

Sustainable Campus Mobility
Best Practices – Future Challenges

Panel B2: Sustainable Mobility on Campus

Panel Leader

Hans B. (Teddy) Püttgen

Professor – Chaire de Gestion des Systèmes Energétiques
Director – Energy Center
Ecole Polytechnique Fédérale de Lausanne - EPFL
Former President, IEEE Power Engineering Society

1

World-wide academic campuses

Campuses are similar to small and mid-size cities:

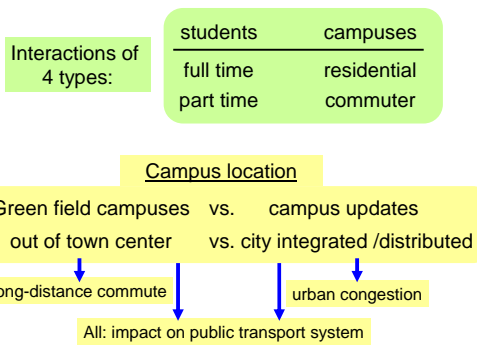
Need to organize life and activities for thousands of people:

- Instruction
- Research
- Community life
 - Sports
 - Events
 - Recreation
 - Restaurants
 - Shops

Can campus provide examples of sustainable mobility?

2

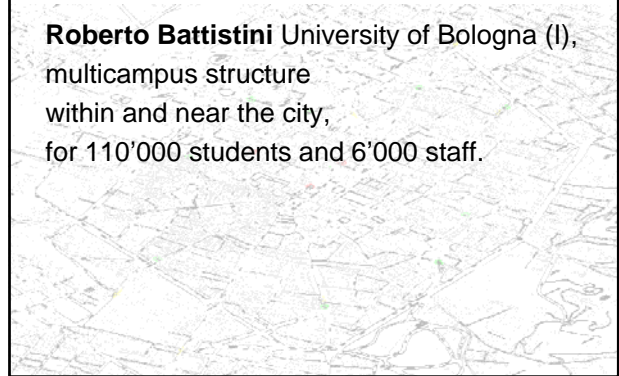
Several types of campuses



3

Panellists - 1

Roberto Battistini University of Bologna (I),
multicampus structure
within and near the city,
for 110'000 students and 6'000 staff.



Panellists - 2

Eddi Omcren Göteborg University (GU),
spread over the city,
50'000 students and 5,500 staff.



Panellists - 3

Bart Meehan Australian National University
(ANU)
Green field on the fringe of Canberra,
150 buildings
15'000 students and 3'600 staff.



6

Mobility panel issues

- most difficult problems
 - Increase of students and staff => additional buildings
 - multi-campus structures => increased commuting distance
 - both parents often work => child care infrastructure
- most pressing needs
 - Limited budget: green initiatives need to be cost effective
 - urgency for floor space => "no frills buildings",
 - sustained support from university administration is often limited
- elements of solutions – tools
 - Panellists
 - Audience

7

Sustainable mobility on the EPFL campus

Sustainable Campus Conference
Novatlantis
Zürich - April 26, 2007

Dr. Tristan Chevroulet and Prof. Hans B. (Teddy) Püttgen

Energy Center

Ecole Polytechnique Fédérale de Lausanne – EPFL

Contact: tristan.chevroulet@epfl.ch

Swiss academic landscape



ETHZ and EPFL: Funded by the Federal government

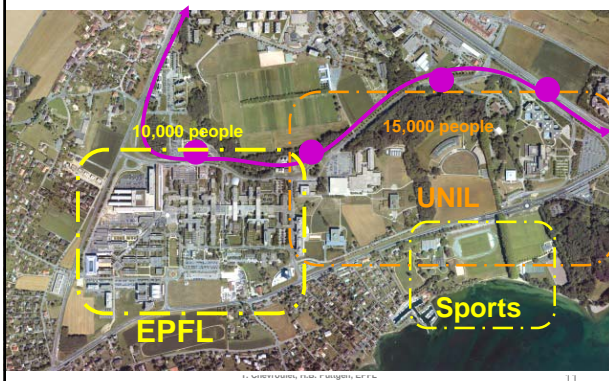
T. Chevroulet, H.B. Püttgen, EPFL

9

EPFL Campus



Access to EPFL campus



Campus configuration



2005 Figures

1. Electricity: 44 GWh
2. Mobility: 40 GWh ⁽²⁰⁰⁰⁾
3. Heating: 27 GWh

Surface travel

EPFL vehicles & business trips: 796,000 km
of which EPFL fleet drove 450,000,
... burning 42,000 litres fuel

T. Chevroulet, H.B. Püttgen, EPFL

13

EPFL mobility actions

User behaviour

RUMBA mobility observatory

Access to campus

- Improved public transport timetable
- Free half-fare rail card
- More bicycle racks + "bike-to-work" action

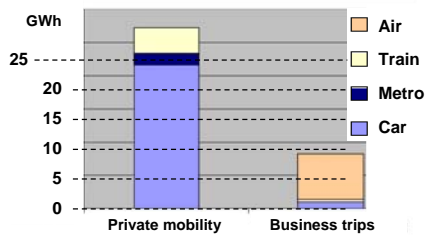
Business mobility

- Car sharing system (implemented: 2004)
10 vehicles - 50% dedicated to EPFL.

T. Chevroulet, H.B. Püttgen, EPFL

14

EPFL Mobility



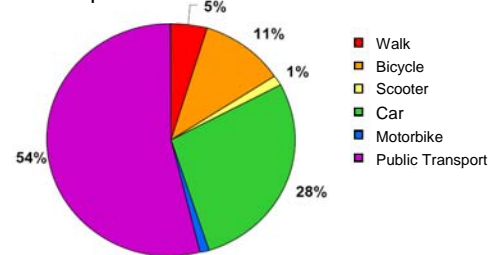
40 GWh / year ... 8'500 tons CO2
of which more than 5'500 tons from private motoring
(heating: 1'300 tons / year)

T. Chevroulet, H.B. Püttgen, EPFL

15

1.1 EPFL Access modal split

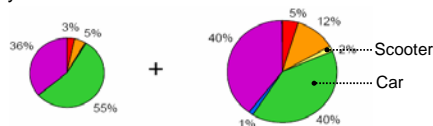
30% private mobility -> petrol-powered
54% public transport -> electricity-powered
16% self-powered



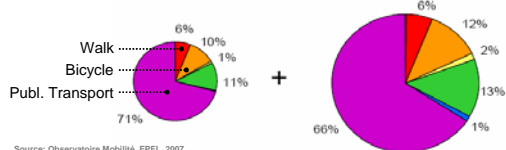
Source: Observatoire Mobilité, 2007

1.2 Staff vs. students

Staff mainly drive cars: 55% Women - 40% Men



Students move more sustainably: 87% Women - 84% Men

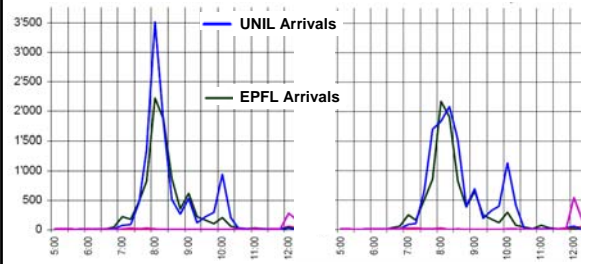


Source: Observatoire Mobilité, EPFL, 2007

17

Coordination with Public Transport Operation

2006: new class schedule to decrease morning peak

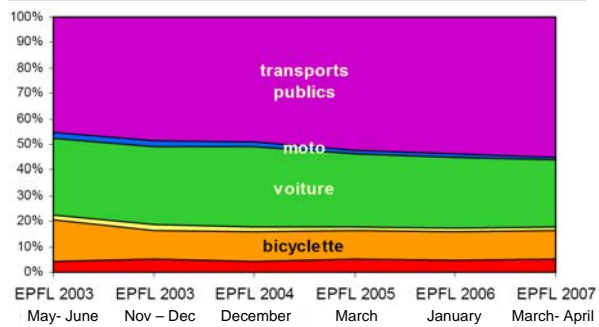


2005: EPFL and Unil start at 8:15 am 2006: EPFL at 8:15 am / Unil at 8:30 am

T. Chevroulet, H.B. Püttgen, EPFL

Adapted from: Observatoire Mobilité, EPFL, 2007

EPFL modal split evolution



T. Chevroulet, H.B. Püttgen, EPFL

19

Results of EPFL mobility actions

User behaviour

- RUMBA mobility observatory: diagnosis tool

Access to campus

- New metro timetable: more convenient travel
- 160 new bicycle places => room for 600 bicycles
- "bike-to-work": 450 participants at EPFL
- Half-fare rail card... above 50% access by public transport

Business mobility

- Car sharing system used by all faculties
- EPFL fleet reduced by 66%
- Users are satisfied
- Maintenance and fuel costs (03-05) – 23% => CHF 300'000.- saved
- Fuel savings (03-05) -22% => 25'000 litres saved

T. Chevroulet, H.B. Püttgen, EPFL

20

Next steps: campus densification

Mobility Plan - under implementation

Further improve public transport, increase safety on site, negotiations about implicit subsidy to car parking (fee: 10 €/month)



T. Chevroulet, H.B. Püttgen, EPFL