Testimony of Merle Madrid, AWS Sr. Manager of Public Policy, to the PA Senate Majority Policy Committee

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Archbald, PA

Good afternoon Chairman Argall and members of the Senate Majority Policy Committee, and thank you for the opportunity to be here today.

And a special thank you to Senator Rosemary Brown for hosting us today, and for her leadership in helping make Pennsylvania a destination for job creators and economic growth.

My name is Merle Madrid, and I serve as the Senior Manager of Public Policy for Amazon Web Services, better known as AWS.

AWS is the cloud computing arm of Amazon.

In June, AWS announced our plans to invest $20 billion in Pennsylvania to expand our data center infrastructure supporting artificial intelligence (AI) and cloud computing technologies.

Salem Township, in Luzerne County, and Falls Township, in Bucks County, are the first two communities who have been announced as sites for these future data center campuses. Additional Pennsylvania communities are under consideration, and we anticipate making those announcements at a later date.

This investment is expected to create at least 1,250 new high-skilled jobs while supporting thousands of other jobs in the AWS data center supply chain.

The new high-skilled jobs will range from data center engineers and network specialists, to engineering operations managers, security specialists, and many more technical roles. In addition to these direct positions, this planned investment is expected to support thousands of local construction jobs and businesses in the data center supply chain, as well as other jobs in the local community.

Additionally, and of note, the Commonwealth has already been playing a significant role for our data center operations. Last year Amazon re:Cycle Reverse Logistics repurposed an industrial building in Greencastle in Franklin County into a state-of-the-art facility that has already created hundreds of jobs for the safe and responsible reuse and refurbishment of electronic equipment used in our data centers.

Workforce and Education Investments

Our investment in the Commonwealth isn't just financial, it's also in the people and future of Pennsylvania. Our June announcement included our commitment to partner with Pennsylvania educational institutions and workforce organizations to develop training programs that prepare job seekers for careers in data center construction and operations.

This training and support will include facilities and equipment donations to empower hands-on learning, faculty training from industry subject matter experts, and curricular content to link programs of study to industry standards and best practices.

We will be implementing the following programs as part of our investment commitment:

- Amazon Community Workforce Accelerator (CWA): Training centers that support careers in cloud computing infrastructure with AWS and our network of contractors, vendors and partners. CWA houses a variety of skilled technical trades training programs to prepare the workforce of tomorrow to build, connect, power and operate and maintain AWS's data centers in this region.
- Data Center Operations and Fiber Optic Technician Programs: Bringing industry experts and state-of-the-art equipment to train local education institutions to prepare the next generation of Pennsylvania data center operators.
- Fiber Optic Fusion Splicing Workshops: Two-day certificate courses implemented at local community colleges, technical schools, and universities that train individuals in new fusion splicing (the welding together of fiber optical cables) techniques and equipment, then connect these learners to fiber-broadband employers.
- Information Infrastructure Workshops for Educators: A one-day workshop to help education and workforce leaders better understand the physical layer of cloud computing and our information economy, and the many different careers that are available.
- AWS Information Infrastructure Pre-Apprenticeship ("I2PA"): A paid pre-apprenticeship designed for students and job seekers to prepare for entry into any one of several careers that build, connect, power, and operate the infrastructure of the information economy. Those who successfully complete the program will earn industry-recognized credentials and a guaranteed interview with AWS or one of our contractors.

In addition, we are also launching this school year new programs to support STEM awareness and learning opportunities for K-12 school systems, including:

- We Build it Better: A set of industry-designed curricular experiences and resources that engage middle school and older students in a work-like STEM environment stocked with industry-grade tools.
- We Will Build Better: A career awareness program for elementary classrooms to engage students in a work-like STEAM environment, complete with an array of industry-grade hand tools and technology.
- Think Big Experiences: Physical workshops, events and physical spaces with hands-on experiences that inspire that inspire young people to pursue careers in technology, including a Think Big STEM Day at the Berwick Pennsylvania YMCA day camp, and a Think Big STEM Day tomorrow at the Bloomsburg YMCA.

And we support educational institutions and independent learners with free, ready-to-use cloud computing curriculum designed to meet real-world employer needs. From cloud support and software development to data integration and beyond, our training programs are equipping learners with in-demand skills – not just for the jobs of tomorrow – but jobs today. This effort builds on our global pledge to provide free cloud skills training to 29 million people.

Additionally, our partnership with the University of Pittsburgh brings AWS cloud computing capabilities to cutting-edge health sciences and sports analytics research. This collaboration directly supports Pittsburgh's ongoing transformation into a leading technology and medical innovation hub.

We're also investing in the next generation of tech talent through initiatives like Amazon Future Engineer. This year, we were proud to award eight Pennsylvania high school seniors with Amazon Future Engineer Scholarships. Each student will receive up to $40,000 over four years to pursue a degree in computer science or engineering, along with a paid internship at Amazon following their first year of college.

Amazon and Local Community Impact

At Amazon, we're committed to being good neighbors in the communities where we build and operate. We invest in these communities by supporting local jobs, generating economic growth, providing skills training and education, and unlocking opportunities for local businesses and suppliers.

We launched the Amazon Northeastern Pennsylvania Community Fund, a $250,000 grant program aimed at supporting initiatives focused on key themes, including: STEM education, sustainability and environment, digital skills, culture and heritage, health, and well-being.

The fund was open to individuals, local community groups, schools, nonprofits, and other organizations across Luzerne and Columbia counties. Applicants could apply for grants of up to $10,000 for new or existing community projects that align with at least one of the themes outlined by the fund. The application process ended last week, and we plan to notify awardees this fall.

As part of our long-term community investment plan, the Community Fund marks the first steps through which we will collaborate with local partners to implement high-impact programs aimed at fostering the sustained growth and prosperity of the county.

This fund builds on $100,000 in grant funding already distributed through our partnership with Berwick's Community Giving Foundation to help local nonprofit programs and services targeting food insecurity, housing insecurities, transportation, STEM, and agricultural tech education.

Amazon Sustainability & Efficiency

We're constantly innovating our data center designs and operations to reduce their impact on the environment and community, working to power them with carbon-free energy, and making them more energy and water efficient.

Research from Accenture estimates that using AWS's infrastructure is up to 4.1 times more efficient than using cloud services on-premises, and when workloads are optimized on AWS, the associated carbon footprint can be reduced by up to 99%.

There are 3 key things to focus on with data center energy: avoiding energy waste, designing better hardware, and generating carbon-free lean power.

First and foremost, the most efficient watt of energy is the watt you never use. So, you make sure that every level of the infrastructure is being utilized optimally.

Second, you want to improve hardware. We're designing our own purpose-built chips, servers, racks and other infrastructure to be more efficient and last longer. This includes continuously improving the power efficiency of our AWS chips.

And finally generating carbon-free power.

Many of you will recall last month's Pennsylvania Energy and Innovation Summit, hosted by Senator Dave McCormick. During a fireside chat with Senator McCormick and Governor Josh Shapiro, AWS CEO Matt Garman discussed how our recent investments in Pennsylvania expanding our data center infrastructure to support AI and cloud computing are also strengthening U.S. energy production and how to bring new energy to the grid.

We believe nuclear energy is an important part of the solution. It's one of the few carbon-free energy sources that is scalable and capable of delivering reliable baseload power, and next-generation designs offer enhanced safety and flexibility.

In Pennsylvania, our investment in the new Salem Township data center campus, for example, includes significant financial support for the neighboring Susquehanna nuclear power plant, owned and operated by Talen Energy. The Talen and Amazon relationship will ensure that safe, reliable nuclear energy continues to be generated at Susquehanna for years to come, maintaining its contributions to the local community and supporting Pennsylvania's energy future while also powering Amazon's AI innovation commitments in the commonwealth. The agreement also ensures that we fund the necessary transmission infrastructure upgrades to support our operations. This will help reduce costs and pay for local grid infrastructure updates that will benefit all local energy users, according to PPL Electric Utilities.

We're also exploring bringing new power-generating opportunities to the Susquehanna power facility, including small modular reactors (SMRs), as we work to help sustain Pennsylvania's energy future while advancing AI innovation in the region.

For more than a decade, we have been investing in a wide range of domestic carbon-free energy sources to help power our operations and bring new energy capacity to the grid. As part of this, Amazon has invested in a total of 13 renewable energy projects across Pennsylvania, and has invested in 104 renewable energy projects across the PJM grid. These projects will generate an estimated 7.1 GW of electricity, enough to power 1.4 million U.S. homes.

However, even as we work to bring more sustainable, scalable energy to help modernize the grid, more must be done. Much of America's electrical grid was designed for a different era, with 70% of transmission lines now more than 25 years old. Outdated permitting processes and bureaucratic delays are slowing critical energy and infrastructure progress, placing U.S. competitiveness at risk.

Amazon believes the grid shouldn't be a blocker to addressing energy and climate issues. We're committed to collaborating with grid operators, utilities and others to ensure that new sources of carbon-free energy can connect to the grid quickly, and the grid is prepared to handle the demands of the future.

Amazon is taking tangible steps to support these efforts. We are innovating across the energy sector to bring new carbon-free power sources forward, encouraging investment in

grid modernization technologies, and urging policymakers across the world to implement policies to accelerate grid modernization efforts.

Amazon has also made a commitment to be water positive by 2030. That means returning more water than we use to the communities where we operate.

For example, in some states, we use water for cooling less than 10% of the year, relying on passive cooling instead from the surrounding ambient air.

At other data centers, Amazon is exploring rainwater capture, using purple pipe and even reclaimed sewage water. At other data centers, we recycle water for our cooling system. After a one-time filling, water is then recirculated for heating and cooling needs at the facility. At our facilities Amazon invests in on-site water-treatment systems that removes scale-forming minerals to allow recycled-uses onsite. In each case, when we return water, we treat it beforehand, so it is as good or better than when it came to us

All while actively looking for opportunities to operate more efficiently and support projects that improve the quality and access to water in our communities.

Thank you, Chairman Argall, Senator Brown, and members of the committee, and I'm happy to answer any questions you have.