

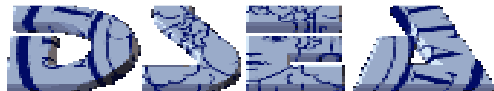
# Sostenibilità energetica e Bioarchitettura

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I “position papers” italiani sulle tecnologie per le fonti rinnovabili e le “smart grids” per il SET-Plan Europeo

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# SET-Plan

The European Strategic Energy Technology Plan (SET-Plan) is the EU's response to the challenge of accelerating the development of low carbon technologies, leading to their widespread market take-up.

It sets out a vision of a Europe with world leadership in a diverse portfolio of clean, efficient and low-carbon energy technologies as a **motor for prosperity and a key contributor to growth and jobs.**

# Roadmap

The implementation of the SET-Plan has started and is currently working towards the establishment of large scale programmes such as the European Industrial Initiatives (EIIs) that **bring together industry, the research community, the Member States and the Commission in risk-sharing, public-private partnerships** aiming at the rapid development of key energy technologies at the European level.

**Six priority technologies** have already been identified as the focal points of the first EIIs: **wind, solar, electricity grids, bioenergy, carbon capture and storage and sustainable nuclear fission.**

A further initiative **on energy efficiency in cities** is currently being proposed, with the aim of stimulating the take-up of low carbon technologies developed in the other EIIs or by other programmes.

# Finanziamenti

## European Industrial Initiatives Total (b€)

Wind Energy	6
Solar Energy (PV & CSP)	16
Bioenergy	9
Carbon Capture and Storage (CCS)	10.5 - 16.5
Electricity grid	2
Sustainable Nuclear Energy	5 – 10
Smart Cities	10 – 12
<b>Total</b>	<b>58.5 – 71.5</b>

# Position papers

- Coniugare impresa e ricerca per sviluppare conoscenza e capacità produttiva a partire dal territorio su cui sviluppare, nell'ambito di un coordinamento europeo, applicazioni significative
- Capacità di sviluppare e gestire applicazioni di tecnologie carbon free per la produzione e l'uso efficiente di energia
- Capacità di sviluppare iniziative imprenditoriali per la produzione di sistemi e dispositivi a partire da tecnologie carbon free per la produzione e l'uso efficiente di energia

# Position paper “Smart Grids”

Electricity networks are the link between electricity producers and consumers. Most existing networks have been designed to carry electricity from large fossil fuel-based technology power plants to demand centres, often located far away from the generators. **Carbon constraints are changing the electricity generation landscape.** Large interconnected grids are not fully ready to match the needs of an overall European market needs :

- the **integration of new generation technologies of much smaller size**, large geographical distribution and greater intermittency into the generation mix requires transmission and distribution electricity networks of higher flexibility, reliability and resilience;
- a **higher degree of embedded intelligence is needed into the network to allow the consumers to play a part in optimising the operation of the system**, facilitating the connection of generators of all sizes and technologies and allowing the delivery of sustainable, economic and secure electricity supply;
- **policies supporting sustainable development are encouraging the systematic adoption of low carbon plants and renewable generation technologies, together with energy efficiency measures are shaping the future of the electricity system.**

# Position paper “Smart Grids”

A Smart Grid employs innovative products and services together with intelligent monitoring, control, communication, and self-healing technologies to:

- **better facilitate the connection and operation of generators of all sizes and technologies;**
- **allow consumers to play a part in optimizing the operation of the system;**
- **provide consumers with greater information and choice of supply;**
- **significantly reduce the environmental impact of the whole energy system by extensive use of the electricity system;**
- **deliver energy with enhanced levels of reliability and security of supply;**
- **identifying a new approach based on the concept of a “common energy bus” in which the unifying element among different energy vectors is constituted by the electric system**

# STRATEGIC GOALS FOR ITALY

- Integration of electric, thermal and mechanical energy systems
- Integration of distributed small and medium scale generation (specifically of the co-generative and also non—renewable type)
- Active distribution grids
- Allowing the maximum exploitation and utilization of transmission and distribution network capacity
  
- Enabling and encouraging demand side participation
- Generate the conditions for new market place specifically at local level
  
- Developing and producing innovative devices and equipment for operating the integration and realizing the above items by:
  - Innovative power electronics
  - Flexible AC – alternating current – Transmission systems (FACTS)
  - Developing embedded sensing, automation, protection and control
  - Integrating distributed communication and data processing
  - Developing storage technologies and methodologies

# ITALIAN STAKEHOLDERS

- **Transmission System Operataors (TSO)**
- **Distribution System Operators (DSO)**
- **Independent Power Producers**
- **ESCO (Energy Service Companies)**
- **Power electronics producers**
- **ICT – Information and Communication Technology Companies**
- **Integrated Protection and control system developers and manufacturers**
- **Research Centeers**
- **Regional Bodies, Province, Comuni**
- **Industrial and Area Districts**
- **Consortium management structures**



# **Smart Cities Technology Roadmap**

**- Report from the  
Discussion -**

# Smart Cities

- **Objective:** 40% reduction of GHG by 2020
- **How:**
  - Buildings
  - Energy Networks ( Electricity, Heating & Cooling)
  - Low Carbon Transport
- **Cost:** 11bn€

# Smart grids

L'energia nella città può essere distribuita con due sole reti integrate, sicure, pratiche nell'uso e gestite "smart"

