GO VIRGINIA REGION 3
2019 UPDATE – GROWTH & DIVERSIFICATION PLAN

SUMMARY RECOMMENDATIONS

AUGUST 2019

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2019 Region 3 Growth & Diversification Plan Recommendations

Sector or Area of Critical Need	Strategy	Page in GD Report
Advanced Manufacturing (Aerospace, Production Technology, Lighting/Electrical, Automotive/OTR, Biopharmaceutical)	1) Subsector location factors validated and matched with Region 3 assets • 5 subsector assessments completed	**19**
	2) Large-scale prepared sites effectively positioned in market • Supply Chain story is developed that connects Berry Hill, Commonwealth Crossing, and Heartland Park and is promoted through web-based platform	**19**
	3) VBRSP site assessments certify sites to align with Priority Sectors • All sites over 25 acres have been VBRSP assessed and at least 10 are certified at Tier 2 level.	**19**
	4) Technical assistance provided to improve processes and expand markets • 2 companies/sub-region engaged in scale-up and supply chain optimization	**19**

	5) Talent Development (see Talent Development Strategies) • See Talent Development Strategies	**19**
	6) Environmental Technologies, Autonomous Vehicles • Market • Market validation and economic impact assessment completed	**19**
Business Services, IT/Data Centers	7) Middle Mile infrastructure leveraged for sector growth • The sector stabilizes job growth and adds at least 150 new jobs. • Two new companies establish presence in region.	**19**
	8) Entrepreneurial program/facilities expansion (see Entrepreneurial Strategy) • SOVA Innovation Hub CoWorking Space fully utilized. Interactive lab space utilized at least monthly by students from TechSpark region	**19**
	9) Prepared real estate options identified, assessed and promoted • 2 Sites for data center use are certified. Assessment of adaptive reuse of small downtown buildings for IT and business service companies is completed	**19**

	10) Commonwealth Cyber Imitative Implementation • Cooperation agreement implemented between hub and higher education institutions in Region 3	**20**
	11) Talent Development (see Talent Development Strategies) • See Talent Development Strategies	**20**
High Value Natural Resource Products (manufactured wood products, value-added agricultural production)	12) New product lines - Pellets, Thermally Modified Wood, Cross Laminated Timbers, biochemical, etc. • Companies identified, strategy for business development implemented by economic development partners	**20**
	13) Ag-based value-added production • Market research and validation of impact completed	**20**
	14) Employer-led apprenticeship strategy • Collaborative formed; apprentice program initiated	**20**
	15) Talent Development (see Talent Development Strategies) • See Talent Development Strategies	**20**
Sites & Buildings	16) Complete VBRSP site assessments and certify sites • All sites over 25 acres have been VBRSP assessed and at least 10 are certified at Tier 2 level.	**20**

	17) Continue investment in publicly owned and/or unique properties • 6 business sites have increased their site readiness rating. • Region invests in development of at least one unique asset (i.e. Foreign Affairs Security Training Center at Fort Pickett; Virginia International Raceway in Halifax; St. Paul's College in Brunswick County; former Community Memorial Hospital in Mecklenburg County; IKEA Building in Pittsylvania County; DuPont complex in Henry County; Patrick County Hospital in Patrick County)	**20**
	18) Region has a portfolio of buildings in small towns ready for IT and entrepreneurial/small business company locations • Complete assessment of potential for adaptive reuse of at least 10 buildings in at least 2 small towns is completed	**21**
Innovation & Entrepreneurship	19) Region-wide strategy focuses on traded sectors principally aligned with target sectors for Region • Complete a Region 3 Innovation & Ecosystem strategy	**21**
	20) Ensure Region 3 connectivity with Virginia Innovation Strategy • Incorporate recommendations for connectivity into the Region 3 Innovation & Ecosystem Strategy	**21**

	21) Assess and define innovation opportunities in the health care and agribusiness sectors • Partners in health care engaged to define talent development needs and innovation through use of technology. • Agribusiness partners engaged to assess new products, technology applications.	**21**
	22) Expand Youth entrepreneurship programs in K-12 and Community Colleges • Incorporate assessment and recommendations for expansion into Regional Innovation and Ecosystem strategy	**21**
	23) Leverage the Region's 23 Opportunity Zones for business development • Opportunity Zones are mapped and characterized for business development	**21**
Talent Development & Recruitment	24) Support GO-TEC as primary regional platform for talent development • By September 2020: achieve metrics as noted in GO-TEC 2A Contract Addendum, including targets for career connection labs launched, branding and marketing completed, student enrollment, teacher training, industry certifications awarded, students graduated, companies announced, and jobs created. Receive approval from State Board for GO-TEC 2B Contract.	**22**

25) Engage and leverage the Commonwealth Cyber Initiative • Partner agreements signed. Educational institutions from all of Region's geography are represented in the agreement.	**22**
26) Support expansion of employer-led apprenticeship models • Apprenticeship Consortium pilot implemented and benchmarked	**22**
27) Expand opportunities for incumbent talent to increase skills in target sectors • Pilot initiative for upskilling incumbent talent is implemented and measured for results	**22**
28) Leverage and measure results from the Tobacco Commission's Talent Attraction Program (TAP) and from the Virginia Community College's G3 program for occupations aligned with Region 3 talent gaps. • Confirm results of strategy for occupations of: Information Security, Network and Computer Systems Analyst; Industrial and Electrical Engineers; Physical Therapists; Occupational Therapists and other occupations associated with health care and manufacturing & trades.	**22**
29) Change the Talent and Training perception in Region 3 using current data • GO-TEC brand is utilized in economic development messaging	**22**

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STAKEHOLDER INPUT

AUGUST 2019

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Between April and August 2019, Region 3 staff, consultants, and representatives of Virginia Tech facilitated stakeholder engagement sessions as part of the development of the Region 3 Growth & Diversification Plan. Below is a summary of the input.

Changes in Region 3 in Last Two Years?

1. External Factors
    a. Region 3 is a "microcosm of global trends."
    b. Generally steady economic environment, although economic activity across region seems imbalanced.
    c. National economy upswing has helped Region, although there are concerns that the use of trade tariffs may be negatively impacting some corporate decisions to expand or locate.
    d. Programmatic changes to traditional tools such as Commonwealth Opportunity Fund and the Tobacco Commission incentive funds are resulting in the need for negotiating with companies differently at a time when the VEDP's marketing has intensified and is resulting in more leads for the Region.
    e. The perception of "rural America' does not help any rural region in Virginia.
2. Internal Factors
    a. The Certified Work Ready Community program is gaining credibility and positively impacting the perception and reality of workforce in the Region.
    b. Some emphasis beginning in the area of apprenticeship.
    c. Companies continue to expand (Microsoft, Foreign Affairs Security Training Center, Dominion Energy gas-fired generation plant).
    d. Some of region have continued to develop good industrial sites.

Top Region 3 Concerns

1. **Workforce & workforce development systems**
    a. Workforce:
        i. Lack of opportunities for students to have workforce experience, particularly in subregions of Region 3.
        ii. Difficult for students to understand the diversity of employment available.
        iii. Retaining graduates in Region.
        iv. Perceived lack of soft skills.
    b. Workforce development systems:
        i. Lack of teacher training to provide up-to-date STEM training/pedagogy that aligns with industry needs.
        ii. Difficulty hiring/retaining qualified CTE teachers, particularly in agriculture.
        iii. Lack of apprenticeship and internship opportunities.
        iv. Full leveraging and outcomes from GO-TEC not understood yet.

2. **Business formation support**
    a. No structured Regional approach to creating/supporting a healthy small business infrastructure; this impacts business attraction success too.
    b. Limited capital and investment.
    c. Lack of investors for scale up (VCs).
    d. Need for formal entrepreneurship programming.
    e. Mentorships needed.
    f. Traditional economic development programs generally do not focus on entrepreneurship.

3. **Broadband**
    a. Impacts education, business formation, business attraction, talent attraction, retail, tourism….

   b. Complex and challenging when individual localities have to address the last-mile issue individually.
   c. More support resources are available now and if Region is not leading to help local partners access this, an opportunity is being missed: significant state resources now available through VATI; policy changes allowing use of infrastructure owned by Dominion; interest from some Mecklenburg Cooperative to support last-mile growth.

4. **Miscellaneous Concerns**:
   a. Have not leveraged some local opportunities effectively (VIR supply chain; Community Business Launch successes; forestry and ag-based innovation and integrator facility development; FAST-C; quality of life assets (i.e. Sandy River Reservoir) which can impact both talent attraction and regional image)).

Business Clusters

1. General concurrence that existing sectors are appropriate.
2. Recommendations to add:
   a. Wood products sub-sectors.
      i. Structural wood.
      ii. Biochemical wood products.
   b. Agriculture.
      i. Value-added new crops (i.e. hemp).
   c. Emerging Industries.
      i. Environmental technologies.
      ii. Unmanned Systems.

Top Opportunities for Improvement

1. **Workforce**
    a. Fully build-out the GO-TEC program, measure results and brand effectively.
    b. Develop more apprenticeship programs.
    c. Create more internship opportunities for high school students.
    d. Expand Career Expo formats.
    e. Engage Chambers of Commerce more effectively.
    f. Develop web-based tools to show students what is available career-wise, particularly in more rural areas where access to employers is more difficult.
    g. Develop programming or a regional STEM Summit for CTE teacher training that offers pedagogy, subject specific training, and an opportunity for CTE teachers to develop a collaborative cohort of peers across the region. Possible collaboration between Virginia Tech faculty, Cooperative Extension, K-12 Schools in Southside, and Southside Community College.
    h. Stronger connection with Workforce Development Board(s).
    i. Creating short videos for PTOs to inform parents on college preparedness.
    j. Creating opportunities for post-doc residency in Southside or Faculty-in-Residence to engage on regional issues (potentially STEM focused).
    k. CPE for Ag Teachers with local VCE Agents as a trainers and resource workshops (VT AAEC, ALCE, etc.).
    l. Workforce training credits that also translate as college credit. Workforce credits (credentialing) isn't an equivalent for college credit.
    m. Leverage the Virginia Jobs Investment Program more effectively.
    n. Develop "early learner" centers for young families (current funding housed at Department of Social Services, not Department of Education. Barrier?).

o. Find companies that are already attracting talent successfully and learn from them.
p. GO-TEC/Career Connections Lab.
q. Cultivating a mentoring program at Virginia Tech and Southside to help community college students get into Virginia Tech more smoothly- "red shirt" freshman/sophomore.
r. ASPIRE.
    i. Students participate in mock interviews with employers.
    ii. Allows students to understand what makes a strong job candidate.
s. EXCITE
    i. Teachers have the opportunity to shadow employers to bring "relevancy into the classroom."
    ii. Participating teachers receive stipend through Danville Regional Foundation. Can this be expanded beyond Danville/Pittsylvania?
t. VT Science Festival in November
    i. Partner w/ 4H.
    ii. Grades 4-12 exhibitors and visitors.
    iii. Nutshell Game: Grad students present to middle schoolers/high schoolers.
u. IALR Career Fair/SOVA Career Choice Youth Expo (in Chatham).
    i. 4,000 students over 2 days.
    ii. Highlight the difference between a traditional job fair and hands-on experience at a job fair.
v. College Access Collaborative
    i. Finding pathways to college.
    ii. Visit schools and communities to talk to families and students and local schools.
w. MANRRS: Minorities in Agriculture, Natural Resources, and Related Sciences.
    i. A national organization that supports minority access to resources that support their entrance and success in these fields. Virginia

Tech has a chapter that does work with K-12 students across Virginia.

x. Teachers and Technologists for Tomorrow.
y. Agribusiness Associates Degree through Southside CC. Students continue on to different programs at Virginia Tech, Virginia State University, Ferrum College.
z. Follow-up on Deep-Dive Apprenticeship Report.

2. New Business Formation

a. Continue to expand and connect the Community Business Launch programs.
b. Develop a regional strategy and connect all partners who are currently engaged in providing services and technical support to entrepreneurs.
c. Helping companies of 25 or less employees grow particularly through export (ecommerce).
d. Creating a VC fund for region/VA (Eva has a list (Launch Place); Bill has connections (GENEDGE).
e. Training entrepreneurs/inventors to run a business.
f. Greater Southside participation in VA4E program and CIT entrepreneurship activities.
g. Keep what you've got and encourage growth in those sectors.
    i. Core competency - additive manufacturing e.g. carbon opportunities.
    ii. Nike 3D manufacturing.
h. More supply chain mapping to facilitate collaboration.
i. Develop pre-seed fund.
j. Talking to entrepreneurs- entrepreneurship driven efforts.
k. Develop more amenities for quality of life to attract and retain talent.
l. Microsoft new anchor tenet in South Boston – Tech/IT Center. How to leverage?
m. Connecting with VT Talent.
    i. Senior design class.

ii. Getting students down in the region through classes, internships, apprenticeships.
iii. Market to VT through a Southside company consortium.
iv. Southside entrepreneurship visit to VT: showcase the region.

n. Check out Rural NY (Syracuse University) as a best practice for entrepreneurship (Amy Liu - Brookings (202) 797-6410) Dan Berglund - SSTI (614) 901-1690 berglund@ssti.org.
o. APEX Entrepreneurship center (1-year program).
i. Connect with 55% of students who want to work in startup.
ii. Get students early (Freshman/Sophomore).
p. A CDFI/microloan fund for the region. The new Tobacco Commission loan repayment program may help attract talented graduates and alumni – market the region's tech jobs and lifestyle with roadshows.
q. Look at health care and agriculture as sectors to encourage business formation. TEConomy data supports this.

3. Broadband

a. Create a regional map and benchmark progress.
b. Ensure localities are aware of new policies re: Dominion Power and the Governor's Broadband initiative.
c. Share best practices across Region.
d. Work more closely with Mid-Atlantic Broadband to leverage their knowledge.

4. Sites & Buildings

a. Analyze the buildings in Region 3's small towns, for adaptive reuse for technology companies (aligns with VEDP's Rural Technology Center strategy).
b. More effectively promote the large sites in Region 3, together to demonstrate workforce and supply chain connectivity.
c. Ensure that all sites above 25 acres are characterized in the VEDP site characterization initiative.

d. Create a Regional "certification" program for sites and market it well (i.e. "SOVA Shovel-Ready") to help create buy-in from local leaders about the importance of continuing to reinvest in real estate infrastructure for business development.
e. Assess unique properties in the Region and consider how to more effectively target and market them for new uses (i.e. Methodist Retreat in Blackstone; IKEA plant in Pittsylvania; DuPont complex in Henry County; former hospital properties in Mecklenburg and Patrick Counties).
f. Follow-up on Deep-Dive High Value Wood Products Report and assess existing sites for targeted subsectors in wood products.
g. Analyze the sites in the Opportunity Zones and consider targeted marketing for those if applicable to sectors that create higher paying jobs.

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STAKEHOLDER SESSION QUESTIONS

AUGUST 2019

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Between April and August 2019, Region 3 staff, consultants, and representatives of Virginia Tech facilitated stakeholder engagement sessions as part of the development of the Region 3 Growth & Diversification Plan. The questions below for the K-12 public school stakeholder meeting illustrate the type of questions that were used to guide the discussion.

Discussion Questions for K-12 Public Schools Stakeholder Input Meeting

1. What are the History, Mission and Resources of the K-12 System in Southern Virginia?
2. What do you find new & refreshing about your K-12 System?
3. What challenges or worries you about the future of your K-12 System?
4. If success was a “place”, how would you know you got there?
5. What does your K-12 System need to stop, start, or continue to achieve success?
6. What skills or resources are you missing to achieve success?
7. How do we more effectively link your K-12 System to higher-paying jobs in our Region?

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STAKEHOLDER SESSION SCHEDULE

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Stakeholder Session Schedule

Stakeholder Group	R3 Staff	Date	Attendance	Location
K12 Stakeholder Session	Liz	5/7/2019	15	Danville
Executive Committee Update	Liz	5/22/2019	5	South Boston
Education Stakeholder Session (VT)	Gail	6/3/2019	18	Farmville
Communications Committee	Liz	6/7/2019	6	Phone
Entrepreneur Stakeholder Session (VT)	Nancy	6/10/2019	19	Danville
Advanced Mfg. Stakeholder Session (VT)	Nancy	6/11/2019	20	South Boston
IT Stakeholder Session (VT)	Gail	6/12/2019	13	South Hill
Regional Development Organizations	Liz	6/17/2019	3	Phone
Young Leaders	Liz	6/18/2019	9	Phone
Chambers of Commerce	Liz	6/18/2019	3	Phone
Local Governments/PDCs	Liz	6/18/2019	5	Phone
Ambassadors	Liz	6/19/2019	8	Phone
VGA session	Neal	6/27/2019	13	South Hill
Executive Committee	Liz	7/2/2019	5	South Boston
TIC session	Liz	7/1/2019	3	Phone
VEDP Virginia Jobs Investment Program	Liz	7/15/2019	1	Phone
VEDP Business Retention Expansion	Liz	7/18/2019	2	Phone
Total			148	

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PROJECT PIPELINE

AUGUST 2019

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PROJECT PIPELINE

GRANT CATEGORY	PROJECT NUMBER	ALIGNMENT WITH CRITICAL NEED	CROSS REGION	DESCRIPTION	LOI Status	STATUS
Competitive	2019-Comp1	Sites and Infrastructure	YES	Conduit infrastructure to enhance potential for IT-related business investment	Received	Staff working with staff of DHCD and Regions 4 & 5 to confirm eligibility
Enhanced under $100K	2019ECB1	Innovation ScaleUp and Information Technology	TBD	Market validation, real estate assessment for reuse of downtown properties	Requested	Staff recommended submitting Letter of Interest
TBD	2019 - TBD2	Workforce	NO	Vendor seeking support to expand connections between K-12 and business for internships and work experiences	Received	Submitted for incorrect category; needs further coaching

TBD	2019-TBD1	Workforce	NO	Result of 8 Weeks to Application; considering feasibility for high-demand occupations focused on incumbent workers	In development	Staff recommended submitting Letter of Interest
Competitive	2018-Comp1	Site development and sector	YES 3,2,4,5	Site certification	Received	On hold due to lack of market receptivity
Per Capita	2018-PC1	Sector and Workforce	YES 3,4	Feasibility study sector, curriculum, real estate	In development	Working with private vendor to draft Letter of Interest and/or application; securing required partners
Per Capita	2018-PC5	Innovation ScaleUp	NO	Innovation hub concept	n/a	Awaiting Letter of Interest
Competitive	2018-Comp5	Sector and Workforce	YES 4,3,5	High Value Wood Products - BioFuels	n/a	Awaiting Letter of Interest
Enhanced under $100K	2018-ECB2	Innovation	YES 9, 3	Feasibility Study	n/a	Awaiting Letter of Interest
TBD	2018-TBD	Sector and Workforce	Unknown	Creating a workforce COE for logistics	n/a	Awaiting Letter of Interest
TBD	2018-TBD2	Sector	NO	Feasibility for export market for wood products sector	n/a	Awaiting Letter of Interest

Competitive	2018-Comp2	Workforce	YES 3,1,4	Scale-up of pilot	Approved by State Board for $4.9 million; $1.3 for Phase 2A and remainder for Phase 2B subject to meeting benchmarks.
Per Capita	2018-PC	Workforce	NO	Scale-up of pilot	Approved by State Board in March 2018; initial lab equipment purchased and curriculum in development
Enhanced under $100K	2018-ECB1	Innovation	NO	Operational Plan Feasibility Study	Administrative approval by DHCD staff confirmed by state board on 10/9/18; contract documents completed; applicant initiating communication with Workforce partners
Competitive	2018-Comp 3	Sector	YES 4,3	Site development	Approved by State Board; R3 neither endorsed nor objected
Competitive	2018-Comp6	Sector and Workforce	Yes 5, 3, 1	Cyber workforce system	Application approved by State Board - no cross-region support; removing from list.
Competitive	2018-Comp4	Innovation	YES 9,7,2,8,3	Creating innovation ecosystem	Per discussion with SBDC, no progress so eliminating as potential project
Per Capita	2018-PC3	Sector	NO	Attracting technology jobs through redevelopment of Main Street buildings	Unable to validate application status; removing from pipeline

Per Capita	2018-PC2	Workforce	NO	Early-stage apprenticeship	Unable to validate application status; removing from pipeline
Per Capita	2018-PC4	Infrastructure	NO	Engineering for utility extension supporting existing business and facility	Applicant unresponsive. Removing from pipeline.
Competitive	2018-Comp7	Site Development and sector	NO	Utility infrastructure implementation	Application withdrawn; Legislation resolved issue related to utility line extension

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8 WEEKS TO APPLICATION OVERVIEW

AUGUST 2019

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8 Weeks to Application Overview

Notes about overall plan

- Registration due January 31, 2019.
- 8 weeks includes two "office hours" weeks - specific days to set up a consultation appointment.
- Some weeks may include worksheets that will make it easy for participants to take notes/record their thoughts.

Communications plan notes

- Promoted on FB, LinkedIn and through DHCD event to launch.
- Use the database we already have and social accounts plus.
- PR - short article.
- Targeted marketing in January (Chambers, Advisory Committee Lists, etc.).

8 weeks to application...with Mentorship!

Draft Content Overview

Week 1: Find your partners and define your idea

Downloadable "Defining your project" 1-sheet that touches on "What's the point"/problem/opportunity, localities.

Week 2: Build your foundation

Choose grant type, ID key players, money, timeline, what success looks like, what are stumbling blocks.

Week 3: Schedule a Consultation

Schedule your consultation - We'll provide a few days in which the GOVA team will be available to answer questions and vet projects.

Week 4: The Devil is in the details

Matching funds, necessary activities, how to avoid barriers to implementation, how to build support.

Week 5: Money makes the world go 'round

Budget Overview template, In-Kind Contribution Form, Sources and Uses.

Week 6: Phone a Friend

Have you hit a roadblock? Confused about a section of the application? Our GO Virginia counselors are ready to help you through the process. They're available on XX days at XX times for a call. Email XX to sign up.

Week 7: Write it Wrong

Draft your application - it can just be bullet points, don't worry about perfecting the language just yet.

Week 8: Channel your inner Hemingway

Edit for clarity, conciseness, make sure you're hitting on all requirements.

Week 9: Bonus!

Here's how to submit your application.

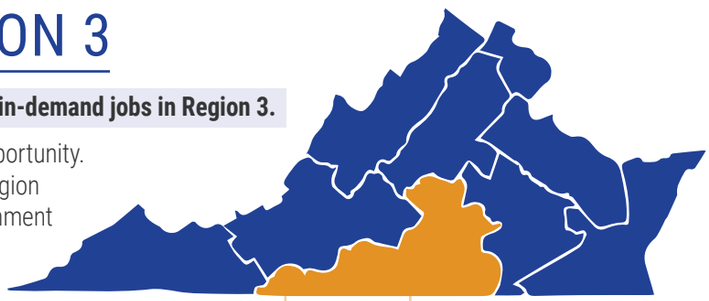
GO VIRGINIA REGION 3 AT A GLANCE

COLLABORATION
INSPIRATION
SUCCESS

ABOUT GO VIRGINIA REGION 3

Goal: Jump-start economic prosperity by growing high-paying, in-demand jobs in Region 3.

Did you know? The "GO" in GO Virginia stands for Growth and Opportunity. The GO Virginia initiative is managed within nine regions. Each region encourages collaboration among business, education, and government entities to enhance economic competition, private sector growth and opportunity, and alignment of workforce development programs with employers' needs.



GO Virginia is Virginia's economic development initiative with money to invest.

GO VIRGINIA REGION 3 INCLUDES THE COUNTIES OF AMELIA, BRUNSWICK, BUCKINGHAM, CHARLOTTE, CUMBERLAND, HALIFAX, HENRY, LUNENBURG, MECKLENBURG, NOTTOWAY, PATRICK, PITTSYLVANIA, PRINCE EDWARD, AND THE CITIES OF DANVILLE AND MARTINSVILLE.

THE REGION 3 COUNCIL IS MADE UP OF:

- BUSINESS LEADERS
- EDUCATORS
- ELECTED OFFICIALS AND STAFF
- ECONOMIC DEVELOPMENT PROFESSIONALS

WHY: REGION 3 CHALLENGES

Only **one out of every four** employees in the region is currently employed in a position that creates or attracts wealth for the region, **compared to the national average of 36%.**

- The region has an **aging and shrinking population** and is losing young talent to other regions.
- Region 3 has a **5.3 percent unemployment rate**, compared to the national unemployment rate of 4.1 percent.

WHAT: REGION 3 OPPORTUNITIES

Though many of our localities are doing great things to spur economic development, imagine what we can do when we combine forces- eliminating duplication of efforts and gaining strength in numbers. The council has identified these as opportunities for regional collaboration:

OPPORTUNITIES FOR COLLABORATION

- ENTREPRENEURSHIP / SMALL BUSINESS DEVELOPMENT
- FOCUS ON PROMISING OCCUPATIONS
- SITE DEVELOPMENT
- CYBER-INFASTRUCTURE

GROWTH INDUSTRIES

- BUSINESS SERVICES / IT DATA CENTERS
- ADVANCED MANUFACTURING AND MATERIALS
- HIGH VALUE NATURAL RESOURCES
- HEALTHCARE

18,850 OUT COMMUTERS = SKILLED WORKFORCE LIVING IN REGION 3 THAT COULD BEGIN WORKING IN REGION 3

HOW: REGION 3 GRANT PROCESS

GRANT APPLICATION:
Submit your application to Region 3 staff.

CLARIFY:
Region 3 staff will review your application and help you hone it to be more competitive.

REGION 3 ENDORSEMENT:
Region 3 Council endorses the applications. If a State Competitive Grant, councils of other participating regions must also endorse grant.

STATE APPROVAL:
Endorsed grants are submitted to the Virginia Department of Housing and Community Development. The GO Virginia State Board approves grants.

VISIT **INFO@GOVIRGINIA3.ORG** TO BE INSPIRED, COLLABORATE AND TO START YOUR GRANT APPLICATION.

How to apply for a GO Virginia Region 3 Grant

STEP 1: BRAINSTORM IDEAS

Gather together friends, neighbors, colleagues and fellow innovators to brainstorm ideas that could generate prosperity in our region. All ideas are welcome and valued. Find and review formal application at govirginia3.org/apply

STEP 2: PRIORITIZE

Below is selection criteria to consider. Choose the best idea. The more boxes you can check, the better:

1. Does it fit within one of these four growth industries?

- **Business Services / IT Data Centers**
- **High Value Natural Resource Products**
- **Advanced Manufacturing and Materials**
- **Health Care**

2. Does it have the potential to bring high paying jobs to the region? ☐ Yes ☐ No
3. What is the budget for your idea?
4. What kind of return on investment would your community or the state expect to see?
5. Does our region have an already skilled workforce to fill those jobs? Is there training locally to create a skilled workforce?

STEP 3: CHOOSE WHICH GRANT TYPE IS RIGHT FOR YOU

Choose the best idea. Selection criteria to consider. The more boxes you can check, the better:

A Enhanced Capacity Building Grant
Meant to set you up for success in obtaining future grants. *(Examples include feasibility/market studies, pre-development activities, operational structures and business strategy development.)*

- » Maximum Funding : $100,000
- » Match: At least 1:1
- » Local Match: Encouraged, not required
- » Partner Engagement: 2+ localities
- » Duration of Project: Funding commitment will cover up to a 2-year period

B Per Capita Grant
For projects that spur collaboration between two+ localities/regions and have direct economic impact to Region 3.
(Examples include workforce training programs, business accelerators, research commercialization, broadband initiatives, targeted business assistance, industrial site development, etc.)

- » Maximum Funding : TBA
- » Match: At least 1:1
- » Local Match: 20% of requested funds or $50,000 (whichever is greater)
- » Partner Engagement: 2+ localities
- » Duration of Project: Funding commitment will cover up to a 2-year period

C State Competitive Grant
These are the same as per capita grants but will compete with other applications at the state level.

- » Match: At least 1:1
- » Partner Engagement: 2+ regions
  (Councils of other participating regions must also endorse grant.)
- » Local Match: 20% of requested funds or $50,000 (whichever is greater)
- » Duration of Project: Funding commitment will cover up to a 2-year period

STEP 4: BE PREPARED TO SHOW THE FOLLOWING IN YOUR APPLICATION

A Collaboration **B Applicant Eligibility** **C Matching Funds** **D Return on Investment Estimate**

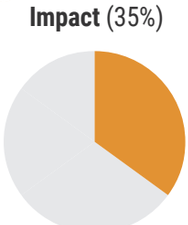
Public/private entities can show evidence of financial participation by collaborating with localities and must meet a minimum threshold. Grant funds should offer broad community benefits and are not to be used as economic development incentive payments or to promote the activities of a single entity.

STEP 5: KEY CONSIDERATIONS FOR YOUR APPLICATION

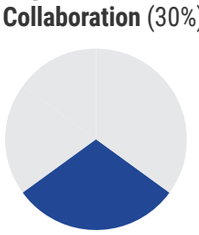
A Threshold Components

Make sure your project covers all five points.

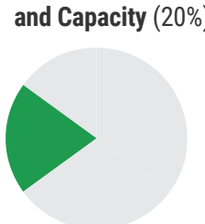
B Economic Impact (35%)



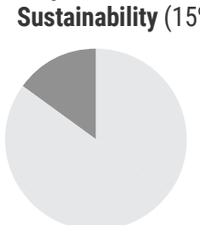
C Regional Collaboration (30%)



D Project Readiness and Capacity (20%)



E Project Sustainability (15%)



STEP 6: SUBMIT YOUR APPLICATION

For assistance, contact info@govirginia3.org
Questions and application preparation assistance: Liz Povar at 804.399.8297
Application submissions: Gail Moody at 434.447.7101
Visit govirginia3.org/apply to access the application form

GO VIRGINIA REGION 3
2019 UPDATE – GROWTH & DIVERSIFICATION PLAN

SITES, BUILDINGS, PROSPECT RECOMMENDATIONS AND PROSPECT VISITS ANALYSIS

AUGUST 2019

www.govirginia3.org

GO Virginia

The purpose of this analysis is to study the availability of business real estate, "product", (sites and buildings) and prospect activity as reported by Virginia Economic Development Partnership (VEDP). The analysis presents data at the GO Virginia regional level, economic development region and locality level. The consultants were able to obtain a database from VEDP that contains the details of prospect recommendations and prospect visits for the years 2014 to 2018. In addition, the data related to available sites and buildings was taken from the VEDP VirginiaScan website in May of 2019. The data for some of localities was not available in these databases and is noted in the relevant sections of this analysis.

Sites Region 3

This analysis looked at the total distribution of available business sites across the region including the utility and size characteristics of those sites. There was not any data on the VirginiaScan website for Patrick or Henry Counties. The consultants were able to find site data on the Henry County on the Martinsville/Henry County economic development website. As a result, there may be some double counting of sites and buildings since it was difficult to distinguish which locality the sites/buildings were located. It is assumed that Patrick County did not have business sites that meet the VEDP requirements for inclusion in the database.

There is a total of 103 business sites listed on VEDP VirginiaScan website and Martinsville/Henry County website. Of these 103 sites 66 (64.1%) were located in the Southern VA sub-region. Thirty-seven sites (35.9%) were in the VGA sub-region. Danville (25 – 26.3%), Martinsville (12 – 12.6%), Halifax (11 – 11.6%), Mecklenburg (11 – 11.6%), and Pittsylvania (10 – 10%) had the majority of the sites, 69%, in the region.

The same distribution pattern is present for those sites with utilities (water and sewer) available. Of the sites with water and sewer 59 are in the Southern VA sub-

region (64.1%) and 21 are in the VGA sub and on-region. Forty-seven sites have natural gas available to the sites and all but 3 are in the Southern VA sub-region.

Most manufacturing and distribution/logistics businesses require larger sites, typically above 50 acres served by water, sewer and natural gas. Again, almost all of the larger sites greater than 50 acres, 21 (67.7%), are located in the Southern VA sub-region.

There are 13 certified sites, 8 in the Southern VA sub-region and 5 in VGA. The number of certified sites in the region is a strong indication of the commitment of the localities to provide suitable locations for business expansion/location, particularly manufactures.

Table 1 provides a detailed listing of business sites and their characteristics by individual locality in Region 3.

Table 1. – Business Site Inventory by Locality

Locality	Sites	Size - Acres with W & S						Certified
	Total	Total	25+	50+	100+	250+	Gas	
Amelia	1	1	0	0	0	0	0	0
Brunswick	3	2	2	1	0	0	1	0
Buckingham	6	1	1	1	0	0	0	0
Charlotte	1	1	1	1	1	1	0	0
Cumberland	2	1	0	0	0	0	0	0
Lunenburg	3	1	1	0	0	0	0	0
Mecklenburg	11	8	7	5	3	0	2	4
Nottoway	4	3	2	1	1	0	0	0
Prince Edward	6	3	1	1	1	0	0	1
Virginia's Growth Alliance	37	21	15	10	6	1	3	5
Danville	25	24	10	7	1	0	24	1
Halifax	11	8	4	2	0	0	4	0
Henry	8	8	6	3	1	1	NA	NA
Martinsville	12	12	8	5	3	0	12	6
Pittsylvania	10	7	6	4	3	2	4	1
Southern VA	66	59	34	21	8	3	44	8
Region 3	103	80	49	31	14	4	47	13

Buildings

This analysis looked at the distribution of available industrial, flex and office buildings across the region according to tenancy, size and other characteristics. Industrial and flex buildings were analyzed separately from office buildings. There wasn't any industrial/flex building data listed for four localities, Amelia, Buckingham, Nottoway and Patrick Counties. In addition, only five localities had any data listed for office buildings, Mecklenburg, Prince Edward, Danville, Halifax, Henry Counties and Martinsville.

There is a total of 55 industrial and flex buildings listed on VEDP VirginiaScan website and Henry EDA website for the localities in Region 3. Of the 55 buildings

35 (63.6%) were located in the Southern VA sub-region. The remaining 20 buildings (36.3%) were in the VGA sub-region. Mecklenburg, (12 – 21.8%), Danville (9 – 16.4%), Halifax (9 – 16.4%), Martinsville (8 – 14.5%) and Henry (7 – 12.7%) had the majority, 72.8%, of the industrial and flex buildings within the region.

A vast majority of the Industrial/flex buildings, 44 (80%), are for sale and 35 are for lease. Eleven of the buildings are considered flex buildings and there are several publicly owned shell buildings in the region. Twenty-five of the industrial/flex buildings are served by natural gas and 19 have ceilings heights over 20 ft. with only 5 buildings with ceiling heights greater than 30 ft.

The vast majority of the industrial/flex buildings are greater than 10,000 sq. ft., 52 (94.5%). Thirty-seven of the buildings are greater than 50,000 sq. ft. with 19 greater than 100,000 sq. ft.

Manufacturing facilities typically require buildings greater than 100,000 sq. ft. and ceiling heights above 20 ft. and logistics/distribution facilities typically require buildings greater than 100,000 sq. ft. with ceiling heights in excess of 30 ft.

Table 2 provides a detail on the distribution of industrial/flex buildings throughout the region.

Table 2. -- Region 3 - Industrial and Flex Buildings by Locality

Locality	Total	For Sale	Lease	Industrial	Flex	Size - Sq. Ft. with W & S				Gas	Ceiling	
						10K +	50K +	100K +	250K +		20 ft. +	30 ft. +
Amelia	0	0	0	0	0	0	0	0	0	0	0	0
Brunswick	1	0	1	1	1	1	0	0	0	1	1	0
Buckingham	0	0	0	0	0	0	0	0	0	0	0	0
Charlotte	2	2	2	2	1	2	2	0	0	0	1	0
Cumberland	1	1	0	1	0	1	0	0	0	1	1	0
Lunenburg	2	2	1	1	0	2	1	1	0	0	0	0
Mecklenburg	12	9	9	12	0	11	10	6	2	5	7	0
Nottoway	0	0	0	0	0	0	0	0	0	0	0	0
Prince Edward	2	1	1	2	1	1	0	0	0	0	0	0
Virginia's Growth Alliance	20	15	14	2	3	18	13	7	2	7	10	0
Danville	9	8	9	9	4	9	8	5	3	7	3	1
Halifax	9	9	5	9	3	8	2	2	1	3	1	0
Henry	7	7	0	7	NA	7	6	4	2	NA	3	3
Martinsville	8	3	6	8	1	8	7	5	2	7	1	1
Patrick	0	0	0	0	0	0	0	0	0	0	0	0
Pittsylvania	2	2	1	2	0	2	1	1	0	1	1	0
Southern VA	35	29	21	35	8	34	24	17	8	18	9	5
Region 3	55	44	35	37	11	52	37	24	10	25	19	5

Table 3 lists the inventory and characteristics of 27 office buildings listed on the VEDP website and they are evenly split between for sale and for lease. All but 3 of the buildings, 88.9%, are located in the Southern VA sub-region. Only 6 localities had office buildings listed, Mecklenburg (1), Prince Edward (2), Danville (8), Halifax (4), Henry (7) and Martinsville (5). Martinsville had the only Class A office building available in the region. Seventeen of the office are greater than 20,000 sq. ft.

Table 3. -- Region 3 - Office Buildings

Locality	Total	For Sale	Lease	Class A	Size - Sq. Ft.			
					5K+	10K+	20K+	50K+
Amelia	0	0	0	0	0	0	0	0
Brunswick	0	0	0	0	0	0	0	0
Buckingham	0	0	0	0	0	0	0	0
Charlotte	0	0	0	0	0	0	0	0
Cumberland	0	0	0	0	0	0	0	0
Lunenburg	0	0	0	0	0	0	0	0
Mecklenburg	1	1	1	0	1	0	0	0
Nottoway	0	0	0	0	0	0	0	0
Prince Edward	2	2	1	0	1	1	1	0
Virginia's Growth Alliance	3	3	2	0	2	1	1	0
Danville	8	7	6	0	8	8	7	3
Halifax	4	3	0	0	3	3	0	0
Henry	7	NA	NA	NA	7	7	5	2
Martinsville	5	2	4	1	5	5	4	2
Patrick	0	0	0	0	0	0	0	0
Pittsylvania	0	0	0	0	0	0	0	0
Southern VA	24	12	10	1	23	23	16	7
Region 3	27	15	12	1	25	24	17	7

Prospect Recommendations

The analysis of the prospect recommendations is centered on the number, type and distribution of site recommendations made by VEDP project managers to business prospects over a five-year period from 2014 to 2018. Often the recommendations of VEDP represent the vast majority of prospect leads that rural localities receive during any calendar year. If a locality has manufacturing as a target industry, VEDP is an essential partner in expanding a locality's or regions manufacturing base. Often site location consultants and major manufactures work primarily though states' economic development organizations. VEDP is the primary marketing and project management organization for out-of-state business locations.

Region 3 had a total of 628 site recommendations from VEDP for the five-years between 2014 and 2018. Two thirds of the recommendations were for sites in the Southern VA sub-region. The remaining third of the recommendations was for sites in the VGA sub-region. Sites in Henry, Pittsylvania, Mecklenburg, Danville and Halifax were recommended at the highest rate over the past five years at 154 (24.7%), 126 (20.2%) 114 (18.3%), 60 (9.6%) and 54 (9.0%) respectively.

Table 4 illustrates the distribution of the VEDP site recommendation in Region 6.

Table 4. -- Region 3 - VEDP Recommended Locations 2014 -2018

Locality	Recommendations		
	Total	Sub Region	Region 3
Amelia	21	10.1%	3.4%
Brunswick	18	8.7%	2.9%
Buckingham	4	1.9%	0.6%
Charlotte	22	10.6%	3.5%
Cumberland	5	2.4%	0.8%
Lunenburg	2	1.0%	0.3%
Mecklenburg	114	55.1%	18.3%
Nottoway	9	4.3%	1.4%
Prince Edward	12	5.8%	1.9%
Virginia's Growth Alliance	207	100.0%	33.2%
Danville	60	14.4%	9.6%
Halifax	56	13.4%	9.0%
Henry	154	36.9%	24.7%
Martinsville	18	3.4%	2.2%
Patrick	7	1.7%	1.1%
Pittsylvania	126	30.2%	20.2%
Southern VA	421	100.0%	66.8%
Region 3	**628**		

The vast number of site location recommendations are related to manufacturing use. Often a prospect will have several components/uses of their proposed facility. For example, a manufacturing prospect may have a warehouse/distribution (W&D) use, be the proposed company's headquarters, have staff offices and have a research and development (R&D) function. In this case, all of these uses would be listed in the VEDP file. Almost 84% (527 of 628) of the recommendations were related to a manufacturing. This understates manufacturing as the major use since other uses are often related to the manufacturing activity. Typically, service use or data center use is not combined with manufacturing. Service uses only represent 5.7% of site recommendations and Data Centers only 1.6%.

Table 5. -- Region 3 - VEDP Recommended Locations 2014 -2018

Locality	Total	Facility Use						
		Mfg.	W&D	Office	Hqtrs.	Service	R&D	Data Center
Amelia	21	19	10	6	4	0	1	0
Brunswick	18	13	7	4	5	2	2	0
Buckingham	4	3	1	1	2	0	0	0
Charlotte	22	19	9	2	7	3	1	0
Cumberland	5	4	1	1	2	0	0	0
Lunenburg	2	1	1	1	1	0	0	0
Mecklenburg	114	96	32	11	19	3	3	4
Nottoway	9	7	6	2	2	1	1	0
Prince Edward	12	8	4	4	3	1	0	0
Virginia's Growth Alliance	207	170	71	32	45	10	8	4
Danville	60	46	10	12	9	3	2	3
Halifax	56	47	15	11	10	2	3	3
Henry	154	135	58	24	26	11	4	1
Martinsville	18	4	2	8	2	7	1	0
Patrick	7	6	1	3	1	0	0	0
Pittsylvania	126	119	48	13	13	3	2	0
Southern VA	421	357	134	71	61	26	12	7
Region 3	**628**	**527**	**205**	**103**	**106**	**36**	**20**	**11**

Based on the site recommendations what has been the success of prospects choosing Virginia? Table 6 illustrates the status or prospects over the five years 2014 through 2018. The majority of prospects disengage with VEDP, 64% of the time. This could be for a variety of reasons, they choose not to pursue the project, they choose to expand at an existing facility, they delay their plans for expansion to an uncertain date, etc. Business prospects don't always share the reasons for disengagement. Seven percent of the total site recommendations for the region choose a Virginia site for their expansion. The figures in the table below reflect a win/location for Virginia not necessarily a win for the individual locality. From the

known data, prospects choose another state (18.6% of the total number of site recommendations). About 11% of the site recommendations were still active in 2019.

Table 6. -- Region 3 - VEDP Recommended Locations 2014 -2018

Locality	Total	Stage			
		Won	Lost	Disengaged	Active
Amelia	21	1	4	15	1
Brunswick	18	2	0	13	3
Buckingham	4	2	0	2	0
Charlotte	22	3	4	13	2
Cumberland	5	1	0	2	2
Lunenburg	2	1	0	1	0
Mecklenburg	114	7	21	72	14
Nottoway	9	1	1	7	0
Prince Edward	12	2	1	9	0
Virginia's Growth Alliance	207	20	31	134	22
Danville	60	6	11	36	8
Halifax	56	2	8	42	4
Henry	154	13	33	93	15
Martinsville	18	1	2	15	0
Patrick	7	0	3	4	0
Pittsylvania	126	4	29	76	17
Southern VA	421	26	86	266	44
Region 3	**628**	**46**	**117**	**400**	**66**

The number of site recommendations made over the five years ranged from a high of 176 in 2018 to a low of 87 in 2016. The number of recommendations among localities varied from year to year. Four counties, Halifax, Henry, Mecklenburg and Pittsylvania typically had the highest number of recommendations each year.

Table 7. -- Region 3 - VEDP Recommended Locations 2014 -2018

Locality	Total	Date				
		2014	2015	2016	2017	2018
Amelia	21	4	3	2	6	6
Brunswick	18	2	3	2	4	7
Buckingham	4	1	1	1	1	0
Charlotte	22	5	2	2	3	10
Cumberland	5	0	0	0	2	3
Lunenburg	2	0	0	0	2	0
Mecklenburg	114	20	18	17	23	36
Nottoway	9	2	0	3	0	4
Prince Edward	12	3	2	1	3	3
Virginia's Growth Alliance	207	37	29	28	44	69
Danville	60	11	13	6	11	19
Halifax	56	15	16	5	12	8
Henry	154	22	39	29	25	39
Martinsville	18	7	3	3	2	3
Patrick	7	1	3	1	2	0
Pittsylvania	126	16	19	15	38	38
Southern VA	421	72	93	59	90	107
Region 3	**628**	**109**	**122**	**87**	**134**	**176**

Prospect Visits

The same patterns emerge when reviewing the prospect visits data as was present when analyzing the site recommendation data. Logic indicates the larger number of recommendations a locality receives the greater the likelihood that a locality will receive a prospect visit. The Southern VA sub-region had the largest number of visits, 65, two thirds of the total. Danville had the largest number of visits at 20 and Martinsville had the lowest at 5 within Southern VA sub-region.

The VGA sub-region had a total of 31 prospect visits with Mecklenburg County receiving the most visits, 9, within the VGA sub-region.

Manufacturing prospects again dominated the prospect visits, 53 out of a total of 65 (77%). The Southern VA sub-region had 53 manufactures visit the sub-region or 81.5% of the sub-region total. The VGA sub-region had a total of 21 manufacturing prospects visit with 7 of those visiting Mecklenburg County.

Table 8 illustrates the distribution of prospect visits by proposed facility use. Again, a prospect may have multiple proposed uses for their facility.

Table 8. -- Region 3 - VEDP Project Visits 2014 -2018

Locality	Total	Facility Use						
		Mfg.	W&D	Office	Hqtrs.	Service	R&D	Data Center
Amelia	2	2	0	0	0	0	0	0
Brunswick	4	3	1	1	1	0	0	0
Buckingham	4	3	0	1	1	0	0	0
Charlotte	2	0	0	1	1	1	0	0
Cumberland	2	1	0	0	1	0	0	0
Lunenburg	1	1	0	0	1	0	0	0
Mecklenburg	9	7	1	1	0	2	0	0
Nottoway	4	3	0	2	0	1	1	0
Prince Edward	2	1	0	1	1	0	0	0
Virginia's Growth Alliance	31	21	2	7	6	4	1	0
Danville	20	16	2	8	4	0	1	0
Halifax	11	10	1	3	3	0	3	0
Henry	15	13	5	2	1	1	0	0
Martinsville	5	2	0	2	0	1	0	0
Pittsylvania	14	12	3	1	0	0	0	0
Southern VA	65	53	11	16	8	2	4	0
Region 3	96	74	13	23	14	6	5	0

No data available for Patrick County

Based on prospect visits, how many prospects choose Virginia? Table 9 illustrates the status of prospects over the five years 2014 through 2018. The majority of prospects disengage with VEDP, 53% of the time. This could be for a variety of reasons, they choose not to pursue the project, they choose to expand at an existing facility, they delay their plans for expansion to an uncertain date, etc. The reasons for prospect disengagement are unknown. As illustrated by the data, if a prospect visits a Region 3 site there is a one in four chance that they will locate in Virginia. The figures in the table below reflect a win/location for Virginia not necessarily a win for the individual locality. From the known data, 9% of the prospects chose another state after making a visit. Seven percent of the prospects that made a visit were still active in 2019.

Table 9. -- Region 3 - VEDP Project Visits 2014 -2018

Locality	Total	Stage			
		Won	Lost	Disengage	Active
Amelia	2	0	0	2	0
Brunswick	4	1	0	2	1
Buckingham	4	3	1	0	0
Charlotte	2	2	0	0	0
Cumberland	2	0	1	0	1
Lunenburg	1	1	0	0	0
Mecklenburg	9	2	1	6	1
Nottoway	4	2	1	1	0
Prince Edward	2	1	1	0	0
Virginia's Growth Alliance	31	12	5	11	3
Danville	20	4	1	15	0
Halifax	11	2	3	6	0
Henry	15	3	2	8	2
Martinsville	5	2	1	2	0
Pittsylvania	14	1	2	9	2
Southern VA	65	12	9	40	4
Region 3	96	24	14	51	7

No data available for Patrick County

The number of prospect visits across the region over the past five years ranged from a high of 31 in 2014 to a low of 7 in 2018. The Southern VA sub-region again had the largest number of visits, 65, two thirds of the total. Danville had the largest number of visits at 20 and Martinsville had the lowest at 5 within Southern VA. The annual distribution of visits among the Southern VA localities varied considerably across the five years.

The VGA sub-region had a total of 31 prospect visits with Mecklenburg County receiving the most visits, 9, within the VGA sub-region. No locality within the VGA sub-region had more than 2 visits in any one year.

Table 10 lists the number prospect visits by year for each locality in the region.

Table 10. -- Region 3 - VEDP Project Visits 2014 -2018

Locality	Total	Prospect Visit Date				
		2014	2015	2016	2017	2018
Amelia	2	0	2	0	0	0
Brunswick	4	2	0	0	0	2
Buckingham	4	0	1	1	2	0
Charlotte	2	1	0	0	1	0
Cumberland	2	0	0	0	1	1
Lunenburg	1	1	0	0	0	0
Mecklenburg	9	4	0	2	2	2
Nottoway	4	1	0	2	1	0
Prince Edward	2	0	0	0	2	0
Virginia's Growth Alliance	31	9	3	5	9	5
Danville	20	9	7	3	1	0
Halifax	11	5	3	2	1	0
Henry	15	5	3	4	1	2
Martinsville	5	1	2	2	0	0
Pittsylvania	14	2	4	1	2	5
Southern VA	65	22	19	12	5	7
Region 3	96	31	22	17	14	7

No data available for Patrick County

Prospect Activity Related to Product Availability

The central question for Regional 3 is the relationship between the availability of prepared sites for business expansion/location and actual prospect activity. Table 11 compares the availability of sites throughout the region to site recommendations by VEDP and prospect visits to the locality. The data illustrates a direct correlation between the total number of prepared sites and prospect activity. The VGA region had slightly less than a third of the prepared sites and had roughly a similar percentage of prospect activity, recommendations and visits. Likewise, the Southern VA region had about two thirds of the prepared sites and had roughly the same proportion of prospect activity. Those localities that have prepared sites (served by water, sewer and gas) get recommended more frequently and receive the greater number of prospect visits.

Table 11. -- Region 6 - VEDP Recommended Locations/Prospect Visits 2014 -2018

Locality	Sites			Recommendations		Prospect Visits	
	Total	W&S	50 Acres	Total	Mfg.	Total	Mfg.
Amelia	1.1%	1.3%	0.0%	3.4%	3.6%	2.1%	2.7%
Brunswick	3.2%	2.5%	3.2%	2.9%	2.5%	4.2%	4.1%
Buckingham	6.3%	1.3%	3.2%	0.6%	0.6%	4.2%	4.1%
Charlotte	1.1%	1.3%	3.2%	3.5%	3.6%	2.1%	0.0%
Cumberland	2.1%	1.3%	0.0%	0.8%	0.8%	2.1%	1.4%
Lunenburg	3.2%	1.3%	0.0%	0.3%	0.2%	1.0%	1.4%
Mecklenburg	11.6%	10.0%	16.1%	18.3%	18.2%	9.4%	9.5%
Nottoway	4.2%	3.8%	3.2%	1.4%	1.3%	4.2%	4.1%
Prince Edward	6.3%	3.8%	3.2%	1.9%	1.5%	2.1%	1.4%
Virginia's Growth Alliance	38.9%	29.2%	32.3%	33.2%	32.3%	31.3%	28.4%
Danville	26.3%	30.0%	22.6%	9.6%	8.7%	20.8%	21.6%
Halifax	11.6%	10.0%	6.5%	9.6%	8.9%	11.5%	13.5%
Henry	7.8%	10.0%	9.7%	24.7%	25.6%	15.6%	17.6%
Martinsville	12.6%	15.0%	16.1%	2.2%	0.8%	5.2%	2.7%
Patrick	0.0%	0.0%	0.0%	1.1%	1.1%	0.0%	0.0%
Pittsylvania	10.0%	8.8%	12.9%	20.1%	22.6%	14.6%	16.2%
Southern VA	64.1%	73.8%	67.7%	66.8%	67.7%	67.7%	71.6%
Number in Each Category for All of Region 3	**103**	**80**	**31**	**624**	**527**	96	74

Conclusions and Findings

The following are the primary findings and conclusions from an analysis of VEDP data on available sites and buildings for business expansion/location and VEDP prospect activity, site recommendations and prospect visits.

- A majority of available sites and buildings are concentrated in the Southern VA sub-region.

- There are a significant number of certified sites in the region (13) demonstrating a strong commitment to providing suitable sites for business location/expansion.
- There are numerous publicly owned/controlled sites in the region.
- Manufacturing (priority industry cluster) typically requires larger sites with utility service (water, sewer and gas) – there is good selection of quality business sites meeting these industry standards, but they are concentrated in a few localities primarily in the Southern VA sub-region.
- Available industrial/flex buildings are concentrated in many of the same localities as available sites.
- There is a limited supply of office space available and it is located in just 6 localities, primarily in the Southern VA sub-region.
- There is only one office building available, Martinsville, that is classified as "Class A" office space.
- Two-thirds of VEDP site recommendations are in the Southern VA sub-region and one-third in the VGA sub-region.
- About 84% of all site recommendations had manufacturing as a primary use.
- Only 7% of the total site recommendations resulted in a decision for a Virginia location. Sixty-four percent of the site recommendations never materialize because the prospect disengages.
- Prospect visits mirror the trends of site recommendations in geographic distribution and primary use, manufacturing. The Southern VA sub-region had two-thirds of prospect visits and manufacturing use dominated.
- Once a prospect visits the region, there is a one in four chance that it will choose a Virginia location.
- There is a direct correlation between the availability of quality business sites/buildings and prospect activity from VEDP.
- The greater the selection/distribution of prepared larger sites (above 50 acres) the greater the likelihood of prospect activity in the targeted industry cluster, manufacturing.

REQUEST FOR LETTERS OF INTEREST

GO Virginia Region 3 announces that it is accepting *Letters of Interest* from organizations with a presence in the Region 3 footprint, that are interested in developing a *"regional entrepreneurial investment strategy"* as described in the GO Virginia State Board Guidance document attached here.

The Region 3 Council will utilize a portion of its Per Capita Funding to support the coordinating entity's work. As authorized by the GO Virginia State Board, the Council may opt to accept a reduced match (50%) and waive the local match participation requirements.

Applicants should follow the guidance and requirements as noted below. This includes careful documentation of match that demonstrates it will be available at the time of award and committed to the activities described in the Letter of Interest. When submitting a Letter of Interest, applicants are strongly encouraged to collaborate with like-minded organizations interested in the entrepreneurial and innovation space.

Interested applicants must submit a letter of interest no more than 2 pages long that speaks to the points below, even if these elements are not yet fully known:

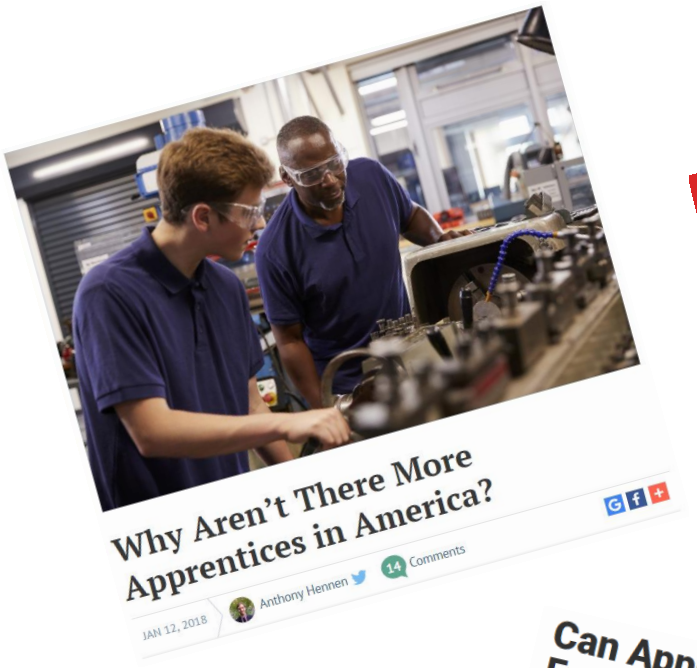
- Includes the name and contact information of the primary applicant
- Provides name and contact information for the proposed coordinating entity for this initiative (may or may not be the same as the primary applicant)
- Identifies Region 3 jurisdictions to be impacted/involved; the Region 3 Council has a bias toward proposals that demonstrate engagement across all of Region 3.
- Includes list of likely partners and collaborators and describes the process to engage these partners
- Provides a brief narrative description of the project (500 words max) including:
    - explanation of the qualifications for the coordinating entity as it relates to developing entrepreneurial ecosystems
    - explanation of how the coordinating entity will utilize existing assets in the Region to support the development of the plan

- explains how the coordinating entity will align its development with the priority business sectors and occupations found in the Region 3 Growth & Diversification Plan.
- Describes how the coordinating entity will build on the TEConomy recommendations and relevant sections of the Region 3 Growth and Diversification Plan; both of these documents can be found on the Region 3 website www.govirginia3.org.
- Identifies likely total costs including anticipated GO Virginia request and matching fund sources
- Includes a clear description of expected outcome or result - clearly describing how the strategy would spur growth of higher-wage jobs in one or more of Region 3's priority clusters AND respond to one or more of the identified strategies in the Region 3 Economic Growth and Diversification Plan.

The successful applicant will ultimately be required to deliver a written entrepreneurial investment strategy document for Region 3 by March 31, 2020.

The Region 3 Council is accepting these Letters of Interest through May 30, 2019. Acceptance of any applicant's Letter of Interest does not commit the Region 3 Council to further action. Interested parties should feel free to contact Liz Povar at liz@riverlinkgroup.com or 804-399-8297 with questions. Letters of Interest should be submitted electronically, using the Subject Line *"R3 LOI"*, to Liz Povar at liz@riverlinkgroup.com

Apprenticeship Analysis for GOVA Region 3



Julie J. Brown, Ph.D.
Institute for Advanced Learning and Research
October 2018

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EXECUTIVE SUMMARY

Apprenticeship is gaining momentum as a bipartisan workforce development strategy to address employer-expressed challenges. The combination of hands-on experience, classroom training and a paycheck are enticing policy-makers and workforce stakeholders to reexamine and reinvigorate their apprenticeship efforts.

In November 2017, the Region 3 Council for Go Virginia issued a Request for Proposals for consulting services to assess apprenticeship efforts across its 15-locality region. The Institute for Advanced Learning and Research (IALR) received the contract for services in February 2018. IALR subcontracted with the National Fund for Workforce Solutions to assist with identification of best practice models and facilitation services.

IALR and NFWS organized several best practice visits to learn about successful apprenticeship models. Project leaders and regional attendees visited Siemens facilities (Charlotte, Mulheim, Erlangen), MSI Specialties, Inc. (NC), Schaeffler (Herzogenaurach), Newport News Shipbuilding (VA) and Phillip Morris (VA). These "see the possible" experiences legitimate efforts as employers and stakeholders learn first-hand of opportunities and successful outcomes from their respective peers. It is clear from these visits that the private sector must have a defined workforce need and that apprenticeship efforts must be driven by the employer and supported at every level within the company.

To determine use of apprenticeship and gain a better understanding of employer perceptions, IALR benchmarked the number of active apprenticeships and surveyed Region 3 employers. There were an average of 2,536 apprenticeship listings for Virginia according to the Virginia Department of Labor and Industry (DOLI) website. During this same timeframe (April and September 2018), Region 3 employers offered an average of 74 apprenticeships, approximately 2.9% of the total number of active apprenticeship postings. Given that Region 3 comprises 4.4% of Virginia's population, the number of apprenticeships is lower, but not significant; however, the diversity of apprenticeship positions is lacking.

From April – June 2018, IALR conducted an online survey of regional employers to learn about current practices, perceptions of, and future interest in apprenticeship. Over 100 employers completed the survey and, based on the analysis, there is significant opportunity to expand apprenticeship within Region 3:

- Employers believe that apprenticeships help meet the demand for skilled labor, assisting with recruitment and retention.
- Employers *did not* support notions that apprenticeships increase accidents, are difficult to establish or take too long.
- Employers expressed uncertainty with regard to the cost of apprenticeship.
- Employers currently using apprenticeships provide financial support for related instruction (75%) and wages while attending class (69%), best practices that improve retention.

- 87 companies expressed interested in offering apprenticeships in the near term - within three years. Only 17 companies were not interested.
- 71 companies expressed interest in a pre-apprenticeship program that begins in the last year of high school.
- Employers identified more than 75 occupational titles for 200 apprenticeship positions. Manufacturing, Education, and Health & Human Services employers identified the greatest number of positions.

Not only is there interest in apprenticeships at the regional level; there are indications that the current federal administration is very interested in expanding apprenticeships and providing funding to support the expansion to include development of Industry-Recognized Apprenticeships as a parallel to Registered Apprenticeships. Region 3 has an opportunity to develop appropriate systems and supports in order to take advantage of future opportunities. In addition, as Region 3 continues its economic development efforts by working to attract U.K. and other European companies, it is imperative that we demonstrate the ability to support a robust apprenticeship system.

While apprenticeship scholars agree that the U.S. cannot easily replicate the Swiss and German models of apprenticeship, there is opportunity to develop new systems embracing this proven work-and-learn model. Region 3 must give consideration to long-term strategies that influence a mindset shift from viewing apprenticeship as a blue-collar-only training opportunity to a culture that understands apprenticeship as "college but without the debt", appropriate for a variety of skilled disciplines to include those that require a bachelor's degree.

In the near-term, the Region 3 Council and stakeholders should consider opportunities to work with employers who have expressed an interest in apprenticeship. There is a pilot effort currently underway in industrial maintenance, supported by five manufacturing employers who have expressed interest and support for: pre-apprenticeship that begins in high school, standardizing wages during apprenticeship to reduce competition; sharing responsibility to promote the program; and, using this pilot to develop an Apprenticeship Consortium, similar to those found in North Carolina.

Recommended near-term action steps include:

1. share report findings with stakeholders,
2. identify lead intermediary,
3. build employer champions,
4. engage with state agencies, and
5. reach out to surveyed employers.

Apprenticeship will not solve the region's workforce challenges; however, it is critical that this proven talent-development tool be expanded as a viable pathway for skilled occupations, beginning in high school. Private sector leadership is critical to expansion efforts. GO Virginia, with its emphasis on employer engagement, is a logical entity to drive this effort. The Region 3 Council has an opportunity to lead.

BACKGROUND and CURRENT TRENDS

According to the U.S. Department of Labor's (US DOL) Office of Apprenticeship (FY2018), there are more than 550,000 active apprentices in approximately 22,500 registered programs in the United States, with California, New York, Ohio and Virginia registering the largest number. In FY17, over 190,000 individuals entered an apprenticeship and nearly 49,000 individuals completed a program. In the last five years, the U.S. has experienced a 48% growth in apprenticeships (see Figure 1). Almost half of U.S. apprenticeships are in the construction field and another 35% are in manufacturing.

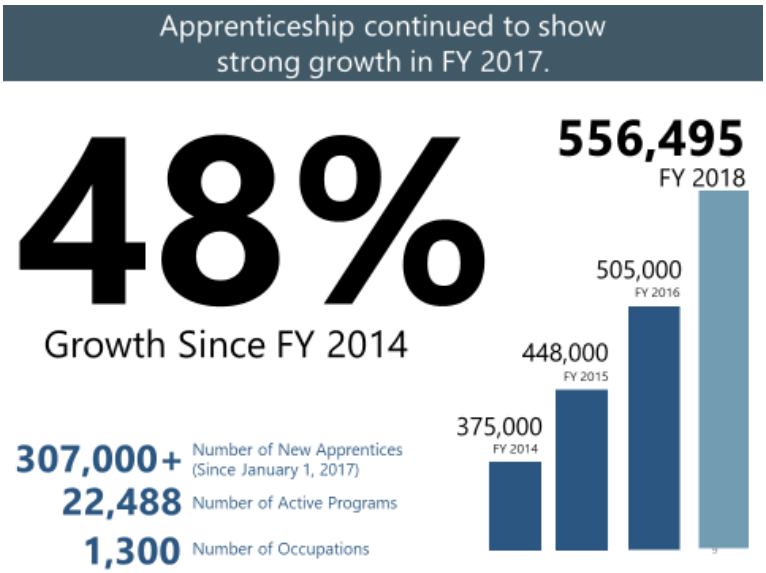


Figure 1. U.S. Department of Labor. Presentation by Dudley Light, Regional Director, USDOL/ETA – Office of Apprenticeship.

While the number of apprentices has increased steadily in the last decade due to support from the previous and current administrations, the United States lags behind other countries in that only 0.3 percent of the workforce are apprentices. According to *The Atlantic* ("Why Germany is so much better at training its workers", T. Jacoby, Oct. 2014), "Today in America, fewer than 5 percent of young people train as apprentices, the overwhelming majority in the construction trades. In Germany, the number is closer to 60 percent – in fields as diverse as advanced manufacturing, IT, banking and hospitality."

Numerous states have developed new apprenticeship initiatives and incentives, and have realigned their reporting structures to build capacity:

> *South Carolina* - Apprenticeship expansion was promoted by the state Chamber of Commerce through a widely circulated white paper, advocacy within the state's technical college system, and promotion with other state partners. In 2007, these efforts resulted in the state legislature appropriating $1 million a year to fund the initiative's small staff. The legislature also approved an employer tax credit worth $1,000 per apprentice. They have hired apprenticeship consultants to make apprenticeship as accessible as possible.

Montana – offers a business tax credit to employers who sponsor an apprentice ($750 or $1500 for military veterans).

Maryland – enacted the More Jobs for Marylanders Act of 2017 that included a tax credit for employers, student financial aid for noncredit training and an outcome goal for the percent of students participating in apprenticeship. State leaders moved oversight for apprenticeships from labor and industry to the workforce division and are adopting competency-based apprenticeships.

Colorado – created a division/unit for work-based learning to coordinate efforts between businesses and the federal registered apprenticeship programs. Launched a statewide effort to place 20,000 high school students in high-demand, high-pay apprenticeship positions by 2027. The Department of Labor and Employment has staff to work with industry-led sector partnerships to expand opportunities.

North Carolina - The Eastern Triad Workforce Initiative (ETWI) will get $3.2 million for job training opportunities in Alamance, Guilford, Randolph and Rockingham counties to support the development and implementation of pilot apprenticeship programs in targeted industries throughout the region. Funds will be used for training materials, apprenticeship employment costs and curriculum development. ApprenticeshipNC: Eligible applicants have the opportunity to enroll tuition-free in community college courses that lead to a certificate, diploma, or degree as well as provide entry-level job skills. Participating employers, in turn, commit to pay all associated costs for their apprentice's education.

While momentum for apprenticeships continues to build, there are challenges. The International Foundation of Employee Benefit Plans conducts numerous surveys of U.S. and Canadian employers. Their most recent survey assesses top trends in apprenticeships and identifies top challenges over the next two years (see Figure 2).

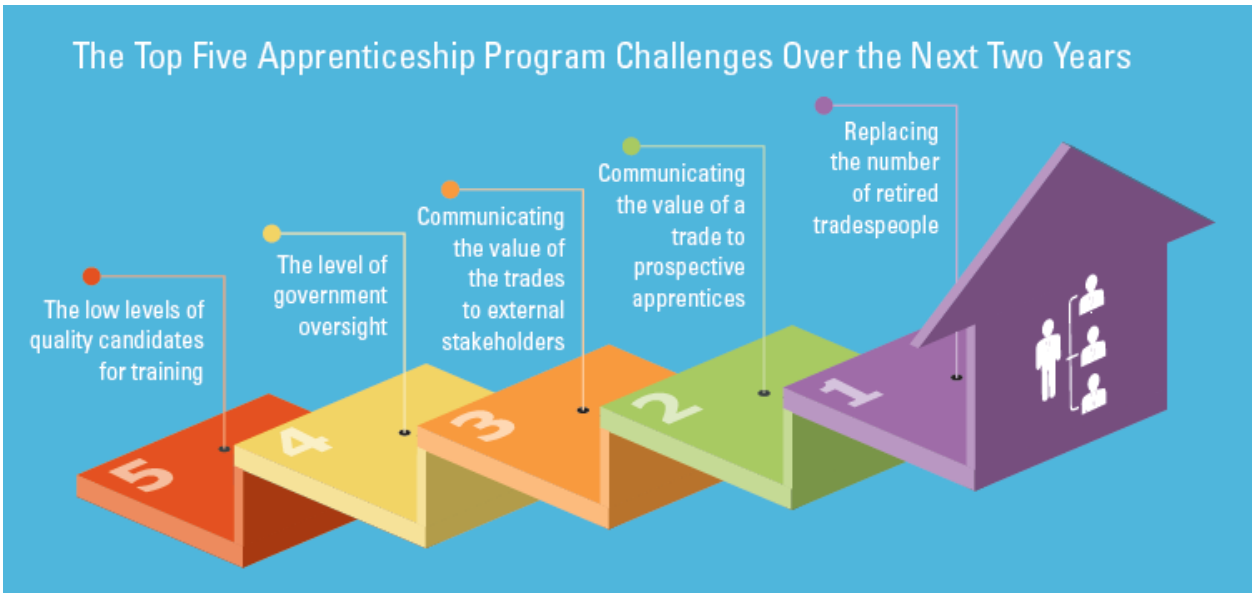


Figure 2. Top Trends in Apprenticeship Programs: 2018 Survey Results, International Foundation of Employee Benefit Plans.

These challenges – jobseekers who are unprepared with appropriate hard and soft skills, the need to help parents and students understand the value of skilled trades, and baby boomer retirements - are echoed by employers across the country, not only with regard to apprenticeship, but for those middle-skill jobs that require less than a four-year degree but more than a high school diploma.

Virginia Funding to Support Apprenticeships:

In 2016, the U.S. Department of Labor awarded $10.4 million in State Accelerator Grants to 52 states and territories to support the expansion of quality and innovative Registered Apprenticeship programs. Each Accelerator grant of $200,000 allowed states to develop a strategic plan and build partnerships for apprenticeship expansion and diversification with state education, workforce and economic development systems. Virginia Registered Apprenticeship administered the Commonwealth's grant. Accelerator grant funds were available for expenditure through May 30, 2018.

Separate from funds received by the state, in 2016, the U.S. Department of Labor awarded $175 million in American Apprenticeship (AA) Grants to 46 public-private partnerships marrying the efforts of employers, organized labor, non-profits, local governments, and educational institutions to expand high-quality apprenticeships. The winning grantees pledged to train and hire more than 34,000 new apprentices in high-growth and high-tech industries including health care, IT and advanced manufacturing over the next five years. Virginia received two grant awards:

1. J. Sargeant Reynolds Community College was awarded a $2.9 million grant to lead the *Apprentice Virginia: Collaborative Workforce Solutions in Information Technology & Advanced Manufacturing* project. Partnerships with key employers including DuPont Spruance and Rolls-Royce as well as the South Central, Resource, Crater Regional and West Piedmont Workforce Investment Boards will ensure program sustainability. The project hopes to create and expand pre-apprenticeship and apprenticeship opportunities for over 330 workers in targeted H-1B industries of IT and Advanced Manufacturing in Virginia. Danville Community College and Southside Virginia Community College are subgrantees.

2. The Shenandoah Valley Workforce Investment Board was awarded $4 million to fund the *Valley to Virginia Apprenticeship Initiative* (V2V). The project targets skilled trades in the advanced manufacturing industry and in-demand occupations in H-1B career pathways including; Mechatronics, Industrial Maintenance Technician, CNC Machine Operator, Welder and Production Technician. V2V plans to serve 600 participants in Virginia. Promotion for V2V will include a just launched yearlong campaign, "InDEMAND Careers in the Shenandoah Valley" including 26 television spots promoting high-wage, high-growth, high-demand jobs closely aligned with apprenticeships.

German Model of Apprenticeship

Hailed as the gold standard for apprenticeship, the German model utilizes a "dual training" approach. Apprentices split their days between classroom instruction at a vocational school and on-the-job training at a company. Classroom theory is reinforced by the work practice. Apprentices are paid for their time, including the hours they spend in related classroom instruction. The Dual VET (vocational education and training) lasts between two and four years, depending on the sector (see Figure 3).

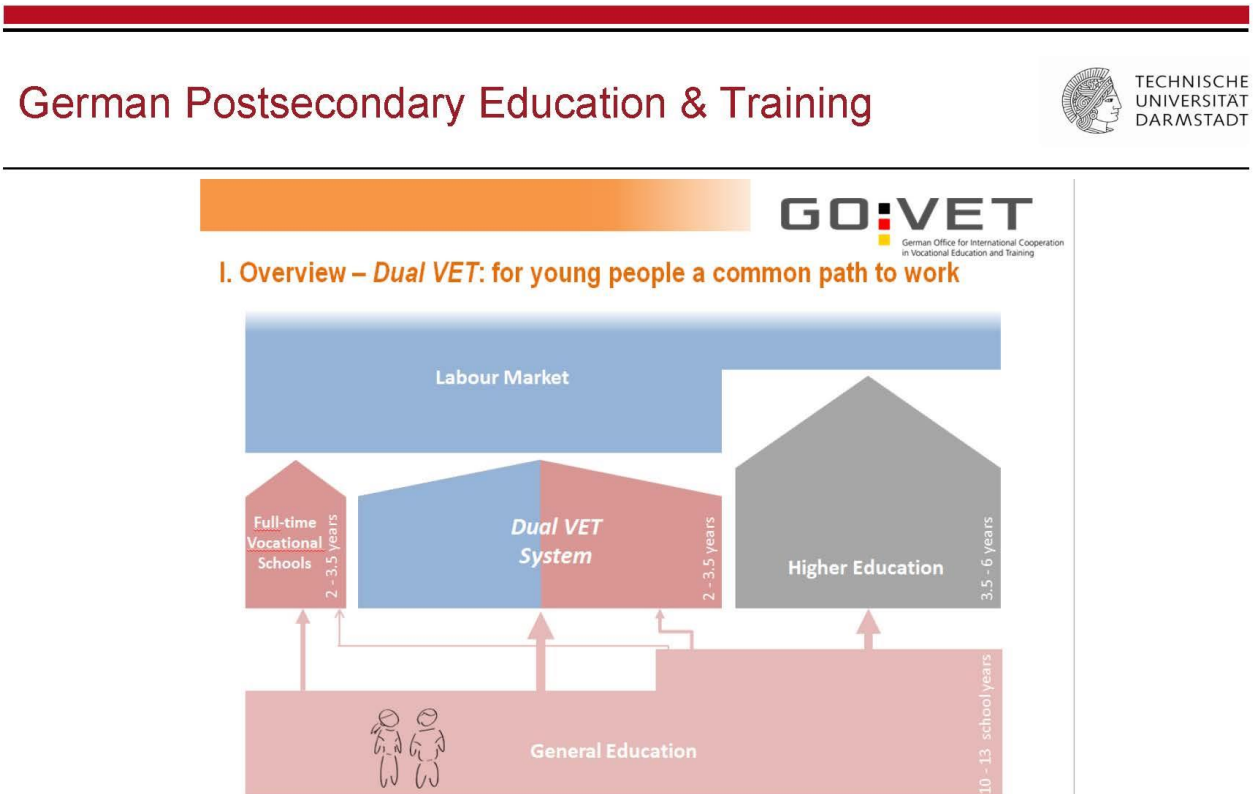


Figure 3. German dual VET pathway. Graphic provided by Technical University - Darmstadt.

Many criticize the German model which requires tracking at a young age. German children choose at age 10 among an academic high school, a vocational track, or something in between (see Figure 4). While thought to be a very rigid system, there are opportunities for trainees to switch tracks later on. Students can go back to school to specialize further or earn a master craftsman's certificate or train as a trainer in the company's apprenticeship program.

German apprenticeship is embedded in their culture as part of the social good. There is a deep respect for skilled labor. Employers express that apprenticeship is a shared civic responsibility; it is an expected part of their budget and headcount. Germany currently has 200,000 apprenticeship openings that they cannot fill.

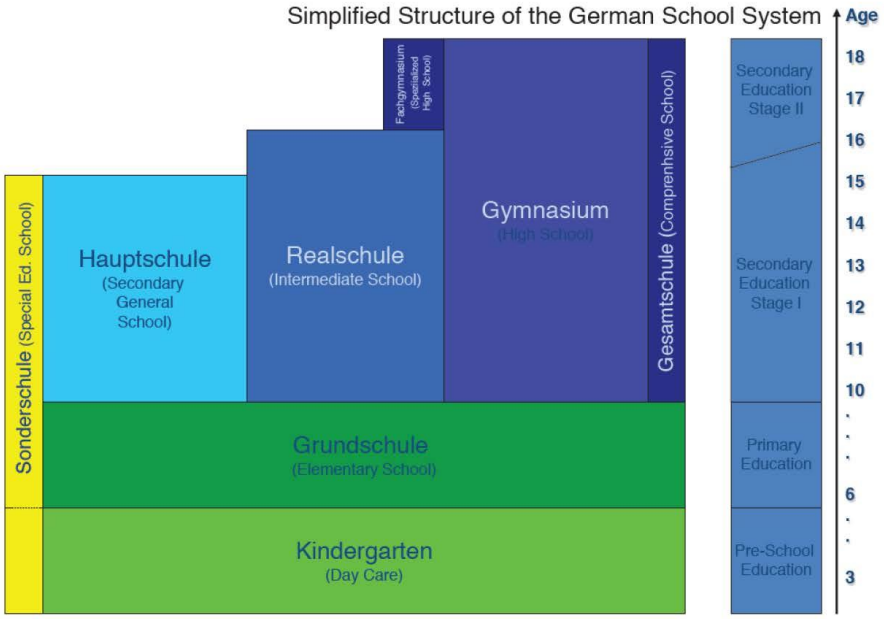


Figure 4. German education model. Graphic provided by Technical University - Darmstadt.

BENCHMARKING APPRENTICESHIP IN REGION 3

While Virginia is one of the top four states for enrolling apprentices, GO Virginia's Region 3 and its business community have not embraced a diversity of apprenticeship occupations. There were an average of 2,536 apprenticeship listings for Virginia according to the Virginia Department of Labor and Industry (DOLI) website (data pulls for two comparative months – April and September 2018). During this same timeframe, there were an average of 74 active apprenticeships in Region 3 74, approximately 2.9% of the total number of active apprenticeship postings in Virginia (see Table 1). Given that Region 3 comprises 4.4% of Virginia's population, the number of apprenticeships is lower, but not significant; however, the diversity of apprenticeship positions is lacking. The largest percentage of apprenticeships in Region 3 are offered in cosmetology and barbering, typically considered lower wage occupations.

Table 1. VA DOLI Active Apprenticeship Listing – April 2018									
County	**Cos/Bar/ Nail**	**Constr/ Elec**	**Utility**	**Manuf.**	**Opt**	**IT**	**Military/ DMA**	**Trans/ Logist**	**Total**
Amelia	1								**1**
Brunswick	1	1		1		1			**4**
Buckingham	1	1		1					**3**
Cumberland		1							**1**
Danville	8		2	1	3	2	5		**21**
Halifax				3	2			1	**6**
Henry		1		4	1				**6**
Lunenburg	1	1							**2**
Martinsville	2		2						**4**
Mecklenburg	3	2	2	2		1			**10**
Nottoway	3	2	3				7		**15**
Pittsylvania		1		1					**2**
Prince Edward	2	2			1				**5**
TOTAL	**22**	**12**	**9**	**13**	**7**	**4**	**12**	**1**	**80**
	28%	15%	11%	16%	9%	5%	15%	1%	
Sept. 2018									
County	**Cos/Bar/ Nail**	**Constr/ Elec**	**Utility**	**Manuf.**	**Opt**	**IT**	**Military/ DMA**	**Trans/ Logis**	**Total**
Amelia	1			1					**2**
Brunswick	1	1		1		1			**4**
Buckingham	1	1							**2**
Cumberland		1							**1**
Danville	9		3	1	4				**17**
Halifax		1		3		1			**5**
Henry		1		4	1				**6**
Lunenburg	1	1							**2**
Martinsville	2		2						**4**
Mecklenburg	3	2	2	3		1			**11**
Nottoway	2	1	3	1					**7**
Pittsylvania				1					**1**
Prince Edward	2	2			1				**5**
TOTAL	**22**	**11**	**10**	**15**	**6**	**3**	**0**	**0**	**67**
	28%	14%	13%	19%	8%	4%	0%	0%	
*** No listings for Charlotte Co. & Patrick Co.*									

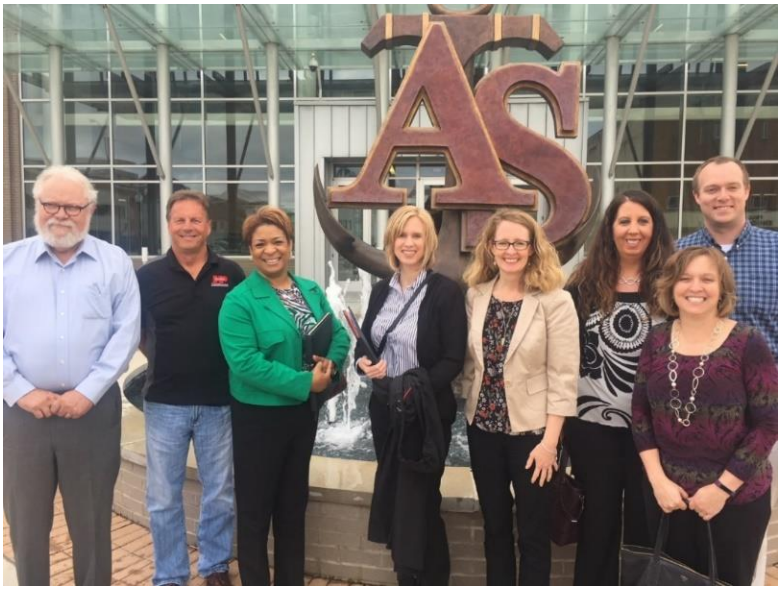
BEST PRACTICE SITE VISITS

IALR and NFWS organized several best practice visits to learn about successful apprenticeship models. Regional attendees visited Siemens facilities (Charlotte, Mulheim, Erlangen), MSI Specialties, Inc. (NC), Schaeffler (Herzogenaurach), Newport News Shipbuilding (VA) and Philip Morris (VA). These "see the possible" experiences legitimate efforts as employers and stakeholders learn first-hand of opportunities and successful outcomes from their respective peers. It is clear from these visits that the private sector must have a defined workforce need and that apprenticeship efforts must be driven by the employer and supported at every level within the company.

Machine Specialties, Inc. (Greensboro, NC)
March 2, 2018

The Dan River Collaborative had the opportunity to visit Machine Specialties Inc., a partner in Guilford Apprenticeship Partners (GAP; http://gapnc.org/) which is a public/private sector partnership that recruits, screens and tests high school youth into pre-apprenticeships and apprenticeships in advanced manufacturing. The visitors were able to hear from company representatives and apprentices about MSI's very successful program.

Side-note: MSI provides space for on-site daycare. The employees utilizing the service pay for the childcare worker.



The Apprentice School - Newport News Shipbuilding
May 8, 2018

The Apprentice School, founded in 1919 at Newport News Shipbuilding, offers four-, five-, and eight-year apprenticeships in nineteen shipbuilding disciplines and eight advanced programs of study. The Apprentice School, with its brand new 85,000 square-foot facility, is accredited by the Commission of the Council on Occupational Education and registered with

the Virginia Apprenticeship Council. The school offers apprentices the opportunity to earn college credit, receive competitive pay and benefits and learn a trade. Apprentices have the opportunity to participate in athletics at the Division III-level in football, wrestling, men's and women's basketball, baseball and golf. Two of the three apprentices on the panel learned about the apprenticeship program through their high school coach. Attendees included: Dr. Karl Stauber, DRF and GOVA Region 3 Council; Peter Basica, JPSS; Joyce Culley, DPS; Allison Moore DPC Chamber; Dr. Leanna Blevins, NCI; Angela Rigney, PCS; Dr. Julie Brown, IALR; Cam Hagan, Unison Tube. Not Pictured: Dr. Pamela Howze, NFWS; Pam Taylor, SVCC; Dr. Meagan Healy and Felix Shapiro, Governor's Office of Workforce Dev.

Siemens (Charlotte, NC)
June 7, 2018

The Dan River Collaborative participated in an apprenticeship convening at Siemens Energy, Inc. in Charlotte, NC. The convening hosted a panel of apprenticeship employers and other partners in the National Fund for Workforce Solutions network. The panelists discussed best practices around apprenticeships in Cincinnati and North Carolina. There was also a Siemens panel of machining and maintenance apprentices. The day culminated with a plant tour of the highly advanced manufacturing facility where the company builds power generation equipment. Richie Barker, General Manager with Unison Tube, and Dr. Julie Brown, IALR, attended.

Philip Morris (Richmond, VA)
June 14, 2018

Seminar was coordinated by the VA Department of Labor and Industry (DOLI); Dr. Julie Brown attended. Philip Morris has ~2,000 employees at the Richmond facility. Expressed workforce challenges include: attrition, different levels of talent showing up, pathways for advancement, evolution of technology and ability of workers to participate in cross-functional teams. Workforce development is a corporate goal and Philip Morris views apprenticeship as a way to develop employees who will retire with the company. They bring in six apprentices per year into two positions: manufacturing fixer and instrument electrician, both four-year apprenticeships. Electrical apprentices receive their DOLI certificate and an AAS degree from John Tyler Community College. Apprentices start at 80% of a journeyworker's wage and earn a 2.5% increase every six months until pay is aligned with hourly workers. Apprentices attend class two to three nights per week, unpaid. Classes and books are paid for by Philip Morris.

Siemens (Mulheim and Erlangen, Germany)

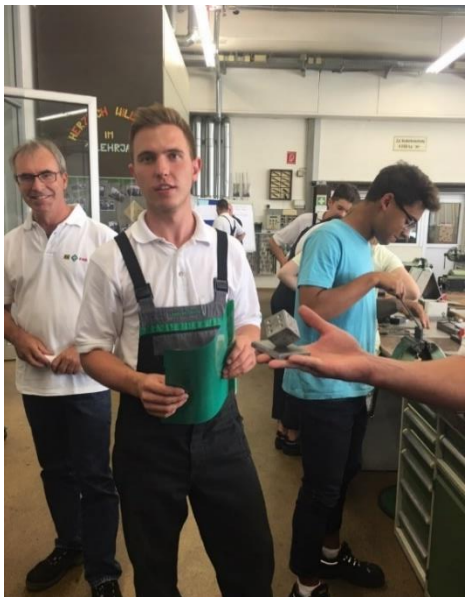
July 24 & 26, 2018

The Dan River Region Collaborative group visited two Siemens' facilities in Germany (Siemens operates 30 training centers in Germany). The first visit was to a Siemens facility in Muhlheim

that has an apprenticeship academy for ~80 apprentices each year in manufacturing. Assessments for entrance are not academic, but rather focus on social and personal skills. The second visit was at the Siemens Professional Education facility in Erlangen, where there are a number of professional youth apprenticeships for college students in engineering and project management. Provides an example of degree apprenticeships which include double-majors in business and language studies.

Schaeffler (Herzogenaurach, Germany)
July 26, 2018

Schaeffler is a global automotive supplier manufacturing facility, with 450 apprentices on-site and10,000 employees. Globally, Schaeffler has 3,000 apprentices and 140 full-time trainers; two-thirds of the apprentices remain with the company. Attendees had the opportunity to interact with youth apprentices in manufacturing and engineering. Apprentices are noted by green and black coveralls. High school students are allowed to come in for one week to learn more about Schaeffler's apprenticeship program and gain hands-on experience; instruction is led by current apprentices. The schools provide insurance to allow for the one-week program. The company also hosts "Future Day" to encourage female students to consider apprenticeship.



Left: Apprentice shares information about the one-week high school program while a prospective apprentice uses the grinder to hand-tool a part. Right: Group photo of attendees and Schaeffler employees in the apprenticeship training area.

REGION 3 APPRENTICESHIP SURVEY

From April to June 2018, businesses in southern Virginia were asked to complete a survey to assess perceptions of apprenticeship, current practice and future interest. The survey (Appendix A) was distributed through partner agencies, such as Chambers of Commerce, Community Colleges, and Workforce Development Boards via web link. There were 139 respondents. Nine responses were duplicated by company and 17 respondents did not complete the survey, yielding 113 final respondents (N=113).

Respondents by Industry Sector

Respondents could identify with eleven industry sectors and were given the opportunity to select "Other" if the sector title did not adequately describe their industry. Respondents also indicated the size of their company based on the number of employees. Responses are noted in Table 2.

Table 2. Respondents to Survey by Industry Sector and Number of Employees (Size)

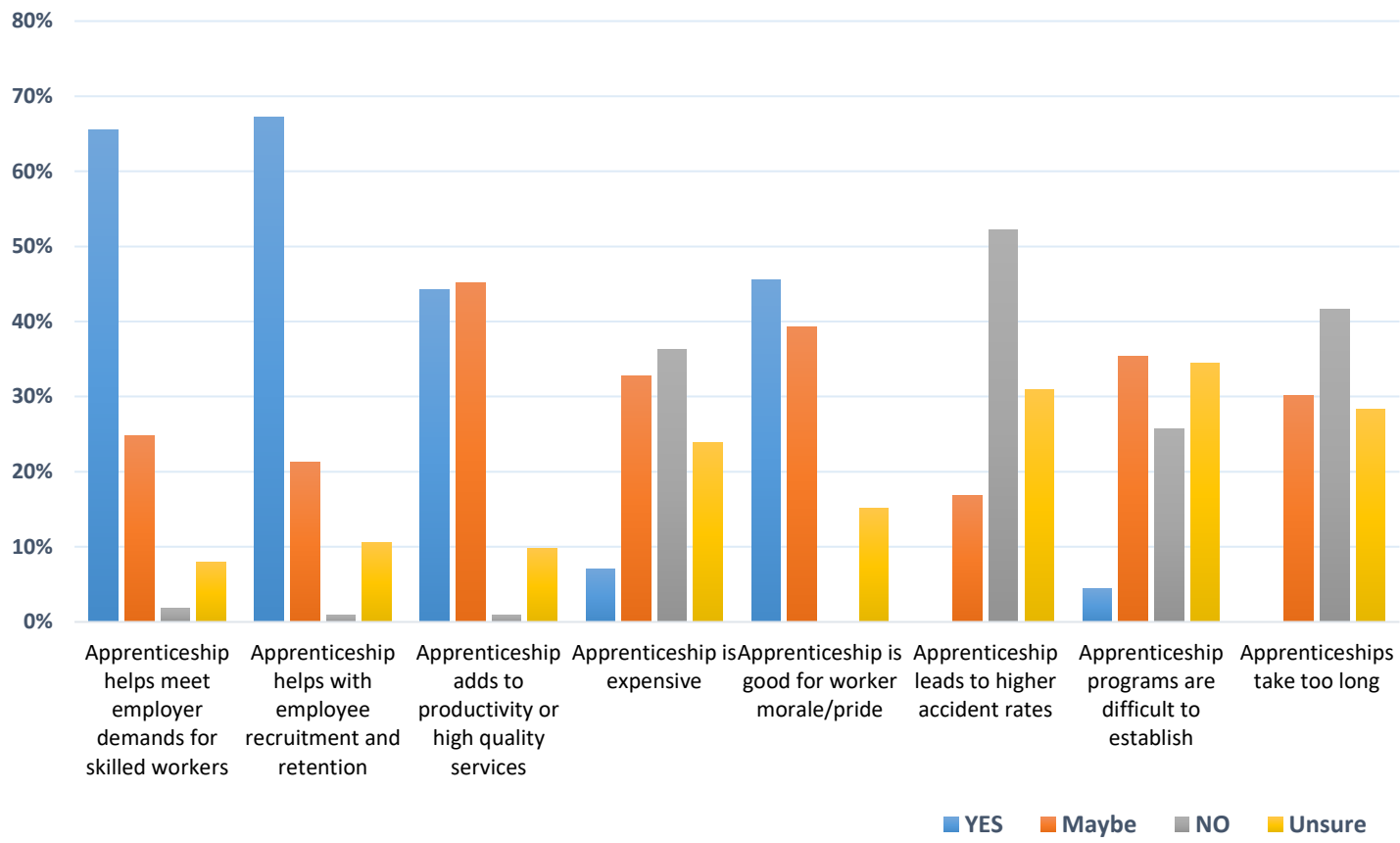
Sector	N	1 - 10	11 - 25	26 - 50	51 - 100	101 - 200	200+
Automotive & Aviation	3	2	1				
Business Services & Banking	20	16		2		1	1
Construction	5	4				1	
Education Services	13	3	2	1	1		6
Health & Human Services	19	2	3	4	7		3
Hospitality & Food Service	6	2	2		1		1
IT/Telecommunications	5	3		2			
Manufacturing	19		2		4	6	7
Retail Trade	4		3		1		
Transportation & Logistics	7	1	1	1	3	1	
Utilities	2			1		1	
Other	10	5	2	1		1	1
TOTAL	**113**	**38**	**16**	**12**	**17**	**11**	**19**
Percent (%)		*36.0%*	*14.2%*	*10.6%*	*15.0%*	*9.7%*	*16.8%*

Overall there was good participation from employers in a variety sectors and from small to large-sized companies (based on the number of employees); therefore the perceptions and interest expressed can be considered representative of the region's private sector employers.

Perceptions of Apprenticeship by Industry Sector

Respondents were asked to respond to various statements to assess their perception of apprenticeships. It is important to understand employers' overall predispositions prior to developing new initiatives. Barriers and negative impressions can be addressed in a proactive manner. See Figure 5.

Figure 5. Perceptions of Apprenticeship



More than 65% of respondents perceive apprenticeship as a strategy to meet their needs for skilled workers and help with employee recruitment and retention. Roughly 90% percent expressed that apprenticeship may or does add to productivity and/or high quality services and that it's good for worker morale - generally positive impressions. None of the respondents supported notions that apprenticeship leads to higher accident rates or takes too long. There was more uncertainty regarding cost and the difficulty in establishing programs. Overall, employer perceptions of apprenticeship are very positive.

When examining perceptions by industry sector, the top four sectors (by number of employer responses) – business services and banking, education, healthcare and manufacturing – are very positive about apprenticeship (see Table 3). The Education sector appears to be the most positive while there is a little more uncertainty in the business sector.

Table 3. Perceptions by Top 4 Industry Sectors					
Apprenticeship helps meet employer demands for skilled workers					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business Services & Banking	55%	25%	5%	15%	20
Education	85%	15%	0%	0%	13
Healthcare	68%	26%	0%	5%	19
Manufacturing	74%	21%	0%	5%	19
Apprenticeship helps with employee recruitment and retention					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	65%	20%	0%	15%	20
Education	85%	8%	0%	7%	13
Healthcare	84%	16%	0%	0%	19
Manufacturing	63%	32%	0%	5%	19
Apprenticeship adds to productivity or high quality services					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	45%	45%	0%	10%	20
Education	69%	23%	0%	8%	13
Healthcare	47%	53%	0%	0%	19
Manufacturing	32%	58%	0	10%	19
Apprenticeship is expensive					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	5%	45%	30%	20%	20
Education	15%	31%	39%	15%	13
Healthcare	0%	26%	47%	27%	19
Manufacturing	0%	42%	37%	21%	19
Apprenticeship is good for worker morale/pride					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	21%	47%	0%	32%	19
Education	85%	8%	0%	7%	13
Healthcare	53%	42%	0%	5%	19
Manufacturing	53%	47%	0%	0%	19
Apprenticeship leads to higher accident rates					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	0%	25%	45%	30%	20
Education	0%	15%	62%	23%	13
Healthcare	0%	5%	69%	26%	19
Manufacturing	0%	21%	47%	32%	19

Apprenticeship programs are difficult to establish					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	0%	30%	30%	40%	20
Education	8%	23%	38%	31%	13
Healthcare	0%	37%	16%	47%	19
Manufacturing	5%	37%	26%	32%	19
Apprenticeships take too long					
	YES	**Maybe**	**NO**	**Unsure**	**N**
Business	0%	30%	30%	40%	20
Education	0%	39%	46%	15%	13
Healthcare	0%	27%	47%	26%	19
Manufacturing	0%	42%	42%	16%	19

See Appendix A for employer comments regarding apprenticeship.

Current Use of Apprenticeship

Thirty-two companies indicated that they had offered apprenticeship opportunities in the last year. Seventy-nine companies had not offered apprenticeships (two companies did not respond). Approximately 40% of the respondents with apprenticeship experience indicated numerous years of experience (five years or more) while 60% of companies are relatively new (less than five years) to using apprenticeship as a talent development strategy (see Table 4).

Table 4. Number of Years Offering Apprenticeships		
Years	Percent	# Companies
One year or less	6.67%	2
More than one year but less than 5 years	53.33%	16
5 to 10 years	20.00%	6
More than 10 years	20.00%	6
TOTAL	100.00%	30

Of the companies offering apprenticeships in the last five years (N=32), 77% sponsored fewer than two apprentices (see Table 5). Only three companies had supported more than five apprentices.

Table 5. Number of Apprentices		
# apprentices	Percent	# Companies
0	35.48%	11
1 - 2	41.94%	13
3 - 5	12.90%	4
6 - 10	6.45%	2
11 +	3.23%	1
Total	**100.00%**	**31**

Several respondents indicated support for other forms of work-based learning, including student teachers and interns (surveying, programming, finance, and civil engineering). Current apprenticeship positions included:

Accounting	Family Services Specialist	Network engineer
Apparatus Technician	Finance Assistant	Office Support (2)
Architect (Graduate)	Human Resources Assistant (2)	Operations
Assistant Dir/Teacher	Human Services Assistant	Processing Technician (2)
Career Center Assistant	Industrial Maintenance	Project Management
Carpenter - Helper	Line Technician	Purchasing
CDL	Machine Operator	Service Techs
Civil Engineering	Machinist	Staking Technician
Clean-up Lead	Maintenance mechanic	Supervisor
Customer Service/Billing	Maintenance (7)	Surveyor
Driver	Management Trainee	System Operator
Engineering (2)	Marketing & communications asst.	Teacher
Events Assistant	Media Support	Welder (2)

One of the required components of an apprenticeship program is formal classroom instruction or related instruction (RI), typically 144 hours per year. Companies offering apprenticeships in the last five years used a myriad of RI training providers; however, they were most reliant on themselves and the community college to provide this training (see Table 6).

Table 6. Organization Providing Related Instruction

Organization	Percent	Number of Employers
Community College	41.38%	12
Four-year college or University	13.79%	4
Proprietary Vendor	6.90%	2
Technical School	13.79%	4
High School	6.90%	2
Our Company	48.28%	14
Other (please specify)	6.90%	2

Respondents were asked to indicate who paid the cost for the related instruction. Respondents could select multiple options. Of the 28 respondents, 75% indicated that the company paid for some or all of the related instruction. Twenty-five percent indicated funding was provided through public sources such as Pell, WIOA and/or grants. Less than 15% of companies indicated that the apprentice paid for some or all of the related instruction.

Of those companies who had offered apprenticeships in the last five years, 69% (N=20) indicated that apprentices were paid a wage while attending related instruction. Approximately 24%

(N=7) paid apprentices a wage for some of the related instruction hours. Less than 7% (N=2) indicated that apprentices were not paid while attending required related instruction.

Thirteen companies, roughly 48% of respondents who had offered apprenticeship, indicated that 10% or less of their apprentices were successful in completing the apprenticeship and maintaining employment. Almost 30% (N=8 companies) indicated that 75% or more of their apprentices were successful in completing the internship. Four companies indicated completion rates of 51% - 75% while one company had an 11% - 25% rate and one company had a 26% - 50% completion rate.

Future Interest in Apprenticeship

Based on the number of companies who had experience with apprenticeship, the same number of companies stated that they have a good understanding of apprenticeship and did not need additional information. Almost 60 employers expressed interest in learning more. Only 16 employers (15%) did not want to learn more about apprenticeship. See Table 7.

Table 7. Future Interest in Apprenticeship

	YES		NO		We already have a good understanding	
Our company is interested in learning more about apprenticeship.	%	#	%	#	%	#
	56.19%	59	15.24%	16	28.57%	30
	Yes		**Maybe**		**NO**	
	%	#	%	#	%	#
Our company is interested in offering apprenticeships in the near term - within three years.	32.69%	34	50.96%	53	16.35%	17
Our company would be interested in a pre-apprenticeship program that begins in the last year of high school.	31.43%	33	36.19%	38	32.38%	34

Eighty–seven companies are potentially interested in offering apprenticeship in the next three years and 71 companies are potentially interested in pre-apprenticeship programs that begin in high school, indicating that fewer companies are interested in apprenticeship options for those who are under eighteen.

When examining interest by sector (see Table 8), it is evident that apprenticeship is a strategy of interest to multiple industry sectors with the strongest support coming from the education and manufacturing sectors.

Table 8. Interested in offering apprenticeships in the near term - w/in 3yrs								
	YES		NO		Maybe		No Response	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Automotive					1	33%	2	67%
Business Services & Banking	2	10%	6	30%	11	55%	3	15%
Construction	1	20%	1	20%	2	40%		
Education Services	7	54%	3	23%	3	23%		
Health & Human Services	4	21%	3	16%	12	63%		
Hospitality & Food Services	3	50%			3	50%		
IT/Telecommunications	2	40%			2	40%	1	20%
Manufacturing	10	53%			8	42%	1	5%
Retail	2	50%	2	50%				
Transportation & Logistics					7	100%		
Utilities	1	50%			1	50%		
Other	2	20%	2	20%	3	30%	2	
TOTAL	34	30%	17	15%	53	47%	9	8%

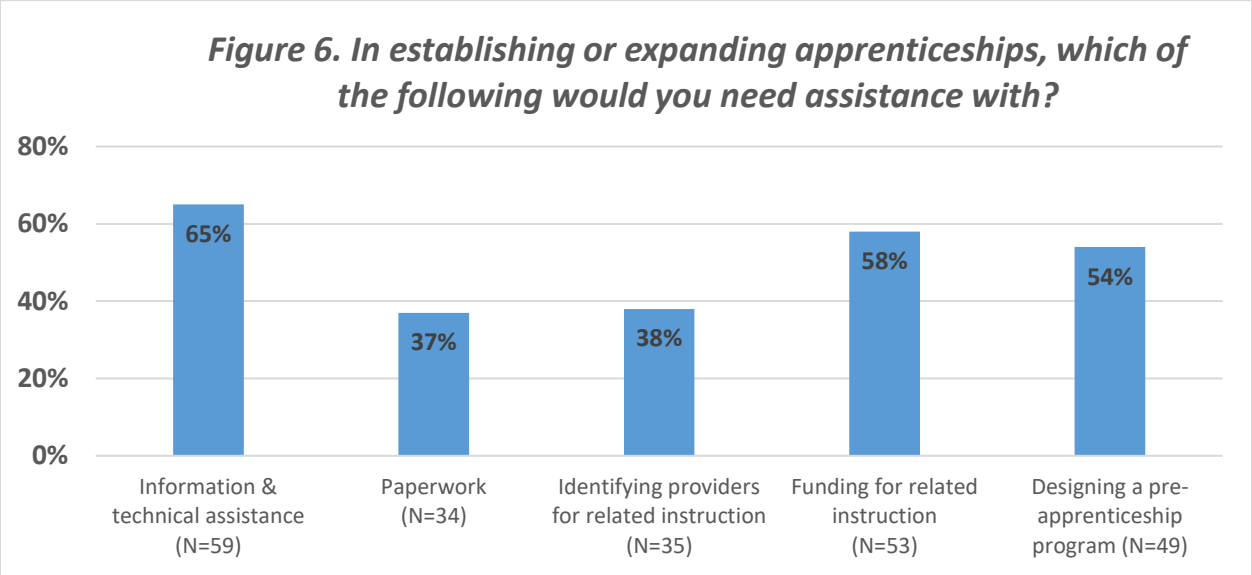
The greatest interest in pre-apprenticeship is in the education and retail sectors while the greatest opposition is in the health and human services sector. See Table 9.

Table 9. Interested in pre-apprenticeship								
	YES		NO		Maybe		No Response	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Automotive			1	33%	1	33%	1	33%
Business Services & Banking	3	15%	11	55%	5	25%	3	15%
Construction	1	20%	1	25%	2	50%		
Education Services	8	62%	3	23%	2	15%		
Health & Human Services	4	21%	2	11%	13	68%		
Hospitality & Food Services	1	17%	3	50%	2	33%		
IT/Telecommunications	2	40%			2	40%	1	20%
Manufacturing	8	42%	4	21%	6	32%	1	5%
Retail	2	50%	1	25%	1	25%		
Transportation & Logistics	2	29%	3	43%	2	29%		
Utilities	1	50%	1	50%				
Other	1	11%	4	44%	2	22%	2	22%
TOTAL	33	29%	34	30%	38	34%	8	7%

Interested employers have identified over 200 apprenticeship positions, a 175% increase from the benchmark data (see Table 10). Again, the greatest opportunities seem to be in education, manufacturing, and health and human services.

Table 10. Number of Potential Apprentices by Sector	
Sector	**# Apprentices**
Automotive & Aviation	1
Transportation & Logistics	5
Construction	8
Education Services	72
Health and Human Services	34
Hospitality and Food Services	8
IT / Telecommunications	3
Manufacturing	53
Retail Trade	1
Utilities	2
Business Services & Banking	10
Other	7
TOTAL	**204**

In thinking about expansion potential, employers indicated that they are most in need of information (65%) and assistance with funding (54%). They also expressed a need for assistance in designing a pre-apprenticeship program. See Figure 6.



TASKFORCE ON APPRENTICESHIP EXPANSION

On June 15, 2017, President Trump issued Executive Order 13801, *Expanding Apprenticeships in America* "to identify strategies and proposals to promote apprenticeships, especially in sectors where apprenticeship programs are insufficient." In May 2018, the Taskforce proposed 26 recommendations in four areas: Education and Credentialing; Attracting Business to Apprenticeship; Expanding Access, Equity and Career Awareness; and Administrative and Regulatory Strategies to Expand Apprenticeship. See Appendix C for the full list of the 26 recommendations.

The Taskforce recommended expansion of apprenticeship through the establishment of Industry-Recognized Apprenticeship Programs or IRAPs. Registered Apprenticeships will remain as a primary means of accrediting programs while IRAPs, endorsed by national organizations representing industry, will allow for new models. An IRAP must be certified as a high-quality program by a third-party certifier who has received favorable determination from the USDOL. Certifiers may be existing organizations or may be created for the express purpose of certifying IRAPs. While regulations have not been released, early discussions indicate that IRAPs may not be WIOA or GI Bill eligible. In addition, programs offered by the U.S. military and the construction industry will initially be excluded from IRAPs due to the existing high concentration of apprenticeships in these areas. Four additional information, see the *Training and Employment Notice 3-18*, July 27, 2018.

RECOMMENDATIONS for REGION 3

Timing to expand apprenticeship could not be better. Many states, including Virginia, are experiencing record low unemployment; talent is hard to come by and employers, who may have been reluctant to try apprenticeship, are feeling the pain. Second, the federal government, in rare bipartisan fashion, is extremely supportive of apprenticeship and is poised to release additional funding and new, more flexible guidelines in order to expand opportunities and increase employer engagement. Third, Virginia's new *Profile of a High School Graduate* emphasizes the need to include work-based learning as a new graduation requirement; school divisions must provide opportunities for students to learn about workplace expectations and career options. The K-12 system will be a willing partner in expanding apprenticeships that begin in high school.

The primary consideration for Region 3 leadership is the support and engagement from the private sector that will be required to expand apprenticeship. Based on feedback from employers included in this report, there is interest from the private sector in expanding opportunities. It is also clear that employers will require assistance in developing programs and in funding the required related instruction.

Big Picture Strategies:

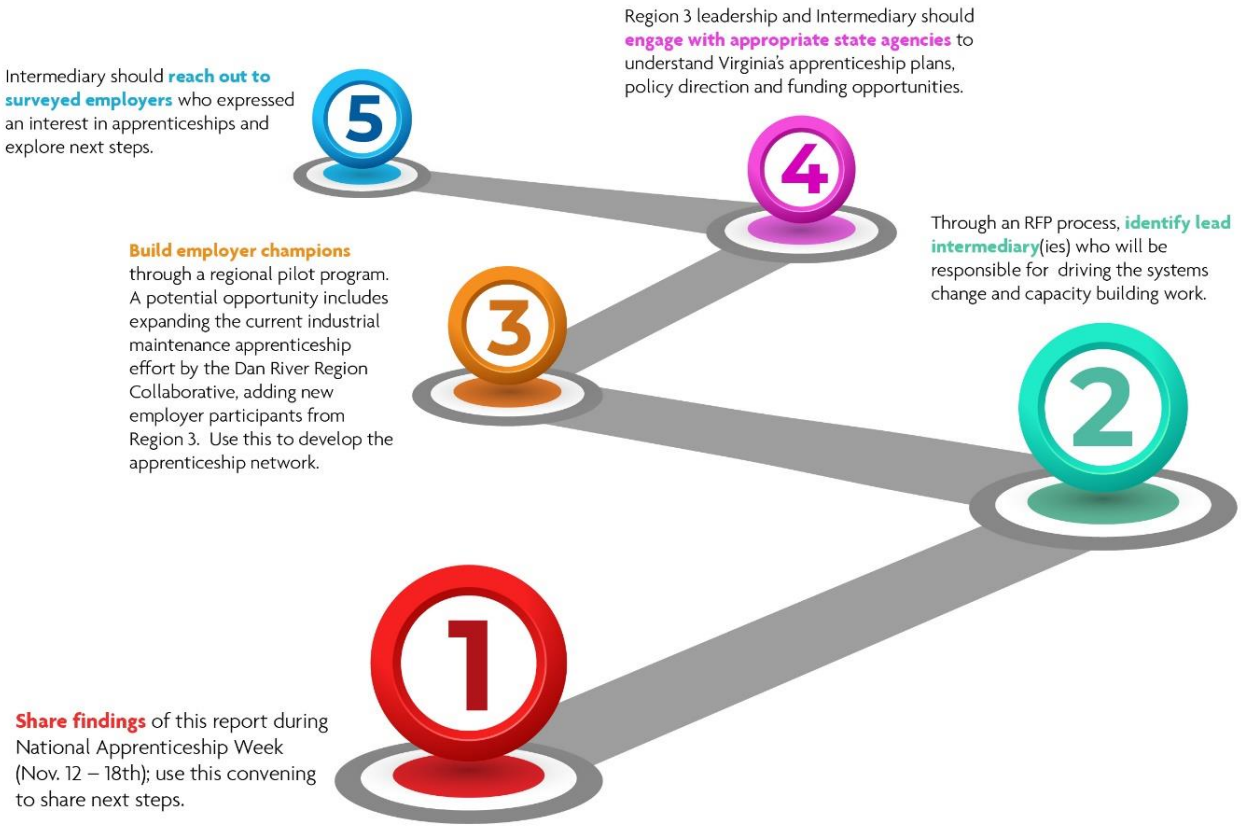
At the 30,000 foot level, here are some development strategies for the Region to consider:

- Create a **vision** where apprenticeship is a critical component of a larger work-based learning strategy.
- Change the **perception and culture**: apprenticeship as "college but without the debt."
- Make it **easy for employers** to engage by developing and/or modifying tools that simplify and localize the process.
- Create regional **apprenticeship consortiums**, similar to the North Carolina model.
- Partner with employers and the K-12 system to establish **pre-apprenticeships** starting in high school, especially in strategic sectors such as manufacturing and healthcare.
- Explore **degree apprenticeship** in professional fields such as engineering, teaching and nursing. This will support perception efforts to establish apprenticeship as a college-option.

Near Term Actionable Steps:

If Region 3 has an immediate interest in building capacity to support apprenticeship expansion, there several near term action steps to begin the effort (see Figure 7).

Figure 7. Near-term Steps for Advancing Apprenticeship in Region 3.



1. **Share findings** of this report during National Apprenticeship Week (Nov. 12 – 18th); use this to springboard next steps and assess interest in a larger convening around work-based learning for spring 2019. The Dan River Region Collaborative can assist Region 3 leadership in planning a breakfast or luncheon event to disseminate findings and recommendations from this report.
2. Through an RFP process, **identify lead intermediary**(ies) who will be responsible for driving the systems change and capacity building work. Examination of best practices and new state initiatives clearly identifies the need for an intermediary to drive the effort. Potential intermediaries include:
    a. IALR
    b. Workforce Development Boards
    c. Community Colleges
    d. Chambers of Commerce

    RFP should include request for funding to pilot employer engagement incentives and/or identification of existing funds that could be leveraged (private, state, federal) towards apprenticeship expansion. The *estimated* cost for a one-year contract is $100,000.
3. **Build employer champions** through a regional pilot program. A potential opportunity includes expanding the current industrial maintenance apprenticeship effort by the Dan River Region Collaborative, adding new employer participants from Region 3. Use this to develop the apprenticeship network/consortium. The intermediary would be responsible for this work. Funding would be required to support the related instruction costs. DCC and SVCC may have funds from an existing grant to support this effort.
4. **Engage with appropriate state agencies** to understand Virginia's apprenticeship plans, policy direction and funding opportunities. This would also be the intermediary's responsibility and the only additional cost would be travel. Appropriate agencies include:
    - Virginia Department of Labor and Industry, Division of Registered Apprenticeship
    - Virginia Department of Education
    - Virginias's Workforce Development Board
    - Virginia Economic Development Partnership
5. Intermediary should **reach out to surveyed employers** who expressed an interest in apprenticeships and explore next steps. If funding resources have been identified, there should be support for related instruction. Additional funding options include: the Virginia Tobacco Commission, Region 3 per capita funds, and leveraged WIOA funds. Employer wage expenses for new apprenticeship positions should count as private matching funds.

If these near-term steps are achieved, within twelve months the Region should be in a good position to apply for impending federal funds and other grant opportunities. There is potential to double the number of active apprenticeships within this timeframe. In the next five years, Region 3 could have an employer-driven system that is sustained by the private sector, leveraging state investments in workforce development.

APPENDIX A – Region 3 Employer Comments

	Region 3 Employer Comments Regarding Apprenticeship
1	As long as the apprentice is at least 18 (due to bonding requirements) we would be interested in considering this program at our bank.
2	We already utilize unpaid college interns so it may be difficult to pay a less skilled high school student. The college student may feel this is unfair and we don't have the funds in our budget at this time.
3	Programs such as this would have to be approved through corporate prior to implementing locally and I am unsure as to corporate appetite. That would have to be determined.
4	Great program
5	I think apprenticeship is great idea however it is not something that is applicable to my business.
6	Excellent option, we have offered internships in the past
7	We are a small public library. Our guidelines are to use our own staff to accomplish the work that needs to be done. Note - we also do not use volunteers for standard tasks.
8	I would love to have an apprenticeship program at my business but we would not be able to fund it.
9	We are considered local government, but would need this option to meet VDSS requirements.
10	I am familiar with apprenticeships generally, however I am not sure of the relationship: costs/benefits between WF development and the company and / or apprenticeship participants. I am much more familiar with the term internship or practicum. Consequently we would need a lot of guidance in developing and implementing such a program-but we remain interested notheless.
11	Healthcare is unique in that most all clinical positions require a state license to practice.
12	I believe apprenticeship opportunities would be an enhancement for any company or business
13	Apprentices need to be 21.
14	Education system needs earlier identification of aptitude and interests in careers so appropriate courses are taken; otherwise by the time we would like to have them intern as high school senior, they are not prepared
15	We have not determined to go forward with apprenticeships at this time, but are interested in information concerning the program.
16	Certainly a good opportunity and would like to learn more about what is available in the Danville area.
17	The current educational system is failing to provide the skills needed. I am most familiar with the system in Germany where the apprenticeship programs are helping to bridge the gap between unskilled and skilled workers. Apprenticeship programs could be a great means of supporting both business and education.
18	Will need people with an aptitude for the position
19	As we are operating in tobacco, we will be able to hire apprentices only after they reach age 18. Therefore, we would need an adjusted program vs.others. We are very interested in the program.
20	We have been working with Kelly Arnold with SVCC, excellent results.
21	We only provide apprenticeship to employees who have work experience at our preschool.
22	I think there is a huge need in our community for the auto tech industry. There are 30 more or less shops within a 20 mile radius.
23	Our company's greatest needs are in transportation and service technicians who are responsible for the installation and trouble-shooting of appliances that use our fuels.
24	Will love to work with the program but the insurance cost to train a truck driver is too much for our company

25	in the trucking industry we are having trouble hiring qualified drivers. the hard part for us is hiring with 2 years driving experience. Not exactly sure how apprenticeship would work for smaller trucking providers. large companies can hire drivers right out of driving school and put them in a program immediately where we have to wait for them to come back around to have an opportunity.
26	Our apprenticeships have worked beautifully over the years, by allowing us to hire employees and have them trained and educated while working.

APPENDIX B – Positions of Interest by Sector

Apprenticeship Positions of Interest by Sector		
Sector	**Title**	**# Employers Noting Title**
Automotive & Aviation	AUTO SPECIALTY TECH	1
	Other	1
	Other titles: Aircraft component technician	
Transportation & Logisitics	DIESEL MECHANIC	1
	MECHANIC, INDUSTR TRUCK	1
	TRUCK DRIVER, HEAVY	3
	SMALL-ENGINE MECHANIC	1
	Other	1
	Other titles: Service Technician for Petroleum products and Telecommunications Techs; Veneer grader; Customer Service; data entry; marketing	
Construction	CONSTRUCTION ENGINEER	1
	CONSTRUCTION EQUIPMENT	1
	COST ESTIMATOR	1
	HVAC-ENVIRONMENTAL-CTRL	1
	PLUMBER	1
Education Services	CHILD CARE DEV SPECIALIST	5
	COUNSELOR, GUIDANCE	3
	EDUCATION & TRAINING	8
	NURSERY SCHOOL ATTENDANT	1
	YOUTH DEVEL. PRACTITIONER	1
	TEACHER AIDE I	7
	TEACHER PRESCHOOL	4
	TRADE/INDUSTRIAL TEACHER	2
	TRAINING SPECIALIST	1
	Other	4
	Other titles: Graphics, PR, Web design, customer service; Clerical, landscaping, maintenance; Welding, Mechatronics, IT; Library Assistant	
Health and Human Services	CASEWORKER, FAMILY	3
	DENTAL ASSISTANT	2
	LEGAL SECRETARY- CLERICAL	2
	MEDICAL ASSISTANT	6
	MEDICAL LABORATORY TECH	3
	MEDICAL SECRETARY	4
	NURSE ASSISTT II, GOV	3

	HUMAN RESOURCES	5
	HUMAN RESOURCES ASSIST.	7
	SECURITY GUARD	1
	SECRETARY, CLERICAL	6
	Other	6
	Other titles: Medical Equipment Technicians/Respiratory Therapists; Customer Service Call Center; Mentoring, Direct Support Professional, Peer Support Spec; Community Health Worker/Patient Navigator; Personal Care Aides/Asst.; Veterinarian tech; Early Childhood Teacher Court Advocate Maintenance Tech Cannery Operator Human Service Worker	
Hospitality and Food Services	COOK	1
	COSMETOLOGIST	1
	MANAGER (food/retail)	3
	Other	4
	Other titles: Brewer, viticulturist, enologist; Events Asst.; Front Desk Associate; Housekeeping; Maintenance; Vineyard Manager, Winemaker	
IT / Telecommunications	COMPUTER PROGRAMMER	2
	NETWORK SUPPORT (various)	2
	TECHNICAL SUPPORT SPEC.	1
	Other	2
	Other titles: Cyber security; retail telecommunications	
Manufacturing	MACHINE OPERATOR I	9
	MACHINE REPAIRER, MAINT	5
	MACHINE SET-UP OPERATOR	3
	MACHINIST (various)	3
	MAINT REPAIR (various)	5
	MAINTENANCE MACHINIST	5
	MAINTENANCE MECHANIC	12
	MAINTENANCE/REPAIR WORK	9
	INDUSTRIAL ENGINEER TECH	4
	FABRICATOR-ASSEM, METAL	1
	INDUSTRIAL MANUF. TECH	2
	INSPECT, METAL FABRICATOR	1
	INSPECTOR, QUALITY ASSUR	4
	INVENTORY MANAGEMENT	4
	JOINER	1
	BOILERHOUSE MECHANIC	3
	ELECTRICAL TECHNICIAN	7
	ELECTRICAL-APPL REPAIR	2
	ELECTRICAL-INSTRUMENT REP	4
	ELECTROMECHANICAL TECH	5

	ELECTRONICS MECHANIC	5
	ELECTRONICS TECHNICIAN	3
	PIPE FITTER (various)	3
	METAL FABRICATOR	1
	MILLWRIGHT	3
	PRODUCTION PLANNER	3
	SHEET-METAL WORKER	1
	RECEIVING LAYOUT INSP	1
	QUALITY CONTROL INSPECTOR	6
	MATERIAL COORDINATOR	5
	WELDER (various)	2
	REPAIRER, WELDING INDUSTR	1
	STOCK-CONTROL CLERK	3
	OPERATING ENGINEER	3
	OPERATIONS COORDINATOR	3
	Other	2
	Other titles: Construction Trades; Production management	
Retail Trade	Other	1
	Other titles: automotive tech	
Utilities	ELECTRICAL-INSTRUMENT REP	1
	WATER-TREAT-PLANT OPER	1
	TREATMENT-PLANT MECHANIC	1
Business Services & Banking	Title Searches	1
	Operations Clerks; Teller	2
	Survey field crew	1
	Front desk receptionist, admin.	5
	Drafting	1
	Marketing	1
	Research analyst	1
Other	Assistant Teacher /Teacher	1
	Administrative Asst. /Event Coord.	2
	Processing/Chemistry	1

APPENDIX C – Taskforce Recommendations

Taskforce Recommendations to Expand Apprenticeships, May 2018		
Education and Credentialing	1. Expansion of Traditional Work-and-Learn Models	The industry-recognized apprenticeship program (IRAP) should expand more traditional work-and-learn models to incorporate criteria of modern apprenticeship and ensure better outcomes for workers and employers. Competency-based models.
	2. Core Components of Work-and-Learn Models	Certifiers of Industry-recognized apprenticeships should ensure apprenticeships incorporate successful core components: blended learning, credit for prior knowledge and experience, industry recognized skill standards and credentials, structured mentorship, paid work experience and advancement opportunities, portable credentials, certificates and/or degrees with demonstrable labor market value
	3. National Recognition and Portability of Credentials	The industry-recognized apprenticeship program should ensure the opportunity to earn credentials and evidence that related instruction is aligned to theory and performance based outcomes.
	4. Clearly Articulated Requirements for Credentials	Public-private sector partners articulate the requirements for standards-based, nationally portable credentials.
	5. Strategies for Affordability	The U.S. DOL and Dept. of Ed. should implement/support strategies to make technical instruction more affordable by: partnering with virtual learning providers to expand reach and reduce costs; identifying or producing foundation core curriculum in each sector and "open sourcing" it for learning providers; cease federal funding of duplicative curriculum or assets
	6. Identification and Availability of Capacity-building Resources	Clarification or alignment of funding via WIAO, Perkins, Federal Work Study and Pell Grant programs at a minimum. Use of H-1B resources for competitive grants to support non-redundant, competency-based pathways.

Attracting Business to Apprenticeship	7. Improved Risk Sharing Tools and Streamlined Processes to Manage Them	Update federal funding criteria to ensure equal treatment of Registered and Industry-recognized programs, reallocate state resources and develop programs for new and incumbent workers. Create a single apprenticeship program application. Explore sector-led financial options such as income sharing models with private capital. Evaluate federal workforce programs and realign funding for underperforming programs to Industry-recognized programs.
	8. A Robust Needs Analysis to Narrow-down the Areas of Most Acute Skills Shortage	DOL should include a needs analysis adaptable to businesses of all sizes. BLS and Census Bureau should develop a joint project to measure skill shortages based on new survey tools. DOL and Census Bureau should research and publish metrics on long-term employment outcomes.
	9. Centralized Apprenticeship Resources	Recommendations specific to industry-recognized programs such as Playbook, Benefits and costs, occupational competencies and standards, instruction and resource guides, and case studies.
Expanding Access, Equity and Career Awareness	10. Building Brand Awareness of Apprenticeship	Federal financial support for online campaigns that speak to multiple generations and promote the monetary return on investment.
	11. Apprenticeship as a Model to Expand Pathways of Opportunity	Support pre-apprenticeship in middle and secondary schools for CTE. Reduce reciprocity barriers. Promote use of technology. Streamline credit for prior learning and work experiences. Develop linkages between digital platforms and social media channels where stakeholders can easily connect.
	12. Ensuring Equity	DOL should implement clear guidelines that reinforce equity and define certifier, sponsor and Office of Apprenticeship responsibilities and comprehensive outreach strategies. DOL should continue funding Community-based organization efforts.
	13. Improvements to Existing Registered Apprenticeship Program	DOL should take available legislative and regulatory actions to improve and preserve the Registered Apprenticeship system.
	14. Pilot Project	Begin pilot in an industry without well-established RA programs. Test process to support industry groups working on Industry -recognized programs.
	15. Industry Sector Standards	Focus on mastery and competency not seat time or training hours.

Administrative and Regulatory Strategies to Expand Apprenticeship	16. Standards and Guidelines	DOL Industry Recognized Apprenticeship program will spell out quality standards and require that industry groups detail structured learning experiences.
	17. Inapplicability of the Davis-Bacon Act	Industry recognized apprenticeship program participants cannot be considered apprentices for the purpose of meeting the Davis-Bacon Act wage requirements (recommendation is specific to the construction industry).
	18. Inapplicability of Wage Progression Rules	Industry-recognized apprenticeship programs are not required to follow specific wage progression rules but should make clear to apprentices what wages they will be paid.
	19. Multiple Associations in Single Industry Sector	DOL should solicit proposals for governing bodies that that include multiple trade associations to reach agreement on certification standards.,
	20. Credentialing Standards	Governing body would establish credentialing standards and negotiate wot colleges and/or employers to partner on credit agreements.
	21. State Agency-administered Training Funds	DOL should clarify whether training funds are available o Industry recognized apprenticeship programs and how they will be distributed through to credentialing bodies.
	22. Performance Reporting Requirements	Industry-Recognized system should have a single reporting platform utilized at state and federal level. Allows DOL to verify outcomes from IRAPs.
	23. WIOA Waivers and Set-asides	Make it easier for sponsors to receive WIOA funding, allowing incumbent worker participation.
	24. WIOA Performance Measures - Earnings	Recognize that employment earning for apprentices may appear smaller than for those who are unemployed at the beginning of the program.
	25. WIOA Performance Measures - Time to Completion	Apprenticeships take longer to complete and wage progression, persistence and credential attainment should be viewed s positive interim
	26. Wage and Hour Rules	Reform wage and hour rules to allow apprentices under 18 to work on the manufacturing floor, use hoists and lifts in healthcare, use power tools and equipment, when properly supervised.

APPENDIX D – Region 3 Survey

*survey begins on the following page (13 pages total)

GO Virginia Region 3 Apprenticeship Survey

Company Information

1. Name and Company Information

Name (First and Last)	
Company	
Address	
City/Town	
State/Province	
ZIP/Postal Code	
Email Address	
Phone Number	

2. How many employees do you have (locally)?

- ◯ 1 - 10
- ◯ 11 - 25
- ◯ 26 - 50
- ◯ 51 - 100
- ◯ 101 - 200
- ◯ More than 200

GO Virginia Region 3 Apprenticeship Survey

Experience with Apprenticeship

Apprenticeship is an arrangement that includes a paid-work component and an educational or instructional component, wherein an individual obtains workplace-relevant knowledge and skills (Dept. of Labor).

3. Respond to the following based on your understanding and/or experience with apprenticeship.

	YES - definitely	Maybe	NO	Don't know / unsure / no experience
Apprenticeship helps meet employer demands for skilled workers	○	○	○	○
Apprenticeship helps with employee recruitment and retention	○	○	○	○
Apprenticeship adds to productivity or high quality services	○	○	○	○
Apprenticeship is expensive	○	○	○	○
Apprenticeship is good for worker morale/pride	○	○	○	○
Apprenticeship leads to higher accident rates	○	○	○	○
Apprenticeship programs are difficult to establish	○	○	○	○
Apprenticeships take too long	○	○	○	○

4. Has your company offered apprenticeship opportunities within the last 5 years?

- ○ Yes
- ○ No

GO Virginia Region 3 Apprenticeship Survey

Employers with Apprenticeship Experience

5. Number of years you have been offering apprenticeships.

- ○ One year or less
- ○ More than one year but less than 5 years
- ○ 5 to 10 years
- ○ More than 10 years

6. Number of apprentices you are **currently** sponsoring.

- ◯ 0
- ◯ 1 - 2
- ◯ 3 - 5
- ◯ 6 - 10
- ◯ 11 +

7. Position titles for apprentices.

Position 1

Position 2

Position 3

Position 4

8. Percent of apprentices (estimate) in the last five years who successfully completed the program, earning the apprenticeship certificate and maintaining employment.

- ◯ 10% or less
- ◯ 11% - 25%
- ◯ 26% - 50%
- ◯ 51% - 75%
- ◯ 75% or higher

9. What organization(s) provided the related instruction for your apprentices? Check all that apply.

- ☐ Community College
- ☐ Four-year college or University
- ☐ Proprietary Vendor
- ☐ Other (please specify)
- ☐ Technical School
- ☐ High School
- ☐ Our Company

10. The cost for the related instruction was paid by (check all that apply):

- ☐ the apprentice
- ☐ our company
- ☐ public funding (Pell, WIOA, grants)
- ☐ Other (please specify)

11. Apprentices are paid while they attend/complete related instruction.

- ◯ Yes - for every hour
- ◯ Yes - for some of the hours
- ◯ No

GO Virginia Region 3 Apprenticeship Survey

Plans for and Interest in Apprenticeship

According to the Department of Labor (2017), there are over 533,000 apprentices across 22,000 registered programs obtaining the skills they need to succeed while earning the wages they need to build financial security.

We would like to understand your interest in continuing an apprenticeship program and/or starting a new program.

12. Our company is interested in learning more about apprenticeship.

- ◯ Yes
- ◯ No
- ◯ We already have a thorough understanding of apprenticeship

13. Our company is interested in offering apprenticeships in the near term - within three years.

- ◯ YES
- ◯ Maybe
- ◯ NO

14. The Dept. of Labor allows students under the age of 18 to work in industry settings if they are enrolled in a registered apprenticeship program. This creates an opportunity to engage high school students and influence their career decisions.

Our company would be interested in a **pre-apprenticeship program** that begins in the last year of high school.

- ◯ Yes
- ◯ Maybe
- ◯ No

15. Industry sector that best describes your business (select one):

- ◯ Automotive and Aviation (repair/services)
- ◯ Business Services and Banking
- ◯ Construction
- ◯ Education Services
- ◯ Health and Human Services
- ◯ Hospitality and Food Services
- ◯ Other (please specify)
- ◯ Information Technology / Telecommunications
- ◯ Manufacturing
- ◯ Retail Trade
- ◯ Transportation and Logisitics
- ◯ Utilities

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Automotive and Aviation / Transportation

16. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- ☐ AIR TRANSPORT PILOT
- ☐ AIR-CON, WIND INSTALL
- ☐ AIRCRAFT MECHANIC
- ☐ AIRFRAME-AND-POWER-PLANT
- ☐ AUTO SPECIALTY TECH
- ☐ AUTOMOBILE MECHANIC
- ☐ AVIATION ORDNANCEMAN
- ☐ AVIATION RESOURCE MGMT
- ☐ AVIATION SUPPORT EQUIP
- ☐ DIESEL MECHANIC
- ☐ INSTRUMENT MECHANIC
- ☐ INSTRUMENTATION TECH
- ☐ HYDRAULIC REPAIR
- ☐ Other (please specify)
- ☐ MECHANIC, INDUSTR TRUCK
- ☐ MECHANICAL-ENGINEER TECH
- ☐ MODEL MAKER, AIRCRAFT
- ☐ SYSTEM DISPATCH OPERATOR
- ☐ TRANSPORTATION ENGINEER
- ☐ TRANSPORTATION OPERATOR
- ☐ TRUCK DRIVER, HEAVY
- ☐ LOGISTICIAN
- ☐ LOGISTICS ENGINEER PROF
- ☐ MARINE ENGINEER
- ☐ MOTORBOAT MECHANIC
- ☐ SMALL-ENGINE MECHANIC
- ☐ RADIO STATION OPER AIRCRA

17. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Construction

18. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] CABINETMAKER
- [ ] CARPENTER (various)
- [ ] CONSTRUCTION ENGINEER
- [ ] CONSTRUCTION EQUIPMENT
- [ ] CONSTRUCTION-EQUIP MECH
- [ ] BRICKLAYER
- [ ] ELECTRICIAN (various)
- [ ] CRANE OPERATOR
- [ ] ELEVATOR CONSTRUCTOR
- [ ] INSULATION WORKER
- [ ] BOATBUILDER, WOOD
- [ ] COST ESTIMATOR
- [ ] DRAFTER (various)
- [ ] DRY-WALL APPLICATOR
- [ ] HIGHWAY CONSTRUCTION INSP
- [ ] FURNITURE UPHOLSTERER
- [ ] HVAC-ENVIRONMENTAL-CTRL
- [ ] PATTERNMAKER, WOOD
- [ ] PLUMBER
- [ ] STRUCTURAL-STEEL WORKER
- [ ] SURVEYOR (PARTY CHIEF)
- [ ] LAND SURVEYOR
- [ ] ESTIMATOR AND DRAFTER
- [ ] PAINTER (various)
- [ ] LOCKSMITH
- [ ] ELEVATOR REPAIRER
- [ ] REFRIGERATION MECHANIC
- [ ] SAFETY INSPECTOR/TECH
- [ ] Other (please specify)

19. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Education Services

20. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] CHILD CARE DEV SPECIALIST
- [ ] COUNSELOR, GUIDANCE
- [ ] EDUCATION & TRAINING
- [ ] NURSERY SCHOOL ATTENDANT
- [ ] YOUTH DEVEL. PRACTITIONER
- [ ] TEACHER AIDE I
- [ ] TEACHER PRESCHOOL
- [ ] TRADE/INDUSTRIAL TEACHER
- [ ] TRAINING SPECIALIST
- [ ] Other (please specify)

21. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Health and Human Services

22. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] CASEWORKER, FAMILY
- [ ] CHAPLAINCY
- [ ] DENTAL ASSISTANT
- [ ] FIRE FIGHTER
- [ ] FIRE MARSHALL
- [ ] LEGAL SECRETARY- CLERICAL
- [ ] COURT REPORTER
- [ ] CRIMINAL INVESTIGATOR
- [ ] EMERGENCY MEDICAL TECH.
- [ ] MEDICAL ASSISTANT
- [ ] MEDICAL LABORATORY TECH
- [ ] MEDICAL SECRETARY
- [ ] NURSE ASSISTT II, GOV
- [ ] HUMAN RESOURCES
- [ ] HUMAN RESOURCES ASSIST.
- [ ] POLICE LIEUTENANT
- [ ] POLICE OFFICER, PATROL
- [ ] PARALEGAL
- [ ] SECURITY GUARD
- [ ] SECRETARY, CLERICAL
- [ ] OPTICIAN, DISPENSING II
- [ ] Other (please specify)

23. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Hospitality and Food Services

24. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] COOK
- [ ] COSMETOLOGIST
- [ ] BARBER
- [ ] CLEANER, COMM OR INSTITU
- [ ] FLORAL DESIGNER, RETAIL
- [ ] MEAT CUTTER
- [ ] MANAGER (food/retail)
- [ ] LANDSCAPE TECHNICIAN
- [ ] NAIL TECHNICIAN
- [ ] PHOTOGRAPHER, LITHOGRAPH
- [ ] Other (please specify)

25. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - IT & Telecommunications

26. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] COMPUTER ENVIR CNTRL INSP
- [ ] COMPUTER PROGRAMMER
- [ ] COMPUTER SYSTEMS TECH
- [ ] COMPUTER-PERIPHERAL-EQUIP
- [ ] NETWORK SUPPORT (various)
- [ ] TECHNICAL SUPPORT SPEC.
- [ ] TELECOMM INSTALLER
- [ ] Other (please specify)

27. Based on the positions you have identified, how many apprentices could you support?

Apprenticeship Positions - Manufacturing

28. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] MACHINE OPERATOR I
- [ ] MACHINE REPAIRER, MAINT
- [ ] MACHINE SET-UP OPERATOR
- [ ] MACHINIST (various)
- [ ] MAINT REPAIR (various)
- [ ] MAINTENANCE MACHINIST
- [ ] MAINTENANCE MECHANIC
- [ ] MAINTENANCE/REPAIR WORK
- [ ] INDUSTRIAL ENGINEER TECH
- [ ] INDUSTRIAL HYGIENIST
- [ ] INDUSTRIAL MANUF. TECH
- [ ] FABRICATOR-ASSEM, METAL
- [ ] INSPECT, METAL FABRICATOR
- [ ] INSPECTOR, QUALITY ASSUR
- [ ] INVENTORY MANAGEMENT
- [ ] JOINER
- [ ] BLACKSMITH
- [ ] BOILERHOUSE MECHANIC
- [ ] ELECTRIC-MOTOR REPAIRER
- [ ] ELECTRICAL TECHNICIAN
- [ ] ELECTRICAL-APPL REPAIR
- [ ] ELECTRICAL-INSTRUMENT REP
- [ ] ELECTROMECHANICAL TECH
- [ ] ELECTRONICS MECHANIC
- [ ] ELECTRONICS TECHNICIAN
- [ ] GROUNDSKEEPER-INDUSTRIAL
- [ ] NUMERICAL CONTROL OPER
- [ ] TOOL & DIE MAKER
- [ ] TOOL DESIGNER
- [ ] TOOL-MACHINE SET-UP OPER.
- [ ] PIPE FITTER (various)
- [ ] METAL FABRICATOR
- [ ] MILLWRIGHT
- [ ] MOLD MAKER, DIE-CAST
- [ ] MOLDER
- [ ] PIPE COVER AND INSULATOR
- [ ] PRODUCTION PLANNER
- [ ] SHEET-METAL WORKER
- [ ] RECEIVING LAYOUT INSP
- [ ] QUALITY CONTROL INSPECTOR
- [ ] MATERIAL COORDINATOR
- [ ] WELDER (various)
- [ ] REPAIRER, WELDING INDUSTR
- [ ] STOCK-CONTROL CLERK
- [ ] OPERATING ENGINEER
- [ ] OPERATIONS COORDINATOR
- [ ] Other (please specify)

29. Several manufacturers have expressed an interest in industrial maintenance apprentices. If you have the same need, how many industrial maintenance apprentices could you support?

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4 - 6
- ◯ Not interested

30. Based on the positions you have identified, how many total apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Retail Trade

31. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- ☐ CUSTOMER SERVICE REP
- ☐ FIRST LINE MANAGER
- ☐ FIRST LINE SUPERVISOR/MGR
- ☐ OFFICE CLERKS, GENERAL
- ☐ OFFICE MANAGER/ADMIN. SER
- ☐ STOCKROOM CLERK
- ☐ Other (please specify)

32. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Apprenticeship Positions - Utilities

33. Based on your industry sector, here is a listing of some of the apprenticeships that have been approved in Virginia. Which positions would you have interest in apprenticing?

- [ ] DISPATCHER, SERVICE UTIL
- [ ] LINE ERECTOR
- [ ] LINE INSTALLER-REPAIRER
- [ ] GAS-MAIN FITTER
- [ ] ELECTRIC-MOTOR REPAIRER
- [ ] ELECTRICAL TECHNICIAN
- [ ] ELECTRICAL-APPL REPAIR
- [ ] ELECTRICAL-INSTRUMENT REP
- [ ] ELECTROMECHANICAL TECH
- [ ] ELECTRONICS MECHANIC
- [ ] ELECTRONICS TECHNICIAN
- [ ] NONDESTRUCTIVE TESTER
- [ ] NUCLEAR TEST TECHNICIAN
- [ ] POWERPLANT MECHANIC
- [ ] SUBSTATION OPERATOR
- [ ] WATER & SEWER SYSTEM SUP
- [ ] WATER-TREAT-PLANT OPER
- [ ] HAZARDOUS WASTE MATERIAL
- [ ] PUMP OPERATOR
- [ ] PUMP SERVICER
- [ ] PUMPER-GAUGER
- [ ] STATION INSTALLER/REPAIR
- [ ] TREATMENT-PLANT MECHANIC
- [ ] Other (please specify)

34. Based on the positions you have identified, how many apprentices could you support?

Apprenticeship Positions - Other

35. Which position(s) within your company would be suitable for apprenticeship?

36. Based on the positions you have identified, how many apprentices could you support?

GO Virginia Region 3 Apprenticeship Survey

Assistance Needed

37. In establishing or expanding apprenticeships, which of the following would you need assistance with?

- [ ] Information on requirements/technical assistance
- [ ] Assistance in completing paperwork
- [ ] Assistance in identifying providers for related instruction (classroom)
- [ ] Assistance with funding for related instruction
- [ ] Assistance in designing a pre-apprenticeship program that begins in high school
- [ ] Other (please specify)

38. Please share any additional thoughts or comments you have regarding apprenticeship as a workforce development option for your company.

Go Virginia Region 3 Council Draft Report

September 26, 2018

Prepared by GENEDGE/RTI and SPDC

RTI INTERNATIONAL

GENEDGE

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***Please Note*:** This report is a good faith effort by Genedge and RTI to accurately represent information available via secondary and primary sources at the time of the information capture. The report is not for publication or public disclosure.

RTI INTERNATIONAL

GENEDGE

Key Regional Findings / Recommendations from HVWP Study

I. The Wood Industry needs work force development assistance for sustaining its current and potential future market demands. The need spans throughout the value chain based on direct employer feedback: Harvesters → Sawmills →Manufacturers

Recommendation: Council commission additional resources for further study of both apprentice and academic opportunities/needs

Potential Partners: IALR, SVHEC, local EDC's (incl. Brunswick, Halifax, etc.) and Community Colleges (DCC, PHCC, SVCC, etc.), sub-sector employers (Harvesters/Loggers, Sawmills, Wood Manufacturers)

II. The Wood Industry needs higher value applications for current wood waste (2.4MT/year)

Recommendation: Council support the creation of additional manufacturing jobs through both new and ongoing business attraction efforts(i.e. Enviva).

Recommendation: Council recommend regional EDC engagement/awareness of longer term (>3 years) biofuels efforts currently under investigation in Commonwealth of Virginia

Key Regional Findings / Recommendations from HVWP Study

III. The Wood Industry needs further entry into structural engineered wood products that have growing market demands (incl. TMW and CLT)

Recommendation: Council commission an assessment of strategic Industrial Parks for TMW/CLT manufacturing readiness as a collaborative with the local/regional EDC (i.e. Halifax and/or Charlotte County IDA)

IV. The Wood Industry needs an ongoing, sustaining effort for continued business engagement of strategic investment opportunities based on developing market(s) demand

Recommendation: Regional economic development collaboration with Virginia Department of Forestry - currently starting a multi-year statewide market opportunity/prospect investigation

The opportunities considered include large markets and nascent markets with significant potential for growth.

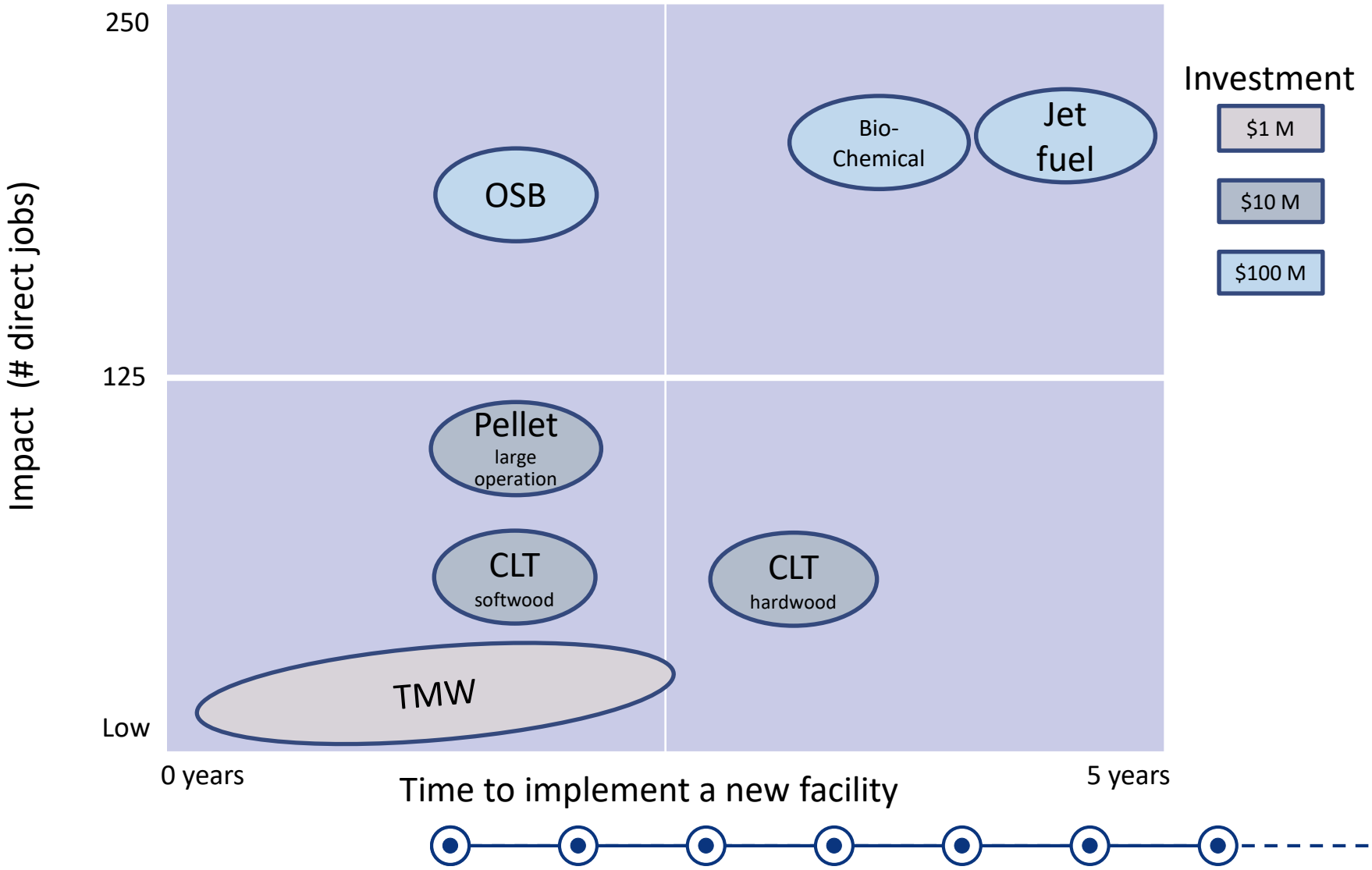
Product/Market	Global Market ($ millions)	US Market ($ millions)	Global CAGR	US CAGR
Raw wood waste*	NA	319	0%	
Biofuels	83,000	53,700	5%	3%
Oriented Strand Board (OSB)	7,400	4,900	8%	4%
Biochemicals	49,200	15,000	11%	12%
Wood pellets	3,700	210	15%	10%
Cross-Laminated Timber (CLT)	558	65	16%	14%
Thermally Modified Wood (TMW)	400	40	18%	13%

Note: Raw wood waste market size is an estimate of demand from Dominion Energy biomass-fired power plants in Virginia.*

Sources: multiple secondary sources and RTI Analysis

Executive Summary cont'd

PORTFOLIO ANALYSIS



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The Region 3 Council sought answers to two questions to inform their regional strategy.

1. What high-value opportunities match the resources available within the Region 3 footprint as related to high value wood products?

2. What does GENEDGE recommend for capturing high-value opportunities?

Background: Industry Experts

Project engaged wood product industry experts to understand the barriers and challenges of high value hardwood products.

Matt Aro
Scientist with Market-Oriented Wood Technology Program , Natural Resource Institute, University of Minnesota

Kalle Ekman
Stora Enso (former Danville employee)

Henry Quesada
Professor, Brooks Forest Products Center, Virginia Tech

Charlie Becker
Utilization and Marketing Manager, Virginia Department of Forestry

Daniel P. Hindman
Professor, Wood Engineer,
VA Tech (researcher of Hardwood CLTS)

Rob Smith
Virginia Tech

Dave Dayton
Director of Biofuels
RTI International

Michael Snow
Executive Director of the American Hardwood Export Council (AHEC)

Project engaged regional businesses and partners to understand the challenges of the wood industry

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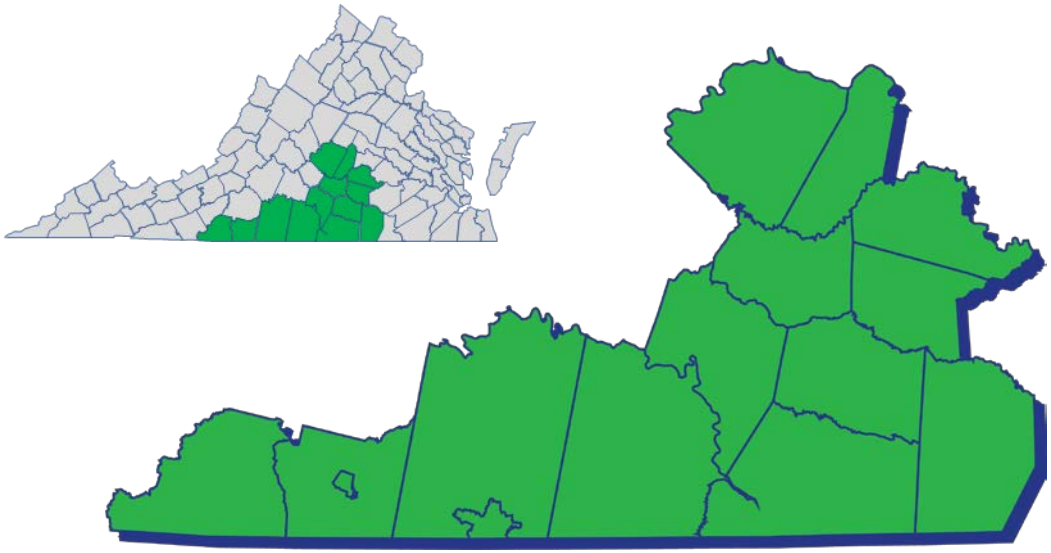
The geographic focus was Region 3 of the Commonwealth of Virginia; however, nearby resources were taken into consideration.

Region 3 consists of the cities of Danville and Martinsville; and the counties of Amelia, Brunswick, Buckingham, Charlotte, Cumberland, Halifax, Henry, Lunenburg, Mecklenburg, Nottoway, Patrick, Pittsylvania, and Prince Edward.

VA Adjacent Counties—Carroll, Floyd, Franklin, Bedford, Campbell, Appomattox, Nelson, Albemarle, Fluvanna, Goochland, Powhatan, Chesterfield, Dinwiddie, Sussex, Greenville

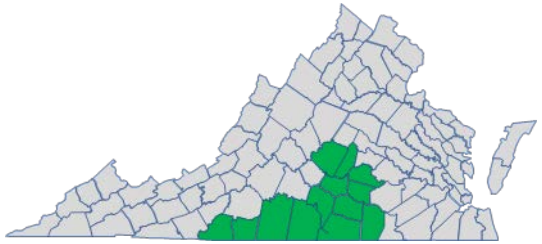
NC Adjacent Counties—Surry, Stokes, Rockingham, Caswell, Person, Granville, Vance, Warren, Halifax



Region 3

371,700 Total Population	153,265 Total Employment
5.3% Unemployment Rate	$35,000 Median Income Level

Region 3 has a strong forestry cluster.



Wood product assets in Region 3 include timber, saw mills, veneer operations, flooring including laminates, and wood fuel pellet plants.

Forestry is one of the region's strongest industry clusters within the natural resources category. Forestry posted an average wage of $54,000 in 2016, and has a location quotient of 15, which means that forestry employment in the region is about 15 times more concentrated than the national average. Employment in the forestry cluster grew 14% from 2006 - 2016, and is expected to grow an additional 15% from 2016-2026. Region 3 has had a long history of utilizing its hardwood forests for value-added new product development and engineering design, production and distribution. Continued growth in the wood products sector offer significant opportunities for Region 3 going forward.

Employment in targeted industry subsectors

Wood Product Manufacturing – 994 jobs

Truck Transportation – 679 jobs

Warehousing and Storage – 553 jobs

Forestry and Logging – 425 jobs

Source: Virginia Forestry Department

Region 3 has a mix of hardwood and softwood trees and generates a high volume of wood waste from wood product processing.

	Species group - Major				
County code and name	Total	Softwoods	Hardwoods	Softwood Tons	Hardwood Tons
Total	17,871,574,769	6,003,214,925	11,868,359,844	208,313,320	453,525,717
51007 VA Amelia	348,218,692	148,204,172	200,014,520	5,142,728	7,643,156
51025 VA Brunswick	614,145,673	351,566,520	262,579,153	12,199,461	10,033,939
51029 VA Buckingham	593,642,979	221,526,341	372,116,637	7,687,029	14,219,696
51037 VA Charlotte	439,287,557	172,986,574	266,300,983	6,002,685	10,176,161
51049 VA Cumberland	295,530,022	149,082,105	146,447,917	5,173,193	5,596,215
51083 VA Halifax	775,139,934	393,134,328	382,005,606	13,641,877	14,597,583
51089 VA Henry	451,587,197	167,787,365	283,799,831	5,822,271	10,844,845
51111 VA Lunenburg	444,861,309	221,439,086	223,422,224	7,684,001	8,537,635
51117 VA Mecklenburg	797,012,394	281,550,425	515,461,969	9,769,882	19,697,352
51135 VA Nottoway	315,586,091	163,476,649	152,109,442	5,672,688	5,812,559
51141 VA Patrick	626,912,625	58,066,652	568,845,972	2,014,930	21,737,315
51143 VA Pittsylvania	817,968,495	261,949,847	556,018,648	9,089,737	21,247,144
51147 VA Prince Edward	292,537,757	144,953,538	147,584,219	5,029,930	5,639,637

Source: Virginia Forestry Department

Region 3 has large quantity of hardwood and softwood wood waste.

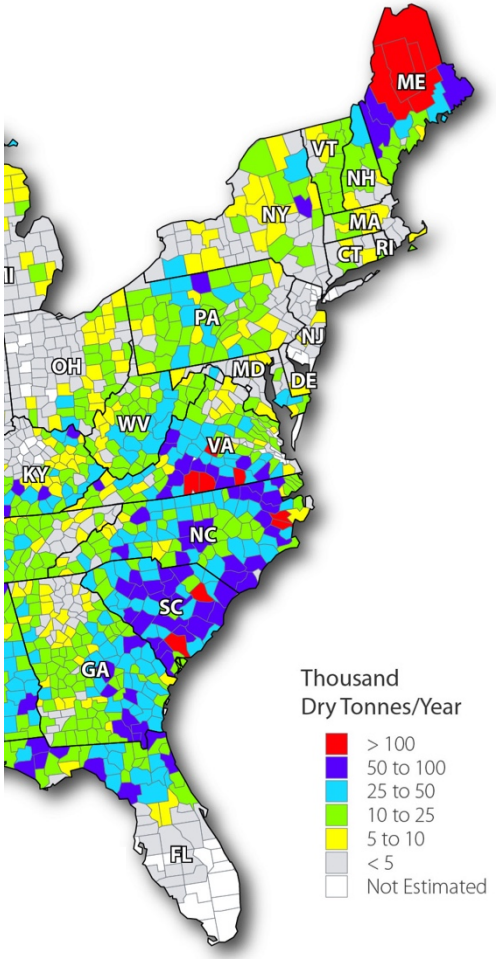


Table 12. ◆ Weight of bark and wood residue by type of residue, softwood, hardwood, and use , [user title]

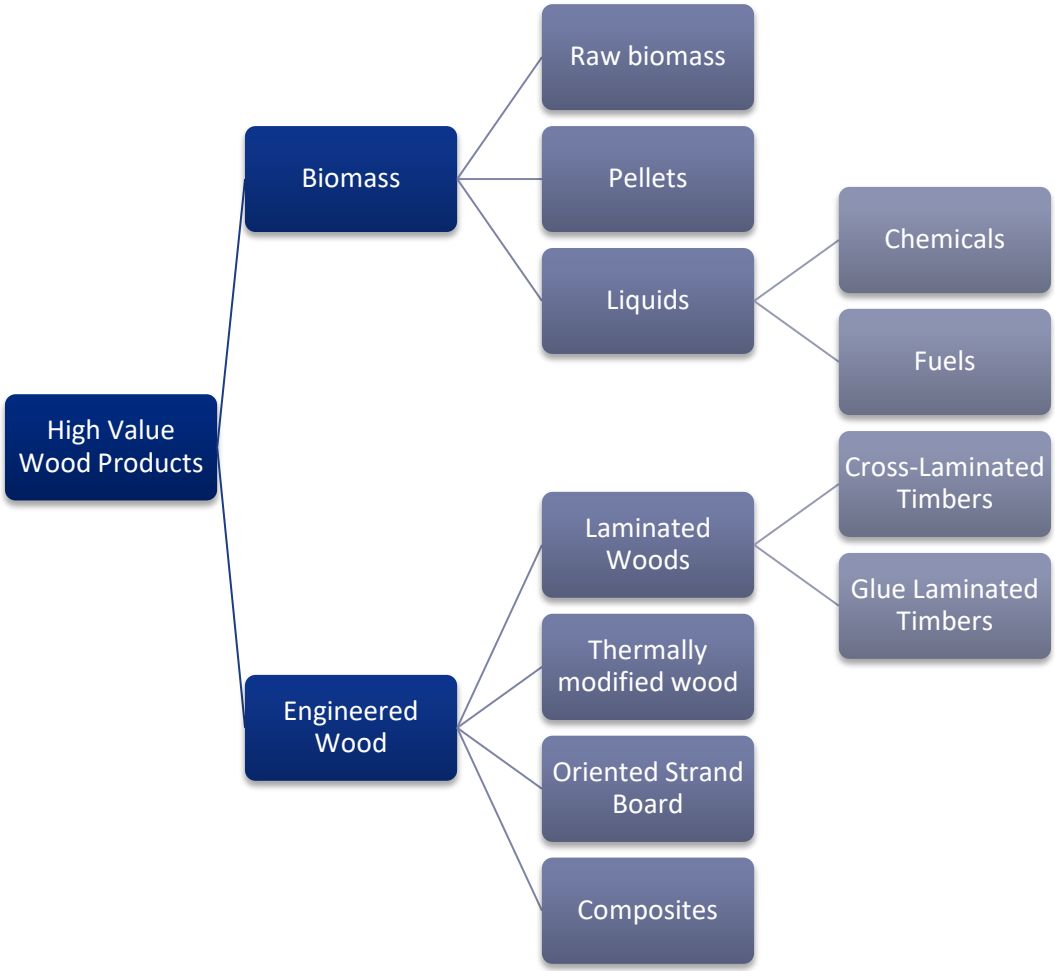
Source	Species Group	Fiber by-product	Fuel by-product	Misc by-product	Not used by-product	All by-products
				thousand dry tons		
Bark Residue	Softwood	0	308	97	0	406
	Hardwood	1	329	112	0	442
	Total	1.0	637.0	210.0	0.0	848.0
Wood Residue (coarse)	Softwood	353	51	77	1	481
	Hardwood	259	106	41	1	407
	Total	611.0	157.0	118.0	2.0	888.0
Wood Residue (fine)	Softwood	34	270	91	2	396
	Hardwood	9	191	52	1	253
	Total	43.0	461.0	143.0	3.0	649.0
Wood Residue (all)	Softwood	387	321	167	3	877
	Hardwood	267	297	93	2	660
	Total	654.0	618.0	260.0	5.0	1,537.0
All Residues	Softwood	387	629	265	3	1,283
	Hardwood	268	625	206	3	1,102
	Total	655.0	1,254.0	470.0	6.0	2,385.0

Numbers in rows and columns may not add to totals due to rounding.

Counties with less than 3 mills have been aggregated so as not to divulge individual mill level data.

Source: NREL, Virginia Forestry Department

Based on regional assets, RTI's research focused on opportunities from biomass and engineered wood products.



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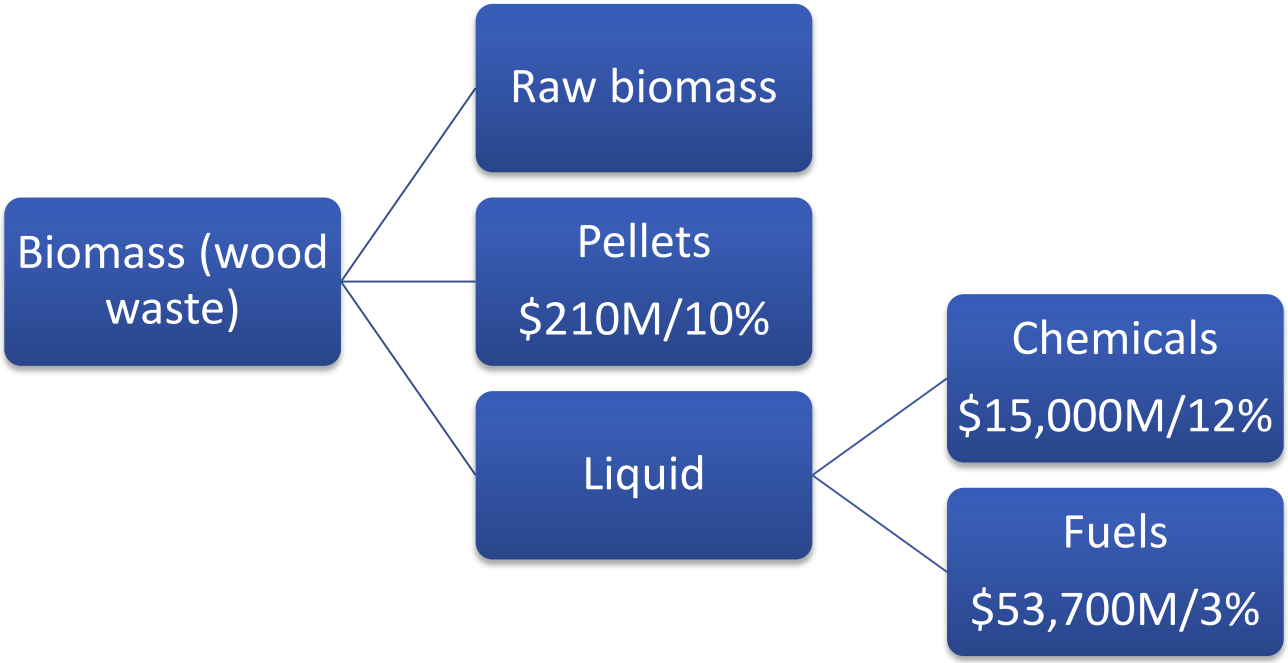
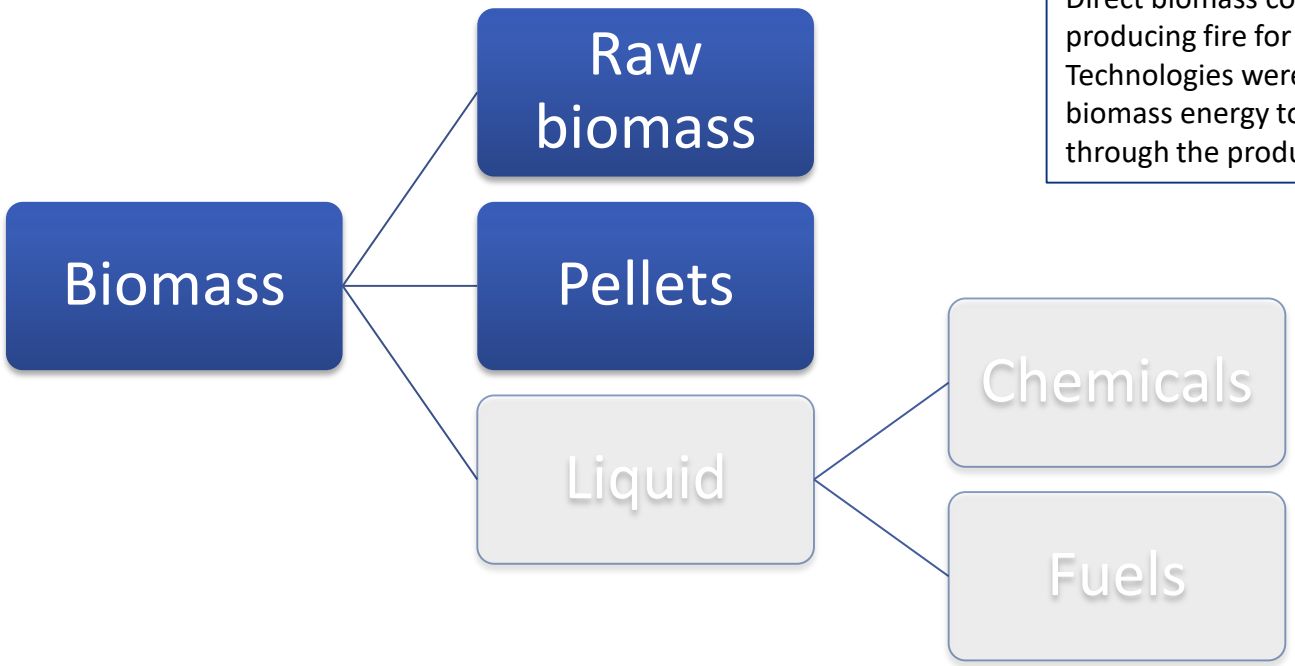
Biomass, through various conversion processes, is used for heating, electric power generation, combined heat/power, and chemicals.



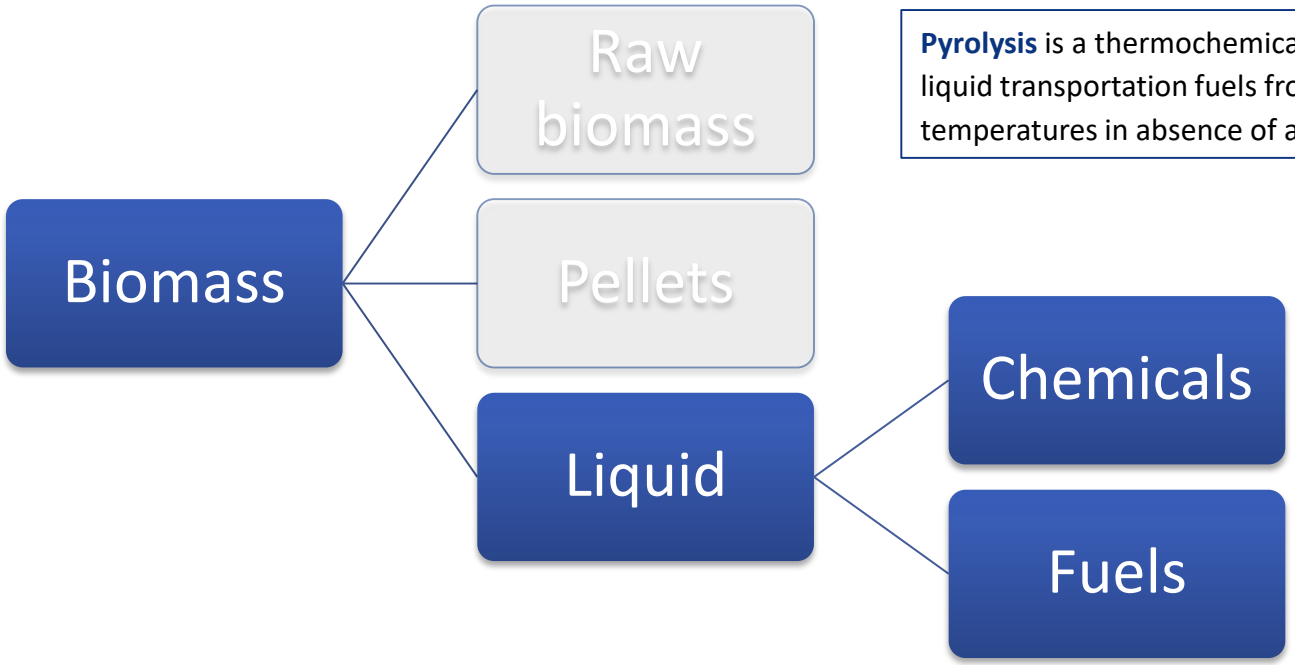
Raw biomass and pellets are converted to energy through combustion.

Combustion utilizes an excess of oxidant (air) to achieve high process temperatures.

Direct biomass combustion was used for producing fire for cooking, warmth, and light. Technologies were developed to harness biomass energy to produce electric power through the production of steam.



Biomass is processed into a liquid through gasification or pyrolysis. Further conversion is required to convert biomass into a fuel.



Gasification is a thermochemical process of partial oxidation of biomass in the presence of a gasifying agent (air, oxygen, or steam). Products are known as synthesis gas or syngas.

Pyrolysis is a thermochemical processing option for producing liquid transportation fuels from biomass at modest temperatures in absence of added oxygen.

Fischer-Tropsch is a thermochemical processes that begins with the gasification to produce synthesis gas. This synthesis gas is cleaned and sent to a Fischer-Tropsch unit where it is converted to liquid hydrocarbons. Hydroprocessing refines the liquid hydrocarbons to produce jet, diesel, and naptha fuels.

Raw biomass is used to generate steam for electricity generation and to produce heat and hot water for buildings.

According to the U.S. Department of Energy, in 2017, 2% of the total U.S. annual energy consumption was from wood and wood waste such as bark, sawdust, wood chips, wood scrap, and paper mill residues.

The biomass is converted to steam and electricity, saving money by reducing the amount of other fuels and electricity that must be purchased. Some coal-burning power plants burn wood chips to reduce sulfur dioxide emissions.

Industry	Amount (trillion British thermal units)	%
Industrial	1,480	69%
Residential	334	16%
Electric power	247	12%
Commercial	84	4%

U.S. wood and wood waste energy consumption, reported by DoE

APPLICATIONS AND END USERS

(commercial/residential use and industrial use)

- In 2014, only 1.5% of electricity was generated from solid biomass within the U.S. More than half of state governments within the U.S. have incentives in place for the production of renewable energy, these do not always cover biomass, and recent growth has been much more rapid in other renewables, particularly wind and solar.

Table 1.1 Virginia Biomass Power Generation Plants

Plant	Operator	Year	Power Unit
Pittsylvania Power Station	Dominion Power	1994	83MW
Virginia City Hybrid Energy Center	Dominion Power	2012	117MW (Only 20% biomass)
Altavista Power Station	Dominion Power	2013	51MW
Hopewell Power Station	Dominion Power	2013	51MW
Southampton Power Station	Dominion Power	2013	51MW
South Boston Power Station	NOVEC/NOVI Energy	2013	49MW
Covington Power Island	WestRock	2013	75MW

Source: Virginia Department of Forestry

Biomass power generation in Virginia as of 2012

Source: EIA, Chatham House, The Economic Impact of Virginia's Agriculture and Forest Industries (2014), University of Virginia

At Longwood University in Farmville, Virginia, raw biomass (sawdust) provides heat and hot water to campus buildings.

- Sawdust from 11 local logging mills is used to produce steam that provides heat and hot water to campus buildings and is one of only two state agencies that burns biomass for heating fuel.
- A $14M new plant was constructed that contains two biomass boilers (one new; one relocated) with the option for a third boiler.
- Wood fire boilers provide roughly 80% of the campus' heat and hot water. Number two, oil, provides the additional 20% of the demand.
- The new facility includes two sawdust storage silos with a combined capacity of 18,500ft^3 (enough biomass for a week). The site also includes a sawdust handling system, pollution control devices, auxiliary equipment, administrative space, and space for additional boiler.
- There are plans to construct a processing facility 11 miles from campus. 17.68 acres will allow for a truck tipper, truck scales, and space to stockpile sawdust. Future plans also include adding a chipper to manipulate wood waste from sawmills, logging, tree trimming operations, land clearing, weather-related disasters, and municipalities.

- In 2012, combustion of sawdust saved Longwood University $4.5M, roughly 4% of the University's budget.
- Campus uses 10,000-35,000 lbs. of steam/hour
- Each boiler produces a maximum of 20,000 lbs. of steam/hour
- Utilizes 20-40 tons of sawdust/day (approx. 1-2 truckloads)
- Produces approximately 700 lbs. of ash/week

Source: Longwood University, EIA, CBS News

Through combustion, raw biomass is converted to heat and energy, but there is little value add to wood product manufactures.

Enablers	• Locally available sawdust and other waste material • Required equipment is readily available • Potential to reduce greenhouse gas emissions
Barriers	• Emission of concern from wood boilers is particulate matter (PM), although other pollutants, particularly carbon monoxide (CO), volatile organic compounds (VOC), and oxides of nitrogen (NOx) may be emitted in significant quantities when certain types of wood waste are combusted or when operating conditions are poor. Specific emissions depend on a number of variables. • Biomass power plants in commercial operation tend to be smaller (20MW) and less efficient (17-25% from steam-turbine generators) than coal or natural gas fired power plants. • Low-cost natural gas from the Marcellus region via the Atlantic Coast Pipeline will make burning wood waste for heat & power less viable.
Capital Investment	• $15M (depending on size) • Boilers, pumps, fans, storage silos
Time Frame to Adoption	• Available today
Regional Resources	• Sawdust
Risk	• The price seen for the raw biomass (sawdust) is low (excluding transportation costs)
Benefit	• Removal of wood waste from wood production site

Source: EPA, Expert Interview

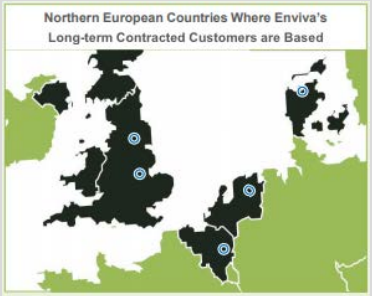
Wood pellets, a renewable energy source, are a growing export product, driven by European sustainability regulations.

- Wood pellet consumption in the U.S. is low and driven by:
  - Regional cost advantages vs heating oil and propane
  - Convenience vs. burning raw wood waste due to automatic feeding
  - Incentives for bio-heat targeted at the residential and commercial building sector
- industrial use of wood pellets in heat and power is not incentivized, and consumption is modest.
- Renewable Portfolio Standards (RPS) mandate the production of renewable electricity, including bio-power, but wood pellets are usually not used in bio-power facilities due to price.
- U.S. production of wood pellets is primarily for export to Europe, where it is burned in former coal-fired power plants to meet EU's 2009 Renewable Energy Directive that establishes a mandatory 20% share of renewable energy sources in the EU by 2020. Exports have grown exponentially over the past years and is concentrated in the Southeast due to low raw material and low shipping costs to Europe.
- Key players are Enviva, Drax, and Georgia Biomass. German Pellets.

APPLICATIONS AND END USERS

(commercial/residential use and industrial use)

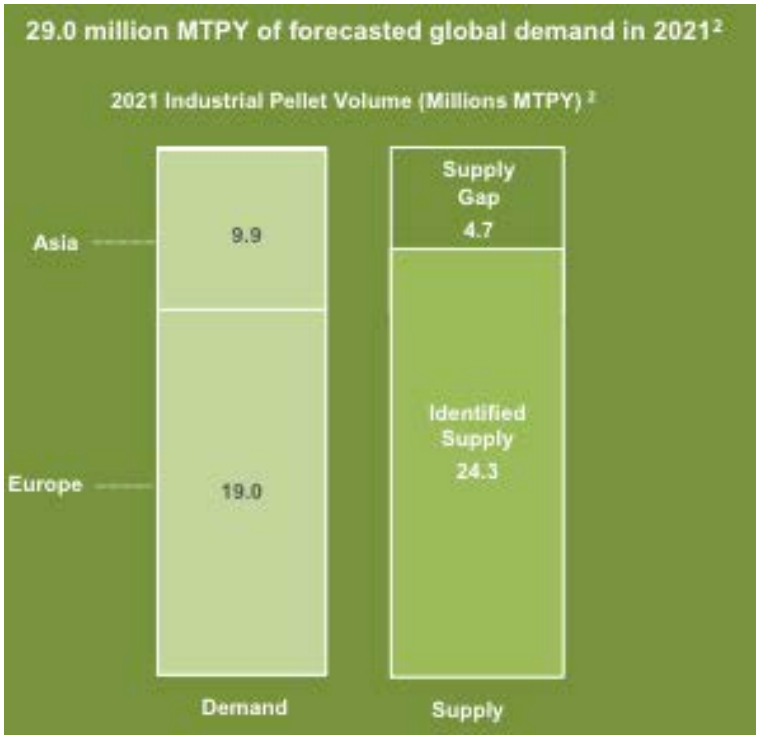
- Industrial Electricity generation: Co-fired in coal based power plant and mono-fired in converted coal power plants to reduce greenhouse gas emission of electricity generation. Moderate quality pellets.
- Residential and Commercial heating: Convenient solid biofuel application in automatic stoves and boilers. Generally higher quality pellets.
- Fuel for mid-sized heat supply systems like district heating, CHP plants; minor market share.



Source: BioMass Magazine, Enviva, BioEnergy, Global Wood Pellet Industry and Trade Study 2017

Enviva, a major supplier of wood pellets, is heavily invested in the southeast region of the U.S.

- Enviva is the only enterprise supplier of scale and noted as the largest supplier of utility-grade wood pellets to major power generators with 3 million metric tons per year of contracted production capability.
- Enviva Development Holdings, an affiliate of Enviva, develops and builds wood pellet production plants and export terminals.
- The majority of Enviva's market is in Europe, where nearly ½ of the renewable energy production is from solid biomass.
- Enviva's combined plant operations now include seven manufacturing sites in Virginia, North Carolina, South Carolina, Mississippi, and Florida, with an eighth under construction in Richmond County, North Carolina. In total, these facilities will represent more than 4 million tons per annum of production capacity consolidating Enviva's position as the world's largest wood pellet producer.

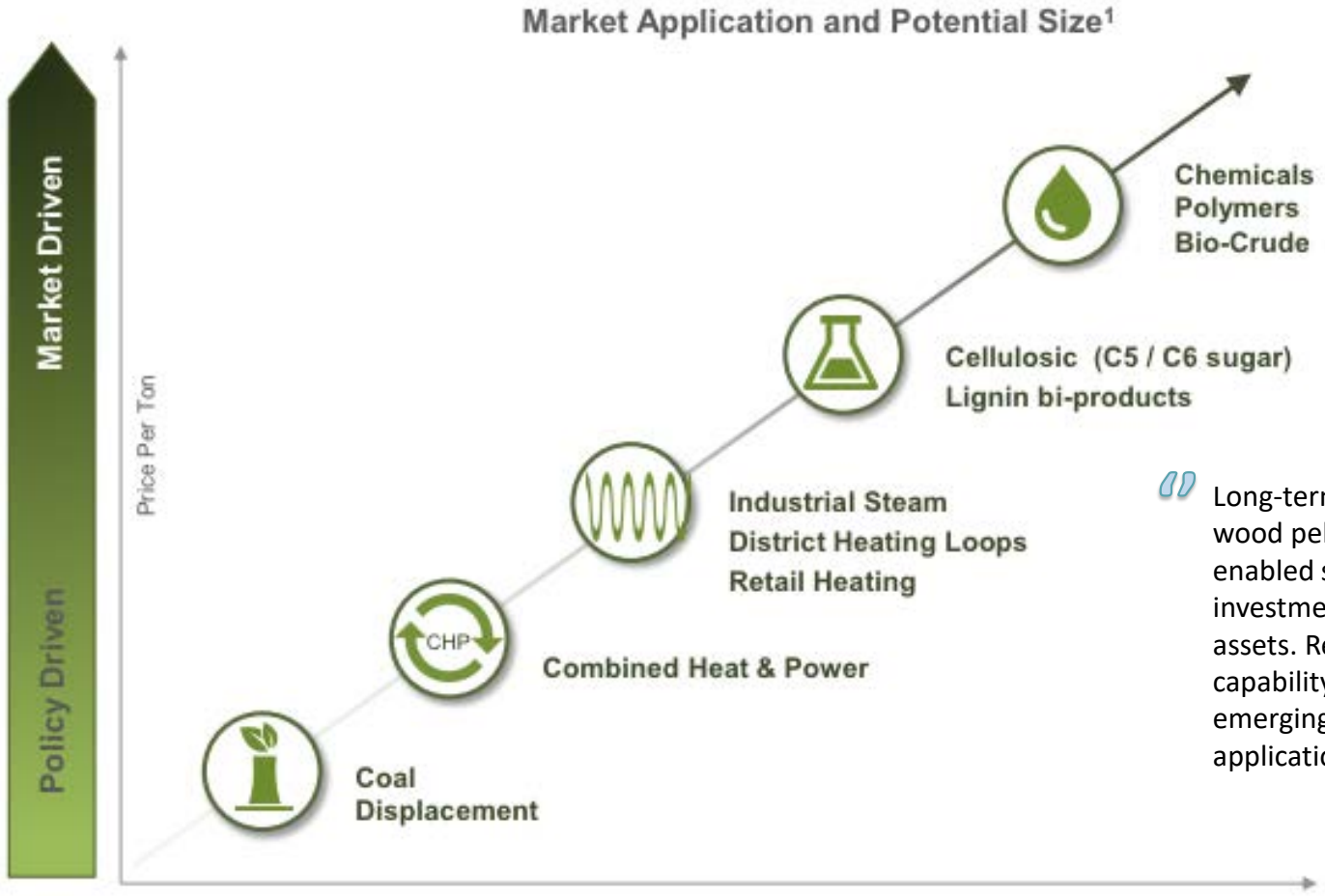


Source: BioMass Magazine, Enviva, BioEnergy, Global Wood Pellet Industry and Trade Study 2017

Enviva, a major supplier of wood pellets, is heavily invested in the southeast region of the U.S.

Source: Enviva

Wood pellets have uses beyond coal displacement and combined heat and power.



> Long-term contracted demand for wood pellet displacement of coal has enabled substantial infrastructure investment in processing and logistic assets. Resulting global distribution capability for low cost fiber can fulfill emerging demand from other applications for wood pellets
>
> —*Enviva*

Source: Enviva

The wood pellet market represents an opportunity for Region 3 to make use of its wood waste while serving expanding markets.

Enablers	• International standard ISO 17225-2 defines product requirements for moisture, energy density, abrasion resistance, partial size and shape, allowing pellets to be a commodity. • Growing global demand (6-7 Mt in 2006, 14.3Mt in 2010, and 26Mt in 2015). Europe accounts for 75% of the global demand. • Sustainable energy regulations (primarily in the EU)
Barriers	• Air quality concerns with pellets made from certain species • Transportation and/or storage costs
Capital Investment	• $125 per ton (if capacity is 100,000 tons per year, base capital cost is $12.5 M) • wood chipper, screw conveyor, magnetic separator, hammer mill, rotary dryer, pellet mill, pellet cooler, pellet packaging machine.
Time Frame to Adoption	• Some sawmills currently produce pellets and sell raw wood waste to pellet manufacturers • Potential to locate a new pellet manufacturing plant to serve export markets (2+ years)
Regional Resources	• Hardwood and softwood timber suitable for pellets. • High volume of wood waste. • Market already exists in the region.
Risk	• Relies heavily on exporting pellets • Demand in some regions is created by regulations and could be threated by changes in regulations
Benefits	• Consumes a high volume of wood waste • Potential to become a key input feedstock to bio-refineries producing advanced bio-chemicals and biofuels

Source: BioMass Magazine, Enviva, BioEnergy, Global Wood Pellet Industry and Trade Study 2017

Bio-liquids start with a variety of feedstocks to produce either a sugar or lipid intermediate that is converted to chemicals and fuel.

- Present-day chemicals and fuels are made primarily from crude oil and natural gas – finite resources that produce greenhouse gases. Scientists are researching ways to manufacture chemical products from sustainable materials.
- Virtually every petrochemical product can be produced from renewable feedstocks, including wood waste, with greatly reduced lifecycle greenhouse gas emissions.
- State-of-the-art processes were approaching cost-competitiveness with current oil-based processes before recent drops in crude oil below $50/barrel.
- Renewable chemical processes convert biomass to pure synthesis gas (syngas) which is then converted into biofuels and other chemicals using catalysts.
- Bio-chemicals/plastics are more price-competitive than fuels. Pulp and paper mills already have bio-refineries and could make conversion to chemical and fuels easier.
- According to Zion Market Research, the global renewable chemicals market is valued at **$49.22B and could reach approximately $102.76B by 2022.**
- "As of January 2018, 66 countries have established blending mandates or targets to increase renewable fuel content, a number that keeps growing every year along with the demand for biofuels in these new markets."

APPLICATIONS AND END USERS

(commercial and industrial use)

- Bio-based chemical building blocks that can replace oil-based chemicals in plastics.
- Bio-based resins that can replace fossil-based resins in plywood production.
- Bio-jet fuel for the U.S. Military and airline industry; bio-diesel fuel

Enerkem Alberta Biofuels facility

Source: Chemicals from wood waste, BioFuels Digest, Zion Market Research,

Bio-based chemicals can replace a wide range of oil-based products.

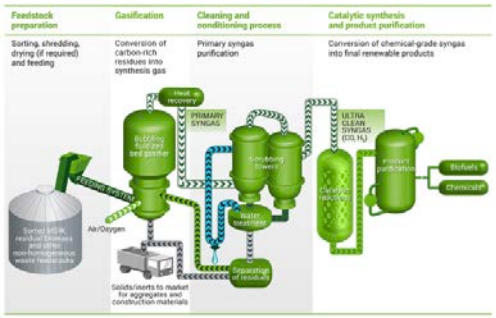
Enablers	• Pellet manufacturing, a key input to bio-based chemicals, exists in the greater region. • Corporate and government sustainability initiatives drive the market despite higher costs.
Barriers	• Technology for most products is still not proven at scale
Capital Investment	• **100M+** for full-scale bio-refinery factory
Time Frame to Adoption	• 2+ years
Regional Resources	• Wood waste (raw and pellets) • Local companies are involved (Stora Enso)
Risk	• Nascent market • Low oil prices can affect viability • Environmental permits for a new facility can be a lengthy process
Benefits	• Provides a ready market proven by regulations and corporate/industry goals • Reduced environmental impact • Incremental step to other biofuel alternatives

Source: Chemicals from wood waste, BioFuels Digest, Zion Market Research Expert Interviews,

Biofuels are created through gasification or digestion, dependent on available quantities of waste. Partners exist depending on process.

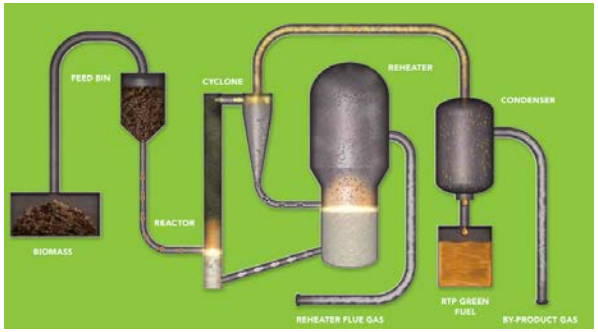
GASIFICATION: ENERKEM

- Facility in Alberta is the first-ever waste-to-biofuel facility to sell its ethanol under the U.S. Renewable Fuel Standard (approval from EPA in 2017).
- $120 million facility in Edmonton, Canada generates $65 million per year in net economic benefits in the community, according to Enerkem.
- Allows partners to implement production through license of exclusive technology. Each facility is advertised to create 610 direct and indirect jobs.
- End products are methanol and ethanol.



PYROLYSIS: ENVERGENT (HONEYWELL)

- Uses a rapid thermal processing technology (RTP), a fast thermal conversation process used to convert cellulosic biomass feedstock (forestry or agricultural residuals) into fuel for heating, power, and transportation.
- RTP technology also produces char and a non-condensable gas, both of which can be used to provide process energy in the reheater to maintain the RTP process and/or in the dryer to condition the biomass making the RTP process self-sustaining.
- Notes that hardwoods are excellent, yields are 70-75% weight, 17.2-19.1



FISHER-TROPSCH GASIFICATION : RED ROCKS BIOFUELS

- Produces a drop-in, renewable, low-carbon jet/diesel fuel from proprietary integration of existing technologies to enhance the established Fischer-Tropsch process.
- RRB will build a global portfolio of refineries to convert waste wood into renewable jet and diesel fuels to help civil and military aviation meet their CORSIA commitment goals to reduce greenhouse gas emissions.
- Plant approved for construction in Lake View, Oregon in April 2018 (under review since 2013) and expected to convert 136,000 tons of wood biomass into 15 million gallons of renewable fuel annual. Deliveries are expected to begin by December 2019.

"Red Rock will help us make our environmental goals as we have a continuous eye to reduce our carbon footprint. This facility is key to our strategy." **Michael AuBuchon, fuel supply chain Director, Southwest Airlines**

Source: Red Rocks, Envergent, Enerkem, Expert Interviews

Converting wood waste to bio-fuel could bring value to the region once proven at scale.

Enablers	• Renewable Fuel Standards • Commitments from the U.S. military and commercial airlines to purchase renewable jet fuel.
Barriers	• Economic viability is tied to the price of oil, which fluctuates. • Technology is not yet proven at scale.
Capital Investment	• **$120M+** • Full facility
Time Frame to Adoption	• 5+ years
Regional Resources	• Wood waste • Natural gas pipeline runs through region • Colonial and Plantation pipelines run through region
Risk	• Reduction in oil price can affect viability. • Environmental permits for a new facility can be a lengthy process.
Benefit	• Potential to utilize high volumes of wood waste • Capture greater value from wood waste

Source: Red Rocks, Envergent, Enerkem, Expert Interviews

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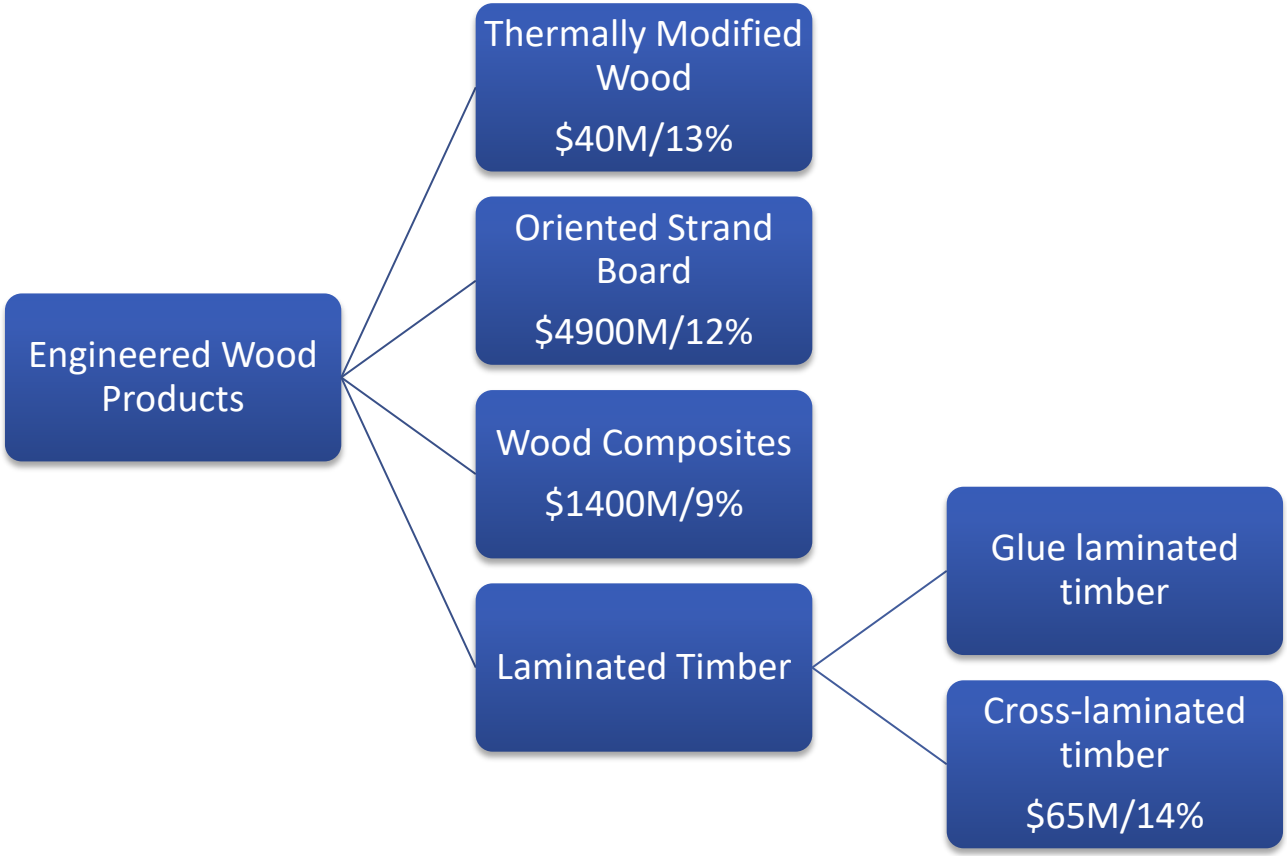
Global sustainability concerns are expected to drive market growth in engineered wood products.



Engineered wood products offer potential for regional growth by leveraging regional assets and adding value to lower-value hardwoods and wood waste.

Cross-Laminated Timber (CLT)

- Global CLT market was valued at $558.6M in 2016 and expected to be valued at $2.07B by 2025 (CAGR of 15.7%).
- North America market was valued at $65M in 2016.
- Soft and lower valued hardwoods for walls, roofs, and floors.
- Strength in two directions.

Glued Laminated Timber (GLULAM)

- The global GLULAM market is anticipated to reach $8.0B by 2025.
- Soft and lower valued hardwoods for structural beams with standards for both.
- Strength in one direction.

Oriented Strand Board (OSB)

- $5B market within the U.S.
- Forecasted compounded annual growth rate of 8.3%
- Cross oriented rectangular wood strands for subflooring, wall and roof sheathing, structural insulated panels, industrial containers and furniture.
- Light weight and easy to handle relative to strength

Thermally Modified Wood (TMW)

- Global market $400 million; 18% CAGR
  - Europe accounts for >80%
  - U.S. market is nascent (<10%)
- Converts low-value softwood and hardwood to high-value products for outdoor decking, siding, flooring and windows.
- Environmentally sustainable

Wood Composites

- Global wood plastic composite market is expected to reach $9.77B by 2024 with composite decking & railing to be worth $3.09B by 2020.
- In 2015, North America accounted for 45% of the global market volume.
- Sawdust and resin for decking, fencing, and siding.
- Durable with little long term maintenance

Source: GrandView CLT, Report Linker GLULAM, GrandView OSB, Grandview Composite Woods

RTI focused on CLT, TMW, and OSB because they offer the best growth opportunities.

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Not a deep focus because the same plant could make GLULAM.

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- In 2015, [illegible] accounted for 45% of the [illegible] volume.
- [illegible] resin for decking, fencing, and siding [illegible]
- Durable with little long term maintenance

Did not focus because the region would only supply sawdust (low value), and a strong competitor already exists in the state.

Source: GrandView CLT, Report Linker GLULAM, GrandView OSB, Grandview Composite Woods

Cross-laminated timber (CLT) production and use has been concentrated in Europe, but demand is increasing in the U.S.

CLTs are planks of timber glued and oriented at 90 degrees to each other, bonded together, and pressed to form a solid. Panels can be as large as 10’ wide and 40’ long. Pieces are shipped to construction sites and can be assembled by just a few workers. Panels are cut to size, including cutting holes for doors, windows, and electrical with computer numerical controlled (CNC) routers.

CLTs are a carbon negative material. Using CLTs could reduce construction costs by up to 50% and increase speed of construction as much as 65% because CLT is a lighter material (requires smaller and less expensive building foundations). Panels can be quickly and efficiently assembled onsite, reducing construction cost, labor and the amount of trucks, noise, and neighborhood disruption. Hardwood CLTs can take low-grade, ow-value hardwoods and turn them into high-value CLT construction.

In 2016, the global CLT market was valued at $558.6M and is expected to be worth $2.07B by 2025. The nascent North America market was valued at $65M in 2016. The overall CAGR for CLTs is 15.7% from 2017-2025, resulting in an expected U.S. market value of $241M in 2025.

APPLICATIONS AND END USERS

(commercial/residential use)

Long spans for walls, floors, and roofs within building construction.

International Beams is opening the first CLT plant in the south east in September 2018. The $19.6M investment will create 60 jobs at the plant and will create other jobs in local timber, sawmill, and trucking likely leading to 200 new jobs total. The company will use southern pine lumber to construct the panels.

Source: Woodworking Network, PalletEnterprise, BioProducts Business, APA, Expert Interviews

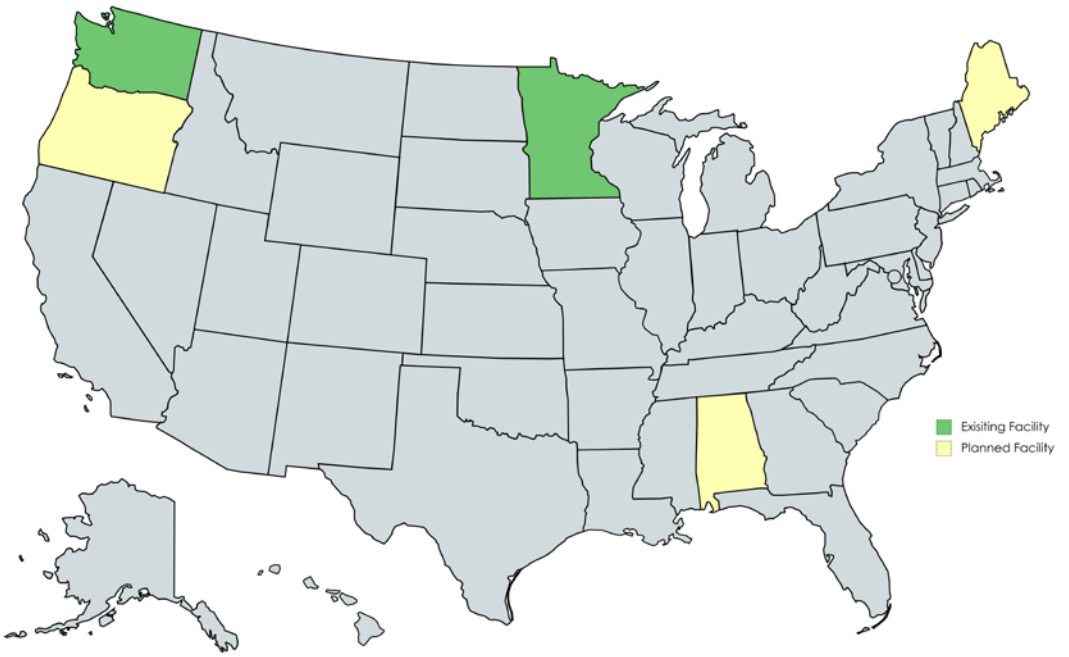
Six CLT manufacturing sites will be operational in the next few years.

The U.S. has two CLT plants and plans for four additional plants. Current plants are operated by SMARTLAM (Montana) and DR Johnson (Oregon) and both manufacture softwood CLTs.

- International Beam is opening a plant in Alabama.
- Katerra is opening a plant in Washington State and Maine.
- SmartLam is opening a plant in Maine.

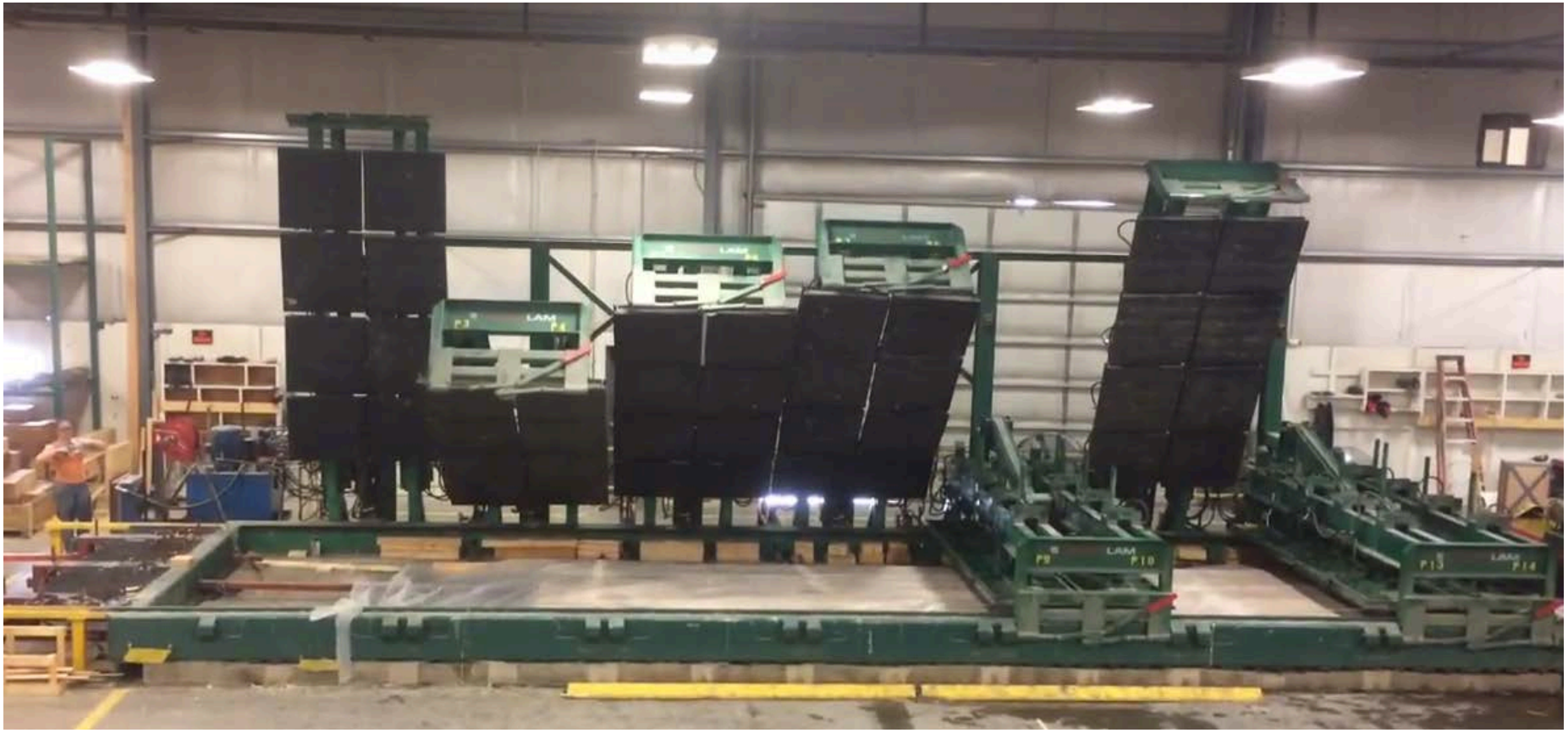
Expert interviews suggested that new entrants consider making a CLT out of yellow pine with a hardwood veneer on top. This is less expensive while providing the desired look of hardwood.

Experts at Virginia Tech recommend engaging European CLT leaders when seeking out partners. European companies have mature methods and may be interested in tapping into the new and growing U.S. market.



Current and future CLT manufacturing sites within the U.S.

The U.S. Forest Service awarded Boston based architectural firm, IKD, $250,000 to fund the construction of the first hardwood CLT project in the U.S.



Architects and engineers want to use hardwood CLTs in building designs; however, cost may make the wood industry hesitant.

Enabler	• Increased global demand for CLTs. Interviewees noted that the U.S. could have sufficient demand to warrant a new plant. • Greenhouse gas reduction regulations and incentives (e.g., LEED credits)
Barriers	• Lack of standards for hardwood CLTs (Standard for softwood is ANSI/APA PRG 320-2018). • Does hardwood CLTs make economic sense-lack of a strong business case? • Concern with glue adhesion when manufacturing with hardwoods • Concerns of fire, decay, and earthquake resistance, although not based in fact • Vertical integration with lumber suppliers and glulam producers is likely a key for success
Capital Investment	• A 50,000 m3/year capacity CLT plant requires **$10-15M USD investment** • Sophisticated machinery to inspect dimensions, defects and moisture content of lumber, finger jointing equipment, large presses to form panels, CNC machines, large material handling capabilities.
Time Frame to Adoption	• 2-3 years (time to build a new facility)
Regional Resources	• Soft and hardwoods (sycamore, sweet gum, tulip, and other lower price point hardwoods)
Risk	• Only four companies in the world make the sandwiching machine needed for CLTs. • Four additional CLTs plants are already planned for the U.S. • The amount of raw material required to produce 50,000 m3/year of CLT panels is equivalent to 25 million board feet (at 80% yield).
Benefit	• Building material with almost no carbon footprint

Source: Woodworking Network, PalletEnterprise, BioProducts Business, Expert Interviews

Thermal modification is a chemical-free treatment that results in enhanced resistance to decay and improved dimensional stability.

- In the thermal modification process, the wood is heated to temperatures much higher than transitional wood drying and sometimes in absence of oxygen for a short period of time, altering the chemical composition of wood by degrading cell wall compounds.

- TMW processing reduces the moisture content to 4-6%, permanently changing TMW's ability to react to humidity as quickly as an untreated timber. Benefits include improved durability, resistance to pests, and dimensional stability. TMW looks and performs similar to exotic hardwoods.

- TMW has been used within Europe for decades. Commercial kilns were first introduced in North America in the mid 2000s to enhance durability and value of some hardwoods.

- American Hardwood Export Council believes that the American tulipwood has a "particularly bright future for cladding. It treats and machines easily and is light-weight, competitively priced and readily available."

APPLICATIONS AND END USERS

(commercial/residential use)

Outdoor furniture, windows, decking, siding, flooring, specialty wood products.

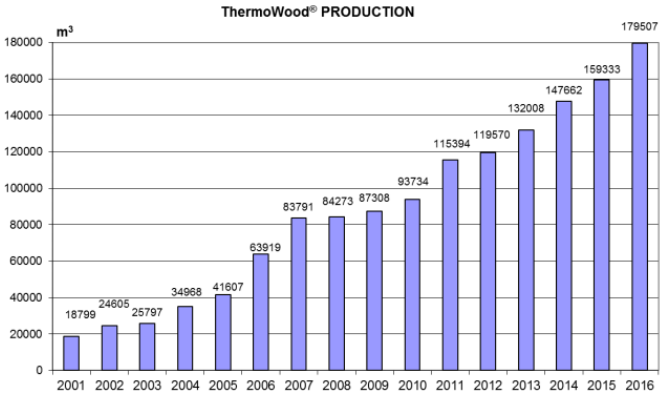
Product	Durability	Stability	"Green"	Appearance	Price	Total
Pressure-treated softwood	●●	○○○	○○○	○○○	●●●	-4
Cedar	●	○○	●●●	○	●	0
Tropical wood	●●	○○	●●●	●●	○	+4
Composite wood	●●	●●●	●	○	●●	+7
Thermo-treated Product	●●●	●●●	●●●	●●●	●●	+14

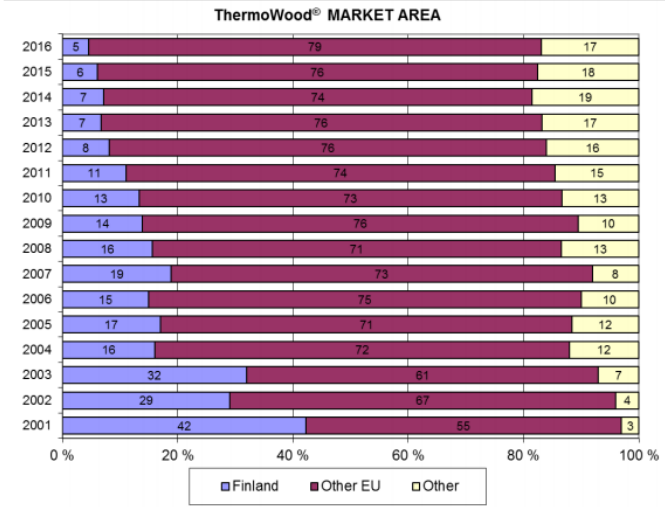
Reported by WestWood

Source: AHEC, University of Minnesota, WestWood Timber, International ThermoWood Association, Marketing Strategy Recommendation for TMW (University of Minnesota), Hardwood Distributors, Expert Interviews

In Europe, where TMW was developed, the market is established but still growing rapidly.

- The global market for TMW is approximately $400 million.
- The European market accounts for 80 percent of the global market and is still growing at >20-25% per year for the last 5-6 years.
- The U.S. market is nascent and regional, including importers of European products and several U.S. manufacturers.
- The American Hardwoods Export Council is actively promoting the use of American hardwoods for thermal modification in Europe.
- Meanwhile, marketing in the U.S. market is fragmented, without a similar degree of industrywide promotion as Europe enjoys.



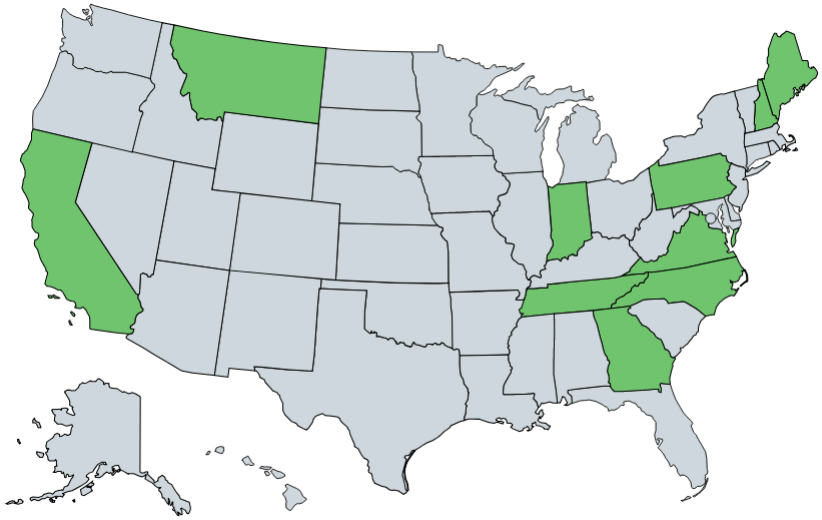


Source: AHEC, University of Minnesota, WestWood Timber, International ThermoWood Association, Marketing Strategy Recommendation for TMW (University of Minnesota), Hardwood Distributors, Expert Interviews

TMW is manufactured in only a few states within the U.S.

100+ facilities worldwide produce commercial quantities of TMW. The main sites are in Europe and ~ 10 companies within the U.S.:

- EcoVantage (IN)
- Bailey Wood Products (PA)
- Arbor Wood Co (MN)
- Pakari (CA)
- Superior ThermoWood (MN)
- Hot Woods (MT/MA) *smaller production
- Thermo Treated Wood (GA)
- Atlanta Harwood Corporation (TN, GA, NC, PA)
- Bingaman & Son (PA)
- **Northland Forest Products** (NH, **VA**)



Thermally Modified Wood Manufacturers within the U.S.

Distributors:

- *Thermory USA (CA, importer), Cambia Wood (NH), Ceder Creek (MN)*

Source: AHEC, University of Minnesota, WestWood Timber, International ThermoWood Association, Marketing Strategy Recommendation for TMW (University of Minnesota), Hardwood Distributors, Expert Interviews

Although the market for TMW is nascent within the U.S., experts report an increase in demand for TMW.

Enablers	• Pilot plant in Minnesota serves as a test bed. Architects are reportedly driving demand (market pull rather than push). • Virginia Tech is applying for a grant that will analyze the TMW market. • Achieved technical maturity and commercial success in Europe • Existing equipment manufacturers in Europe
Barriers	• Lack of sales channel (early stages of market development with just a few producers and distributors within U.S.). • Unfamiliarity with TMW within the U.S.; mixed perceptions about its performance as decking material.
Capital Investment	• $.75M-$1M for a lower volume solution and **$2-$3M for a higher volume solution**
Time Frame to Adoption	• Presently available
Regional Resources	• Soft and hardwoods (sycamore, sweet gum, tulip and other lower price point hardwoods) • Wood waste can be used to fire the kiln
Risk	• Processing is different depending on equipment, species, desired product performance properties. • Bending strength is slightly reduced, leading to questions on use of TMW for certain structural applications.
Benefits	• Emerging, chemical-free technology produces sustainable, value-added wood products with improved dimensional stability, resistance to biodegradation and weathering, extended service-life, and reduced environmental impacts. • TMW processing can nearly double the value of lumber

Source: AHEC, University of Minnesota, WestWood Timber, International ThermoWood Association, Marketing Strategy Recommendation for TMW (University of Minnesota), Hardwood Distributors, Expert Interviews

Oriented strand board is made by blending rectangular wood strands with thermosetting water-resistant adhesives and wax.

Oriented strand board (OSB) is an engineered wood that is strong, uniform, dense and workable. It is make from wood strands and adhesives that are compressed together – similar to plywood.

The U.S. oriented strand board market is estimated to be $5B USD with a forecasted compounded annual growth rate of 8.3% through 2025.

Benefits includes high strength to weight ratio, easy of installation, and the ability to use for structural and non-structural applications.

Key U.S. players are: **Huber**, Norbord, Louisiana-Pacific, ARBEC, **Georgia-Pacific**, **Weyerhaeuser** and RoyOMartin.

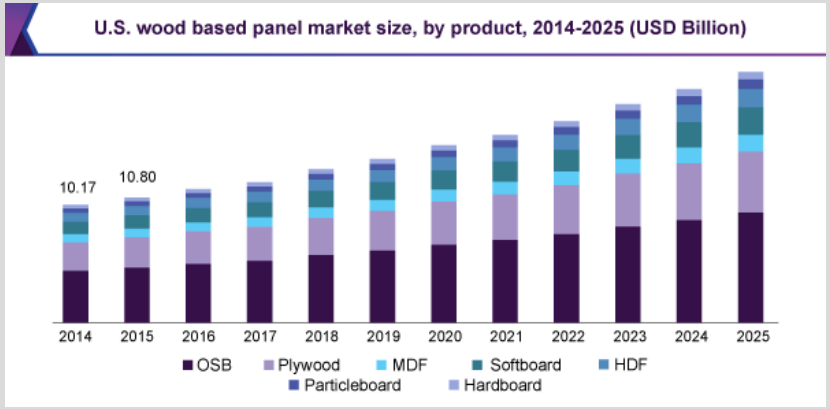
In 2013, Georgia-Pacific opened new plant in Clarendon for the manufacturing of different OSB products such as Thermostat OSB Radiant Barrier Sheathing.

Louisiana-Pacific recently advertised a fire-rated OSB sheathing

APPLICATIONS AND END USERS

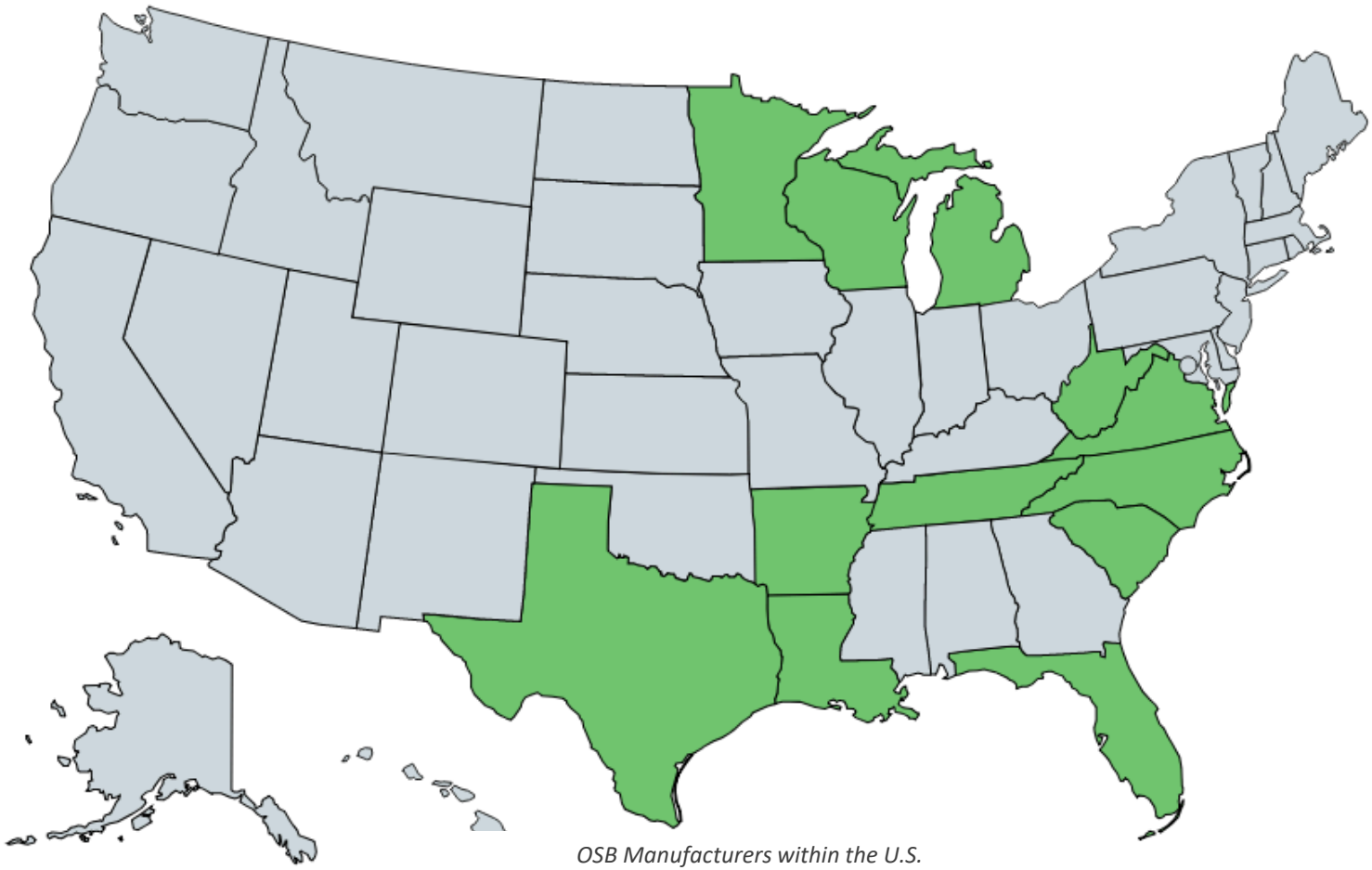
(commercial/residential use)

Subfloor, wall, and roof as well as shelving, pallet manufacture, frames, furniture, dry storage pallets, and packaging.



Source: GrandView, AIA, APA, Woodworking Network

Oriented Strand Board is manufactured throughout the southeast of the U.S.



OSB Manufacturers within the U.S.

OSB is an engineered wood panel that shares many of the strength and performance characteristics of plywood.

Enablers	• Ability to manufacture in 9 foot lengths, up to 16 feet while plywood is generally limited to 8-10 foot lengths. • Typically at a lower price point than plywood • Light weight while high strength and easy to install.
Barriers	• Perception that OSB is not fire retardant • Perception that OSB has moisture problems that could lead to swollen edges
Capital Investment	• **$280M (Greenfield facility, 158 acres)**
Time Frame to Adoption	• Presently available
Regional Resources	• Rectangular wood strips from hard or softwoods
Risk	• OSB weighs about 2 pounds more per sheet, increase in transportation cost • OSB takes longer to dry out when exposed to moisture compared to plywood
Reward	• Market growth due to high strength to weight ratio and easy of installation.

Source: GrandView, AIA, APA, Woodworking Network

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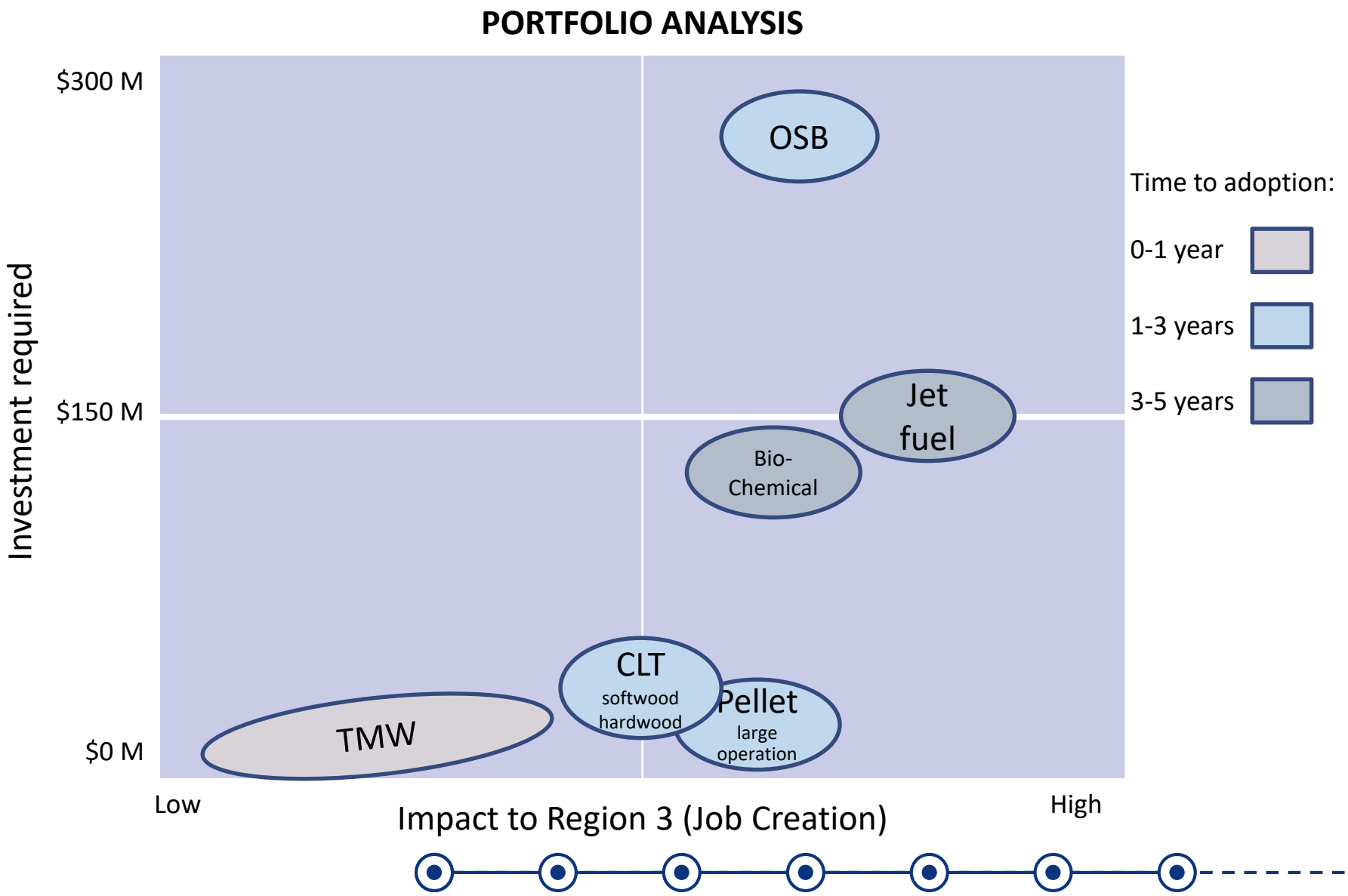
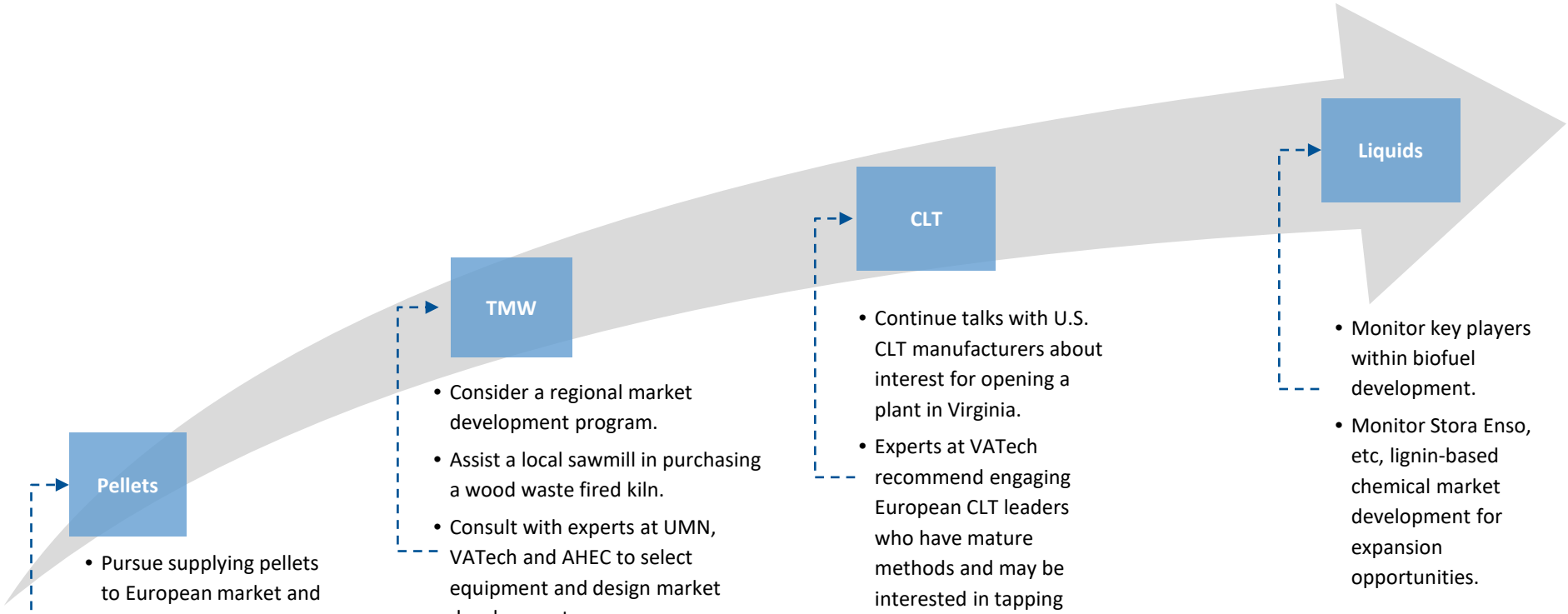
Recommendations: Analysis of Opportunities



Engage industry leaders and experts in the identified markets to vet opportunities, explore partnerships and inform growth strategy.



Pellets

- Pursue supplying pellets to European market and opportunities for pellets within chemicals.
  - Enviva (active in the southeast).
  - Stora Enso, etc for use of pellets within bio chemicals (Danville).

TMW

- Consider a regional market development program.
- Assist a local sawmill in purchasing a wood waste fired kiln.
- Consult with experts at UMN, VATech and AHEC to select equipment and design market development program.
- Promote within the region for new construction (training on how to work with TMW).
- Explore partnerships with home builders and architects.

CLT

- Continue talks with U.S. CLT manufacturers about interest for opening a plant in Virginia.
- Experts at VATech recommend engaging European CLT leaders who have mature methods and may be interested in tapping into the new U.S. market.
- Consider softwood as the entry point with movement into hardwood as standards are created.

Liquids

- Monitor key players within biofuel development.
- Monitor Stora Enso, etc, lignin-based chemical market development for expansion opportunities.

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September 2018

RTI INTERNATIONAL GENEDGE

GO VIRGINIA REGION 3
2019 UPDATE – GROWTH & DIVERSIFICATION PLAN

NON-GO VIRGINIA INITIATIVES

AUGUST 2019

www.govirginia3.org

The following description of non-GO Virginia initiatives and programs offer opportunities for collaborations with GO Virginia projects and may be resources to implement the goals and strategies of the regional Growth and Diversification Plans. The following initiatives/programs are described in this section:

- Virginia Business Ready Sites Program
- Virginia Research Investment Committee - Commonwealth Cyber Initiative
- Collaborative Economic Development Act
- SCHEV Credentialing Program
- Amazon HQ2 Tech Talent Pipeline Initiative
- Virginia Telecommunications Initiative
- Virginia FastForward Initiative
- Opportunity Zones
- Invest Southern Virginia
- VEDP Community Competitiveness Analysis
- VCCS G3 Program
- Microsoft Airband
- Tobacco Commission Talent Attraction Initiative

Virginia Business Ready Sites Program

Virginia Business Ready Sites Program (VBRSP) is a discretionary program to promote development and characterization of sites to enhance the Commonwealth's infrastructure and promote the Commonwealth's competitive business environment. The program's goal is to identify, assess, and improve the readiness of potential industrial sites.

A team of state, regional, and local stakeholders including Virginia Economic Development Partnership (VEDP), Virginia Department of Environmental Quality, railroad representatives, utility representatives, civil engineers, and other government, business, and industry representatives developed VBRSP.

VBRSP has 5 Site Characterization Tier Levels:

- Tier 1: Site under (a) public ownership, (b) public/private ownership, or (c) private ownership with such private owner(s) agreeable to marketing the site for economic development purposes and to allowing access to the property for site assessment and marketing purposes, but at no established sales price. The Comprehensive plan reflects site as appropriate for industrial or commercial development and use, but site is not zoned as such. Site has minimal or no infrastructure. Minimal or no due diligence has been performed.
- Tier 2: Site under (a) public ownership, (b) public/private ownership, or (c) private ownership with an option agreement or other documentation of a commitment by the private owner(s) to a competitive sales price, to permit access to the site for site assessment, construction, and marketing, and to market the site for industrial or commercial economic development purposes. The Comprehensive Plan reflects site intended for industrial or commercial development and use, but site is not zoned as such and a rezoning hearing needs to be scheduled. Site has minimal or no infrastructure. Minimal or no due diligence has been performed.
- Tier 3: Site is zoned for industrial or commercial development and use. Site has minimal or no infrastructure. Due diligence including, among other things, a wetlands survey with Army Corps of Engineers approval within the last five years, geotechnical borings, boundary and topographical survey, cultural resources review, an Endangered Species review, and a Phase I Environmental Site Assessment, has been completed. Estimated costs of development have been quantified.
- Tier 4: All infrastructures are in place or will be deliverable within 12 months. All permit issues have been identified and quantified.
- Tier 5: All permits are in place and the site is ready for a site disturbance permit from the locality in which the site is located.

VEDP is in the process of assessing the inventory of sites across the Commonwealth according to the VBRSP. VEDP has contracted with four

professional engineering firms to conduct this initial assessment. The desk audits will begin the summer of 2019 with a status report available in the fall of 2019.

VEDP provides a limited number of grants annually for sites greater than 100 acres for site characterization. These grants are considered on a competitive basis and made at the discretion of a committee of the VBRSP Working Group members. Site Characterization Grants are available to reimburse for retaining a Site Development Professional for Site Characterization and receiving a designated Site Characterization Tier Level.

To be eligible for a Site Characterization Grant, an eligible applicant must have had the Site Characterization made no earlier than one year prior to the application for a Site Characterization Grant or have the Site Characterization completed no later than ninety (90) days after a Site Characterization Grant has been awarded.

The maximum Site Characterization Grant awarded to an applicant is 50% of the cost of site assessment, up to $5,000. A local match of at least 100% is required (Local Match). An applicant further is responsible for covering any remaining amount of the cost of Site Characterization.

Virginia Research Investment Committee

The premier initiative of Virginia Research Investment Committee (VRIC) is the implementation of the Commonwealth Cyber Initiative. VRIC in partnership with VA Tech and the other three "Node" universities are just in the initial stages of moving forward with a major statewide initiative to position Virginia as a world leader in cyber security. All of the Region 3's education institutions stand ready to partner with the CCI Node universities to bring cyber security education, training and research to the students throughout the region.

The following description of the CCI program provides a more complete overview of the status of the Initiative.

Commonwealth Cyber Initiative

The Commonwealth Cyber Initiative (CCI) is a $25-million effort funded in the 2018-20 Virginia budget. It calls on higher education institutions and industry to build an ecosystem of cyber-related research, education, and engagement. The goal is to position Virginia as a world leader where cyber security meets data analytics, machine learning, and autonomous systems.

CCI will consist of a hub in Northern Virginia anchored by Virginia Tech and four regional nodes across the Commonwealth; each led by an institution of higher education (Virginia Tech, Virginia Commonwealth University, George Mason University and Old Dominion University). Regional nodes will be vibrant centers of research, learning, and innovation tailored to their local ecosystem. VRIC certified the regional nodes in May.

CCI's network engages 320 faculty members across 39 higher education institutions, as well as 65 private companies, four federal partners, and 45 other regional partners. CCI will provide the connective platform necessary for both programs and people to work together to position Virginia as a leader where cyber security meets data analytics, machine learning, and autonomous systems.

Each node will engage the educational institutions in their region in an education, training and research tailored specifically to that region. The focus areas for each node have yet to be finalized and the institutional arrangements with other educational and institutional partners have yet to be developed.

VRIC contracted with TEConomy to produce an Assessment of Virginia's Research Assets: Strategic Directions to Advance Innovation-Led Growth and High-Quality Job Creation across the Commonwealth. This analysis completed in December of 2018 had numerous recommendations to accelerate the commercialization of research from Virginia's universities, federal laboratories and private corporations. Most of the recommendations were related to restructuring programs and activates statewide. The recommendation, *Enhanced Action 4:*

Create a network of Virginia Regional Innovation Partnerships, is particularly relevant to GO Virginia regions. The Institute for Advanced Research ad Learning in Danville is well suited to become a regional innovation partner once VRIC implements the recommendations. The Institute is already engaged in research to address the economic conditions in the region.

The following more completely describes the recommended actions to implement Strategy Four of the report.

> *Assessment of Virginia's Research Assets: Strategic Directions to Advance Innovation-Led Growth and High-Quality Job Creation across the Commonwealth - TEConomy*
>
> *Strategy Four: Shore up Virginia's regionally based innovation capacities to generate more start-ups and advance high-growth companies*
>
> *Baseline Action for VRIC to Consider - Enhanced Action for the Commonwealth to Consider - Baseline funding resources to address this strategic need separately from support for statewide development.*
>
> *Enhanced Action 4: Create a network of Virginia Regional Innovation Partnerships - The annual level of activities generated from the baseline actions informed by best practice examples is expected to be significant, including the following:*
>
> - *Increased industry-university translational and applied research collaborations in the strategic growth opportunity areas, including as follows:*
>   - *30 to 45 individual Virginia company applied research projects with one or more universities*
>   - *15 collaborative translational research projects, each involving one or more universities with multiple companies*

  - *Facilitation of industry engagement and high-touch customer-oriented services through a network of university site miners to work with companies*
- *Improved university capacity to commercialize their research discoveries, including as follows:*
  - *20 proof-of-concept projects with strong industry mentorship leading to 5 to 6 new start-ups annually*
  - *Streamlined university technology transfer and commercialization practices that place an emphasis on value creation through new start-ups and licensing to Virginia companies*
  - *Increased capacity through collaborative efforts across universities to share access to market and technical experts and entrepreneurial training.*

Beyond the activities generated from putting VRIC's resources to work, several key outcome-oriented measures are suggested to track the direct contributions of the baseline actions, including the following:

- Industry R&D levels generated
- Licensing of university technologies to Virginia companies
- Milestones reached in licensing of university technologies to Virginia companies
- Number of new start-ups
- Follow-on funding to new start-ups
- Evidence of rising valuations in new start-ups
- New sales growth by existing and start-up companies assisted
- Industry rating on quality of services provided.

Commonwealth Cyber Initiative (CCI) – Hub and Nodes

The Commonwealth Cyber Initiative is collaboration between the Council of Higher Education of Virginia (CHEV) and the Virginia Research Investment

Committee. The CCI initiative is established to serve as an engine for research, innovation, and commercialization of cybersecurity technologies, and address the Commonwealth's need for growth of advanced and professional degrees within the cyber workforce.

The initiative calls for a primary “hub” to be located in Northern Virginia and a network of “spoke” sites across the commonwealth with collaborating universities in Virginia. Virginia Tech will lead the initiative because of its strengths in science and engineering, existing expertise in cybersecurity research and education, and its significant research presence in Northern Virginia.

CCI proposes to have four anchor research institutions, Nodes, of higher education across Virginia (VA Tech, VCU, ODU and GMU) to coordinate the cyber research, development and workforce advancement. In collaboration with public institutions in the Commonwealth, Virginia Tech will serve as the anchor institution in Northern Virginia and coordinate the activities of the Hub. The Hub will coordinate a Network of Regional Nodes. The activities of CCI include:

- Cyberphysical System Security (CPSS) Research: CPSS and the internet of things promise to enhance the quality of life in many ways but require advances in security and trust to ensure robust, safe, and widespread adoption and impact. This includes world-class research teams at the Hub and across the Network focused on the next-generation communication technologies that will support the internet of things, as well as machine learning and artificial intelligence for cybersecurity. Through a Network-wide research alliance, the team will partner with and host CCI-aligned researchers from institutions across the Commonwealth, bolstering CCI Network ties and enhancing synergies across the Nodes.
- Entrepreneurial Ecosystem: The CCI Network is committed to ensuring that research outcomes make their way to market quickly and effectively. CCI investments will grow and diversify the Virginia cyber economy Commonwealth-wide by promoting the commercialization of CPSS products and launching cyber-focused startups. The CCI Hub will support entrepreneurship across the Network by providing access to venture capital

and supporting startups. CCI will support technology de-risking through approaches like proof-of-concept grants. In addition, Nodes will promote CPSS research and entrepreneurship in their regional ecosystems.

- Co-Op 2.0 Portal: To ensure that Virginia students are fully prepared to enter the innovation workforce upon graduation, the CCI Network will promote and support opportunities for long-term and year-round experiential learning in ways that do not prolong student time to-degree. These longer-term relationships increase value for both stakeholder groups. CCI will support the distance learning, flexible educational schedules, and industry partnerships required to establish and scale these experiences across the Commonwealth. CCI funding will be made available for matching industry investment in student stipends.

The 2018-2020 Virginia State Budget invests $25 million in CCI. This appropriation includes $10 million to scale the initiative and recruit faculty both the Hub and Node sites. An additional $10 million is provided to establish the Hub, including research faculty, entrepreneurship programs, and student internships. Finally, $5 million is available for renovations, space enhancements, and equipment.

CCI's success will be measured by well-defined output indicators. CCI will also produce real outcomes for the Commonwealth, such as student employment in cyber fields in Virginia industry, patent licensing, and venture capital invested in spin-offs.

To achieve these outcomes, CCI recommends an additional $40 million in funds to further scale the Hub, pilot new programs to scale degree production, and recruit scholars and researchers across the Commonwealth. The CCI Network should be sustained by a $28 million annual investment in research and educational faculty support, CoOp 2.0 support, and other Network programs. These funds will be leveraged to grow a combination of philanthropy, industry investment, and sponsored research programs totaling over $20 million for the initial investments and growing to $35 million annually at steady state.

Collaborative Economic Development Act

The Collaborative Economic Development Act was created by Virginia's General Assembly in 2016 as a part of the GO Virginia legislative package. The Act calls for the creation of the Virginia Collaborative Economic Development Performance Grant Fund ("CED Fund") that will provide grants to at least two or more Virginia localities that collaborate in joint economic development initiatives that result in the location or expansion of a certified company within their respective jurisdictions. The GO Virginia State Board, in conjunction with the Virginia Economic Development Partnership ("VEDP") and the Department of Housing and Community Development ("DHCD"), will administer grants that are awarded from this fund. The Collaborative Economic Development Grants are unique in that, for the first time in Virginia's history, participating localities can recover up to 45% of the total amount of personal income tax withheld from employees holding new jobs at the certified company for a period of 6 years.

A certified company, as mentioned above, means a Virginia employer that has been certified by the Virginia Economic Development Partnership to have:

1. Created or caused to be created at least 200 net new jobs in the participating localities with average salaries at least equal to the average wage in those localities and
2. Made a Capital Investment of at least $25 million.

If, however, the Board makes a written finding of significant fiscal distress or extraordinary economic opportunity in the participating localities, the Board may lower the job creation and capital investment requirements to not fewer than 25 net new jobs and not less than $1 million of capital investment.

Region 3 localities are well positioned to take advantage of the Collaborative Economic Development Act provisions since several of the region's localities already participate with their neighbors in Regional Industrial Facilities Authorities and have developed regional industrial/business parks. These facilities are prime candidates for business expansion meeting the criteria of the Collaborative

Economic Development Act. In addition, the fiscal and economic conditions in many of the Region 3's localities should make them eligible for the lower qualification thresholds for business job creation and investment.

State Council of Higher Education (SCHEV) - Credentialing Program

During the 2016 session, the General Assembly passed HB 66 that established the New Economy Workforce Grant Program. This grant program, the first of its kind, provides a pay-for-performance model for funding noncredit workforce training that leads to a credential in a high demand field. The program also includes requirements for students to complete the program in order to avoid paying additional costs. Here is a summary of the major key components of the program:

- Funds may be provided to eligible institutions for non-credit training that leads to a workforce credential in a high demand field.
- Eligible institutions include community colleges, higher education centers and Richard Bland College
- Non-credit training programs should align with the high demand fields set by the Virginia Board for Workforce Development
- Students are required to pay one-third of the total cost of the program upon enrollment. Students may use third party funds, such as noncredit financial aid, training vouchers or employer payment to cover this cost.
- If the student completes the training, then the state provides one-third of the cost of the program, up to $1,500 to institution. If the student does not complete the program, then the student is required to pay this portion of the total cost
- If the student satisfactorily completes the workforce credential after completing the training, then the institution receives the remaining one-third

of the cost of the program up to $1,500. The combined maximum award to an institution is $3,000 for completion of training and a credential
- Institutions must provide student-level data to SCHEV to receive funding
- SCHEV is responsible for administering the program, conducting periodic assessment of the program, collecting student data, and making final decisions on disputes between eligible institutions and grant recipient

The following is a list of approved high-demand occupations and aligned programs. The following major occupation groups are included in the Demand Occupations List for the 2018- 2019 fiscal year:

- Computer and Mathematical Occupations
- Architecture and Engineering Occupations
- Life, Physical, and Social Science Occupations
- Education, Training, and Library Occupations
- Healthcare Practitioners and Technical Occupations
- Healthcare Support Occupations
- Office and Administrative Support Occupations
- Construction and Extraction Occupations
- Installation, Maintenance, and Repair Occupations
- Production Occupations
- Transportation and Material Moving Occupations

All Community colleges across Virginia and the Southern Virginia Higher Education Center currently offer these programs.

Most of the “Demand Occupations”, Computer, Mathematical, Engineering, Education, Training, Healthcare Practitioners/Technicians, Healthcare Support, Office/Administrative Support, Installation, Production, Transportation and Material Moving Occupations, are all directly related to Region 3’s four target industry sectors, advanced manufacturing/materials, business service/IT, high-value natural resource products, and healthcare.

The recently funded GO Tech workforce development initiative will be implementing career development in many of these same occupations. The New Economy Workforce Credential Grants will be a tremendous financial benefit to those students participating in the training programs of the Community Colleges and the Southern Virginia Higher Education Center.

Amazon HQ2 Tech Talent Pipeline Initiative

The centerpiece of Virginia's proposal for HQ2 was a performance-based, statewide investment in computer science and related programs to more than double Virginia's tech-talent pipeline, which will benefit tech employers across the Commonwealth.

Vision. To strengthen the tech-talent pipeline across Virginia, the Commonwealth will make performance-based investments in public higher education institutions statewide. The effort will produce 25,000 to 35,000 additional degrees in computer science and related fields – roughly split between bachelor's degrees and master's degrees – over the next two decades, in excess of current rates. Existing degree production levels will more than double as a result.

Program Design. Subject to performance-based agreements to be negotiated with each public community college, four-year college, and university across Virginia that wish to participate, state funding will be provided to recruit faculty, address capital needs, and provide ongoing enrollment support necessary to more than double existing levels of degree production in computer science and closely related fields. The overall program includes five components:

(1) K-12 tech-talent pipeline initiative;
(2) A Community College program;
(3) Bachelor's-level education;
(4) Master's-level education; and
(5) Tech internship program for higher education students.

Strengthening the K-12 Tech-Talent Pipeline Statewide. Building the tech-talent pipeline starts with a public K-12 system that includes an integrated STEM and computer science curriculum at every grade for every student. Virginia led the nation by adopting computer science standards across the K-12 continuum, and the Commonwealth is continuing to equip teachers to implement them effectively. However, in order to meet the growing needs of Amazon and other high-tech employers, additional investments are needed to bring high-quality STEM and computer science teaching and learning to scale. Therefore, over the next 20 years, Virginia will invest $25 million statewide in new funding in the K-12 STEM and computer science experience for students and teachers. This investment will enable the Commonwealth to provide ongoing professional development to current and future teachers; create, curate, and disseminate high-quality curriculum and resources; support summer and after-school programming for students; and facilitate meaningful career exposure and work-based learning opportunities in high demand fields.

Statewide Community College Tech-Talent Education. Community colleges across Virginia play an essential role in preparing students for technology jobs, including both degree and certificate programs that lead directly to well-compensated IT positions as well as transfer programs that enable completion of bachelor's degrees in computer science and related fields at a reduced cost compared to attending only a four-year institution. State leaders will collaborate with the Virginia Community College System (VCCS) and community college leaders to craft performance-based community college tech talent programs that will complement the bachelor's and master's level tech-talent education programs described below.

Statewide Bachelor's-Level Tech-Talent Education. With General Assembly approval, the Commonwealth will establish a performance-based tech-talent investment fund through which 7 higher education institutions across Virginia can receive startup funds for faculty recruitment, state capital investment (where required), and enrollment funding necessary to expand the number of bachelor's degrees they confer annually in computer science and closely related fields (e.g.,

computer engineering). Participating institutions will enter into memorandums of understanding (MOUs) that detail their plans for growth, state funding commitments, annual reporting requirements, and future funding parameters associated with performance. The total new state investment to grow bachelor's-level tech-talent education will be determined in part by how much of the growth in computer science and related fields is associated with an overall increase in college graduates and how much relates to a shift in the degree-field mix that may occur at some institutions. The bachelor's-level tech talent education program will represent the largest state investment of the five components.

Master's-Level Tech-Talent Education in Northern Virginia. The Commonwealth also plans investments of up to $375 million for academic space and operational support to increase master's degree production in computer science and related fields in Northern Virginia over the next 20 years. These performance-based, master's-degree level investments will be provided on a dollar-for-dollar matching basis for philanthropic funds raised by George Mason University for its Arlington campus and Virginia Tech University for a new graduate level Innovation Campus expected to be located in Alexandria. Master's degrees offer advanced, ongoing professional development; dramatically reduce the total cost for additional credentials; can be produced more quickly than bachelor's degrees; and lend themselves to customization.

Tech Internship Program for Higher Education Students. The State Council of Higher Education for Virginia (SCHEV) will develop a higher education program to ensure that all students in baccalaureate programs in computer science and related fields have access to high-quality work-based learning, such as internships, apprenticeships, research experiences, and cooperative education programs. The Commonwealth will invest at least $25 million in this program over the next 20 years. To ensure efficiency and consistency in meeting the needs of students and businesses, the General Assembly may choose a single entity to oversee the allocation of funds dedicated to the program.

Virginia Telecommunications Initiative

The Virginia Telecommunication Initiative (VATI) provides grants to extend broadband service to currently underserved areas in the Commonwealth. VATI prepares communities to build, utilize, and capitalize on telecommunications infrastructure with the goal of creating strong, competitive communities. Consistent with the enabling legislation, DHCD was appropriated $4 million in FY 2019 to be awarded eligible applicants, subsidizing the construction costs and providing last-mile services to these underserved areas of the state. The FY 2020 state appropriation is for $19 million.

A unit of local government must submit applications with a private-sector provider(s) as a co-applicant. Units of government include towns, cities, counties, economic and industrial development authorities, broadband or wireless authorities, planning district commissions, etc.

The Virginia Department of Housing and Community Development (DHCD) will host two input sessions to discuss the proposed FY2020 Virginia Telecommunication Initiative guidelines and criteria.

Below is a list of applications submitted for the 2019 Virginia Telecommunication Initiative that are now under review.

Locality	Private Provider/Partner	Funding Requested	Leverage Match	Total Cost
Albemarle County Broadband Authority	CVEC	$301,748	$1,152,975	$1,454,723
Albemarle County Broadband Authority - Green Creek	Century Link	$78,000	$52,000	$130,000
Albemarle County Broadband Authority – Howardsville	Century Link	$127,800	$85,200	$213,000
Amherst County	SCS Broadband	$267,760	$131,250	$399,010
Augusta County – Deerfield	MGW/Lingo	$163,100	$69,900	$233,000
Augusta County – Middlebrook	MGW/Lingo	$243,197.50	$104,227.50	$347,425
Bedford County	Blue Ridge Towers/BRISCNET	$1,436,780	$1,500,000	$2,936,780
Botetourt County	CBEC	$758,998	$1,207,999	$1,966,997

Brunswick County	Bugg Island Telephone	$198,546.40	$49,636.60	$248,183
City of Chesapeake	Cox	$433,839	$116,727	$550,566
Clarke County	Comcast	$209,513	$119,463	$328,976
Cumberland Plateau PDC	Sunset Fiber	$490,795.20	$210,340.80	$701,136
Floyd County	Citizens	$348,018.67	$468,708.67	$816,727.34
Fluvanna County	CVEC	$641,967	$1,846,625	$2,488,592
City of Franklin	Blue Ridge Towers/BRISCNET	$465,000	$269,451	$734,451
Giles County	Gigabeam	$589,444	$266,256	$855,700
Gloucester County	Cox	$233,420	$119,976	$343,396
Halifax County – Liberty Store	MEC and Empower Broadband	$372,037	$401,271	$733,308
Halifax County – Omega Rt. 58	MEC and Empower Broadband	$396,621	$296,008	$692,629
Halifax County – SCS	SCS Broadband	$296,320	$211,500	$507,820

Louisa County – AcelaNet	SCS Broadband	$293,520	$151,500	$445,020
Louisa County – Cash's Corner	CVEC	$310,577	$955,256	$1,265,833
Madison County	Madison Gigabit Internet	$80,000	$51,000	$131,000
Mecklenburg County	Bugg Island Telephone	$205,550.21	$51,387.55	$256,937.76
Nelson County	CVEC	$350,410	$846,831	$1,197,241
New Kent County	Cox	$290,386	$94,233	$384,619
Pulaski County	Triffiecient	$477,000	$150,000	$627,000
Russell County	iGo	$455,581	$2,106,280	$2,561,861
Stafford County	KGI Communications	$240,000	$60,000	$300,000
Surry County	SCS Broadband	$62,098	$22,500	$84,598
Tazewell County	Gigabeam	$154,000	$70,750	$224,750

Virginia FastForward Initiative

FastForward is a short-term workforce credential program to train Virginians for top, in-demand jobs through the Virginia Community College system. Most programs take between six and 12 weeks and are built so students can get their education while they work.

FastForward offers credential training programs to prepare Virginians for 40 high-demand careers. The FastForward training programs to date have a completion rate of more than 90%. FastForward credentials are offered in the following industry sectors; Logistics and Transportation, Healthcare, Welding and Manufacturing, Skilled Trades, Information Technology, Business and Customer Service, and Education.

The New Economy Workforce Grant Program was implemented as the Virginia FastForward program. During the 2016 session, the General Assembly passed HB 66 which established the New Economy Workforce Grant Program. This grant program, the first of its kind, provides a pay-for-performance model for funding noncredit workforce training that leads to a credential in a high demand field. The program also includes requirements for students to complete the program in order to avoid paying additional costs. A summary of the major key components of the program is included below:

- Funds may be provided to eligible institutions for non-credit training that leads to a workforce credential in a high demand field
- Eligible institutions include community colleges, higher education centers and Richard Bland College
- Non-credit training programs should align with the high demand fields set by the Virginia Board for Workforce Development
- Students are required to pay one-third of the total cost of the program upon enrollment. Students may use third party funds, such as noncredit financial aid, training vouchers or employer payment to cover this cost.
- If the student completes the training, then the state provides one-third of the cost of the program, up to $1,500 to institution. If the student does not

complete the program, then the student is required to pay this portion of the total cost

- If the student satisfactorily completes the workforce credential after completing the training, then the institution receives the remaining one-third of the cost of the program up to $1,500. The combined maximum award to an institution is $3,000 for completion of training and a credential
- Institutions must provide student-level data to SCHEV to receive funding
- SCHEV is responsible for administering the program, conducting periodic assessment of the program, collecting student data, and making final decisions on disputes between eligible institutions and grant recipient.

The results of the program by industry are; 32 percent of credentials were earned in skilled trades, 24 percent were earned in logistics and transportation, 20 percent in welding and manufacturing, 15 percent in health care, and 9 percent in education, business and information technology. The majority of FastForward graduates experience a 25 percent to 50 percent wage gain after attaining their credential. In addition, 90 percent of Virginians working with FastForward credentials reported having employer-sponsored health care, 75 percent receive paid sick leave, 85 percent get paid vacation time, 88 percent report better work schedules, and 82 percent are working in their preferred field.

FastForward also contributes significantly to Virginia's overall economy. Based on an analysis of 2,500 available wage records, FastForward graduates earned more than $81 million dollars last year, a nearly $15 million increase over their earnings prior to participating in the program. This results in estimated annual income taxes of $4,004,027 paid by FastForward graduates, according to Virginia Community Colleges.

Opportunity Zones

Opportunity Zones are economically distressed communities, designated by states and territories and certified by the U.S. Treasury Department, in which certain investments are eligible for preferential capital gains tax treatment. The tax incentive is designed to spur economic development and job creation in distressed communities by providing these tax benefits to investors. Effective June 14, 2018, Treasury certified Opportunity Zones in all states, territories and the District of Columbia. Opportunity Zone designations will remain in effect until December 31, 2028. 212 Opportunity Zones have been designated in Virginia.

Investments in Opportunity Zones are made through a qualified Opportunity Fund. A qualified Opportunity Fund is any investment vehicle organized as a corporation or partnership with the specific purpose of investing in Opportunity Zone assets. The fund must hold at least 90 percent of its assets in qualifying Opportunity Zones property. Any taxpaying individual or entity can create an Opportunity Fund, through a self-certification process by submitting a form with the taxpayer's federal income tax return. Opportunity Funds can invest in any qualified Opportunity Zone property, including stocks, partnership interest or business property (so long as property use commences with the fund, or if the fund makes significant improvements to the qualifying property).

There are three primarily benefits available to investors that invest into an Opportunity Fund, with increasing benefits the longer the investment is held in the Fund:

- Deferral of capital gains taxes. An investor that re-invests capital gains (within six months or realizing the gains) into an Opportunity Fund can defer paying federal taxes on those realized gains until as late as December 31, 2026.
- Reduction of capital gains taxes. Investors that hold the investment in the Opportunity Fund for at least five years can reduce their tax bill on the deferred capital gains by 10%. This reduction increases to 15% for investors that hold the investments in the Opportunity Fund for at least seven years.

- Elimination of taxes on future gains. Investors that hold the investment in the Opportunity Fund for at least ten years will not be required to pay federal capital gains taxes on any gains realized from the investment in the Opportunity Fund.

Virginia Community Capital (VCC), with leadership from LOCUS Impact Investing and in partnership with the Virginia Department of Housing and Community Development (DHCD) and the Virginia Housing Development Authority (VHDA), will develop an online marketplace to help educate stakeholders on the program, share project ideas and pipeline, and connect investors to businesses and property in Virginia's Opportunity Zones. The Virginia Opportunity Zone Marketplace is expected to be launched in the fall of 2019.

There are 23 Opportunity Zones in Region 3 in the following localities: Martinsville/Henry County, Danville/Pittsylvania County, Cumberland/Prince Edward Counties, Charlotte County, Brunswick County, Halifax County and Mecklenburg County.

Invest Southern Virginia

Invest Southern Virginia drives economic growth by attracting foreign and domestic advanced manufacturing and technology companies to Southern Virginia to create jobs and increase capital investment. Mid-Atlantic Broadband Communities Corporation, an advanced open-source fiber provider that connects Southern Virginia to the world, leads this economic development initiative. Invest Southern Virginia connects growing advanced manufacturing, data center, and technology companies to qualified sites in the Southern Virginia region. The profession economic development staff of Mid-Atlantic Broadband leads this initiative.

VEDP Assessment of Community Competitiveness

In the summer and fall of 2019, VEDP will produce, with extensive partner and external stakeholder input, a document that provides to each locality an overview of the key indicators of its general economic competitiveness. The project is intentionally designed to help localities compare themselves with peers and to facilitate a dialogue whereby models that have worked (whether for economic development funding or programming, or regulatory/tax practices) can be shared between cities and counties. As of the writing of this report, VEDP plans to present its findings to major stakeholders in September-December 2019

Virginia Community College System G3

The Virginia Community College System has up to $5.1 million of Workforce Innovation and Opportunity Act state set-aside funds to support planning activities needed to establish and refine the educational pathways aligned with the following industry sectors:

- Information Technology/Computer Science,
- Healthcare,
- Manufacturing and Trades,
- Public Safety, and
- Early Childhood Education.

This funding opportunity is 100% supported by federal U. S. Department of Labor Employment and Training Administration Workforce Innovation and Opportunity Act funds.

Based on funding availability, future students enrolled in pre-approved G3 pathways may be eligible for last-dollar scholarships, providing greater access to

postsecondary education for Virginians while encouraging enrollment, retention, and completion in the critical areas needed to support the Commonwealth's skilled workforce. Participating students must also give back to their communities by completing documented community service.

Microsoft Airband Initiative

Reaping the benefits of the new digital world requires a high-speed broadband connection, a link not available to 25 million Americans, 19 million of whom live in this country's rural areas. Microsoft has sent a collaborative goal—to eliminate the rural broadband gap by July 4, 2022, by launching the Microsoft Airband Initiative.

Launched in 2017, it is a five-year commitment to tackle this persistent problem in innovative ways, like harnessing unassigned broadcast spectrum known as TV white spaces to bring broadband connectivity to 2 million unserved rural Americans.

Including TV white spaces technologies, alongside traditional fiber optic and satellite coverage, can be the most cost-effective way to expand broadband availability in rural communities.

In the year ahead, Microsoft will increase the number of states with Microsoft Airband Initiative infrastructure projects and expand the work we are doing to offer skills training in rural communities.

Tobacco Commission Talent Attraction Initiative

The Talent Attraction Program (TAP) is designed to encourage recent graduates to live in the tobacco region and work in targeted, hard-to-fill occupations by providing up to $12,000 annually in student loan repayment with a two-year commitment. This two-year period may be renewed for a further two years for a total possible repayment of $48,000 over four years.

To be eligible for this program students must have:

1. graduated within the past 18 months of the application deadline
2. reside within the tobacco region during the 24-month period during which the award is made and
3. begin full-time employment in the tobacco region within six months of the award letter in one of the following occupations within the region:
    - Public school teacher in science, math, technology/computer science or career and technical education (Grades 6-12)
    - Public school special education teacher K-12
    - Speech language pathologist
    - Physical therapist
    - Occupational therapist
    - Industrial or electrical engineer
    - Information security, network, or computer systems analyst

Applicants also will be asked to become significantly civically engaged in their community. Examples of this include volunteering with local non-profit or government activities such as the United Way, Junior League, Ruritan Club, PTA, food banks, coaching youth sports etc. with a total annual engagement of at least 50 hours per year.

The commission also committed $2 million to further fund the Virginia Department of Health State Loan Repayment Program.

Eligible occupations for this program include physicians, nurse practitioners, physician assistants, dental professionals, mental health professionals, registered nurses and pharmacists.

Specialties that are eligible under each occupation, as well as additional info about the VDH program can be found at this link: VDH-SLRP Program (http://www.vdh.virginia.gov/health-equity/virginia-loan-repayment-programs-2/).

The commission funded 21 Workforce Financial Aid and Competitive Education grant requests that will benefit thousands of students across the tobacco region. The approved requests cover in-demand areas such as nursing, IT and cybersecurity, workforce preparedness and more.