

# Testing potential solutions to control urban sprawl

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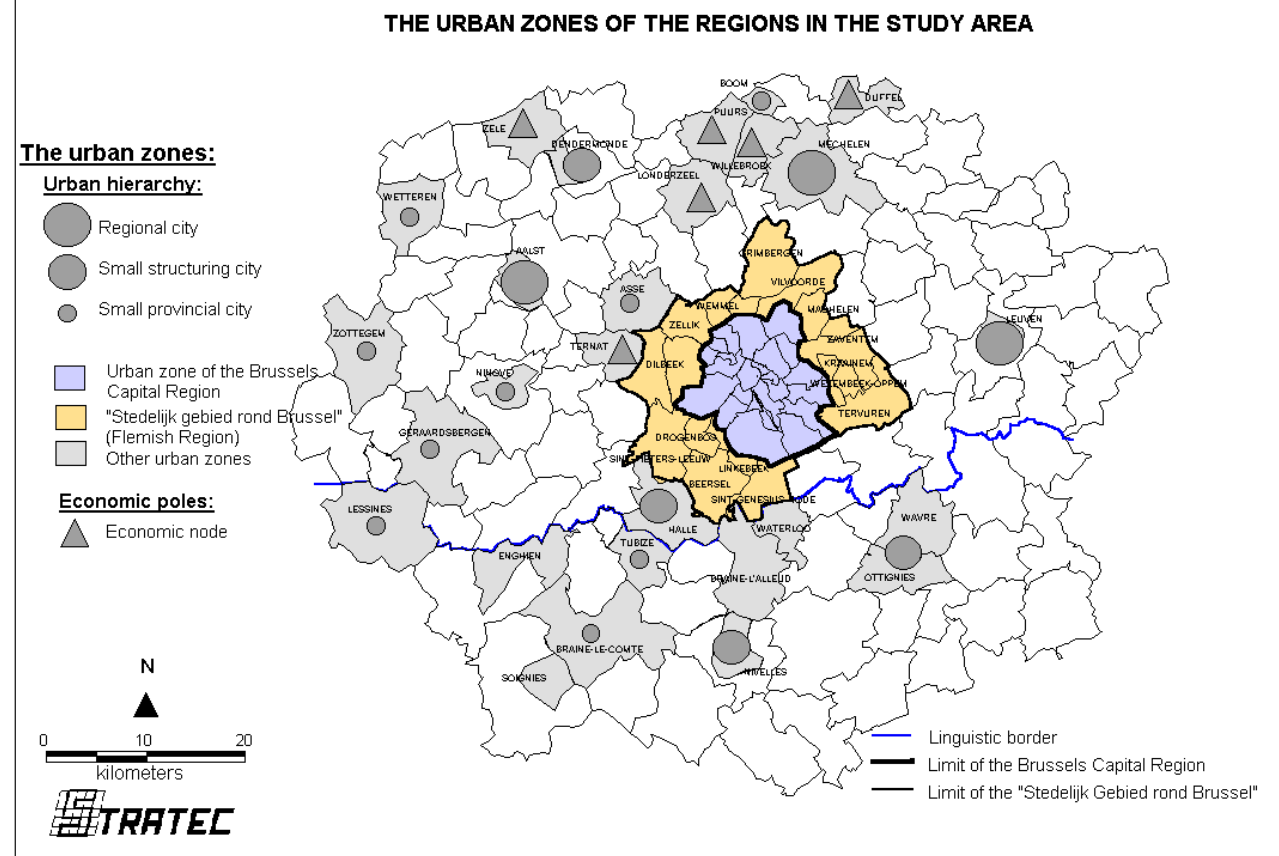
## The Brussels case city

## Brussels Metropolitan area:

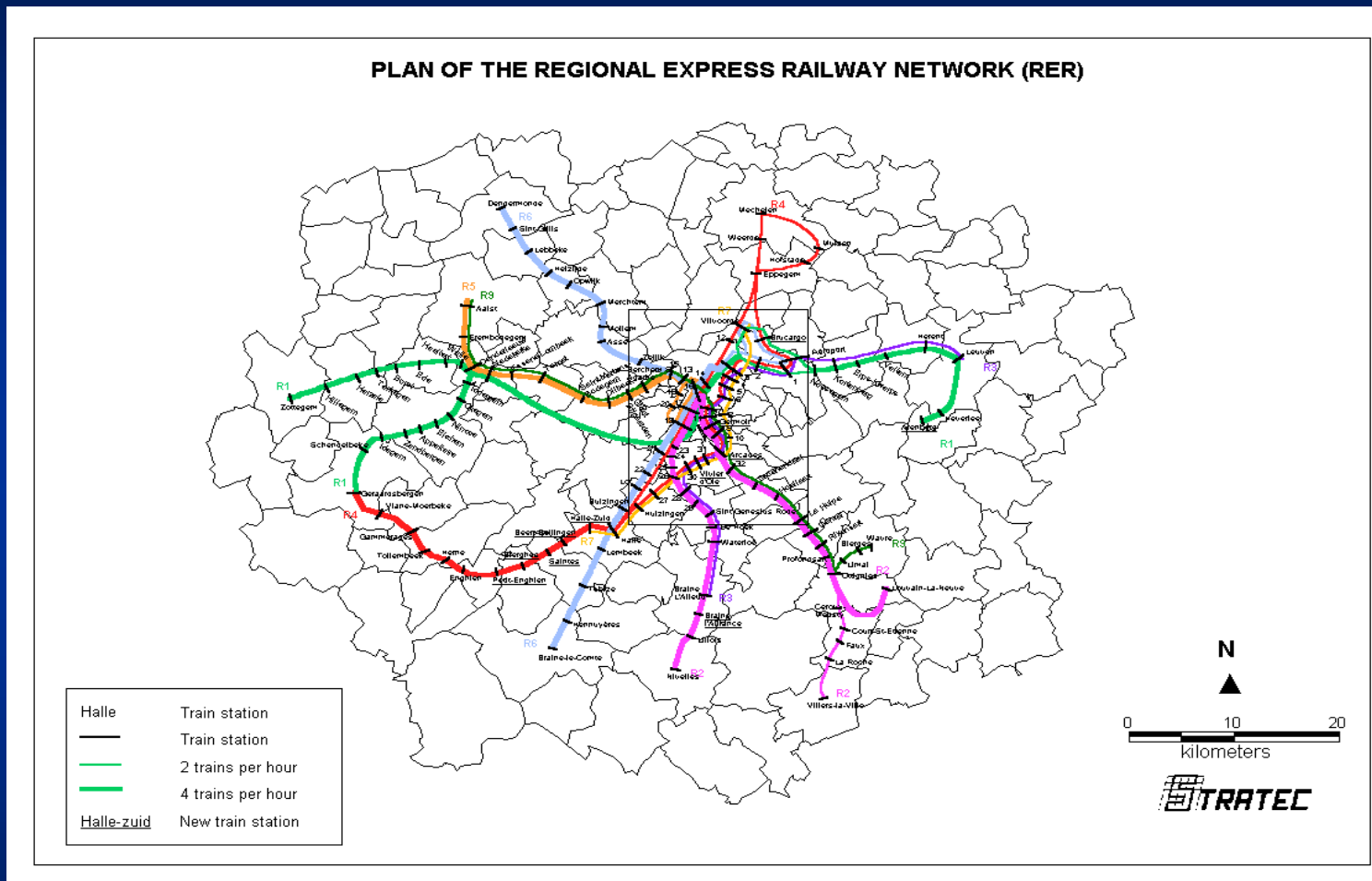
- 2.9 millions inhabitants
- 1.2 million jobs

## Brussels-Capital Region:

- 1 million inhabitants
- 650 000 jobs
- lost 120 000 inhabitants in 30 years



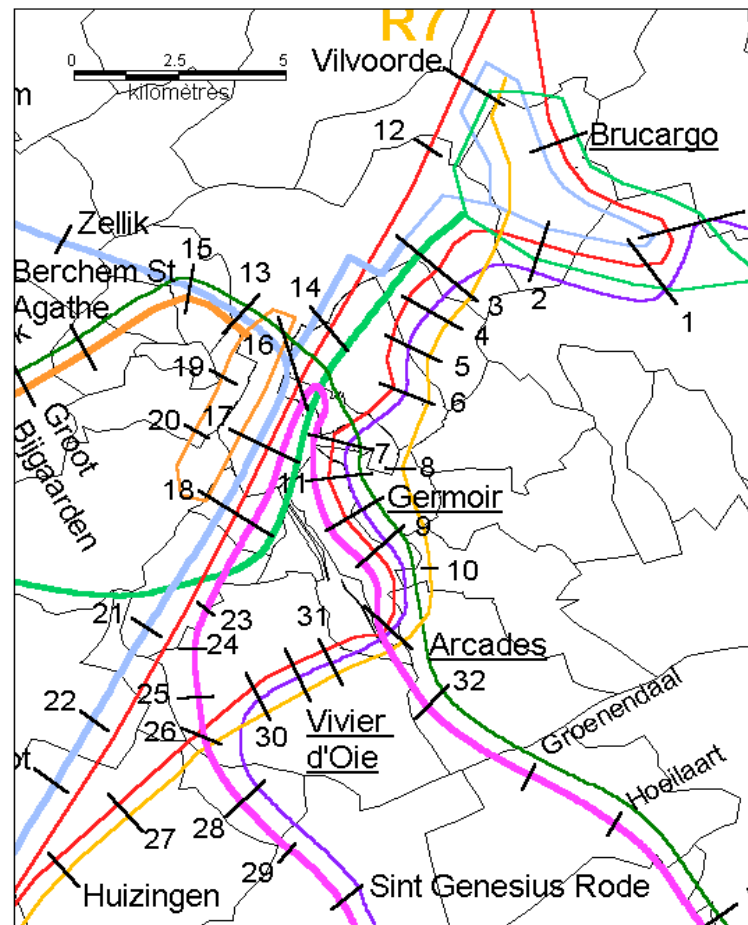
# The RER project



- ✓ Investment cost: about 900 millions € - 8 new lines
- ✓ Short run impact on mobility: *strong modal shift towards PT*
- ✓ Long run impact on spatial structure: *risk of re-launch of urban sprawl*

# The RER project

ZOOM OF THE REGIONAL EXPRESS RAILWAY NETWORK (RER) ON THE BRUSSELS CAPITAL-REGION

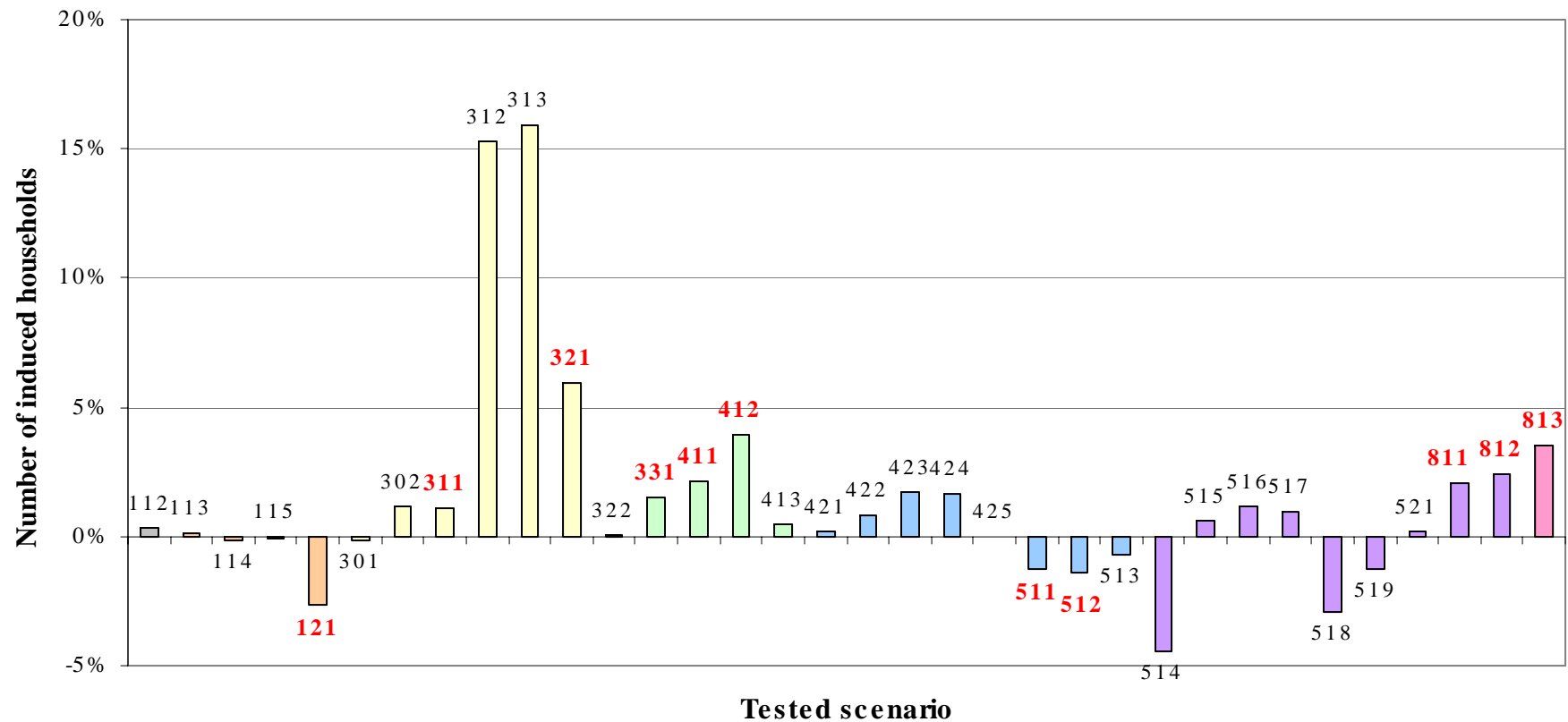


Numéro	Station
1	Zaventem
2	Diegem
3	Haren
4	Bordet
5	Evere
6	Meiser
7	Schuman
8	Mérode
9	Etterbeek
10	Delta
11	Luxembourg
12	Buda
13	Bockstael
14	Schaerbeek
15	Jette
16	Nord
17	Centrale
18	Midi
19	Simonis
20	Gare de l'Ouest
21	Forest-Midi
22	Ruisbroek
23	Forest-Est
24	Uccle-Stalle
25	Uccle-Calvoet
26	Moensberg
27	Beersel
28	Linkebeek
29	Holleken
30	Saint-Job
31	Boondaal
32	Boitsfort

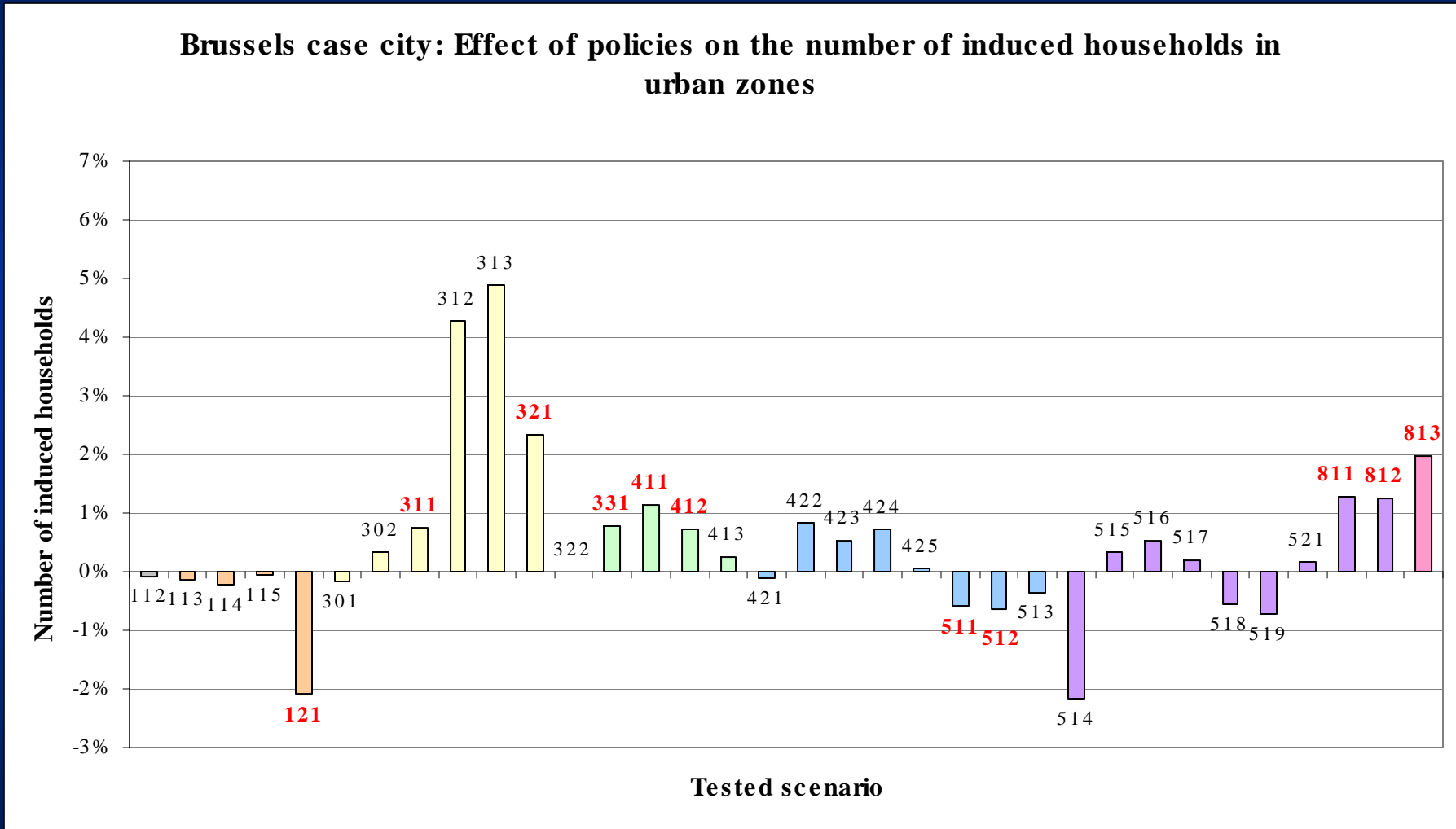


# Effect on the number of households in the Brussels-Capital Region

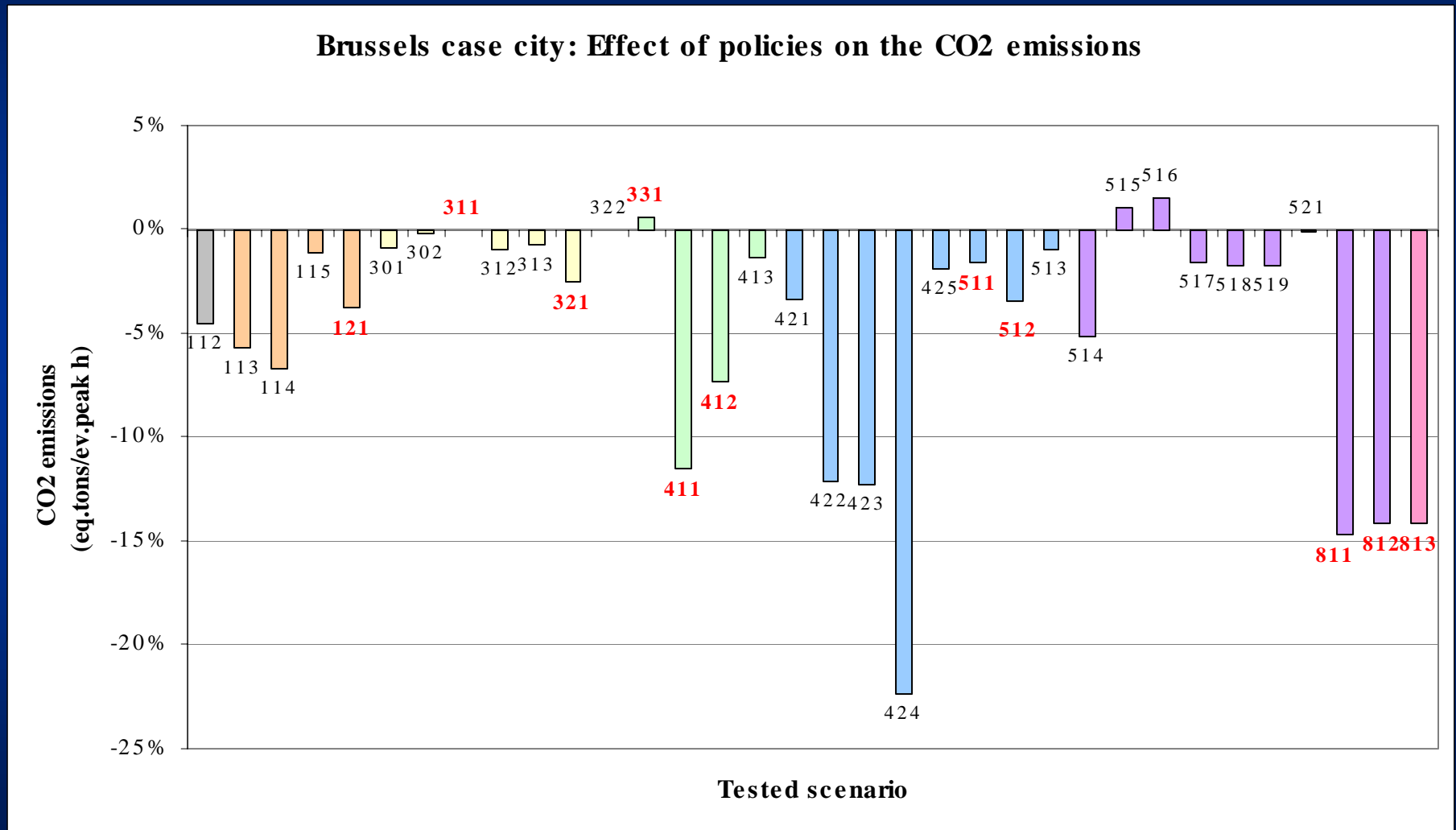
**Brussels case city: Effect of policies on the number of induced households in the urban centre**



# Effect on the number of households in the urban areas



# Effect on the CO2 emissions



# Synthesis of results (1/3)

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## ■ Most effective policies

*(i) with regard to urban concentration and land consumption:*

- Road pricing
- Fiscal measures related to land use
- Regulatory land use measure

## ■ Indirect effects of land use policies:

- Household-targeted policies: indirect effects on employment
- Employment-targeted policies: indirect effects on population



## Synthesis of results (2/3)

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- **All policies decreasing the generalised transport cost incite to urban sprawl:**
  - Improvement of PT commercial speed
  - Reduction of PT fare
  - Decrease of access time to rail stations
  
- **Decrease of the generalised transport cost limited to the central area makes it more attractive:**
  - See the results of the policy improving the PT commercial speed within the Brussels-Capital Region

## Synthesis of results – Individual measures (3/3)

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### ■ Most effective policies

*(ii) with regard to fuel consumption and air quality:*

- Road pricing
- Parking pricing + parking capacity restriction
- Express buses

### ■ Cordon pricing:

- Decrease of employment in the urban centre

### ■ Parking policy:

- Negative effect on employment
- Hence : spatial competition to be carefully considered when implementing such a policy

# Impacts of the combination 813 in the case of Brussels

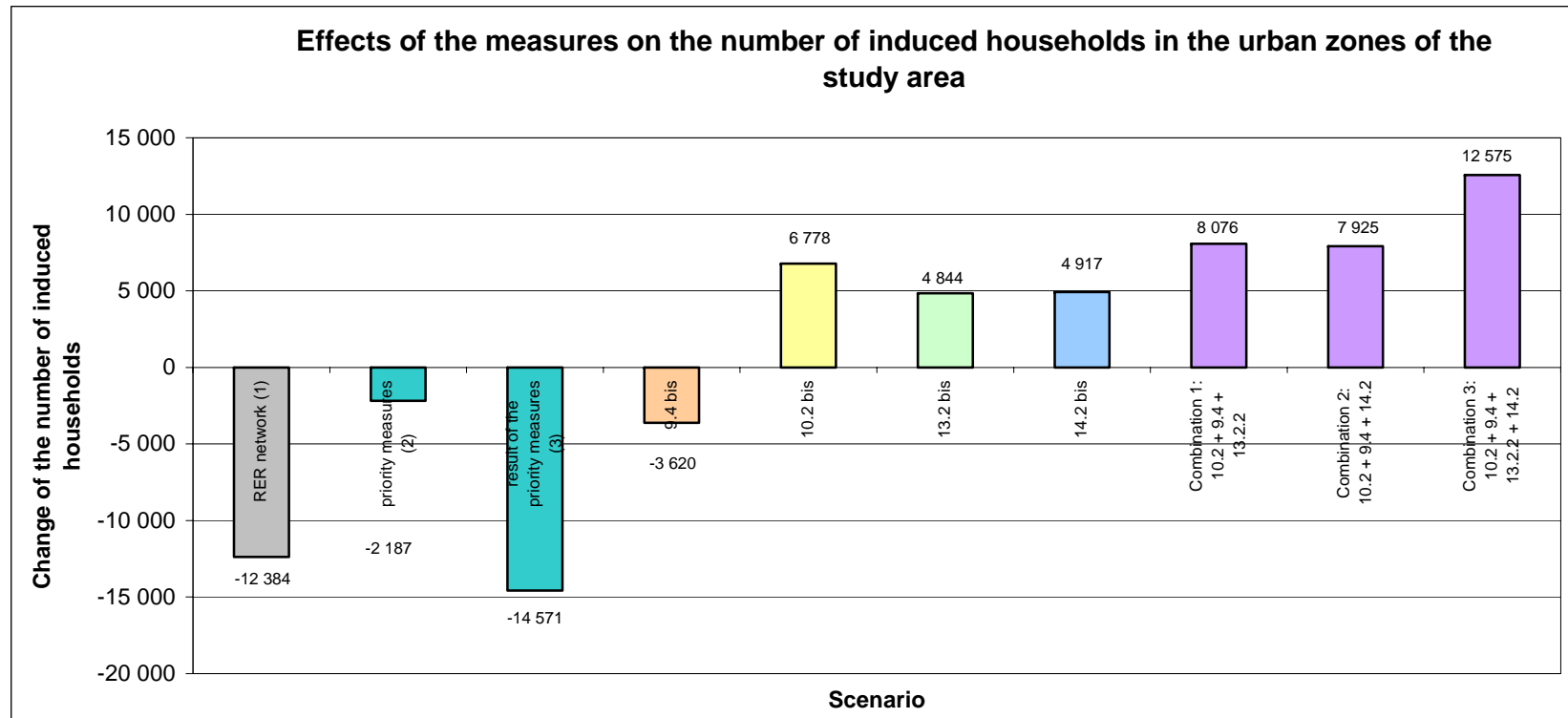
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SCATTER-SELMA joint workshop, 8 June 2004








## ■ Components of the combination 813:

- Increase of car cost per km (+ 50 %)
  - ✓ *congestion pricing : increase of car use cost during the peak hours in the RER area*
- Decrease of PT fare for trips to work place (- 20 %)
- Fiscal measure on residential developments
  - ✓ *impact fee on new residential site developments*
  - ✓ *fiscal reduction in urban areas*
- Fiscal measure on services to business
  - ✓ *annual impact fee per employee when located in areas poorly served by public transport*

# Effect on the number of households in the urban areas

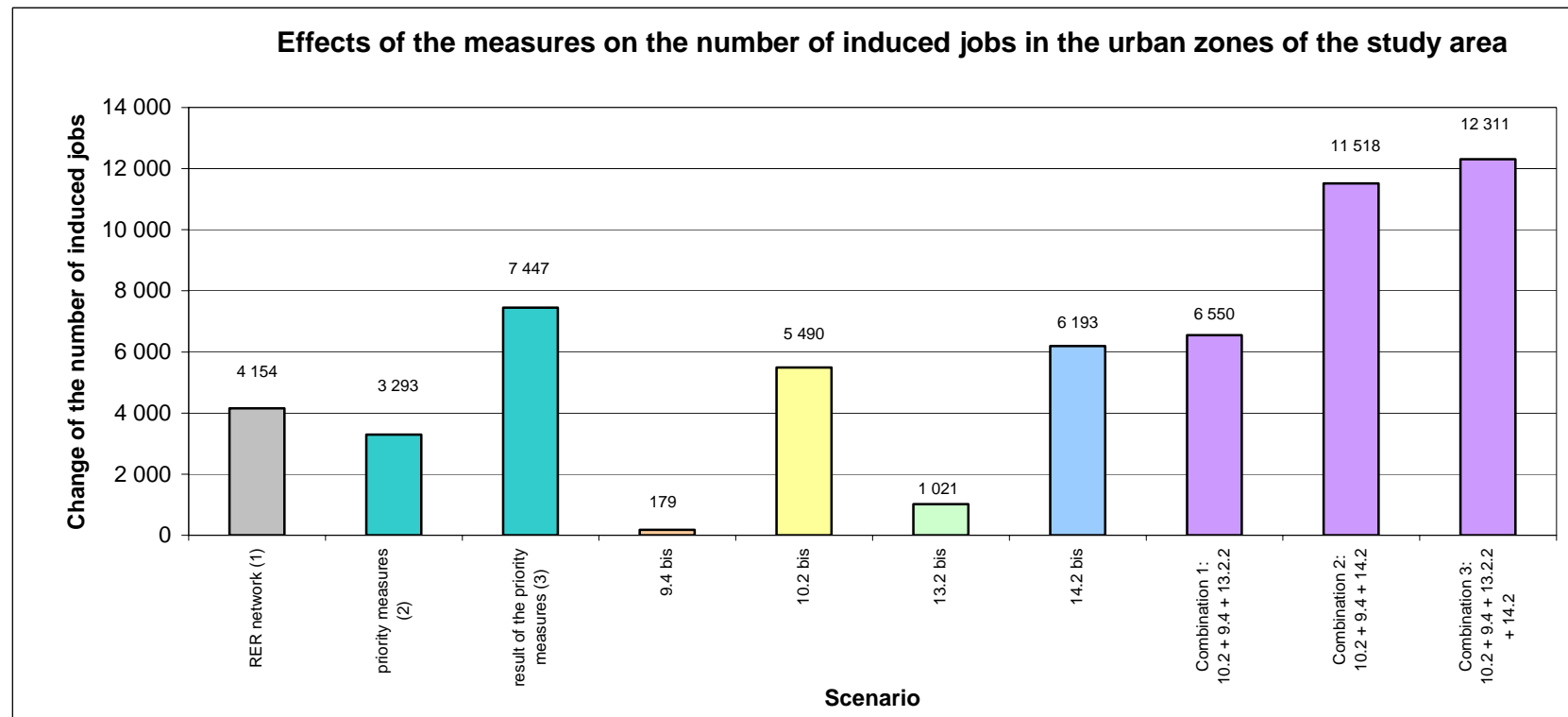


**Types of scenarios:**








- |   |  |   |                          |   |  |
|---|--|---|--------------------------|---|--|
|  | 2015 RER network                       |  | Decrease of PT fare      |  | Fiscal measure on housholds            |
|  | Priority measures (new 2015 reference) |  | Increase of car use cost |  | Fiscal measure on services to business |
|   |  |   |                          |  | Combination of measures                |

- (1) The effect of the RER network is calculated in comparison with the 2015 reference scenario
  - (2) The effect of the priority measures is calculated in comparison with the 2015 RER scenario
  - (3) The effect of the priority measures is calculated in comparison with the 2015 reference scenario
- The effects of the other measures are calculated in comparison with the priority measures

# Effect on the number of jobs in the urban areas

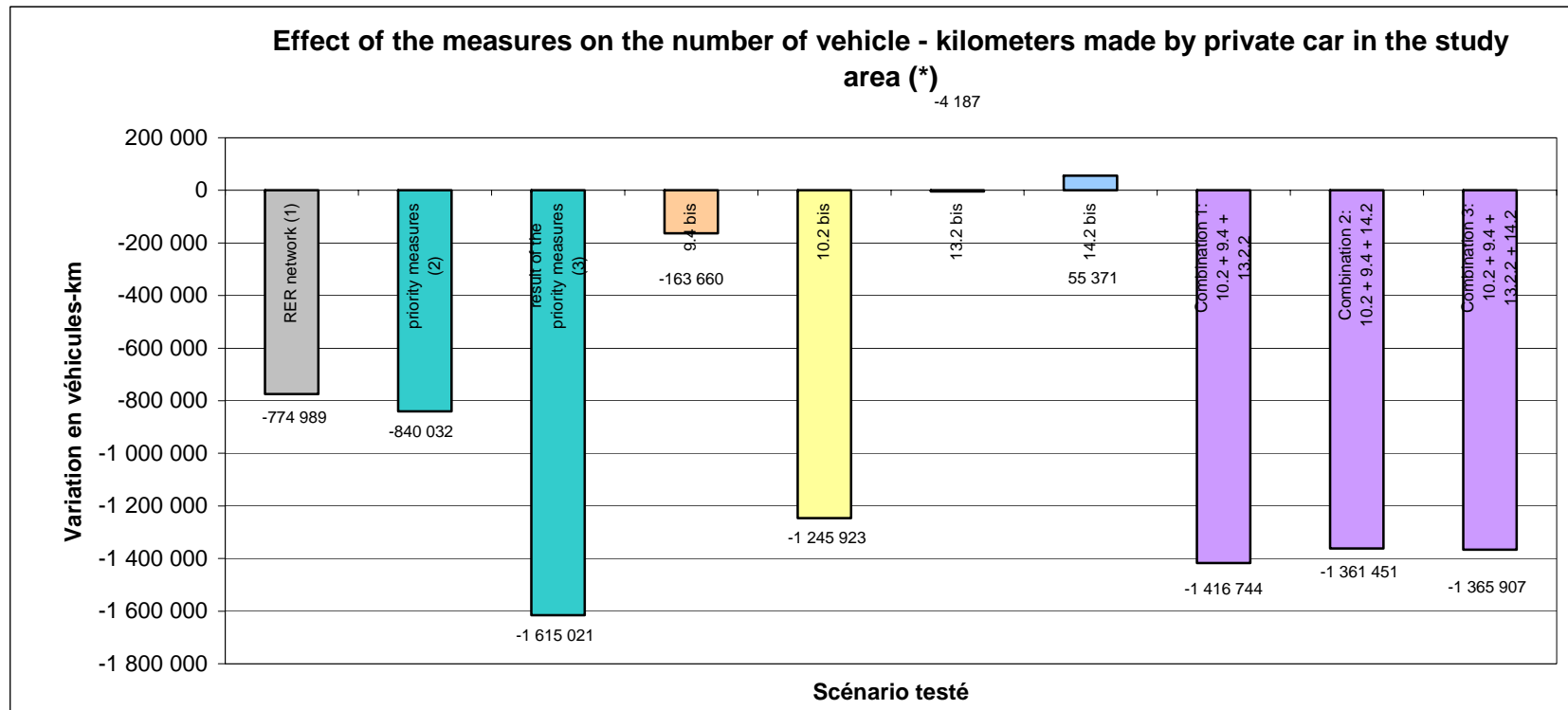


**Types of scenarios:**








- |   |   |   |                          |   |  |
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# Effect on the vehicle-km by car



Types of scenarios:

- |   |  |   |                          |   |  |
|---|--|---|--------------------------|---|--|
|  | 2015 RER network                       |  | Decrease of PT fare      |  | Fiscal measure on households           |
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(\*): Vehicle-kilometers made by private car in the study area, including the entering and outgoing traffic, at the morning peak hour (7 a.m.-9 a.m.), for all travel purposes