Denver Climate Support - Strategy Detail	**Goals:**					
Net Zero Energy New Construction	NZE Code by 2035					
Residential (Single Family & Duplex)						

Strategy	City Cost Description	City Cost Low/Med/High Comments	City Cost $/yr (Low)	City Cost $/yr (Med)	City Cost $/yr (High)	General Comments
Incentives						
Development incentives for following Denver Green Code or Passivhaus - Density bonus - Setbacks - Lot Layout: Building Orientation - Expedited review	City of Denver staffing time - Staff time to develop density bonus and parking reduction requirements - Staff time to confirm each building pursuing this is complying with the requirements at permit - Staff time to verify actual performance (if required)	Much lower impact assumed compared to commercial **High cost** - 20% of new development square footage pursues this option - (1) Full time Engineer - Architect staff **Medium cost** - 10% of new development square footage pursues this option - (0.5) Full time Engineer - Architect staff **Low cost** - 5% or less of new development square footage pursues this option - (0.25) Full time Engineer - Architect staff	$45,000	$90,000	$180,000	**Voted #1** Key questions - Penalty if performance is not there? - How to verify actual performance? - Market acceptance?
Design and construction team incentives - Incentive for the increased time requirement for designing a NZE building - NZE charrettes - pEUI modeling - Blower door testing - M&V	City of Denver staffing time - Staff time to develop incentive amounts and requirements - Staff time to administer incentive program - Marketing budget Incentive options - Flat fee - Performance based - What amount of incentive is required for high level of participation Cost to team estimates - NZE charrettes: ~$0.10/sf - pEUI modeling: ~$0.15/sf - Blower door testing code required, beyond code: ~$0.05-$0.10/sf - M&V cost to team: ~$0.10/sf $0.3-0.35/sf total cost add for services	**High cost** - 50-75% of new development square footage pursues this option - (2) Full time Engineer - Architect staff - 100% of cost to team (~$0.30/sf) - 2.5 million sf of residential space per year for next 5 years (4 million total) **Medium cost** - 25-50% of new development square footage pursues this option - (1) Full time Engineer - Architect staff - 50% of cost to team (~$0.15/sf) - 1.5 million sf of residential space per year for next 5 years (4 million total) **Low cost** - 25% or less of new development square footage pursues this option - (0.5) Full time Engineer - Architect staff - 25% of cost to team (~$0.075/sf) - 1 million sf of residential space per year for next 5 years (4 million total)	- Staff: $90,000 - Incentives: $75,000 - Total: $165,000	- Staff: $180,000 - Incentives: $225,000 - Total: $405,000	- Staff: $360,000 - Incentives: $750,000 - Total: $1,110,000	**Voted #2** Key questions - Penalty if performance is not there? - Does the incentive need to be tied to performance? - Market acceptance? - Is M&V too far out for design teams? - Risk to the City?
Permit fee reductions for following Denver Green Code or Passivhaus	City of Denver staffing time - Staff time to confirm each building pursuing this is complying with the requirements at permit - Staff time to verify actual performance (if required) Permit fee reduction - 50% reduction in fees - Average cost of construction in Denver $150/sf - Fee of about $0.005 times total construction cost or $0.75/sf - $0.375/sf fee reduction	**High cost** - 50-75% of new development square footage pursues this option - (2) Full time Engineer - Architect staff - 2.5 million sf of residential space per year for next 5 years (4 million total) **Medium cost** - 25-50% of new development square footage pursues this option - (1) Full time Engineer - Architect staff - 1.5 million sf of residential space per year for next 5 years (4 million total) **Low cost** - 25% or less of new development square footage pursues this option - (0.5) Full time Engineer - Architect staff - 1 million sf of residential space per year for next 5 years (4 million total)	- Staff: $90,000 - Fee reduction: $375,000 - Total: $465,000	- Staff: $180,000 - Fee reduction: $562,500 - Total: $742,500	- Staff: $360,000 - Fee reduction: $937,500 - Total: $1,297,500	**Voted #3** Key questions - Penalty if performance is not there? - Market acceptance? - Increase regular fees to pay for this?
Cash rewards from City - For efficiency technology (HVAC, controls, lighting, etc) - Renewables - Electric hvac and water heat - Low carbon construction materials - Performance (meeting NZE) - Land purchases for NZE buildings - Demand flexibility: storage, energy storage, water heater, PV	Cash reward cost, increased staffing for distributing and confirming participation, and increased staff time for NZE contract documents. City of Denver staffing time - Staff time to develop incentive amounts and requirements - Staff time to administer incentive program - Marketing budget NZE hard cost estimates for performance incentive - Energy efficiency: ~$15/sf - PV: ~$15/sf - Would energy efficiency incentive duplicate Xcel EDA incentive? - Federal tax credits for PV	**High cost** - 50-75% of new development square footage pursues this option - Xcel EDA participation is estimated in this range - (2) Full time Engineer - Architect staff - ~$30/sf - 2.5 million sf of residential space per year for next 5 years (4 million total) **Medium cost** - 25-50% of new development square footage pursues this option - Performance incentives - (1) Full time Engineer - Architect staff - ~$15/sf - 1.5 million sf of residential space per year for next 5 years (4 million total) **Low cost** - 25% or less of new development square footage pursues this option - Performance incentives - (0.5) Full time Engineer - Architect staff - ~$7.5/sf - 1 million sf of residential space per year for next 5 years (4 million total)	- Staff: $90,000 - Incentives: $7,500,000 - Total $7,590,000	- Staff: $180,000 - Incentives: $22,500,000 - Total $22,680,000	- Staff: $360,000 - Incentives: $75,000,000 - Total $75,360,000	Key questions - Penalty if performance is not there? - Market acceptance? - How to get NZE in contract? - How does land purchase reward work?
NZE certification incentives - Highly subsidize the certification fees	Incentive cost and increased staffing for distributing and confirming participation. City of Denver staffing time - Staff time to develop incentive amounts and requirements - Staff time to administer incentive program - Marketing budget Incentive cost for certification fees - ILFI Net Zero Certification fees are $2,000 per house - Denver median house size is 1,600 sf - Certification cost at $1.25/sf Dependant on the size and market utilization of the incentives but most likely low costs due to low participation.	**High cost** - 15% of new development square footage pursues this option - Xcel EDA participation is estimated in this range - (1) Full time Engineer - Architect staff - 100% of cost to developer (~$1.25/sf) - 0.6 million sf of residential space per year for next 5 years (4 million total) **Medium cost** - 10% of new development square footage pursues this option - Performance incentives - (0.5) Full time Engineer - Architect staff - 100% of cost to developer (~$1.25/sf) - 0.4 million sf of residential space per year for next 5 years (4 million total) **Low cost** - 5% or less of new development square footage pursues this option - Performance incentives - (0.25) Full time Engineer - Architect staff - 100% of cost to developer (~$1.25/sf) - 0.2 million sf of residential space per year for next 5 years (4 million total)	- Staff: $45,000 - Incentives: $250,000 - Total $295,000	- Staff: $90,000 - Incentives: $500,000 - Total $590,000	- Staff: $180,000 - Incentives: $750,000 - Total $930,000	Key questions - Market acceptance? - How many certifications? Cost vary significantly.
Policies/Codes						

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Penalties - Ensures that the project is designed and operates to meet the Green Code or NZE	Increased staff time for verification Increased fees to the City for projects that do not meet performance goals	**High cost** - (2) Full time Engineer - Architect staff - Increased fees for non-compliance - Fee amount? Assumed 10% failure rate? **Medium cost** - (1) Full time Engineer - Architect staff - Increased fees for non-compliance - Fee amount? Assumed 10% failure rate? **Low cost** - (0.5) Full time Engineer - Architect staff - Increased fees for non-compliance - Fee amount? Assumed 10% failure rate?	$90,000	$180,000	$360,000	Key questions - Would buildings report every year? - Start with credits, then go to penalties later? - How to enforce? - How much?
Financing: - 3rd party managed tax/payment such as NYSERDA - Residential PACE, points for zero energy ready homes from housing authority, or other good financing options that enable this.	No City cost other then coordinating and pushing for these financing mechanisms					
Training/Education/Programs						
Xcel incentives (faster hookups & pricing structures)	N/A					Key Questions - How to get Xcel to add this as a program?
City hosted charrettes - For industry and general public	Staff time to organize, invite and host	Most likely low first cost				Key Questions - Existing training that could be used? - What is covered? - Who is invited? - How many?
Subsidized training - Developers - Design teams - Contractors - Trades - **Passivhaus**	Staff to administer/market program If offering new custom training, costs for training development and ongoing staffing/trainers For existing offerings, range of costs to supplement the training program fees, potentially pay extra for time	Any existing examples for contractor training?				Key Questions - Existing training that could be used? - What is covered? - Who is invited? - How many?
Research - Studies of sucessful projects & technologies - LCA, carbon footprint - Outcome based codes - How to align performance & aesthetics - Financing options for NZE - Other regulatory approaches that are being used worldwide	Staff time for research or utilizing the industry and existing research	Any specific examples?				Key Questions - What is covered? - How much research?
Marketing/Behavior Change						
Marketing & education of Denver's goals to community - What the city is doing to achieve the goals - The community's role - Health Benefits - Shelter in place benefits (need systems to charge batteries directly into cars DC) - Get people in homes testing them out for the weekend - Challenge/Awards program	Marketing consultant to develop and implement City staff time to lead program Radio/TV ads, mailers					
Coordinate with other (non-city) incentive programs	Staff time and marketing budgets to promote incentives.	**High cost** - (0.5) Full time Engineer - Architect staff - Marketing budget **Medium cost** - (0.25) Full time Engineer - Architect staff - Marketing budget **Low cost** - (0.1) Full time Engineer - Architect staff - Marketing budget	- Staff: $18,000 - Marketing: $10,000 - Total $28,000	- Staff: $45,000 - Marketing: $25,000 - Total $70,000	- Staff: $90,000 - Marketing: $50,000 - Total $140,000	Key Questions - How much coordination is necessary?

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