

2018 Italy outlook



TOWARDS DECARBONISATION OF THE ECONOMY



IN COOPERATION WITH





The Sustainable Development Foundation is a “not for profit” think-tank based in Rome, aimed at encouraging the transition towards a green economy, with more than 120 member companies and associations of companies.

As a reference research center on thematic areas such as climate change, renewable energy, resource efficiency, sustainability strategies, sustainable mobility, green companies, the Foundation publishes technical reports and has developed an original concept for Sustainability Reporting, named “Green Economy Report”.

The Foundation is a member of UNEP-Ministry of Environment National Observatory for sustainable finance.

This handbook has been delivered by The Foundation in cooperation with ING Italy.

Finished printing in June 2018 on Free life Cento paper, made with 100% recycled material in compliance with the directive FSC-DIR-40-004 EN.

TOWARDS DECARBONISATION OF THE ECONOMY

Italy outlook 2018



Introduction

Climate change is the most important environmental crisis of our era and it is a serious test of our ability to turn sustainability objectives into concrete actions, moving from words to facts.

Facing the current climate crisis does not (only) mean to take care of future generations, but also to protect the present ones – starting from the poorest and the most vulnerable. A decarbonized economy is the most effective way to pursue wellbeing, generate new jobs and promote equitable prosperity.

According to the Paris Agreement, an extremely fast and deep revolution has to occur, starting from the energy sector that nowadays is mainly fossil fuel-based, expanding to mobility, resource management, finance and all business sectors.

The world of finance and banking has to do its part and sustain the transition towards a low carbon economy, leading the business community to a paradigm shift.

This handbook, realized by the Sustainable Development Foundation in collaboration with ING Italy, has not just the aim to present briefly the challenges the humankind is facing while providing some insights of the current transition, but also to shed light on the results achieved by Italy and on the positive effects that would ensue from meeting the Paris Agreement's goal.

Ambitious? Yes, but not impossible.

Raimondo Orsini
Director, Sustainable Development Foundation

Handwritten signature of Raimondo Orsini in black ink.

Marco Bragadin
CEO, ING Italy

Handwritten signature of Marco Bragadin in black ink.



Climate change is the greatest risk, even for businesses

In the Global Risk Report 2018 the World Economic Forum has classified extreme weather events caused by climate change as the top risk in terms of likelihood. Moreover, 3 of the 5 top global risks both in terms of impact and likelihood are environmental risks.




Global warming is a trigger of other social and economic risks, such as large-scale involuntary migration, food crises, energy crises, etc.

As presented in the WEF's analysis, the ecological and climate crisis is increasingly affecting the strategic and economic choices of Governments and businesses.

5 GLOBAL RISKS

Top 5 Global Risks in terms of impact and likelihood

	Impact	Likelihood
1st	Weapons of mass destruction	Extreme weather events
2nd	Extreme weather events	Natural disasters
3rd	Natural disasters	Cyberattacks
4th	Failure of climate-change mitigation and adaptation	Data fraud or theft
5th	Water crises	Failure of climate-change mitigation and adaptation

 Economic  Environmental  Geopolitical  Societal  Technological

Source: World Economic Forum



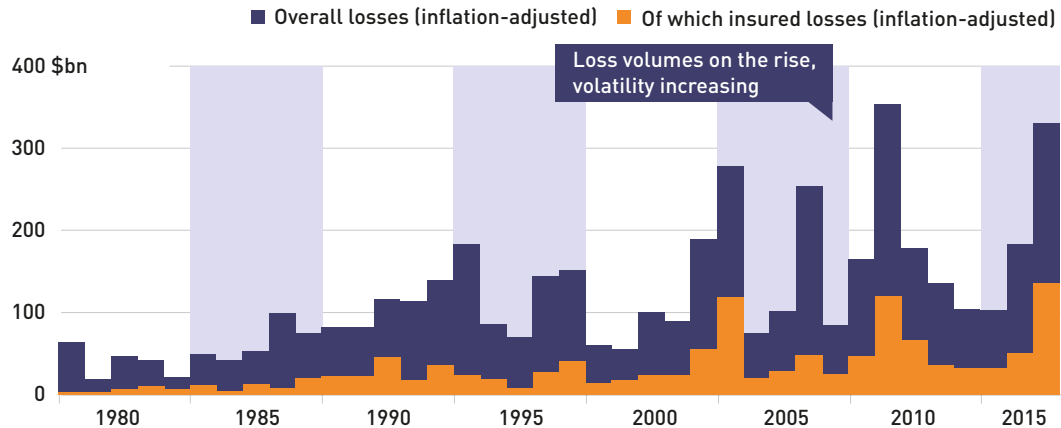
The cost of inaction: 2017 was the costliest year ever

As stated in the famous report by Lord Nicholas Stern (2006), to face the climate challenge “the cost of action can be limited to around 1% of global GDP each year” but “if we don’t act, the overall costs and risks of climate change will be equivalent to losing at least 5% (up to 20% if a wider range of risks and impacts is taken into account) of global GDP each year, now and forever”.

In 2017 overall losses due to natural disasters rose to \$340bn, being a record year only after 2011. Roughly 93% of all events worldwide in 2017 were weather-related disasters. The macroeconomic impact was in the region of \$330bn, of which \$135bn was insured. This makes 2017 the costliest year ever in terms of global weather disasters.

\$340bn LOSSES

Weather disasters:
global overall and insured losses



Source: Munich Re



The (long) way to Paris

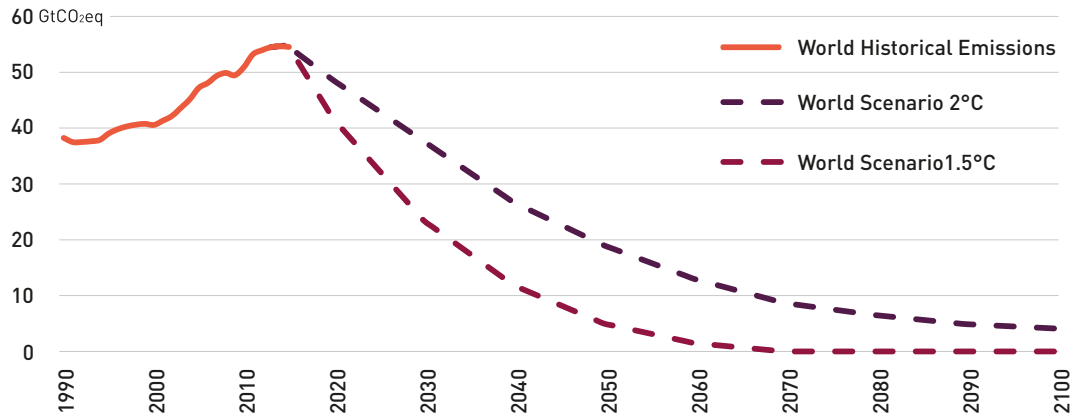
Since 1990, green house gasses (GHG) global emissions have grown by 40%. After a relatively stable triennium, more recent estimations show that in 2017 emissions started growing again.

In 2015, 195 countries adopted the first-ever universal, legally binding global climate deal committing to keep a global temperature rise well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

The global economy has to start a decarbonisation path and achieve carbon neutrality by the second half of the 21st century. This means that GHG emissions shall be reduced by 50 to 80% within 2050, with great cuts by 2030. As stated by UNEP current targets are inadequate and they should be revised considering further global reductions, up to 19GtCO₂eq.

-80% OF GHG EMISSIONS BY 2050

Global greenhouse gas emissions under different scenarios



Source: Sustainable Development Foundation



Energy roadmap: divesting from fossil fuels, starting from coal

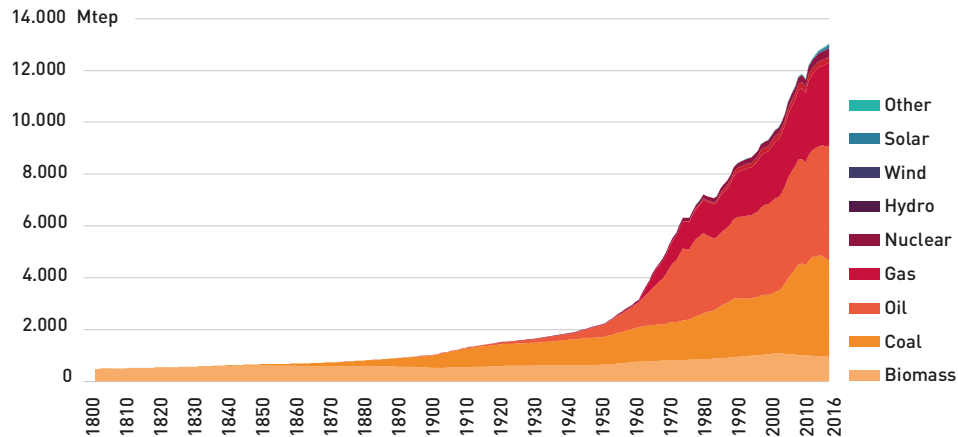
The global energy consumption has grown dramatically since last century, particularly after the second World War with the consumption boom of the 50s. Such new energy demand has been satisfied mainly by fossil fuels, which are mainly responsible for the current climate crisis.

To stabilize the climate, the most part of fossil fuels reserves need to be kept underground, starting from coal, the most polluting fossil fuel responsible for recent GHG emissions growth.

At global level, initiatives to stop the use of coal are widespread, starting from important international funds that have dumped fossil fuel investments. The Italian Government has set 2025 as the year when Italy will exit the coal era.

2025 ITALY COAL FREE

Global energy primary consumption
by source



Source: Vaclav Smil, 2018



Investments in renewables are leading the global energy transition

We are in the middle of a green energy transition. Investments in renewables continued to increase, reaching \$279.8bn in 2017: since 2010, the world has invested \$2.2 trillion in green energy sources, installing a record number of new solar power projects in 2017, more than net additions of coal, gas and nuclear plants put together.

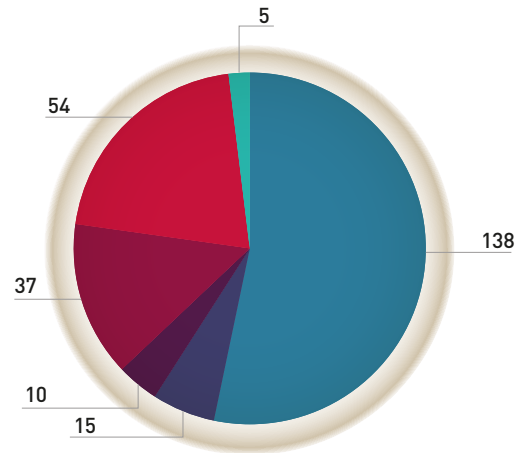
Renewable energy, excluding large hydro, made up a record 61% of all the net power generation capacity added worldwide in 2017, with solar alone accounting for 38%.

According to the International Renewable Energy Agency scenarios, to be in line with decarbonization targets, the total share of renewable energy must rise from around 15% of the total primary energy supply in 2015 to around 66% by 2050, six times higher than the actual growth rate.

61% OF NEW GENERATING CAPACITY IS ON RENEWABLES

Net power generating capacity added in 2017
by main technology, GW

- Renewable ex large hydro
- Large hydro
- Nuclear
- Gas
- Coal
- Other flexible capacity



Source: UN Environment, Bloomberg New Energy Finance



Social benefits of the energy transition

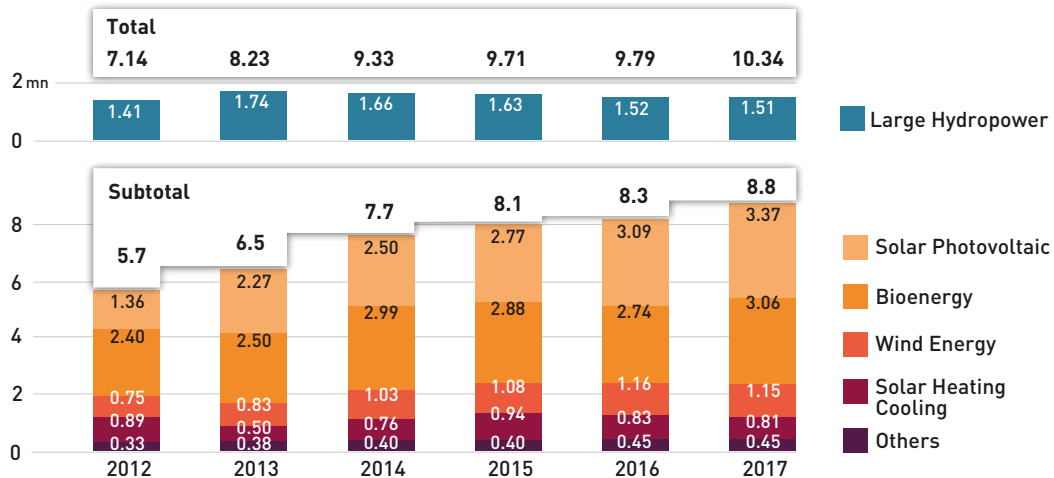
In 2017, the renewable energy sector employed 10.3 million people, with an increase of 5.3% vs. 2016. The strongest expansion took place in the solar photovoltaic and bioenergy industries.

The role of renewables in the global energy system keeps expanding, being essential to stabilise the global climate, avoiding environmental degradation, and improving human health.

As the global transition towards a more sustainable energy system unfolds, the world's renewable energy workforce will continue to expand. IRENA's analysis suggests that jobs in the sector could rise up to around 29 million in 2050, ensuring a net increase of 12 million jobs considering those lost in the fossil fuel sector.

10.3 MILLION GREEN JOBS IN 2017

Global renewable energy employment by tech.



Source: International Renewable Energy Agency



Electric car: from early deployment to mass market adoption

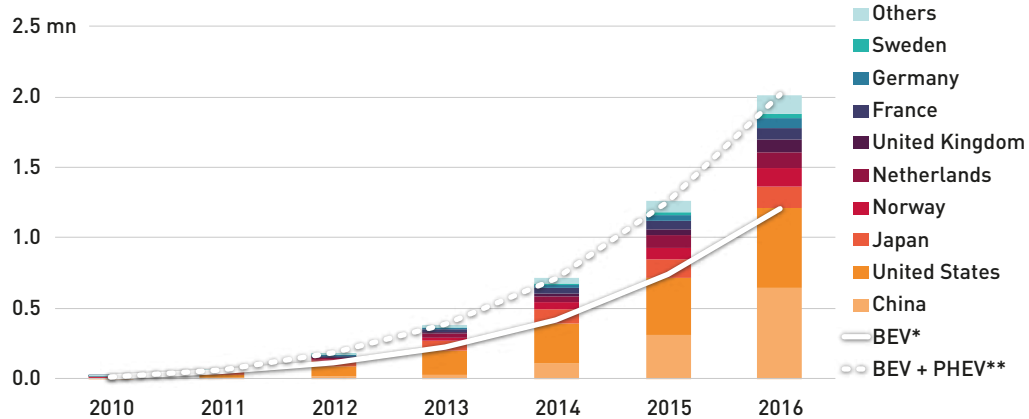
The transition to electric road transport technologies that began only a decade ago is gaining momentum and holds promise for a low-emission future.

According to the IEA Global EV Outlook 2017 new registrations of EVs hit a new record in 2016, with over 750.000 sales worldwide. Norway has achieved the most successful deployment of new electric cars in terms of market share (29%) while China was the largest market, selling 40% of worldwide EVs. The global electric car stock has grown up to 2 million vehicles in 2016 after crossing the 1 million threshold in 2015.

In the next 10 to 20 years the EV market will likely transition from early deployment to mass market adoption: the electric car stock may range between 9mn and 20mn by 2020 and between 40mn and 70mn by 2025.

2 MILLION EVs IN 6 YEARS

Electric Vehicles global stock growth



* Battery Electric Vehicles

**BEV+ Plug-in Hybrid Electric Vehicle

Source: International Energy Agency Global Outlook



A new concept of mobility

The world of transport and mobility is rapidly evolving: electrification, autonomous driving and connected vehicles are growing. More important than that, technology, IT and apps, if well managed, can lead to more trips, and at the same time to less vehicles, pollution and traffic jams in cities.

Sharing mobility is a key trend: paradigm shift from vehicles ownership to vehicle usage.

At global level, it is foreseen that in 2025 carsharing users will be 78 million and ridesharing users will be 147 million.

78 MILLION CARSHARING USERS BY 2025

Carsharing and ridesharing figures

	2016	2025
Carsharing members (Million people)	38	78
Carsharing revenue (Billion \$)	4.2	11.4
Ride sharing members (Million people)	52	147
Ride sharing revenue (Billion \$)	3.2	23.4

Source: Frost&Sullivan



Putting a price on carbon

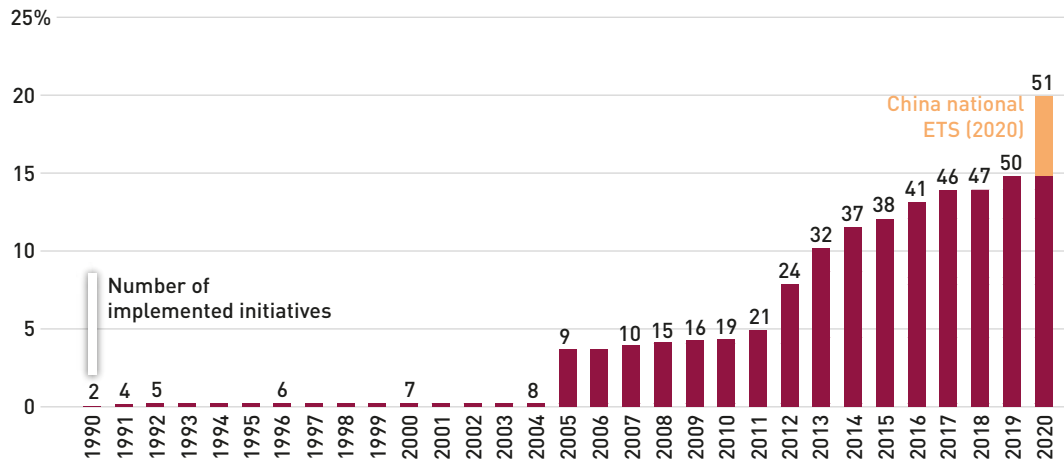
Carbon pricing is considered one of the most effective mechanism to decarbonise the economy. To date, 51 carbon pricing initiatives have been implemented or are scheduled for implementation until 2020.

These initiatives would cover 11 gigatons of carbon dioxide equivalent (GtCO_{2e}) or about 20% of GHG emissions, compared with around 5% registered in 2010. The European ETS in 2017 remains the first carbon market, but it will be soon surpassed by the Chinese ETS, planned to enter into force by 2020. In 2018, the total value of global carbon pricing initiatives should reach \$82bn, representing a 56% increase vs. 2017.

Carbon prices vary a lot, from less than \$1/tCO_{2eq} to a maximum of \$139/tCO_{2eq}, but 46% of the emissions covered are priced less than \$10/tCO_{2eq}, well below the carbon price range needed in 2020 (\$40-80/tCO_{2eq}) to be in line with the Paris Agreement.

\$82bn THE VALUE OF GLOBAL CARBON PRICING INITIATIVES

Regional, national and subnational carbon pricing initiatives: share of global emissions covered



Source: World Bank, ECOFYS



My name is Bond, Green Bond!

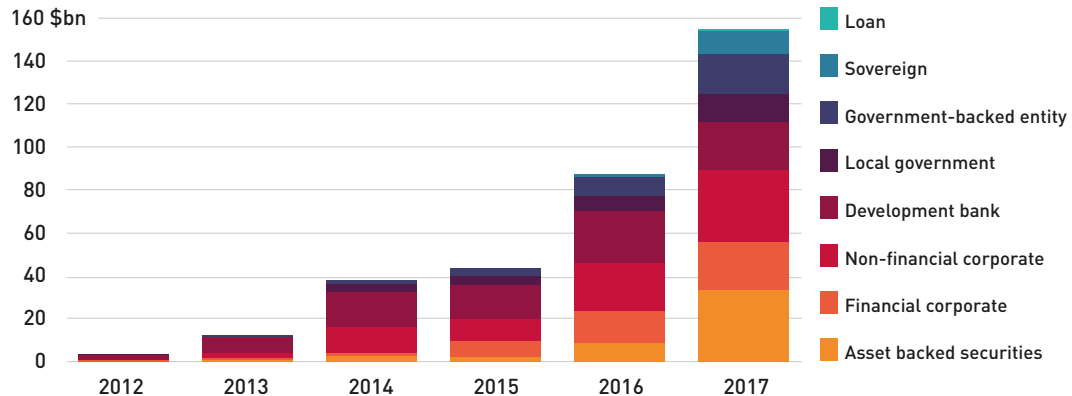
The Climate Bonds Initiative (CBI) latest analysis on green bonds for 2017 shows a December 31st tally of \$155.5bn, a new annual record, up 78% on the adjusted 2016 figure of \$87.2bn.

Investments in climate change related projects, such as renewable energy, energy efficiency, transport and adaptation continue to be the most common use of proceeds with a share of 80% in 2017.

Despite 2017 being a positive year for global finance and its actors, to be making a substantial impact on climate targets CBI estimates that the green bond market needs to reach \$1 trillion by 2020.

\$155.5bn OF GREEN BONDS

The labelled green bond global market



Source: Climate Bonds Initiative



Italy can gain from fighting climate change

Climate change is greatly affecting the «Bel Paese», one of the most vulnerable countries at european level.

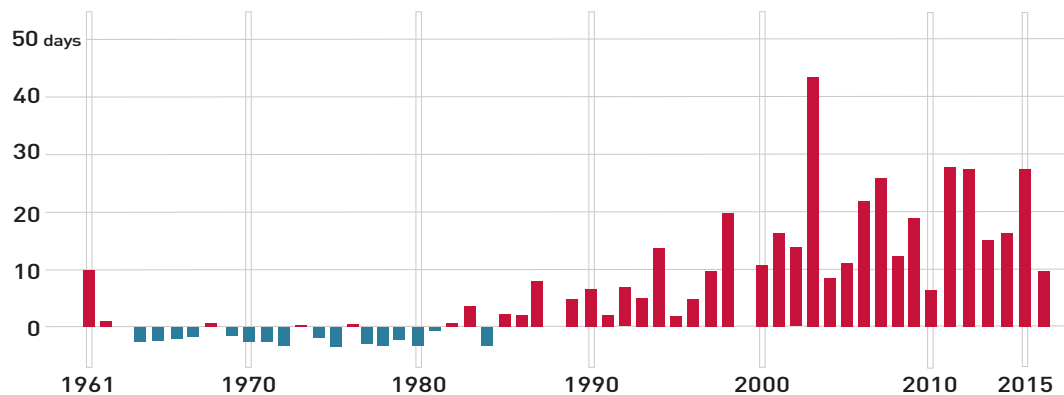
In the medium and long run many natural events testify such effects, like the melting glaciers in the Alps that risk to disappear in the next few decades.

The year 2017 has been one of the warmest of the recent history, with a prolonged drought affecting the city of Rome. In the same period, a record number of fires burnt almost 130 thousand hectars of forest.

As written in the Italian National Plan for hydrogeological risk mitigation, to manage the effects of climate change, massive investments are needed: €29bn to safeguard the territory and more than 11 thousands construction sites.

€29bn TO SAFEGUARD THE ITALIAN TERRITORY

The average number of extreme heatwave days per year in Italy compared to normal values



Source: Ispra



Italy is a EU leader in renewables, but investments have to grow

With over 17% of energy consumption covered by renewables, Italy is one of the first European countries that has already achieved the 2020 renewable energy target.

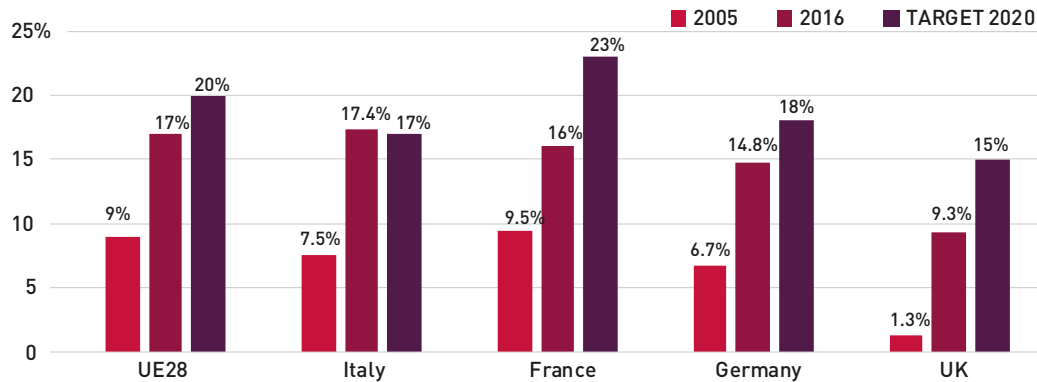
For the transition to a green economy the renewable energy sector is a key one with €4.8bn of investments and almost €9bn spending on operation and maintenance (O&M) and 130 thousands people employed.

However, in the last few years, the growth rate of renewables has fallen, with negative effects on GHG emissions.

According to Italy's National Energy Strategy approved by the end of 2017, in 2030 renewables should cover 28% of final energy consumption. This means that in a bit more than a decade, in order to cover 55% of the energy consumption with renewables, wind energy production should double and the photovoltaic one should triple.

€5bn INVESTED AND 130.000 PEOPLE EMPLOYED

Share of energy from renewable sources
in major European economies



Source: Eurostat



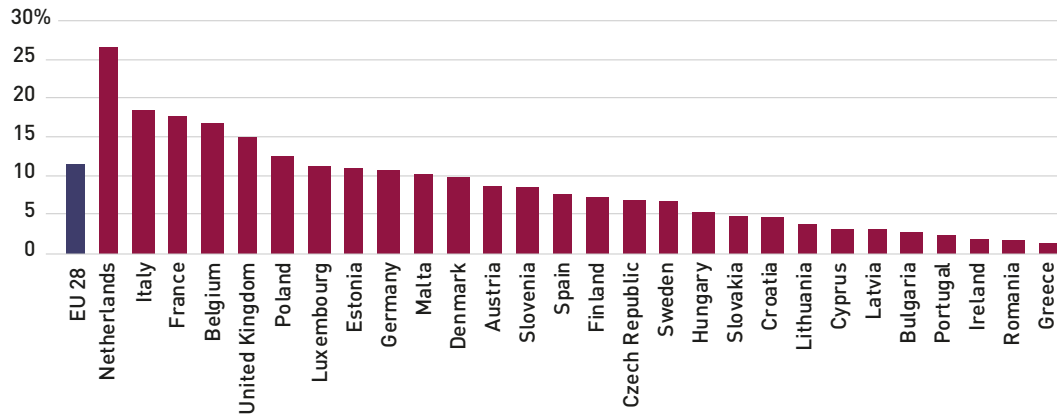
Circular economy: Netherlands and Italy lead the way

Circular economy consists in recovering and feeding back materials and products into the economy, while reducing the amount of energy needed by industrial production processes to transform primary raw materials into usable products. Therefore, the link between circular economy and GHG reductions can be intuitive.

According to Eurostat, best European performers in circular material use rate - the contribution of recycled materials to overall materials demand - are: the Netherlands with 26.7% and Italy with 18.5% (above the EU28 average).

18.5% OF RECYCLED MATERIALS STAY IN THE LOOP

Circular material use rate in EU28, 2014



Source: Eurostat



Cities: greener and smarter

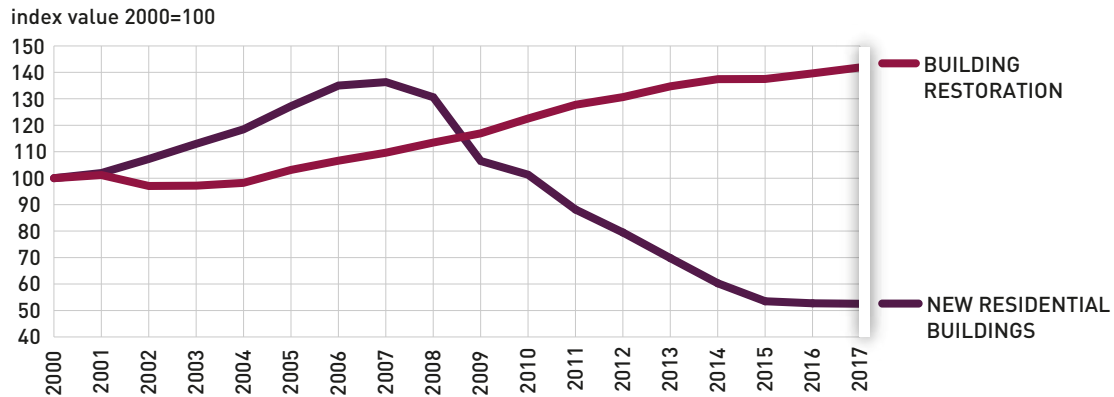
To achieve the decarbonisation target, a deep renovation plan for our cities should be implemented. It appears in fact that the majority of the world's population lives in urban areas which have a strong environmental impact. Italy presents some best practices in this field at european and international level.

In the last ten years the national construction sector has changed considerably moving from investments in new buildings to mainly restoration activities, which nowadays represents 79% of the sector total revenue.

In 2016, tax reduction for bulding energy requalification projects have stimulated €3.1bn of investments and employed almost 38 thousands people.

€3.1bn OF INVESTMENTS FOR BUILDINGS ENERGY REQUALIFICATION

Investments in residential buildings



Source: elaboration by Sustainable Development Foundation based on Associazione Nazionale Costruttori Edili data



SUSTAINABLE
DEVELOPMENT
FOUNDATION

Fondazione per lo Sviluppo Sostenibile

Via Garigliano 61/A - Rome
www.fondazionevilupposostenibile.org
info@susdef.it | +39 068414815

IN COOPERATION WITH



ING ITALY
Viale Fulvio Testi, n. 250 - Milan
newsroom.ing.it - ufficiostampa@ingdirectitalia.it