

POLITECNICO
MILANO 1863

Master of Science in Management Engineering Stream Energy and Environmental Management

Academic Year 2019-2020

Scenario and market needs 1/2

Likelihood

2018	2019
Extreme weather events	Extreme weather events
Natural disasters	Failure of climate-change mitigation and adaptation
Cyber-attacks	Natural disasters
Data fraud or theft	Data fraud or theft
Failure of climate-change mitigation and adaptation	Cyber-attacks

Impact

2018	2019
Weapons of mass destruction	Weapons of mass destruction
Extreme weather events	Failure of climate-change mitigation and adaptation
Natural disasters	Extreme weather events
Failure of climate-change mitigation and adaptation	Water crises
Water crises	Natural disasters

http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf

Scenario and market needs 2/2

At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal.

The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by **limiting global warming to well below 2°C** and **pursuing efforts to limit it to 1.5°C**.

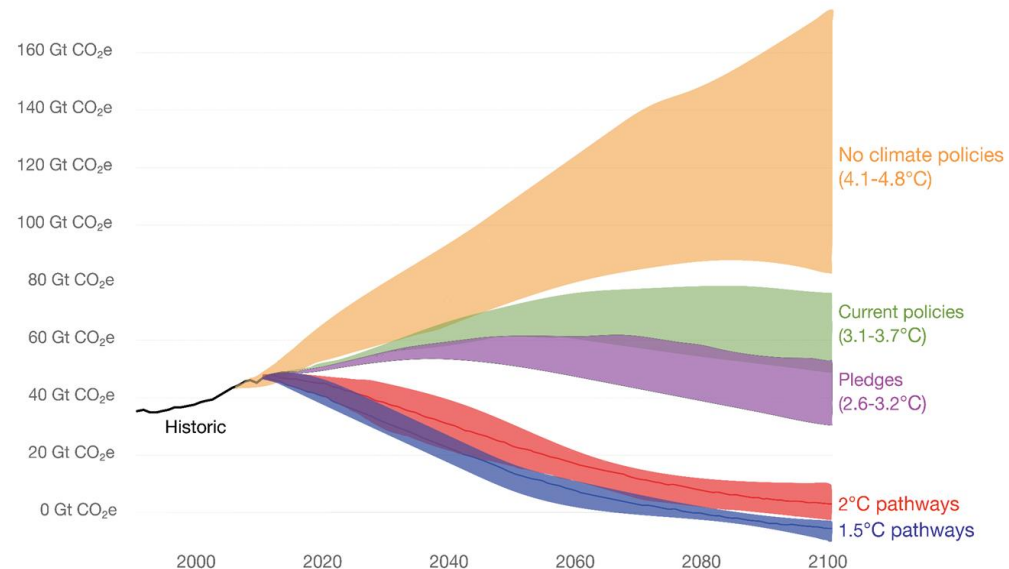


https://ec.europa.eu/clima/policies/international/negotiations/paris_en

Global greenhouse gas emissions scenarios

Potential future emissions pathways of global greenhouse gas emissions (measured in gigatonnes of carbon dioxide equivalents) in the case of no climate policies, current implemented policies, national pledges within the Paris Agreement, and 2°C and 1.5°C consistent pathways. High, median and low pathways represent ranges for a given scenario. Temperature figures represent the estimated average global temperature increase from pre-industrial, by 2100.

Our World
in Data



Based on data from the Climate Action Tracker (CAT).
The data visualization is available at [OurWorldinData.org](https://www.ourworldindata.org). There you find research and more visualizations on this topic.

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Learning outcomes 1/2

- Understand **current trends and future scenarios** in energy and material utilization, and their **implications for the long-term competitiveness of companies**.
- Understand competition dynamics and **design new sustainable business models**.
- Understand and being able to **evaluate incentive mechanisms and regulatory frameworks for energy efficiency, natural resources conservation, pollution prevention**.

- Understand the **potential and design solutions for energy and critical resource efficiency in production and recycling processes.**
- Design and implement **strategic and operational improvement projects** with focus on **energy and environmental dimensions** of an organization.
- Make **technology and operations-related decisions taking into consideration uncertainties and options brought by energy and environmental factors.**

Young professionals passionate to innovate industrial practices in order to accelerate sustainable development and mitigate climate change in positions such as:

- **Energy and environmental managers in manufacturing and service industries** (with responsibility to manage energy, sustainability, resource management)
- **General managers** in both **traditional energy firms and utilities** (especially with business development responsibilities)
- **Managers in small and new companies** competing in the renewables, energy efficiency and digital energy sectors (where there is a strong potential for entrepreneurial initiatives)
- **Analysts and experts** working in **consulting firms**, in **financial institutions** and **regulation authorities**
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Stream architecture (second year)

DENOMINAZIONE INSEGNAMENTO	SEM	CFU
ENERGY MANAGEMENT LAB	2	10
MANAGEMENT OF ENERGY AND SUSTAINABILITY	1	10
ECONOMICS OF NETWORK INDUSTRIES	2	5
INDUSTRIAL ECO-EFFICIENCY	1	5
FUNDAMENTALS OF ENERGY TECHNOLOGIES	1	5
FINANCIAL RISK MANAGEMENT	2	5
DIRITTO DELL'ENERGIA	2	5
INDUSTRIAL PROJECT MANAGEMENT B	2	5
OPERATIONS RISK MANAGEMENT AND RESILIENCE	1	5
SOCIAL INNOVATION	1	5
POWER PRODUCTION FROM RENEWABLE ENERGY C	1	5
GRUPPO FREELM	-	8

Thesis opportunities

- **Energy & Strategy Group**

- **Permanent observatories on:** Renewable energy, Energy Efficiency, Digital energy
- **Applied research projects**



Thesis opportunities

Vittorio Chiesa

Professor of Management of Energy and Sustainability

vittorio.Chiesa@polimi.it