

# **Facing the Hard Truths about Energy\***

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## **The Five Core U.S. Strategies**

- Moderate demand by increasing energy efficiency
- Expand and diversify U.S. energy supply
- Strengthen global and U.S. energy security
- Reinforce capabilities to meet new challenges
- Address carbon constraints

1

National Petroleum Council

# Facing The Hard Truths About Energy

A Comprehensive View To 2030  
Of Global Oil And Natural Gas

**AAPG San Antonio**

Rod Nelson  
Schlumberger

## **Notes by Presenter**

**Thank you – I am delighted to be here at the RMI breakfast meeting to present a very brief overview of the National Petroleum Council Study- facing the hard truths about energy, and I hope that this will encourage you to read the report in full. It is indeed a landmark Study for the NPC – probably the most comprehensive ever undertaken in the NPC’s proud 60 year history. My presentation will be divided into 3 parts : I’ll describe the Study origin and approach, and what has made this effort different I’ll then summarize the findings of the Study – the “hard truths” Finally, I’ll explain the five core strategies recommended for the US**

## *The Secretary's Suggested Questions*

- What does the future hold for global oil and natural gas supply ?
- Can incremental oil and gas supplies be brought on-line, on time, and at a reasonable price to meet future demand without jeopardizing economic growth ?
- What oil and gas supply and / or demand-side strategies does the Council recommend the U.S. pursue to ensure greater economic stability and prosperity ?

## **Notes by Presenter**

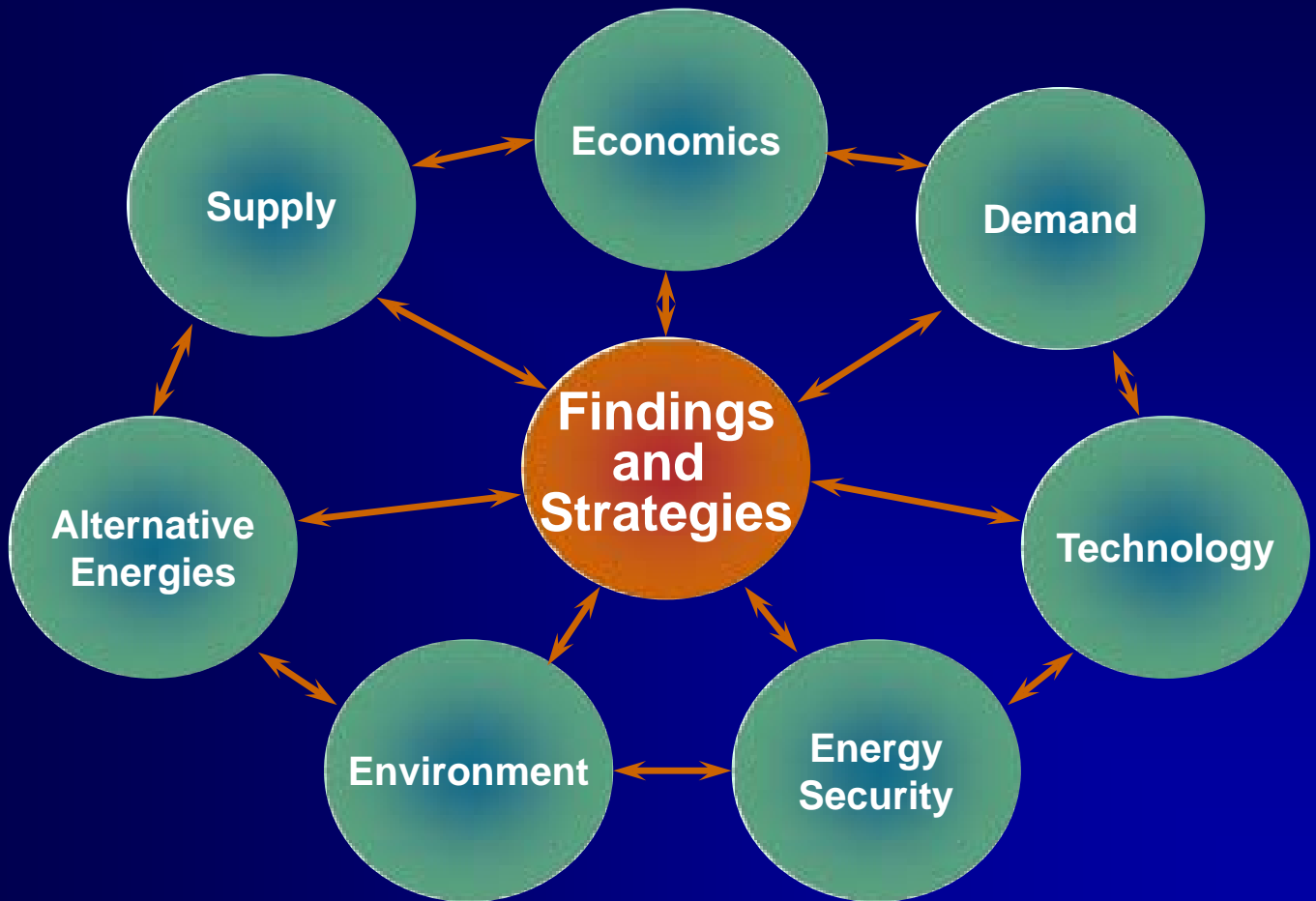
**The origins of the Study date back to October 5, 2005, when the Secretary of Energy, Sam Bodman, requested that the NPC consider the following three questions :**

**What does the future hold for global oil and natural gas supply ?**

**Can incremental oil and gas supplies be brought on-line, on time, and at a reasonable price to meet future demand without jeopardizing economic growth ?**

**What oil and gas supply and/or demand-side strategies does the Council recommend the U.S. pursue to ensure greater economic stability and prosperity ?**

# Dimensions of the Study



## **Notes by Presenter**

**Two separate teams were set up to assess demand and supply; a third team focused on technology; and a fourth team, geopolitics and policy, considered what might be called "above ground" issues, especially energy security. No analysis of the future of oil and gas would be complete without consideration of the potential alternatives to oil and gas - biomass, other renewables, nuclear, coal - so we organized expert resources to address such topics through subgroups. In preparing our findings and recommendations, we felt it very important to consider all options through 8 economic, environmental, and security lenses - creating a balanced set of outcomes not always obvious in other parallel studies.**

**The efforts undertaken to gather information and develop conclusions were truly open and transparent; with ideas recycled continuously across and among diverse teams, and finally integrated into the report.**

## *What We Learned*

- ✓ Global demand growth projected at 50-60%
  - ✓ Improving living standards for a growing global population
- ✓ Coal, oil, and natural gas will remain indispensable to meeting total projected energy demand growth
- ✓ The world is not running out of energy resources, but
  - ✓ Risks are accumulating to continuing expansion of oil and natural gas production from conventional resources
  - ✓ Risks create significant challenges to meeting projected total energy demand



## **Notes by Presenter**

**Now let me turn to what we learned, It is a hard truth that .....**

**Global demand growth projected at 50-60%**

**Driven by improving living standards for a growing global population.**

**Coal, oil, and natural gas will remain indispensable to meeting total projected energy demand growth.**

**The world is not running out of energy resources, but**

**Risks are accumulating to continuing expansion of oil and natural gas production from conventional resources.**

**Risks create significant challenges to meeting projected total energy demand**



## ***What We Learned*** (continued)

- ✓ Risk mitigation will require expanding all economic energy sources, including:
  - ✓ Demand growth moderation through energy efficiency
  - ✓ Biofuels, other renewables, nuclear, coal, and unconventional oil and natural gas
- ✓ Each energy source will face significant challenges including:
  - ✓ Safety, environmental, technical, political, and impose infrastructure requirements or economic hurdles

## **Notes by Presenter**

**Risk mitigation will require expanding all economic energy sources, including:**

**Demand growth moderation through energy efficiency Biofuels, other renewables, nuclear, coal, and unconventional oil and natural gas**

**Each energy source will face significant challenges including:**

**Safety, environmental, technical, political, and impose infrastructure requirements or economic hurdles**



## ***What We Learned (continued)***

- ✓ “Energy Independence” is not realistic in the foreseeable future, however, U.S. energy security can be enhanced by:
  - ✓ Moderating demand growth
  - ✓ Expanding and diversifying domestic energy supplies
  - ✓ Strengthening global trade and investment
- ✓ Majority of U.S. energy workforce is eligible to retire within the next decade
  - ✓ Workforce needs to be replenished and trained
- ✓ Policies aimed at curbing carbon emissions will alter the energy mix, increase energy-related costs, and require reduction in demand growth

## **Notes by Presenter**

**Energy Independence” is not realistic in the foreseeable future, however, U.S. energy security can be enhanced by:**

**Moderating demand growth**

**Expanding and diversifying domestic energy supplies**

**Strengthening global trade and investment**

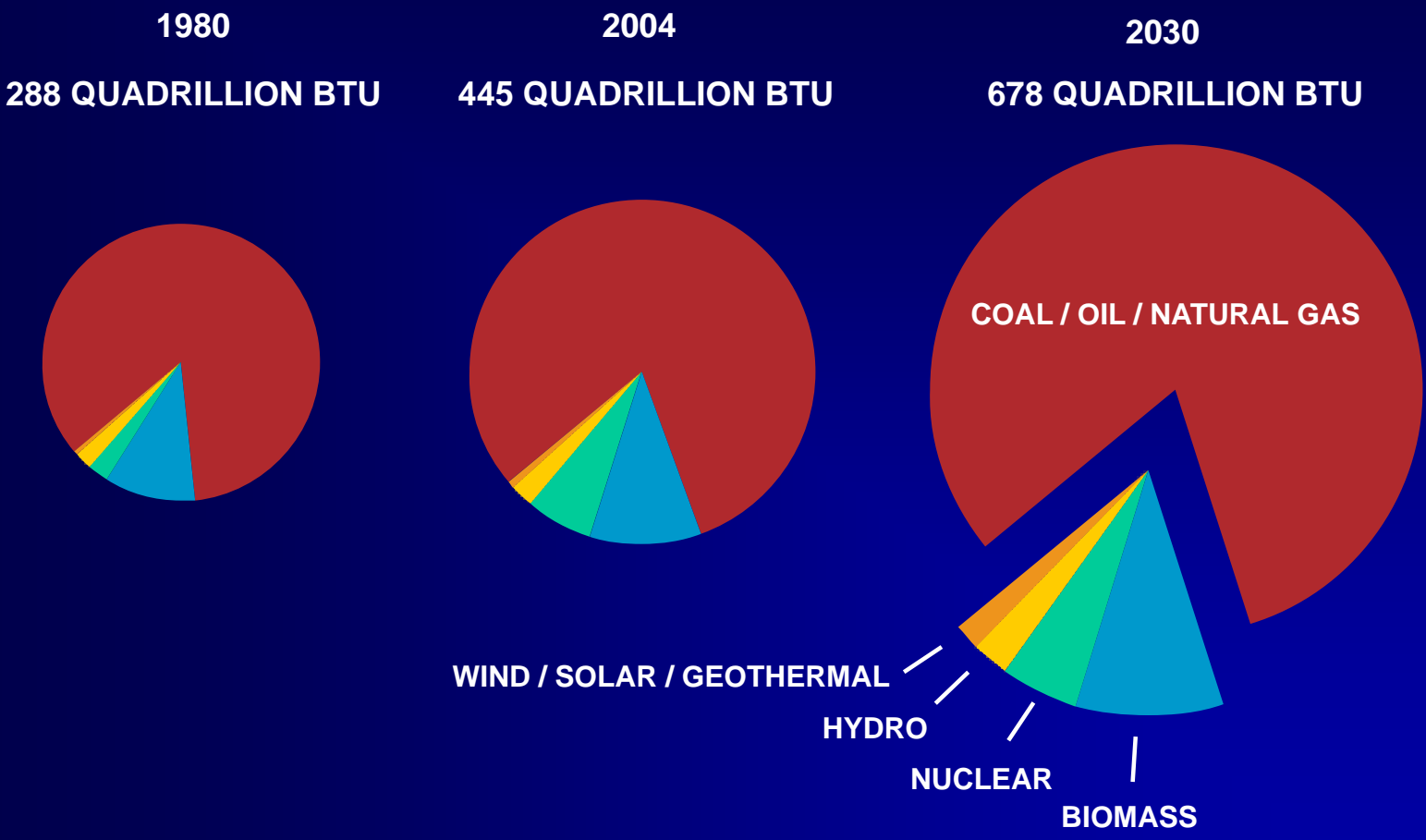
**Majority of U.S. energy workforce is eligible to retire within the next decade**

**Workforce needs to be replenished and trained**

**Policies aimed at curbing carbon emissions will alter the energy mix, increase energy-related costs, and require reduction in demand growth**

**I do not have time to cover all of the key hard truths in depth – so let me share some of the key data that underpinned the key findings – starting with global demand for energy.**

# Coal, Oil, and Natural Gas Will Remain Indispensable



Source: IEA REFERENCE



Global Oil and Gas Study

## **Notes by Presenter**

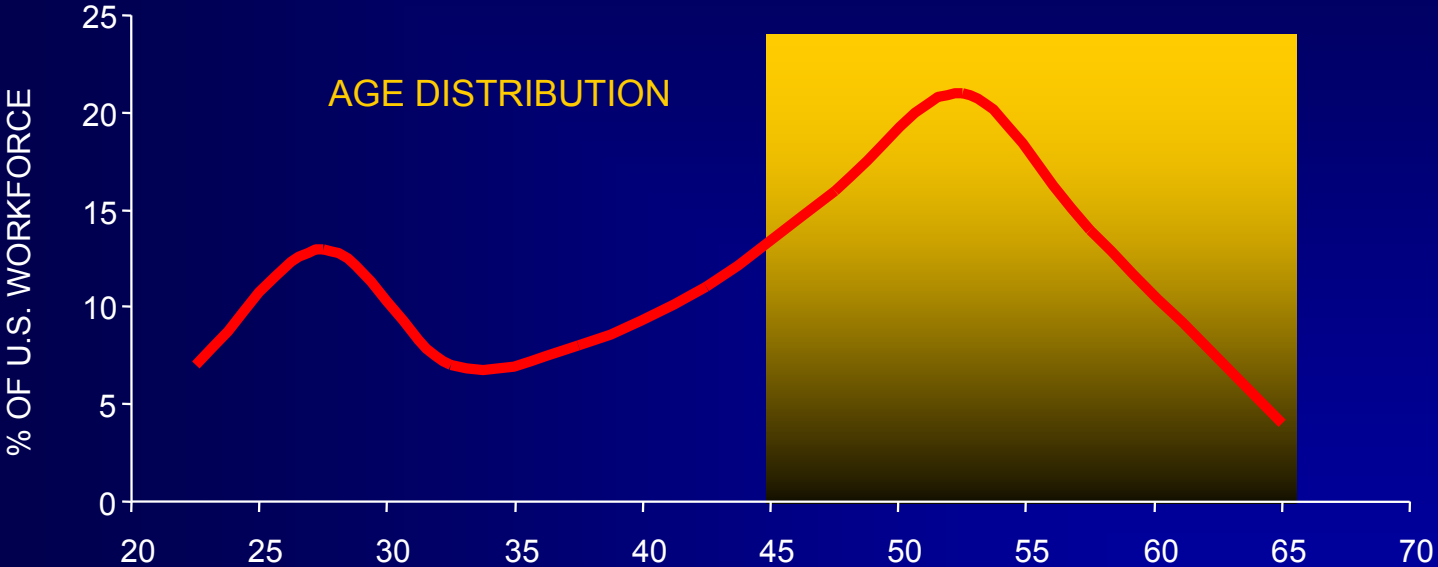
**This is the IEA reference case outlook which is generally indicative of most of the outlooks that we reviewed.**

**We have seen significant growth in non-fossil fuel energy sources and more is projected.**

**Although the volume of non-fossil fuels is growing rapidly, fossil fuels will continue to play a significant role through 2030.**

# U.S. Human Resources Challenge

OVER HALF OF THE WORKFORCE ELIGIBLE TO RETIRE IN NEXT 10 YEARS



Source: U.S. Dept of Labor



## **Notes by Presenter**

### **On the Human Resources front .....**

**As most of you are well aware, the oil industry experienced a hiring surge in the late 70's and early 80's followed by an extended period of decline, resulting in the peak evident in this US industry age distribution.**

**A recent influx of new talent has not made up for decades of depressed hiring activity. For example in the past few years Schlumberger has globally hired more than 9000 graduate engineers.**

**As a result, over half of today's workforce is eligible for retirement within the next 10 years – often referred to as “the big crew change”.**

**The workforce must be replenished, but this challenge is exacerbated by an overall shortage of science and engineering graduates, particularly women and minorities.**

**Additional challenges include the industry's image and competition from other industries. We as an industry and as a country must tackle this, as this is not true globally.**



## *The Five Core U.S. Strategies*

- Moderate Demand by Increasing Energy Efficiency
- Expand and Diversify U.S. Energy Supply
- Strengthen Global and U.S. Energy Security
- Reinforce Capabilities to Meet New Challenges
- Address Carbon Constraints

***There Is No Single, Easy Solution***

## **Notes by Presenter**

**Having reviewed the data supporting the hard truths, let me turn finally to a summary of the five core strategies recommended by the NPC. The report contains some 48 detailed recommendations for US policy makers' consideration. The five core strategies are:**

**Moderate Demand by Increasing Energy Efficiency**

**Expand and Diversify U.S. Energy Supply**

**Strengthen Global and U.S. Energy Security**

**Reinforce Capabilities to Meet New Challenges**

**Address Carbon Constraints**

**(8) All of these strategies will be essential - there is no easy solution to the multiple challenges we face.**