



Italian Energy and
Environmental Protection
Technologies
and Management



Advanced,
Innovative
and Effective Solutions
for Cooperation
with China



Ministero dello Sviluppo Economico



Camera di Commercio Italiana in Cina
中国意大利商会
China-Italy Chamber of Commerce



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Foreword

前言

ETTORE FRANCESCO SEQUI
Ambassador of Italy in China

谢国谊先生
意大利驻华大使

The political and economic ties between Italy and China are experiencing a new momentum, which Rome and Beijing are willing to further strengthen.

意大利与中国的政治和经济关系正在形成新的发展势头。罗马和北京有意愿进一步加强这一发展势头。

In May 2016, as China started to implement its 13th five-year plan, our two Countries launched the "Road to 50": a "5-year strategy" born with the intent to elaborate a long-term vision and a concrete strategy towards 2020, the year that marks the 50th anniversary of our diplomatic relations and the completion of the new five-year plan.

2016年5月，随着中国开始执行“十三五”计划，中意两国共同发起了“通向50年之路”的“五年战略”计划，旨在制定面向2020年的长远目标和具体战略。2020年将是意中两国建交50周年，也是五年计划的收官之年。

Through the "Road to 50" we aim to upgrade our bilateral strategic partnership with more in-depth cooperation in the areas where Italy and China present significant complementarities. Among these sectors, specifically identified also in the Plan of Action adopted in May this year by our two Prime Ministers, Paolo Gentiloni and Li Keqiang, we can list: green economy; environmental technologies; food safety; sustainable urbanization, healthcare; aviation and aerospace.

我们的目标是，通过“通向50年之路”计划，在意大利和中国具有重要互补性的领域内更加深入合作，提升双边战略伙伴关系。在这些领域中，我们可以列举出两国总理保罗·真蒂罗尼和李克强今年五月签署的“行动计划”中也明确指出以下具体领域：绿色经济、环保技术、食品安全、可持续城市化、医疗卫生和航空航天。

The high level visits of the last few months show that Italy and China have a strong political will to cooperate together. I'm confident that Italian companies – especially in the sector of green energy and environmental protection – will prove to be excellent partners for their Chinese counterparts. Italian companies have the ability to combine tradition with constant innovation and research. With this approach, the Italian industrial sector remains highly competitive without sacrificing its core focus on sustainability and is thus capable of driving the future progress of sustainable business globally.

过去几个月的高层访问表明，意大利和中国有强烈的合作意愿。我相信，意大利公司，特别是在绿色能源和环境保护领域，将是中国同行的优秀合作伙伴。意大利公司有能力将传统与不断的创新与研究相结合。通过这种方式，意大利工业部门仍然保持高度竞争力，而不会牺牲其对可持续发展的核心关注，因此能够推动全球商业的可持续发展。

**AMEDEO SCARPA
TRADE COMMISSIONER AND COORDINATOR OF ITA NETWORK IN PRC AND MONGOLIA**

**司凯培先生
意大利对外贸易委员会北京办事处首席代表暨
中国区和蒙古国总协调官**

Italian Trade Agency - ITA is the government organization which promotes the internationalization of the Italian companies, provides information, support and advice with the aim to promote and foster export and cooperation in all areas and increasing their presence on the international markets. We are present in China for more than 50 years with 4 offices respectively in Beijing, Shanghai, Guangzhou and Hong Kong, organizing a large number of promotional activities every year to enhance the economic and trade relationship between China and Italy.

意大利对外贸易委员会-ITA是意大利政府机构，致力于促进意大利企业的国际化，为企业提供信息，支持和咨询，旨在促进和加强意大利企业在各个领域的输出和国际合作，提升意大利企业在国际市场上的地位。我们进入中国50多年，分别在北京、上海、广州和香港设有办公室，每年举办大量推广活动，以加强中意经贸关系。

In the Energy and Environmental Protection sector Italy is one of the most forefront and competitive country worldwide, with high focus in research and development and strong support from the Italian government, who sets priorities in innovative renewable technologies, materials and solutions for energy efficiency, smart grid, etc, dedicating specific funds and resources to these areas.

在能源和环境保护领域，意大利高度重视研发，且得到政府的大力支持，是世界上最前沿和最具竞争力的国家之一。意大利政府将能够提高能源效率的可再生能源创新技术、材料和解决方案以及智能电网等视为重中之重，并为这些领域提供专门的资金和资源。

In recent years, Italy has experienced an impressive growth in the renewable energy sector and has been successful in integrating large volumes of variable renewable generation, representing the best partner for China's development in this sector. As a matter of fact, Italy already reached the 2020 target of European Union to get almost 20% of its total energy from renewable and clean sources. At the same time China represents a big market for the Italian companies with great cooperation opportunities for both sides.

近年来，意大利在可再生能源领域取得了令人瞩目的增长，成功整合了大量可再生能源，是中国在该领域的最佳合作伙伴。事实上，意大利已经提前实现欧盟制定的2020战略目标，所用能源中20%来自可再生能源和清洁能源。同时，对于意大利企业来说，中国是一个巨大的市场，能够为双边合作提供众多机遇。

To satisfy the expectations to enhance in the near future a better life style quality, related with Energy and Environment Protection, all Italian institutions in China, including Italian Trade Agency, strictly work together with Chinese institutions and counterparts.

为在不久的将来实现与能源和环境保护相关的更好的生活方式，所有在华意大利机构，包括意大利对外贸易委员会在内，都和中国机构及同行保持紧密合作。

DAVIDE CUCINO
CHAIRMAN CICC

大卫
中国意大利商会会长

As a Chairman of China-Italy Chamber of Commerce, I am very pleased to present this brochure and proud of introduce the Energy and Environmental Protection Working Group (EEWPG), an entity born within the CICC that gathers the member companies present in China or with interests in China whose business is related to energy and green-tech.

作为中国意大利商会的主席，我很高兴向大家发布这本手册同时我也很自豪地向大家介绍能源与环境保护工作组（EEWPG），这个诞生于中国意大利商会的实体组织，聚集了来自能源或绿色科技领域的公司，他们中有已在中国发展，或对中国有着浓厚兴趣。

The China-Italy Chamber of Commerce (CICC) is the only business organisation recognised by both the Italian Government (Ministry of Economic Development, MiSE) and People's Republic of China (Ministry of Civil Affairs, MoCA) that aims to boost the internationalisation and settlement of Italian business and to promote the "Made in Italy" in the PRC. Established in 1991, CICC has now offices in Beijing, Chongqing, Guangzhou, Shanghai and Suzhou. The CICC is a member of Assocamerestero, the Association of Italian Chambers of Commerce Abroad, a network of 78 Chambers in 54 Countries. The CICC as a major actor of Italian promotion coordinates its activities with the Italian Diplomatic Missions in China and the offices of the Italian Trade Agency.

中国意大利商会（CICC）是唯一得到意大利政府（意大利经济发展部）和中国政府（中华人民共和国民政部）共同认可的意大利企业家和专业人士组成的协会，其宗旨是推动意大利企业在华的国际化、本土化进程，提升意大利制造在中国的知名度。中国意大利商会于1991年成立于北京，现已在北京，重庆，广州，上海和苏州五个城市分设有联络办公室。中国意大利商会隶属意大利海外商会协会。意大利海外商会协会在54个国家设立78个商会。与意大利对外贸易委员会，意大利国家旅游局一起，中国意大利商会是海外推广意大利的重要角色。

The CICC Members are a wide representation of the Italian business community including public-invested and multinational corporations, financial institutions, small and medium-sized enterprises (both manufacturing and commercial), service companies etc.

中国意大利商会的成员在意大利商界中有广泛的代表性，包括公共投资和跨国公司、金融机构、中小型企业（制造业和商业）、服务公司等。

The CICC, in cooperation with its members, has established 10 working groups covering a number of sectors considered as the most important and strategic for Italian companies in China. The Working Groups gather representatives of companies operating in the same sector or located in the same geographical area.

中国意大利商会（CICC）协同其会员们启动建立的10个工作组，覆盖了若干个对在中国的意大利企业有着重要战略意义的领域。工作组聚集了来自同一经济领域或位于同一地理区域公司的企业代表们。

This brochure is the actualisation of all the efforts done by the China-Italy Chamber of Commerce through the EEPWG and at the same time represents a starting point for the new development of an integrated promotion of the Italian technologies in various segments of this sector in coordination with the other Italian promotion players.

这本手册在使中国意大利商会的能源与环境保护小组所做的努力成为现实的同时，也代表着一个新起点——在其他意大利同仁的协助下，在行业的各个环节综合推广、发展意大利科技。

I'd like to express my gratitude to all individuals who contributed to this brochure, including the Chair of our working group, companies and staff of CICC. All the CICC accomplishments to date were made possible only thanks to their dedication.

我想要感谢所有为本手册做出贡献的个人，包括我们工作组的主席、所有公司和中国意大利商会的全体工作人员。中国意大利商迄今所取得的成就都离不开他们的努力奉献。

GUIDO D. GIACCONI
EEPWG COORDINATOR

贾可尼
能源和环保工作组协调主席

Not everybody knows that Italy is one of the most advanced among G20 Countries as for Energy and Environmental Protection Technologies, Services and Management. Reasons of that lie in the traditional talent of Italy for beauty, quality and technology, but mainly in the tough mandate Italians have inherited to preserve and keep Italy as the most beautiful Country in the World. Italy performances within Energy and Environmental Protection Management are a blend of advanced technologies, services, management practices and overall Governments and people attentiveness that, all together, have lead Italy to achieve the extraordinary performances that will be selectively described in this brochure.

对很多人来讲，也许会有些惊讶才能认识到意大利在能源和环保方面的技术，服务和管理水平，如果不是G20国家中最先进的，也是属于世界上最先进的国家之一。依据不仅仅是意大利受到公认的传统杰出元素如美景，质量和技术，同时也主要源于意大利人所继承的严苛的使命来保存和保持意大利国家作为世界上最美丽的国家。

The China-Italy Chamber of Commerce Energy and Environmental Protection Working Group (EEPWG) represents the Italian Companies, members of CCIC and with interests in China, able to transfer into China those Italian excellent features and striving to allow China to achieve the same performances Italy has accomplished for the benefit of Chinese Economy, People, and Environment

中国意大利商会能源和环保工作组代表着对中国市场有兴趣的意大利相关企业及商会成员。这些企业有能力将意大利杰出的技术和服务引入中国，并致力于促使中国达到与意大利同等的水平，助力于中国的经济和环境。



**Italy and China have a long and successful
cooperation relationship within Energy and
Environmental Protection Management**

**意大利和中国在能源和环境保护管理领域方面
拥有长期和成功的合作关系**

Background Sino-Italian Cooperation 中意合作背景

中意两国在能源和环境保护方面的紧密合作始于数十年前，合作成果丰硕，几乎在所有领域有合作项目。此外，近期中国在这些领域的投资已经确定，预计未来会有更多投资。2014年，中国国家电网入股Cassa Depositi e Prestiti Reti，此举使得中国国家电网得以入股Terna(意大利电网运营商)和Snam Rete Gas(意大利天然气运营商)。同年，中国人民银行收购了Enel(意大利国家电力公司)和Eni(意大利石油公司)数量可观的股份。

2000年，中国国家环境保护部(MEP)和意大利环境、领土与海洋部(IMELS)签署环境保护合作联合声明，启动了中意环保合作项目(SICP)。这一联合声明确认环境问题的区域性和全球性、通过国际合作寻求持续有效解决方法的紧迫性，以及中意两国共同行动的重要性。

两国同意环境保护合作应该在中意两国双边协议和国际声明或协议的指导下进行，如：《里约环境和发展宣言》；关于大气臭氧层保护的《蒙特利尔协议》；《生物多样性保护公约》；《联合国气候变化框架公约》；《京都议定书》。旨在于加强两国在大气污染防治，水质管理，废物管理，清洁生产，消耗臭氧层物质替代，能源效率，可持续农业和生物多样性等领域的合作。

15年来，中意环境保护合作项目的合作伙伴扩展至多个部委、地方政府和科研院所，在中国31个省、自治区和直辖市开发并实施了200多个合作项目。这些年来，中意环境保护合作得到了两国政府高层领导的充分认可和高度评价，在中意全面战略伙伴关系中具有的重要地位，是国际双边合作的重要典范。

中国和意大利共同将能源和环境保护领域作为新合作的主题之一(其它主题分别为农业，航空航天，医疗健康和城镇化)，旨在解决中国视为优先的主题以及加强双边关系。自2014年起，许多合作备忘录在中国和意大利分别举行的多次机构会议中，在两国主席、总理和部长等的见证下签署。

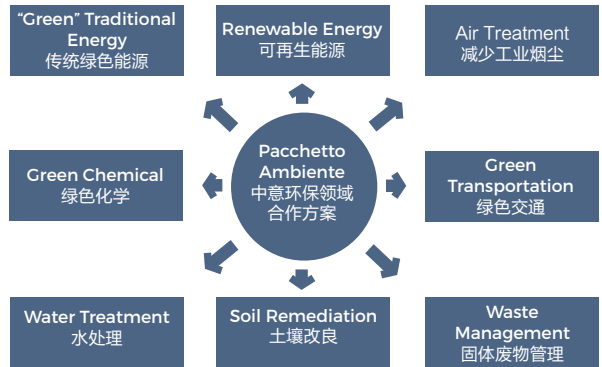
The strong and fruitful cooperation between China and Italy within Energy and Environmental Protection started decades ago and has seen joint projects in almost all fields over the years. Also, many Chinese investments in different industrial sectors have been recently finalised and more are expected to come. In 2014 the Chinese State Grid Corporation participation within the capital of Cassa Depositi e Prestiti Reti allowed State Grid to participate into the capital of Terna (Italian electricity backbone distributor) and Snam Rete Gas (Italian natural gas backbone distributor), while People's Bank of China acquired significant shares within Enel (the major Italian power producer) and Eni (the Italian Oil Company) in the same year.

In 2000, a Joint Statement on environmental protection collaboration signed by the Ministry of Environmental Protection of China (MEP) and the Italian Ministry for the Environment, Land and Sea (IMELS), launched the Sino-Italian Cooperation Program for Environmental Protection (SICP). The Joint Statement identified the regional and global nature of environmental issues, the urgency to find effective and lasting solutions through international collaboration, and the importance of coordinating the joint activities between China and Italy.

The two Countries agreed that environmental protection should be implemented based on the guidance of the Sino-Italian bilateral agreements and the international declarations or agreements, such as: the Rio Declaration on Environment and Development; the Montreal Protocol on Substances that Deplete the Ozone Layer; the Convention on Biological Diversity Conservation; the United Nations Framework Convention on Climate Change; the Kyoto Protocol. The aim is to strengthen air pollution reduction and control, water quality management, waste management, cleaner production, ozone depleting substances substitution, energy efficiency, sustainable agriculture and biodiversity.

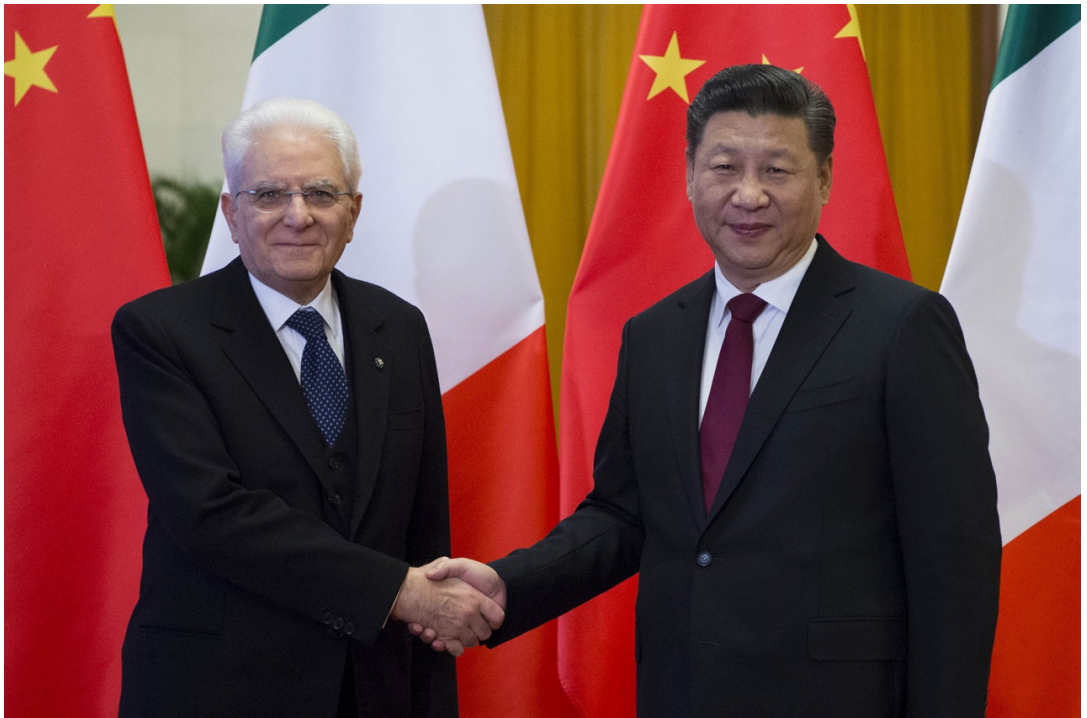
In more than 15 years, SICP has involved numerous Chinese central and local government entities and over 200 projects have been jointly launched covering 31 provinces, autonomous regions and municipalities around the Country. Throughout the years, SICP has been widely recognized and highly praised by the leaders of both governments and it has become an important part of the Sino-Italian comprehensive strategic partnership as well as a virtuous example of bilateral cooperation.

China and Italy included Energy and Environmental Protection in the new cooperation streams (together with Agriculture, Aviation/Aerospace, Healthcare and Urbanization) aimed at addressing China's priorities and strengthening bilateral relationships. Since 2014 many MOUs were signed between reference Ministries, Prime Ministers and Presidents on the occasion of several institutional meetings taking place both in Italy and China.



而且，2017年5月由两国总理共同签署的‘中国和意大利关于加强经贸、文化和科技合作的行动计划（2017年-2020年）’也将可持续能源与环境领域的合作确定为双方相互优先开展的领域之一。

Furthermore, collaboration in the environment and sustainable energy fields has been confirmed as a mutual priority in the "Plan of Action for Italy-China Cooperation 2017-2020" that was signed by the Prime Ministers of both Countries in May 2017.



China's challenges in Energy and Environmental Protection are being fiercely addressed by 13th FYP with ambitious objectives, targets and goals

中国在能源和环境保护方面的挑战充分体现在了十三五规划中所设定的宏伟的方向和目标中

Sector 领域	13th FYP's Green Targets (2016-2020) “十三五” 规划的绿色目标 (2016-2020)	
Clean vehicles 清洁能源车	- Production capacity for fully electric vehicles and plug-in hybrid electric vehicles to reach 2 million yearly by 2020, with accumulated production and sales of over 5 million.	- 到 2020 年, 全电动车和插电式混合动力电动汽车的年生产能力达到 200 万辆, 累计生产和销售 500 多万辆。
Cleaner conventional energy 常规清洁能源	- 15% of energy mix to be non-fossil. - Add around 350GW-400GW of additional clean energy (total capacity: hydro 340 GW; pump storage 40 GW; wind 250 GW; solar 160 GW; nuclear 58 GW), with investment amounting to RMB 2.3 trillion (€310 billion).	- 非化石能源消耗比重达到 15% - 增加其它清洁能源 350 吉瓦~400 吉瓦 (总量为: 水电 340 吉瓦; 抽水蓄能 40 吉瓦; 风电 250 吉瓦; 太阳能 160 吉瓦; 核电 58 吉瓦), 累计投资 2.3 万亿元人民币 (约为 310 亿欧元)。
Coal 煤炭	- Coal power consumption to fall by 2-4% per year. - Cut 20% of coal production, and close 4,300 coalmines within three years and relocate one million workers. Allocate RMB 30 billion (€4.1 billion) to support the transition.	- 每年减少 2~4% 的煤炭消耗量 - 削减煤炭产量 20%, 三年内关闭 4300 个煤矿, 安置 100 万名工人。拨款 30 亿元用于支持该转型变革。
Energy Efficiency 能源效率	- Reduce energy intensity by 15%. - Investment in energy saving and environmental protection industry to reach RMB 17 trillion (€2.28 trillion) by 2020, whereas market for ESCO to reach RMB 600 billion (€80.4 billion).	- 将能源强度降低 15%。 - 到 2020 年, 节能和环保方面的投资达到 17 万亿元人民币 (约为 2.28 万亿欧元), 而节能服务市场投资达到 600 万亿元人民币 (约为 80.4 亿欧元)。
Gas emissions 气体排放	- Reduce CO2 intensity by 18%. - Surpass the goal to cut carbon emissions in a unit of GDP 40-45% on 2005 levels by cutting its carbon intensity by 50% by the end of the decade.	- 将二氧化碳排放强度降低 18% - 到 2020 年, 通过将碳排放强度降低 50%, 从而实现单位国内生产总值碳排放比 2005 年下降 40~45% 的目标
Grids 电网	- Investments on grids amounting to around RMB 2.4 trillion (€330 billion), RMB 1.7 trillion (€240 billion) of which on distribution network. Original allocation for smart grids is RMB 175 billion (€23.5 billion). - Increase the total length of the high-voltage distribution lines to 1.01 million km, more than double the 2014 level, whereas the medium-voltage distribution network is poised to grow to 4.04 million km.	- 电网建设投资累计达到约 2.4 万亿元人民币 (约为 € 330 亿欧元), 其中 1.7 万亿元人民币用于配电网建设 (约为 240 亿欧元)。智能电网建设投资为 175 亿元人民币 (约为 23.5 亿欧元)。 - 将高压配电网线路总长度增加到 101 万公里, 是 2014 年的两倍以上, 同时中压配电网线路有望增加到 404 万公里。

Source E3G; Bloomberg Brief
来源: 彭博社

13th FYP's goals and Made in China 2025 Green Manufacturing strategy, as well as several other Chinese Government initiatives to tackle environmental issues, represent a huge challenge. Thanks to its remarkable performances in terms of energy efficiency and excellences in technologies, processes, legislation and practices, Italy represents a worldwide benchmark. Italian institutions and companies can help China achieve and overcome even the most complex issues and hurdles

“十三五” 规划目标和2025中国绿色制造战略以及其它中国政府制定政策旨在解决环境问题, 这是一个巨大的挑战。意大利在能源效率, 技术, 处理流程, 立法和实践方面表现卓越, 代表了国际基准。意大利机构和公司可以帮助中国解决最复杂的问题和阻碍。

Italy is the ideal candidate to partner China in sorting out environmental challenges over the next decades: Italian performances in energy efficiency and environmental protection are a benchmark in the world

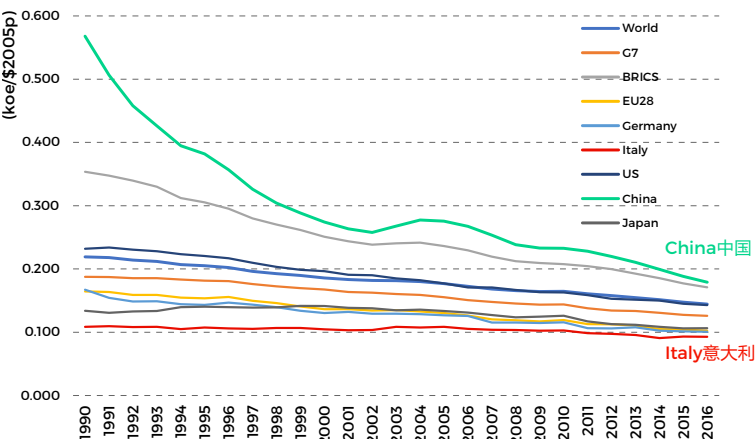
**意大利是中国在未来数十年面对环境问题挑战的理想合作伙伴。
意大利在能源效率和环境保护方面的表现是世界标杆**

Italy has the lowest Energy Intensity (unit of energy to generate one point of GDP) among biggest industrial economies 在世界各大经济体中, 意大利具有最佳的能源效率

Would China achieve the same energy intensity of Italy, it could save more than 50% of its primary energy sources (around 1.700 Mtoes, or 300 bn USD)

如中国实现和意大利同样的能源强度, 可节省50%的主要能源 (约为1690百万吨油当量或3000亿美元)

Energy Intensity of GDP at Constant Purchasing Power Parities
根据购买力平价折算的 GDP 能源强度



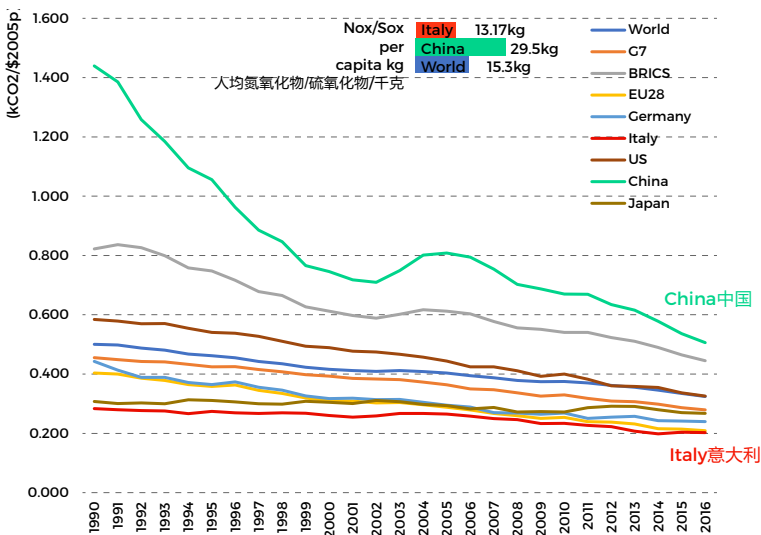
Source: Enerdata

Italy has the lowest CO2 intensity (unit of CO2 emissions to generate one point of GDP) among the biggest industrial economies 在世界各大经济体中, 意大利具有最低的单位GDP的二氧化碳排放强度

Would China achieve the same CO2 intensity of Italy, it could save more than 65% of CO2 emissions, cutting about 6.450 Mio tonnes of CO2 per year, about 18% of worldwide CO2 emissions

如果中国实现和意大利相同的二氧化碳排放强度, 则可以减少65%的二氧化碳排放, 每年减少排放二氧化碳6.45亿吨, 约为二氧化碳世界范围排放总量的18%

CO2 Intensity at Constant Purchasing Power Parities
根据购买力平价折算的二氧化碳排放强度



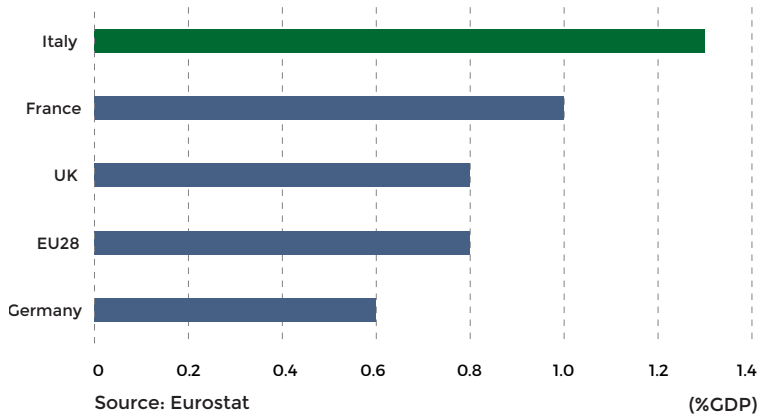
Source: Enerdata

Italy has the highest investment rate on GDP for Environmental Protection among EU28 Countries
在欧盟28个国家中，意大利对环境保护的投资占国内生产总值中的比例最高

EP is a key priority of Italian Government and its People. Investing in protecting the environment is a mandatory cultural mandate for Italy

环境保护是意大利政府和人民的重要优先事项。环境保护投资是意大利的一项强制性文化使命。

Government/Public Environmental Protection Expenditure/
GDP in EU28 (2015)
欧盟 28 国的政府 / 环境保护支出 / 国内生产总值 (2015)

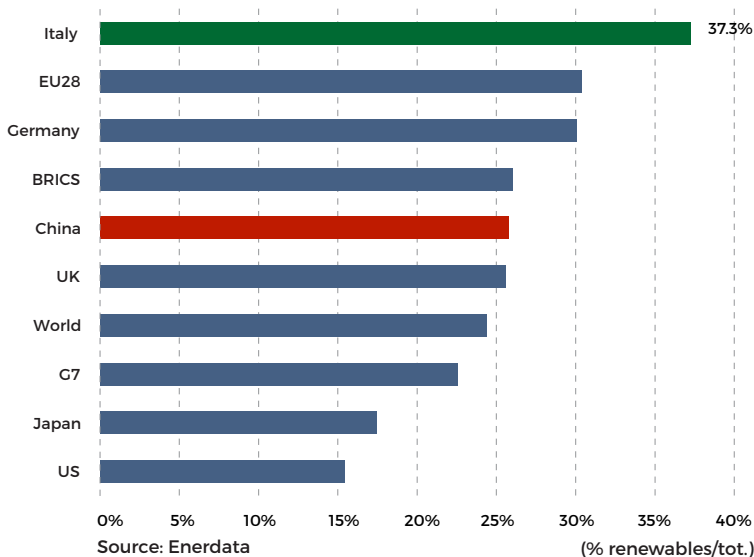


Italy has the highest shares of renewable primary energy sources among the biggest economies
在世界各大经济体中，意大利拥有的可再生初级能源比重最高

Hydropower, Geothermal, Wind, Solar PV, Biomass, etc. advanced technologies let Italy exploit at best all available renewable energy sources thus achieving its Kyoto goals 5 years in advance and now progressing fast in accomplishing COP21's

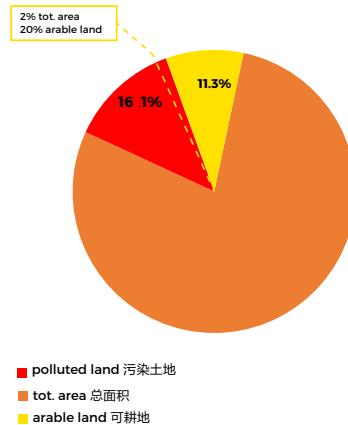
水电，地热，风能，太阳能光伏，生物质能等可再生能源，意大利凭借先进的技术最大程度的利用了所有的可再生能源。因此，意大利已提前5年实现“京都议定书”规定的目标，并正快速推进实现“巴黎协定”规定的各项目标

Share of Renewables in Tot. Electricity Production (2016)
可再生能源占全部电力产量 (2016)



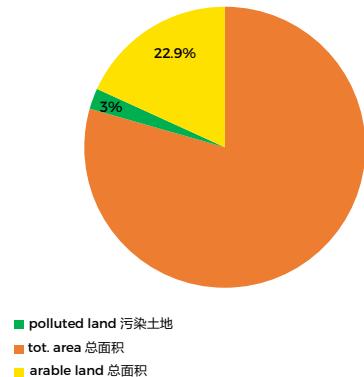
In Italy, the very limited contaminated soil does not overlap with the arable land 在意大利，非常有限的污染土地与耕地不重叠

China's Soil Contamination
中国的土地污染状况



Source: China's MEP and MLR

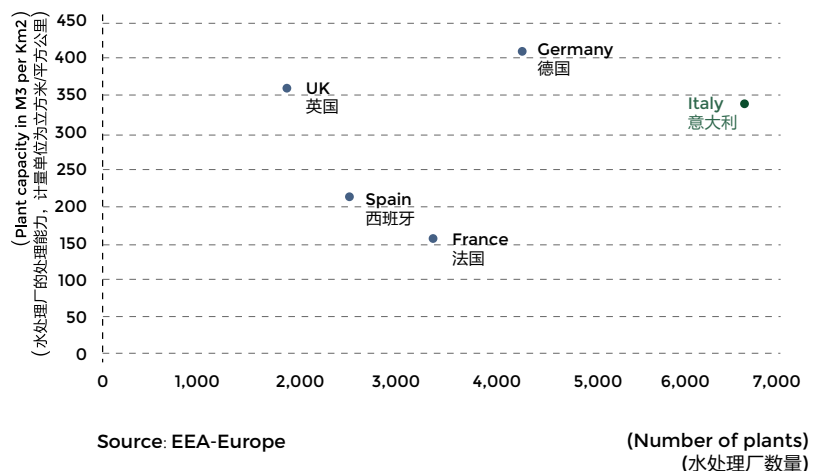
Italy's Soil Contamination
意大利的土地污染状况



Source: EIONET

In EU28 Italy is the Country with the highest number of civil water treatment plants 在欧盟28个国家中，意大利拥有的民用水处理厂数量最多

Water Treatment Plants in EU28(2013)
欧盟 28 国的水处理厂 (2013)



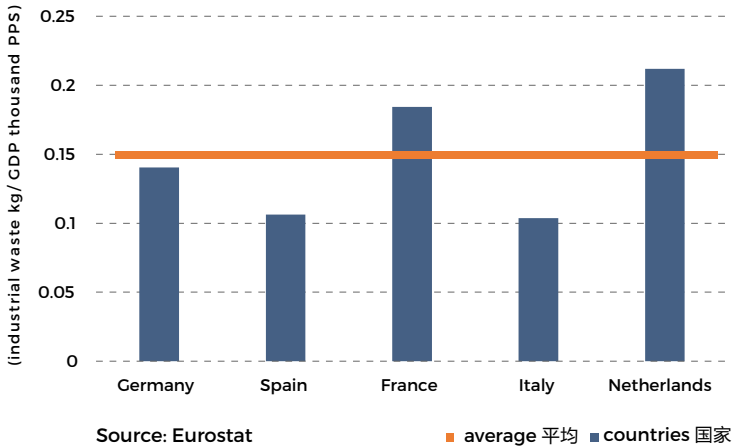
Source: EEA-Europe

In EU28, Italy is the Country with the lowest industrial waste intensity (unit of industrial waste to generate one point of GDP)
在欧盟28个国家中，意大利的工业废物排放强度最低

Although Italy is a manufacturing and industrial power (7th in the world, 2nd in Europe), manufacturing value chains are strictly controlled and managed to minimise waste production and maximise recycling

尽管意大利是制造和工业大国（世界排名第七，欧洲排名第二），制造业产业价值链受到严格的管理和监管，从而最小化废物的产生和最大化回收再利用

industrial Waste per GDP (2015)
单位 GDP 的工业废弃物 (2015)

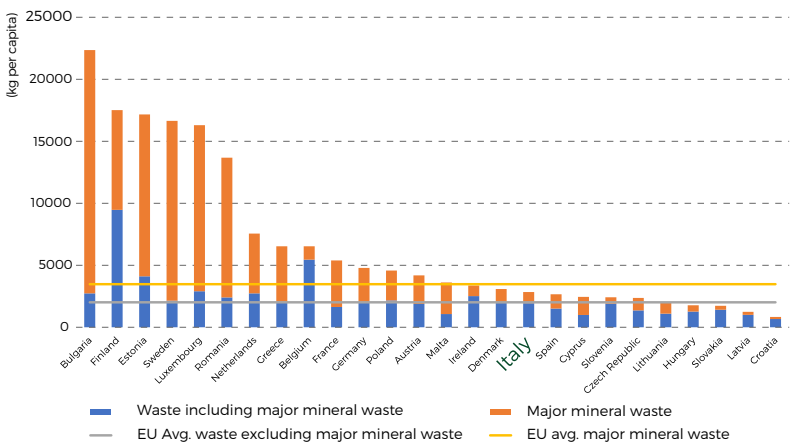


Among EU28 Countries, Italy boasts one of the lowest levels of industrial and civil waste production per capita
在欧盟28个国家中，意大利是人均产出工业和生活用废物最少的国家之一

Italy's level of both industrial and civil waste generation per capita is kept very low thanks to the overall people and companies' awareness and strict compliance with the policies adopted

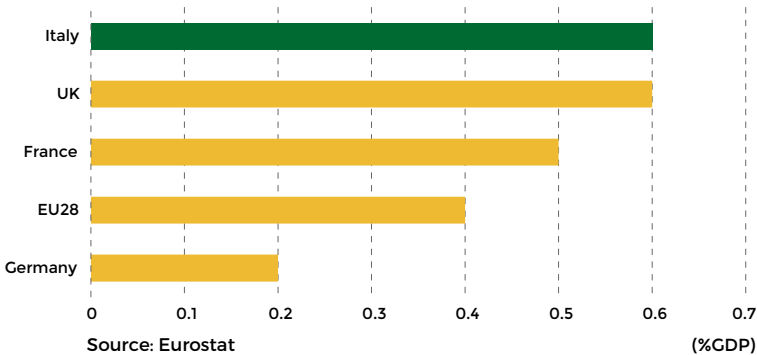
得益于意大利对于欧盟废物管理标准的严格承诺，意大利人均工业和生活废物产出率一直保持在很低的水平

Industrial Waste Generation per capita(2015)
人均工业废物产量 (2015)



In EU28, Italy is the Country with the highest expenditure on GDP for Waste Management
在欧盟28个国家中，意大利的单位GDP(国内生产总值)废物管理支出最高

Waste Management Government Expenditure/GDP in EU28 (2016)
欧盟 28 国的单位 GDP(国内生产总值) 政府废物管理支出 (2016)

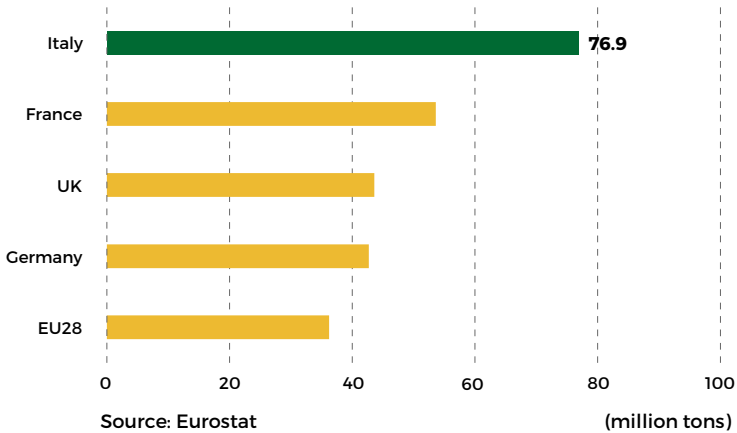


In EU28 Italy is the Country with the highest waste recycling rate
在欧盟28个国家中，意大利的废物回收率最高

In Italy both household and industrial wastes recycling is a priority to contribute to circular economy practices and increasing energy efficiency

在意大利，生活垃圾和工业废物的回收被视为促进循环经济实践和增加能源效率的优先事项。

Waste Treated Sent to Recycling in EU28 (2014)
欧盟 28 国废物回收量 (2014)





**Italy has a stringent legislation on
Energy and Environmental Protection
as the outcome of a series of strategic decisions
made by the Governments over the past decades
to preserve the Country**

**意大利政府基于战略角度出发，在过去的几十年里，
在能源和环保方面制定了严格的法规**

EEP Italian Legislation

意大利环境保护法

意大利的能源和环境保护立法执行并加强欧洲具体的法令法规，通过一系列旨在保持国家环境和人民健康的战略选择，规定了严格的政策框架。

意大利选择使用天然气作为主要能源（通过1987年的公民投票和2011年的1次公民投票，意大利放弃了核能发电，并逐步减少对煤炭的依赖，加上坚定推动可再生能源，使得意大利在能源效率和环境保护方面处于世界领先地位）。

正如2017年重申的，减少排放，增加可再生能源份额和降低能源消耗一直是意大利国家能源战略支柱。意大利预计将继续成为世界上能源效率最高的国家之一，也是G20国家中表现最好的国家。

Italian Legislation on Energy and Environmental Protection fulfils and strengthens specific European directives and regulations and falls within a stringent policy framework as the result of historical strategic choices aimed at preserving the Country and people's health.

Italy's choice to use natural gas as the primary energy source for power (in the absence of electricity production from nuclear energy to which the Country renounced following a series of referenda - in 1987 and again in 2011) and a gradual move towards decreasing dependency on coal along with the determined push towards renewable sources, position Italy as the best in class in the world in terms of energy efficiency and environmental protection.

Reduce emissions, increase renewables sources shares and lower energy consumption have hence been the pillars of the National Energy Strategy, as reiterated in 2017. Italy is and is expected to remain one of the most energy efficient Countries in the world and the best performer among the G20 Countries.

Just as an example of Italian peculiar excellence also in planning and regulations, Industry specific "Consortiums" are a very smart way to manage waste. Meant as regulatory solutions Italy introduced to execute environmental protection legislations and directives, Consortiums are legal entities responsible for regulating, controlling and coordinating the management of waste in almost all polluting sectors.

举一个意大利在规划和法治方面的先进杰出例子，按照行业细分的“废弃物管理组织”是一种非常先进的，由意大利介绍的，用于执行环境保护法规和规划的监管解决方案，用于对废物进行管理。废弃物管理组织是法律实体，负责管理，监控和协调几乎所有污染领域的废物管理。

- Under the principle "you produce the waste, you are obliged to pay for recycling and dismantling that waste", Consortiums have been created at national level to manage the wastes collection, recycling, treatment and disposal.
基于“你制造废弃物，就必须支付回收和处置废弃物的费用”的原则，意大利从国家层面上设立了多了“废弃物管理协会”，负责管理废弃物的收集、回收、处理和存放。
- Producers of goods producing waste (excluding food) are obliged to pay to finance Consortiums.
废弃物的生产商（食品生产商除外）应为“废弃物管理协会”提供资金支持
- Consortiums have been regulated since '97 with the roles of:
自 1997 年起，“废弃物管理协会”的职责为：
- Sharing know how (with producers) for the correct management of the wastes Valuation of environmental
和生产商分享正确管理废弃物的专业知识和技术
- Sustainability based on life cycle analysis (LCA) methods
基于生命周期方法（LCA）评估环境的可持续性
- Monitoring and implementation of prevention activities
监测和实施预防措施
- Waste collection
收集废弃物
- Recycling and correct disposal
废弃物的回收和正确存放



Consortium	Waste
废弃物管理协会	废弃物来源
CONAL	Packing Materials 包装材料
CAN	Steel 钢铁
CIAL	Aluminum 铝材
COMIECO	Cellulose 纤维素化合物
RILEGNO	Wood 木材
COREPLA	Plastic packing material 塑料包装材料
COREVE	Glass 玻璃
COOU	Used lubricant oil 使用过的润滑油
CONOE	Vegetable oil and animal fats 植物油和动物脂肪
COBAT	Lead batteries 铅电池
POLIECO	Polyethylene materials 聚乙烯材料
CONIP	Plastic packing material 塑料包装材料

Source: <http://gestione-rifiuti.it/link-utili>

Italy's outstanding performance in energy efficiency and environmental protection is based on excellent technologies, processes and capabilities to manage all the possible best available and innovative solutions.

A technology itself does not guarantee a high performing solution. This can be achieved only through processes and specific know-how, and this is exactly what Italy was able to develop over the past century

意大利在能源效率和环境保护方面的优异表现, 是基于其卓越的技术实力, 优秀的流程和寻求最佳和创新解决方案的管理能力. 一项技术本身并不能保证高效的解决方案, 最佳的解决方案只能通过具体管理流程和专业的知识技术(know how)来实现, 这正是意大利在过去一个世纪内的发展所得

Italian Cleantech Excellence (selection)

意大利卓越的清洁技术

空气质量

意大利拥有很多在工业空气处理和污染物减排方面处于领先地位的技术和做法，其中包括：预净化；静电除尘，冷凝减排；湿式除尘器；吸附；燃烧；生物过滤。所有这些技术和实践能够达到中国最新的严格环保要求。

洁净水

意大利拥有很多在民用和第一/第二/第三工业水处理和污染物减排方面处于领先地位的技术和做法。其中典范可见于几乎所有的民用和工业领域，比如石化，发电，造纸，玻璃/陶瓷，炼钢，皮革鞣制等等。所有这些技术和实践能够达到中国最新的严格环保要求。

废弃物综合管理

意大利废物管理技术和做法居于世界领先的水平，同时覆盖到所有相关行业的产业链。意大利的废弃物分类占总量的47.5%。这种综合管理方法大大减少废弃物填埋的数量，而且可以将废弃物回收再利用。举例来讲，意大利的一项技术可利用塑料，废料和马克杯生产合成油，用作润滑剂或燃料。此外，意大利在润滑油废油回收再利用方面也处于世界领先地位，通过执行具体法令法规和开发先进的技术—如通过过滤器和发动机部件回收系统—能够收集和再利用超过99.5%的废油。

土壤修复

土壤修复是最有挑战的环境保护课题。意大利拥有多项出众的净化技术，以及有能力根据污染物和受污染土壤的延伸情况提供解决方案。在众多的可应用的技术中，最值得提到的是生物修复和固化/稳定化处理流程（可逐渐将污染土壤转化为具有良好性能的颗粒物），以及电力修复技术（EKRT），能够去除土壤中的重金属的可持续方法

Air Quality

Italy owns many among the most advanced technologies and practices for industrial air treatment and pollutants abatement including: pre-purification; electrostatic precipitators; abatement through condensation; wet scrubbers; combustion; adsorption; bio-filtration, etc. All of them can meet the new stringent Chinese standards.

Clean Water

Italy owns many among the most advanced technologies and practices for both civil and primary/secondary/tertiary industrial water treatment and pollutants abatement technologies. Brilliant examples can be found in almost all civil and industrial sectors such as petrochemical, power generation, paper mills, glass/ceramic, steelmaking, leather tanning, etc. All of them can meet and comply with the new stringent Chinese standards.

Waste Integrated Management

Italian waste management technologies and practices are among the most advanced in the world and cover all the segments of the value chain. Waste sorting in Italy accounts for 47,5% of the total. The integrated approach dramatically reduces the waste disposal in the landfill and allows to increase recycling. As a few examples, Italian technologies use plastic, scraps, and mugs to produce synthetic oil, which can be used as lubricant or fuel. Italy is also the world leader in the regeneration of lubricant exhausted oils, having adopted specific legislations and developed several advanced technologies – such as a system to recycle filters and other parts recovered from engines – enabling to collect and regenerate over 99.5% of used oils.

Soil Remediation

Soil remediation is the most challenging among the environmental protection issues. Italy outstands in several decontamination technologies and provided solutions are specifically tuned to each pollutant and contaminated soil extension. Among the many applicable technologies, it is worth mentioning the bioremediation and the solidification/stabilisation treatment process (that eventually transforms the polluted soil into a granular material with good mechanic properties) and the Electro-Kinetic Remediation Technology (EKRT): sustainable method to decontaminate the soil from heavy metals.

可再生能源

意大利是世界上最早开发水电和地热的国家之一，因此拥有先进的专业技术，能够为任何类型的水电和地热资源问题提供解决方案。此外，在过去数十年里，风能和太阳能以及生物质能技术（能用于产生生物气体，生物乙醇和生物柴油的农产品和纤维。意大利是首个开发综合生物柴油的国家）也得到提升。聚光太阳能解决方案是由意大利诺贝尔物理学奖得主教授Carlo Rubbia，同时ENEA（意大利国家新技术、能源和可持续发展署）在该领域拥有最先进的专利。

传统能源

意大利拥有世界上最先进的天然气生产技术（电力，热能和交通）。相比煤炭厂，意大利的尖端天然气工厂能快速开启和关闭，从而使得传统能源和可再生能源的综合利用达到最佳的灵活性。同样在传统燃料领域，意大利拥有最先进的降低对环境影响的技术。意大利石油公司开发的EST技术是目前最创新和先进的炼油工艺，能将重型产品转化为更轻的化合物。自2013起，这项工艺已被意大利炼油厂采用。

电网管理和监管

受益于参与规划，发电，调度，传输，分配和计量的许多协调行动方，意大利的电网管理和监管体制可以被认为是世界上运行最好的系统。中央发电和分布式发电企业如Gestore Servizi Energetici，多种公用事业公司如Terna, Enel, 等等)。意大利的总体智慧电网管理系统可以完美的将传统电力生产（天然气）和可再生能源生产（超过70万）完美的结合在一起，从而避免削减及最大化整体系统运作效率。非常先进的信息和通信技术系统也有助于展现最杰出的效能表现。

Renewable Energy Sources

Italy has been one of the first Countries in the world to industrially exploit hydro and geothermic sources; its leading know-how in the sectors, both in terms of technologies and processes, provides solutions to any kind of hydro or geothermal source. Furthermore, wind and solar have been boosted over the last decades as well as biomasses technologies (agricultural productions dedicated to the generation of bio-gas, bio-ethanol and bio-diesel, and fibres. Italy is the country that first developed integrated bio-refineries). Concentrated Solar Power solutions have been designed by Italian Nobel Laureate in Physics Professor Carlo Rubbia, and ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) owns the most advanced patents in the sector.

Traditional Energy

Italy owns the most advanced know-how and technologies in the world as to Natural Gas in any kind of energy production (power, heat, transportation). In power generation, Italy's cutting-edge plants can be switched on and off much quicker than coal's, allowing an optimal flexibility within generation patterns through mixing traditional and renewable sources. Also in traditional fuels Italy owns among the most advanced technologies to reduce the environmental impact: Eni developed EST (Eni Slurry Technology), the most innovative and advanced existing refining process to convert heavy products into lighter compounds.

Power Grid Management and Regulation

Italian Grid Management and Regulation can be considered among the best in the world thanks to the multiple coordinated actors involved in the planning, power generation, dispatching, transmission, distribution and metering: Gestore Servizi Energetici, central and distributed power generation, Terna, Enel, Multiutilities, etc. The overall Italian smart grid management system can perfectly integrate both traditional power production (natural gas) and production from renewable sources (more than 700.000) to avoid curtailments and maximise the overall system efficiency. Very advanced ICT systems contribute to achieving the excellent results in terms of performance.

区域和本地供热

意大利在区域供热效率方面的技术水平居于世界领先的位置。在过去数年内，意大利诸多的多种公用事业公司在区域供热和热电联产领域均取得了相关专业知 识，开发出高效灵活的解决方案，将每年的主要能源消耗降低不少于25%，年排放量减少至少28%。高压/高温储热是意大利开发出的先进专业技术，可以实现最佳性能，最高的效率，完美匹配供需。此外，在本地供暖方面，意大利拥有与任何规模的锅炉匹配的先进技术，能够符合新的中国关于SOX和NOX的排放标准。此外，意大利的封闭空间供暖和冷却解决方案也是市场上最有效率的。

交通运输

交通运输效率意味着技术，服务和设计水平。在意大利，天然气在交通运输中拥有举足轻重的地位。意大利的甲烷是目前流通中纯度最高的（99%）甲烷之一，并被广泛应用于交通运输行业。意大利是迄今世界上拥有最大天然气配给网络的国家。除了技术之外，‘设计’水平在减少交通运输对于环境的影响方面也发挥了关键性的作用。杰出的意大利企业在为大中型城市乃至更大规模地区的公共交通系统设计方面拥有丰富经验，并且能够协助客户提供从运输系统分析，设计阶段到运行阶段的相关服务。运输效率也主要包括私人交通和公共交通的流通设计。例如，杰出的意大利公司为将最佳公共交通路线和低排放引擎结合在一起提供了解决方案，以显著减少总体燃料（天然气）排放和提高能源使用效率。

绿色建筑

绿色建筑市场继续在意大利以及全球范围内吸取了巨大的市场份额，每三年增长一倍，这都要归功于：逐渐增加的低碳管制要求和绿色公共采购需求，绿色建筑的自愿认证计划的进一步采纳，以及对更环保、更健康的建设环境的需求。

这一激增导致绿色建材市场的范围和规模相应增加。拥有超过10350家建筑产品制造商（BPMs），意大利在绿色建筑材料和可持续发展技术方面的卓越成就，从室内装饰到门面组件，从家具到建筑服务技术，均是世界公认的。强大的关于可持续领域相关主题的专业知识和新的数字技术加强了上述的成功优势，使得意大利的建筑产品制造商跻身于全球领先的行业数字化企业之列（工业4.0）。意大利工业同时掌握了新的数字化市场工具，例如由Ongreening提供的可以协助区分绿色产品和非绿色产品的工具，连接目标领域的客户以及提供国内和国际市场上新的盈利的商业机会。

District and Local Heating/Cooling

Italian District Heating technologies are among the most advanced in the world in terms of efficiency. Over the past years, Italian Multiutilities have gained incomparable know-how in the field of district heating and cogeneration by developing high-efficient and flexible solutions that lead to a reduction of primary energy consumption by more than 25% and emissions by at least 28% annually. High pressure/elevated temperature heat storage is a distinctive know-how developed by Italian Multiutilities to achieve the best possible performances and highest efficiency by perfectly coupling supply and demand. Italy owns among the most advanced technologies also in local heating, with boilers of any size able to match the very stringent new Chinese standards in terms of Sox and Nox. emissions. Furthermore, Italian solutions for closed spaces heating and cooling are the most efficient available on the market.

Transportation:

Transportation efficiency does involve technologies, services and design. In Italy, Natural Gas plays a crucial role also in Transportation: Italy's methane is among the purest (99%) in circulation and it is widely employed in this sector. Italy is by far the Country with the largest distribution grid in the world. Transportation efficiency involves also and mainly the design of circulation, both private and public. For example, prominent Italian companies offer solutions for combining optimal public transportation routes and low emissions engines to dramatically reduce the overall fuel (natural gas) emissions and increase energy efficiency.

Green Building:

Green building market continues soaking up large market shares in Italy as well as globally, doubling every three years; it is driven by the increasing low carbon regulatory requirements and Green Public Procurement, the increased adoption of voluntary certification programs for green buildings and the demand for greener and healthier built environment. That surge that has led to a corresponding increase in the scope and size of the green building materials market.

With more than 10,350 building product manufacturers (BPMs), the Italian excellence in green building materials and sustainable technologies, spanning from indoor finishes to facade components, from furniture to building services technologies, is worldwide recognized. A strong know-how on sustainability-related subject and new digital technologies underpins the above success, placing the Italian BPMs among the global players leading the industry digitalization (industry 4.0). The Italian industry is equipped with new digital marketing tools, such as those provided by Ongreening, which help to differentiate green products and non-green ones, to connect with targeted customer segments and to enable new profitable business opportunities, both nationally and internationally.

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Camera di Commercio Italiana in Cina
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意大利阿蕾亚 - 烟气净化, 余热回收, 发电

意大利阿蕾亚, 于 1990 年成立于意大利帕多瓦。

公司的主营业务为客制化烟气净化设备以及工业废气转化为热能能源。

凭借着强大的专业技术和丰富经验, 我们可以除理工业生产的熔融阶段以及垃圾焚烧厂在焚烧过程中所产生的废气污染物, 如灰尘, 酸性气体 (例如 SOx), 氮氧化物, 二噁英, 一氧化碳以及重金属, 并使其达到符合国内外所限制的最高排放标准。

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我们已在法国、波兰、巴西、美国和中国设立了分支机构, 旨在为当地客户提供更好的服务。

我们的主要技术集中于: 袋式除尘器和静电除尘设备, 高温和低温 SCR 脱硝设备, 脱硫系统 (湿法, 干法, 半干法) 以及利用余热回收系统 (蒸汽或有机朗肯系统) 从废气中产生热能或电能。





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Ministero dello Sviluppo Economico



MINISTERO DELL'AMBIENTE
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