

*STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS*

**Governor Gina M. Raimondo**



# **Economic Development Tax Incentives Evaluation Act:**

*Evaluation of*

*Research & Development Tax Incentive Programs*

*(including “New Research & Development Facilities Deduction”,*

*“Research & Development Property Credit” and*

*“Research & Development Expense Credit”)*

**(R.I. Gen. Laws §§ 44-32-1, 44-32-2, & 44-32-3)**

*Tax Years 2013 through 2015*

**Office of Revenue Analysis**

**June 29, 2018**

# Table of Contents

Foreword.....	3
Part I: Introduction.....	4
1. Description of the Incentive.....	5
2. Statutory and Programmatic Goals and Intent of the Tax Incentive.....	6
Part II: Background and Benchmarking.....	7
1. Federal Research Credit and Deduction Programs.....	7
2. Comparison of State Research and Development Credits.....	9
3. Research and Development Activity in Rhode Island, Comparison States, and Nationwide.....	13
Part III: Report Data Description.....	17
1. Number of Taxpayers Granted Tax Credit.....	17
2. Value of Tax Incentive Granted by NAICS Code.....	18
3. Cost of Administration.....	19
4. Number of Aggregate Jobs and Direct Taxes Paid by Recipient’s Employees.....	19
5. Direct Taxes Paid by Recipients.....	20
6. Measuring the Extent to which Benefits Remained in the State.....	21
7. Additional Data to Support Evaluation of Statutory and Programmatic Goals and Intent of the Tax Incentive.....	21
Part IV: Evaluation of the Economic Impact of the Tax Incentives.....	25
1. Assessment and Five-Year Projection of Revenue.....	25
2. “Breakeven” Cost-Benefit Analysis.....	25
• Introduction to “Breakeven” Cost-Benefit Analysis Methodology.....	25
• Modeling Costs.....	26
• Modeling Benefits.....	27
• The “Breakeven” Approach.....	29
Part V: Discussion and Recommendations.....	36
1. Statement by the CEO of the Commerce Corporation.....	36
2. Discussion of Data Concerns.....	36
• Difficulty Accessing Taxation Data.....	38
3. ORA Recommendations.....	39
4. ORA Conclusion and Overall Recommendation.....	49
Appendix.....	50
Exhibit A: Rhode Island Form 7695E.....	50

## **Foreword**

The *Economic Development Tax Incentives Evaluation Act: Tax Years 2013 through 2015* was prepared at the request of Paul L. Dion, Ph.D., Chief of the Office of Revenue Analysis in accordance with Rhode Island General Laws § 44-48.2-4. This report was prepared by the Office of Revenue Analysis team which includes Bethany Scanlon, Senior Economic and Policy Analyst, Joseph Codega Jr., Data Analyst III, and Madiha Zaffou, Principal Economic and Policy Analyst under the direction of Mr. Dion.

## **Part I: Introduction**

Pursuant to Rhode Island General Laws § 44-48.2-4, titled *Rhode Island Economic Development Tax Incentives Evaluation Act of 2013*, the Chief of the Office of Revenue Analysis (ORA) is required to produce, in consultation with the Director of the Rhode Island Commerce Corporation (CommerceRI), the Director of the Office of Management and Budget, and the Director of the Department of Labor and Training, a report that contains analyses of economic development tax incentives as listed in R.I. Gen. Laws § 44-48.2-3(1). According to R.I. Gen. Laws § 44-48.2-4(1), the report “[s]hall be completed at least once between July 1, 2014, and June 30, 2017, and no less than once every three (3) years thereafter”.

The additional analysis as required by R.I. Gen. Laws § 44-48.2-4(1) shall include, but not be limited to the following items as indicated in R.I. Gen. Laws § 44-48.2-5(a):

- 1) A baseline assessment of the tax incentive, including, if applicable, the number of aggregate jobs associated with the taxpayers receiving such tax incentive and the aggregate annual revenue that such taxpayers generate for the state through the direct taxes applied to them and through taxes applied to their employees;
- 2) The statutory and programmatic goals and intent of the tax incentive, if said goals and intentions are included in the incentive's enabling statute or legislation;
- 3) The number of taxpayers granted the tax incentive during the previous twelve-month (12) period;
- 4) The value of the tax incentive granted, and ultimately claimed, listed by the North American Industrial Classification System (NAICS) Code associated with the taxpayers receiving such benefit, if such NAICS Code is available;
- 5) An assessment and five-year (5) projection of the potential impact on the state's revenue stream from carry forwards allowed under such tax incentive;
- 6) An estimate of the economic impact of the tax incentive including, but not limited to:
  - i. A cost-benefit comparison of the revenue forgone by allowing the tax incentive compared to tax revenue generated by the taxpayer receiving the credit, including direct taxes applied to them and taxes applied to their employees;
  - ii. An estimate of the number of jobs that were the direct result of the incentive; and
  - iii. A statement by the Chief Executive Officer of the Commerce Corporation, as to whether, in his or her judgment, the statutory and programmatic goals of the tax benefit are being met, with obstacles to such goals identified, if possible;
- 7) The estimated cost to the state to administer the tax incentive if such information is available;
- 8) An estimate of the extent to which benefits of the tax incentive remained in state or flowed outside the state, if such information is available;
- 9) In the case of economic development tax incentives where measuring the economic impact is significantly limited due to data constraints, whether any changes in statute would facilitate data collection in a way that would allow for better analysis;
- 10) Whether the effectiveness of the tax incentive could be determined more definitively if the General Assembly were to clarify or modify the tax incentive's goals and intended purpose;

- 11) A recommendation as to whether the tax incentive should be continued, modified, or terminated; the basis for such recommendation; and the expected impact of such recommendation on the state's economy;
- 12) The methodology and assumptions used in carrying out the assessments, projections and analyses required pursuant to subdivisions (1) through (8) of this section.

The current report is one part of a series of reports for each one of the tax credits to be analyzed according to R.I. Gen. Laws § 44-48.2-3(1). This report concerns the credits contained within R.I. Gen. Laws Chapter 44-32 entitled “Elective Deduction for Research and Development Facilities” containing sections 44-32-1 (“Elective Deduction against Allocated Entire Net Income”), 44-32-2 (“Credit for Research and Development Property Acquired, Constructed, or Reconstructed after July 1, 1994”), and 44-32-3 (“Credit for Qualified Research Expenses”). This report measures the economic impact associated with these Research and Development related tax incentives during tax years 2013 through 2015. This analysis is performed at the micro level using employment and wages information provided by the Division of Taxation and the Rhode Island Department of Labor and Training. The report is divided into five sections. Section I provides a detailed description of the tax incentives and related statutory programmatic goals and intents. Section II provides background and benchmarking analysis related to these tax incentive programs. Section III presents a description of the data provided and used in the analysis by ORA. Section IV assesses the economic impact generated under these Research and Development related tax incentives using a “breakeven” cost-benefit analysis. Section V discusses relevant policy recommendations that could help in the decision process as to whether these programs should be continued, modified, or terminated.

### **1. Description of the Incentive**

R.I. Gen. Laws Chapter 44-32, entitled “Elective Deduction for Research and Development Facilities” establishes three tax incentive programs related to taxpayers engaged in research and development.

R.I. Gen. Laws § 44-32-1, entitled “Elective deduction against allocated entire net income”, establishes the program referred to in this report as the “New Research and Development Facilities Deduction.” This section provides for a deduction for all expenditures paid or incurred for the construction, reconstruction, erection, or acquisition of any new tangible property that is depreciable under Chapter 26 of the United States Code (26 U.S.C.) § 167, was acquired by purchase as defined in 26 U.S.C. § 179(d), is located in the state, and is used in the taxpayer’s trade or business for purposes of research and development in the experimental or laboratory sense. The deduction shall be allowed against the portion of its entire net income allocated to Rhode Island during the taxable year. The deduction can be taken against the business corporation tax imposed by R.I. Gen. Laws Chapter 44-11 and the personal income tax imposed by R.I. Gen. Laws Chapter 44-30 and is in lieu of depreciation or the Investment Tax Credit (R.I. Gen. Laws Chapter 44-31). The deduction is not refundable and has no provision for carryforward.

R.I. Gen. Laws § 44-32-2, entitled “Credit for research and development property acquired, constructed, or reconstructed after July 1, 1994”, establishes the program referred to in this report as the “Research and Development Property Credit.” Under this section, a taxpayer is allowed a

credit against the business corporation tax imposed under R.I. Gen. Laws Chapter 44-11 and the taxation of insurance companies imposed by R.I. Gen. Laws Chapter 44-17 for tangible personal property and other tangible property, including buildings and structural components of buildings that is acquired, constructed or reconstructed, or erected after July 1, 1994. The property must be depreciable or a recovery property as determined under 26 U.S.C. § 167 and § 168, have a useful life of at least three years, have a situs in the state, and used principally for purposes of research and development in the experimental or laboratory sense. The amount of credit is equal to 10 percent of the cost or other basis of the property for federal income tax purposes. The credit allowed cannot reduce the tax due for corporations to less than the minimum tax as set in R.I. Gen. Laws § 44-11-2(e). Unused amounts of the credit earned in a taxable year may be carried forward to not more than seven succeeding tax years.

R.I. Gen. Laws § 44-32-3, entitled “Credit for qualified research expenses”, establishes the program referred to in this report as the “Research and Development Expense Credit.” Under this section, a taxpayer is allowed a credit against the business corporation tax imposed under R.I. Gen. Laws Chapter 44-11 and the taxation of insurance companies imposed by R.I. Gen. Laws Chapter 44-17 for the excess, if any, of the qualified research expenses for the taxable year over the base period research expenses, where qualified and base period research expenses are as defined in 26 U.S.C. § 41. The amount of credit is equal to 22.5 percent of expenses for the first \$25,000 worth of credit taken and 16.9 percent of expenses for any amount of applicable credit above \$25,000. The credit allowed cannot reduce the tax due for any taxable year by more than 50 percent of the tax liability that would be payable and for corporations to no less than the minimum tax as set in R.I. Gen. Laws § 44-11-2(e). Unused amounts of the credit earned in a taxable year may be carried forward to not more than seven succeeding tax years.

As of January 1, 2011, the Research and Development Property Credit and Research and Development Expense Credit are no longer allowed against the Rhode Island personal income tax imposed by R.I. Gen. Laws Chapter 44-30.

## **2. Statutory and Programmatic Goals and Intent of the Tax Incentive**

This information is unavailable. Statutory and programmatic goals and the intent of the New Research and Development Facilities Deduction, Research and Development Property Credit, and Research and Development Expense Credit are not defined in the enabling statute.

## **Part II: Background and Benchmarking**

This background and benchmarking section presents information useful for understanding how Rhode Island research and development (R&D) tax incentive programs function and the economic environment in which they operate. Because state-level research and development tax incentives, including those offered by Rhode Island, are constructed in terms of federal rules and definitions, first this section presents information on the federal research tax credit and deduction programs. Next, this section compares Rhode Island research and development tax incentives with similar programs offered by selected comparison states. Finally, this section highlights levels and trends of research and development activity occurring in Rhode Island, selected comparison states, and nationwide.

To the extent that the availability of research and development-related tax incentives influences a multi-state firm's decision to conduct business activity in Rhode Island *vs.* a competitive out-of-state location, it is important to consider the economic conditions and tax incentive features of the Rhode Island R&D tax incentives to that of other states. For this purpose, ORA selected four comparison states: Massachusetts and Connecticut, Rhode Island's two neighboring states, in addition to Washington and California, two national leaders in R&D. ORA identified these leading states as those with the highest concentration of R&D activity after ranking all fifty states by their ratios of R&D spending to state gross domestic product.

Throughout the benchmarking and background section, data are presented for Rhode Island, comparison states, and the United States whenever possible. ORA acknowledges that it may be useful to look beyond these four comparison states. This comparison is simply intended to be a concise starting point for future discussions.

Part III of this report reveals that a majority of Rhode Island research and development incentive usage was claimed by manufacturing industry recipients. For additional information concerning levels and trends of manufacturing industries economic activity in Rhode Island, selected comparison states, and nationwide, please refer to the "Part II: Benchmarking and Background" of the previously published *Tax Incentives Evaluation Act Report* on "Investment Tax Credits".<sup>1</sup>

### **1. Federal Research Credit and Deduction Programs**

Federal law per 26 U.S.C. §§ 41 and 174 provides relief to taxpayers engaged in R&D by establishing a tax credit and deduction to reduce the tax liability of businesses based on their level of qualified research expenditures. The Federal Credit for Increasing Research Activities ("Federal Research Credit) created by 26 U.S.C. § 41 is analogous to Rhode Island's R&D Property and Expense Credit programs. The Federal Research and Experimental Expenditure Deduction ("Federal Research Deduction") created by 26 U.S.C. § 174. allows for the immediate expensing of certain property investments related to R&D that would otherwise be subject to depreciation. The Federal Research Deduction is analogous to the Rhode Island New R&D Facilities Deduction program.

---

<sup>1</sup> Available: <http://www.dor.ri.gov/Reports/>

Qualified research expenditures may consist of in-house research expenses (*e.g.*, wages paid to employees engaged in R&D or purchases of equipment related to R&D) as well as purchased research services (*e.g.*, professional or technical services purchased from an outside firm, contractor, or research consortium). Most, but not all, qualified research expenses can be included in the credit calculation formula at 100 percent.

26 U.S.C. § 41(d) and Chapter 26 of the Code of Federal Regulations (26 C.F.R.) § 1.41-4 establish a four-part test to determine if an expense shall be considered a qualified research expenditure:<sup>2</sup>

**“The Section 174 Test”** The expense must be related to the elimination of uncertainty concerning the development or improvement of a product. The qualifying activity must represent a research cost in the experimental or laboratory sense.

**“The Discovering Technological Information Test”** The process of experimentation used to discover information must fundamentally rely on principles of the physical or biological sciences, engineering, or computer science. The issuance of a patent as the result of the research activity is sufficient by itself, but not necessary, to satisfy this test.

**“The Business Component Test”** The taxpayer must intend to apply the new information being discovered to develop a new or improved product, process, computer software, formula, or invention. Research must be intended to improve function, performance, reliability, or quality of a business component and is not qualified if it relates to style, taste, cosmetic factors, or seasonal design. It is not acceptable for a taxpayer to group all research into a single broad category without identifying the specific business component to which the research activity relates.

**“The Process of Experimentation Test”** Qualified research must reflect the three core elements of a process of experimentation including:

- 1) Identify an aspect of uncertainty related to a product or business component
- 2) Identify one or more alternatives intended to eliminate that uncertainty
- 3) Identify a process of evaluating the alternatives.

Expenditures qualifying as deductions under 26 U.S.C. § 174. must satisfy only the “Section 174” test above. Expenditures qualifying for tax credits under 26 U.S.C. § 41. must satisfy all four tests.

The Rhode Island R&D Property and Expense Credit programs generally conform with these federal definitions. The only additional stipulation is that Rhode Island deduction or credit-eligible expenditures must have situs or take place in Rhode Island.

---

<sup>2</sup> Four-part test description is paraphrased and quoted from “Audit Techniques Guide: Credit for Increasing Research Activities (i.e., Research Credit) IRC § 41 – Qualified Research Activities” Internal Revenue Service, June 2005, Available: <https://www.irs.gov/businesses/audit-techniques-guide-credit-for-increasing-research-activities-i-e-research-tax-credit-irc-41-qualified-research-activities>



The Federal Research Credit amount is calculated based on the amount of qualified research expenditures utilizing one of the following two formulas at the election of the taxpayer:<sup>3</sup>

**The Regular Research Credit (RRC).** This credit calculation methodology awards a tax credit equal to 20 percent of a taxpayer's qualified research expenditures in excess of the base amount. The base amount is equal to the percentage of a firm's gross receipts devoted to research expenditures during a historical base period<sup>4</sup> multiplied by the average annual gross receipts of the most recent four years.

**The Alternative Simplified Credit (ASC).** This simplified credit calculation is offered as an alternative to the RRC. This formula awards a tax credit equal to 14 percent of current year qualified research expenditures above the base amount, where the base amount is equal to 50 percent of the average annual amount of qualified research expenditures of the previous three tax years. If the taxpayer had zero qualified research expenditures in any of the three previous years, then the taxpayer may claim credit for 6 percent of the total qualified research expenditures for the current year.

By granting credit for only those expenditures above some base level, both formulas are intended to reward taxpayers only for incremental research activity, rather than subsidize research activity that may have happened anyway. The Rhode Island R&D Expense Credit is calculated based on the federally-defined base period amount and current year qualified research expenditures amount according to whichever credit calculation method was elected by the taxpayer when filing their federal return.

## **2. Comparison of State Research and Development Credits**

The following table compares the Rhode Island Research and Development Expense Credit to the federal Research Credit.

---

<sup>3</sup> This report intends to only present a general overview of the Federal Research Credit calculation procedure. The RRC calculation involves a detailed consideration of taxpayer characteristics and filing choices. For full calculation please refer to IRS Form 6765 and accompanying instructions available at: <https://www.irs.gov/pub/irs-pdf/f6765.pdf> and <https://www.irs.gov/pub/irs-pdf/i6765.pdf>

<sup>4</sup> The historical base period is typically a four-year period early in the existence of the firm. The exact years and assumptions used in this determination vary based on the taxpayer characteristics but is not allowed to exceed 16 percent. A detailed discussion of this calculation is beyond the scope of this report.

## Comparison of the RI R&D Expense Credit to the Federal Research Credit

	<b>Federal</b>	<b>RI</b>
<b>Tax Credit Rate</b>	Statutory rate of 20% or 14% depending on credit calculation method*	22.5% for the first \$25,000 and 16.9% on the excess
<b>Eligibility of Business Type</b>	C-Corporation, S-Corp, Partnership, S-Partnership subject to corporate or personal income tax	C-Corporations subject to business corporation tax or insurance company gross premiums tax
<b>Carryforward Period</b>	20 Years	7 Years
<b>Carryback Period</b>	1 Year	None
<b>Refundability</b>	Generally non-refundable; total of Federal Research Credit and other business tax credits capped at 25% of liability for certain taxpayers; limited refundability available to qualifying start-ups for which credit is allowed to offset payroll taxes	Non-refundable; capped at 50% of liability; shall not reduce tax below minimum tax

**Source:** [www.irs.gov/businesses/audit-techniques-guide-credit-for-increasing-research-activities-i-e-research-tax-credit-research-credit-issues](http://www.irs.gov/businesses/audit-techniques-guide-credit-for-increasing-research-activities-i-e-research-tax-credit-research-credit-issues); and R.I. Gen. Law § 44-32-3

\* According to 26 U.S.C. § 280C, taxpayers claiming both the Federal Research Deduction and Credit simultaneously shall reduce the credit claimed by the amount of their deduction or elect to utilize a reduced credit rate equal to the full credit rate reduced by the statutory corporate tax rate (*i.e.*, During the period of analysis, the federal corporate income tax rate was 35%, therefore the credit rates for taxpayers electing the reduced rate calculation were 13% or 9.1% for RRC and ASC, respectively). A 2016 U.S. Treasury Office of Tax Analysis Report indicates that 90 percent of taxpayers claiming both the Federal Research Deduction and Credit elect to utilize the reduced rate.<sup>5</sup>

As shown in the table above, Rhode Island’s R&D Expense Credit is distinguished from the Federal Research Credit by its tiered credit rate. The Rhode Island credit provides a higher credit rate of 22.5 percent for the first \$111,111 of qualified research expenses and a reduced credit rate of 16.9 percent for amounts greater than \$111,111. This feature provides greater marginal benefits for taxpayers with smaller amounts of R&D expenditures. The Rhode Island credit has a shorter carryforward period than the federal credit and no carryback period, unlike the federal credit. Both the federal and state credits are non-refundable, which limits the value of the credit to only those taxpayers who anticipate having a tax liability within the carryforward period.

R&D tax incentives are common across the United States. The *2018 State Business Tax Climate Index* published by the Tax Foundation indicates that 37 out of 51 states plus Washington D.C. offered some type of R&D credit or deduction against the state corporate income or gross receipts tax.<sup>6</sup> ORA found that all four selected comparison states offered some type of R&D tax credit. The following table provides a comparison of the basic features of Rhode Island’s R&D Expense Credit with similar credits in the comparison states of California, Connecticut, Massachusetts, and Washington:

<sup>5</sup> Available: <https://www.treasury.gov/resource-center/tax-policy/tax-analysis/Documents/RE-Credit.pdf>

<sup>6</sup> *2018 State Business Tax Climate Index*, Tax Foundation. Refer to Table 9, Page 60. Available: <https://files.taxfoundation.org/20171016171625/SBTCL 2018.pdf>

### **Research & Development Tax Credits in Rhode Island and Selected Comparison States**

	<b>RI</b>	<b>MA</b>	<b>CT</b>	<b>WA*</b>	<b>CA</b>
<b><i>Credit Name</i></b>	R&D Expense Credit	R&D Tax Credit	Research & Experimental (Incremental) Expenditures Credit	High Technology R&D Credit	California Research Credit
<b><i>Statutory Reference</i></b>	R.I. Gen. Laws § 44-32-3	Mass. Gen. Laws ch.63, § 38M	Conn. Gen. Stat. § 12-217j	RCW 82.04.4452	CA R&TC 17052.12 and 23609
<b><i>Credit Rate</i></b>	22.5% for the first \$25,000 and 16.9% on any excess	10% rate for qualified research expenses; 15% for basic research payments	20%	1.5%	15% on qualified research expenses; 24% for basic research payments
<b><i>Qualifying R&amp;D Expenses</i></b>	All in-state qualified research expenses above the federal base amount	All in-state qualified research expenses above the federal base amount	All in-state qualified research expenses above the federal base amount	100% of in-house R&D and 80% of compensation received to perform R&D for others above a base amount equal to 0.92% of taxable income. Only applicable to certain “high technology” activities.	15% of the excess of current year research expenditures over a computed base amount.
<b><i>Refundability &amp; Limitations</i></b>	Non-refundable; credit cannot reduce tax liability by more than 50% or the minimum tax.	Non-refundable; credit cannot reduce liability below the minimum tax.	Limited refundability; taxpayers may receive a refund equal to 65% of credit amount up to \$1,500,000 for qualified small businesses only.	Non-refundable; credit capped at \$2.0 million or the amount of the tax liability in the current year.	Non-refundable, but may reduce regular tax below the CA “tentative minimum tax.”
<b><i>Carryforward</i></b>	Up to 7 years	Up to 15 years	Up to 15 years	The excess may not be carried over to the next year.	Unlimited
<b><i>Source</i></b>	<a href="http://webserver.ri.in.state.ri.us/Statutes/TITLE44/44-32/44-32-3.HTM">http://webserver.ri.in.state.ri.us/Statutes/TITLE44/44-32/44-32-3.HTM</a>	<a href="http://www.mass.gov/hed/economic/eohed/bd/ec-on-development/r-and-d-tax-credit.html">http://www.mass.gov/hed/economic/eohed/bd/ec-on-development/r-and-d-tax-credit.html</a>	<a href="http://www.ct.gov/drs/cwp/view.asp?a=3807&amp;q=522224">http://www.ct.gov/drs/cwp/view.asp?a=3807&amp;q=522224</a>	<a href="http://leg.wa.gov/JLARC/AuditAndStudyReports/Documents/13-1.pdf#page=101">http://leg.wa.gov/JLARC/AuditAndStudyReports/Documents/13-1.pdf#page=101</a>	<a href="https://www.ftb.ca.gov/businesses/credits/rd/">https://www.ftb.ca.gov/businesses/credits/rd/</a>

**Note:** Credit characteristics reflects current policy as identified by ORA in April 2018. This table presents a single comparison credit program for each comparison state determined by ORA to be most similar to the Rhode Island R&D Expense Credit.

\* RCW 82.04.4452 expired January 1, 2015.

The three states of Massachusetts, Connecticut, and California have tax credit programs which are most similar to the Rhode Island R&D Expense Credit. These states award credit only for the in-state portion of incremental research expenditures as defined by 26 U.S.C. § 41. This generally means that taxpayers receive credit for only the portion of qualified research expenses that exceed the federal “base amount” as defined by either the RRC or ASC calculation methodology elected by the taxpayer when filing their federal corporate income taxes.<sup>7</sup> Additionally, Rhode Island’s credit rate is generally comparable to these three comparison states. Rhode Island’s tiered rate structure at 16.9 percent / 22.5 percent overlaps the 20 percent credit rate in Connecticut and the 15 percent / 24 percent rate structure in California. Rhode Island’s rate is higher than the 10 percent / 15 percent rate structure offered by Massachusetts.

The Washington State High Technology R&D Tax Credit is not comparable to the Rhode Island R&D Expense Credit. The Washington State tax credit is applicable to the state’s “Business & Occupation Tax,” which is a tax on gross receipts. The Rhode Island credit is applicable to the business corporation tax, which is a tax on apportioned net income. Furthermore, instead of adhering to the federal definition of incremental R&D expenses, Washington State credits taxpayers for all research expenses in excess of 0.92 percent of income.

Four out of five states offered non-refundable tax credit, while Connecticut was the only state that offered limited refundability to qualified small businesses. The Rhode Island credit is not only nonrefundable, but the credit is capped at 50 percent of tax liability. Some evaluators perceive the lack of refundability of R&D tax credits as reducing their effectiveness. For example, a 2012 evaluation of the Washington State High Technology R&D Tax Credit conducted by the Washington State Joint Legislative Audit & Review Committee notes that 30 percent credit recipients utilized the full extent of the allowable credit.<sup>8</sup> Taxpayers having claimed the maximum credit amount allowed by their tax liability have a reduced marginal incentive to increase R&D expenditures. These taxpayers will receive zero additional tax savings in the current year even if they were to increase R&D expenses. Taxpayers may receive a future benefit if they anticipate being able to carryforward the credit and apply it to their liability in some future year. ORA found that 77 percent of Rhode Island R&D Property and Expense Credit recipients were impacted by credit cap and non-refundability provisions.<sup>9</sup>

A unique feature of the Rhode Island R&D Expense Credit is the tiered credit rate structure. The Rhode Island credit is structured such that a higher credit rate of 22.5 percent is applied to the first \$111,111 of qualified research expenses (or \$25,000 of credit). Firms may then claim a credit rate of 16.9 percent for expenses in excess of this amount. The tiered credit rate provides greater marginal incentive to smaller firms. However, further empirical analysis is necessary to evaluate

---

<sup>7</sup> These states generally make use of federal definitions and calculation methodologies, with certain adjustments and exceptions in each state. For example, the California credit calculation method supports the RRC, but not the ASC credit calculation methodology.

<sup>8</sup> State of Washington Joint Legislative Audit & Review Committee, *2012 Tax Preference Performance Reviews*, (Report 13-1), page 104. Available: <http://leg.wa.gov/JLARC/AuditAndStudyReports/Documents/13-1.pdf>

<sup>9</sup> Refer to “Findings and Recommendations: Finding #5” below for more discussion on the impact of non-refundability and credit caps on the Rhode Island R&D Property and Expense Credits.

the effectiveness of this provision in actually encouraging R&D spending among smaller-scale firms.

The table only contains a single tax credit from each state determined by ORA to be most comparable to the Rhode Island R&D Expense Credit, which is the most heavily utilized of the three R&D tax incentives Rhode Island offers. For example, Connecticut offers at least two R&D Credit programs: an incremental credit for R&D expenses above the federally defined base amount with a credit rate of 20 percent per Conn. Gen. Stat. § 12-217j; and also, a non-incremental credit for R&D expenses applied to *all* in-state R&D expenses per Conn. Gen. Stat. § 12-217n.

### 3. Research and Development Activity in Rhode Island, Comparison States, and Nationwide

ORA found that R&D activity is primarily driven by manufacturing industries. The following chart summarizes data from the National Science Foundation on R&D spending throughout the United States. Note that this table, and all that follow, depict *business* R&D which excludes certain research activities conducted by government and non-profit institutions such as hospitals or universities.

**United States Funds Spent for Domestic Business R&D**  
(Spending in Millions of Dollars, Calendar Years 2013 – 2015)

	CY 2013	CY 2014	CY 2015	Average	
				Amount	Percent
Manufacturing Industries	\$221,476	\$232,815	\$236,132	\$230,141	67.8%
Non-Manufacturing Industries	\$101,052	\$107,913	\$119,690	\$109,552	32.3%
<b>All U.S. Businesses</b>	<b>\$322,258</b>	<b>\$340,728</b>	<b>\$355,821</b>	<b>\$339,602</b>	<b>100.0%</b>

**Source:** National Science Foundation, <https://www.nsf.gov/statistics/2017/nsf17320/nsf17320.pdf>

**Notes:** Manufacturing industries is comprised of NAICS Codes 31-33. Non-Manufacturing industries is comprised of NAICS Codes 21-23 and 42-81.

These national data show that manufacturing industries are responsible for more than two-thirds, or 67.8 percent, of R&D expenditures nationwide. The data also indicate that R&D spending was on an upward trend from calendar years 2013 through 2015. R&D spending increased from \$322.3 billion to \$355.8 billion during this time period, an average annual growth rate of 5.1 percent.

The following chart provides further detail on the concentration of R&D activity within the manufacturing industries by presenting R&D expenditures as a percent of sales revenues. The data is presented for calendar year 2014, the most recent year for which data was available at the time of this report’s publication.

**Domestic Business R&D as a Percent of Domestic Sales**  
**by Manufacturing and Non-Manufacturing Industries**  
(Spending in Millions of Dollars, Calendar Year 2014)

	<b>R&amp;D Spending as Percent of Sales</b>
Manufacturing Industries	4.1%
Non-Manufacturing Industries	2.7%
<b>All Industries</b>	<b>3.5%</b>

**Source:** National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2014. Available: <https://www.nsf.gov/statistics/2018/nsf18302/#chp2>

**Notes:** Manufacturing industries is comprised of NAICS Codes 31-33. Non-Manufacturing industries is comprised of NAICS Codes 21-23 and 42-81.

These data indicate that manufacturing industries not only generate a majority of R&D expenditures when measured in absolute terms, but these industries spend more on R&D when measured in relative terms. An average United States manufacturer spends 4.1 percent of sales on R&D, while the average non-manufacturing firm spends 2.7 percent. This indicates that manufacturing firms spend a larger proportion of revenue on R&D compared with firms in other industries.

There is considerable variation among specialized manufacturing industries with respect to the concentration of R&D spending. The following table shows the ten specialized manufacturing industries nationwide with the most concentrated R&D spending determined by a ranking of industry R&D spending as a proportion of sales.

**Domestic Business R&D as a Percent of Domestic Sales**  
**Among Specialized Manufacturing Industries**  
(Calendar Year 2014)

<b>Rank / Specialized Industry</b>	<b>NAICS Code/s</b>	<b>R&amp;D as Percent of Sales</b>
1. Semiconductor machinery	333295	26.7%
2. Semiconductors and other electronic components	3344	15.4%
3. Pharmaceuticals and medicines	3254	13.4%
4. Computer and electronic products	334	10.2%
5. Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	10.2%
6. Communications equipment	3342	10.1%
7. Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	9.7%
8. Navigational, measuring, electromedical, and control instruments	3345	8.8%
9. Aerospace products and parts	3364	7.1%
10. Aircraft, aircraft engines, and aircraft parts	336411–13	7.1%

**Source:** National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2014. <https://www.nsf.gov/statistics/2018/nsf18302/#chp2>

The table above indicates that the most specialized manufacturing industries devote between 7.1 and 26.7 percent of sales to R&D expenses.

R&D spending also varies considerably by state as shown in the following table, which depicts various measures of R&D spending in Rhode Island, comparison states, and nationwide.

**Funds Spent for Domestic Business R&D**  
**In Rhode Island, Comparison States, and United States**  
 (Spending in Millions of Dollars, Calendar Years 2013 – 2015)

State	R&D Spending				Average R&D as Percent of GDP
	CY 2013	CY 2014	CY 2015	3-Year Average	
California	\$76,851	\$85,750	\$95,020	\$85,874	3.6%
Washington	\$13,996	\$15,195	\$16,313	\$15,168	3.5%
Massachusetts	\$14,000	\$17,101	\$17,719	\$16,273	3.5%
Connecticut	\$5,789	\$6,819	\$6,441	\$6,350	2.6%
<b>United States</b>	<b>\$264,913</b>	<b>\$282,570</b>	<b>\$296,677</b>	<b>\$281,387</b>	<b>1.6%</b>
<i>Rhode Island</i>	<i>\$501</i>	<i>\$479</i>	<i>\$679</i>	<i>\$553</i>	<i>1.0%</i>

**Sources:** National Science Foundation, <https://www.nsf.gov/statistics/2017/nsf17320/nsf17320.pdf> and United States Department of Commerce, Bureau of Economic Analysis.

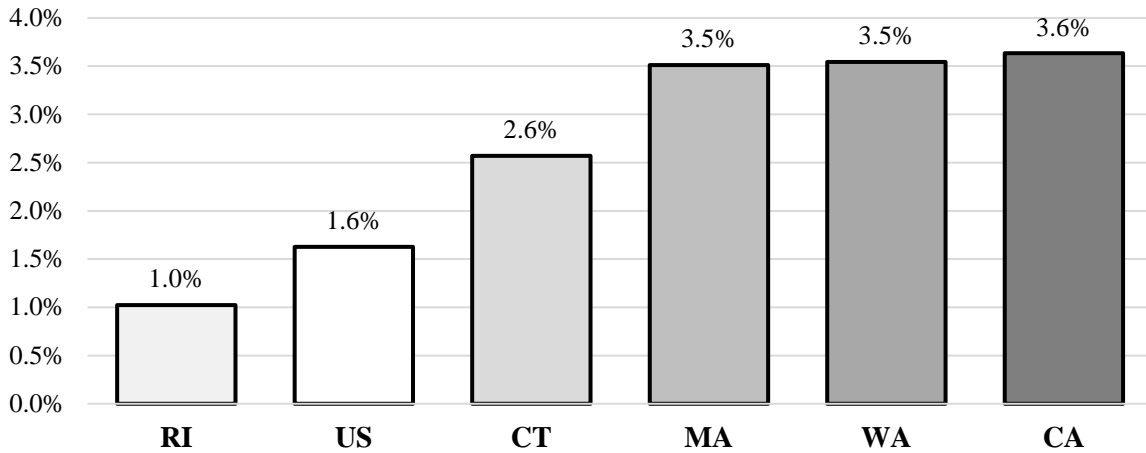
As shown in the table, all four comparison states had levels of R&D spending above the national average when scaled for the size of each state’s economy. Rhode Island business R&D spending, at 1.0 percent as a proportion of GDP, was below the national average of 1.6 percent. Rhode Island R&D spending is also more volatile than comparison states and nationwide. All comparison states, with the exception of Connecticut, showed a pattern of consistent year-over-year growth in CY 2014 and 2015. However, Rhode Island showed a 4.4 percent decline in CY 2014 followed by a dramatic 41.8 percent increase in CY 2015.<sup>10</sup>

The following bar graph summarizes the data in the previous table and provides a visual illustration of Rhode Island under-indexing comparison states and the national average with respect to R&D spending.

<sup>10</sup> Connecticut’s pattern was a 17.8 percent increase in CY 2014 followed by a 5.5 percent in CY 2015.



**Funds Spent for Domestic Business R&D as Percent of GDP**  
(Three-Year Average, Calendar Years 2013 - 2015)



**Sources:** National Science Foundation, <https://www.nsf.gov/statistics/2017/nsf17320/nsf17320.pdf> and United States Department of Commerce, Bureau of Economic Analysis

The bar graph depicts clustering of domestic business R&D spending in the top three states at or above 3.5 percent of GDP. It should be noted that while California and Washington are the first and second ranked states, respectively, in terms of concentration of R&D spending, neighboring Massachusetts is the third-ranked state nationwide, trailing Washington in the rankings by a fraction of a percent. Connecticut, ranked 10<sup>th</sup> among fifty states, stands above the national average at 1.6 percent, and Rhode Island, ranked 34<sup>th</sup>, stands below the national average at 1.0 percent.



### **Part III: Report Data Description**

The analysis of the R&D programs in this report required an analysis of micro-level taxpayer data. ORA encountered significant challenges related to data access. In order to gain sufficient access to data while respecting confidentiality concerns, ORA entered into Memoranda of Understanding (MOU) with the Rhode Island Department of Revenue, Division of Taxation (Division of Taxation), Rhode Island Department of Labor and Training, and Rhode Island Commerce Corporation (CommerceRI). These MOUs sought to preserve the confidentiality of individually identifiable taxpayers consistent with the statutory mandates regarding secrecy and confidentiality of taxpayer information. In this context, ORA relied on data provided by credit recipients to Taxation for tax years 2013, 2014, and 2015, to the extent such information were provided, as required by Rhode Island General Law § 44-48.2-5(b). The data provided by the Division of Taxation to ORA consisted of the following:

- Credit amounts and number of recipient firms as provided during the November 2017 Revenue Estimating Conference (REC).
- Credit, firms and employment information provided by the Project Oversight and Development Section;
- Withholding tax payment records on file provided by the Employer Tax Section;
- Corporate tax payments on file provided by the Corporation and Business Tax Section;
- ORA Personal Income Tax Simulation Model (ORA PIT Model). The ORA PIT Model is constructed using the most recent data made available by the Division of Taxation. At the time of analysis, the most recent personal income tax data made available to ORA related to tax year 2015.
- Cost of administration of the tax incentive.

ORA made no attempt to verify the accuracy of the data provided and made minimal corrections to the data in order to be able to execute specific calculations for the report. The data included in this report are unaudited and reported as compiled.

ORA utilized several data sources in this report that did not differentiate between the New R&D Facilities Deduction, R&D Property Credit, and R&D Expense Credit as they are frequently consolidated into the same line item for reporting purposes. When sources were able to distinguish credit usage between the three R&D tax incentives programs, ORA observed that the R&D Expense Credit represented virtually all of the credit usage when measured in terms of dollars of usage. Specifically, for the time period of tax years 2013 through 2015, the R&D Expense credit represented 98 percent, or \$17.17 million out of \$17.55 million, total R&D tax incentive usage. Furthermore, differentiating between the three incentives would require reporting certain data in groups consisting of only a few taxpayers, which would potentially compromise taxpayer confidentiality. For these reasons, this section aggregates usage of all three programs and refers to them collectively as “R&D tax incentives”.

#### **1. Number of Taxpayers Granted Tax Credit**

According to the Division of Taxation testimony at the November 2017 Revenue Estimating Conference (REC), an average of 45 companies received the R&D credits over tax years 2013

through 2015 with an average value of \$5.85 million<sup>11</sup>. The following table provides a breakdown of the number of R&D credits recipients and the corresponding tax credit amounts received by tax year and tax type:

**R&D Tax Incentive Amounts and Recipients by Tax Type**  
(Millions of Dollars, Tax Years 2013 – 2015)

	TY 2013	TY 2014	TY 2015	Three-year Total	Three-Year Average
<b><i>Business Corporation Tax</i></b>					
Incentive Amount	\$4.85	\$8.19	\$2.34	<b>\$15.39</b>	<b>\$5.13</b>
Number of Recipients	47	52	34	<b>133</b>	<b>44</b>
<b><i>Insurance Premiums Tax</i></b>					
Incentive Amount	\$1.5	\$0.32	\$0.34	<b>\$2.16</b>	<b>\$0.72</b>
Number of Recipients	n/a	1	1	<b>2</b>	<b>1</b>
<b><i>Total</i></b>					
Incentive Amount	<b>\$6.35</b>	<b>\$8.52</b>	<b>\$2.68</b>	<b>\$17.55</b>	<b>\$5.85</b>
Number of Recipients	<b>47</b>	<b>53</b>	<b>35</b>	<b>135</b>	<b>45</b>

**Source:** November 2017 Revenue Estimating Conference (REC) Taxation Testimony.

**Note:** The data source did not provide a count of R&D tax incentive recipients for the insurance premiums tax in tax year 2013.

## 2. Value of Tax Incentive Granted by NAICS Code

ORA obtained data from the Division of Taxation’s Project Oversight and Development Section (PODS) regarding R&D tax incentive amounts received by firms for tax years 2013 through 2015. However, only tax year 2015 data from this source closely matched the tax year data provided by the Division of Taxation during their November 2017 Revenue Estimating Conference testimony. Facing this contradiction, ORA decided to present only 2015 tax year data for R&D tax incentive amounts received by NAICS industry and deemed other information to be unreliable.

ORA matched each recipient firm to its corresponding industry code according to the North American Industry Classification System (NAICS) in order to accurately simulate direct shocks to the Rhode Island economy with the REMI model.<sup>12</sup> However, ORA found that some of the industries were represented by only one or two R&D tax incentive recipients. In this context, ORA is unable to disclose R&D tax incentive amounts received by NAICS codes as it may violate taxpayer confidentiality. ORA determined to break down the R&D tax incentive amounts received in tax year 2015 into manufacturing and non-manufacturing sectors. The following table depicts the amount of the R&D tax incentives received by firms in those two industry groups during tax year 2015:

<sup>11</sup> The Division of Taxation provided testimony at the May 2018 Revenue Estimating Conference (REC) regarding the R&D tax incentives. However, the R&D tax incentives data the Division of Taxation provided at the May 2018 REC is the same as the R&D tax incentives data the Division of Taxation provided in its November 2017 REC testimony. Thus, references to the Division of Taxation’s November 2017 REC testimony throughout this evaluation is the most current data available even though the May 2018 Revenue Estimating Conference took place subsequent to the November 2017 Revenue Estimating Conference.

<sup>12</sup> Refer to “‘Breakeven’ Cost-Benefit Analysis” section below for more information regarding the REMI PI+ model utilized in this analysis.

### **R&D Tax Incentive Usage in Manufacturing and Non-Manufacturing Industries**

(Tax Year 2015)

	<b>Count of Recipients</b>	<b>Percent of Total</b>	<b>Credit Amount</b>	<b>Percent of Total</b>
Manufacturing Industries	25	71.4%	\$1,931,072	63.9%
Non-Manufacturing Industries	10	28.6%	\$1,092,191	36.1%
<b>All Industries</b>	<b>35</b>	<b>100.0%</b>	<b>3,023,263</b>	<b>100.0%</b>

**Source:** Division of Taxation, Project Oversight and Development Section

**Notes:** The total R&D Tax incentive amount provided in this table differs slightly from the amount provided in the previous section for tax year 2015 due to variations between data sources. ORA is unable to provide any additional explanation.

### **3. Cost of Administration**

ORA surveyed the Division of Taxation to ascertain the cost for the administration of the R&D tax incentives. The table below provides information on the direct cost incurred by the Division of Taxation during tax years 2013 through 2015 to administer these tax incentives.

#### **R&D Tax Incentives Cost of Administration**

(Tax Years 2013 – 2015)

<b>Cost-Incurring Entity</b>	<b>TY13</b>	<b>TY14</b>	<b>TY15</b>	<b>Total</b>	<b>Average</b>
Division of Taxation	\$1,973	\$2,183	\$1,427	<b>\$5,582</b>	<b>\$1,861</b>

**Source:** Division of Taxation

### **4. Number of Aggregate Jobs and Direct Taxes Paid by Recipient's Employees**

The Division of Taxation provided ORA with data on taxes paid by employees of the R&D tax incentive-recipient firms. Only tax year 2015 data was available<sup>13</sup>. ORA utilized its personal income tax simulation model to determine employee statistics as well as the taxes they paid. The following table provides the number of R&D tax incentive-recipient firms' employees as identified by both the Division of Taxation and ORA and the breakdown of this information by residence status.

<sup>13</sup> Data is unavailable for tax years 2013 and 2014 as stated by the Division of Taxation

**Employees of R&D Tax Incentive-Recipient Firms:  
Identified Tax Filings by Resident and Non-Resident Status**  
(Tax Year 2015)

	<b>TY 2015</b>
<b>Total Employees Reported</b>	<b>9,997</b>
Count of Employees Identified by Taxation	8,546 of 9,997
Count of Employees Identified by ORA	7,092 of 8,546
<b><i>Identified</i></b>	<b>7,092</b>
Resident	4,761
Non-Resident	2,331
<b><i>Not Identified</i></b>	<b>2,905</b>
Resident	unknown
Non-Resident	unknown

**Source:** Division of Taxation, Office of Revenue Analysis personal income tax model

In order to determine taxes paid, ORA utilized the ratio of reported wages through the R&D tax incentive-recipient firms compared to total federal adjusted gross income listed on the tax return for the tax year. This ratio was multiplied by the total taxes paid in that tax year to report total apportioned taxes paid for income earned from the R&D tax incentive-recipient firm.

**Employees of R&D Tax Incentive-Recipient Firms:  
Personal Income Taxes Paid by Identified Taxpayers**  
(Tax Year 2015)

	<b>TY 2015</b>
<b><i>Total RI Personal Income Taxes Paid</i></b> <sup>†</sup>	<b>\$13,196,059</b>
Resident	\$8,702,286
Non-Resident	\$4,493,773
<b><i>Taxes paid per Identified Job</i></b>	<b>\$1,861</b>
Resident	\$1,828
Non-Resident	\$1,928

**Source:** Division of Taxation

<sup>†</sup> Taxes paid reflects only the amounts paid by employees for which the Division of Taxation and ORA were able to identify a tax filing. Also, taxes paid reflects apportioned taxes by amount of reported wages attributable to employment with R&D tax incentive-recipient firms. The above taxes paid do not reflect total taxes paid by identified taxpayers.

## 5. Direct Taxes Paid by Recipients

The Division of Taxation provided ORA with data on taxes paid by the 35 R&D tax incentive-recipient firms in tax year 2015<sup>14</sup>. The following table describes the breakdown of this information by firms' location of domicile.

<sup>14</sup> Data is unavailable for tax years 2013 and 2014 as stated by the Division of Taxation.

**R&D Tax Incentive-Recipient Firms:**  
**Taxes Paid by Location of Domicile**

(Tax Year 2015)

	RI Firms <sup>a</sup>	Non-RI Firms <sup>b</sup>	All Firms
<b>Count</b>	<b>15</b>	<b>20</b>	<b>35</b>
Percent	42.9%	57.1%	100%
<b>Taxes Paid <sup>c</sup></b>	<b>\$973,138</b>	<b>\$1,052,901</b>	<b>\$2,026,039</b>
Percent	48.0%	52.0%	100%
<b>Credit Amount</b>	<b>\$1,171,250</b>	<b>\$1,852,013</b>	<b>\$3,023,263</b>
Percent	38.7%	61.3%	100.0%

**Source:** Division of Taxation, Office of Revenue Analysis calculations

**Note:** R&D tax credits and deduction may only be claimed in relation to research activity that takes place or has situs in Rhode Island, but it may be claimed by firms for which their primary place of business or headquarters is located in another state. Domiciliary status deduced by tax filing and/or primary mailing location and was used as a best available proxy for determining the extent to which tax credits were claimed by in-state *vs.* out-of-state firms.

<sup>a</sup> Category includes all Rhode Island-domiciled firms. This generally means that the firm’s principal place of business is in Rhode Island.

<sup>b</sup> Category includes all non-Rhode Island domiciled firms. This typically means that the firm has a presence in Rhode Island but may have its principal place of business located in some other state. This category also includes firms for which ORA was unable to identify a location of domicile.

<sup>c</sup> Note that taxes paid reflect net tax liability after application of R&D incentives, in addition to any other credits, deductions, incentives, etc. utilized by the taxpayers.

**6. Measuring the Extent to which Benefits Remained in the State**

R.I. Gen. Laws § 44-48.2-5(a)(8) requires that this analysis report on the extent to which benefits associated with the tax incentive remained in the state, if such information is available. In consideration of this requirement, ORA has presented tables on taxes paid by recipient firms by location of domicile and their employees by resident *vs.* non-resident status.

The amount of R&D tax incentives earned by a firm is tied to its research and development spending, including expenditures on buildings, equipment and supplies, as well as computer hardware and software. While the final destination of these purchases must be within Rhode Island, ORA has no data available to confirm the extent to which these research expenses resulted from purchases from Rhode Island vendors or out-of-state vendors. These purchases are modeled as “exogenous demand” in the “breakeven” cost-benefit analysis in this report, which allows the REMI PI+ economic modeling software to allocate spending consumption by Rhode Island firms between in-state *vs.* out-of-state vendors according to standard assumptions, calibrated based on historical data describing the regional and national economy.

**7. Additional Data to Support Evaluation of Statutory and Programmatic Goals and Intents of the Tax Incentive**

Additionally, using the data provided by the Division of Taxation’s Project Oversight and Development Section, ORA identified firms receiving multiple incentive programs in addition to

the R&D tax incentives in tax year 2015. ORA was able to calculate the amount of additional tax incentives claimed by R&D tax incentive-recipients. The following table provides the total amount and types of additional credit usage as follows:

**Identifying Additional Tax Credits Received by R&D-Recipient Taxpayers**  
(Tax Year 2015)

<b>Tax Incentive</b>	<b>Incentive Amount</b>
R&D Tax Credit – Total, All Firms	\$3,023,263
R&D – Firms Claiming R&D and Additional Credit/s	ND
<b>Other Tax Incentive</b>	<b>Incentive Amount</b>
Jobs Development Act	ND
Investment Tax Credit	ND
Enterprise Zone Credit	ND
Jobs Training Tax Credit	ND
Historic Tax Credit	ND
<b>Total Other Credits</b>	<b>\$5,244,725</b>

**Source:** Division of Taxation, Project Oversight and Development Section

**Notes:** Credits are listed in descending order by usage. ND indicates incentive amount is not disclosed in order to protect taxpayer confidentiality.

This table indicates that, in addition to the R&D tax credits, some R&D tax credits firms received other Rhode Island business tax credits. These other tax credits include the Jobs Training Tax Credit (R.I. Gen. Laws § 42-64.6-4), Jobs Development Act Rate Reduction (R.I. Gen. Laws § 42-64.5-3), Historic Structures Tax Credit (R.I. Gen. Laws § 44-33.2-3), Enterprise Zone Wage Tax Credit (R.I. Gen. Laws § 42-64.3-6), and the Investment Tax Credit (R.I. Gen. Laws Chapter 44-31-1). The number of taxpayers claiming each additional credit cannot be reported due to taxpayer confidentiality constraints. However, based on the data presented in the table above, ORA determined that for every \$1.00 of R&D tax incentives claimed, the same taxpayers claim an additional \$1.73 in other tax credits. On average R&D Tax incentives represent approximately 36.6 percent of the total value of tax incentives claimed by the taxpayer.

Additionally, the *Tax Credit & Incentive Report* published annually by the Division of Taxation includes limited information on R&D tax incentive usage. The R&D tax credits are not included among the credits and incentives reported on by the Division of Taxation in its annual *Tax Credit & Incentive Report*; however, to the extent that recipients of credits and incentives covered by the report self-reported R&D tax credits amounts, it is included in the “Additional Incentives Received” section of the annual *Tax Credit & Incentive Report*. The following is a compilation of R&D tax incentive amounts received using information from the *Tax Credit & Incentive Report* for fiscal years 2014 through 2016, which are assumed to be the fiscal years most closely corresponding to tax years 2013 through 2015 – the period of analysis covered by this report.

**R&D Tax Incentive Usage**  
**as Published in Tax Credit & Incentive Reports**  
(Fiscal Years 2014 – 2016)

Fiscal Year	Taxpayer	Credit Amount
2016	CVS	\$572,164
	Tiffany and Company	\$158,072
	<b>Subtotal</b>	<b>\$730,236</b>
2015	CVS Pharmacy	\$414,470
	Tiffany and Company	\$75,053
	<b>Subtotal</b>	<b>\$489,523</b>
2014	[No Usage Disclosed]	<b>\$0</b>
<b>Grand Total</b>		<b>\$1,219,759</b>

**Source:** ORA Compilation of Division of Taxation, *Tax Credit & Incentive Reports*

The fact that the R&D expense credit has a two-tiered rate structure, in which a 25.0 percent credit rate applies to the first \$25,000 of credit (or approximately \$111,111 of qualified expenses) and a 16.9 percent credit rate applies to expenses in excess of this amount, suggests that the credit was intended to provide a greater marginal incentive to smaller firms. In light of this observation, ORA gathered data to document whether the credit was taken by “larger” or “smaller” firms. ORA had some detailed information regarding the characteristics of credit recipients, but had little information on the general population of Rhode Island corporations. For establishing a baseline comparison, ORA relied heavily on publicly available “Statistics of Income” reports published by the Division of Taxation.<sup>15</sup> The following table summarizes ORA’s findings on the relative size of R&D incentive recipients relative to the general population of corporate tax filers. Certain figures are presented as ranges or approximations to protect taxpayer confidentiality.

---

<sup>15</sup> As of the date of this report’s publication, the most recently published business Statistics of Income for business corporation tax, C-corporation filers was for tax year 2014 and is available at: [http://www.tax.ri.gov/reports/SOI%20Reports/TY2014/CT\\_C\\_SOI\\_2014.pdf](http://www.tax.ri.gov/reports/SOI%20Reports/TY2014/CT_C_SOI_2014.pdf)

No statistics of income reports had been published for tax years 2015 through 2017. Note that R.I. Gen. Laws § 44-11-44 requires the Division of Taxation to publish a corporate income tax data report annually by March 15<sup>th</sup> for the previous calendar year.

**Comparing R&D Incentive Recipients to All Rhode Island C-Corporation Tax Filers**  
(R&D Incentive Recipients Tax Years 2015; All C-Corps Tax Year 2014)

	<b>R&amp;D Incentive Recipients</b>	<b>All C-Corps</b>
Average Federal Taxable Income	≈\$675 million	≈\$30.6 million
Median Federal Taxable Income	Between \$34 and \$57 million	Between \$0 and \$249,999
Average RI Apportioned Income	\$4,338,310	*
Median RI Apportioned Income	≈\$225,000	*
Average Net RI Tax Liability	≈\$75,000	\$5,429
Median Net RI Tax Liability	≈\$5,000	*

**Source:** Division of Taxation, Business Corporations Tax, Statistics of Income, C Returns, Tax Year 2014

\* Indicates that figure cannot be inferred from Statistics of Income data. Furthermore, comparison between tax year 2015 incentive data and tax year 2014 statistics of income data would be inappropriate due to major business corporation tax reform implemented for tax years beginning on or after January 1, 2015.

The data above contain information on all 35 taxpayers utilizing the R&D incentives in 2015. 34 of these taxpayers were C-corporations subject to the business corporation tax, and one taxpayer was an insurance company subject to the insurance company gross premiums tax. For purposes of preserving taxpayer confidentiality it was not possible to disambiguate the single insurance premiums taxpayer from the rest of the population.

Data show that the average taxpayer claiming an R&D incentive has federal taxable income of between \$34 and \$57 million, over 20 times larger than that of an average Rhode Island C-corporation. The largest recipients of the R&D tax incentive had federal taxable income measured in the billions of dollars. ORA considered federal taxable income to be a proxy for firm size based on the assumption that firms with a large nationwide presence generally have larger federal taxable income. It should be noted that a C-corporation business corporation taxpayer only pays taxes on its Rhode Island apportioned income. For example, consider a local “mom & pop” business with a single location, located in Rhode Island, and a national chain, with many locations nationwide, but only a single location in Rhode Island. The Rhode Island apportioned income of both firms might be similar, but the national chain would likely have a far greater federal taxable income, generated by sales from its many locations outside of Rhode Island.

Furthermore, R&D tax incentive recipients have a relatively modest tax burden when considered in comparison to the statutory tax rate. The fact that an average R&D tax incentive recipient pays \$5,000 in taxes in relation to \$4,338,310 of Rhode Island apportioned income implies an effective Rhode Island tax rate of 1.2 percent. This compares to the statutory business corporation tax rate of 9 percent in tax year 2014 and 7 percent in tax year 2015. Because the Rhode Island credit is limited to half of a taxpayer’s pre-credit liability, this suggests that users of the R&D incentives also make extensive use of other business tax credits.

When compared with the size of a typical credit recipient, the value of the R&D credit was relatively modest. The average R&D Property and Expense Credit was approximately \$87,000, and the average credit claimed by the top-ten highest credit users was approximately \$260,000.<sup>16</sup>

<sup>16</sup> Note that according to Division of Taxation Testimony at the November 2017 Revenue Estimating Conference there was \$2.68 million in R&D incentive usage reported by 35 recipients in tax year 2015. This implies an average



## Part IV: Evaluation of the Economic Impact of the Tax Incentives

This section of the report addresses two major objectives defined in R.I. Gen. Laws § 44-48.2-5: first, to provide a projection of the potential impact of the R&D tax incentives on state revenues from projected future use and carryforward; and, second, to produce a breakeven cost-benefit analysis that can determine the net impact on state revenues resulting from the R&D tax credits.

### 1. Assessment and Five-Year Projection of Revenue

ORA assumes that the issuance of the R&D tax credits under current law will follow historical issuance patterns. Therefore, ORA assumed a three-year moving average in the total amount of the tax incentives that would be assigned in future calendar years. Usage is divided between the New R&D Facilities Deduction, R&D Property Credit, and R&D Expense Credit according to the three-year historical average from 2013 through 2015. The following table provides the distribution of the anticipated amount of the R&D tax incentives to be issued in each fiscal year.

#### R&D Tax Incentives: Revenue Projections

(Millions of Dollars)

<b>Fiscal Year</b>	<b>New R&amp;D Facilities Deduction</b>	<b>R&amp;D Property Credit</b>	<b>R&amp;D Expense Credit</b>	<b>Total R&amp;D Tax Incentive Usage</b>
2017	\$0.001	\$0.09	\$4.29	\$4.38
2018	\$0.001	\$0.09	\$4.31	\$4.40
2019	\$0.001	\$0.08	\$3.92	\$4.00
2020	\$0.001	\$0.09	\$4.18	\$4.26
2021	\$0.001	\$0.08	\$4.14	\$4.22

**Source:** ORA calculations based on data provided by the Division of Taxation

**Notes:** Projections are constructed as a three-year moving average of R&D tax credits usage by tax year. Most recent three years of historical data included in moving average are tax years 2014 through 2016. Projected credit usage by tax year is converted into fiscal year under the assumption that each fiscal year represents the average of the two constituent tax years (*e.g.*, assume FY 2017 is equal to average of TY 2016 and TY 2017).

ORA assumes that changes to the business corporation tax implemented for tax years beginning on or after January 1, 2015 may permanently reduce expectations for the amount of R&D tax incentives to be claimed in future tax years. This assumption is not reflected in the projections contained in this table. For a full discussion of this issue refer to “Findings and Recommendations” section below.

### 2. “Breakeven” Cost-Benefit Analysis

- *Introduction to “Breakeven” Cost-Benefit Analysis Methodology*

Pursuant to R.I. Gen. Laws § 44-48.2-5(6), ORA conducted a “breakeven” cost-benefit analysis to measure the net impact on state revenues resulting from the R&D tax incentives under a variety of assumptions regarding what would have happened in the Rhode Island economy if the incentives had not been available. To provide additional insight, ORA also produced breakeven analyses with respect to employment and Rhode Island gross domestic product (RI GDP).

---

incentive amount of \$76,571 per recipient. Taxpayer-level data provided to ORA by Division of Taxation indicates an average credit amount of approximately \$87,000. ORA is unable to provide an explanation for this variation between data sources.

To execute these cost-benefit analyses, ORA utilized Regional Economic Models, Incorporated's (REMI) 70-sector model of the Rhode Island economy via the REMI PI+ software platform to produce estimates of the total economic effects of the tax credits issued in tax years 2013 through 2015.<sup>17</sup> The dynamic capabilities of the REMI PI+ model allows one to estimate the impacts of exogenous shocks to the state's economy, including changes to public policy, shifts in consumer behavior and demand, and developments in industry.

The analysis is based on self-reported firm-level data on employment and wages, as well as data from the Division of Taxation and publicly available historical data on the regional and national economies. Direct benefits are entered into the REMI model as policy variables simulating changes in industry sales, exogenous final demand, production cost, employment, and compensation or wages. ORA assigned these costs and benefits to a profile of sectors among the 70 sectors available in the REMI PI+ model in proportion with the amount of the three-year average of R&D tax incentive usage and profile of Rhode Island general fund expenditures.

The "breakeven" approach developed for this report allows a reader to assume that the R&D tax incentives leveraged various levels of economic activity required of recipient firms to receive a tax credit. This assumption means that some portion of the economic activity required of recipient firms to receive a tax credit would not have occurred in the absence of the tax credit. Under this assumption, firms made this portion of their long-term production and investment decisions based on the availability of an incentive over a period of time, and removal of that tax credit in a given year would undo all such decisions.

- *Modeling Costs*

ORA assumes that the R&D tax incentives are funded by an equivalent reduction in state government spending – that is, when the state government forgoes revenue by issuing tax credits and allowing deductions against taxable income, there are fewer funds available for other spending priorities. ORA modeled these adjustments based on a comprehensive historical analysis of Rhode Island general fund expenditures for each tax year within the scope of this analysis. This analysis compiled all state general fund expenditures and assumed that the level of these expenditures could be adjusted to maintain a balanced general fund budget. The breakdown of general fund expenditures by category is shown in the following table:

---

<sup>17</sup> The REMI model consists of four economic impact methodologies: input-output analysis, computable general equilibrium dynamics, econometric estimation techniques, and economic geography and migration flows. Detailed documentation on the REMI PI+ v2.0.6 model employed in this analysis is available at: <http://www.remi.com/resources/documentation>

**Three Year Average of Rhode Island General Fund Expenditures**  
(Calendar Years 2013 - 2015)

Industry Description	NAICS Code	Percent of Total
Ambulatory Healthcare Services <sup>18</sup>	621	33.8%
Educational Services	61	31.7%
State Wages, Salary, and other Compensation	n/a (entered as “state/local govt. compensation” and “employment”)	23.3%
Social Assistance	624	3.4%
Local Government Spending	n/a (entered as “local government spending”)	2.3%
Professional, Scientific, and Technical Services	54	1.2%
Administrative and Support Services	561	1.0%
Wholesale Trade	42	0.96%
Remaining/Other	19 additional industries, and also non-residential capital investment	2.3%
<b>Total:</b>		<b>100.0%</b>

**Source:** ORA analysis of Rhode Island general fund expenditure data.

- *Modeling Benefits*

The lack of statutory purpose in the enabling statute of the R&D tax incentive programs complicates the modeling of benefits. A cost-benefit analysis would yield significantly different results depending on the extent to which the incentive is assumed to have influenced firms’ location decisions. Possessing virtually no data on how the credit was used by recipient firms, ORA is unable to make any empirical statement regarding the efficacy of the tax credit in increasing the amount of research activity in Rhode Island, influencing firms’ business location decisions, or the extent to which any incentivized research activity had spillover effects for the Rhode Island economy. Instead, ORA had to construct various assumptions to model, in theory, what might have happened in the absence of the R&D credits.

The cost-benefit methodology employed by this report assumes that the availability of the R&D incentives impacted some portion of recipient firms’ decisions to locate not only their research

activity but some portion of their general business operations in Rhode Island.<sup>19</sup> In this way, the methodology assumes that the R&D tax incentives provided a marginal production cost savings that tipped the balance in favor of locating a business in Rhode Island *vs.* some competitive out-of-state location.

For purposes of modeling the economic impact of the R&D tax incentives, ORA imposed a simplifying assumption that 100 percent of incentive usage consisted of the R&D Expense Credit. ORA determined this to be appropriate considering that the R&D Expense Credit represented 98 percent of R&D tax incentive usage from the period of calendar year 2013 through 2015. Furthermore, ORA possesses virtually no data on New R&D Facilities Deduction and R&D Property Credit usage, so any attempt to model the economic impact of these programs would rely heavily on generic assumptions.

ORA estimated the ratio of R&D tax incentive to research expenses and firm sales based on the following assumptions.

For calendar years 2013 through 2015, Division of Taxation testimony at the November 2017 Revenue Estimating Conference indicated an average of \$5,850,876 in R&D tax incentive usage by 45 recipients per year. This implies an average annual tax incentive amount of \$130,019 per recipient. Applying the two-tiered R&D Expense Credit rate of 22.5 percent for the first \$25,000 of credit and 16.9 percent on any excess reveals that the average credit supported \$732,528 in credit eligible research expenses at an effective credit rate of 17.7 percent (*i.e.*,  $\$25,000 \div 22.5\% + \$105,019 \div 16.9\% = \$732,528$ ;  $\$130,019 / \$732,528 = 17.7\%$ ).

In order to estimate the ratio of credit-eligible research expenses to total qualified research expenses, ORA assumed that all R&D Expense Credit-recipient firms had stable research spending (*i.e.*, 0 percent average annual growth) and calculated their Federal Research Credit according to the Alternative Simplified Credit (ASC) calculation methodology. Under the ASC methodology, firms can claim credit for the amount of research expenses exceeding 50 percent of their average annual research expense of the past three years. Under these assumptions, a taxpayer could claim credit for 50 percent of their current year qualified research spending. ORA therefore assumed an average R&D tax incentive recipient conducted \$1,465,056 in total qualified research expenses (*i.e.*,  $\$732,057 \times 2$ ).

National Science Foundation data indicates that an average United States firm devotes 3.5 percent of sales to research activities.<sup>20</sup> Therefore, ORA assumes that an average R&D tax incentive recipient has average annual sales of \$20,929,374 (*i.e.*,  $\$1,465,056 \div 3.5\%$ ).

---

<sup>19</sup> ORA tested the assumption that the R&D tax incentives influenced a firms' decisions to locate research activity in Rhode Island while having no impact on the location of the remainder of their business operations. Under this assumption, the R&D tax incentives failed to breakeven with respect to state general revenues. Therefore, it is only plausible for the R&D tax incentives to have a net positive impact on state general revenues if one were to assume that the R&D activity had significant spillover effects on the local economy or if it positively influenced firms in their decision to locate business operations, beyond research activity, in Rhode Island.

<sup>20</sup> National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2014. Available: <https://www.nsf.gov/statistics/2018/nsf18302/#chp2>

In summary, a typical recipient of R&D tax incentives received \$130,019 in incentives, in relation to \$1,465,056 of total research activity, and \$20,929,374 of industry sales. Simplifying these calculations results in the assumption that \$1.00 of R&D tax incentive is associated with \$5.63 in total research expenses and \$160.97 in industry sales. In an average year, representative of the three-year period of calendar years 2013 through 2015, taxpayers claimed a total of \$5,850,876 in R&D tax incentives which ORA assumed to be generated in relation to \$65,927,527 of total qualifying research expenses and \$941,821,809 in industry sales.

Prior to entering policy impacts into the REMI model, ORA discounted the impact of the R&D tax incentives on industry sales by 50 percent to account for the fact that a portion of a firm's gross sales originated from customers inside the state of Rhode Island and/or may have cannibalized sales that would otherwise have been made by other Rhode Island firms. This assumption is consistent with the approach taken by ORA on previous Tax Incentive Evaluation Act reports, for example the Investment Tax Credit, and allows for comparability of evaluation results between incentives. Multiplying the \$941,821,809 in industry sales referenced above by 50 percent yields \$470,910,905 in industry sales assumed to be attributable to R&D incentives after accounting for the portion of sales originated from customers within the state or supplanted from Rhode Island competitors.

- *The “Breakeven” Approach*

A fundamental challenge in evaluating economic development incentives is determining the extent to which an incentive actually stimulated or attracted new economic activity rather than subsidized economic activity that would have been largely present even in the absence of the incentive. On one hand, the availability of a tax incentive might have a decisive influence on a firm's production decision. In this case it might be appropriate for an evaluator to attribute all of the firm's economic activity to the incentive. On the other hand, an incentive program may simply reward or subsidize behavior that likely would have occurred anyway. In this case the tax incentive might have an impact on a firm's marginal productivity, but it would be inappropriate to attribute the full economic activity of the firm solely to the availability of the tax incentive. Real world conditions often make it difficult or impossible for an evaluator to assess where on this continuum the impact of any given tax incentive falls.

In the case of R&D tax incentive programs, the determination of the extent to which production activity would have taken place in the absence of the incentive is further complicated by a lack of statutory clarity. For example, a common feature of an economic development tax incentive is a “but for” provision, whereby recipients attest that they would not have engaged in the underlying activity if the incentive were not available, possibly with some amount of due diligence taking place to confirm this attestation during the application process. While it should be made clear that a “but for” provision does not represent sufficient evidence by itself that the incentive-related activity is net new to the state, its presence at least signals the intent of lawmakers that the incentive ought to be awarded to projects that might not otherwise have been undertaken. However, the only provision of the R&D tax incentives that encourage its use against incremental research activities is the federal RRC or ASC methodology to determine the portion of qualified research expenses eligible to be counted in the credit calculation. These calculation methodologies do not consider

whether the taxpayer business had considered competitive out-of-state alternative locations. Considering the availability of R&D incentives across states, it is possible that some portion of R&D spending would not have located in Rhode Island but for the availability of the Rhode Island incentive. However, it would overstate the economic benefits of the Rhode Island R&D tax incentive programs to assume that all productions would not have occurred but for the availability of the incentives. Furthermore, to assume that R&D tax incentives influenced firms' location decisions would require the assumption that the incentive was sufficient to overcome the significant cost of relocating capital-intensive research activities and relocating or rehiring specialized research personnel across state lines.

In this context, ORA conducted a breakeven analysis. This analysis allows for the evaluation of an incentive program's performance under a wide range of assumptions regarding the level of economic activity that would have taken place if the program had not been available. Furthermore, the breakeven analysis specifies the proportion of economic activity associated with the incentive program recipient that one must assume to have been attributable to the incentive program in order for the total benefits to equal its total costs, where benefits and costs are measured as the impact on state general revenues (*i.e.*, the condition that must be satisfied for the incentive program to "pay for itself").

The breakeven percentage should be interpreted as follows: if the reader believes the assumption to be plausible, that at least the amount of economic activity implied by the breakeven percentage can be attributed to the availability of the tax incentive, then one can infer that the incentive has a net positive impact on state general revenues. In the opposite case, if the reader believes that the amount of economic activity attributable to the tax incentive was less than the level implied by the breakeven percentage, then one can infer that the incentive had a net negative impact on state general revenues. Holding other factors equal, a lower breakeven percentage is more desirable than a higher breakeven percentage if the goal of an incentive program is to cost the state as little revenue as possible.

A tax incentive program fails to breakeven, under any counterfactual assumption, when the breakeven percentage is greater than 100 percent. This implies that even if 100 percent of the economic activity associated with the incentive recipient was assumed to have taken place strictly because of the incentive's availability, a net negative impact on state general revenues would have resulted. Because breakeven percentages above 100 percent do not have a meaningful interpretation, under this outcome ORA simply publishes that the incentive program fails to breakeven.

As a summary of the calculations of the cost and benefits sections above, the "breakeven" cost-benefit analysis models 100 percent of R&D tax incentive costs as a \$5,850,876 reduction in state government spending, where this amount is equal to the average R&D tax incentive usage for tax years 2013 through 2015. This cost is distributed across industries in proportion with historical discretionary state general fund expenditures for calendar years 2013 through 2015 as compiled by ORA and entered into the REMI model as a combination of exogenous demand, employment, compensation, local government spending, and capital spending policy variables. Benefits are modeled at 100 percent as an increase in industry sales of \$470,910,905 as well as a reduction in

industry production costs in the amount of \$5,850,876. Industry sales and production cost impacts were distributed across industries in proportion with the industries of the actual R&D Expense Credit recipients in tax year 2015.<sup>21</sup> The amount of benefits were scaled according to the assumed percentages listed in the state general revenues, state gross domestic product, and employment breakeven results charts below, but the costs are always held fixed at 100 percent.

In all of the following analyses, the range of breakeven percentages is limited to between zero and 36.6 percent in recognition of the fact that R&D tax incentives represent 36.6 percent of the total state tax incentives by value received by R&D tax incentive-recipient firms. It is not logical to interpret breakeven percentages above 36.6 percent because doing so would disregard the impact of the additional state tax credits utilized by R&D tax incentive-recipient firms. In other words, if R&D tax incentives represented 36.6 of the total incentive value claimed by an average firm, it would be inappropriate to attribute greater than 36.6 percent of the firm's presence to the availability of R&D tax incentives.

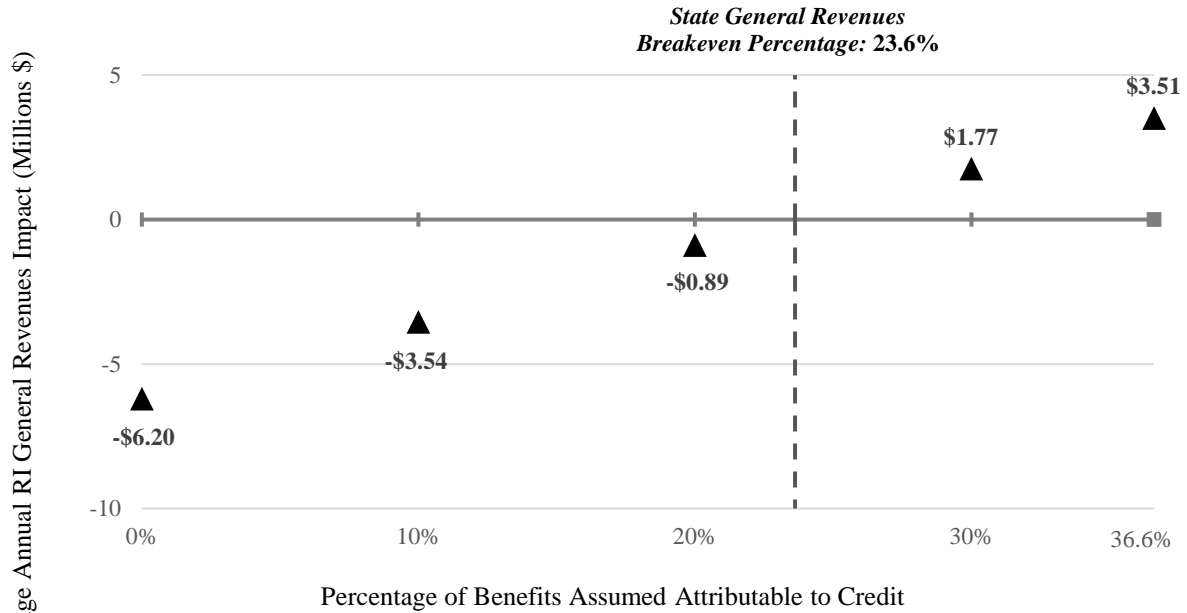
The following chart provides results of the breakeven analysis with respect to Rhode Island general revenues. The range of this chart is truncated to only show the range of plausible assumptions between 0 and 36.6 percent. The percentages depicted on the horizontal axis refer a range of assumptions regarding the percentage of the *total* economic footprint of R&D incentive-recipient firms.

---

<sup>21</sup> A technical note for readers familiar with the REMI model: The R&D tax incentives are long-standing programs, and their economic impact is reflected in the historical data by which the REMI model baseline is calibrated. Adding additional incentive-related economic activity to the REMI model would double count the impact of the incentives. For this reason, ORA modeled the impact of the R&D tax incentives in the REMI model by *removing* the costs and benefits associated with the incentives. The signs of the REMI output were then reversed when presenting results in this report so that they would have a more logical, natural interpretation.

**Research & Development Tax Credits:**  
**Rhode Island General Revenue Breakeven Analysis**

(Average Annual RI General Revenue Impact, Calendar Years 2013-2015)



**Notes:** Label accompanying each marker refers to net RI general revenue impact resulting from a cost-benefit analysis assuming the labeled percentage of R&D benefits. General revenue impact is equal to the net revenue impact resulting from the direct, indirect, and induced effects in addition to the cost of paying back the cost of the tax credit. Note that the breakeven percentage is defined as the percent of benefits included in a cost-benefit analysis resulting in a net zero state RI general revenues impact.

**Source:** ORA calculations utilizing REMI PI+

A breakeven percentage of 23.6 percent can be interpreted to mean that if one assumes that 23.6 percent or more of the economic activity associated with R&D firms would not have been located in the state if not for the availability of the tax credit, then the R&D “pays for itself” in terms of state general revenues. Only if a reader considers it to be plausible that at least this level of economic activity can be attributed to the credit is it appropriate to consider that the R&D program “pays for itself” in terms of state general revenues.

To estimate the impact on state general revenues, ORA found it necessary to make an assumption regarding what level of economic activity would have taken place in the absence of the R&D tax incentives. ORA considered that in order for the R&D tax incentives to have an impact on a firm’s location and investment decisions, the value of the credit to the firm would have to be relatively large. A 2018 report from the W.E. Upjohn Institute for Employment Research suggests that the value of a typical economic development tax incentive in the first year of award is equal to approximately seven percent of a firm’s total wages.<sup>22</sup> This is consistent with ORA’s observation

<sup>22</sup> Bartik, Timothy J. 2018. "Who Benefits from Economic Development Incentives? How Incentive Effects on Local Incomes and the Income Distribution Vary with Different Assumptions about Incentive Policy and the Local



that recently-offered Rhode Island tax credit packages typically range between \$2,500 and \$7,500 per employee.<sup>23</sup> For these reasons, ORA calibrated its assumption regarding the portion of R&D incentive-recipient firms' economic activity that was attributable to the incentive such that the value of the incentive per employee was equal to approximately \$5,000.<sup>24</sup> This resulted in the assumption reflected in the table below that 17.5 percent of the investment and industry sales of R&D-recipient firms could be attributed to the availability of the R&D credits.

**Research & Development Tax Credits: Detailed Revenue Impacts**  
(Average Annual RI General Revenue Impact, Calendar Years 2013 - 2015)

Item Description	Amount
<b><i>General Revenue Generated by Credit by Component</i></b>	
Personal Income Tax	\$1,421,551
Sales and Use Taxes	\$1,391,584
Other Taxes	\$63,589
Total Departmental Receipts	\$438,650
Other Sources	\$484,120
<b>Total General Revenue Generated by Credit</b>	<b>\$4,299,070</b>
<b>Revenue Forgone Due to Credit</b>	<b>\$(5,850,876)</b>
<b>Net Change in General Revenue, After Paying for Incentive</b>	<b>\$(1,551,806)</b>
<b>New Revenues Generated for Every Dollar of Credit</b>	<b>\$0.73</b>

**Source:** ORA calculations based on historical Rhode Island revenue amounts and REMI PI+ simulation.

This table shows the detailed revenue impact that ORA calculated, based on the assumption that 17.5 percent of the economic activity associated with R&D-recipients was “caused” by the availability of the credit. This shows that economic activity attributable to the R&D program generated a total \$4.30 million of state general revenues – however, this figure does not include the \$5.85 million cost of the credit itself. Therefore, in an average year during the period of calendar years 2013 through 2015 Rhode Island gives up \$5.85 million in revenue on the R&D program and receives \$4.30 million of new revenues in return, equal to an average annual net loss of \$1.55 million in net general revenue. Expressed another way, for every dollar spent on the R&D program the state generates \$0.73 of new revenue. This payback ratio shows that the total costs of

---

Economy." Upjohn Institute Technical Report No. 18-034. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. <https://doi.org/10.17848/tr18-034>

<sup>23</sup> The following is an example of a typical tax credit package: <http://commerceri.com/finance-business/taxes-incentives/qualified-jobs-incentive/>

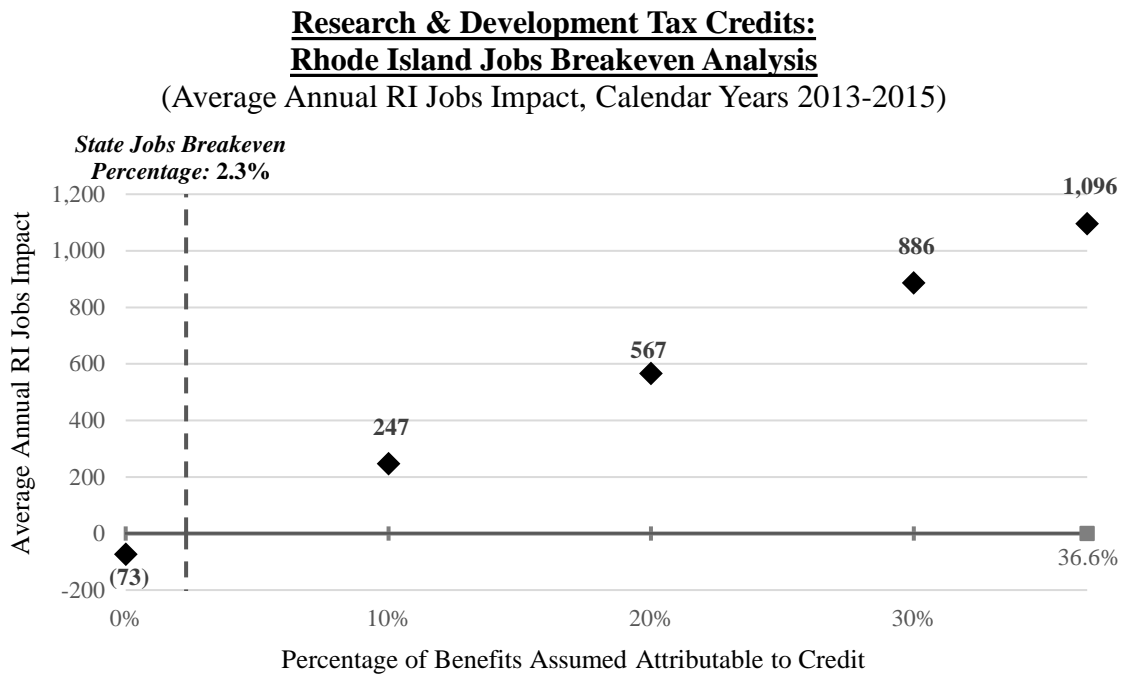
<sup>24</sup> In arriving at the 17.5 assumption, ORA noted that the credit expense in an average year between calendar years 2013 through 2015 was \$5,850,876. Applying an average effective credit rate of 17.7 percent and assuming that all firms had stable R&D expenditures and utilized the ASC credit calculation as described previously, ORA assumed that this credit amount would support \$65,927,527 dollars in total qualified research expenditures. Applying the assumption derived from 2014 data published by the National Science Foundation, National Center for Science and Engineering Statistics on R&D spending by United States firms, namely that R&D expenditures comprise an average of 3.5 percent of sales ORA assumed that this level of qualified research expenditures was generated in relation to \$1,883,643,618 in industry sales. ORA then applied the ratio of sales to employment in the Rhode Island manufacturing indicated by the U.S. Census Bureau, 2012 Economic Census data (specifically, the source reported \$11,262,000,000 in gross sales and 39,608 in total employment in the Rhode Island manufacturing sector, implying an employment to sales ratio of  $3.52 \times 10^{-6}$ ). ORA arrived at the 17.5 percent assumption via the following calculation:  $\$5,850,876 \div (\$1,883,643,618 \times (3.52 \times 10^{-6}) * 17.5\%) \approx \$5,000$ .

the R&D exceeded new revenues generated from the R&D-incentivized activity which resulted in a loss of net new revenue to the state.

While this payback ratio and revenue impact is constructed using ORA’s assumption that 17.5 percent of the economic activity of R&D incentive recipients was attributable to the R&D incentives, if a reader believes that a higher portion of economic activity was attributable to the incentives, the payback ratio and revenue impacts would be more favorable. For example, if a reader believes that greater than 23.6 percent of the economic activity associated with recipient firms was attributable to the incentive, then it is possible that the R&D incentives would have a positive net impact on general revenues and a payback ratio greater than \$1.00.

The breakeven framework can also be extended to employment and Rhode Island GDP. In these contexts, the breakeven percentage can be interpreted as the percentage of economic activity associated with R&D-recipient firms assumed to be attributable to the availability of the tax incentive necessary for the increase in employment or GDP resulting from new economic activity to outweigh the employment or GDP losses resulting in the reduction in government spending necessary to fund the credit.

The following chart shows the results of a breakeven analysis with respect to employment.



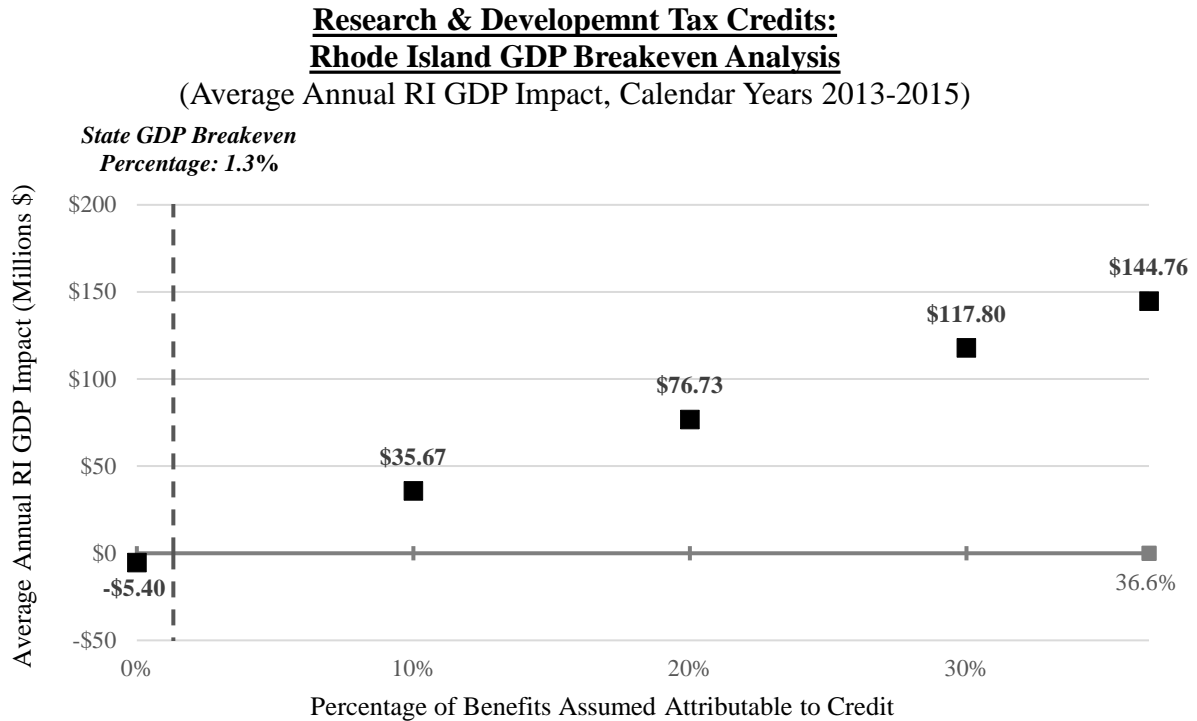
**Notes:** Label accompanying each marker R&D benefits. Note that the breakeven percentage is defined as the percent of benefits included in a cost-benefit analysis resulting in a zero state RI jobs impact.

**Source:** ORA calculations utilizing REMI PI+

The employment breakeven percentage of 2.3 percent implies that the R&D tax incentive has a net positive impact on Rhode Island employment if at least 2.3 percent of the economic activity

associated with the R&D-recipient companies would not have occurred but for the availability of the tax incentive.

The following chart shows the results of a breakeven analysis with respect to Rhode Island gross domestic product (RI GDP).



**Notes:** Label accompanying each marker refers to RI GDP impact resulting from a cost-benefit analysis assuming the labeled percentage of R&D benefits. Note that the breakeven percentage is defined as the percent of benefits included in a cost-benefit analysis resulting in a zero state RI GDP impact.

**Source:** ORA calculations utilizing REMI PI+

The RI GDP breakeven percentage of 1.3 percent implies that the R&D tax incentive program has a net positive impact on Rhode Island GDP as long as at least 1.3 percent of economic activity associated with the R&D-recipient companies would not have occurred but for the availability of the tax incentive.

## **Part V: Discussion and Recommendations**

### **1. Statement by the CEO of the Commerce Corporation**

The Secretary of Commerce, who serves as Chief Executive Officer of the Rhode Island Commerce Corporation pursuant to R.I. Gen. Laws § 42-64-1.1(b), provided the following statement pursuant to R.I. Gen. Laws § 44-48.2-5(a)(6)(iii):

**Statement from the CEO of the Commerce Corporation:**

The Commerce Corporation believes that strong research and development activity is critical for a healthy economy and that such activity should return significant benefits to the state and taxpayers. As demonstrated by ORA's report, though showing positive signs for GDP and employment, the current R&D Tax Credits result in a net loss of revenue to the state. The report also highlights that Rhode Island businesses conduct R&D at a lower rate than the national average. The Commerce Corporation believes that this disparity represents a clear opportunity to grow Rhode Island's economy. Over the last several years the administration has taken steps to increase the commercialization of R&D in Rhode Island -- including the creation of the Innovation Voucher program and the development of the Innovation Campus competition in partnership with URI. As pointed out in the report, usage of the R&D tax incentives fell in 2015, suggesting these credits lost some of their power to incentivize new R&D activity in the context of other tax reforms. Additionally, states like Massachusetts and California have significantly stronger R&D incentives, besting Rhode Island in areas like length of the carry-forward period and the level to which they reduce tax liability. Outside the United States, models like Australia provide examples of strong R&D tax credits that include refundable components for small and medium sized businesses which Rhode Island might emulate in order to truly stand out. The Commerce Corporation encourages the strengthening of our R&D Tax Credits as they are essential to the competitiveness of our innovation economy. Such reforms such be aimed at encouraging greater investment in R&D activities in our state and, in doing so, contributing to Rhode Island's economic growth.

### **2. Discussion of Data Concerns**

ORA does not have practical capacity nor explicit statutory authority to access tax incentive recipient tax returns directly. Instead, ORA often relies on public data sources such as Division of Taxation, Revenue Estimating Conference testimony and the Division of Taxation, *Tax Credit & Incentive Report*. To produce more rigorous analysis than what is contained in this report, ORA would require additional access to confidential taxpayer information and/or enhanced data reporting requirements for tax credit recipients such that data necessary for evaluation were available in the public domain.

The following table which compares Division of Taxation November 2017 Revenue Estimating Conference (REC) testimony with self-disclosed credit usage as reported in the Division of Taxation *Tax Credit & Incentive Reports*. The REC testimony includes usage by all R&D credits recipients. The *Tax Credit & Incentive Report* includes only a portion of R&D credits usage. The

*Tax Credit & Incentive Report* only contains comprehensive disclosure of six state tax credit programs, of which the R&D program is not included. Recipients of the six-covered tax credit and incentive programs are required to report any usage of additional state tax credits;<sup>25</sup> therefore, R&D tax credits usage is included incidentally in the *Tax Credit & Incentive Report* only when self-disclosed by recipients of covered tax credits. While only including a subset of taxpayers, ORA would like to highlight that the *Tax Credit & Incentive Report* is a useful tool which provides the public with greater insight into the level of business incentives granted to individual taxpayers.

ORA was unable to present certain statutorily-required metrics, such as the amount of credit awarded by NAICS Code, due to confidentiality concerns. Requiring enhanced disclosure by taxpayers as a condition of receiving a tax credit would allow ORA to report on these metrics.

### **Research and Development Tax Credits Data Sources Compared**

(Amounts in Millions of Dollars)

<b>November 2017 REC Testimony</b>		<b>Annual Tax Credit &amp; Incentive Reports</b>	
<b>Tax Year</b>	<b>R&amp;D Amount <sup>a</sup></b>	<b>Fiscal Year</b>	<b>R&amp;D Amount <sup>b</sup></b>
TY 2013	\$6.35	FY 2014	***
TY 2014	\$8.52	FY 2015	\$0.49
TY 2015	\$2.68	FY 2016	\$0.73
<b>Total</b>	<b>\$17.55</b>	<b>Total</b>	<b>\$1.22</b>

**Source:** Division of Taxation Testimony at the November 2017 Revenue Estimating Conference (REC) and Division of Taxation *Annual Credit & Incentive Reports*.

<sup>a</sup> Source reports on aggregate R&D usage by *all* taxpayers.

<sup>b</sup> Source reports on self-disclosed R&D usage only by certain taxpayers subject to annual *Tax Credit & Incentive Report* reporting.

\*\*\* No R&D tax credits recipients for FY 2014

The self-disclosure provided by the *Tax Credit & Incentive Report* is quite useful, and ORA would encourage policymakers to broaden the breadth of tax credits and taxpayers subject to this level of reporting.<sup>26</sup> As noted in other Tax Incentives Evaluation Act reports, ORA also recommends that the *Tax Credit & Incentive Report* be improved with a well-communicated policy of backwards revision of historical credit usage data as well as more precise reporting of credit usage by tax year rather than fiscal year.

While it is acceptable from a standpoint of confidentiality to present taxpayer data in aggregated form, and ORA has made every effort to do so throughout this report, there are practical limitations to this approach. When dealing with a small state such as Rhode Island, a small number of

<sup>25</sup> Credits covered by the *Tax Credit & Incentive Report* include Rhode Island Commerce Corporation Project Status (R.I. Gen. Laws § 42-64-10), Incentives for Innovation and Growth (R.I. Gen. Laws Chapter 44-63), Jobs Development Act (R.I. Gen. Laws Chapter 42-64.5), Distressed Areas Economic Revitalization Act – Enterprise Zones (R.I. Gen. Laws Chapter 42-64.3), Motion Picture Production Tax Credit (R.I. Gen. Laws Chapter 44-31.2), and Historic Preservation Tax Credits 2013 (R.I. Gen. Laws Chapter 44-33.6).

Further information regarding reporting requirements applicable to these tax credit recipients is contained in Rhode Island Division of Taxation Notice 2016-03 available at: <http://www.tax.ri.gov/Tax%20Website/TAX/notice/Notice%20201603%20%20Tax%20credits%20and%20incentives.pdf>

<sup>26</sup> See “Finding #4” and related recommendation below.

taxpayers claiming narrowly-focused tax incentives often makes it impossible to aggregate data into sufficiently large units of analysis to prevent a reader from being able to infer confidential taxpayer information.

In recent years, the R&D tax credits have been claimed by an average of 45 taxpayers annually for tax years 2013 through 2015 – which is potentially a large enough sample size such that statistical aggregation techniques could be utilized to preserve taxpayer confidentiality – the recipients of the R&D are from a diverse range of industries, consist of businesses ranging from small to large, and claim a wide variety of credit amounts. However, it is not possible to make meaningful generalizations regarding an “average” credit recipient without dividing taxpayers into sub-groups and categories. ORA determined that the most precise categorization possible in this report was to describe credit recipients in two groups: manufacturing and non-manufacturing. Although this delineation is helpful, it begs the question as to what manufacturing or non-manufacturing subsectors are using the R&D tax incentives? For example, is the usage of the R&D tax incentives concentrated in only a few manufacturing and non-manufacturing subsectors or is it more widely dispersed? ORA cannot answer such questions without divulging confidential taxpayer information even if the answer to these questions would allow policymakers to improve the structure of the R&D tax incentives. This seems to be counterproductive to the purpose of the tax incentive evaluation mandate.

- *Difficulty Accessing Taxation Data*

It is essential that all data necessary for the evaluation of Rhode Island tax incentive programs such as the R&D tax incentives are captured in Rhode Island tax forms. Beneficiaries of tax incentive programs must specifically consent to sharing these data with any state agencies tasked with evaluation as a condition of receiving the tax benefit. Such data must be reviewed for completeness and accuracy prior to award of any tax credit.

In creating this and other reports, it typically takes a substantive period of time following the close of a tax year for the Division of Taxation to provide ORA with all necessary data to complete its required evaluation. For example, ORA relies on the Division of Taxation to construct its personal income tax simulation model that is used to estimate the total taxes paid by tax incentive recipients. The data necessary to construct this model typically is not available until 15 or more months following the close of the tax year. This is due to the fact that personal income tax returns are filed throughout the calendar year immediately following the close of the tax year and it is not until the end of the calendar year that the overwhelming majority of personal income tax returns have been filed and processed. For many other ad hoc data requests, federal privacy laws and regulations make it difficult or impossible to utilize administrative taxpayer data for tax incentive evaluation. For ORA to conduct evaluations, better access to data under Division of Taxation control, an agency whose primary mission is processing tax returns fairly and efficiently for taxpayers and ensuring compliance with the state’s tax code, or improving data collection tools so that tax incentive recipient firms themselves submit necessary data in a manner suitable for evaluation is necessary.

### 3. ORA Recommendations

**Finding #1:** The statutory goals of the New Research and Development Facilities Deduction, Research and Development Property Credit, and Research and Development Expense Credit are NOT defined in R.I. Gen. Laws § 44-32-1, § 44-32-2, or § 44-32-3. Therefore, it is not possible to measure performance against statutory objectives.

**Related Recommendations:**

- Policymakers should determine goals and objectives of the R&D tax incentive programs in order to provide guidance to evaluators.

*Discussion Supporting Finding #1:*

R.I. Gen. Laws § 44-48.2-5(a)(10) requires the Office of Revenue Analysis to offer recommendations “as to whether the effectiveness of the tax incentive could be determined more definitively if the general assembly were to clarify or modify the tax incentive’s goals and intended purpose.” Discussion related to the goals and purposes of the R&D credits are as follows:

The success of a tax incentive program is usually related to the extent to which its goals and objectives were achieved. In this context, the lack of statutory goals makes it very difficult to evaluate the R&D tax incentive programs given that desired outcomes are not defined under the program’s governing statute. A major ambiguity is the extent to which the R&D tax incentive programs are intended to provide a marginal cost savings to local firms undertaking research activity *vs.* attracting research activity from competitive out-of-state locations. While this difference is subtle, making this determination will help to inform cost-effective incentive design and evaluation.

ORA found that it is unlikely for the R&D tax incentive programs to breakeven with respect to state general revenues if the incentives represent only a marginal cost savings to the firm, unless the recipient firms’ research activity has significant spillover benefits for the local economy. ORA found it is *possible* for the R&D tax incentives to breakeven if the availability of incentives attracted research activity from other states or facilitated projects that would not otherwise have been possible. However, there is little or no data to track the extent to which R&D tax incentives actually attracted research activity from other states. Considering that this distinction has a potentially determinative impact on the cost-effectiveness of the program, ORA recommends that lawmakers construct a statutory purpose that emphasizes the goals such as targeting research with locally impactful spillover effects, building industry clusters, and attracting research projects from competitive out-of-state locations.

Taxpayer confidentiality, restrictions related to federal taxpayer information, and insufficient data collection mechanisms pose major obstacles to evaluators of these R&D tax incentives. Policymakers should determine what enhanced data collection, reporting, disclosure rules might be put in place to facilitate measurement of tax incentive program performance relative to statutory goals.

**Finding #2:** While adequate from a standpoint of confirming taxpayer compliance with eligibility requirements, current reporting requirements are inadequate for economic analysis. The fact that Rhode Island R&D tax incentives conform with the definitions and formulas utilized to calculate the Federal Research Credit is a double-edged sword – creating administrative efficiencies and data access challenges.

**Related Recommendations:**

- Consider legislative changes to enhance data reporting and revise disclosure rules for R&D incentive recipients similar to those required by recipients of credits covered by the Division of Taxation’s annual *Tax Credit & Incentive Report*.
- Maintain conformance with Federal Research Credit definitions and calculation procedures while expanding the data collected on Rhode Island tax forms.
- To produce more rigorous analysis than what is contained in this report would require modifications to Rhode Island tax forms and/or establishing new data collection mechanisms.

*Discussion Supporting Finding #2:*

R.I. Gen. Laws § 44-48.2-5(a)(9) requires the Office of Revenue analysis to offer recommendations “[i]n the case of economic development tax incentives where measuring the economic impact is significantly limited due to data constraints, whether any changes in statute would facilitate data collection in a way that would allow for better analysis.” Discussion related to this topic is as follows:

Tying the state research credit to federal definitions and forms minimizes administrative burden for taxpayers and administrators. Taxpayers do not need to maintain duplicative records, other than monitoring which qualifying research expenditures occur in Rhode Island. Rhode Island tax administrators benefit from compliance instigated by enforcement of the Federal Research Credit. Because Rhode Island R&D tax incentives are calculated based on amounts claimed on the taxpayer’s federal return, a taxpayer attempting to fraudulently claim a state credit would have to duplicate their fraud at the federal level – magnifying the incentive for taxpayers to comply with the law by reporting research expenditures faithfully.

However, this connection to the Federal Research Credit also creates data access and evaluation issues. While Rhode Island lawmakers and administrators have some independence in setting rules for granting evaluators access to Rhode Island taxpayer information in appropriately anonymized or aggregated form, Rhode Island lawmakers and administrators have minimal independence in granting access to federal taxpayer information.

Rhode Island forms currently lack the specificity necessary for economic analysis. For example, lines 1 through 8 of IRS Form 6765 require the taxpayer to provide some detail on the types of qualified research expenditures undertaken by the taxpayer (*e.g.*, basic research payments to qualified organizations, wages, supplies, rental or lease costs of computers, *etc.*). However, Rhode Island Form 7695E asks taxpayers simply for the portion of the aggregate amount that takes place in Rhode Island, with no breakdown of expenses by type. A marginal improvement to Rhode



Island's form would be to adopt some of the elements of Minnesota's Form 2017 RD, utilized for the administration of the Minnesota Credit for Increasing Research Activities.<sup>27</sup> This form requires taxpayers to list Minnesota qualified research expenditures according to the same categories as on the federal form. By including these data on a *state* tax form rather than the federal form only, state tax officials may have greater knowledge of the composition of state research expenditures and greater flexibility in sharing aggregated taxpayer information with evaluators and the public.

Examples of more stringent improvements to data collection from R&D tax incentive recipients would be to create entirely new data collection mechanism. For example, the State of Washington distributes a mandatory survey to recipients of nearly all of its state tax incentives.<sup>28</sup> Incentive recipients must comply with the survey as a condition of receiving a state tax credit. The survey includes questions regarding the impact of tax incentive awards on business activities such as employment and investment. While Washington statutorily compels compliance with reporting requirements, other states such as Minnesota collect evaluation data through voluntary surveys and interviews with tax incentive recipient taxpayers.<sup>29</sup> ORA currently lacks the practical capacity to administer a rigorous evaluation survey.<sup>30</sup> Further investigation is necessary as to whether ORA and/or the Division of Taxation possesses the legal authority to contact taxpayers directly for purposes of compelling a response to a mandatory survey or requesting response to a voluntary evaluation survey.<sup>31</sup>

Public reporting of R&D tax incentive usage, including revealing the identity and amount of tax incentive usage by recipient, would increase transparency and facilitate improvements to program evaluation. For example, the Division of Taxation's annual *Tax Credit & Incentive Report* provides a framework for this type of reporting – but is limited by statute to only certain incentives, of which

---

<sup>27</sup> Minnesota Form 2017 RD available at: [http://www.revenue.state.mn.us/Forms\\_and\\_Instructions/rd\\_17.pdf](http://www.revenue.state.mn.us/Forms_and_Instructions/rd_17.pdf)

<sup>28</sup> Washington State “2017 Annual Tax Incentive Survey for Preferential Tax Rate/Credits/Exemptions/Deferrals Worksheet” available at: <https://dor.wa.gov/sites/default/files/legacy/Docs/Pubs/Misc/AnnualSurvey.pdf>

<sup>29</sup> The 2017 evaluation of the Minnesota Research Credit conducted by the Program Evaluation Division of the State of Minnesota Office of the Legislative Auditor is available at: [http://www.ncsl.org/Portals/1/Documents/fiscal/evaluation\\_database/MN\\_Research\\_Tax\\_Credit\\_2017\\_Evaluation\\_Report.pdf](http://www.ncsl.org/Portals/1/Documents/fiscal/evaluation_database/MN_Research_Tax_Credit_2017_Evaluation_Report.pdf)

<sup>30</sup> It is difficult for a small state such as Rhode Island to replicate scale and capacity of program evaluation staffs in other states. For example, ORA devotes between two and four staff, who split their time among other responsibilities, to tax incentive evaluation. The Minnesota 2017 Evaluation of the Research Tax Credit lists 19 staff members in the Program Evaluation Division in the Office of the Legislative Auditor.

<sup>31</sup> The fact that ORA is not part of the Division of Taxation, the entity within Rhode Island government that is responsible for administering the tax system, creates legal and practical challenges in terms of accessing taxpayer data necessary for evaluation. However, it should be noted that many states, including the Minnesota Office of the Legislative Auditor and the Washington State Joint Legislative Audit & Review Committee, conduct incentive evaluation in the legislative branch, which is not only outside of the tax administration agency, but outside of the executive branch entirely. Evidence of such collaboration in other states indicates that impediments to data-sharing for purposes of tax incentive evaluation can be overcome. ORA welcomes incremental legislative and administrative changes that would facilitate enhanced data sharing and cooperation over the long term while maintaining taxpayer confidentiality.

the R&D tax incentives are not included.<sup>32</sup> Recipients of tax incentives covered by the *Tax Credit & Incentive Report* are required to file an annual report with the Division of Taxation listing the amount of tax incentive utilized and also containing certain data necessary for confirming compliance with tax incentive eligibility requirements. These taxpayers claim tax benefits with the understanding that their identifying information and amount of credit usage will be disclosed publicly. To minimize the administrative burden, such reporting could only be required for taxpayers claiming more than some minimum threshold (*e.g.*, basic disclosure might only apply to taxpayers claiming more than \$5,000 of R&D tax incentives; requirement to file more detailed annual report might apply to taxpayers claiming more than \$10,000).

**Finding #3:** Usage of R&D tax incentives fell dramatically in tax year 2015, coinciding with the adoption of a major corporate tax reform:

- Business corporation tax reform instituted a rate reduction, mandatory unitary combined reporting, single-sales-factor apportionment, and market-based sourcing.
- The reduction in R&D tax incentive usage appears to have been driven by a dramatic reduction in taxes owed by R&D tax incentive-recipient firms rather than a reduction in R&D expenditures.

**Related Recommendations:**

- Policymakers should discuss whether R&D tax incentives remain relevant and/or should be modified as a result of this significant change in the Rhode Island tax environment.

*Discussion Supporting Finding #3:*

November 2017 Division of Taxation Revenue Estimating Conference testimony indicates that R&D tax incentive usage fell from \$8.52 million in tax year 2014 to \$2.68 million in tax year 2015 – a decrease of 68 percent or \$5.83 million. At the same time, a major business corporation tax reform took place effective for tax years beginning on or after January 1, 2015. The reform instituted changes including a reduction in the corporate tax rate, mandatory unitary combined reporting, single-sales-factor apportionment, and market-based sourcing. ORA has been unable to find any evidence that a dramatic reduction in R&D expenditures could have driven this reduction in R&D tax incentive usage. For example, data from the National Science Foundation indicate that

---

<sup>32</sup> Credits covered by the *Tax Credit & Incentive Report* include Rhode Island Commerce Corporation Project Status (R.I. Gen. Laws § 42-64-10), Incentives for Innovation and Growth (R.I. Gen. Laws Chapter 44-63), Jobs Development Act (R.I. Gen. Laws Chapter 42-64.5), Distressed Areas Economic Revitalization Act – Enterprise Zones (R.I. Gen. Laws Chapter 42-64.3), Motion Picture Production Tax Credit (R.I. Gen. Laws Chapter 44-31.2), and Historic Preservation Tax Credits 2013 (R.I. Gen. Laws Chapter 44-33.6).

Further information regarding reporting requirements applicable to these tax credit recipients is contained in Rhode Island Division of Taxation Notice 2016-03 available at:

<http://www.tax.ri.gov/Tax%20Website/TAX/notice/Notice%202016-03%20--%20Tax%20credits%20and%20incentives.pdf>

United States R&D expenditures increased by 4.4 percent in calendar year 2015 over 2014.<sup>33</sup> For Rhode Island, there was an even larger jump in R&D expenditures in calendar year 2015 over 2014, increasing by 42 percent or \$200 million from \$479 million to \$679 million.

Among the various tax reforms that took effect in tax year 2015, the shift from a three-factor apportionment formula to a single-sales-factor apportionment formula is particularly relevant. When the R&D tax incentives were adopted, Rhode Island General Laws specified a three-factor formula for apportioning income earned by a C-corporation operating in multiple states with nexus in Rhode Island based on property, sales, and payroll for purposes of assessing the business corporation tax under R.I. Gen. Laws § 44-11-2. The proportion of a C-corporation's United States income that was subject to tax was equal to the average of the proportions of a company's property, sales, and payroll that was located/took place in Rhode Island.<sup>34</sup> Under this tax regime, an increase in a company's Rhode Island property and payroll, holding other factors equal, would result in an increase in Rhode Island taxable income. A tax scheme whereby firms with more Rhode Island property and payroll are subject to higher taxable income has the potential to disincentive Rhode Island R&D spending on research-related equipment, facilities, and wages. Providing a reward, in the form of a business corporation tax credit, for firms with increased Rhode Island property and payroll expenses could potentially mitigate this disincentive. It is unknown if this was the deliberate intent of R&D tax incentive programs because these programs have no statutory purpose.

For tax years beginning on or after January 1, 2015, Rhode Island adopted a single sales factor apportionment formula for determining Rhode Island taxable income for C-corporations subject to the business corporation tax. Under this apportionment formula, the proportion of a C-corporation's United States income that is subject to tax is equal to the portion of the firm's total sales that took place in Rhode Island. This formula eliminated the potential negative consequence of the three-factor apportionment formula to discourage a multi-state firm from making property and/or payroll investments in Rhode Island. To the extent that the R&D tax incentives were justified on the assumption that three-factor apportionment discouraged multi-state firms from making property and/or payroll investments in Rhode Island, the adoption of a single sales factor apportionment has made R&D tax incentives unnecessary.

The adoption of single sales factor apportionment has had a significant impact on the Rhode Island corporate tax environment for multistate firms to such an extent that the R&D tax incentives may no longer serve as a meaningful incentive for some or all firms. An example of the type of firm that is likely to benefit from the shift to single-sales-factor apportionment is a Rhode Island-headquartered corporation with a presence in many states. A large percentage of such a firm's payroll spending and property investment may take place at its Rhode Island corporate

---

<sup>33</sup> See data presented in Part I above for national and state R&D expenditures.

<sup>34</sup> Considering that manufacturing firms are responsible for a majority of R&D tax incentive usage, it is worth noting that prior to the adoption of single-sales-factor apportionment, manufacturers had been able to elect the use of a three-factor apportionment formula that assigned double-weight to the sales factor. This partially mitigated the investment and employment disincentives caused by the equally weighted three-factor formula by diminishing the relative significance of property and payroll in the apportionment calculation.

headquarters, but a relatively small percentage of its national sales are made to Rhode Island customers. In general, it is expected that such a firm would pay significantly less business corporation tax under single-sales-factor apportionment than had been previously paid under three-factor apportionment. While non-refundable R&D tax incentives would have had substantial dollar value for such a firm under three-factor apportionment, it is possible that R&D tax incentives would be far less valuable under single-sales-factor apportionment because the single sales factor apportionment formula has significantly reduced such a firm's Rhode Island apportioned taxable income, and for most taxpayers the value of R&D tax incentives are limited based on a firm's tax liability and subject to carryforward limitations.<sup>35</sup>

ORA found that the R&D tax incentive programs only break even under an assumption that the incentives impact the location and investment decisions of recipient firms and/or the R&D activity has significant spillover effects. If the R&D tax incentives primarily function to reduce a firm's marginal production cost, it is unlikely that the incentives break even. This means that the cost-effectiveness of the R&D tax incentives relies on its ability to facilitate firms locating or undertaking business operations in Rhode Island that would not have occurred but for the availability of the credit – beyond research activities only. If the value of the R&D tax incentives to an individual taxpayer has been reduced to the point that it no longer represents a meaningful cost savings to the firm, it will simply subsidize behavior that would have taken place anyway, likely with a net negative revenue impact. In light of the tax year 2015 Rhode Island corporate tax reforms, it is necessary to consider whether R&D tax incentives remain meaningful or necessary.

Finally, ORA recommends further investigation as to the relevance and impact of the R&D incentives for insurance companies subject to the insurance company gross premiums tax. Because of the small number of taxpayers' subject to the insurance company gross premiums tax claiming R&D incentives, ORA was unable to report on detailed firm characteristics and it was difficult for ORA to make generalizations regarding a typical credit recipient. Enhanced data reporting requirements would help to facilitate more rigorous analysis as it relates to R&D incentive usage by insurance companies.

**Finding #4:** A best practice of tax incentive design is the inclusion of a sunset provision. Neither the New R&D Facilities Deduction, R&D Property Credit, nor the R&D Expense Credit contain sunset provisions.

**Related Recommendations:**

- Add sunset provisions to the R&D tax incentive programs.

---

<sup>35</sup> As noted in "Description of the Incentive" above, the New R&D Facilities Deduction and R&D Property Credits are non-refundable and shall not reduce a taxpayer's Rhode Island liability below the minimum tax. The values of the R&D Expense Credit shall not exceed half of a taxpayer's Rhode Island tax liability. The New R&D Facilities Deduction allows for carryforward of excess deductions for up to three years. The R&D Property and Expense Credits allow for carryforward of unused credits for up to seven years.

*Discussion Supporting Finding #4:*

An important feature of a sunset is that it provides legislators with a regular opportunity to reconsider the continued relevance of the tax credit program and revise program features as needed. For example, the 2015 Rhode Island corporate tax reform had a major impact on the local business tax landscape, which presumably had an impact on the effectiveness and necessity of tax incentive programs such as the R&D tax incentive programs, but no legislative changes were made to the R&D tax incentives in response to this change. A sunset provision would help to ensure that such reconsiderations and revisions occurred at regular intervals.

**Finding #5:** Under reasonable assumptions regarding the extent to which incentives modified taxpayer behavior, one dollar of investment in R&D tax incentives returned 73 cents in state revenues.

The following observations regarding credit recipients may guide policymakers in evaluating current program performance and designing modifications to improve its cost-effectiveness:

- Despite a credit rate structure apparently targeted at providing additional marginal incentive to smaller businesses, data reveal taxpayers claiming R&D credits tended to be larger businesses.
- R&D tax credit recipients paid relatively little in state taxes.
- The non-refundability and credit cap provisions of the R&D credits impact the majority of credit users.

**Related Recommendations:**

- Implement new data collection procedures and create authority to collect data on what, if any, research activity was attributable to R&D tax incentives.
- Explore the extent to which the current structure of the R&D tax credits limits the effectiveness of the R&D tax credit programs.
- Consider whether alternatives or modifications to the current policy would enhance the marginal impact of the R&D tax incentives and improve cost-effectiveness.
- Prior to implementing any enhancements to the R&D Property and Expense Credit programs ascertain what best practices can be put in place to ensure the cost-effectiveness of the program.

*Discussion Supporting Finding #5:*

This analysis found, under reasonable assumptions regarding the extent to which the R&D tax incentives impacted firms' location decisions, that every dollar invested in R&D tax incentives only returned 73 cents in state general revenue. While the credit caps and non-refundability provisions of the R&D Property and Expense Credits limit the population of taxpayers that could potentially benefit from the tax credits, ORA cautions against making the terms of the credit more generous without putting policies in place that enhance the cost-effectiveness of the programs. Further investigation is necessary to determine what if any research activity was actually "caused" by the availability of the credit; ORA possesses neither the capacity nor legal authority to implement the data collection mechanisms such as surveys and detailed state tax forms that would be necessary to gather these data.

ORA assumes that the tiered credit rate is intended to deliver greater incentives to smaller taxpayers; however, the users of the R&D Property and Expense Credits tend to be larger than the typical Rhode Island corporation. The median C-corporation filing taxes with the Rhode Island Division of Taxation has federal taxable income between \$0 and \$249,999 while the median user of the R&D Property and Expense Credits in tax year 2015 had a federal taxable income between \$34 million and \$57 million.<sup>36</sup> The largest users of R&D credits had federal taxable income measured in the billions of dollars.

When compared with the size of a typical credit recipient, the value of the R&D credit was relatively modest. The average R&D Property and Expense Credit was approximately \$87,000, and the average credit claimed by the top-ten highest credit users was approximately \$260,000. The cost-effectiveness of the R&D tax incentive programs relies upon the assumption that incentives play an instrumental role in a firm's location decision, but it does not seem plausible that a credit of this magnitude would factor heavily into a firm's planning decisions, particularly for large firms.

ORA assumes that a justification for the R&D Property and Expense Credits is that a high state tax burden is an impediment to firms interested in conducting research activity in the state; however, recipients of the R&D Property and Expense Credits do not pay significant state taxes relative to the amount of credit received.<sup>37</sup> In tax year 2015, the only year for which ORA was able to obtain reliable data, 35 users of the R&D Property and Expense Credits received a total \$3.0 million in R&D Property and Expense Credits, \$5.2 million in additional business tax incentives, and paid a total of \$2.6 million in state business corporation tax and insurance companies gross premiums tax. The average tax liability of an R&D Property and Expense Credit recipient was approximately \$75,000 and the median tax liability was approximately \$5,000. The tax year 2015 effective tax rate paid by these firms, calculated as tax liability as a percent of apportioned Rhode Island taxable income, was approximately 1.2 percent (for comparison, the statutory business corporation tax rate was 9 percent in tax year 2014 and prior and 7 percent in tax year 2015 and following). Considering the modest tax burden of most R&D Property and Expense Credit recipients, it is not surprising that most recipients trigger the credit caps and non-refundability provisions of the credit programs.

---

<sup>36</sup> Federal taxable income is presented as a proxy for a corporation's total size, not necessarily its presence in Rhode Island. A large, multistate firm does not pay taxes on 100 percent of its federal taxable income. This statistic is simply meant to convey a general impression of firm characteristics of whether recipients tend to be "small businesses" or "large corporations." Statewide median federal taxable income was calculated based on TY 2014 "Statistics of Income" reported by the Division of Taxation, the most recent data available at the time of publication.

<sup>37</sup> ORA was able to obtain data on the business corporation tax and insurance company gross premiums tax paid by R&D tax incentive recipients. It is possible that some recipients face significant commercial real estate or tangible personal property taxes paid to municipalities related to their capital-intensive research activities, but ORA does not have a reliable method of obtaining this information. While Rhode Island's high property tax burden may be an impediment to firm's conducting R&D, and the R&D tax incentives may serve to offset a portion of this tax burden, the R&D incentives have no statutory purpose to indicate this. Further information regarding property tax burdens in Rhode Island and comparison states can be found in the previously published *Tax Incentives Evaluation Act Report* covering "Investment Tax Credits."

ORA found that the tax liability cap and non-refundability provisions of R&D Property and Expense Credits significantly limited the amount of credit claimed by taxpayers. The R&D Property Credit is non-refundable and cannot reduce a taxpayer's liability below the statutory minimum tax. The R&D Expense Credit is non-refundable and cannot reduce a taxpayer's liability below the greater of 50 percent of the pre-credit tax liability or the statutory minimum tax. Specifically, ORA found that 27 out of 35 R&D Property and Expense Credit recipients, or 77 percent, triggered the non-refundability or tax liability cap provisions in tax year 2015 with 11 of these 27 taxpayers utilizing the R&D tax credit programs having paid only the minimum tax, triggering the non-refundability provision, and the remaining six having triggered the fifty-percent-of-tax-liability cap.<sup>38</sup> ORA assumes that these 27 taxpayers, plus some unknown additional amount, would claim additional credit if the refundability and/or credit cap provisions were removed.

It is also important to note that for these 27 taxpayers, the R&D Expense Credit provides no marginal incentive to increase research activities. An increase in current year research expenditures will result in no additional current year tax benefits – aside from the possibility of carrying credits forward to a future year. Firms that consistently conduct a level of research activities that are sufficiently high relative to their state tax liability may find themselves in this situation year after year. In this way, the marginal value of the R&D Expense Credit diminishes as firm size increases. The larger the amount of research activities conducted by a firm relative to its state tax liability, the more likely it is that the R&D credit is rewarding firms for activity that would have taken place anyway without the credit.

Policymakers should consider recalibrating the credit calculation procedure so that the Rhode Island R&D Expense Credit pays for each firm's *last* dollar of research expenditures rather than the *first*. This could be achieved by changing the credit rate and/or decoupling from the federal credit calculation methodology. The federal credit calculation methodology is such that taxpayers are granted credits only for research activities in excess of the historical base level. By increasing the historical base level, it is possible that fewer taxpayers would be impacted by the credit cap or non-refundability provisions. However, policymakers should consider the challenges to administrators and taxpayers that might result from decoupling with the Federal Research Credit.

Another option would be to replace the tax credit programs with some other targeted incentive that focuses resources on the highest priority outcomes and contains provisions to facilitate transparency, protections of taxpayer funds, and ongoing program evaluation. Considering that the current R&D incentive has no statutory goals or intents, ORA is unable to recommend or endorse a specific program, but a possible option to consider may be a targeted grant program that is subject to appropriation and an application process. Making such a program subject to appropriation would

---

<sup>38</sup> Many taxpayers claim a R&D Property and Expense Credit on their tax return but are not able to utilize any credit amount in the current year. These taxpayers go through the burden of documenting their credits earned so that they can carry forward the credit amounts to a future year. The count of 35 taxpayers only include those who have sufficient taxes owed such that they actually utilized R&D credits in tax year 2015. ORA confirmed that some additional number of taxpayers claimed credit which they were not able to utilize in tax year 2015, but was unable to construct a reliable estimate of the number of taxpayers.



ensure that grant amounts would not unexpectedly reach unmanageable levels. A grant program would provide certainty to recipients, making it more likely that small firms with uncertain tax liability would be able to rely upon the full value of the incentives when making location or investment decisions. Administrators could incorporate statewide economic development strategic goals into the eligibility and selection criteria. Additionally, the application process could incorporate some level of “but for” due diligence and follow-up data collection to ensure that incentive awards leverage the maximum level of private investment and locally impactful spillover effects.

Whether the R&D tax incentives are allowed to continue “as is” or modifications are made, ORA strongly urges that policymakers solicit testimony from credit recipients and rigorous surveys on the extent to which the R&D tax incentives facilitated investments that would not have been possible but for the availability of the credit.

**Finding #6:** ORA found virtually no usage of the New R&D Facilities Deduction, and only slightly more usage for the R&D Property Tax Credit:

- Over the period tax years 2013 through 2015, the total amount of New R&D Facilities Deduction claimed was equal to a reduction of \$2,643 in tax revenue, an average annual loss of \$881 claimed by less than ten taxpayers.
- Over the period tax years 2013 through 2015, the total amount of R&D Property Tax Credit claimed was equal to a reduction of \$387,432 in tax revenue, an average annual loss of \$129,144 claimed by less than ten taxpayers.

**Related Recommendations:**

- Consider repeal of R.I. Gen. Laws § 44-32-1 due to underutilization and incorporation of R.I. Gen. Laws § 44-32-2 into the Investment Tax Credit programs.

*Discussion Supporting Finding #6:*

It may be economically worthwhile to encourage firms to invest in research-related property and facilities in Rhode Island. Such investments have a lasting impact on the economy and anchor a firm to the state. However, the New R&D Facilities Deduction and the R&D Property Tax Credit had minimal usage over the past several years. This may be because firms that would be eligible for these R&D tax incentives are making use of other tax incentives instead. This assumption is supported by the fact that an average user of R&D tax incentives makes extensive use of additional state tax incentive programs.

ORA assumes that low utilization of the New R&D Facilities Deduction and R&D Property Tax Credit is due the program’s interaction with other tax credit programs – for example, the Rhode Island Investment Tax Credit (ITC) programs offered pursuant to R.I. Gen. Laws Chapter 44-31. Per R.I. Gen. Laws § 44-32-1(a), taxpayers utilizing the New R&D Facilities Deduction do so “in lieu of depreciation or [the] investment tax credit.” Low utilization levels may indicate that taxpayers may find the Investment Tax Credit more valuable than the New R&D Facilities Deduction and elect to use the ITC in place of the R&D deduction.



Furthermore, per R.I. Gen. Laws §§ 44-32-2(h) and 44-32-2(i), taxpayers claiming the R&D Property Tax Credit shall not be allowed to also take the Investment Tax Credit in relation to the same property expenses, and these taxpayers must apply the Investment Tax Credit prior to the R&D Property Tax Credit when calculating their tax liability. Some taxpayers may find the Investment Tax Credit more valuable than the R&D Property Tax Credit, and others may have exhausted their credit cap prior to the application of the R&D Property Tax Credit in their tax liability calculation.

While ORA finds it difficult to justify the administrative cost of maintaining a tax credit with little or no historical usage, policymakers should consider the program's alignment with the Federal Research Credit and related deduction as well as interaction with other state tax credit. The little utilized R&D incentive programs are generally analogous to similar federal deductions and credits, so policymakers may find it worthwhile to keep them on the books to maintain consistency with the federal tax code. If policymakers plan to modify other state tax credits, such as the Investment Tax Credit, that are applied prior to the R&D tax incentives, ORA recommends that they consider potential impacts on R&D tax credit usage. Similarly, if the terms of the R&D tax incentives are changed so as to become more valuable than alternative tax credits, it is possible that taxpayers may elect to take the R&D tax incentives over less valuable alternatives. For example, if policymakers were to make the Investment Tax Credit less valuable to taxpayers, it would likely lead to a spike in R&D incentive usage.


#### **4. ORA Conclusion and Overall Recommendation**

R.I. Gen. Laws § 44-48.2-5(a) (11) requires the Office of Revenue analysis to make a recommendation "as to whether the tax incentive should be continued, modified, or terminated." The Office of Revenue Analysis recommends that the Research and Development Credits be reconsidered according to the recommendations described in the previous section.

# Appendix

## Exhibit A: Rhode Island Form 7695E

State of Rhode Island and Providence Plantations  
**Form RI-7695E**  
 Research & Development Expense Credit



15131699990101

Name	Federal employer identification number	For the period ending:

1	Federal Qualified Research Expenses from Federal Form 6765, line 9 or line 28 ..	1		
2	Federal Base Amount from Federal Form 6765, line 12 or 14, or line 30 .....	2		
3	Federal Excess Expenses. Subtract line 2 from line 1 .....	3		
4	Amount of Federal Excess Expenses from line 3 incurred in Rhode Island .....	4		
5	CREDIT - (22.5% on expenditures up to \$111,111.00 and 16.9% on expenditures over \$111,111.00) .....	5		
6	Unused R&D Expense Credit from preceding year(s). Attach a schedule with amounts and year of origination .....	6		
7	Total R&D Expense Credit Available. Add lines 5 and 6 .....	7		
8	Tax amount from Form RI-1120C, line 13 or Form T-71, line 7 .....	8		
9	MAXIMUM R&D Expense Credit. Multiply line 8 by 50%. Enter here and on Schedule B-CR .....	9		
10	Credit carryover. Subtract line 9 from line 7 .....	10		

### INSTRUCTIONS

#### GENERAL

The credit is available to corporations for qualified research expenses. The credit is of the excess (if any) of the qualifying research expenses in the taxable year over the base period expenses from 7/1/1994 through 12/31/1997; for periods 1/1/1998 and therefore the rate shall be 22.5% for expenditures up to \$111,111.00 and 16.9% for the remaining expenditures over the \$111,111.00.

#### DEFINITIONS AND CALCULATION OF THE CREDIT

The terms "qualified research expenses" and "base period research expenses" shall have the same meaning as defined in section 41 of the Internal Revenue Code, provided however, that such expenses shall have been incurred in this state after July 1, 1994. The credit is based on the amount of the taxpayer's Federal excess and is calculated by first determining what of the taxpayer's Federal excess were incurred in Rhode Island after July 1, 1994 and then multiplying that amount by the appropriate rate to yield the Rhode Island credit.

#### EXAMPLE:

Taxpayer A has completed and claimed its Federal Credit and has qualified research expenses for its Federal Credit of \$100,000. A's Federal base amount is \$75,000. All expenses were incurred in Rhode Island and were incurred evenly throughout 2002. A has a calendar year end.

Taxpayer A's 2002 Rhode Island R & D Expense Credit is calculated as:

Federal Qualified Research Expenses	\$100,000
Federal Base Amount	75,000
Federal Excess Expense	25,000

Amount of Federal Excess Expenses in Rhode Island	25,000
Amount of Expenses in Rhode Island after January 1, 1998	25,000
Credit @ 22.5%	\$ 5,625

#### MINIMUM TAX AND CARRYOVER

In the case of corporations, the credit allowed shall not reduce the tax due to less than the minimum fixed by section 44-11-2(e); however, if the amount of credit allowable reduces the tax to the minimum fixed by section 44-11-2(e), any amount of credit not used may be carried over a maximum of seven (7) years.

#### USING THE CREDIT

Enter the amount from line 9 above on the "RI-7695E - Research & Development Facilities Expense Credit" line of Schedule B-CR, Business Entity Credit Schedule. Attach Schedule B-CR, Form RI-7695E and supporting documentation to your return.

#### ORDER OF CREDITS

For purposes of determining the order in which carry-overs shall be taken into consideration, the credit allowed by section 44-32-2 (credit for research and development property) shall be used before the credit described in this regulation.

#### COMBINED RETURNS

The credit earned before January 1, 2015, shall be allowed to offset only the tax liability of the corporation that earned the credit; such credit cannot be shared with other members of the combined group. The credit earned in tax years beginning on or after January 1, 2015, may be applied to other members of the group. Refer to the latest version of the Combined Reporting regulation for more details.

R.I. Gen. Laws § 44-32-3