GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AAPCA Member Roundtable
Wood Products in Georgia

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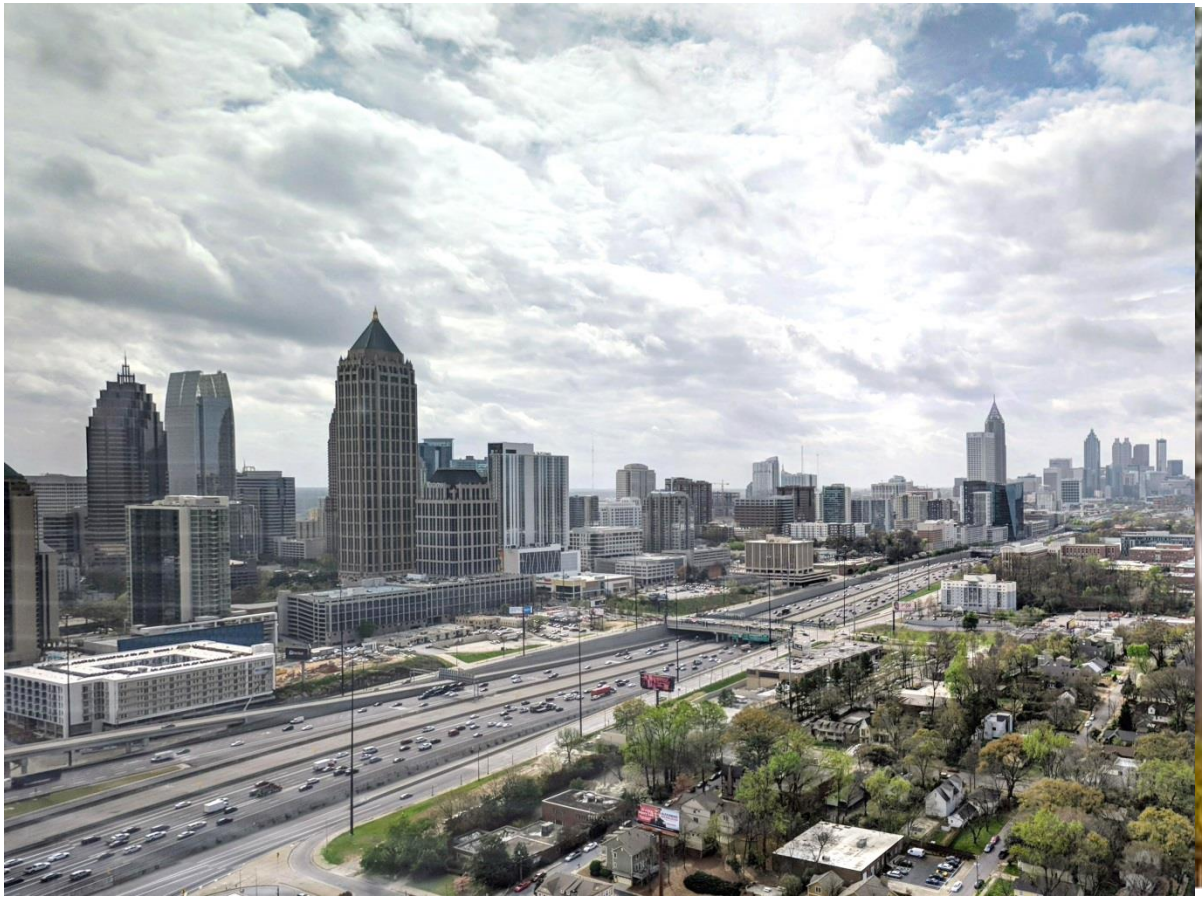
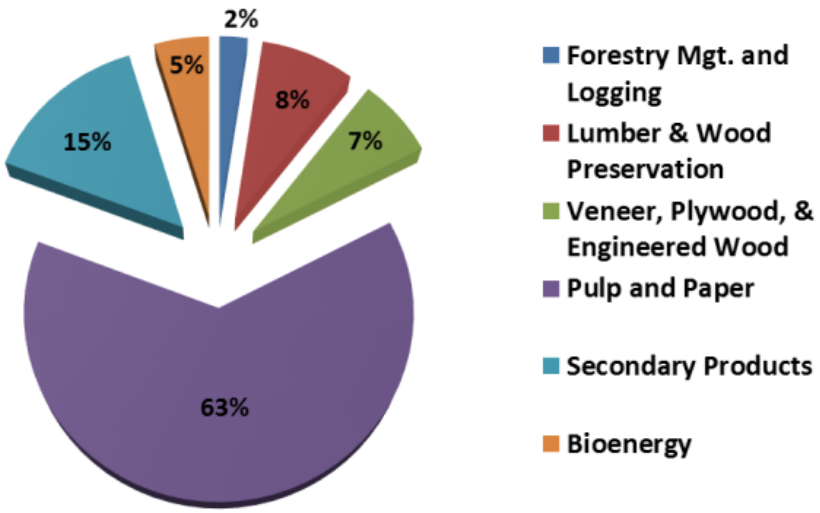
GEORGIA ...



ECONOMIC IMPACT OF WOOD PRODUCTS INDUSTRY IN GEORGIA

- $20.8 billion in total revenue
- 51,600 jobs



http://www.gfc.state.ga.us/utilization/economic-impacts/2016%20Forest%20Economic%20Factsheet.pdf

LUMBER KILNS IN GEORGIA

Lumber Kilns in Georgia
58 Permitted
25 Title V Major
16 PSD Major
5 Synthetic Minor
28 True Minor

DIRECT-FIRED CONTINUOUS DRY KILNS (CDK)

Continued shift to direct-fired continuous dry kilns (CDK) from batch kilns

- Better lumber quality
- Improved fuel efficiency
- Boiler MACT avoidance

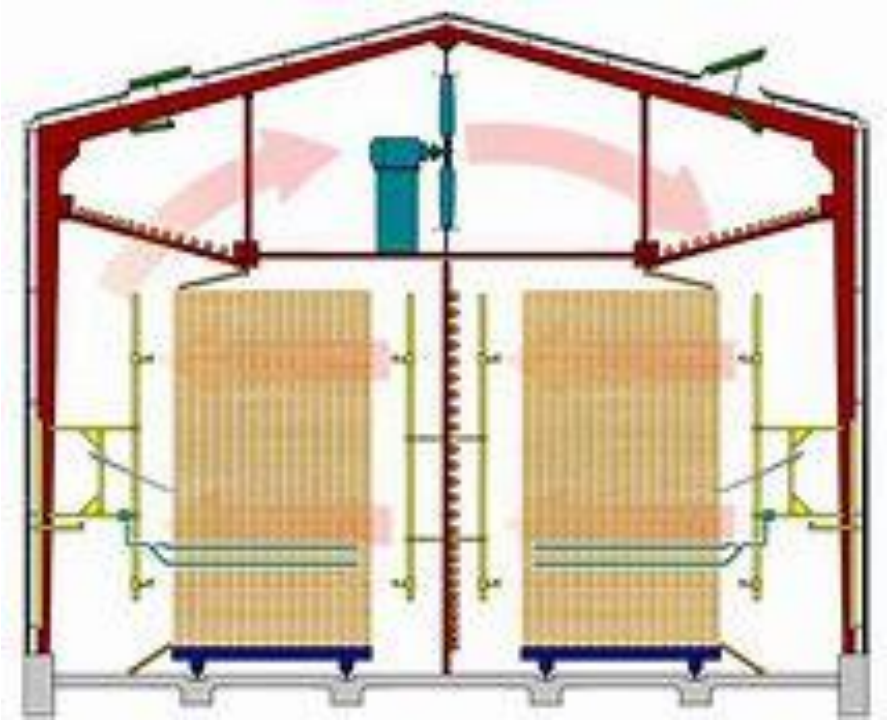


Illustration of CDK from www.wellons.com

PERMITTING DIRECT-FIRED CONTINUOUS KILNS

- VOC emission factors vary from 3.6 pounds per million board feet (lb/mbf) to 5.0 lb/mbf
- PM data is limited
- No requirements under Plywood and Composite Wood Products MACT and for CDK, Boiler MACT

PSD PERMITTING AT LUMBER KILNS

- Triggering PSD; determining VOC Best Available Control Technology (VOC BACT) for lumber kilns:
  - Add-on controls are not cost effective
  - BACT = work practice standards
  - 13 PSD permits for CDK issued since 2010
- Pass PM modeling by installing natural gas burners in lieu of sawdust burners
- Some kiln construction projects avoid PSD by shutting down aging batch kilns (netting)
  - 10 PSD avoidance permits issued since 2010

MODELING AIR TOXICS AT LUMBER KILNS

- Formaldehyde is the main concern
- Georgia EPD's **Guideline for Ambient Impact Assessment of Toxics Air Pollutant Emissions** compares **annual maximum ground-level concentration** to the **acceptable ambient concentration**
- EPD developed a kiln modeling protocol
- For CDKs, power vents are common to improve dispersion
- Risk assessment still needed at times for formaldehyde

LUMBER KILNS – COMPLIANCE

Wood-fired boilers on steam-heated kilns subject to the Boiler MACT

- Excess particulate matter during performance tests
- Missing operation and maintenance records during air quality inspections
- Excess opacity / fugitive emissions
- Failure to conduct performance tests or boiler tune-ups in a timely manner
- Failure to install and/or operate monitoring devices at all times, e.g., COMS, pressure drop

WOOD PELLET PLANTS IN GEORGIA

Wood Pellet Plants
15 Permitted…8 constructed
7 Title V Major
0 PSD Major
0 True Minor
1 Synthetic Minor

Wood pellets photo from biomassmagazine.com

WOOD PELLET PLANTS – PERMITTING

- **Significant public interest**
- **Continuing to fix old permits that underestimated emissions**
  - Emissions depend on wood type and dryer temperature
  - Significant VOC emissions from sources downstream of the dryer (hammer mill, pellet cooler, and storage)
  - GA EPD developed default emission factors

WOOD PELLET PLANTS – PERMITTING

- No wood pellet mills in Georgia are subject to PSD or HAP 112(g)
  - VOC BACT or 112(g) would likely be add-on controls
  - Georgia Biomass voluntarily installed two regenerative catalytic oxidizers to reduce HAP and VOC emissions to below PSD-major source levels in 2013
- Partial recycle of dryer exhaust back to the wood burner as combustion air is common method to reduce VOC emissions
- Permit monitoring typically dryer inlet temp, burner temp, and recycle flow rate

WOOD PELLETS – COMPLIANCE

Common compliance issues at wood pellet plants:

- Improperly permitted due to lack of understanding of emissions
- Excess particulate matter emissions during performance tests
- Temperature excursions at burner / dryer
- Failure to monitor for pressure drop at recycle duct
- Failure to conduct performance tests in a timely manner