

The Transformative Possibility of the New “Energy Boom” in Southeast Louisiana

George Hobor and Elaine Ortiz

“The energy and petrochemicals boom will provide the foundational workforce critical to diversifying our economy by fueling the emerging water management sector.”

Summary

Energy-catalyzed investments in petrochemicals, advanced manufacturing, and the energy industry, totaling \$21 billion, will likely be the largest jobs creator in Southeast Louisiana for years to come. The ensuing wave of new job openings will be more than quadrupled by the massive retirement of baby boomers happening at the same time. The majority of 42,000 openings will be in occupations that require just a high school degree complemented by various levels of training — such as welders, machinists, and pump operators — and offer a high median wage between \$15 and \$35 an hour.

Sourcing sufficient workers for the new “energy boom” will be a challenge. The ability of employers to meet their demand for middle-skilled labor is a national issue. Supply simply has not kept up with demand. Many potential workers in Southeast Louisiana’s cities and suburbs represent a possible untapped resource.

While officials have touted low unemployment rates in Southeast Louisiana recently, these rates do not take into account those adults who are not looking for work. In fact, the 65.6 percent overall employment rate for Southeast Louisiana (which accounts for those not in the labor force) is no better than the national rate. The new “energy boom” is projected to inject into the economy thousands of jobs with family-sustaining wages. If awareness can be raised about these jobs, they should be very appealing to discouraged workers.

Nonprofits working to reduce income inequality will be key to the success of any initiative to maximize these job opportunities for local residents. In addition, community and technical colleges will need expanded capacity. Industry must play their role by informing training curricula, and sponsoring transportation options to bring workers from population centers to training and work sites along the river and elsewhere. A skilled administrative intermediary is needed that can weave together multiple public and private funding sources, and coordinate the efforts of employers, educators, and various service providers to supply multi-layered supports that help unemployed adults make the transition to work.

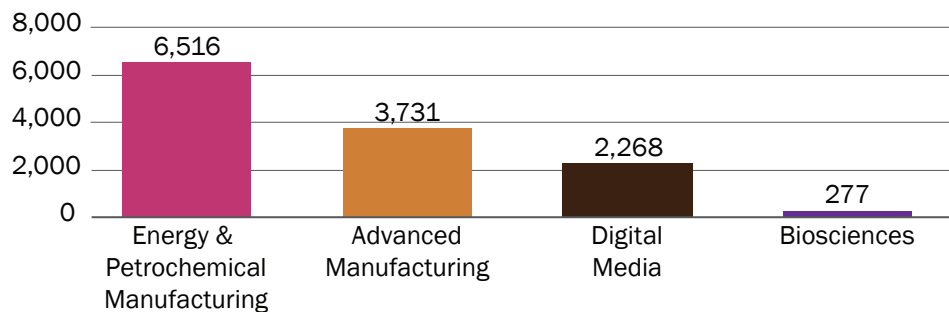
The task is complex and will require significant investment. But done right it will infuse a new cadre of outstanding people and ideas into our economy. Moreover, preparing workers for the petrochemical industry holds the promise of a skilled labor force that can help support the emerging water management industry in Southeast Louisiana as well – ultimately delivering on the bold vision that leadership has for our future.

Background

Much ado has been made of the digital media expansion and new jobs to be generated from hospitals under construction in Southeast Louisiana. Yet surprisingly little attention has been given to a much larger jobs creator in our region — the massive petrochemical and manufacturing expansions underway (see graphic below). The new manufacturing boom in progress locally has been catalyzed by the sudden availability of cheap and abundant natural gas in America in recent years. Decades ago, Louisiana's manufacturing base was built on an infrastructure that uses natural gas as electricity rather than coal, nuclear, or other power sources. Our petrochemical industry also uses natural gas as a key raw material to make everything from plastics to cosmetics.¹ Confident that the cost of natural gas (and thus power and raw materials) will remain low, private investors are building new plants and adding capacity all along the river between New Orleans and Baton Rouge. Combined with energy investments taking place in the Houma-Thibodaux area, these energy-catalyzed investments in advanced manufacturing, petrochemicals, and the energy industry total \$21 billion.² Notably, these investments dwarf the \$2.1 billion hospital investments underway in New Orleans.³ This brief sheds light on this new “energy boom” and what it means for Southeast Louisiana.

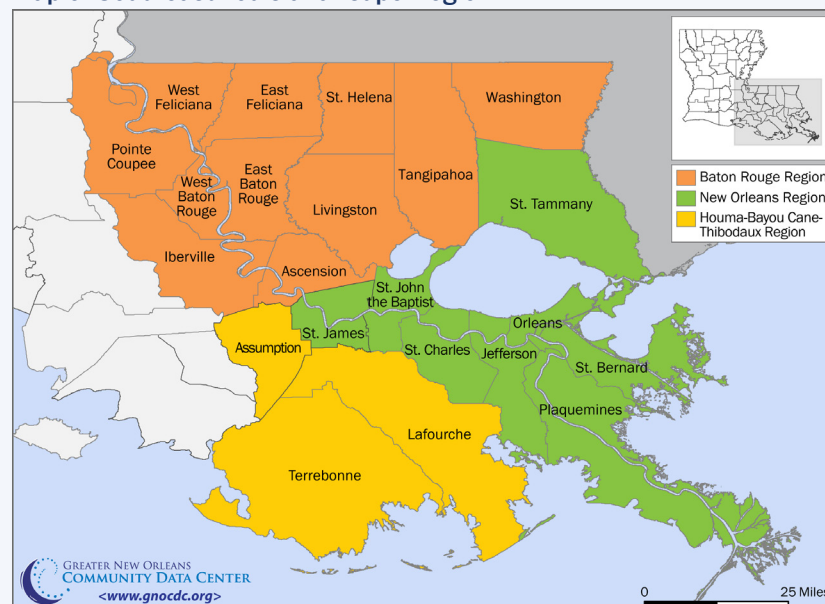
Total new jobs projected for select industries, 2013-2020

Southeast Louisiana



Source: GNOCDC analysis of data from EMSI.

Map of Southeast Louisiana “super region”



Retirement of baby boomers will spark a tidal wave of jobs

The new “energy boom” and the jobs it will create come at an interesting moment in the nation’s history. In 2011, the first of the baby boomers turned 65,⁴ and as the baby boomers age, thousands of the workers currently employed in our energy and manufacturing sectors are expected to retire. In short, the new “energy boom” combined with the retirement of the baby boomers is expected to spark a virtual tidal wave of job openings in the energy, petrochemicals, and advanced manufacturing sectors in Southeast Louisiana.

An analysis of projected job openings, which takes into account new job creation as well as job openings due to anticipated retirements, reveals that across the 17 fastest-growing occupations in the energy and petrochemicals sector and the nine fastest-growing advanced manufacturing occupations there will be more than 42,000 total job openings created between 2013 and 2020.⁵

A preponderance of these job openings will occur between 2014 and 2017 during the peak of the industrial boom.⁶

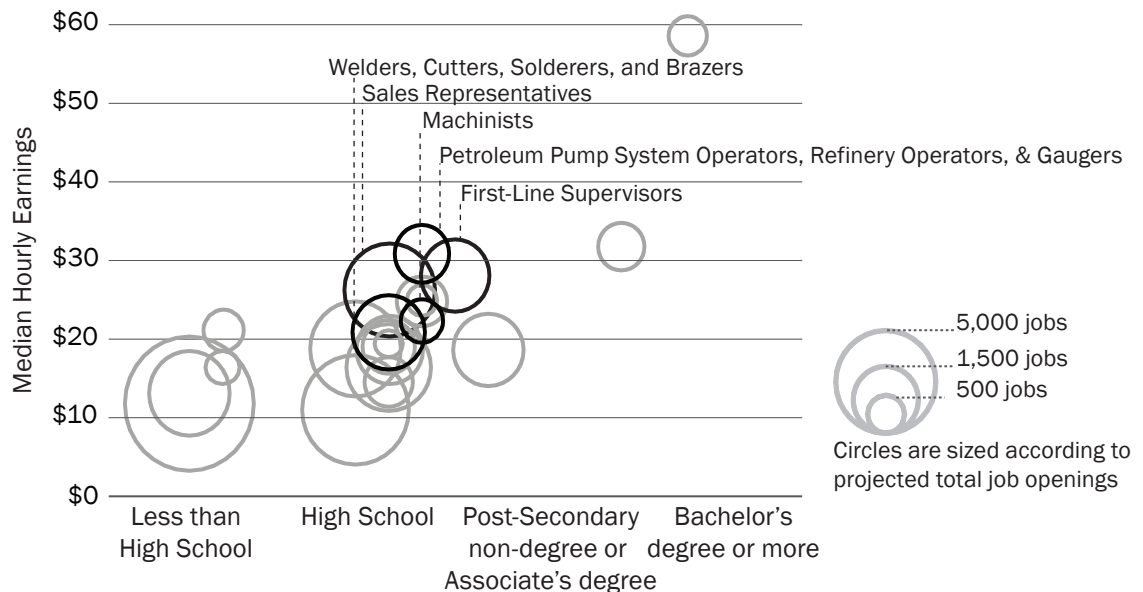
Importantly, the overwhelming majority of the fastest-growing occupations require just a high school degree complemented by various levels of training and offer a high median wage between fifteen and thirty-five dollars (\$15-35) an hour. These occupations are illustrated in the graphic below and include welders, machinists, and pump operators. They are also detailed in the downloadable data table accompanying this report.⁷



For more data on these fastest-growing jobs, check out the downloadable data tables at www.gnocdc.org

Total job openings in fastest-growing occupations from 2013 to 2020, including wages and training requirements

Southeast Louisiana

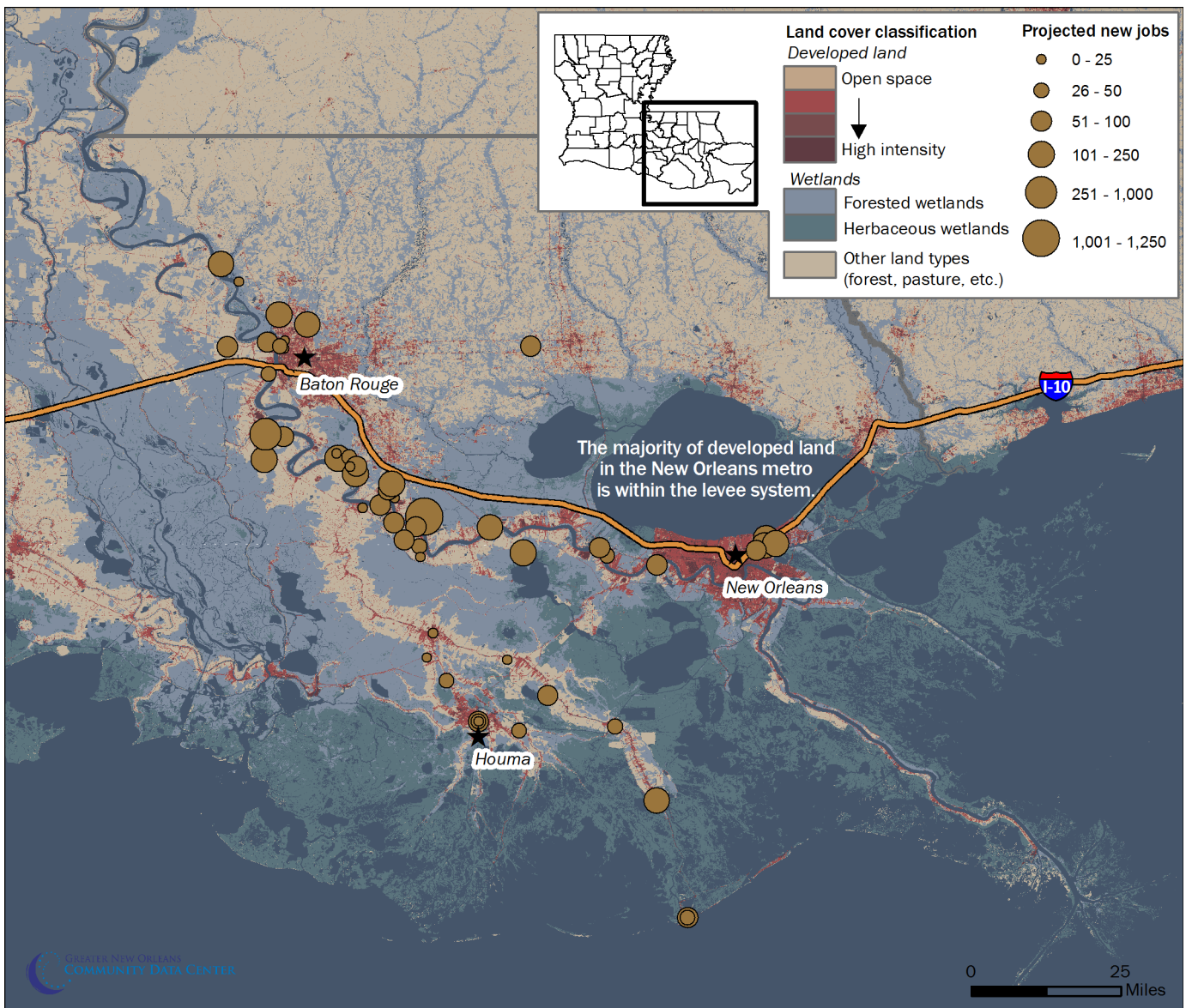


Source: GNOCDC analysis of data from EMSI and Louisiana Workforce Commission.

The projects that companies have announced across Southeast Louisiana will produce thousands of jobs with many being low-skilled (requiring a high school degree or less) or middle-skilled (requiring some training beyond a high school degree but less than a bachelor’s degree). There will be a particularly strong clustering along the Mississippi River in Iberville, Ascension, and St. James parishes. Many of the new industrial projects lie outside of the super region’s population centers, meaning companies will likely rely upon commuters from across the super region to meet their demand.

Sourcing sufficient workers for the new “energy boom” will be a challenge. The ability of employers to meet their demand for middle-skilled labor is a national issue. Supply simply has not kept up with demand, and according to a study by the National Skills Coalition, it will not catch up anytime soon.⁸ The scale of development associated with the boom makes this “skills gap” an acute problem in the Southeast Louisiana super region, especially with another petrochemical boom underway in Lake Charles in Southwest Louisiana, where \$40 billion in projects have been announced since 2011.⁹ Employers will be able to meet some of their demand for labor by offering high wages to attract workers from across the nation. But, the aggregate supply of middle-skilled labor nationally is too low. Higher wages can only serve as a partial solution and will not affect the overall supply in the foreseeable future.

Locations of announced new projects and expansions in the Southeast Louisiana super region, 2008-2013

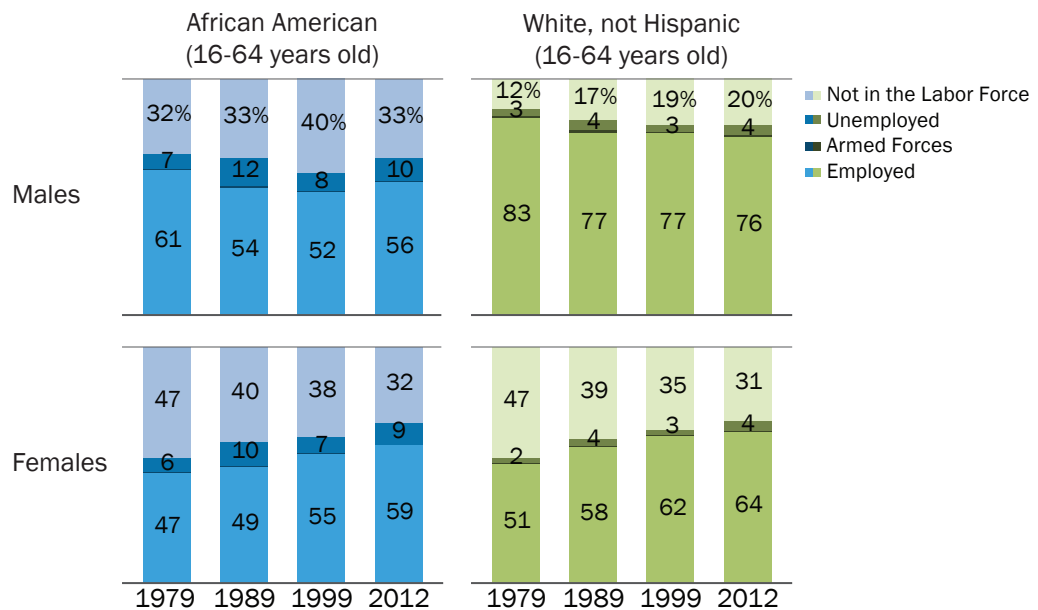


The unique opportunity provided by the “energy boom”

The tidal wave of jobs associated with the new “energy boom” in Southeast Louisiana represents both an opportunity and a challenge for the region. Employers will surely be challenged to find all the middle-skilled labor they need whether locally or elsewhere. But many potential workers in nearby population centers represent a possible untapped resource. While many elected officials have touted the low unemployment rates in Southeast Louisiana,¹¹ these rates do not take into account those working age adults who are not looking for work. In fact, overall employment rates (which account for those not in the labor force) are low in Southeast Louisiana, particularly among African American men – a fact that may be partially attributable to the decline of the energy sector itself over the last three decades. A study of the New Orleans economy executed by the Lindy Boggs Center at Loyola University concluded that as the economy shifted from industrial to service oriented, employment grew for women who made up the majority of workers in the education and health care industries. But employment rates fell among men, and particularly among African American men, who historically comprised the majority of workers in construction, manufacturing, mining, and transportation.¹²

During the oil bust of the 1980s, the share of working age, African American men in Southeast Louisiana with employment declined from 61 percent to 54 percent. As poor job market conditions persisted, employment rates fell to 52 percent by 1999 and recovered slightly to 56 by 2012. A recent Federal Reserve Bank study concluded that prolonged periods of unemployment – evident in New Orleans as well as 13 other metros included in the study – contributed to many African American men becoming discouraged, and ceasing to look for work altogether.¹³ White men, too, have seen their employment rates fall in Southeast Louisiana from 83 percent in 1979 to 76 percent in 2012. The good news is that the new “energy boom” is projected to reverse the energy sector’s decline and inject into the economy thousands of jobs with family-sustaining wages. If awareness can be raised about the availability of these jobs, they should be very appealing to discouraged and disconnected workers.

Employment status by race and gender (16-64 years old), 1979-2012 Southeast Louisiana

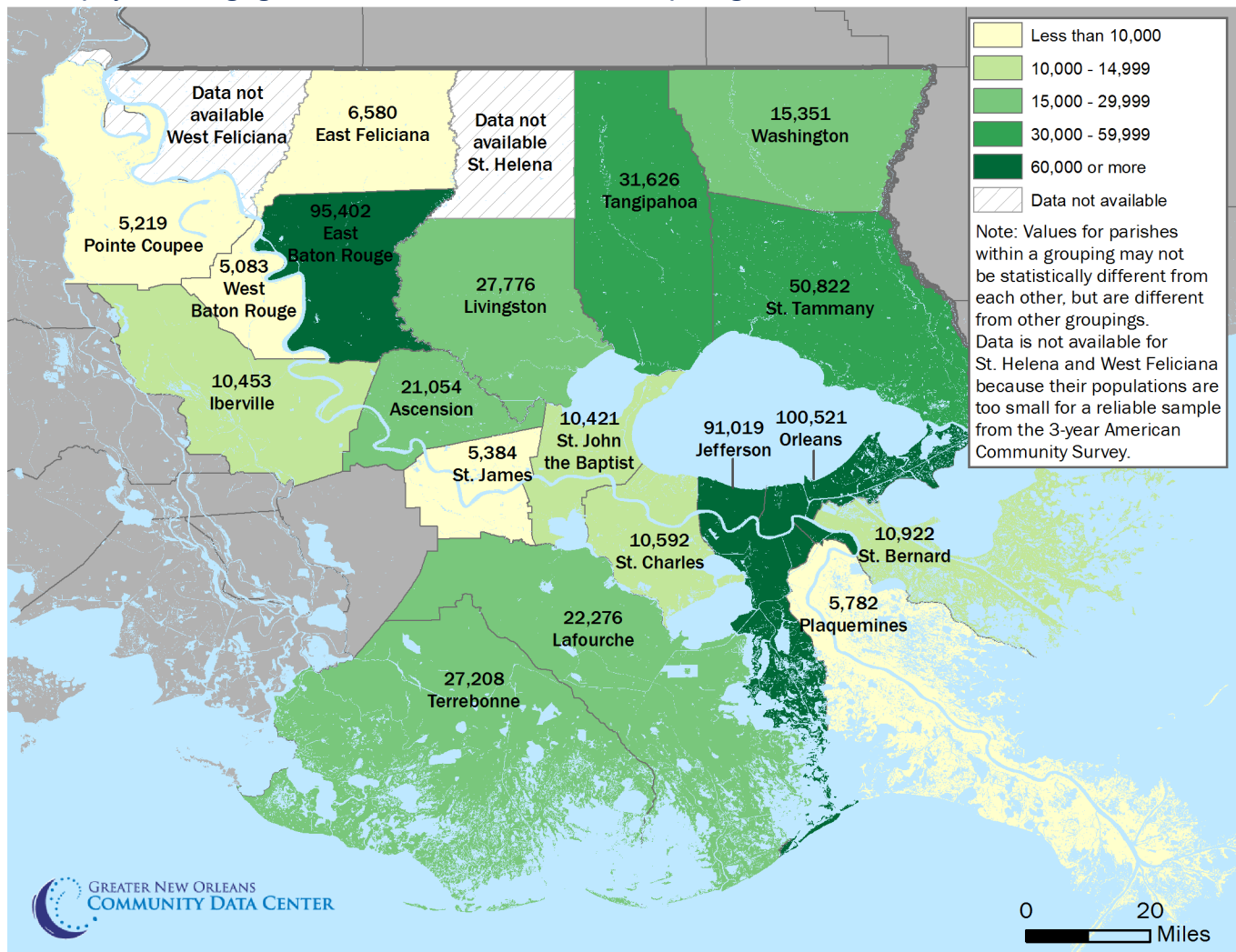


Source: GNOCDC analysis of data from the U.S. Census Bureau: 1980, 1990, and 2000 Census; IPUMS USA microdata: 2000 Census; U.S. Census Bureau: 2012 American Community Survey.

Note: Change between 2000 and 2012 is not significant for white women or African American men or women in the “Armed Forces” and for white men for all categories except “Unemployed.” “Not in Labor Force” includes the incarcerated population. Employment is defined as working at any time (or on temporary absence excluding layoff) during the reference week.

To be sure, raising awareness of these job opportunities will be challenging because many potential workers live in areas spatially isolated from the sites of industrial expansion along the Mississippi River and elsewhere. Nonprofits working to alleviate poverty and address income inequality within cities and suburbs will be critical partners in connecting residents with these opportunities. The extent to which any of these jobs are temporary, should not dampen the enthusiasm about this opportunity. Research has shown that low-skilled, temporary workers, when compared to the unemployed, dramatically improve their chances of moving into permanent jobs within a year.¹⁴ Temporary workers also experience faster wage gains and pull their wages close to those of full-time workers within two years after their temporary jobs conclude.¹⁵ The jobs in the boom represent real opportunities for workers to gain skills and experience. They are also very accessible in that they require no more than a high school diploma or equivalent supplemented by some training. Moreover, the boom jobs pay well. They could improve the financial standing of many workers, which may allow them to secure resources, such as additional training and reliable transportation, that can dramatically improve their future employment prospects. And finally, many of these jobs are not temporary.

Nonemployed working age adults in the Southeast Louisiana super region, 2010-2012



Source: GNOCDC analysis of data from the U.S. Census Bureau: 2012 3-year American Community Survey.

Florida trade association takes the lead on workforce development.

The South Florida Manufacturing Association (SFMA) is a trade association whose role has evolved from advocacy to workforce development. It now devises apprenticeship programs for its membership in Miami-Dade, Broward, and West Palm Beach counties. SFMA's program for machinists entails four years of on-the-job training with instruction in technical subjects related to the occupation. The only entry requirements are that apprentices must be 18 years of age, be physically capable of performing the trade, and be a high school graduate/have a GED. Employers provide the funding for the program with each member contributing an equal share. Additionally, employers pay the apprentice the machinist journey person wage rate for a 40-hour work week. The training is on-the-job but also has online components. Should apprentices lack online capabilities, employers provide it for them. Apprentices are trained to National Institute for Metalworking Standards, and the SFMA holds both the employer and the apprentice to the terms of agreement.

Kentucky Regional Planning coordinates express bus from downtown to industrial park.

Together, the Kentucky Regional Planning Development Agency (KIPDA), the Transit Authority of River City, and a number of employers in the Bluegrass Industrial Park developed a coordinated plan to simplify travel from Louisville to the Industrial Park. The commute via public transit previously took two to three hours and involved several bus exchanges. The resulting express system reduced travel time to forty minutes and lowered the cost of bus travel. The express system links commuters from the west and south of the city, areas of high unemployment, to the park through a central city connection. KIPDA, employers, and a coalition of community organizations that provided employment and job training services publicized the route heavily, which ensured high levels of ridership. The route currently operates about 18 hours a day and makes 20 trips during the working week.

To increase the supply of qualified workers, training efforts will need to be scaled up. There are numerous ways this can be accomplished, but it is essential that employers are involved, as research in workforce training shows demand-driven approaches, such as sector initiatives, are the most effective.¹⁶ In these approaches, employers work with training providers to align their specific industrial needs with regional workforce development objectives and then help develop training solutions. Such an approach not only increases the cumulative supply of middle-skilled workers, but has also been shown to deliver numerous other benefits to employers, such as lower attrition rates, higher savings in recruitment and search, increased productivity, and increased quality and dependability of the workforce.¹⁷

Taking advantage of the boom: a workforce development focus

An expected boom in energy, petrochemicals, and manufacturing will offer work opportunities to an abundance of low- and middle-skilled laborers quickly. Indeed, the new "energy boom", in its scale and spatial dispersion, is unlikely to be matched by any other kind of economic development in the near future. Expected gains in other sectors will be eclipsed by the employment opportunities afforded by this opportunity (as illustrated by graphic on page 2), but taking advantage of it will require coordination across multiple actors.

Among economic development organizations (EDOs), effective leadership has coalesced in recent years around a super regional identity in Southeast Louisiana, pushing forward with ambitious economic development plans. Initial steps have already been taken to address some of the difficulties of developing more middle-skilled workers locally. EDOs have begun implementing national best practices by collaborating with community colleges on job training activities and solidifying connections between employers and schools to ensure strong training programs come into being that better align workforce development with the expressed labor demands of businesses.¹⁸ Moreover, they are working to leverage the collective efforts of business investments in workforce development to benefit not just one company, but entire clusters of businesses. This is important because employers investing in workforce development will want to know that other employers are contributing equally.

Given the variety of industrial investments underway, a diverse set of workforce development investments will be necessary. In some instances, custom training might be needed. In others, apprenticeships, co-ops, and other arrangements that provide experience in real work settings could be used. In fact, research has shown that paid training that offers experience is the most effective, partly because it eases the financial stress of trainees.¹⁹ Also, for real upgrades to the skills of the workforce to be made, many incumbent workers should be offered training that supports career "ladders" because for many low-skilled workers job placement is not

Beaumont refineries provide low cost transportation to improve recruitment efforts.

Brazos Transit District, Texas' largest rural transit authority, has established a coach bus system from a park-n-ride facility in Liberty, Texas, just outside of Houston. The coach delivers workers to major oil refineries nearby. Revenues from fares – set at ten dollars a day – and employer subsidies support the system, without which, many workers would not be able to access their jobs.

Southwest Alabama Workforce Development Council (SAWDC) trains low-skilled workers to meet industry needs.

SAWDC is a part of Alabama's comprehensive strategic workforce plan. The state has ten business led councils that are in charge of determining the labor force needs across their constituent counties. SAWDC develops a regional strategic plan for workforce development, aligning its industry's needs with local training. SAWDC ensures that local industrial needs are voiced, ensuring proper resource allocation across the region to help workers into career opportunities. SAWDC is particularly savvy at coordinating funding streams, including state and federal resources, business support, and grant-funding. Moreover, SAWDC has been recognized for providing assistance to low-skilled workers through industry partnerships that provide training to reduce skills gaps and set paths for advancement.

the end goal but instead an early step on the path to further skills acquisition.

Super regional leadership can address the spatial mismatch between potential workers, training programs, and job openings by providing reliable transportation from population centers. To coordinate this, some understanding of where relevant training is being offered and knowledge of the capacity of each program is needed. Other regions in the United States have developed successful models, even for widely dispersed economic activities. Viable transportation options include networks of park-n-rides, ridesharing, and vanpooling. A variety of funding options can be combined to support transportation programs that support one or more of these options, including federal grants, such as Job Access and Reverse Commute (JARC); state-level transportation funds; rural transportation funds; and employer sponsorship. The main challenge to developing reliable transportation services is coordinating the activities across districts. Metropolitan Planning Organizations (MPOs) will have to be active in any such planning. The need for cooperation across jurisdictions suggests a coordinating role for an organization that has a wider, regional scope, which can direct regional discussions and centralize planning. Given the challenging geography of Southeast Louisiana (See map on p. 4) this kind of planning will be essential for matching workforce development to regional industrial growth, not to mention it could be critical to avoid congestion that may build up all along I-10 as the manufacturing facilities come on line.

The need for labor to support the impending boom will be vast. In all likelihood, recruiting high school graduates and helping down-sized workers repurpose their skills will be necessary but insufficient. Ultimately the focus will tilt to the local adult population that may have little work experience. Many may have been disconnected from the formal labor market for extended periods of time. If so, this could introduce the need for comprehensive job training services and supports, including time and fiscal management, child-care, and post-training oversight, to address the effects associated with long-term unemployment.²⁰ Indeed the alignment needed across education institutions, training providers, support service providers, health and human service providers,

Minneapolis nonprofits team with manufacturers to engage discouraged workers.

In Minneapolis, a consortium of local manufacturers spearheaded the formation of M Powered -- a three-level training program that helps entry-level workers interested in manufacturing and existing manufacturing employees enhance their skills through training at local community colleges. To assist low-skilled, entry-level workers, the manufacturers collaborated with local nonprofits and foundations to first cultivate self-sufficiency, such as skills in managing crises, like sick children or transportation malfunctions, that may interfere with work commitments. Then, they worked with technical schools and community colleges to design the curriculum, establish entry requirements, and ensure that graduation rates matched current needs of the industries. The three levels include an introduction on manufacturing fundamentals, focused labs taught by industry professionals, and structured on-the-job training. The substantial commitment of the private sector in forming and supporting M Powered has solidified a skilled labor force for these companies when others are experiencing shortages.

transportation planners, and business and industry for such an effort must be multi-layered. Top-level coordination alone will be insufficient. Instead, an administrative center that can weave together complicated federal and private funding streams to provide a more integrated workforce development system for the entire region will be needed to coordinate the services necessary to bring adults with little experience into the economic mainstream.²¹

Finally, some potential workers may be hampered because of the effects of criminal records on the hiring process. Research shows that criminal records are too significant a factor in many hiring situations and qualified labor is being dismissed on grounds unrelated to their abilities to perform the job.²² Employers are finding that criminal convictions are contributing to their workforce challenges in many parts of the country, including Texas – where employers are experiencing similar booms in energy and petrochemical manufacturing.²³ This is likely to be a problem for Louisiana employers as well given that Louisiana has the highest incarceration rate of all 50 states.²⁴ States and metros have taken several steps to retain an employer's right to consider the criminal histories of its potential employees, while at the same time reducing the obstacles to successful re-entry. Actions include, "Ban the Box" legislation, in which employers remove questions about criminal histories from job applications, delaying background checks until later in the hiring process;²⁵ expungement laws that seal low-level offenses after a certain number of years; and importantly, legislation that limits employer liability when hiring ex-offenders.²⁶

The new "energy boom" fits within the broader economic vision for the super region

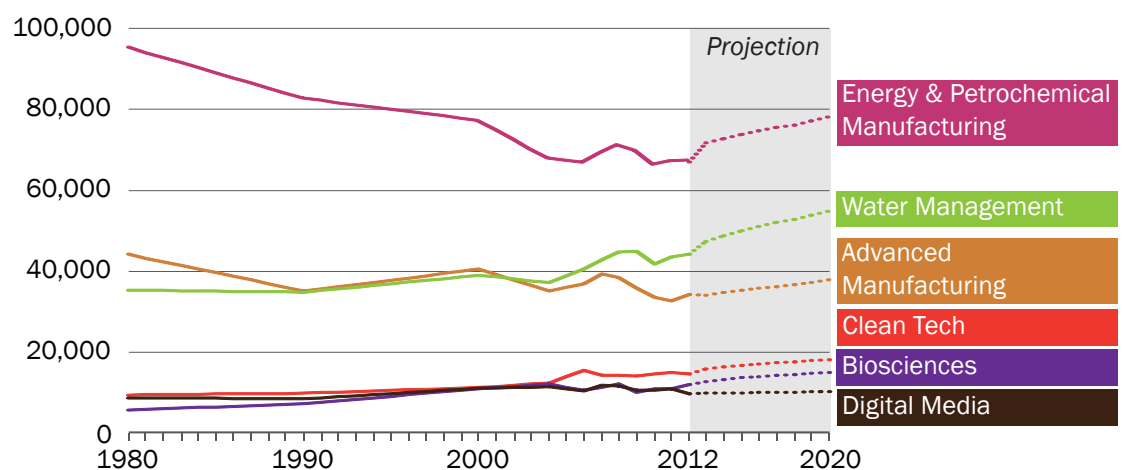


What are these target sectors?

For more information about these target sectors, including why they are important and definitions, be sure to check out *Economic Synergies across Southeast Louisiana* at www.gnocdc.org

In recent years, ambitious leadership across Southeast Louisiana has undertaken the challenge of creating a more diverse, sustainable economy that is globally competitive. Their strategy is to simultaneously boost legacy sectors, such as energy, petrochemicals, and advanced manufacturing, while growing non-traditional sectors, such as digital media and water management. The energy and petrochemicals sector and the advanced manufacturing sector are two of the six sectors that have been specifically targeted by state and regional economic development organizations for future growth in Southeast Louisiana. Their projected job growth by 2020 will reverse decades of decline.²⁷ More importantly, growing these sectors will have positive ramifications for other sectors that are a part of the broader vision.

Employment trends and projections by target industry sector Southeast Louisiana



Source: GNOCDC analysis of historical data from Moody's Analytics (U.S. Bureau of Labor Statistics: CES, QCEW) and projections from EMSI.²⁸

As described earlier, the low cost of natural gas is stimulating regional investments in advanced manufacturing, which is expected to add more than 3,500 jobs from 2013 to 2020. This is important because advanced manufacturing plays a critical role in supporting all the other target sectors.²⁹ Not only can it provide materials and machinery to the energy, petrochemicals, and water management sectors, but it can also provide the lighter materials, equipment, and instruments needed for the successful development of clean tech, digital media, and biosciences. In short, the super region needs advanced manufacturing's production capabilities for all of its other targeted sectors to truly takeoff.

The energy and petrochemical sector is projected to add more than 6,500 jobs from 2013 to 2020. What is notable about this sector is that its growth projection reflects significant overlap with job growth projected for water management (which includes coastal restoration and hurricane protection systems). For example, the same heavy construction occupations that are needed to build coastal marshes are also needed to construct new pipelines and refineries, and this is why the projections for both sectors move in tandem. Indeed, heavy construction is the single industry within both sectors that is projected to grow the fastest, accounting for nearly 25 percent of all job growth between 2013 and 2020. Without the industrial overlap, water management is still projected to experience the second largest growth out of all the targeted sectors, adding more than 5,000 of its own jobs. Importantly, 2,400 projected jobs bridge the legacy sector of energy and petrochemicals to the emerging sector of water management. In short, the energy and petrochemicals boom will provide the foundational workforce critical to diversifying our economy by fueling the emerging water management sector.

Growth in water management, and energy and petrochemical sector, 2013-2020

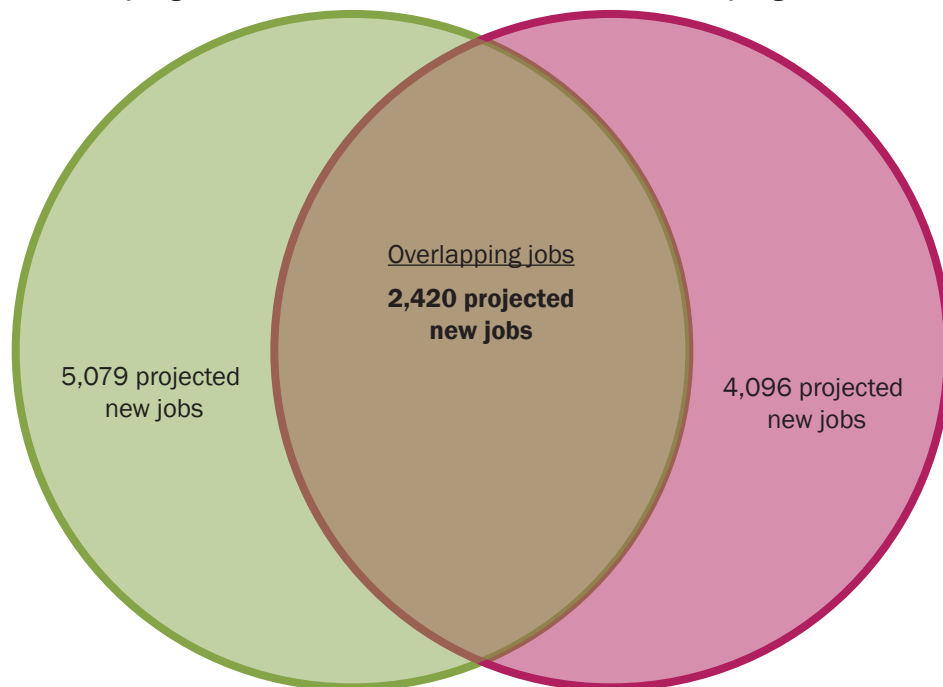
Southeast Louisiana

Water Management

7,500 total projected new jobs
16% job growth

Energy and Petrochemical

6,516 total projected new jobs
9% job growth



Source: GNOCDC analysis of data from EMSI.

Getting in front of environmental concerns

For some, the industrial announcements come with serious concerns about environmental impacts, especially in regards to air quality. The industrial facilities that occupy the I-10 corridor between New Orleans and Baton Rouge do emit toxins into the air at extremely high rates.³⁰ In addition, the petrochemical producers are some of the largest air polluters in the nation. Chemicals at these facilities include chloropene, diaminotoluene, and 2-nitropropane. The Environmental Protection Agency recognizes these chemicals as carcinogens and suspects them to be developmental, reproductive, respiratory, cardiovascular, and neuro-toxins.³¹ Indeed, the region earned the nickname, “Cancer Alley,” when residents suspected diagnoses of rare forms of cancer were linked to the presence of the large, industrial producers.³² However, scientific research has been unable to verify these claims.³³ Nevertheless, air quality remains a significant and real concern with documented effects on human health.³⁴ Other regions have tackled this issue head on. For example, Houston, with its similar industrial base, has made great strides toward reducing emissions by passing an emissions disclosure law and by implementing mandatory cap and trade programs. Additionally, Houston area companies have invested in technologies to better monitor leaks in their facilities, which gives them a competitive advantage by containing undesirable product losses.³⁵

Conclusion

Southeast Louisiana is faced with an unparalleled opportunity to scale up our regional skill set. The new “energy boom” can catalyze the development of systems and solutions that nurture home grown talent on a broad scale. Not only will such large-scale efforts at skill development help bolster an existing and important industry strength, they will simultaneously cultivate workers that are needed in a new, emerging sector — water management — and stimulate growth in advanced manufacturing, which supports all other sectors.

Nonprofits working to reduce income inequality will be key to the success of any initiative to maximize job opportunities for local residents. They must prioritize awareness building about the family-sustaining jobs associated with the new manufacturing expansion underway, and form alliances with community colleges and other training programs to deliver the comprehensive services that are critical for ensuring our most discouraged workers succeed. The brunt of training will fall on community and technical colleges, who will be responsible for networking with employers and nonprofits alike. Industry must play their role by informing training curricula, and sponsoring innovative transportation options. And government leadership will be needed to coordinate transportation options. To optimize the economic potential of non-working adults, a skilled administrative intermediary is needed that can weave together multiple public and private funding sources, and coordinate the efforts of employers, educators, and various support service providers to supply multi-layered training and supports to low-skilled adults.

Without a doubt the task is complex and will require significant investment. But done right it will infuse a new cadre of outstanding people and ideas into our economy, ultimately fielding a workforce that can actually deliver the bold vision that leadership has for Southeast Louisiana’s future.

Data Sources/Methodology

To develop employment projections for industrial sectors (as defined in [Economic Synergies across Southeast Louisiana](#)), data were needed for employment in industries at the NAICS 4-digit level.

The Louisiana Workforce Commission publishes industry projections that are informed by local intelligence, such as announcements of new projects, closures, expansions, and surveys of 175 the largest “key driver/ export-oriented” firms in the state. This local knowledge improves the accuracy of any industry projections.

The Louisiana Workforce Commission’s (LWC) most recent employment projections by industry and occupation were released in June, 2013. However, the industry projections are only provided for 3-digit NAICS codes.

EMSI, a for-profit data provider, publishes employment projections by industry for more detailed NAICS codes. According to EMSI documentation, EMSI’s employment projections by industry are informed by long-term industry projections published by individual states. The Louisiana Department of Labor is specifically listed as the state source for Louisiana data, meaning the local knowledge found within LWC projections is retained in the EMSI data. This was verified by an EMSI representative, who noted EMSI uses historic data to build initial projections 10-years out into the future. But EMSI also collects long-term industry projections from each state on a regular basis and updates those projections based on the state data. The Q4 2013 industry projections that we are using for our analyses of the petrochemical boom have already been revised to incorporate the LWC’s June 2013 industry projections.

In sum, this report uses EMSI data because it is available at the NAICS 4-digit level, which was needed to construct employment projections for the target sectors. Also, EMSI’s projections are informed by the LWC, preserving local knowledge about economic trends.

The cases cited as best practices were chosen because national researchers and national media have identified them as effective programs and organizations. In addition, they are presently active. To learn more about these promising programs and organizations, please see:

On page 6, The South Florida Manufacturing Association

Source: The South Florida Manufacturing Association, <http://sfma.org/>

On page 7, Bluegrass Industrial Park Transportation Options

Source: The Community Transportation Association, <http://www.ctaa.org/webmodules/webarticles/articlefiles/SuccessStoriesEmpTranspPrograms.pdf>; The Transportation Research Board. (1999). Using public transportation to reduce the economic, social, and human costs of personal immobility. Washington, DC: Transportation Research Board.

On Page 8, Commuter Programs for Tyson Foods and Beaumont Refineries

Source: The Community Transportation Association, <http://www.ctaa.org/webmodules/webarticles/articlefiles/SuccessStoriesEmpTranspPrograms.pdf>

On page 8, Southwest Alabama Workforce Development Council

Source: Southwest Alabama Workforce Development Council, <http://www.sawdc.com/>

On Page 9, M-Powered of Minnesota

Source: United States Department of Labor, <http://social.dol.gov/blog/manufacturing-skilled-workers/>; The Star Tribune, <http://www.startribune.com/opinion/commentaries/142144723>, and Hennepin Technical College, <https://hennepintech.edu/workfast/mpowered/7>.

Endnotes

1. Dismukes, D. (2013). Unconventional resources and Louisiana's manufacturing development renaissance. Baton Rouge, LA: LSU Center for Energy Studies. Retrieved January 20, 2014, from http://www.enrg.lsu.edu/files/images/publications/online/2013/ANGA_Report_11Jan2013.pdf.
2. Louisiana Economic Development. (2013). *Bayou projects 2011-2013* [Data file]; Louisiana Economic Development. (2013). *Examples of industrial projects in the river parishes (not comprehensive)* [Data file].
3. Dall, T. (2011). New University Medical Center project expected to boost local economy. Retrieved January 17, 2014, from <http://gnoinc.org/news/region-news/new-university-medical-center-project-expected-to-boost-local-economy/>; Monteverde, D. (2013). Report: Canal street VA hospital over budget, behind schedule. *The Advocate*. Retrieved January 17, 2014, from <http://theadvocate.com/news/neworleans/6002778-148/canal-stret-vahospital-370>.
4. AARP. (2011). Boomers @ 65: Celebrating a milestone birthday. Retrieved January 23, 2014, from http://www.aarp.org/personal-growth/transitions/boomers_65/.
5. GNOCDC analysis of EMSI data. The 42,000 total job openings include openings in all industries not just the advanced manufacturing, energy and petrochemicals sectors.
6. *Ibid*.
7. Data on the education requirements and wages for all of the fastest growing occupations are included in the downloadable data tables accompanying this research brief available at www.gnocdc.org.
8. Holzer, H.J. & Lerman, R.I. (2007). America's forgotten middle-skill jobs: Education and training requirements in the next decade and beyond. Retrieved January 13, 2014, from http://www.nationalskillscoalition.org/assets/reports-/americasforgottenmiddleskilljobs_2007-11.pdf.
9. Louisiana Economic Development. (2013). *Southwest region new and expanded 2011-2013* [Data file].
10. Louisiana Economic Development. (2013). *Bayou projects 2011-2013* [Data file]; Louisiana Economic Development. (2013). *Examples of industrial projects in the river parishes (not comprehensive)* [Data file]. The locations data used to construct this map are not a comprehensive list of projects. The map represents only a sample of all announced projects in the Southeast Louisiana super region.
11. Bridges, T. (2013, July 2). Louisiana's employment performance more mixed than Jindal portrays. *The Lens*. Retrieved January 24, 2014, from <http://thelensnola.org/2013/07/02/louisianas-employment-performance-more-mixed-than-jindal-portrays/>; Young, R. D. (2013, December 30). Economic development secretary calls 2013 a 'record year' for growth. *The Times-Picayune*. Retrieved January 24, 2014, from http://www.nola.com/business/baton-rouge/index.ssf/2013/12/led_calls_2013_a_record_year_f.html.
12. Sams-Obiodun, P. & Rattler, G. (2013). Recognizing the underutilized economic potential of black men in New Orleans. Retrieved January 23, 2014, from <http://www.loyno.edu/boggsliteracy/sites/loyno.edu.boggsliteracy/files/RecognizingPotential.pdf>.
13. Black, D., Kolesnikova, N., & Taylor, L. (2010). African-American economic progress in urban areas: A tale of 14 American cities. Federal Reserve Bank of St. Louis. Retrieved June 3, 2013, from <http://research.stlouisfed.org/wp/2010/2010-015.pdf>.
14. Lane, J., Mikelson, K.S., Sharkey, P., & Wis-soker, D. (2001). Pathways to work for low-income workers: the effect of work in the temporary help industry. Retrieved November 12, 2013, from http://www.urban.org/UploadedPDF/410502_pathwaystowork.pdf.
15. Heinrich, C.J., Mueser, P.R., & Troske, K.R. (2006). Welfare to temporary work: Implications for labor market outcomes. *The Review of Economics and Statistics*, 87(1), 154-173.
16. Smith, W., Wittner, J., Spence, R., & Van Kleunen, A. (2002). Skills training that works: Examining the evidence. Retrieved December 1, 2013, from http://cjc.net/wp-content/uploads/2011/03/skills_training_works_rpt.pdf; Maguire, S., Freely, J., Clymer, C., & Conway, M. (2009). Job training that works: Findings from the sectoral employment impact study. Retrieved December 1, 2013, from <http://knowledgecenter.completionbydesign.org/sites/default/files/33%20Maguire%202009.pdf>.
17. Lohrentz, T. (2010). Review and analysis of the literature: The business benefits of employee development. Retrieved January 13, 2014, from <http://www.insightcced.org/uploads/publications/wd/BusinessBenefitsEmpDev.pdf>.
18. GNO, Inc.'s establishment of an education liaison is an example of local coordinating efforts with the intention of improving workforce development. Additionally, GNO, Inc. has brokered relationships

Endnotes

between employers and community colleges and high schools.

19. Hollenbeck, K. (2008). State use of workforce system net impact estimates and rates of return. Retrieved December 8, 2013, from <http://research.upjohn.org/cgi/viewcontent.cgi?article=1006&context=confpapers>; Lerman, R.I. (2009). Training tomorrow's workforce: Community college and apprenticeship as collaborative routes to rewarding careers. Retrieved January 17, 2014, from http://www.urban.org/UploadedPDF/1001360_training_tomorrow.pdf.

20. Wilson, W.J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago, IL: University of Chicago Press; Wilson, W.J. (1996). *When work disappears: The world of the new urban poor*. New York: Knopf.

21. Giloth, R., & Conway, M. (Eds.). (Forthcoming in 2014). *Sector strategies and workforce intermediaries in an uncertain economy: A decade of research and practice*. New York, NY: American Assembly.

22. Pager, D., & Western, B. (2009). Investigating prisoner reentry: The impact of conviction status on the employment prospects of young men. Retrieved January 14, 2014, from <https://www.ncjrs.gov/pdffiles1/nij/grants/228584.pdf>. See also, Blumstein, A. & Nakamura, K. (2009). 'Redemption' in an era of widespread criminal background checks. Retrieved January 14, 2014, from <http://www.nij.gov/journals/263/Pages/redemption.aspx>.

23. Jeffrey, J. (2013). Houston lawmaker's bill would make it easier to hire ex-offenders. Retrieved January 14, 2014, from <http://www.bizjournals.com/houston/news/2013/04/05/texas-employers-may-have-easier-time.html>.

24. Carson, E.A., & Golinelli, D. (2013). Prisoners in 2012 – Advance counts. Retrieved January 17, 2014, from <http://www.bjs.gov/content/pub/pdf/p12ac.pdf>.

25. National Employment Law Project. (2013). Statewide ban the box: Reducing unfair barriers to employment of people with criminal records. Retrieved January 14, 2014, from <http://www.nelp.org/page/-/SCLP/ModelStateHiringInitiatives.pdf?nocdn=1>.

26. National Employment Law Project. (2011). State reforms promoting employment of people with criminal records: 2010–11 legislative round-Up. Retrieved January 14, 2014, from <http://www.nelp.org/page/-/SCLP/2011/PromotingEmploymentofPeoplewithCriminalRecords.pdf?nocdn=1>. See also, Jeffrey, J. (2013).

27. Ortiz, E., & Plyer, A. (2013). Economic synergies across Southeast Louisiana. Retrieved December 8, 2013, from https://gnocdc.s3.amazonaws.com/reports/GNOCDC_EconomicSynergiesAcrossSoutheastLouisiana.pdf.

28. Definitions of target sectors are based on 4-digit NAICS codes and are not mutually exclusive.

29. Porter, M.E. (1990). *The competitive advantage of nations*. New York, NY: The Free Press.

30. Roberts, T.J., & Toffolon-Weiss, M.M. (2001). *Chronicles from the environmental justice frontline*. New York, NY: Cambridge University Press.

31. Political Economy Research Institute, University of Massachusetts, Amherst. (n.d.). *Toxic 100 Index*. Retrieved January 16, 2014, from http://www.peri.umass.edu/toxicair_current/.

32. Koeppel, B. (1999). "Cancer Alley, Louisiana: A 100-mile stretch is home to numerous industrial sites-and many sick people." *The Nation*. 269(15): 16-23. Retrieved January 23, 2014 from <http://www.highbeam.com/doc/1G1-56982918.html>; Allen, B. (2003). *Uneasy Alchemy: Citizens and Experts in Louisiana's Chemical Corridor Disputes*. Cambridge, MA: The MIT Press

33. Louisiana Tumor Registry. (2005). *Cancer in Louisiana: 1998-2002*. New Orleans, LA: Louisiana State University Health Sciences Center.

34. McKenzie, L.M., Witter, R.Z., Newman, L.S., & Adgate, J.L. (2012). Human health risk assessment of air emissions from development of unconventional natural gas resources. *Science of the Total Environment*, 424, 79-87. Also note: Post-Katrina, the number of "unhealthy" air quality days in the New Orleans metro is higher than in the Houston metro, the latter of which has made considerable improvements in air quality. See *The New Orleans Index at Eight* page. 50.

35. Texas Commission on Environmental Quality. (2013). Emissions banking and trading programs. Retrieved January 16, 2014, from <http://www.npr.org/2013/05/30/185993899/breathing-easier-how-houston-is-working-to-clean-up-its-air>; Harris, R. (2013, May 31). Houston's petrochemical industry: A source of jobs and smog. *Morning Edition*. Washington, DC: National Public Radio.

Principal authors

George Hobor is a senior research fellow at the Greater New Orleans Community Data Center.

Elaine Ortiz is a former senior research associate at the Greater New Orleans Community Data Center.

Acknowledgments

This brief benefited enormously from the generosity of the Regional Planning Commission for Jefferson, Orleans, Plaquemines, St. Bernard and St. Tammany parishes. Without their contributions of data, this brief would not have been possible. We are also indebted to the contributions of our external reviewers: Robin Barnes, Nicol Blanchard, Liza Cowan, Rachel Diresto, David Dismukes, Leslie Jacobs, Jo-anna Jones, Jessica Kemp, Quentin Messer, Susie Schowen, and Amber Seely. Finally, this report would not have been possible without the much appreciated support and dedication of our colleagues, Ben Horwitz, Vicki Mack, and Allison Plyer, who provided graphics, layout, editing, and wise guidance throughout the process.

The Data Center gratefully acknowledges the support of the JPMorgan Chase Foundation and the blue moon fund in the development of this report. Additional gratitude goes to Baptist Community Ministries, Foundation for Louisiana, Greater New Orleans Foundation, Keller Family Foundation, Institute for Mental Hygiene, John S. and James L. Knight Foundation, Methodist Health Systems Foundation, Metropolitan Opportunities Fund, RosaMary Foundation, Stirling Properties, United Way of Southeast Louisiana, Walton Family Foundation, and Zemurray Foundation for their ongoing support.

About the Greater New Orleans Community Data Center

The Data Center is the most trusted resource for data about greater New Orleans and Southeast Louisiana. For the past 15 years, the Data Center has been an objective partner in bringing reliable, thoroughly researched data to conversations about building a more prosperous, inclusive, and sustainable region. A product of Nonprofit Knowledge Works, the Data Center has played a critical role in assessing the strength of the economies of New Orleans and Southeast Louisiana since the onset of the Great Recession. The Data Center is also recognized across the country for expertise in demographics, disaster recovery indicators, and actionable data visualization.