

The South Tyrolean Hydrogen Valley: Sustainable link from Italy to Central Europe



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Institute for Innovative Technologies



Autostrada del Brennero S.p.A.
Brennerautobahn A.G.

HYDROGEN VALLEY SOUTH TYROL - ITALY

- **STEP 1: TESTING AND OPTIMIZING THE TECHNOLOGY**
- **STEP 2: REGIONAL ROLL OUT**
- **STEP 3: SUSTAINABLE LINKING NORTHERN ITALY WITH
CENTRAL EUROPE**
- **OBSTACLES ON THE WAY**
- **Q & A**

STEP 1

TESTING AND OPTIMIZING THE TECHNOLOGY



H₂-buses



H₂-cars



stationary plants



EU 7th FPR
Horizon 2020
FCH-JU



ERDF
European Regional
Development Funds



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Zukunft. Heutet.
Futuro. Adesso!

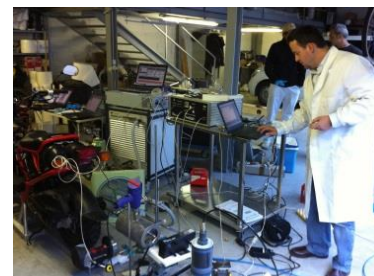
Dissemination



Education



R&D projects



Regional
Innovation Funds



PROVINCIA AUTONOMA DI BOLZANO
Ripartizione 34 - Innovazione, Ricerca,
Sviluppo e Cooperative

Step 1: Testing and optimizing the H₂ Technology

Creation of a multipurpose H₂-Centre at Bolzano

- Pilot- and demonstration plant
- H₂ production from renewable energies (smart grid)
- Refuelling station for buses and cars and bottle racks
- Didactical centre
- Concepts, supply & support for application projects
- Competence centre for energy and mobility





Foto: STA AG

Buses since 2014:

- More than 1,2 Mio km driven without noise and emissions
- More than 5.300 refuelling's
- Highly estimated by population and drivers
- High flexibility and high reliability reached
- Still in use – several years beyond the project end



=> the technology works! ⁶

Step 1: Testing and optimizing the H₂ Technology

The results: H₂ production and refueling station



Production and refuelling facility

- More than 8.000 refuelling's done
- More than 120.000 kg of green hydrogen produced and refuelled
- More than 1.640 t CO₂, 14.300 kg NO_x and 24,6 kg PM saved
- Availability of refuelling station: 98,6%

=> the technology works!



Hydrogen cars in South Tyrol:

- Fleet of 10 FC-cars within HyFIVE project
- We opened our own car rental department
- High request, some times overbooked
- More than 680.000 km driven
- Several prototypes of car manufacturer as guests



Hydrogen cars in South Tyrol:

- ...and we got even new customers outside the project:



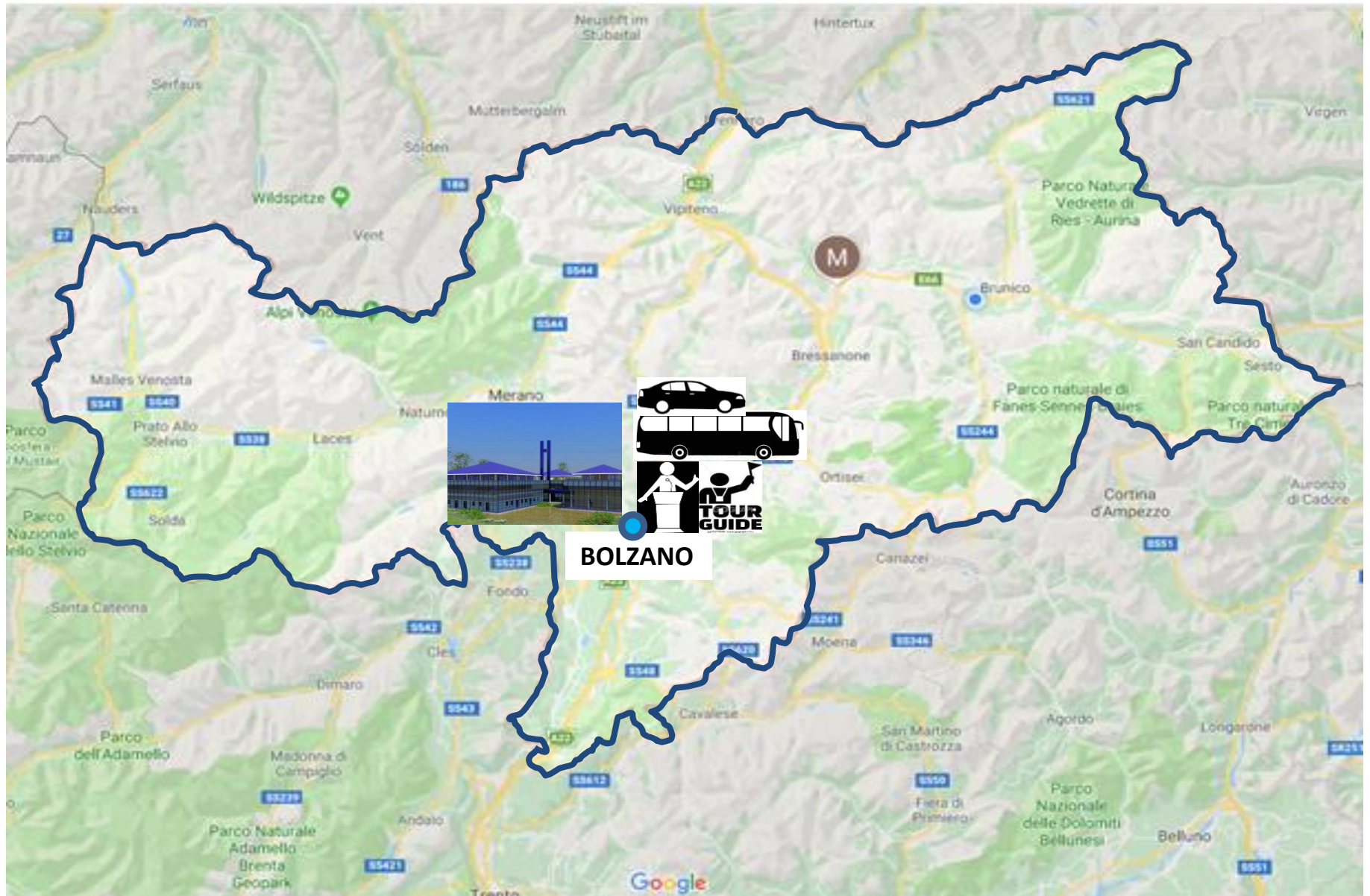
The H₂ Demo- and Competence-Centre

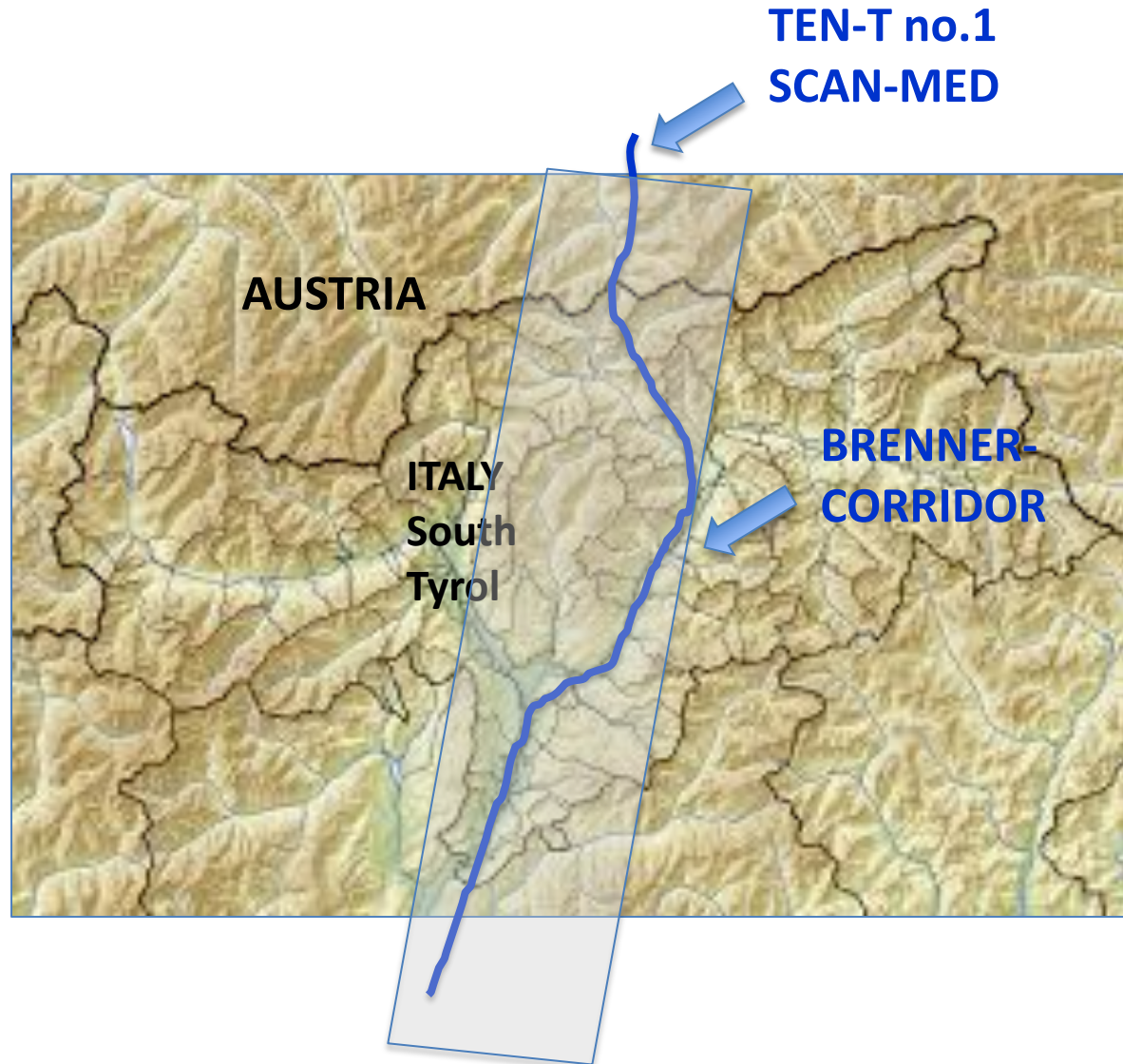
- Over 7.000 visitors since 2014
- International delegations of all over the world
- Innumerable congresses, conventions, work shops, international project meetings, testing days and events
- Every week several schools and universities as guests



Step 1: Testing and optimizing the H₂ Technology

Geographical location of the Centre Bolzano





STEP 2

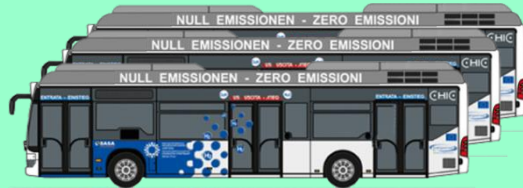
REGIONAL ROLL-OUT



Project «JIVE»



- 12 fuel cell electric buses
 - Operation for 8 years
- partner: Sasa & IIT



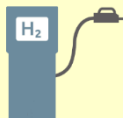
Project «REVIVE»



- 1 fuel cell electric waste collecting truck
- partner: municipalities Bolzano & Merano

Project: «MEHRLIN»

- 1 H2 station at the SASA - depot
 - 2 H2 trailer
- partner: Sasa & IIT



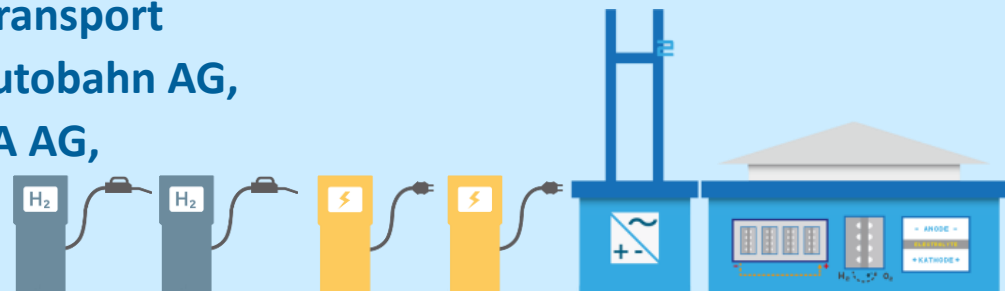
Project «ZERO EMISSION LIFE»



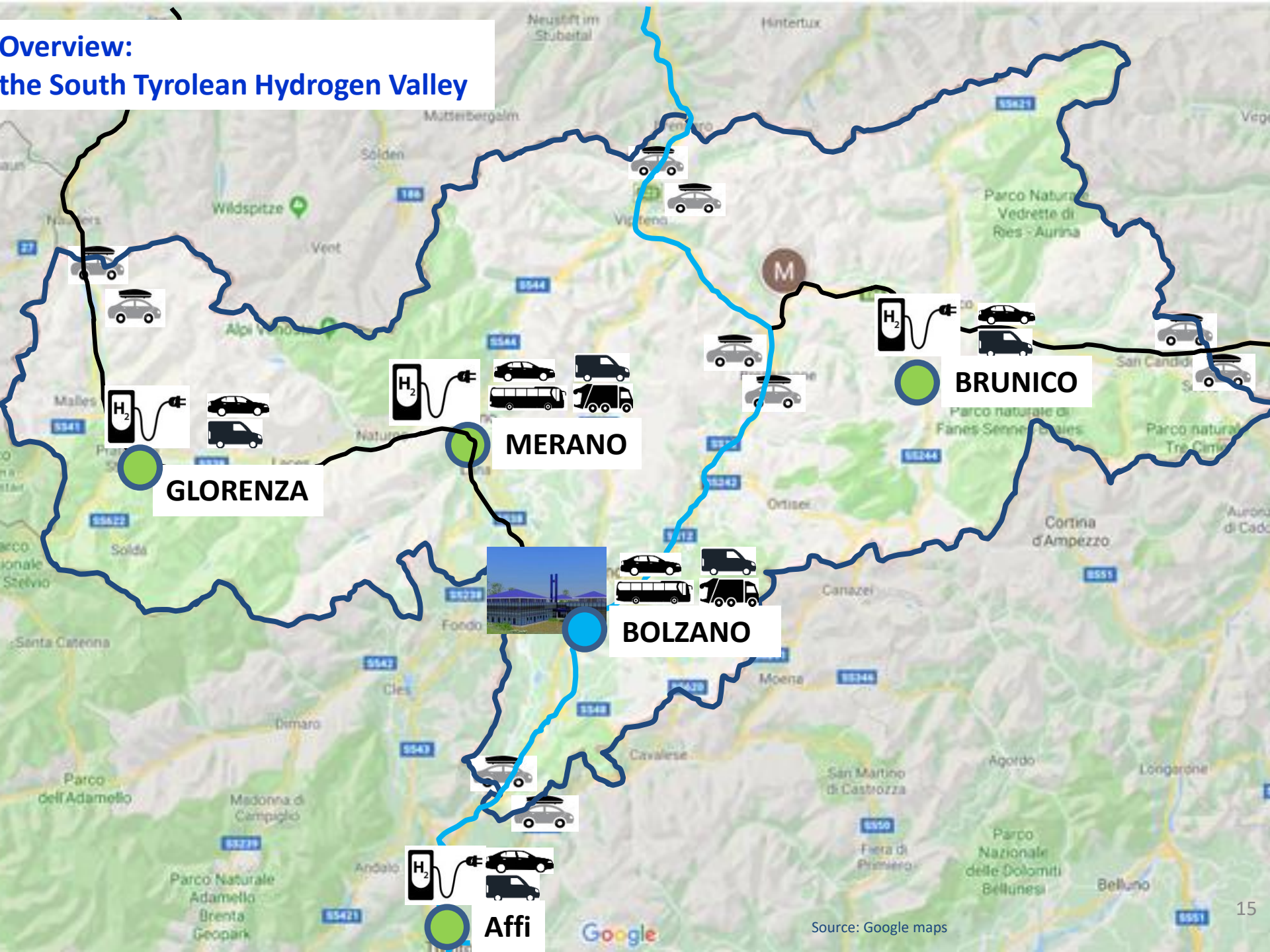
Scope: South Tyrol becoming an alpine model region for emission free mobility

- First large scale project with holistic approach to electro mobility: battery & fuel cell
- 33 fast charger: 20 for buses and 13 for cars
- 1 central H₂ production facility for cheaper hydrogen
- 4 H₂-refuelling stations for buses and cars in South Tyrol and 1 on Brenner Highway
- Introduction of pilot fleets of zero emission vehicles in several economic sectors like tourism, logistic and private/public transport

partner: Sasa AG, Alperia AG, Brennerautobahn AG, VEK, Brunecker Stadtwerke, STA AG, Eurac, IIT



Overview: the South Tyrolean Hydrogen Valley



Source: Google maps

STEP 3

GOING OVER REGIONAL – SUSTAINABLE LINKING OF NORTHERN ITALY WITH CENTRAL EUROPE

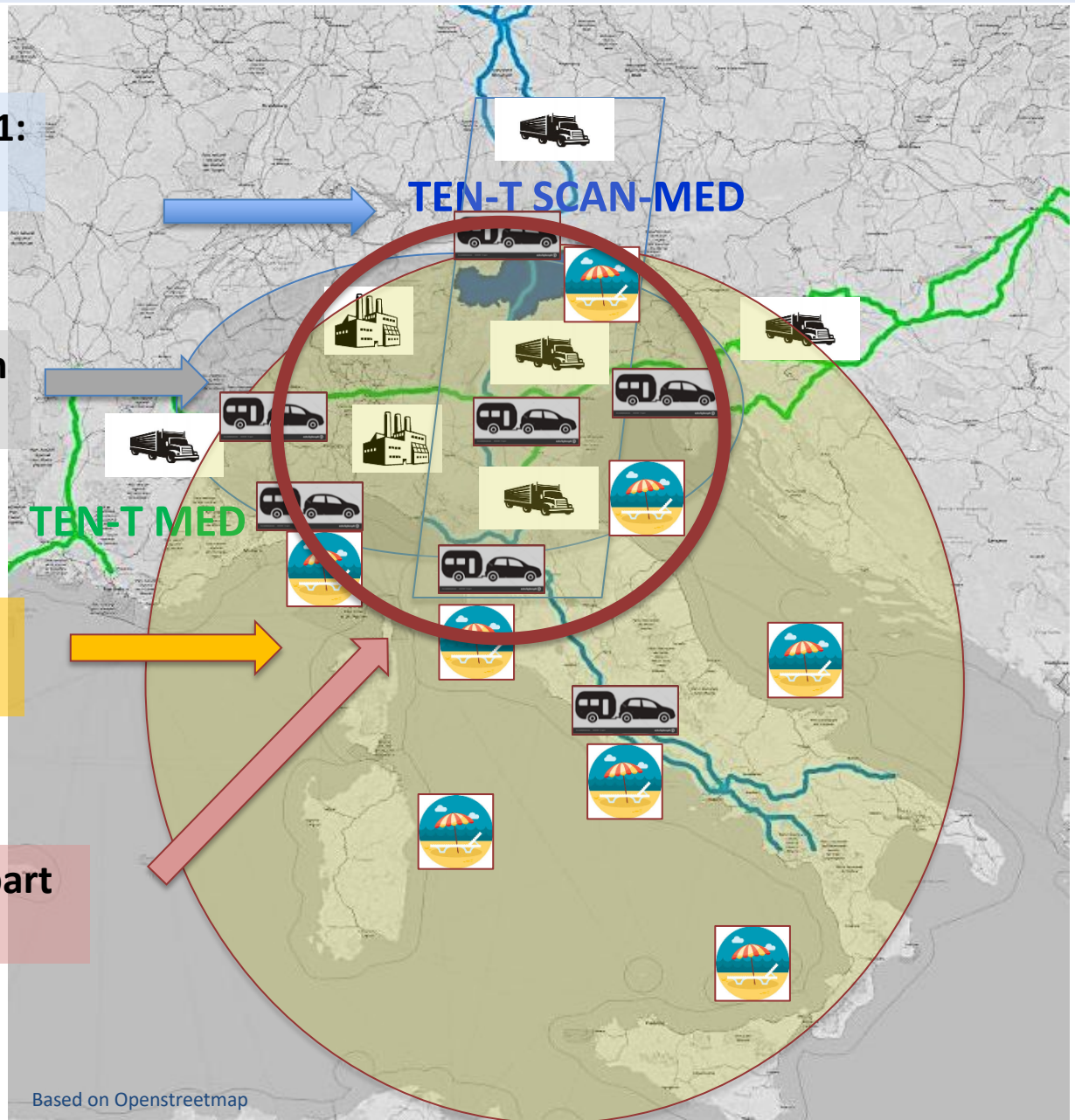


**1.) Brenner TEN-T corridor no.1:
highest traffic frequency**

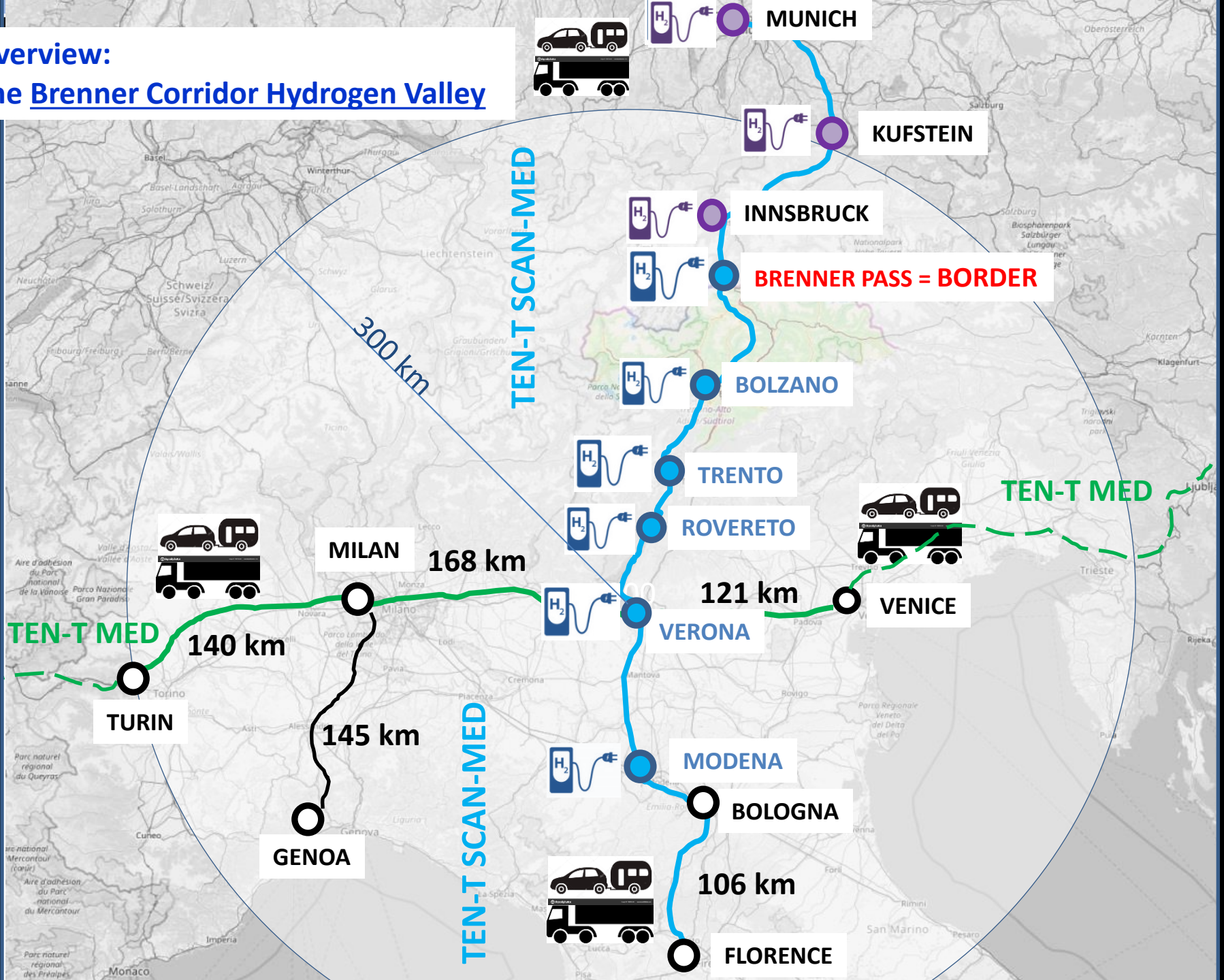
**2.) Nord Italy: European region
with highest industrialization**

**3.) Italy: no.1 of holiday
destination by car in Europe**

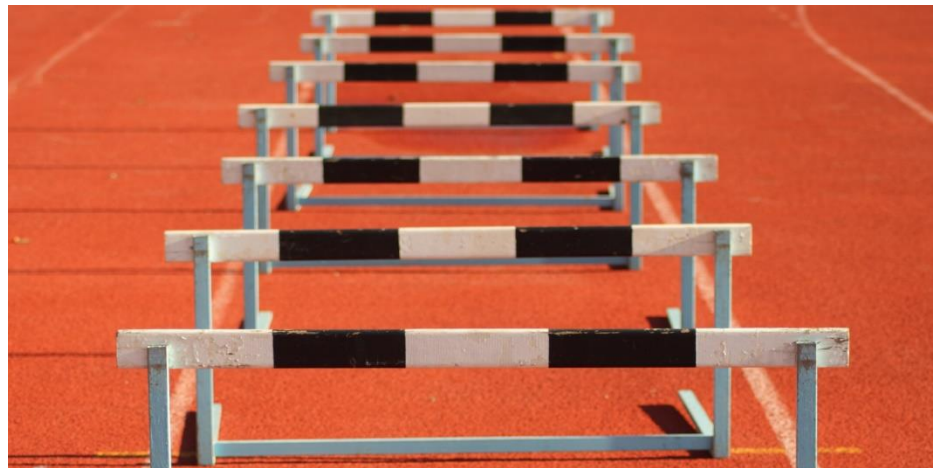
**=> Region of condense of big part
of national economic power**



Overview: The Brenner Corridor Hydrogen Valley



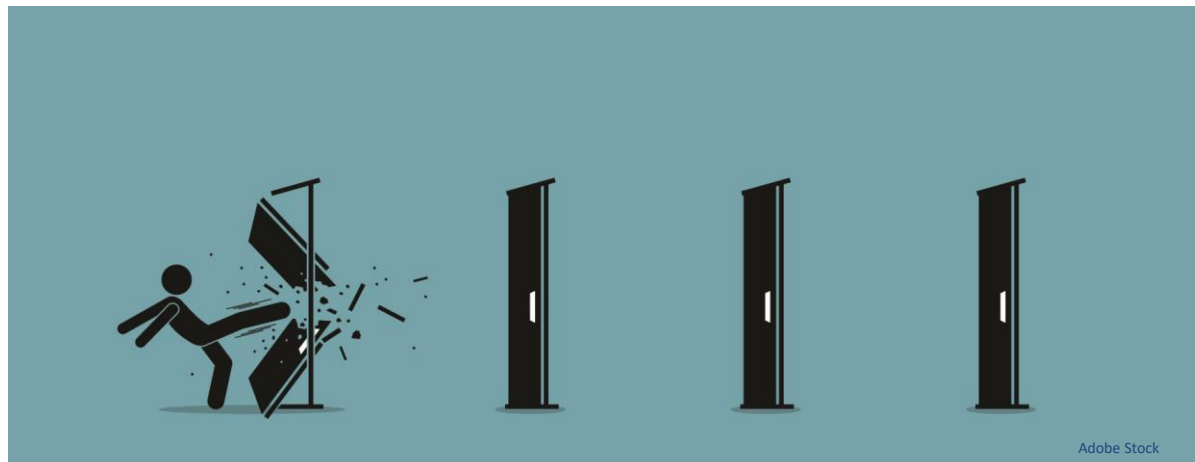
OBSTACLES ON THE WAY

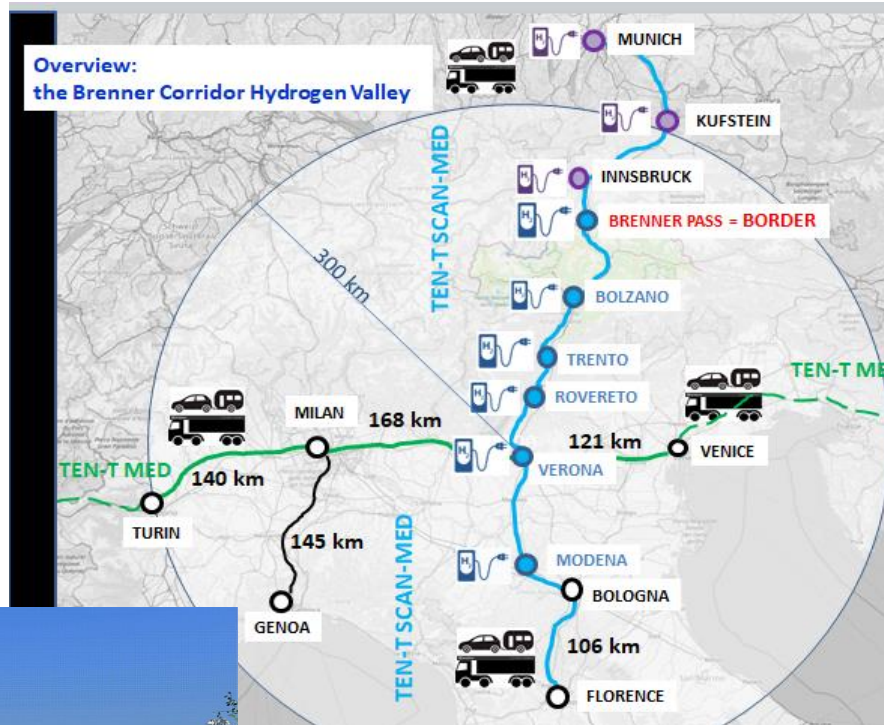


Adobe Stock

- **Regulatory obstacles due to restrictive national legislation**
- **Absence of a national co-funding schemes for H₂-projects**
- **The high electricity prize in Italy - affecting electrolysis economy**
- **The inertia of national big industrial players for several years**
- **Low availability of hydrogen powered cars and buses**
- **Lack of know-how regarding the hydrogen technology**

=> still a lot of work to do!





...you get inspired...