

Fort Collins Climate Action Plan Update



**Citizen Advisory Committee meeting
October 9, 2014**



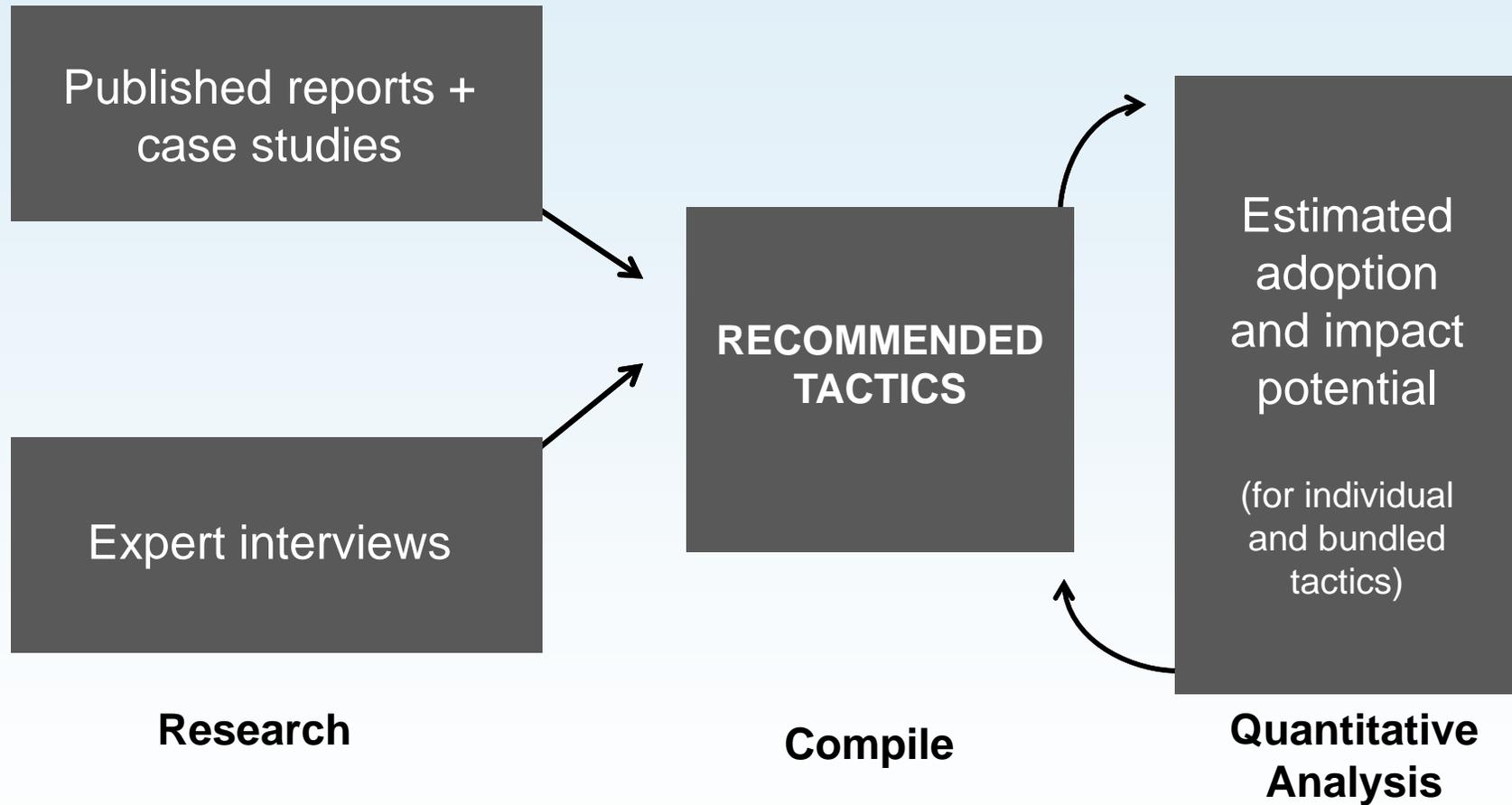
Strategy Review Objectives/Key Questions

Does the strategy make sense? Any clarifying questions?

What revisions would you make to the strategy?

Any tactics or existing programs that should be considered for addition?

How are we vetting tactics?



“How to...” for unprecedented goals

- Bring best practices to scale
- Process for rapid testing and new business models

Fundamentals of scaling in Fort Collins

- True up with other community benefits
- Work with the few who influence the many
- Leverage projected pop growth and redevelopment
- Target the biggest users
- Piggyback on events that are already planned
- Create a sense of urgency : Act now
- Use economies of scale to lower costs
- Bundle offerings together

Sample Strategy Analysis: Road to Zero Waste

Emission Sources

- Electricity
- Natural Gas
- Ground Travel
- Air Travel
- Solid Waste**

Sectors

- Residential Bldgs.**
- Commercial Bldgs.**
- Industrial Bldgs.**
- Passenger Vehicles
- Commercial Fleet

Waste reduction and recycling plan for the community with the aim for zero waste by 2030

- Increased education
- Organics diversion
- Reuse and Resource Recovery parks
- Anaerobic digestion for organic waste
- Divert more C & D waste

Opportunity: Reinforce a major existing city initiative with proven results; close loops by turning waste into energy resources

Constraint: Waste is only 4% of 2030 inventory

2030 Emissions Reduction Potential	Total Cost Savings by 2030	Total Implementation Cost by 2030	2030 Cost Effectiveness
10-100K MTCO ₂ e/yr	>\$10M/yr	>\$50M	>\$200/MTCO ₂ e

Green Building for New Construction and Redevelopment

Emission Sources

Electricity
Natural Gas
Ground Travel
Air Travel
Solid Waste

Sectors

Residential Bldgs.
Commercial Bldgs.
Industrial Bldgs.
Passenger Vehicles
Commercial Fleet

Drive incrementally downward to net zero energy for new construction and major redevelopments

- Building codes and standards
- Leverage homebuilder networks
- Expedited permitting

Opportunity: Aggressive goals for new construction rooted in comprehensive green building programs offered by the city

Constraint: Targets new growth in emissions which is a smaller percent of overall emissions

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost of Carbon Reduction
>100K MTCO ₂ e/yr	>\$10M/yr	>\$50M	Net Cost (\$/MTCO ₂ e)

Shift Land Use Patterns to Shorten Trips and Reduce Demand for Travel

Emission Sources

- Electricity
- Natural Gas
- Ground Travel
- Air Travel
- Solid Waste

Sectors

- Residential Bldgs.
- Commercial Bldgs.
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Create development patterns that encourage smart growth, infill/ redevelopment and use of alternative transportation options

- Complete streets
- Smart growth and infill development
- Reduce requirements for on-street/off-street parking

Opportunity: Supports several community livability goals articulated in Plan Fort Collins

Constraint: Land use changes take longer time horizons to realize GHG reductions

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net <u>Savings</u> of Carbon Reduction
10-100K MTCO ₂ e/yr	\$5-10M/yr	\$5-50M	>\$200/MTCO ₂ e

Increase Energy Efficiency in the Residential Sector

Emission Sources

Electricity
Natural Gas
Ground Travel
Air Travel
Solid Waste

Sectors

Residential Bldgs.
Commercial Bldgs.
Industrial Bldgs.
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Retrofit homes to be more energy efficient; encourage behavior change and consumer choice

- Integrated Utility Services model
- Partner with few who influence many
- Work with upstream vendors
- Grassroots/community outreach

Opportunity: Energy efficiency is a cost effective approach to address the nearly 70% of the City's GHG emissions from electricity and natural gas

Constraint: The dispersed nature of the residential sector makes large scale adoption challenging

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost of Carbon Reduction
>100K MTCO ₂ e/yr	>\$10M/yr	>\$50M	Net Cost (\$/MTCO ₂ e)

Increase Energy Efficiency in the Institutional, Commercial, and Industrial Sectors

Emission Sources

Electricity
Natural Gas
Ground Travel
Air Travel
Solid Waste

Sectors

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Commercial Bldgs.
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Passenger Vehicles
Commercial Fleet

Drive participation in the commercial sector and meaningful engagement across all businesses, including focused programs for high impact and use players

- Integrated Utility Services model
- ClimateWise
- Target the biggest users

Opportunity: Energy efficiency is a cost effective approach to address the nearly 70% of the City’s GHG emissions from electricity and natural gas

Constraint: Only so much can be done through efficiency, the City’s goals will not be met through efficiency alone

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net <u>Savings</u> of Carbon Reduction
>100K MTCO ₂ e/yr	>\$10M/yr	>\$50M	\$0-200/MTCO ₂ e

Drive Adoption of Multimodal Transport

Emission Sources

Electricity

Natural Gas

Ground Travel

Air Travel

Solid Waste

Sectors

Residential Bldgs.

Commercial Bldgs.

Industrial Bldgs.

Passenger Vehicles

Commercial Fleet

Approaches to reduce the demand for personal vehicles and increase the use of alternative modes

- Price signals (e.g. parking, transit)
- Data, apps, and tools
- Expand modes and services, incld. transit
- Employee commuting program

Opportunity: Many alternative modes contribute directly to a healthy lifestyle which is a priority for many residents

Constraint: The flexibility and reliability of personal vehicles may limit adoption

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10-100K MTCO ₂ e/yr	>\$10M/yr	\$5-50M	>\$200/MTCO ₂ e

Accelerate Adoption of Fuel Efficient and Electric Personal Vehicles

Emission Sources

Electricity
Natural Gas
Ground Travel
Air Travel
Solid Waste

Sectors

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Commercial Bldgs.
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Commercial Fleet

Increase purchase of fuel efficient vehicles as percent of total vehicle purchases as well as fuel switching to electricity for transportation options

- Infrastructure
- Upstream dealer programs
- Financing: Rebates, incentives
- Utility programs and pricing
- Campaign

Opportunity: The significant cost savings realized with fuel efficient vehicles may support aggressive adoption opportunities

Constraint: Driving range limitations of EVs may limit adoption

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost of Carbon Reduction
10-100K MTCO ₂ e/yr	\$5-10M/yr	<\$5M	>\$200/MTCO ₂ e

Encourage Efficiency, Demand Reduction, and Electrification of Commercial Fleets

Emission Sources

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Ground Travel
Air Travel
Solid Waste

Sectors

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Increase smart fleet travel and conversion to fuel efficient commercial fleets as well as fuel switching to electricity for transportation options which would then be supplied by fossil free electricity sources

- Aggregate EV purchases
- Workplace charging
- Trip planning software
- Corporate programs for preferred transport

Opportunity: The significant cost savings realized with fuel efficient vehicles may support aggressive adoption opportunities

Constraint: Driving range limitations of EVs may limit adoption

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost of Carbon Reduction
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Advance Renewable Energy at the Utility Scale

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Ground Travel
Air Travel
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Increase adoption of utility-scale renewables beyond goals outlined in PRPA's Integrated Resource Plan to reduce the city's electricity emissions factor.

- Collaboration with PRPA
- PRPA-owned, locally sited

Opportunity: Significant emissions reduction potential

Constraint: Intermittent nature of most renewable energy sources will require storage and potentially significant implementation costs

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost/Savings of Carbon Reduction
TBD	TBD	TBD	TBD

Advance Residential and Commercial Solar Adoption

Emission Sources

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Natural Gas
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Air Travel
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Identify opportunities and address barriers to increase adoption of rooftop solar

- PV in new construction
- Integrated Utility Services model
- Offer options
- Solar-ready zones
- Deep engagement with top CII customers

Opportunity: Potentially significant opportunity for emissions reduction

Constraint: Generating potential is limited by available roof space in City

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Advance Solar Gardens/Community-Scale Solar

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Air Travel
Solid Waste

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Identify opportunities and address barriers to increase adoption of community-scale solar

- Rate-based
- Solar-ready zones
- Targeted awareness campaigns

Opportunity: Provides a platform for over-production and generating local offsets

Constraint: Available open space/land for solar garden implementation

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Shift Heating Loads – Electrification, Combined Heat and Power, and Biofuels

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Fuel switching from natural gas to electricity for building heating which would then be supplied by fossil free electricity sources

- All electric residential new build, including district heating
- Bundle with other offerings
- Incent switching at major equip replacements
- Target large users with district approaches

Opportunity: Link with building codes and new construction for increased adoption

Constraint: Strategy phasing to align with ‘cleaning’ of electricity supply

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Implement Sequestration/Adaptation

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Recognizes the interrelationships between energy, water, and food supply

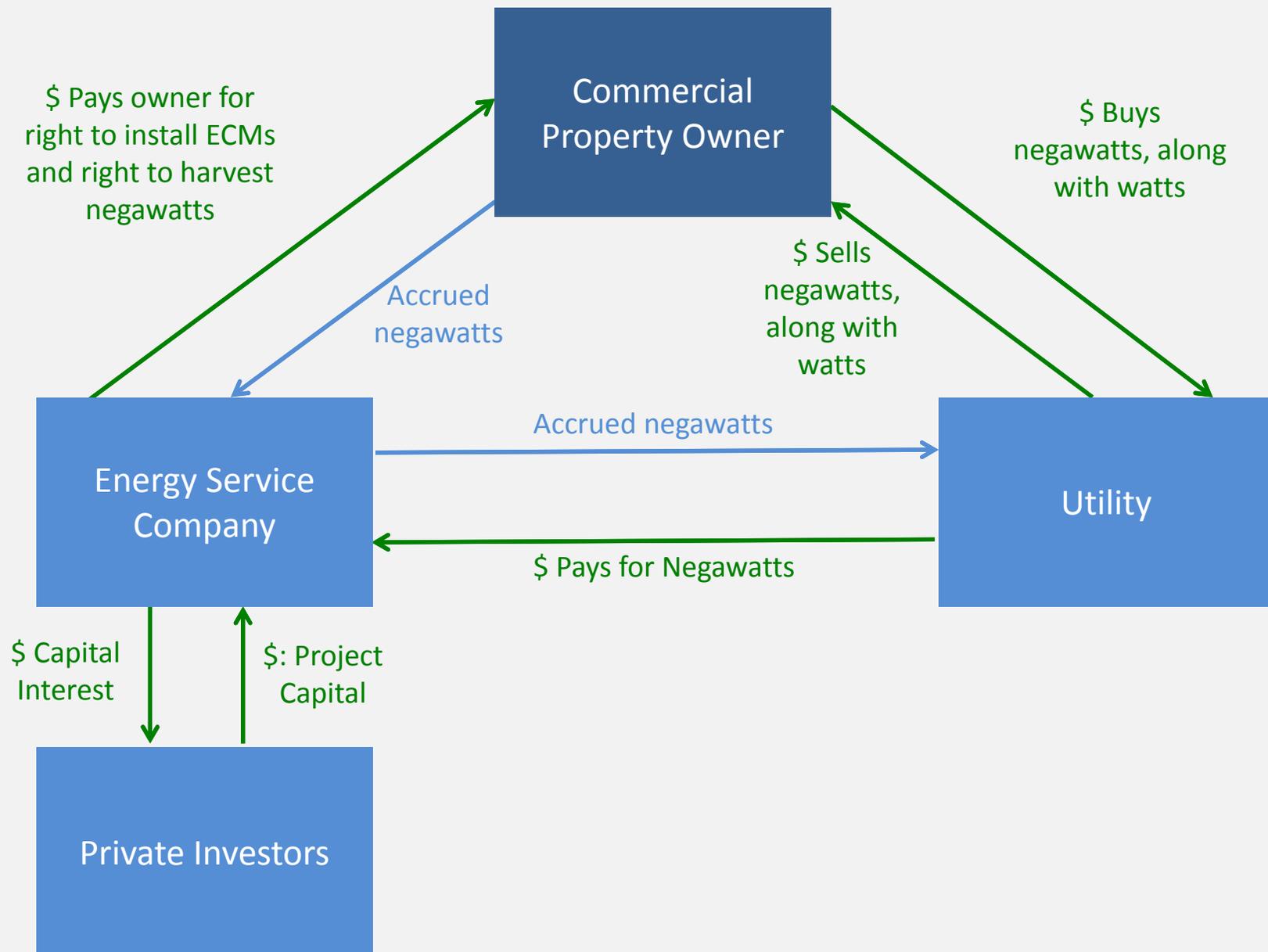
- Nature in the City
- Local food systems
- Reduce urban heat island
- Carbon offsets for ecosystem services

Opportunity: Addresses emissions that are difficult to reduce directly

Constraint: Accounting to ensure the climate benefits are being realized can be difficult

2030 Emissions Reduction Potential	2030 Potential Cost Savings	Total Implementation Cost by 2030	2030 Net Cost/Savings of Carbon Reduction
TBD	TBD	TBD	TBD

MEETS FOR COMMERCIAL ENERGY EFFICIENCY



RESIDENTIAL IUS FOR ENERGY EFFICIENCY

