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CHAMP
Coalition for High Ambition Multilevel Partnerships for Climate Action

EXPERT NOTE

# The case for national-subnational collaboration in clean energy and zero waste

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## Summary

The transitions to clean energy and zero waste are technically feasible and already underway in many countries (Jacobson et al. 2017; Bogdanov et al. 2021; Almansour and Akrami 2024; Gu et al. 2025). The pace and scale of these transitions remain the central challenges (Schumer et al. 2025). Research shows that the speed and breadth of both transitions depend on how effectively national and subnational governments work together (CUT 2019; Hultman et al. 2020).

This expert note responds to the Action Agenda of the 31st United Nations Climate Change Conference Presidency by arguing that accelerating both transitions requires deliberate multilevel partnerships across national, regional, and local governments. It identifies priority actions in each sector and at each level of government, drawing on WRI's research on multilevel climate governance and the experience of the Coalition for High Ambition Multilevel Partnerships for Climate Action, a coalition of 79 national governments and the European Union committed to strengthening collaboration across levels of government on climate delivery.

## Introduction

The 31st United Nations Climate Change Conference (COP31) Presidency has set ambitious 2035 targets across three interconnected priority themes, which are the focus of this note: clean energy transition and electrification, zero waste and methane reduction, and climate-resilient cities. Targets across these themes include reducing building energy intensity by at least 25 percent, increasing electricity's share of global final energy consumption to 35 percent, and cutting global annual municipal solid waste generation at least in half (UNFCCC 2026).

Cities are the primary site of building electrification, transport decarbonization, and municipal waste management, accounting for approximately 75 percent of global energy consumption and 70 percent of greenhouse gas emissions (IEA 2023). Subnational governments offer proximity to communities, local knowledge, and implementation capacity that national strategies depend on to be effective (Shah Naidoo et al. 2024). Yet the regulatory frameworks, fiscal transfers, and coordination mechanisms that determine whether cities can act at the required pace are most often set at the national level.

## CONTENTS

1 Summary
1 Introduction
2 Clean energy transition and electrification
3 Zero waste and methane reduction
5 Conclusion
6 Endnotes
6 References
8 Acknowledgments
8 Author contributions
8 About the authors
8 About WRI

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Cities are also drivers of climate ambition. Since 2017, 89 C40 Cities[1] representing over 380 million people have made political commitments through accelerators covering net zero carbon buildings, green and healthy streets, renewable energy, sustainable waste systems, and clean construction, many of which exceed what current national frameworks are designed to support (C40 Cities 2026). However, ambition does not always translate into delivery. Many cities face a significant gap between political commitments and measurable outcomes, shaped by the same governance constraints identified in this note.

COP31 provides an opportunity to build on the political commitments made through the Coalition for High Ambition Multilevel Partnerships (CHAMP) for Climate Action and the Plan to Accelerate Solutions adopted at COP30. The following sections set out the rationale for each transition and identify the priority actions needed at the national, regional, and local levels to close the implementation gaps.[2] Priority actions are organized across four areas: legal authority, financing and investment, coordination and system planning, and capacity support. The CHAMP website[3] provides illustrative examples of multilevel partnerships in practice, and a forthcoming series of country case studies will provide further evidence.

## Clean energy transition and electrification

This section addresses two dimensions of the clean energy transition: urban energy infrastructure (electricity distribution networks, district heating and cooling, distributed generation and buildings) and transport.

### Urban energy infrastructure and buildings

The pace of the clean energy transition across power, buildings, and urban infrastructure falls far short of what is needed. The share of zero-carbon sources in global electricity generation reached only 41 percent in 2024. It is rising by just two percentage points annually, and that rate would need to increase sevenfold to meet 2030 targets of 88–91 percent (Schumer et al. 2025).

Most cities have little direct control over electricity supply, transmission, and interconnection but play an important role in integrated energy infrastructure planning across transport; industry; and district heating and cooling, where a central plant generates thermal energy for multiple buildings. The rapid growth of data centers is adding significant new concentrated loads to urban electricity systems (IEA 2025a). As the share of variable renewable energy grows alongside electricity demand, so does the need for city, regional, and national governments to coordinate energy storage, grid upgrades, the management of electricity demand and supply, and the process of connecting power producers and consumers. Integrating electricity with heating, cooling, and transport systems, known as sector coupling, is also critical. Without this coordination, surging electricity demand from electric vehicles (EVs), heat pumps, and data centers will go unmanaged and national targets will remain disconnected from local delivery capacity (Bridges 2024; CNZ 2022).

Denmark's Heat Supply Act (1979, revised in 1990 and 2000) illustrates how national legislation can create the conditions for local delivery. The act delegated heat planning responsibilities to municipalities, requiring elected councils to cooperate with utilities to plan local heat supply, creating a multiactor governance structure that linked national decarbonization goals to local infrastructure decisions (Sampson and Makuch 2026). By 2020, district heating supplied two-thirds of Danish households' heat demand and by 2022 almost 70 percent of that heat was produced from renewable energy (Sampson and Makuch 2026).[4]

Energy use in buildings accounts for more than one-third of global carbon dioxide emissions. Renewables' share of final building energy reached 17.3 percent in 2024 and needs to increase to 46 percent by 2030 (UNEP and GlobalABC 2026). Achieving this requires electrifying building energy systems by replacing fossil fuel heating, cooling, and cooking with electric alternatives powered by clean grids, a transition that is primarily delivered at the city and regional levels through building codes, retrofit programs, and local energy planning. Mandatory building codes represent the single most effective tool for improving building energy performance, but in many jurisdictions, subnational governments can set or enforce building performance requirements only within the parameters established by national enabling legislation (IEA 2022). Even where that legislation exists, subnational governments often require dedicated technical support to translate national standards into local implementation: In Colombia, the rollout of Resolution 0194 requires targeted capacity building and co-design of enforcement and reporting guidance with cities before local governments and the construction sector can apply the regulation in practice (Valdez Berriozábal et al. 2025; Arbelaez et al. 2026). Table 1 sets out the priority actions needed at each level of government to accelerate the clean energy transition across buildings and urban energy infrastructure.

**TABLE 1 | Priority actions to accelerate the urban energy infrastructure and buildings transition**

| ACTION AREA | NATIONAL | REGIONAL | LOCAL |
|---|---|---|---|
| **Legal authority** | Reform legislation to enable subnational governments to set and enforce building codes; integrate subnational building and renewable energy targets into NDC implementation strategies[a] | Adapt national standards to subregional conditions; support smaller municipalities to interpret and apply national requirements | Lead by example through the energy performance of municipal buildings and public infrastructure; require a renewable energy infrastructure and EV charging provision in new developments through planning and permitting powers |
| **Financing** | Create transfer mechanisms for retrofit programs; coordinate energy infrastructure investment across ministries[b] | Coordinate shared grid upgrade investment and regional storage across municipal boundaries; facilitate joint procurement | Develop city-level building electrification and energy master plans that generate investable pipelines and anchor national fiscal transfers |
| **Coordination and system planning** | Integrate municipal energy master plans and climate risk data into national grid planning; coordinate across ministries on storage, demand flexibility, and interconnection[c] | Facilitate a shared data and reporting system between city-level energy master plans and national grid operators; plan regional storage and demand flexibility infrastructure[d] | Develop city-level energy master plans and contribute local demand, consumption, and climate risk data to regional and national grid planning; coordinate across planning, energy, transport, and housing departments |
| **Capacity support** | Provide targeted technical support to translate national standards into local implementation | Pool technical expertise; facilitate data sharing and common forecasting between cities and national grid operators | Contribute local data and implementation experience to inform national standards; participate in city-to-city peer learning networks to share building energy and retrofit implementation experiences |

*Note:* NDC = nationally determined contribution; EV = electric vehicle.
*Sources:* a IEA 2022; WRI 2024a. b UNEP and GlobalABC 2026. c IEA 2023. d IEA 2023; CNZ 2022.

### Transport

Urban transport is among the fastest-growing sources of greenhouse gas emissions globally, contributing over 8.9 gigatons as of 2019. Transport sector emissions have risen 1.8 percent per year since 2010 and are projected to grow a further 16–50 percent by 2050 without intervention (IPCC 2022). Despite rapid growth in EV sales, fossil fuels still account for 95 percent of the transport sector's total energy consumption. Meeting 2030 benchmarks aligned with a 1.5-degree-Celsius target requires reducing this share to 80 percent. Unlocking demand for electric vehicles will require a tenfold increase in the current rate of public EV charging infrastructure deployment. Investment in rapid transit would need to accelerate fivefold to meet 2030 targets (Nainggolan et al. 2026; Schumer et al. 2025).

The evidence supports an avoid-shift-improve approach: reducing overall travel demand through integrated land use and transport planning; shifting trips to walking, cycling, and public mass transit; and then electrifying remaining vehicle fleets (ICCT 2024; IPCC 2022). Each of these steps requires coordination across levels of government in policy and implementation (Nainggolan et al. 2026). Public transit financing is dependent on national fiscal transfers. Regulation of EV charging infrastructure is set nationally. Land use and zoning decisions are made locally. National transport frameworks that overlook urban mobility realities and local climate risks are unlikely to achieve their stated outcomes. Similarly, cities acting without supportive national policy and multilevel coordination remain constrained in their abilities to implement at scale. Where national and subnational governments have coordinated, results follow: For example, in India, combining national subsidies with city demand pooling under a single procurement contract drove electric-bus costs down by around 30 percent, spurring a National Electric Bus Programme targeting 50,000 buses by 2030 (Doust et al. 2024). Table 2 sets out priority actions needed at each level of government to accelerate the transport sector transition.

## Zero waste and methane reduction

In cities where organics make up a higher proportion of municipal waste, waste emissions can reach 10–15 percent of overall city emissions (C40 Cities 2020). The waste sector accounts for around 20 percent of global anthropogenic methane emissions, predominantly from decomposing organic waste in landfills (IEA 2020). Diverting organic matter from landfills represents one of the fastest and least-expensive ways to cut greenhouse gas emissions in the near term, while supporting

**TABLE 2 | Priority actions to accelerate the electrification of transportation**

| ACTION AREA | NATIONAL | REGIONAL | LOCAL |
|---|---|---|---|
| **Legal authority** | Establish national EV policy, emission targets, and charging infrastructure standards that give subnational governments a clear mandate; legislate zero-emission vehicle timelines[a] | Enact regional frameworks that translate national mandates into sub-regional land-use and zero-emission mobility requirements[b] | Use planning and permitting powers to implement parking policies, congestion charging, and transit-oriented development; mandate zero-emission fleet procurement; use licensing powers to set emission standards for ride-hailing and freight[c] |
| **Financing** | Develop national financing pipelines for urban e-mobility; use demand pooling to drive down procurement costs[d] | Aggregate city-level demand to access national financing pipelines; coordinate procurement and investment across municipal boundaries for integrated public transit | Plan and finance city-level access to reliable electrified public mass transit; improve cycling infrastructure |
| **Coordination and system planning** | Coordinate across energy and transport ministries to manage grid impacts of EV uptake; align national transport frameworks with urban mobility data and local climate risk assessments[e] | Convene city and national counterparts to connect city-level mobility plans to national targets; coordinate charging infrastructure deployment with grid capacity across municipal boundaries[f] | Develop city-level electrified transit and active travel plans that feed into regional and national planning cycles; coordinate transport and energy departments on local grid demand and charging infrastructure |
| **Capacity support** | Provide technical guidance on EV charging standards, procurement, and financing mechanisms to subnational governments | Share data, modeling, and forecasting capacity across cities; facilitate peer learning on transit planning and demand management | Build internal capacity to plan, procure, and manage electrified transit systems and active travel infrastructure; participate in city-to-city peer learning networks to share implementation experiences |

*Note:* EV = electric vehicle; e-mobility = electric mobility.

*Sources:* a IEA 2025b; Hrelja and Rye 2023. b Liu et al. 2022. c Creutzig et al. 2012; Hrelja and Rye 2023. d Doust et al. 2024; Nainggolan et al. 2026. e Schumer et al. 2025. f Hultman et al. 2020.

national development and economic priorities.[5] Yet this opportunity is far from being realized. Of the 22 third-generation nationally determined contributions (NDC 3.0s) that link methane action to subnational governments, 18 do so through solid waste—but only 4 out of the 22 name a subnational actor to deliver the commitment (UN-Habitat 2026).

Zero waste and methane reduction sit at the intersection of national policy and local delivery and are central to the transition to a circular economy. Waste collection, source separation, organics diversion, composting, anaerobic digestion, and landfill management are municipal functions (UNEP and ISWA 2024). The enabling conditions that allow municipalities to deliver these services at scale, however, include extended producer responsibility frameworks, organics diversion mandates, landfill regulations, methane measurement protocols, and treatment infrastructure financing. In most countries, these are established at the national level and coordinated regionally (UNEP and CCAC 2021; UNEP and ISWA 2024).

The most common barriers to implementation are not technical but governance related. National waste-reduction targets are frequently set without corresponding funding for local collection systems. Municipalities introduce source separation schemes without the regional treatment capacity needed to process what is collected. Treatment facilities are developed without securing stable feedstock or end markets for recovered materials. Landfill regulations exist on paper without the inspection regimes or methane measurement systems needed to enforce them. Each of these failures reflects a breakdown in coordination across levels of government (UNEP and ISWA 2024). In the case of methane capture, failure to connect these dots can create a lock-in that disincentivizes further waste-reduction efforts: Operators become financially dependent on a continuing flow of waste to landfill, weakening the incentive to invest in upstream prevention or diversion. Avoiding this requires national and subnational governments to plan the full waste system together, aligning infrastructure investment with reduction targets from the outset.

Cameroon's NDC 3.0 sets a concrete, city-focused target of engineered landfills with at least 70 percent methane capture in all major cities by 2035 (WRI 2024b; GoC 2026). But the NDC does not specify how subnational governments will be resourced to deliver it. This gap is not unique to Cameroon: Of the 78 NDC 3.0s that name methane, only 7 combine a means of implementation with a subnational link in their waste commitments (UN-Habitat 2026). Table 3 sets out the priority actions required at the national, regional, and local levels.

**TABLE 3 | Priority actions to reduce methane emissions from municipal solid waste**

| ACTION AREA | NATIONAL | REGIONAL | LOCAL |
|---|---|---|---|
| **Legal authority** | Establish national standards and incentives for organics reduction at source and diversion; mandate methane measurement, reporting, and enforcement; set explicit subnational responsibilities in NDC waste and methane targets[a] | Translate national mandates into sub-regional implementation requirements; support compliance monitoring across municipalities | Enact local bylaws requiring source separation and organic waste diversion; use licensing and permitting powers to regulate waste collection and treatment operators; develop city-level zero-waste strategies[b] |
| **Financing** | Create fiscal transfer mechanisms for subnational waste infrastructure investment including through extended producer responsibility schemes; align funding with reduction targets from the outset | Aggregate waste flows to justify regional infrastructure investment; facilitate joint procurement and shared financing for treatment facilities | Develop investable pipelines for separate city-wide collection and organic waste processing infrastructure |
| **Coordination and system planning** | Plan the full waste system nationally, aligning infrastructure investment with reduction targets; set landfill regulations with the inspection and methane-measurement systems needed to enforce them[c] | Plan regional treatment capacity to match municipal collection systems; support transition from open dumpsites to engineered sanitary landfills with methane capture; secure stable feedstock and end markets for recovered materials[d] | Invest in separate city-wide collection infrastructure; coordinate with regional treatment facilities to ensure collected material is processed; avoid lock-in by planning collection and diversion together |
| **Capacity support** | Provide technical guidance on methane measurement protocols, landfill standards, and organics diversion systems | Provide technical expertise to smaller municipalities; facilitate data sharing on waste flows, treatment capacity, and market conditions[e] | Build internal capacity, with partners, to manage and incentivize source separation schemes, engage the informal sector, and report on waste-reduction outcomes; participate in city-to-city peer learning networks to share implementation experiences |

*Note:* NDC = nationally determined contribution.

*Sources:* a WRI 2024b. b C40 Cities 2020. c UNEP and ISWA 2024; UNEP and CCAC 2021. d UNEP and ISWA 2024. e UNEP and CCAC 2021.

## Conclusion

Clean-energy and zero-waste transitions sit at the heart of the COP31 Presidency's sectoral agenda. These are not primarily technical challenges. For the most part, the solutions exist, and the technologies are proven. Whether these transitions happen at the pace and scale the climate requires depends on the strength of collaboration and coordination across all levels of government.

Local climate action is only as strong as the national enabling environment behind it, so national and subnational governments must be strategic partners in a shared delivery system. Cities and regions can act at the scale the transitions require only if national governments provide the legal authority, fiscal transfers, and coordination mechanisms that make it possible. But the reverse is equally true: National targets are only as credible as the subnational delivery capacity that underpins them. Where that capacity is absent or unsupported, ambition stalls at the planning stage regardless of how well-designed the national policy is.

National governments must do more than set targets; they must create the architecture that enables delivery, including providing dedicated support to build subnational technical and institutional capacity. Regional institutions must coordinate across municipal boundaries, pool technical expertise to support smaller municipalities, and plan the infrastructure systems that no single city can govern alone. Local governments must develop the plans, partnerships, investment pipelines, and procurement strategies that translate national commitments into community-level outcomes.

As Parties engage in COP31 negotiations, this expert note calls on the presidency to ensure that any sectoral targets and delivery plans agreed to at COP31 identify how national and subnational governments will work together to implement them, including clear roles and delivery mechanisms. The priority actions set out here offer a path forward.

## Endnotes

1. C40 is a global network of 96 cities working to accelerate climate action. See c40.org/about-c40.
2. There are two implementation gaps: the shortfall between climate pledges and what domestic policies are designed to deliver, and that between adopted policies and their real-world outcomes (Fransen et al. 2023).
3. See CHAMP's website at https://www.champ-climate.org/.
4. Denmark's context shaped the scale and speed of its heat transition in ways that are not universally replicable: high urban density, existing district heating infrastructure, strong municipal governance capacity, and a legislative environment aligned with the European Union. Sampson and Makuch (2026) do not claim universal applicability. The transferable lesson is the governance architecture, a national legal framework with mandatory local planning obligations.
5. For example, in Ontario, Canada, collecting and recovering 1,000 tonnes of food and organic waste has been shown to generate 60 percent more gross domestic product and 40 percent more jobs than disposal (GoO 2017).

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## Author contributions

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## About WRI

World Resources Institute works to improve people's lives, protect and restore nature, and stabilize the climate. As an independent research organization, we leverage our data, expertise, and global reach to influence policy and catalyze change across systems like food, land and water; energy; and cities. Our 2,000+ staff work on the ground in more than a dozen focus countries and with partners in over 50 nations.

## About CHAMP

The Coalition for High Ambition Multilevel Partnerships (CHAMP) for Climate Action is a global coalition of national governments committed to working more closely with cities, states and regions on climate policy, implementation and finance.

Launched at COP28, CHAMP helps ensure that local priorities and investment needs are reflected in national climate planning and decision-making. Through stronger multilevel partnerships, countries can better translate climate ambition into action in the cities, states and regions where solutions need to be deployed.

creative commons

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