

# City-Led Clean Energy Innovation— Energy Mapping & Carbon Wedge Analyses



Clean Energy  
Transition





2009-2017

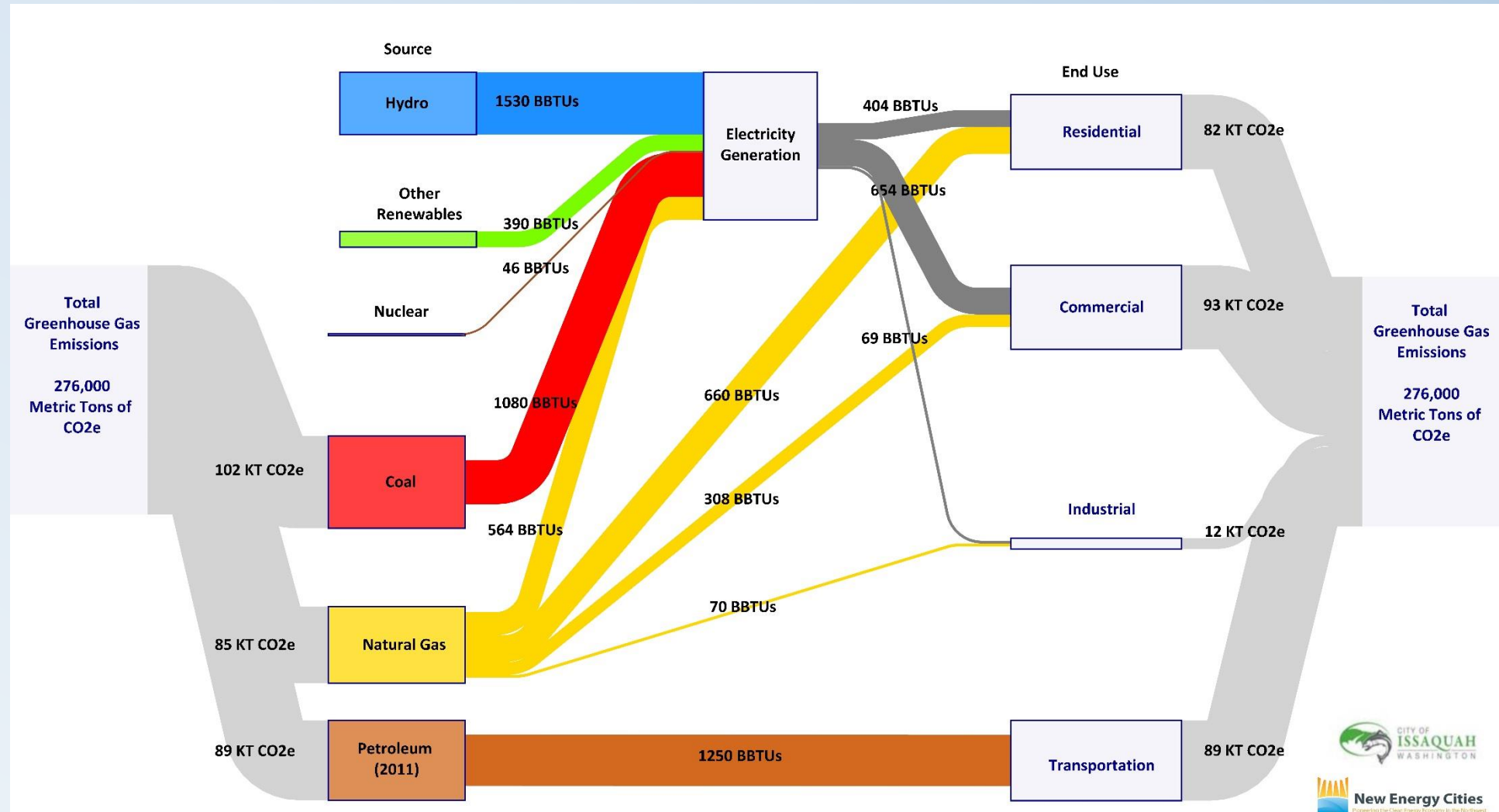


# Issaquah Energy Map and Carbon Wedge Analysis (2012-13)

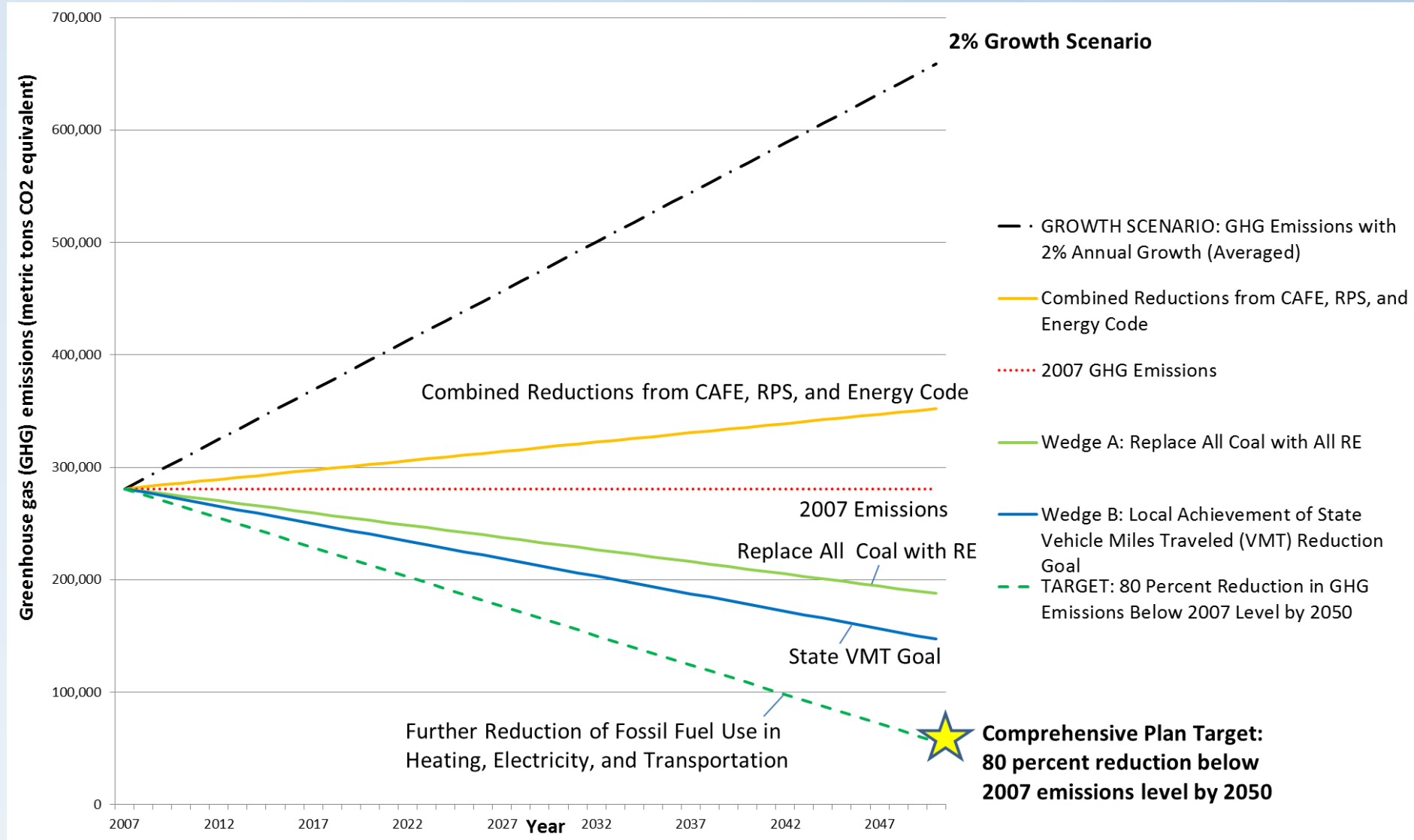




# Issaquah, WA 2012 Energy Map



# Issaquah Carbon Wedge Analysis



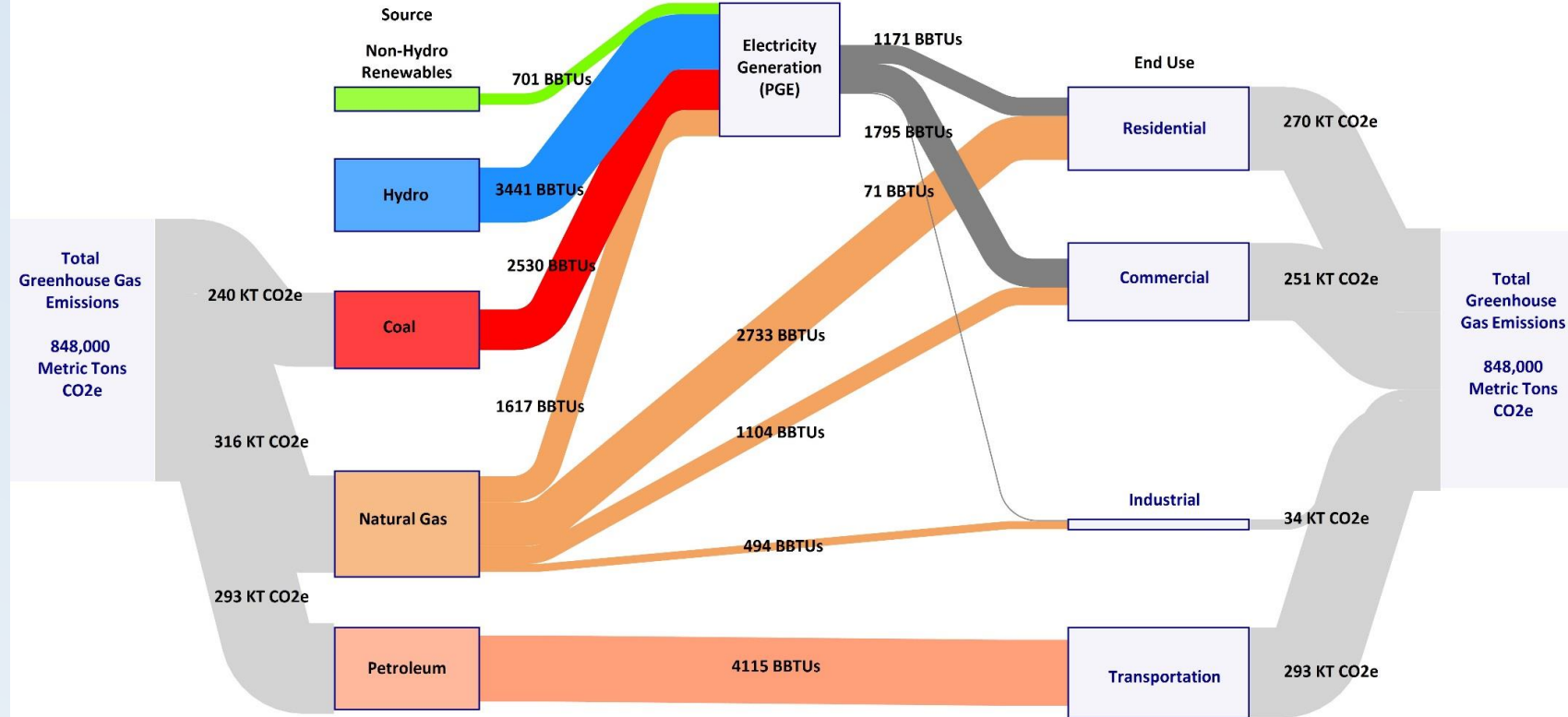
# Beaverton, OR Energy Map and Carbon Wedge Analysis (2012-13)





# Beaverton, OR 2012 Energy Map

2012 Beaverton Energy Flow and Greenhouse Gas Emissions Profile



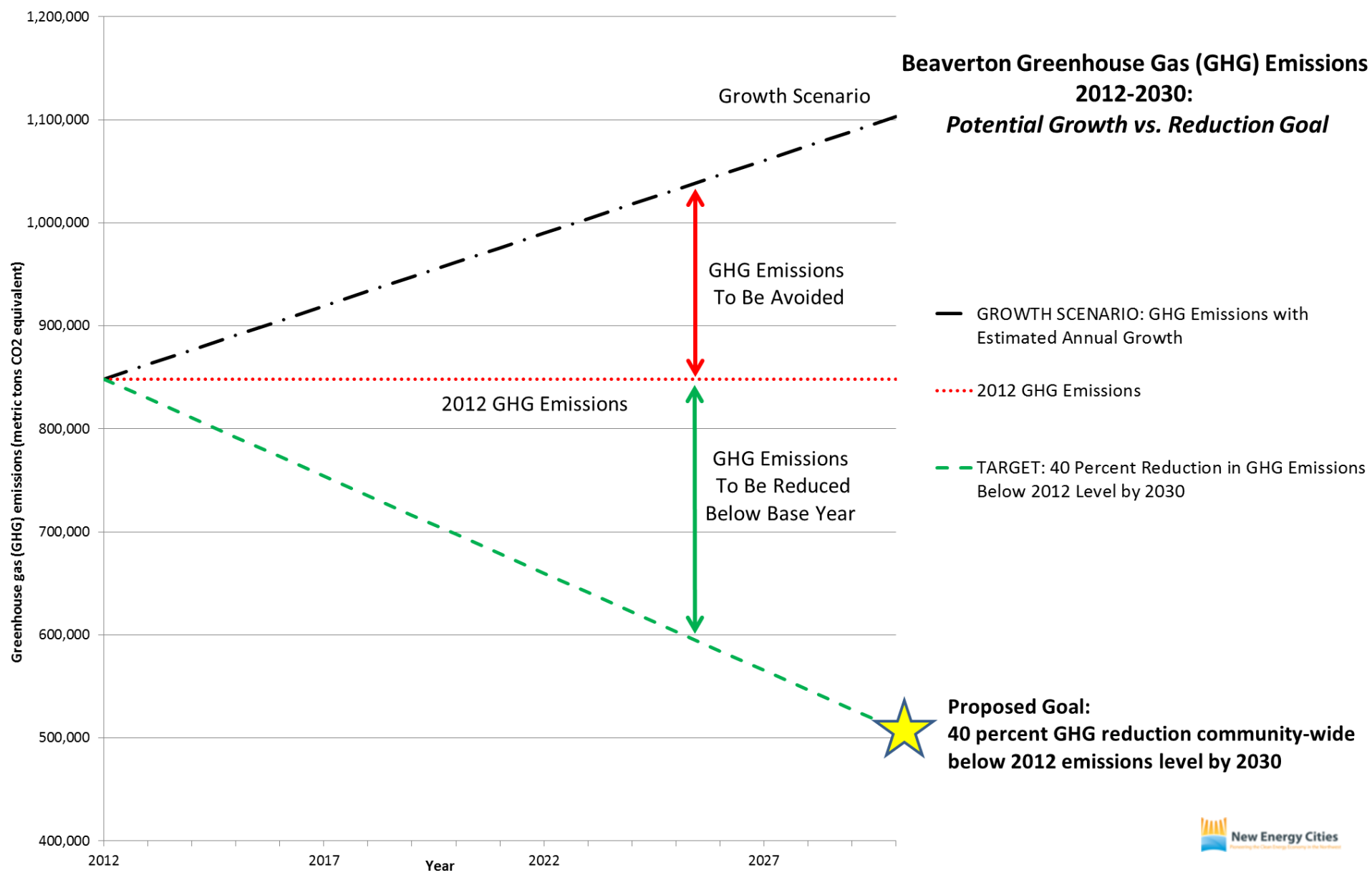
Completed August 23, 2013. Based on order-of-magnitude analysis by New Energy Cities, not intended as a precise greenhouse gas emissions inventory. Flows are proportionally sized. Boxes are proportionally sized where possible. Greenhouse gas (GHG) emissions were calculated as carbon dioxide equivalent (also noted as CO<sub>2</sub>e). KT CO<sub>2</sub>e is thousand metric tons of carbon dioxide equivalent. BBTU is billion British thermal units. Energy and GHG figures are rounded to BBTU and KT CO<sub>2</sub>e, and GHG subtotals may not add up exactly to totals.

Data sources: Portland General Electric (PGE) and Northwest Natural 2012 energy purchase data; Oregon Department of Energy data on PGE 2012 fuel mix; and Oregon Department of Transportation estimate for Beaverton vehicle miles traveled.

Other notes: Nuclear energy accounts for less than 1 percent of PGE's resource mix and therefore does not show up on the Energy Flow graphic at this scale. Waste, petroleum, and other electricity generation resources together represent less than 1 percent of PGE's fuel mix and are excluded from this analysis.

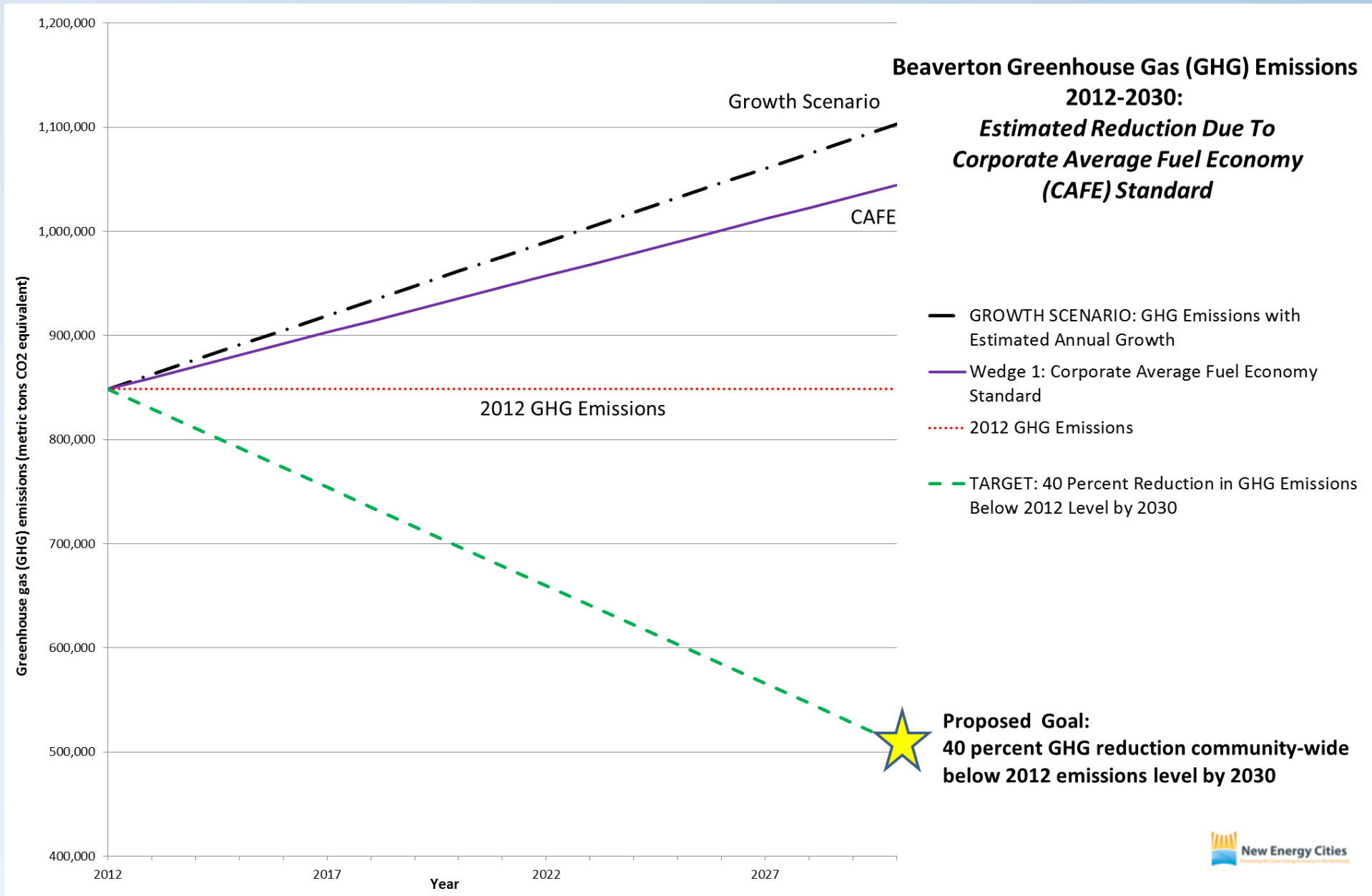


# Beaverton Emissions to Avoid & Reduce

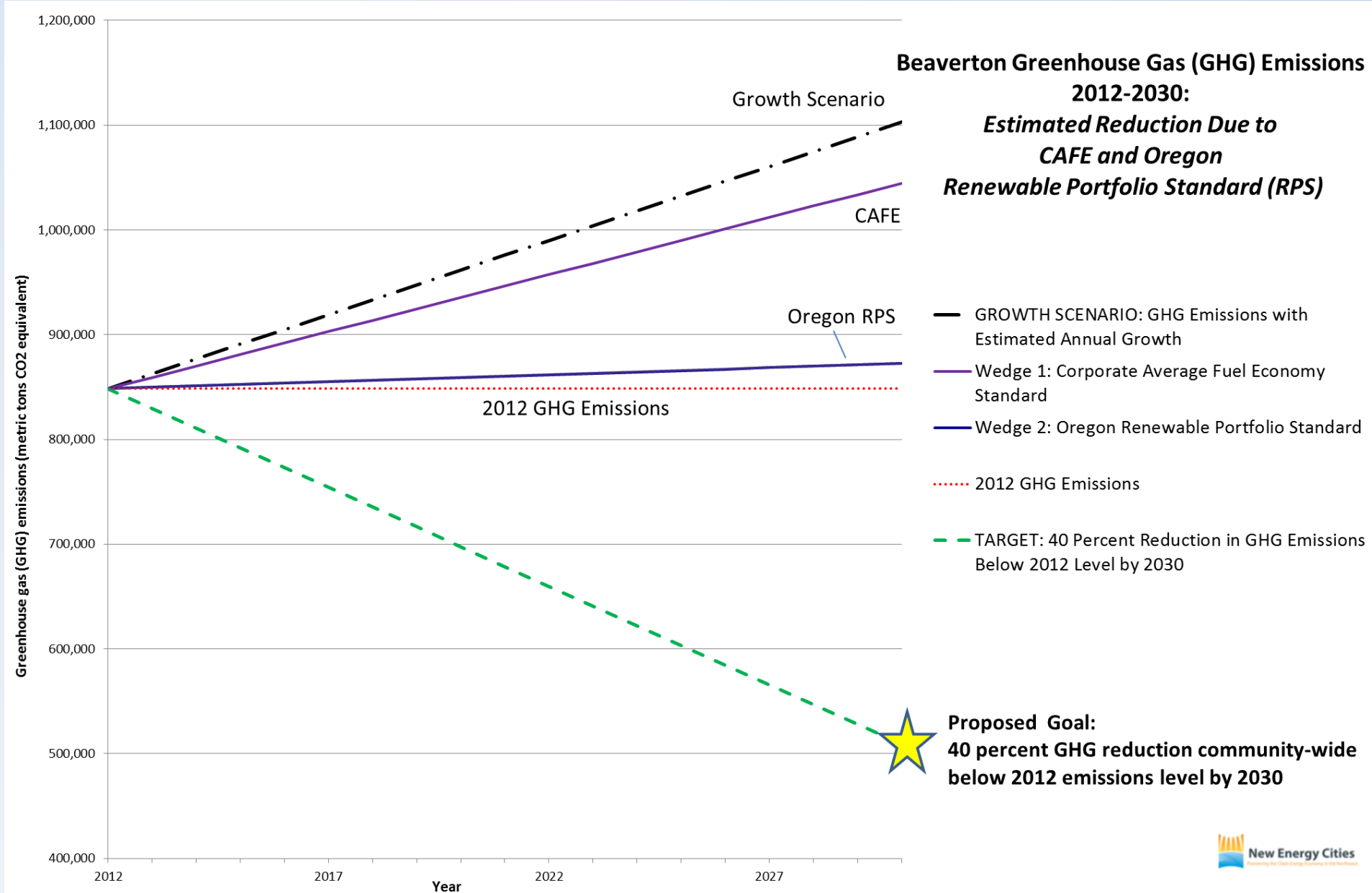




# Beaverton Corporate Average Fuel Economy Reduction

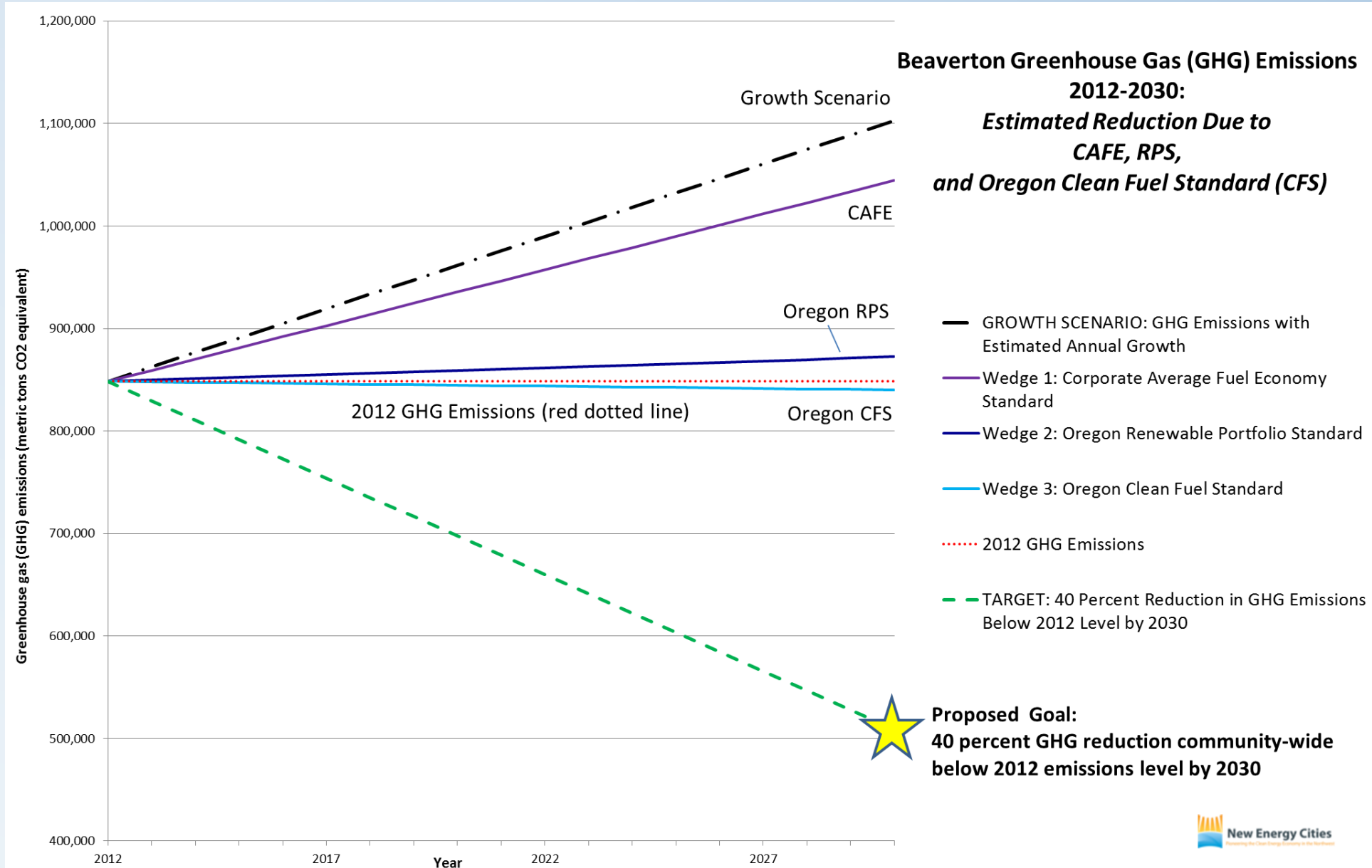


# Beaverton Reduction Impact of RPS

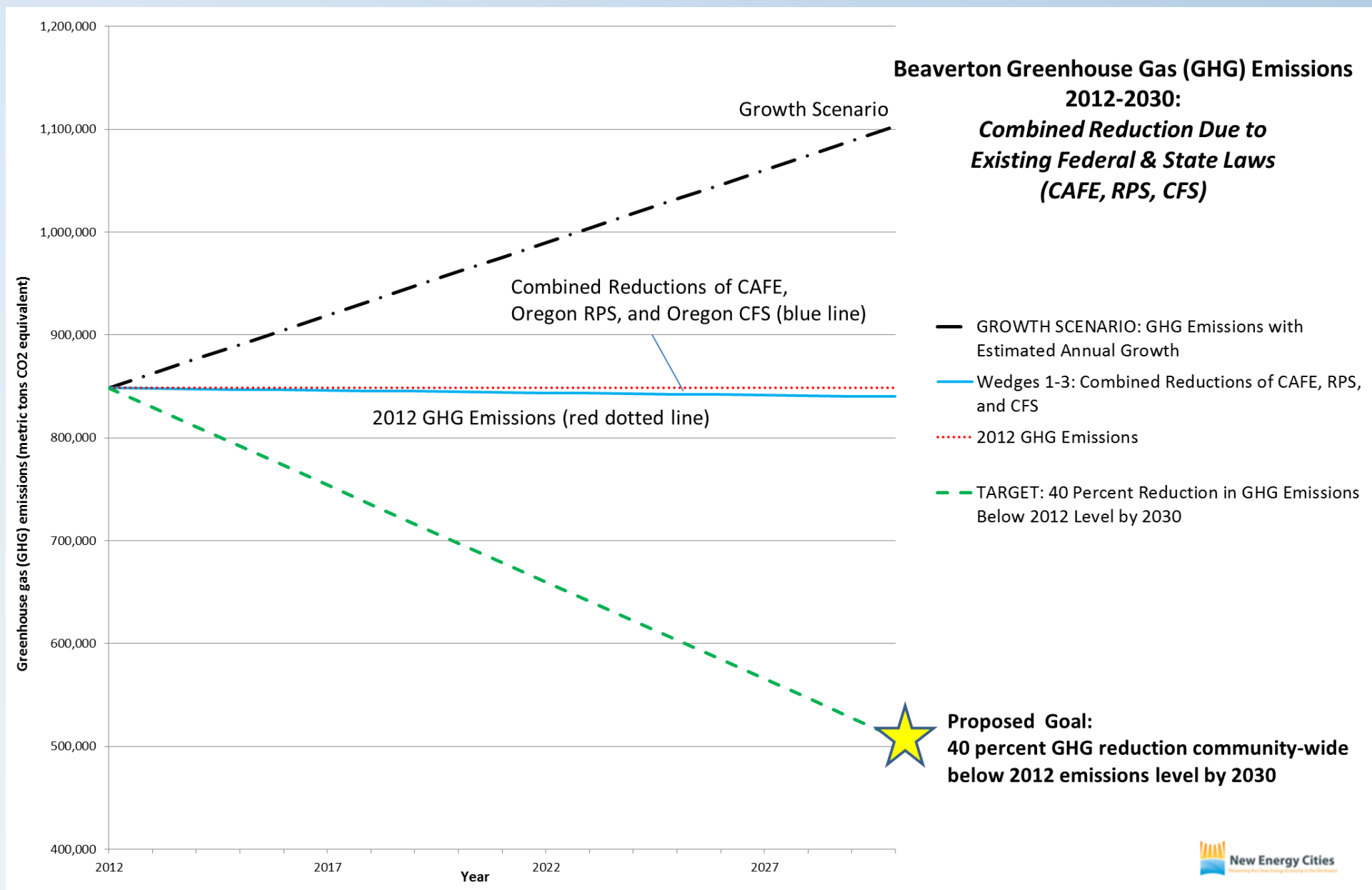




# Beaverton Reduction Impact of CFS

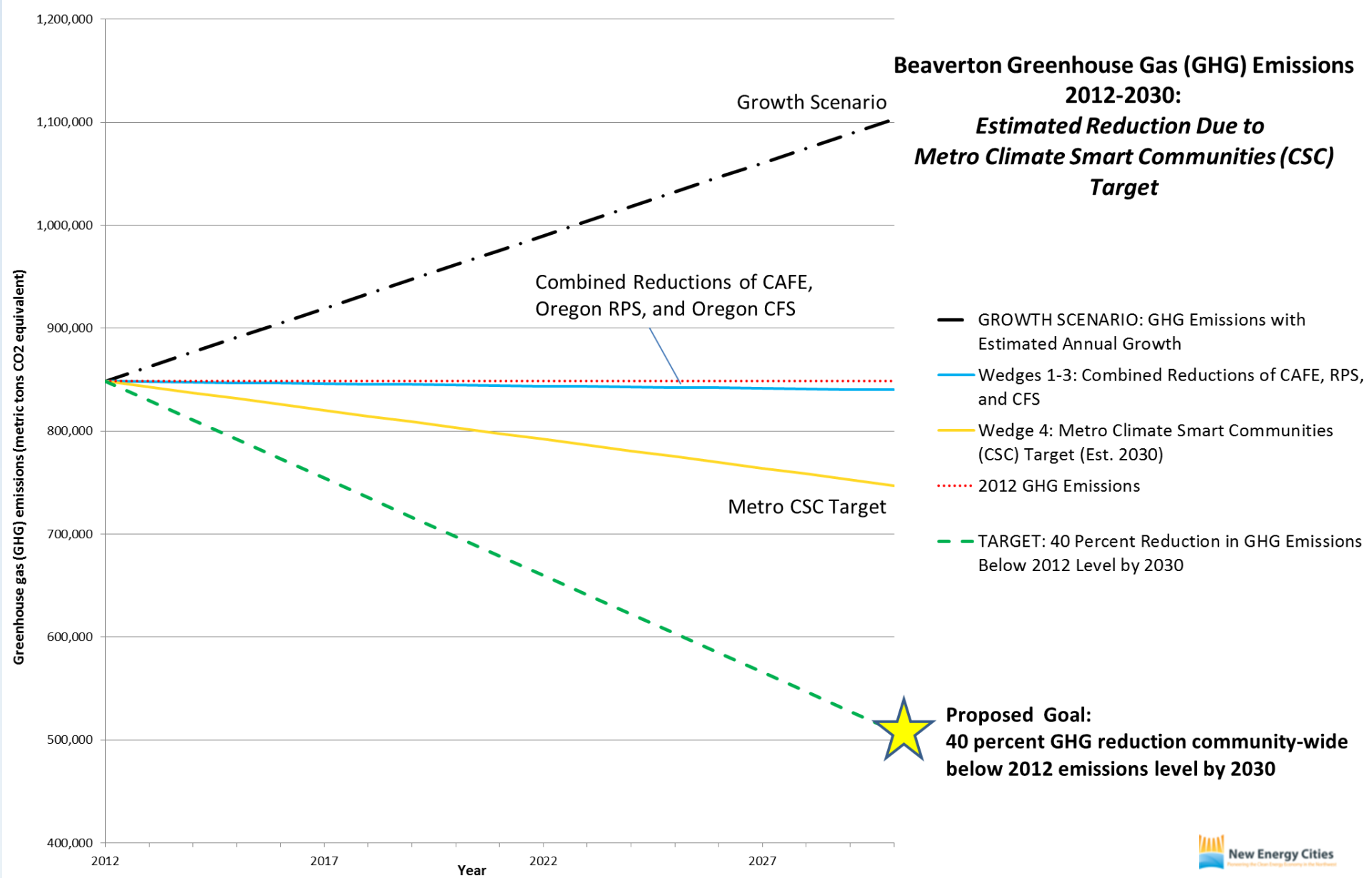


# Beaverton Reduction Impact of Existing Policies

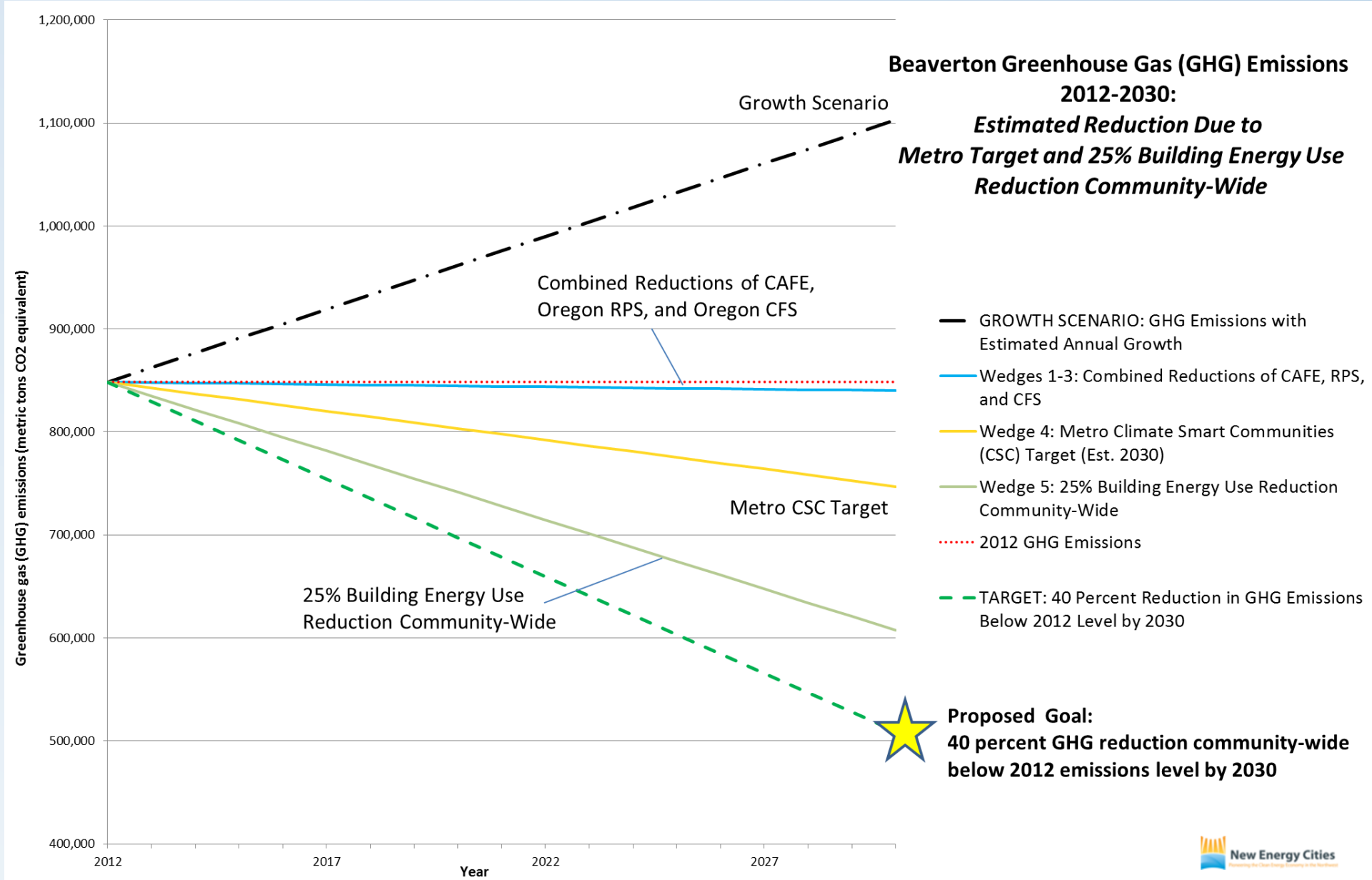




# Beaverton Climate Smart Communities Impact

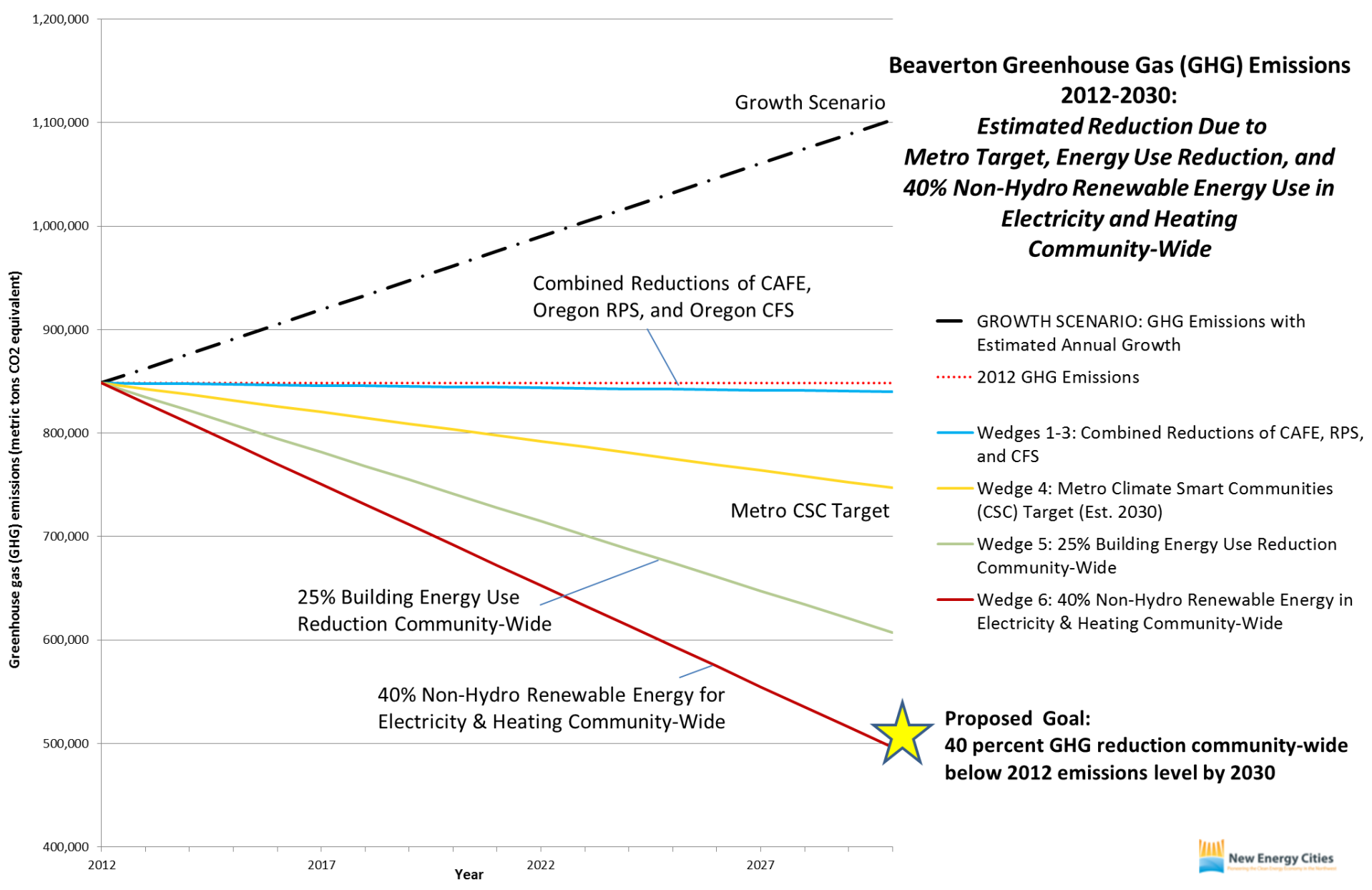


# Beaverton 25% Building Energy Use Reduction





# Beaverton 40% Non-Hydro Renewable Energy



# King County-Cities Climate Collaboration (K4C) Energy Map and Carbon Wedge Analysis (2013-16)







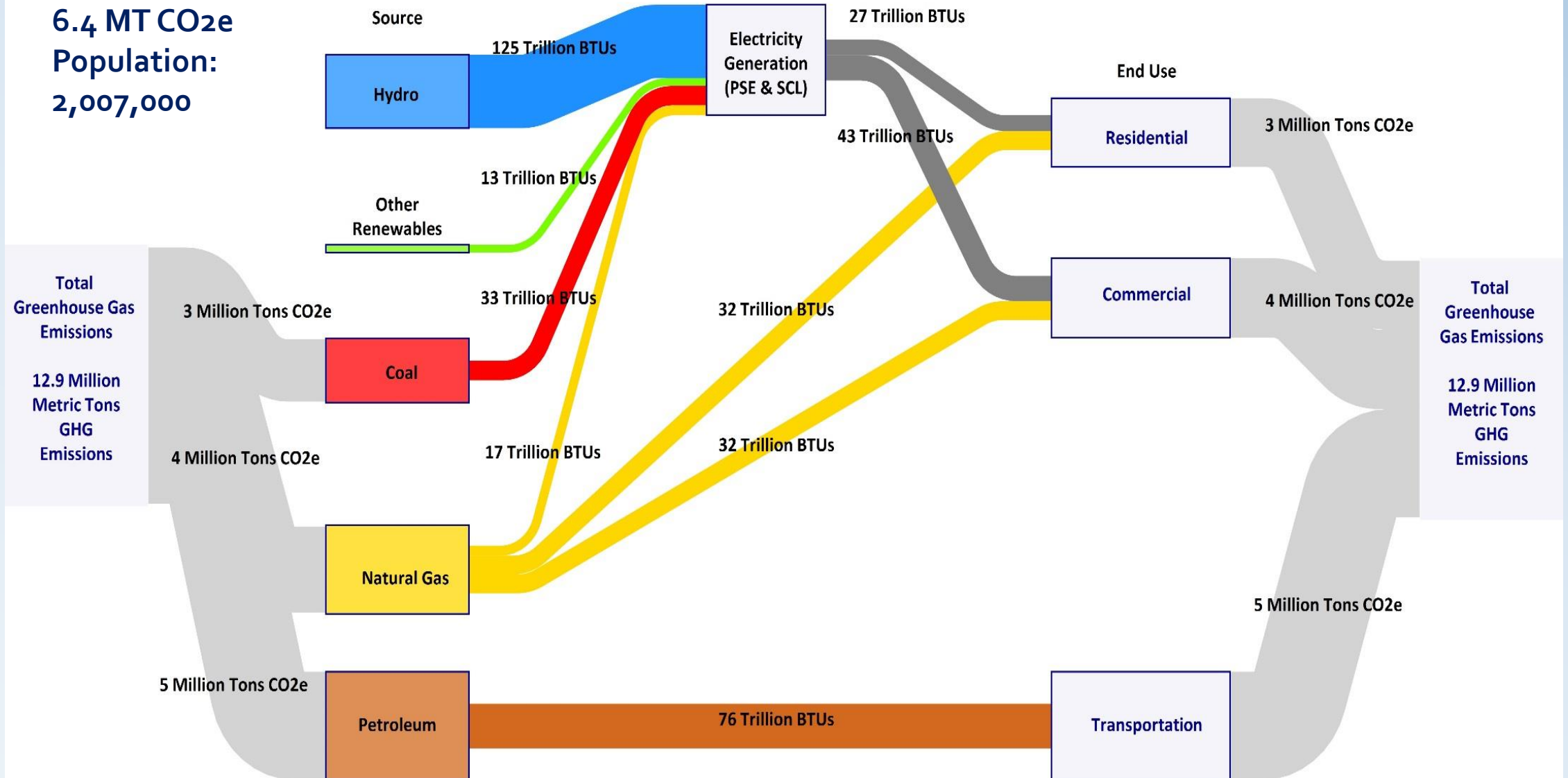
KING COUNTY-Cities  
CLIMATE COLLABORATION

(K4C)

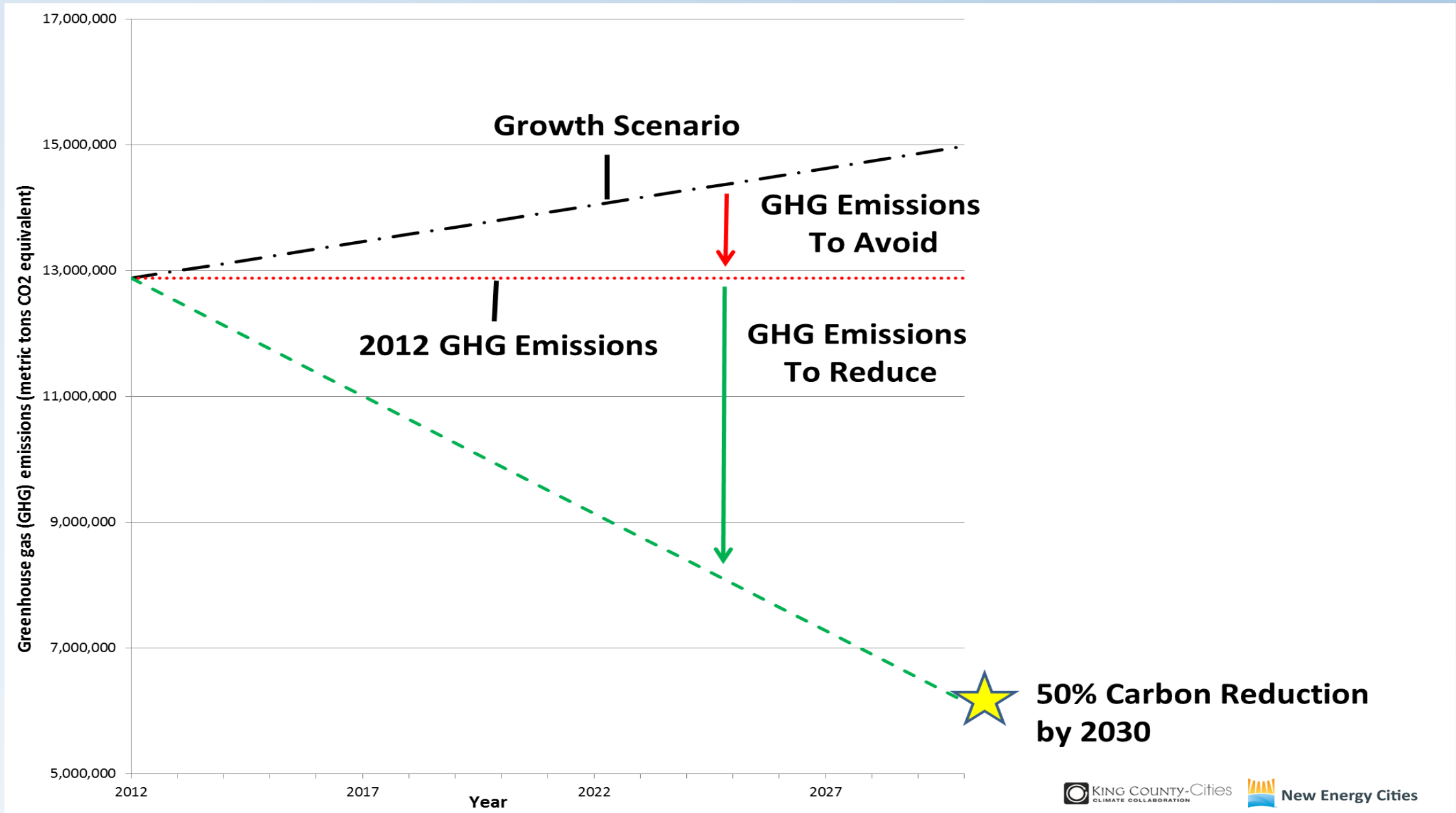


# K4C, WA Energy Map 2012

Per capita:  
6.4 MT CO<sub>2</sub>e  
Population:  
2,007,000

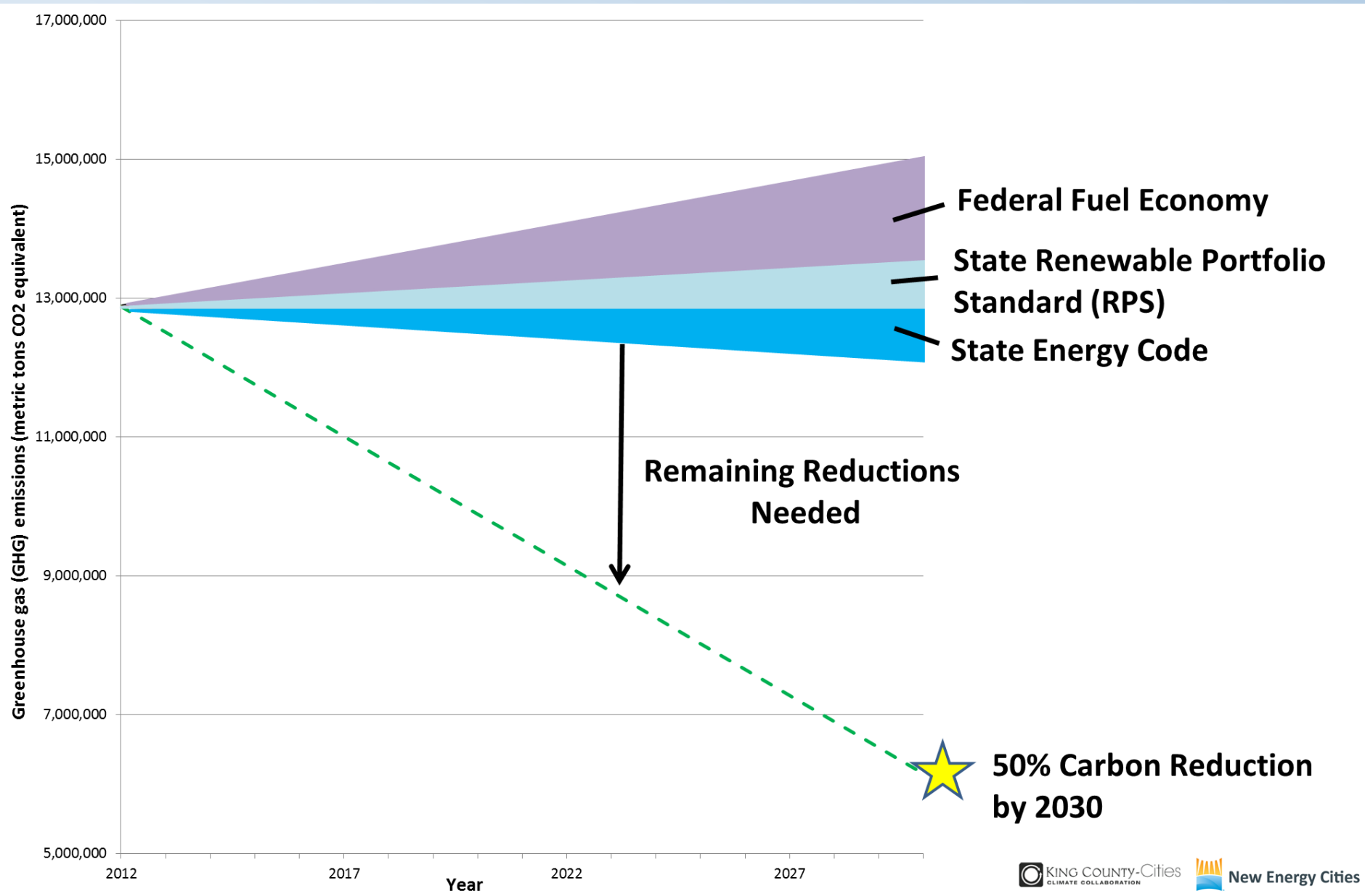


# K4C Carbon Wedge Analysis

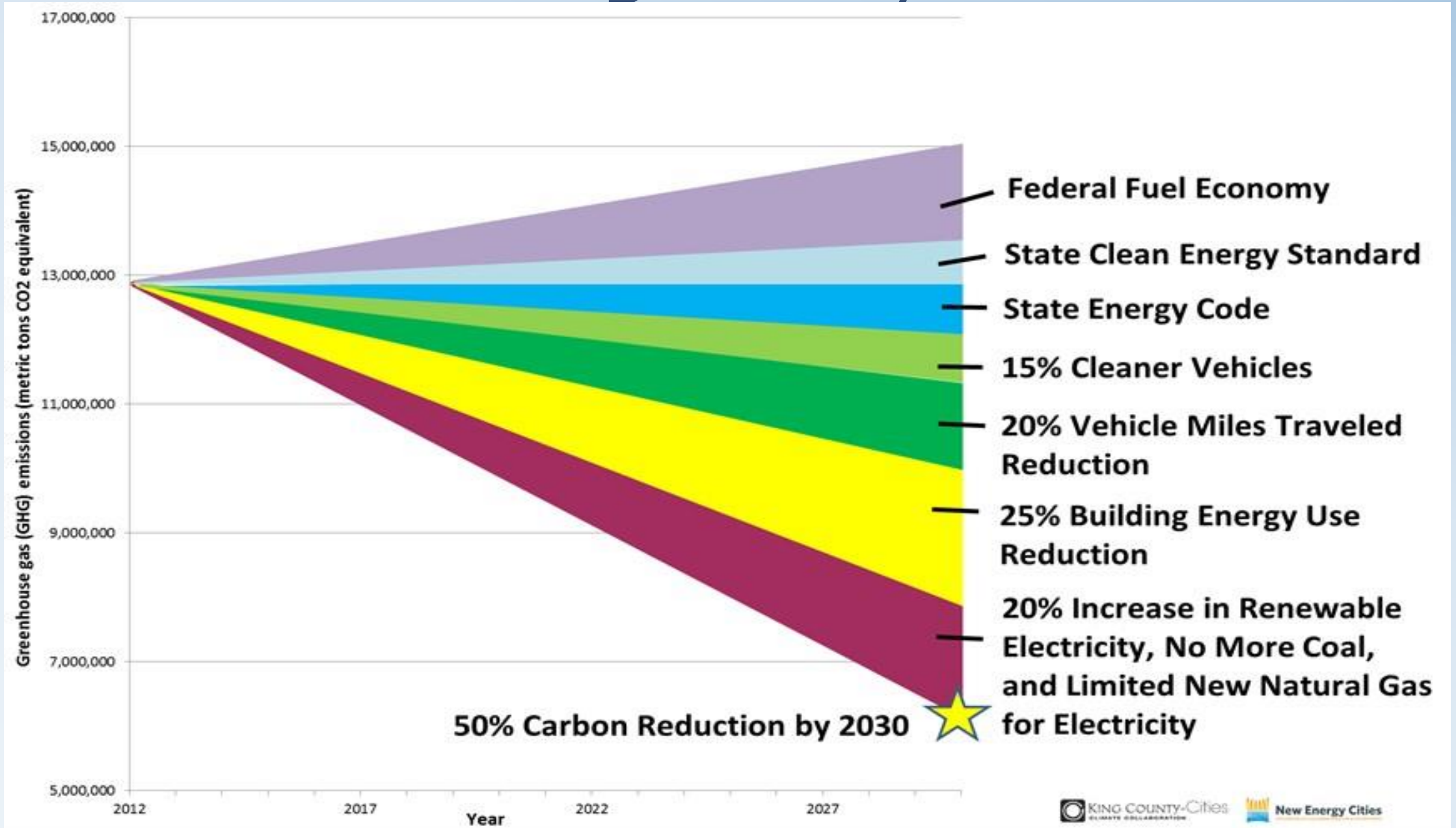




# K4C Existing Federal & State Laws



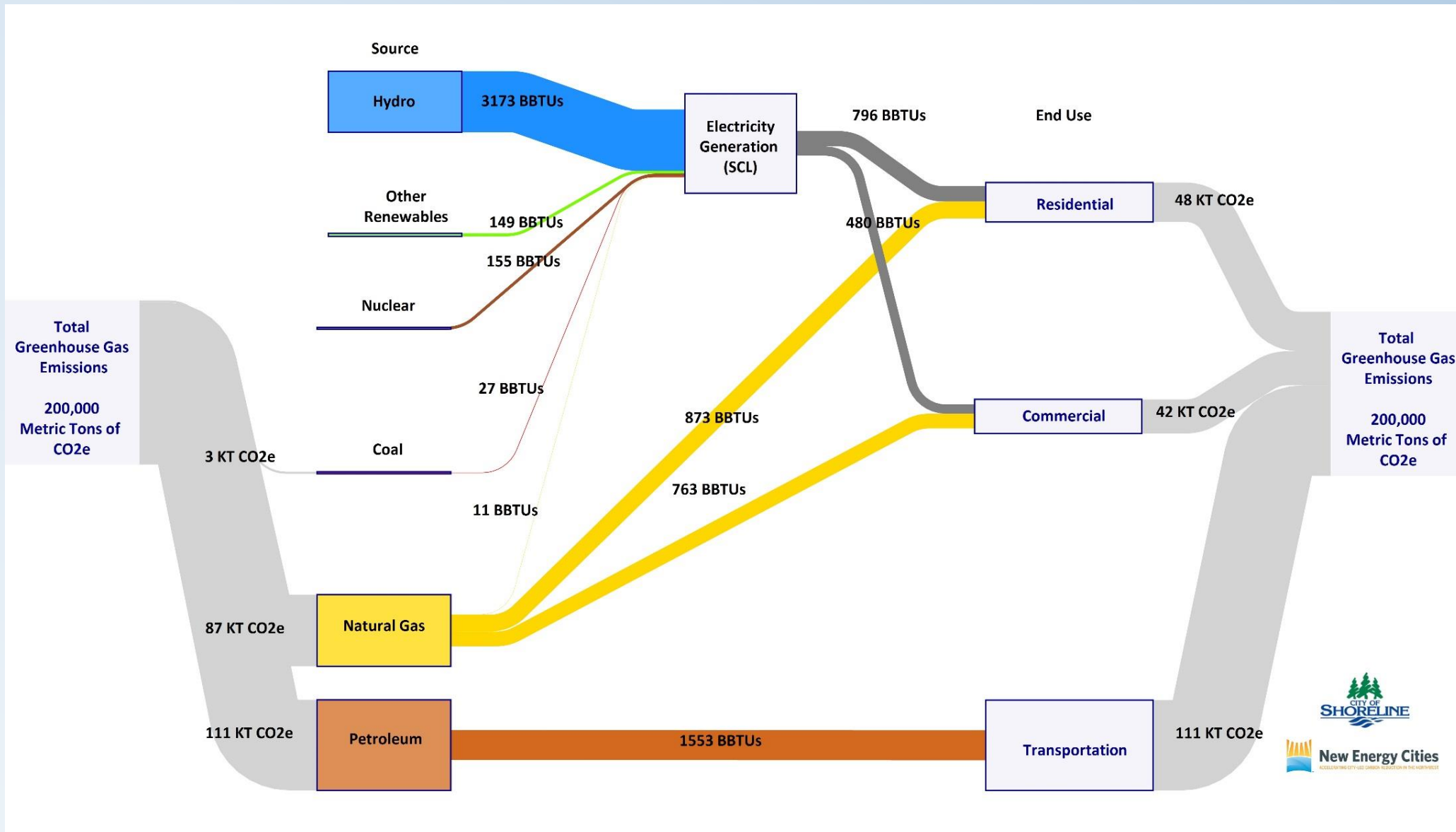
# K4C Carbon Wedge Analysis



# Shoreline, WA Energy Map and Carbon Wedge Analysis (2013)

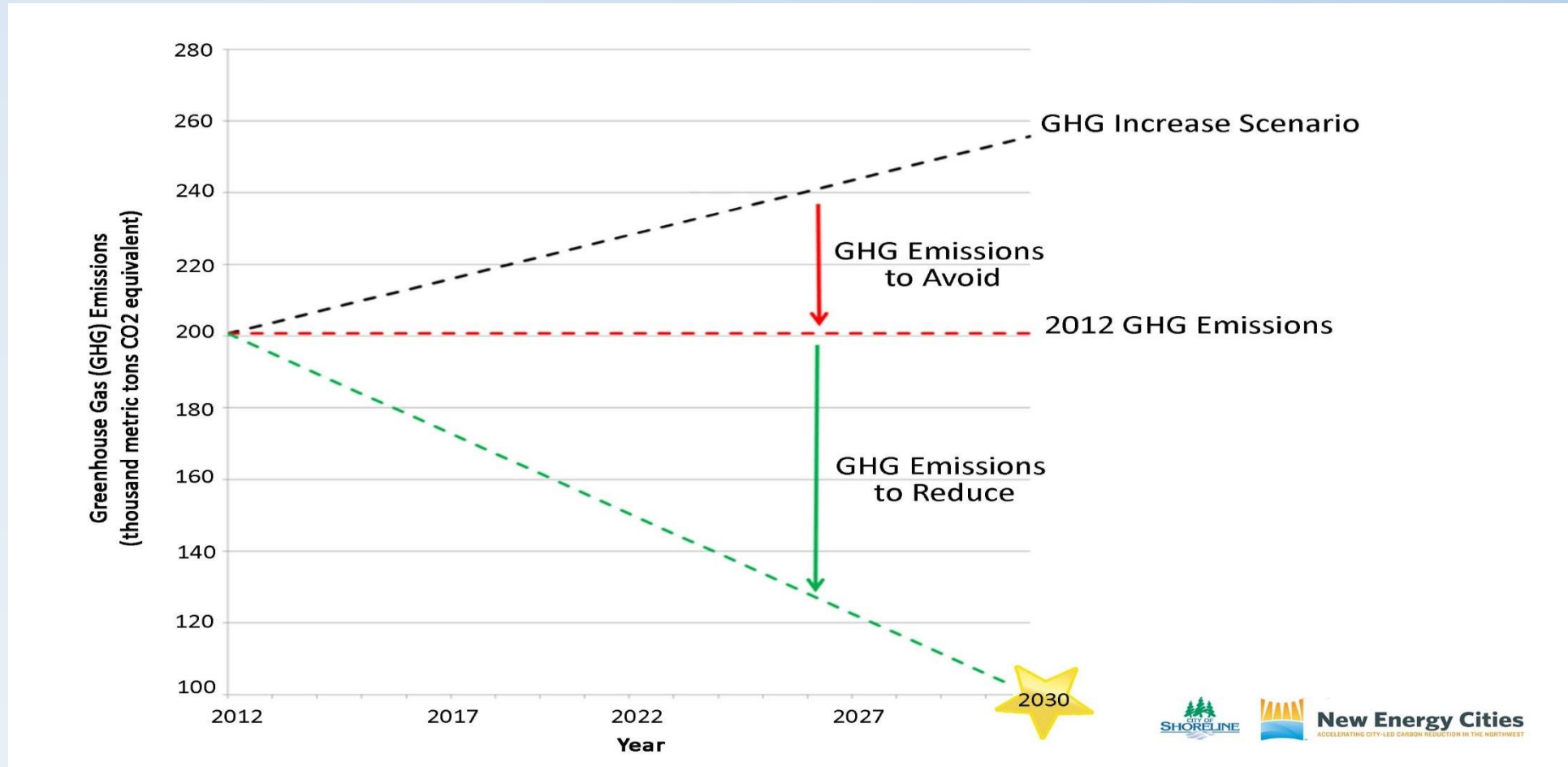


# Shoreline, WA Energy Map 2012

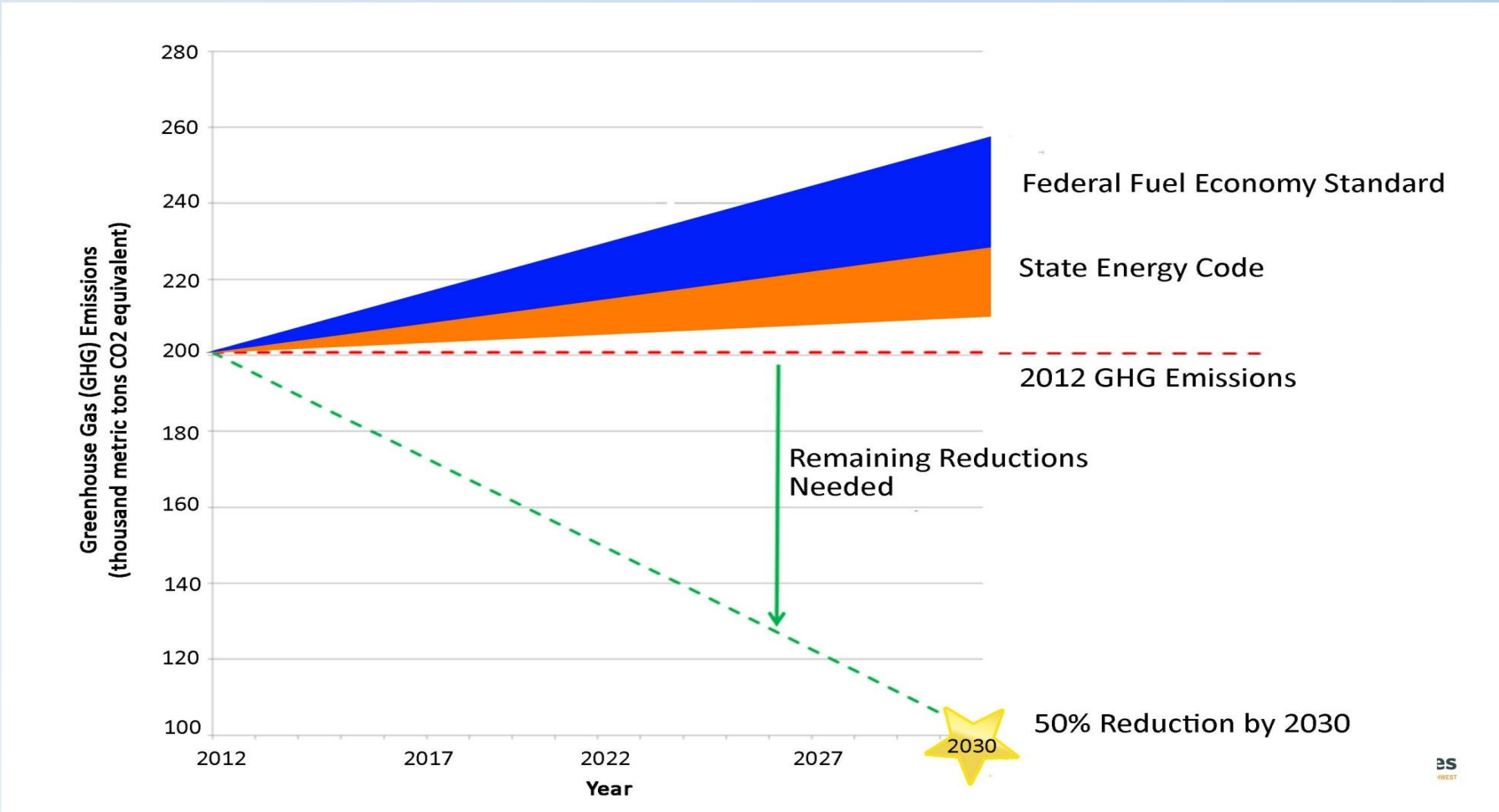




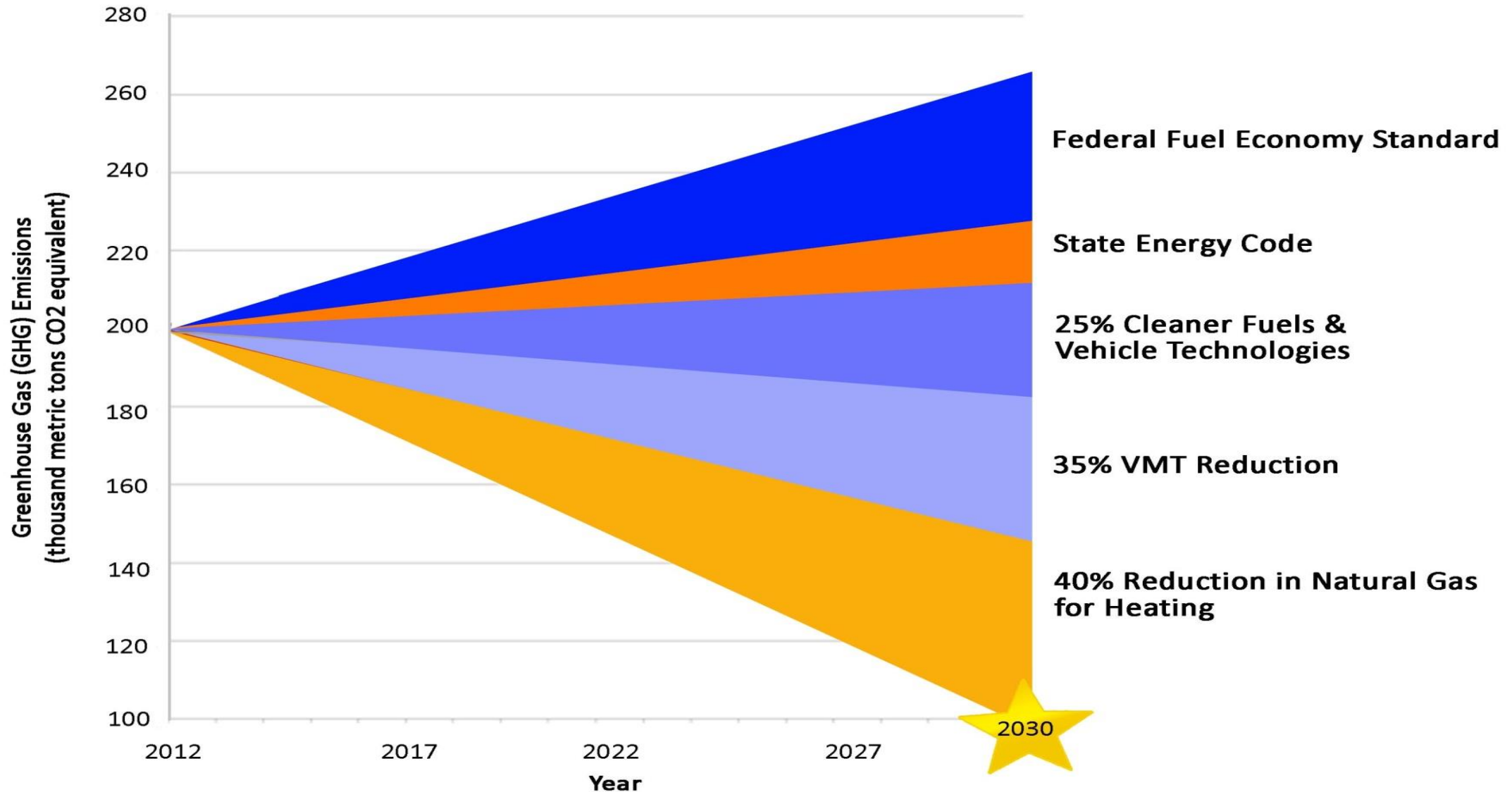
# Shoreline Emissions to Avoid & Reduce



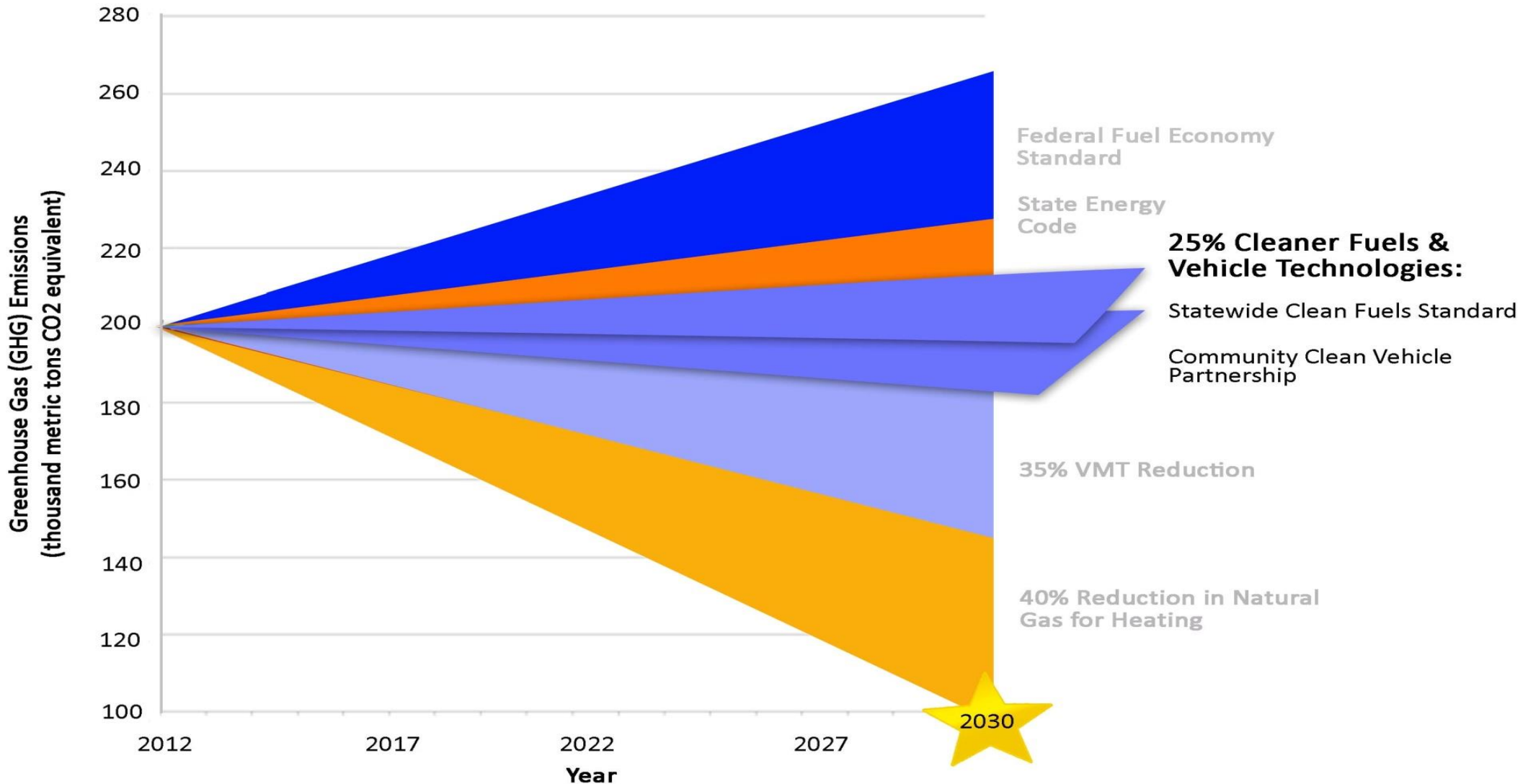
# Shoreline Reductions Existing Federal & State Laws



# Shoreline Carbon Wedge Analysis

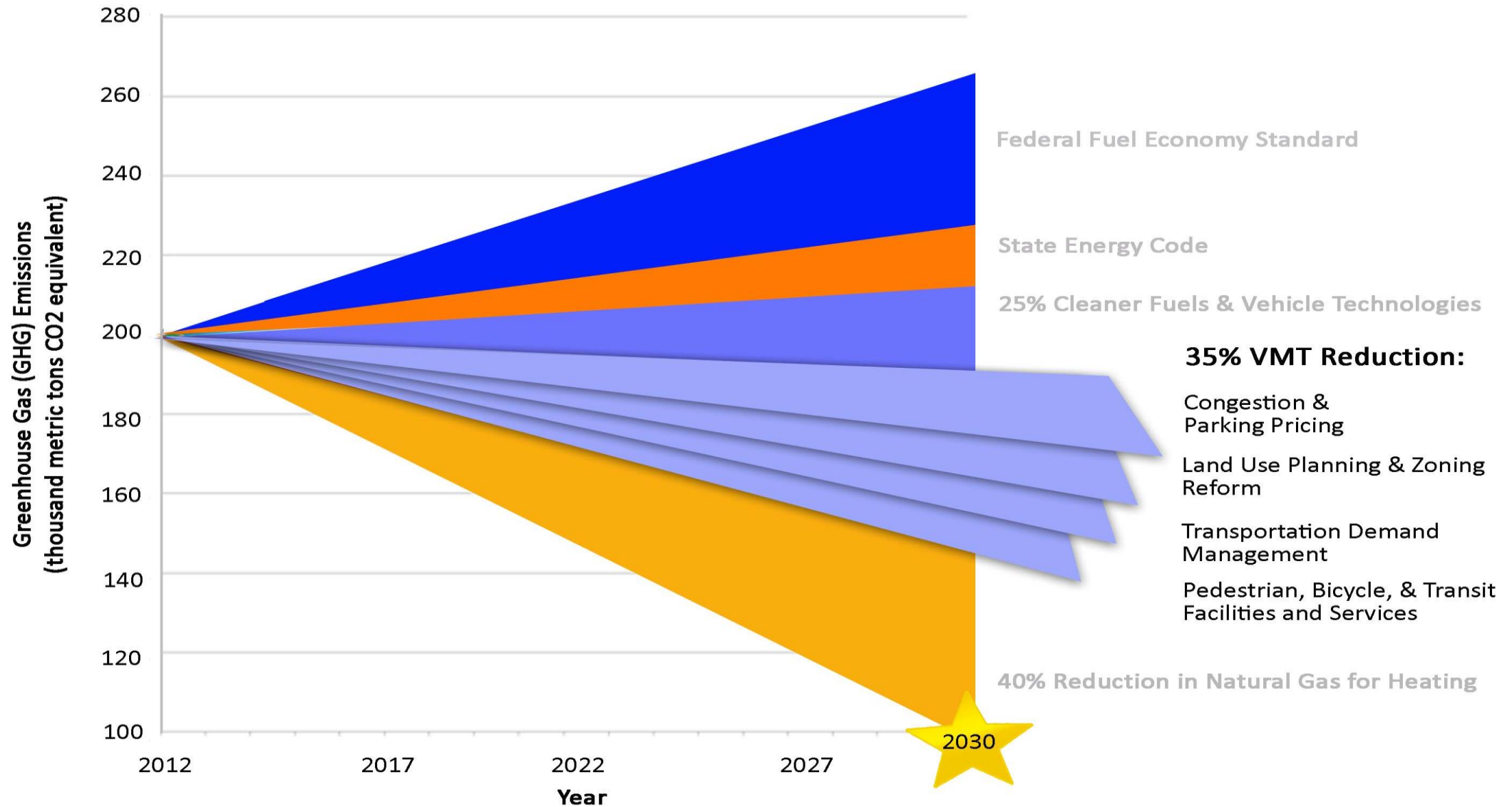


# Shoreline 25% Cleaner Fuels

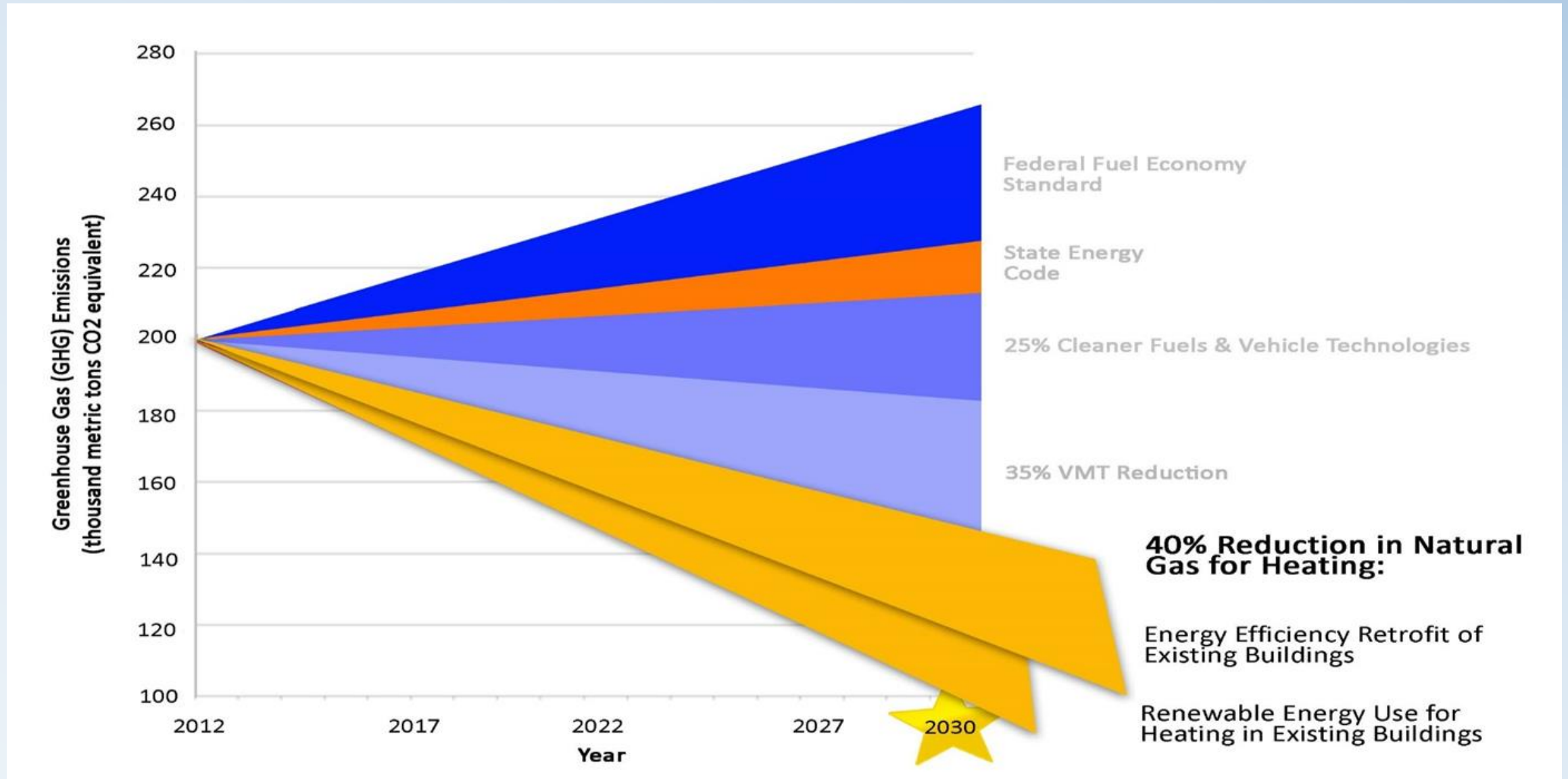




# Shoreline 35% Reduction in VMT



# Shoreline 40% Reduction in Natural Gas

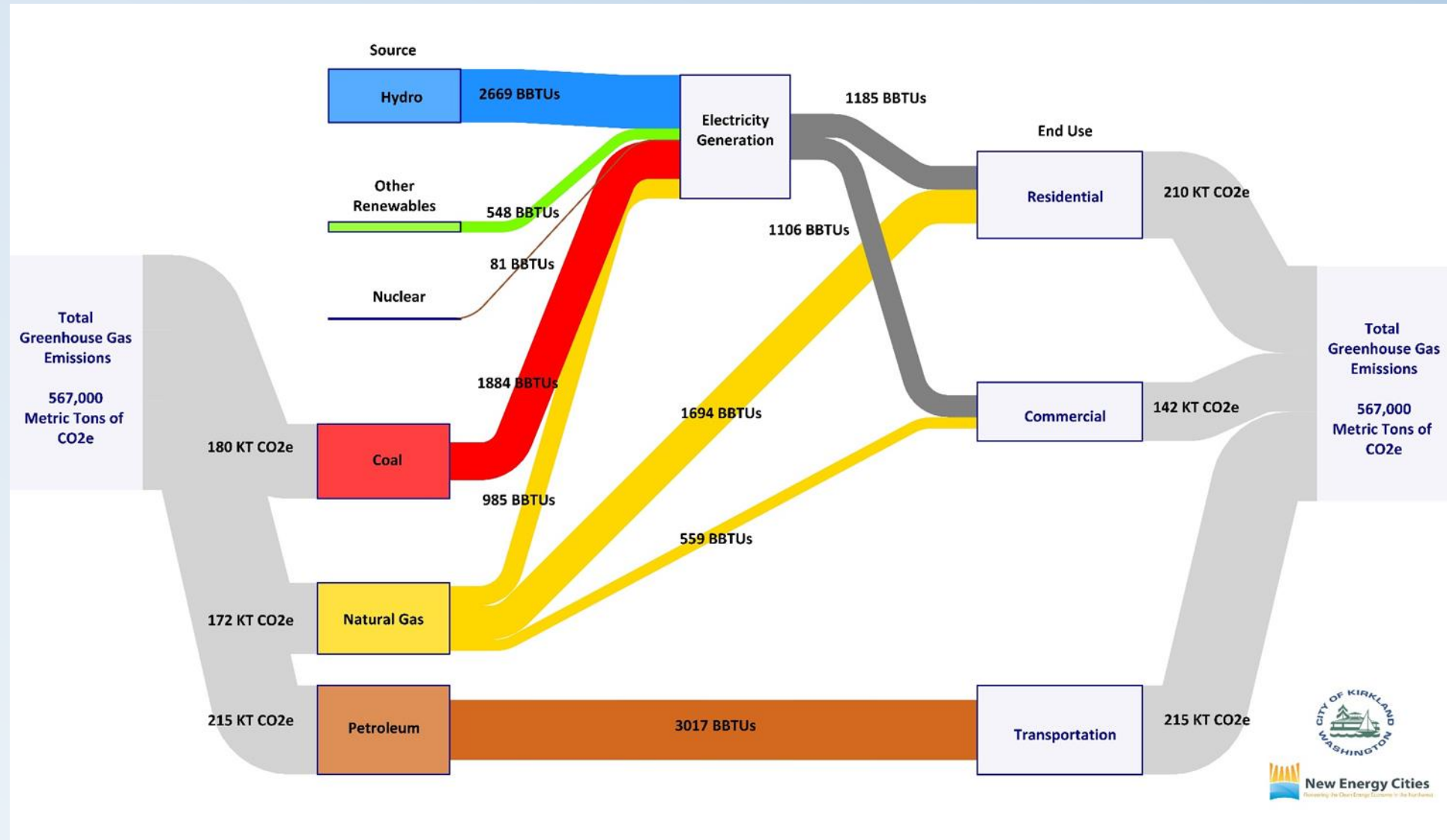


# Kirkland, WA Energy Map and Carbon Wedge Analysis (2014)



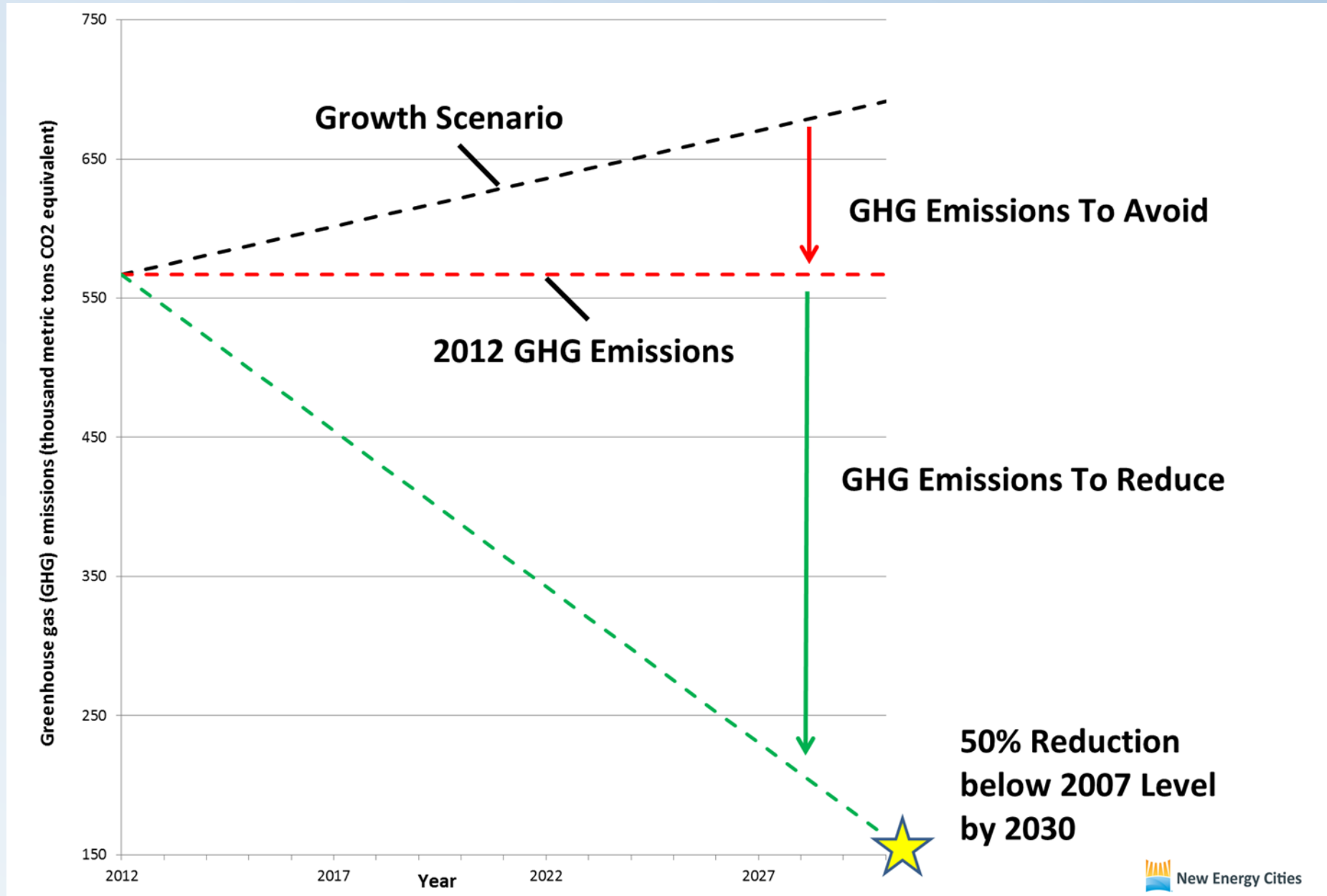


# Kirkland, WA 2012 Energy Map

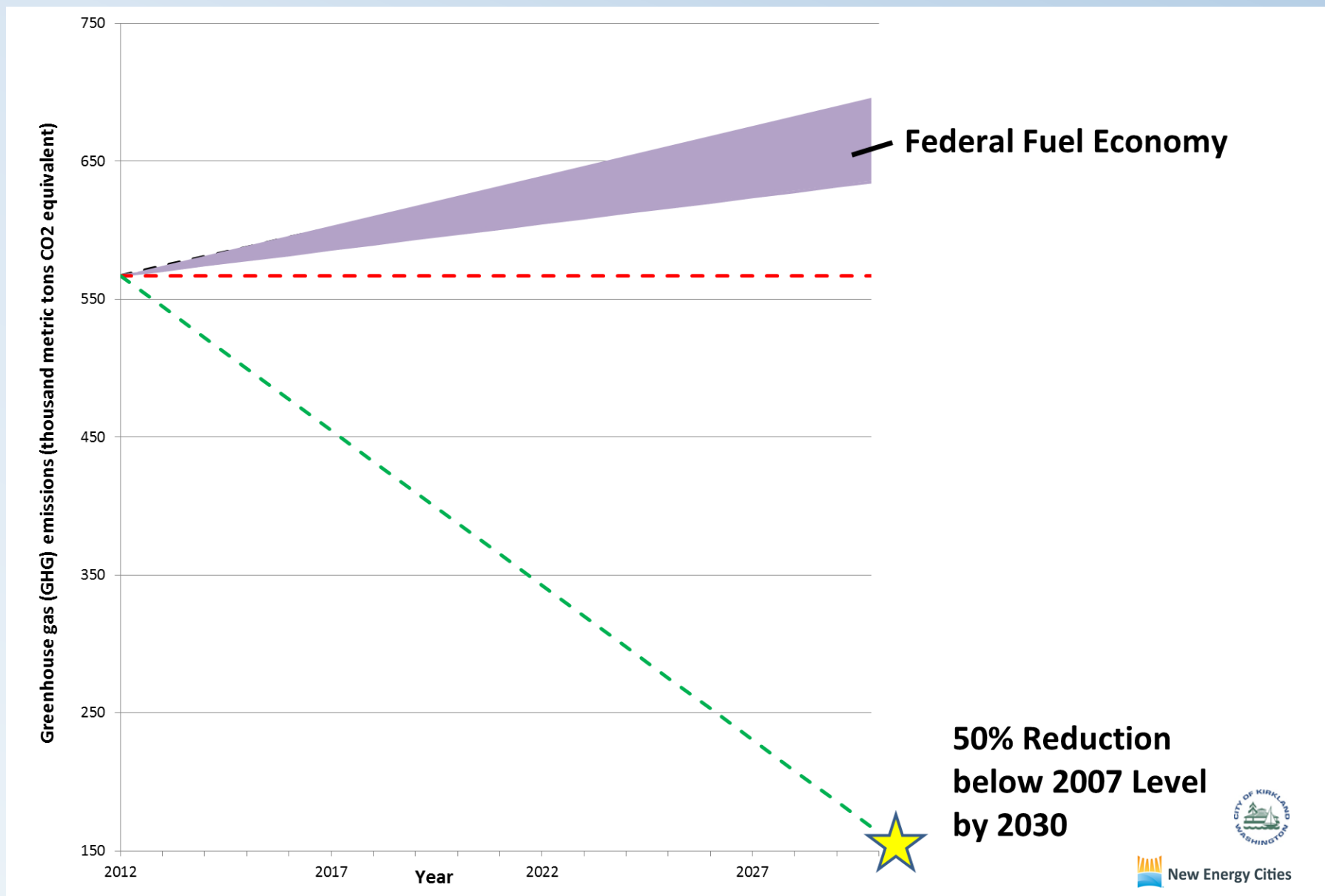




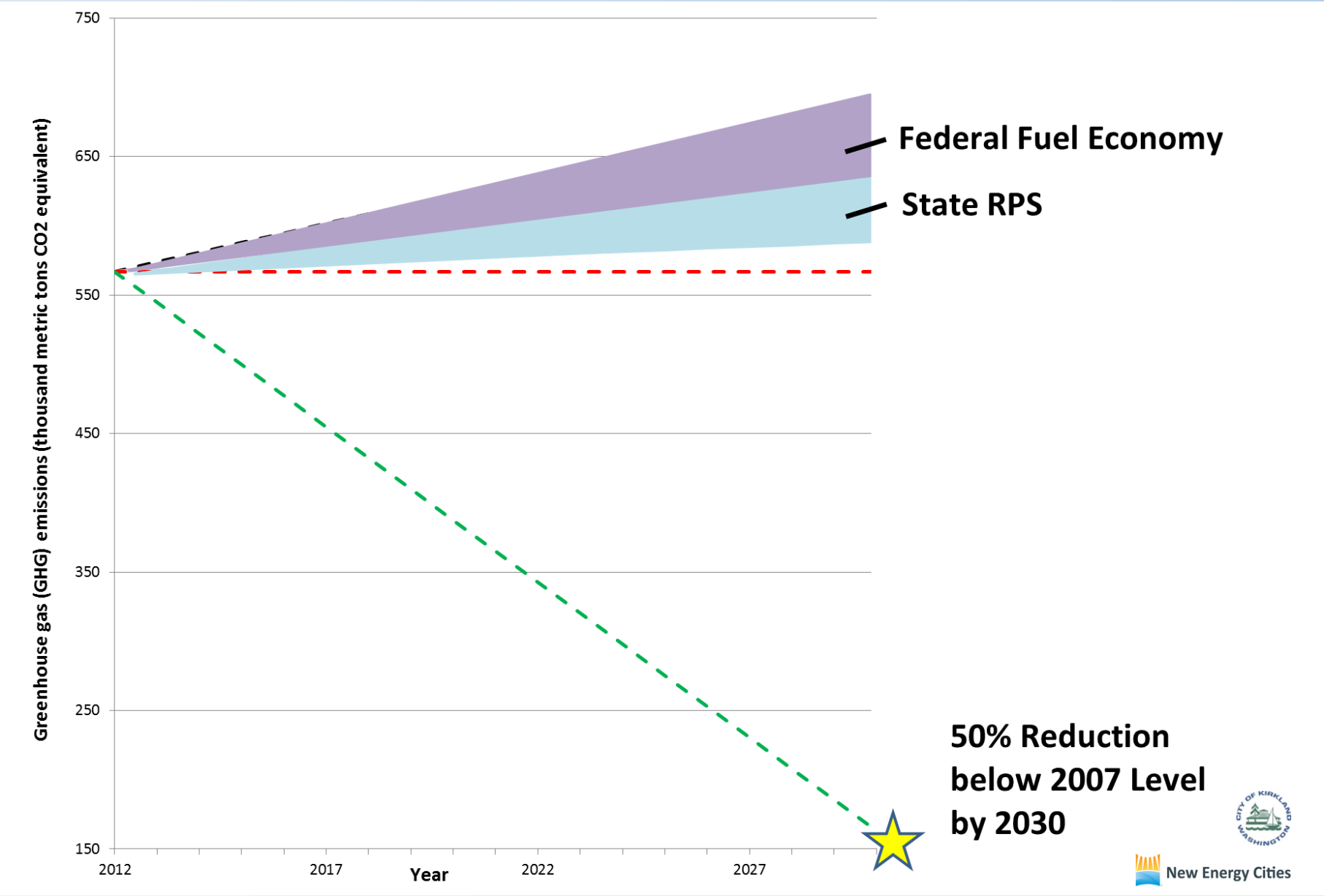
# Kirkland Emissions to Avoid & Reduce



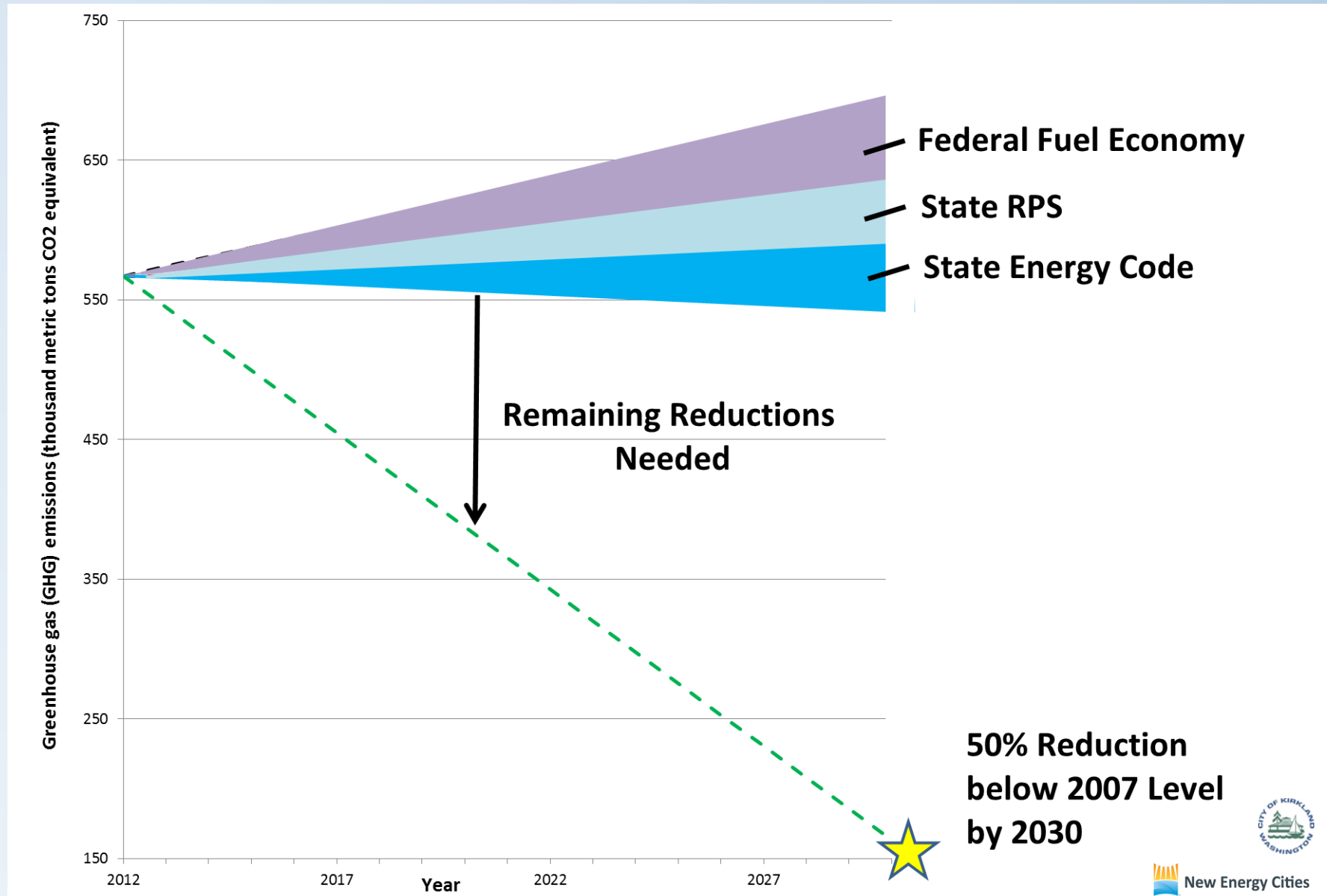
# Kirkland Corporate Average Fuel Economy Reduction



# Kirkland Renewable Portfolio Standard (RPS) Reduction

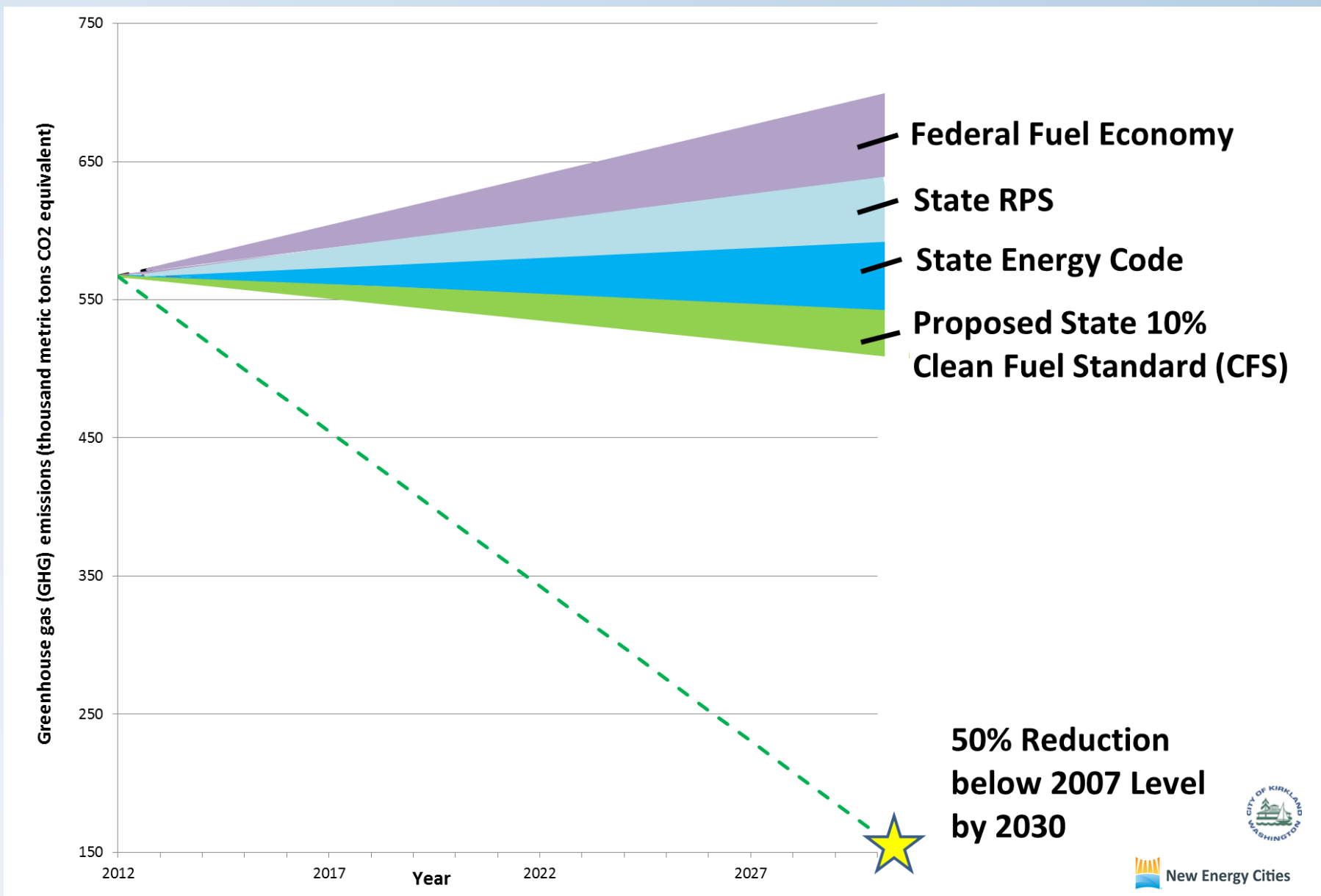


# Kirkland Washington State Energy Code Reduction

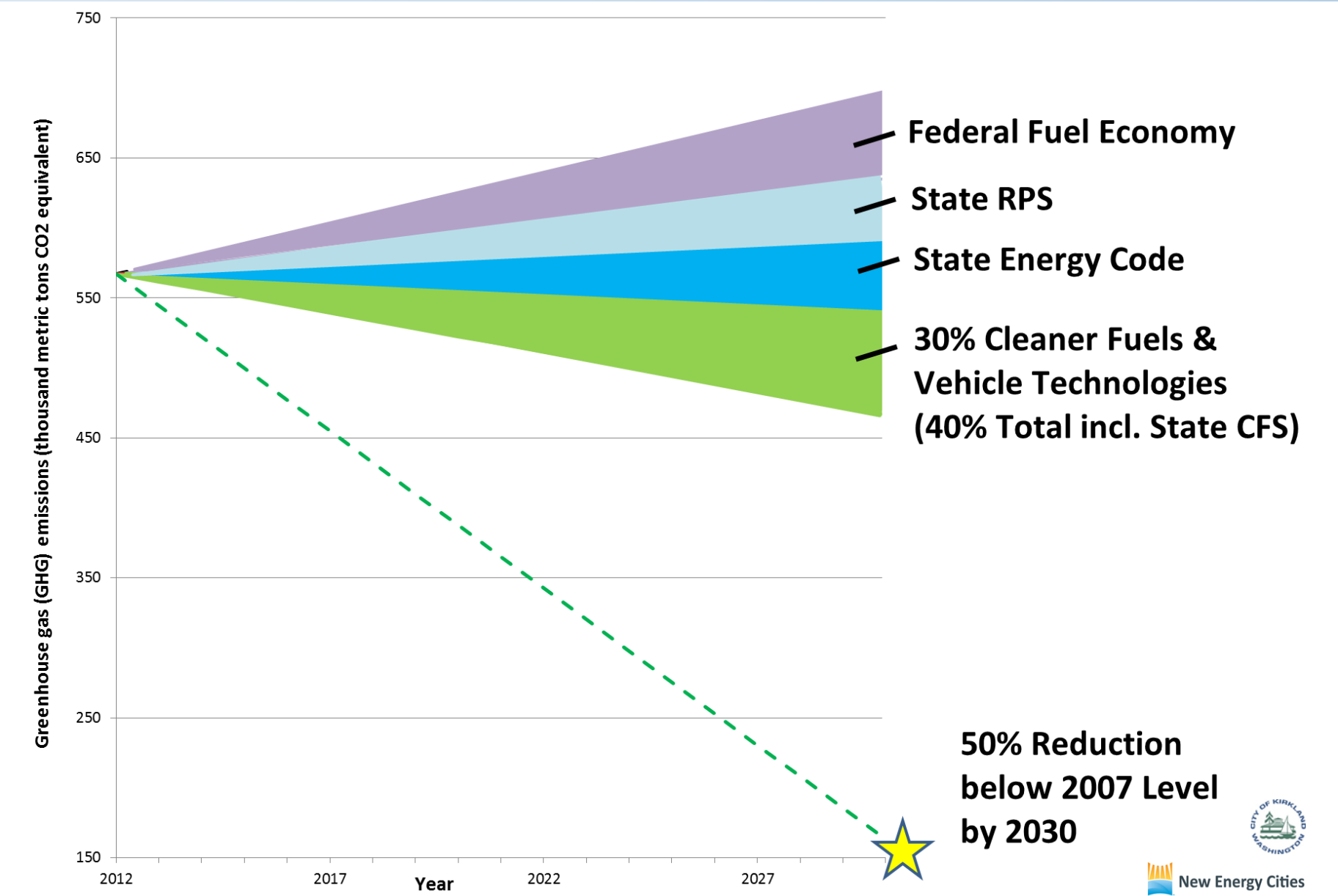




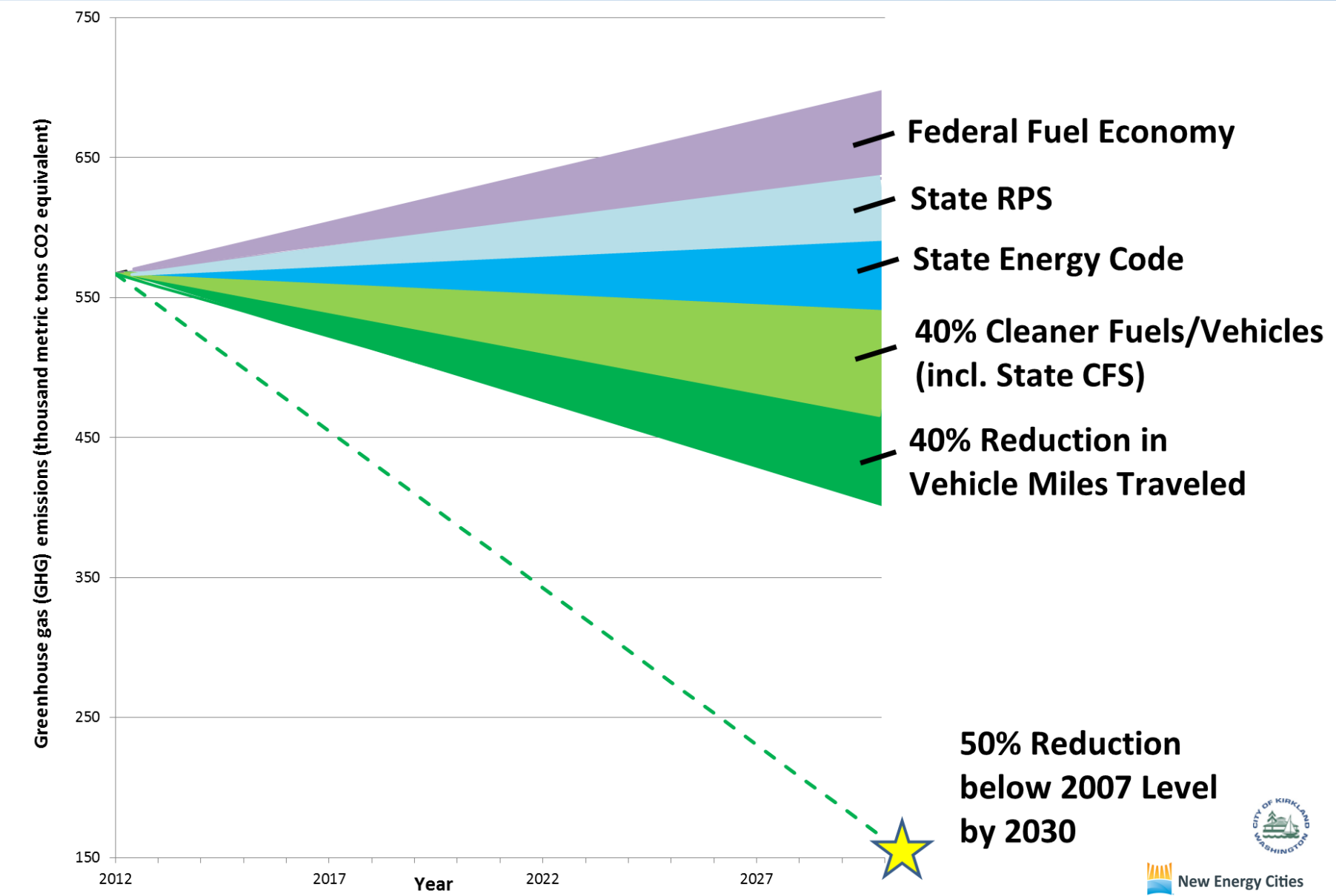
# Kirkland - 10% Statewide Clean Fuel Standard



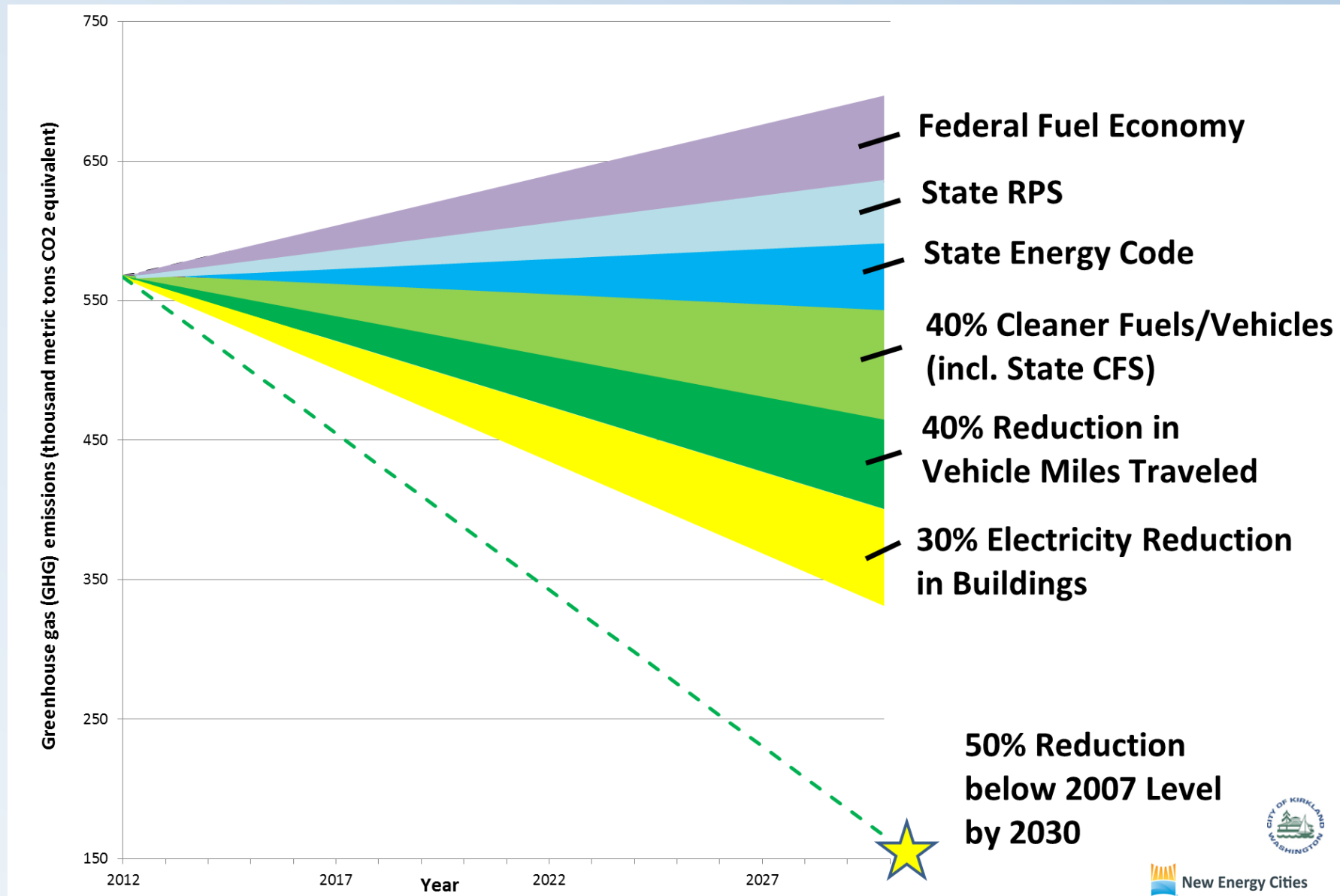
# Kirkland - 30% Cleaner Fuels & Vehicle Technologies



# Kirkland - 40% Reduction in Vehicle Miles Traveled

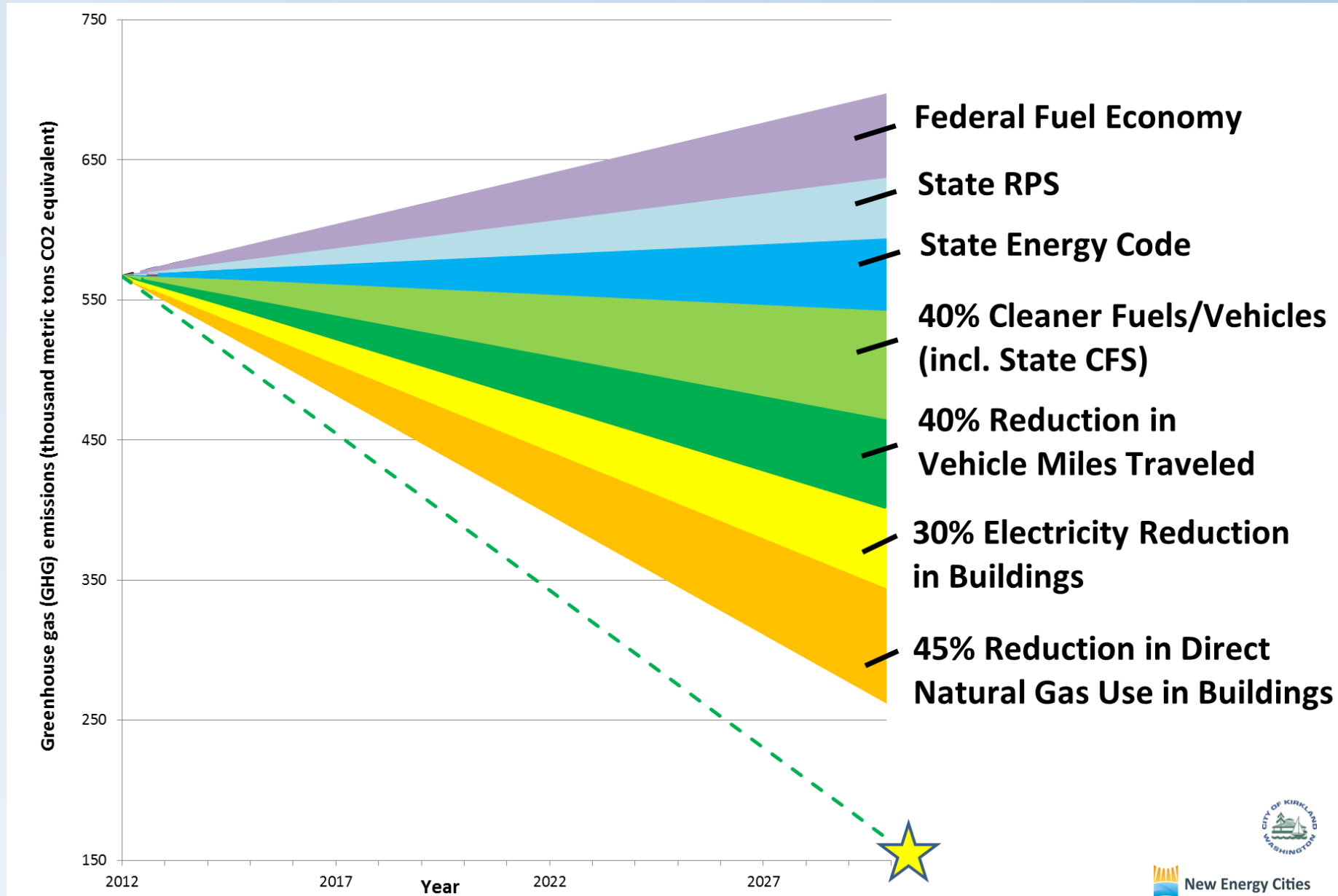


# Kirkland - 30% Electricity Reduction in Buildings

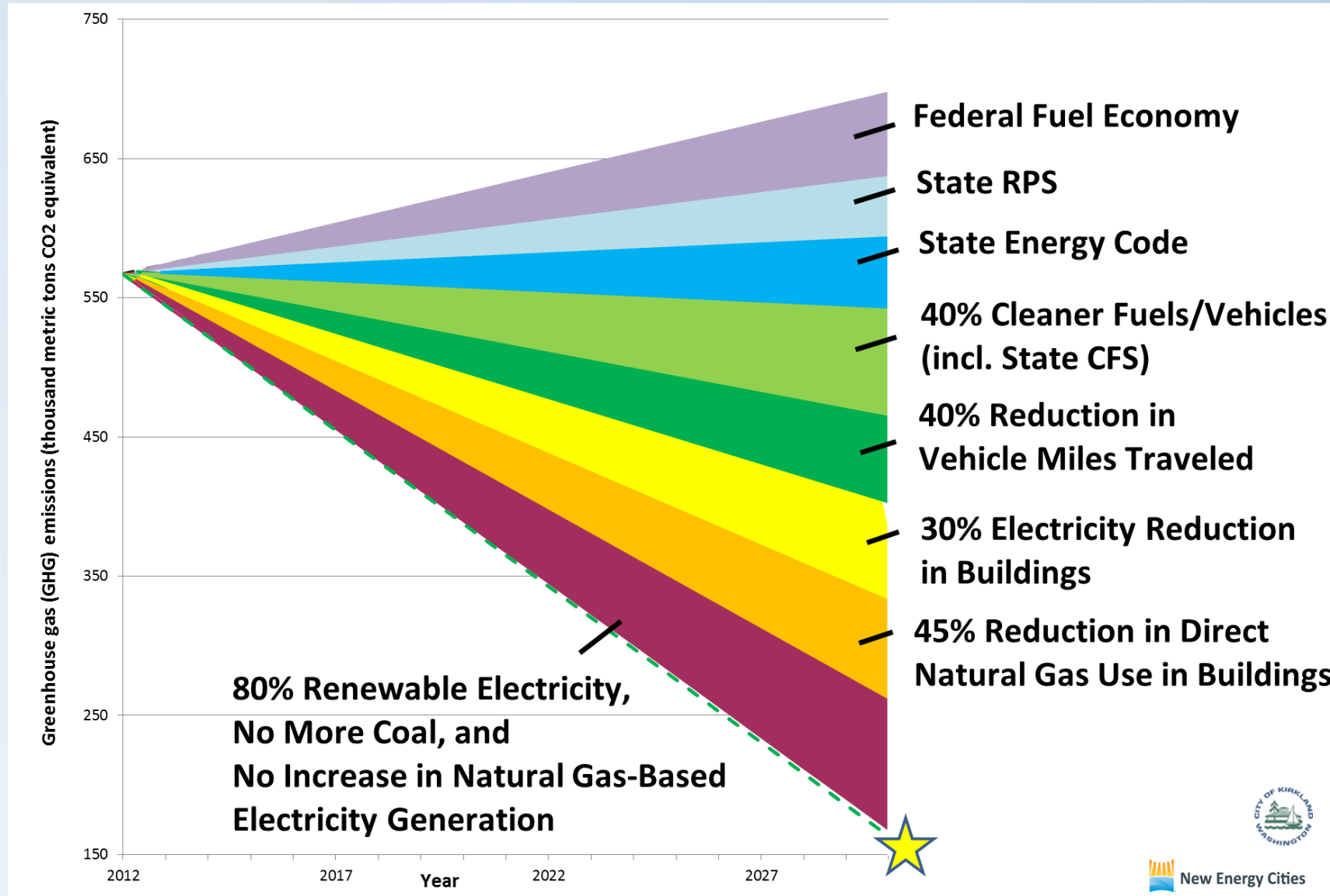




# Kirkland - 45% Reduction in Natural Gas Use for Heating



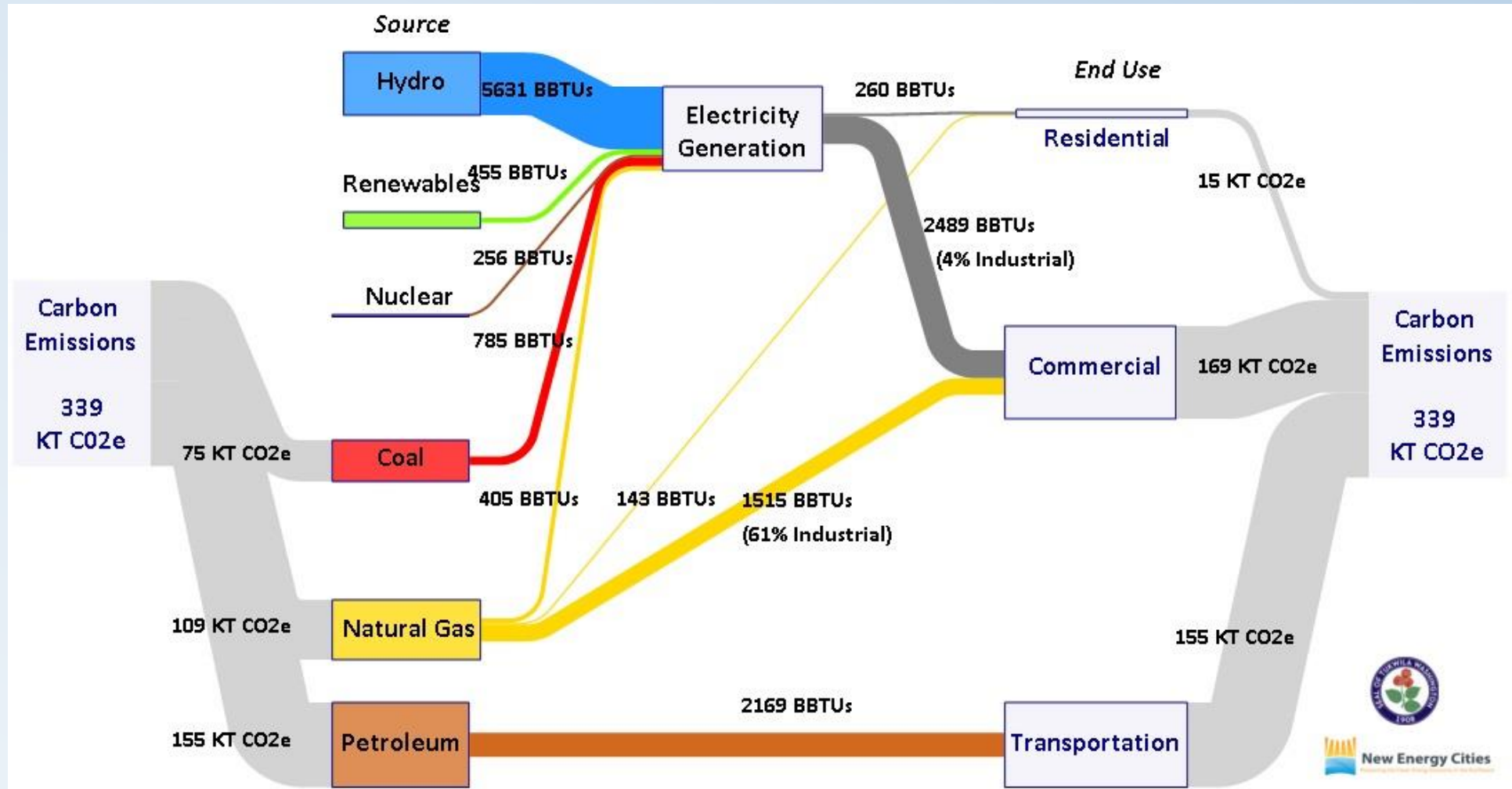
# Kirkland - 80% Renewable Electricity, Phase Out Coal, No New Natural Gas for Electricity



# Tukwila, WA Energy Map and Carbon Wedge Analysis (2015)

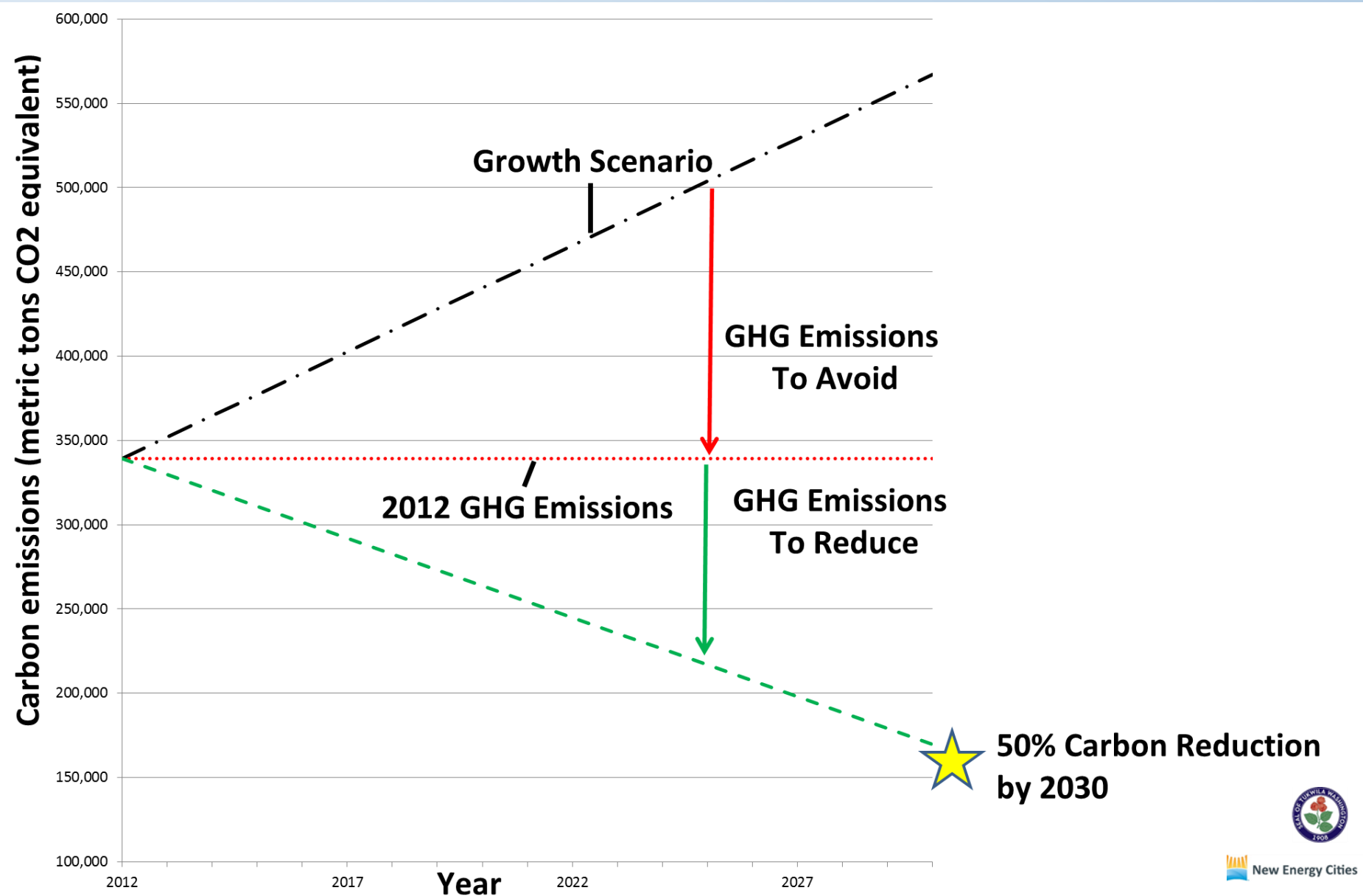


# Tukwila, WA 2012 Energy Map

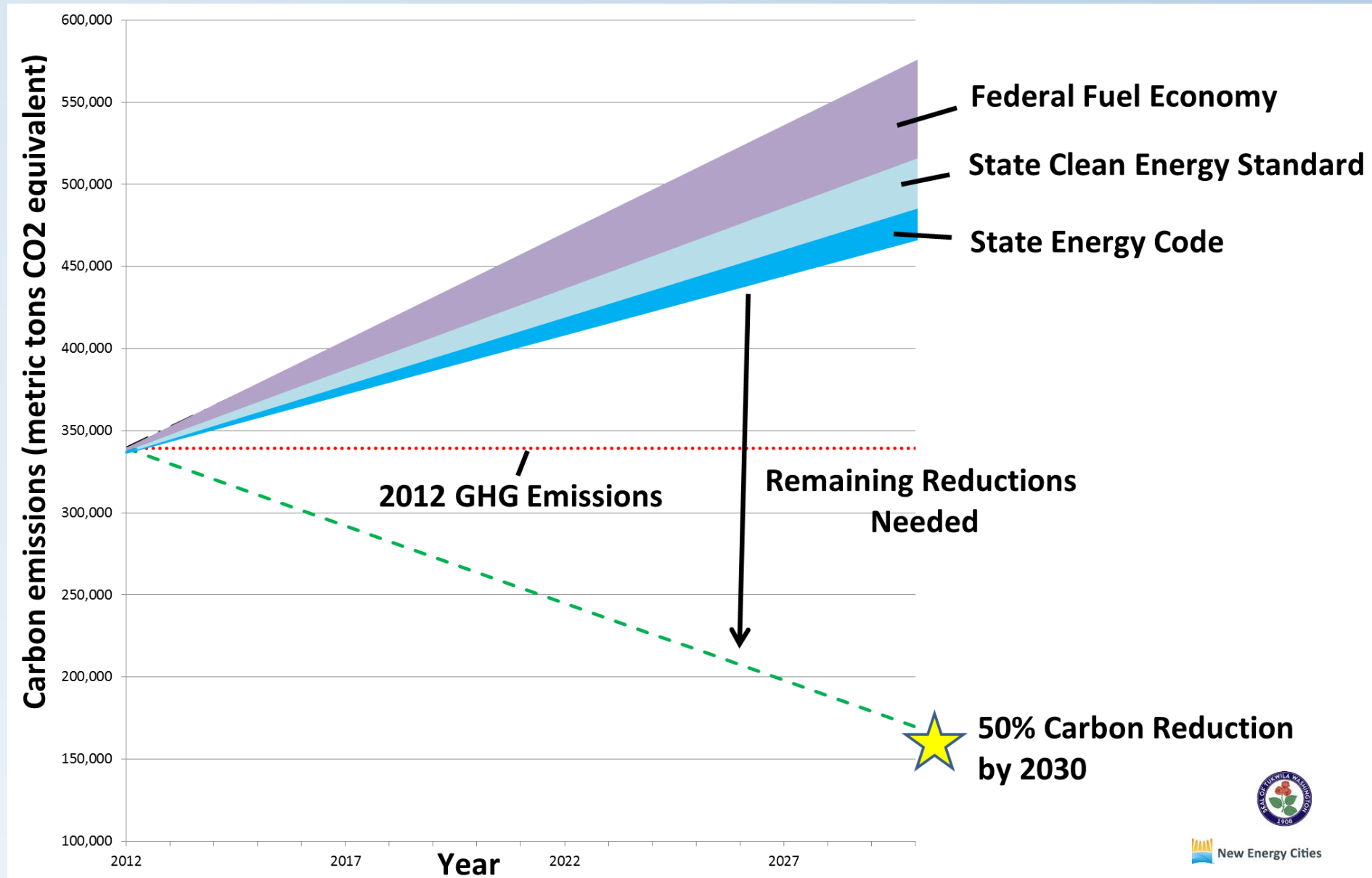




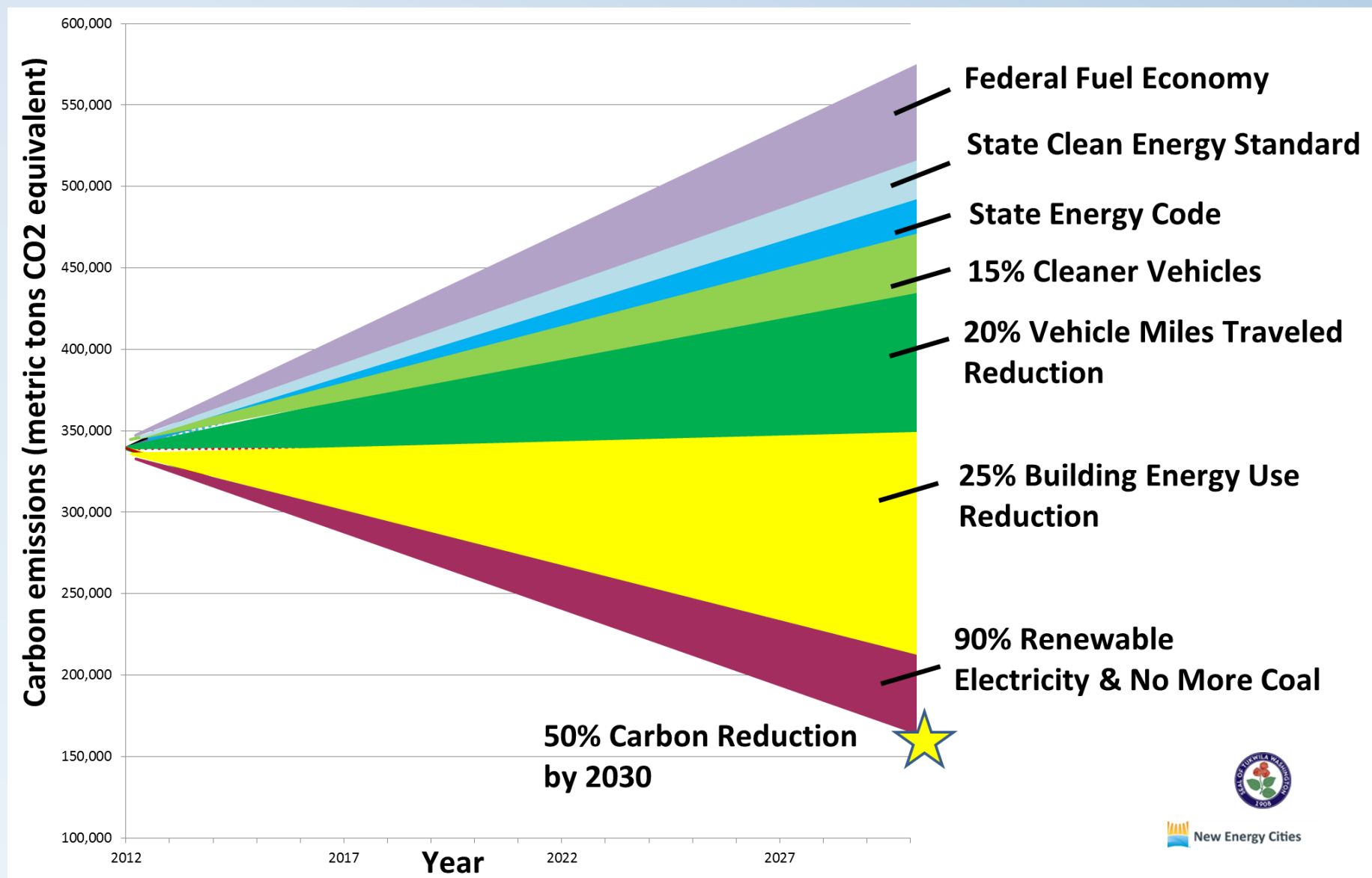
# Tukwila Emissions to Avoid & Reduce



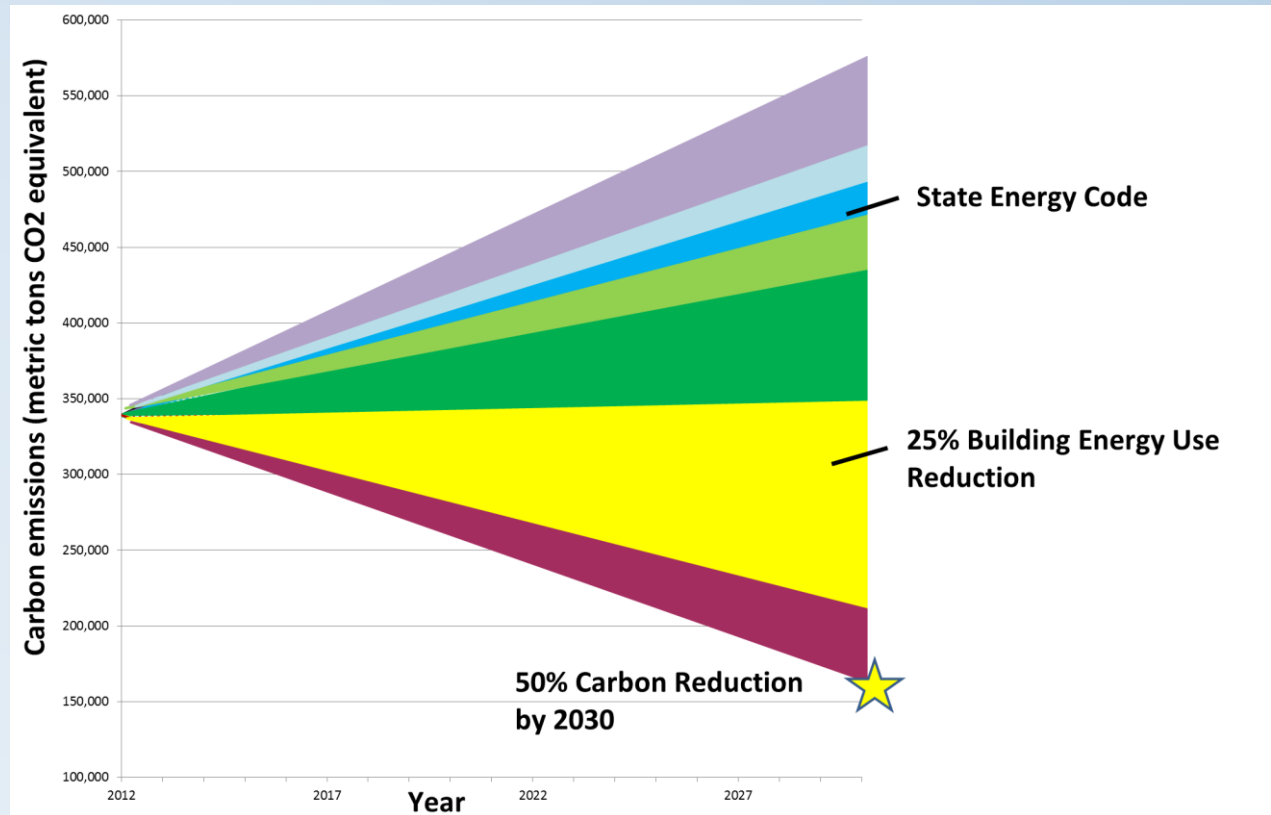
# Tukwila Reductions from Existing Federal & State Laws



# Tukwila Solutions in Transportation, Buildings, and Energy Supply



# Tukwila Building Energy Efficiency

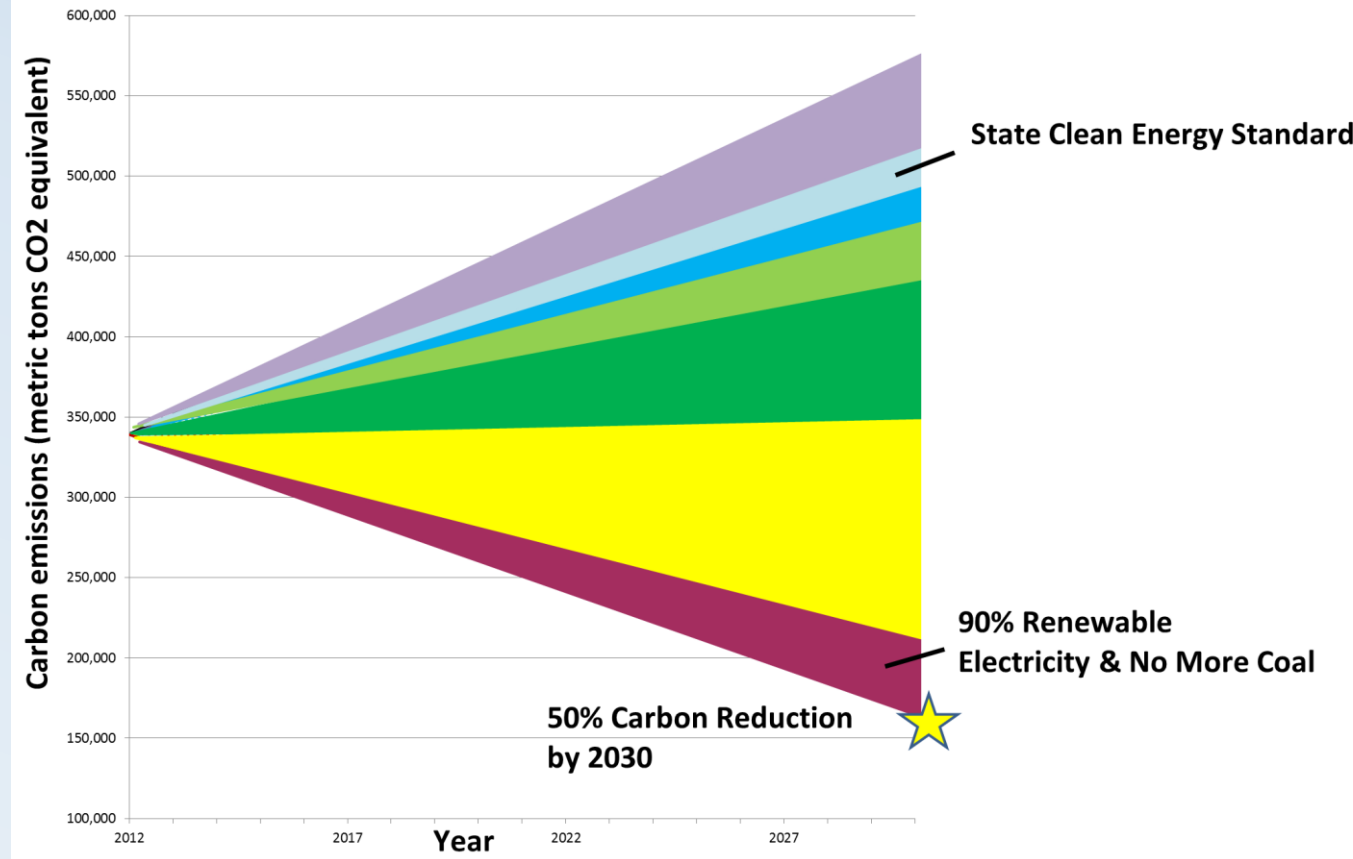


## Possible City Actions

- Pass a Living Building Demonstration Ordinance
- Create a Tukwila green building standard, including:
  - Permitting incentives & technical assistance options
  - Recognition of businesses making energy efficient upgrades
  - Technical assistance, funding, & utility incentives to help high energy users become more efficient
- Prioritize energy efficiency in City Facilities Plan (target LEED Silver rating)



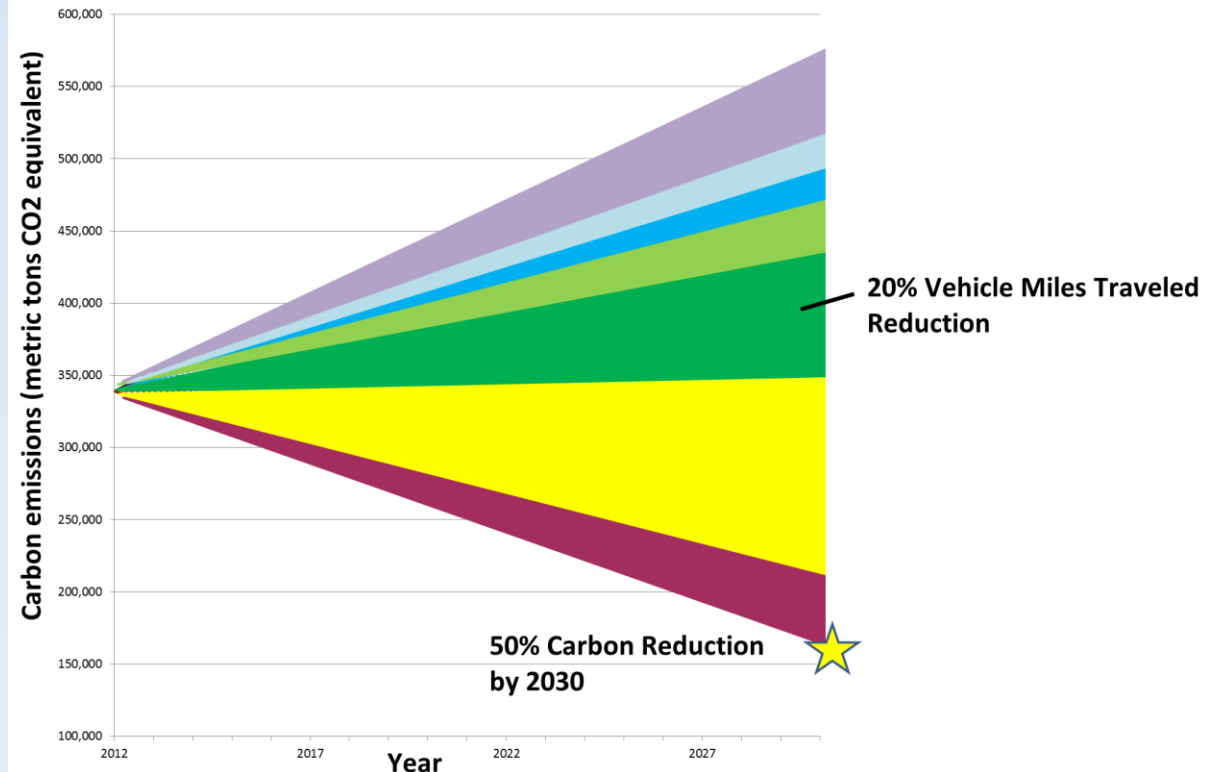
# Tukwila Renewable Energy



## Possible City Actions

- Partner with K4C on Clean Energy Transition Plan
- Partner with utilities to promote green power option in Tukwila
- Partner with community groups & building owners to promote local solar installation
- Adopt solar ready roof policy per new State regulations

# Tukwila Transportation and Land Use



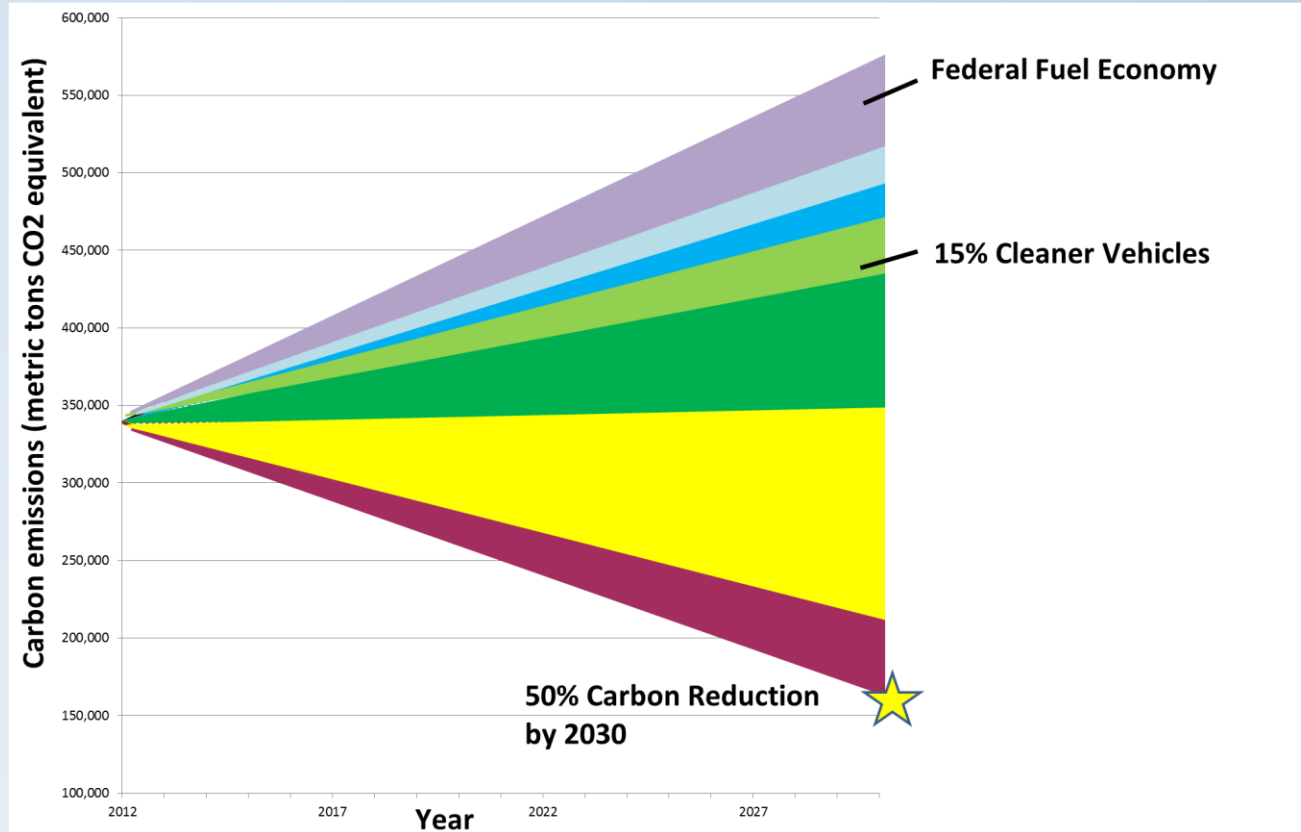
## City Actions

- Continue to encourage transit-oriented development in Southcenter and TIB
- Continue to build sidewalks and bike lanes with new street projects
- Continue to work with Metro and Sound Transit on transit service

## Business Outreach

- Partner with employers & other stakeholders on transportation demand management strategies
  - 3-yr. \$500,000 grant to reduce congestion in South King County

# Tukwila Cleaner Vehicles



## Possible City Actions

- Upgrade to hybrid/electric City vehicles as possible
- Future EV charging stations at City facilities
- Encourage EV charging facilities in new residential buildings

## Business Outreach

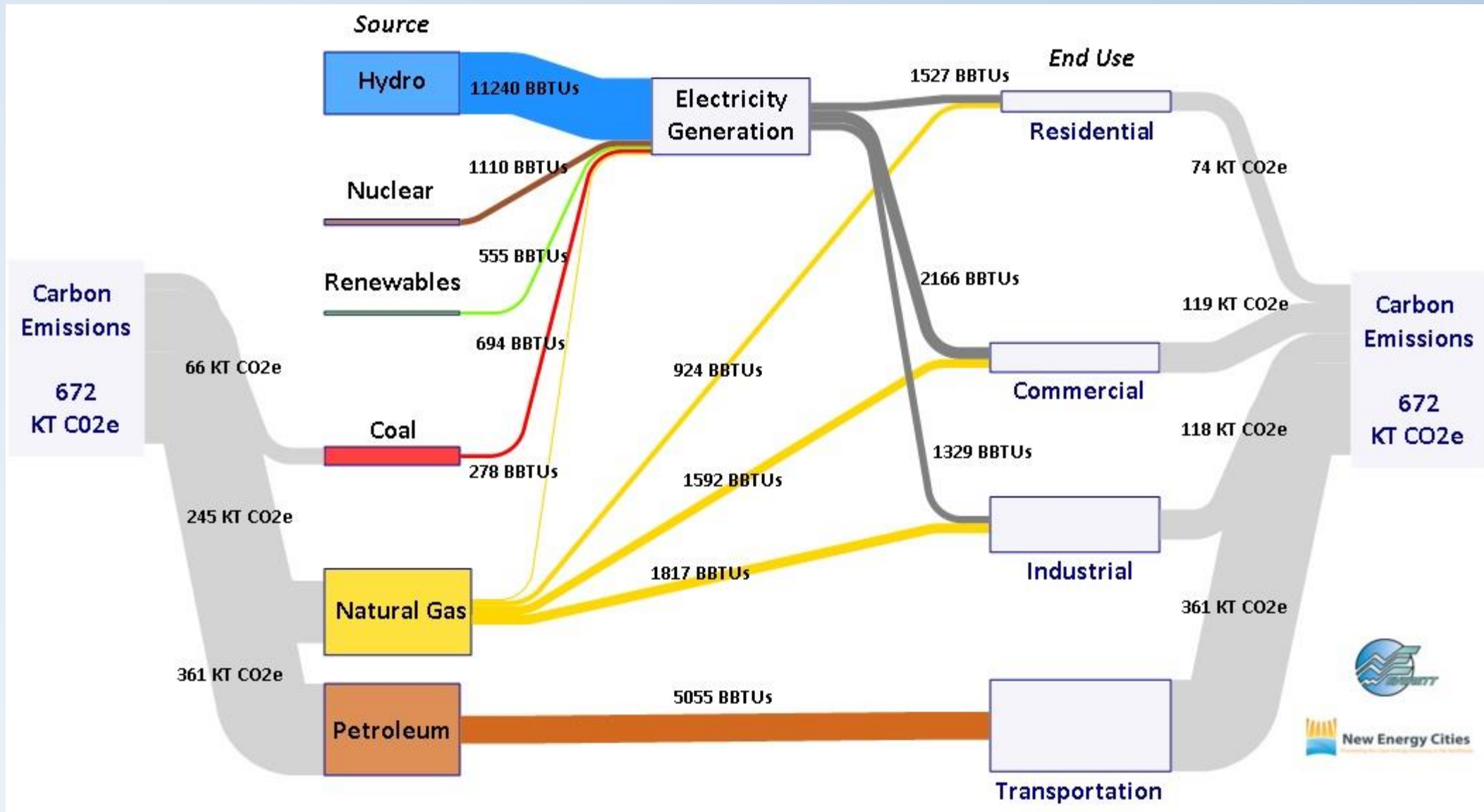
- Promote electric vehicle workplace charging (e.g., BECU)

# Everett, WA Energy Map and Carbon Wedge Analysis (2016)

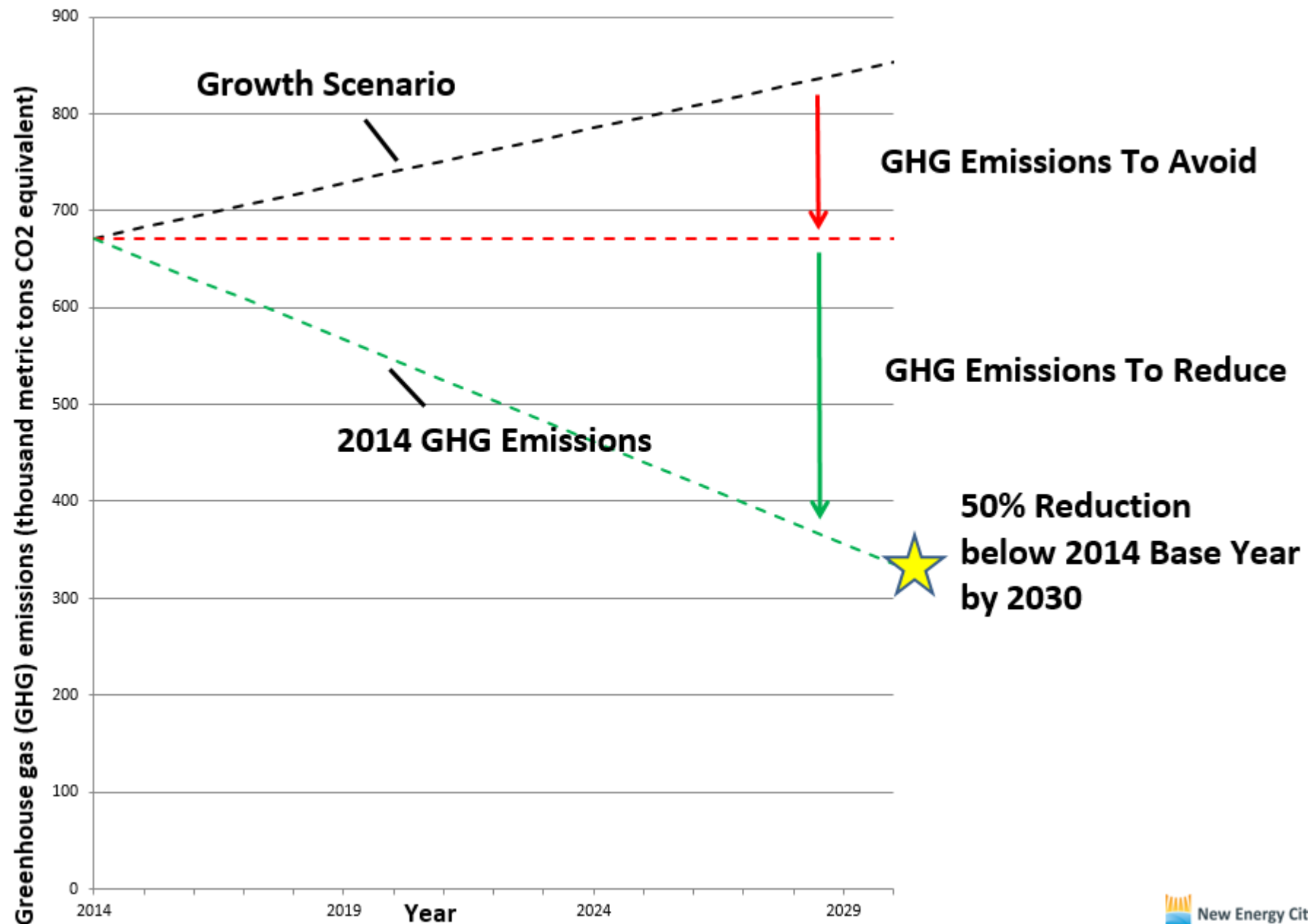




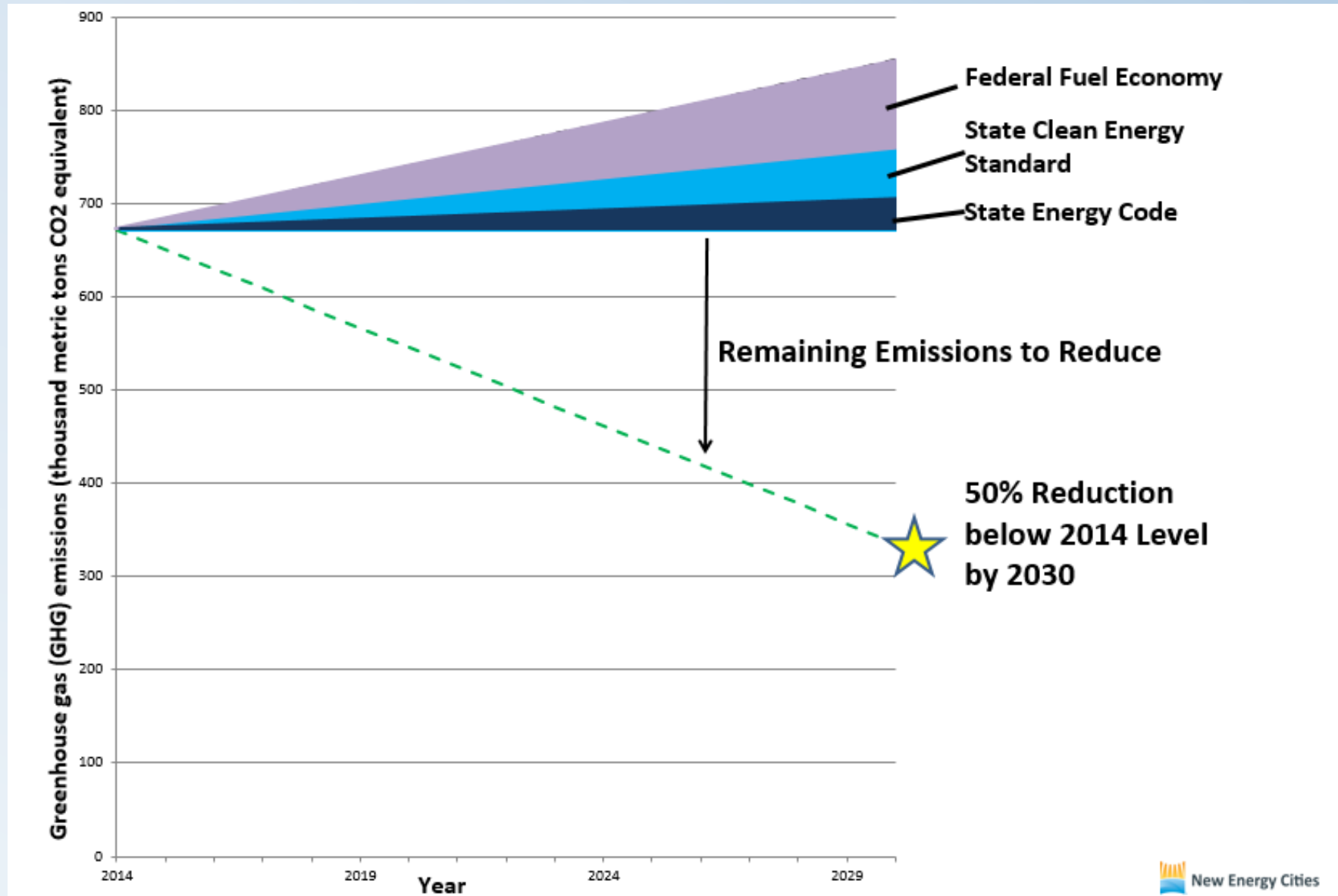
# Everett, WA 2014 Energy Map



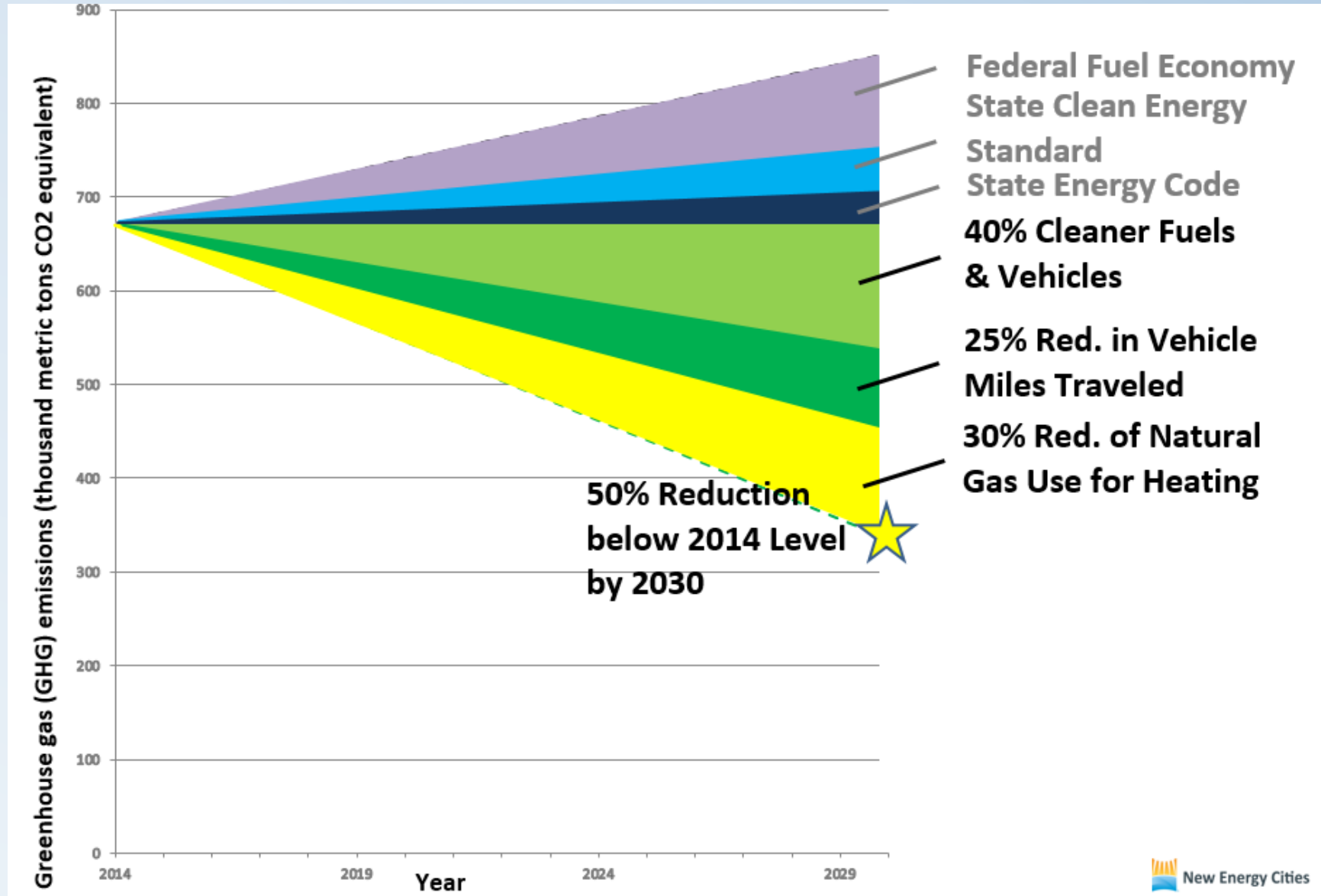
# Everett Emissions to Avoid & Reduce



# Everett Impact of Federal and State Policies

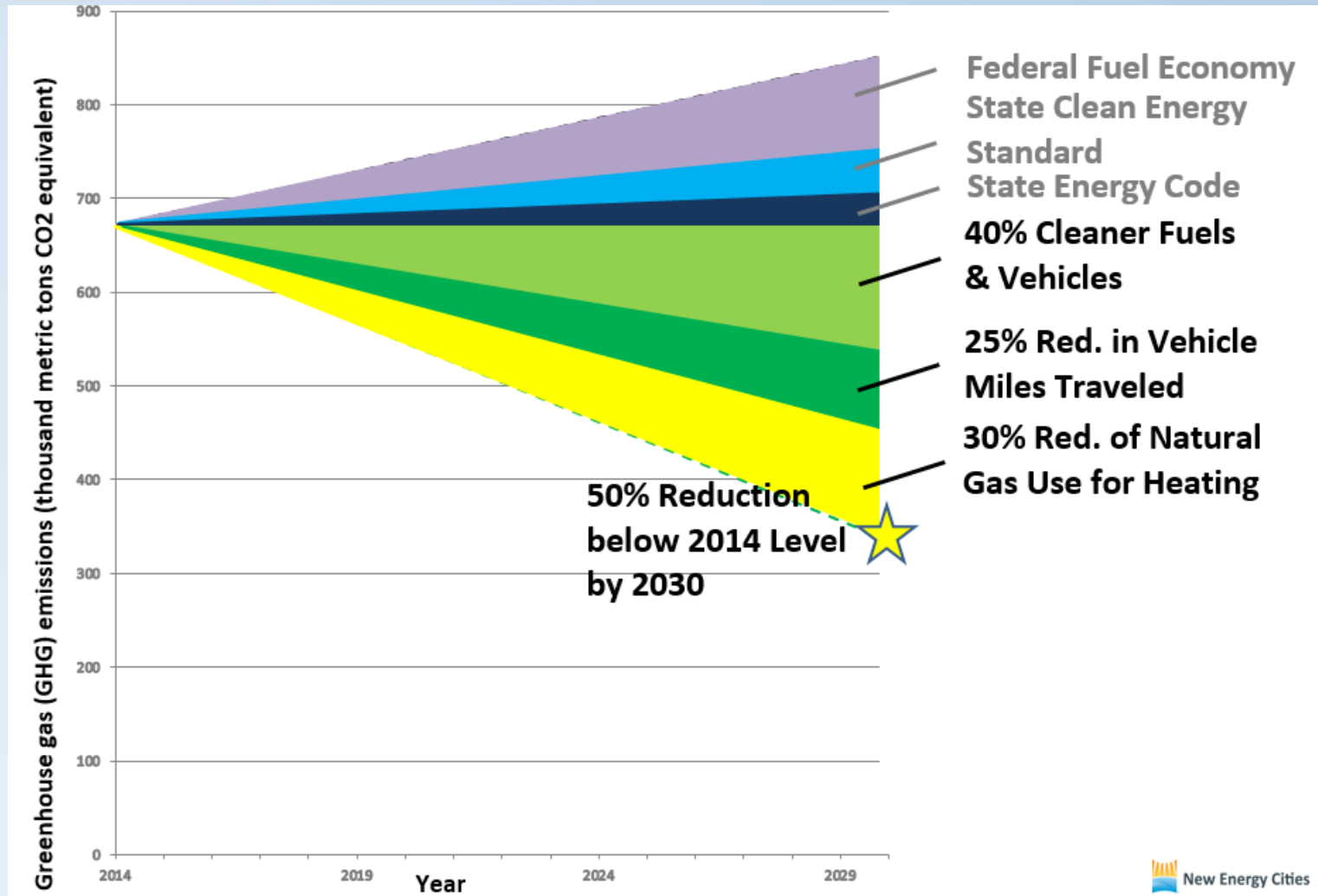


# Everett Potential Targets to Meet 50 x 2030 Goal





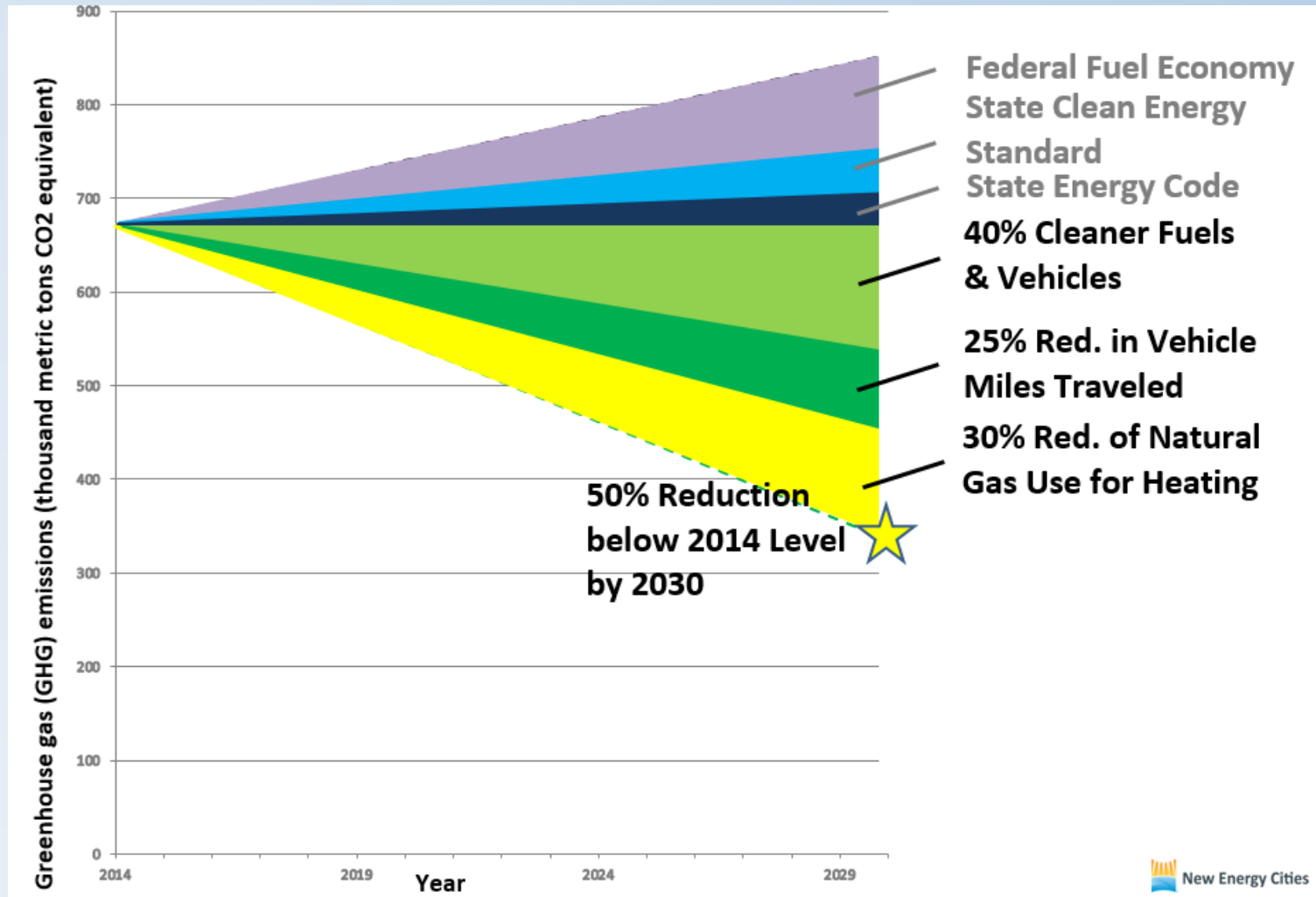
# Everett Cleaner Fuels and Vehicles



## Potential Priority/First Action

- Partner with SnoPUD, Everett Transit, and Port of Everett on transportation electrification

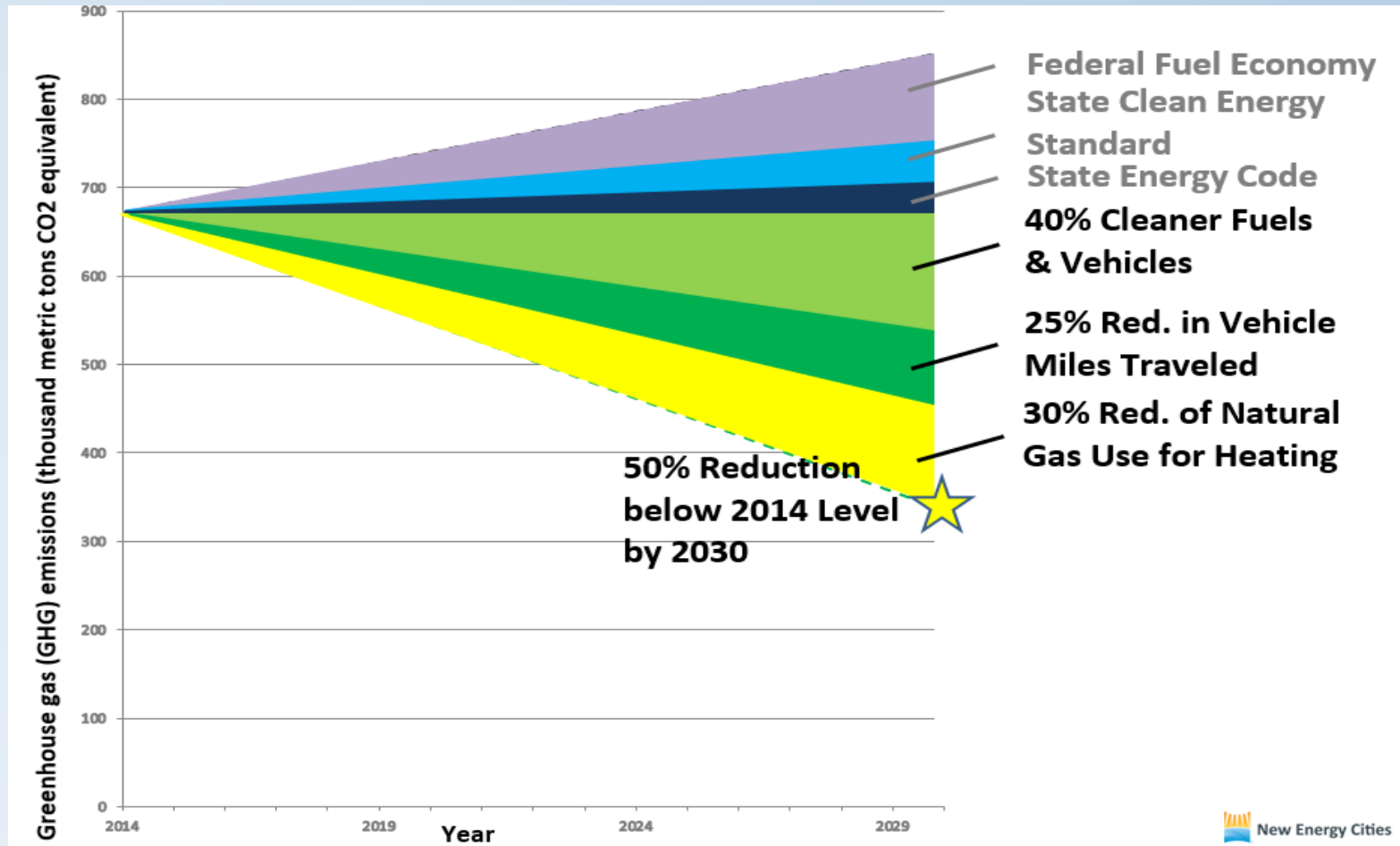
# Everett Vehicle Miles Traveled Reduction



## Potential Priority/First Action

- Enhance commute trip reduction (CTR) program, in partnership with State of Washington and local employers

# Everett Building Energy Efficiency/Natural Gas



## Potential Priority/First Action

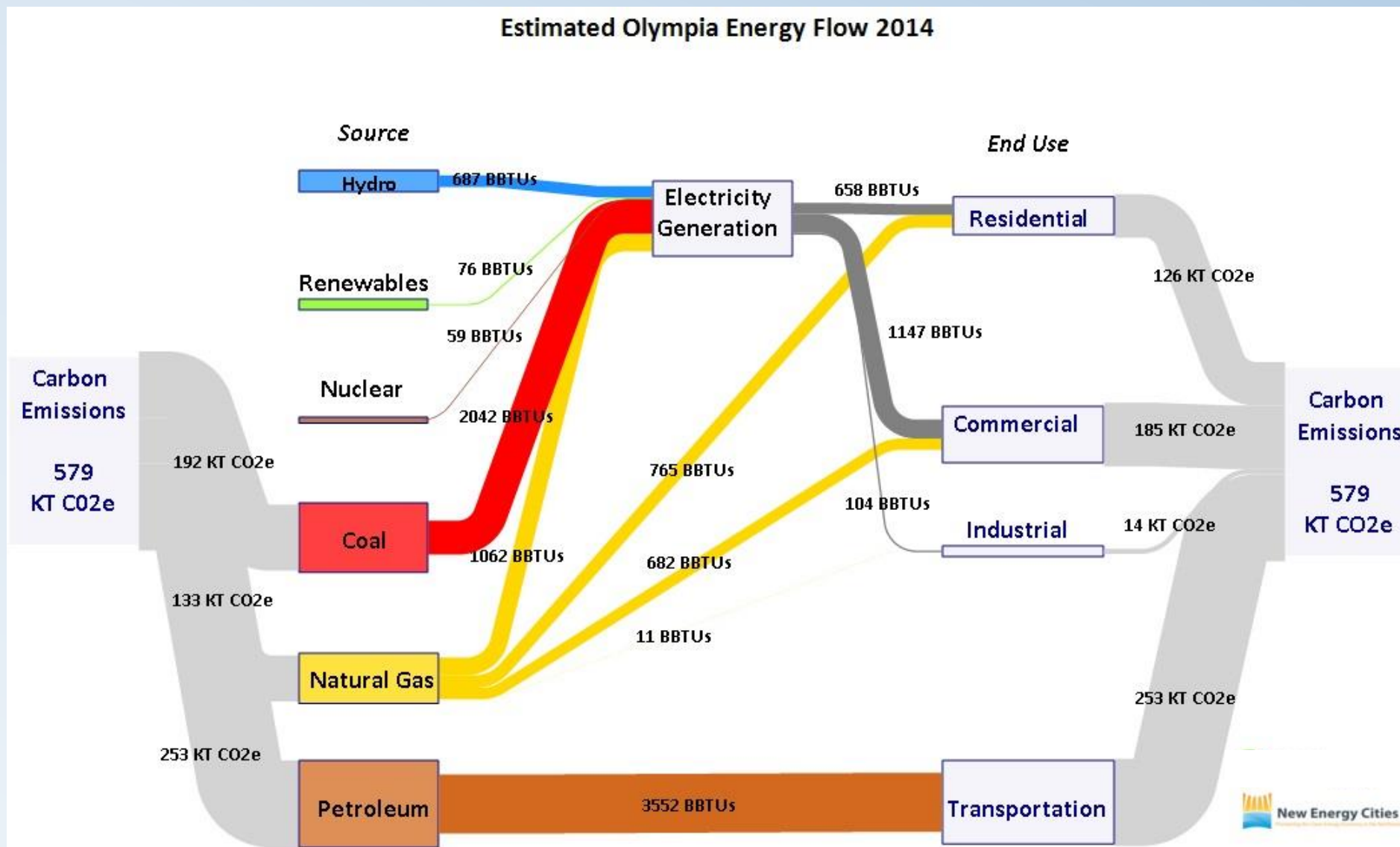
- Join Regional Code Collaboration, and adopt stretch energy codes
- Adopt building energy benchmarking requirements for public and commercial buildings, in partnership with Smart Buildings Center and State Department of Commerce

# Everett, WA Energy Map and Carbon Wedge Analysis (2016-17)

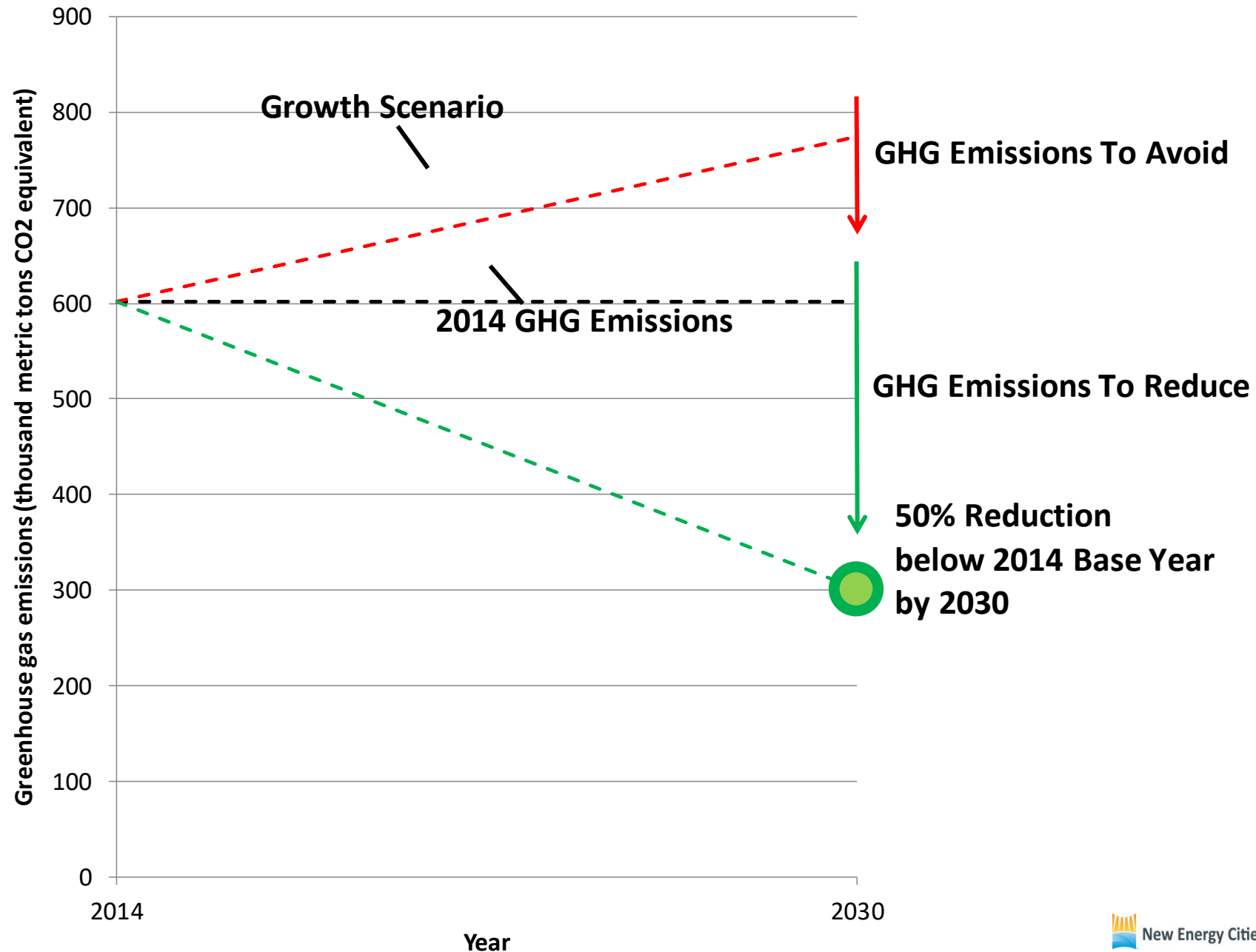




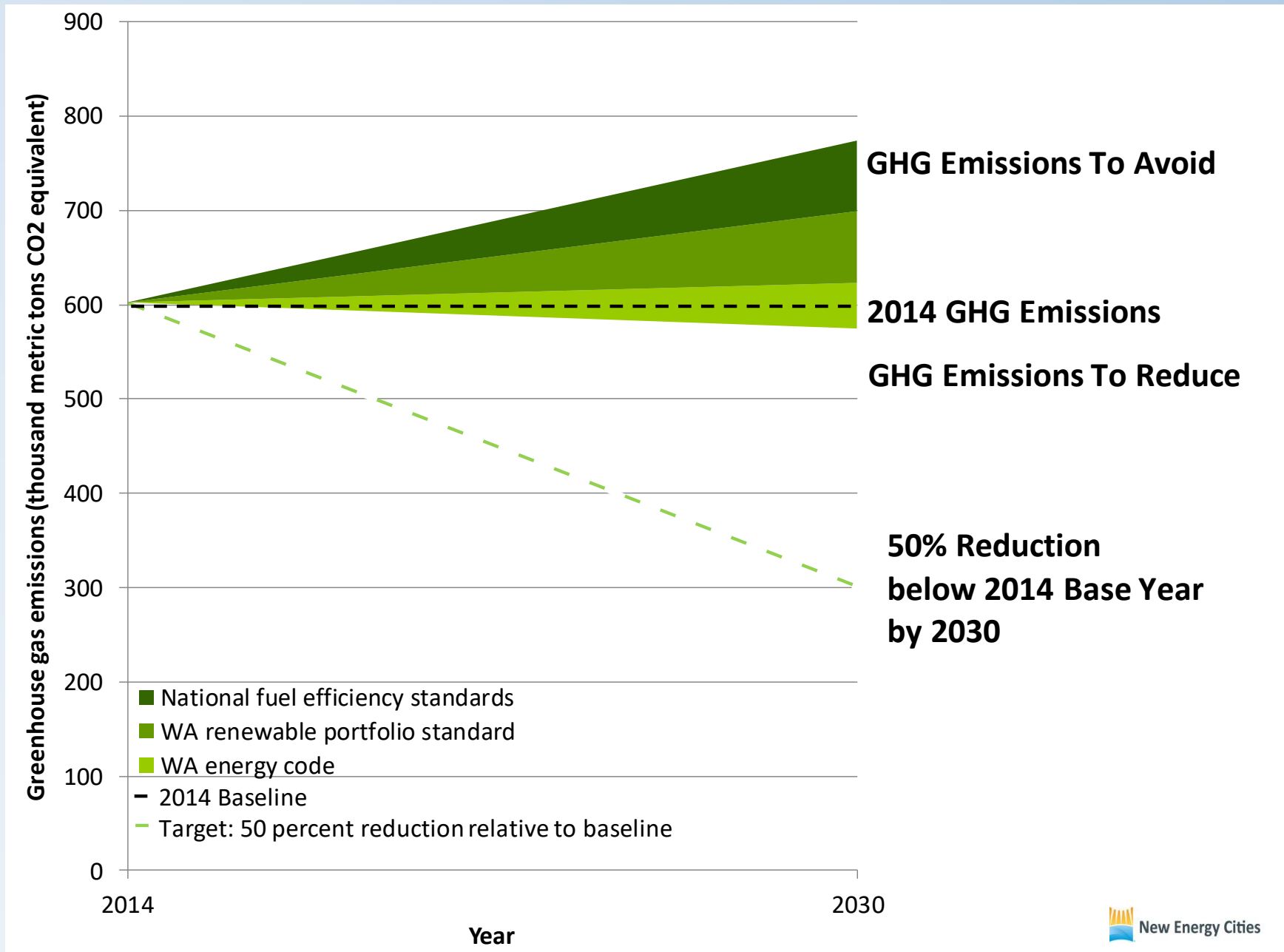
# Olympia, WA 2014 Energy Map



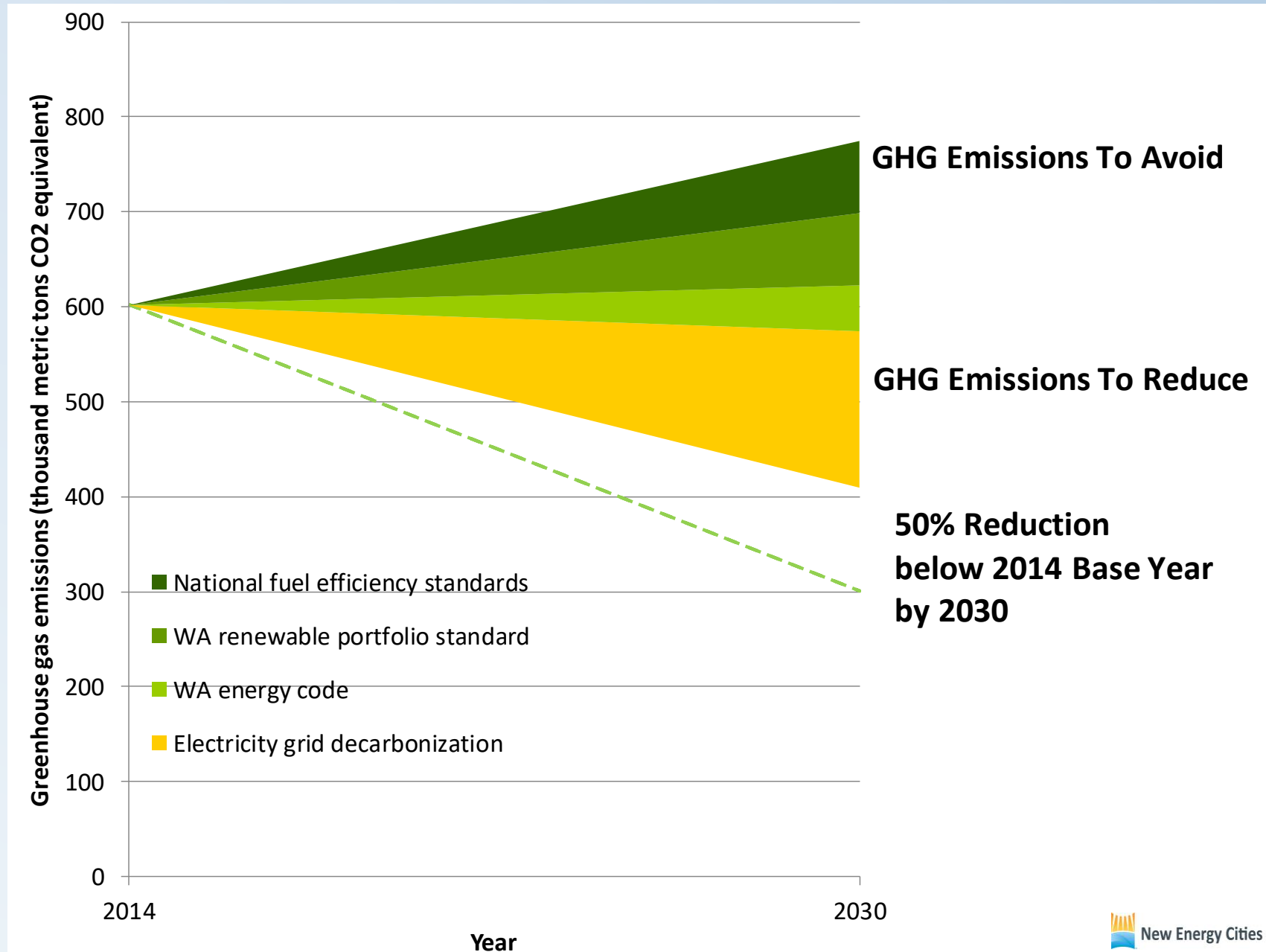
# Olympia Emissions to Avoid & Reduce



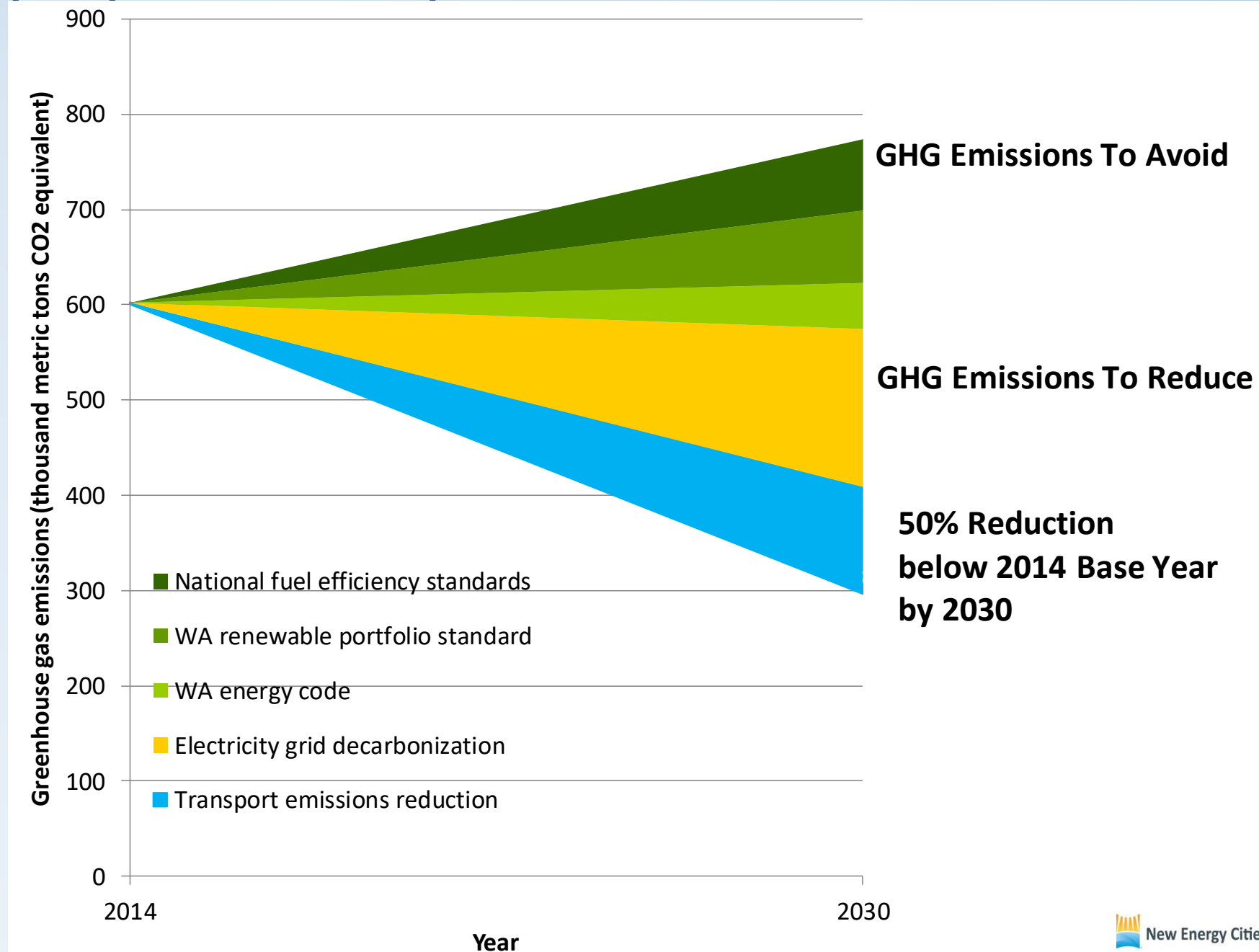
# Olympia Impact of Federal and State Policies



# Olympia Decarbonizing Electricity

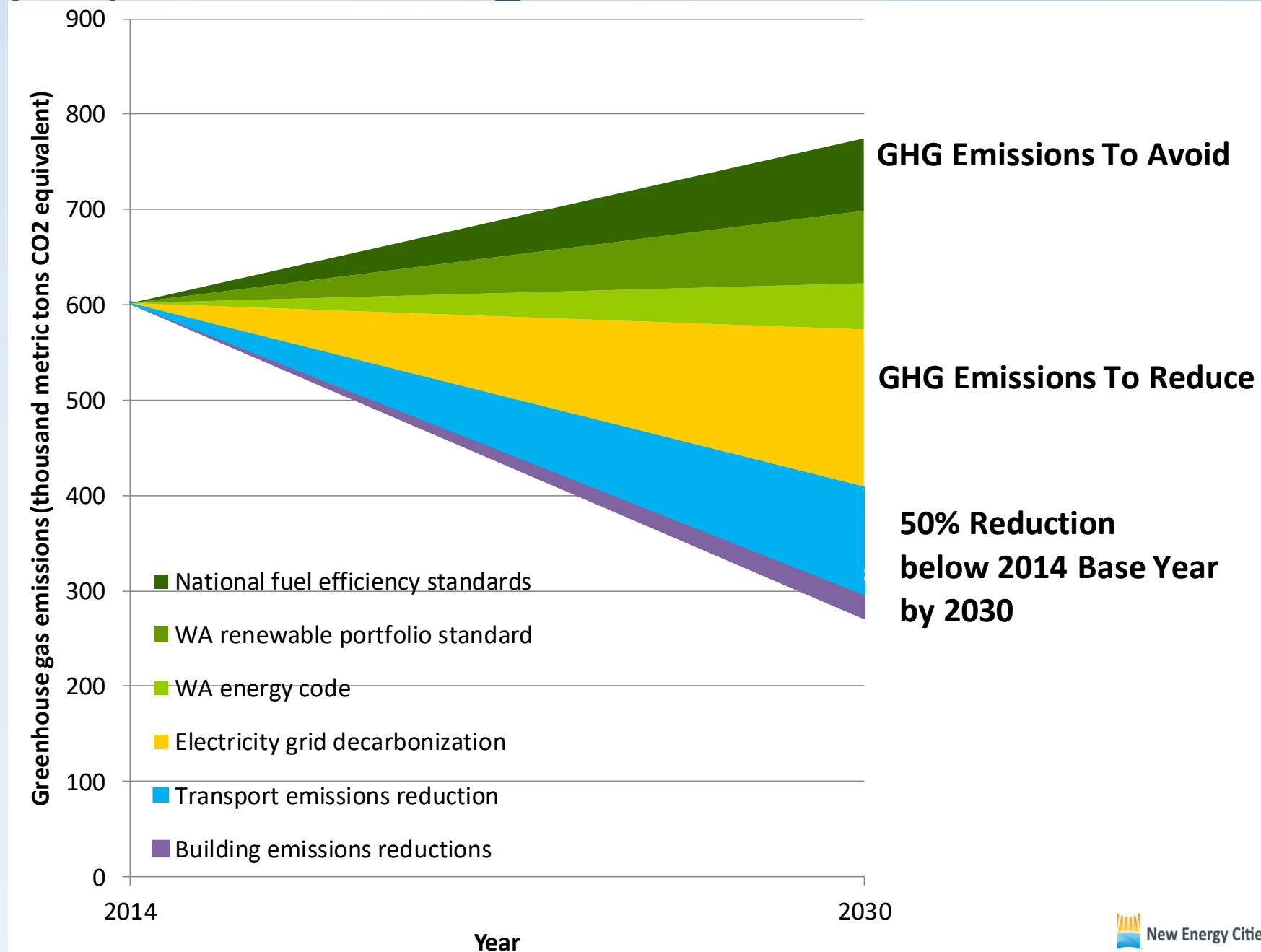


# Olympia - Transport Emission Reduction

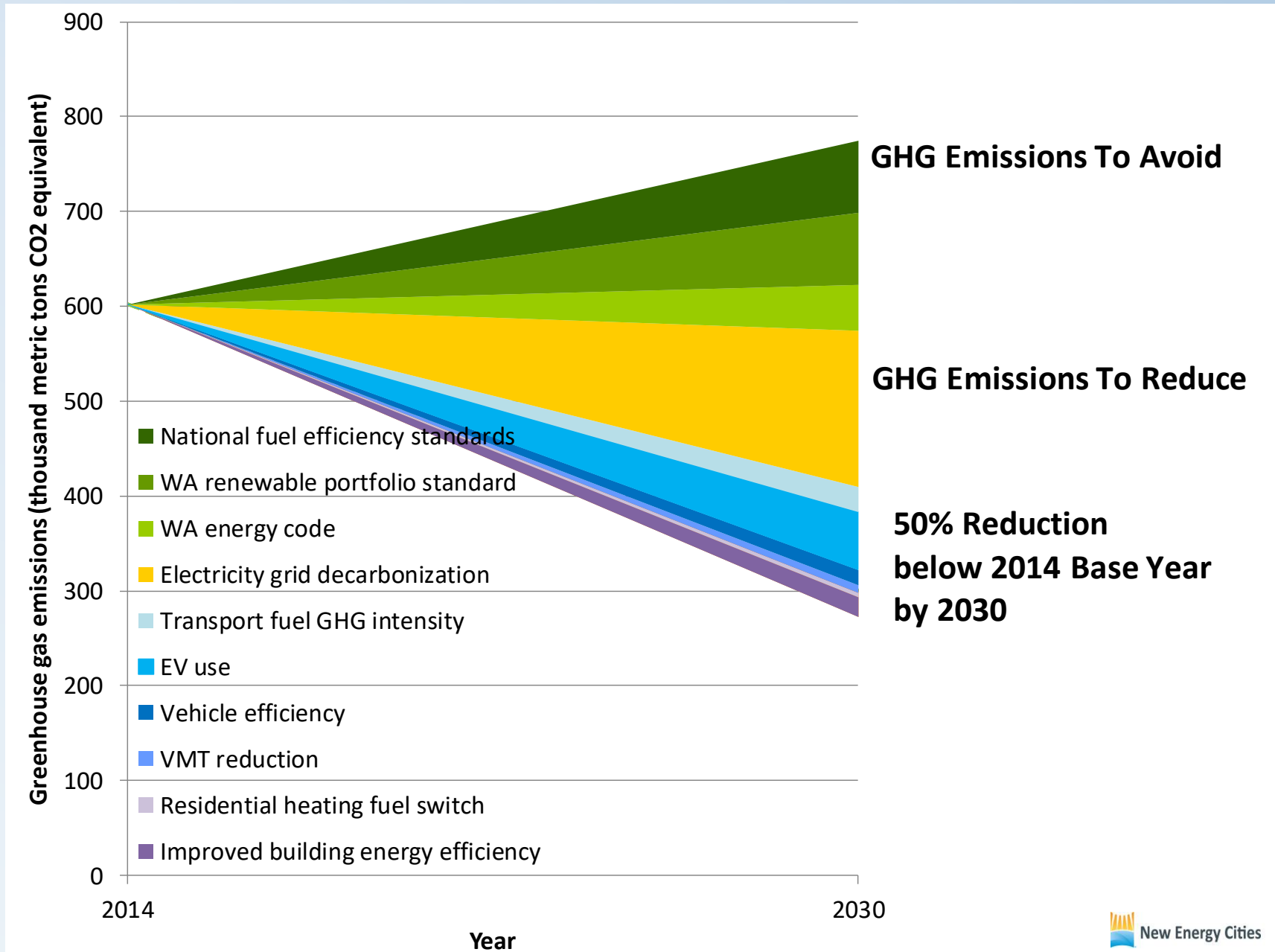




# Olympia – Building Emissions Reduction



# Olympia 50% Reduction 1990 by 2030



# Thank you

Eileen V. Quigley, Executive Director

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Transitioning from Fossil Fuel to Clean Energy

[www.cleanenergytransition.org](http://www.cleanenergytransition.org)

