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**All numbers in this document are entirely made up and/or preliminary and are here only for the purpose of illustration. Scenarios are also made up. You (ZEAB) are expected to correct them**

# Commercial Working Group

## BERDO

BERDO would require buildings to either comply with emissions targets or require building owners to pay a fee.

Current estimates of climate impact are based on the assumption that BERDO would impact the same set of buildings that are subject to LBER. This is probably not a safe assumption. For example, LBER targets large condo buildings and were BERDO to also target those buildings it would mean that many condo owners would be required to comply with BERDO, while single family houses would not. Single family homes could generally be considered to be less energy efficient than condos in a large building; and since condos are generally cheaper than single family homes it may be reasonable to assume that the owners of condos are less able financially to address GHG reduction needs.

BERDO is also very likely to be phased in over a period of years. This is consistent with the design in Boston, Cambridge and other towns and also with the legislation brought forward by MAPC.

These considerations will need to be part of the mechanics of the high vs medium vs low scenarios for BERDO. Sample scenarios are:

* High. All buildings targeted by LBER plus all single family homes over 2000 square feet by 2040
* Medium. All buildings targeted by LBER except condos by 2040
* Low. All buildings targeted by LBER except condos by 2050

Climate impact:

* BERDO will affect ~25% of existing buildings in Brookline, which represents 9.5% of the overall GHG for Brookline. This number is derived from Blue Strike data, see below.
  + High: Complete elimination: 9.5% reduction in GHG emissions or revenue raised to support other climate goals
  + Med: 70% elimination: 6.6% reduction in GHG emissions or revenue
  + Low: 25% elimination: 2.4% reduction in GHG emissions or revenue

Financial ROI

* Cost to implement: $250,000 initial cost. This could be offset or eliminated by adopting technology from other municipalities or the State.
* Running costs: Initial estimates, based on conversations with MAPC, suggest that a town managing their own BERDO might expect to need to commit ½ to 1 FTE to the task. For comparison, the City of Boston has 5 FTEs and the City of Cambridge has 2. Costs estimated at $100,000/year. This could be offset by aggregating staffing efforts with other municipalities or the State.
* Revenue:
  + 2030-2035: $100,000. 25% compliance
  + 2035-2040: $300,000. 35% compliance
  + 2040-2045: $1,000,000. 50% compliance
  + 2045-2050: $350,000. $85% compliance

Cost / Ton of GHG:

* <provide numbers>

Feasibility

* High: Other municipalities have implemented BERDO…..
* MAPC……..

Data

* Blue strike calculates that 97% of emissions are emitted by “community activities” and of those 39% are from natural gas, meaning 38% of emissions come from natural gas. A further 23% comes from electricity, where the GHG emissions for the generation of electricity is either largely outside of the control of the consumer or is covered by other initiatives (residential/municipal and commercial solar installations). We count only the natural gas portion of emissions for the time being.
* For simplicity, revenue raised is seen as an equivalent to GHG reductions and an assumption is made that all revenue goes to further GHG efforts.

## 

## New Construction

Climate impact:

* > 75% of existing large buildings will be in service in 2050
* > 95% of single and multi-families will be in service in 2050
* Anticipated reduction in GHG for new buildings is 50% for single family and 75% for condos
  + High: 10% of buildings replaced with a 60% reduction in emissions: 6% overall reduction in GHG
  + Med: 5% of buildings replaced with a 50% reduction in emissions: 2.5% overall reduction
  + Low: 2% of buildings replaced with a 50% reduction in emissions: 1% overall reduction in GHG

Financial ROI

* Cost to implement: $25,000/year
* Revenue: $0

Cost / Ton of GHG:

* etc, etc.

Feasibility

* Low: Engaging the developer community to build new buildings may be hard…..

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# Town Working Group

## Municipal Solar

Climate impact:

* The town of Brookline could cover a relatively large area with solar panels
  + High: 8MW of solar for 12,000 metric tons of carbon emissions, equivalent to 1,200 homes, or 3.9% of GHG
  + Med: 4MW of solar for 6,000 metric tons of carbon emissions, equivalent to 600 homes or 2% of GHG
  + Low: 2MW of solar for 1,000 metric tons of carbon emissions, equivalent to 300 homes, or 1% of GHG

Financial ROI

* Cost to implement:
  + $120,000 initial + $20,000/year
* Revenue/Savings:
  + High: $12M over 20 years or $600K/year
  + Medium: $6M over 20 years or $300k/year
  + Low: $3M over 20 years or $150k/year
* Grants
  + Lorem ipsum
* Savings:
  + The state of MA is gradually phasing out gas and moving the state towards electricity. It is likely that the cost to manage and maintain existing gas heating will increase over the next 25 years.
    - High: $20M
    - Med: $10M
    - Low: $5M

Cost / Ton of GHG:

* We anticipate making a profit for solar installations…..

Feasibility

* Lorum ipsum

Data

* Bluestrike calculates 305,287 metric tons of CO2e.

## 

## Municipal Building Decarbonization

Climate impact:

* 1.4% of Brookline GHG emissions come from municipal buildings
  + High: All buildings GHG free: 1.4% reduction in emissions.
  + Med: 70% reduction in GHG: 1% reduction in emissions.
  + Low: 25% reduction in GHG: 0.35% reduction in emissions

Financial ROI

* Cost to implement:
  + Cost to implement is net of existing costs for managing and maintaining emissions producing equipment.
  + High: $300M
  + Med: $75M
  + Low: $10M
* Revenue/Savings:
  + The state of MA is gradually phasing out gas and moving the state towards electricity. It is likely that the cost to have gas and other GHG producing heating will increase over the next 25 years.
    - High: $20M
    - Med: $10M
    - Low: $5M
  + Grants
    - It is very difficult to predict the grants that will be available at the State or Federal level over the next 25 years. That said:
    - High: $100M
    - Med: $50M
    - Low: $10M

Cost / Ton of GHG:

* High
* Med
* Low

Feasibility

* Lorem ipsum

## 

## Public EV Charging