SB 1383 Procurement Cost-Benefit Analysis

ABAG POWER Board Meeting
October 26, 2023

Rincon Consultants, Inc

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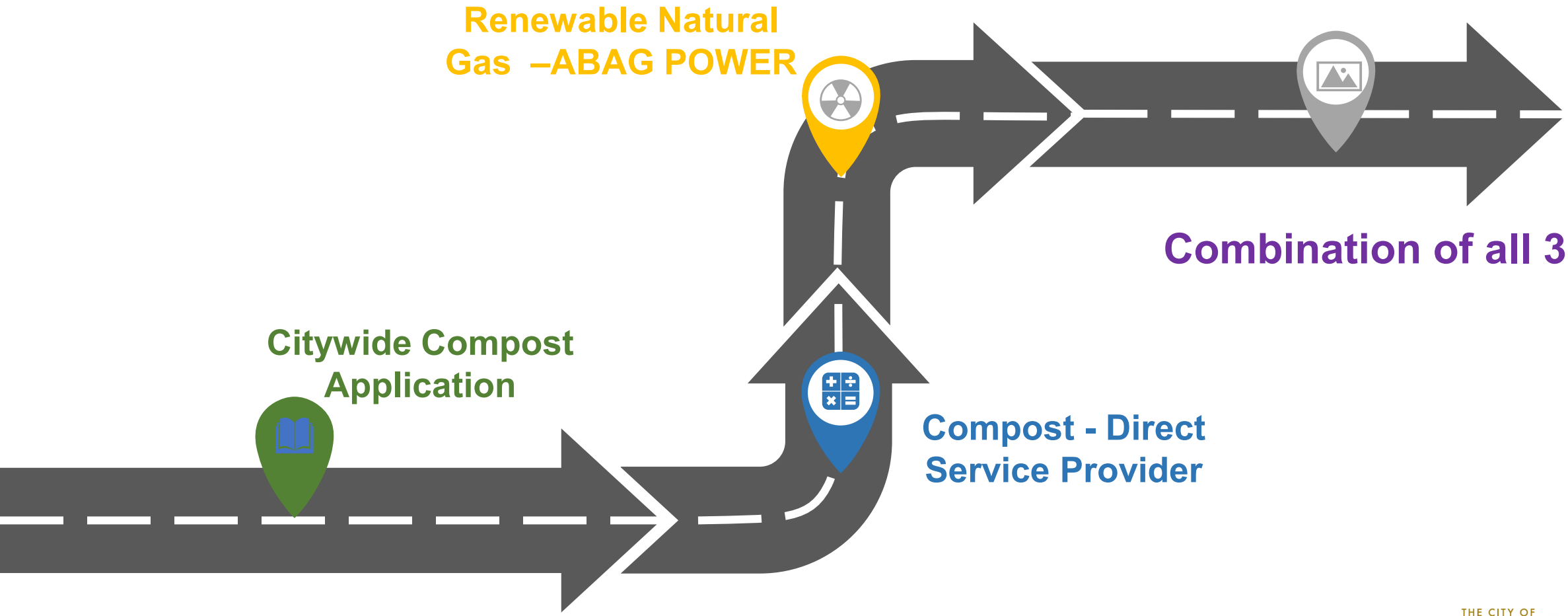
Background

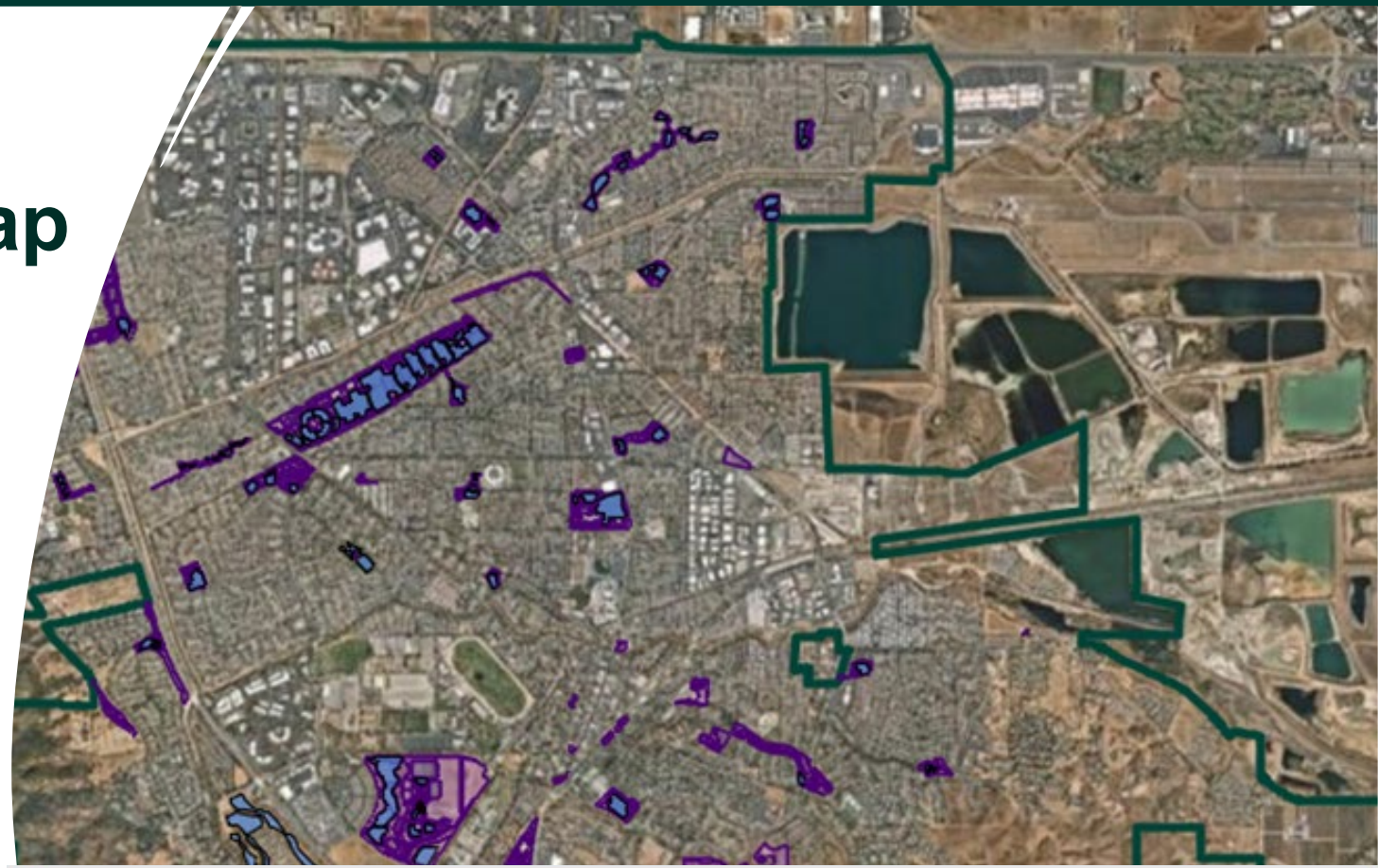
- SB 1383 requires cities procure 0.08 tons of recovered organic waste products per person annually
- Recovered organic waste products:
  - Compost
  - Mulch
  - Renewable gas (RNG)
  - Electricity from biomass conversion
- City evaluation of procurement options that support CAP reduction targets

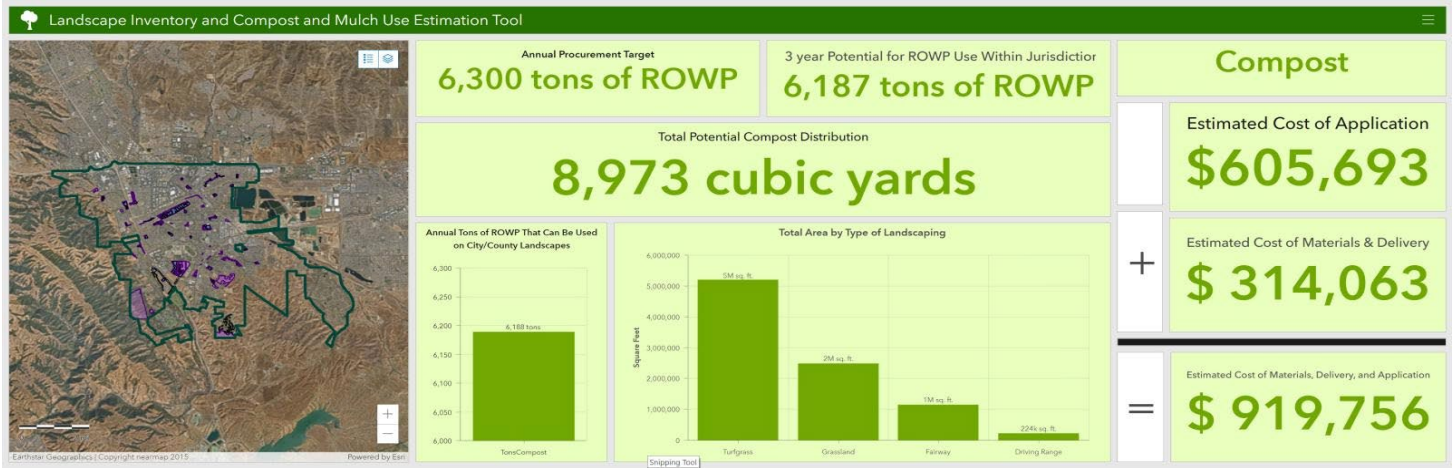
Approach to SB1383 Implementation



Compost Application Landscape Inventory Map

- Target is 6270 Tons of ROWP
- StopWaste created the initial GIS mapping tool
- We refined the tool
- This mapping included turfgrass, tree wells, planters, undeveloped open space parcels, and the location of our Compost Hub





Direct Service Provider - Agromin

Pleasanton's Impact Visualized

- 1091 tons of organic waste repurposed
- 480 CO_2 emissions prevented
- Relative yearly equivalent of removing 94 vehicles off the road.

RNG: Green House Gas (GHG) Benefit

- RNG is a “drop in” fuel replacement for natural gas
- Combustion of natural gas release CO2, CH4 and N2O
- RNG is biogenic i.e. CO2 released during combustion does not contribute to atmospheric emissions
- RNG procurement contributed to GHG emission reductions for City CAP

Source	lbs CO_2/therm[1,3]	CO_2 GWP[3]	lbs CH_4/therm[2]	CH_4 GWP	lbs N_2O/therm[2]	N_2O GWP	MT CO_2e/therm[3,4]
Natural Gas	1.17E+01	1	2.27E-04	25	4.53E-06	298	5.31E-03
Renewable Natural Gas[3]	1.17E+01	0	2.27E-04	25	4.53E-06	298	3.18E-06

Notes: MT CO_2e = metric tons carbon dioxide equivalaents

1. Reported by PG&E in their data delivery forms and utilized in City of Pleasanton's inventory
2. Obtained from the US Community Protocol and utilized in City of Pleasanton's inventory
3. Combustion of renewable natural gas generates biogenic CO_2 which is considered carbon neutral. The GWP for biogenic CO_2 is considered 0.
4. MT CO_2e is calculated by multiplying the GHG by the GWP

99.9% reduction per therm!

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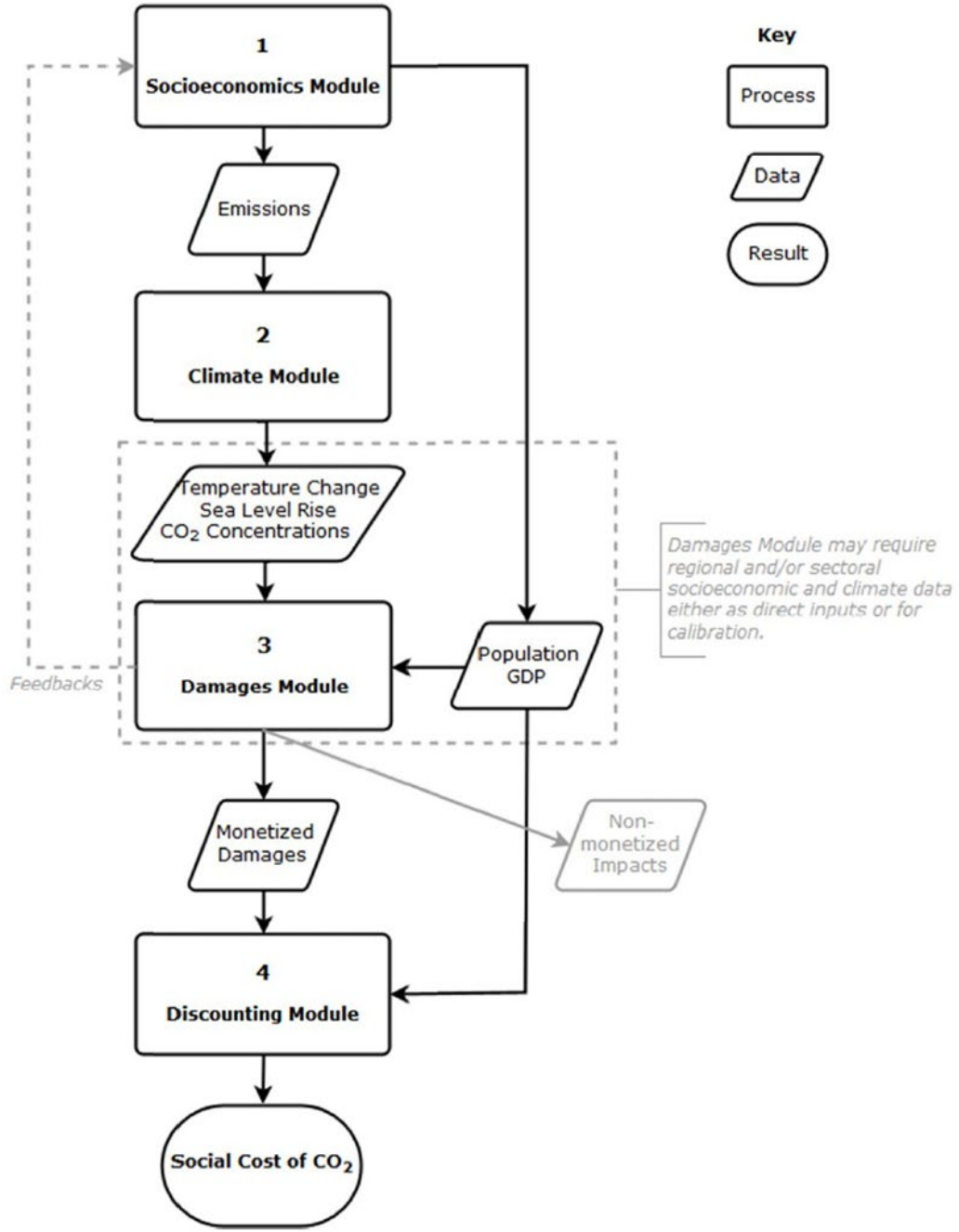
Social Cost of Carbon

- The monetary value of net harm/economic damages to society from adding one extra metric ton of CO2
- Used in policy/regulatory impact analysis
- Cost of enacting policy now vs cost of climate impact later for no action
- Set by the EPA
- $51/MT CO2 to $190/ MT CO2
- Increases related to latest research



RNG: Cost Considerations

Cost of NG + Cost of RNG – Social Cost of Carbon

Percent RNG Replacement	Natural Gas Cost[1]	RNG Cost[2]	Social Cost of Avoided Emissions[3]	Total Cost for gas procurement[4]	Cost Difference[5]	Cost of GHG Savings ($MTCO_2$)[6]
100%	$0	$425,845	$122,679	$303,166	$86,048	$133.27
75%	$54,279	$319,384	$92,009	$281,654	$64,536	
50%	$108,559	$212,923	$61,340	$260,142	$43,024	
25%	$162,838	$106,461	$30,670	$238,630	$21,512	

Notes: MT CO2e = metric tons carbon dioxide equivalaents

1. Cost of natural gas is determined by multiplying the quantify of procured natural gas in Table 2 by the cost for natural gas, $1.78 per therm.
2. Cost of RNG is determined by multiplying the quantify of procured RNG in Table 2 by the cost for RNG, $3.50 per therm.
3. The social cost of avoided non-biogenic emissions from natural gas are calculated by multiplying the avoided natural gas CO_2 emissions by the EPA revised social cost of carbon for emissions year 2020, $190 per MT CO_2.
4. Total cost for gas procurement is calculated by adding the cost for natural gas and RNG procurement minus the social cost of carbon.
5. The cost difference is calculated by subtracting the current cost for 121,665 therms of natural gas ($217,118) from the calculated total cost for procurement of different amounts of RNG to replace the natural gas.
6. Cost of GHG savings is calculated as the cost difference divided by the total avoided CO2 emissions in Table 2.

**Not considered: cost of violation of SB 1383 procurement requirement, cost comparison of alternative procurement options, cost benefit of reducing GHG emissions as part of CAP*

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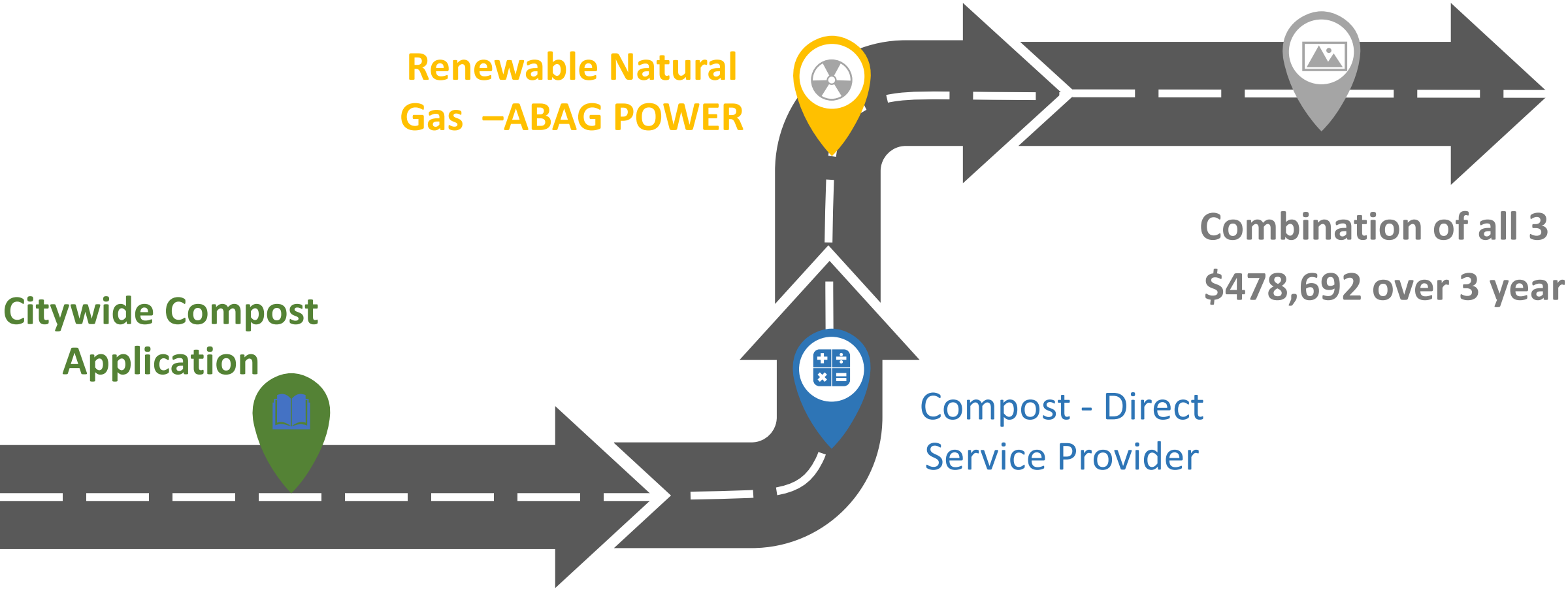
Save on Staff-Time and Cost



QUESTIONS?

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Thank You!