



# **Man-power shortage in the oil and gas industry The short and long term outlook**

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# Background

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- There is a severe shortage of technical staff in the oil and gas industry
  - Industry needs are projected to grow by 30% over the next decade
  - Around 50% of present force is expected to leave the industry in the next 15 years
    - Average age of SPE members in US is 53.
- US universities are not graduating enough engineers to take care of future internal US needs
  - Number of PE graduates has dropped by around 80% in the last two decades
  - Universities have a severe shortage of faculty that is inhibiting their growth



# Background

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- Compensations for petroleum engineers has exploded in the last two years
  - Higher salaries
  - Retention bonuses
  - Other compensations
- Companies are aggressively “stealing” staff from each other
  - Work disruption
  - Lower efficiency
  - Lack of loyalty



# Critical Challenges

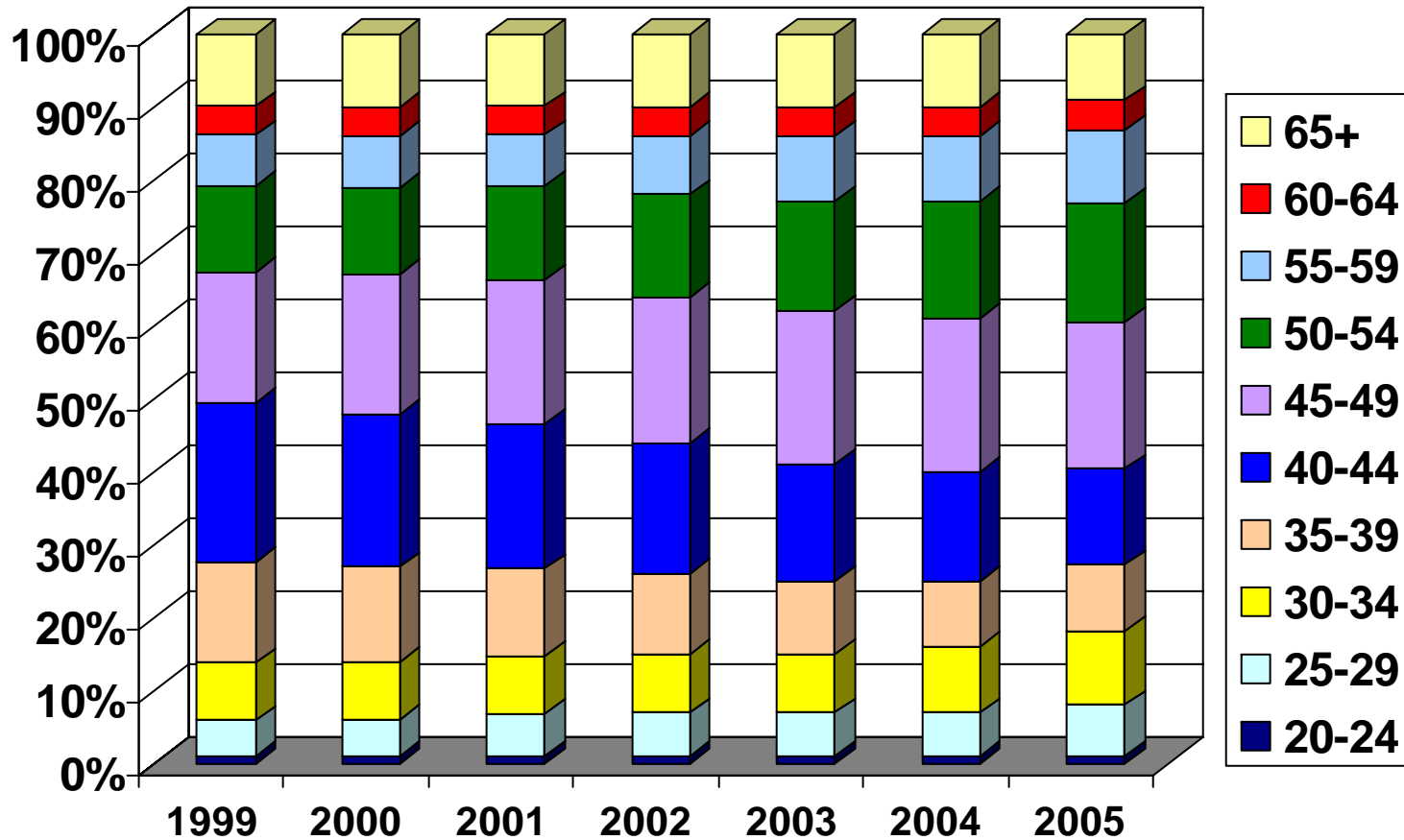
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- Quantity
  - How to satisfy industry short and long-term needs?
- Quality
  - How to attract the best and brightest?

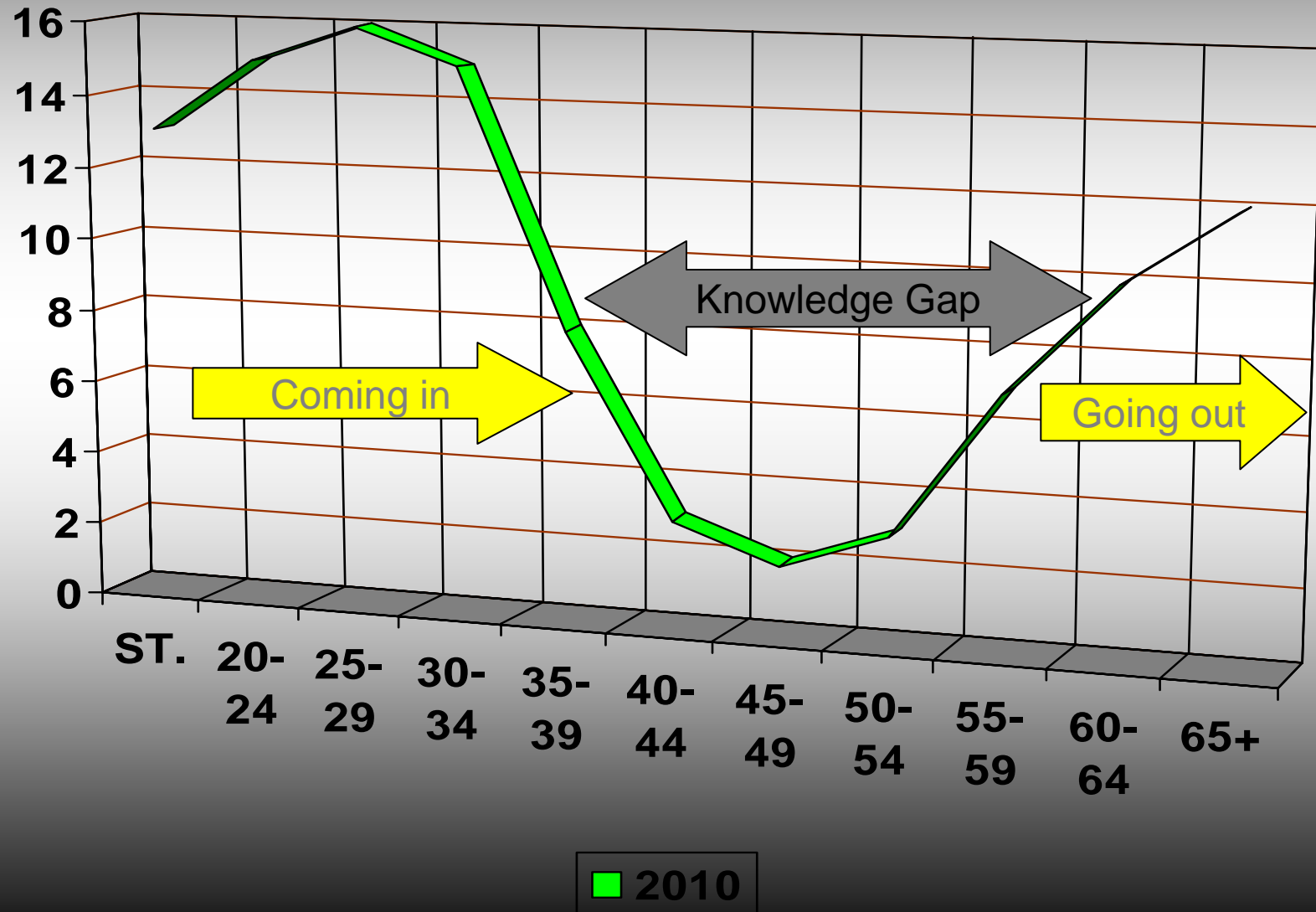
# SPE Demographics – Our Industry Is Aging



*SPE Membership, Excluding Student Members*



# Projection to 2010 of Industry Demographics (qualitative)





# Technical Staff Evolution

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- Around 50% of SPE members reside in US, but this percentage is steadily decreasing
- Around 80% of Petroleum Engineering students reside outside US
- Chances of a petroleum engineer working outside his home country are higher than 50% and steadily increasing
  - Cultural issues
  - Language issues
  - Technology issues
- Outsourcing is becoming prevalent for technical work
  - Cultural issues
  - Language issues
  - Technology issues
  - Training issues

# Cultural Issues

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- The present culture of oil and gas industry is US-based.
  - Empowerment and decision-making at the lowest level
  - Active engagement of young professionals
  - Emphasis on operational technical vs. theoretical technical skills
  - High level of business savvy and entrepreneurship
  - Heavy competition





# Technical Staff Evolutions

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- Wellsite staff still needs to reside in country for both Service and Operating companies
  - Higher dependency on non-PE engineers in US
  - More emphasis on internal or external training
- Increase in the number of Ex-pats



# Man-Power Strategies

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- Move Technology Centers outside US to relieve some of the pressure for US graduates
  - India is being considered by several companies
- Support local universities in oil and gas producing countries
- Increase reliance on out-sourcing for certain technical and operational staff
  - Growth of staffing companies
- Less centralized organizations



# Unique UH Position to Service the Need

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- Location in the center of the need
- Access to talent
- Access to best technical minds in the oil and gas industry to help with teaching
- Clean slate
  - Program designed in collaboration with industry technical leaders/experts
  - Shape it specifically to meet market needs going forward
  - Recruit the talent – primarily locally -- to meet the defined program
- Most UH graduates tend to stay in Houston



# Principles Underlying Program Design

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- Commitment to industry participation from the beginning
- Next generation focus in all aspects of program design
  - Computer systems, data integration, data management
  - Leadership and entrepreneurship
  - Greater curriculum flexibility, diversity of offerings and schedules
- Integration of education, mentoring, work experience
  - Internships
  - Industry mentors
  - Project-based courses

# Why UH

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- Provide education opportunities to the very large working population of Houston, specially those already in the oil and gas industry
- Provide “transition stop” to soften the cultural shock and prepare students for global employment
  - UH is already attracting a very diverse student population