

GREENHOUSE GAS EMISSIONS:

Sources, trends and the Kyoto target

**Mayor's Green Ribbon Commission
On Climate Protection
July 1, 2005**



Goals for today for GRC

- *Understanding of major sources of emissions in the region and city*
- *Context for understanding Kyoto target*
- *Begin discussion on how we view, report and monitor progress*

The inventory challenge: how and what to count?

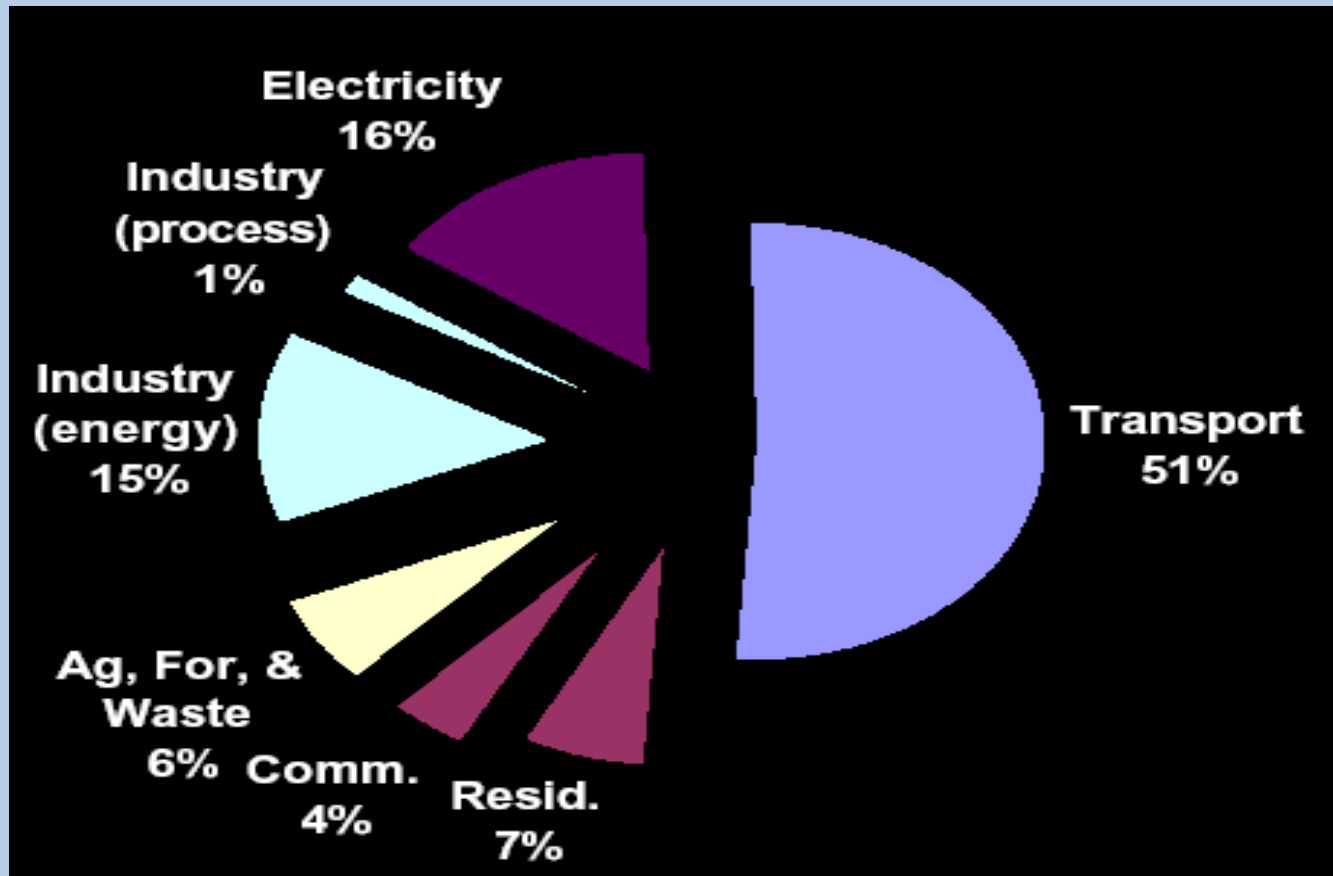
Goal of the inventory is to accurately account for emissions and reductions . . .

- ✓ *Without double counting*
- ✓ *Without spending more on the accounting than the desired actions!*

Limitations in doing local inventories

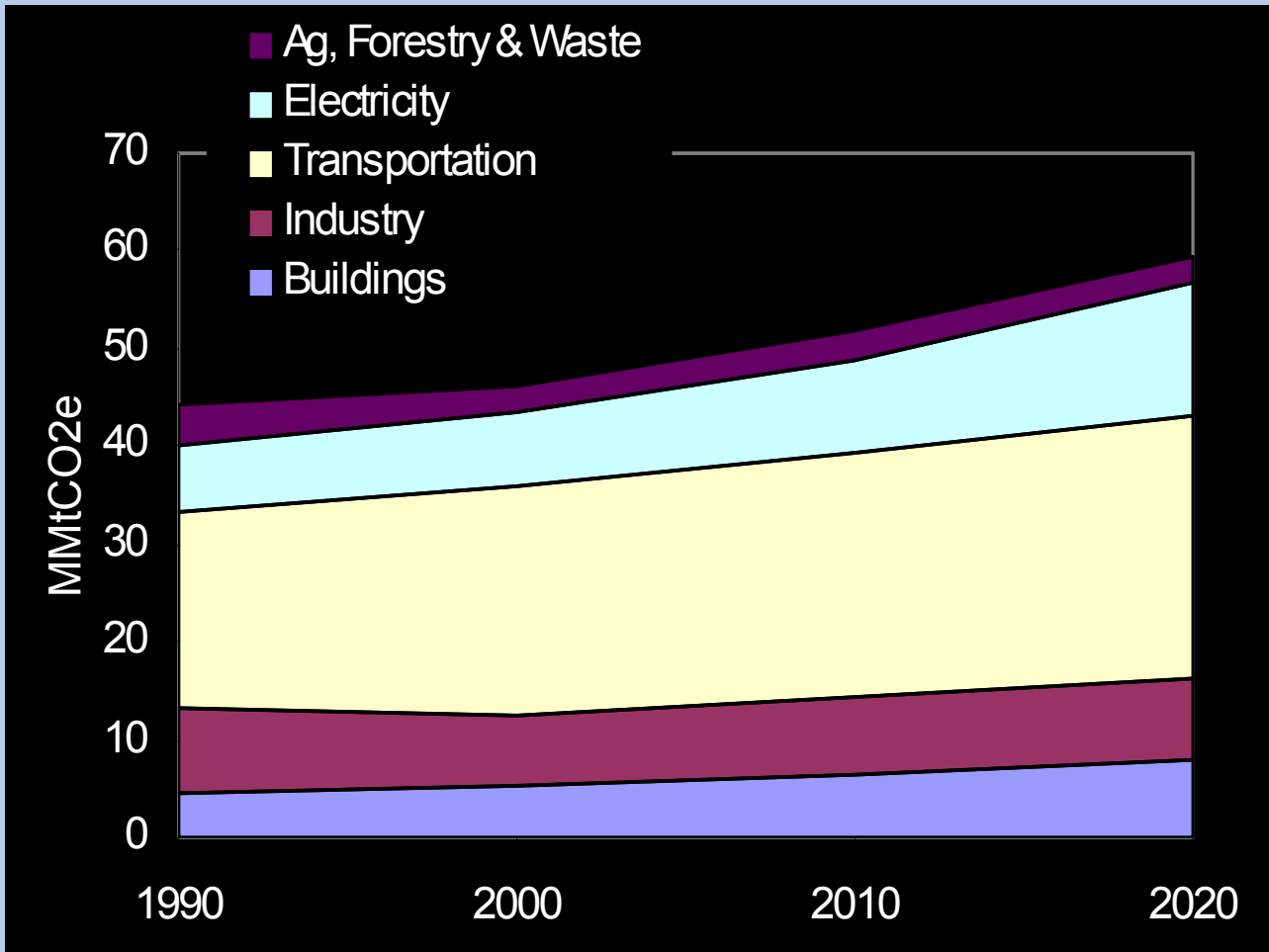
- Lack of local data
- Where to draw boundaries? For example:
 - Electricity
 - Traffic
 - Recycling and solid waste disposal
 - Seaports and airports
- Establishing baseline data from 1990
- Rochester, NY vs Seattle, WA

Puget Sound region: 47 million metric tons CO2 equivalents (2000)



Puget Sound Clean Air Agency Climate Protection Advisory Committee: Roadmap for Climate Protection Dec 2004

CPAC: regional emissions projected to grow by 27%, 2000 - 2020



Transportation

• +24%

Electricity

• +40%

Other energy use

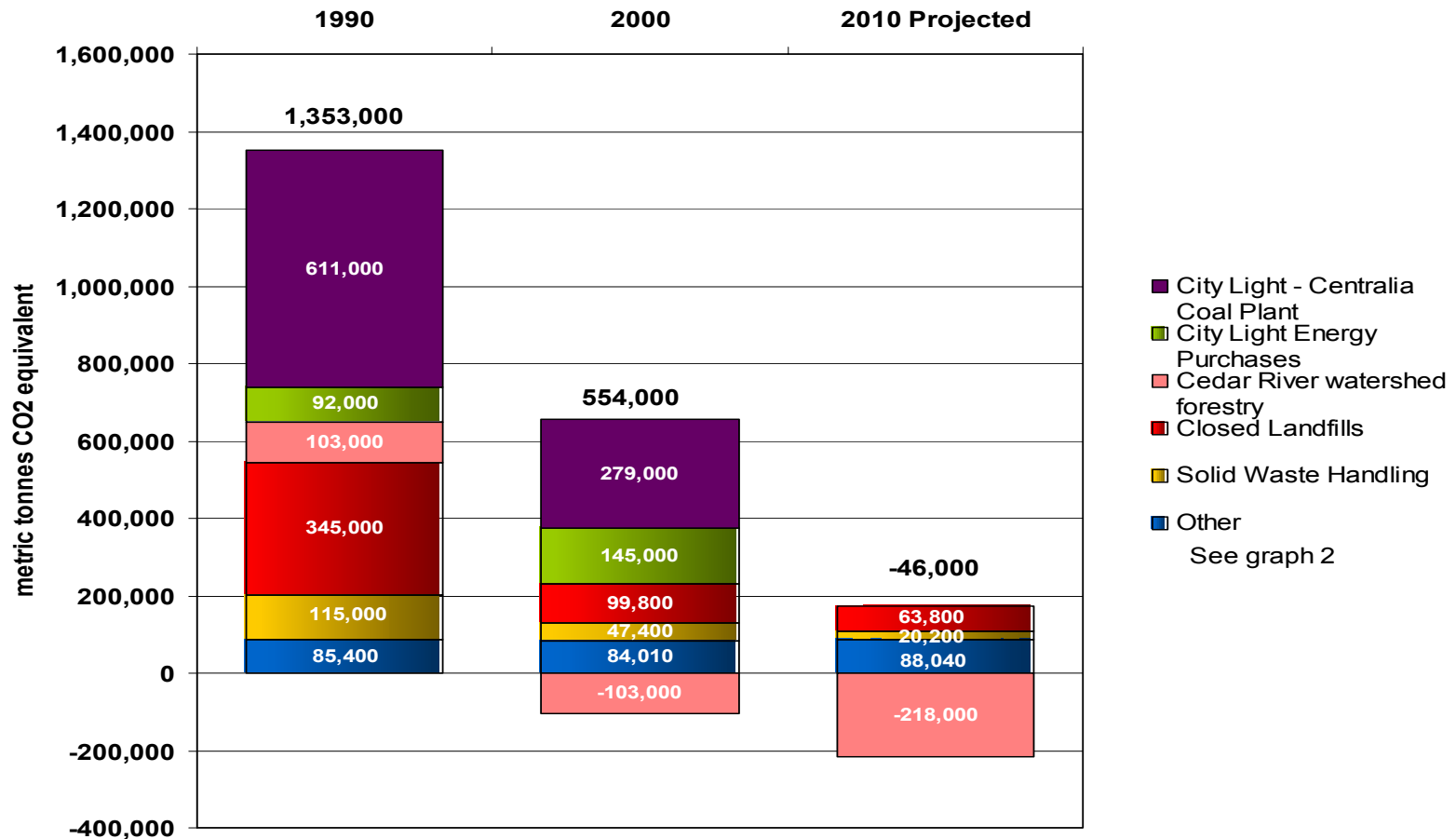
• + 36%

Ag, forestry &

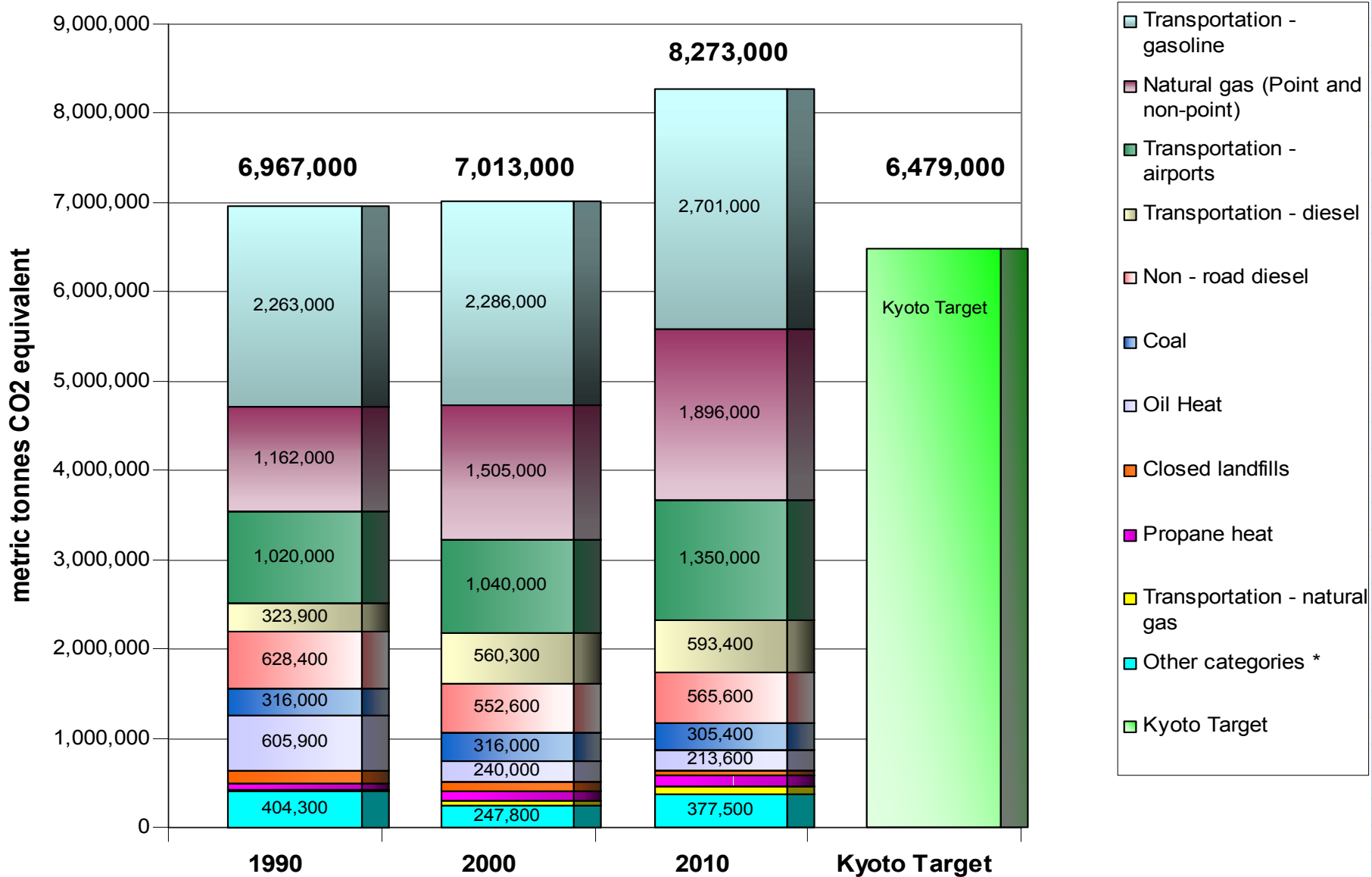
Waste

• +5%

City's corporate emissions



Graph 1: Major Sources of GHG Emissions from City Government and Utility Operations



Graph 3: GHG Emissions by Source for Seattle (city wide)

What are the major increases in GHG emissions from 2000 – 2010?

- Gasoline, by 18%
- Natural gas, by 26%
- Diesel use, by 39%

Note: Population in Seattle is forecast to grow by 6% between 2000 and 2010

Per capita GHG emissions: How do we compare?

	SEATTLE	PORTLAND- MULTNOMAH	SAN FRANCISCO	US	Japan
1990	13.5	16.5	12.6		
2000	12.5	15.5	12.5	22.2	10.1
2010	13.9	12.5	12.5		
KYOTO	10.9	12.9	10.5		

Metric tons CO2 equivalent.

7% below 1990 by 2012: *what's that look like?*

Target: reduce GHG emissions by 1,794,000 tons

- \$8.9 million of mitigation credit (\$5/ton)
- Cut gasoline use by 2/3
 - *Take 75% of Seattle's cars off the road? (21 mpg)*
 - *Convert every car in Seattle to electric hybrid and limit driving to 10,000 miles/yr?*
- Eliminate industrial coal use and increase natural gas efficiency by 10% and convert 75% of remaining natural gas energy use to clean energy

Conclusion:

Yikes!

But, wait. Although the task is daunting, there are a few other considerations . . .

Caveats and considerations

1. Likely that impact of GRC actions won't stop at the city limits
 - *How to credit these GHG reductions?*
2. Extent of City's GHG reduction actions are not reflected in this inventory – waste reduction, recycling, sequestration
3. Some jurisdictions are including black carbon (soot). While IPCC protocol isn't due until 2007, Seattle area likely to show significant reductions in this area.

The Kyoto target is a “stretch goal” for Seattle

- *Not carbon intensive economy*
- *How emissions are counted*
- *Compressed timeframe*

Question for GRC: how to meet spirit and intent of Kyoto target in measuring our progress and success