



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

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Background

- 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

- 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



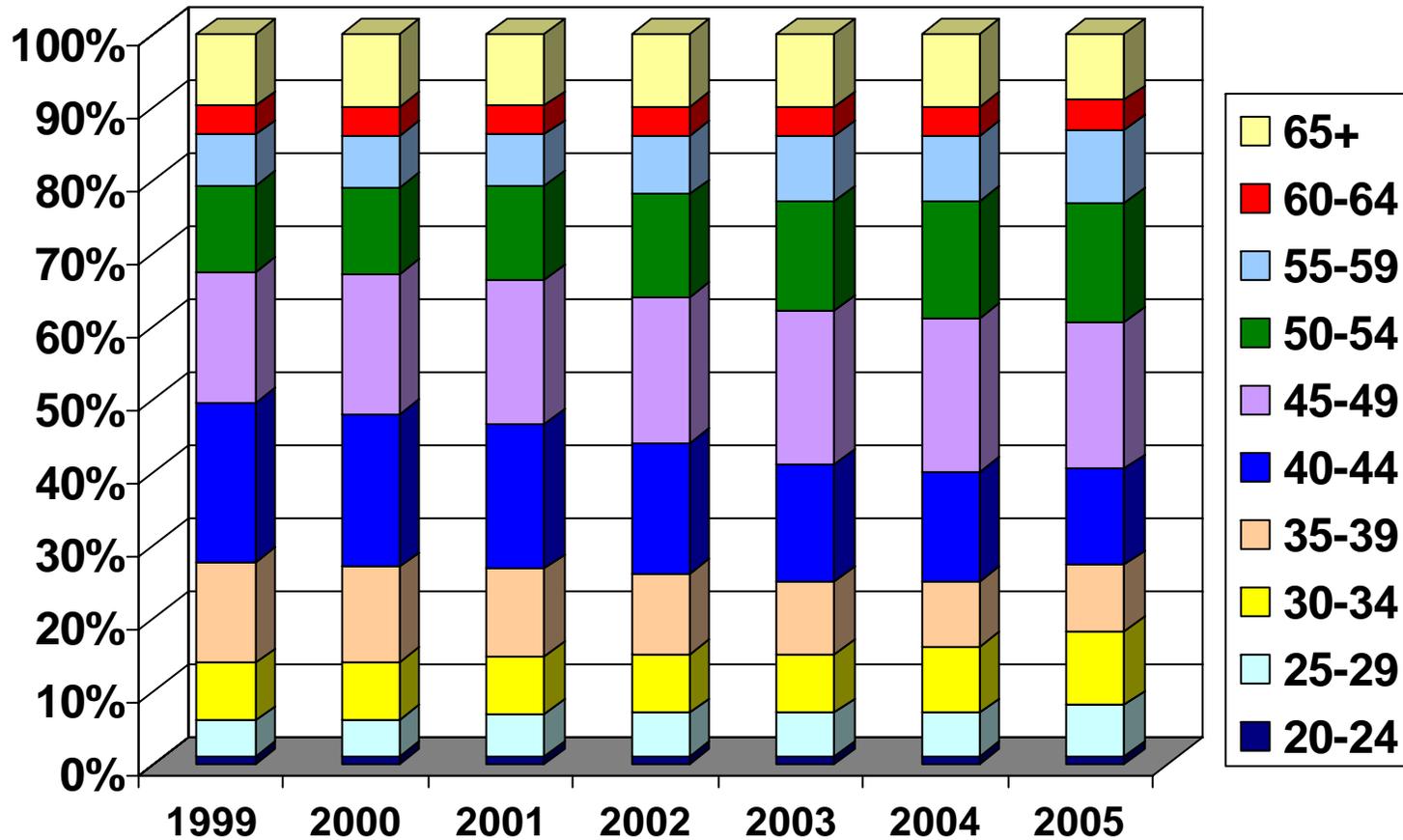
Critical Challenges

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

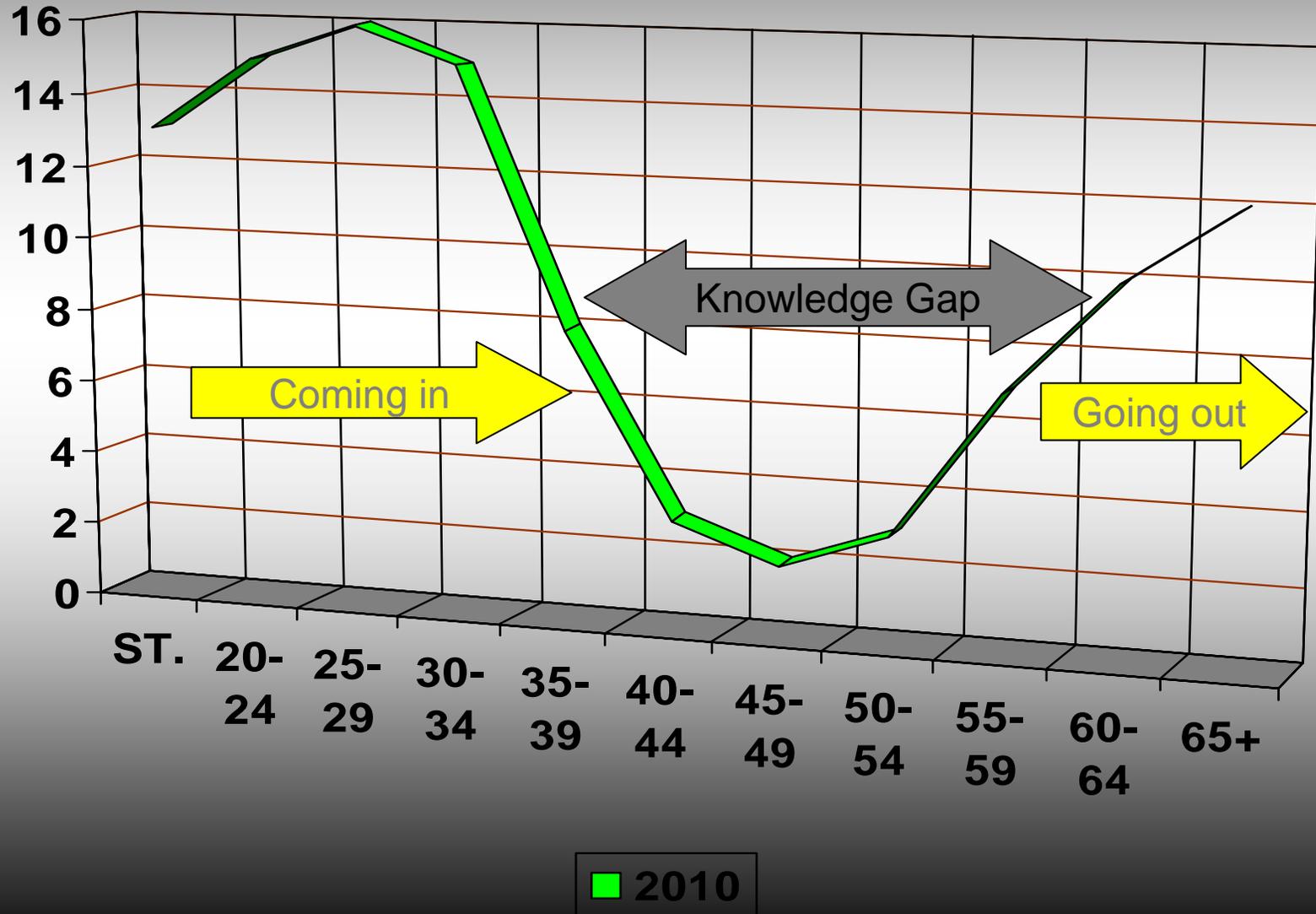
SPE Demographics – Our Industry Is Aging



SPE Membership, Excluding Student Members



Projection to 2010 of Industry Demographics (qualitative)





Technical Staff Evolution

- 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



- 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

- 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

- 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

- 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

- 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



- 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