

Testimony Regarding OPEGA Evaluation Parameters for the Tax credit for Maine shipbuilding facility investment, Credit for major business headquarters expansions, Credit for major food processing and manufacturing facility expansion, and Credit for paper manufacturing facility investment

March 24, 2023

Senator Hickman, Representative Fay, and esteemed members of the Government Oversight Committee,

My name is Maura Pillsbury and I am a tax analyst at the Maine Center for Economic Policy. We appreciate the opportunity to provide feedback on OPEGA's proposed evaluation parameters for their next four tax expenditure reviews, and submit the following additional performance measures for your consideration:

- Number of recipients of each credit
- Total dollar amount of refundable credits received by recipients of each credit
- Location of the parent company/headquarters for each recipient
- A list of businesses receiving each tax credit. These credits are a substantial public investment, and Maine taxpayers deserve transparency about who is receiving them.
- Information on the quality of new and existing jobs (including pay and benefits)
- Annual revenues of each parent company of recipients
- Other Maine tax incentives and state funding received by each recipient
- CEO salaries, stock buybacks, and executive officer sales of stock following receipt of the tax credit for each recipient
- Summary of information on profitability from SEC filings after receipt of the tax credit for each recipient
- Any of the above information summarized or in aggregate if necessary due to taxpayer confidentiality (although we understand in some cases there may only be one recipient)

We also urge the committee to consider whether this information should be publicly available (if it is confidential), and if legislation should be put forward addressing taxpayer confidentiality and tax incentive transparency to make this information available.

Thank you for your important work. I would be happy to answer any follow up questions.

Contact information: [maura@mecep.org](mailto:maura@mecep.org)

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## **Testimony in Support of OPEGA Proposed Evaluation Parameters for Tax Expenditure Review of the Credit for Paper Manufacturing Facility Investment**

March 24, 2023

Senator Hickman, Representative Fay, and members of the Government Oversight Committee:

My name is Elizabeth Frazier, and I am an attorney at Pierce Atwood, based in Portland and Augusta. On behalf of the Twin Rivers Paper Company, I am pleased to submit this testimony in support of the proposed evaluation parameters outlined by the Office of Program Evaluation and Government Accountability (OPEGA) for purposes of a tax expenditure review of the Credit for Paper Manufacturing Facility Investment (Papermaking Credit) at 36 MRSA § 5219-YY.

Twin Rivers currently holds a Certificate of Approval from the Department of Economic and Community Development (DECD) to make capital investments eligible for the Papermaking Credit. The adoption of this tax incentive has enabled Twin Rivers to make investments in improving, modernizing, and helping to ensure the long-term future of the Madawaska mill.

As economic and marketplace challenges continue to create upheaval in the industry, paper mills around the country are taking extended downtime or worse, closing their doors permanently as was recently announced by a paper company in Jay, Maine. The impact to local communities is far-reaching and devastating. The Twin Rivers Madawaska mill directly provides 450+ high-paying jobs that form the economic underpinning of the community. As the company navigates this challenging economic environment, partnership with and investment from the State is critical and greatly appreciated.

Twin Rivers supports the evaluation parameters proposed by OPEGA. The proposed performance measures match those prescribed in the law, which is appropriate. The measures were initially set by OPEGA during the design assessment of a similarly structured tax expenditures, they represent best practice for tax expenditure evaluation, and are appropriately tailored to address the efficacy and economic impact of the program.

The entire team at Twin Rivers Paper applauds the Papermaking Credit as an excellent example of partnership that supports vital economic and community development. They consider the Credit an effective, well-designed program to incentivize the revitalization of paper manufacturing in counties with high unemployment and to create and retain high-quality jobs in the State by encouraging and enabling paper manufacturers to modernize their paper manufacturing equipment to better compete in the marketplace.

Rob Harvey, the company's Chief Operations Officer, welcomes the opportunity to discuss the company's experience with the Papermaking Credit. We thank OPEGA for its efforts and look forward to working with this committee throughout the Papermaking Credit evaluation process.

Sincerely,

Elizabeth Frazier

On behalf of the Twin Rivers Paper Company

[efrazier@pierceatwood.com](mailto:efrazier@pierceatwood.com)

**Date:** March 15, 2023 at 12:38:37 PM

**Subject: Fw: Major Business Headquarters Expansion Program OPEGA Review**

My name is Albert A. DiMillo, Jr. I am a retired corporate tax director and CPA with more than 30 years of tax experience. The first 17 years of my experience including working with major Maine corporations including seven years as the Director of Taxes of Bath Iron Works. I then worked in senior management positions with two international corporations in Massachusetts including 7 years as the Director of Income Taxes and Audits for Raytheon Company (\$20 billion in sales). I have testified before OPEGA and the taxation committee numerous times over the past 12 years.

Below is an email I sent to OPEGA on March 8, 2018 related to a review of the Major Business Headquarters Expansion Program. I am presenting the below information from 2018 as written comments for the March 24, 2023 review of the proposed evaluation parameters on this program.

Evaluation Objectives number 7 includes a review of other state programs and whether this program is "duplicative". I believe the information below clearly shows that this program provides a duplicative benefit as the 2007 Maine law that changed apportionment of multi state income from a 3 factor formula to a single sale factor apportionment. This law change was enacted to benefit companies that had business headquarters in Maine. I believe any review by OPEGA without taking the 2007 law benefit into consideration would not be a complete and accurate analyses and request that OPEGA include an analysis of the 2007 law change in their review of this program and determine if it is in fact duplicative. I also request that OPEGA complete its review as soon as possible as it has already been 5 years since OPEGA started the review process on this program.

----- Forwarded Message -----

**From:** Albert DiMillo <[aadimillo@yahoo.com](mailto:aadimillo@yahoo.com)>

**To:** "[Roger.Katz@legislature.maine.gov](mailto:Roger.Katz@legislature.maine.gov)" <[roger.katz@legislature.maine.gov](mailto:roger.katz@legislature.maine.gov)>; Anne-Marie Mastraccio <[anne-marie.mastraccio@legislature.maine.gov](mailto:anne-marie.mastraccio@legislature.maine.gov)>; "[Deane.Rykerson@legislature.maine.gov](mailto:Deane.Rykerson@legislature.maine.gov)" <[deane.rykerson@legislature.maine.gov](mailto:deane.rykerson@legislature.maine.gov)>; Geoffrey Gratwick <[geoffrey.gratwick@legislature.maine.gov](mailto:geoffrey.gratwick@legislature.maine.gov)>; "[Jeff.Pierce@legislature.maine.gov](mailto:Jeff.Pierce@legislature.maine.gov)" <[jeff.pierce@legislature.maine.gov](mailto:jeff.pierce@legislature.maine.gov)>; "[Jennifer.DeChant@legislature.maine.gov](mailto:Jennifer.DeChant@legislature.maine.gov)" <[jennifer.dechant@legislature.maine.gov](mailto:jennifer.dechant@legislature.maine.gov)>; "[matthew.harrington@legislature.maine.gov](mailto:matthew.harrington@legislature.maine.gov)" <[matthew.harrington@legislature.maine.gov](mailto:matthew.harrington@legislature.maine.gov)>; Paul Davis <[paul.davis@legislature.maine.gov](mailto:paul.davis@legislature.maine.gov)>; Senator Nate Libby <[nathan.libby@legislature.maine.gov](mailto:nathan.libby@legislature.maine.gov)>; William Diamond <[william.diamond@legislature.maine.gov](mailto:william.diamond@legislature.maine.gov)>; Thomas Saviello <[thomas.saviello@legislature.maine.gov](mailto:thomas.saviello@legislature.maine.gov)>; Paula Sutton <[paula.sutton@legislature.maine.gov](mailto:paula.sutton@legislature.maine.gov)>

**Cc:** Beth Ashcroft <[beth.ashcroft@legislature.maine.gov](mailto:beth.ashcroft@legislature.maine.gov)>

**Sent:** Thursday, March 8, 2018 10:11 AM

**Subject:** Major Business Headquarters Expansion Program

Government Oversight Committee members,

On the agenda for the March 9, 2018 meeting is a presentation of OPEGA's Assessment of the Design of the Newly Enacted Major Business Headquarters Expansion Program Report. One of the goals of the law stated in the legislative history Sec 4 was to "encourage the location and expansion of major business headquarters in the State".

Having read OPEGA's report on their planned assessment of the law, there is a major missing historical law change passed by the Maine legislature and made effective on January 1, 2007 that created a tax incentive for all Maine businesses that have corporate headquarters in Maine . **Accordingly, the newly enacted law gives additional tax benefits that are a duplication of corporate tax benefits enacted in 2007. That 2007 law was passed to encourage businesses to increase employment in Maine and to invest in additional property plant**

**and equipment in Maine . Idexx Laboratories Inc. (Idexx), the current expected recipient of the newly enacted law is already receiving a major tax benefit from the 2007 law change that could be as much as \$5 million a year in reduced corporate income taxes.**

LD 499, enacted on 6/7/07 amended MRSA Section 5211 subsection 8 which apportions income for multistate businesses operating in Maine (attached word file is the law change related to apportionment). Prior to 2007, Maine used the three factor apportionment method used by the majority of states. The three factors were payroll, property and sales, with the sales factor double weighted. Effective with the year 2007, Maine changed to a single sales factor for apportionment. Single sales factor apportionment makes a state a more attractive place for businesses to expand their property and payroll because it will reduce their corporate income taxes paid in that state as compared to the taxes they would pay under the typical three factor apportionment. Any additional payroll or property added in Maine does not increase that businesses corporate income taxes in Maine and it reduces the corporate income taxes paid to all the other states that use the three factor apportionment. The 2007 law change seems to coincide with the 2006 major expansion by Idexx. The legislative history is not clear who lobbied the Maine legislature for the apportionment change in 2007, but Idexx was clearly a major winner under the law change.

I have attached an excel file that estimates the Maine corporate income tax savings in 2016 and 2017 for Idexx from the law change made in 2007. The tax savings are about \$5 million a year. The exact savings to Idexx can be provided by Maine Revenue Services as they continue to request from taxpayers their apportionment numbers for payroll and property, but use only the sales numbers. I believe that Maine Revenue Services collects this data so to have a data base that allows them to calculate the difference in taxes due under the single sales apportionment versus three factor apportionment.

I have also looked at Idexx's effective state income tax rate in 2015-2017 which illustrates that while the average US corporation pays state taxes at about 6% of US income, Idexx had an effective state tax rate of only 3.14%, 3.42% and 1.92% in 2015-2017 respectively. While Maine has a stated corporate tax rate of 8.93%, the impact of the single sales factor apportionment reduces its effective tax rate to less than 2%. With the newly enacted tax incentive, Idexx's Maine corporate income tax is likely to be eliminated and could actually result in a refund or a negative state tax rate. It is my understanding that the supporters of this law pushed to have the credit as refundable, so it is likely Idexx will pay no corporate income tax and will get a refund.

I do not believe that this newly enacted tax credit would have been passed if all the information concerning the 2007 apportionment law change and its impact on Idexx or other businesses with significant payroll and property in Maine (but limited sales in Maine , like those with corporate headquarters in Maine ) was known to the legislature. The duplication of the benefits from the single sales factor and the newly enacted headquarters credits needs to be addressed by OPEGA in their review. Their review should include contacting Maine Revenue

Services and having them provide the corporate tax savings to Idexx from the 2007 apportionment law change.

Albert A. DiMillo, Jr.  
South Portland, Maine

**Below are the changes to the apportionment enacted as part of LD 499 passed by the Maine legislature on June 7, 2007.**

**Sec. V-2. 36 MRSA §5211, sub-§8,** as amended by PL 1991, c. 502, §1 and as affected by §2, is further amended to read:

**8. Formula for apportionment of income to State.** All income shall be apportioned to this State by multiplying the income by a fraction, the numerator of which is the property factor plus the payroll factor plus twice the sales factor, and the denominator of which is 4.

**Sec. V-3. 36 MRSA §5211, sub-§9,** as enacted by P&SL 1969, c. 154, §F, is repealed.

**Sec. V-4. 36 MRSA §5211, sub-§10,** as amended by PL 1999, c. 708, §43, is repealed.

**Sec. V-5. 36 MRSA §5211, sub-§11,** as enacted by P&SL 1969, c. 154, §F, is repealed.

**Sec. V-6. 36 MRSA §5211, sub-§12,** as amended by PL 2001, c. 439, Pt. D, §8 and affected by §9, is repealed.

**Sec. V-7. 36 MRSA §5211, sub-§13,** as enacted by P&SL 1969, c. 154, §F, is repealed.

**Sec. V-8. 36 MRSA §5211, sub-§16,** as amended by PL 2005, c. 12, Pt. MMMM, §2 and affected by §3, is repealed.

**Sec. V-9. 36 MRSA §5211, sub-§16-A** is enacted to read:

**16-A. Other sales.** Sales other than sales of tangible personal property are sourced as follows.

A. Except as otherwise provided by this subsection, receipts from the performance of services must be attributed to the state where the services are received. If the state where the services are received is not readily determinable, the services are deemed to be received at the home of the customer or, in the case of a business, the office of the customer from which the services were ordered in the regular course of the customer's trade or business. If the ordering location cannot be determined, the services are deemed to be received at the home or office of the customer to which the services are billed. In instances in which the purchaser of the service is the Federal Government or the receipts are otherwise attributable to a state in which the taxpayer is not taxable, the receipts are attributable to this State if a greater proportion of the income-producing activity is performed in this State than in any other state based on costs of performance.

B. Gross receipts from the license, sale or other disposition of patents, copyrights, trademarks or similar items of intangible personal property must be attributed to this State if the intangible property is used in this State by the licensee or if the taxpayer's commercial domicile is in this State and the taxpayer is not taxable in the state in which the property is used by the licensee. If the intangible personal property is used by the licensee in more than one state, the income must be apportioned to this State according to the portion of use in this State. In instances in which the purchaser or licensee of the intangible personal property is the Federal Government

or the receipts are otherwise attributable to a state in which the taxpayer is not taxable, the receipts are attributable to this State if a greater proportion of the income-producing activity is performed in this State than in any other state based on costs of performance.

C. Receipts from the sale, lease, rental or other use of real property is sourced to this State if the real property is located in this State.

D. Receipts from the lease or rental of tangible personal property must be attributed to this State if the property is located in this State.

E. Receipts from items of income described in section 5206-E, subsection 2, paragraphs C to I must be sourced to this State as provided in those paragraphs. For purposes of this paragraph, section 5206-E, subsection 2, paragraphs G and H must include the related payment processing fees.

F. A sale of a partnership interest must be sourced in accordance with the provisions of section 5142, subsection 3-A.

**Sec. V-10. 36 MRSA §5211, sub-§17, ¶A,** as enacted by P&SL 1969, c. 154, §F, is amended to read:

A. Separate accounting; or

**Sec. V-11. 36 MRSA §5211, sub-§17, ¶B,** as enacted by P&SL 1969, c. 154, §F, is repealed.

**Sec. V-12. 36 MRSA §5211, sub-§17, ¶C,** as enacted by P&SL 1969, c. 154, §F, is repealed.

**Sec. V-13. 36 MRSA §5212, sub-§2, ¶C,** as enacted by PL 1999, c. 754, §1 and affected by §2, is amended to read:

C. Receipts other than from the provision of services described in paragraph B are Maine receipts if they would qualify as Maine sales under section 5211, subsection 15 or ~~16~~ 16-A.

**Sec. V-14. 36 MRSA §5244,** as amended by PL 1997, c. 24, Pt. C, §12 and affected by §16, is further amended to read:

#### § 5244. **Combined report**

The combined report required by section 5220, subsection 5, must include, both in the aggregate and by corporation, a list of the federal taxable income, the modifications provided by section 5200-A, the ~~property, payroll and~~ sales in Maine and everywhere as defined in chapter 821 and the Maine net income of the unitary business. Neither the income nor the ~~property, payroll and~~ sales of a corporation that is not required to file a federal income tax return may be included in the combined report.

**Sec. V-15. Application.** Those sections of this Part that amend the Maine Revised Statutes, Title 36, sections 5211 and 5244 and apply to tax years beginning on or after January 1, 2007.

IDEXX  
INCOME & TAXES

**IDEXX INCOME & TAXES - 2015 -2017 (A)**

		12/31/15	12/31/16	12/31/17	12/31/17 ESTIMATED EMPLOYEES	ESTIMATED IN MAINE
<b><u>INCOME BEFORE TAXES</u></b>						
US OPERATIONS	(A)	187,200,000	227,875,000	268,714,000	5,000	2,500
INTERNATIONAL	(A)	85,941,000	93,971,000	112,343,000	2,000	
TOTAL INCOME BEFORE TAX		273,141,000	321,846,000	381,057,000	7,000	
CURRENT STATE INCOME TAX	(A)	5,353,000	6,608,000	9,258,000		
DEFERRED STATE INCOME TAX	(A)	526,000	1,196,000	(4,102,000)		
<b>TOTAL STATE INCOME TAX</b>		<b>5,879,000</b>	<b>7,804,000</b>	<b>5,156,000</b>		
<b>STATE TAX % OF US INCOME</b>		<b>3.14%</b>	<b>3.42%</b>	<b>1.92%</b>		
EXPECTED STATE TAX BASED ON 6.0%	(B)	11,232,000	13,672,500	16,122,840		
ACTUAL TAXES ABOVE		5,879,000	7,804,000	5,156,000		
<b>TAX SAVINGS FROM SPECIAL APPORTIONMENT &amp; OTHER INCENTIVES</b>		<b>5,353,000</b>	<b>5,868,500</b>	<b>10,966,840</b>		

(A) - INCOME AND STATE TAXES COME FROM IDEXX LABORATORIES, INC. AUDITED FINANCIAL STATEMENT

(B) - WHILE MAINE'S TAX RATE IS 8.93% THE AVERAGE FOR ALL STATES IS ABOUT 7%. THE 6% NUMBER WAS USED TO BE CONSERVATIVE.

**BELOW IS AN ESTIMATION OF THE CORPORATE INCOME TAXES IDEXX SAVES IN 2016 & 2017 FROM THE 2007 LAW CHANGE (L)**

**2016 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	AVERAGE	
<b><u>APPORTIONMENT &amp; TAX PRE 2007 LAW</u></b>						
MAINE % OF TOTAL IN US US INCOME FROM ABOVE	5.0%	5.0%	50.0%	50.0%	27.5%	AP INC
MAINE TAXABLE INCOME					227,875,000	(AP X INC)
MAINE TAX AT 8.93%					62,665,625	(1)
					<b>5,596,040</b>	
<b><u>APPORTIONMENT &amp; TAX POST 2006 LAW</u></b>						
MAINE % OF TOTAL IN US US INCOME FROM ABOVE	5.0%	5.0%	N/A	N/A	5.0%	AP INC
MAINE TAXABLE INCOME					227,875,000	(AP X INC)
MAINE TAX AT 8.93%					11,393,750	(2)
					<b>1,017,462</b>	
<b>REDUCED TAXES (1) - (2)</b>					<b>4,578,578</b>	

**2017 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	TOTAL	
<b><u>APPORTIONMENT &amp; TAX PRE 2007 LAW</u></b>						
MAINE % OF TOTAL IN US US INCOME FROM ABOVE	5.0%	5.0%	50.0%	50.0%	27.5%	AP INC
MAINE TAXABLE INCOME					268,714,000	(AP X INC)
MAINE TAX AT 8.93%					73,896,350	(1)
					<b>6,598,944</b>	
<b><u>APPORTIONMENT &amp; TAX POST 2006 LAW</u></b>						
MAINE % OF TOTAL IN US US INCOME FROM ABOVE	5.0%	5.0%	N/A	N/A	5.0%	AP INC
MAINE TAXABLE INCOME					268,714,000	(AP X INC)
MAINE TAX AT 8.93%					13,435,700	(2)
					<b>1,199,808</b>	
<b>REDUCED TAXES (1) - (2)</b>					<b>5,399,136</b>	

(L) - ON JUNE 7,2007 MAINE PASSED LD499, WHICH INCLUDED CHANGING THE APPORTIONMENT OF MULTISTATE BUSINESS INCOME FROM A THREE FACTOR FORMULA OF PAYROLL, PROPERTY AND DOUBLE WEIGHTED SALES TO A SINGLE SALES FACTOR.

(P) - BASED ON INFORMATION INCLUDED IN THE IDEXX ANNUAL 10K FILED WITH THE SEC, A REASONABLE ESTIMATE IS THAT 50% OF ITS PROPERTY IN THE US IS LOCATED IN MAINE. SEE PROPERTY TAB FOR DETAILS.

(W) - BASED ON PUBLIC INFORMATION IDEXX HAS ABOUT 2,500 EMPLOYEES IN MAINE WHICH IS ABOUT 50% OF US TOTAL.

(S) - THE SALES APPORTIONMENT NUMBER IS NOT AVAILABLE FROM PUBLIC RECORDS OR THE FINANCIAL STATEMENTS.

HOWEVER, BECAUSE IDEXX SELLS IN ALL STATES AND HAS NEXUS IN MOST STATES THE NUMBER IS PROBABLY VERY LOW.

I HAVE USED 5% BUT AS THE CALCULATIONS BELOW SHOW, THE TAX SAVINGS ARE ABOUT THE SAME IF YOU USE 1% OR 10%.

**CALCULATION USING 1% SALES APPORTIONMENT INSTEAD OF 5%**

**2016 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	AVERAGE	
<b>APPORTIONMENT &amp; TAX PRE 2007 LAW</b>						
MAINE % OF TOTAL IN US	1.0%	1.0%	50.0%	50.0%	25.5%	AP
US INCOME FROM ABOVE					227,875,000	INC
MAINE TAXABLE INCOME					58,108,125	(AP X INC)
MAINE TAX AT 8.93%					5,189,056	(1)

**APPORTIONMENT & TAX POST 2006 LAW**

MAINE % OF TOTAL IN US	1.0%	1.0%	N/A	N/A	1.0%	AP
US INCOME FROM ABOVE					227,875,000	INC
MAINE TAXABLE INCOME					2,278,750	(AP X INC)
MAINE TAX AT 8.93%					203,492	(2)

**REDUCED TAXES (1) - (2)**

**4,985,563**  
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**2017 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	TOTAL	
<b>APPORTIONMENT &amp; TAX PRE 2007 LAW</b>						
MAINE % OF TOTAL IN US	1.0%	1.0%	50.0%	50.0%	25.5%	AP
US INCOME FROM ABOVE					268,714,000	INC
MAINE TAXABLE INCOME					68,522,070	(AP X INC)
MAINE TAX AT 8.93%					6,119,021	(1)

**APPORTIONMENT & TAX POST 2006 LAW**

MAINE % OF TOTAL IN US	1.0%	1.0%	N/A	N/A	1.0%	AP
US INCOME FROM ABOVE					268,714,000	INC
MAINE TAXABLE INCOME					2,687,140	(AP X INC)
MAINE TAX AT 8.93%					239,962	(2)

**REDUCED TAXES (1) - (2)**

**5,879,059**  
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**CALCULATION USING 10% SALES APPORTIONMENT INSTEAD OF 5%**

**2016 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	AVERAGE	
<b>APPORTIONMENT &amp; TAX PRE 2007 LAW</b>						
MAINE % OF TOTAL IN US	10.0%	10.0%	50.0%	50.0%	30.0%	AP
US INCOME FROM ABOVE					227,875,000	INC
MAINE TAXABLE INCOME					68,362,500	(AP X INC)
MAINE TAX AT 8.93%					6,104,771	(1)

**APPORTIONMENT & TAX POST 2006 LAW**

MAINE % OF TOTAL IN US	10.0%	10.0%	N/A	N/A	10.0%	AP
US INCOME FROM ABOVE					227,875,000	INC
MAINE TAXABLE INCOME					22,787,500	(AP X INC)
MAINE TAX AT 8.93%					2,034,924	(2)

**REDUCED TAXES (1) - (2)**

**4,069,848**  
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**2017 YEAR CALCULATION**

	(S) SALES	SALES	(W) WAGES	(P) PROPERTY	TOTAL	
<b>APPORTIONMENT &amp; TAX PRE 2007 LAW</b>						
MAINE % OF TOTAL IN US	10.0%	10.0%	50.0%	50.0%	30.0%	AP
US INCOME FROM ABOVE					268,714,000	INC
MAINE TAXABLE INCOME					80,614,200	(AP X INC)
MAINE TAX AT 8.93%					7,198,848	(1)

**APPORTIONMENT & TAX POST 2006 LAW**

MAINE % OF TOTAL IN US	10.0%	10.0%	N/A	N/A	10.0%	AP
US INCOME FROM ABOVE					268,714,000	INC
MAINE TAXABLE INCOME					26,871,400	(AP X INC)
MAINE TAX AT 8.93%					2,399,616	(2)

**REDUCED TAXES (1) - (2)**

**4,799,232**  
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IDEXX  
PROPERTY

**DEATIL OF PP&E PER F/S**

**ESTIMATED AMOUNTS IN US & MAINE**

	12/31/17	OUTSIDE		
		US	US	MAINE
LAND & IMPROVEMENTS	7,323,000	7,323,000	0	7,323,000
BUILDINGS & IMPROVEMENTS	180,185,000	172,977,600	7,207,400	164,328,720
LEASEHOLD IMPROVEMENTS	52,227,000	32,380,740	19,846,260	3,238,074
MACHINERY & EQUIPMENT	284,375,000	170,625,000	113,750,000	102,375,000
OFFICE FURNITURE & EQUIPMENT	47,476,000	28,485,600	18,990,400	17,091,360
COMPUTER HARDWARE & SOFTWARE	206,580,000	123,948,000	82,632,000	74,368,800
CONSTRUCTION IN PROGRESS	33,470,000			
	811,636,000	535,739,940		368,724,954
ACCUMULATED DEPRECIATION	(432,540,000)	200,000,000		20,000,000
				VALUE OF LEASED PROPERTY
PP&E NET	379,096,000	735,739,940		388,724,954
	=====			
				<b>52.8%</b> ESTIMATE OF MAINE % OF TOTAL US
				=====

**REAL PROPERTY SQUARE FOOTAGE PER 10K F/S**

	MAINE	TENNESSEE	GEORGIA	WISCONSIN	OTHER STATES	SUBTOTAL US	OUTSIDE US	TOTAL	
<b>OWNED SPACE</b>									
HEADQUARTERS	647,000					647,000		647,000	
US LABORATORY SPACE					34,200	34,200		34,200	
UK LABORATORY SPACE							24,800	24,800	
CANADA LABORATORY SPACE							3,100	3,100	
	647,000	0	0	0	34,200	681,200	27,900	709,100	
<b>LEASED SPACE</b>									
LAB, OFFICE & WAREHOUSING	????	????	????	????	????	412,035	221,865	633,900	NO DETAIL, ASSUMED 65% IN US
DISTRIBUTION, WAREHOUSING & OFFICE SPACE						0	126,200	126,200	
DISTRIBUTION CENTER		114,400				114,400		114,400	
MANUFACTURING & WAREHOUSING			84,300			84,300		84,300	
OFFICE & MANUFACTURING SPACE							84,000	84,000	
OFFICE SPACE				69,300		69,300		69,300	
OFFICE, SALES & IT SPACE	65,000					65,000		65,000	
MANUFACTURING						0	8,100	8,100	
	65,000					745,035	440,165	1,185,200	
	=====								
TOTAL	712,000					1,426,235	468,065	1,894,300	

**GENERAL DYNAMICS**  
Bath Iron Works

**Jon A. Fitzgerald**  
Vice President General Counsel

March 23, 2023

The Honorable Craig V. Hickman  
The Honorable Jessica L. Fay  
Co-Chairs, Government Oversight Committee  
c/o Office of Program Evaluation and Government Accountability  
82 State House Station  
Augusta, ME 04333

Dear Sen. Hickman and Rep. Fay:

On behalf of General Dynamics Bath Iron Works ("BIW"), we respectfully submit the following comments regarding the Proposed Evaluation Parameters for 36 MRS §5219-RR, the Credit for Maine Shipbuilding Facility Investment. BIW has undertaken significant actions to ensure it remains in full compliance with the statute by exceeding the total employment, hiring and qualified investment criteria necessary to qualify for the credit.

Founded in Bath along banks of the Kennebec River in 1884, BIW has 138-year legacy of building ships, with most of those years as a leading shipbuilder for the U.S. Navy. More than 6,600 Maine people are employed at our facilities in Bath and Brunswick, Maine. BIW is one of only two shipyards currently building the Arleigh Burke class destroyer, which has been hailed as the "workhorse of the Navy" and the most successful Navy new ship construction program of recent decades.

BIW appreciates the opportunity to discuss the return on investment for Maine taxpayers as well as the data which demonstrates BIW's performance to the statutory conditions and legislative intent:

To create and retain jobs in the shipbuilding industry in this State by providing an income tax credit to reduce the cost of investments in shipbuilding businesses and thereby encourage investment in shipbuilding businesses and improve the competitiveness of this State's shipbuilding industry.

The Government Oversight Committee's proposed parameters align very closely with the statutory requirements. Those parameters form the basis of the reporting BIW annually provides to Maine Revenue Services. Those annual reports show BIW's employment level, its total payroll and average wages, the amount spent with local Maine companies on goods and services and the amounts spent on qualified investments in the shipyard. These are all appropriate and useful metrics that demonstrate BIW's health and impact on the community and the state.

This credit has two classes of intended beneficiaries. First, the direct beneficiary: businesses such as Bath Iron Works that are making investments in shipbuilding facilities in Maine. The second intended beneficiaries are indirect and include more than 275 Maine cities and towns where not only BIW

700 Washington Street  
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The Honorable Craig V. Hickman  
The Honorable Jessica L. Fay  
March 23, 2023  
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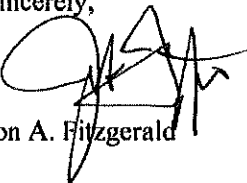
employees live but also residents employed at Maine-based businesses performing work for BIW. As we will outline further, BIW is generating significant beneficial economic activity that results in favorable returns on Maine's investment in BIW.

General Dynamics Corporation -- BIW's corporate parent -- and the U.S. Navy have made and continue to make ongoing capital investments in our shipyard. The state of Maine and its people are not only benefitting by the Navy's purchase of the ships we build in Bath, but also from the co-location of hundreds of Navy personnel in Maine as well as the Navy's direct investment in shipyard improvements. This money comes from outside the state and is then spent in state on wages for Maine workers (living in all 16 counties) and on goods and services from our statewide network of vendors. The shipbuilding tax credit is a critical signal to General Dynamics and the Navy that the State of Maine values their investment in Bath Iron Works.

BIW has long had a reputation as the largest manufacturer in in Maine, but we saw a need to be able to quantify what that truly means for our state. In 2021, the Center for Business and Economic Research at the University of Southern Maine completed an independent evaluation of the impact of BIW on Maine's economy and workforce over the last decade. That analysis shows that BIW, in 2021 alone, supported more than \$1.8 billion in total economic output, with more than \$980 million of that output contributing to the state's GDP. BIW accounts for 17% of the state's manufacturing GDP even though it only accounts for 12% of the state's manufacturing workforce. In 2021, BIW paid out salary and wages of more than \$380 million. BIW produces statewide positive economic impacts. The tax revenues resulting from the total wage impacts are 17 times the value of the tax credit. Additional details from the Center's analysis can be found in the enclosed copy of their report.

BIW believes the existing parameters have been fair and have been a reasonable measure of the success and the impact of the tax credit. We support the continued use of these parameters. BIW is available for further discussion with the Committee at its convenience.

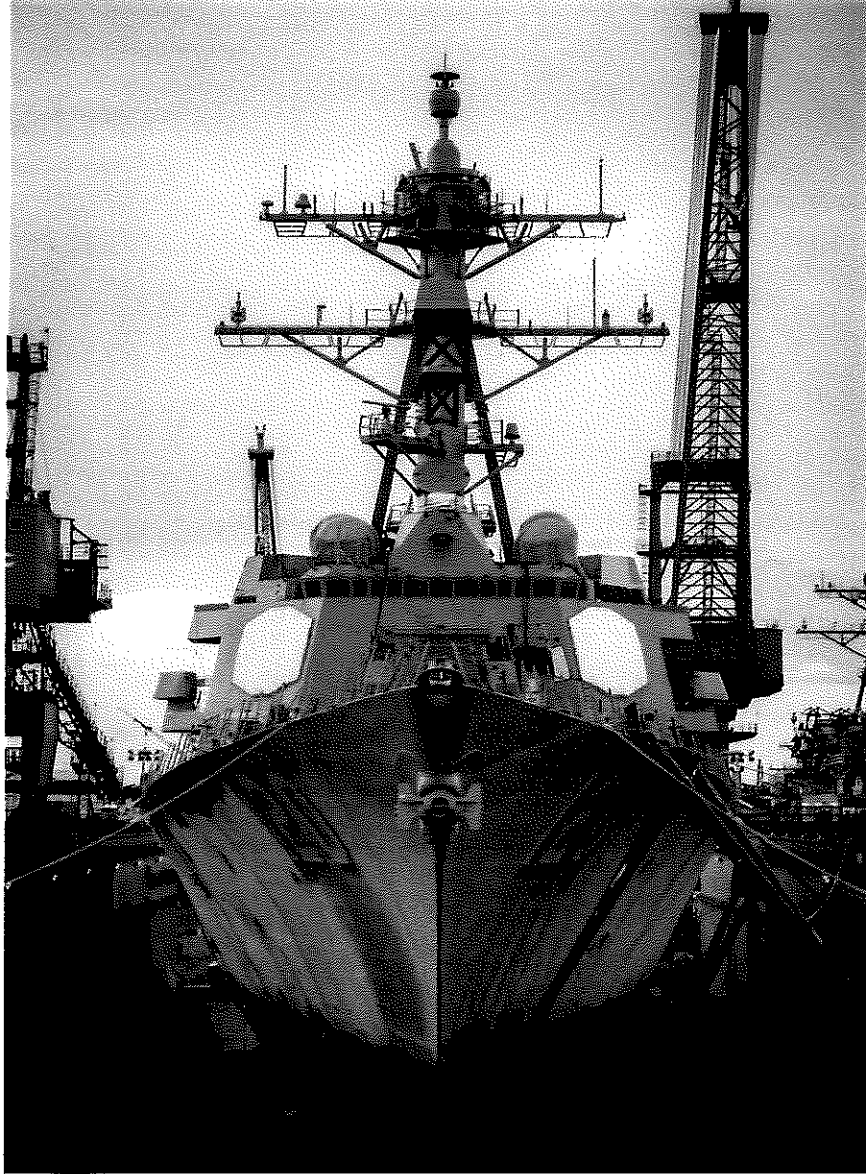
Sincerely,



Jon A. Fitzgerald

JAF:ssp

Encl.

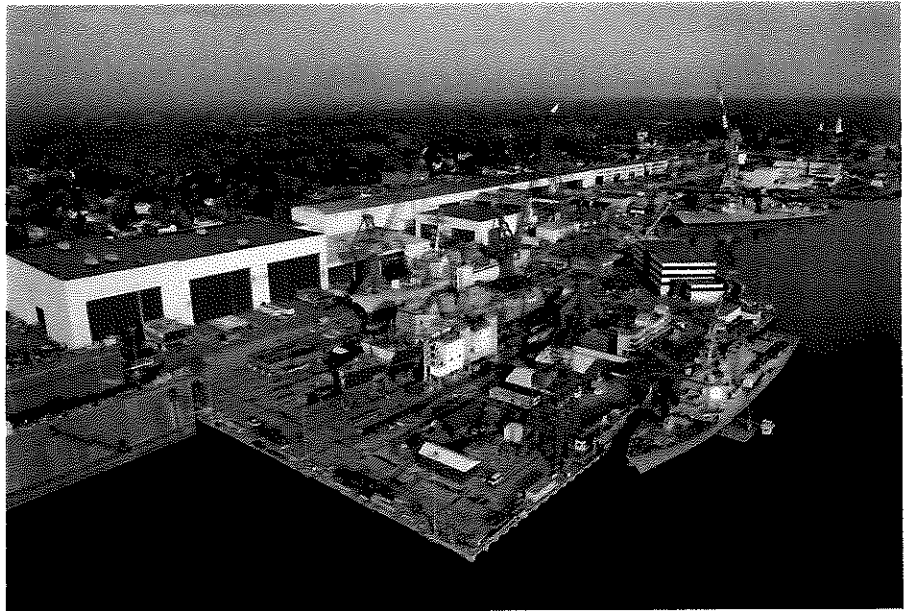


# The Impact of General Dynamics Bath Iron Works on the Maine Economy

November 2022

## A Maine Landmark...

General Dynamics Bath Iron Works (BIW) is one of the largest employers in the state of Maine and is a cornerstone of the economy for many communities, particularly in the Midcoast region. BIW has played a prominent role in Maine's maritime history and culture for generations and continues to be a vital employer — employing thousands of workers every year and spending hundreds of millions of dollars annually in payroll. BIW has invested more than \$800 million in improvements to the shipyard since 1995, \$300 million since 2016, to support production of U.S. Navy destroyers and increase worker productivity. The recent expansions at the shipyard are expected to add hundreds more employees to BIW's payrolls in the coming years; jobs that provide attractive career pathways for skilled and unskilled labor in the state of Maine.



# Objective and Report Structure

Report prepared by:

Center for Business and Economic Research,  
University of Southern Maine

Corresponding Author:

Ryan Wallace, Ph.D.

Director

ryan.d.wallace@maine.com

207-780-5859

**November 2022**

The purpose of this report is to document and quantify the impact of General Dynamics Bath Iron Works (BIW) on the Maine economy and workforce over the past decade. It answers the question, “how does General Dynamics Bath Iron Works contribute to the Maine economy, its communities, and its people?” A more direct question answered is “what would be the hole in the Maine economy if Bath Iron Works did not exist?”

To answer these questions, the analysis in this report utilizes operational data provided by BIW and gathered by the authors to investigate the extent of BIW’s enterprise and contribution to Maine’s economic wellbeing and vitality. The analysis focuses on three core elements of BIW’s economic contribution and impact to the Maine economy, which include:

1. Economic Impacts from BIW Operations
2. Fiscal Impacts from BIW Operations
3. Human Capital Impacts from BIW Operations

BIW’s contributions to the Maine economy are not limited to these elements. This analysis attempts to capture the core footprints of BIW on the Maine economy and workforce using standard analytical tools commonly employed to evaluate economic impacts using a framework established by the U.S. Bureau of Economic Analysis (BEA). These methods are described in detail in the Technical Appendices attached to this report.

# 1. Summary of Findings

**BIW is a major economic engine** for Maine and a key driver of the state's production sector. Over the five-year period 2017 - 2021, BIW operations have supported more than \$8.4 billion in total economic activity in the state of Maine, of which \$4.4 billion accounts for value-added (GDP), including multiplier effects. BIW supported more than \$1.8 billion in total economic output in 2021 alone, with more than \$980 million contributing to the state's GDP. BIW is a highly productive asset accounting for more than 17% of the state's production GDP each year, though it accounts for just 12% of the state's manufacturing workforce.

**BIW is a significant source of economic opportunity** for Mainers in the form of jobs, wages, and spending at supply-chain businesses. In 2021, BIW supported almost 6,500 jobs on-site, and total jobs, including multiplier effects, of more than 11,600. This impact continues to grow over time. Between 2017 and 2021, BIW paid wages and salaries of more than \$1.8 billion, with greater than \$380 million in 2021 alone. BIW also spent another \$464 million over this period on Maine suppliers. These impacts are felt statewide, resulting in a total of \$2.7 billion in wages, including multiplier effects. Every county in Maine is the recipient of induced-effects spending by BIW employees residing in their county or town as well as local tax collections.

**Tens of millions in tax revenues** are generated by BIW's economic impact in the state. Since 2017, BIW has supported the generation of \$44 million per year on average in state and local tax revenues, totaling more than \$220 million through 2021. Tax revenues estimated to be realized by the state and its communities resulting from the total wage impacts are *17 times* the value of the tax credit BIW has qualified for under the state's shipbuilding facilities ITC program — *11 times* the value from tax revenues on BIW direct wages alone. In addition, BIW accounts for approximately one-third of the City of Bath's total tax base and contributed almost \$5 million in property tax revenues in 2020, totaling more than \$28 million since 2016.

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1. Summary of Findings
2. Economic Context
3. Economic Impact from Operations
4. Fiscal Impact from Operations
5. Human Capital Impact from Operations
6. Technical Appendices



# 1. Summary of Findings

**BIW is directly addressing one of the state's most critical challenges** by investing \$130 million dollars in recruitment and training of skilled workers between 2011 and 2021. BIW has hired a total of 6,363 workers between 2016 and 2021, averaging more than 1,000 new workers per year. Most new hires were concentrated in the years 2019 and 2021, which experienced the largest recruitments of more than 1,800 in each of those years. As a result of BIW's recruitment investments and activities, hundreds of new hires were recruited to the state, more than 690 in 2021 alone, establishing new resident taxpayers in Maine and directly addressing the most pressing challenge facing the state economy and communities – a result of demographic shifts.

**Wages paid to BIW workers are highly competitive with the statewide average.** Since 2011, the average wage of a BIW employee was an average of 41% higher than the statewide average wage. Although average relative wages of the BIW workforce have declined slightly over the past few years, this is in part due to the significant hiring of more entry-level workers, as well as baby boomer retirements. Given the typical wage growth of entry level, between 70% and 80% within a five-year period for core entry-level jobs, the relative wage of BIW's workforce compared to the state average is expected to accelerate over a short period of time. A key reason for this accelerating wage is because of the significant skill advancement of the workforce as a result of BIW workforce-training investments. In April 2022, BIW increased wages for LS6 employees by nearly 9%, bringing the entry-level production worker pay from \$16.94 to \$23.50 per hour, and top money pay from \$32.98 to \$35.00 per hour. This effectively translates into a \$21 million annual increase in base wages paid to production-oriented employees.

**BIW is providing a diversity of career opportunities and pathways across a variety of skilled jobs.** There are numerous and diverse career opportunities at BIW that provide significant advancement opportunities and accompanying wage progression. For three core entry-level occupations analyzed, workers advanced quickly over a five-year period increasing annual earnings of approximately \$33,000 upon entry to approximately \$60,000 at present – an 80% increase in pay.

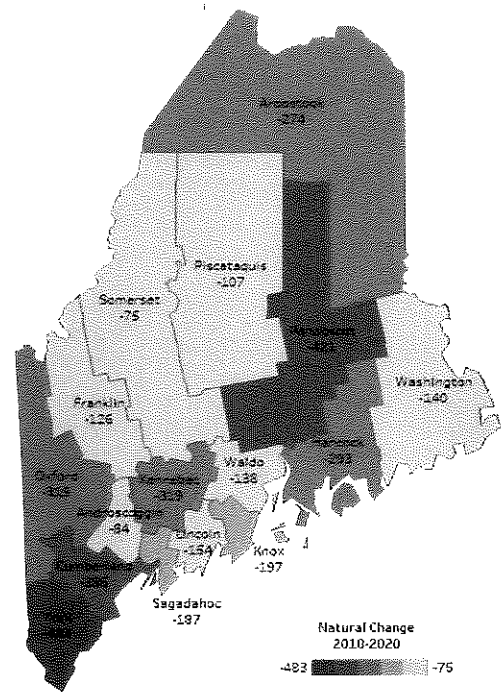
## 2. Economic Context

When evaluating the impact of General Dynamics Bath Iron Works on the economy, it is important to first have a general understanding of the underlying economic conditions of the region(s) of interest, in this case the state of Maine and greater-Bath region. The overarching thematic is the challenges of an aging demographic and the labor market constraints that result. This context is significant, given the scale of BIW's employment base, its investment in workforce, and its draw of workers to the state that help to directly address these challenges.

## 2. Economic Context Demographics and Labor Force

The overarching economic context wherein BIW operates is one in which Maine's most serious economic challenge is attracting young workers, both from other states and internationally. At 44 years old (2021), Maine has the oldest median age in the nation. Its rate of natural increase (births minus deaths) has been falling since the early 1990s, and, since 2010, the number of deaths has outnumbered the number of births statewide and in every one of Maine's 16 counties. Domestic and international migration are the key relief valves to counteract the decline in Maine's populous and labor force. However, despite the significant jump of in-migration in 2021 as a result of the coronavirus pandemic, the decline in labor force has accelerated over the last five years. Declining populations in Maine's communities have significant implications for most of the communities affected, including reduced demand for public services and local consumption, as well as a smaller resident pool from which municipal commitments can be collected through tax assessment.

Figure 1: Natural Population Change (Births-Deaths), Maine 2010-2020



Source: US Census, Population Estimates Program (PEP) & American Community Survey (ACS)

## 2. Economic Context Demographics and Labor Force

Maine's population (black line) and labor force (light blue line) had remained virtually stagnant from 2010 until the onset of the pandemic in 2019, while employment (blue line) jumped by 6%, adding more than 36,000 jobs, before falling back to 2010 levels amid a modest recovery. However, the onset of the pandemic and economic impact caused both employment and labor force levels to drop precipitously, with both well below pre-pandemic (2019) levels. While employment has ticked up slightly, labor force levels remain depressed, 2% below levels seen a decade prior (2010). The pandemic pushed many older-aged workers into retirement sooner, accelerating the looming demographic-driven labor decline long anticipated due to the age structure of the state's population and labor force. Unemployment rates have returned to record-low levels indicating very tight labor market conditions. Indeed, today, virtually all Maine employers face a serious problem filling job openings.

Figure 2: Index of Labor Market Change, Maine 2010-2021

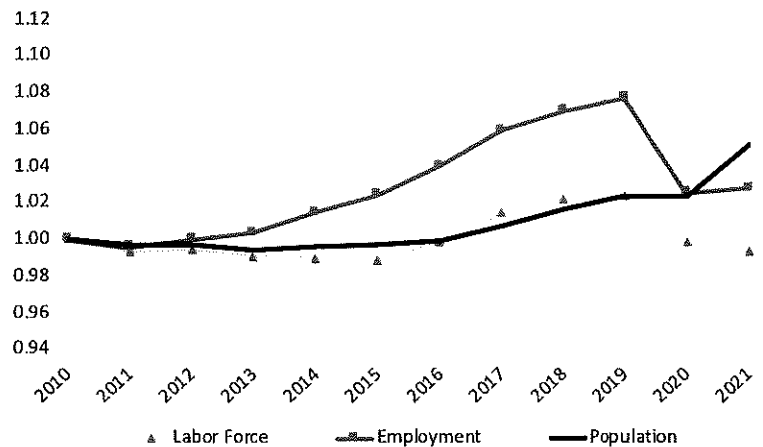


Source: US Census; Maine Department of Labor (DOL), Center for Workforce Research and Information (CWRI)

## 2. Economic Context Demographics and Labor Force

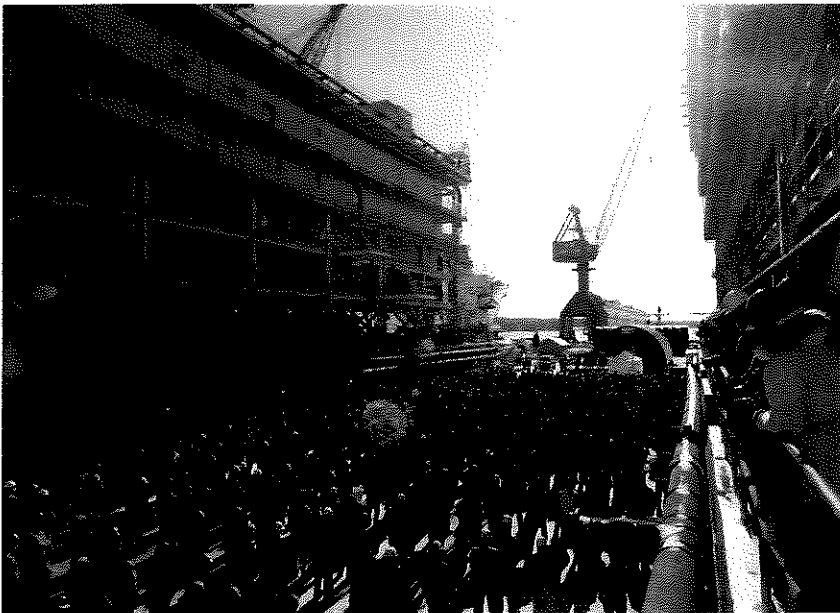
The Sagadahoc County region has experienced similar trends, though employment growth was more pronounced from 2010 to 2019, growing at nearly 8%, and experienced a slightly more muted decline as a result of the pandemic. The decline in labor force levels from the pandemic was also more modest than the overall state. The region also experienced a fairly significant jump in population between 2020 and 2021, a result of in-migrants. The outsized role of BIW in Sagadahoc's employment base was a key contributor to helping stabilize the shock of the pandemic in the region. Still, the pandemic's impact on the labor force is clear, and the impending continued retirements of baby boomers will continue to challenge employers to recruit and find adequate workers. The state's economic future depends on its ability to attract people from other areas. As one of Maine's and the region's largest employers, BIW will play an outsized role in countering these trends as it recruits workforce to the state.

Figure 3: Index of Labor Market Change, Sagadahoc County, 2010-2021



Source: US Census; Maine DOL CWRI

## 2. Economic Context Demographics and Labor Force



### Insights:

1. Maine and the greater-Sagadahoc region are facing a demographic and labor market cliff as the pandemic has begun accelerating the retirements of older-age workers, which account for a disproportionate share of the state's workforce and population.
2. BIW's continued economic contribution, investments, and growth will play an outsized role in addressing the population, workforce, and skill shortages posing significant challenges to the state's industrial and community prosperity.

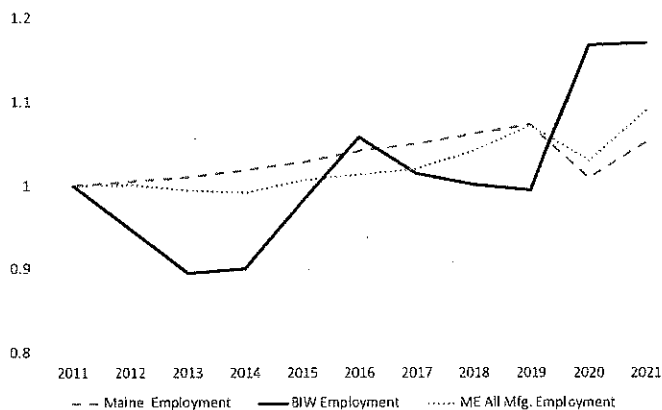
### 3. Economic Impact from BIW Operations

Annual spending from business operations by a large employer like Bath Iron Works has a substantial influence on the local, regional, and statewide economy. BIW maintains an annual payroll of hundreds of millions of dollars each year and spends a substantial amount on its local supply chain vendors — who employ workers and pay wages as a result of BIW’s spending. Employees of BIW and its vendors, in turn, spend earnings in the local economy on household-consumption goods, such as food, entertainment, housing, and other goods and services. This results in recurring rounds of local economic spending and are referred to as the *indirect* and *induced* economic impacts, reported collectively in this report. These impacts are estimated using an economic model that simulates recurrent rounds of spending by employees and vendors in the Maine economy and approximates the cumulative amount of jobs, earnings, and economic output that is a result of BIW’s presence. Please refer to the Technical Appendices for more details on the research methods employed. This section first describes employment, wage, and Maine-based vendor spending and then quantifies the economic impacts.

### 3. Impact from Operations Employment

In fiscal year 2021, BIW employed more than 6,600 people, an increase of 17% compared to ten years prior (2011). As one of the largest employers in the state, employment at BIW made up 12% of the total manufacturing workforce in Maine in 2021, up from 10% of total manufacturing employment in 2011. Employment levels at BIW have varied over the last decade, though total growth has surpassed both total manufacturing (9%) and total statewide employment (5%) between 2011 and 2021.

Figure 4: Employment Growth Trends BIW, Maine Manufacturing, and Maine Total, 2011–21 (Indexed to 2011 levels)



Source: Maine DOL, CWRI, Industry Employment (QCEW)

Table 1: Annual Employment Levels BIW, 2011–21

Year	2011	2012	2013	2014	2015	2016
Employment	5,669	5,376	5,081	5,110	5,571	6,001
Year	2017	2018	2019	2020	2021	Change 2011–21
Employment	5,754	5,674	5,636	6,626	6,638	17.1%

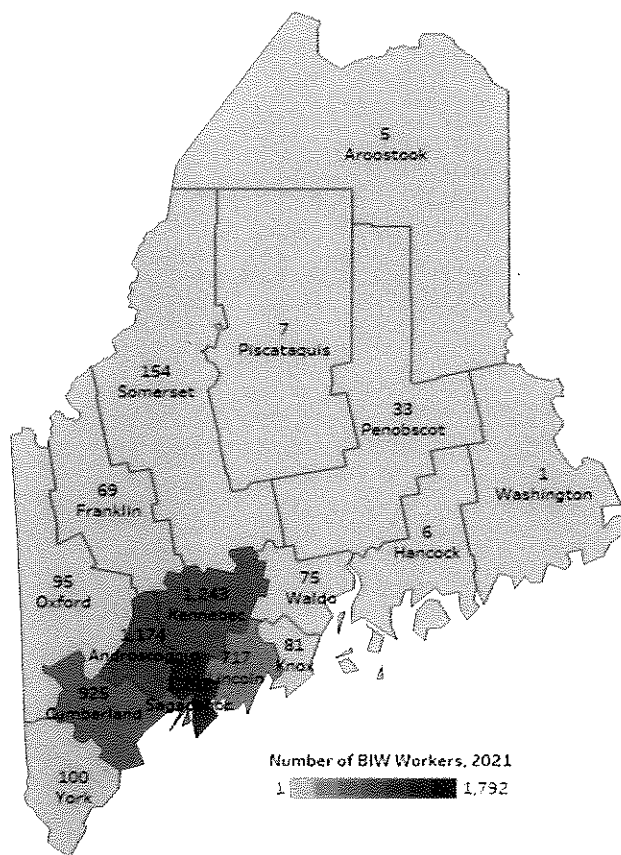
Source: Bath Iron Works, beginning year headcounts



### 3. Impact from Operations Employment

Employees of Bath Iron Works reside in every county across Maine, though workers are primarily concentrated in the Sagadahoc, Kennebec, Androscoggin, Lincoln, and Cumberland County region. Over the last decade, Bath Iron Works employees have dispersed outside this region. In 2011, Franklin County was home to 40 Bath Iron Works employees, by 2021 that number had risen to 69. Of note, some employees may reside outside of Maine in neighboring states who commute to BIW. While it is assumed most wages are spent elsewhere, some of these earnings are likely spent in the state, on food, transportation, and other expenditures contributing to business revenues and tax collections.

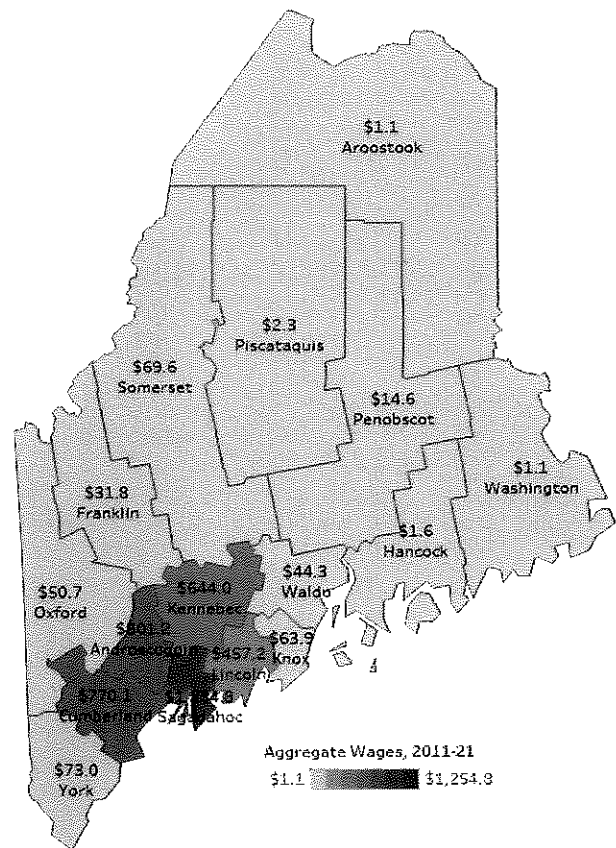
Figure 5: BIW Employee Count by Place of Residence, 2021



### 3. Impact from Operations Employee Earnings

Employee earnings from BIW's payroll paint a similar distribution across Maine communities. Aggregated by county for the years 2011 to 2021, every county shows payroll totals of at least one million dollars over the period. As might be expected, earnings are concentrated in Sagadahoc County, the location of BIW, which accounted for more than one billion dollars across the period. Employee residents of Kennebec, Androscoggin, and Cumberland Counties all collected more than one-half billion dollars in earnings, while neighboring Lincoln County employee residents accumulated more than \$450 million in earnings from 2011 to 2021. While some counties benefit more than others, every county in Maine is the recipient of induced effects spending by BIW employees residing in their county or town as well as local tax collections.

Figure 6: BIW Workforce Earnings by Place of Residence, 2011-21



### 3. Impact from Operations Maine Vendors

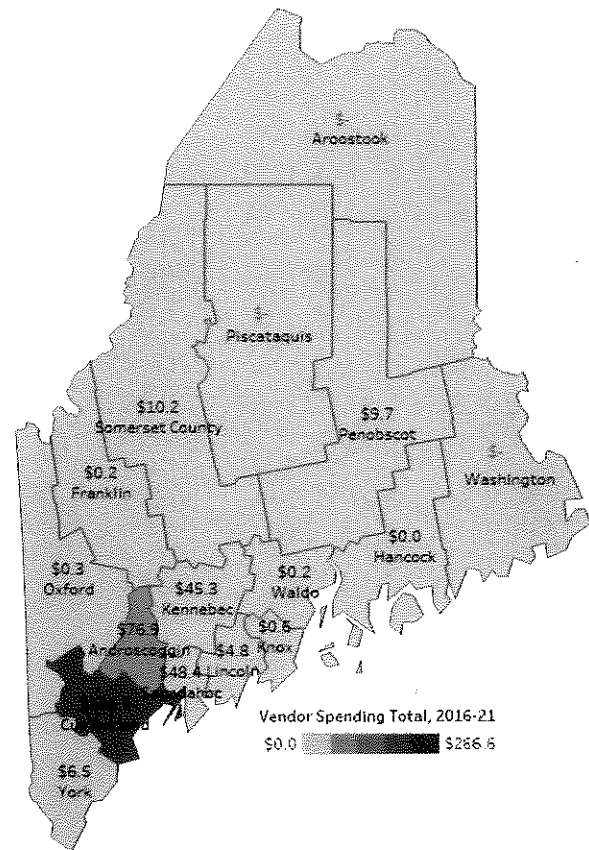
BIW procures supplies from vendors during the course of operations, 290 unique vendors in 2021 alone, many of which are located across the State. Expenditures to Maine-based vendors between 2016 and 2021 totaled more than \$509 million<sup>1</sup>. Expenditures to Maine vendors increased by 175% between 2016 and 2021 and have been rising almost every year during that period. These procurements represent important revenues to vendors throughout Maine. In addition, BIW and its employees engage in a variety of charitable giving to Maine organizations each year, which totaled \$3.9 million between 2016 and 2021.

Table 2: BIW Maine Vendor Expenditures, 2016–21

Year	Expenditures (millions \$)	Number Vendors
2016	\$45.2	313
2017	\$88.0	319
2018	\$54.1	289
2019	\$90.0	289
2020	\$107.7	292
2021	\$124.3	290

<sup>1</sup> Detailed data for specific vendor industries is not available.

Figure 7: BIW Vendor Expenditures by Place of Vendor Location, 2016-21

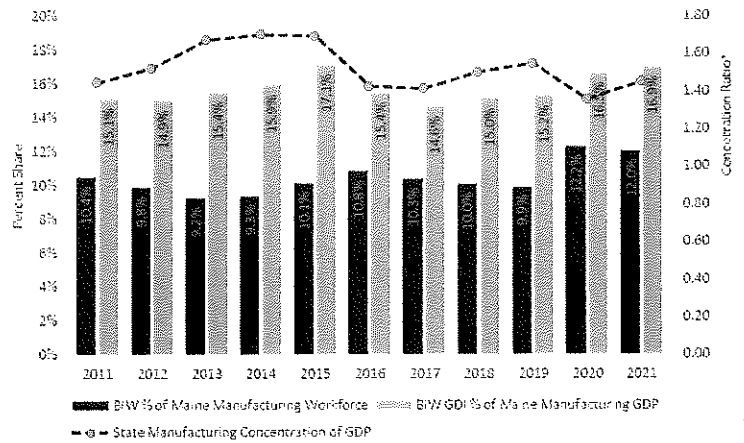


### 3. Impact from Operations Contribution to Maine GDP

Gross domestic income (GDI) measures total income received from production. It is an alternative way to measure the scale of economic activity and conceptually equal to gross domestic product (GDP). Using data from BIW, GDI for the shipbuilder is calculated and compared to all manufacturing /production GDP in Maine.

BIW employment comprised about 12% of all Maine manufacturing employment in 2021 (dark blue bars). The share has increased over the past two years compared to prior years and is likely in part due to job losses resulting from the pandemic, while BIW maintained employment levels. BIW GDI accounted for about 17% of Maine’s manufacturing contribution to state GDP. If BIW was in line with the state average, the ratio of these two shares (Concentration Ratio) would be equal to 1. However, the Concentration Ratio was 1.45 in 2021 (hatched line) indicating BIW contributes a significantly larger share to the state’s manufacturing GDP with a smaller share of the workforce. This suggests BIW is a highly productive organization relative to the rest of Maine’s manufacturing sector, though part of this is explained by the capital to labor allocation characteristic of the industry in which BIW operates.

Figure 8: BIW Contribution to Maine Manufacturing GDP



Source: US Bureau of Economic Analysis (BEA); BIW; author’s calculation. Note: See Technical Appendix definitions for more information on GDI.  
 \*Concentration Ratio is measured as BIW share of state manufacturing workforce divided by BIW share of state manufacturing GDP. A value of 1 would be the expected value for the state average. A value greater than 1 indicates a higher level of workforce productivity. BIW contributes a significantly higher share to the state’s manufacturing GDP with a smaller share of the total manufacturing workforce compared to the statewide manufacturing sector as a whole.

### 3. Impact from Operations Economic Impact

#### Employment

Including the multiplicative effects of BIW's operations (employment and wages), BIW supported more than 11,200 jobs in 2021 across the state, up from 9,600 total jobs in 2011. This includes an estimated 996 jobs in 2021 resulting from spending at regional vendors and 3,651 jobs from employee wages, also referred to as indirect and induced impacts, respectively. Since 2011, BIW has supported an average of more than 9,757 jobs each year, of which at least 4,000 jobs are supported from indirect and induced impacts spending.

Table 3: Economic Impact on Employment, 2011–2021

Year	Direct	Indirect Effect	Induced Effect	Total Impact
2011	5,669	850	3,118	9,637
2012	5,376	806	2,957	9,139
2013	5,081	762	2,795	8,638
2014	5,110	766	2,811	8,687
2015	5,571	836	3,064	9,471
2016	6,001	900	3,301	10,202
2017	5,754	863	3,165	9,782
2018	5,674	851	3,121	9,646
2019	5,636	845	3,100	9,581
2020	6,626	994	3,644	11,264
2021	6,638	996	3,651	11,284
Annual Average	5,740	861	3,157	9,757

Note: Employment includes full-time and part-time jobs. Jobs reported in 'job years' and are not additive year to year.

### 3. Impact from Operations Economic Impact

#### Wages and Salaries

BIW supported \$549 million in total wages and salaries in 2021, of which \$168 million were from indirect (vendor employees) and induced (local economy) impacts. On average, BIW has supported \$565 million in wages and salaries in the Maine economy each year since 2011. The modest decline in direct wages paid by BIW over the the past decade has been a result of a generational turnover in the workforce in which older more experienced workers have retired and have been replaced by younger new hires who typically start at relatively lower wages. The average wages of new hires has increased significantly however, which is discussed in more detail in Section 5 of this report.

Table 4: Economic Impact on Earnings, 2011–2021

Year	Direct	Indirect Effect	Induced Effect	Total Impact
2011	\$455.1	\$45.5	\$154.7	\$655.3
2012	\$421.4	\$42.1	\$143.3	\$606.8
2013	\$397.7	\$39.8	\$135.2	\$572.8
2014	\$381.8	\$38.2	\$129.8	\$549.8
2015	\$395.8	\$39.6	\$134.6	\$569.9
2016	\$414.7	\$41.5	\$141.0	\$597.2
2017	\$383.7	\$38.4	\$130.5	\$552.6
2018	\$359.8	\$36.0	\$122.3	\$518.1
2019	\$343.2	\$34.3	\$116.7	\$494.2
2020	\$378.5	\$37.9	\$128.7	\$545.1
2021	\$381.3	\$38.1	\$129.6	\$549.1
Annual Average	\$392.1	\$39.2	\$133.3	\$564.6

Note: Monetary values reported in millions of current (nominal) dollars.

### 3. Impact from Operations Economic Impact

#### SUPSHIP

Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP) Bath is responsible for independent oversight and execution of the U.S. Navy’s shipbuilding and repair contracts. SUPSHIPS are co-located with major U.S. shipbuilding facilities. Although SUPSHIP Bath oversees shipyards in Wisconsin and San Diego in addition to Bath, without the presence of BIW in Maine, SUPSHIP Bath would not be located in the state. Navy oversight is assumed not included in the operation impact model estimates reported previously and are therefore estimated separately as part of BIW’s overall footprint in the state. The impacts are categorized as indirect and induced because of the nature of the business in relation to BIW.

On average, it is assumed SUPSHIP employs approximately 250 persons each year. As a result of SUPSHIP operations an average of 385 total jobs are estimated to be supported, while earning over \$19 million in wages and salaries.

Table 5: Annual Economic Impact from SUPSHIP

Measure	Annual Average
Total Jobs	385
Total Salaries & Wages	\$19,200,000
Total Value-Add (GDP)	\$10,800,000
Total Output	\$40,200,000

Note: Employment includes full-time and part-time jobs. Monetary values rounded in millions of fixed 2021 dollars. Estimates are based solely on an approximation of average annual direct employment of 250 employees.

### 3. Impact from Operations

## Economic Impact

#### Total Economic Impact Summary

Bath Iron Works supported more than 11,600 jobs in 2021 and almost \$570 million in wages and salaries, inclusive of impacts from BIW operations, SUPSHIP operations, and impacts from charitable contributions. This represents an increase of 14.7% from five-years prior and totals more than 53,500 job-years over the period (see note). BIW supported total economic output, a measure of all economic activity as a result of BIW (also referred to as total sales), of more than \$1.8 billion in 2021, up 15% from 2017. Over the five-year period, BIW supported total output of \$8.4 billion in the state of Maine. Measured as the contribution to state value-add (analogous to gross state of domestic product), BIW supported roughly \$980 million in 2021. This comprises roughly 1.4% of the state's 2021 total (\$71 million in current) GDP and over \$4.4 billion towards Maine's GDP during the five-year period.

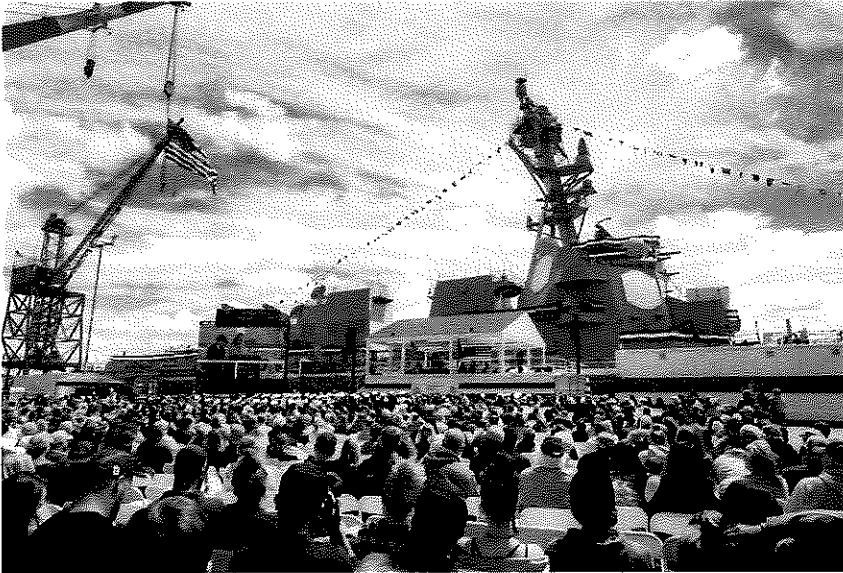
Table 6: Summary of Total BIW Impacts, 2017–2021

Measure	2017	2021	5-Year % Change	5-Year Total
Total Jobs	10,167	11,670	14.8%	53,484
Total Salaries & Wages	\$571.8	\$568.3	-0.6%	\$2,755.0
Total Value-Add (GDP)	\$850.0	\$978.9	15.2%	\$4,477.1
Total Output	\$1,605.5	\$1,845.9	15.0%	\$8,451.2

Note: Employment includes full-time and part-time jobs. Jobs reported in “job years”. Five-year job total shown for illustrative purposes only and are representative of all job years estimated during the period. Monetary values reported in millions of fixed 2021 dollars. Includes impacts from BIW operations, SUPSHIP operations, and BIW charitable contributions. Salaries and Wages, Value-Add, and Output are not necessarily additive, but are different measures of economic activity, though the measures have some degree of overlap. See Technical Appendices for definitions.



### 3. Impact from Operations Economic Impact



#### **Insights:**

1. In 2021, BIW's impact supported more than 11,600 jobs and more than \$570 million in wages and salary income across the state.
2. As one of the largest employers in Maine, BIW's employees and vendors are present in every region of Maine, spreading BIW's impact across hundreds of Maine communities.
3. Over the five-year period 2017 to 2021, BIW's operations supported more than \$4.4 billion in value-added (GDP) and more than \$8.4 billion in total economic output to the Maine economy.

## 4. Fiscal Impacts

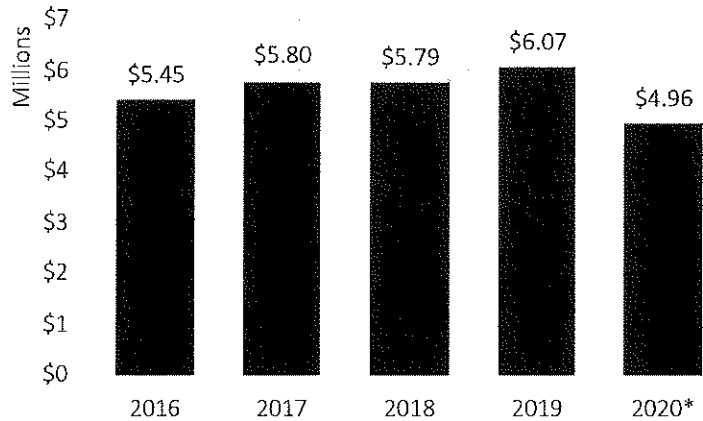
The economic activity supported by BIW in Maine supports fiscal impacts in the form of tax revenues from income, sales, property, and other tax collections. These result from taxes on wages and salaries paid by BIW, as well as taxes on wages and salaries resulting from BIW's impact (indirect and induced). Alternatively, BIW has qualified for shipbuilding tax credits of more than \$40 million over a 15-year period resulting from qualified significant investments in its facilities. This section estimates tax revenues generated from wages and salaries and compares them to the shipbuilding facilities tax credits for which BIW has qualified. This section also provides data on local property-tax payments to the City of Bath.

## 4. Fiscal Impacts Tax Revenues

### Property Tax Payments

Bath shipbuilding facilities account for more than \$400 million in tax base valuation of the City of Bath, approximately one third of all real and personal taxable property value in the City for 2021. This value resulted in net payments from BIW of approximately \$5 million in property-tax revenues to Bath accounting for abatement adjustments in 2020. Over the five-year period 2016 to 2020, net tax revenue payments from BIW totaled more than \$28 million to the City of Bath.

Figure 9: BIW Net Property Tax Payments to the City of Bath, 2016–2021



Source: City of Bath Assessor's office, <https://www.cityofbath.com/BathIronWorksValuationSummary>. Note: \* 2020 amount reflects post-abatement adjustments.

## 4. Fiscal Impacts Tax Revenues

### Fiscal Impacts from Wages & Salaries

Wages generated from BIW's payroll spending and supply chain operational spending stimulate local and tax revenue generation through taxes on income, sales, excise, and personal property, among others – collectively referred to here as fiscal impacts. Based on the total wages related to BIW's economic footprint, its fiscal impact was over \$45 million in 2021, of which \$30 million results from wages and salaries paid directly by BIW. On average, an estimated \$46.7 million in tax revenues were supported over the period 2011 to 2021, of which an average of \$31 million is assumed to be supported from wages and salaries paid by BIW workers (direct). Over the 2011 to 2021 period, an estimated \$514 million in taxes related to wages and salaries supported by BIW operations were recognized in the state. The fiscal impact is estimated by using Maine Revenue Service's effective tax incidence rates by tax type.

Table 7: Economic Impact on Earnings, 2011–2021

Year	BIW Direct	BIW Indirect + Induced	SupShip	Total Tax Revenue
2011	\$36.4	\$16.0	\$1.5	\$54.0
2012	\$33.7	\$14.8	\$1.5	\$50.1
2013	\$31.8	\$14.0	\$1.5	\$47.4
2014	\$30.5	\$13.4	\$1.5	\$45.5
2015	\$31.7	\$13.9	\$1.5	\$47.1
2016	\$33.2	\$14.6	\$1.5	\$49.3
2017	\$30.7	\$13.5	\$1.5	\$45.7
2018	\$28.8	\$12.7	\$1.5	\$43.0
2019	\$27.5	\$12.1	\$1.5	\$41.1
2020	\$30.3	\$13.3	\$1.5	\$45.1
2021	\$30.5	\$13.4	\$1.5	\$45.5
<b>Total</b>	<b>\$345.1</b>	<b>\$151.8</b>	<b>\$16.9</b>	<b>\$513.8</b>
<b>Annual Average</b>	<b>\$31.4</b>	<b>\$13.8</b>	<b>\$1.5</b>	<b>\$46.7</b>

Note: Assumes average annual effective tax rate of 8.0% sourced from the Maine Department of Revenue. This includes sales tax, income tax, and personal property tax revenues based on income. Monetary values reported in millions of nominal (current) dollars.

## 4. Fiscal Impacts

### Tax Revenues

#### Tax Credits versus Tax Revenues

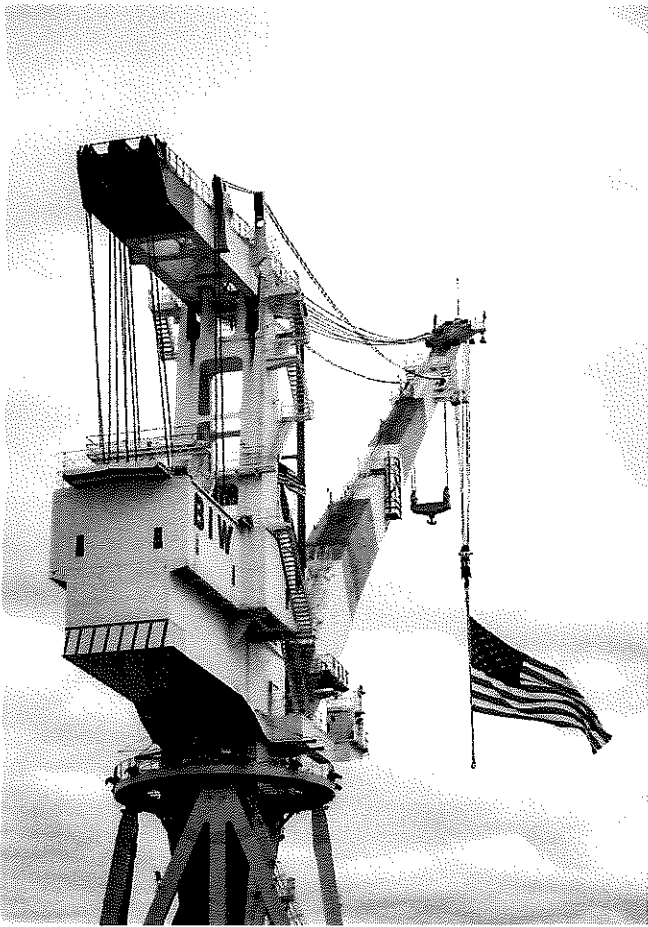
The Shipbuilding Facility Investment Tax Credit Program (SFITCP) in Maine provides large shipbuilding facilities in the state that do not qualify for other tax preference programs to receive tax credits for qualified investments to upgrade facilities, up to \$100 million during a specified period. Since 2018 under the program, BIW has invested \$200 million in upgrades to its facilities, qualifying it for a total of \$40 million in credits on taxes due over a 15-year period. Assuming the average annual effective tax revenues on wages (\$46.7 million) are a fair approximation for the 15-year qualified period under the tax credit program (\$700 million), tax revenues realized by the state and communities is 17.5 times the value of the tax credit for which BIW has qualified. Using simply the average annual tax revenues on wages paid directly by BIW (\$30.5 million), the return on the tax credit more than 15 years is over 11 times the value of the tax credit.

$$\frac{\text{Fiscal Impact Tax Revenues}}{\text{Value of Tax Credit}} = \frac{\$700 \text{ Million}}{\$40 \text{ Million}} = 1,751\%$$

Note: Calculation uses total tax revenue on wages and salaries resulting from BIW's impact on the Maine economy shown on the previous page.

Source: <https://www.maine.gov/decd/decd/business-development/tax-incentives-credit/shipbuildingfacilityinvestment>. Author's calculations.

## 4. Fiscal Impacts Tax Revenues



### Insights:

1. Since 2011, BIW has supported the generation of \$46 million per year on average in state and local tax revenues, totaling more than \$500 million through 2021.
2. Tax revenues realized by the state and communities is 17 times the value of the tax credit BIW has qualified for under the state's shipbuilding facilities ITC program.
3. BIW accounts for approximately one third of the City of Bath's total tax base and contributed almost \$5 million in property tax revenues in 2020 and totaled more than \$28 million since 2016.

## 5. Human Capital Impact

Policy makers, educators, and employers have a long-standing concern about the decline in the working-age population and the ability to keep, or attract, young workers to Maine. A large portion of high school graduates leave the state upon graduation. Historically, a pattern exists wherein people prefer to live and work within 100 miles of where they were born if the educational and employment opportunities are sufficiently appealing. Bath Iron Works has made considerable efforts to both attract workers to Maine and to invest in worker training to ensure workers have clear advancement pathways.

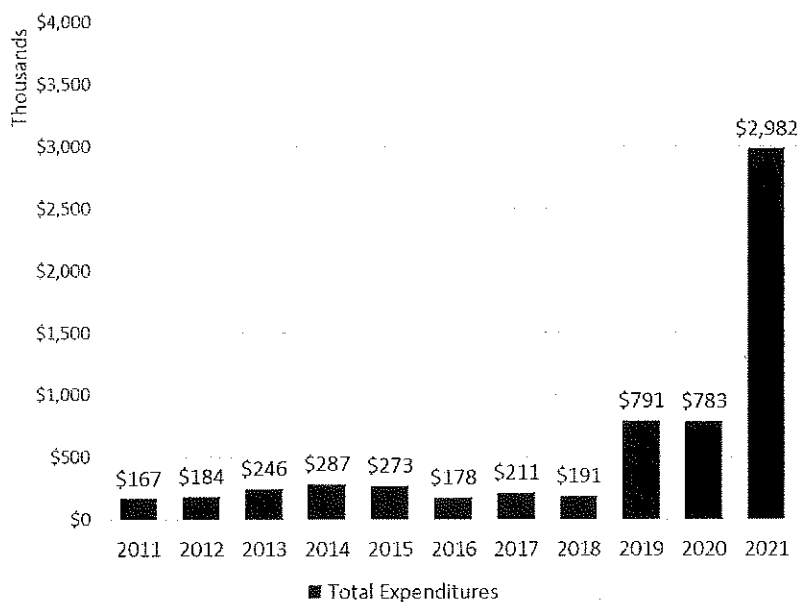
## 5. Human Capital Impact Recruitment and New Hires

### Recruitment Expenditures

Given the tight labor market conditions and labor shortages experienced in the state, BIW has invested in recruitment activities to accommodate its rapidly growing hiring needs. BIW has spent significant dollars in recent years to recruit and attract workers, including from out of state. In 2021, BIW spent \$6.3 million on recruitment, one fourth to one half of which was focused on out-of-state recruitment.

BIW is a major attractor of out-of-state talent, recruiting hundreds of workers from out of state. In 2021 alone, at least 695 new hires were recruited from out of state directly addressing the most significant demographic challenges facing the state and its workforce. These new resident taxpayers contribute millions of dollars to the local economy and state and local tax revenues.

Figure 10: BIW Recruitment Expenditures, 2016–2021

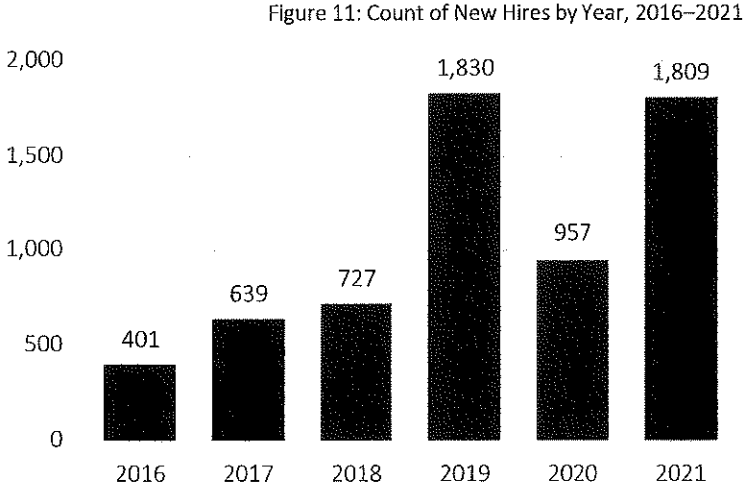




# 5. Human Capital Impact Recruitment and New Hires

## New Hires

BIW has hired a total of 6,363 workers between 2016 and 2021, averaging more than 1,000 new workers per year. Most of the new hires were concentrated in the years 2019 and 2021, which experienced the largest recruitments of more than 1,800 in each of those years. Hiring was limited during 2020 as a result of the pandemic and other events.

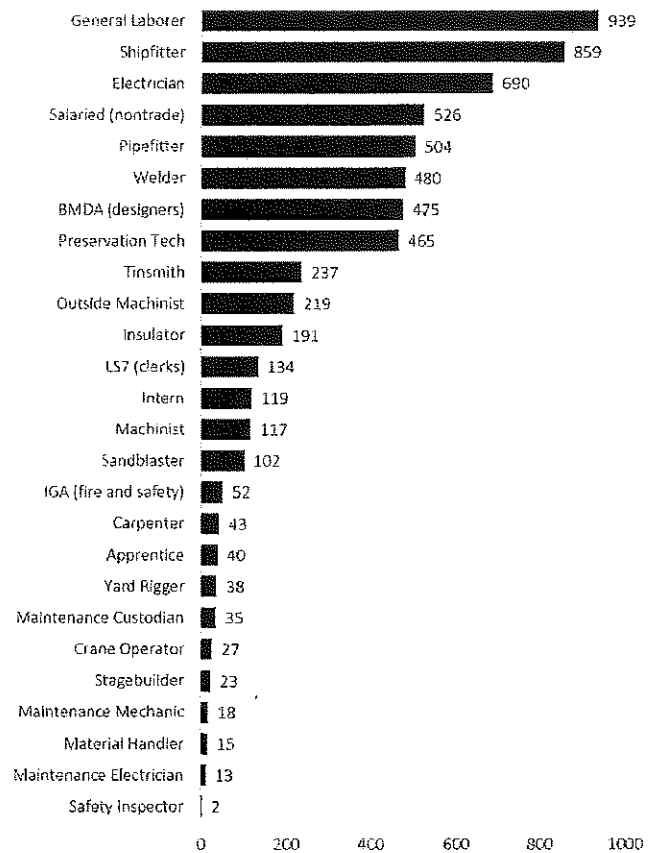


## 5. Human Capital Impact Recruitment and New Hires

### New Hires

New hires from 2016 to 2021 ranged across the business, although they were primarily concentrated in general and skilled trade laborers as well as salaried workers and design-related occupations. In particular, electricians, shipfitters, and welders were among the most intensely hired occupations, two of which are in high demand in other industries across the state (electricians and welders).

Figure 12: Occupations of New Hires, 2016–2021



Note: Salaried (nontrades) category includes Engineers, Finance, Human Resource, Purchasing, and other business support related occupations

## 5. Human Capital Impact Workforce Training

### Workforce Training Investments

BIW has invested \$98 million in the human capital of its workforce since 2011, half of which was spent in the last three years alone (2019–21). These investments upskill both the new and existing workforce, preparing workers for career pathways as they advance from one job to higher-level occupations. Although these investments are initially to the benefit of BIW, ultimately the increased skill capacity of BIW's workforce influences the overall manufacturing, production, and trades workforce statewide. Like most organizations, there is turnover of the workforce and skills and experience gained at BIW – a worker's tacit knowledge – are with the worker if and when they leave BIW and enter the broader labor market.

Table 8: BIW Workforce Training Investment Expenditures, 2011–21

Year	Employment	Workforce Training Investments
2011	5,669	\$3,902,014
2012	5,376	\$3,098,103
2013	5,081	\$4,048,280
2014	5,110	\$5,411,090
2015	5,571	\$6,862,661
2016	6,001	\$7,512,528
2017	5,754	\$6,621,035
2018	5,674	\$9,253,426
2019	5,636	\$14,277,075
2020	6,626	\$12,049,476
2021	6,477	\$25,152,801
<b>Total Investments, 2011-21</b>		<b>\$98,188,490</b>

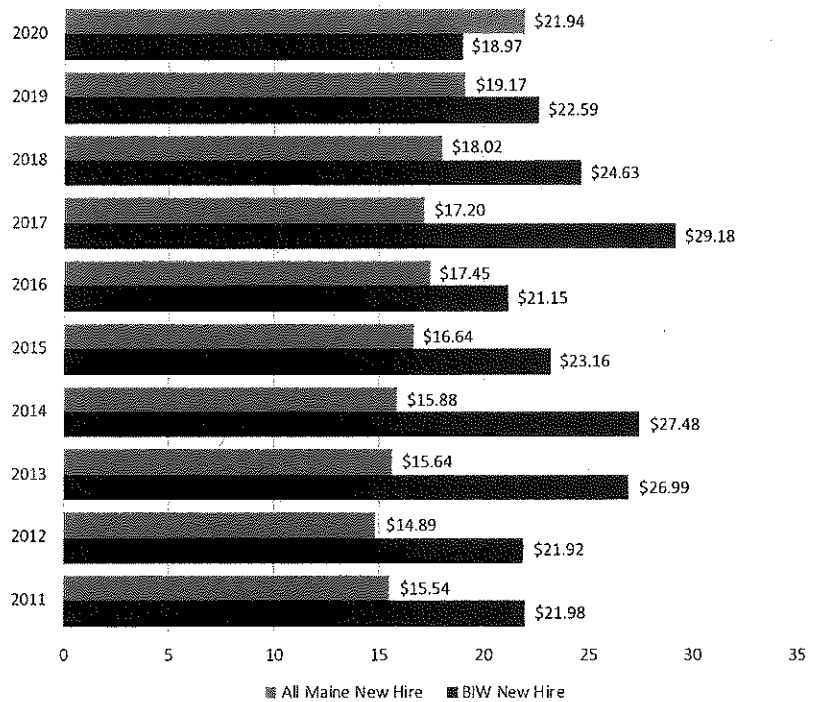
## 5. Human Capital Impact Wage Benchmark

### Relative Wages of New Hires

Average hourly wages of new hires compared favorably to all new hires in Maine over the last ten years, with the exception of 2020 and the onset of the pandemic. The average wage of new hires at BIW has been falling since 2017, largely a result of the hiring of younger, more entry-level workers. This compares to the average of all new hires across the state, which has been steadily increasing, with a sharp jump in 2020.

In April 2022, BIW increased wages for LS6 employees by nearly 9%, bringing the entry-level production worker pay from \$16.94 to \$23.50 per hour, and top money pay from \$32.98 to \$35.00 per hour. This effectively translates into a \$21 million annual increase in base wages paid to production-oriented employees.

Figure 13: Comparison of New Hires BIW to All Maine, 2011–2020



Source: US Census Longitudinal Employment-Household Dynamics (LEHD). Maine data only available through 2020 in dataserries. Includes average wage for new hires (job-to-job recruits).

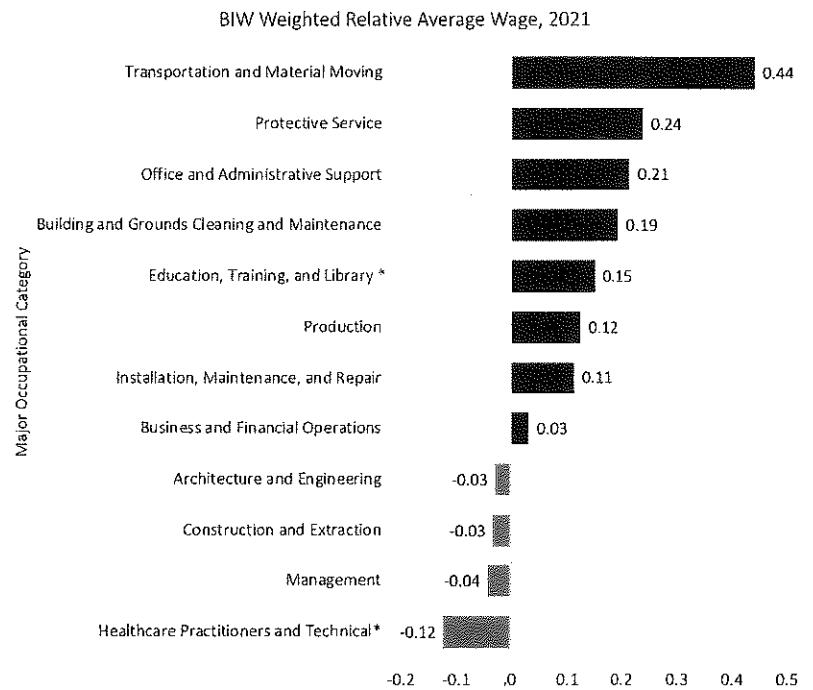
## 5. Human Capital Impact Wage Benchmark

### Relative Wages of All Occupations

The average overall hourly wage paid to all BIW workers (including new hires) was \$28.49 compared to \$25.59 for all occupations statewide in 2021; an 11% difference.

Looking across various occupational groupings provides greater insight into where BIW pays more competitive wages relative to similar jobs elsewhere employed in the state. Relative wage measured as a ratio provide a comparison of BIW average wages to those across the economy. Jobs are reported by major occupational categories (SOC). The largest share of BIW jobs are concentrated in Construction, Production, and Engineering. Average wages at BIW in these categories were 12% higher than the statewide average in Production jobs, and just under the statewide average for jobs in construction and engineering at -3% in 2021.

Figure 14: Relative Wages of BIW Occupations Compared to Maine by Major Occupational Group, 2021



Source: BLS Occupational Employment and Wages Series (OEWS), Author calculations. Relative wage is measured as the ratio of BIW average hourly wage by occupation (SOC) compared to statewide average hourly wage by occupation. Ratios reported by major occupational category. A value of 0 indicates BIW wages are equivalent to Maine wages for that occupation. A value over 1 indicates percent higher than Maine wages and a value under 1 indicates percentage below Maine wages.

\* Indicates category with less than 20 jobs at BIW.

# 5. Human Capital Impact Career Pathways

## Entry-level General Laborer

As a large employer, BIW provides a wide variety of career pathway opportunities, particularly in production- and trades-oriented occupations. Figure 15 shows the career pathways, jobs and wages of actual employees starting as an entry-level General Laborer in 2018. After starting at an hourly wage of \$15.97, all General Laborers starting in 2018 are now earning an hourly wage in 2022 more than 70% higher than five-years prior (\$27.52).

Figure 16: Average Wage Progression for All General Laborer 2018 Starts

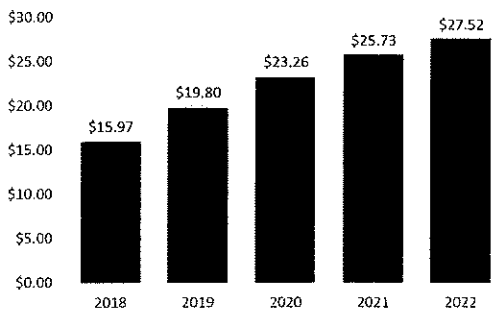


Figure 15 : Career Pathways for Common Entry-Level Jobs, General Laborer I, 2018

Year	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage
2022	Yard Rigger III	\$27.37	Maintenance Mechanic III	\$27.37	Front Line Supervisor	\$34.81	Outside Machinist III	\$27.91	Shipfitter III	\$27.59	Material Handler III	\$27.07
	↑		↑		↑		↑		↑		↑	
2021	Yard Rigger II	\$23.82	Maintenance Mechanic III	\$23.82	Front Line Supervisor	\$32.69	Outside Machinist III	\$27.10	Shipfitter III	\$24.85	Material Handlers III	\$26.28
	↑		↑		↑		↑		↑		↑	
2020	Yard Rigger II	\$19.55	Maintenance Mechanic III	\$21.93	Electrician III	\$21.93	Outside Machinist III	\$20.73	Shipfitter III	\$22.93	Material Handlers III	\$20.73
	↑		↑		↑		↑		↑		↑	
2019	General Laborer II	\$18.36	Maintenance Mechanic II	\$18.36	Electrician II	\$18.36	Outside Machinist II	\$18.36	Shipfitter II	\$19.55	Material Handlers II	\$17.15
	↑		↑		↑		↑		↑		↑	
2018	General Laborer I	\$15.97	General Laborer I	\$15.97	General Laborer I	\$15.97	General Laborer I	\$15.97	General Laborer I	\$15.97	General Laborer I	\$15.97
												Entry-Level
	Example A		Example B		Example C		Example D		Example E		Example F	

Career Pathway Examples

Note: Examples of actual employee career-paths including job title and hourly pay rate effective January 1 each year.

# 5. Human Capital Impact Career Pathways

## Entry-level Preservation Tech I

Preservation Tech I job classifications were one of the most common entry-level jobs in 2016 at BIW. Figure 17 shows the career pathways, jobs and wages of actual employees starting as an entry-level Preservation Techs in 2016. After starting at an hourly wage of \$15.97, all Preservation Tech I's starting in 2016 are now earning an hourly wage in 2022 almost 80% higher than seven-years prior (\$28.65) working in a variety of different occupations.

Figure 18: Average Wage Progression for All Preservation Tech I 2016 Starts

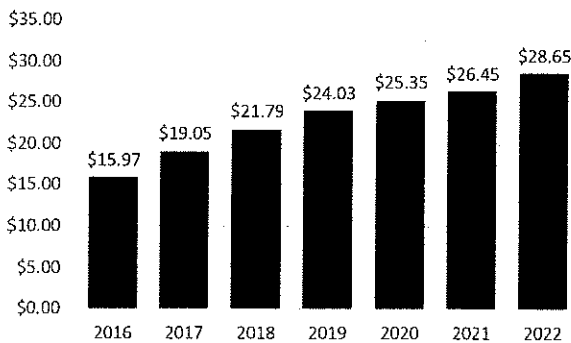


Figure 17 : Career Pathways for Common Entry-Level Jobs, Preservation Tech I, 2016

Year	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Current	
2022	Front Line Supervisor	\$34.62	Insulator III	\$27.07	Preservation Tech III	\$27.07	Material Handler III	\$25.80	Front Line Supervisor	\$34.62	↑	
	↑		↑		↑		↑		↑			
2021	Preservation Tech III	\$26.28	Insulator III	\$26.28	Preservation Tech III	\$26.28	Material Handlers III	\$22.59	Preservation Tech III	\$26.28		
	↑		↑		↑		↑		↑			
2020	Preservation Tech III	\$24.32	Insulator III	\$25.51	Preservation Tech III	\$25.51	Preservation Tech III	\$24.32	Preservation Tech III	\$25.51		
	↑		↑		↑		↑		↑			
2019	Preservation Tech III	\$23.13	Insulator III	\$23.13	Preservation Tech III	\$23.13	Preservation Tech III	\$21.93	Preservation Tech III	\$25.51		
	↑		↑		↑		↑		↑			
2018	Preservation Tech III	\$20.73	Insulator III	\$21.93	Preservation Tech III	\$20.73	Preservation Tech III	\$20.73	Preservation Tech III	\$23.13		
	↑		↑		↑		↑		↑			
2017	Preservation Tech II	\$18.36	Insulator II	\$18.36	Preservation Tech II	\$18.36	Preservation Tech II	\$18.36	Preservation Tech II	\$19.55		
	↑		↑		↑		↑		↑			
2016	Preservation Tech I	\$15.97	Preservation Tech I	\$15.97	Preservation Tech I	\$15.97	Preservation Tech I	\$15.97	Preservation Tech I	\$15.97	Entry-Level	
	Example A		Example B		Example C		Example D		Example E			

Note: Examples of actual employee career-paths including job title and hourly pay rate effective January 1 each year.

# 5. Human Capital Impact Career Pathways

## Entry-level Electrician I

Electrician I job classifications were also one of the most common entry-level jobs in 2016 at BIW. Figure 19 shows the career pathways, jobs and wages of actual employees starting as an entry-level Electricians in 2016. After starting at an hourly wage of \$15.97, all Electrician I's starting in 2016 are now earning an hourly wage in 2022 80% higher than seven-years prior (\$28.73) working in a variety of different occupations, including supervisory roles.

Figure 20: Average Wage Progression for All Electrician I 2016 Starts

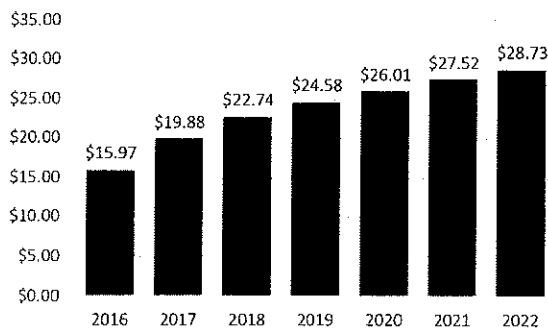


Figure 19: Career Pathways for Common Entry-Level Jobs, Electrician I, 2016

Year	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage	Job Title	Hourly Wage
2022	Pipefitter III	\$28.93	Shipfitter III	\$28.43	Front Line Supervisor	\$35.43	Front Line Supervisor	\$34.62	Front Line Supervisor	\$34.86
	↑		↑		↑		↑		↑	
2021	Pipefitter III	\$25.05	Shipfitter III	\$27.6	Front Line Supervisor	\$33.89	Material Handlers III	\$26.28	Front Line Supervisor	\$33.65
	↑		↑		↑		↑		↑	
2020	Pipefitter III	\$21.93	Shipfitter III	\$26.01	Front Line Supervisor	\$32.69	Material Handlers III	\$25.51	Shipfitter III	\$26.01
	↑		↑		↑		↑		↑	
2019	Pipefitter III	\$20.73	Shipfitter III	\$23.13	Electrician III	\$23.13	Material Handlers III	\$25.51	Shipfitter III	\$23.13
	↑		↑		↑		↑		↑	
2018	Electrician III	\$20.73	Electrician III	\$23.13	Electrician III	\$21.93	Material Handlers III	\$25.51	Shipfitter III	\$20.73
	↑		↑		↑		↑		↑	
2017	Electrician II	\$18.36	Electrician II	\$19.55	Electrician II	\$18.36	Insulator III	\$23.13	Preservation Tech II	\$18.36
	↑		↑		↑		↑		↑	
2016	Electrician I	\$15.97	Electrician I	\$15.97	Electrician I	\$15.97	Electrician I	\$15.97	Electrician I	\$15.97
										Entry-Level
	Example A		Example B		Example C		Example D		Example E	

Note: Examples of actual employee career-paths including job title and hourly pay rate effective January 1 each year.



## 5. Human Capital Impact

### Key Insights:

1. BIW has invested more than \$6 million in recruitment between 2011 and 2021, almost \$3 million in 2021 alone, and \$92 million in workforce training over the last ten years, half of which was invested since 2019.
2. BIW has hired 4,600 new workers over the period 2019 and 2021, replacing a substantial share of its workforce. In 2021, more than 690 new hires were recruited from outside of Maine who moved to the state to live and work.
3. Wages paid to BIW workers are highly competitive with the statewide average. Since 2011, the average wage of BIW employee was an average of 41% higher than the statewide average wage.
4. There are numerous and diverse career opportunities at BIW that provide significant wage progression from entry-level positions.

## 6. Technical Appendices

### A.1. Research Methods

# A1. Research Methods

This section provides an overview of the estimation method and a summary of the modelling assumptions, data, and inputs used in the analysis. It also provides definitions of model output terms.

## A1. Research Methods

### Definitions of Modelling Outputs

**Employment** comprises estimates of the number of jobs, full-time plus part-time, by place of work for all industries. Full-time and part-time jobs are counted at equal weight. Employees, sole proprietors, and active partners are included, but unpaid family workers and volunteers are not included.

**Direct Employment** includes the impacts that result from initial rounds of spending on operations and capital expenditures by BiW.

**Indirect Employment** captures the jobs supported at vendors or supplier businesses, including service providing, that are as a result of initial spending by BiW during the course of operations, such as from the purchase of construction materials or services. These impacts are also referred to as supply chain or intermediate demand impacts.

**Induced Employment** captures the jobs resulting from spending in the local economy as employees of BiW and their suppliers spend a portion of their paychecks on food, rent, cell phones, and other goods and services. These impacts are also referred to as local consumption demand.

**Wages and Salaries** are the monetary remuneration of employees, including the compensation of corporate officers; commissions, tips, and bonuses.

**Value-Add**, analogous to Gross Domestic Product (GDP), is a standard macroeconomic measure used as an indicator of the size of an economy or in this case contribution to the economy. Value-add measures the market value of all final goods and services produced by labor and property in the economy.

**Output** is the amount of production, including all intermediate goods purchased as well as value added (compensation and profit). Output can also be thought of as sales or supply.

**Gross Domestic Income (GDI)** is an alternative measure of the economy, or in this case an industry firm. GDI typically measures total income received by a sector in the economy, less production costs and includes all wages, profits, and taxes, less subsidies. GDI is conceptually equivalent to GDP, which measures economic activity from the measuring of all final expenditures (market value of all goods and services produced).

## A1. Research Methods

### Overview of Estimation Methods

#### Economic Impact Analysis

Economic impact is defined as the gross change to an economy as a result of an organization, in this case BIW, or an event, policy, or other economic shock/change to the economy. The economic impact of BIW consists of spending by BIW on payroll wages and benefits and from operational spending on vendor services and supplies (direct impact), as well as the economic activity that results from recurring rounds of spending from Maine-based vendors or suppliers (indirect impact) and employee earnings (induced impact). Much like BIW operations, vendor businesses employ workers and spend money on vendors to conduct their operations. Likewise, workers from these businesses spend their wages in the local economy on things like food, housing, transportation, healthcare, and entertainment which all catalyze similar spending cycles. Also attributable to BIW is the spending that accrues from the operations of SUPSHIP-Bath, which are included in the analysis and treated as intermediate demand.

Direct operational and capital expenditures, as well as total payroll and employee year-end headcounts are provided by BIW (data is unaudited), which compose the direct impact of BIW. The economic impacts of BIW are estimated using economic models developed by the Maine Center for Business and Economic Research (MCBER) at the University of Southern Maine (USM) using multipliers of the Maine economy provided by Economic Modelling Specialists Inc (EMSI) in 2021. The EMSI multipliers are based upon the Regional Input-Output Modelling System (RIMS-II) developed by the US Bureau of Economic Analysis (BEA). EMSI adapts the multipliers to industry definitions based upon the North American Industrial Classification System (NAICS). Multipliers are provided for employment, earnings, sales, and value-add and are assumed to be relatively representative of industry and consumer spending patterns over the short-term.

Economic impacts are simulated based on reported wages and salaries and employment headcounts provided by BIW as of January 1 of each year. Sales, output, and value-add are imputed using the model and employment and earnings data. BIW also provided measures of BIW's gross domestic income (GDI), which is used to calculate BIW's impact on the state GDP. This data is reported as shares to protect confidentiality.

## A1. Research Methods

### Overview of Estimation Methods

#### Assumptions and Source Data

- The analysis uses BEA RIMS II Type II multipliers. The analysis assumes BIW products are of “export” nature and household spending is assumed to be spent in the region.
- The geographic region of focus is the state.
- The analysis assumes that BIW vendor spending patterns are represented in the economic model. The analysis does not incorporate vendor specific industry spending data, which was not available. For the purposes of this analysis, vendor spending patterns are assumed static across years. However, the author recognizes that BIW has increased local vendor spending amounts over the course of the period analyzed. Therefore, the multiplicative impacts (indirect as well as induced) shown in this analysis are likely conservative, especially in more recent years where vendor spending has increased substantially.
- Data provided by the sponsor include earnings (salaries and wages, as well as average health care costs to employer), employee beginning of year headcount, vendor expenditures (detail includes location, amount, and year), and other descriptive data.
- The author’s also enlist publicly available secondary data form the US Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), and the Census.

#### State and Local Tax Estimates

The most recent tax incidence or effective tax rates for personal income, sales and excise, and property taxes Maine are applied to wages and salaries to account for an approximation of only wages or income associated with BIW impacts. An effective tax rate of 8% is used and determined after reviewing recent effective tax rate reported by Maine Revenue Services. Eight percent (8%) is slightly lower than effective tax rates reported for 2021 and earlier and is therefore somewhat conservative. Actual tax spending by households can vary across income levels and other factors.

#### Local Property Tax Impacts

Property tax payments to the City of Bath were retrieve from the City of Bath Assessor’s Office.

#### Other Fiscal Impact Considerations

The scope of the fiscal impacts included in this analysis are limited to those discussed above for years included in the analysis. The analysis does not include corporate income tax payments or related credits, other state and local fees or incentives, or escalation of property tax payments anticipated in future years.

-END-