Sustainable Campus Conference
Zürich, April 25, 2006

Gerhard Schmitt
Vice President ETH

**World's top cities offering the best quality of life**

(New York is the base city with a score of 100 points)

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<tbody>
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<td>Australia</td>
<td>Sydney</td>
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<td>Germany</td>
<td>Düsseldorf</td>
<td>107.2</td>
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<td></td>
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<td>Auckland</td>
<td>107.3</td>
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<td>Amsterdam</td>
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<tr>
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<td>Copenhagen</td>
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<td>Switzerland</td>
<td>Bern</td>
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</tr>
<tr>
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<td>Germany</td>
<td>Munich</td>
<td>106.8</td>
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<tr>
<td>10</td>
<td></td>
<td>Germany</td>
<td>Frankfurt</td>
<td>106.9</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Austria</td>
<td>Vienna</td>
<td>107.5</td>
<td></td>
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<tr>
<td>12</td>
<td></td>
<td>Canada</td>
<td>Vancouver</td>
<td>107.7</td>
<td></td>
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<tr>
<td>13</td>
<td></td>
<td>Switzerland</td>
<td>Geneva</td>
<td>108.1</td>
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<td>14</td>
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</tbody>
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**International Partners**

**ETH Zurich**
Swiss Network

- ETH Zurich
- University of Zurich
- Network of Universities
- Incubators and Clusters

**ETH Zurich Network in the City of Science Zurich**
ETH Zurich... on the move

- 13'412 students, + 707 since last year
- 2'794 PhD students (thereof), + 120 since last year, 770 new in 2006
- 6'300 FTEs, 8'300 employees
- 383 professors, thereof 51 assistant professors
- 16 departments, 82 institutes
- 1.15 Mio. budget, thereof 180 Mio. third party expenditure, > 230 Mio. income
- Creation of over 600 new qualified jobs since 1999, mainly with third-party funds
- 21 nobel prize laureates related to ETH

ETH Students

Students and Funding

ETH PhD Students: Growth

Internationalization

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
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<tbody>
<tr>
<td>Employees</td>
<td>30.7</td>
<td>34.6</td>
<td>41.2</td>
</tr>
<tr>
<td>Faculty</td>
<td>40.6</td>
<td>50.7</td>
<td>60.0</td>
</tr>
<tr>
<td>Scientific Staff</td>
<td>17.2</td>
<td>15.3</td>
<td>15.4</td>
</tr>
<tr>
<td>General Staff</td>
<td>17.1</td>
<td>16.7</td>
<td>17.2</td>
</tr>
<tr>
<td>Students</td>
<td>19.2</td>
<td>19.6</td>
<td>21.6</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>13.5</td>
<td>15.0</td>
<td>14.9</td>
</tr>
<tr>
<td>Doctoral Students</td>
<td>42.7</td>
<td>46.3</td>
<td>54.9</td>
</tr>
<tr>
<td>PhD Students</td>
<td>49.6</td>
<td>53.2</td>
<td>61.8</td>
</tr>
</tbody>
</table>

Source: ETH Zurich, Facts and Figures 2005

ETH Strategy: Sustainability

- 1855: Founding date. Quality first, constant long-term financing
- 1965: Rapid expansion to Hönggerberg, Sustainability little concern
- 1995: Sustainability as part of ETH’s strategy, mission statement, planning activities
- 2005: Sustainable Campus Science City, integrated sustainability
Infrastructure development in three knowledge spaces

ETH Zentrum ETH Science City ETH World

ETH Zentrum: Kulturmeile

Source: Baudirektion Kanton Zürich (2006)

Masterplan Science City

Energy Consumption: Objectives

- Low emission energy and media supply
- High reliability of supply (energy mix, redundancy)
- Economic efficiency (LCC)
- Low pollutant production

CO₂-production of Science City to be cut in half until 2017
Specific energy values for Science City

Objective: Minimizing energy consumption with increasing area

Area: + 60%
Electricity: – 28%
Heating: – 60%
Cooling: – 60%

Evaluated alternatives
1. Replacement of hot water boilers
2. Connection to district heating
3. Wood chip heating
4. Ground energy storage
5. Deep heat mining

Alternatives: CO₂-Production

Alternatives: water consumption

Conclusions
- If the ecological targets of ETH Zürich are consistently pursued, energy efficiency will be increased and CO₂ production cut back by 50% until 2017.
- The board of ETH Zürich decided the implementation of a dynamic ground energy storage system starting in 2008
- This allows ETH Zürich to stay below the limits set by the Kyoto protocol
- CO₂-emissions in 2017 will fall below the requests of the 2000-Watt-Society → Novaltantis
Thank you for your attention!

Global position of ETH Zurich

<table>
<thead>
<tr>
<th>Shanghai Jiao Tong University Ranking 2006</th>
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</thead>
<tbody>
<tr>
<td>National Rank (Switzerland)</td>
</tr>
<tr>
<td>Regional Rank (Europe)</td>
</tr>
<tr>
<td>Global Rank</td>
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</table>

<table>
<thead>
<tr>
<th>Times Higher Education Supplement 2006</th>
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<tbody>
<tr>
<td>Regional Top 50 Universities (Europe)</td>
</tr>
<tr>
<td>Top 100 Science Universities</td>
</tr>
<tr>
<td>Top 100 Technology Universities</td>
</tr>
<tr>
<td>Top 200 Universities</td>
</tr>
</tbody>
</table>

Challenges for ETH Zurich and Switzerland

- ETH Zurich: A global university with national responsibility and local rooting
- Exemplary education of national and international leaders in science, industry, politics and society
- World-class research and knowledge transfer in natural and engineering sciences with global recognition and for national value creation
- New challenges like increasing global risks of natural and technical origins require new interdisciplinary methods on all levels

Strategic Planning ETH Zurich

Strategic Initiatives of ETH Zurich on the Institutional and National Level

ETH Zürich will concentrate its strategic initiatives into a few larger thematic priority fields of action, in order to make decisive contributions, in tandem with EPFL, the other research institutes of ETH Domain and the other Swiss universities, to the following major national challenges:

- Systems X, CH
- Environment and Sustainability (CCES) / Risks & Security
- Technology Initiative
- Neuroscience Initiative
- Swiss Design Science Initiative
- Swiss High-End Computing Initiative
ETH Zurich

- expands its role (with partners) as the Swiss Innovation Engine:
  - SystemsX.ch, the Swiss initiative in Systems Biology, and new Department of Biosystems and Systems Engineering in Basel D-BSSE
  - master plan for the University Center in the heart of Zurich
  - Science City, a new city quarter of thinking culture, a new participatory planning and financing process
  - NCCRs (Structural Biology, Climate, Neuroscience, COME), CES
- redefines its relations to other school systems:
  - Provide input for Gymnasien
  - define transfer of people and programs from and to Fachhochschulen
Science City: District for Think Culture

- **Goals**
  - Platform for the implementation of the ETH-Strategy
  - University campus with 24-hour operation
  - Node between science, industry and society

- **Target groups**
  - Teaching and research
  - Economy
  - Society

Components

Science + City

Campus

District

2003
Idea
Vision

2004
Test planning
Communication

2005
Master plan
Organisation

1st module: Imaging Center
(Opening: 1 September 2005)

1st building: Information Science Lab
2nd building: Sport Center

Milestones

- 2003 Project start
- 2004 Test planning
- 2005 Master plan
- 2006 First modules / competitions
- 2007 Finishing Information Science Lab
- 2008 Realisation of further subprojects
- 2009 Finishing Sport Center
- 2010 Move in first apartments
- 2011 Goals of Science City are largely achieved

Source: Science City – Stadtquartier für Denkkultur (2005)

International Strategy

- Strengthen relations with the institutions of the IDEA League (Imperial College, TU Delft, RWTH Aachen, Paris Tech), Unitech International and the International Alliance of Research Universities IARU (Yale, Berkeley, Tokyo, Beijing, ANU, NUS, Copenhagen, Cambridge, Oxford)
- Develop and implement the new ETHZ- Singapore Center for Global Environmental Sustainability SEC
- Expand ETH’s international strategy and relations with new emphasis on India, China, South America, Africa, next to the established relations with Europe, North America, Japan, Korea, Australia and South Africa.

Mission Statement of ETH Zurich

- Comprehensive education with interdisciplinary cooperation
- Further education as life-long process
- Basic and applied research as contribution to master mankind’s most urgent problems
- Encouragement of international networking and cooperation
- Cooperation with industry, society and public administration as well as knowledge transfer
- In the framework of her autonomy ETH Zurich practices an economical use of all financial and natural resources
- Responsible employer with open information policy and clear commitment to the location at Zurich

http://www.ethz.ch/about/missionstatement/index_EN

Students: planned growth

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2015</th>
<th>Change</th>
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<tbody>
<tr>
<td>Bachelorstudiend</td>
<td>5'220</td>
<td>6'875</td>
<td>21%</td>
</tr>
<tr>
<td>Masterstudiende</td>
<td>510</td>
<td>3'943</td>
<td>673%</td>
</tr>
<tr>
<td>Doktorand</td>
<td>2'670</td>
<td>3'600</td>
<td>35%</td>
</tr>
<tr>
<td>Gaststudiende</td>
<td>950</td>
<td>1'000</td>
<td>5%</td>
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<tr>
<td>MAS Studiende</td>
<td>360</td>
<td>500</td>
<td>39%</td>
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<tr>
<td>Diplomstudiende</td>
<td>2'980</td>
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<tr>
<td>Total</td>
<td>12'700</td>
<td>15'918</td>
<td>25</td>
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ETH Professors
### Public Transportation

![Public Transportation Map](image)

### Investment

<table>
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<tr>
<th>Alternative</th>
<th>Costs [CHF]</th>
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<tbody>
<tr>
<td>Replacement of hot water boilers</td>
<td>2.4 Mio</td>
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<tr>
<td>Connection to district heating</td>
<td>8.8 Mio</td>
</tr>
<tr>
<td>Wood chip heating</td>
<td>8.0 Mio</td>
</tr>
<tr>
<td>Ground energy storage</td>
<td>11.5 – 16.2 Mio</td>
</tr>
<tr>
<td>Deep heat mining</td>
<td>102.5 Mio</td>
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