Better Together: Exploring Mitigation and Adaption Synergies
Michael Dean, ICLEI Canada
What is climate change?

• Changes in long-term weather patterns
• Increases in temperature, changes in precipitation patterns, and more frequent and intense extreme events
• Changes in the predictability of weather events and variation from historical norms
What are we going to do about it? Mitigate

*Mitigation* refers to the promotion of policy, regulatory and project-based measures that contribute to the stabilization or reduction of greenhouse gas concentrations in the atmosphere. Renewable energy programs, energy efficiency frameworks and substitutions of fossil fuels are examples of climate change mitigation measures.
What are we going to do about it? Adapt

**Adaptation** includes any initiatives or actions in response to actual or projected climate change impacts and which reduce the effects of climate change on built, natural and social systems.
ADAPTATION = managing the unavoidable

MITIGATION = avoiding the unmanageable

“In many cases, win-win actions can be identified, co-benefits are high, and agreement can be attained now, especially at scales other than international or national.”

Wilbanks et al. (2007) Towards an integrated analysis of mitigation and adaptation: some preliminary findings
How do we respond?

• With a comprehensive climate change response strategy – integrating both mitigation and adaptation into planning.
Balancing Mitigation and Adaptation

• Through a single approach that combines mitigation and adaptation actions;

• Integrating an adaptation assessment prior to the development of an greenhouse gas reduction action plan; and

• Engage in adaptation planning as a second phase of their climate response strategy.
Community Energy Planning: Energy Systems and Adaptation
Adaptation and Energy Systems

Climate change increases likelihood of major storm events

In the US & Canada, there were about three major outages per five years before 1995, and about 16 between 1995 and 2009

Loss of power causes significant hardship to affected communities, disrupts economies, and has significant associated costs.
Mitigation and Energy Supply

Grid decarbonization is fundamental to mitigation goals

Electricity accounted for 11% of Canada’s emissions in 2014 – that percentage was much higher in certain provinces

Clean electricity has the potential to replace other carbon intensive sources especially in transportation and space heating

Source: Pathways to deep decarbonisation in Canada (2015)
Renewable Distributed Energy Generation

Local Distributed Renewable Generation can serve key mitigation goals by reducing the carbon intensity of energy.

Shift from centralized generation model to a distributed model where energy production happens within municipalities.

Source: Green Business Guide
Renewable Energy: Implications for Adaptation and Resilience

Less susceptible to disruptions to delivery systems including wires and pipes that make up traditional grid delivery systems.

But, local renewable systems don’t automatically increase resilience:

During Superstorm Sandy, “New Jersey had 20,000 solar systems on roofs throughout the state. But the vast majority of those systems were tied to the grid, which meant they could not function if the electricity system blacked out. Without batteries or a backup generator... the panels turned into useless bricks of silicon and glass.”

- Stephen Lacey, RESILIENCY: How Superstorm Sandy Changed America’s Grid, GTM (2014)
Integrating Resilience into Local Energy Systems

Keys to incorporating resilience into local distributed generation:

• Energy Storage
• Smart Inverters
• Microgrids
• Virtual Power Plants

Allows seamless integration with the grid, while also providing the possibility to operate as a ‘power island’
Guiding the Energy Transition – Finding the Synergies

Changing role of local authorities in energy systems planning: Community Energy Plans

These plans often involve renewable energy targets or policies to support local uptake of renewables.

Community Energy Planning should evaluate emerging grid systems from the perspective of mitigation/adaptation synergy – how can we deliver a more resilient, less carbon intensive grid.

Plans that set renewable targets should also address resiliency through evaluating micro-grids and other grid independent systems.

Planners need to become more familiar with local energy systems and their role in mitigation and adaptation.
Thank You!

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ICLEI
Local Governments for Sustainability

PARTNERS FOR CLIMATE PROTECTION
Role of Local Governments

• Adaptation must occur at all levels of government, including local governments.
• Responsibility for broader policy regarding our response to climate change rests with provincial and federal governments.
• Local level is where most climate change impacts, such as reduced water availability and infrastructure loss, will be experienced.
• Solutions must involve a *bottom-up* approach, where local governments drive action on adaptation.
Local Government Action Mechanisms

Facilitation, advocacy and leadership

Community service delivery, community development and civic engagement

Licensing and regulation

Land use and urban planning

Workforce development

Community service delivery, community development and civic engagement