Maine Paper Manufacturing and Ship Building Tax Preferences Evaluation

Prepared for the Office of Program Evaluation and Government Accountability

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Contents

Executive Summary

The State of Maine Office of Program Evaluation and Government Accountability ("OPEGA") commissioned EY's Quantitative Economics and Statistics practice to analyze the state and local tax climate for two manufacturing industries–paper manufacturing and ship and boat building–in Maine and nine locations in eight peer states. The analysis assesses each state's tax climate with and without state and local tax incentives. For Maine, these incentives include the Credit for Paper Manufacturing Facility Investment ("PAPER") and the Tax Credit for Maine Shipbuilding Facility Investment in Maine ("SHIP"). The peer states include Arkansas, Georgia, Mississippi, Tennessee and Wisconsin for paper manufacturing and California, Connecticut, Mississippi and Virginia for ship and boat building. This report presents the findings of the analysis.

Overview of approach

This study presents estimates of the tax burdens faced by paper manufacturing and ship and boat building firms investing in facilities in Maine and the benchmark states. Representative firm profiles were developed for each industry from public data sources, reflecting a composite of companies in the sector that are of an appropriate size to make capital investments that qualify for certain tax incentives in Maine, described in section 1.4. Characteristics of the representative firms are shown in Table ES-1 below.

Table ES-1. Firm profiles used in tax burden analysis for Paper Manufacturing and Ship and Boat Building industries

	Hypothetical firm profile: Paper Manufacturing	Hypothetical firm profile: Ship and Boat Building
NAICS industry	322	3366
Number of employees	662	6084
Average employee wages	$80,428	$71,032
Capital investments	$40 million	$200 million
Annual business revenue	$331 million	$1.7 billion
Operating annual expenses	$298,301,277	$1.6 billion
Profit margin	10.0%	9.1%

Source: EY analysis using the IRS Corporate Sourcebook data for the given NAICS codes; Use of Commodities data from the Bureau of Economic Analysis; and County Business Patterns and Economic Census data from the US Census Bureau.

Local taxes are specific to a county in each state. Selected benchmark counties are representative locations where a firm in the industry could elect to make a major capital investment in a production facility based on existing industry presence. Table ES-2 provides an overview of statutory tax rates in Maine and the benchmark counties. When tax rates vary depending on the precise location of the facility within the benchmark county, such as property tax rates, the model uses an average of the applicable rates in communities within the county.

Table ES-2. Summary of current statutory tax rates for Maine and benchmark states, 2023

Total state and local tax rates for locations in:	State corporate income or franchise tax rate*	Combined state and local sales tax rate	Real property tax rate**	Personal property tax rate**
Arkansas				
Jefferson County	5.10% CIT + $300 flat fee franchise tax	10.00%	1.10%	1.10%
California				
San Diego County	8.84% CIT	7.86%	1.13%	1.13%
Connecticut				
New London County	7.50% CIT or 0.31% franchise rate	6.35%	2.61%	2.61%
Georgia				
Bibb County	5.75% CIT + $5k flat fee	8.00%	1.38%	1.38%
Maine				
Aroostook County	8.93% CIT	5.50%	1.82%	1.82%
Sagadahoc County	8.93% CIT	5.50%	1.27%	1.27%
Mississippi				
Jackson County	5.00% CIT + 0.125% franchise rate	7.00%	1.85%	1.85%
Lowndes County	5.00% CIT + 0.125% franchise rate	7.00%	1.45%	1.45%
Tennessee				
Shelby County	6.50% CIT + 0.25% franchise rate	9.75%	1.58%	1.19%
Virginia				
Newport News City	6.00% CIT	6.00%	1.20%	3.75%
Wisconsin				
Brown County	7.90% CIT	5.50%	1.70%	0.00%

*Connecticut taxpayers pay the greater of the corporate income tax or the franchise tax. Connecticut and Mississippi franchise taxes will be fully phased out after the 2027 tax year.
**Property tax rate is the product of the millage rate and the assessment ratio but does not reflect differences in local valuation approaches or personal property depreciation schedules.
Source: EY analysis using various sources for tax rates including TRTA Checkpoint for sales tax rates, and state and county tax websites for other tax rates.

The tax system characteristics for each location were applied to the financial profiles to estimate the state and local tax burden for the representative firms during a 30-year period. To allow comparison of taxes and incentives that affect different tax bases and rates in different years, a single measure of tax burden is used that summarizes how state and local tax payments affect the firm's profitability over time. To do this, the tax burdens are translated into effective tax rates (ETRs), which are calculated as the percentage change in the internal rate of return (IRR) before and after taxes.[1] In other words, the ETR is the difference between the pre- and post-tax rate of return divided by the pre-tax rate of return. For example, state and local taxes that reduce the rate of return from 20% to 18% would translate into a 10% effective tax rate (2 percentage point reduction on a 20% rate of return).

After calculating the total state and local ETRs for the paper manufacturing and ship and boat building manufacturing firms under the current tax systems in each state, the analysis incorporates statutory and

[1] IRR is calculated using the investment amount to qualify for the credit and estimated pre- and post-tax cash flow for 30 years after the investment.

negotiated (discretionary) incentives. Statutory incentive benefits are estimated using statutorily defined incentive program features applied to the investment and operations of each representative firm. In contrast, the amount of benefit provided by negotiated incentives is determined at the discretion of economic development officials and cannot be estimated precisely. Therefore, discretionary incentive amounts included in this analysis are based on past deals in each state but may vary from the actual result realized by a particular company making an investment.

States incentivize investment using a combination of different programs, some of which are targeted specifically to the paper manufacturing and ship and boat building industries. Table ES-3 provides an overview of the incentives in included in the study and Appendix Table A-3 provides more information.

Table ES-3. Summary of incentives by state included in the analysis

State	Industry	Property tax	Sales and use tax	Income tax	Grant	Incentives
AR	Paper	√		√	√	Arkansas Economic Development Grant (Governor's Deal Closing Fund), Create Rebate, Ark Plus Income Tax Credit, Property tax abatement (IRB/PILOT)
CA	Shipbuilding		√	√		CA Competes tax credit, CAEAFTA SUT exclusion program, Special Purpose Building SUT exclusion, San Diego Business Cooperation Program
CT	Shipbuilding	√		√	√	Manufacturing Machinery and Equipment Tax Exemption, Fixed Capital Investment Credit (FCIC), JobsCT, Enterprise Zone
GA	Paper	√	√	√		Jobs Tax Credit, Property Tax Abatement, Project of Regional Significance, REBA Grant
ME	Both	√		√		Credit for paper manufacturing facility investment, Tax credit for Maine shipbuilding facility investment, Business Equipment Tax Exemption, Maine Capital Investment Credit, Municipal tax increment financing rebate
MS	Both	√		√	√	Manufacturing Investment Tax Credit, Advantage Jobs Incentive Program, Jobs Tax Credit, Industrial Property Tax Exemption
TN	Paper	√		√		Enhanced Job Tax Credit, Industrial Machinery Tax Credit, Local Payment in Lieu of Tax (PILOT) incentive
VA	Shipbuilding				√	Major Employment and Investment Project (MEI)
WI	Paper	√		√		Enterprise Zone, Tax increment district, Manufacturing and Agriculture tax credit

Source: State tax websites and tax incentives codes

- Arkansas incentives include a highly discretionary deal closing fund, payroll rebate, and income tax credit based on payroll and investment.
- California incentives include a discretionary sales and use tax exemption on machinery and equipment and an income tax credit based on job creation.
- Connecticut incentives include the Fixed Capital Investment Credit, property tax abatements and exemptions, and income tax credits based on job creation.
- Georgia incentives include property tax abatement, discretionary sales tax exemption on construction materials, and a tax credit based on job creation.
- Maine incentives include investment tax credits for paper manufacturing and ship and boat building, a capital investment tax credit, property tax exemptions on business equipment, and a property tax increment financing rebate.
- Mississippi incentives include a property tax exemption, a tax credit based on job creation, and a tax credit for existing manufacturers who continue to invest in the state.
- Tennessee incentives include property tax abatement, an investment tax credit, and a tax credit based on job creation.
- Virginia incentives include a highly discretionary grant program created by the state to provide flexibility in constructing incentive packages to attract competitive projects. The MEI is taken in lieu of all other incentives.
- Wisconsin incentives include a statutory income tax credit for manufacturers, an investment tax credit, and a tax increment district property tax incentive.

Summary of findings

Key findings from the analysis are described below.

Paper manufacturing firm tax burden findings:

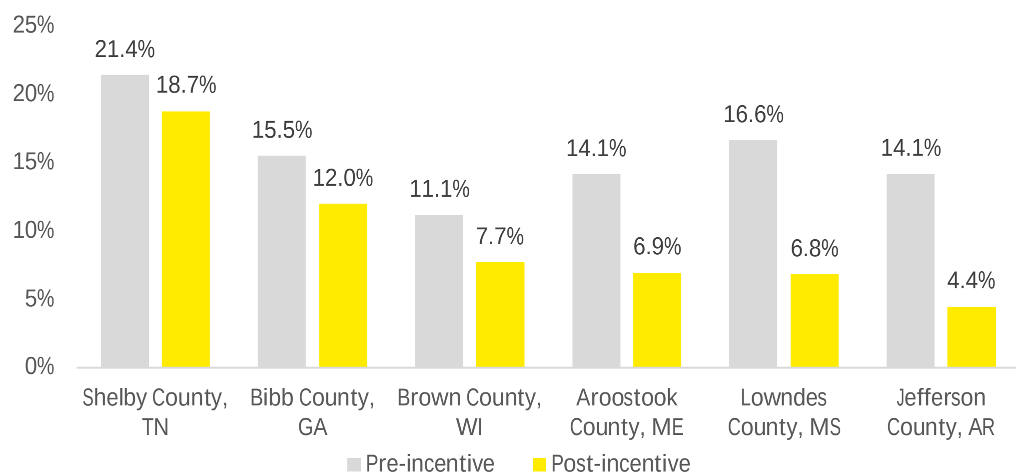
- Maine's pre-incentive ETR is 14.1%, which is the 2nd lowest of the benchmark states. Maine's post-incentive ETR for paper manufacturing firms is 6.9%, which is the 3rd lowest among peer states. The post-incentive ETR for Maine is modeled with the statutory maximum credit for paper manufacturing facility investment. Maine's ETR falls by 7.2 percentage points due to incentives. The PAPER tax credit is responsible for 4.0 of the 7.2 percentage point decline. The remaining 3.2 percentage point ETR decrease is attributable to the Maine Capital Investment Credit, the Business Equipment Tax Exemption (BETE) and a municipal tax increment financing rebate.[2] Without the PAPER credit, Maine would have the 4th lowest post-incentive ETR. See Figure ES-1.
- Wisconsin has the lowest pre-incentive ETR but falls to 4th lowest post-incentive ETR due to relatively smaller tax incentives compared to Maine and other benchmark states. Wisconsin's competitive pre-incentive performance is driven by low statutory sales tax rates and the recently enacted exemption

[2] If the new investment is not at a facility in a TIF district in Aroostook County and the TIF rebate is removed from the model, the post-incentive ETR for Maine increases to 7.4%, which would still be the 3rd lowest ETR in the group.

of personal property resulting in Wisconsin having the second lowest property tax ETR among peer states.

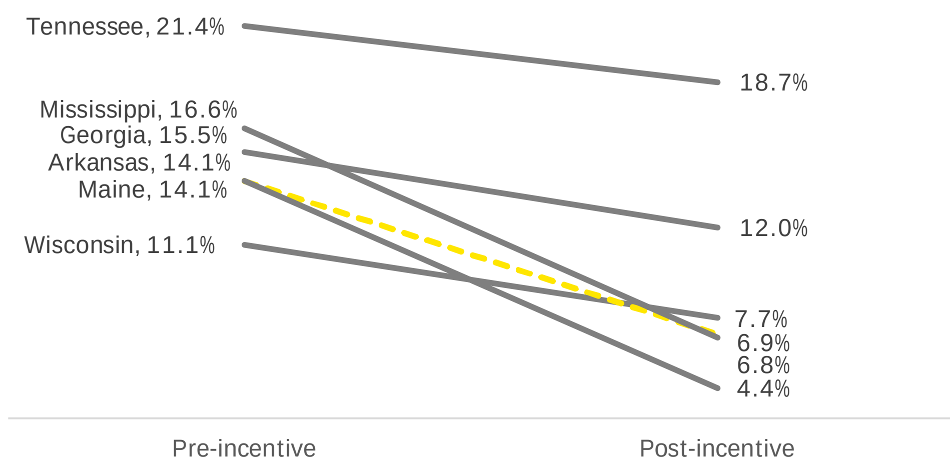
- Arkansas's ETR for paper manufacturing firms decreased by 9.7 percentage points due to incentives and ranks lowest with a post-incentive ETR of 4.4%. The decline is driven by the Create Rebate incentive, a grant based on new payroll in the state. The incentive value is estimated to exceed $30 million in 10 years.
- Mississippi's ETR for paper manufacturing firms decreased the most from pre-incentives to post-incentives at 9.8 percentage points, improving from the 2nd highest ETR pre-incentives to 2nd lowest post-incentives with an ETR of 6.8%. Mississippi's ETR decline is primarily due to the Advantage Jobs incentive program. The program allows employers to retain a share of payroll withholding if certain job creation and wage thresholds are met. The estimated value of the incentive is $24 million. See Figure ES-2.

Figure ES-1. Pre-incentive and post-incentive state and local effective tax rates for paper manufacturing



Source: EY Analysis using Business Tax Competitiveness Model

Figure ES-2. Change in effective tax rates by state, pre- and post-tax incentives for paper manufacturing firms

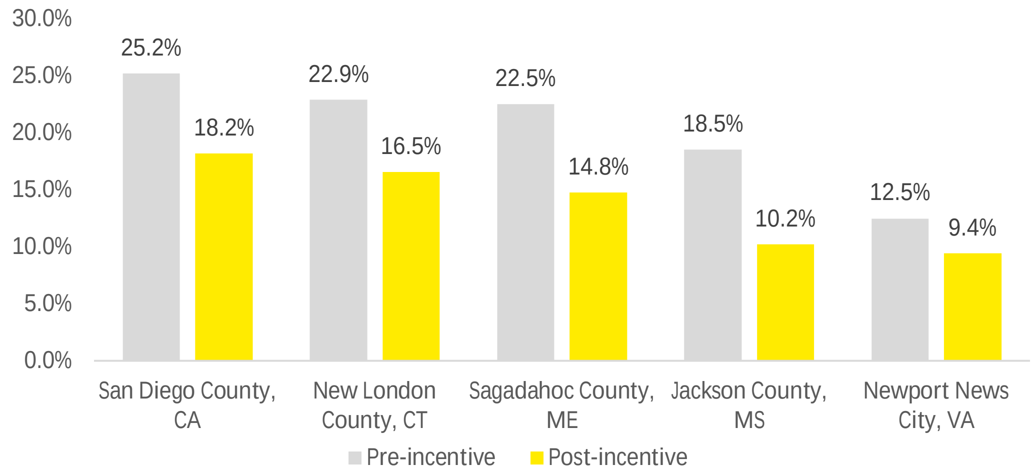


Source: EY Analysis using Business Tax Competitiveness Model

Ship and boat building findings:

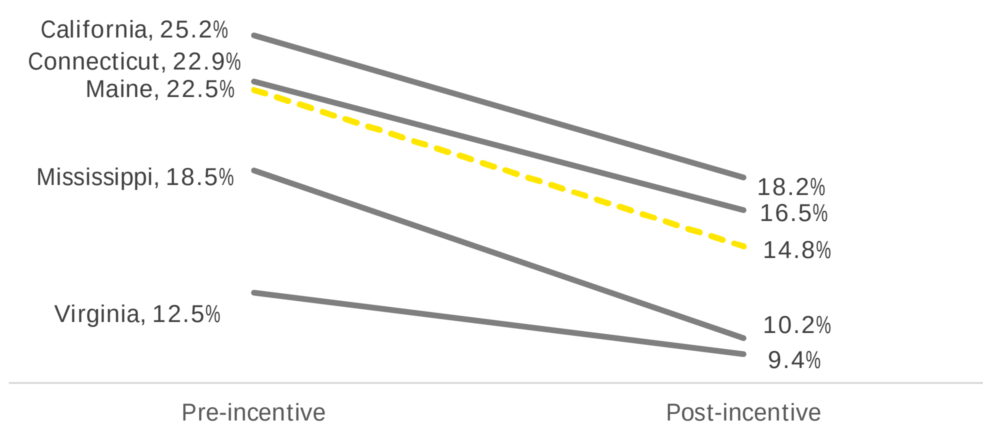
- Maine's pre-incentive ETR for ship and boat building is the 3rd highest of the five locations at 22.5%. Maine's corporate income taxation for ship and boat building firms is higher than other states for this industry (see Section 2.1). Maine's post-incentive ETR for ship and boat building firms is 14.8%, the 3rd highest among the five states in the study. The post-incentive ETR for Maine is modeled with the statutory maximum tax credit for Maine shipbuilding facility investment. Maine's ETR falls by 7.7 percentage points due to the incentives, with 4.3 of the 7.7-percentage point decline coming from the SHIP tax credit.
- Incentives had the largest effect in Mississippi where the post-incentive ETR decreased by 8.3 percentage points due primarily to the Jobs Tax Credit and the Industrial Property Tax Exemption. The Advantage Jobs incentive program is not modeled for ship and boat building because the average wage for the hypothetical firm (based on industry data) does not exceed the required threshold.
- Virginia ranks as the lowest tax burden location for both pre- and post-incentive ETRs. Virginia's lower pre-incentive ETR is due to rules regarding apportionment of income for corporate income taxation, lower combined state and local sales taxes, and a lower real property tax rate compared to peers. Significant discretionary incentives further lower Virginia's ETR post-incentives.

Figure ES-3. Pre-incentive and post-incentive state and local effective tax rates for ship and boat building



Source: EY Analysis using Business Tax Competitiveness Model

Figure ES-4. Change in effective tax rates by state, pre- and post-tax incentives for ship and boat building



Source: EY Analysis using Business Tax Competitiveness Model

1. Study approach

1.1 Effective tax rate analysis

This evaluation uses a discounted cash flow model, relevant tax system parameters, and industry-specific financial profiles of hypothetical facilities to estimate the state and local taxes that would be paid over a 30-year life of paper manufacturing and ship and boat building facilities. The tax burdens imposed by the state and local tax systems in each state are then translated into ETRs, which are expressed as the percentage change in the rate of return due to taxes (i.e., the difference between the pre- and post-tax rates of return divided by the pre-tax rate of return). For example, a reduction in the rate of return from 20% to 18% due to taxes, a two-percentage-point decrease, translates to a 10% effective tax rate.

The differential in the effective tax rate with and without incentives is presented to show the impact of state and local incentives. The goal of this approach is to simulate the level of tax liability and benefits from tax credits and other incentives that would be available to a representative taxpayer who complies fully with the tax law and avails itself of the relevant benefits. The impacts of statutory and discretionary incentives are analyzed together in this analysis. In total, two different results are presented in this study:

- ETRs pre-incentives present results before any statutory and negotiated tax incentives available to a manufacturing facility have been added to the cash-flow analysis. The pre-incentive ETR illustrates differences in the state tax systems.
- ETRs post-incentives capture the impact of statutory and discretionary tax credits and other negotiated incentives on tax payments and net cash flow.

1.2 Maine incentives

Two industry-specific incentives offered by the state of Maine are included in this analysis:

- Title 36, §5219-YY: Credit for paper manufacturing facility investment
- Title 36, §5219-RR: Tax credit for Maine shipbuilding facility investment

The Paper Manufacturing Facility Investment incentive (“PAPER”) is designed to incentivize investment in paper manufacturing (NAICS 322) in Maine. The credit value is 4% of qualified investment for 10 years. The income tax credit is capped at $1.6 million annually and $16 million in cumulative total credits and is refundable. To qualify, the company must be headquartered in Maine, own a paper manufacturing facility in a county with an unemployment rate that is at least 20% higher than the state average unemployment rate. Additionally, the company must invest at least $15 million within two years, employ at least 400 workers, and pay at least 75% of employees at least 115% of the county’s annual per capita personal income. The credit cannot be taken in combination with Pine Tree Development Zone Incentives (PTDZ), the Employment Tax Increment Financing (ETIF) Incentive, or the newly enacted Dirigo incentive.

The Maine Shipbuilding Facility Investment incentive (“SHIP”) is designed to incentivize investment in ship and boat building (NAICS 3366) in the state. To qualify, the company must invest at least $100 million and employ 5,500 workers to receive the full credit. The income tax credit value is 3% of qualified investment annually for 10 years, or $30 million in cumulative total credits. If the company makes an additional investment of at least $100 million within 5 years of the initial investment, the credit is extended for an additional five years. The maximum total value of the credit with $200 million investment is $45 million. If employment exceeds 6,000 the annual credit limit increases to $3.125 million. The annual credit limit increases $0.1m for each additional 500 employees up to $3.5 million annually with at least 7,500 employees. There is a reduced credit available if employment is less than 5,500. For every 250 employees below 5,500, the credit value is reduced 10%. There is no credit available if employment is less than 4,000. The credit cannot be taken in combination with Pine Tree Development Zone Incentives (PTDZ), the Employment Tax Increment Financing (ETIF) Incentive, or the newly enacted Dirigo incentive.

1.3 Benchmark locations

For both industries, OPEGA selected peer states based on the presence and employment size of the relevant industries. EY then proposed a county for the hypothetical investment within each state based on employment size for the relevant industries and confirmed with OPEGA. The following table shows the counties that were chosen as locations in which a representative facility in each industry would locate in each state.

Table 1. Selected peer states and counties for study industries

Paper Manufacturing (NAICS 322)			Ship and Boat Building (NAICS 3366)		
State	County	Industry employment	State	County	Industry employment
Maine	Aroostook County	587	Maine	Sagadahoc County	6,450
Arkansas	Jefferson County	1,131	California	San Diego County	7,267
Georgia	Bibb County	1,576	Connecticut	New London County	12,357
Mississippi	Lowndes County	508	Mississippi	Jackson County	11,179
Tennessee	Shelby County	1,894	Virginia	Newport News City	23,411
Wisconsin	Brown County	5,071			

Source: EY analysis of employment data from JobsEQ, which summarizes Quarterly Employment and Wage data from US Bureau of Labor Statistics

1.4 Representative investment and operating profiles

The following table summarizes the representative investment and operating financial profiles for Paper Manufacturing and Ship and Boat Building. The investment amounts are based on the thresholds necessary to receive the maximum credit value for both Maine incentives. The operating profiles use Census County Business Patterns data to estimate company size and IRS Statistics of Income data to estimate income, receipts, and deductions for a company of that size.

Table 2. Representative facility financial profile for Paper Manufacturing and Ship and Boat Building.

Metric	Source	Paper Manufacturing (322)	Ship and Boat Building (3366)
Investment Amounts			
Furniture & Fixtures	EY Calculation, BEA Fixed Assets	$175,775	$644,634
Office Equipment, Computers	EY Calculation, BEA Fixed Assets	$208,067	$3,725,052
Motor Vehicles	EY Calculation, BEA Fixed Assets	$128,557	$3,962,974
Machinery & Equipment	EY Calculation, BEA Fixed Assets	$23,288,247	$112,370,153
Industrial Structures	EY Calculation, BEA Fixed Assets	$15,717,724	$76,199,711
Commercial Structures	EY Calculation, BEA Fixed Assets	$481,630	$3,097,476
Total initial investment	Maine OPEGA	$40,000,000	$200,000,000
Operating Profile			
Employment	County Business Patterns data	662	6084
Average compensation	County Business Patterns data	$80,428	$71,032
Payroll	EY Calculation	$53,262,026	$432,147,833
Income and receipts			
Business receipts per employee	IRS Corporate Source Book	$479,501	$279,676
Business receipts	IRS Corporate Source Book	$317,541,850	$1,701,499,674
Other receipts	EY Calculation	$13,783,221	$16,556,039
Total Receipts	EY Calculation	$331,325,071	$1,718,055,713
Deductions			
Cost of goods	IRS Corporate Source Book	$211,373,079	$1,139,786,689
Labor in CGS	EY Calculation	$35,454,093	$289,483,657
Materials & other inputs	EY Calculation	$175,918,986	$850,303,032
Compensation of officers	IRS Corporate Source Book	$1,900,525	$18,529,656
Salaries and wages	IRS Corporate Source Book	$17,807,932	$142,664,176
Interest paid	IRS Corporate Source Book	$9,613,604	$17,771,228
Amortization	IRS Corporate Source Book	$2,017,507	$9,670,031
Other deductions	EY Calculation	$55,588,631	$232,706,607
Total Deductions	EY Calculation	$298,301,277	$1,561,128,387
Net Income	IRS Corporate Source Book	$33,023,794	$156,927,326
Profit margin	EY Calculation	10.0%	9.1%
Business Receipts / Total Receipts	EY Calculation	95.8%	99.0%

Source: EY analysis using 2022 Bureau of Economic Analysis Current-Cost Nonresidential Fixed Assets data for NAICS 3220 and NAICS 336, 2021 Census County Business Patterns data, and IRS Returns of Companies with Income by industry, tax year 2019.

2. State and local tax parameters

The tax systems in each of the nine states were analyzed and incorporated into the model to develop estimates of the state and local tax burdens faced by the two industries. The model includes estimates of the tax burdens resulting from corporate income tax, sales tax, property tax, franchise tax and unemployment taxes.

- Corporate income tax. The model reflects key corporate tax system features such as conformity with the US Internal Revenue Code for certain major items, the definition and weighting of apportionment factors used to apportion income to the state, the presence of throwback and throwout provisions, and the statutory tax rate.
- Franchise tax. The model includes franchise taxes for Arkansas, Georgia, Mississippi, and Tennessee.
- Sales and use tax. Relevant tax base features are incorporated into the model reflecting the taxability of various purchases of raw materials, manufacturing consumables, purchased services, utilities, and other relevant inputs which often have varying tax treatment by state.
- Property tax. The assessment ratio and statutory rate for relevant real and personal property were researched for the selected counties. The types of property included in the analysis are industrial real property, commercial real property, production machinery used in direct contact with the product, other equipment in the plant, non-production equipment, and inventory.
- Unemployment tax. Unemployment tax rates including the taxable wage base to calculate tax liabilities were researched for Maine and the benchmark states.

2.1 Business-entity taxes

The model estimates tax liabilities for corporate net income and franchise taxes. Table 3 presents a high-level summary of the tax landscape for these business taxes. For corporate income taxes, Maine and most of the peer states rely on single sales apportionment factors. Mississippi is the only state that relies on three factors with a double weight on sales. In addition, the model includes franchise taxes for Arkansas, Georgia, Mississippi, and Tennessee.

Several of the states have throwback or throwout rules when calculating the sales factor for corporate income tax apportionment. Throwback rules require that the corporation include in the numerator of its sales factor income earned that will not be taxed in another state. This could be due to lack of nexus in a state that the company sells to or sales to the federal government. This is important for the ship and boat building firm since the main product produced by these firms (naval ships) are purchased by the federal government. In states that have throwback rules the model apportions 100% of ship and boat building income in the sales factor. This means that 100% of the taxable income earned by the company is taxed in California and Mississippi. For states that do not have throwback provisions, (Virginia and Connecticut) the model has 5% of income as earned by in-state sales, and since these states are single sales factor apportionment states, 5% of taxable income is apportioned and taxed in these states.

For the shipbuilding firm in Maine, the analysis apportions 100% of sales as in-state since we assume that the products being produced are tangible personal property purchased by the federal government, which should be included as in-state sales for the purposes of determining the sales factor.[3] Maine also has throwout provisions in which income that is not taxed by another state are removed from the denominator in calculating the sales factor.

For the paper manufacturing firm, we apportion 10% of sales as in-state sales in calculating the sales factor and do not assume any “nowhere sales” for this industry.

Table 3. Corporate Income and franchise taxes in Maine and benchmark states

State	Tax type	Manufacturing corporate income apportionment factors	Statutory tax rate	Throwback and Throwout rules
Arkansas	Income	Single sales factor	5.1%	Throwback – phasing out
Arkansas	Franchise	--	Flat $300 fee	--
California	Income	Single sales factor	8.8%	Throwback
Connecticut	Income	Single sales factor	7.5%	No
Georgia	Income	Single sales factor	5.75%	No
Georgia	Franchise	--	Flat $5k fee	--
Maine	Income	Single sales factor	8.93%	Throwout
Mississippi	Income	3 factors (Double-weighted sales)	5.0%	Throwback
Mississippi	Franchise	--	0.125%	--
Tennessee	Income	Single sales factor	6.5%	Throwback
Tennessee	Franchise	--	0.25%	--
Virginia	Income	Single sales factor	6.0%	No
Wisconsin	Income	Single sales factor	7.9%	Throwback

Source: Apportionment factors compiled by the Federation of Tax Administrators; Tax rates retrieved from CCH Intelliconnect. Note: The franchise tax for Mississippi will be phased out by tax year 2028.

2.2 Sales and use taxes

A key consideration for a business is the application of the sales and use tax (SUT) on operating inputs. Generally, states exempt a wide variety of capital investment, intermediate inputs, and businesses services from the sales and use tax although the specific treatment can vary. Sales tax modeling for each state reflects the state’s treatment of the following categories:

- Business services
- Non-manufacturing supplies
- Data and telecommunications services
- Manufacturing machinery and equipment (Mfg. M&E)
- Machinery repairs
- Materials consumed in the manufacturing process (direct use materials)
- Utilities (gas, electric, water) used in the manufacturing process
- Construction materials

[3] See Title 36, Part 8, Chapter 821, section 15B.

Table 4 presents the differences in sales and use taxation by business input after incorporation of available statutory SUT exemptions such as the exemption for purchases of manufacturing machinery and equipment that is offered in some form by all states.

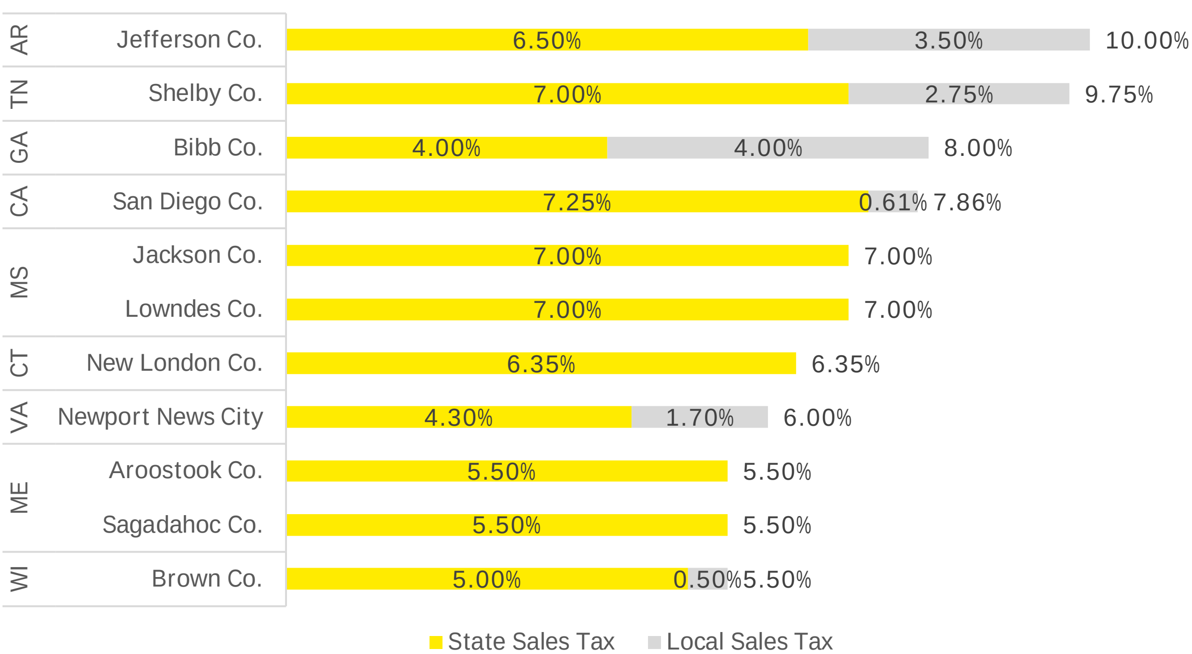
Table 4. Sales and use taxation by business input (% taxable after statutory exemptions)

State	Mfg. M&E	Direct use materials	Non-mfg. supplies	Utilities	Business Services*	Data/ Tele-comm	Repairs	Construction materials
Arkansas	0%	0%	100%	11%	0%	0%	0%	50%
California	46%	0%	100%	0%	21%	0%	0%	50%
Connecticut	0%	0%	100%	0%	62%	16%	0%	50%
Georgia	0%	0%	100%	13%	0%	0%	100%	50%
Maine	0%	0%	100%	1%/4%**	0%	100%	0%	50%
Mississippi	0%	0%	100%	0%	0%	100%	0%	25%
Tennessee	0%	0%	100%	0%	21%	100%	0%	50%
Virginia	0%	0%	100%	0%	0%	100%	0%	50%
Wisconsin	0%	0%	100%	0%	0%	100%	0%	50%

*Note: *Reflects the share of business services subject to the sales tax after statutory exemptions. **Maine statutorily exempts 95% of fuel and electricity used by manufacturers and 100% of water sold to industrial users. Modeled as a 99% SUT exemption of utility purchases for paper manufacturers and 96% SUT exemption for ship and boat building manufacturers.*
Source: TRTA Checkpoint on taxability of goods and services and conversations with EY subject matter resources in each state. Analysis reflects statutory exemptions or lower tax rates.

Figure 1 illustrates the state, local, and combined sales tax rate in the counties of the hypothetical facilities. Since local sales tax rates may vary within a county, the model uses a county-wide average of local tax rates. Maine, Connecticut, and Mississippi do not impose sales tax at the county or city level. In other peer states sales and use tax vary depending on the county.

Figure 1. State and local sales tax rates by county used in analysis



Note: Local sales tax rate is the average sales tax rate in each county. Rates may appear not to sum due to rounding.
Source: TRTA Checkpoint, Tax Foundation, and Municipal government websites.

2.3 Property taxes

Property taxes are set by local jurisdictions in each state. The average statutory property tax rate for each county where the hypothetical firm investment is located is used in the model. Types of property included in the analysis are:

- Commercial Structures
- Furniture & Fixtures
- Industrial Structures
- Land
- Machinery & Equipment
- Motor Vehicles
- Office Equipment and computers

Table 5 shows the statutory tax rate, the assessment ratio, and effective property tax rates by county across the two industries. The assessment ratio varies by property type in some locations.

Table 5. Property tax rate by state and industry
(Real and personal property taxes as a percentage of market value)

State	County	Statutory tax rate (real/ personal)	Assessment ratio (real / personal)	Real property tax rate	Personal property tax rate*
Arkansas	Jefferson County	5.51%	20%	1.10%	1.10%
California	San Diego County	1.13%	100%	1.13%	1.13%
Connecticut	New London County	3.73%	70%	2.61%	2.61%
Georgia	Bibb County	3.46%	40%	1.38%	1.38%
Maine	Aroostook County	1.82%	100%	1.82%	1.82%
Maine	Sagadahoc County	1.27%	100%	1.27%	1.27%
Mississippi	Jackson County	12.31%	15%	1.85%	1.85%
Mississippi	Lowndes County	9.67%	15%	1.45%	1.45%
Tennessee	Shelby County	3.96%	40% / 30%	1.58%	1.19%
Virginia	Newport News City	1.20% / 3.75%	100%	1.20%	3.75%
Wisconsin	Brown County	1.70%	100% / 0%	1.70%	0%

Note: Personal property exempt in Wisconsin effective January 1, 2024[4]
**Statutory tax rate multiplied by assessment ratio to arrive at real and personal property taxes as a percentage of market value*
Source: County tax websites and property tax guides

Personal property is divided into tangible (e.g., business equipment, appliances) and intangible personal property (e.g., copyrights, patents). Tangible personal property is taxable in all five states under analysis, while intangible property is generally not taxed. Preferential tax treatment for machinery and equipment, such as an exemption, is generally not provided in any of the benchmark states and inventories are taxed in three states but Freeport tax exemptions exempt inventories leaving the state. Personal property is depreciated in the analysis using location-specific depreciation schedules for each property category.

[4] Wisconsin has repealed the tangible personal property tax starting in 2024 and has allowed Milwaukee to increase its sales tax. https://taxnews.ey.com/news/2023-1149-wisconsin-repeals-tangible-personal-property-tax-starting-in-2024-and-allows-milwaukee-to-increase-its-sales-tax

Table 6. Treatment of personal property

State	Taxability of tangible personal property	Preferential treatment of personal property-Machinery & equipment	Taxation of inventories
Arkansas	Yes	No	Yes, Freeport tax exemptions
California	Yes	No	No
Connecticut	Yes	Yes	No
Georgia	Yes	No	Yes, Freeport tax exemptions
Maine	Yes	Yes	No
Mississippi	Yes	No	Yes, Freeport tax exemptions
Tennessee	Yes	Yes	No
Virginia	Yes	No	Yes
Wisconsin	No	No	No

Source: County tax websites and property tax guides

2.4 Unemployment insurance taxes

State unemployment tax rates and the taxable wage base of employees is shown in Table 7 below. The rates shown are for new employers in each state and range from 1.0% to 5.5%. The state with the highest maximum tax per employee is Connecticut at $540 and Wisconsin is second highest at $427.

Table 7. State unemployment insurance (UI) taxes by state

State	New employer UI tax rate	Average UI rate	Taxable wage base	Maximum tax per employee*
Arkansas	2.90%	0.93%	$10,000	$290
California	3.40%	3.19%	$7,000	$238
Connecticut	3.60%	3.06%	$15,000	$540
Georgia	2.64%	1.21%	$9,500	$251
Maine	1.86%	2.24%	$12,000	$223
Mississippi	1.00%	0.43%	$14,000	$140
Tennessee	5.50%	0.94%	$7,000	$385
Virginia	2.00%	1.11%	$8,000	$160
Wisconsin	3.05%	1.22%	$14,000	$427

*Taxable wage base times new employer UI Rate

Source: US Department of Labor, *Unemployment Tax Measures Report*, 2022 rates.

3. Pre-incentives tax burdens by state

To evaluate the impact of state and local taxes on our hypothetical ship and boat building and paper manufacturing firms, this study compares the internal rate of return for these firms before and after taxes during a period that captures the investments made by these firms and 30 years of operations. As discussed in Section 1, each type of firm spends the same amount on machinery, equipment, and buildings; employs the same number of workers and pays them the same wages; purchases the same amount of manufacturing inputs; and receives the same revenue annually over 30 years. Pre-tax cash flows for each type of manufacturing firm are the same before state and local taxes. In other words, the pre-tax cash flow for the shipbuilding firm in Maine is the same as the shipbuilding firm in Connecticut.

The analysis then compares how the firm's cash flows are lowered due to state and local taxes. This change in profitability is the change in the rate of return of the firm on its initial investment and operations due to state and local taxes and is the "effective tax rate" or "ETR". For example, state and local taxes that reduce the rate of return from 20% to 18% would translate into a 10% effective tax rate (2 percentage point reduction on a 20% rate of return). The differential in the ETR with and without incentives is presented to show the impact of state and local incentives.

By reporting the impact of state and local tax payments on the profitability of the firm, it puts all taxes on the same basis and allows for comparison of how one tax affects firm profitability over another tax. A high effective tax rate (or ETR) indicates that taxes are higher in that state and have lowered the firm's profitability. A low ETR is given the rank of "1" since it indicates the lowest tax burden placed on the firm in each location.

3.1 Paper manufacturing pre-incentive ETRs

Total state and local effective tax rates for paper manufacturing firms are shown in Table 8 below. Aroostook, Maine is tied for 2nd lowest overall ETR for a hypothetical paper manufacturing firm at 14.1%, 1.6 percentage points lower than the benchmark location average of 15.7%. This result is due in part to Maine's low local ETR. The absence of local sales tax and a competitive property tax rate results in Maine's local ETR of 4.0%. Maine's local ETR is well below the 5.6% average of peer states.

Table 8. Pre-incentives total state and local ETR for paper manufacturers

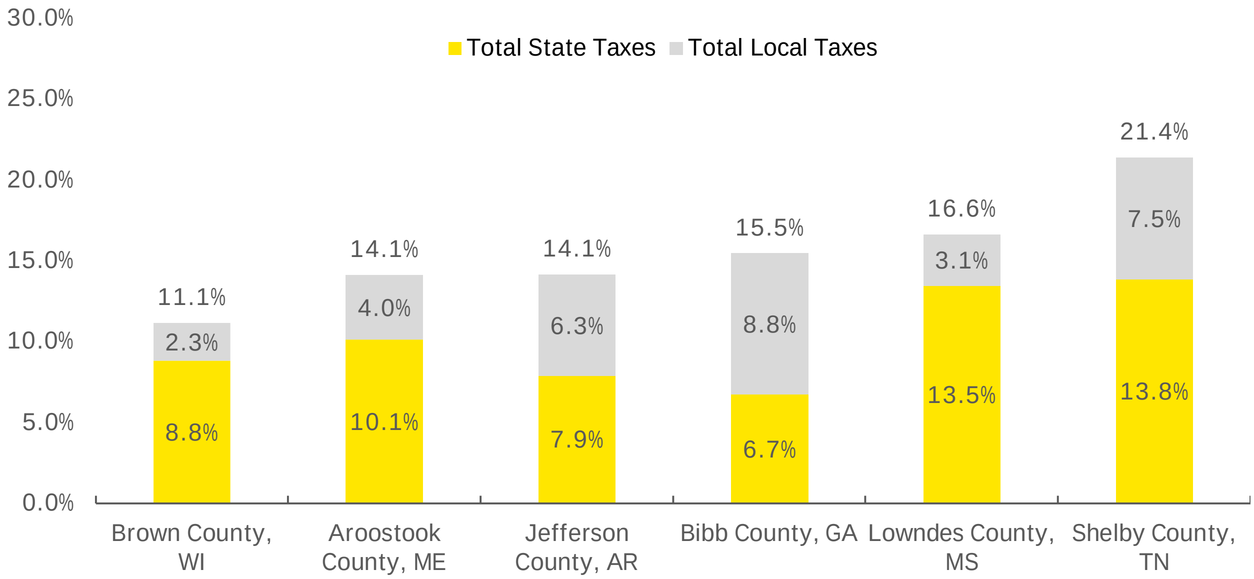
Location	Total state and local ETR	Rank (1= lowest)
Brown County, WI	11.1%	1
Aroostook County, ME	14.1%	2
Jefferson County, AR	14.1%	2
Bibb County, GA	15.5%	4
Lowndes County, MS	16.6%	5
Shelby County, TN	21.4%	6
Average, excluding Maine	15.7%	

Source: EY Analysis using Business Tax Competitiveness Model

Figure 2 shows the total state and local ETRs for paper manufacturing firms. Aroostook County, Maine's total ETR is tied with Arkansas for the second lowest among benchmark locations, trailing Brown County, Wisconsin by 3.0 percentage points. The local ETR for Aroostook County is higher than Brown County by

1.7 percentage points. The low local ETR is due in part to the fact that Aroostook County does not impose a local sales tax. The gap to Wisconsin's total ETR is driven in part by higher corporate income and state sales tax rates. Maine's total state ETR is 1.3 percentage points higher than Wisconsin.

Figure 2. Total state and local ETR for paper manufacturers



Source: EY Analysis using Business Tax Competitiveness Model

Results by tax type

Results by tax type are shown for the paper manufacturing firm in Table 9. Maine's state sales tax ETR ranks third highest (rank of 4 of out of 6) at 8.0%. Maine has the highest ETR for property and unemployment insurance taxes. The Maine and Mississippi locations do not have a local sales tax. Wisconsin has the lowest property tax ETR due to the recent exemption of personal property from taxation.

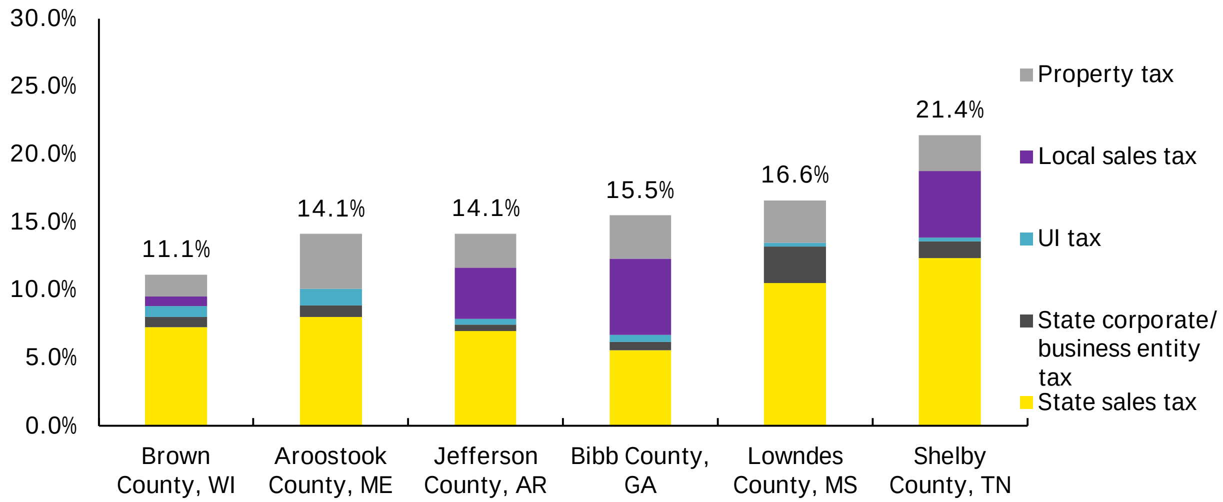
Table 9. Pre-incentive ETRs by tax type for paper manufacturers

Location	*State sales tax*	*Rank*	*State corporate/ business entity tax*	*Rank*	*UI tax*	*Rank*	*Local sales tax*	*Rank*	*Property tax*	*Rank*
Bibb County, GA	5.6%	1	0.6%	2	0.5%	4	5.6%	6	3.2%	5
Brown County, WI	7.2%	3	0.8%	3	0.8%	5	0.7%	3	1.6%	1
Jefferson County, AR	7.0%	2	0.5%	1	0.4%	3	3.8%	4	2.5%	2
Lowndes County, MS	10.5%	5	2.7%	6	0.3%	1	0.0%	1	3.1%	4
Shelby County, TN	12.3%	6	1.2%	5	0.3%	2	4.9%	5	2.7%	3
Aroostook County, ME	8.0%	4	0.9%	4	1.2%	6	0.0%	1	4.0%	6
Average, excluding Maine	8.5%		1.1%		0.5%		3.0%		2.6%	

Note: Individual ETRs in this table do not sum to total ETRs since not all taxes are included.
Source: EY Analysis using Business Tax Competitiveness Model

Figure 3 shows that local sales tax is the reason Arkansas ties Maine for total pre-incentive ETR of 14.1% as Arkansas has lower state sales tax and property tax ETRs than Maine. Local sales tax on some operating expenses, such as non-manufacturing supplies and data purchases, contribute to higher tax burdens in locations that have this tax.

Figure 3. Pre-incentive ETRs by tax type for paper manufacturers



Source: EY Analysis using Business Tax Competitiveness Model

3.2 Ship and boat building pre-incentive ETRs

Total state and local effective tax rates for the ship and boat building firm are shown below. Sagadahoc County, Maine has the 3rd highest total ETR at 22.5%, which is 2.7 percentage points higher than the benchmark location average of 19.8%. Maine's high state ETR is due to a high corporate income tax burden driven by apportionment rules for corporate income taxation. This increases taxable income in Maine compared to peer states Connecticut and Virginia (see Section 2.1 for a discussion of sales apportionment by state). Virginia's lack of throwback rules for corporate income taxation is important as less income is allocated to the state, and it has one of the lower corporate income tax rates. Virginia also has lower real property taxes and a lower combined state and local sales tax of the peer states.

Mississippi has a lower total ETR than Maine despite having higher sales and property tax rates. This result is driven primarily by the difference in corporate income tax rates and to a lesser extent unemployment insurance taxes. Although Maine and Mississippi have different apportionment rules (single sales factor vs. double weighted sales), the result is the same for both states because of throwback rules: 100% of income is apportioned to the state. The difference in corporate income tax burdens is driven by Maine's higher tax rate (8.93% compared to Mississippi's rate of 5.00%) and explains the total ETR differences between the two states.

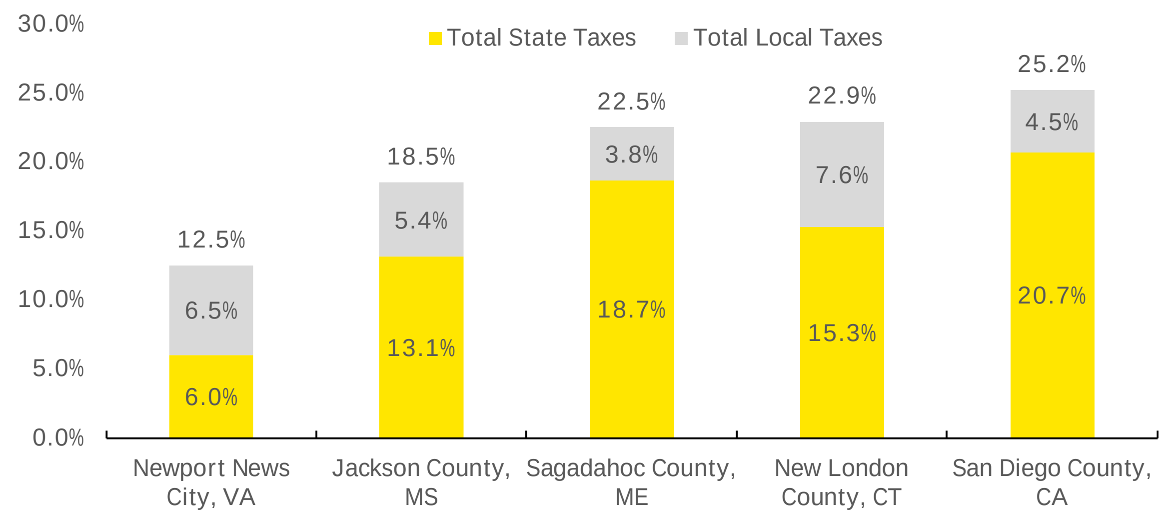
Table 10. Pre- incentive total state and local ETR for ship and boat builders

Location	State and local ETR	Rank
Newport News City, VA	12.5%	1
Jackson County, MS	18.5%	2
Sagadahoc County, ME	22.5%	3
New London County, CT	22.9%	4
San Diego County, CA	25.2%	5
Average, excluding Maine	19.8%	

Source: EY Analysis using Business Tax Competitiveness Model

Figure 4 below shows the total state and local ETRs for the ship and boat building firm. Maine's local ETR is the lowest among peer states by 0.7 percentage points. Maine's local ETR ranks the lowest due to the lack of local sales tax, but the state ETR is the 2nd highest due to state sales tax and corporate income tax.

Figure 4. Total state and local ETR for ship and boat builders



Source: EY Analysis using Business Tax Competitiveness Model

Results by tax type:

Results by tax type are shown for the ship and boat building firm in Table 11 and total ETR is shown in Figure 5. Maine's ETR is below the benchmark location average for local sales tax and property tax. Maine's property tax ETR is ranked 2nd lowest among peer locations and is 1.5 percentage points below the peer average. Maine's business-entity ETR ranks the highest and is 5.6 percentage points above the benchmark location average. California has a similar state corporate income tax ETR as Maine and ranks second highest.

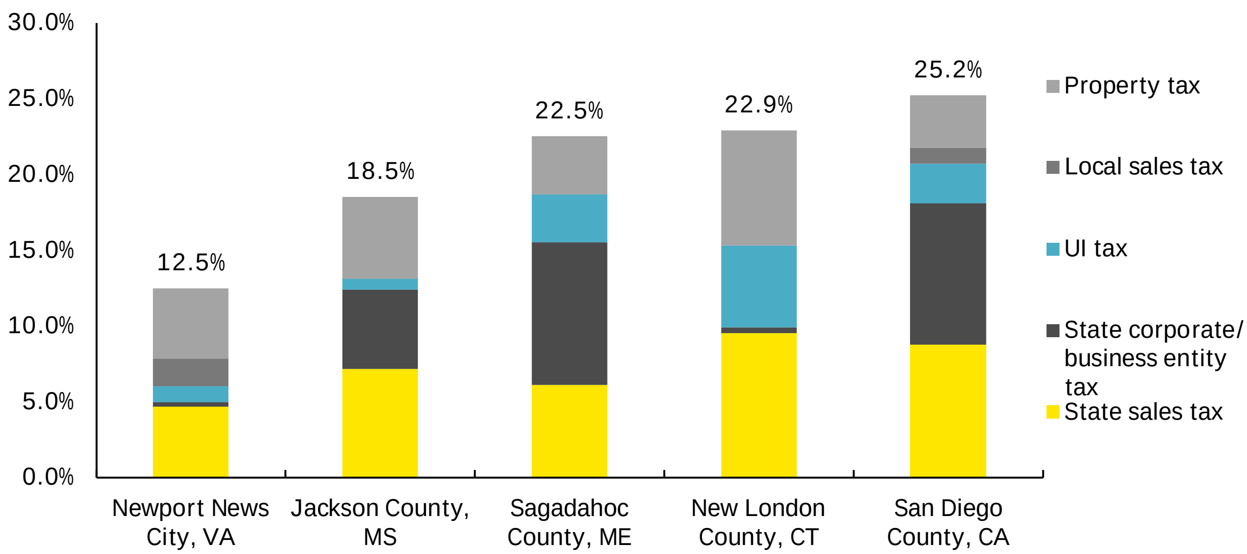
Table 11. Pre-incentive ETRs by tax type for ship and boat builders

Location	*State sales tax*	*Rank*	*State corporate/ business entity tax*	*Rank*	*UI tax*	*Rank*	*Local sales tax*	*Rank*	*Property tax*	*Rank*
Jackson County, MS	7.2%	3	5.2%	3	0.7%	1	0.0%	1	5.4%	4
New London County, CT	9.5%	5	0.4%	2	5.4%	5	0.0%	1	7.6%	5
Newport News City, VA	4.7%	1	0.3%	1	1.0%	2	1.8%	5	4.6%	3
San Diego County, CA	8.8%	4	9.3%	4	2.6%	3	1.0%	4	3.5%	1
Sagadahoc County, ME	6.1%	2	9.4%	5	3.2%	4	0.0%	1	3.8%	2
Average, excluding Maine	7.5%		3.8%		2.4%		0.7%		5.3%	

Note: Individual ETRs in this table do not sum to total ETRs since not all taxes are included.
Source: EY Analysis using Business Tax Competitiveness Model

Figure 5 shows Maine's total ETR of 22.5% is ranked 3rd among peer locations, and 4.0 percentage points higher than the 2nd ranked location, Mississippi. A six-percentage point gap separates four of the five locations with Virginia as the outlier due to the combination of lower corporate income taxes, lower state sales taxes, and lower property taxes.

Figure 5. Pre-incentive ETRs by tax type for ship and boat builders



Source: EY Analysis using Business Tax Competitiveness Model

4. Post-incentives tax burdens by state

Every state in the analysis provides incentives that lower the tax burdens placed on the hypothetical ship and boat building and paper manufacturing firms. The previous chapter reported pre-incentive effective tax rates, which do not include the effect of tax incentives. This section includes estimates of how tax burdens change once state and local tax incentives are provided to the hypothetical firms. The analysis incorporates the impact of incentives that reduce tax payments and increase cash flow. As the profitability of these businesses increase due to tax incentives, the post-incentive ETR is lower compared to the pre-incentive ETR. The change in ETR can then be attributed to each type of tax incentive. This section discusses the types of tax incentives included in the analysis and the impact of incentives in reducing tax burdens of the firms.

4.1 Tax incentives

Statutory and negotiated incentives were researched for each state. The analysis includes the following categories of credits and incentives (C&I):

- Job creation tax credits
- Investment credits
- Property tax abatements
- Special sales tax exemptions
- Special apportionment formula weighting
- Grants

Job and investment-based credits. Many states provide an income tax or other business entity tax credits for jobs created or new investment made in the state. States vary in job creation and investment amount requirements to qualify for the credit, the length of the credit, and the credit amount per job. Some states provide credits as a set amount per job, such as Tennessee at $4,500 per job, if county-specific new job and average wage thresholds are met. Credits for investment are calculated as percentage of certain types of qualified fixed capital investments. The definition of qualifying investments varies by state.

Sales and use tax (SUT) incentives. Statutory SUT exemptions are included in the pre-incentive tax analysis, but some states offer negotiated SUT incentives. For example, California offers multiple discretionary sales and use tax incentives on construction materials and machinery and equipment. California offers a partial statutory tax exemption on certain machinery and equipment.

Discretionary/Negotiated incentives. Discretionary/negotiated incentives are incorporated into the analysis for the representative investment profile based on the experience of EY professionals who have been involved in the negotiation of incentives packages for similarly sized projects that are equally attractive to states. As such, there is no formal source for the level of benefits, and it would not be verifiable public information. EY researched discretionary and statutory credits and incentives available in the remaining benchmark states. The list of incentives briefly described in Table 12 and described in detail in Appendix Table A-3 represent the universe of credits and incentives that are considered for this analysis.

Additional parameters. EY made the following modeling decisions regarding the statutory tax credits and incentives for each state:

- EY excluded credits and incentives tied to renewable energy consumption.
- For tax credit programs with explicit sunset dates within the 30-year operation period, EY included these credits and modeled that the tax credits will expire even if they are likely to be renewed.
- EY excluded credits and incentives for hiring a specific subset of employees (e.g., homeless or veteran employees), but included general employment credits and incentives.
- EY excluded credits and incentives tied to specific employment training requirements, as training decisions made by firms are highly context-specific and therefore difficult to incorporate into a business operations profile.

Table 12. Summary of incentives by state included in the analysis

State	Industry	Property tax	Sales and use tax	Income tax	Grant	Incentives
AR	Paper	√		√	√	Arkansas Economic Development Grant (Governor's Deal Closing Fund), Create Rebate, Ark Plus Income Tax Credit, Property tax abatement (IRB/PILOT)
CA	Shipbuilding		√	√		CA Competes tax credit, CAEAFTA SUT exclusion program, Special Purpose Building SUT exclusion, San Diego Business Cooperation Program
CT	Shipbuilding	√		√	√	Manufacturing Machinery and Equipment Tax Exemption, Fixed Capital Investment Credit (FCIC), JobsCT, Enterprise Zone
GA	Paper	√	√	√		Jobs Tax Credit, Property Tax Abatement, Project of Regional Significance, REBA grant
ME	Both	√		√		Credit for paper manufacturing facility investment, Tax credit for Maine shipbuilding facility investment, Business Equipment Tax Exemption, Maine Capital Investment Credit, Municipal tax increment financing
MS	Both	√		√	√	Manufacturing Investment Tax Credit, Advantage Jobs Incentive Program, Jobs Tax Credit, Industrial Property Tax Exemption
TN	Paper	√		√		Enhanced Job Tax Credit, Industrial Machinery Tax Credit, Local Payment in Lieu of Tax (PILOT) incentive
VA	Shipbuilding				√	Major Employment and Investment Project (MEI)
WI	Paper	√		√		Enterprise Zone, Tax increment district, Manufacturing and Agriculture tax credit

4.2 Effect of incentives on paper manufacturing firm’s tax burden

As shown in Table 13, Maine's post-incentive ETR of 6.9% is 7.2 percentage points lower than its pre-incentive ETR of 14.1%, although Maine's ranking declines from 2nd to 3rd lowest ETR post-incentives, as shown in Figure 6. The PAPER credit is responsible for most of the decrease in Maine's post-incentive ETR. Overall, Maine's ETR declines 7.2 percentage points, of which 4.0 percentage points of that decline is attributable to the PAPER credit.[5]

Wisconsin's post-incentive ETR falls to 4th lowest due to relatively smaller decline in ETR due to incentives compared to Maine. Wisconsin's incentives include a refundable Enterprise Zone credit and the Manufacturing and Agriculture Income Tax Credit.

Incentives had the largest effect in Arkansas and Mississippi, decreasing the states' ETRs by 9.7 and 9.8 percentage points, respectively. Arkansas's post-incentive ETR decrease is due the Create Rebate incentive, a grant based on new payroll in the state. The incentive value is estimated to exceed $30 million in 10 years. Mississippi's ETR post-incentives decreases primarily due to the Advantage Jobs incentive program. The program allows employers to retain a share of payroll withholding if certain job creation and wage thresholds are met. The estimated value of the incentive is $24 million.

Table 13. Pre- and post- tax incentives total state and local ETR for paper manufacturing firms

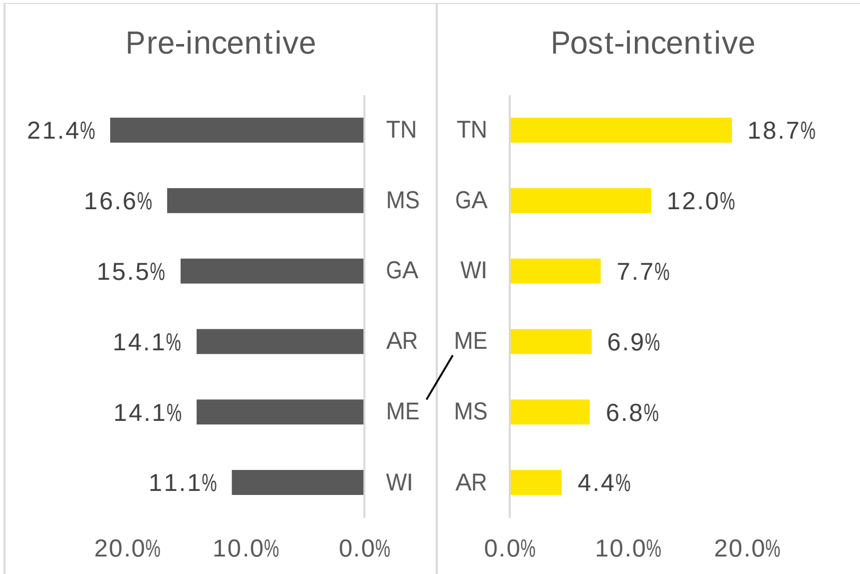
Location	State and local pre-incentive ETR	State and local post-incentive ETR no grants	State and local post-incentive ETR w/ grants	Percentage Point (PP) change	Rank (1=lowest)
Jefferson County, AR	14.1%	12.1%	4.4%	9.7%	1
Lowndes County, MS	16.6%	11.8%	6.8%	9.8%	2
Aroostook County, ME	14.1%	10.5%	6.9%	7.2%	3
Brown County, WI	11.1%	9.2%	7.7%	3.4%	4
Bibb County, GA	15.5%	12.3%	12.0%	3.5%	5
Shelby County, TN	21.4%	18.7%	18.7%	2.7%	6
Average, excluding Maine	15.7%	12.8%	9.9%	5.8%	

Note: Grants include both grants and refundable credit amounts.
Source: EY Analysis using Business Tax Competitiveness Model

Figure 6 shows pre- and post-incentive ETRs for paper manufacturing firms. Maine's ETR is the 3rd lowest after incentives. Wisconsin's post-incentive ETR is 0.8 percentage points behind Maine despite having the 2nd smallest decline in ETR, 3.4 percentage points, due to incentives. Arkansas and Mississippi climb the post-incentive ETR rankings with the largest decreases due to incentives causing Arkansas's ranking to improve from 3rd to 1st and Mississippi's ranking to improve 5th to 2nd lowest post-incentive ETR.

[5] The Maine Capital Investment Credit is a personal and corporate income tax credit that addresses Maine's lack of conformity to federal depreciation rules in IRC section 168(k). The MCIC is calculated as 10% of the bonus depreciation deduction allowed under Section 168(k). In the model, a $1.2 million credit is calculated due to the new investment and eliminates tax liability for the paper manufacturer in the first eight years of operations. The PAPER credit is refundable, so the model incorporates the PAPER credit like a grant the first eight years and eliminates corporate income tax liability in years 9 and 10.

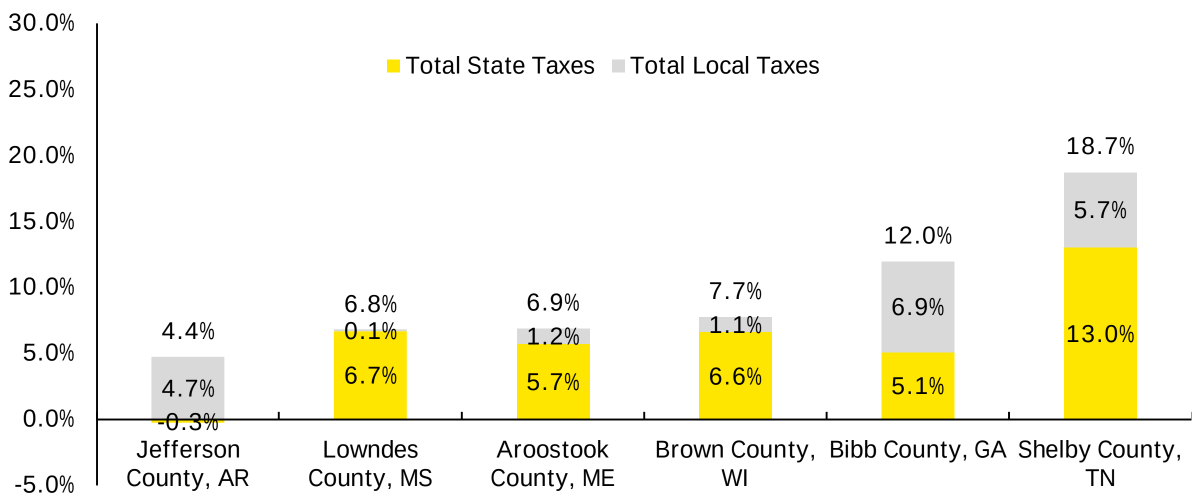
Figure 6. Total state and total local ETR pre- and post-tax incentives for paper manufacturing firms



Source: EY Analysis using Business Tax Competitiveness Model

Figure 7 shows the total state and local ETRs after incentives for paper manufacturing firms. Maine's ETR ranks 3rd lowest and is 2.5 percentage points higher than 1st ranked Arkansas. Most of Maine's 6.9% paper manufacturing ETR after incentives is made up of state level taxes.

Figure 7. Total state and total local ETR for paper manufacturing firms after incentives



Source: EY Analysis using Business Tax Competitiveness Model

Table 14 and 15 show the percentage point changes in ETR by tax type for paper manufacturing firm. Refundable tax credits and grants are taken against State corporate/business entity tax. Negative ETRs for Georgia, Wisconsin, Arkansas, Mississippi, and Maine indicate that refundable tax credits and grants exceed corporate/business entity tax liability in the state during the operating period. Maine's state ETR ranks 3rd lowest at 5.7%, six percentage points higher than first-ranked Arkansas and 0.5 percentage points below the peer average state ETR of 6.2%.

Table 14. Percentage point change in ETR by state tax type for paper manufacturing firms

	State sales tax			State corporate/ business entity tax			State Total			Net Change
Location	Pre	Post	Rank	Pre	Post	Rank	Pre	Post	Rank	State
Bibb County, GA	5.6%	4.9%	1	0.6%	-0.3%	5	6.7%	5.1%	2	-1.6%
Brown County, WI	7.2%	7.2%	3	0.8%	-1.4%	4	8.8%	6.6%	4	-2.2%
Jefferson County, AR	7.0%	7.0%	2	0.5%	-7.7%	1	7.9%	-0.3%	1	-8.2%
Lowndes County, MS	10.5%	10.5%	5	2.7%	-4.1%	2	13.5%	6.7%	5	-6.8%
Shelby County, TN	12.3%	12.3%	6	1.2%	0.4%	6	13.8%	13.0%	6	-0.8%
Aroostook County, ME	8.0%	8.0%	4	0.9%	-3.5%	3	10.1%	5.7%	3	-4.4%
Average, excluding Maine	8.5%	8.4%		1.1%	-2.6%		10.1%	6.2%		-3.9%

Note: Table does not list an ETR for unemployment insurance tax, but it is included in the state total.
Source: EY Analysis using Business Tax Competitiveness Model.

Table 15 shows Maine's property tax ETR ranks 5th at 1.2%, which is 1.1 percentage points behind 1st ranked Mississippi and 0.3 percentage points above the peer average ETR of 0.9%. Maine's post-incentive property tax ETR includes a TIF rebate of 35% of the increase in property tax due to the new investment for 20 years and BETE. If the TIF rebate were not incorporated into the model, Maine's property tax ETR would be 1.7%, or 0.5 percentage points higher.

Table 15. Percentage point change in ETR by local tax type for paper manufacturing firms

	Local sales tax			Property tax			Local Total			Net Change
Location	Pre	Post	Rank	Pre	Post	Rank	Pre	Post	Rank	Local
Bibb County, GA	5.6%	4.9%	5	3.2%	2.0%	6	8.8%	6.9%	6	-1.9%
Brown County, WI	0.7%	0.7%	3	1.6%	0.4%	2	2.3%	1.1%	2	-1.2%
Jefferson County, AR	3.8%	3.8%	4	2.5%	1.0%	4	6.3%	4.7%	4	-1.5%
Lowndes County, MS	0.0%	0.0%	1	3.1%	0.1%	1	3.1%	0.1%	1	-3.0%
Shelby County, TN	4.9%	4.9%	6	2.7%	0.8%	3	7.5%	5.7%	5	-1.8%
Aroostook County, ME	0.0%	0.0%	1	4.0%	1.2%	5	4.0%	1.2%	3	-2.8%
Average, excluding Maine	3.0%	2.8%		2.6%	0.9%		5.6%	3.7%		-1.9%

Source: EY Analysis using Business Tax Competitiveness Model.

4.3 Effect of incentives on ship and boat building firm's tax burden

Table 16 shows the change in pre- and post-incentive ETRs for ship and boat building firms. Maine's post-incentive ETR continues to rank 3rd despite falling by 7.7 percentage points, which is the 2nd largest decline due to incentives among peer states. Maine's post-incentive ETR change is primarily due to the SHIP credit. Of the 7.7-percentage point decrease, 4.3 percentage points of that decline is attributable to the SHIP credit. Incentives had the largest effect in Mississippi where the post-incentive ETR decreased by 8.3 percentage points. Mississippi's post-incentive ETR decline is driven by the Jobs Tax Credit and the Industrial Property Tax Exemption. The Advantage Jobs incentive program is not modeled for the ship and boat building firm because the average wage does not exceed the required threshold in the model that uses average industry data.

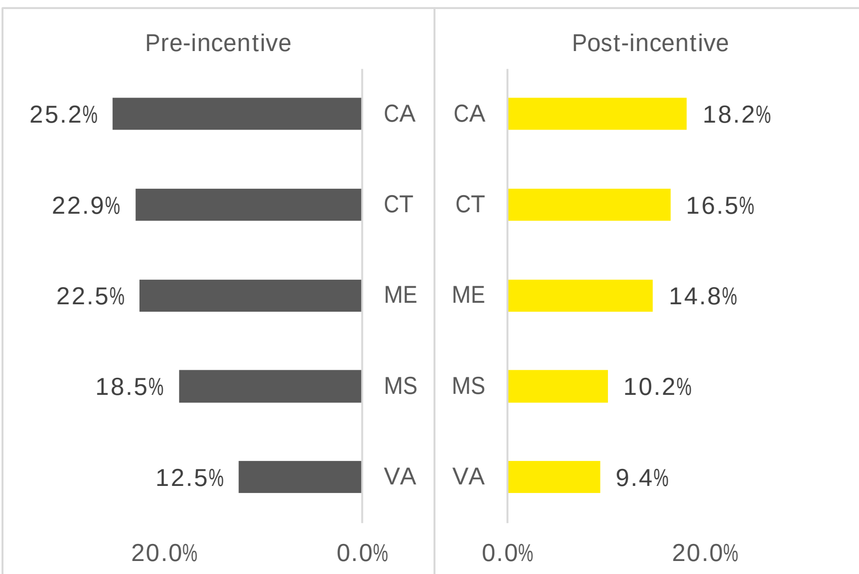
Table 16. Pre- and post- incentives total state and local ETR for ship and boat building firms

Location	State and local pre-incentive ETR	State and local post-incentive ETR	State and local post-incentive ETR w/ grants	PP change	Rank
Newport News City, VA	12.5%	12.5%	9.4%	3.1%	1
Jackson County, MS	18.5%	10.3%	10.2%	8.3%	2
Sagadahoc County, ME	22.5%	14.8%	14.8%	7.7%	3
New London County, CT	22.9%	17.7%	16.5%	6.4%	4
San Diego County, CA	25.2%	18.2%	18.2%	7.0%	5
Average, excluding Maine	19.8%	14.7%	13.6%	6.2%	

Source: EY Analysis using Business Tax Competitiveness Model

Figure 8 shows the pre- and post-incentive ETRs for ship and boat building firms. Virginia continues to rank 1st post-incentive despite having the lowest percentage point change in post-incentive ETR. Mississippi also maintains rank at 2nd post-incentives with the largest percentage point decline due to incentives like the Jobs Tax Credit.

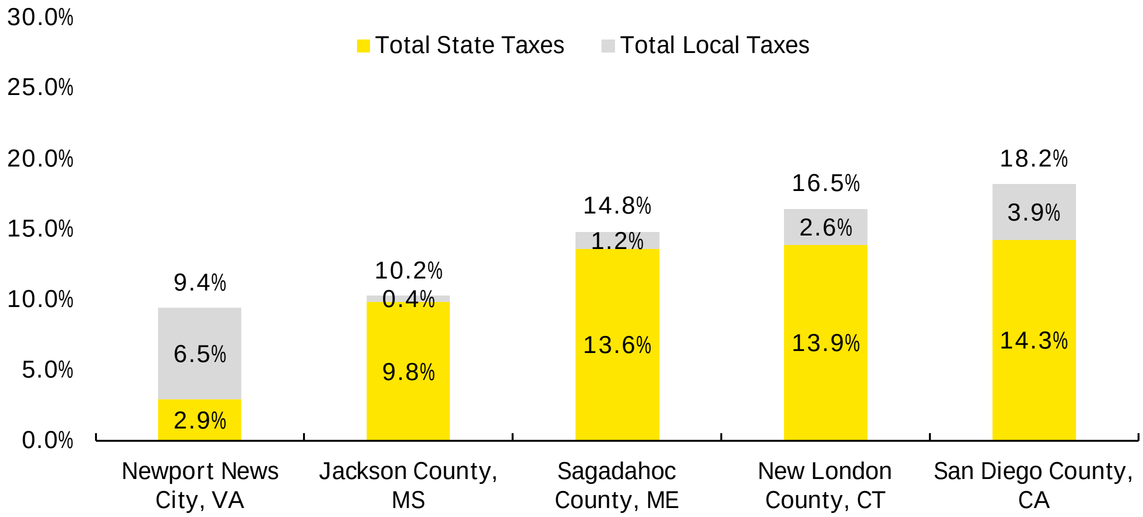
Figure 8. Total state and local ETR pre- and post-tax incentives for ship and boat building firms



Source: EY Analysis using Business Tax Competitiveness Model

Figure 9 shows the total state and local ETRs for ship and boat building firms after incentives. Maine continues to rank 3rd after incorporating incentives into the analysis. Virginia and Mississippi rank 1st and 2nd lowest with a 3.1 and 8.3 percentage point decreases in post-incentive ETRs, respectively.

Figure 9. Total state and total local ETR for ship and boat building firms after incentives



Note: Individual state and local ETRs may not sum to the combined state and local ETRs due to differences in IRR calculation
Source: EY analysis

Table 17 and Table 18 show the percentage point changes in ETR by tax type for ship and boat building firms. Refundable tax credits and grants are taken against state corporate/business entity tax. Negative ETRs for Connecticut and Virginia in Table 17 indicate that refundable tax credits and grants exceed state corporate/business entity tax liability. Maine's state post-incentive ETR of 13.6% ranks 3rd and is 3.4 percentage points above the peer average of 10.2%. The SHIP credit and MCIC do not eliminate the corporate income tax liability during the period.[6]

Table 17. Percentage point change in state ETR by tax type for ship and boat building firms

	State sales tax			State corporate/ business entity tax			State Total			Net Change
Location	Pre	Post	Rank	Pre	Post	Rank	Pre	Post	Rank	State
Jackson County, MS	7.2%	7.2%	4	5.2%	2.0%	3	13.1%	9.8%	2	-3.3%
New London County, CT	9.5%	9.5%	5	0.4%	-1.0%	2	15.3%	13.9%	4	-1.4%
Newport News City, VA	4.7%	4.7%	1	0.3%	-2.8%	1	6.0%	2.9%	1	-3.1%
San Diego County, CA	8.8%	5.4%	2	9.3%	6.2%	5	20.7%	14.3%	5	-6.4%
Sagadahoc County, ME	6.1%	6.1%	3	9.4%	4.3%	4	18.7%	13.6%	3	-5.1%
Average, excluding Maine	7.5%	6.7%		3.8%	1.1%		13.8%	10.2%		-3.5%

Note: Table does not list an ETR for unemployment insurance tax, but it is included in the state total.
Source: EY Analysis using Business Tax Competitiveness Model

[6] The Maine Capital Investment Credit is $6 million in the model and eliminates corporate income tax liability for the ship and boat building firm in the first two years of operations. The SHIP credit then reduces corporate income tax liability for the firm in operating years 3 to 15.

Table 18 shows Maine's property tax ETR ranks 2nd lowest post incentives at 1.2%, 0.8 percentage points higher than Mississippi and below the peer average ETR of 2.8%. Property tax incentives include a tax increment financing rebate and personal property tax exemptions (BETE).

Table 18. Percentage point change in local ETR by tax type for ship and boat building firms

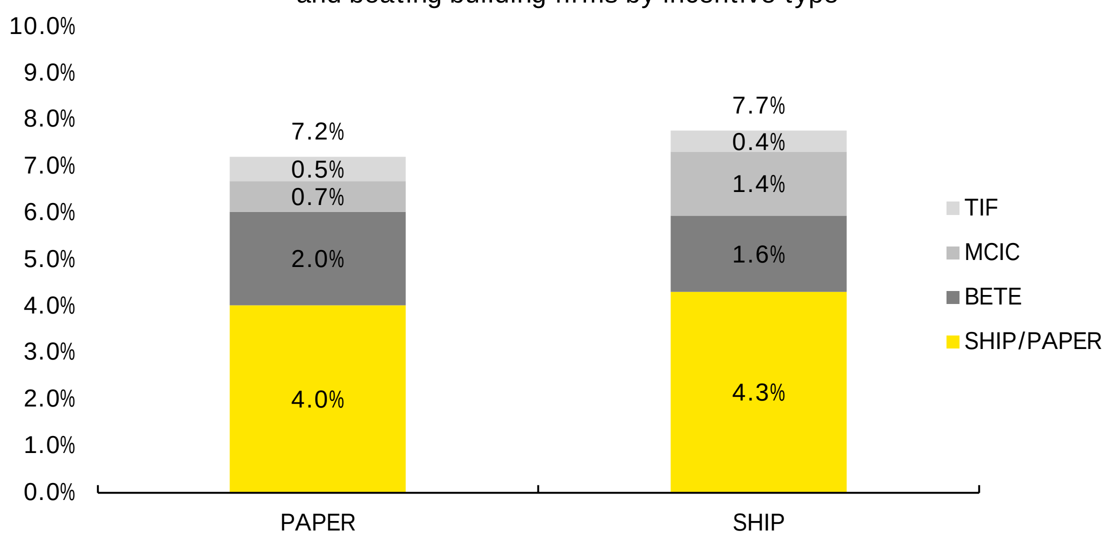
	Local sales tax			Property tax			Local Total			Net Change
Location	Pre	Post	Rank	Pre	Post	Rank	Pre	Post	Rank	Local
Jackson County, MS	0.0%	0.0%	1	5.4%	0.4%	1	5.4%	0.4%	1	-5.0%
New London County, CT	0.0%	0.0%	1	7.6%	2.6%	3	7.6%	2.6%	3	-5.0%
Newport News City, VA	1.8%	1.8%	5	4.6%	4.6%	5	6.5%	6.5%	5	0.0%
San Diego County, CA	1.0%	0.5%	4	3.5%	3.5%	4	4.2%	3.8%	4	-0.6%
Sagadahoc County, ME	0.0%	0.0%	1	3.8%	1.2%	2	3.8%	1.2%	2	-2.6%
Average, excluding Maine	0.7%	0.6%		5.3%	2.8%		5.9%	3.3%		-2.7%

Source: EY Analysis using Business Tax Competitiveness Model

4.4 Summary of ETR impact by incentive type

The contribution of each type of incentive in reducing the state and local effective tax rates for each type of firm are shown in the figure below. For the paper manufacturing firm, incentives reduce the firm's ETR by 7.2 percentage points. The PAPER credit is responsible for 4.0 percentage points of this reduction. For the ship and boat building firm, incentives reduce the firm's ETR by 7.7 percentage points with the SHIP credit responsible for 4.3 percentage points of this reduction.

Figure 10. Summary of the reduction in state and local ETRs for the paper manufacturing and ship and boating building firms by incentive type



Source: EY Analysis using Business Tax Competitiveness Model

Appendix

Modeling decisions

This evaluation uses a discounted cash flow model with an investment year and 30 years of operations. Using publicly available data from relevant industries from the US Census and tax return data from the Internal Revenue Service Corporate Sourcebook, EY constructed relevant tax bases for the two types of firms and then estimated taxes before and after applicable incentives using relevant tax system parameters for each location in this study.

The tax burdens imposed by the state and local tax systems in each state are then translated into ETRs, which are expressed as the percentage change in the internal rate of return due to taxes (i.e., the difference between the pre- and post-tax rates of return divided by the pre-tax rate of return). For example, a reduction in the rate of return from 20% to 18% due to taxes, a two-percentage-point decrease, translates to a 10% effective tax rate. The total state and local ETRs presented in this report are the summation of the change in after-tax IRRs for each tax type compared to total pre-tax IRR.

The model also incorporates the following parameters:

1. Sales factor for state corporate income tax apportionment: For shipbuilding, the model assumes that 5% of sales are to in-state customers and 95% of sales are estimated as sales to the federal government given the product (i.e., naval ships) produced by this industry. Sales to the federal government are included in the numerator when determining the sales factor for corporate income tax apportionment when states have throwback provisions. States with throwback provisions in our study include California and Mississippi. Maine includes sales to the federal government as sales in the numerator as well, meaning that Maine, California, and Mississippi have 100% sales factor when calculating the state corporate income tax. In states without these provisions, a 5% sales factors lowers apportioned income in Connecticut and Virginia. For paper manufacturing the model uses 10% in-state sales and no throwback or throwout sales.

2. Sales and use tax statutory exemptions are included in the pre-incentive ETR since these are not discretionary. Table 4 on page 14 shows taxation of different categories of goods and services by state after statutory SUT exemptions.

3. Type of business and investment: The analysis models a C-corporation with new investments and associated employment and payroll, but the firm is not new to the state. The model also has continuous re-investment by year to replace depreciated property. In reality, a firm would replace equipment as it wears out or becomes outdated. The reinvestment by the firms annually allows it to qualify for tax credits in Mississippi that firms qualify for after two years.

Dirigo business incentive

The EY team modeled the post-incentive ETR for the paper manufacturing and ship and boat building firms if these firms were to receive the recently passed Dirigo business incentive instead of the SHIP and PAPER credits modeled in this report. The Dirigo incentive provides a tax credit for qualified real and personal property placed into service in Maine in the tax year by a qualified business activity. The incentive is 10% of eligible capital investment placed in service in Aroostook County and 5% in Sagadahoc

County. The credit is limited to $2 million per year and up to $500,000 is refundable per year. Unused credit can be applied to offset tax liabilities in the subsequent four years. The credit is available in tax years beginning on or after January 1, 2025.

The Dirigo business incentive impact on ETRs is shown in Tables A-1 and A-2.

- For the paper manufacturer, the PAPER credit has a greater impact on ETR than the Dirigo incentive because it provides a larger refund in the first 10 years of operations. The higher cash flows due to the PAPER credit in the first 10 years increases the post-tax cash flow IRR and reduces the state and local tax effect (ETR in our analysis). The higher refund ($1.6 million with PAPER compared to $500,000 for Dirigo) is better for the PAPER firm even with the timing differences (10 years credit for PAPER and indefinite credit for Dirigo).
- For the shipbuilding firm, the post-incentive ETRs with SHIP and Dirigo are within approximately a percentage point of each other since for the modeled SHIP firm it is a difference of a $3 million credit offsetting more (~50%) of the annual CIT liability for the firm in the initial 15 years versus the 30-year Dirigo credit that offsets a lower amount of CIT liability (~$1 million to $2 million depending on the year) but for a longer time frame (the entire the 30-year period).

Table A-1. Pre- and Post-incentive ETR for Paper Manufacturing

Incentive	Location	State and local pre-incentive ETR	State and local post-incentive ETR	State and local post-incentive ETR w/ grants	Percentage point change
PAPER	Aroostook County, ME	14.1%	10.5%	6.9%	(7.2%)
Dirigo	Aroostook County, ME	14.1%	10.4%	9.3%	(4.8%)

Note: The Dirigo credit per employee engaged in a training program is not modeled since incentives for job training were excluded from the analysis.
Source: EY Analysis using Business Tax Competitiveness Model

Table A-2. Pre- and Post-incentive ETR for Ship and Boat Building

Incentive	Location	State and local pre-incentive ETR	State and local post-incentive ETR	State and local post-incentive ETR w/ grants	Percentage point change
SHIP	Sagadahoc County, ME	22.5%	14.8%	14.8%	(7.7%)
Dirigo	Sagadahoc County, ME	22.5%	16.1%	16.0%	(6.5%)

Note: The Dirigo credit per employee engaged in a training program is not modeled since incentives for job training were excluded from the analysis.
Source: EY Analysis using Business Tax Competitiveness Model

Table A-3. Credits and incentives

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Maine	State	Credit for paper manufacturing facility investment	Statutory	Income tax	The Paper Manufacturing Facility Investment incentive incentivizes paper manufacturing (NAICS 322) to locate in Maine by offering a credit of 4% of qualified investment for 10 years, up to $1.6 million annually and $16 million total credit. To qualify, the company must be headquartered in Maine, own a paper manufacturing facility in a county with an unemployment rate that is at least 20% higher than the state average unemployment rate. The company must invest at least $15 million within two years, employ at least 400 workers, and pay at least 75% of employees at least 115% of the county's annual per capita personal income. The credit is refundable. The remainder of the credit after eliminating income tax liability is modeled as a cash grant in the year the credit is earned.
	State	Tax credit for Maine shipbuilding facility investment	Statutory	Income tax	The Maine Shipbuilding Facility Investment incentive is available to companies that invest at least $100 million and employ 5,500 workers. The income tax credit value is 3% of qualified investment annually for 10 years, or $30 million in cumulative total credits. If the company makes an additional investment of at least $100 million by a specified date, the credit is extended for an additional five years. The maximum total value of the credit with $200 million investment is $45 million. The credit is not refundable and is modeled as eliminating income tax liability during the 15-year credit period.
	State	Business Equipment Tax Exemption	Statutory	Property tax	Tangible personal property used exclusively for a business purpose is exempt from property tax. Eligible business equipment excludes office furniture, lamps, and lighting fixtures.
	State	Maine Capital Investment Credit	Statutory	Income tax	The credit is equal to 10% of bonus depreciation deduction claimed due to IRC 168(k) for property placed in service in Maine during the investment year. Unused credit amounts may be carried forward for up to 20 years.
	Local	Municipal TIF	Negotiated	Property tax	Tax Increment Financing (TIF) is a tool used by municipalities to leverage new property taxes generated by a specific project or projects within a defined geographic district. Credit Enhancement agreements (CEA) allows municipalities to rebate a portion of the tax increment up to 30 years. The TIF CEA is modeled s 35% rebate on the tax increment for 20 years in Aroostook and 30 years in Sagadahoc.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Arkansas	State	Arkansas Economic Development Grant	Discretionary	Grant	Deal closing fund used by the Arkansas Economic Development Commission and the Governor to grant incentives to attract new business or retain existing business. The grant award can vary depending on project parameters. The model includes an estimated grant amount of $2 million based on guidance from EY incentive SMR.
	State	Create Rebate	Discretionary	Grant	Modeled as a $30 million grant over 10 years, this payroll rebate for job creation is based on the payroll of new, full time, permanent employees. The benefit ranges from 3.9% - 5% of new payroll depending on county tier beginning once the $2 million payroll threshold is met. The maximum credit period is 10 years. The benefit can be increased to 5% of new payroll regardless of county tier if there is out of state competition, 75% of sales are out of state and if the new employees' average hourly wage exceeds 100% of the county average wage. The benefit cannot be combined with Advantage Arkansas but can be combined with ArkPlus or Tax Back. The maximum credit of 5% for 10 years is modeled.
	State	Ark Plus Income Tax Credit	Discretionary	Income tax	Non-refundable income tax credit based on a percentage of investment in a new location or expansion project. Minimum payroll and investment requirements vary by county. Jefferson County is tier 4 requiring $2 million in payroll, 800k in investment and allowing a 9-year carryforward. Cannot be combined with Advantage Arkansas or Tax Back but can be combined with Create Rebate. Total credit earned is $3.6 million but only $0.9 million is taken before the carryforward period expires.
	Local	Property tax abatement (IRB/PILOT)	Discretionary	Property tax	Depending on the local jurisdiction selected, there could be local incentives provided through a PILOT program through Industrial Revenue Bonds (IRBs) for property taxes. Both the city and the county could enter into the PILOT agreement. Modeled as 65% abatement for 10 years based on guidance from EY incentive SMR.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
California	State	CA Competes	Discretionary	Income tax	Discretionary, five-year income tax credit designed to attract and grow high paying jobs in strategic industries. An estimated incentive range of $20,000 to $30 million is possible. The credit amount is highly discretionary, and our model uses the midpoint of $13.75 million, which is $10,000 per job.
	Local	Business Cooperation program	Discretionary	Rebate	The City of San Diego has a Business Cooperation Program encourages businesses and nonprofit corporations with significant equipment expenditures to take part in the program, thereby allocating sales and use taxes to the city. This increases the City's General Fund revenues used to provide a variety of services that support the business community, such as infrastructure, public safety, and fire protection. The Business Cooperation Program can provide a tax rebate of up to 45% of the local sales or use tax paid in connection with San Diego-based operations. The model includes the maximum rebate of 45%.
	State	CA Alternative Energy and Advanced Transportation Financing Authority (CAETAFA) Program	Discretionary	Sales tax	State and local sales tax exemption offered to Advanced Manufacturers or for companies that design, manufacture, produce or assemble Advanced Transportation or Alternative Source products, components, or systems. The exemption is available on both construction materials and machinery/equipment purchases. This incentive provides an exemption on the remaining state sales tax on machinery and equipment and exempts the local sales tax.
	State	Special Purpose Building	Discretionary	Sales tax	The special purpose building designation extends partial sales tax exemption offered by the CAEFTA to FF&E, office equipment and furniture. To qualify for the special purpose building exemption, the building and foundation must be designed and constructed specifically for a qualified purpose such as manufacturing.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Connecticut	State	Manufacturing Machinery and Equipment Tax Exemption	Statutory	Property tax	The Connecticut Department of Economic and Community Development offers a five-year, 100% property tax exemption for eligible machinery and equipment acquired and installed in a manufacturing or biotechnology facility.
	State	Fixed Capital Investment Credit (FCIC)	Statutory	Income tax	The FCIC value is 5% of tangible personal property with a useful life of more than 4 years. The credit has a 5-year carryforward and is not refundable.
	State	JobsCT	Discretionary	Income tax	Refundable income tax credit value is 25% of withholding tax for new jobs. Payroll withholding assumes married filing jointly with single income (Withholding schedule C). The benefit term is 5 years, beginning in year 3.
	State	Enterprise Zone	Discretionary	Property tax	The enterprise zone located in New London Connecticut offers an 80% local property tax abatement for five years. The abetment excludes M&E property tax liability already abated.
Georgia	State	Jobs Tax Credit	Statutory	Income tax	The value of the tax credit is based on the number of new jobs created. Bibb County is a tier II county. Companies need to create a minimum of 10 jobs, and the value of the credit is $3,000 per job. Tier II counties the credit is non-refundable with a 10-year carryforward period and can only be taken against the corporate income tax. The credit as modeled eliminates CIT liability for 10 years.
	Local	Property Tax Abatement	Discretionary	Property tax	Local property tax abetment reduces property taxes over a 10-year period on a declining scale starting at 50% and reduced by 5% each year.
	State	Regional Economic Assistance (REBA) Grant	Discretionary	Grant	The REBA program is used to attract new locations and expansion projects to Georgia when there is competition between states. REBA funds may be used to purchase fixed-assets for the company such as real estate acquisition, construction, or machinery and equipment. Grant value modeled as $1,000 per job based on guidance from GA incentive SMR.
	State	Project of Regional Significance	Discretionary	Sales and use tax	The GA Department of Economic Development offers a sales and use tax exemption on qualified construction materials for projects of regional significance.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Mississippi	State	Manufacturing Investment Tax Credit	Statutory	Income tax	The Manufacturing Investment Tax Credits provides a business that has operated in Mississippi for 2 years a credit equal to 5% of qualifying investment in buildings and equipment. The credit is limited to $1 million per project and can only offset 50% of the business income tax liability after all other credits have been taken. The credit is modeled using the hypothetical firm's annual reinvestment after 2 years of operations. The model assumes the business organizes reinvestment as annual projects to avoid the $1 million limit and maximize credit value.
	State	Advantage Jobs Incentive Program	Discretionary	Grant	The value of the rebate is up to 90% of the amount of actual withholding tax withheld for employees for up to 10 years. Only the hypothetical paper manufacturing firm is eligible due to wage threshold. Modeled for the 10-year maximum using withholding estimates based on the average wage and assuming the employee is married filing jointly with no spousal income.
	State	Jobs Tax Credit	Statutory	Income tax	The Jobs Tax Credit can offset up to 50% of business income tax for qualifying business that create a minimum number of full-time jobs and maintaining those jobs for 5 years. The minimum number of jobs varies by county tier. Lowndes county and Jackson County are both Tier 1 counties. This means eligible businesses must create at least 20 full-time jobs and the credit value is 2.5% of payroll.
	Local	Industrial Property Tax Exemption	Discretionary	Property tax	An exemption from property taxes is available to eligible industries that locate or expand in the state. Up to a 10-year exemption from property taxes may be granted by local governing authorities on real and tangible personal property being used in the state.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Tennessee	State	Enhanced Job Tax Credit	Statutory	Income/Franchise tax	Shelby County is a Tier 2 enhancement county. The credit value is $4,500 per job with a 25-year carryforward. After the carryforward period, there is an additional 3 years of credit at $4,500 per job annually with no carryforward. The credit can only offset 50% of the corporate income (excise) and franchise tax liability.
	State	Industrial Machinery Tax Credit	Statutory	Income/Franchise tax	An industrial machinery tax credit of 1% to 10% of the cost of "industrial machinery" purchased or leased during the tax year and located in Tennessee may be used to offset up to 50% of the total franchise and excise tax liability. Equipment qualifying for the credit is any "industrial machinery" as defined for Tennessee sales and use tax purposes in T.C.A. Sec. 67-6-102, or certain computer hardware and software purchased or leased as part of qualifying for the jobs tax credit. Investment less than 100 million is eligible for a 1% credit. For purposes of the 1% credit, the equipment must have been purchased in making the required capital investment for the job tax credit. The percentage increases to 3% if the investment is above $100 million, 5% if above 250 million, 7% above $500 million, and 10% for investment about $1 Billion. May be used to offset up to 50% of the total franchise and excise tax liability. Unused credit may be carried forward for 15yrs.
	State	Local Payment in Lieu of Tax incentive	Discretionary	Property tax	Exemption of all or part of the increase in the value of the real property and/or tangible property personal property negotiated between the taxing authority and taxpayer. Modeled as 70% abatement for 15 years.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.

Table A-3. Credits and incentives, cont'd.

State	Jurisdiction	Program name	Classification	Applicable taxes	Program description
Virginia	State	Major Employment and Investment Project (MEI)	Discretionary	Grant	Major Employment and Investment Project (MEI) are projects with significant regional economic impact defined as a private company making an investment greater than $250m and creating more than 400 full time jobs. VA created the MEI Commission (legislative committee) to review and approve incentives on these larger projects in certain circumstances, including when the incentives are not on the books, or the incentives package will exceed $10m. The MEI is modeled as $7.5 million for 10 years for a total grant of $75 million.
Wisconsin	Local	Enterprise Zone	Discretionary	Income tax	Refundable tax credit modeled as grant worth 7% of new payroll and 10% of capital expenditures paid out over 12 years.
	Local	Tax increment district	Discretionary	Property tax	Negotiated incentive between the taxing authority and the taxpayer to reduce the taxes due on the incremental property value after improvements. Incentive capped at 12% of taxable property value (personal property not taxed after 2024) and 90% of the increment. Modeled as a 75% property tax abatement until 12% threshold reached based on WI incentive SMR guidance.
	State	Manufacturing and Agriculture tax credit	Statutory	Income tax	The credit value is 7.5% income and can be applied against income or franchise tax liability. There is a 15-year carryforward period for any unused credits. Minimum 0.4% effective income tax rate after all income tax credits applied.

Source: EY analyses of state and municipal government websites and consultation with EY subject matter resources.