Georgia Electricity Tax Swap

The 4% state sales tax in Georgia seems to apply to most residential and commercial sales of electricity. This document looks at replacing that sales tax on electricity with a carbon tax on electricity so as to give utilities an incentive to move away from fossil fuels while cushioning the price impact on consumers.

State sales tax on electricity

The GA state tax code is in OCGA Title 48; the state sales tax is in Chapter 8:

- 48-8-2(31)(A) says that electricity sales are covered in this section.
- 48-8-3 exempts sales to governments in subsection (1); hospitals, health facilities, and certain other nonprofits in (6) and (7); educational institutions in (8)-(13); etc.
- 48-8-3.2(c)(1) (and here) exempts energy used in manufacturing from all sales tax other than sales taxes used for education (the 1% county sales tax for education?).

Here's a revenue estimate based on 2019 EIA data on state electricity sales and revenue:

Sector	Sales (million MWh)	Utility revenue ($m)	Avg. price (cents per kWh)	State tax revenue at 4% ($m)	Avg. tax (cents per kWh)
Residential	59.3	$6,979	11.76	$279	0.47
Commercial	47.4	$4,752	10.02	$190	0.40
Industrial	32.4	$1,999	6.17	No tax	0
Transportation	0.2	$10	N/A	$0.4	N/A
Resid. + Commer.	**106.7**	**$11,731**	**10.99**	**$469**	**0.44**

For context, that $469m makes up 7.5% of total sales tax revenue in Georgia in Fiscal Year 2019 ($6.25 billion) and 2.0% of total revenue collection ($23.79 billion). See also this BGPI budget primer for FY 2022.

Questions and comments:

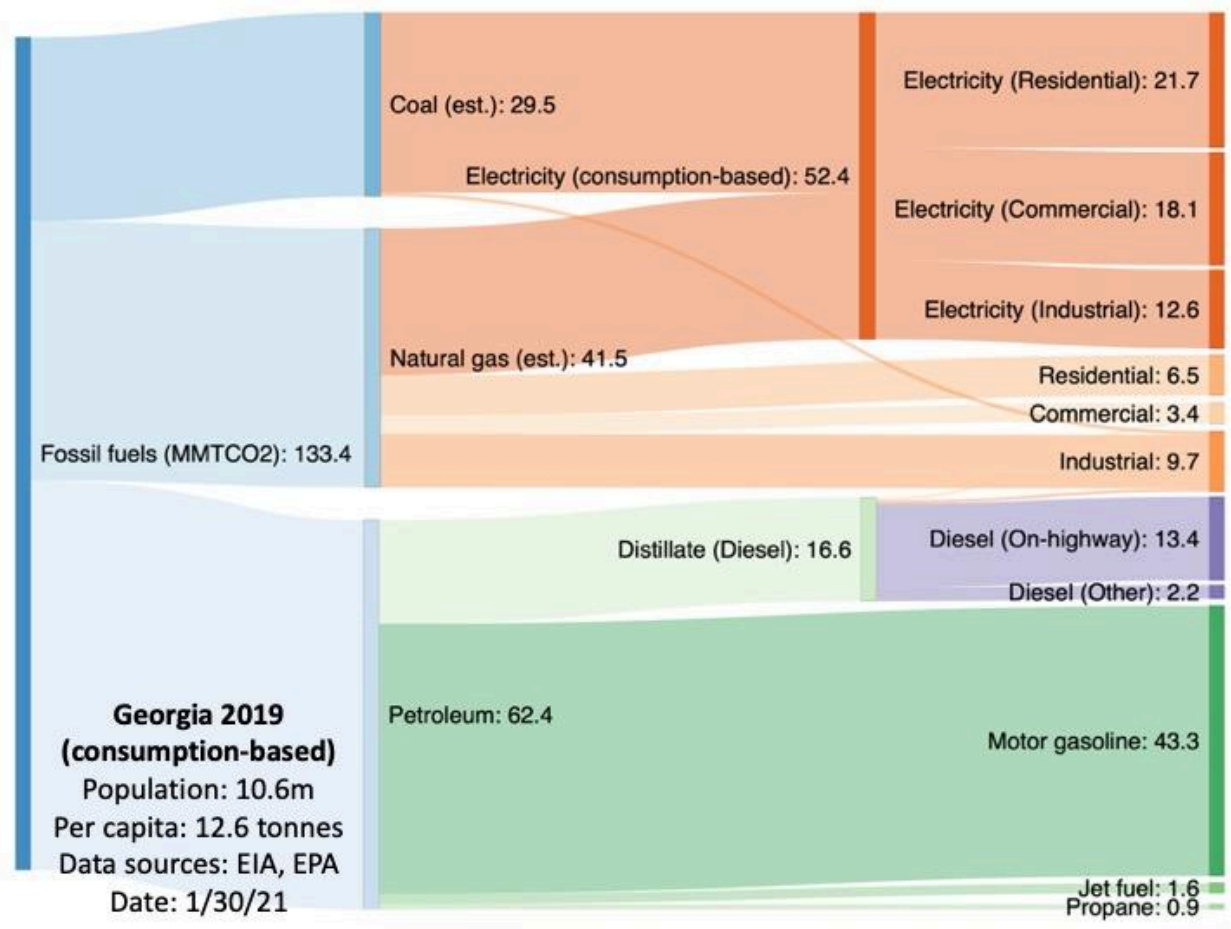
- Can we get GA DOR to confirm (or modify) how much revenue this portion of the sales tax raises, and any breakdowns (e.g., residential, commercial, etc.)?
- Any other exemptions?
- There's also local sales tax, so we need to think about whether we should aim to eliminate state *and* local sales taxes on electricity or only the state sales tax. (The sales tax exemption for grocery store food, for example, only applies to the state tax.)

- CEX data shows that electricity taxes are even more regressive than grocery taxes.
- What to do about long-run revenue stability issues? One short- / mid-term option is to raise the carbon tax rate over time, which can postpone but not eliminate revenue stability issues. In a long run scenario where CO2 emissions are zero, perhaps the only two options are to (1) reinstate the sales tax in (say) 2040, or (2) leave the revenue drop because taxes on electricity are very regressive.

All fossil CO2 in Georgia

The Sankey diagram below for fossil CO2 in Georgia is mostly based on EIA data for 2019, plus the sources listed below. Note that the electricity CO2 estimate here is based on the carbon content of electricity *consumed* in the state. An estimate based on the carbon content of electricity *generated* in the state would be somewhat smaller because of electricity imports.

Bottom line: a carbon tax of about $12 per metric ton CO2 on the 40 MMTCO2 from residential and commercial electricity would have generated about the same in revenue ($469m) as the existing sales tax on those sectors. But a carbon tax (unlike a sales tax) will give utilities a financial incentive to reduce emissions!



Electricity (Summary)

This table summarizes the Georgia electricity sector, with columns as follows:

1. **Name of the utility** (or utilities, e.g., MEAG members).
2. **% share of MWhs** sold to the residential and commercial sectors.
3. **Carbon intensity** (MTCO2/MWh), e.g., coal-fired power is roughly 1.0. *This amount is also the cents/kWh impact of a $10 carbon tax* (e.g., about 1 cent/kWh for coal).
4. **Estimated savings (or costs) from a revenue-neutral tax swap**, in cents per kWh. This estimates the combined impact of eliminating the state sales tax on residential and commercial customers (an average savings of 0.44 cents per kWh) and replacing it with an $11.78 carbon tax on those customers (an average cost of 0.44 cents per kWh). Customers of utilities with a carbon intensity that is *lower* than the statewide average will end up paying a bit less; customers of utilities with a carbon intensity that is *higher* than the statewide average will end up paying a bit more.

Name	% of sales (R+C)	MTCO2/ MWh	Price change from tax swap, **cents**/kWh
Statewide average	**100%**	**0.37 (?)**	**0**
Georgia Power	57.5%	0.42	+ 0.05
Oglethorpe members	31.9%	0.33 (??)	- 0.05
MEAG members	7.2%	0.21 (??)	- 0.19
TVA customers	2.8%	0.33 (?)	- 0.05
Other	0.6%	?????	?

Electricity (Gory details)

The Utilities tab here has EIA data on electricity providers in Georgia. Here is more information about these providers, including an estimate of their % share of MWh sold to the residential and commercial sectors and an estimate of their carbon intensity (with coal-fired power and gas-fired power being roughly 1.0 and 0.5 MTCO2/MWh, respectively):

- 57.5%: **Georgia Power,** a division of Southern Co., is the only Investor Owned Utility (IOU) in the state. The EEI spreadsheet says that their emissions intensity is 0.42 MTCO2/MWh. They have a carbon reduction goal.
- 31.9%: **Oglethorpe members**, including Jackson Electric Coop and over 30 other coops. Its website lists energy sources as 10% coal, 46% gas, 5% hydro, and 39% nuclear, so we estimate the resulting carbon intensity as 0.10*1 (coal) + 0.46*0.5 (gas) = 0.33. (This is also close to the Ceres estimate of 0.39.)
- 7.2%: **MEAG members**, including the city of Marieta and over 40 other cities. Its website lists energy sources as 10% coal, 18% gas, 7% hydro, 62% nuclear, and 3% purchased, so we estimate the resulting carbon intensity as 0.10*1 (coal) + 0.18*0.5 (gas) + 0.03*0.5 (assuming purchased power is gas) = 0.21. (This is also close to the Ceres estimate of 0.31.)
- 2.8%: **TVA customers**, including North Georgia Electric Coop (1.9%) and other coops and municipalities. The TVA annual report shows a carbon intensity of about 0.33, and its power system overview comes pretty close to that: 14% coal and 27% gas amounts to about 0.14*1 + 0.27*0.5 = 0.28. It's also close to the Ceres estimate of 0.32.
- 0.6%: **Other entities**, mainly the city of Dalton (0.5%).

See also this PSC overview of Georgia's electric industry. Note that Scherer Coal Plant Unit 4 is scheduled to close (replaced by gas, with an option for solar) in 2022; see here for ownership details. Also note that Units 3 and 4 of the Vogtle nuclear plant expansion, originally planned to be in operation by 2017, are now supposed to come online in Nov 2021 and Nov 2022, respectively, and that all Vogtle units are co-owned by Georgia Power (45.7%), Oglethorpe Power Corporation (30%), MEAG (22.7%) and Dalton Utilities (1.6%).

There's also an EIA electricity overview (but note that it focuses on the electricity generated in the state rather than the electricity consumed in the state): "Natural gas, nuclear power, and coal fuel more than nine-tenths of Georgia's electricity generation… Coal-fired power plants fueled more than three-fifths of net generation in Georgia before 2009, but coal's contribution has declined steadily since then, and coal fueled about one-fifth of state generation in 2019… The share of in-state generation fueled by natural gas has nearly tripled since 2009, and it now accounts for almost half of the state's net generation… Two nuclear reactors under construction at Georgia's Vogtle nuclear plant will almost double the plant's generating capacity. Georgia is among the top 10 nuclear power generators in the nation… Those reactors have planned startup dates in 2021 and 2022… Although Georgia is among the top 10 electricity-producing

states, the state typically uses more power than it generates. For the past decade, Georgia has acquired more than 10% of the electricity it consumes each year from other states. The residential sector, where nearly three-fifths of the state's households use electricity for heating and almost all homes have air conditioning, accounts for slightly more than two-fifths of electricity retail sales in Georgia. The commercial sector accounts for about one-third of sales and the industrial sector accounts for almost all the rest. Georgia is one of the top states in the number of plug-in electric vehicles per capita."

Taxes (Gory details)

There's a good page about sales taxes in the annual Tax Expenditures report. (This report focuses on tax exemptions, which are formally called tax expenditures because not imposing a tax on X is kind of like spending government money on X.) The intro page on sales and use tax has two things that I think are important:

1) "In general, the local tax base is consistent with the state sales tax base, which is defined to include mainly tangible personal property. The major exception is food for home consumption, which is included in the local sales tax base, but is exempted from the state tax." This is interesting because we may want to propose the same thing for electricity: include it in the local sales tax base but exempt it from the state tax.

2) "All proceeds from the state sales and use tax, net of the vendor compensation, are deposited into the State General Fund." This is good because it tells us where the sales tax money goes.

There's also a section in there that estimates the value of the sales tax exemption for groceries ("food purchased for off-premises consumption"). They estimate the state sales tax exemption there at $559 for Fiscal Year 2019.

Sales tax exemption for grocery store food

Our proposal to sunset sales taxes on electricity is fairly similar in size and nature to the legislation from 1996 (HB 256) that phased out sales tax on grocery store food, so we did some research on that bill. It was pushed by then-Governor Zell Miller (D) and passed almost unanimously: 173 Yes, 2 No in the House and 52 Yes, 1 No in the Senate.

Fifteen state legislators from 1996 are still in elected office; all of them voted Yes on HB 256:

- 10 current members of the state House, 7 Republicans and 3 Democrats. The Republicans are Reps. Buddy DeLoach [he might be interested, same district as Buddy Carter], Gerald Greene, Butch Parrish, Don Parsons, Alan Powell [did IRP with Boyd Pettit], House Speaker David Ralston [no], and Vance Smith; the Democrats are Reps. Carolyn Hugley, Mary Margaret Oliver [she's a potential], and Calvin Smyre.

- 4 current members of the state Senate, all Democrats: Senators Ed Harbison, Donzella James, David Lucas, and Nan Orrock [she's a potential].
- 1 current member of the U.S. House of Representatives: David Scott (D). (Also voting Yes on HB 265 was former U.S. Rep. Lynn Westmoreland, who was in Congress from 2005 - 2017 and was one of the most conservative Republicans in Congress.)