The Decarbonization Revenue Calculator

A Spreadsheet by Charles Komanoff

Carbon Tax Center

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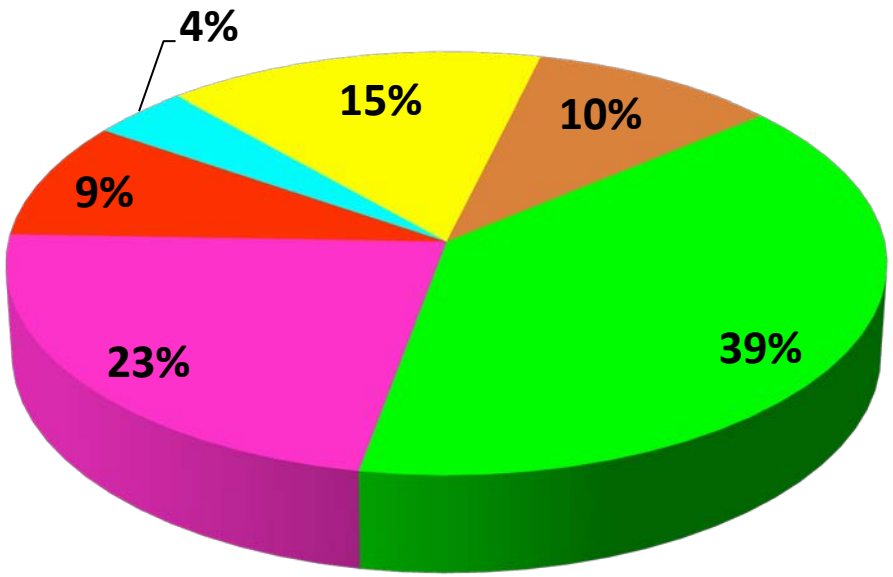
U.S. Economy Divided into Six Sectors

U.S. CO2 Emissions, 2012



Modeler's Inputs

- **Tax Start Year**
- **Initial Rate ($/ton CO2) — economy-wide**
  - Annual Increment by Constant Amount?
  - How Much?
- **Annual Increment by Constant Percent?**
  - How Much?
- **Are Tax Increments in Real or Nominal $?**
- **Surtax on Petroleum Products?**
  - Which?
  - How large?

Elasticities Drive Sectoral Demand and Carbon Content

- **Demand Side Price-Elasticities**
  (Negative) 0.4 – 0.7
- **Demand Side: Income-Elasticities**
  (Positive) 0.5 – 1. 0
- **Supply Side: Degree to which $100/ton CO2 tax will reduce per-unit emissions**
  Electricity: ongoing decline magnified 3-4X
  Personal Ground Travel: 10% reduction
- **User May Vary**

Results

- **CO2: by Sector and Overall**
- **Revenue: Nationally and by Household** (with and without deficit reduction)
- **Oil: by Sector and Overall**

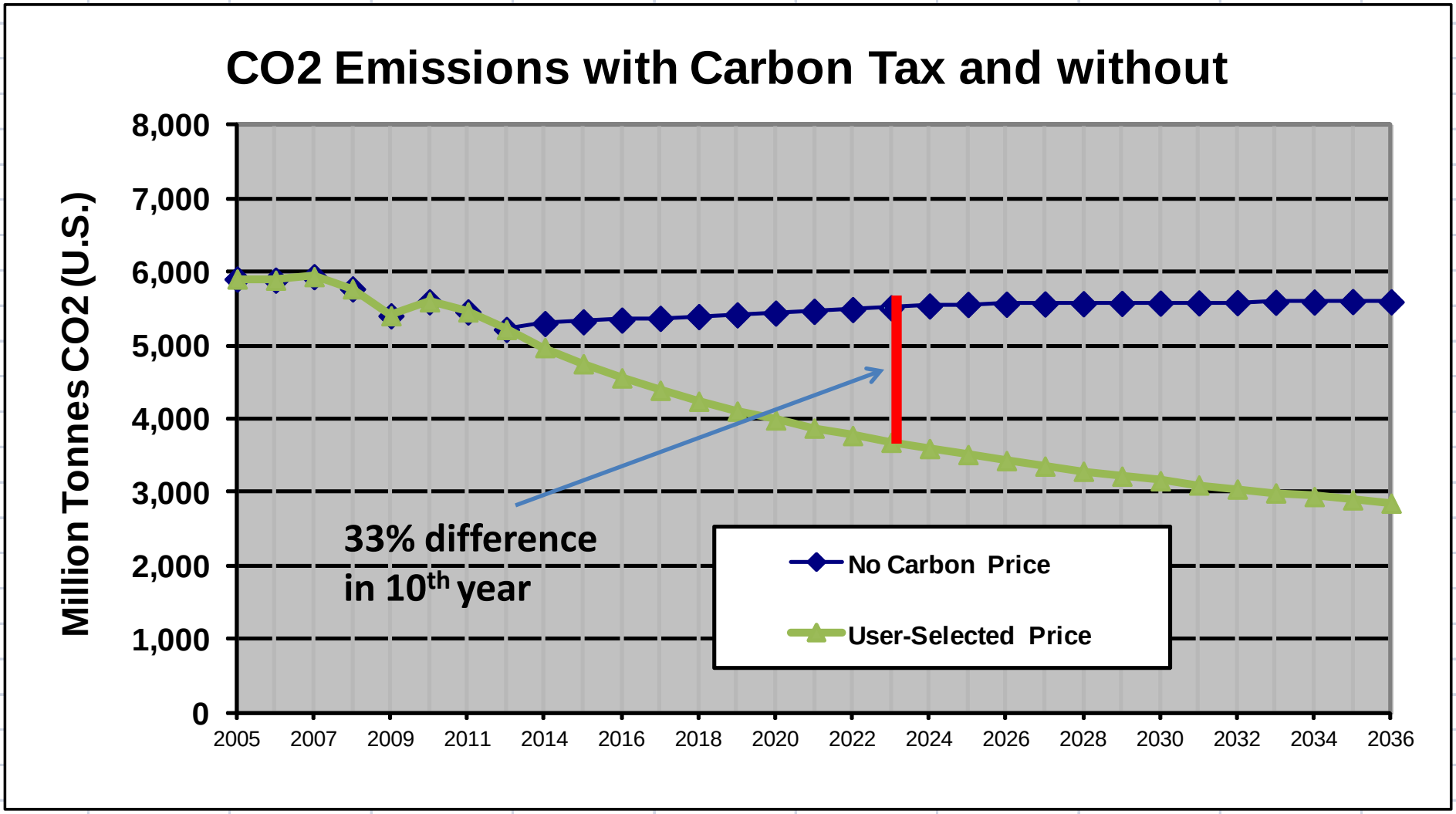
Larson Carbon Tax

(Rep. John B. Larson, D-CT)

"AESTFA" • 2009

- Initial Year: $15/ton CO2
- Subsequent Yrs: $10-15/ton
  (we model as $12.50/ton increments)

Larson Carbon Tax

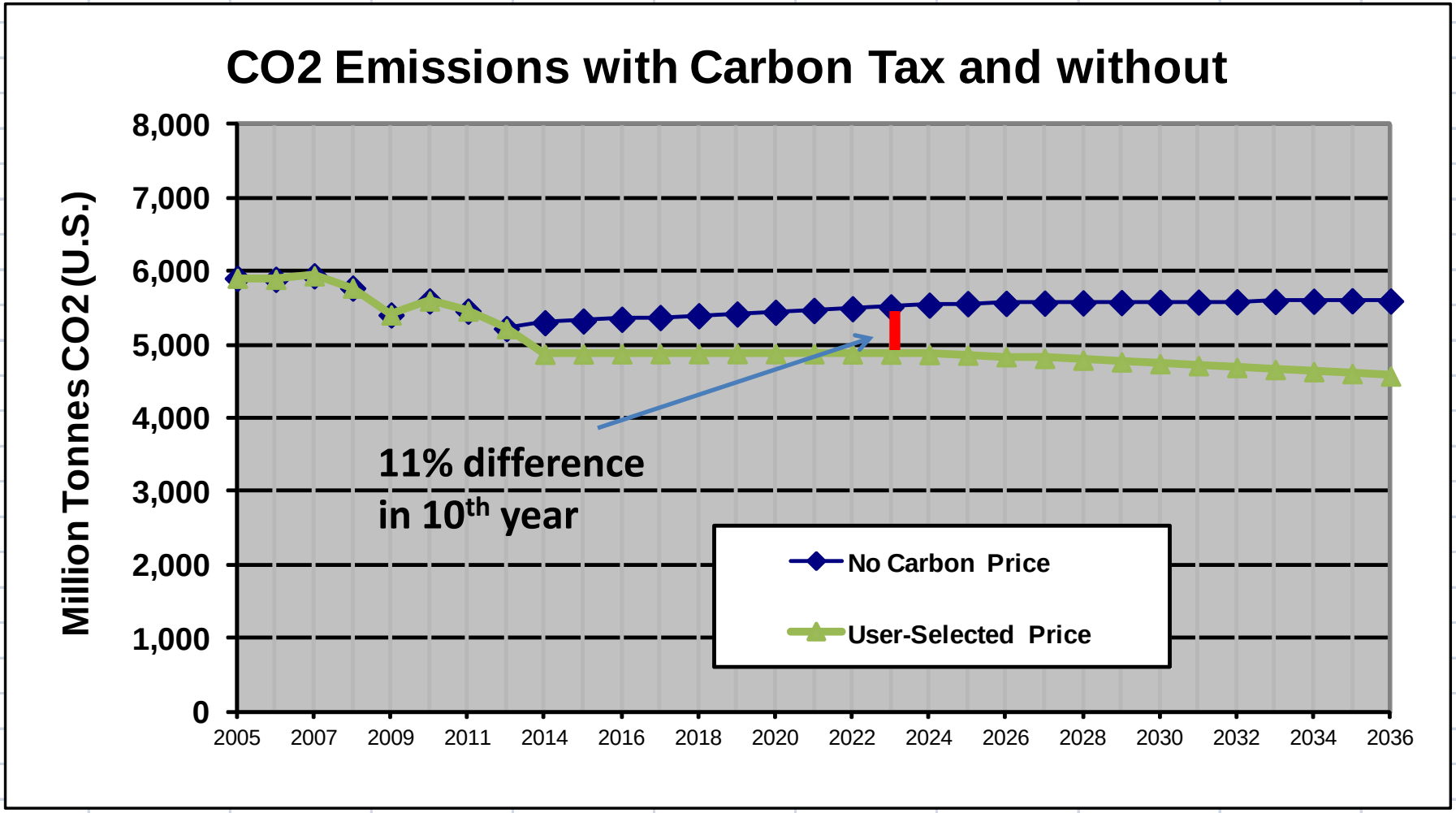


Sanders-Boxer Carbon Tax

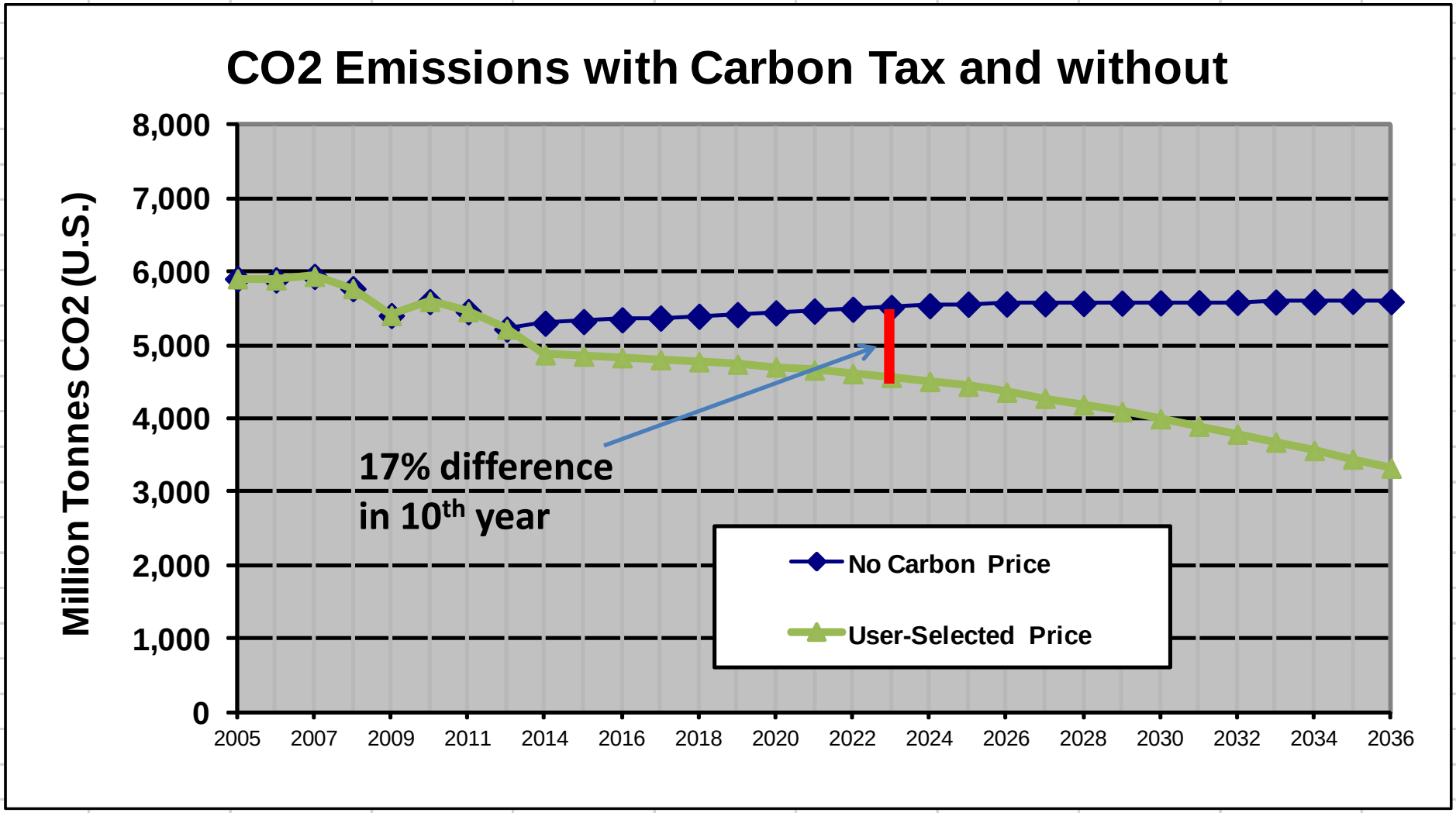
(Senators Bernie Sanders, D-VT
& Barbara Boxer, D-CA)

- Initial Year: $20/ton CO2
- Subsequent Yrs: Rise 5.6%/annum
- Analyzed by CBO (2011)

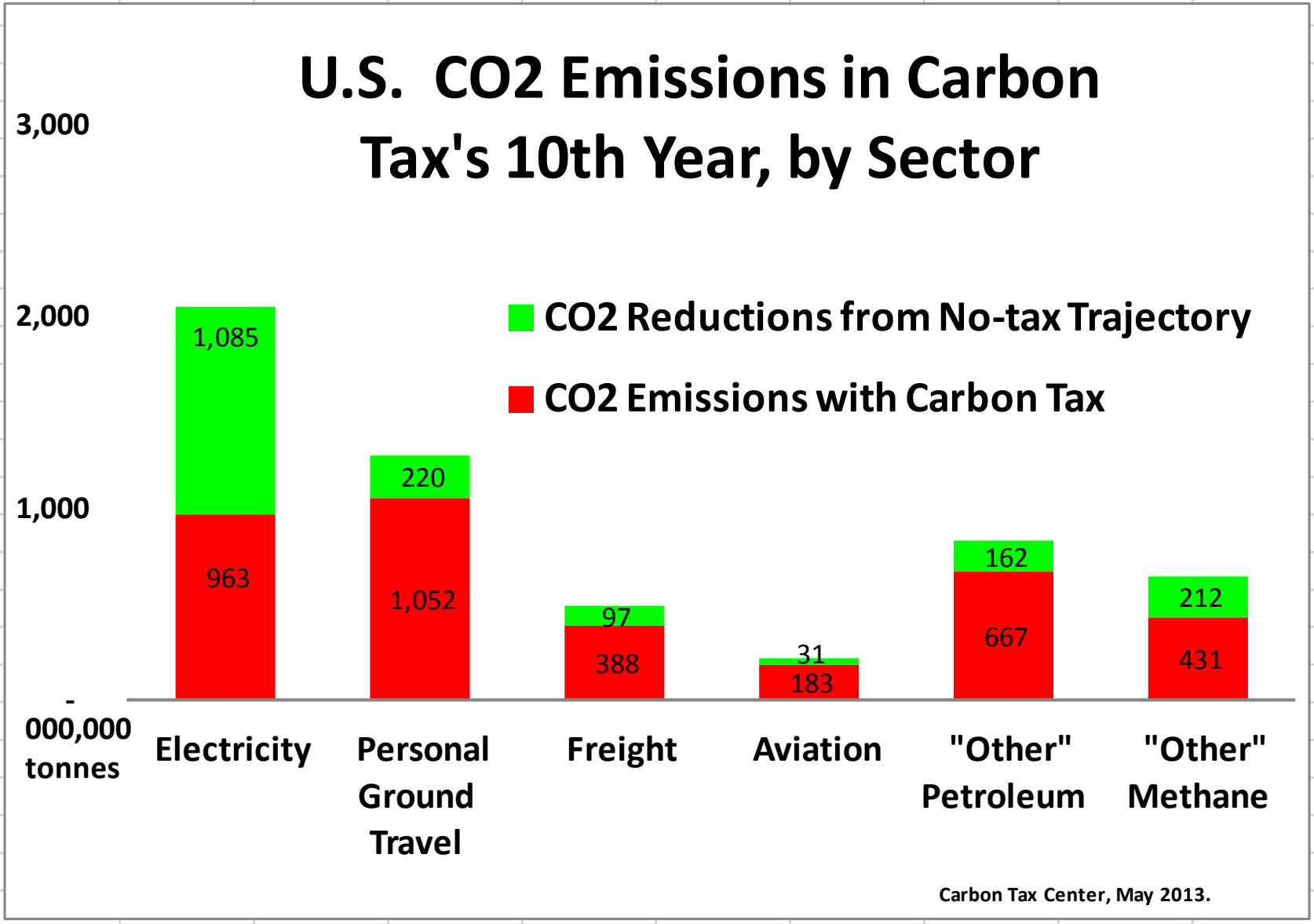
Sanders-Boxer Carbon Tax



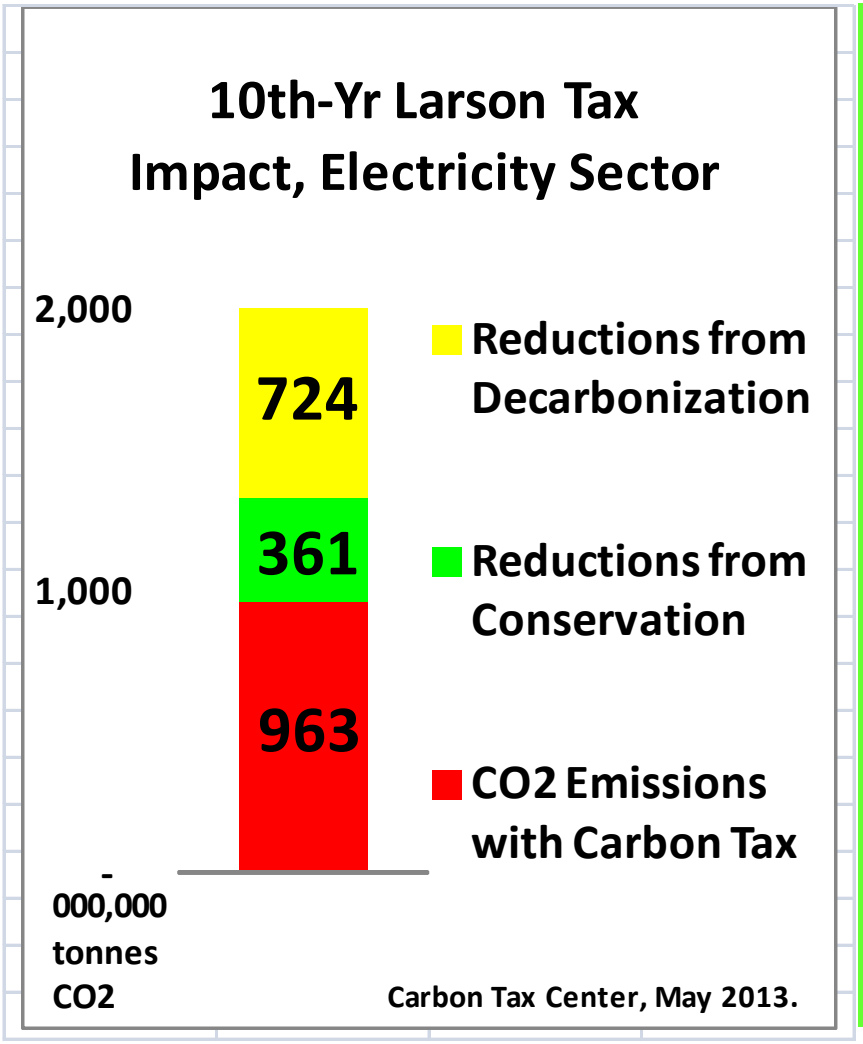
Sanders-Boxer w/ 2x p.a. %



Larson Tax: Sectoral Analysis



Electricity Sector: Demand Side

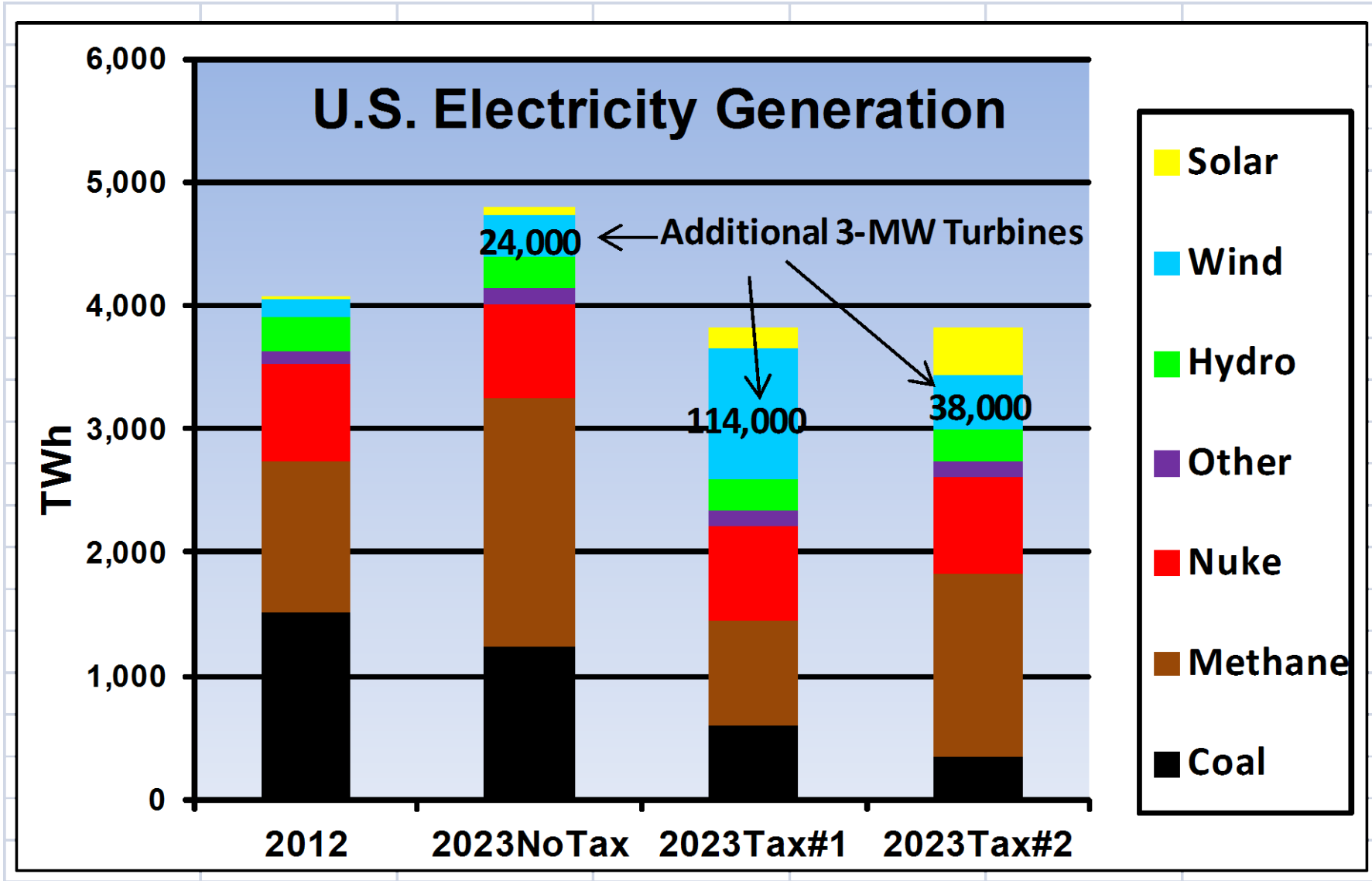


Compound Growth to 2023

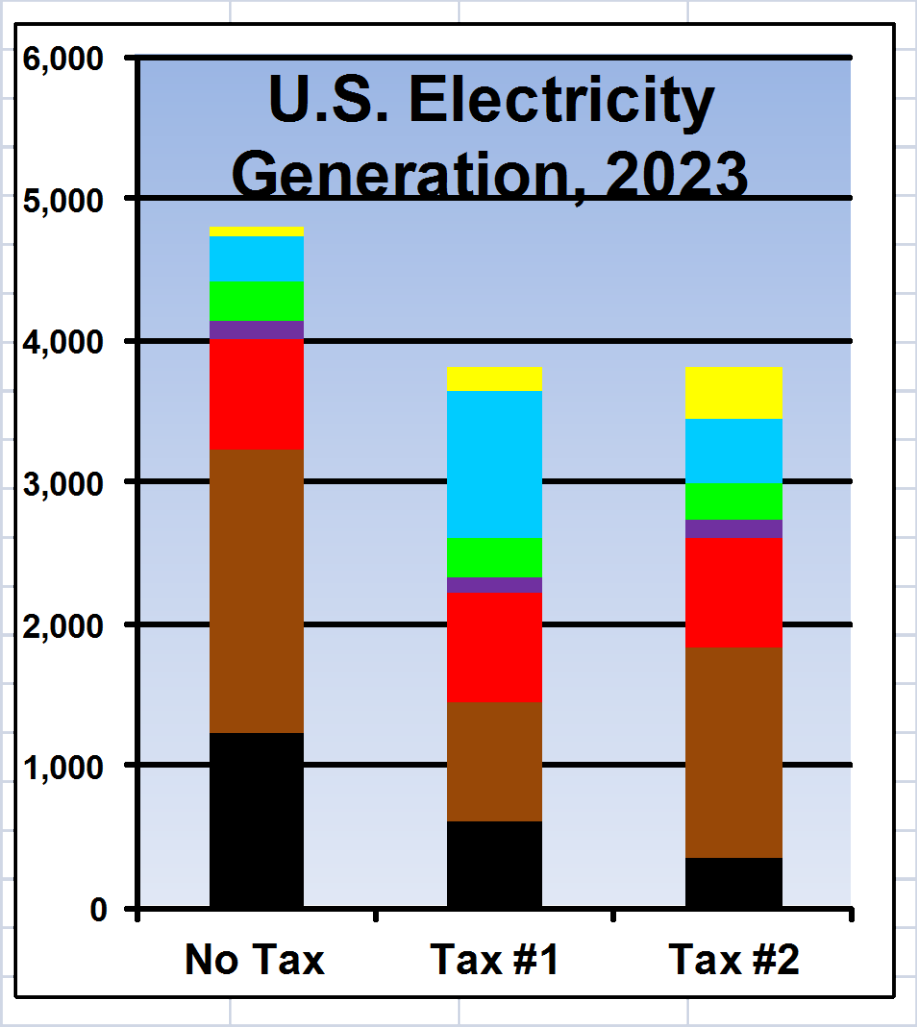
	No Tax	Larson	Impact
TWh	1.5%	-0.6%	-2.1%
¢/kWh	1.3%	4.4%	3.0%
2012¢/kWh	-0.4%	2.6%	3.0%
Bills	2.9%	3.8%	0.9%
2012$ Bills	1.1%	2.0%	0.9%

Conclusion: Impact on bills is slight (easily covered by dividends or tax swaps).

Larson Tax: Electricity Sector



Growth in Renewables to Meet Larson "Targets" for 2023



Compound Growth Rates 2012-2023

No Tax

Wind: 8% • Solar: 28%

Tax #1

Wind : 20% • Solar: 40%

Tax #2

Wind: 11% • Solar: 50%

Carbon Tax Revenues (Larson Bill)