



100%
RENEWABLES
CITIES & REGIONS
ROADMAP

Supported by:



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An aerial photograph of Rio de Janeiro, Brazil, showing the bay, mountains, and city buildings. The image is used as a background for the title text.

CAPACITY BUILDING MODULE: ENABLING POLICIES FOR SUSTAINABLE ENERGY IN CITIES

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and policy frameworks



Implementing a
sustainable energy
roadmap

INTRODUCTION

INTRODUCTION TO ROADMAP AND POLICY FRAMEWORKS

IMPORTANCE OF ROADMAPS

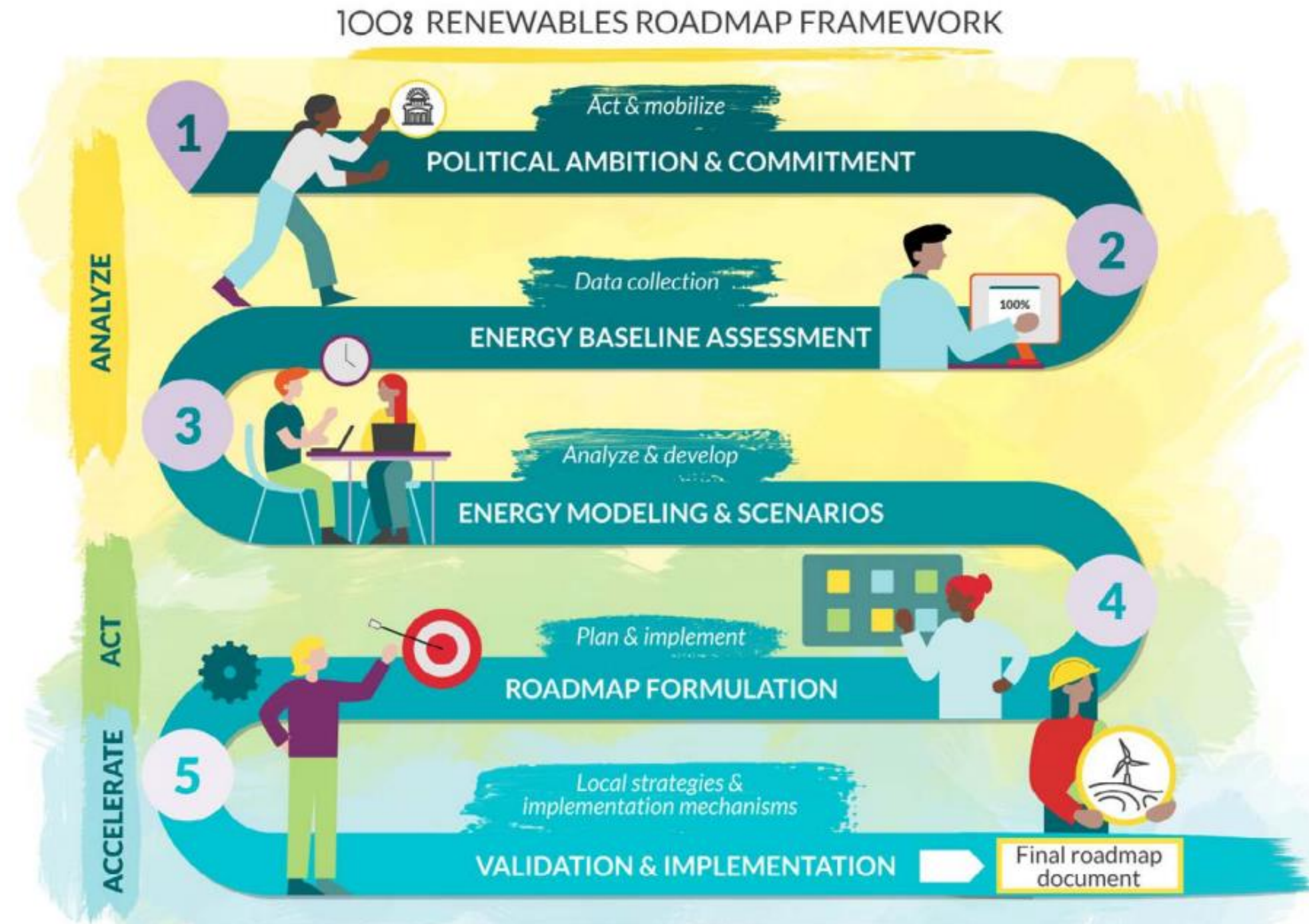
A local strategy or roadmap outlines steps for a government to achieve sustainable energy goals, considering local context and engaging stakeholders.

Importance:

- Aligns sectors, establishes milestones, engages stakeholders, and guides towards common goals.
- Iterative Process: Periodic review and revision encouraged to adapt to changing priorities and data.
- Implementation: Once developed, roadmap guides actions for realizing sustainable energy transition.

ROADMAP FRAMEWORK REVIEW

- Overview of the 100% Renewables Cities and Regions Roadmap project.

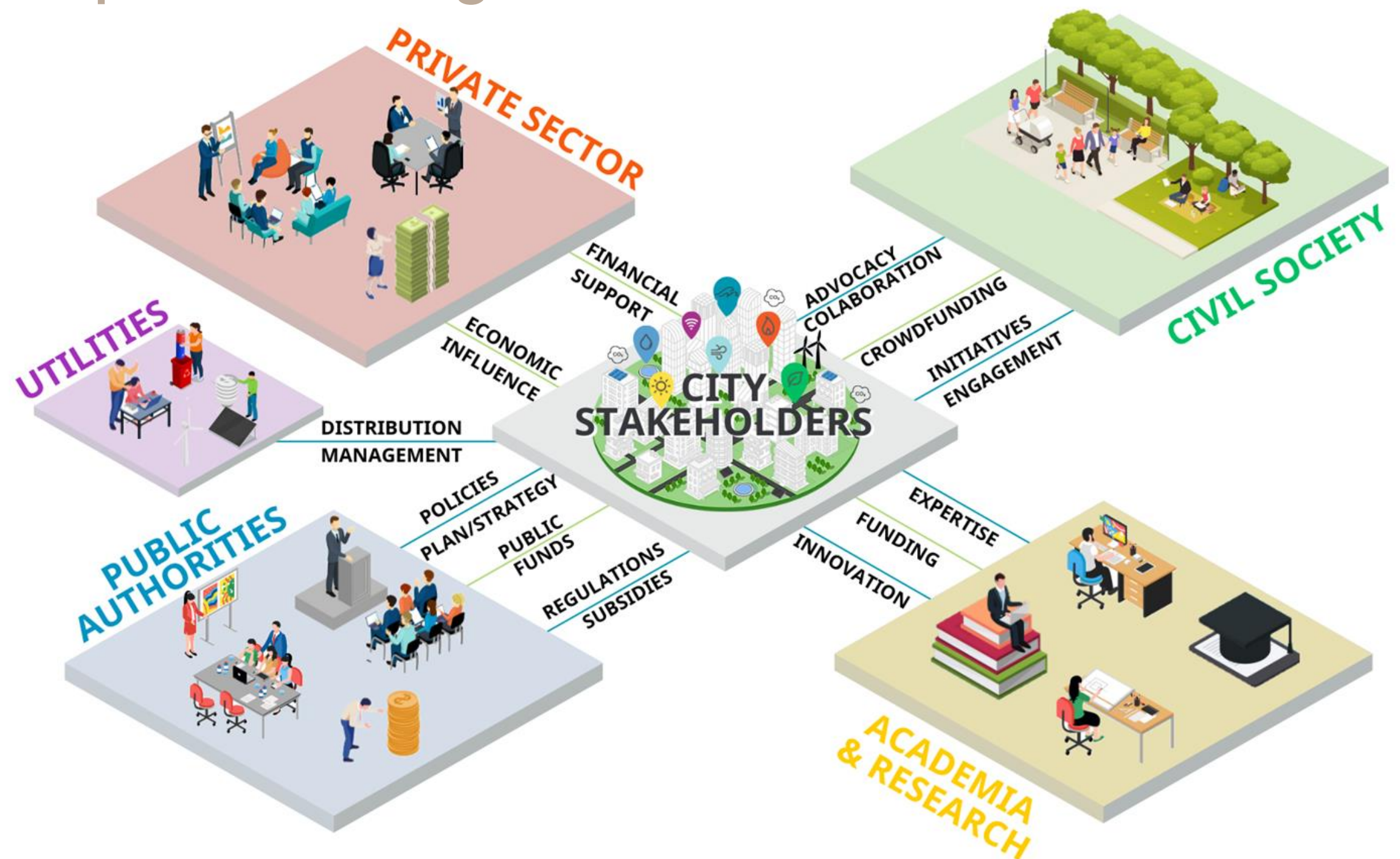


PART 1

IMPLEMENTING THE ENERGY TRANSITION

IMPLEMENTING A 100% RENEWABLES VISION

- Once the roadmap is developed, its goals and milestones must be translated into actionable policies and regulations.
- Local and regional governments navigate complexities of cities, Policies are adapted to local needs while considering national frameworks and cooperation with stakeholders.



**FACILITATE THE
FLOW OF
KNOWLEDGE
AND INFORMATION**



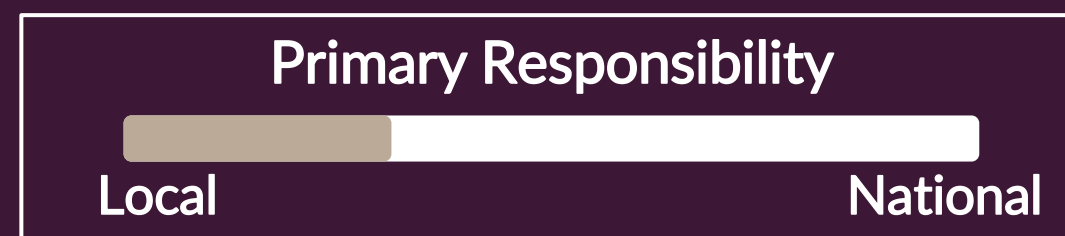
FACILITATE THE FLOW OF KNOWLEDGE AND INFORMATION

- Facilitate **data sharing** and analysis among stakeholders to inform evidence-based policymaking and support sustainable urban development.

Policy Recommendations:

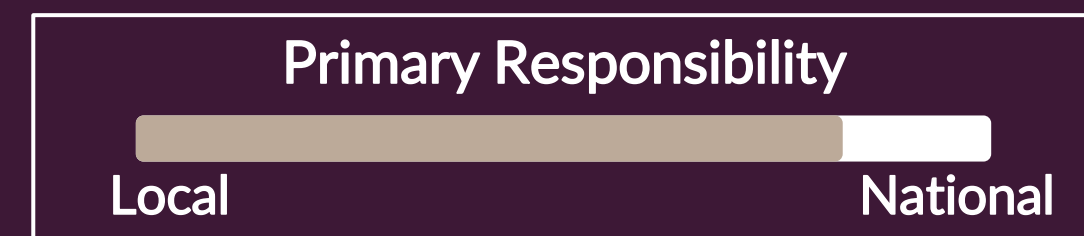
Communication and Awareness-Raising

- Engage communities through targeted campaigns.
- Highlight benefits of renewable energy and efficiency.
- Use local languages and contexts for greater impact.
- Implement measures like energy efficiency labeling.



Digital Infrastructure and Innovation:

- Invest in digital tech for data collection and smart grids.
- Partner with academia for local research and pilot projects.
- Support innovation in renewable technologies.
- Scale successful projects to other regions.



CASE STUDY: DUBLIN, IRELAND

Energy Savings for Dubliners

In Dublin, awareness-raising campaigns significantly reduced energy consumption.

- **Awareness-Raising Campaigns:**
 - Informed residents about energy use and savings.
 - Exceeded the goal: aimed for 5% reduction, achieved 13%.
- **Home Energy Saving Kits:**
 - Introduced post-2014 to increase awareness.
 - Helped improve home energy use with necessary upgrades.



ENGAGING PEOPLE AND COMMUNITIES



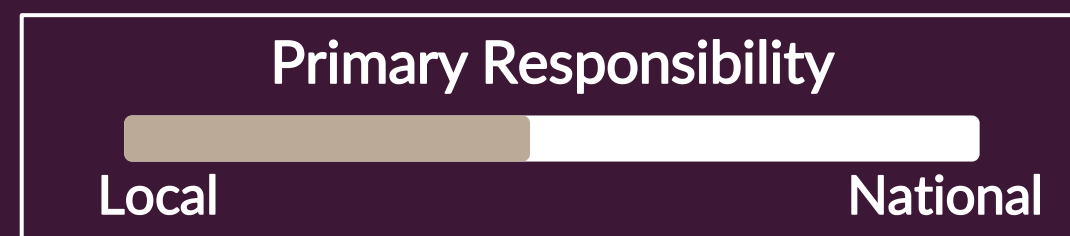
ENGAGING PEOPLE AND COMMUNITIES

- Involving communities drives ownership, fosters trust, and promotes collective action for sustainable energy solutions, enhancing resilience and inclusivity.

Policy Recommendations:

Empower Workforce and Communities

- Provide training and skill development for the energy transition.
- Strengthen technical education and promote local 'green jobs'.
- Support and engage in community energy projects and cooperatives.



Support Vulnerable Groups

- Ensure diverse voices in policy-making.
- Prioritize green technologies for public housing and spaces.
- Address energy poverty and access issues equitably.



CASE STUDY: GALENA, USA

Engaging Community for Renewable Energy Resilience in Galena, Alaska

Galena, Alaska faced severe floods in 2013.

- **The community together identified key priorities for flood recovery:**
 - Their Focus: Improve energy generation and efficiency.
 - Challenges: Remote location and reliance on fossil fuels.
- **Proposed solution:**
 - Biomass plant using local sources.
- **Benefits:**
 - Community engagement in energy policies.
 - Policies adapted to local needs and conditions.
 - Enhanced energy security.
 - Increased resilience to natural disasters.



IMPROVING POLICYMAKING, GOVERNANCE, AND ADMINISTRATION



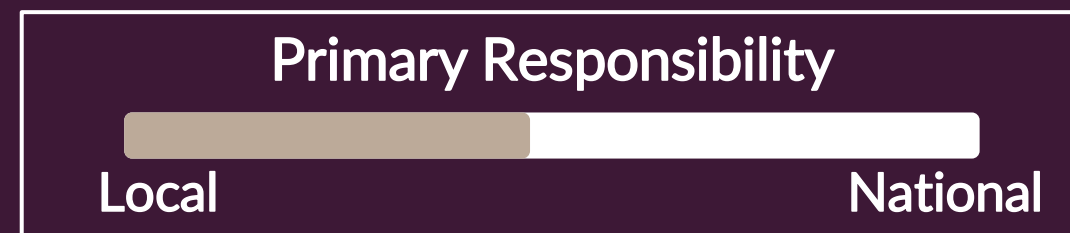
IMPROVING POLICYMAKING, GOVERNANCE & ADMINISTRATION

- Involves refining the processes and structures by which policies are formulated, implemented, and monitored. This ensures that decision-making is more effective, transparent, and accountable, thereby facilitating the transition to sustainable energy in cities.

Policy Recommendations:

Clear Definitions and Flexible Regulations

- Define renewable energy sources precisely and align with national frameworks.
- Update administrative processes to streamline permitting and prioritize low-carbon innovation.



Transparency, Feedback, and Environmental Considerations

- Invest in dynamic governance for transparency and community trust.
- Address impacts on nature and biodiversity while setting examples through government-owned assets



TRANSFORMING ENERGY SYSTEMS

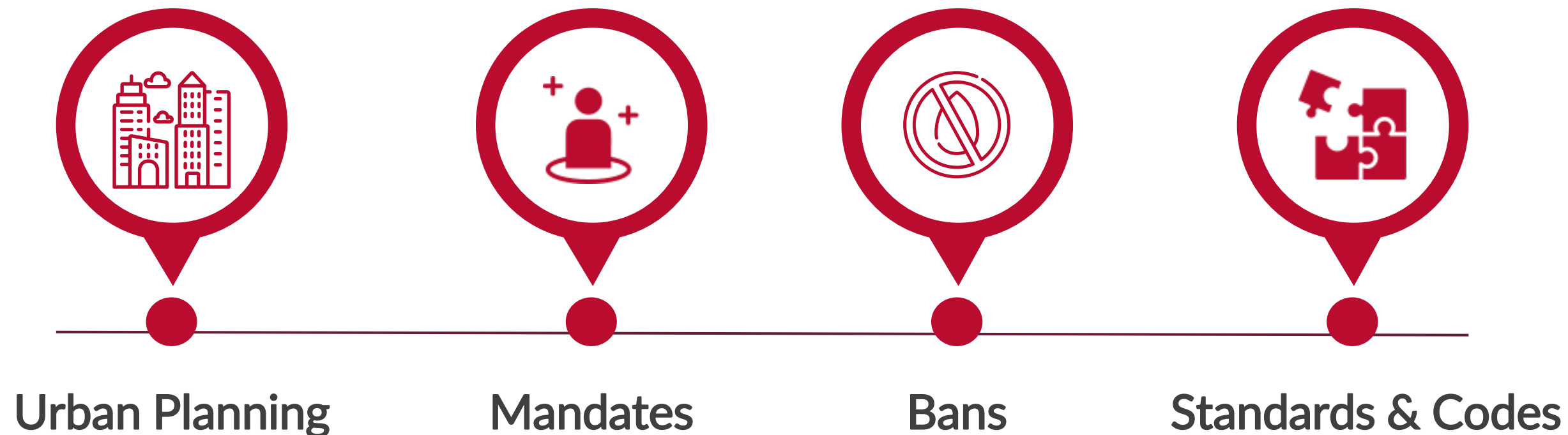


TRANSFORMING ENERGY SYSTEMS

Policy Recommendation

Address Local Energy Demand in Major Energy Consuming Sectors

- Local and regional governments hold significant authority to shape energy usage within their territories, covering electricity, heating/cooling, and transportation. Key sectors under their jurisdiction include buildings, transport, and land use planning. To address this challenge, they can deploy several tools:



TRANSFORMING ENERGY SYSTEMS

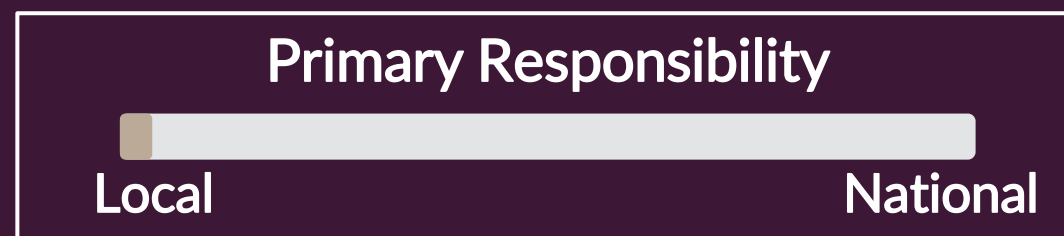
Policy Recommendation

Address Local Energy Demand in Major Energy Consuming Sectors



Urban Planning

- Maximize efficient use and siting of renewable energy generation.
- Promote alternative transport modes and pedestrian infrastructure.



CASE STUDY

Orlando, United States

Implemented the first grid-connected floating solar array in the southeast USA, reducing land use and providing additional benefits such as reduced evaporation.

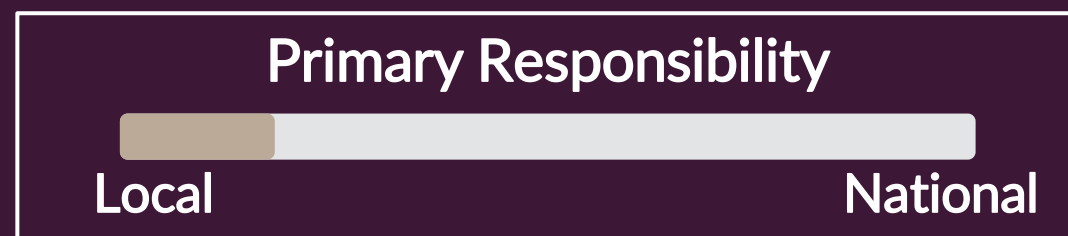
TRANSFORMING ENERGY SYSTEMS

Policy Recommendation

Address Local Energy Demand in Major Energy Consuming Sectors



- Require solar installations in new buildings or use of renewable fuels in transport.
- Coordinate with industry and provide incentives for effective implementation.



CASE STUDY

Jämtland, Sweden

Mandated newly purchased buses to have between 30% and 50% renewable fuels.

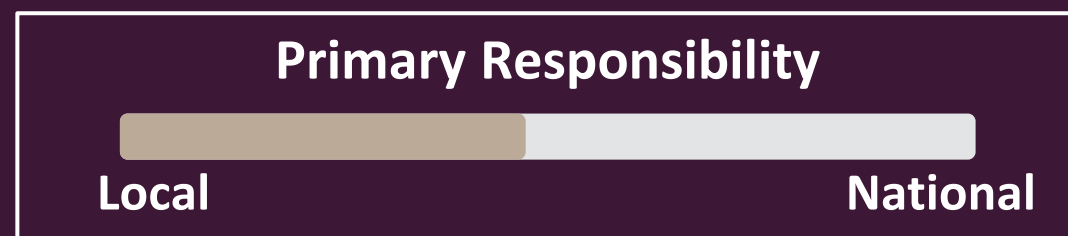
TRANSFORMING ENERGY SYSTEMS

Policy Recommendation

Address Local Energy Demand in Major Energy Consuming Sectors



- Phased bans on fossil fuel vehicles or gas-powered appliances.
- Communicate benefits and provide support for transition.



CASE STUDY

New York State, USA.

Banned gas stoves and furnaces in most new buildings by 2026, with larger buildings having until 2029 to comply.

TRANSFORMING ENERGY SYSTEMS

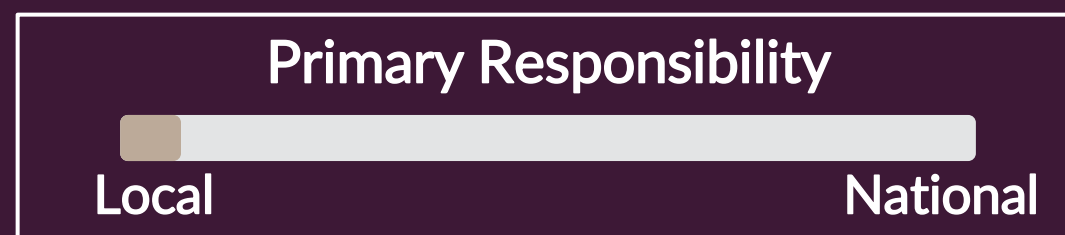
Policy Recommendation

Address Local Energy Demand in Major Energy Consuming Sectors



Standards & Codes

- Implement energy-efficient building designs and clean energy performance standards.
- Provide financial support and collaborate with regional and national governments for retrofitting existing buildings.



CASE STUDY

Bali, Indonesia.

Mandated that buildings with a floor area over 500 square meters to install solar rooftop PV systems between 2021 to 2024 in collaboration with Indonesia Power.

TRANSFORMING ENERGY SYSTEMS

Policy Recommendation

Strengthen Energy Infrastructure

- Energy infrastructure needs to be upgraded to accommodate increased volumes and variable flows.

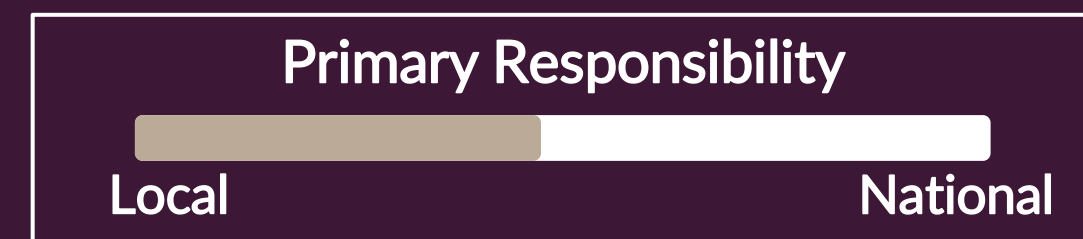
Expand and Modernize the Grid:

- Invest in transmission and distribution to handle higher, variable loads from renewable energy.
- Improve grid reliability, capacity, and interconnections to accommodate increasing electrification.



Develop Renewable Energy Carriers and Sector Coupling:

- Upgrade or create new networks for renewable fuels like hydrogen and ammonia.
- Integrate electricity with other sectors (transport, waste, heating) for overall efficiency and support with local policies.



TRANSFORMING ENERGY SYSTEMS

Policy Recommendation

Improve energy market mechanisms to encourage renewables deployment

- Improving the electricity market can boost renewable investments and accelerate faster development. There are of mechanisms that can help related to:



TRANSFORMING ENERGY SYSTEMS

Policy Recommendation:

Improve energy market mechanisms to encourage renewables deployment

Supply

Net metering and virtual net metering: Promoting rooftop and community solar initiatives by enabling households and businesses to generate and sell excess renewable energy.

Tariff support: Offering stable returns for renewable energy producers through fixed or floating prices.

Primary Responsibility



Demand

Power purchase agreements: Enabling direct purchase of renewable energy by municipalities and businesses to bolster local renewable infrastructure.

Dynamic pricing: Implementing time-of-use tariffs and demand response measures to encourage energy conservation during peak periods.

Primary Responsibility



Supply & Demand

Carbon taxes: Introducing a tax on carbon emissions to drive reductions in the carbon footprint and encourage a shift towards cleaner energy sources.

Primary Responsibility



UNLOCKING FINANCIAL FLOWS



UNLOCKING FINANCIAL FLOWS

Policy Recommendations:

Encourage innovative business and financing models & public-private partnerships

- **Flexible Models:** Promote 'as-a-service' (aaS) and 'pay-as-you-go' (PAYG) models to reduce upfront costs.
- **Leasing:** Offer renewable energy systems with fixed lease payments.
- **Crowdfunding:** Encourage community investments in local energy projects with trustworthy platforms.
- **Green Bonds:** Use green municipal bonds to finance environmentally beneficial projects.
- **Public-Private Partnerships (PPPs):** Collaborate with private partners to share risks and resources in energy projects.
- **Blended Financing:** Combine public and private funds to drive investment, with national support for guidelines and capacity building.



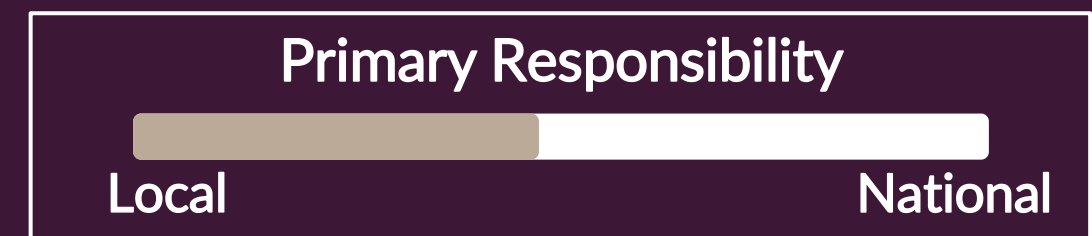
UNLOCKING FINANCIAL FLOWS

Policy Recommendations:

Public financial support for de-risking investments

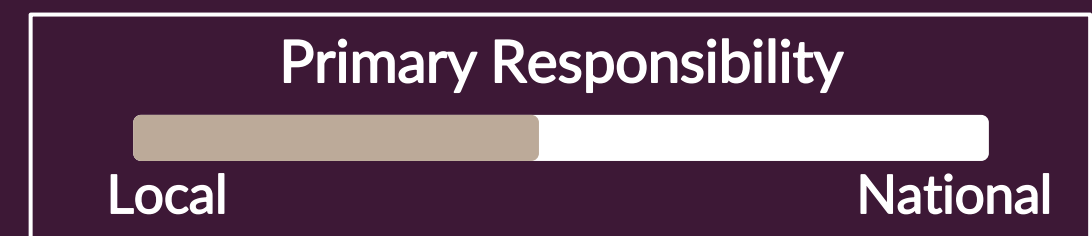
Loans

- Local Government Loans: Favorable rates for local energy projects.
- On-Bill Financing: Repay upgrades via utility bills.
- Third-Party Funding: Cover upfront costs through third parties.



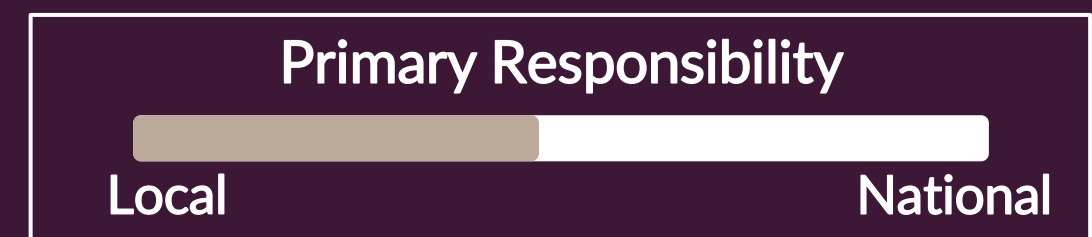
Subsidies, Grants, and Rebates

- Subsidies: Reduce initial renewable technology costs.
- Grants: Non-repayable funds for renewable adoption.
- Rebates: Offset costs of energy efficiency measures.



Tax Benefits

- Tax Incentives: Reductions and exemptions for clean technologies.
- Revenue Reinvestment: Fund local green projects.
- Land Value Capture: Raise funds from property developers.



WORKING WITH THE INTERNATIONAL COMMUNITY

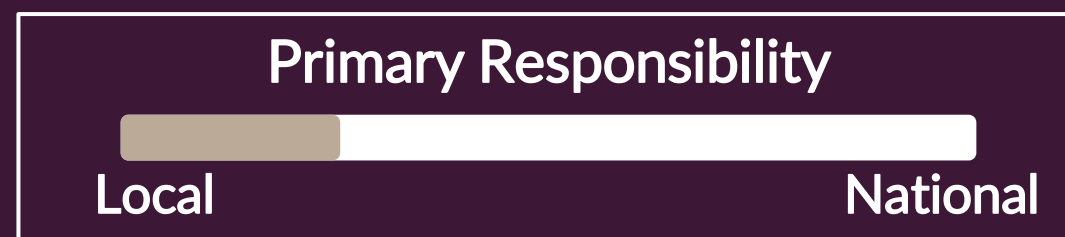


WORKING WITH THE INTERNATIONAL COMMUNITY

Policy Recommendations:

Engaging global community and sub-national advocacy

- Learn from Others: Avoid duplicating efforts by learning from diverse global experiences.
- Active Knowledge Exchange: Engage in city networks for access to new solutions.
- Unified Voice: Represent cities, home to over half the world's population and major energy consumers.
- Advocate for Resources: Push for better national frameworks and resources for local and regional governments (LRGs).



Identifying international support channels

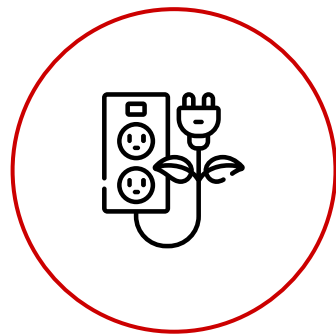
- Collaborate Globally: Work with international organizations and financial institutions for resources and technical assistance.
- Project Readiness: Use project preparation facilities to attract investment.
- Carbon Markets: Engage in carbon markets with careful project validation.
- Enable National Frameworks: Ensure national policies support fund transfers to LRGs.



KEY TAKEAWAYS

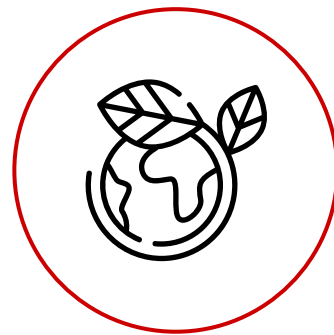


KEY TAKEAWAYS AND CONCLUSION



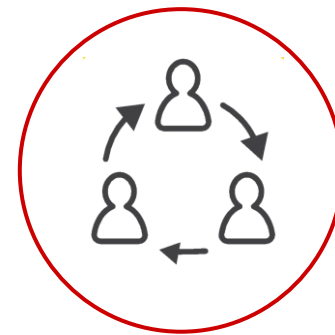
Adaptable Strategies

Transition paths vary by local and national contexts.



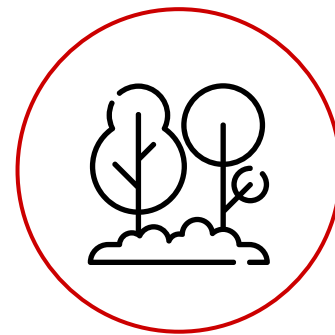
Integrated Approach

Energy transitions must align with transportation, costs, and city systems.



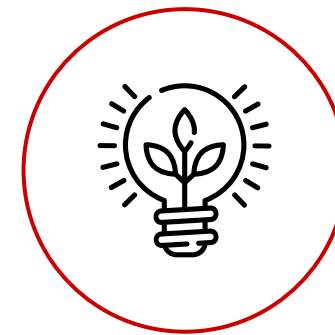
Community Engagement

Understanding diverse energy consumption patterns through community involvement.



Environmental Responsibility

Minimizing biodiversity loss and pollution through nature-based solutions.



Data-driven Decisions

Utilizing data and monitoring for effective implementation and accountability.



Financial Innovation

Overcoming finance hurdles through partnerships and innovative models.



Multilevel Governance

Coordination between local and national governments for effective policy and resource allocation.

END OF MODULE

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