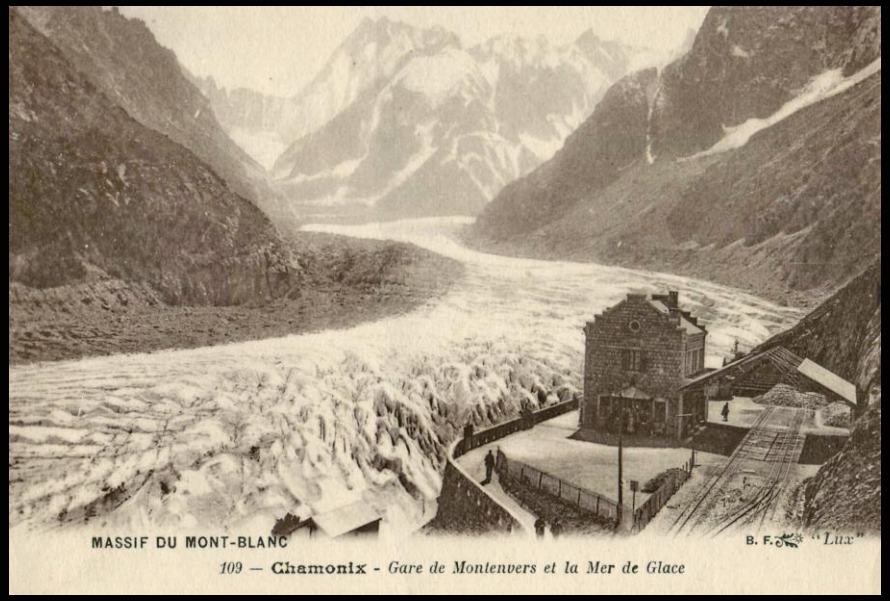
LOWER EMISSIONS ECONOMY PARTNERSHIP (LEEP)

COLLABORATING
TO REDUCE
URBAN EMISSIONS

EMISSIONS: Prologue

Mer de Glace, Chamonix, France 1910-2026



Ski routes: ~ 2005

now impossible: 2026

~ Orders of magnitude estimates of glacial melting:

Compared to 1910, Mer de Glace glacier is now
150m lower, 700 meters shorter

Volume Lost: **31.5 Million m^3** (average width of 300 Meters)
Mass Lost: **28.9 Million T** (at 917 Tonnes /1,000 m^3)

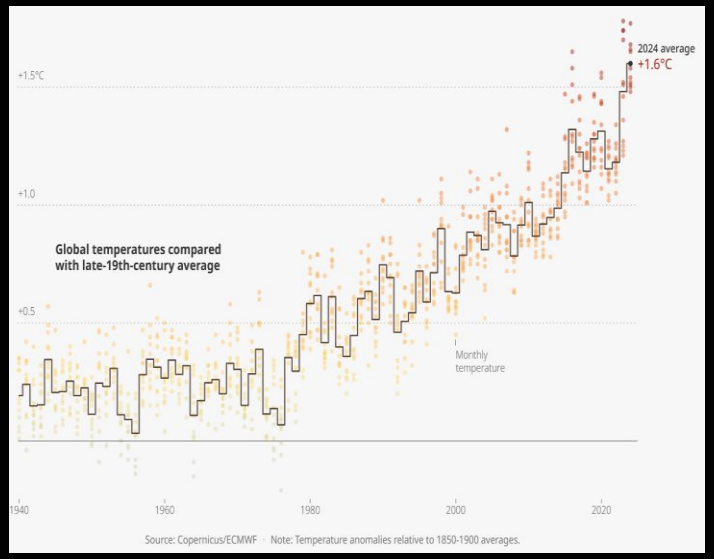
Equivalent to:

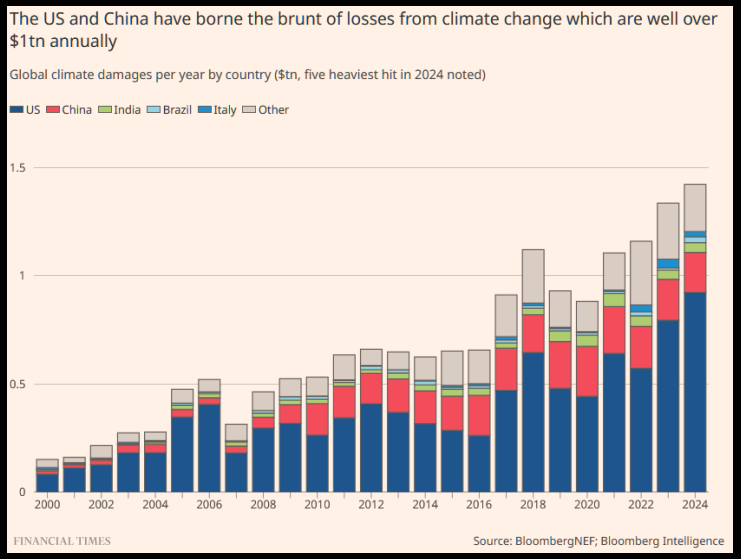
2,900 Eifel Towers (10,100 T)
222,300 adult Blue Whales (at 135 T each)
4.8 M African Bull Elephants (at 6 T each)
1 hour's glacial melting in Greenland (Claude AI 20 yr. average NASA-Grace, ESA-Copernicus satellite data)

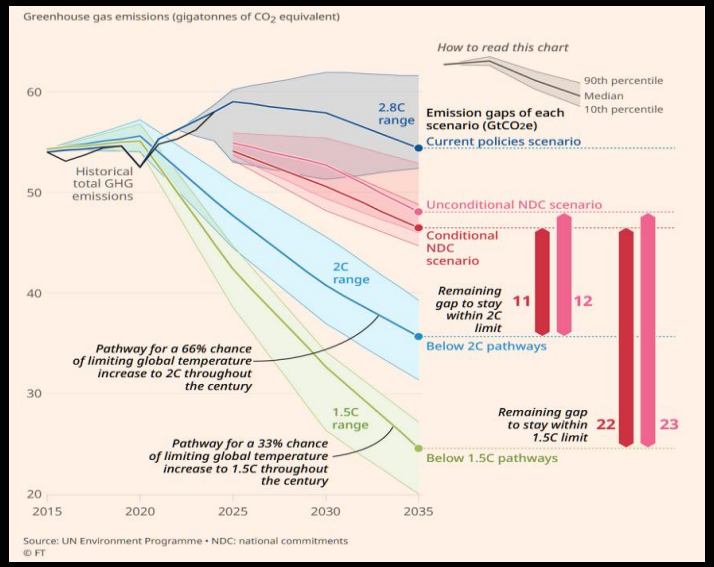
EMISSIONS: Targets

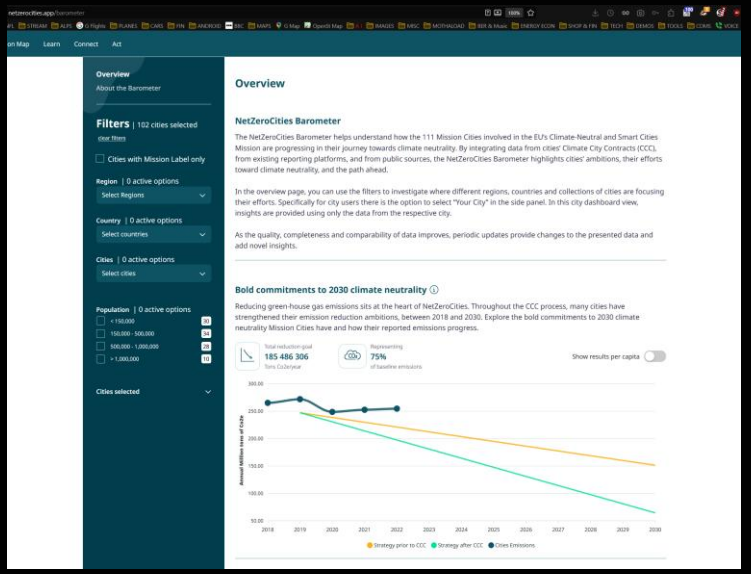
- **We need a 50% drop in emissions by 2030**, and to be "Net 0" emissions by 2050, to have a chance to keep global warming under 2° C (above the 1850-1900 average global temperature).
- **This requires a 5% drop *per year* from current emissions**. Only the Covid-19 lockdowns has got us near this, for perhaps 1 year.
- **We need to move quickly.** Despite lots of talk and targets….
- **City governments, businesses, and citizens groups find it difficult to collaborate.**
- **Emissions are not dropping enough.**

EMISSIONS: Status









UNCERTAINTIES

- **Damages & Risks:** A recent economic study suggests potential damages from climate change may be **6 times greater** than thought.[1]
- **Tipping Points:** rate of change unknown but shifting: faster than projected polar ice melting; faster overall temperature increase; possible signs of ocean current disruption; forest fires whose annual emissions exceed those of multiple large countries combined.[2]
- **Urban Governments' Limits:** 90% of needed climate investment needs to go to assets *not* owned by a city government, but rather by citizens & businesses.[3]

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[1] Bilal, A. & Känzig, D. (2024) "The Macroeconomic Impact Of Climate Change: Global vs. Local Temperature" nber.org/papers/w32450

[2] Foster, G., & Rahmstorf, S. (2026). "Global warming has accelerated significantly" doi.org/10.1029/2025GL118804 ; global-tipping-points.org/update/download/4608; nytimes.com/2026/03/19/climate/the-weather-is-getting-wilder-and-some-see-a-dire-signal-in-the-data.html

[3] Net Zero Cities (2024) "Impact of City Climate Neutrality Action Plans: Analysis & Learnings From 16 European Cities."

WHY LEEP ?

- **A city government controls only ~ 20-30% of its territorial emissions** according to numerous studies. The rest is managed by others, especially businesses and citizens.
- **Government departments are siloed, over-regulated, & often politicized. Post Covid-19/Ukraine war financial effects constrain** local government revenue & their ability to innovate.
- **City climate action plans are not credible and their funding is very vague** due to political constraints, capacity problems, and a "government first", top-down mentality.
- **Businesses compete** with each other, they **face huge transactions costs**, and they **cannot engage governments easily**, **especially to brainstorm** "whole systems integration" together, **at prefeasibility level, before tendering**.
- **Citizens increasingly mistrust trust experts,** who have no effective way to show they are listening. Strong populist movements are growing in many advanced economies.

BUILD THE PLATFORM

- **None of these problems are simply going away.**
- **New financial facilities will not solve them.**
- **Yet, city government - business - citizen collaboration is critical** to reduce emissions while also supporting economic growth and social goals.
- **This collaboration will simply not self-organize**.
- **We cannot use 19th Century organization to fix 21st Century problems**.
- **We need to build a local platform** that is neutral, trusted, agile, well-funded, and competent to bring stakeholders together, & create incentives to share costs & benefits**.**
- **A dedicated partnership office is needed to "do the integrating", & get rapid emissions reductions.**

LOCAL LEEP OFFICE

- **LEEP would be established as a dedicated, independent, local office,** with small staff, advisory board, etc., as a public-private partnership.
- The partnership is not mean to be a traditional “PPP”; rather, it is to **drive local innovation**.
- **Provide a safe, neutral, flexible platform** so city government, business and citizen groups can easily collaborate.
- **Stimulate innovative low-emissions projects** that also support local economic development.
- **Establish technical, financial and political support** to meet GHG emission reduction targets.
- **Create a local innovation fund** to test ideas quickly.

VALUE TO BUSINESS

- **Business learning & cooperation**: provide a platform for businesses to cooperate and test new ideas to reduce emissions, in a non-competitive atmosphere.
- **Reduce transaction costs:** early collaboration reduces project development and approval timelines, and increase stakeholder support with a platform for open discussion.
- **Innovative funding**: LEEP can help fund early-stage feasibility studies to test and develop innovative business models & bankable projects.
- **Better market intelligence:** build on-going relationships to increase understanding of government and citizen's needs, and to identify opportunities to co-develop projects and policies.

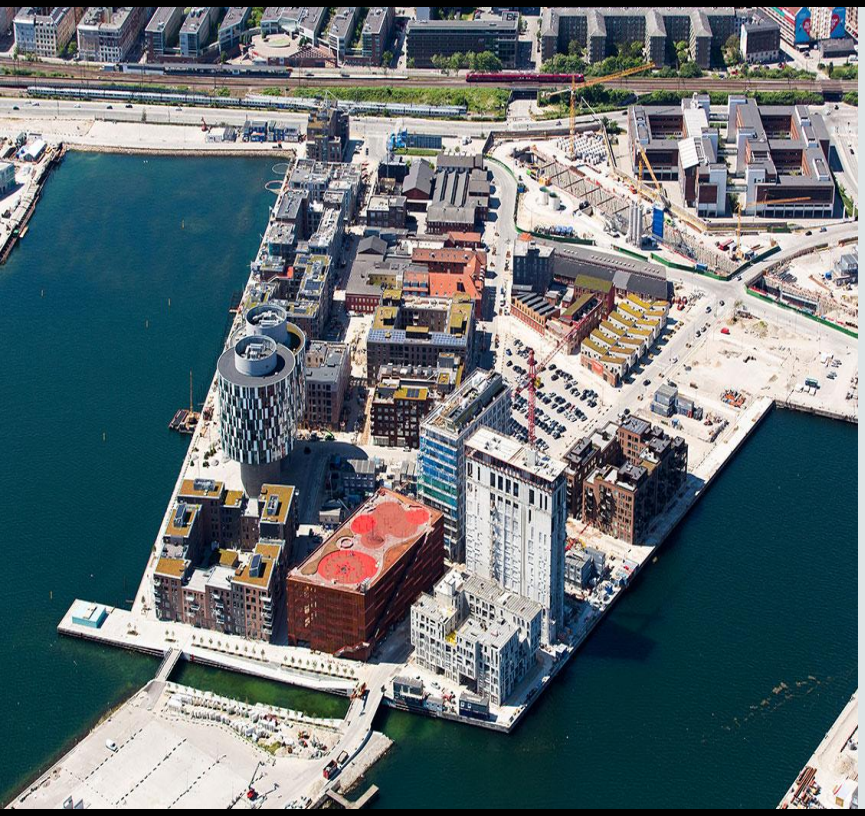
VALUE TO CITY GOVERNMENT

- **Neutral convening platform:** LEEP provides a neutral space to solve problems, in a non-political context.
- **Private sector engagement:** engage businesses early in scoping city climate priorities and developing projects. Turns emissions reductions into a shared responsibility, identify new opportunities to reduce costs & generate revenue.
- **Encourage departments to collaborate:** improve decision-making by bringing in all concerned departments, informally, early and often.
- **Deepen Institutional capacity:** strengthen the region's organizational capacity by bringing in new private sector skills, knowledge and experience.
- **Unlock funding sources:** help cities access a wider range of public and private capital; build trust and bankable projects.
- **Create inclusive climate action:** foster stakeholder engagement, connect the climate agenda with other city needs (air quality, jobs, health).

VALUE TO CITIZENS

- **Provide a One-Stop Shop** where information on ideas, access to finance, events, training, all easily obtained.
- **Provide real "voice":** Enable citizens to join in design phases, and participate, develop, & monitor, actions by the city government or businesses.
- **More engagement** to generate broader support for actions by the city or businesses.
- **Reduce living costs and improve health** through projects that increase energy efficiency and generation, minimize waste, use water better, and access to mobility etc.
- **Develop community-scale solutions** for community-based investment and wealth creation.

FINANCE



COSTS (per City) for 3 Year Effort:

Staff (6): € 1,5 M /yr. x 3 Yrs. = € 4,5 M

- Program Director
- Regional Urban Planner
- Energy & Water Systems Engineer
- Finance and Economics Expert
- Social & Communications Expert
- Property and Legal Expert

- **Overheads: € 1,5 M/yr. x 3 yrs. = € 4,5 M**
  - Rent, IT, Consulting, Legal, Communications
- **Innovation Fund** (Revolving, 1 time) = **€ 1 M**
- **Total per City-Region (over 3 years): € 10 M**

FINANCE

REGIONAL RESOURCE FLOWS

Item	Description	Millions (€)	Comment
A	Current regional income/year for city of 1M population	50,000	Assume per capita income of €50,000 x 1M
B	Assume 10% of income spent managing energy, water, waste flows	5,000	Conservative post Ukraine war prices adjusted, based on norms of A[i]
C	Assume €10,000 new, net incremental per capita investment needed to get to net zero emissions by 2050 x 1 M population	10,000	From McKinsey (2020) "Net Zero Europe" & Materials Economics (2019) *op. cit.*
D	Annual savings from Net Zero tech and policies, conservative ignoring health benefits	750	Set at 15% from efficiency gains, local generation investments, x B (likely higher)
E	Annual payment needed to finance Capex	510	C x 1M population, financed at 3%, over 30 years
F	**Net Savings after financing charges per year**	**240**	D - E
G	LEEP Costs per year as % of net savings	1.38%	€3.3 M annual operating costs (from text) / F

[i] See Agora Energiwende (2019) *op. cit.*; Shell International (2001) *Energy Needs, Choices and Possibilities: Scenarios to 2050.* London, Shell International; R Lichtman (2014) "San Diego Case Study" at www.eysfound.org/documents

LEEP Issues Stakeholder Shares & Recovers Start Up Capital:

- LEEP total cost over 3 years: € 10M
- City Government & ~20 companies collaborate to own the LEEP.
- E.g. 20 Stakeholders put in € 500.000 each (i.e. a "share cost") to cover LEEP office for 3 years. Can also create "shares" in the entity.
- Stake/Shareholders contribute (€500.000/3 years) = € 167.000 *per year*
  - (if financed at 5%, over 20 years), 10 M = € 800.000 per year, split among 20 parties = € 40.000 per year per shareholder)
- Net regional savings (from F above) are likely to be over 50 times LEEP annual costs: providing a way to recover the start up capital, after several years. Can be built into loans, utility invoices, project fees, power purchase agreements, etc.

FINANCE

Recovering Investment & Incentives to Collaborate

- **Shareholders' cost returned after 4-5 years with small interest**. Can be charged as small fee to end-users, or financed as part of large infrastructure investments.
- **Shareholder companies not prohibited from bidding or getting large supply or service contracts**; only that they have to return the small fee to the LEEP.
- **All have an incentive to collaborate**, to develop capacity in the region and build platform to share benefits: reduced transactions costs; reduced operating costs; better market intel; better consumer support; better delivery; reduced emissions and pollution, and a stronger economy.

Beyond 3 years, LEEP needs to become self-financing

- Via member fees, project fees, etc.
- LEEP can also attract transition subsidies and grants via National Government, EC, private foundations grants.

ROADMAP

1. Set up **Working Group** to manage. Can start informally directly with a few companies, or within global business groups, e.g. WEF or WBCSD.

2. Aim toward **High Level Meeting:** Several Mayors, several CEOs, several large foundation Directors.

3. Aim toward **5-10 city regions: the most ambitious all-sectors effort yet** to get 50% reduction off current emissions by 2030 and fully net 0 by 2050.

4. Commit to **Finance Idea** – minimum: enough to jumpstart (1 FTE and assistant, office, for 1 year etc. So perhaps € 500K to start (per city). Split with City Government, Foundations, and several firms. EC Net Zero Cities funds and e.g. European Climate Fund, Bezos Earth Fund, Bloomberg Philanthropies, etc. can be approached. But companies should not assume anything, as decision-making can be slow.

5. Set up **City-Company collaboration teams** to establish LEEP offices

6. **Scale Up**: agreement within 6 months of 19-20 firms per city, and €10M total per city, over 3 years. Bring in citizen groups, staff up, formalize operations and local governance.

All discussed in greater detail in peer-reviewed journal article:
R. Lichtman, "Managing A Low Urban Emissions World", *npj Climate Action* (2024) at www.nature.com/articles/s44168-024-00117-1

CONTACT

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Images – *Innovative Low Emissions Urban Design Projects*

1 "Forest City", LAVA, Malaysia design competition
2 Green City, Zürich Süd, CH
3 Bosco Verticale, Milano, IT
5 Hammerby Sjöstad, Stockholm,SE
6 Quartier Confluence, Lyon, FR
7 "Habitat of the Future", Mosha Safdi
8 Liuzhou Garden City, CN
9 Nordhavn, København, DK
10 Nieuwe Dokken, Circular District Coop, Ghent, BE
11 ParkRoyal on Pickering Hotel, Singapore
12 Soleil Lofts, Salt Lake City, UT, USA
13 The Eden, Singapore