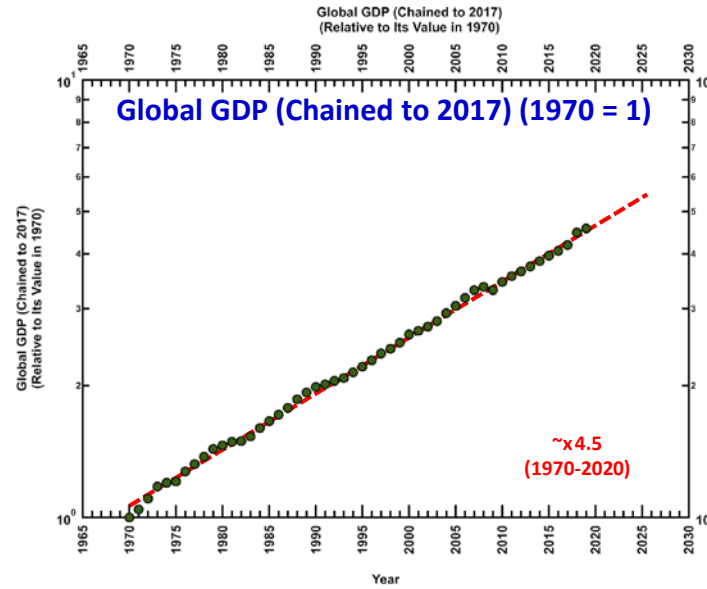
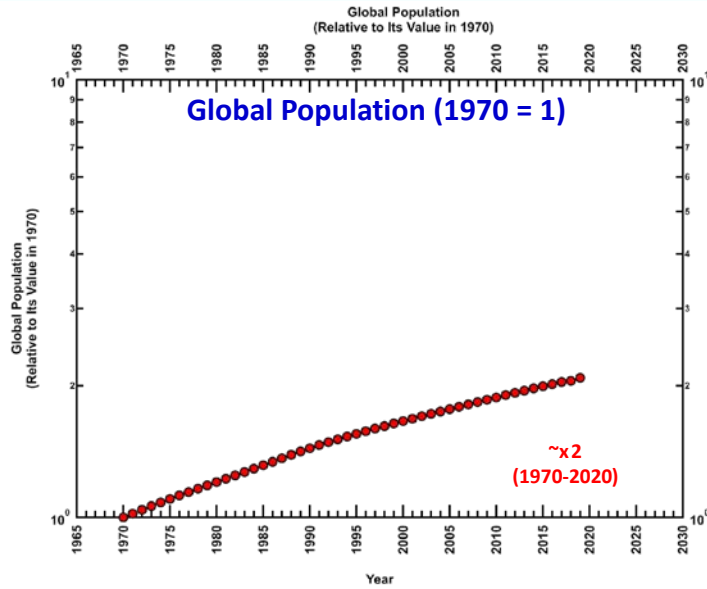
Percent of Total Global Energy Production  
(Data from Etemad and Luciani, US DOE-EIA)



**Global energy demand is increasing (> 2%/year).**



# Energy Transition (or Energy "Addition") — 2/2





***Thinking about the future ...***



## American Association of Petroleum Geologists Society of Petroleum Engineers *Exploration of Potential Merger*



***As of 29 Sep 2021, both SPE and AAPG leadership have approved taking the merger decision to their memberships for a vote during Q1/Q2 of 2022.***

# Merger with AAPG — Why it makes Sense



- Member and industry needs will evolve considerably over the next decade from challenges and opportunities presented by the *Energy Transition*.
- Prepare our members for new roles and career opportunities better addressed by a cross-disciplinary organization and to balance this reality with a continued, strong focus on SPE's core disciplines
- Supporters and stakeholders (companies) can no longer support 4+ (major) separate professional societies with volunteers or financial investments at the levels of the past 20 years.
- Create the global professional society for petro-technical professionals that addresses the challenges of the energy transition and attracts the support of critical company stakeholders.

***This is a proposed merger of intellectual equals.***

# SPE & AAPG Highlights — By the Numbers



	<b>SPE</b>	<b>AAPG</b>	<b>Combined</b>
<b>Professional Members</b>	<b>74,742</b>	<b>16,419</b>	<b>~ 90,000</b>
<b>Student Members</b>	<b>65,858</b>	<b>9408</b>	<b>~ 75,000</b>
<b>Staff</b>	<b>260</b>	<b>50</b>	<b>310</b>
<b>Annual Revenue (Pre-Covid)</b>	<b>\$52 million</b>	<b>\$14 Million</b>	<b>\$66 million</b>

*The savings and potential revenue models are being updated.*



***Engaging the public ...***

# How we face the public is changing



**Past:** Responsibility programs driven by external stakeholders

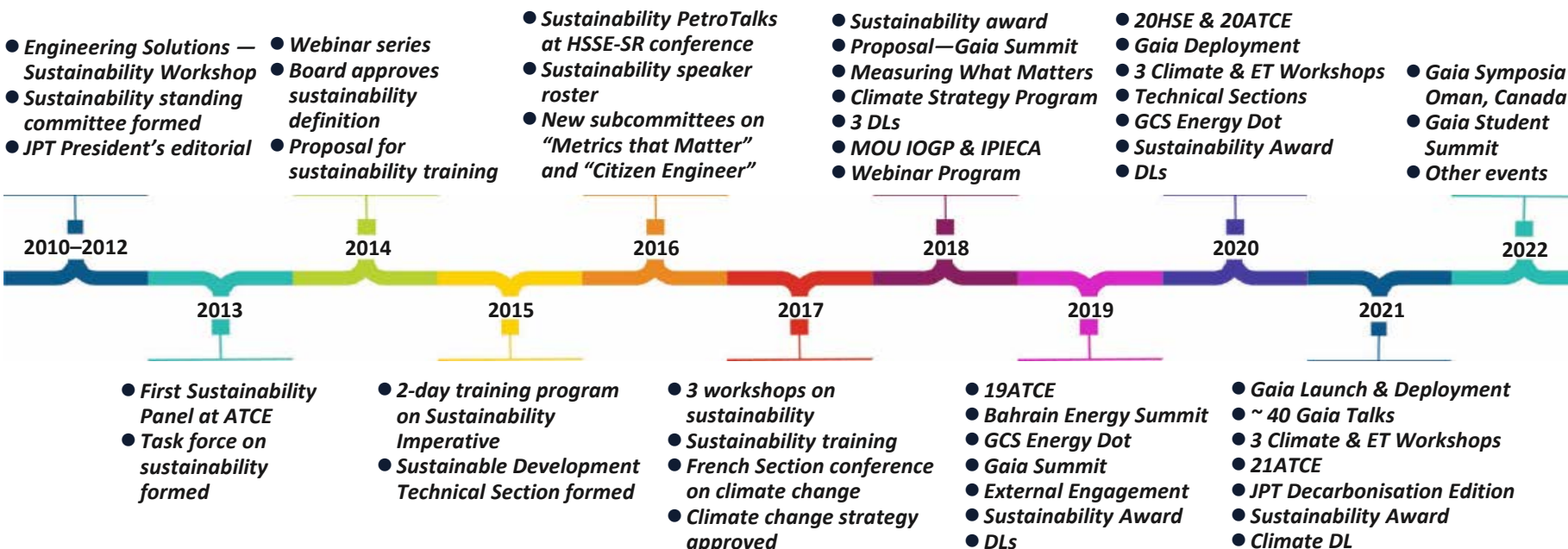
**Future:** Sustainability aligned businesses driven by the industry for the industry and the planet



## UN Sustainability Development Goals



(<https://www.un.org/sustainabledevelopment/>)



(Johana Dunlop, SPE TD-HSES, 2017-2020)



**We must engage the public as a partner, not a vendor.**

***Last words ...***

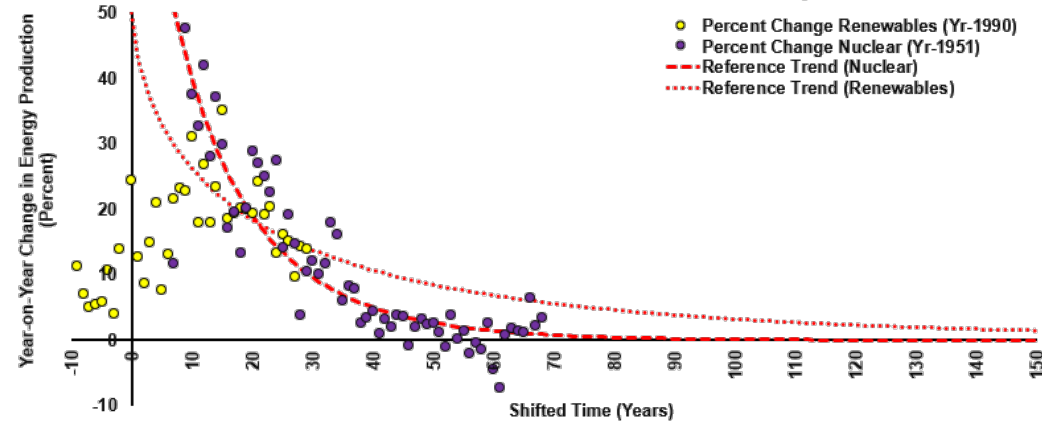


# What does "Energy Transition" mean for us?

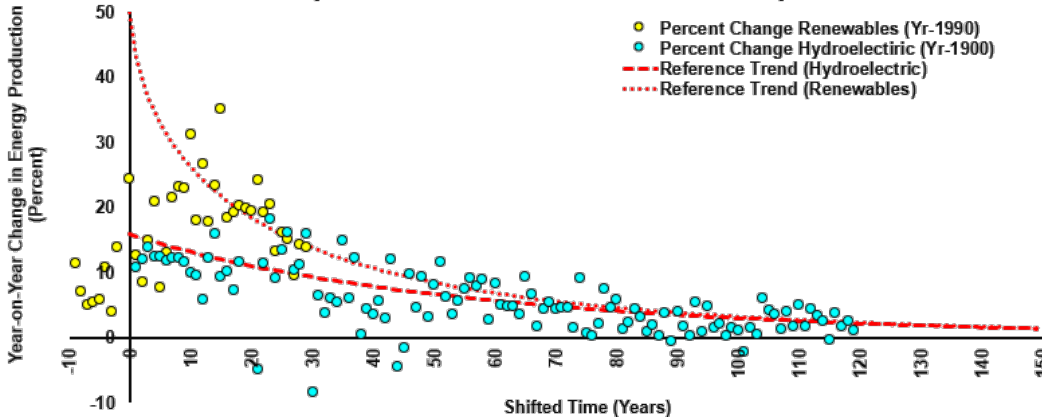


## Will Renewables Mimic Nuclear or Hydroelectric

Year-on-Year Percent Change in Energy Production by Type  
Nuclear and Renewables Shifted to Overlay



Year-on-Year Percent Change in Energy Production by Type  
Hydroelectric and Renewables Shifted to Overlay



## Industry Considerations — Reality Check

### What Has to Change in Our Industry?

- Energy Transition is here to stay.
- We must engage the public (to build trust).
- We must compete for relevance .
- "Rebranding"? ... but we are "GeoEnergy!"
- Global energy demand = +2.3 %/Yr (last 20 Yr).

### What Should Stay the Same in Our Industry?

- Our emphasis on cutting-edge technology.
- Our emphasis on best-in-class talent.
- Our very high "say/do" ratio (over-deliver!).
- Our ability to adapt.
- We must produce 97 million STB/D, 0.4 tcf/D (day job).

### Energy Mix

- Oil and gas will continue to dominate the energy mix.
- Renewables growing, but infrastructure is main challenge.
- Hydrogen will eventually dominate (decades from now).

**What we now call "Energy Transition" will take decades or generations.**



***Very last words ...***

# Challenge, Opportunity, Responsibility, and Duty



**We are facing an energy future that will be facilitated by what challenges, opportunities, and responsibilities our societies decide to embrace and engage. The existential threats to life on this planet are population, pollution, and frankly, a disregard for the fragility of life caused by the arrogance of mankind — but the solutions are water, food, technology, manufacturing, services, and education — and the key to all of these solutions is energy.**

**On this occasion of the 150th anniversary of the AIME, I ask that we commit our 4 societies to a sustainable energy future that is carbon neutral and scalable for a population that is growing at  $\approx 1$  percent/year, while energy demand is growing at  $> 2$  percent/year. We have the people, the technology, the motivation, and frankly, we have the duty to do so. I ask much, but 150 years ago do you believe our founders had any less of an ambition, or any less of a commitment to serve society? We have a call to duty, and to act; let's get to it.**

***A call to act.***

# Society of Petroleum Engineers (SPE)

*End of Presentation*

AIME 150th Anniversary Meeting

03 October 2021

Tom Blasingame — 2021 SPE President



Society of Petroleum Engineers