PLANNING FOR SUSTAINABILITY

# Sustainability and Local Government – Linking the Environment and the Economy

George C. Homsy
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With the International City County Management Association

May 13, 2016

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# Goals today

- Introduce you to new national survey on local government sustainability goals and actions
- Provide insights on motivators and barriers to action

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# Agenda

- Sustainability
- Background on the survey
- Overview of sustainability results
  - ❖ Action on energy and recycling is highest
  - ❖ Action government operations v. community
  - ❖ Social equity not a driver/factor
  - ❖ Capacity matters
  - ❖ Most funding and leadership is local
  - ❖ Learn from neighbors

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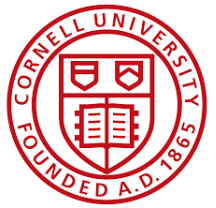

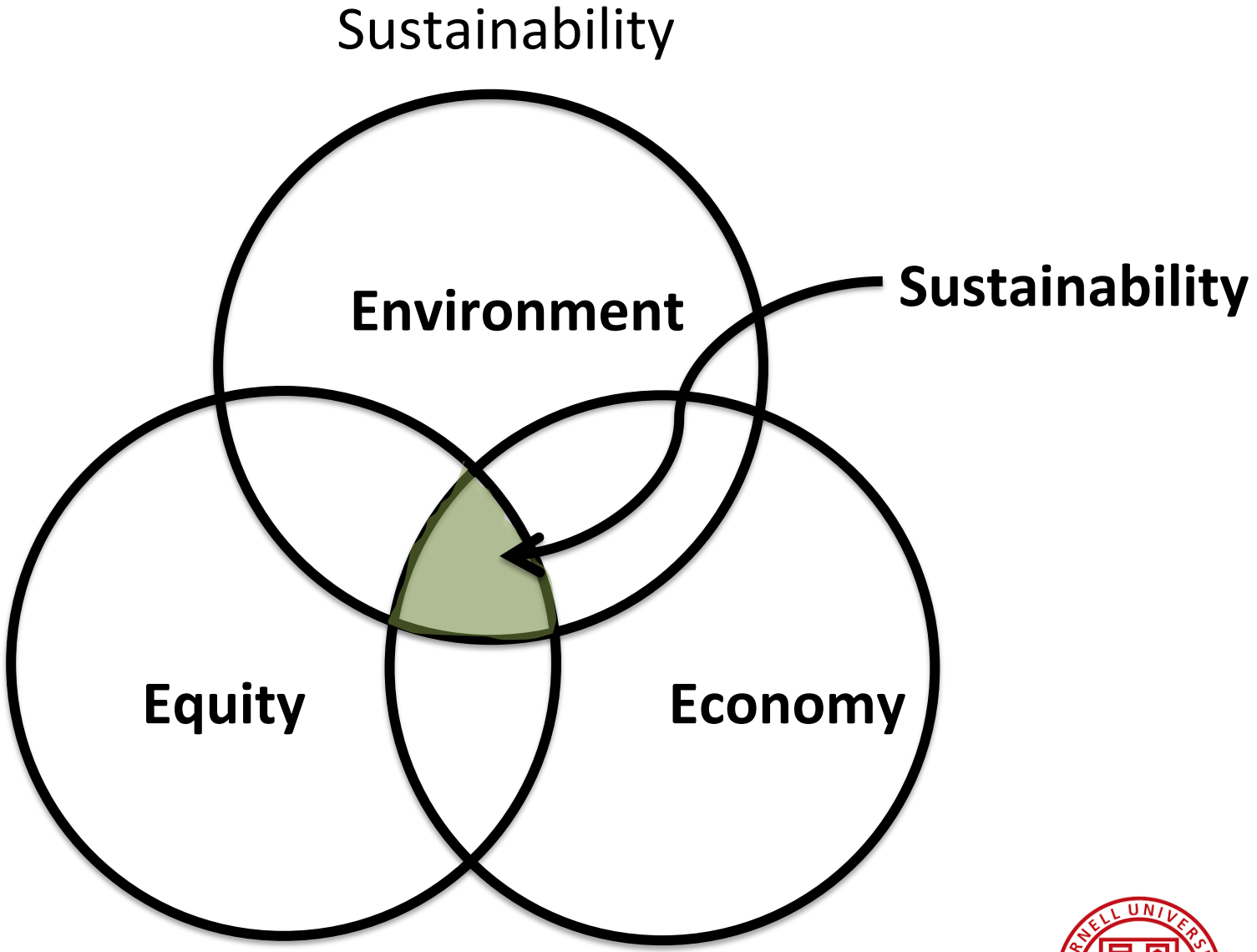


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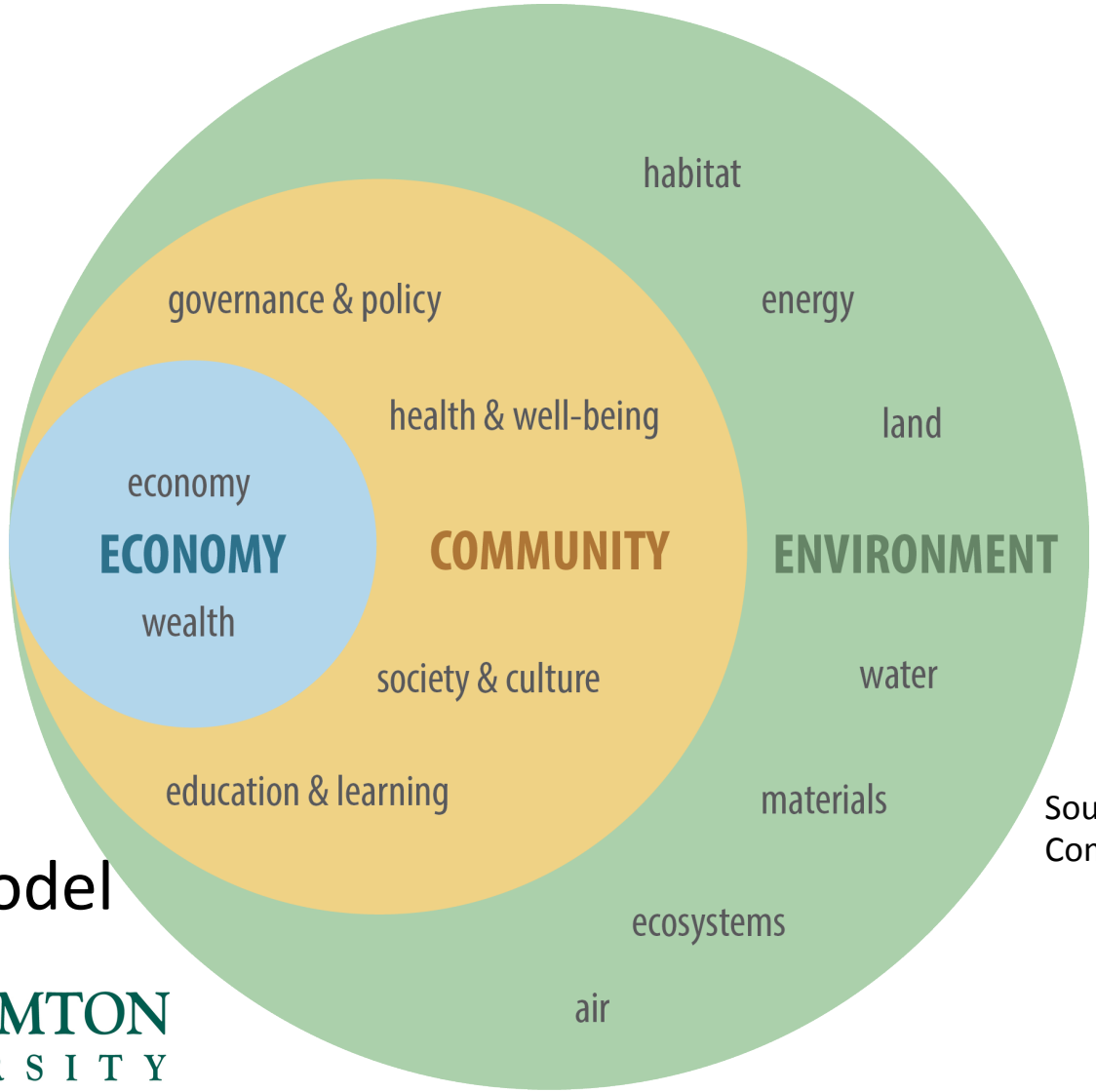
# Sustainability




Source: Oxford County, Ontario Community Sustainability Plan

Nested model

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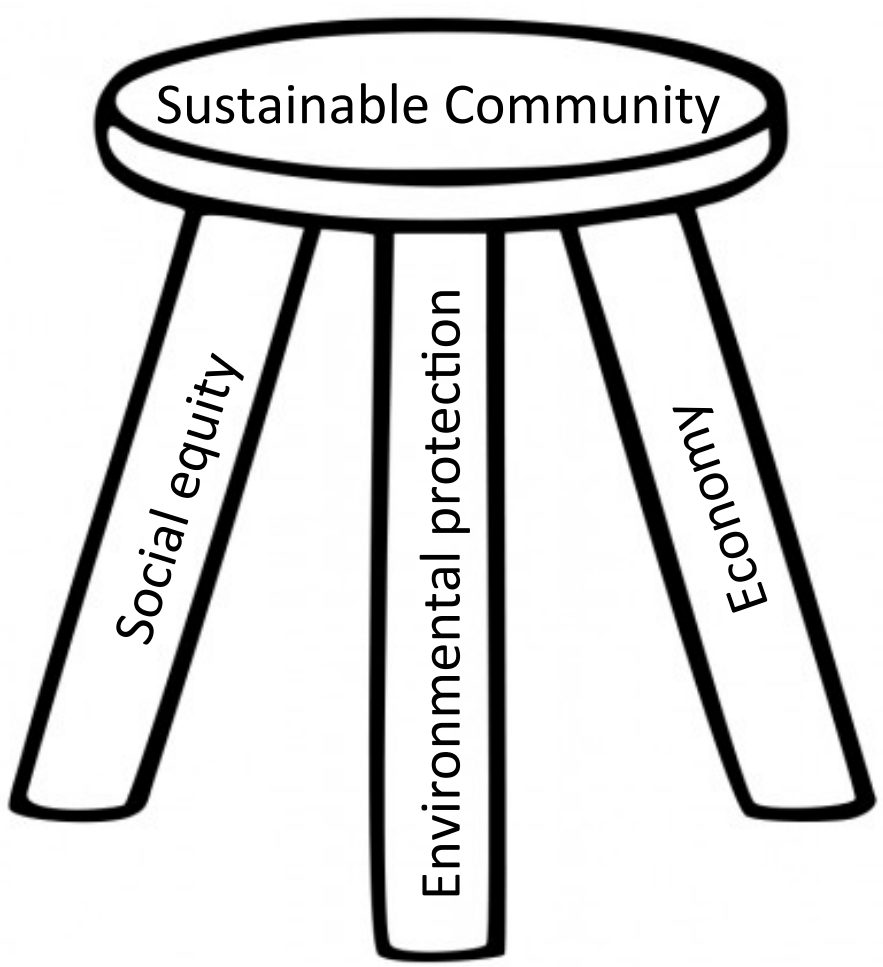
# Sustainability

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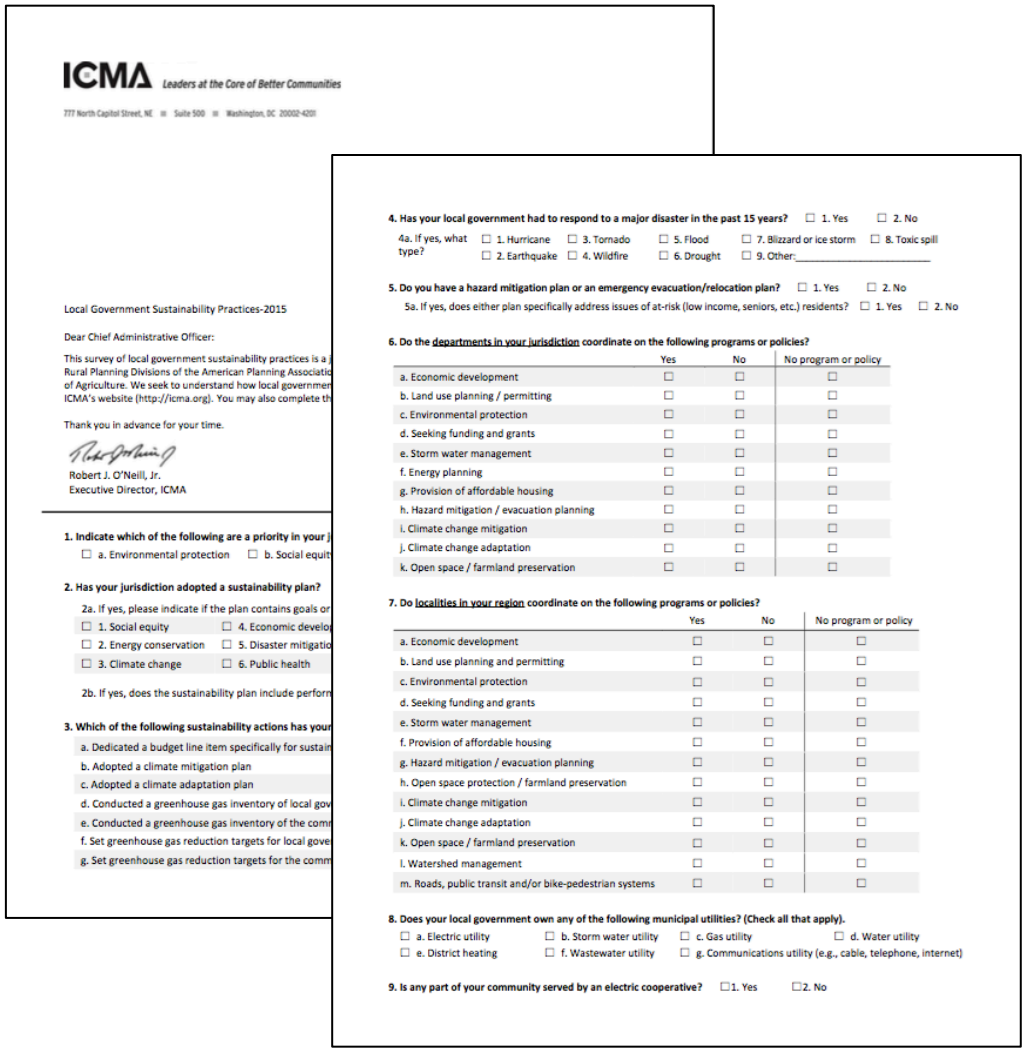
# Sustainability Survey 2015



ICMA Leaders at the Core of Better Communities

777 North Capitol Street, NE ▪ Suite 500 ▪ Washington, DC 20002-4201

Local Government Sustainability Practices-2015

Dear Chief Administrative Officer:

This survey of local government sustainability practices is a j
Rural Planning Divisions of the American Planning Associatio
of Agriculture. We seek to understand how local governmer
ICMA's website (http://icma.org). You may also complete th

Thank you in advance for your time.

Robert J. O'Neill, Jr.
Executive Director, ICMA

**1. Indicate which of the following are a priority in your j**

☐ a. Environmental protection ☐ b. Social equit

**2. Has your jurisdiction adopted a sustainability plan?**

2a. If yes, please indicate if the plan contains goals or

☐ 1. Social equity ☐ 4. Economic develo
☐ 2. Energy conservation ☐ 5. Disaster mitigatio
☐ 3. Climate change ☐ 6. Public health

2b. If yes, does the sustainability plan include perforn

**3. Which of the following sustainability actions has your**

a. Dedicated a budget line item specifically for sustain
b. Adopted a climate mitigation plan
c. Adopted a climate adaptation plan
d. Conducted a greenhouse gas inventory of local gov
e. Conducted a greenhouse gas inventory of the comm
f. Set greenhouse gas reduction targets for local gove
g. Set greenhouse gas reduction targets for the comm

**4. Has your local government had to respond to a major disaster in the past 15 years?** ☐ 1. Yes ☐ 2. No

4a. If yes, what type? ☐ 1. Hurricane ☐ 3. Tornado ☐ 5. Flood ☐ 7. Blizzard or ice storm ☐ 8. Toxic spill ☐ 2. Earthquake ☐ 4. Wildfire ☐ 6. Drought ☐ 9. Other:_____

**5. Do you have a hazard mitigation plan or an emergency evacuation/relocation plan?** ☐ 1. Yes ☐ 2. No

5a. If yes, does either plan specifically address issues of at-risk (low income, seniors, etc.) residents? ☐ 1. Yes ☐ 2. No

**6. Do the departments in your jurisdiction coordinate on the following programs or policies?**

| | Yes | No | No program or policy |
|---|---|---|---|
| a. Economic development | ☐ | ☐ | ☐ |
| b. Land use planning / permitting | ☐ | ☐ | ☐ |
| c. Environmental protection | ☐ | ☐ | ☐ |
| d. Seeking funding and grants | ☐ | ☐ | ☐ |
| e. Storm water management | ☐ | ☐ | ☐ |
| f. Energy planning | ☐ | ☐ | ☐ |
| g. Provision of affordable housing | ☐ | ☐ | ☐ |
| h. Hazard mitigation / evacuation planning | ☐ | ☐ | ☐ |
| i. Climate change mitigation | ☐ | ☐ | ☐ |
| j. Climate change adaptation | ☐ | ☐ | ☐ |
| k. Open space / farmland preservation | ☐ | ☐ | ☐ |

**7. Do localities in your region coordinate on the following programs or policies?**

| | Yes | No | No program or policy |
|---|---|---|---|
| a. Economic development | ☐ | ☐ | ☐ |
| b. Land use planning and permitting | ☐ | ☐ | ☐ |
| c. Environmental protection | ☐ | ☐ | ☐ |
| d. Seeking funding and grants | ☐ | ☐ | ☐ |
| e. Storm water management | ☐ | ☐ | ☐ |
| f. Provision of affordable housing | ☐ | ☐ | ☐ |
| g. Hazard mitigation / evacuation planning | ☐ | ☐ | ☐ |
| h. Open space protection / farmland preservation | ☐ | ☐ | ☐ |
| i. Climate change mitigation | ☐ | ☐ | ☐ |
| j. Climate change adaptation | ☐ | ☐ | ☐ |
| k. Open space / farmland preservation | ☐ | ☐ | ☐ |
| l. Watershed management | ☐ | ☐ | ☐ |
| m. Roads, public transit and/or bike-pedestrian systems | ☐ | ☐ | ☐ |

**8. Does your local government own any of the following municipal utilities? (Check all that apply).**

☐ a. Electric utility ☐ b. Storm water utility ☐ c. Gas utility ☐ d. Water utility
☐ e. District heating ☐ f. Wastewater utility ☐ g. Communications utility (e.g., cable, telephone, internet)

**9. Is any part of your community served by an electric cooperative?** ☐1. Yes ☐2. No

- n = 1,899 municipalities, towns, and counties
- 22% response rate
- Follow up to 2010 Sustainability Survey
- Funded by USDA

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# Sustainability Survey 2015

Putting it together…

- Some continuity to 2010 Survey
- Focus groups
- Practitioner interviews
- APA Division input


Small Town and Rural Planning

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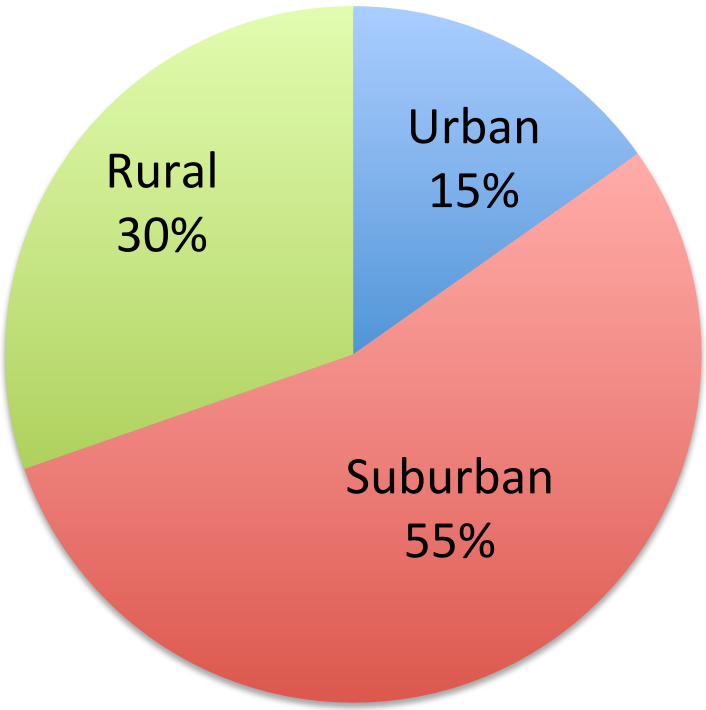
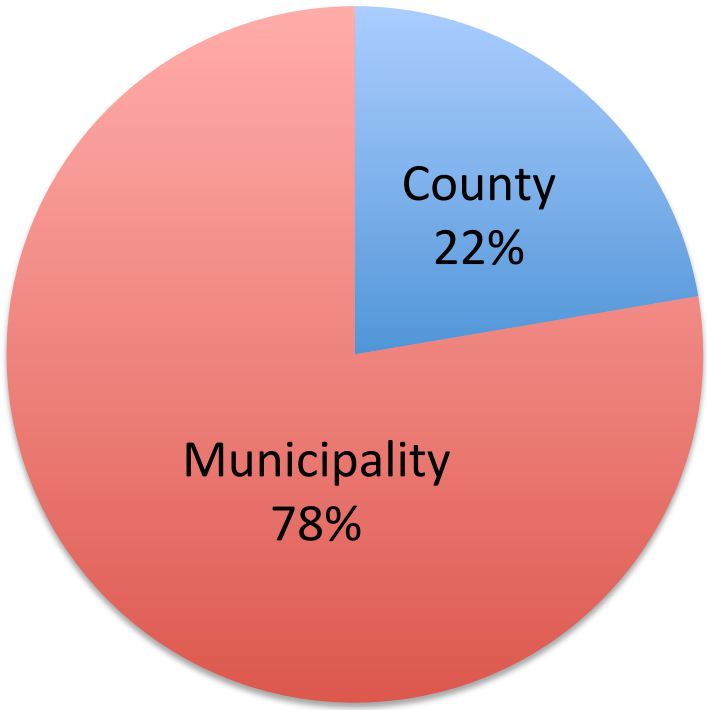
# Who Answered the 2015 Survey?




N= 1,899

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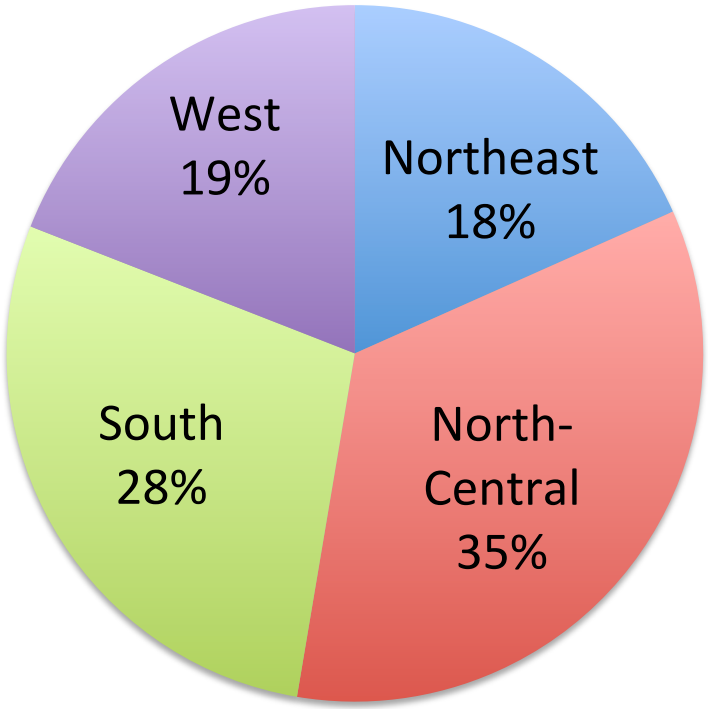


| Population group | Percent of Sample |
|---|---|
| Over 1,000,000 | 0.7% |
| 500,000-1,000,000 | 1.3% |
| 250,000-499,999 | 1.9% |
| 100,000-249,999 | 7.6% |
| 50,000-99,999 | 10.3% |
| 25,000-49,999 | 16.6% |
| 10,000-24,999 | 23.4% |
| 5,000-9,999 | 18.2% |
| 2,500-4,999 | 18.8% |
| Under 2,500 | 1.2% |

N= 1,899

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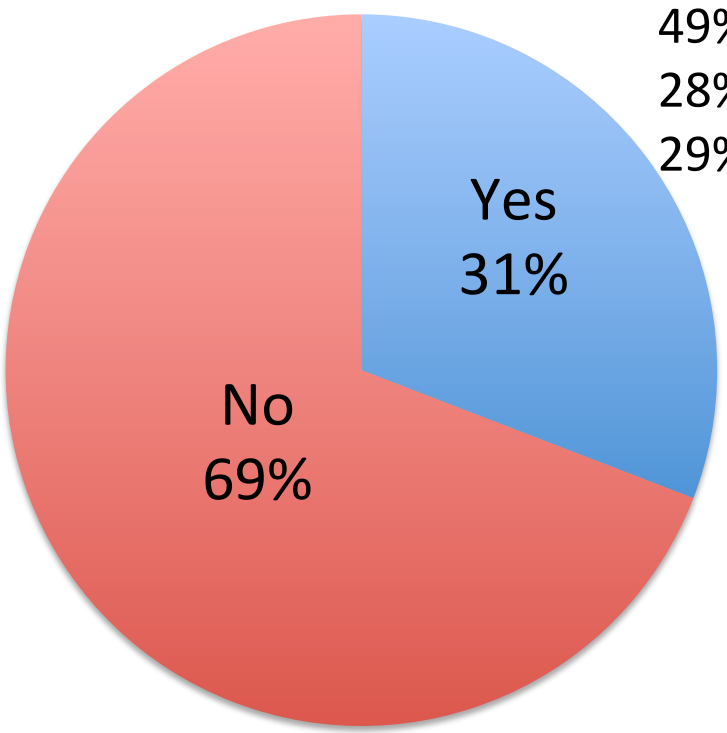
# Sustainability Plans

Has your jurisdiction adopted a sustainability plan?




49% metro core
28% suburbs
29% rural

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# Priority Goals in Community


Economic Development is Primary
For all Jurisdictions

N= 1,899

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## General Priorities


All jurisdictions

Bias toward economics

N = 1,899

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## Sustainability Priorities


Goals more balanced in

Jurisdictions with a sustainability plan

N= 586

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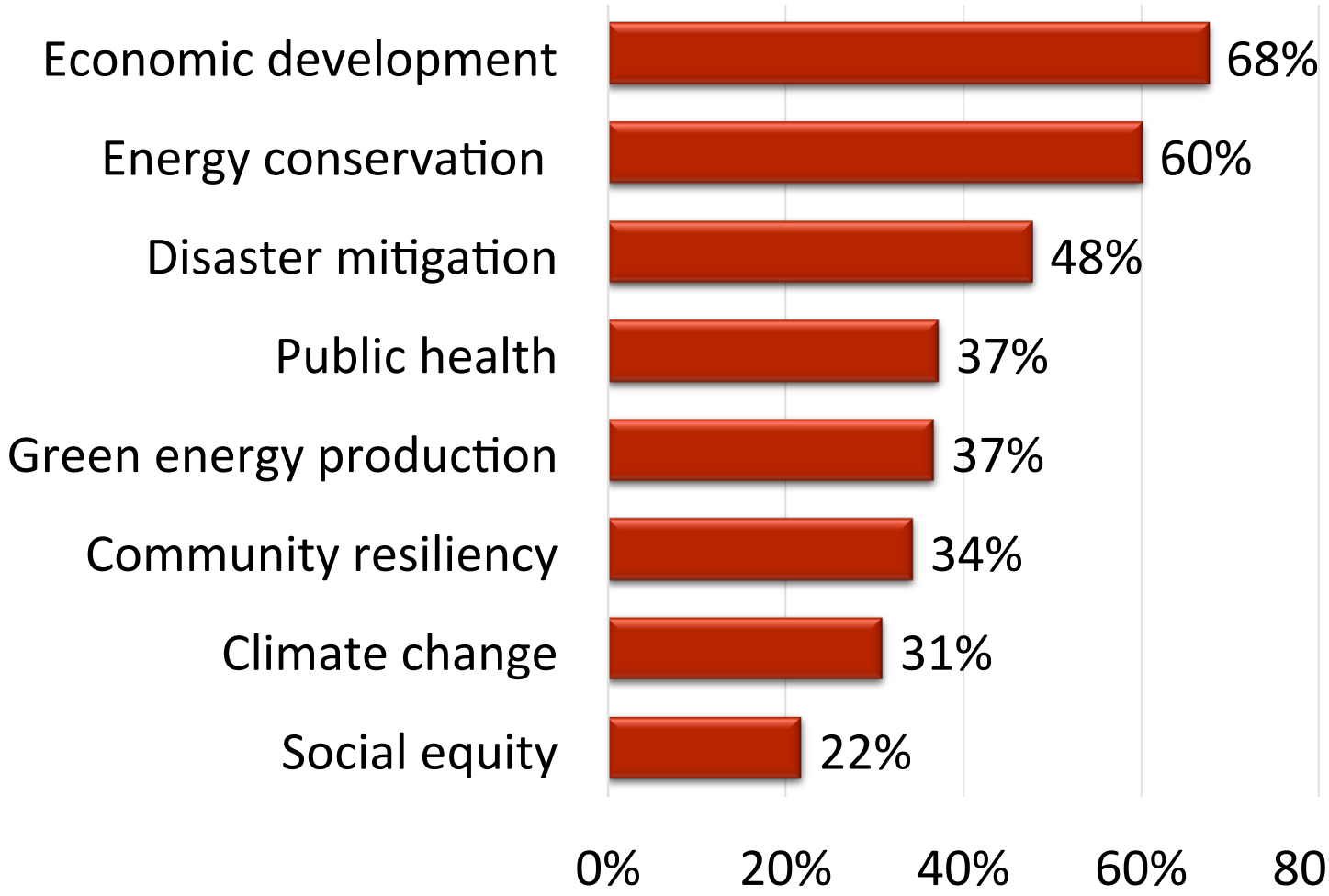
# Goals or Strategies in Sustainability Plans

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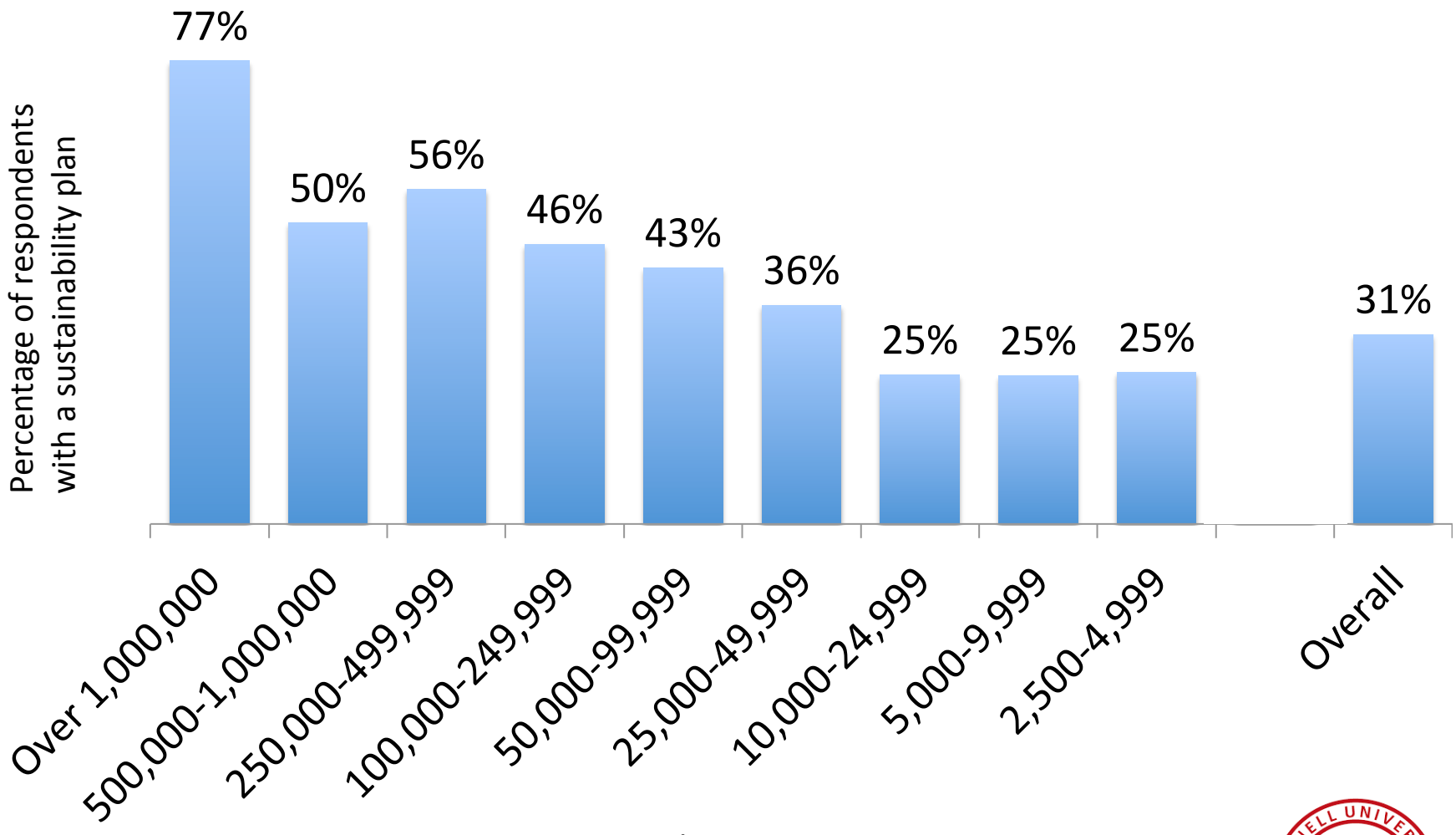
# Larger Communities More Likely to Have a Sustainability Plan

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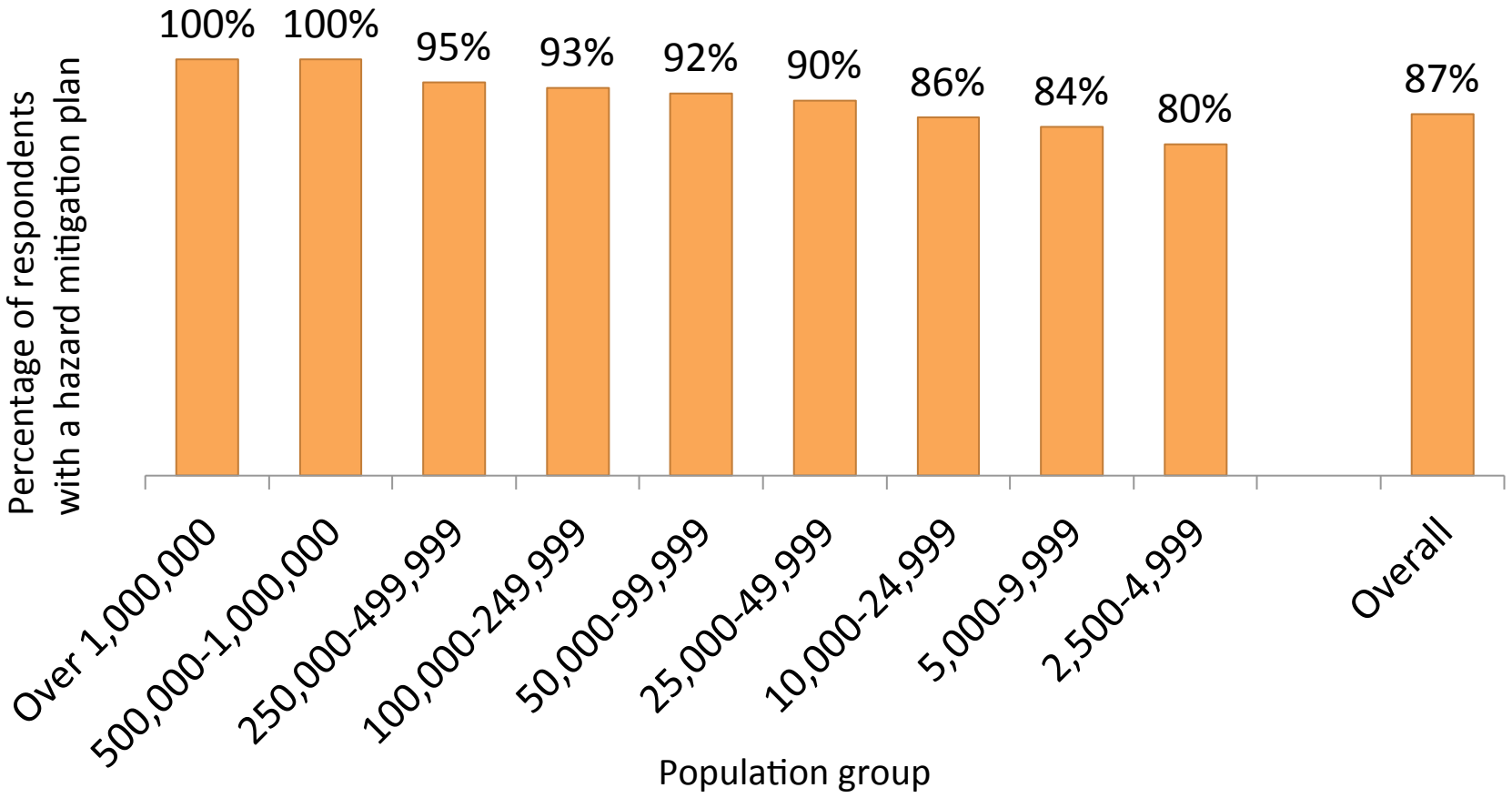
# More places, including smaller ones, have hazardous mitigation or emergency plan




- 76% reported a major disaster in last 15 years
- Floods and blizzards most common

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# Waste management

Waste management in government

- Implemented a recycling program (66%)

Waste management in community

- Recycling for homes (57%)
- Recycling of electronic waste (55%)
- Recycling of hazardous waste (52%)
- Collection of yard waste for composting (46%)

* Role of state / federal government

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# Energy Conservation

<u>Energy conservation in government</u>

- Upgrade lighting in government facilities (64%)
- Energy audits of government facilities (63%)
- Upgraded HVAC in government facilities (49%)
- Retrofitted streetlights or exterior lights (45%)

<u>Energy conservation in community</u>

- Weatherization for residences (24%)
- Energy audits for residences (17%)
- HVAC upgrades for residences (12%)
- Energy efficient appliances for residences(11%)

- *Government operations first*
- *Role of municipal utilities*

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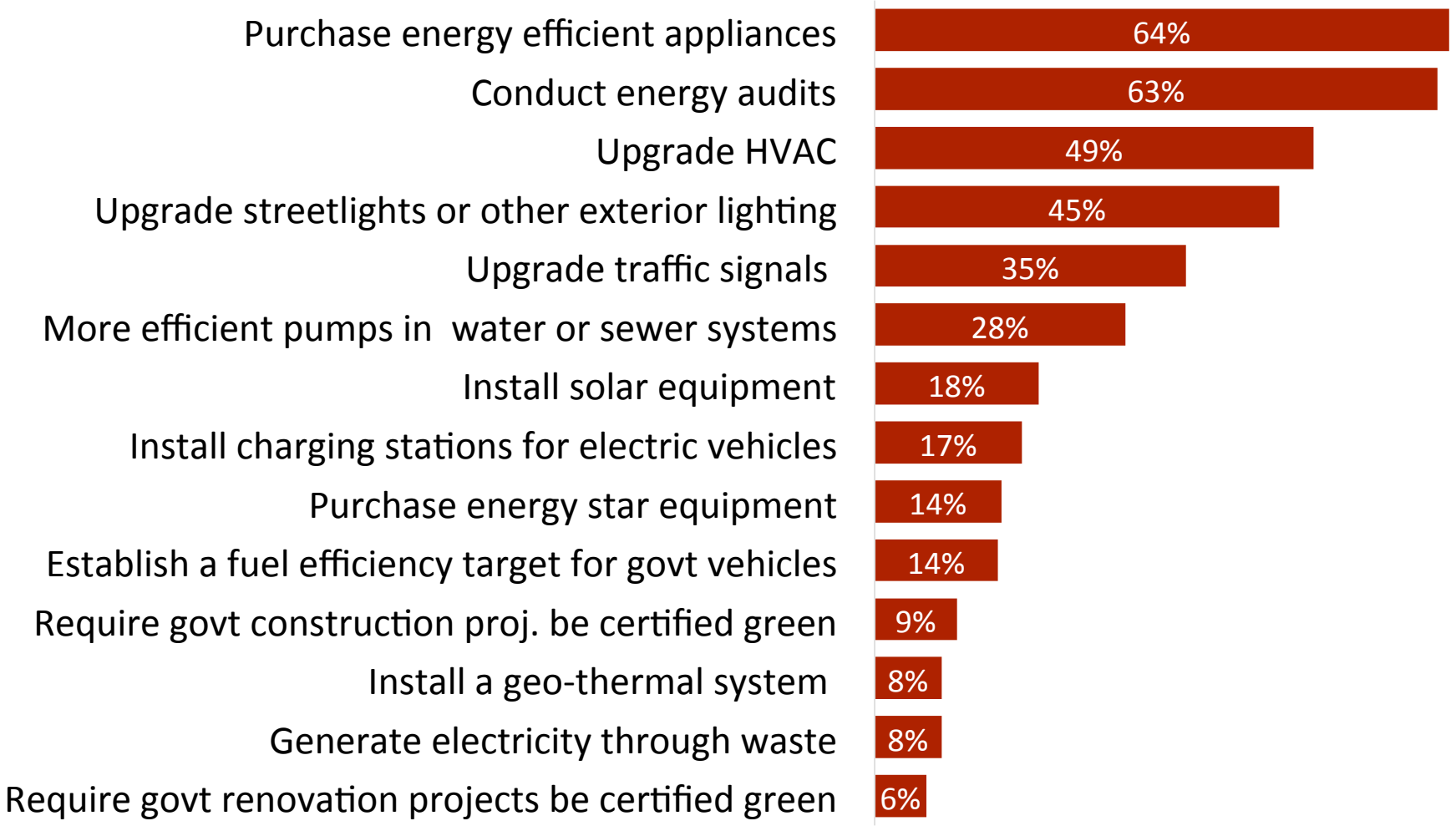
# Energy projects undertaken by government

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# Local governments least likely to address climate change directly

| Climate Change Policy | Percent of communities |
|---|---|
| Adopted a climate mitigation plan | 6% |
| Adopted a climate adaptation plan | 3% |
| Local government GHG inventory | 14% |
| Community wide GHG inventory | 9% |
| Local government GHG targets | 11% |
| Community GHG targets | 7% |

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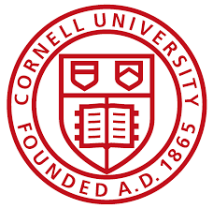

# Land use planning / building policies

Percentage of local govts.

| Policy | Require or incentivize | Allow |
|---|---|---|
| High density develop in areas w/ infrastr | 11% | 32% |
| Accessory dwelling units (e.g. granny flats) | 2% | 34% |
| Mixed use development | 14% | 54% |
| Cluster/ conservation subdivision design | 10% | 41% |
| Low impact design / green infrastructure | 17% | 36% |
| Green buildings | 11% | 34% |

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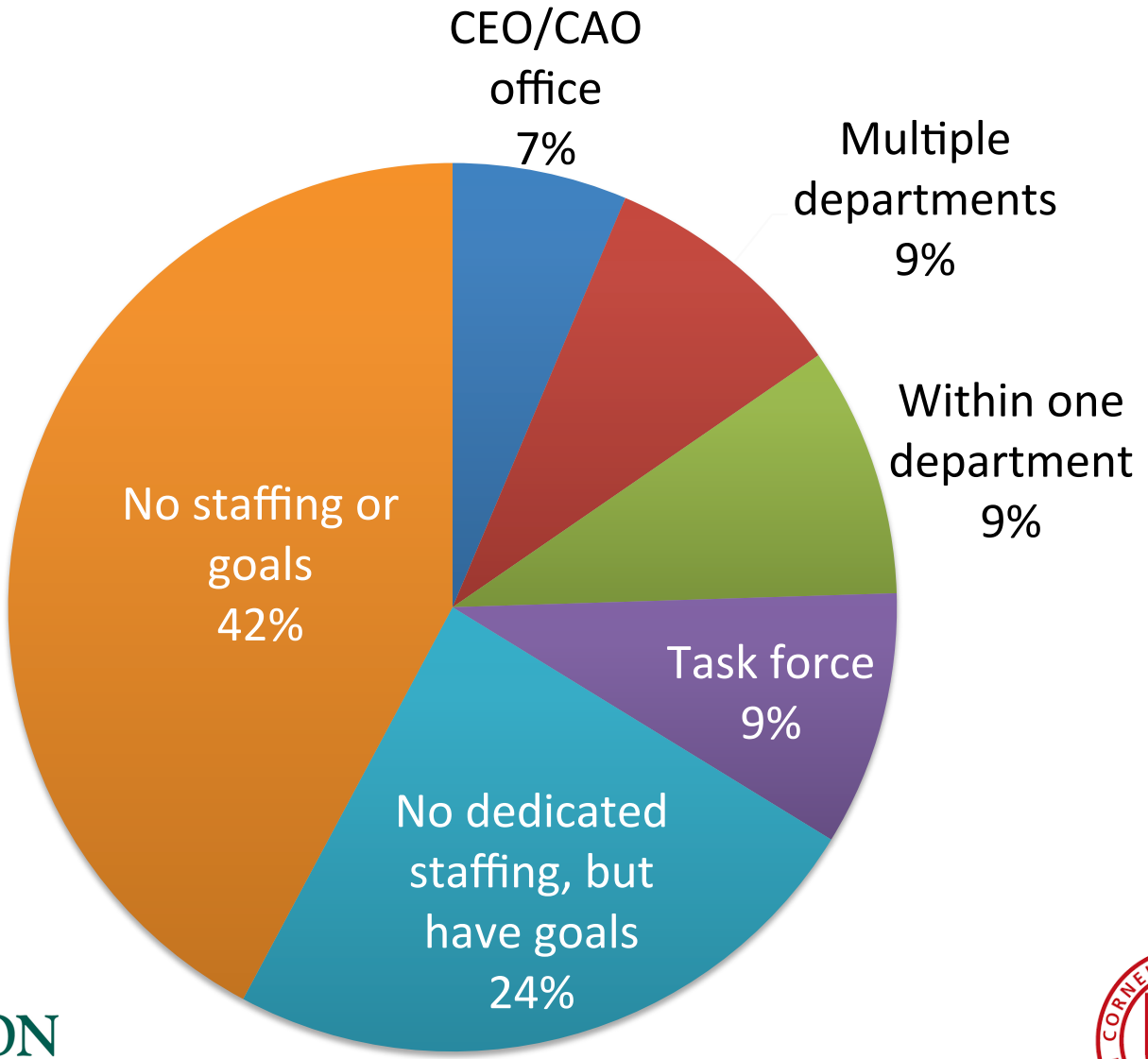
# Where are the staff for sustainability?

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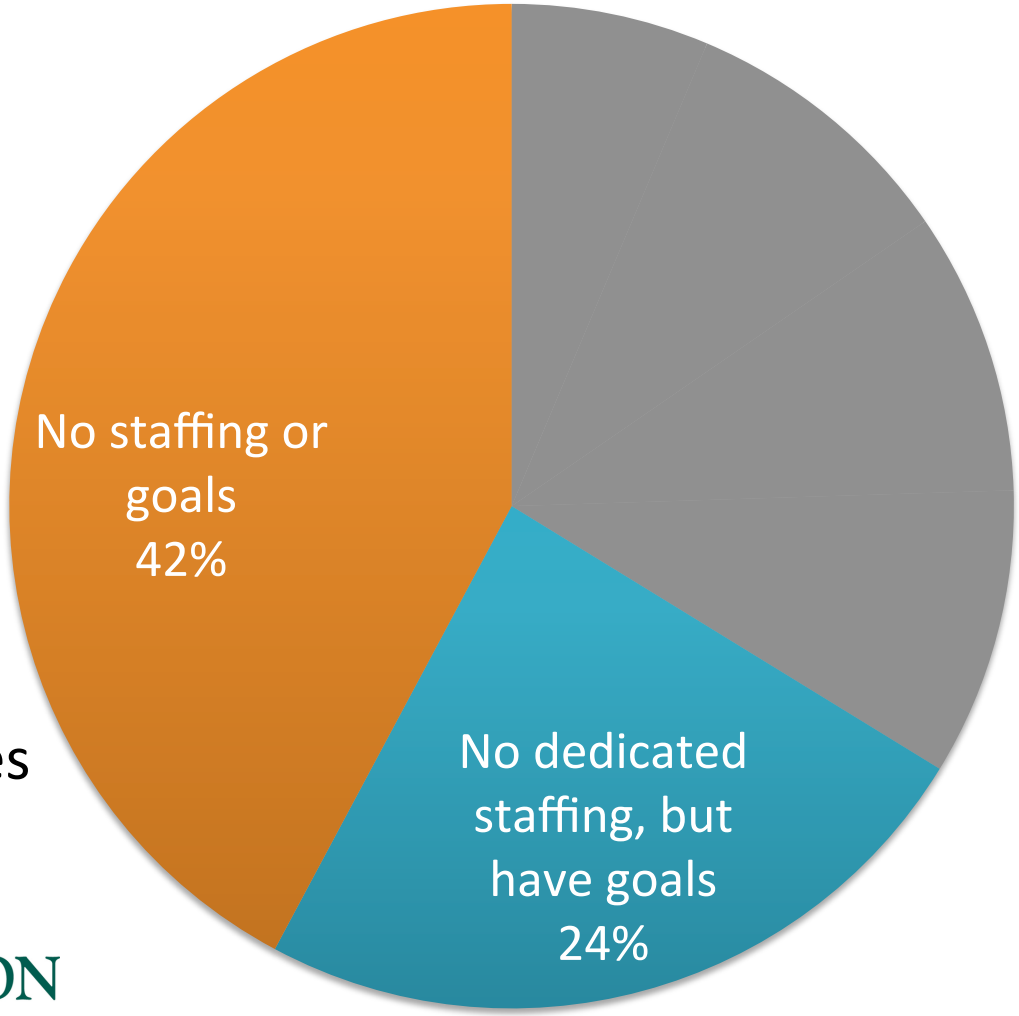


2/3 of local governments dedicate no human resources to sustainability

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# Monitoring of Sustainability

| Action | Community tracks | Positive results |
|---|---|---|
| Recycling | 45% | 85% |
| Government Energy  Conservation | 29% | 91% |
| Community Energy Conservation | 8% | 59% |
| Water Conservation | 22% | 72% |

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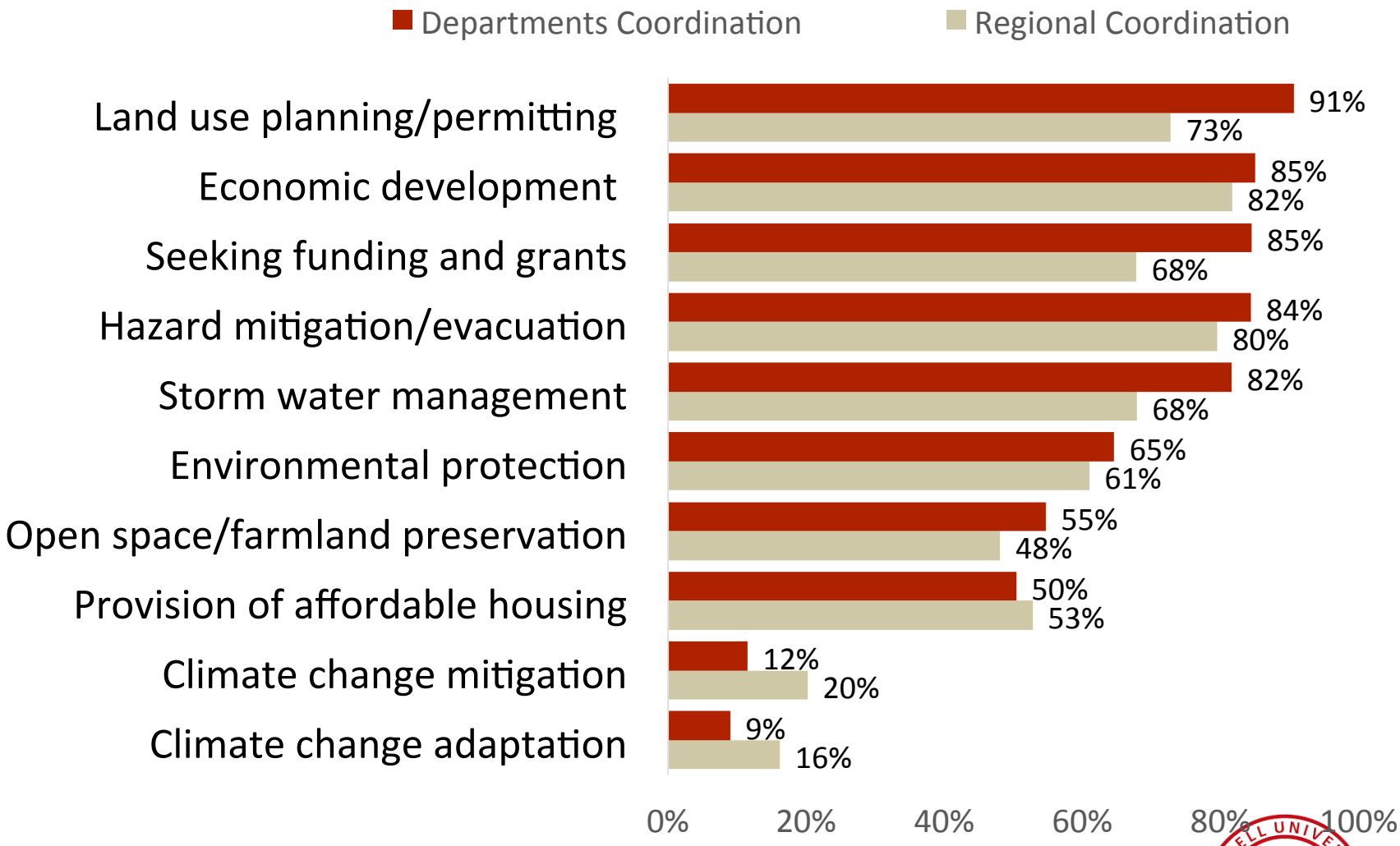
# Breaking Through Silos

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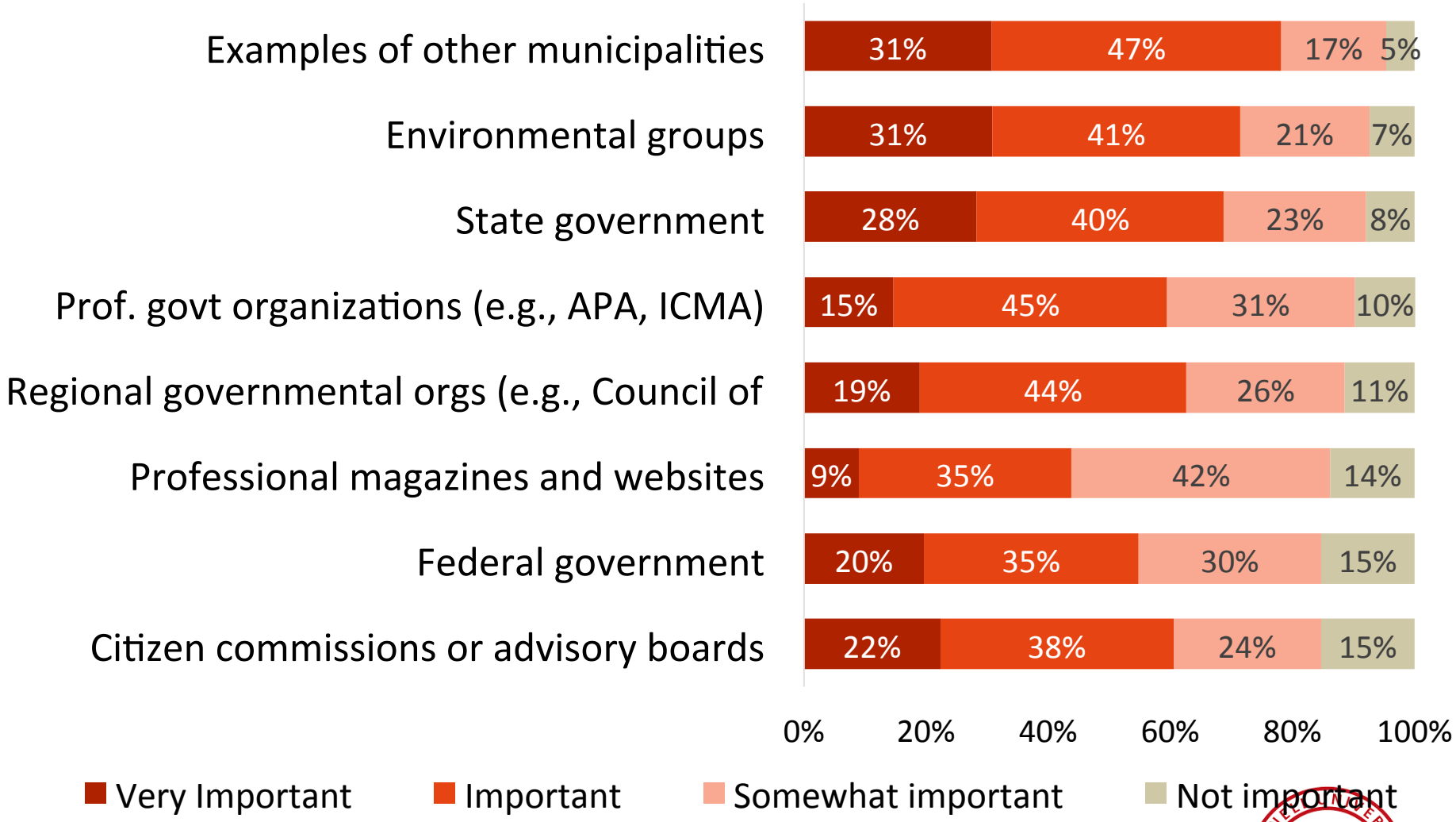
# Sources of information

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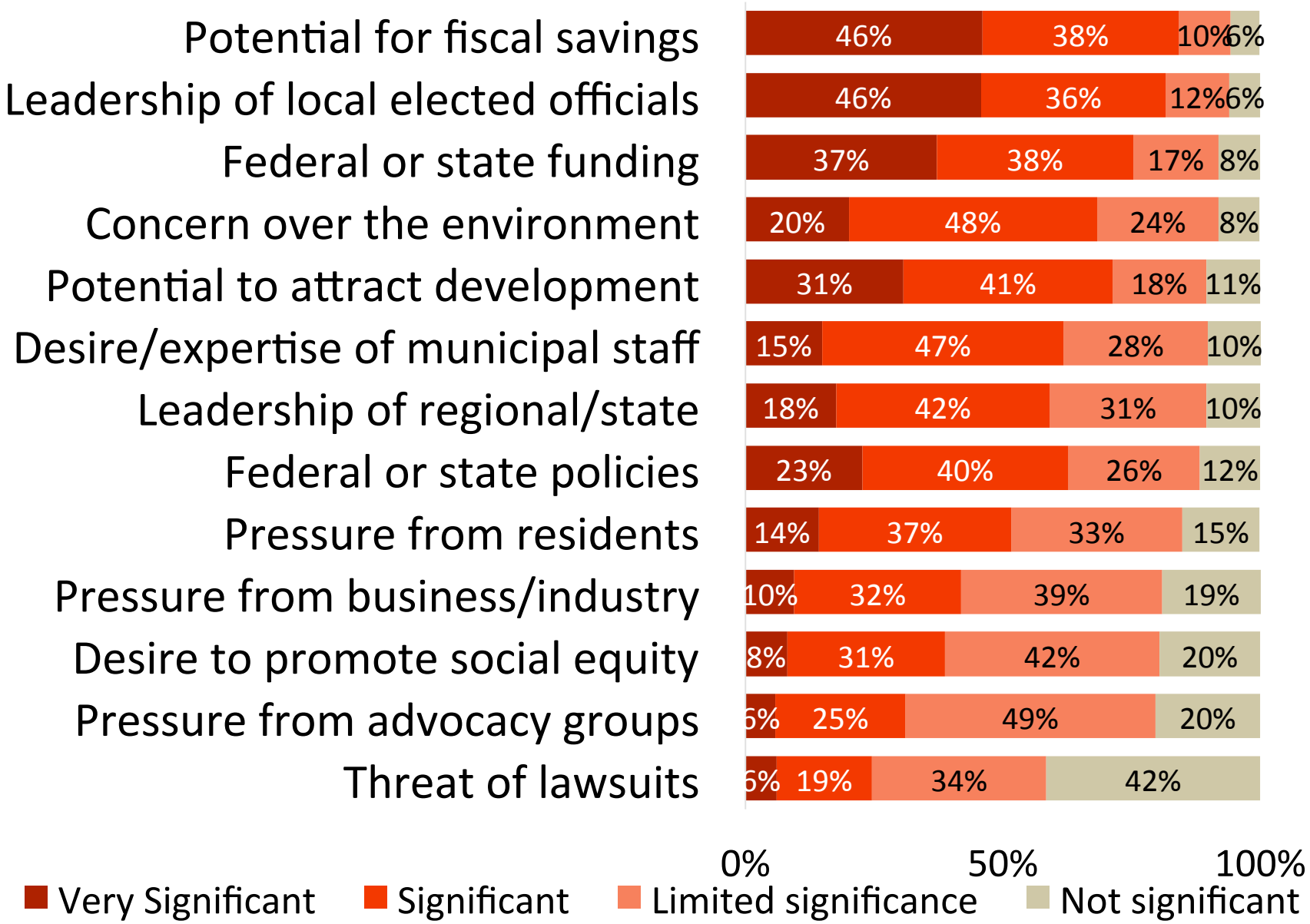
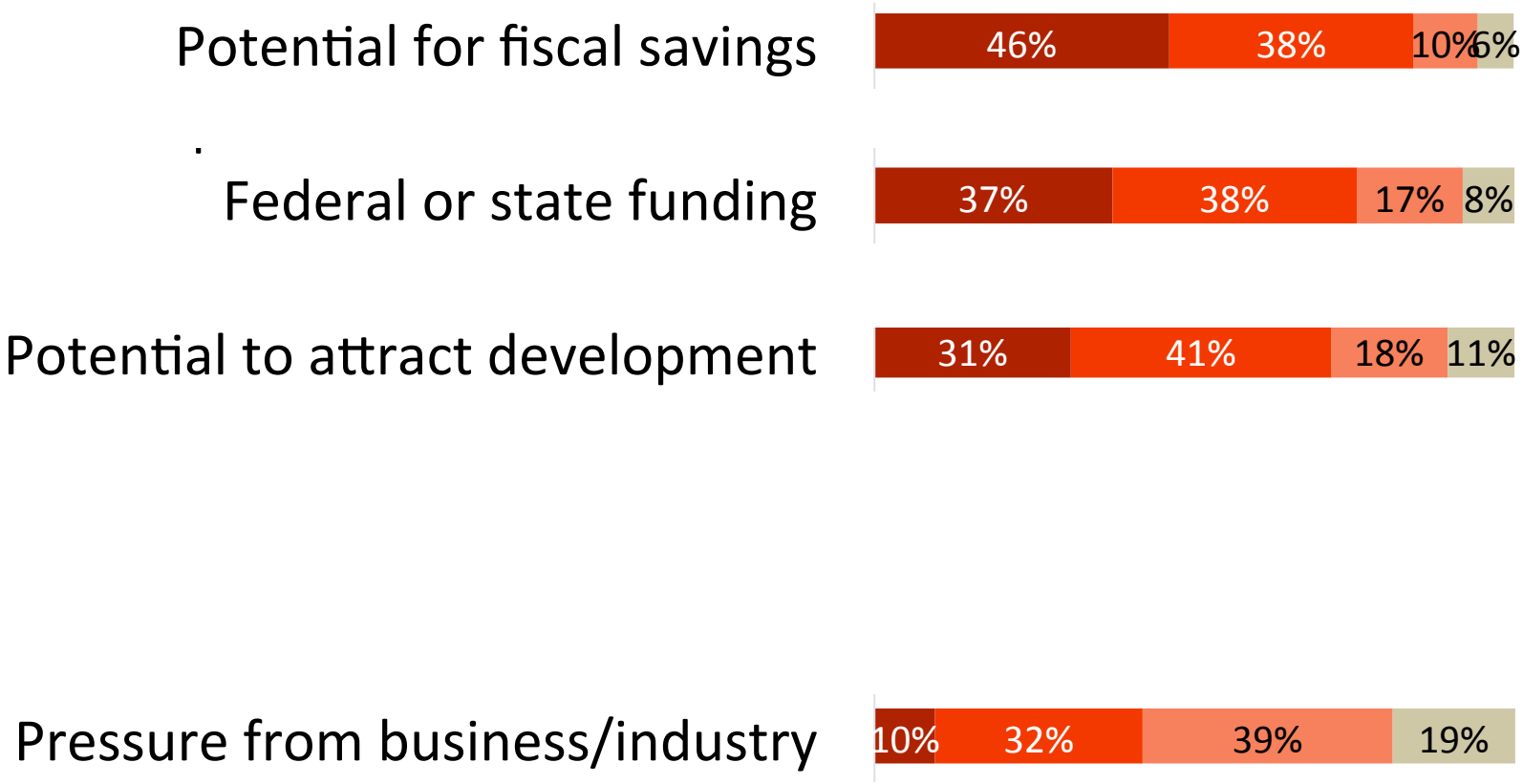
# Factors Motivating Sustainability

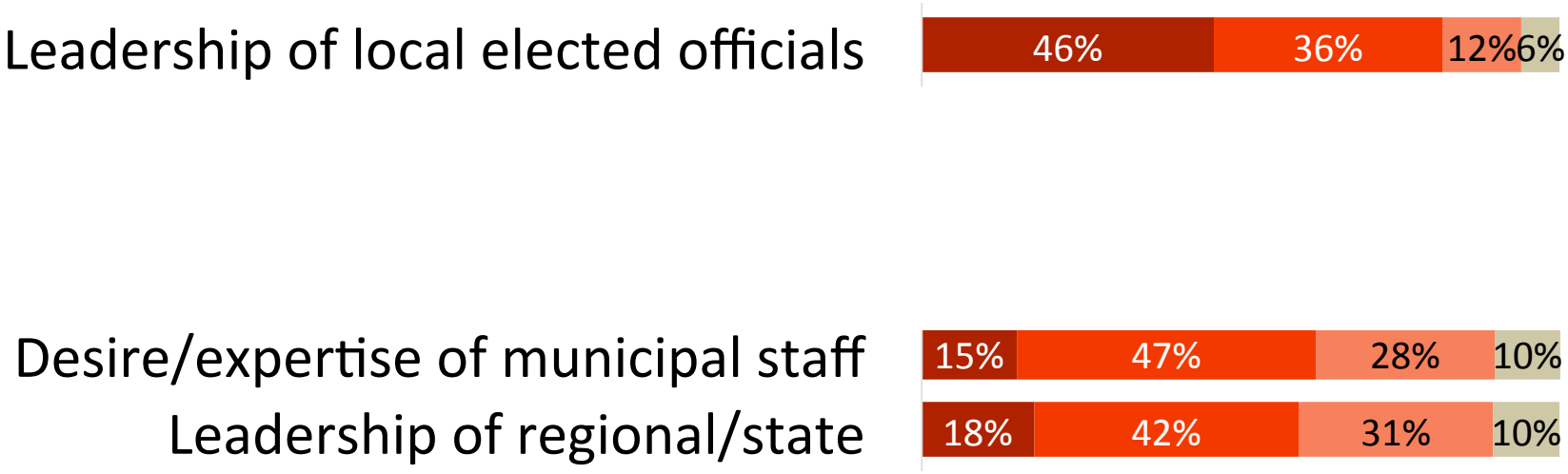


# Factors Motivating Sustainability




*Economic factors help drive environmental sustainability*

# Factors Motivating Sustainability

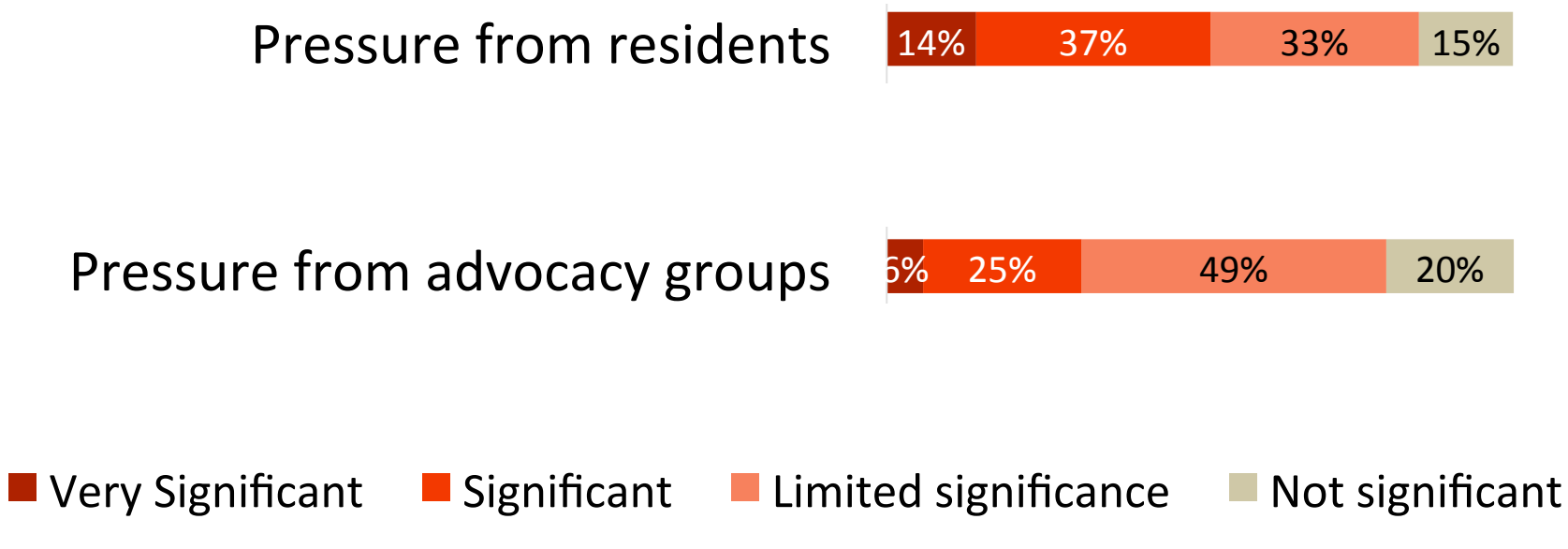



*Local leadership important*

Very Significant  Significant  Limited significance  Not significant

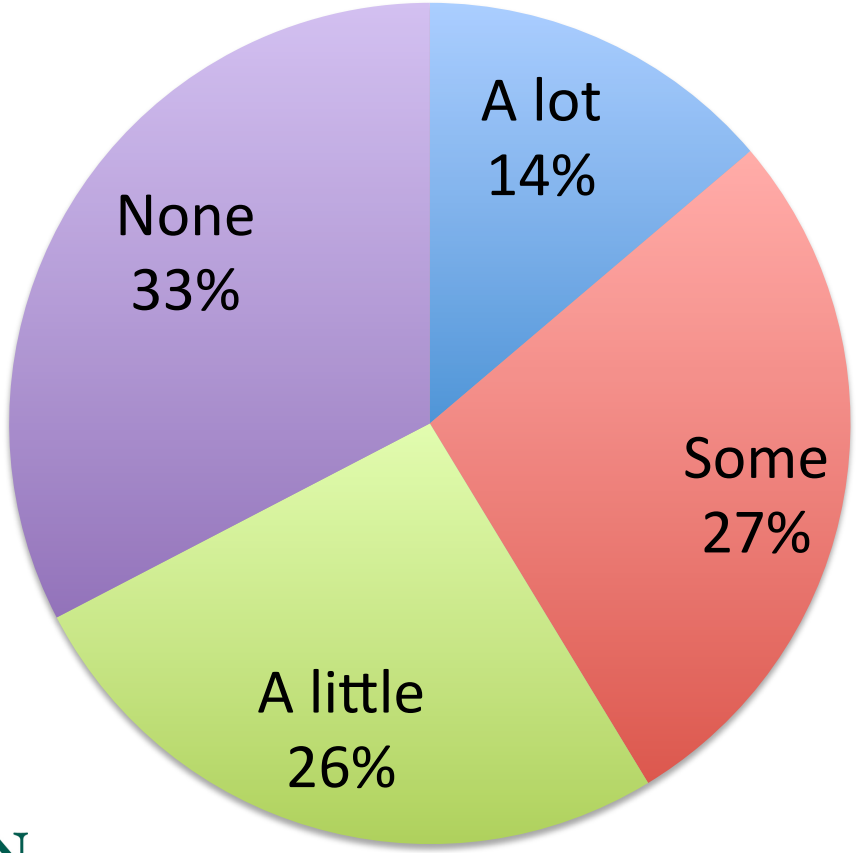
# Factors Motivating Sustainability

*Community pressure is not a big motivator*



# Factors Motivating Sustainability

Impact of public participation

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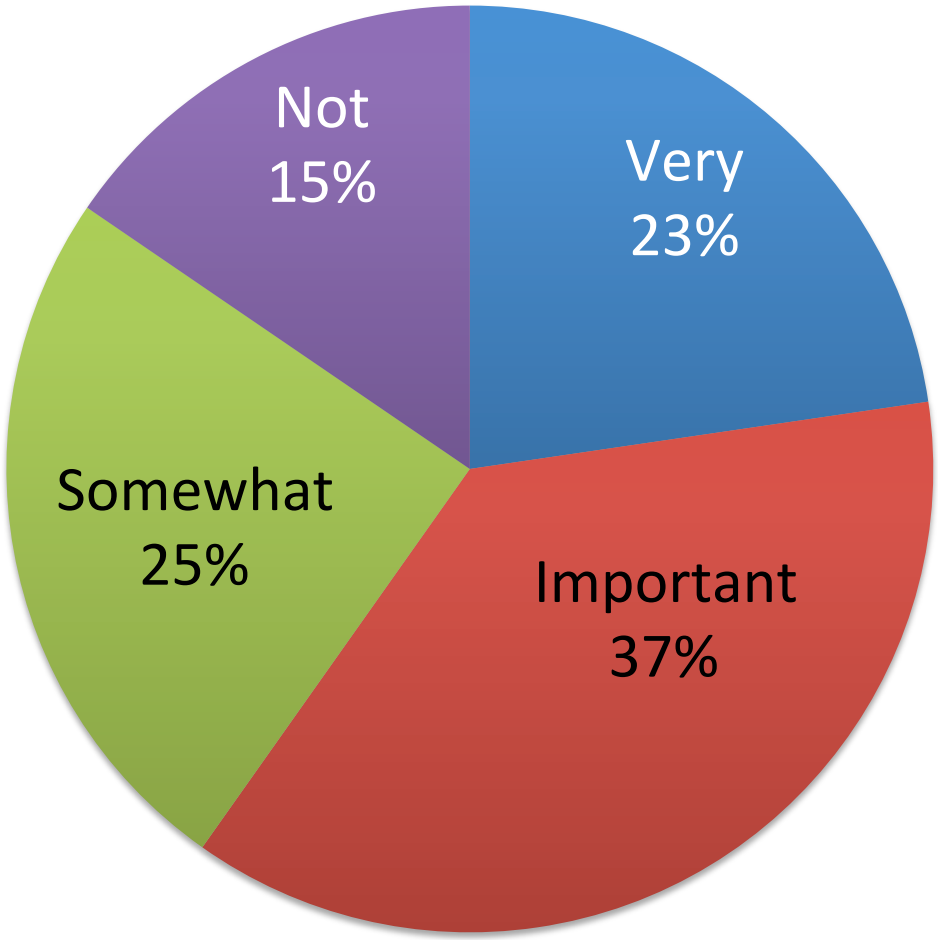
# Factors Motivating Sustainability

Importance of citizen commissions




- Citizen commissions more important in smaller places

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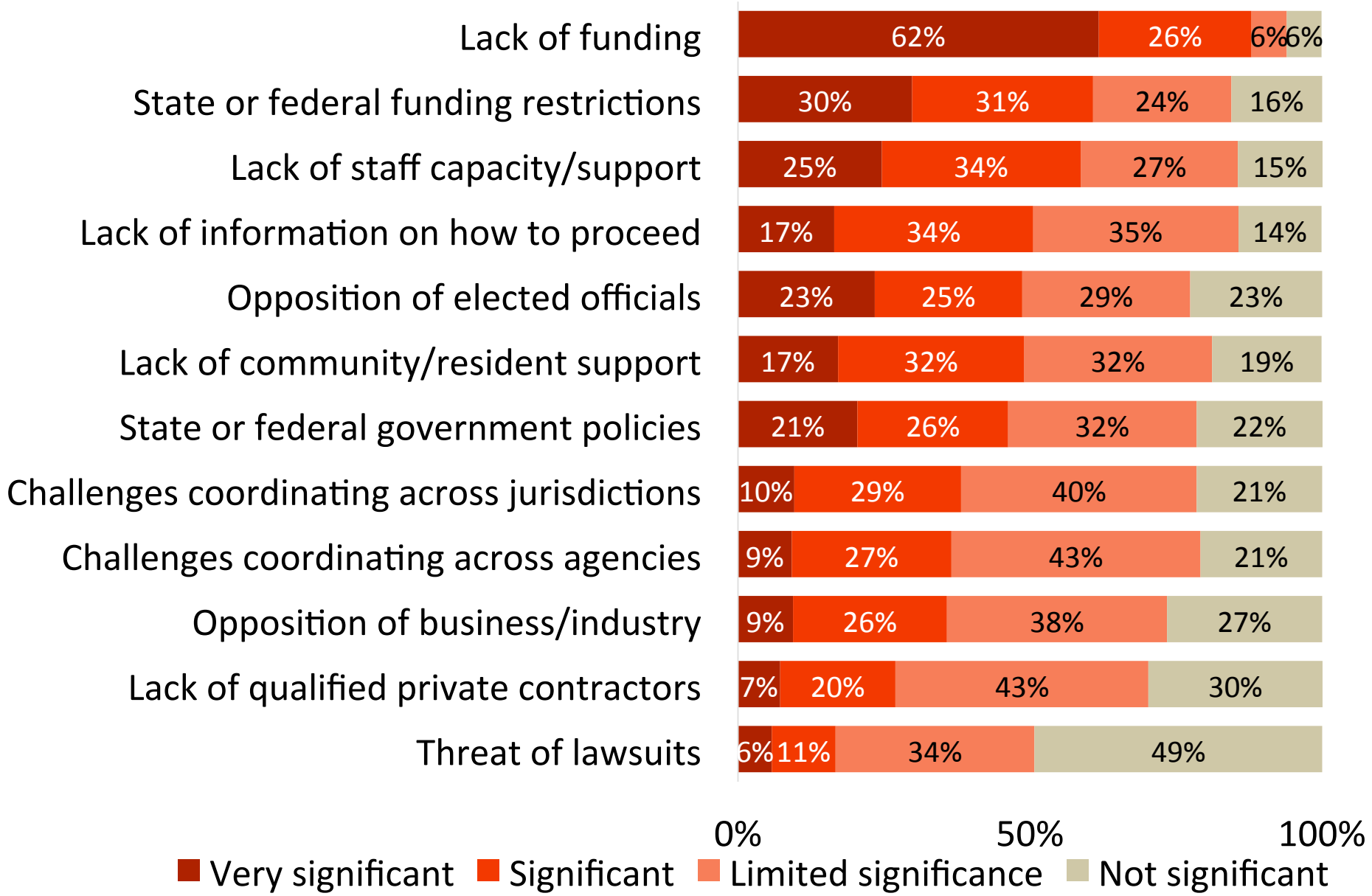
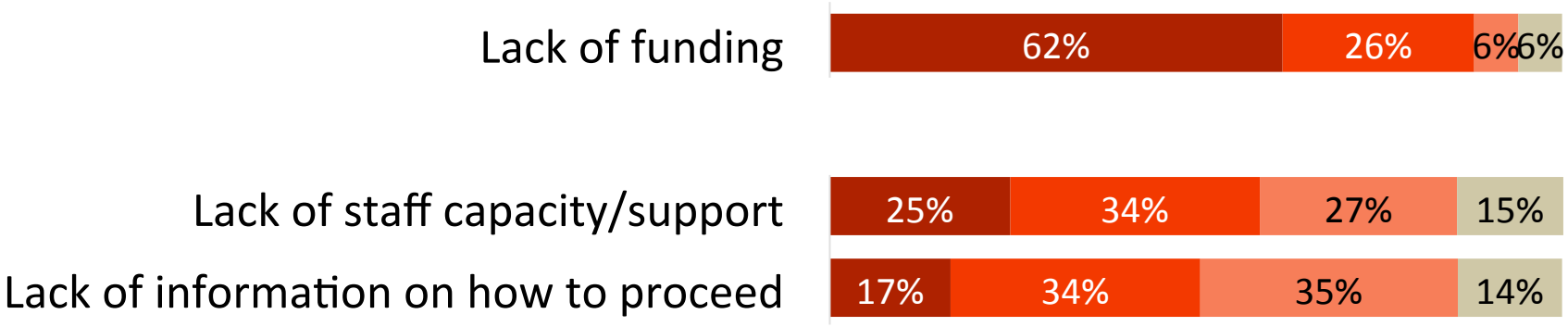
# Factors Hindering Sustainability



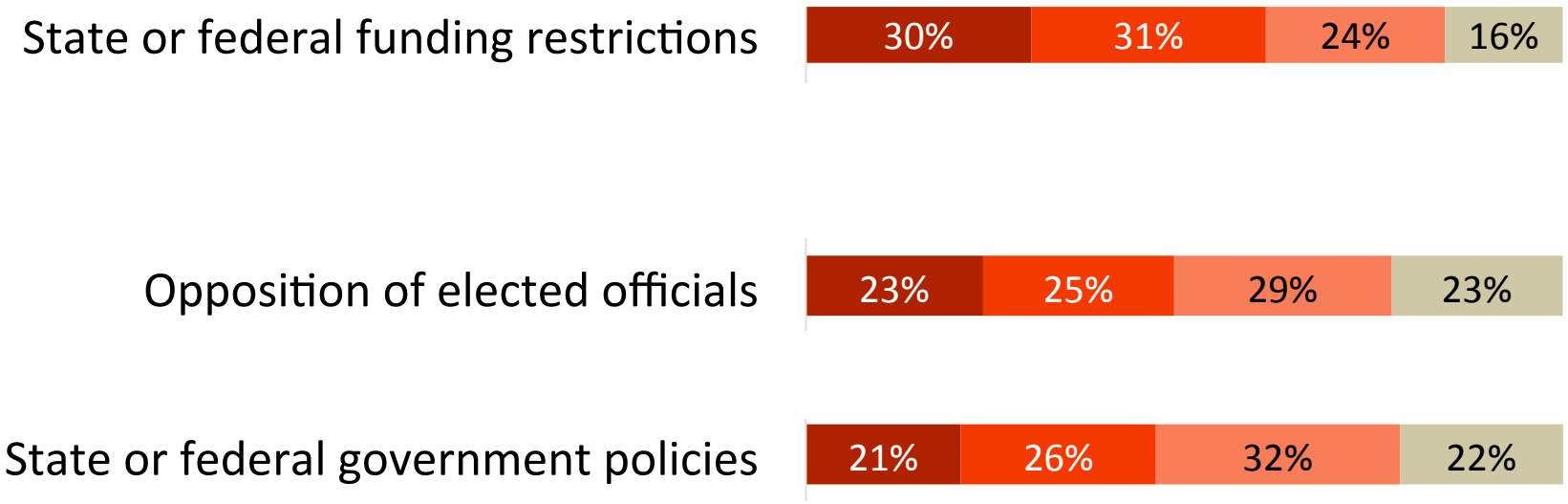
# Factors Hindering Sustainability




*Capacity limits action*

Very significant Significant Limited significance Not significant

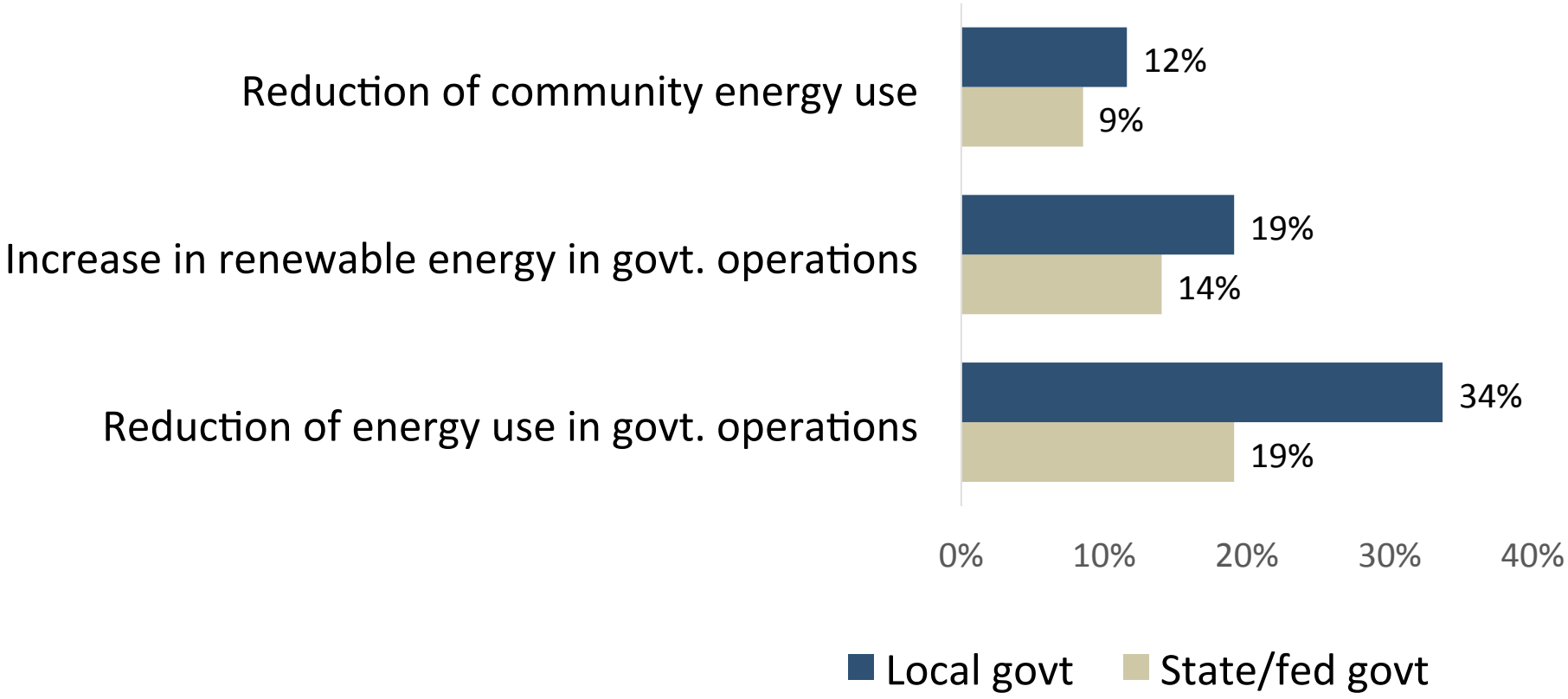
# Factors Hindering Sustainability




*Political and legal barriers*

Very significant Significant Limited significance Not significant

# Biggest barrier is funding
# Biggest source of funding is local

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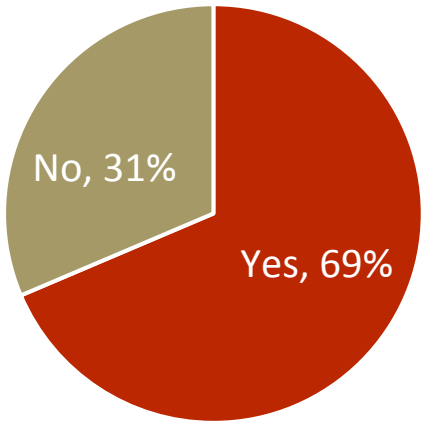
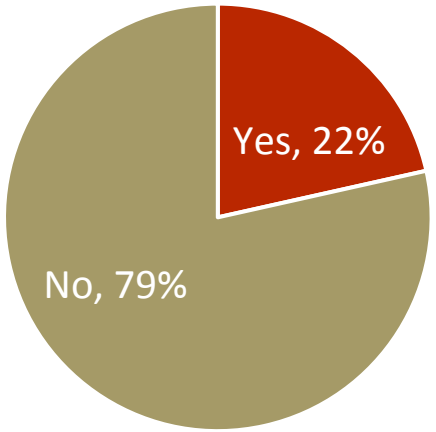
# Social Equity Still Not on the Radar

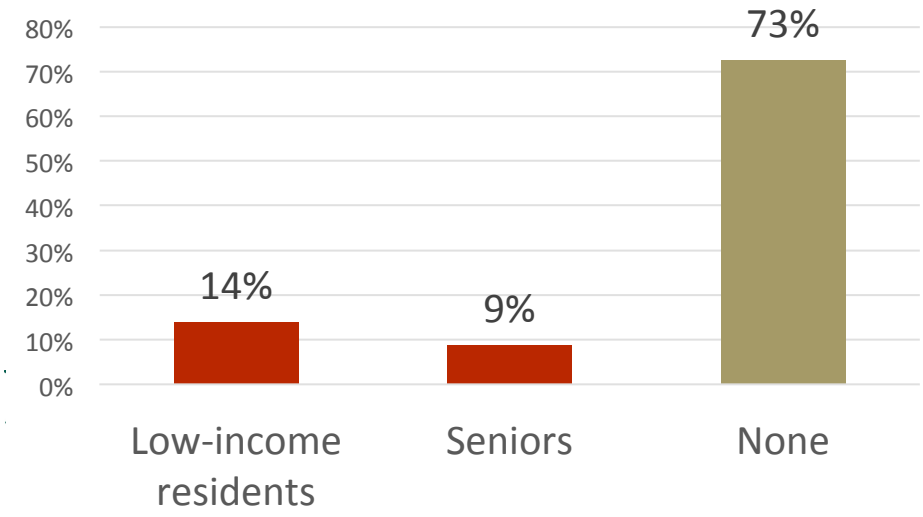
**Mitigation or emergency plan address populations at risk?**



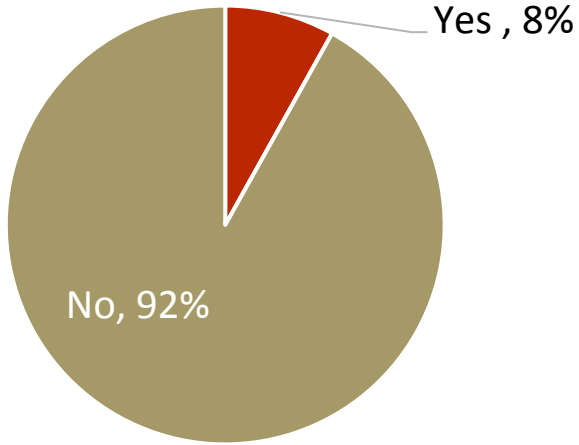

**Public transportation programs to assist low-income residents?**




**Energy conservation programs assist the following?**

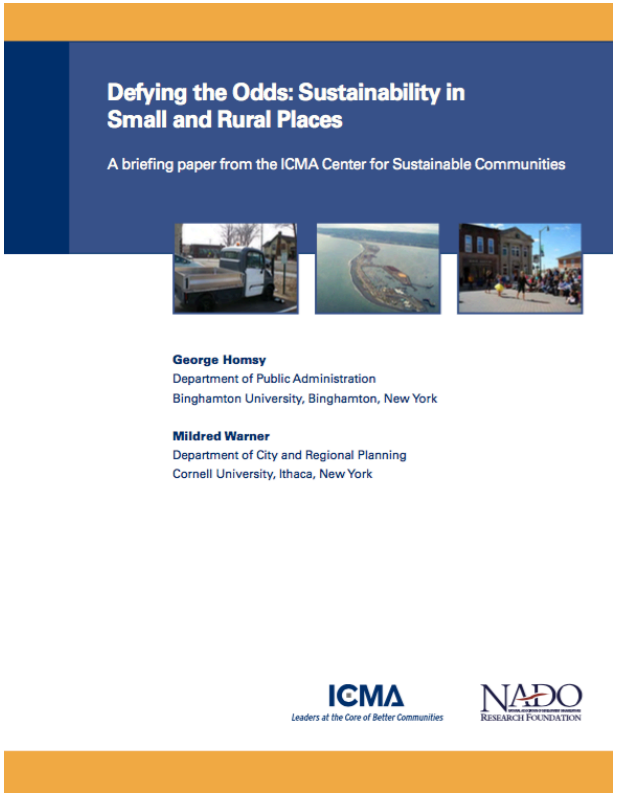



**Protect low-income households from water service shut off? (N=1,899)**



# Sustainability Survey 2010

## *Defying the Odds: Sustainability in Small and Rural Places*




- Practitioner interviews
  - Kearney, Nebraska *(pop. 30,787)*
  - South Daytona, Florida *(pop. 12,252)*
  - Homer, Alaska *(pop. 5,003)*
  - Sleepy Eye, Minnesota *(pop. 3,599)*
  - West Liberty, Iowa *(pop. 3,736)*
  - Hurricane, Utah *(pop. 13,748)*
- Local Frames for Global issues
- Pick Low Hanging Fruit First
- Education
- Collaborations and Partnerships
- Municipal utilities

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*Google: Homsy, Warner, Defying the Odds*

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# Lessons for planners

- No city should be an island – collaborations important
- Sustainability is about process as much as topic
    - Regional collaboration and cross-agency/department partnerships…
- Need to be creative around capacity
- Pitch different stories to different audiences (co-benefits)
    - Economic development and environmental protection
- Leadership and facilitation is important.

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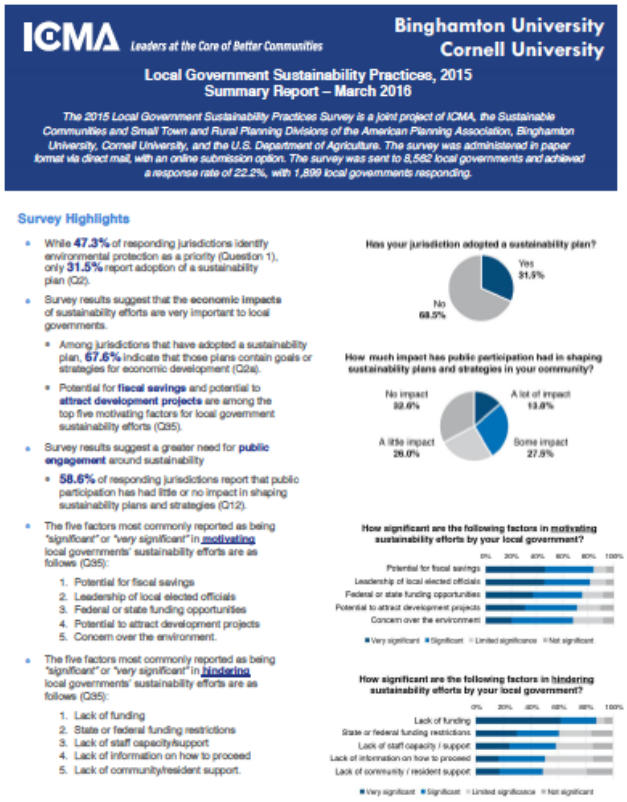
# Sustainability Survey 2015

Available at http://www.mildredwarner.org/planning/sustainability



ICMA Leaders at the Core of Better Communities

Binghamton University
Cornell University

**Local Government Sustainability Practices, 2015**
**Summary Report – March 2016**

*The 2015 Local Government Sustainability Practices Survey is a joint project of ICMA, the Sustainable Communities and Small Town and Rural Planning Divisions of the American Planning Association, Binghamton University, Cornell University, and the U.S. Department of Agriculture. The survey was administered in paper format via direct mail, with an online submission option. The survey was sent to 8,582 local governments and achieved a response rate of 22.2%, with 1,899 local governments responding.*

**Survey Highlights**

- While **47.3%** of responding jurisdictions identify environmental protection as a priority (Question 1), only **31.5%** report adoption of a sustainability plan (Q2).
- Survey results suggest that the **economic impacts** of sustainability efforts are very important to local governments.
  - Among jurisdictions that have adopted a sustainability plan, **67.6%** indicate that those plans contain goals or strategies for economic development (Q2a).
  - Potential for **fiscal savings** and potential to **attract development projects** are among the top five motivating factors for local government sustainability efforts (Q9S).
- Survey results suggest a greater need for **public engagement** around sustainability
  - **58.6%** of responding jurisdictions report that public participation has had little or no impact in shaping sustainability plans and strategies (Q12).
- The five factors most commonly reported as being "significant" or "very significant" in motivating local governments' sustainability efforts are as follows (Q9S):
  1. Potential for fiscal savings
  2. Leadership of local elected officials
  3. Federal or state funding opportunities
  4. Potential to attract development projects
  5. Concern over the environment.
- The five factors most commonly reported as being "significant" or "very significant" in hindering local governments' sustainability efforts are as follows (Q9S):
  1. Lack of funding
  2. State or federal funding restrictions
  3. Lack of staff capacity/support
  4. Lack of information on how to proceed
  5. Lack of community/resident support.

Has your jurisdiction adopted a sustainability plan?

Yes 31.5%
No 68.5%

How much impact has public participation had in shaping sustainability plans and strategies in your community?

No impact 32.6%
A lot of impact 13.8%
A little impact 26.0%
Some impact 27.5%

How significant are the following factors in motivating sustainability efforts by your local government?

Potential for fiscal savings
Leadership of local elected officials
Federal or state funding opportunities
Potential to attract development projects
Concern over the environment

Very significant | Significant | Limited significance | Not significant

How significant are the following factors in hindering sustainability efforts by your local government?

Lack of funding
State or federal funding restrictions
Lack of staff capacity / support
Lack of information on how to proceed
Lack of community / resident support

Very significant | Significant | Limited significance | Not significant

- Survey Data by Question and by Metro Status

PLANNING FOR SUSTAINABILITY

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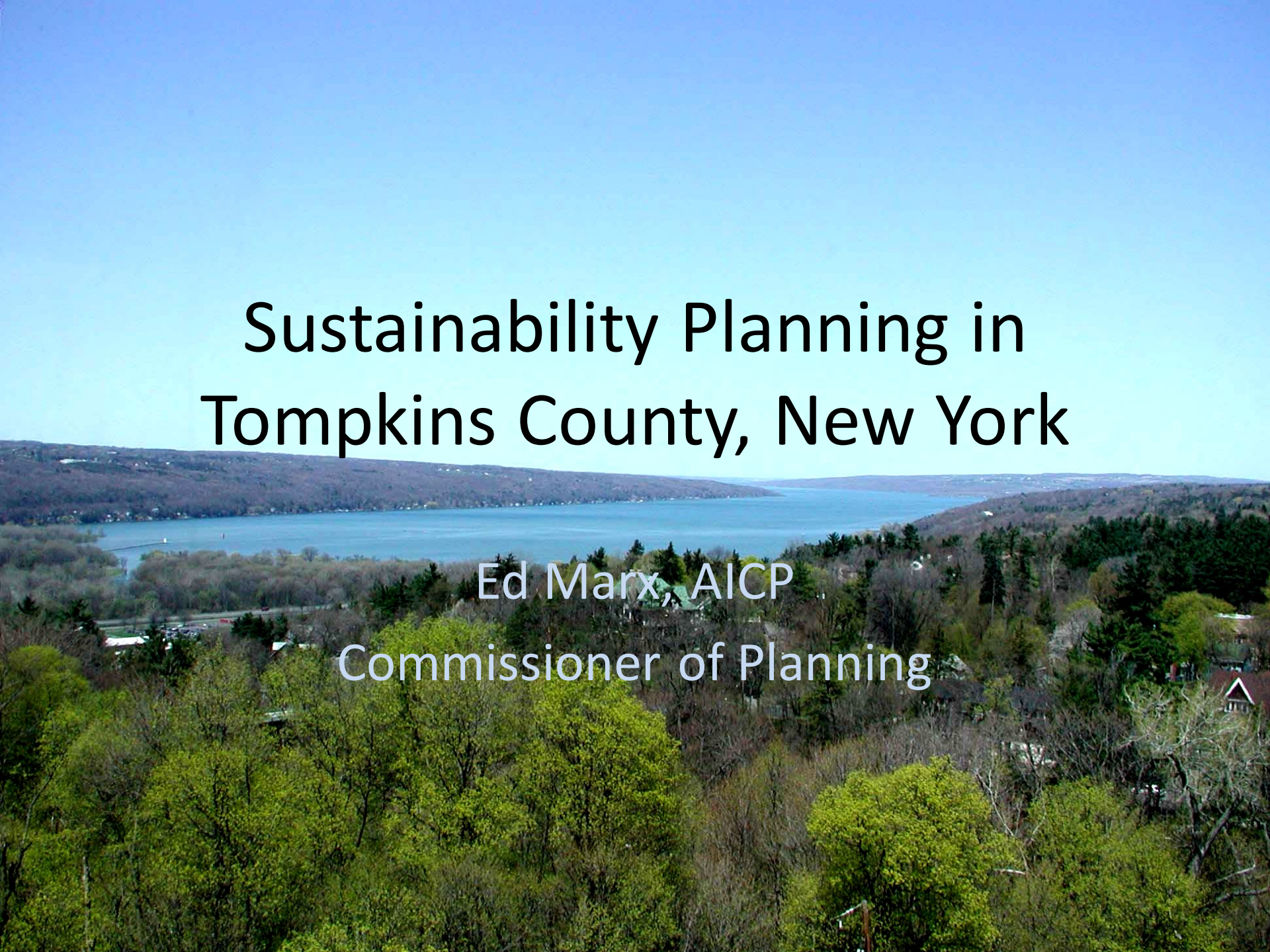


# Sustainability Planning in Tompkins County, New York

Ed Marx, AICP
Commissioner of Planning

# Tompkins County Overview

The BIG issue for
future sustainability?

CLIMATE CHANGE

# History of Climate and Energy Planning in Tompkins County

- 2001 – First Greenhouse Gas Emissions Inventory and Emissions Reduction Goal
- 2003 – Adopted Local Action Plan
- 2008 – Energy and Greenhouse Gas Emissions Element added to Comprehensive Plan
- 2010 – Developed 2020 Energy Strategy
- 2015 Comprehensive Plan added Sustainability Principle and Climate Adaptation Element

# County Government Actions to Reduce Energy Emissions since 2000

- Photovoltaic Systems on 8 County buildings
- Energy Performance Contract to reduce energy use in County Facilities
- LEED Certified Renovation of Building for County Health Department
- Transitioned 100% of diesel vehicles to B20 biodiesel, purchased three hybrid vehicles
- Solar thermal hot water on three buildings
- Purchased Renewable Energy Credits to offset 100% of County's electricity
- 2016 – Planning to purchase EV's to begin transition of county fleet
- 2016 - Entering into Energy Purchase Contract to obtain 60% of County's electricity from a refurbished hydro facility

# Tompkins County Comprehensive Plan (2015) Sustainability Principle.

*Tompkins County should be a place where the needs of current and future generations are met without compromising the ecosystems upon which they depend.*

# Definition of Sustainability

- *Sustainability means equitably meeting the needs of all community members now and in the future.*
- *This includes ensuring that everyone has a wide range of choices that allow them to share in economic prosperity, live in a healthy environment, and participate in community life.*
- *It requires preserving biodiversity and natural ecosystems and conserving resources to ensure their ability to sustain future generations.*
- *It further entails advancing economic vitality, environmental stewardship, and social equity simultaneously.*

# Comprehensive Plan Elements and Actions to Support Sustainability

- Economy
  - Energy Focus Areas Strategy
- Housing
  - Energy Efficiency Rating System
- Transportation
  - Deploy EV Charging Stations
- Natural Resources
  - Natural Area Connectivity
- Water Resources
  - Green Infrastructure Program
- Energy and Greenhouse Gas Emissions
  - Energy Roadmap
  - GHG Inventory Update
  - Encourage deployment of renewable energy systems
- Climate Adaptation
  - Disaster Recovery Plan
- Healthy Communities
- Development Patterns
  - Municipal smart growth technical assistance

# Energy Roadmap

Overview

# Tompkins County 2015 Comprehensive Plan

Overview

## Principle

Tompkins County should be a place where the energy system meets community needs without contributing additional greenhouse gases to the atmosphere

## Policy

Reduce greenhouse gas emissions to reach a minimum 80% reduction from 2008 levels by 2050 and reduce reliance on fossil fuels across all sectors

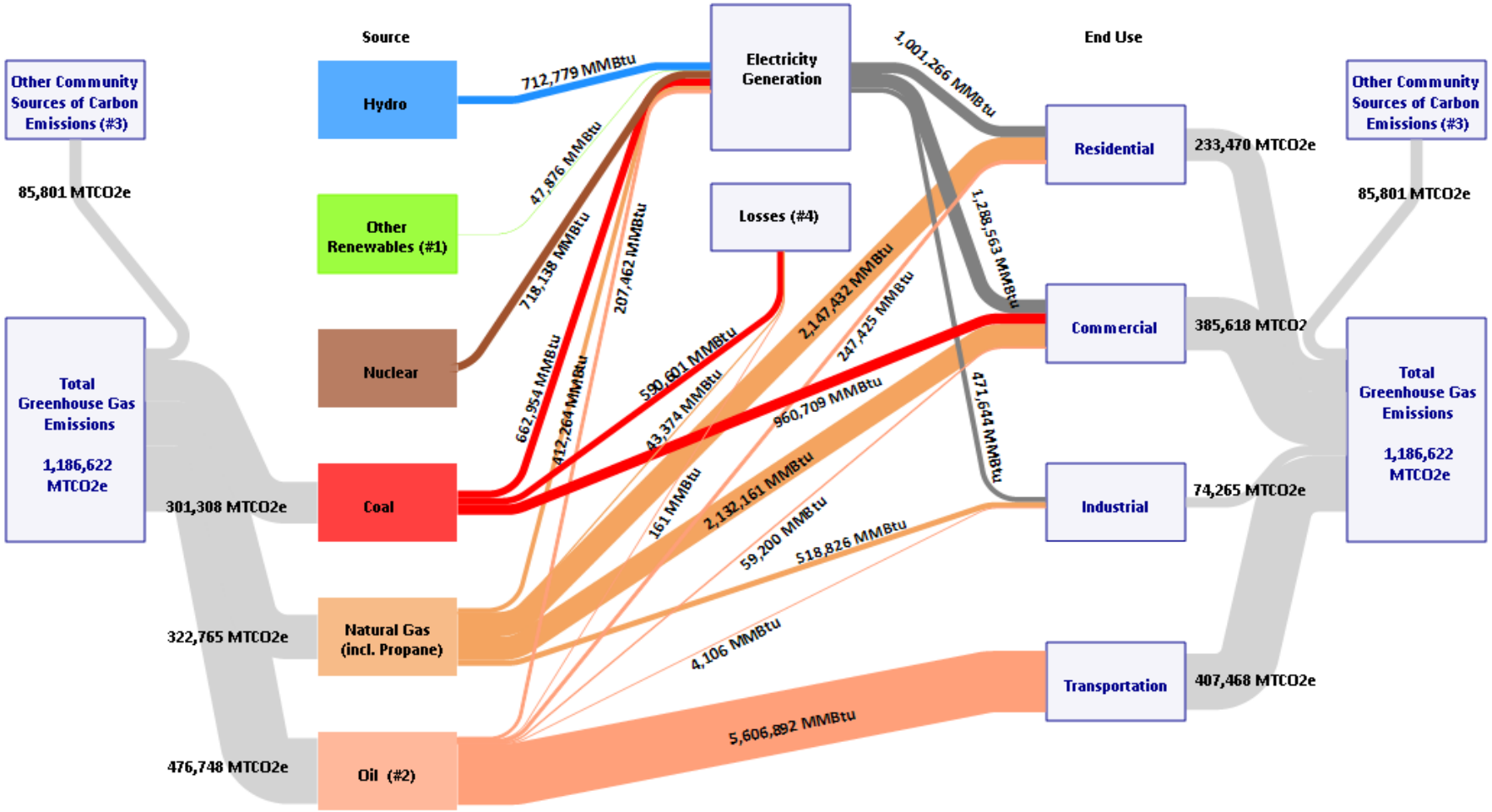
# What is the Energy Roadmap?

Overview

1. Assesses potential of local renewable energy sources
2. Assesses potential for energy efficiency and demand management to reduce energy demand
3. Identifies scenarios for how both energy demand and greenhouse gas emissions goals can be met in 2050

- Concrete evidence that achieving goals is possible and show paths that could be taken
- Direction for near and long-term local actions

# 2008 Tompkins County Energy Flow and Greenhouse Gas Emissions




Data Sources:
Energy use by sectors and greenhouse gas emissions sources from Tompkins County 2008 GHG Emissions Inventory, developed using the 2009 version of ICLEI's Clean Air Climate Protection (CACP) software. Electricity fuel sources used for Tompkins County 2008 GHG Emissions Inventory is EPA eGRID Profiler, Year 2005 eGRID Subregion Resrouce Mix, NPCC Upstate NY: Nuclear 27%, Hydro 26.4%, Coal 21.5%, Natural Gas 15.5%, Oil 7.8%, Biomass 1.2%, Other Fossil Fuel 0.4%, and Wind 0.1%. Energy use of Cornell University is accredited to the Department of Energy & Sustainability and the Department of Facilities Management under the Cornell Infrastructure Properties and Planning.

Notes:
#1. Other Renewables include solar, wind, biomass, and geothermal energy sources.
#2. Oil includes heating fuel, diesel, gasoline, motorcyde gasoline, and transit bus diesel.
#3. Other Community Sources of Carbon Emissions include Waste (41,792 MTCO2e), Agriculture (43,996 MTCO2e) and Groton Electricity Use (13 MTCO2e).
#4. Energy losses in the conversion from fossil fuel to electricity and/or thermal energy.

# Summary of Resource Potential

Potential

| | Energy Resource | % of 2008 Electricity Demand | % of 2008 Thermal Demand |
|---|---|---|---|
| Renewable Supply | Wind | 327% | n/a |
| | Solar | 303% | n/a |
| | Micro-Hydro | 90% | n/a |
| | Biomass | n/a | 59% |
| Demand Reduction | Building Efficiency: Thermal | n/a | 54% |
| | Building Efficiency: Electrical | 50% | n/a |
| | New Construction to Code | n/a | 19% |

# Solar - Electricity

Potential

| Category | | | Annual Electricity Output (GWh) |
|---|---|---|---|
| **Residential** | Urban* | | 16 |
| | Rural | | 109 |
| **Non-resid.** | Commercial | | 132 |
| | Industrial | | 21 |
| | Community and public services | | 81 |
| **PV Farms** | | | 2,093 |
| **Total** | | | **2,453** |

303% of Total 2008 Electricity Demand

# Scenario Analysis - Guiding Assumptions



- Achieve goal of 80% reduction from 2008 levels by 2050
- Utilize local resources given reasonable assumptions
  - 50% solar potential
  - 20% wind potential
  - 20% micro-hydro potential
  - 80% of lighting and appliance efficiency potential
  - 50% building energy efficiency potential
  - 25% reduction in VMT from projected levels (growth in centers, transit, carpooling)
- Balance needs of environment, economy and equitable society

# Summary of Future Energy Scenarios

Scenarios

| Scenarios | BAU | All Electric | Mixed | Half Nat Gas |
|---|---|---|---|---|
| % of 2008 Natural Gas Usage Maintained | 164% | 0% | 10% | 50% |
| % of Heating Demand Met by Local Renewables (including heat pumps & biomass) | 0% | 72% | 67% | 29% |
| % of Projected Energy Demand Provided by Building Efficiency Improvements | 4% | 25% | 25% | 31% |
| % of Transp Demand Met by Light-Duty EVs | 0% | 71% | 36% | 71% |
| % of Electricity Demand Met by Local Renewables | 3% | 49% | 63% | 71% |
| **% of MTCO2e Reduction** | **31%** | **80%** | **80%** | **80%** |

# Recommendations – Reducing Demand

Recommendations

By 2050, we should:

- Achieve a 35% reduction in energy use in **existing buildings** through retrofits and upgrades
  - 2/3 from thermal energy (sealing, insulation)
  - 1/3 from electrical efficiency (lighting, refrig)

- Construct **new buildings** that are extremely energy efficient
  - Aim for 70% reduction in energy use increasing to net zero by 2030

- Hold **vehicle miles traveled** at ~2008 level, despite increases in population

# Recommendations – Transitioning to Renewables

Recommendations

- Reduce **natural gas** use by at least 50% from 2008 levels

- Reduce demand for **grid electricity** generated by centralized power plants or sources outside of Tompkins County by at least 24% from 2008 levels

# Recommendations – Transitioning to Renewables



- Develop at least 50% of the identified **solar** energy production potential
  - ➢ One way this could be achieved is by doing all of the following:
    - 1 in 4 urban homes install a 4 kW system
    - 1 in 2 suburban and rural homes install a 7 kW system
    - 30% of commercial, institutional, industrial roof areas install PV
    - 944 MW of PV farms on 4,720 acres (1.5% of County's land area)

# Recommendations – Transitioning to Renewables



- Develop up to 50% of identified **biomass** energy production potential.
  - One way this deployment could be achieved is by doing all of the following:
    - Managing 36,700 forest acres for sustainable biomass
    - Planting 15,600 acres of inactive ag/grasslands in energy crops
    - Managing 12,900 acres of crop/forage land for sustainable crop residue

# Recommendations – Transitioning to Renewables



- Develop at least 20% of identified **micro-hydro** energy production potential
  - Could be achieved by installing 60 micro-hydro 300 kW systems

# Recommendations – Transitioning to Renewables

Recommendations

- Transition 50% of light-duty vehicles from gasoline to **electric**
  - Estimated 33,500 vehicles, from 67,000 that may be on the road in 2050

# Major Challenges

- Cost
- Energy storage
- Competing land uses
- Infrastructure limitations
- Balancing renewable generation
- Acceptance of new technologies

# Where do we go from here?

- Updating our Energy Strategy to set interim targets for 2020, 2025 and 2030 and identify actions needed to meet targets

- Development of demonstration projects for renewables not currently deployed in the County (micro-hydro and mid-scale wind)

# For further information:

tompkinscountyny.gov/planning

emarx@tompkins-co.org

# LOCAL GOVERNMENT SUSTAINABILITY: PRACTICES AND PROMISES

MAY 2016

Leslie Ethen, City of Tucson

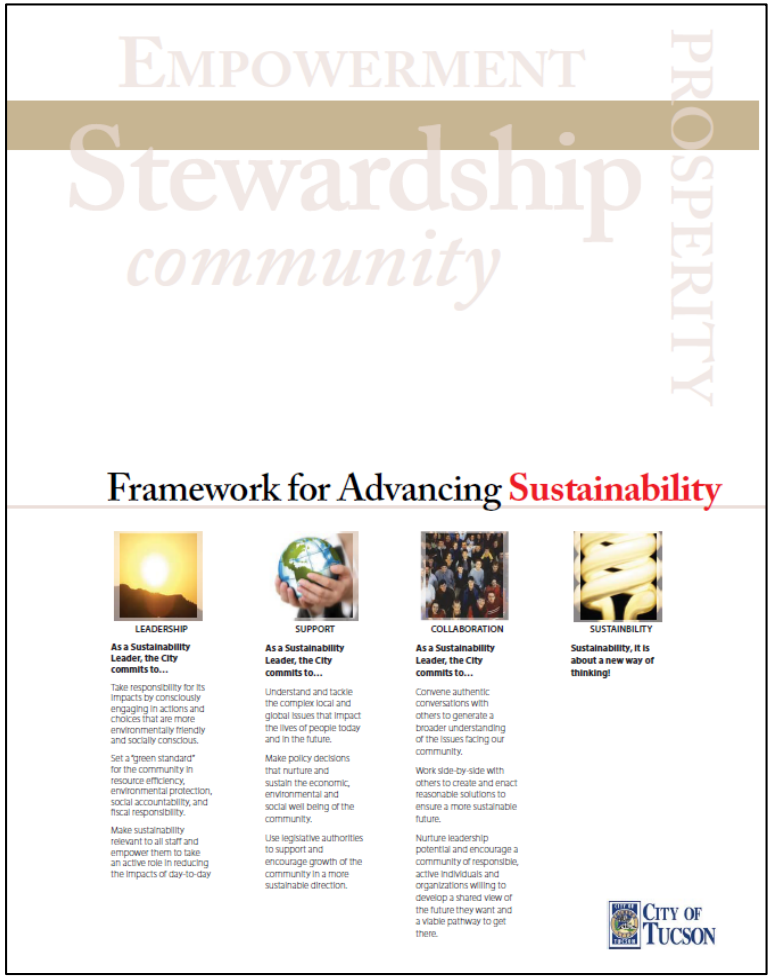
# Key Elements of Tucson's Success

- Framework for Advancing Sustainability
- Plan Tucson
- STAR Community Rating System
- Urban Sustainability Directors' Network

# Value of a Sustainability Plan…

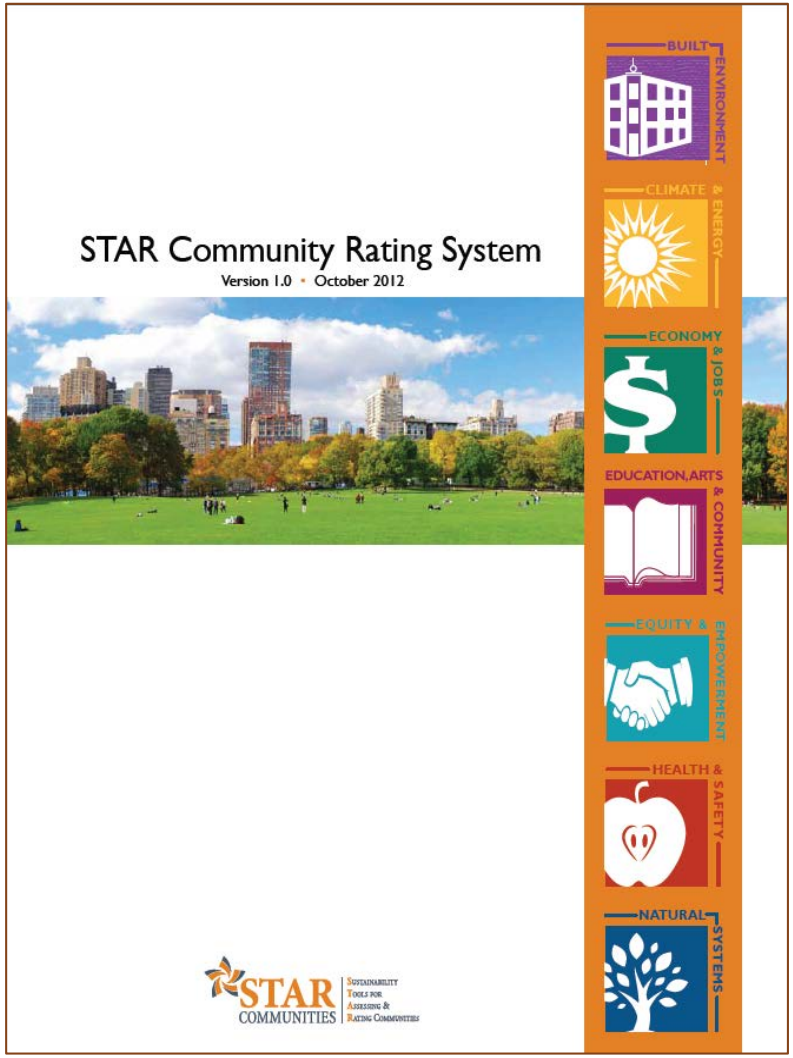
- Program created in June 2006
- No mission, mandate
- No job description

- Framework:
  - Practices: internal coordination
  - Policy: Land Use Code
  - Partnerships: climate planning, Climate Change Committee
- Environmental focus



# Key Tool to Broaden, Quantify Sustainability

- Initiated in 2007
  - National League of Cities
  - US Green Building Council
  - ICLEI
  - Center for American Progress
- 200+ volunteers
  - Steering committee
  - 8 technical committees



# STAR Sustainability Rating System

**Table of STAR Goals and Objectives**

| Built Environment | Climate & Energy | Education, Arts & Community | Economy & Jobs | Equity & Empowerment | Health & Safety | Natural Systems |
|---|---|---|---|---|---|---|
| Ambient Noise & Light | Climate Adaptation | Arts & Culture | Business Retention & Development | Civic Engagement | Active Living | Green Infrastructure |
| Community Water Systems | Greenhouse Gas Mitigation | Community Cohesion | Green Market Development | Civil & Human Rights | Community Health & Health System | Invasive Species |
| Compact & Complete Communities | Greening the Energy Supply | Educational Opportunity & Attainment | Local Economy | Environmental Justice | Emergency Prevention & Response | Natural Resource Protection |
| Housing Affordability | Industrial Sector Resource Efficiency | Historic Preservation | Quality Jobs & Living Wages | Equitable Services & Access | Food Access & Nutrition | Outdoor Air Quality |
| Infill & Redevelopment | Resource Efficient Buildings | Social & Cultural Diversity | Targeted Industry Development | Human Services | Indoor Air Quality | Water in the Environment |
| Public Spaces | Resource Efficient Public Infrastructure | | Workforce Readiness | Poverty Prevention & Alleviation | Natural & Human Hazards | Working Lands |
| Transportation Choices | Waste Minimization | | | | Safe Communities | |

- 7 Goal Areas + Innovation
  - 44 Objectives
- 3 parts to Objectives:
  - Purpose Statement
  - Community Outcomes (thresholds, trends)
  - Local Actions
- Community's Score: (x/720)
  - 5-STAR: 600+
  - 4-STAR: 400-599
  - 3-STAR: 200-399

# General + Sustainability Plan

STAR:

- Objectives
- Outcomes
- Actions

Plan Tucson:

- Sustainability Outcomes
- Sustainability Metrics
- Policy screen, ideas for implementation

| Plan Tucson Goals | Pl |
|---|---|
| **HOUSING** | |
| The City strives for a mix of well-maintained, energy-efficient housing options with multi-modal access to basic goods & services, recognizing the important role of homeownership to neighborhood stability. | H1, H4, H7, H1 |
| **PUBLIC SAFETY** | |
| The City strives for a safe community and secure neighborhoods. | PS1 PS6 PS1 PR7 |
| | PS2 PS9 |
| **PARKS & RECREATION** | |
| The City strives for a community that is healthy physically, mentally, economically, and environmentally. | PR1 PR4 PR5 PR1 BC TQ |
| **ARTS & CULTURE** | |
| The City strives for a community whose economic stability and sense of place reflects its commitment to arts and culture and its care for the natural environment. | AC AC AC AC BC BC TQ |
| **PUBLIC HEALTH** | |
| The City strives for a community that is healthy physically, mentally, economically, and environmental. | PH PH |

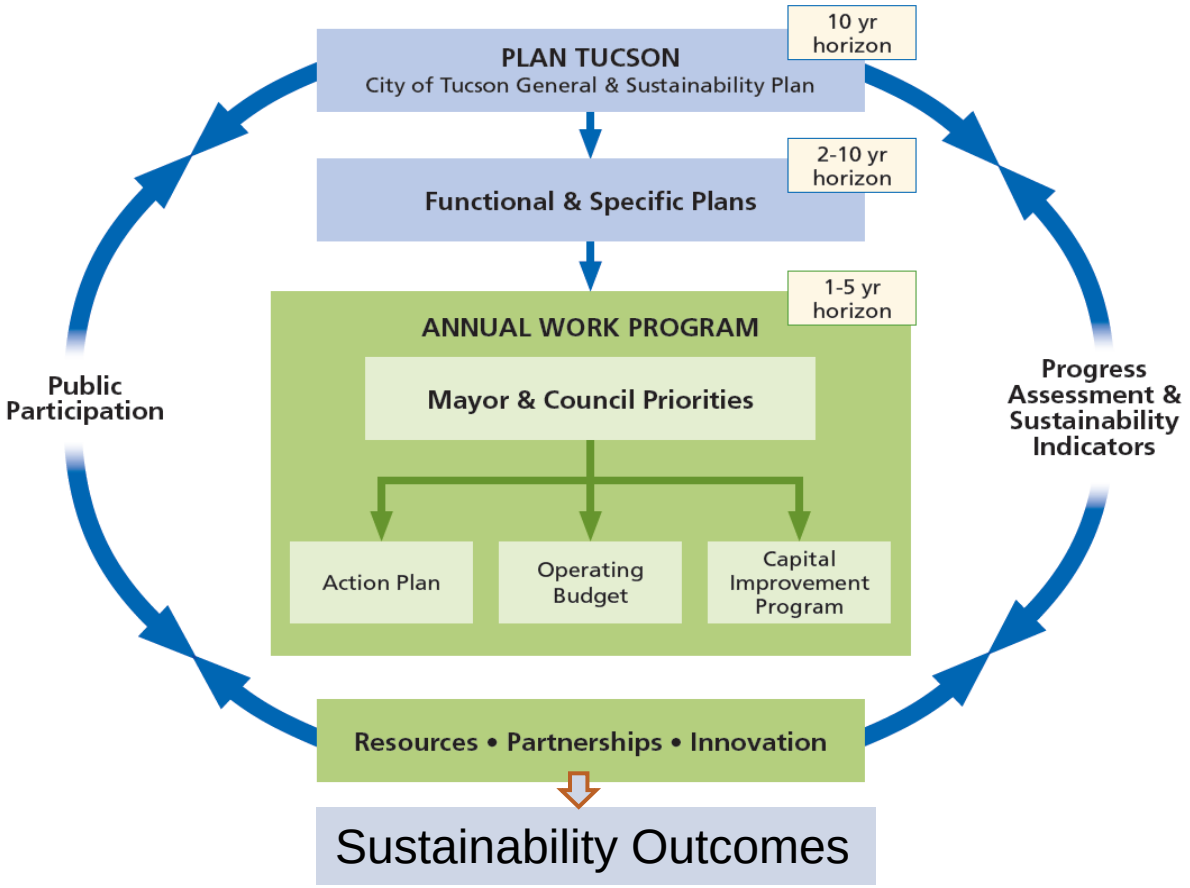
| Plan Tucson Goals | Plan T Poli |
|---|---|
| **JOB & WORKFORCE DEVELOPMENT** | |
| The City strivers for a local job market that provides opportunities for all Tucsonans to meet their basic needs and pursue career advancement, matched with a well-educated, well-qualified workforce that is able to meet the dynamic needs of businesses and employers. | JW1, JW JW6, E5 |
| The City strives for a local job market that provides opportunities for all Tucsonans to meet their basic needs and pursue career advancement, matched with a well-educated, well-qualified workforce that is able to meet the dynamic needs of businesses and employers. | RG5, RG JW4, JW BC4, AC |
| The City strives for a sustainable and diversified economy that maximizes Tucson's strategic location and balances traditional import and export of resources with locally supplied goods and services to meet local demand. | |
| The City strives for a sustained increase in household income and wages, and a sustained reduction in the poverty rate, especially for Tucson's children, seniors and disabled residents. | JW1, JW JW7 |
| The City strives for a community that is healthy physically, mentally, economically, and environmentally. | |

| Plan Tucson Goals | Plan Tuc Policie |
|---|---|
| **ENERGY & CLIMATE READINESS** | |
| The City strives for a reduction in the community's carbon footprint and greater energy independence. | EC1, EC2, EC5, EC6, EQ7, HP1 LT9, LT13, LT14, LT1 |
| | EC4, LT9, LT11, LT1 LT13, LT1 LT15, LT1 LT17 |
| The City strives for a reputation as a national leader in the development and use of locally renewable energy technologies, water conservation, waste diversion and recovery, and other emerging environmentally-sensitive industries. | EC4, EC5, EC7, E7 |
| The City strives for sound, efficient, ecological policies and practices in government and in the private sector. | |
| The City strives for a reputation as a national leader in the development and use of locally renewable energy technologies, water conservation, waste diversion and recovery, and other emerging environmentally-sensitive industries. | EC1, EC2, WR3, PR8 |
| The City strives for sound, efficient, ecological policies and practices in government and in the private sector. | |

| Plan Tucson Goals | Plan Tucson Policies | STAR Sustainability Metrics | Long-term Community Sustainability Outcomes |
|---|---|---|---|
| **HISTORIC PRESERVATION** | | | |
| The City strives for community that respects and integrates historic resources into the built environment and uses them for the advancement of multiple community goals. | HP1, HP2, HP3, HP4, HP5, HP6, HP7, HP8, H4, H5, PR8, E7, LT1, TQ4, PI7 | Number of historic districts; annual number of eligible structures and sites designated, rehabilitated, or converted through adaptive reuse; annual number of historic structures retrofitted or with energy efficiency or clean energy technologies | Historic buildings, structures, sites, neighborhood districts and cultural landscapes are preserved and reused; enabling retention of local, regional, and national history and heritage, reinforcement of community character, and resource conservation. |
| **PUBLIC INFRASTRUCTURE & FACILITIES, AND COST OF DEVELOPMENT** | | | |
| The City strives for well-maintained public facilities and infrastructure that support coordinated cost-effective service delivery for current and future residents. | PI1, PI5, PI6, PI7EQ3, EQ7, WR10, RR5, RR6, PR3, E3, AC4, RR3, PH2, PH3, AG3 | Access of residents of diverse income levels and race/ethnicity to community facilities, services, and infrastructure; clean-up of contaminated sites | Public services, benefits, and infrastructure developments are provided fairly across the community, all residents are provided protection from environmental and health hazards, and past disinvestment and disproportionate exposures to hazards are redressed. |
| The City strives for strategic public and private investments for long-term economic, social, and environmental sustainability. | | | |
| **REDEVELOPMENT & REVITALIZATION** | | | |
| The City strives for an urban form that conserves natural resources, improves and builds on existing public infrastructure and facilities, and provides an interconnected multi-modal transportation system to enhance the mobility of people and goods. | RR1, RR2, RR3, RR4, RR5, RR6, PI2, LT19, BC8, RG4, WR10 | Percentage of new development in locally-designated infill and redevelopment areas; percentage of new housing units that utilized existing water and sewer mains and did not require extending or widening public roadways | New growth is focused in infill and redevelopment areas that do not require the extension of water, sewer, and road infrastructure or facilitate sprawl; emphasizing land use patterns that improve community health and safety, increase equity, enhance environmental quality, and provide economic benefits. |
| **LAND USE, TRANSPORTATION, & URBAN DESIGN** | | | |
| The City strives for an urban form that conserves natural resources, improves and builds on existing public infrastructure and facilities, and provides an interconnected multi-modal transportation system to enhance the mobility of people and goods. | LT1, LT3, LT4, LT5, LT6, LT7, LT8, LT9, LT10, LT11 LT18, LT19, LT20, LT21, LT23, LT24, LT25, LT26, LT27, LT28, E6, EQ4, EQ5, PH1, HP7, BC8 | Percentage of housing within ¼-mile or ½-mile walk distance of transit stops; residential housing density in urban core; employment density; diversity of land uses; transit availability; walkability; urban design standards for density (e.g., setbacks); daytime ambient noise levels; amount of light glare and/or light trespass; visibility of stars | Development is concentrated in compact, human-scaled, walkable centers and neighborhoods that: connect to transit, offer diverse uses and services, provide housing options for families of all income levels, and minimize the indirect impacts of the built environment on the integrity of ecological systems, dark skies, water consumption, and public health. |
| | LT1, LT3, LT4, LT9, LT11, LT12, LT13, LT14, LT15, LT16, LT22, LT25, ED5, PR9, PH1, PH4, PH8, E7, RG3 | Mode split; percent of income spent on transportation costs; pedestrian and bicyclist fatalities; vehicle miles traveled | Safe, affordable, diverse, and efficient mobility options are accessible to all residents, with emphasis on walking, bicycling, and mass transit to reduce vehicle miles traveled. |

# Plan Tucson Implementation

- Plan Tucson is overarching guide for all City efforts, budget




- Metrics

# What else?

- Water conservation!
- Look for ways to incorporate social equity: Urban Stress Index, tree planting prioritization, grants
- Dialogue with Emergency Managers re: climate change
  - LEAP, NIMS
- Net zero energy building code
- Performance contracts, Power Purchase Agreements
  - TUMS
- City of Gastronomy, Food Commission

# What else?

- Modern Streetcar
- Plan Tucson Special

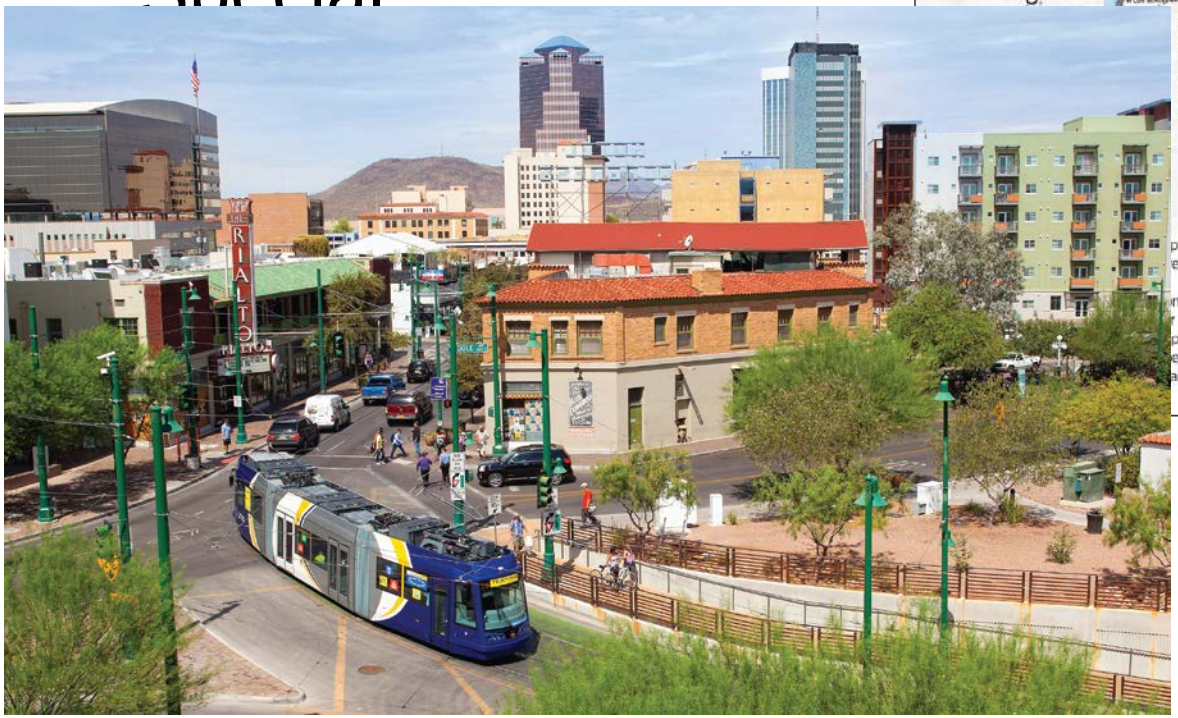
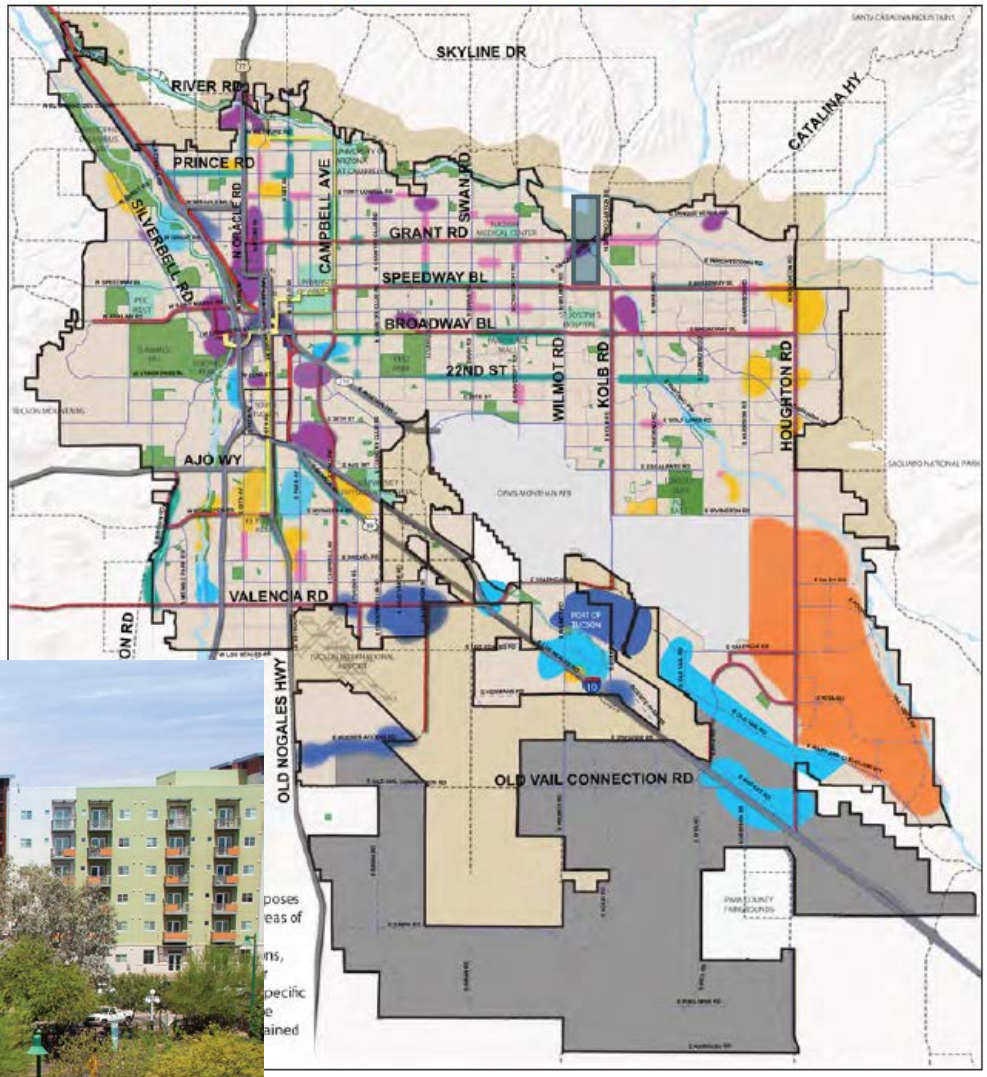


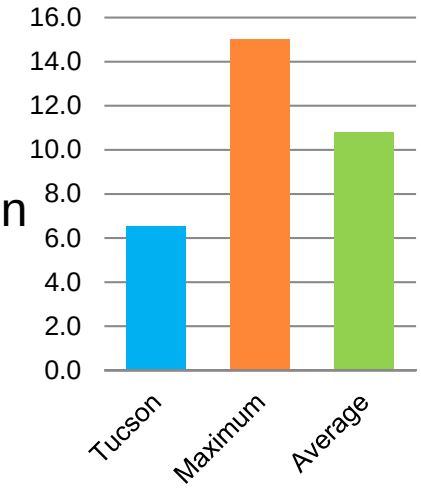

EXHIBIT LT-7 **Future Growth Scenario Map**



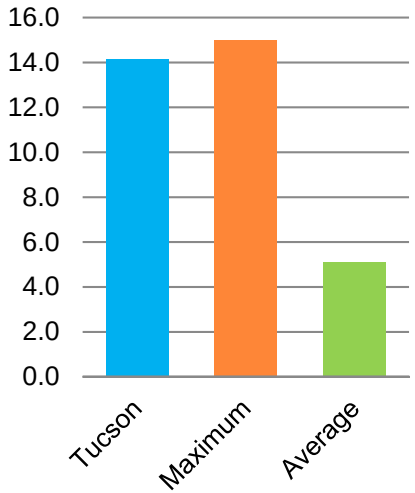
# Why else, besides $$$?

- Public safety/emergency mgt (ex., climate change)
- Public health (ex., green infrastructure)
- Secure future (ex., water conservation)
- Economic development (ex., streetcar, infill)
- Local control (ex., urban agriculture)
- 4-STAR sustainability certification (11th/50)

Waste Minimization




Climate Adaptation



# Innovation Products

USDN members spur and scale innovations in urban sustainability by collaboratively developing policies, practices, tools, programs, performance standards, or organizational models.

USDN's programs mobilize members to pursue collaborative projects that address urgent challenges and timely opportunities facing multiple cities.

**Learn more about USDN grant programs »**

## New Innovation Products

*View all products, using category links at the right.*

**Climate Adaptation Framework and Indicator Evaluation**: A collaborative effort to evaluate several existing adaptation rameworks and assess the need for and feasibility of developing a framework for cities to use, including a guide to developing urban climate adaptation indicators, a spreadsheet of sample adaptation indicators, and a presentation that explains the project. *(USDN Innovation Fund, 2016).*
» Download

**Collaborating for Climate Preparedness - Insights from a 2015 Workshop**: A 2015 workshop of local government and community organization representatives about how they can better collaborate within local communities to enhance climate preparedness and equity, highlighting secrets to successful collaborations and examples of collaboration for climate preparedness. *(USDN Special Project, 2016).*
» Download

**Energy Systems Transformation Framework**: A framework to develop a shared vocabulary, understanding and vision for how municipalities can develop a community-wide energy planning and management system that supports a transformation of their energy systems from a fossil fuel base to 100% renewable energy. *(USDN Innovation Fund, 2016).*
» Download
» Watch the convening video

**GHG Reduction RFI and Evaluation Toolkit**: A customizable toolkit for cities to engage a broad set of stakeholders, technical assistance providers, and innovators in identifying and implementing actionable greenhouse gas (GHG) reduction strategies and create a means of evaluating costs and benefits of various strategies. *(USDN Innovation Fund, 2016).*
» Download

**Multi-User Microgrids & District Energy Analysis**: A peer-learning process to explore emerging best practices related to developing multi-user microgrids and district energy projects in U.S. cities, including a workshop, a scoping white paper, and additional analyses focusing on ownership models, value streams, and legal barriers for potential multi-owner microgrids. *(USDN Innovation Fund, 2016).*
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- Network Building
- Professional Development
- Public Health
- Public Policy
- Social Equity
- Sustainability Planning
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# THANK YOU

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