Testimony by Mathew Sigelman, CEO Burning Glass Technologies, to the House Subcommittee on Higher Education and Workforce Training

May 28, 2021

Good afternoon, Chairwoman Wilson, Ranking Member Murphy, and distinguished members of the committee, and thank you for the opportunity to testify today about this important issue. My name is Matthew Sigelman and I am CEO of Burning Glass Technologies, a leading labor market analytics company. Our big data analysis of job postings and career histories gives us a unique perspective on what employers want, what workers need, and what kind of workforce system the country should pursue as Congress considers reauthorization of the Workforce Innovation and Opportunity Act.

The challenge facing the American worker is unprecedented. The short-term disruption of the pandemic combines with longer-term trends to accelerate the displacement of American workers while exacerbating talent shortages for industry. Advanced technologies and automation continue to redefine the job market, with new roles emerging, some falling away, and many more demanding new skills. Across the economy, 30% of the skills required in the average occupation today are different from those needed just a decade ago, **challenging both workers to remain relevant and employers to keep their workforces from becoming obsolete**.

In fact, there is a growing disjoint between the skills of America's workforce and those sought by employers. This disjoint constrains mobility, narrowing the landscape of opportunities accessible to workers while curbing productivity and economic growth by eroding the nation's skill base. As a result, millions of workers may remain on the sidelines even as employers face a severe shortage for future-ready skills to grow their business. **A million displaced waitstaff will not help industry fill one cybersecurity opening.** This problem is particularly acute in underserved communities where the opportunity gulf has existed for decades. Ultimately, both worker and industry will suffer, and this supply-demand mismatch will serve as a potent drag on our national economy and America's ability to be globally competitive.

Some of the key considerations I will cover in more detail in my testimony include:

- Jobs and skills are changing faster than traditional labor market information systems can track;
- The current workforce system focuses on placing people as fast as possible, rather than focusing on the best opportunities or on building the workforce that industry needs;
- We need to apply metrics of demand and of job quality in assessing and prioritizing workforce investments; and,
- Our current workforce training system is designed for retrain people from scratch, rather than leveraging what workers already know. By leveraging "skill adjacencies," the workforce system can place people more quickly, less expensively, and with greater long-term success.

To remake the workforce system to meet these challenges demand, the new version of WIOA will need to address these six imperatives:

- ***Worker mobility*. Current government and corporate policies are focused on filling jobs instead of helping workers navigate and move up within an increasingly complex job market**. For workers, these issues include a lack of information on which better jobs may be accessible to them, which skills and credentials will unlock those opportunities, which local or online programs will help prepare them, and where those jobs can be found.

- ***Equitable opportunity*.** Prior economic recoveries have largely resulted in continued patterns of inequitable access to opportunity, earnings, and wealth creation. These inequities have been serious barriers to progress for diverse communities. Such inequities, which have deepened during the current crisis, mean that **large swaths of the workforce are not meeting their potential**. That lost potential is not only a tragedy for individuals but a loss of economic output to business and the nation. **Breaking down barriers and promoting the advancement of those who have lacked access to mobility must be a guiding factor in the design of any workforce policy initiative**.

- ***Ongoing skill development*.** Automation and digitalization of work are driving extraordinary growth and efficiency. Unfortunately, this growth carries the tangible risk of obsolescence for many workers, particularly those who have been in the same job for an extended period and who have had limited opportunities for re-skilling or reimagining how their skills can be valued in the evolving marketplace. Navigating this market carries the imperative for enabling workers to re-skill and up-skill dynamically. **Market needs should prioritize which skills to develop. Education and training infrastructure is needed to help workers acquire skills on the fly.** And more effective credentials are needed to help workers claim the skills they have developed and to help employers identify qualified talent more efficiently.

- ***Actionable data*.** Jobs and skills are changing faster than traditional labor information's ability to measure them. **Current government data sources provide essential macroeconomic data, but cannot provide the granular, microeconomic data needed to respond to skill gaps and offer targeted, effective learning programs**. In addition, we need more rigorous metrics for assessing the value of jobs in order to prioritize those that are not only in demand but which also provide good wages and serve as stepping stones to upward mobility for workers.

- ***Good quality jobs.*** The current system, with its focus on placement, does not take the quality of employment into sufficient consideration. This has significant consequences for workers, particularly opportunity youth or other workers facing obstacles. Research conducted on opportunity youth for the Schultz Family Foundation found that half of these young workers are able to move from their first job into one with better pay or opportunities in five years—but by

the same token, half do not.[1] In joint research with Jobs for the Future, Burning Glass developed a frame for assessing good jobs for middle-skill workers, based on pay, career stability, and opportunity for advancement.[2]

  - Springboard jobs that lead to careers. Workers often advance to different roles with more responsibility and greater pay within the same career area. Business and IT feature many springboard jobs.
  - Lifetime jobs, which are careers in themselves. Workers rarely advance to higher-level positions, but these jobs usually pay well and offer long-term stability. Lifetime jobs are common in health care (dental hygienists are an example) and manufacturing.
  - Static jobs, which offer low pay, high turnover, and don't typically lead to careers. Medical assistants and assemblers of electrical equipment are examples.

- ***Return on investment*.** Research undertaken by Burning Glass for the World Economic Forum shows that it is cheaper for both government and business to reskill existing workers at risk of being displaced rather than to fire and rehire.[3] But that depends on government, employers, and training providers having access to timely job market data and career pathways by which to target transitions and design highly efficient retraining programs**. Identifying the specific skills current workers have and the ones they will need is the key to providing good return on investment for employers, learners, and taxpayers alike**.

- ***Demand-driven workforce development*.** More of today's workforce development systems and policies are oriented toward finding jobs for workers than to finding workers for jobs. Particularly at a time when millions have been displaced, that may seem appropriate, but it does not face the larger problem. **When the goal is to create a bridge to good work, it is critical to start out with a clear data-driven awareness of the landscape of opportunity.** Just as importantly, current systems are designed to place one worker at a time vs. creating connections at scale, bridging between key areas of demand and major pools of displacement.

From this perspective, we need a workforce system that brings us closer to three great objectives:

- ***A system that can better support the displaced and those at risk:*** This is the primary mission of the workforce system as it exists today. Yet the massive, unprecedented dislocation caused by the COVID-19 pandemic underscores how ill-prepared we are. Even without the pandemic,

[1] Burning Glass Technologies, Entry-Level Work as a Stepping Stone, Not an End Point, January 2021, https://www.burning-glass.com/research-project/entry-level-work-stepping-stone-not-end-point/
[2] Jobs for the Future and Burning Glass Technologies, "When is a Job Just a Job, and When Can it Launch a Career?, https://www.burning-glass.com/research-project/when-job-just-job-when-launch-career/
[3] [3] World Economic Forum, Toward a Reskilling Revolution, January 2018, http://www3.weforum.org/docs/WEF_FOW_Reskilling_Revolution.pdf

however, the U.S. is facing significant potential displacement of workers by the triple forces of automation, digitalization, and hybridization of jobs. **To better serve displaced workers, the workforce system will need to go beyond referring people to jobs**. Instead, it will need to:

- Make training more efficient and effective by **training workers for the specific skill gaps that will enable their transition, building on workers' existing skills vs. training people up from scratch**;
- Assess rigorously the relevance of eligible training provider list (ETPL) programs against metrics of demand and to **make sure that workforce funds are not being disbursed on programs that don't lead to good opportunities**;
- Leverage more modern skill-based methods for **identifying a wider set of relevant job openings for each worker that don't necessarily correspond directly with prior occupations**;
- **Empower workers with the information they need** to navigate to opportunity; and
- Provide workers **ongoing skill development over time** to help those displaced regain income that is all too often lost upon initial transition.

- ***A system that can provide critical skill development resources for all American workers:*** We often hear of jobs being created and destroyed by technology, but the more significant impact is in how fast existing jobs are being reprogrammed. **The rapid pace of skill change will demand that many workers gain skills just to keep the jobs they have. The need for lifelong learning has been evident for some time, but it is also evident that our workforce and educational systems are not equipped to support it.** Among other things, this will require that workforce funding be restructured to provide for ongoing training over time, even after a worker has been successfully placed, so that workers have a means of continuing to progress – a critical both to helping

- ***A system that can be a better partner to industry:*** Today's system is focused on the supply of workers, i.e., how to place unemployed workers in jobs. We need a system that is more focused on the opportunities for those workers, represented by the skills employers demand. That will require a workforce system with new information sources, closely aligned not only with what employers are looking for today but also the strategic trends that will shape what industry needs tomorrow.

Skills are increasingly becoming the currency of the job market. WIOA can play a vital role in assisting American workers to thrive in this new landscape.

MAJOR TRENDS IN THE JOB MARKET

Burning Glass Technologies, founded in 1999, is a pioneer in the use of big data to analyze job postings. We monitor close to 50,000 job sites daily and at any one time are tracking some 3.4 million current openings. Our database holds more than a billion current and historical job postings, enabling us to identify trends and see changes in the job market quickly. We also track and analyze the career histories

of more than 300 million workers globally – over 75 million US workers (around 40% of the US workforce), enabling us to follow real-life career trajectories and see how careers unfold.

This is a powerful microeconomic complement to the valuable data collected by government agencies, such as the Bureau of Labor Statistics. These survey-based data sources provide excellent high-level macroeconomic information and can track trends going back decades. However, surveys are slow to field and require careful methodological work to ensure they are compatible with previous data. As a result, government data are less granular and are slower to pick up on emerging trends. For example, data scientist, a major emerging job role and a force for change across the economy, was only added to the O*NET categories in 2018, after having been an identifiable occupation in the marketplace for a decade.

Even more importantly, **serving workers requires a granular and real-time awareness of specific opportunities and the skills and credentials local employers require. That kind of actionable insight isn't available through the macroeconomic lens of public data.** By contrast, real-time job posting data provide critical intelligence at the sub-occupational level, including robust detail on skills and how requirements vary often widely by location and by sector. For example, the **skills required for a marketing career in Minneapolis are considerably different from those required for comparable roles in Silicon Valley**. Instead of waiting for experts to assess the skills needed for an occupation, we can see what employers are asking for in near-real time and, instead of assuming the same set of skills for every job within an occupation, we can track these kinds of variances.

One of the most significant trends we can see in the labor market is the incredible, technology-driven pace of change in the skills that make up most jobs. A Harvard study by the economist David Deming, using Burning Glass data, found that the skill base of many jobs changed up to 40% between 2008-2018.[4] It is perhaps no surprise that computer programmers and mechanical drafters have seen high rates of skill change, but even traditional roles such as actuaries, production technicians, and insurance claims clerks have seen major changes in required skills. Eight in ten middle skill jobs are now digitally intensive and those that are digitally intensive are growing twice as fast and are twice as likely to pay a living wage. **This raises critical questions about the ability for workers to keep up and avoid becoming obsolete.**

Upcoming research from Burning Glass suggests that the **COVID-19 pandemic has speeded up this process**. Requests in job postings for many skills jumped sharply from 2019 to 2020, such as use of PPE (177%), video conferencing (159%), and sales management (132%).

One manifestation of this fast pace of change is that **more and more jobs are mixing skills from different fields**. Consider the mobile app developer, an occupation that did not even exist before the invention of the smartphone. This might seem to be a programming role, but in addition an app developer needs to understand content development, marketing, and UI/UX programming. Or think of

[4] Deming DJ, Noray K. Earnings Dynamics, Changing Job Skills, and STEM Careers. Quarterly Journal of Economics, May 2020

data scientists, a role that as recently as 2010 encompassed a mere 150 job postings, mostly Ph.D statisticians working for Wall Street banks. In the past 12 months there were more than 35,000 postings for this job as "big data" became a mainstream (and highly disruptive) skill.

The phenomenon exists outside of technology roles. Marketing managers, for example, are increasingly called on to understand data analysis. A marketing manager who knows SQL can command a 41% salary premium compared to one who doesn't. The challenge is also not limited to higher-skill jobs: middle-skill roles such as sales representatives across many fields, now have to master customer relationship management software and other technological tools.

Increasingly to employers, the ideal worker is one who has a combination of business skills, technical skills, and human skills: not just the ability to complete a specific task but to fit it into a business strategy and communicate it to others. In a study with the Business-Higher Education Forum, Burning Glass identified 14 of these New Foundational Skills.[5] Not every worker will need every one of these skills, but the various combinations are potent in the job market, carrying salary premiums for job seekers.

This rising trend of jobs mixing skills from across domains presents new challenges to the workforce system. **Even as demand returns in recovery, those who have worked in a field for decades may no longer have the skills needed to be rehired.** In addition, when jobs call for entirely new skills, it is less likely that workers will simply pick these new skills up as they go along. The workforce system needs to be able to track these changes and help workers to build the skills required to stay relevant.

PATHWAYS FOR ACTION

The following practical policy principles address these imperatives for American workers and industry alike, both in the near-term as we emerge from pandemic and over the decade ahead:

Opportunity pathways for displaced workers based on "skill adjacency." **One of the greatest failings of the modern labor market is also its greatest opportunity: that opportunity and talent are often only a few skills apart.** Whether due to pandemic, automation, or decarbonization, displacement will be the dark underside of the transformations of a dynamic economy. Evidence from past recessions suggests that many displaced workers remain permanently sidelined, lacking the skills to make effective transitions, the resources to increase those skills, or the guidance to help them choose the best path.[6] In a recession, displaced workers may well have to accept a "lifeboat job" as an emergency measure.[7] But they should not have to accept a permanent decline in their standard of living. Traditional workforce

[5] Burning Glass Technologies, The New Foundational Skills of the Digital Economy, February 2018, https://www.burning-glass.com/research-project/new-foundational-skills/

[6] Carter, J. Braxton and Bledi Taska "Technology Adoption and the Consequences of Job Loss," (2020), Working Paper, Minnesota University

[7] Burning Glass Technologies, Filling the Lifeboats: Getting America Back to Work after the Pandemic, May 2020, https://www.burning-glass.com/wp-content/uploads/2020/05/Lifeboat_Jobs_Burning_Glass.pdf

retraining programs have struggled to deliver satisfactory results because they seek to train workers from scratch, making little account for the skills workers already possess. As a result, workers stay out of the workforce longer and programs prove more expensive.

By contrast, new skill adjacency methodologies, such as that developed by Burning Glass for the World Economic Forum, account for a displaced worker's existing skills in order to identify target occupations with highly efficient reskilling paths.[8] For instance, a laid-off administrative assistant (making $36,000 on average) shares many skills with a production planner, a role with a strong future, an average salary of $49,000, and a direct path to becoming a logistician earning $78,000. This methodology, driven by real-time data, highlights this opportunity pathway and empower the displaced worker to begin the transition by learning inventory management and a handful of other skills. Workforce funding should prioritize programs that provide direct pathways from occupations with high levels of displacement to in-demand employment, but that avoid redundancies in the skills they teach.

Programs using this approach should be required to demonstrate:

- The level of skill adjacency between the original and target occupations;
- That the target occupation is in high demand locally;
- That the target occupation represents a wage gain or at least wage parity for the customer; and/or,
- That the target occupation has a high level of upward mobility and resistance to automation for workers.

***Connect the Unemployment Insurance and Workforce systems*.** As of early March 2021, there were more than 20 million Americans receiving some form of unemployment insurance. Amidst this unprecedented displacement, the goal of the UI system should be more than simply processing benefits but rather getting recipients back to work as soon as possible. Minimizing the duration that recipients need benefits is not only essential for workers and the economy but also critical financial stewardship for the UI Trust Fund. **Yet UI and workforce systems, while usually housed in the same state agency, don't coordinate well.** UI systems are primarily concerned with making payments and preventing fraud, rather than re-employment.

Requiring UI recipients to enroll in the workforce system at the same time as they file UI claims would have multiple benefits. For a start, it would enable better data sharing across the parallel systems and would encourage a single, integrated platform. Not only would this make the process less onerous for recipients, but it would also give workforce agencies access to real-time intelligence as to which industries are shedding workers so that targeted reskilling programs can be launched. This would also allow workforce agencies to tap into talent pool of UI recipients for open job orders. Ultimately, this could help to reduce the months-long delay between layoff and re-employment—a delay that is demoralizing and economically devastating to families and costly to the taxpayers.

[8] World Economic Forum, Toward a Reskilling Revolution, January 2018, http://www3.weforum.org/docs/WEF_FOW_Reskilling_Revolution.pdf

***Driving equitable growth and mobility through skills*.** Recent research from Burning Glass and PolicyLink shows that the pandemic recession has done the most damage to the communities that were already furthest behind.[9] For the American economy to rebound successfully from the pandemic, there is a growing imperative to ensure that underserved communities are not left behind. Even before the pandemic, racial inequity hindered national growth, leaving up to $2.3 trillion in unrealized economic gains on the table in 2018 alone.

With the pandemic exacerbating inequities for underserved communities of every background, this drag continues to grow, further weakening our national competitiveness. **As for all those who have been displaced, skills can be an engine for equitable growth, creating new opportunities for women and people of color**. **The key here is to reframe our thinking about diverse worker communities, not as people without prospects or skills but as reservoirs of talent that can be leveraged to solve critical labor shortages**.

Applying skill adjacency models, such as those described above, enables the identification of diverse talent pools that can be rapidly reskilled, unlocking opportunity for workers and opening new pipelines of diverse talent for employers. Funding programs that map diverse talent pools to high-value, critical talent needs of industry can open new talent escalators for people of color and women, ensuring that the economic growth of our communities can create shared prosperity.

As an example, one potential policy solution may involve providing special incentives for opportunity pathway programs that bridge between occupations in which women and people of color are overrepresented and higher-paying occupations with lower rates of diverse worker participation. For example, some 41% of shipping clerks are people of color. By adding skills in inventory management, bills of lading, and Excel, these workers can become inventory specialists, a field that pays $5,000 more on average and is only 31% people of color. By adding project management among other skills, these workers can then become operations coordinators, who make $10,000 more than shipping clerks and are 23% people of color.[10]

***Equipping America's community colleges as infrastructure for upskilling and reskilling*.** At a time when millions of working Americans need to acquire new skills to stay relevant or to transition to new careers, community colleges represent a critical infrastructure**. They are in prime position to serve as growth engines within their local communities by enabling workers, both employed and displaced, to gain premium skills inexpensively and quickly.**

However, **today community college resources are primarily oriented toward facilitating transition to four-year institutions**, with about 70% of community college conferrals comprised by associates of arts "transfer degrees" that have little value in the job market. Further, the National Student Clearinghouse

[9] PolicyLink and USC Dornsife Equity Research Institute, Race and the Work of the Future: Advancing Workforce Equity, October 2020, https://nationalequityatlas.org/research/race-and-the-work-of-the-future
[10] Burning Glass data

(NSC) estimates that only 13% of those who enroll in transfer degree programs complete a four-year degree.[11]

Community colleges should be refocused towards the workforce-related training and credentialing they do best, as well as the needs of the communities and local economies they serve. **Community college funding should be focused on workforce programs that can demonstrate in real-time labor market data that they are directed toward preparing learners for high-value, in-demand jobs.** Federal student assistance should be made available to non-degreed programs of demonstrated labor market relevance, with priority given to those that deliver industry-recognized credentials of value to employers. Special funding should also be allocated to community college programs that enable upward transitions for displaced workers or that facilitate pathways to workforce equity for diverse communities, as described above. These workforce programs must also receive the same recognition and be valued alongside of the academic and transfer programs. Participants should be able to apply that shorter-term learning towards academic credentials and transferability if they wish to later on. Choosing a path that leads to valuable work must not foreclose or hinder eventual transfer and degree completion.

***Building the talent base for critical economies powering the post-pandemic recovery*.** The post-pandemic economy may look different from the pre-pandemic boom. Employers use recessions to rethink their needs and are reluctant to hire back. In addition, this recession shifted the nature of work, disrupting supply chains and making remote work more viable.

Burning Glass analysis projects the changes will drive growth in five new 'economies,' likely to create 15.5 million to 18 million job openings in the next five years alone: the Readiness Economy (e.g., cybersecurity), the Logistics Economy (e.g., advanced manufacturing), the Green Economy (e.g., renewables), the Remote Economy (e.g., AR/VR), and the Automated Economy (e.g., AI). These economies are projected to grow at double the rate of the job market overall and will come to constitute one in six American jobs by 2026 – jobs that pay well above the national average.[12]

This is a tremendous opportunity. Yet, many jobs within each economy will require advanced skills that are already in short supply. This raises the specter of a significant mismatch between the current workforce and the workforce needed for the decade ahead. Some of these skill gaps, such as in cybersecurity, infrastructure, or biotechnology, could also have significant implication for national security and public health. Meeting this demand will require greater investment in reskilling our workers, starting with shortest, most cost-effective means. Central to this effort is the utilization of skill pathways that enable workers to build on skills they possess to target "adjacent" jobs that offer better prospects for pay and promotion. These pathways should be complemented with financial incentives for employers in these target economies to make hiring commitments and to invest in workforce skills of

[11] Opportunity America, The Indispensable Institution: Reimaging Community College, June 2020 https://opportunityamericaonline.org/wp-content/uploads/2020/06/Indispensable_Inst_FullReport.pdf
[12] Burning Glass Technologies, After the Storm: The Jobs and Skills that will Drive the Post-Pandemic Recovery, February 2021, https://www.burning-glass.com/research-project/after-storm-recovery-jobs/

currency to the market. Together, these actions can enable millions of existing workers to find gainful employment in the economic growth engines of tomorrow.

***Demand-driven assessment of workforce education and training investment*.** With millions of workers displaced, both federal and state governments will spend heavily on education and retraining programs. However, the determination of which programs to fund are often qualitative and frequently political. As such, **there is often deep misalignment between the training programs that are offered and is the high-value jobs that are actually in demand locally**. In our recent nationwide study of state career and technical education (CTE) programs, we found that only 18% of credentials earned are actually sought by employers while many valuable credentials go undersupplied.[13] We believe that there may be similar misalignments between workforce system programming and opportunity for American workers. There have been some efforts to use longitudinal analysis of career outcomes to evaluate program efficacy but this kind of tracking is typically only available for degree programs and requires many years of data. At a time of great disruption, that is akin to driving a car by looking in the rearview mirror. Yet the kinds of programs that will be most critical for worker reskilling and upskilling need to be highly responsive: short in form and able to be launched quickly to address emerging skill requirements in a dynamic market.

What is needed is an evaluation mechanism that is real-time in nature and calibrated to the specific contours of the local opportunity landscape. Real-time data sources provide critical insight for prioritizing program investment, including and workforce system Eligible Training Provider Lists (ETPL). Funded programs should be required to provide data-driven validation of alignment to high-value careers through real-time sources. In this way, we can ensure that public investment isn't wasted and that workers are set on a better path for success.

There are three specific performance metrics cited in WIOA that could be strengthened using more actionable data:

Credential attainment

The current standard is attainment of any recognized postsecondary credential. But as Burning Glass research shows, not all credentials are actually in demand by employers. An alternative approach would be to require programs to demonstrate that clients obtain credentials with quantifiable local or regional demand. This would channel resources into the most promising programs instead of a scattershot approach.

[13] ExcelinEd and Burning Glass Technologies, Credentials Matter, September 2020, https://www.credentialsmatter.org

Measurable Skill Gains

The current standard is enrollment in a program that leads to a recognized postsecondary credential. This neither measures the actual attainment of skills, nor does it offer any guarantee that those skills are in demand. The alternative approach would be to require programs to be targeted toward:

- Actual skill gaps or skills in demonstrable demand (as shown by job posting data);
- Technical skills in current or projected demand; and,
- Recognized foundational skills that promote employment prospects across all jobs.

Effectiveness in Serving Employers

The metrics proposed above would lay the foundation for an effective evaluation system from the point of view of employers. Both survey and qualitative assessments of employers could assess their views on key questions about the success of workforce programs:

- Do employers feel that workforce customers who held specific credentials were job-ready?
- Do employers feel that the workers referred to them by the workforce system have the necessary skills?

Overall, the challenges are great in creating a workforce system that works, but so is the opportunity. The right policy can unlock opportunity, mobility, and economic potential for individuals, communities, businesses, and the nation as a whole.

Thank you again for the opportunity to testify before the Subcommittee and I look forward to answering your questions.

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