100 Good Practices of Sustainable Energy Actions in Cities

An Overview and Recommendations for Replication

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Agenda

- Introduction of the webinar and the speakers
- About UNEP CCC and the C2E2 Knowledge Management System
- Presentations
- Questions and answers





Outline

1. Background - Xianli



- 2. Methodology Xianli
- 3. Overview of the good practices and some analysis Begonia
- Replication of the good practices, conclusions and recommendations -Xianli





Background of the webinar

- The webinar is based on the report '100 Good Practices of Sustainable Energy Actions in Cities – An Overview and Recommendations for Replication' to be published by the Copenhagen Centre on Energy Efficiency (C2E2)
- The report is based on 100 good practices of sustainable energy actions in cities collected by C2E2 staff from 2018 – 2021 and published on the Knowledge Management System (KMS) https://c2e2.unepccc.org/collection/goodpractices-of-cities/



Rationale of the Report on 100 Good Practices (1)

- Cities are the centres of human activities, responsible for a significant proportion of global energy use, and therefore GHG emissions.
- In 2021, 57% of the global population was living in cities, and the trend of global urbanization is expected to continue
- Urban heat island effect make cities more exposed to extreme weather patterns
- Many cities have set ambitious climate goals, leading the clean-energy transition towards net zero emissions.
- Energy efficiency is known as the "first fuel" because it is virtually available everywhere, with the advantage that it has multiple environmental and social benefits, among others.





Rationale of the Report on 100 Good Practices (2)

- Cities often face information, financial, and capacity barriers in energy-efficiency implementation, especially at scale.
- Some cities are successfully implementing energy efficiency policies, programmes, and projects.
- C2E2 is the SEforALL Energy Efficiency Hub and has the mandate of advocating and supporting the achievement of SDG 7.3 – doubling the global rate of energy-efficiency improvement.
- The 100 good practices aim to showcase innovative business models, contractual arrangements, and financial solutions to inspire other cities





How the good practices were collected

- The 100 good practices were collected through extensive online searching and desk research.
- The information is captured with a common template;
- The main factors in choosing the 100 good practices include:
 - ✓ meeting the minimum data requirements in the predefined template,
 - ✓ recent cases, the projects or programmes have a starting date of 2000 or later,
 - ✓ the good practice implementation is ongoing or has been completed
 - \checkmark the case studies come from reliable and known sources.





Research questions and methodology of the report

The research methodology used in the study combines elements of qualitative and quantitative analysis to answer the following research questions:

- What are the general features of the 100 good practices?
- What are their funding sources?
- How much energy savings (percent range) do the good practices achieve?
- How to replicate the good practices to scale up energy-efficiency actions?





Quantitative Analysis of the 100 Good practices



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Continental location of the 100 Good Practices



Australia & Oceania Europe Latam Asia North America Africa



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Technical action areas representation of the 100 Good Practices







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Energy efficiency programmes/initiatives





Financial instruments & Financial mechanisms used across practices categorised by their funding type

Type of funding	Financial instrument/financing mechanism	Description	Total (%)
Public funded projects	Debt Financing	Loans & green bonds	9%
	Government initiatives	Subsidies	3%
	Public and risk mitigation instruments	Public grants	8%
	Public energy utility corporation funds		3%
	Others – non-direct monetary provision	Policies, voluntary programs, etc.	7%
	Other public funds	National & city budget	27%
Public-private funded	Debt Financing	Loans (incl. bank loans and loan	2%
projects		loss reserve)	
	Others	Voluntary programs	6%
	Public-private funds without detailed	Multilateral funds with private	23%
	information	funds	
Private funded projects			4%
No information			1%





Energy savings (%) per action area





Energy savings (%) per continent



Maximum savings



Energy savings (%) per funding source



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Funding amounts compared to energy savings - analyzed by action areas



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Thank you so much

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Replication of the good practices, conclusions and recommendations



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Replicability of the good practices (1)

Success factors of the good practices:

- the ability to mobilize sufficient funding from multiple sources,
- the ability to engage key stakeholders through proper contractual arrangements, including technology, technical service, investment, and equipment providers,
- the selection of technology solutions suitable for the local context,
- awareness from local leaders and memberships of relevant like-minded city networks.





Replicability of the good practices (2)



Most of the good practices are from Europe and the US, while studies in other continents are rarer. This could be for multiple reasons:

- the key advocates of energy-transition and climate action in cities, like C40, ICLEI, Covenant of Mayors are all initiatives that originated in North America and Europe, and funded by governments and organizations in these regions.
- In addition to stronger climate awareness, the cities in developed countries also face both more policy and public pressure of green development and with better financial resources and technical capacity to do so.
- More importantly, in both the US and the EU, there are more supportive policies from the federal government and the EU to support energy-efficiency actions.





Technical areas, costs, and funding models

- Among the different action areas, efficient lighting represents the technology of short payback period and can to some extent be implemented on commercial basis.
- In contrast, water efficiency, district energy, and transportation are closely related to urban infrastructure and generally require large amounts of investments and longer payback periods.
- Public buildings are intermediate, since complexity and costs can vary significantly.
- Some of the good practices are from such sources as C40, Covenant of Mayors, and ICLEI. These advocacy organizations play an active role in promoting energy-efficiency and climate actions in cities through their networks of city members, experience sharing, and technical support.





Recommendations to governments on replicating the successes

- Tapping in the energy efficiency opportunities within direct control of the municipal government to showcase energy-efficiency actions and boost the demand for energy-efficient products and services through taking energy-efficiency actions.
- Municipal governments can leverage such actions through full public funding, or mobilize private cooperation through public-private partnerships, or seek services from ESCOs.
- National, state, and provincial governments can create enabling environments for energy-efficiency actions by enacting energy-efficiency regulations, standards, labelling, and long-term strategies and pathways.
- City networks and advocating organizations, like C40, EU-funded research and demonstration projects are important in raising awareness, promoting successful experience, and disseminating knowledge and skills in designing and implementing energy-efficiency actions.



Recommendations for future studies

- As the search only covers online case studies in English, Chinese, and Spanish since 2000, the collection cannot be taken as exhaustive.
- For future research on good practices of energy efficiency or other climate mitigation initiatives in cities, the results of this analysis show the limitations of relying on secondary sources of information.
- An in-depth analysis of a smaller collection of good practices can make it feasible to contact the original report authors or the specific cities to cross-check the data and address the issues of lacking data or data calculations based on unspecific, probably different, assumptions.
- Limiting the case studies to a sector or technology can avoid the issue of good practices covering more than one category in a dimension.





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