Agenzia nazionale per le nuove tecnologie,
l'energia e lo sviluppo economico sostenibile

Update on Italy's activities in the area of hybrid and electric vehicles

47th ExCo Meeting of the HEV TCP

Task 1 Meeting and Knowledge Sharing Workshop

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Statistics – Passenger car fleet

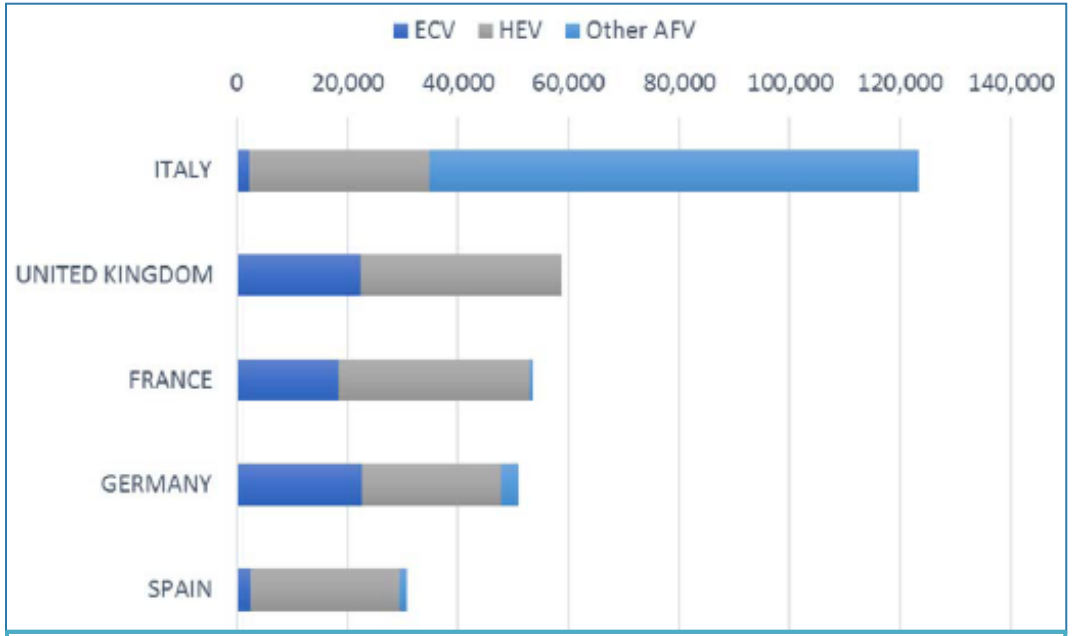
Composition of passenger car fleet as of 01/01/2017			
Fuel type		**Q.ty**	**Share**
Gasoline + Diesel		39,800,000	92.1%
Alternative fuel	LPG	2,259,773	5.2%
	NG	1,004,982	2.3%
	HEV + PHEV + BEV	131,732	0.3%
Total		43,196,487	

Source: Autopromotec & Federmetano Observatory elaboration on data ACI

Details on HEV + PHEV + BEV		
Fuel type	**Q.ty**	**Share**
BEV	5,955	0.014%
PHEV	2,867	0.007%
HEV	122,910	0.285%

Source: ENEA elaboration

Statistics – New passenger car registrations H1 2017



Alternative fuel car registration in the five European big markets H1 2017 – Source: ACEA

The positive performance of Italian market is mainly the result of cars running on LPG

Statistics – New passenger car registrations Q3 2017

NEW PASSENGER CAR REGISTRATIONS BY ALTERNATIVE FUEL TYPE IN ITALY
(Source: ACEA)

	Q3 2017	Q3 2016	% Change	Q1-Q3 2017	Q1-Q3 2016	% Change
BEV	427	258	65.5	1,429	936	52.7
PHEV	705	287	145.6	1,915	1,025	86.8
TOTAL ECV(*)	1,189	598	98.8	3,511	2,051	71.2
HEV	13,460	7,873	71.0	45,914	27,067	69.6
OTHER AFV(**)	33,940	27,971	21.3	122,515	112,062	9.3
TOTAL AFV(***)	48,589	36,442	33.3	171,940	141,180	21.8

(*) **Electrically chargeable vehicle (ECV)** = battery electric vehicles (BEV) + extended-range electric vehicles (EREV) + fuel cell electric vehicles (FCEV) + plug-in hybrid electric vehicles (PHEV)
(**) **Alternative fuel vehicles other than electric** = natural gas vehicles (NGV) + LPG-fueled vehicles + ethanol (E85) vehicles
(***) **Alternative fuel vehicles (AFV)** = electrically chargeable vehicle + hybrid electric vehicles +alternative fuels other than electric

Statistics – Car sharing

Data about car sharing *Source: 1ST report of the National Observatory on Sharing Mobility (Ministry for Environment)*	
Cities involved	29
People registered	700,000
Vehicles shared	5,764
Share of electric vehicles	12%

Statistics – Charging points

Charging points in public areas *(Source: EAFO web site)*						
		2015	2016	2017	% Change 2015-2016	% Change 2016-2017
Normal charge ≤ 22 kW		1,679	1,796	1,980	7	10
High power > 22 kW	Type 2 AC	0	9	12	/	33
	ChadeMo	22	42	42	91	/
	CCS	0	26	28	/	8
	Tesla	42	126	166	200	32

Incentives on EVs

National policy

- No direct incentives to purchase Evs.
- EVs are exempt from the annual circulation tax (ownership tax) for a period of five years from the date of the first registration. After this five-year period, they benefit from a 75% reduction of the tax rate applied to the equivalent petrol vehicles.
- Discounts on insurance

Regional or Municipal policy

- Reductions on tariffs (parking, toll, …)

Legislation – Main instruments

The National Plan for Electric Charging Infrastructure (PNIRE)

- Issued by the Ministry of Infrastructures and Transport (MIT) in in 2013, updated in 2014 and, more recently, in 2015: this last version became effective in 2016.
- Funds: 4.5 mln € for projects to build public charging infrastructures in the main urban areas with high traffic congestion, about 29 mln € to incentivize domestic charging, the renewal of fuel stations, private charging infrastructures in public areas, public charging infrastructures.
- Effects of PNIRE implementation: agreements for 15/19 projects signed by MIT, first E-Mobility Urban and Regional Plans issued, Project EVA+ (Connecting Europe Facility Program) 200 fast chargers in national highways.
- target of 4,500 ÷ 13,000 slow/accelerated charging points and more than 2,000 ÷ 6,000 fast charging stations on the national territory at 2020 is defined, giving priority to urban areas which belong to metropolitan cities and, successively, suburban areas, extra-urban roads, state roads and highways.
- **The Legislative Decree 257/2016** to adopt 2014/94/UE DAFI Directive for the realization of an alternative fuels infrastructure (combined with PNIRE).

Following a study made by Enel & Polytechnic of Milan, a fleet of 360,000 e-cars would require 12,000 charging stations. Enel will use 300 mln € (company investment, European founds and car users' contribute) to realize a charging network. Enel's plan was disclosed on 09 November 2017:
2,700 cps by 2018
7,000 css by 2020
14,000 ccs by 2022

Legislation – Other instruments

Decree 4/8/2017 from Ministry of Infrastructures and Transport

- Metropolitan cities, municipalities and municipalities associations with more than 100,000 inhabitants must provide and adopt the new Urban Plans for Sustainable Mobility to receive government funds.

Law proposal n. 4083 Chamber of Deputies

- New vehicles of Public Administrations' fleets (at least 7/10 full EVs).

Strategic national plan on sustainable mobility (following the Balance Law 2017)

- Replacement of the bus fleet in the public transport: stop the "Euro 0" and "Euro" 1 buses (7,200 units, ACI source), 5,000 new buses in 2018 and 1,500÷2,000 from 2019 to 2033.

National Energetic Strategy (SEN) by Ministry of Economic Development & Ministry of Envirtonment

- The final version after the public consultation was issued on date 10 November 2017.
- Section dedicated to transport and sustainable mobility, where: local regulation (limitation of pollutant vehicles circulation in urban areas, free entrance of HEVs and EVs in limited traffic areas, preferential lanes and parkings for zero emissions vehicles), revision of fiscal systems on transport (registration and owner taxes, duties on gasoline and diesel, etc.) to favour EVs, HEVs, NGVs (technological neutrality), sharing mobility, smart mobility, strenthening of charging infrastructure for AFVs, enhance public transport, are mentioned.

Legislation - Some system initiatives 1

The "Tiscar Round Table"

- Composition: some stakeholders, environmental and user Associations, representatives of Local and Central Public Administrations, Research Organizations)"
- Production: two documents forwarded to the Government, a roadmap for sustainable mobility and recommendations to the policy makers for a better planning of mobility
- Requests: incentives for replacing old vehicles and substitution with AFVs, local regulation, EVs in Public Administration, taxi and vehicle-sharing, incentives for charging infrastructure, direct incentive on purchasing EVs, fiscal advantages.

The joint resolution of the Public Works and Environment Committees of the Senate of the Italian Republic on sustainable mobility

- proposal to the Government for banning motorcars fueled by fossil gasoline and diesel within 2040, introduction of BEVs and PHEVs (target 3% of the market by 5 years), circulation tax linked to vehicle's pollution, clear identification of zero emission vehicles in the rules of the road, use PNIRE co-founds also to purchase vehicles for electric car sharing, charging points in new residential buildings and also in already existing ones.

Legislation – Some system initiatives 2

The "Metropolitan Chart on Electromobility"

- Document realized by some stakeholders, environmental and user Associations, representatives of Local and Central Public Administrations, Research Organizations.
- It contains the guide lines for the development of e-mobility in Italy.
- This chart was forwarded to the Government, it is intended for Municipalities and wuold be a platform addressed to all municipalities with more than 15,000 inhabitants.
- Same recommendations and requests of the previous documents.

Funding – News in 2017 - 1

Funder body	Funding description
Ministry for Environment	15 mln € for projects on efficiency, mobility and climate in minor islands.
Ministry for Environment	75 mln € (end 2017) to Municipalities for the National Experimental Program “home-school and school-home mobility”: reduction of traffic, pollution and car stops near schools and working sites by bike & car sharing & pooling.
Ministry of Economic Development, Lazio Region, Rome Municipality	Rome Industrial Plan: >500 mln € (~100 Municipality, ~90 Region, ~330 MiSE) for sustainable mobility & energy, renewal of public transport vehicles fleet, car sharing and 700 new charging stations.
Ministry of Infrastructure and Transport	Super amortization (130-140%) for company fleets as a fiscal detraction to purchase new instrumental vehicles (Balance Law 2018)
Apulia Region	50,000 € for EV domestic charging points fueled by RES (max 1,500 € per allowed installation).
European Investment Bank	230 mln € in favour of Florence Municipality for a 3 years plan of investments in "smart city projects“ (sustainable mobility included).

Funding – News in 2017 - 2

Funder Body	Funding description
Emilia Romagna Region	Incentives to buy new light commercial vehicles: 2,500 € per vehicle (scrapping and substitution with AFV), max 200,000 € per Company .
Lombardia Region	15 mln € for the diffusion of charging infrastructure and electric vehicles in Municipalities.
Lombardia Region	Incentives on private charging points: 1,500 € per single charging point, 1,000 € per charging point (charging system with several sockets, max 10,000 € per applicant).
Sardinia Region	Mobility Plan, 15 mln € to increase electric vehicles fleet and charging infrastructure (650 new charging stations planned)
Bolzano Province	Incentives to buy electric (4,000 €) and hybrid plug-in (2,000 €) cars. Exemption from annual circulation tax for five years and then a 77,5% reduction of the tax rate. Incentives 1,000 € for each charcing station.
Trento Province	Mobility Plan, 21 mln € investments.

Demonstration Projects - 1

Project's name	Object	Type/Partners
Steve	Development of a city e-car	EU Project
Agreement Enel, Nissan, IIT	Pilot project on company electric car sharing and V2G charging system	Enel Energia, Nissan Italia, Istituto Italiano di Tecnologia
Agreement Enel, La Spezia Municipality	Pilot project with 8 eletric cars, 5 electric bikes, 16 charging points	Enel, La Spezia Municipality
Ischia Isola verde	Eco-tourism pilot project: 20 B-Rent e-cars and 30 charging stations in hotels	Enel, Emotion
E-Via	35 charging stations in Aosta Valley	MIT (PNIRE), Aosta Municipality
Smart-MR	Sustainable Measures for Achieving Resilent Transportation in Metropolitan Regions	EU Project, ATAC
Sicily Eco tour	200 Renault Zoe to rent and 400 charging stations along tourist itineraries	Enel, Renault, Sicily by Car

Demonstration Projects - 2

Project's name	Object	Type/Partners
Asinara Zero Emissions	New EVs fleet for the Park Body, charging stations, PV plant and ESS	Sardinia Foundation
E-VIA - FLEX-E	26 multi-standard Ultra-Fast Charging Stations (150 kW - 350 kW) in AT, DE, ES, FR and IT	Connecting Europe Facility
Green Way Primiero	13 charging stations in public areas and 18 EVs for local public transport	San Martino di Castrozza Municipality
Mi Muovo elettrico-Free Carbon City	130 charging stations in urban and interchange areas	Emilia Romagna Region

Dimensions of Italian electric mobility value chain - 1

- Considering Italy and the overall perimeter of e-Mobility (motor vehicles, motorcycles, buses and commercial vehicles), the value chain (Research & Development, manufacturing, distribution and sales of vehicles, IT and energy platforms, use and aftermarket, recycling and second life) involved represents a **very significant range of activity**, with **160,000 businesses**, a workforce of over **820,000 individuals** and annual revenues of nearly **390 billion €**.

Dimensions of Italian electro mobility value chain - 2

Taking into account the electric motor vehicle market alone(*) and the turnover that can be generated in each stage of the value chain, it has been estimated that in the different development scenarios hypothesized, an overall turnover of between €24 and €100 billion by 2025 and between €68 and €303 billion by 2030 could be activated.

	Motor vehicle		Electric charging infrastructures		ICT services		Recycling and second life		Total activable turnover*	
	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030
Lower scenario	21	61	2	4	0.4	3	0.05	1	24	68
Middle scenario	31	92	2	5	0.5	4	0.05	1	33	102
Upper scenario	46	153	3	7	0.8	7	0.1	2	50	169
Accelerated scenario	92	276	5	13	1.8	11	0.1	3	100	303

(*) Not included: motor vehicles, motorcycles, buses, commercial vehicles

Source: The European House – Ambrosetti data elaboration, 2017

Dimensions of Italian electro mobility value chain - 3

This is a significant impact, of which Italy could capture a relevant share in the component, bodywork and interiors sectors, as well as in the area of electric charging equipment, in addition to those that develop predominantly nationwide, that is the electricity grid, recycling and second life.

	Motor vehicle		Electric charging infrastructures		ICT services		Recycling and second life		Total activable turnover*	
	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030
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Upper scenario	46	153	3	7	0.8	7	0.1	2	50	169
Accelerated scenario	92	276	5	13	1.8	11	0.1	3	100	303

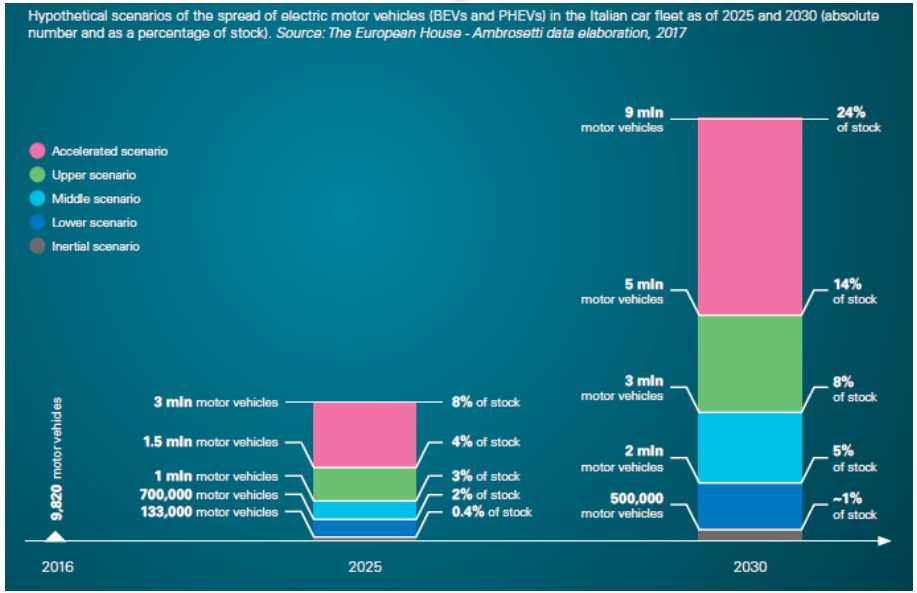
Source: The European House – Ambrosetti data elaboration, 2017

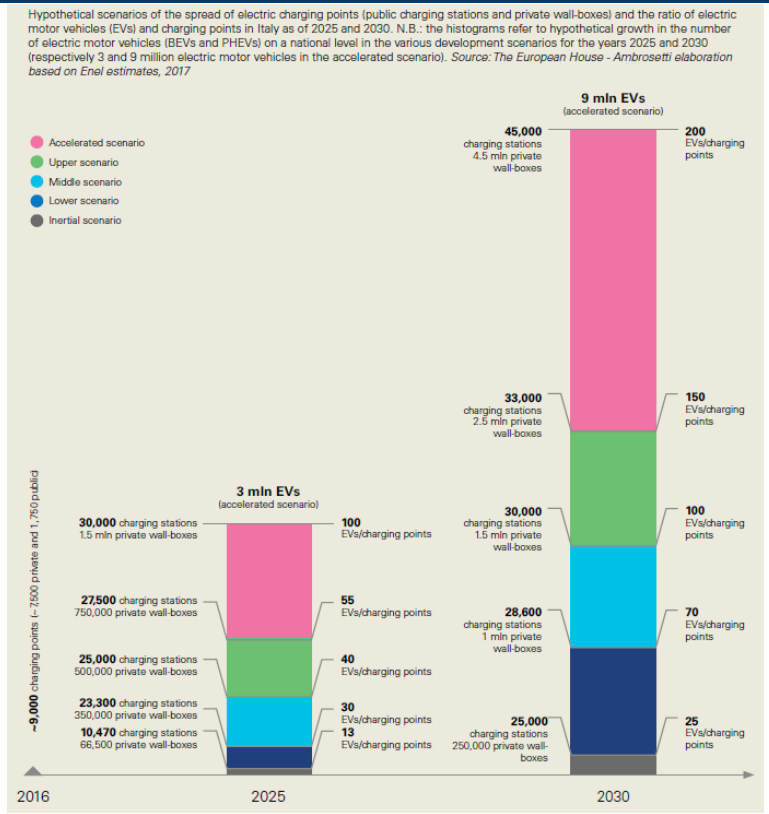
It would be possible to generate in Italy a value of between € 14 and € 59 billion by 2025 and between € 41 and € 180 billion by 2030.

Forecasts - 1

Charging points

Electric motor vehicles





Forecasts - 2

Source	Electric Motor vehicles as of 2025
Assolombarda	3.5 mln
Enel-Ambrosetti	1.5 mln upper scenario
	3.0 mln accelerated scenario

Source	Electric motor vehicles as of 2030
SEN	5 mln
Enel-Ambrosetti	5 mln upper scenario
	9 mln accelerated scenario

Significant news

FCA's position: before large diffusion of EVs, solve the problem of energy production from RES. Maserati EVs starting from 2019. By 2022, half of FCA's production could be electric (Newspaper "Corriere della Sera", 04 August 2017)

Rome is the location of the next **"Electric Grand Prix"** on 14 April 2018. Thanks to the sponsors (ENEL is one of them) the number of charging stations will be increased.

Iveco is supplying 120 new 18-metre articulated hybrid buses to Milan's public transport operator to renew its fleet.

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