Air quality management along the Brenner corridor in the Italian Alps: the BrennerLEC project

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THE PROJECT «BRENNER LOWER EMISSIONS CORRIDOR»

Objectives

To develop a «Low Emissions Corridor» concept to be applied to the Italian Brenner motorway by means of the experimental and scientific study of an integrated set of dynamic policies to manage traffic on the basis of a proactive logic

To define the modalities to exploit the concept to the whole Alpine corridor (**«Alpine BLEC»**)

EXPERIMENTAL POLICIES TESTED

BLEC-ENV - Bolzano North– Rovereto South (approx. 90 km)

Policy	Dynamic management of the motorway capacity	
Measures	Speed limits reduction	*Days with heavy traffic flows*

BLEC-AQ - Egna/Ora – S.Michele (approx. 20 km)

Policy	Dynamic management of speed limits for environmental purposes	
Measures	Speed limits reduction	*High pollutants concentrations*

BLEC-LEZ - motorway stretches: Bolzano, Trento and Rovereto

Policy	Dynamic integrated traffic management (together with town authorities)	
Measures	VMS with dynamic suggestions to get access to the city	*Traffic disturbances in urban areas*

km 107+800 dir. South

Air quality stations

km 164+400 dir. South

km 103+700 dir. South

Dependence of the COPERT emission factor of a EURO 4 gasoline LV on average speed

Traffic forecast
Emissions (COPERT V)
Weather forecast (WRF)
Air quality forecast (R-Line)
Reduced speed limit

SPEED LIMIT TRIGGER
for each carriageway
130
110
100
90
80
IF (1200 < Nveh < 1500) ||
(V < 115 && sigmaV > 10)
for 20'
IF (Nveh < 1200) ||
(V > 115 && sigmaV < 10)
for 20'
IF (1500 < Nveh < 2500) ||
(V < 100 && sigmaV > 5)
for 20'
IF (1200 < Nveh < 1500) ||
(V > 100 && sigmaV < 5)
for 20'
IF (1500 < NVeh < 2500)
for 20'
IF (2500 < Nveh < 2900)
for 20'
IF (Nveh < 2900)
for 20'

Nitrogen dioxide
Concentration [µg/m3]
100
80
60
40
20
0
130 km/h
100 km/h
00:00
06:00
12:00
18:00
Hour

Nitrogen dioxide
Concentration reduction [µg/m³]
25
20
15
10
5
0
-5
-10
-15
-20
-25
0
3
6
9
12
15
18
21
Hour

Average speed [km/h]
140
120
100
80
60
00:00
02:00
04:00
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
00:00
Hour
Right lane
Overtaking lane
Limit

Autostrada del Brennero SpA
Brennerautobahn AG

AUTONOME PROVINZ BOZEN SÜDTIROL
PROVINCIA AUTONOMA DI BOLZANO ALTO ADIGE

PROVINCIA AUTONOMA DI TRENTO

UNIVERSITÀ DEGLI STUDI DI TRENTO

CISMA

TECHPARK SÜDTIROL / ALTO ADIGE

Life

BRENNER LEC
lower emissions corridor

THANKS FOR YOUR ATTENTION!

low emissions
improve air
Quality

Progetto LIFE15-ENV-IT-000281 «Brenner Lower Emissions Corridor»