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**Strategic
Cooperation and
Mobility of
Researchers -
Opportunities and
Threats**


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Sustainable Energy Systems

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arsenal research: Facts & Figures

- Turnover: € 17,000,000 / year
- Staff: 180 employees
+ temporary contracts
- Proportion of university graduates: 62 %
- Average age: 36
- International team
- 10,100 m² research infrastructure
- 5,500 m² high-quality laboratories



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Strategic research areas

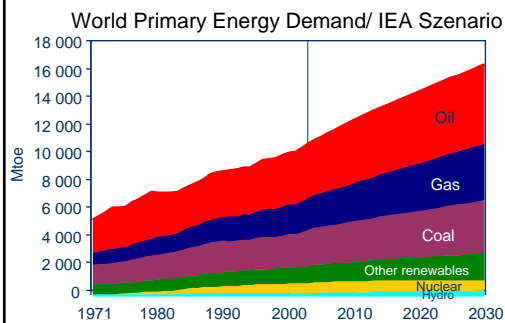
- Energy
 - Energy in Buildings
 - Energy Generation & Distribution

- Mobility
 - Intelligent Transport Infrastructure
 - Advanced Vehicle & Propulsion Systems

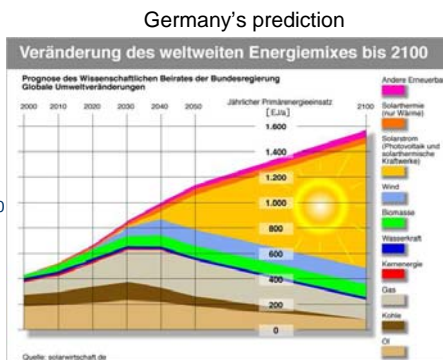


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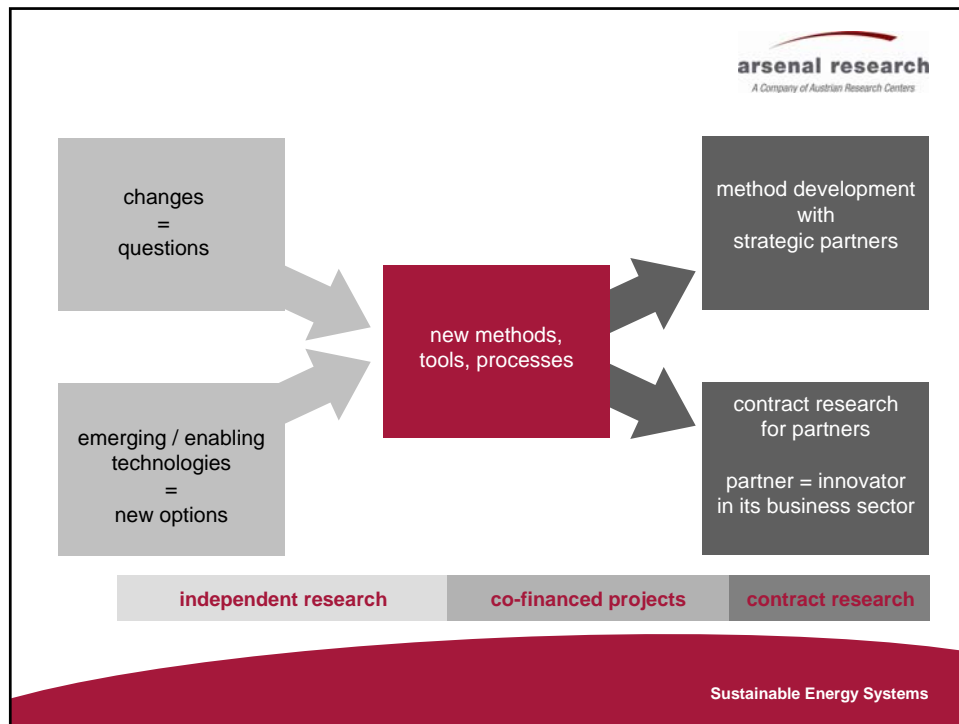
World wide increasing energy demand



Oil and gas together account for more than 60% of the growth in energy demand between now and 2030 in the Reference Scenario



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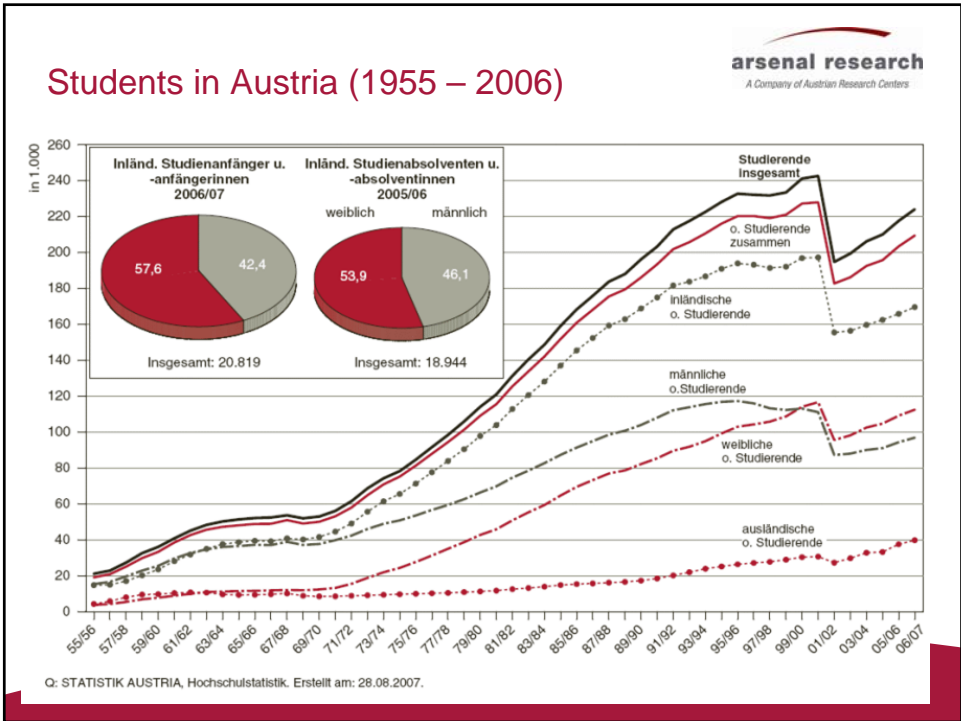
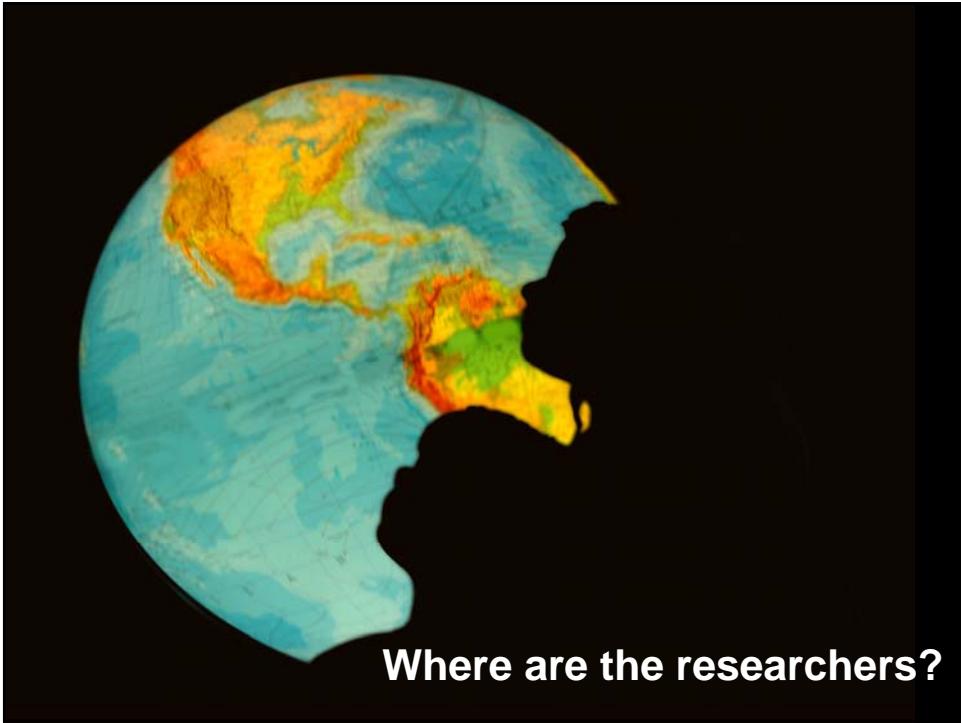


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Methodological scientific approach

- High expertise in numerical simulation
 - Analysis of complex systems
 - Design and development of innovative solutions
- Cutting-edge laboratory infrastructure
 - Examination of concepts, components and systems under realistic conditions
 - Validation of simulation models
- Hardware-in-the-loop (HIL) simulation
 - Simulation-based real-time testing
 - Optimisation and testing of new solutions at early stages in the development process

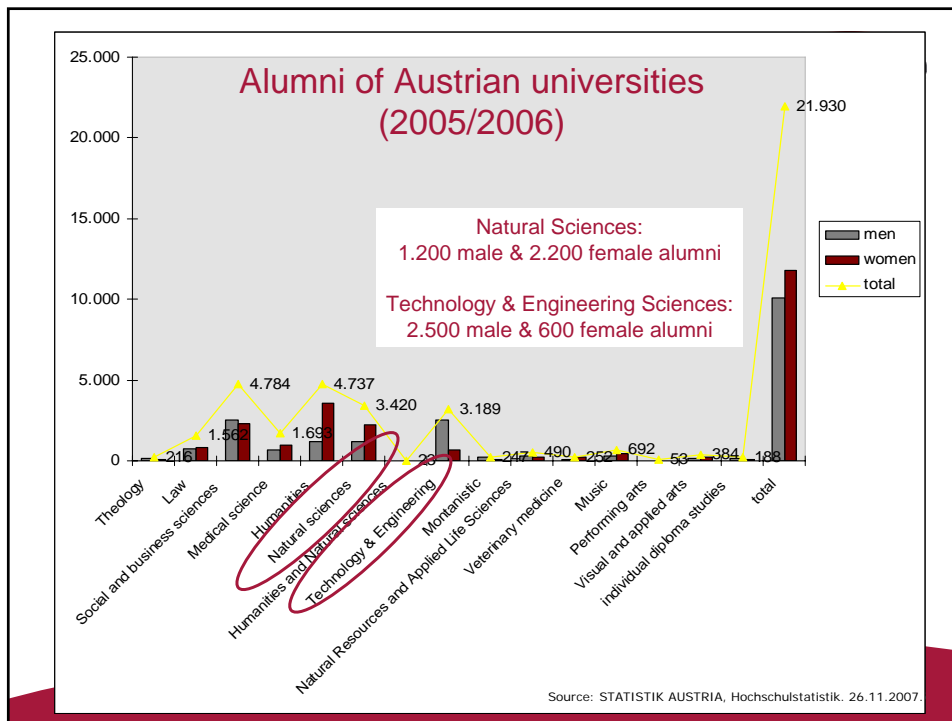
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At the beginning...

- 200.000 Austrian students (winter semester 2005/06)
- fields of study chosen by beginners
 - law, medical science, business administration & psychology most popular
 - natural sciences and technological & engineering sciences attract about 14 % of beginners (each)
 -  number of students at technical universities slightly decreasing in Austria
 -  number of students declining sharply in certain disciplines within EU (physics, chemistry, mathematics and many branches of engineering)

Sources: STATISTIK AUSTRIA, Hochschulstatistik 2005/2006, 2006; Europe needs more scientists. European Commission, 2004.



Having a closer look on Austrian alumni...

- final degrees in technical fields (2004/2005)
 - Natural Sciences 800 men 1.900 women
 - > Physics 40 12
 - Technology & Engineering 1.900 men 500 women
 - > Civil engineering 160 31
 - > Electrical engineering 172 8
 - > Computer sciences 521 77
 - > Mechanical engineering 55 3

- gender distribution totally...
 - 54% female students 54,7% female alumni

Source: STATISTIK AUSTRIA, Hochschulstatistik 2005/2006, 2006.

Career perspectives

- „There is a widely held perception that careers in science, engineering and technology (SET) are very unattractive and hold little appeal for young people. This perception covers remuneration, career structure, work environment, status and marketing.“
- But the truth is...
 - ...in industrial sector remuneration is in the upper quartile of professions
 - ...unemployment in science, engineering and technology (SET) is lower than of population at large
 - ...diversity of careers is great and more varied than in any other sector
- Why are there so many difficulties with recruiting scientists?

Source: Europe needs more scientists. European Commission, 2004.

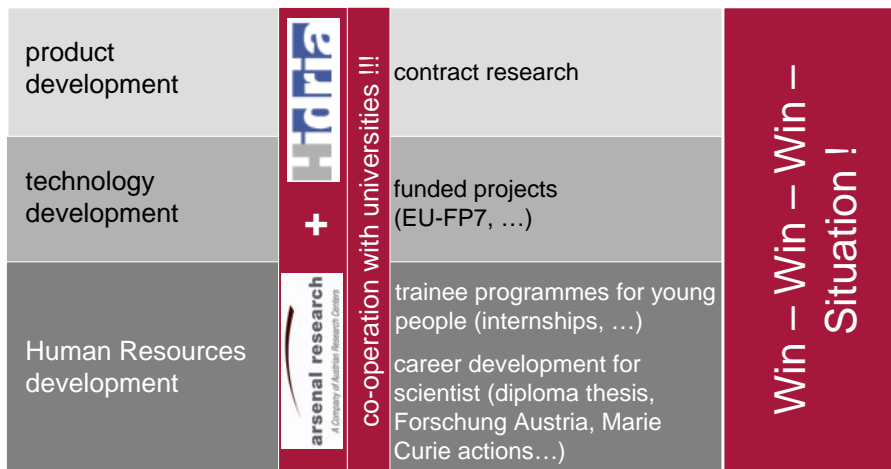
Joining forces ...



... to reach these manifold goals

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Long-term co-operation



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What we think today, we will be tomorrow.
Was wir heute denken, werden wir morgen sein.

(Max Thürkau)