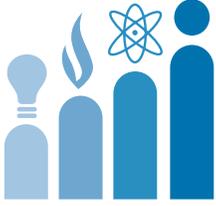


Center For
ENERGY 
Workforce Development

Meeting America's Energy Workforce Needs TOMORROW ...



... Means Meeting the Developmental Needs of Young Children TODAY

Today's infants and toddlers are tomorrow's **line workers, technicians, engineers** and **global energy solutions providers**. Priorities we set and investments we make NOW will have a dramatic impact on whether our children attain the skills necessary to power the future of our country—and our world.

Energizing America's Future



"We know that investments in early childhood are vital to building the team-ready, highly skilled workforce our industry—and all U.S. business—needs to be competitive. We also know that business leadership plays a key role in effective public policy. That's why I make sure to spend time promoting early childhood policies in Virginia."

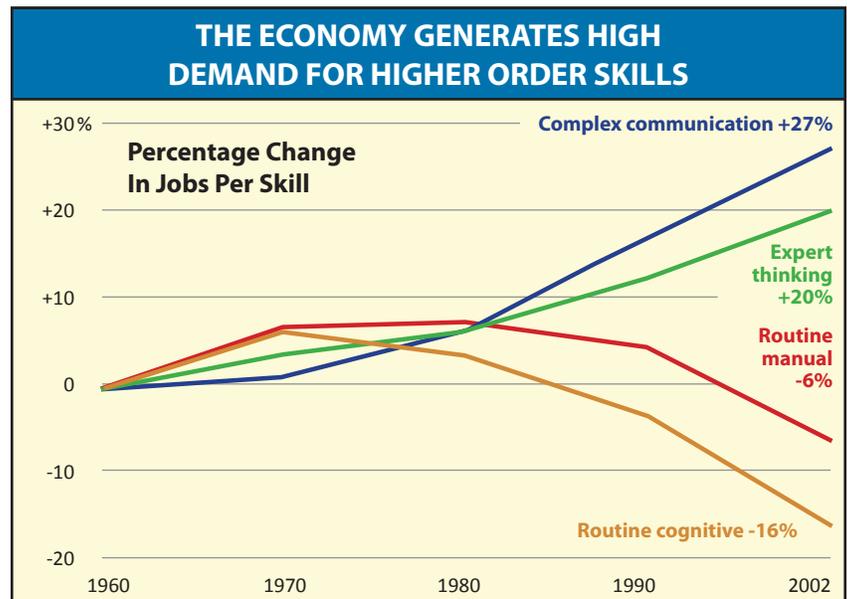
Paul D. Koonce, CEO
Dominion Virginia Power

As energy-sector workers begin to retire in large numbers, an urgent need exists for a new generation of well-trained and highly skilled employees to fill the gap.

The team-capable men and women who make up the energy workforce also form the backbone of America's electric, natural gas and nuclear energy companies. Yet, if current trends hold, we will face a critical shortage of workers just when our country needs new, innovative solutions to energy independence.

Up to half of current workers will be eligible to retire or will leave for other reasons in the next five to ten years. According to the CEWD report, "Gaps in the Energy Workforce Pipeline," by 2015:

- 💡 50 percent of skilled technicians may need to be replaced;
- 💡 Nearly 49 percent of employees who operate gas- and coal-fired generation will be eligible to leave;
- 💡 Roughly 51 percent of engineering jobs in all disciplines could become vacant; and
- 💡 About 42 percent of lineworker jobs may need to be filled.



SOURCE: David Autor, Frank Levy and Richard J. Murnane, "The Skill Content of Recent Technical Change: An Empirical Investigation." *Quarterly Journal of Economics*, 118, 4 (November 2003) pp. 1279-1334. Data updated to 2002 by David Autor.

Our industry requires a skilled workforce, but U.S. students are not on pace to meet our needs.

- 💡 The majority of 4th or 8th graders are not proficient in both math and reading in any state.¹
- 💡 Most children reading well below grade level at the end of fourth grade will not graduate from high school.²
- 💡 A 2006 survey of students in 30 developed countries found that U.S. 15-year-olds ranked 25th in math and 21st in science.³
- 💡 Only 25 percent of 17- to 24-year-olds would qualify to serve in the U.S. military. The rest cannot meet the physical, behavioral or educational standards for service—standards that are similar to those many industries use in hiring.⁴

Reversing these Trends Requires Starting Early

The foundational skills required to be successful in school, work and life are built in the earliest years—between birth and age five. Young children's brains develop 700 synapses—the neural connections that transmit information and support learning—every second.⁵

Yet, too often we do not give our young children the early educational, health (including dental health) and social supports they need—public investments in young children are substantially smaller than those for older kids.⁶

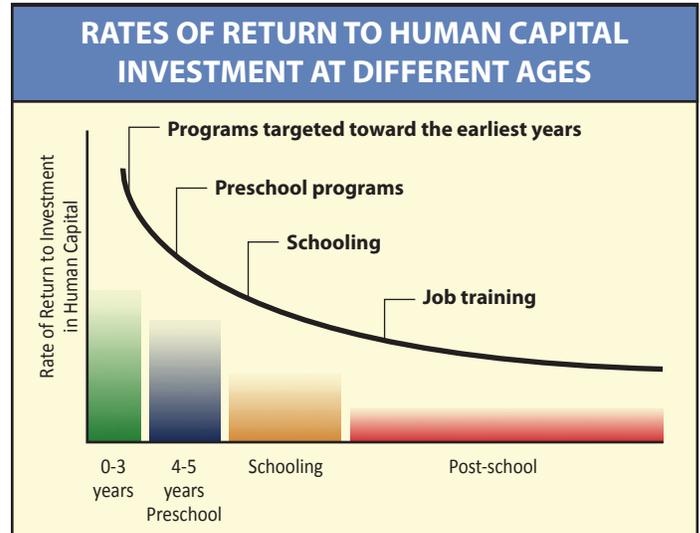
By Starting Early Our Country Can Develop Workers We Need

Just as with generating and delivering energy, making smart investments early on in our workforce supply lines ensures the best outcomes.

The research is clear: High-quality early childhood programs can have a significant short- and long-term impact on children's lifelong success, on our industry and on our economy.

Benefits Today: Giving young children a good start reduces health problems, as well as grade retention and special education costs in the first few years of school.⁷ In addition, because early childhood spending tends to be local, and child care and pre-kindergarten professionals generally spend rather than save most of their earnings, states generate roughly \$2 in new local spending for each federal child care dollar spent.⁸

Benefits Tomorrow: One study found that an investment of just \$6,692 per child in a quality pre-k program for at-risk children substantially improved outcomes such as education levels, home ownership and salary while reducing negative behaviors, including substance abuse and crime. The net result was a lifetime societal benefit of up to \$69,937—an ROI of greater than 10:1.⁹ These benefits help children become not only good employees— but the customers and neighbors we need as well.



SOURCE: J.J. Heckman, "Skill formation and the economics of investing in disadvantaged children." *Science*, 312(5782):1900-2, (June 2006).



"A child's earliest years are the most critical for setting the stage for their academic career and success in life. That's why we put so much emphasis on early childhood development programs. In Northwest Florida, Gulf Power Company supports organizations like Every Child a Reader in Escambia that help prepare children for kindergarten. In fact, we helped launch The Children's Movement of Florida right here in Pensacola."

**Susan Story, President and CEO
Gulf Power Company**

Business Leadership Matters

The CEO of Entergy Arkansas, Hugh McDonald, has been a leader for pre-k. Based on the company's 2002 report calling for investments in early education, Mr. McDonald engaged his peers to persuade policy makers to take action. "I asked myself, how do we make the sale, and decided that first, we had to get the business community involved." To do this, Mr. McDonald focused on the economic evidence, noting, "Pre-k costs 10 times less per person than incarceration." He says the business community heard the message loud and clear—and so did Arkansas policy makers, with the state increasing its investment in pre-k from approximately \$6 million in 2001 to \$110 million in 2008.¹⁰





“Our industry’s ability to serve our customers depends on our workforce. We have to support smart education policies that will produce the highly skilled workers we need, including proven early childhood programs like pre-k.”

Darrell Ishmael
Manager, Corporate Security and Continuity
East Kentucky Power Cooperative



Take Action

Join the CEWD, the Partnership for America’s Economic Success at the Pew Center on the States and national business organizations, such as the Manufacturing Institute and the Institute for a Competitive Workforce, an affiliate of the U.S. Chamber of Commerce, in advocating for policies that maximize returns on investments in early childhood development.

Four Steps You Can Take toward a More Productive Workforce and a Stronger Economy

1. **Spread the word:** Host events, talk to your employees, start a blog, write an article and share information with other business leaders.
2. **Make the Economic Case:** Encourage business organizations to support early learning as part of their policy agendas.
3. **Take a Stand:** Tell policy makers that the future of your business and our communities requires investments in quality early childhood development to fix our failing workforce pipeline now.
4. **Lead by Example:** Adopt policies in your business that support working families.

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¹ The National Assessment of Educational Progress. (2009). The nation’s report card. Retrieved from <http://nces.ed.gov/programs/coe/2010/section2/table-mat-3.asp> and <http://nces.ed.gov/programs/coe/2010/section2/table-rd2-3.asp>.

² Madden, N. A., Slavin, R. E., Karweit, N. L., Dolan, L. J., & Wasik, B. A. (1993). Success for all: Longitudinal effects of a restructuring pro-gram for inner-city elementary schools. *American Educational Research Journal*, 30, 123-148.

³ Baldi, S., Jin, Y., Skemer, M., Green, P. J., & Hergert, D. (2007). Highlights from PISA 2006: Performance of U.S. 15-year-old students in science and mathematics literacy in an international context [NCES 2008-016]. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

⁴ Mission Readiness: Military Leaders for Kids. (2009). Ready, willing and unable to serve. Retrieved from <http://cdn.missionreadiness.org/NATEE1109.pdf>.

⁵ Shonkoff, J. (2009, April 27). The science of early childhood development and the foundations of prosperity. PowerPoint presented at the Pennsylvania Business Leader Summit on Early

Childhood Investment, Harrisburg, PA.

⁶ Macomber, J., Isaacs, J., & Vericker, T. (2010). Public investment in children’s early and elementary years (birth to age 11). Washington, DC: The Brookings Institution & The Urban Institute.

⁷ Partnership for America’s Economic Success. (2009). Investing in America’s children: The business case. Retrieved from www.partnershipforsuccess.org/uploads/20100524_PAESCCaseStatementBrochureendnotesweb.pdf.

⁸ Warner, M. (2009). Child care multipliers: Stimulus for the states. Ithaca, NY: Cornell Cooperative Extension.

⁹ Reynolds, A., Temple, J., Robertson, D., & Mann, E. (2002). Age 21 cost-benefit analysis of the Title 1 Chicago child-parent centers. *Educational Evaluation and Policy Analysis*, 24, 267-303.

¹⁰ Data from The State of Preschool 2003 and 2009. National Institute for Early Education Research at Rutgers University.