

Sustainable Energy Transition: Local Governments as Key Actors

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1 Introduction

Alarming trends such as increasing energy consumption, declining fossil fuel resources, the visible negative impact caused by burning fossil fuels (on air quality, health, and the environment), rising energy prices, and grave future development scenarios impacting on energy-economy-society-security require a global spotlight on the interplay between energy, energy security, and climate change.

Accelerated climate change and declining natural resources are two important issues facing the world today. These do not only pose environmental challenges. They also have significant socio-economic, security, and political impacts and present a range of challenges that will impact everyone. Yet, it will have a significant larger impact on the poorer section of the global population, who have fewer resources to prepare and respond to the unfolding effects thereof.

The local impact *on* climate change is clear. Greenhouse gas emissions are being emitted by burning fossil fuels, mostly for energy use in urban areas. This in turn accelerates (the natural phenomenon of) climate change—and causes extensive problems for the global ecosystem. Climate scientists and experts in many disciplines are exploring these issues, building a valuable knowledge base which can help decision-makers guide us towards a sustainable future. Further, many local and national leaders are also already tackling climate change mitigation, approaching it also from the perspective of achieving a myriad of co-benefits that can result from well-planned and -implemented action.

The local impact *of* climate change is visible around the world: from changing rainfall patterns and rainfall intensity, with more storms, heavy downpours, rising sea levels, as well as droughts, shifts in growing seasons, and disease distributions, to

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mention but a few impacts. All these aspects directly influence humans and their environment, quite often, but not exclusively in urban areas. The Intergovernmental Panel on Climate Change (IPCC) Summary for Policy Makers of 2013 [1] offers a useful outline of a consensus-based report on research and the relevance of extreme weather events for society and sustainable development. There are also many other reports that show alarming trends, and draw attention to the need for accelerated action.

2 Context for Local Action

There can be no solution to climate change without local climate and energy action. A summary for decision-makers of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) was provided to specifically address cities [2], which among others highlights that cities account for 37–49% of global greenhouse gas emissions and urban infrastructure accounts for over 70% of global energy use. It also outlines the main climate impacts on urban spaces, where already more than 50% of the global population now live.

Effective local action requires a supportive and enabling national framework, which will allow, guide, and actively aid local and subnational governments in comprehensively tackling climate change mitigation and adaptation. Further, citizens, business, and industry look towards (all levels of) their government to deal with the situation, and to guide and protect them. These elements are highly relevant to the local community level, where the impact *on* and *of* climate change can, and should, be addressed. Communities may find it easier to engage, as local decision-making processes and implementation can be faster and action can have immediate impact, compared to action at other levels of government. This does not however mean that other levels do not need to engage.

Increasingly local governments are engaging, where they have recognised the need and benefits of action. Energy conservation and using improved energy efficiency technologies are key action areas to reduce energy demand and save costs. Immediate or fast financial benefits can be gained; for example where more efficient technologies are used the payback time on investment (i.e. amortisation) will lead to mid- to long-term savings. This can easily be done for example by installing energy-efficient lighting, but also with more expensive action areas such as complete building renovation to achieve modern energy standards (low energy, passive house, or zero energy).

However, the importance of switching to renewable energy sources should not be underestimated in this transition discussion. We need energy alternatives to fossil and nuclear energy, where fuels are safe and not so easily depleted. The wide range of renewable energy sources available implies that nearly every location on earth has some form of renewable energy that could be used—ideally in a mix: from solar—and wind energy to waste-to-energy and tidal power solutions, and many others. The renewable energy mix and using effective energy storage solutions are key to planning and rolling out a well-managed energy transition that is low-carbon and resilient.

2.1 *Motivation for Action*

People, money, energy, and environment—these issues are drawing the attention of modern society. They are also interconnected to climate change and our response to this global phenomenon. It is well known that global resources are limited. This requires us to reduce waste, optimise resource efficiency, and generally be cleverer in applications that require energy and resources. The human impact on climate change is acknowledged, and the solutions are in many cases clear and readily available. Our response requires a combination of applying technology and effective policy, as well as changing behaviour, with the latter being the hardest angle to address in many cases.

Increasingly local communities—cities and towns of all sizes—are responding to these challenges by engaging in local climate and sustainable energy action. Why do local governments engage? A starting point is often an exploration on how government operations can be optimised to reduce costs and yet remain efficient. Rising energy costs make it challenging to budget effectively. Yet, recognition of responsibility is typically also a driver for action. Local leaders and municipal staff explore how local climate and sustainable energy action can lead to local (co)benefits, how this can be financed, and how to retain or further develop “good quality of life” living and working space for citizens, businesses, and industries.

This local process is typically led by local governments, but also requires the involvement of many stakeholders: citizens, business and industry, and non-profit organisations. The active support and engagement of many different groups is a proven key to success. In practice this means especially engaging with people in these stakeholder groups: municipal staff, councillors, chief executive officers (CEOs), etc. The value of individual “champions” in each of these stakeholder groups is a necessity to help drive the agenda, and ensure that it remains “on the agenda”.

Municipalities understand the local context and local needs. They are responsible for good local governance. Engaging in local climate and energy action seems to be a logical choice—but this choice clearly implies change. It requires change in the way energy is generated and distributed (moving away from centralised systems to decentralised, smaller interconnected, and safer systems). It also requires change in the way energy is used. Energy has become a valuable commodity! Yet, this is part of the transition challenge, as local governments often do not own energy utilities and typically do not have a mandate to address energy—but they understand the need for acting in this area. The leaders have started, and use diverse reasons for this.

Municipalities have different (often multiple) motivations to engage and reap multiple local benefits, which include the following:

- Exploring approaches for improving air quality and associated improved health
- Urban infrastructure improvement: anticipating the impact of climate change and adapting to this. “Local to global” responsibility: protecting people and the environment in a changing climate where resources are becoming scarcer, addressing the global common good

- Keeping money in the local economy: local energy production, local energy use, generating local profits, and local taxes
- Green economy development: improvement by saving energy and reducing energy bills, making money for local sustainable energy generation, local job creation, stimulating the small- and medium-sized enterprise sector
- Social upliftment of poorer residents: by reducing their need for energy, e.g. through energy-efficient housing renovation, and offering effective public transport options
- Energy security: securing stable energy supply, ensuring that energy remains affordable for citizens

Some local governments have been engaging in climate action since the 1990s, when ICLEI started its Cities for Climate Protection (CCP) Campaign. Many more have started since then, with the CCP Campaign participants numbering over 1000 cities and towns in the early 2000s. Since 2013 ICLEI has transitioned to the GreenClimateCities programme, offering an updated process with practical guidance to local governments of cities of all shapes and sizes and at varying levels of development—both in the Global South and North.

2.2 *Role of Local Governments*

The role of local government (also referred to as local authority, municipality, council, administration, etc.)—as the level of government closest to citizens—is critical in the context of climate protection, climate change adaptation and resilience, and transition to sustainable energy.

Local governments are usually responsible for defining *strategy*, implementing local *policy and regulations*, developing and maintaining *structures* that handle administration and provide services, and providing a range of *services* to local inhabitants and businesses. This role differs from country to country but can include policing; health services; education; social services; transport, water, and sanitation services; and sometimes also energy services (e.g. local sales from national grid). Further to this they often *own or manage infrastructure* such as buildings, roads, and even electricity grids in their geographical territory.

In all of these cases local governments can thus shape and guide change among inhabitants, businesses, and industry as well as their own municipal operations. They can motivate and lead a change of direction in the whole community, to benefit the community. These are areas where local climate action is possible, with vast potential for reducing emissions, and improving overall efficiency and quality of life.

Those cities and towns that are achieving success usually:

- Have one or more local champions who can motivate people, draw attention to these issues, and constantly make sure that climate/energy is on the political agenda. These include political representatives and senior municipal staff—highly recommended as a valuable driving force for local action.

- Have a comprehensive and regularly updated (climate or energy) action plan which is being implemented and monitored.
- Understand where challenges come from—i.e. where energy is being used and emissions released, and conduct regular greenhouse gas (GHG) inventories.
- Review local renewable energy resources to assess where energy imports can be reduced, and how local resources can be optimised.
- Conduct a community SWOT analysis to identify strengths, weaknesses, opportunities, and threats in the relevant sectors and areas.

These actions and processes help to coherently address climate change mitigation and adaptation at the community level.

3 Current Developments

3.1 *Global Developments*

ICLEI—Local Governments for Sustainability (ICLEI)—addresses these and many other issues impacting on sustainable urban development, working with municipalities and their partners around the globe. The organisation’s approach is that many global challenges require local solutions but global governance, for example when addressing climate, air quality, biodiversity, and freshwater resources. This needs international commitment and processes, as well as cooperation between all levels of government. The local government level is essentially an implementing level, and thus highly impacted on by global, regional, and national planning and processes.

Yet, they typically have no capacity to monitor or influence these levels individually, looking to city networks such as ICLEI to engage in advocacy on their behalf. When national governments decided to craft a new global climate regime, ICLEI started a parallel global process called the Local Government Climate Roadmap. This was done as a collaborative effort with all leading global city networks to ensure engagement, recognition, and empowerment of local governments in this new climate regime.

Further, the *carbonn* Center¹—the Bonn Centre for Local Climate Action and Reporting—was established as an international centre of excellence, as a joint United Nations Environmental Programme (UNEP) and ICLEI initiative. It manages the global reporting platform for local and subnational governments on local climate action: mitigation and adaptation [3].

Table 1 provides an overview of this and other key developments relevant to climate protection that also impact on local governments.

¹ *carbonn* (<http://carbonn.org>) is a centre for excellence that supports local governments around the globe with reporting through the *carbonn* Cities Climate Registry—<http://carbonn.org/carbonn-cities-climate-registry>.

Below three key developments that have impacted on the advocacy process for local governments are briefly presented, with the timeline outlined up to 2014.

The *Local Government Climate Roadmap* was an advocacy journey that began at the Local Government Climate Sessions, held in parallel to the COP13 in Bali in 2007. It provided a voice to local governments worldwide, mirroring the launch of the United Nations Climate Change Conference Roadmap, designed for nations, in

Table 1 Chronology of relevant efforts in the global response to climate change (non-exhaustive)

Year	Chronology of climate relevant efforts
1990	<ul style="list-style-type: none"> • First Assessment Report of IPCC (FAR)
1992	<ul style="list-style-type: none"> • Adoption of UNFCCC (<i>no specific definition of greenhouse gases</i>)
1993	<ul style="list-style-type: none"> • Launch of ICLEI's Cities for Climate Protection (CCP) Campaign
1995	<ul style="list-style-type: none"> • Second Assessment Report of IPCC (SAR) • IPCC 1995 Guidelines for GHG Inventories • Local authorities as observers at global climate negotiations
1996	<ul style="list-style-type: none"> • IPCC Guidelines and Good Practice Guidance for GHG Inventories
1997	<ul style="list-style-type: none"> • Adoption of Kyoto Protocol (Annex-A lists specific GHGs and sectors) • First Global IEA Report on CO₂ Emissions from Fuel Combustion
1998	<ul style="list-style-type: none"> • Launch of the Greenhouse Gas Protocol
2001	<ul style="list-style-type: none"> • Marrakech Accords • GHG Protocol Corporate Accounting and Reporting Standard (First Edition) Third Assessment Report of IPCC (TAR)
2004	<ul style="list-style-type: none"> • GHG Protocol Corporate Accounting and Reporting Standard (Revised)
2005	<ul style="list-style-type: none"> • Formation of the C40 Cities Climate Leadership Group by London Mayor Ken Livingstone (C20 then) • Launch of European Emissions Trading Scheme ETS • Launch of the US Conference of Mayors Climate Protection Agreement
2006	<ul style="list-style-type: none"> • Release of ISO14064 Standard • IPCC Revised Guidelines • First Global Report of the Cities for Climate Protection Campaign • Partnership between C40 and Clinton Climate Initiative (CCI) announced
2007	<ul style="list-style-type: none"> • Fourth Assessment Report of IPCC • Launch of Global City Indicators Facility and The Climate Registry in the USA • COP 13 in Bali: Launch of the Local Government Climate Roadmap^a
2008	<ul style="list-style-type: none"> • Launch of European Covenant of Mayors^b • Release of ICLEI's US Local Government Operations Protocol (LGOP) • Launch of ICLEI-US/CDP Cities Pilot Project • COP14 in Poznan: Local Government Climate Sessions
2009	<ul style="list-style-type: none"> • Launch of the first global protocol for local governments on GHGs—the International Local Government GHG Emissions Analysis Protocol (IEAP) • Launch of Greenhouse Gas Regional Inventory Process (GRIP) • Launch of Bonn Center for Local Climate Action and Reporting (carbonn Center) • COP15 in Copenhagen: Local Government Climate Lounge

(continued)

Table 1 (continued)

Year	Chronology of climate relevant efforts
2010	• Kick-off for ISO/TR14069
	• Launch of WB/UNEP/UNHABITAT Draft Standard
	• Launch of the Global Cities Covenant on Climate—the Mexico City Pact
	• Launch of carbonn Cities Climate Registry (cCCR) as a global reporting platform ^c (renamed carbonn Climate Registry in 2014)
	• Kick-off for drafting of US Community GHG Protocol
	• Start of Resilient Cities Congress series in Bonn
	• COP 16 in Cancun: Recognition of local governments as “governmental stakeholders”
2011	• Release of C40/CDP Cities Report
	• ICLEI-C40 MoU to design and develop the GPC
	• Release of GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard
	• Release of 2011 Annual Report of carbonn Cities Climate Registry
	• COP 17 in Durban: Launch of the Durban Adaptation Charter
2012	• Launch of the draft Global Protocol for Community-scale Greenhouse Gas Emissions Inventories (GPC)—developed by WRI, C40, and ICLEI
2013	• Local Government Climate Roadmap Phase II started
	• COP19 in Warsaw: First “Cities Day” organized at a COP
2014	• UN Special Envoy for Cities and Climate Change appointed, namely Michael R. Bloomberg
	• Launch of the Compact of Mayors
	• COP20 in Lima: Launch of GPC

^a<http://www.iclei.org/climate-roadmap>

^b<http://eumayors.eu>

^c<http://carbonn.org>

determining a global action plan towards a post-Kyoto framework on climate change for the period after 2012. Partners have tirelessly campaigned to mobilise local governments, also to obtain referencing to subnational and local governments by national negotiators in Cancun, Mexico, in 2010. This in turn was used to step up activities to also ensure success in “empowerment” of local and subnational governments (empowerment implying enabling frameworks that support and assist effective local climate action).

The *Compact of Mayors*² was launched at the UN Climate Summit in September 2014 by C40, ICLEI, and UCLG, in partnership with UN Secretary-General Ban Ki-moon, and his Special Envoy for Cities and Climate Change, Michael R. Bloomberg, and UN-Habitat. As a global initiative, it aims at recognising new and existing local climate commitments, and make sure that these are recognised globally. Two recognised reporting platforms—carbonn Climate Registry and

²<http://compactofmayors.org>.

Table 2 Reporting elements in the carbonn Climate Registry [2]

	Performance (GHG emissions)	Local climate actions
<ul style="list-style-type: none"> • CO₂ 	<ul style="list-style-type: none"> • Local government emissions inventory 	<ul style="list-style-type: none"> • Mitigation actions
<ul style="list-style-type: none"> • CO₂e • Carbon intensity • Renewable energy • Energy efficiency 	<ul style="list-style-type: none"> • Community emissions inventory 	<ul style="list-style-type: none"> • Adaptation actions • Action plans
Government and/or community level	Guided by the International Local Government GHG Emissions Analysis Protocol (IEAP)	For completed, planned, or ongoing actions
Absolute or business-as-usual		

CDP—allow cities and towns of all sizes to share their commitments publicly and to report consistently on targets, activities, and impact, on the platform of their choice. This has helped to create a global political movement, with political commitments to local climate action combined with global accountability.

Commitments and reporting are monitored by the *carbonn Climate Registry (cCR)*. The cCR is operated by the carbonn Center based in the City of Bonn and hosted by ICLEI. It is a mechanism created for cities and local governments to ensure transparency and accountability of local climate action through a commitment of regular reporting. By reporting on the cCR, cities and towns demonstrate leadership, contributing to transparency and accountability of local climate action. They will thus be better prepared for verification of their commitments, performance, and actions, which in turn should facilitate or ease access to global climate funds (Table 2).

4 Conclusion

Developments around the globe show that it is possible to mobilise many local governments to engage in local climate and energy action—especially when focusing on the clear benefit for their respective communities and for the world, as a local-global win-win approach.

All levels of government need to engage when dealing with climate and energy issues. These are not purely national issues, despite the strategic nature of energy. Synergy and cooperation between different levels of government are key to optimise processes and approaches. This is increasingly taking place in different countries, and is showing positive results—for example in the Nordic countries, where advanced climate action discussions are taking place, even exploring climate neutrality in some cases. However, political leadership is only one element. This should also be linked to engagement of other key stakeholders, to effectively implement comprehensive programmes that deal with these major challenges in modern life.

Processes are in place that mobilise, support, offer guidance, and address advocacy with and for local governments around the globe. Global developments were informed and guided by the Local Government Climate Roadmap, the Compact of Mayors which helped to collect political commitments and establish a harmonised reporting system, with the carbonn Climate Registry established as a voluntary reporting and monitoring platform for local climate action. Combined, these three elements have helped achieve progress also at the global level to draw attention to the need for, and interest in, accelerating local action. ICLEI's GreenClimateCities programme is available to local governments around the globe, developed to guide and support them in scaling up local climate action—both mitigation and adaptation.

Every local government can and should combine energy conservation, energy efficiency, and renewable energy—moving towards 100 % renewable energy communities that optimise policy, technology, and people power, to ensure that zero-emission, resilient communities are created around the globe.

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<http://www.springer.com/978-3-319-45658-4>

Towards 100% Renewable Energy
Techniques, Costs and Regional Case-Studies

Uyar, T.S. (Ed.)

2017, X, 453 p. 221 illus., 161 illus. in color., Hardcover

ISBN: 978-3-319-45658-4