



POLITECNICO
MILANO 1863

Energy and Environmental Management

Anno accademico 2020-21

Top 5 Global Risks

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

Paris Climate Agreement

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**.

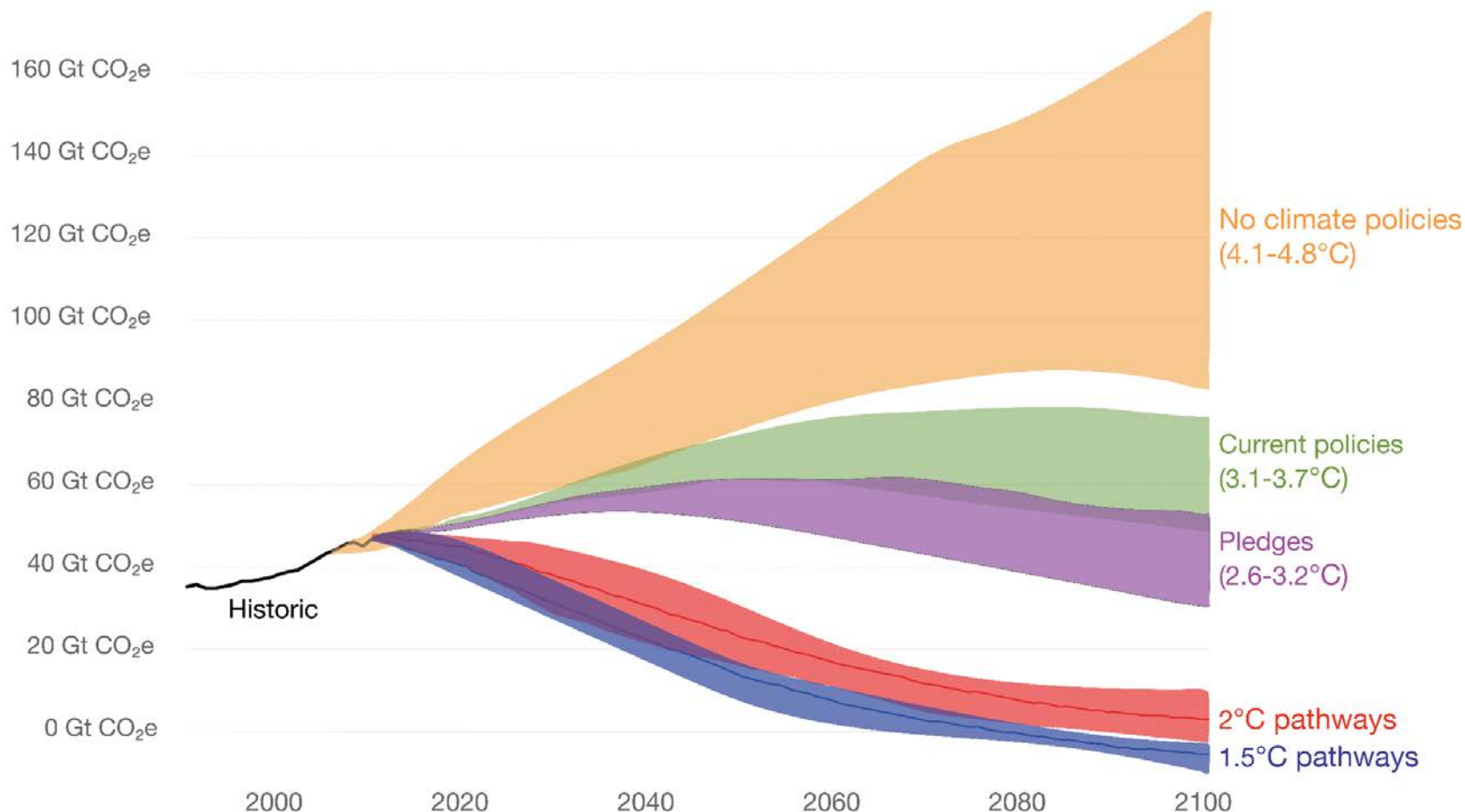
https://ec.europa.eu/clima/policies/international/negotiations/paris_en



COP21 · CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE

Global greenhouse gas emissions scenarios

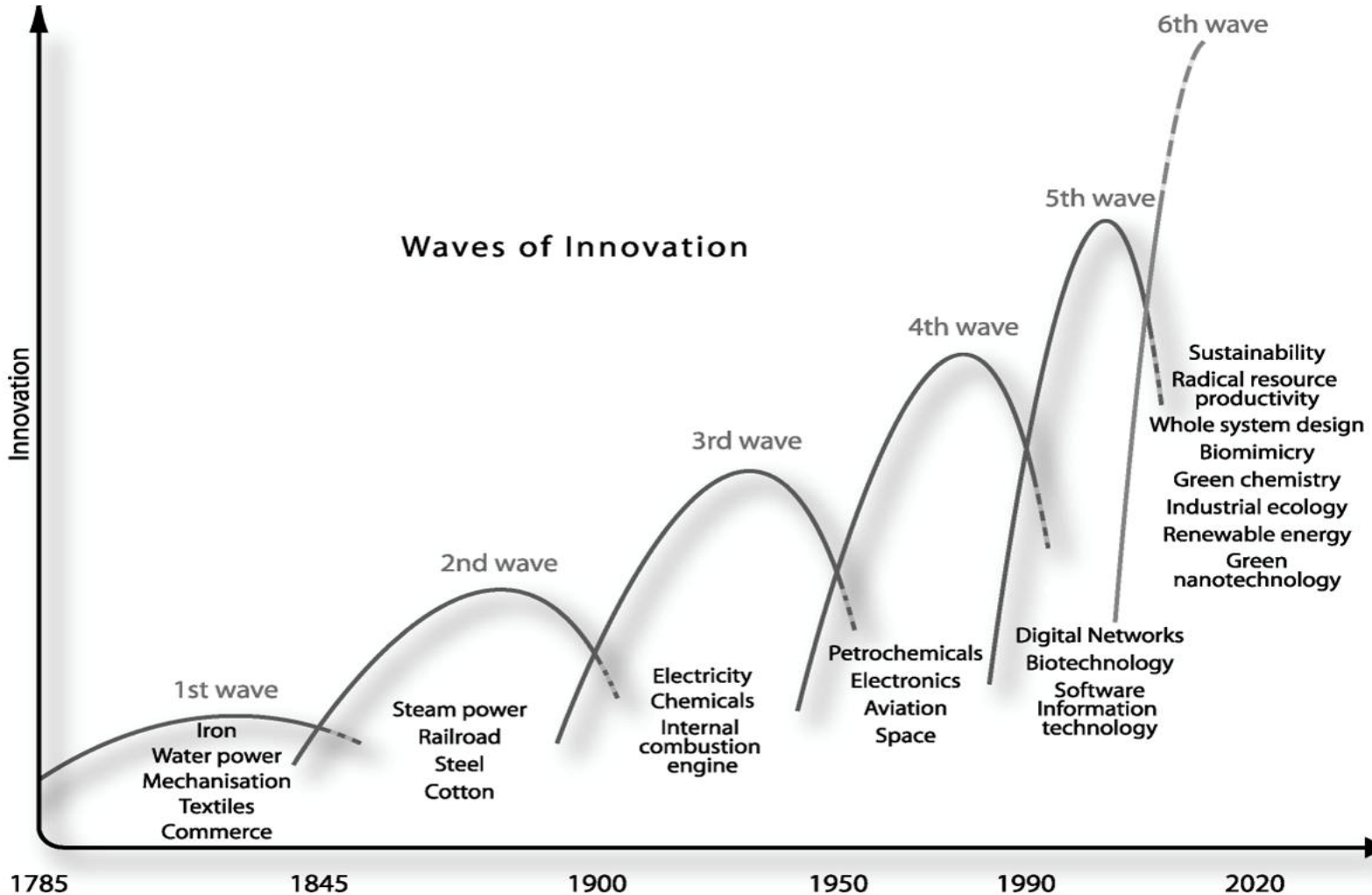
Potential future emissions pathways of global greenhouse gas emissions (measured in gigatonnes of carbon dioxide equivalents) in the case of no climate policies, current implemented policies, national pledges within the Paris Agreement, and 2°C and 1.5°C consistent pathways. High, median and low pathways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



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

Licensed under CC-BY-SA by the authors Hannah Ritchie and Max Roser.

If the companies are to survive, they have to become sustainable





WANTED

Young professionals passionate to **innovate** industrial practices in order to **accelerate sustainable development** and **mitigate climate change**

WANTED

- **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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Knowledge and competences developed

- 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.**

Knowledge and competences developed

- 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.**

The 2nd year curriculum

SSD	Denominazione Insegnamento	Lingua	Sede d'erogazione	Tipo	Sem	CFU	CFU Gruppo
ING-IND/17 ING-IND/35	ENERGY MANAGEMENT LAB		BV	I	2	10.0 [5.0 (4)]	10.0
ING-IND/35	MANAGEMENT OF ENERGY AND SUSTAINABILITY		BV	M	1	10.0	10.0
--	Insegnamenti a scelta dal Gruppo GESLM	--	--	--	--	--	5.0
ING-IND/17	INDUSTRIAL ECO-EFFICIENCY		BV	M	1	5.0	5.0
ING-IND/10	FUNDAMENTALS OF ENERGY TECHNOLOGIES		BV	M	1	5.0	5.0
ING-IND/35	FINANCIAL RISK MANAGEMENT		BV	M	2	5.0	5.0
IUS/10	DIRITTO DELL'ENERGIA		BV	M	1	5.0	
ING-IND/17	INDUSTRIAL PROJECT MANAGEMENT B		BV	M	2	5.0	
ING-IND/17	OPERATIONS RISK MANAGEMENT AND RESILIENCE		BV	M	1	5.0	
ING-IND/35	SOCIAL INNOVATION		BV	M	1	5.0	
ING-IND/09	POWER PRODUCTION FROM RENEWABLE ENERGY C		BV	M	2	5.0	
--	Insegnamenti a scelta dal Gruppo FREELM <i>E' possibile selezionare insegnamenti per un totale tra 5 e 8 cfu (totale del piano di studi: 120-123 cfu)</i>	--	--	--	--	--	
--	FINAL THESIS		--	V	1	15.0	15.0
--	FINAL THESIS		--	V	2	15.0	

Main research teams

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Energy and Strategy
Group

A purple rounded square box with a thin purple border and a subtle gradient from light to dark purple.

Industrial
Sustainability and
Risk Management
Group



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Simone Franzò