

Clients and Allies

NAVIGATING THE FORESTRY ECONOMIC LANDSCAPE



GLS[®]

Didi Caldwell
President + CEO

+ Are you an Economic Developer?



Economic Development

CHATGPT

Economic development is the process of **improving the economy and the quality of life of a community or a country**. It can involve creating wealth, increasing income, enhancing education, health, and well-being, and diversifying the economic activities.

In other words, economic development is the **process by which emerging economies become advanced economies**. It is the process by which countries with low living standards become nations with high living standards. Economic development also refers to **the process by which the overall health, well-being, and academic level of the general population improves**.

I hope that helps!

+ Three Truths

- We are in a once in lifetime change in the way the world works.
- The United States is uniquely positioned to take advantage of the changes.
- The manufacturing renaissance in the United States has only just begun.
- But...





\$43

Billion in Announced
Projects

AEROSPACE

AUTOMOTIVE

CHEMICALS

CLEAN TECHNOLOGY

COMPOSITES

FOOD + BEVERAGE

FOREST PRODUCTS

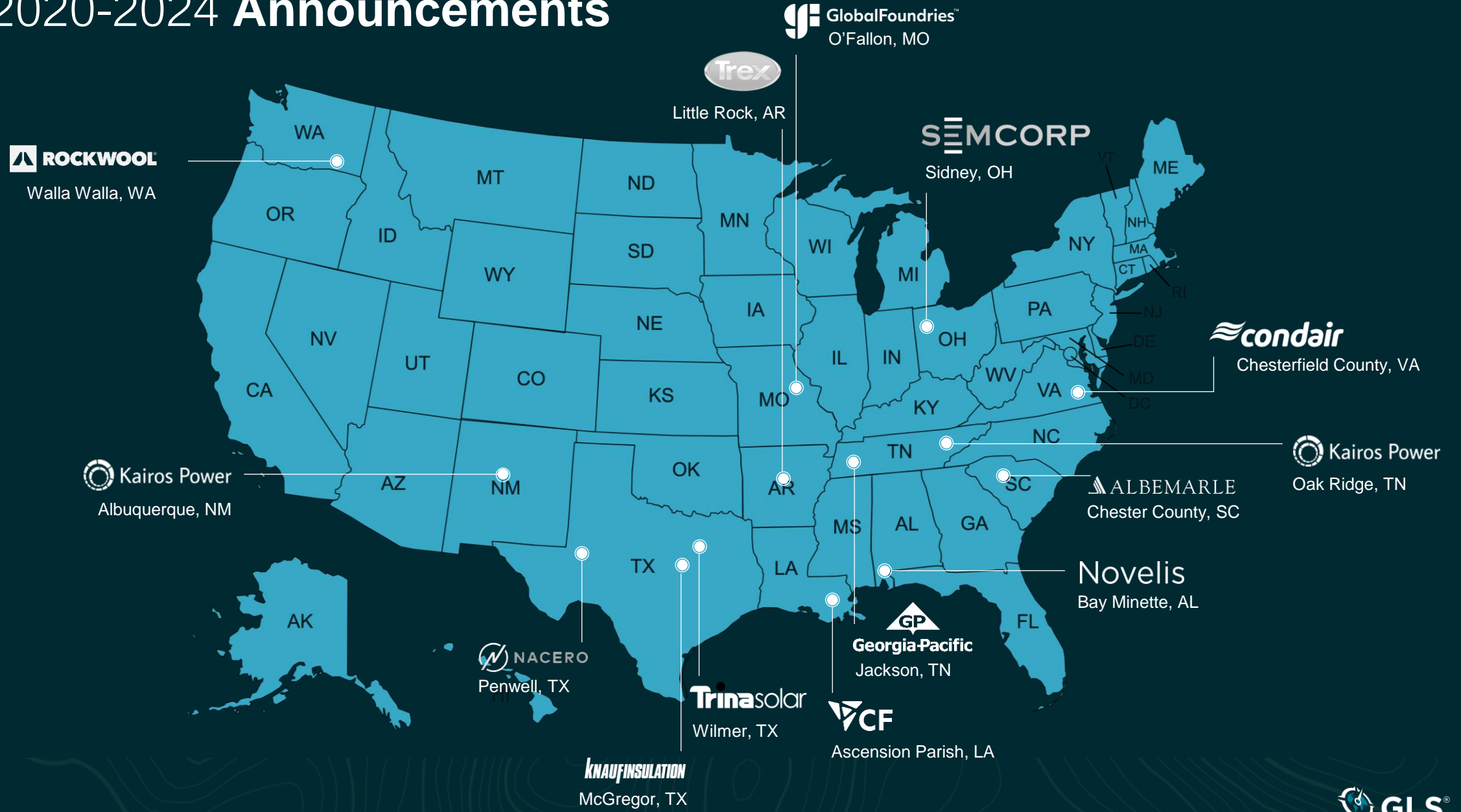
LIFE SCIENCES

METALS

MISSION CRITICAL FACILITIES



2020-2024 Announcements



Decision Making Influences

OPTIMIZING ON
THE TRADE-OFFS



Workforce

Quality Criteria

- Size of the Workforce
- Skills in the Workforce

Cost

- Wage Rates
- Benefits
- Unemployment Insurance
- Workers Comp

Risk

- Demographics
- Union Activity

850 Data Points

PHASE I

- ▶ Project Alignment



PHASE II

- ▶ Site Identification



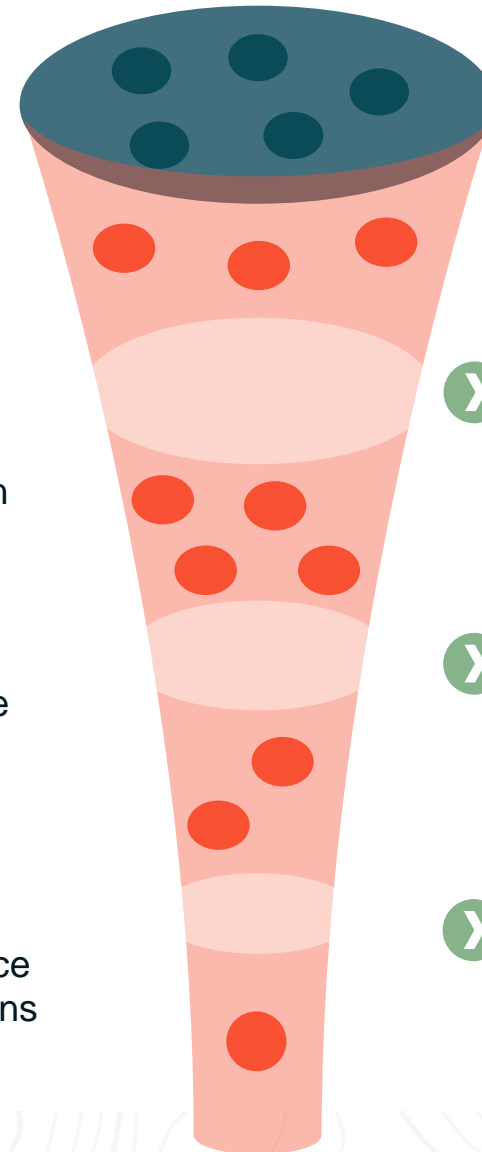
PHASE III

- ▶ Detailed Site Evaluation



PHASE IV

- ▶ Due Diligence + Negotiations



Site Elimination



- ▶ Fatal Flaw Analysis

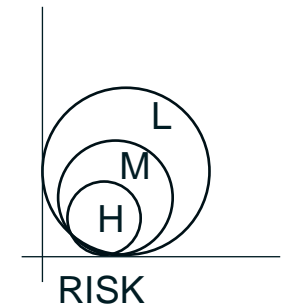


- ▶ Qualitative Score
- ▶ Prelim Financial



- ▶ 20-Year Financial Pro Forma
- ▶ Risk Model
- ▶ Due Diligence Checklist

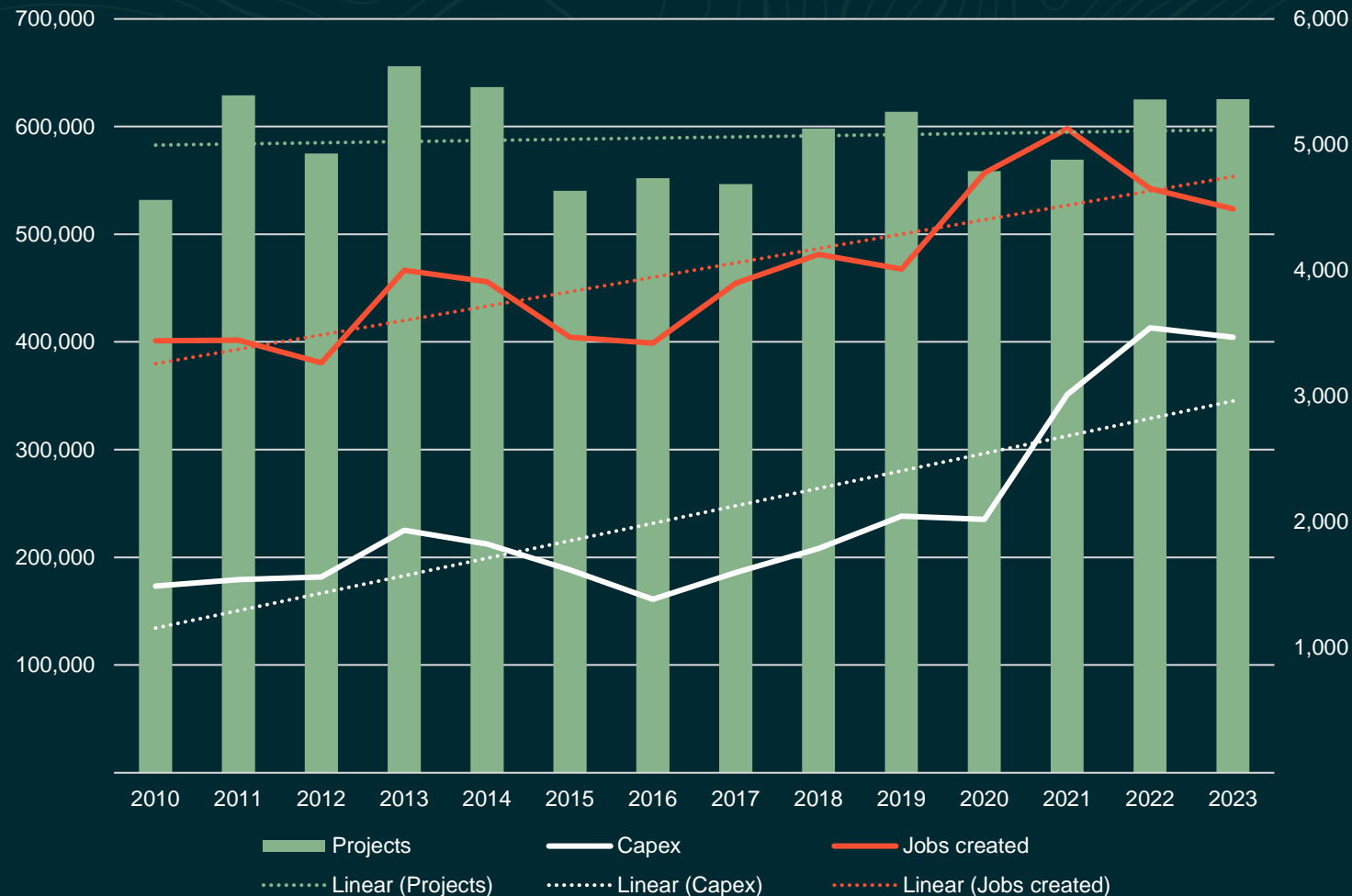
Methodology



Announced Projects United States

2010 - DEC 2023

Source: FDI Markets

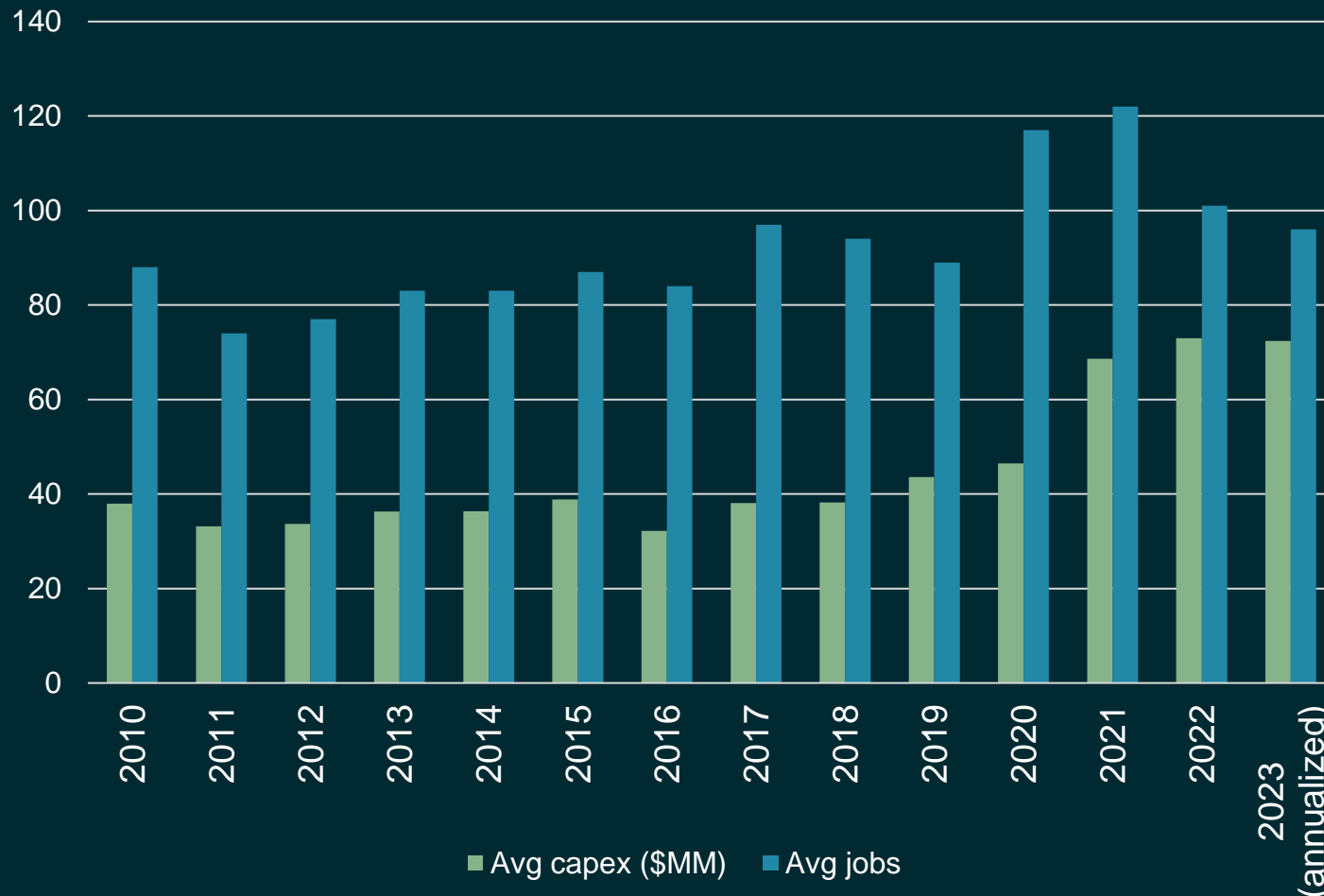


- The number of projects announced has stayed flat at around 5000 per year
- The number of jobs created has grown from around 400,000 in 2010 to a high of nearly 525,000 in 2023
- The total announced capex has gone from less than \$200 billion annually from 2010-2018 to a high of nearly \$400 billion in 2023.
- Capex, and jobs are all down in 2023 from 2022 levels (-2.1%, and -3.5% respectively), while presenting an increase of 3 projects.

Average Size Announced Projects United States

2010 - SEPT 2023

Source: FDI Markets



- Average jobs hit a low at 74 per project in 2011 and hit a high in 2021 of 122
- Average jobs have decreased 21% since their high in 2021
- Average capex was below \$40 MM until 2019 and are on pace to nearly equal 2022's high of \$73 MM per project
- 2021 saw the most dramatic increase in average capex climbing to \$68.6 MM from \$46.5 MM in 2020.

Manufacturing activity skyrockets on the heels of 2022's CHIPS Act

Percent change in construction starts since January 2019, seasonally adjusted dollars



CREDITS



Sebastian Obando
Reporter



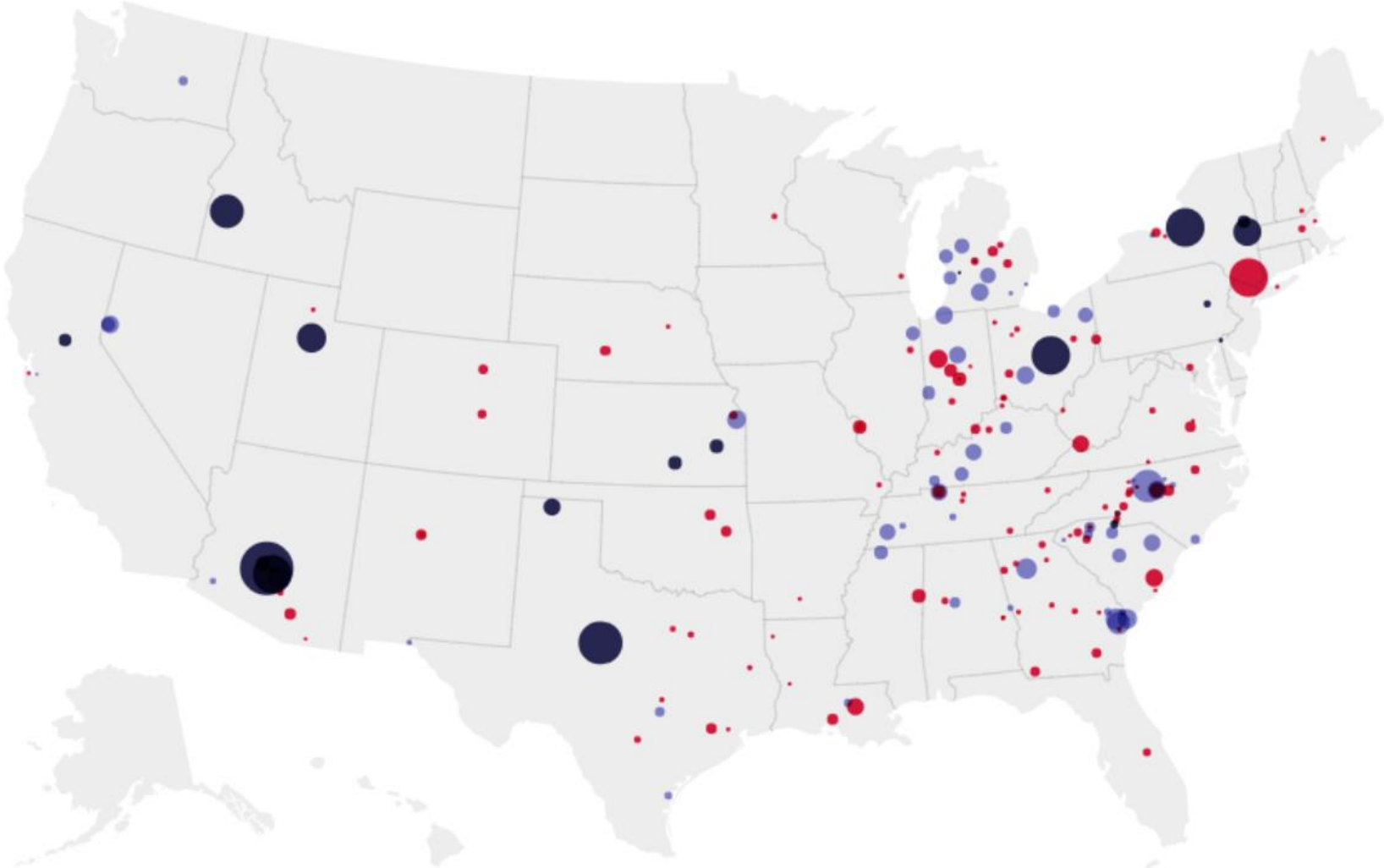
Julia Himmel
News Graphics Developer

Chart: Sebastian Obando/Construction Dive • Source: ConstructConnect • Created with [Datawrapper](#)

Manufacturing construction surges across US

Top projects by value and location since August 2022

■ Semiconductor plant ■ EV plant ■ Manufacturing facility



Map: Sebastian Obando/Construction Dive • Created with [Datawrapper](#)

CREDITS

 **Sebastian Obando**
Reporter

 **Julia Himmel**
News Graphics Developer

The
Economist

The Pentagon leaks

Macron's blunder

The new era of petrodollar power

Oregon botches drug decriminalisation

APRIL 15TH-21ST 2023

RIDING HIGH

The lessons of America's astonishing economy



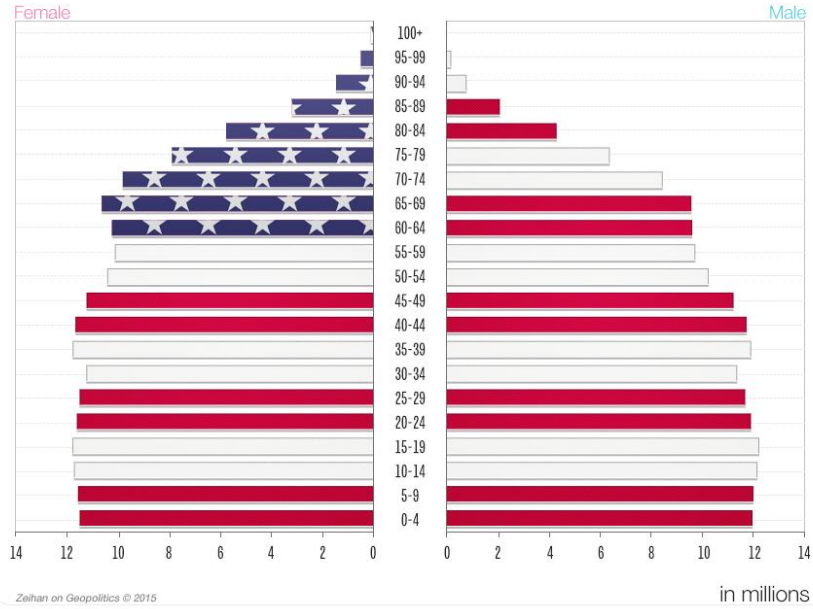
+ Why the United States?

- Location
- Location
- Location

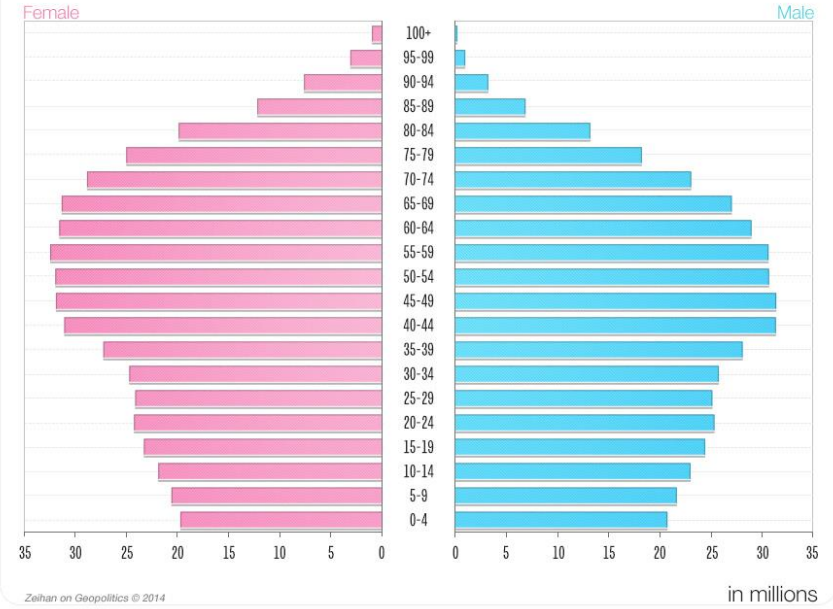
- Demography
- Geography
- Geology
- Economy



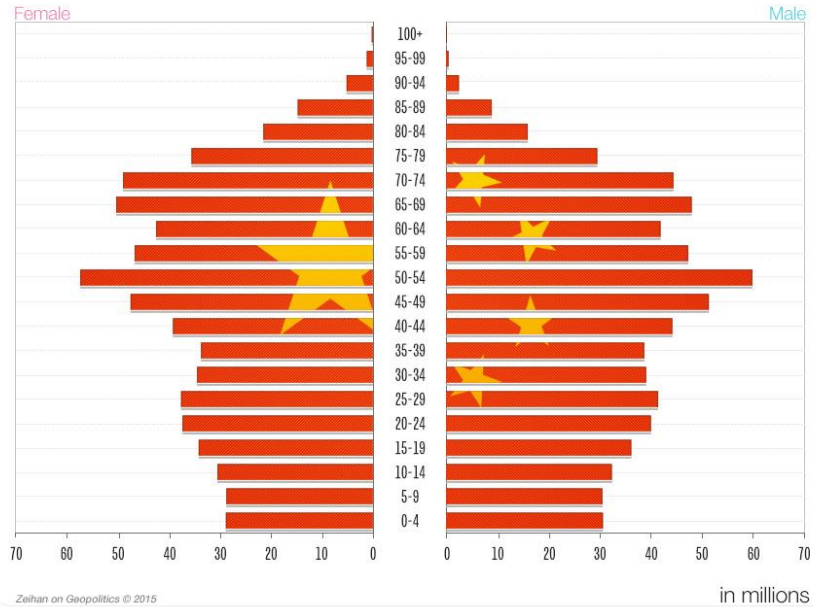
UNITED STATES DEMOGRAPHY: 2030



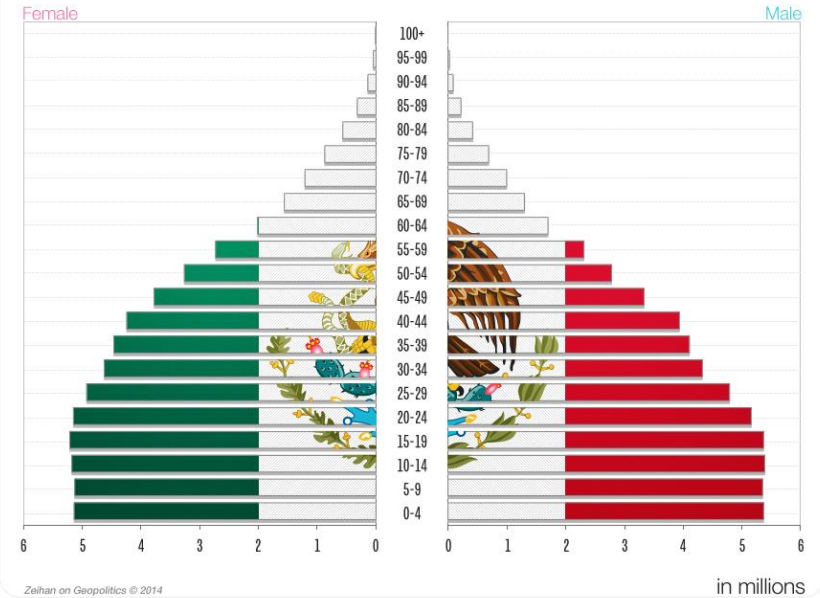
DEVELOPED WORLD DEMOGRAPHY WITHOUT U.S.: 2030

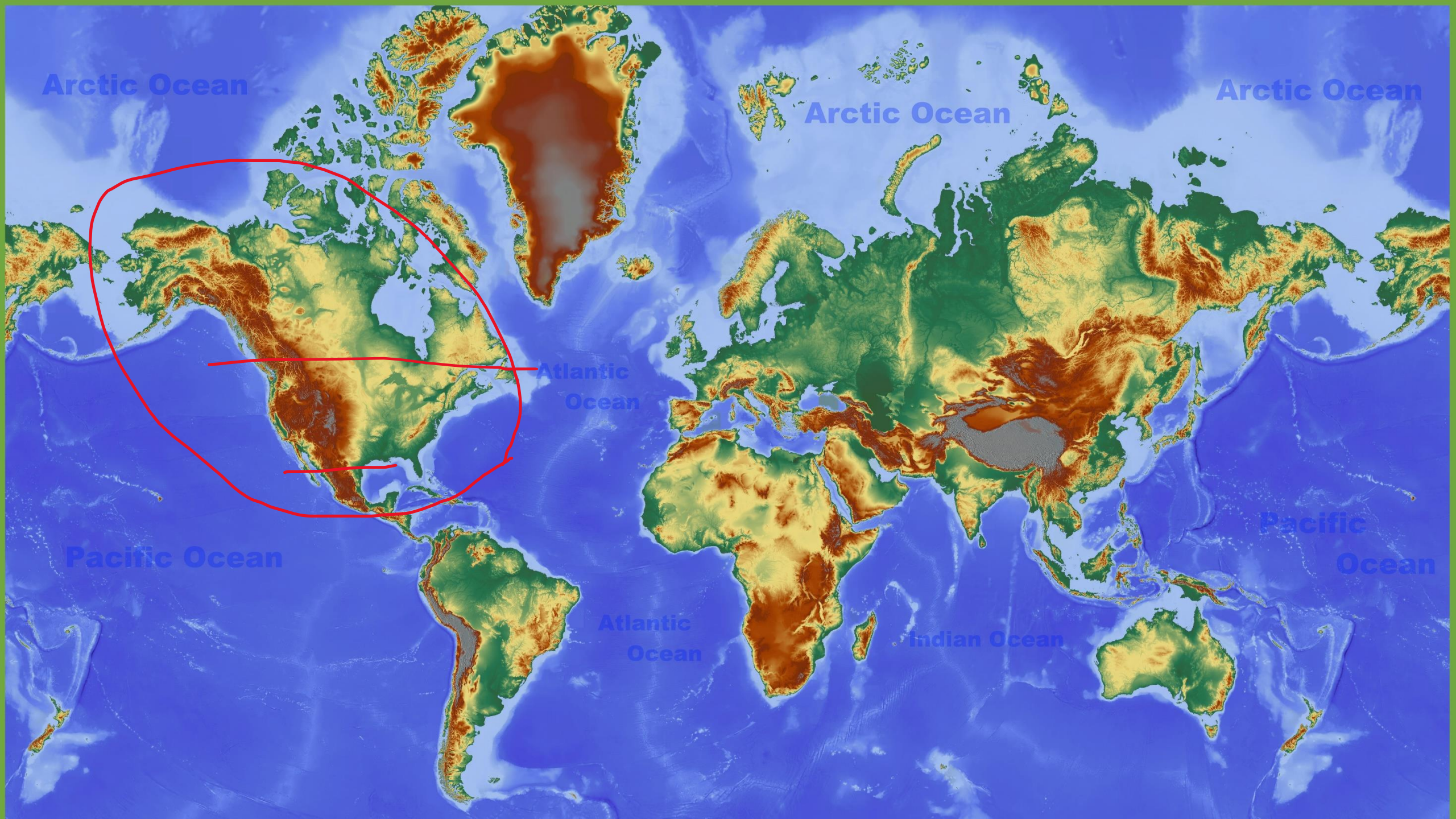


CHINA DEMOGRAPHY: 2040



MEXICO DEMOGRAPHY: 2015





Arctic Ocean

Arctic Ocean

Arctic Ocean

Atlantic Ocean

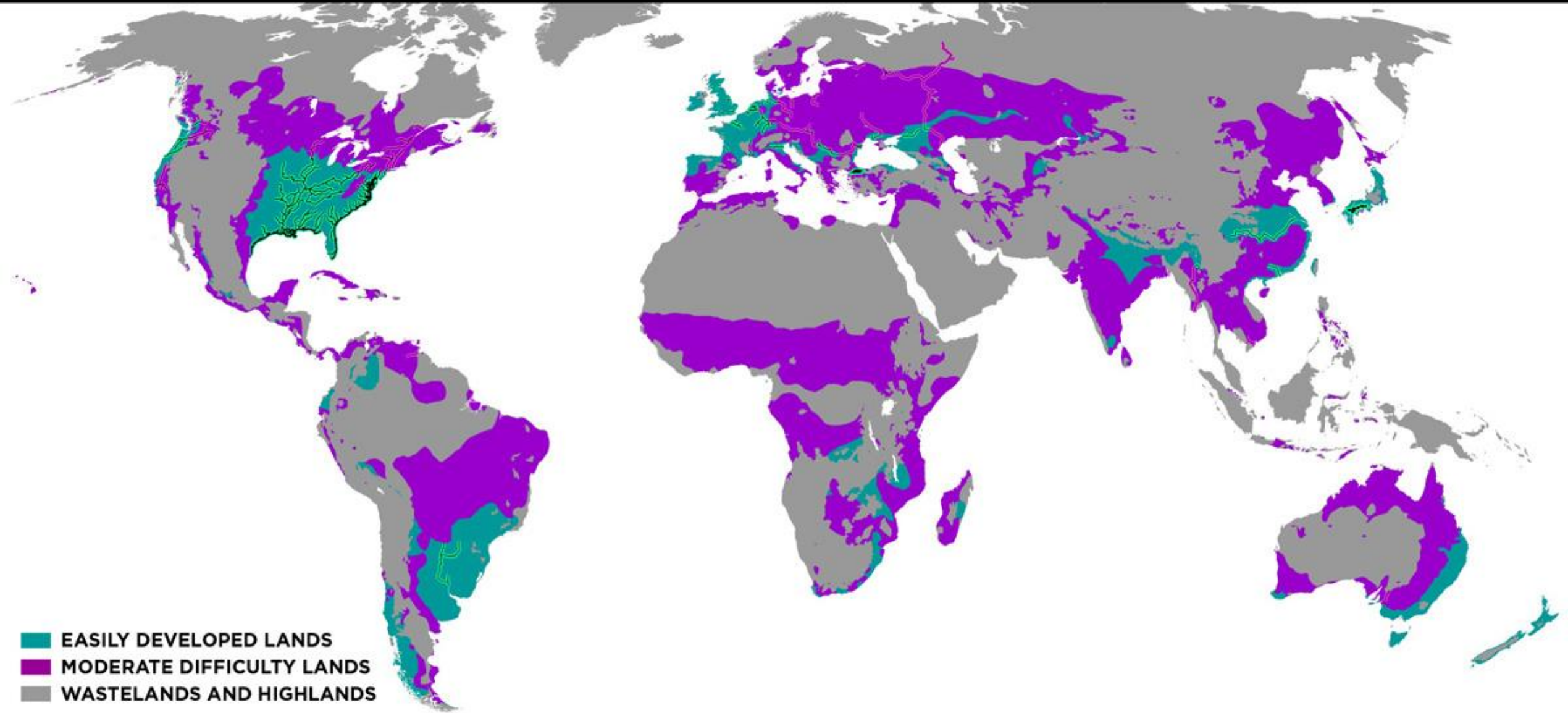
Pacific Ocean

Pacific Ocean

Atlantic Ocean

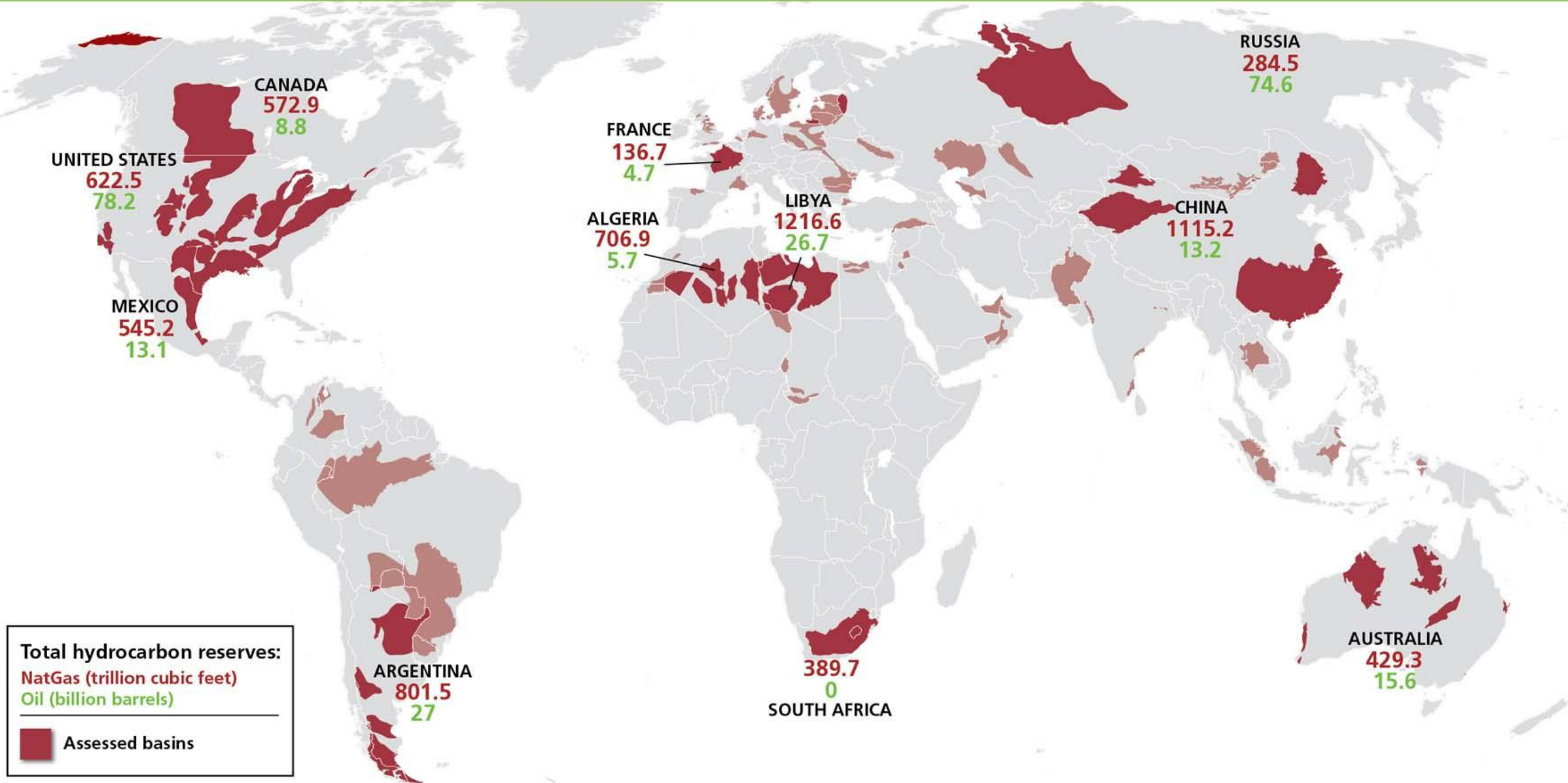
Indian Ocean

GLOBAL LAND QUALITY

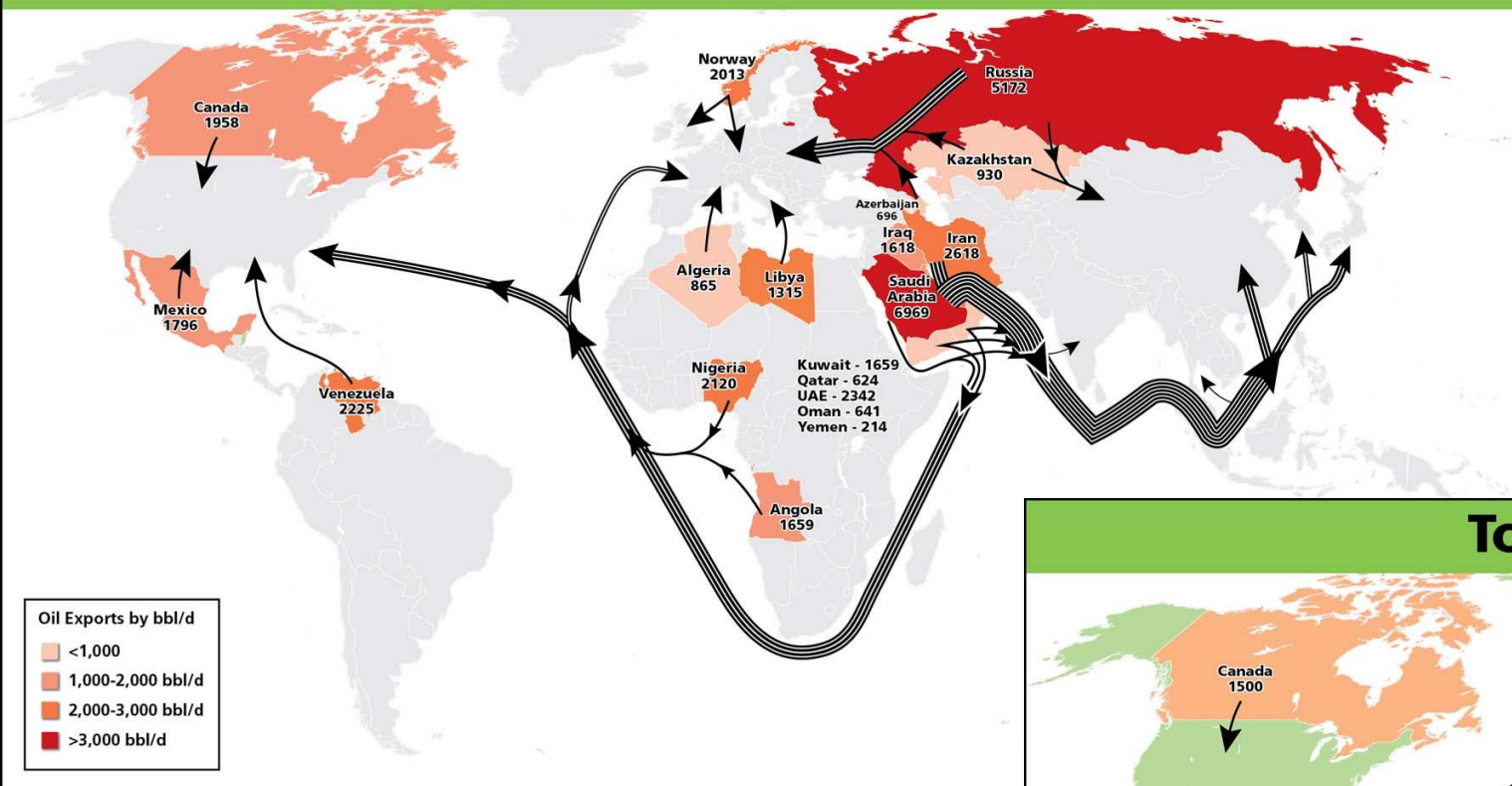




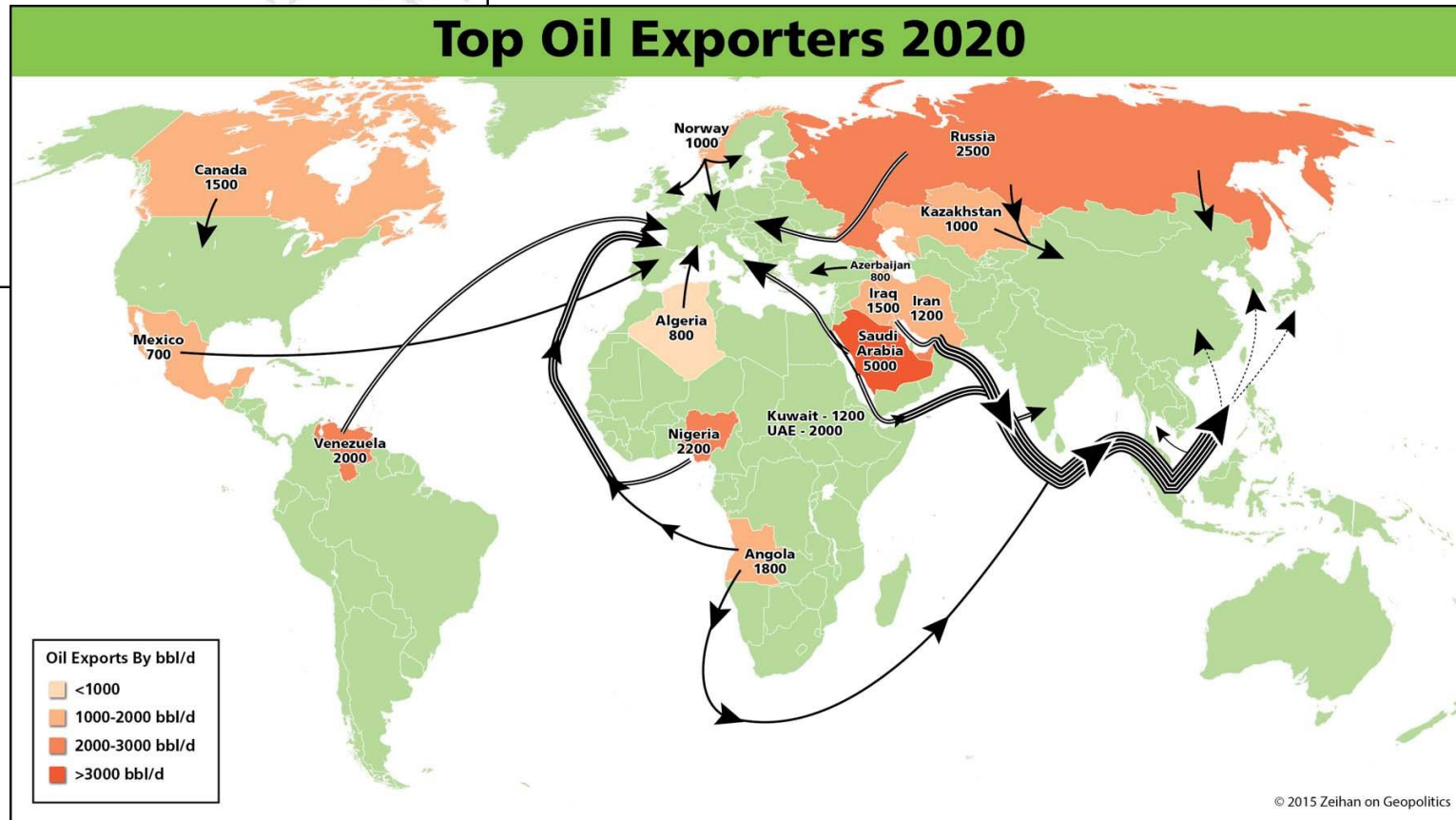
Global Shale Reserves



Top Oil Exporters 2007



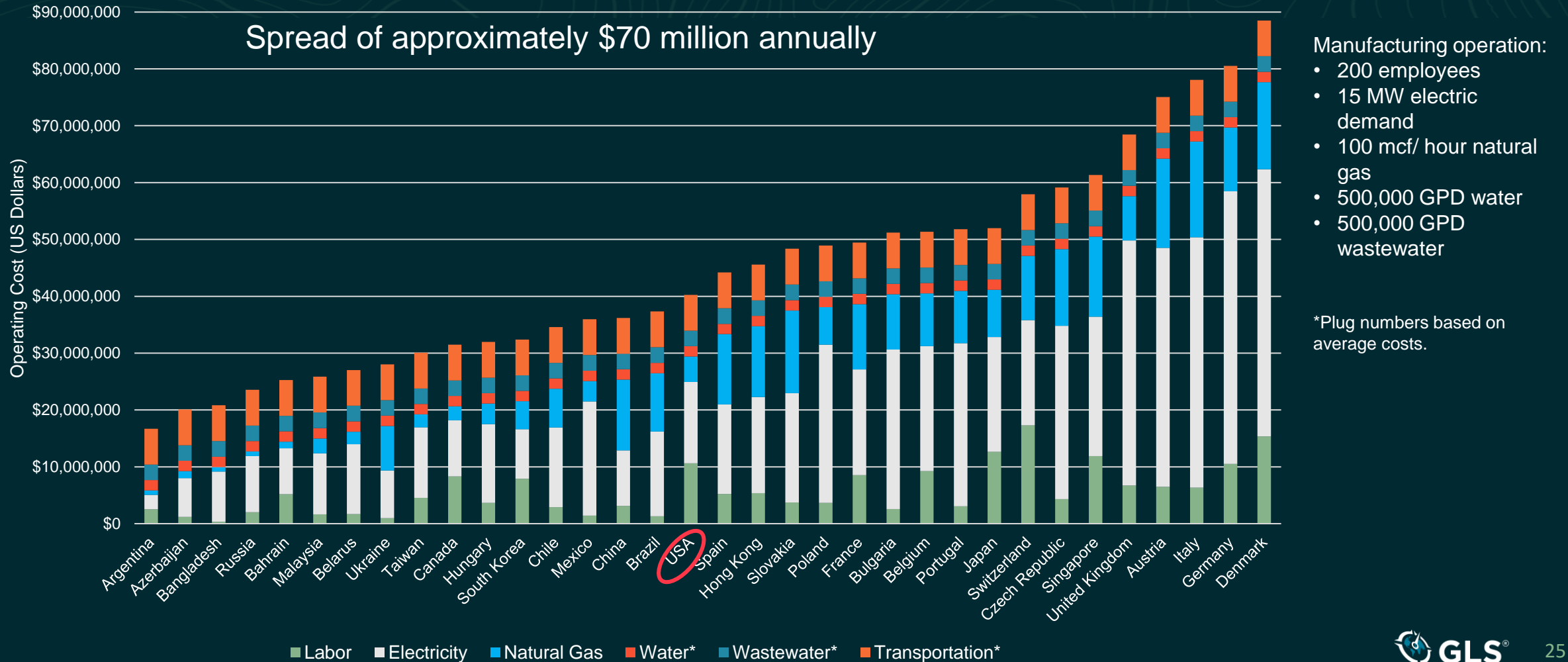
Top Oil Exporters 2020

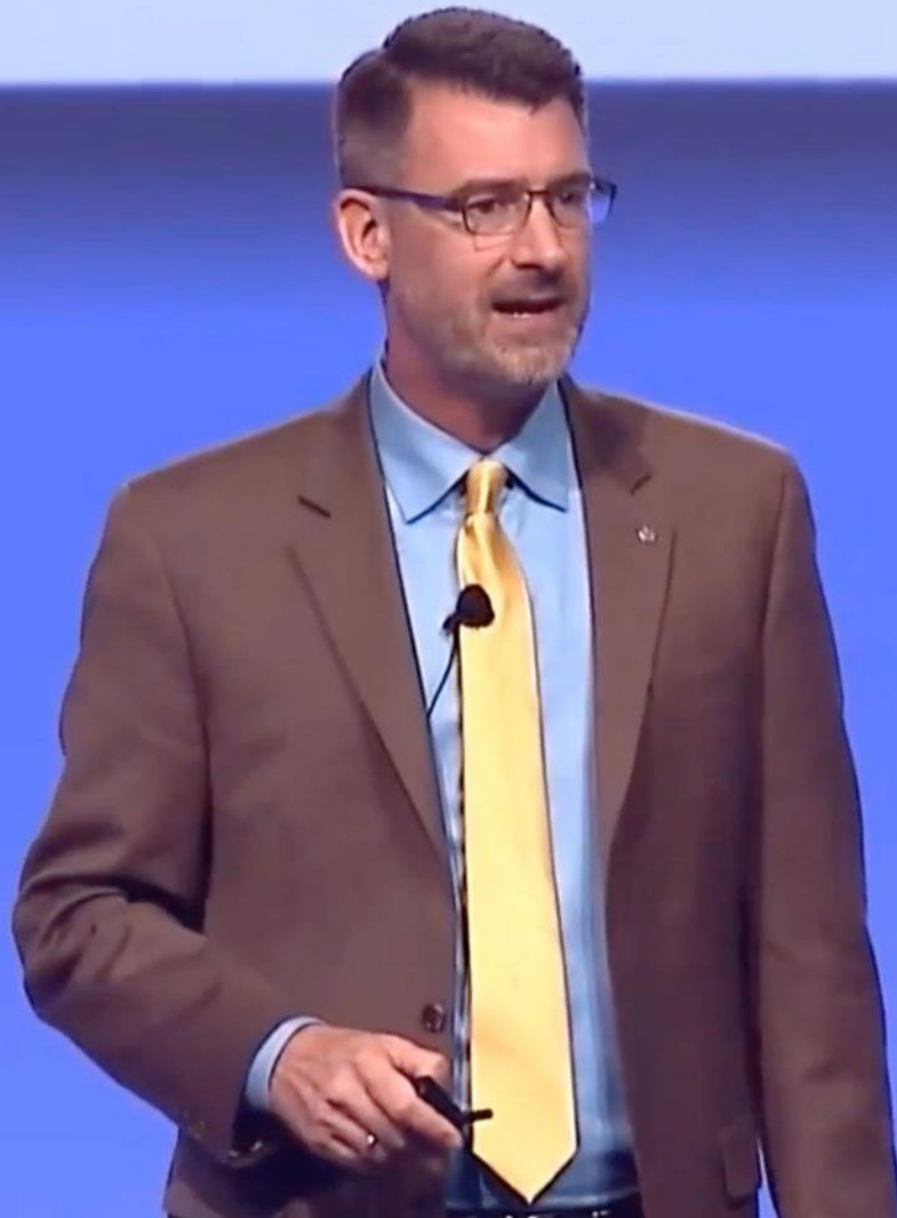




Location Dependent Operating Costs

Source: GlobalPetrolPrices (electric and natural gas rates for business from Dec 2021), Take-profit.org (monthly wages)





Reindustrialization of the Americas

“North America will need to double its industrial plant in the next 5-10 years, and much of that will be front-loaded.”

- Peter Zeihan

An aerial photograph of a suburban neighborhood. The houses are mostly two-story, with various roof colors and styles. There are many green trees scattered throughout the area, and a few streets are visible. The background shows a dense line of trees under a clear blue sky.

**How do you build a
community for the next
50-100 years?**

A 3D-rendered illustration of a chain-link fence. On the left, a heavy-duty metal padlock is attached to two vertical support posts. A thick metal chain is wrapped around the posts and the padlock. To the right, a rectangular sign with a red border and a white background is mounted on the fence. The sign features the word "CLOSED" in large, bold, red, sans-serif capital letters.

CLOSED

Reframing Closure as Opportunity

COMMITMENT, INGENUITY, TEAMWORK, AND A DOSE OF LUCK.

01

IDENTIFY THE OPPORTUNITIES

Before the plant closes, begin identifying redevelopment strategies

02

PROTECT YOUR ASSETS

Know which differentiators should be maintained throughout decommissioning and remediation

03

ENGAGE ALL STAKEHOLDERS

Political will and multi-jurisdictional alignment.

04

TAKE A TARGETED APPROACH TO RECRUITMENT

Target companies within identified industry subsectors that need your infrastructure.

Reframing Closure as Opportunity

UNIQUE AND
DIFFERENTIATING
ASSETS TYPICAL OF A
PAPER MILL



TRANSPORTATION



UTILITIES



SKILLED
LABOR



WOODY BIOMASS



Reverse Site Selection Methodology to Repurpose Retired Paper Mills

01 Strategic Assets Evaluation
Baseline Readiness Evaluation + Community Evaluation

02 Industry Competitiveness Analysis
Industry Analysis + MUST Screening

03 Site Competitiveness Benchmarking
Benchmarking + Business Plan Roadmap

04 READY TO ATTRACT NEW INVESTMENT



REFRAMING CLOSURE AS OPPORTUNITY

#1 Inventory the Assets

Consumers Energy BC Cobb
Muskegon, MI



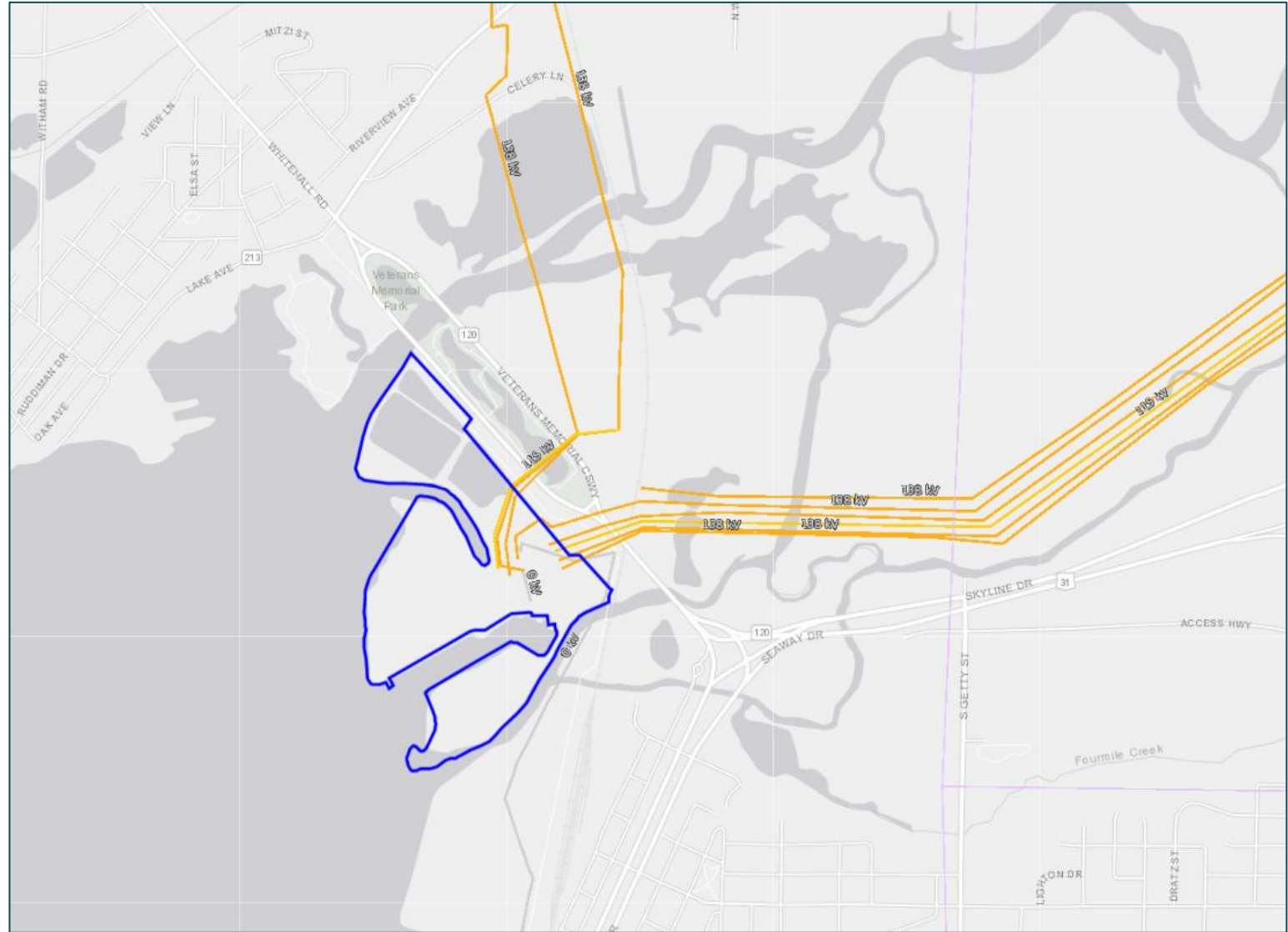
Transportation Assets

- Rail line adjacent
- Lake and onsite slip capable of handling maximum sized vessels from the Great Lakes
- U.S. Highway 31 and 7 miles from I-96



Utility Assets

- Three 138-kV lines and one 46-kV line on site
- Switching station
- 6-inch and 10-inch natural gas line on site
- 24-inch water line
- Possibility for withdrawal and discharge



Asset Inventory

REFRAMING CLOSURE AS OPPORTUNITY

SWOT Site Characteristics

Strengths

- Site is level and not within the floodplain
- 120 developable acres onsite
- Industrial zoning is in place for port related activities
- Land is available for sale or lease

Opportunities

- Further preparation and improvements would make site more attractive for future investment. Improvements include extension of rail onto site, reconfiguration of utilities as needed, improvement of dock, etc.
- Identify highest and best use of site and make upgrades as needed.

Weaknesses

- Site configuration and size prevents large contiguous, industrial development.
- Portions of site undevelopable due to existing switching station, capped landfills, and wetlands.
- Pilings of 100+ feet required for any buildings developed onsite.



SWOT Utilities

Strengths

- Three 138-kV lines and one 46-kV line onsite. Electrical supply allows for high-electric users onsite.
- Six inch and ten inch natural gas lines onsite.
- 24 inch water line serving the site. Water system has 31 MM gallons a day excess capacity
- 4 inch wastewater line runs to 60 inch mainline south of highway less than 1000 feet from the center of the site. 10-20 MM gallons a day excess capacity in municipal system.

Opportunities

- Potential to partner with Muskegon County Wastewater Management System*

Weaknesses

- All utilities need to be reconfigured for multiple parcels.

Threats



SWOT Transportation

Strengths

- Deep water port, 28'
- Capable of handling maximum sized vessels from the Great Lakes
- 1800' north quay seawall completed in 2009*
- Established commercial shipping of aggregates at BC Cobb Dock ("The Island")
- Ability to handle barge traffic
- Close proximity to highway systems
- Immediate access to Hwy 31 and 7 miles to I-96
- Proximity to short line railroad line adjacent to site. Service is provided by Genesee Wyoming rail and connects to Union Pacific*

Opportunities

- Internal roads can be efficiently developed along with existing roadways
- Shipping containers west over Lake Michigan provides economic benefit in comparison to shipping west via rail or truck.
- Ability to coordinate with other ports on Lake Michigan*
- Muskegon Lake is the only deep water port on the eastern side of Lake Michigan*
- Local support for developing shipping and transportation activities onsite*
- With rail onsite, there is potential for direct ship to rail transfer ability*

Weaknesses

- Rail and roads need to be reconfigured for multiple parcels
- Rail ROW required to cross existing bike path
- Approximately 30 miles to connect to CSX mainline
- \$2-4 MM to put rail onsite*
- For road, existing entrance to facility will require upgrades to handle truck traffic
- Cost of \$25-30 MM to improve north seawall to allow for support of rail activities*
- North seawall of slip requires improvements to restrict settlement*
- South seawall of slip has not been improved*
- Ocean-going vessels require ballast water management system*
- Dredging of onsite slip will be responsibility of landowner*
- Inability to connect to Mississippi River system*

Threats

- 14 foot height restrictions on several US 31 bridges*
- No proven market for container shipments in the west coast of Michigan*
- Port entrance needs to be dredge by Corps of Engineers; 1 MM tons per year has to enter into lake to continue dredging*





Kemmerer, WY

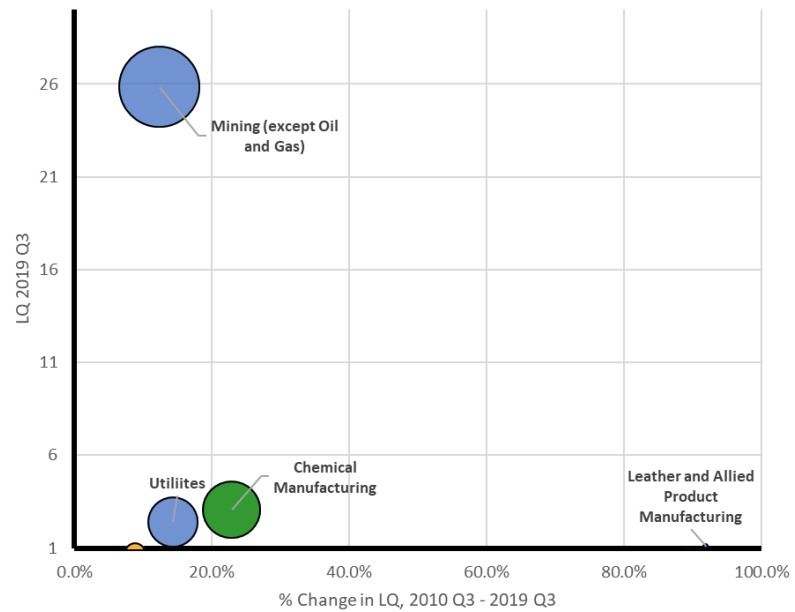
REFRAMING CLOSURE AS OPPORTUNITY

#2 Industry Matchmaking

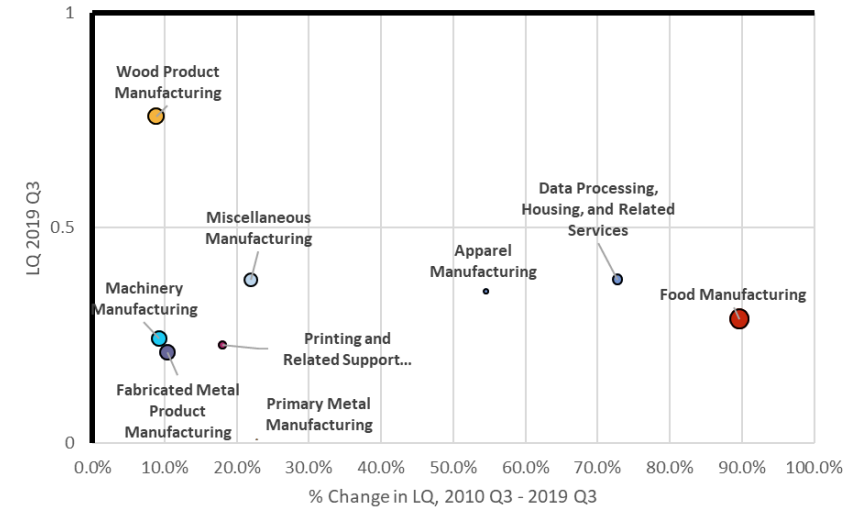
Industry Matchmaking

DETERMINE IF ANY GROWING INDUSTRIES COULD BE ATTRACTED TO THE REGION

Industry Specialization: Q3 2019 LQ vs. Change in LQ (60 Minute DT)



Industry Specialization: Q3 2019 LQ vs. Change in LQ (60 Minute DT)

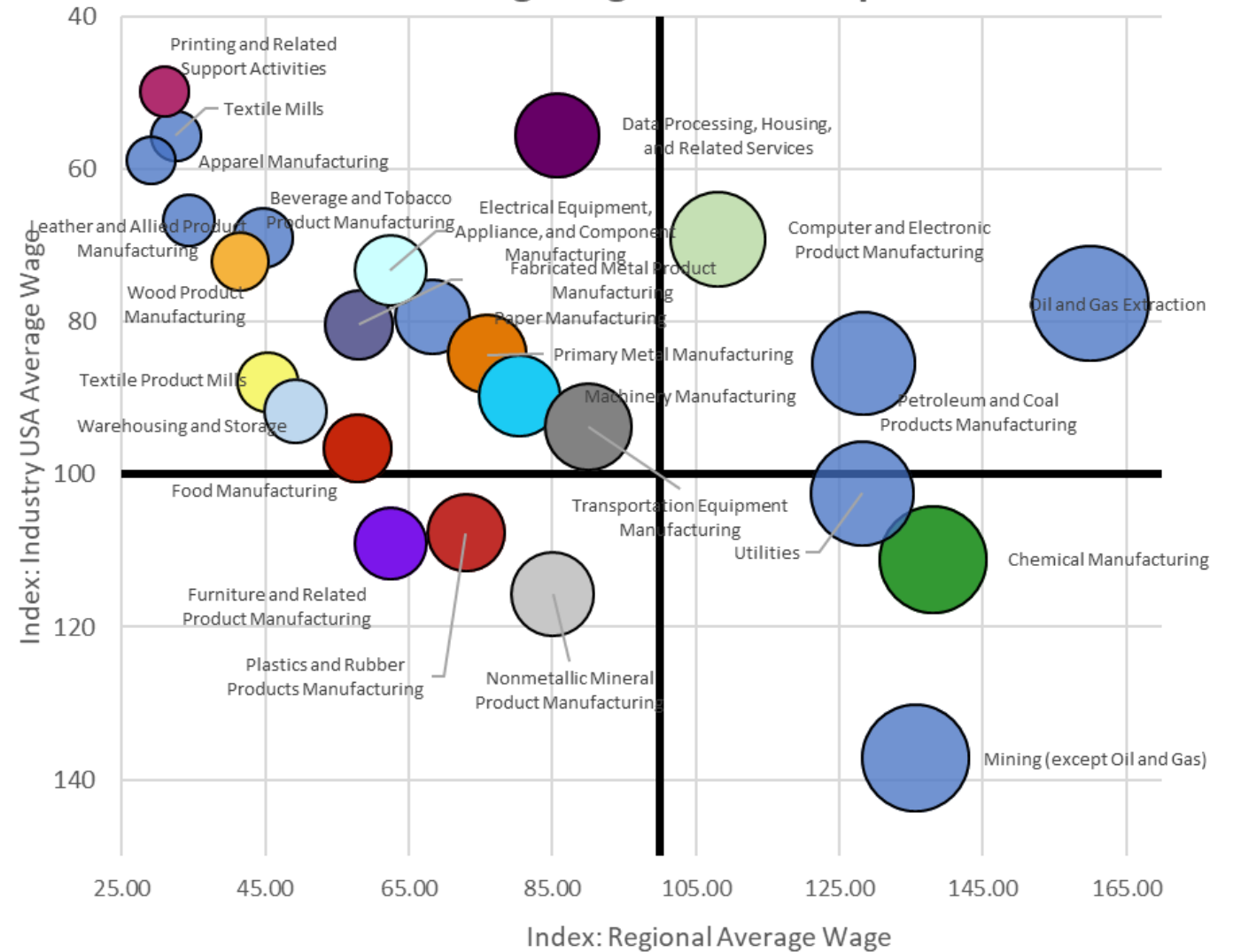


○ Bubble size represents industry employment within the custom region as of Q3 2019

Industry Matchmaking

DETERMINE IF THE REGION WOULD BE INTERESTED IN THE INDUSTRY

Manufacturing Wage Index Comparison



○ Bubble size represents the regional average annual wages per worker

Industry Matchmaking

IDENTIFY IF THE SITE AND REGION COULD SATISFY THE MINIMUM SITING REQUIREMENTS OF EACH POTENTIAL INDUSTRY SUBSECTOR

Commodity Chemical Manufacturing	
Capital Investment	\$1 B
Site	
Acreage	500 acres
Square Footage	N/A
Transportation	
Requires rail?	Yes
Requires proximity to interstate/4-lane highway?	Preferred
Requires proximity to port?	Onsite access sometimes required, port for transporting large modules is desired.
Requires proximity to customers?	Preferred, depends on product
Requires proximity to suppliers?	Preferred, depends on inputs required. When raw materials are delivered by pipeline, proximity is critical.
Utilities	
Electricity	100 MW
Natural Gas	1,000 MCF/hour
Water	500,000 GPD
Wastewater	300,000 GPD
Workforce	
Total Employment	250
Skill Requirement	Medium-skilled Familiarity with chemical manufacturing preferred
Cost Location Drivers	
Utilities	Yes
Logistics	Yes
Labor	No
Other Key Requirements	
<ul style="list-style-type: none"> Chemical industry infrastructure including suppliers, service providers, utilities and services (steam, demineralized water, nitrogen, etc.), and human capital <ul style="list-style-type: none"> Location within an established chemical cluster 	

#3 Competitiveness Benchmarking

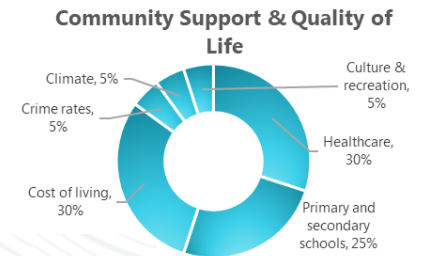
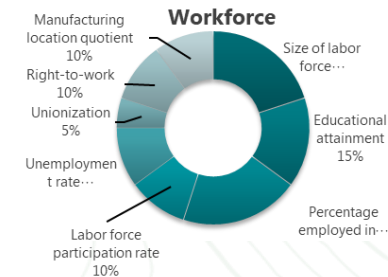
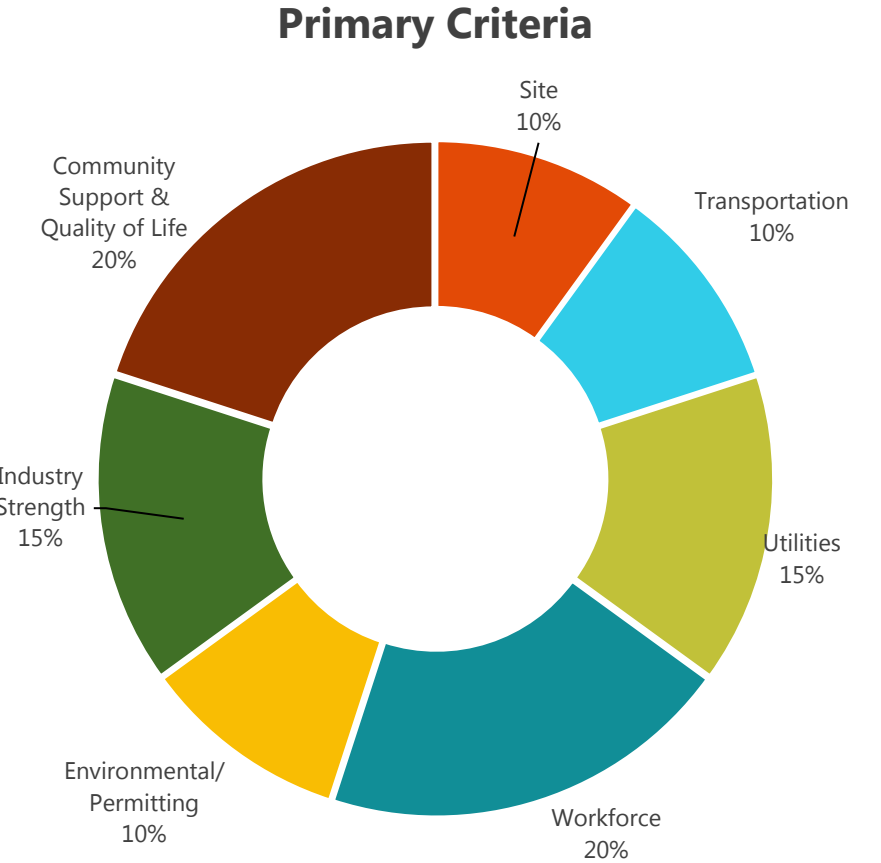
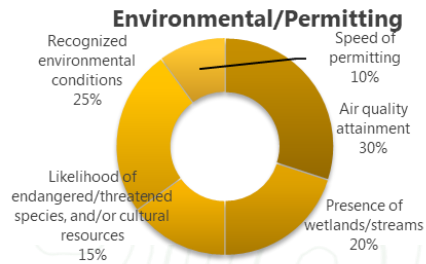
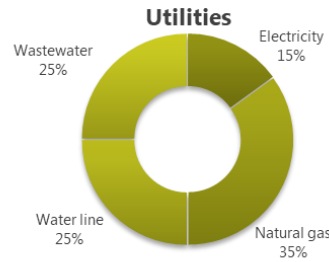
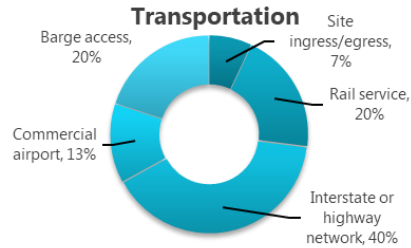
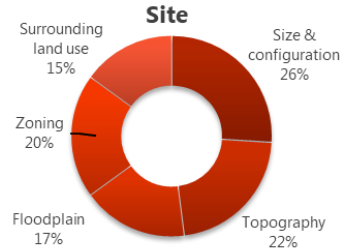


	City	State
1	Lowndesboro	AL
2	Augusta	GA
3	Lancaster	SC
4	Apple Grove	WV

TVA Colbert Fossil Plant
Colbert, AL

Competitiveness Benchmarking

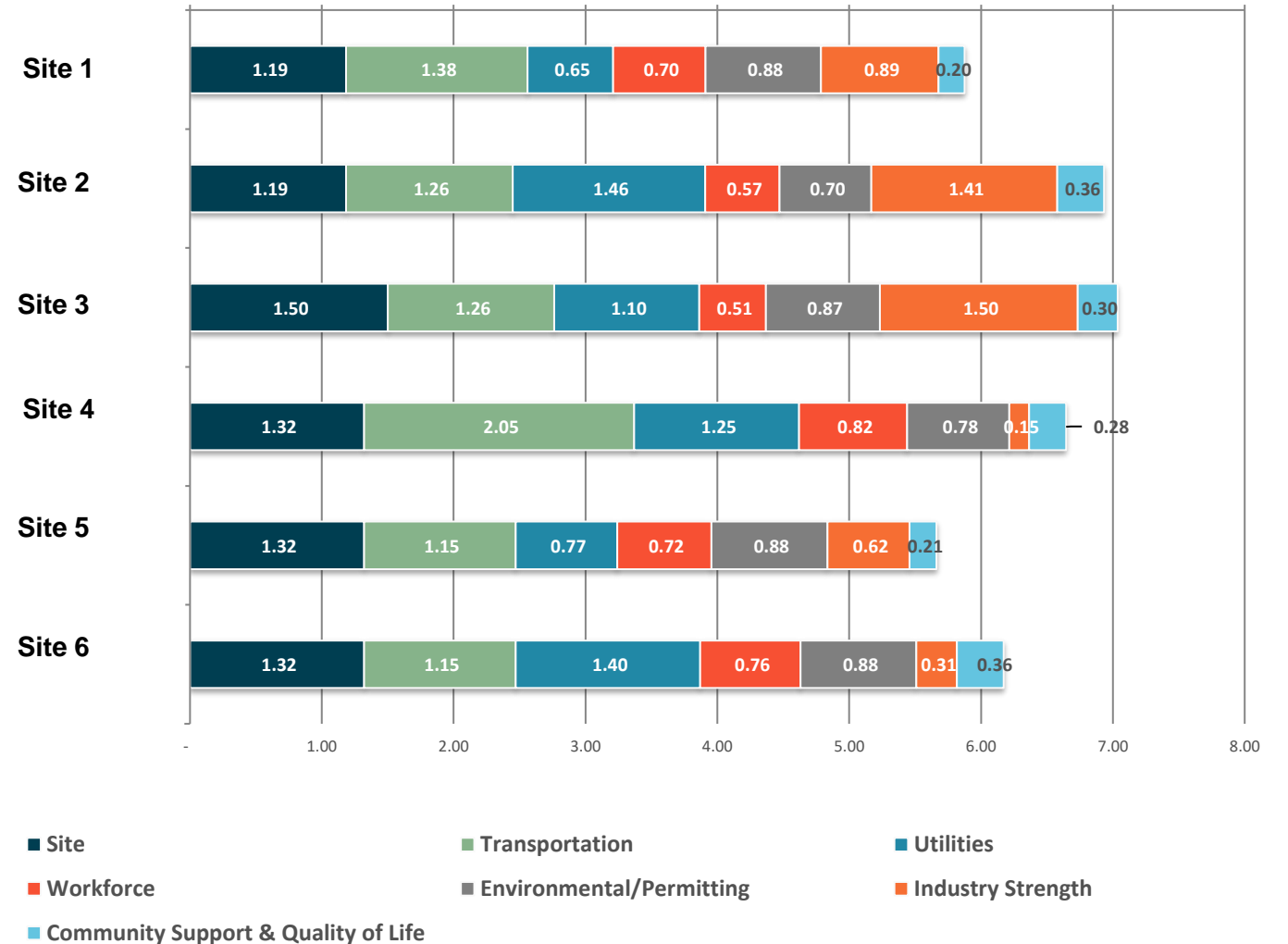
DETERMINE IF THE SITE IS STILL COMPETITIVE WHEN COMPARED TO OTHER LOCATIONS



Competitiveness Benchmarking

DETERMINE IF THE SITE IS STILL COMPETITIVE WHEN COMPARED TO OTHER LOCATIONS

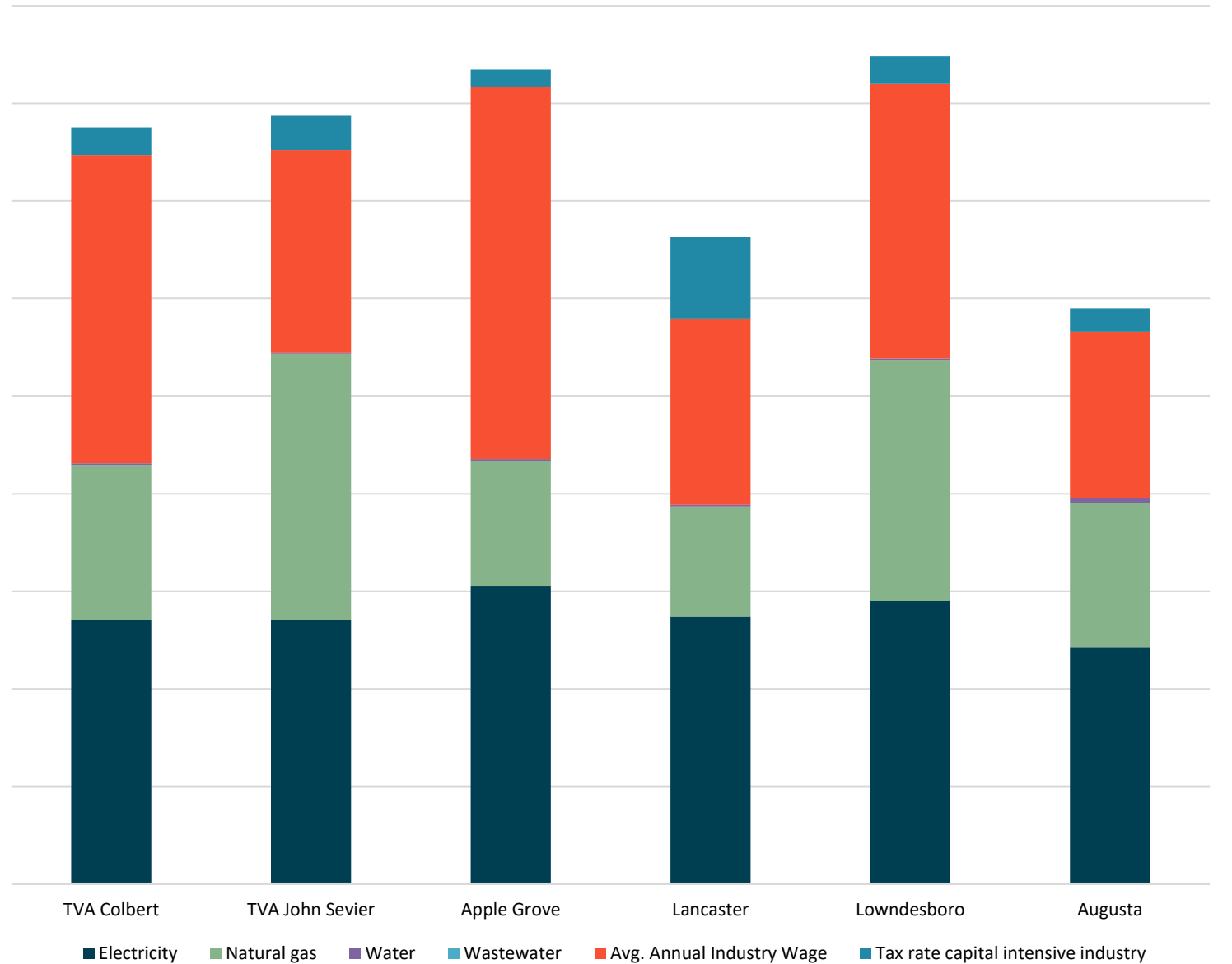
Total Conditions Scoring Results
Alumina and Aluminum Production and Processing



Competitiveness Benchmarking

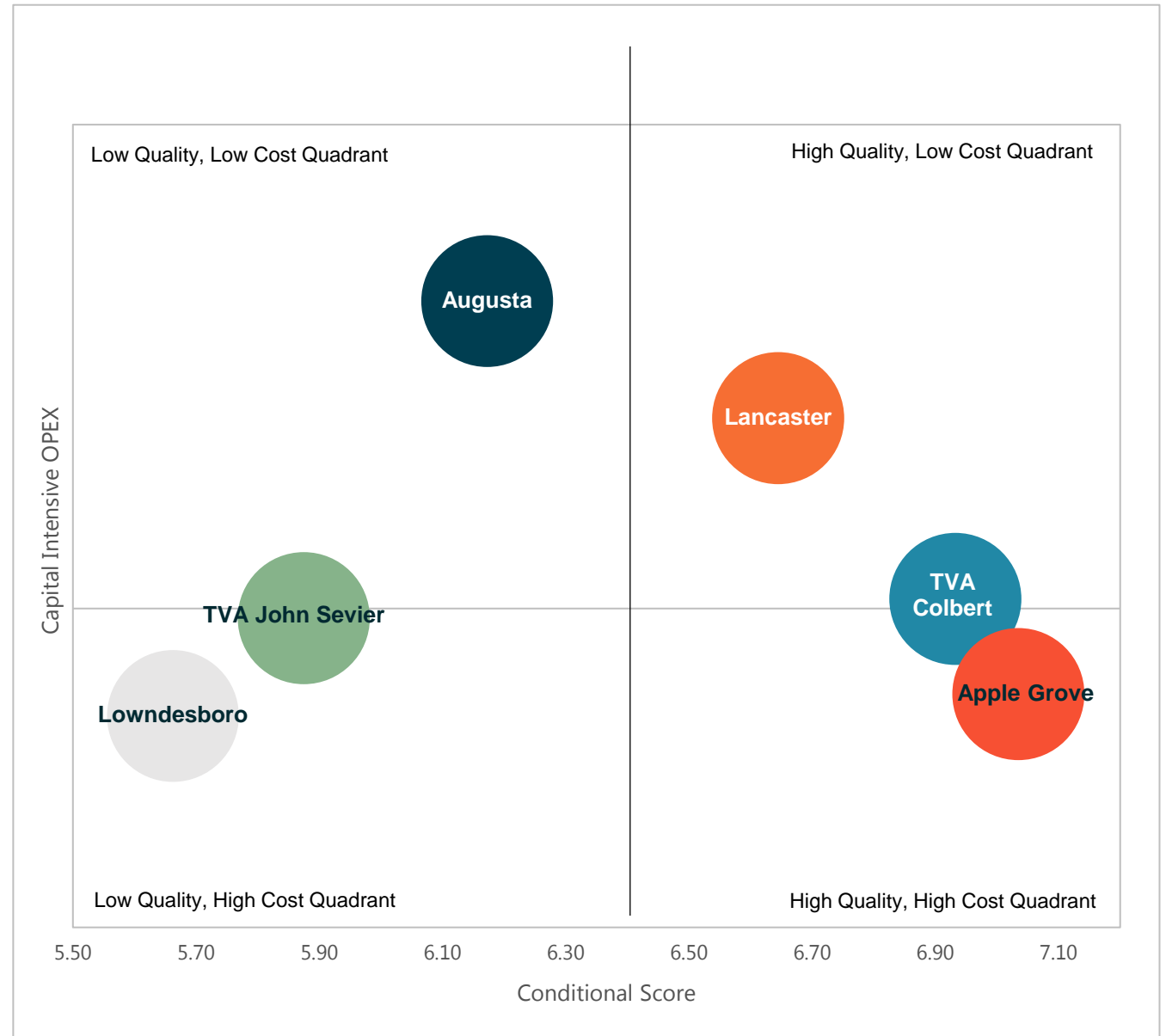
DETERMINE IF THE SITE IS STILL COMPETITIVE WHEN COMPARED TO OTHER LOCATIONS

Alumina and Aluminum Production and Processing
ROM Total Cost for One Year of Operations



Competitiveness Benchmarking

DETERMINE IF THE SITE IS STILL COMPETITIVE WHEN COMPARED TO OTHER LOCATIONS



Competitiveness Benchmarking

DEVELOP AN
IMPROVEMENT PLAN FOR
BEST-SUITED INDUSTRY
SUBSECTORS

Criteria	Sub-criteria	STRENGTH	WEAKNESS
Size	Size & configuration		X
	Topography	ü	
	Floodplain	ü	
	Zoning	ü	
	Surrounding land use	ü	
Transportation	Site ingress/egress	ü	
	Rail service	ü	
	Interstate or highway network		X
	Commercial airport		X
	Barge access	ü	
Utilities	Electricity	ü	
	Natural gas	ü	
	Water line	ü	
	Wastewater		X
Workforce	Size of labor force		X
	Educational attainment		X
	Percentage employed in manufacturing	ü	
	Labor force participation rate		X
	Unemployment rate	ü	
	Unionization		X
	Right-to-work	ü	
	Manufacturing location quotient	ü	
Environmental/ Permitting	Air quality attainment	ü	
	Presence of wetlands/streams		X
	Endangered/threatened species, and/or cultural resources	ü	
	Recognized environmental conditions		X
	Speed of permitting	ü	
Industry Strength	Total employment in specific industry	ü	
	National employment share in specific industry	ü	
	National employment share growth in specific industry	ü	
	Location quotient	ü	
	Location quotient growth	ü	
Community Support + Quality of Life	Healthcare	ü	
	Primary and secondary schools	ü	
	Cost of living	ü	
	Crime rates		X
	Climate		X
Costs	Culture & recreation	ü	
	Electricity	ü	
	Natural gas		X
	Avg. Annual Industry Wage		X
	Tax rate capital intensive industry		Average

Reframing Closure as Opportunity

COMMITMENT, INGENUITY, TEAMWORK, AND A DOSE OF LUCK.

01

IDENTIFY THE OPPORTUNITIES

Before the plant closes, begin identifying redevelopment strategies

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PROTECT YOUR ASSETS

Know which differentiators should be maintained throughout decommissioning and remediation

03

ENGAGE ALL STAKEHOLDERS

Political will and multi-jurisdictional alignment.

04

TAKE A TARGETED APPROACH TO RECRUITMENT


Target companies within identified industry subsectors that need your infrastructure.

Challenges

REFRAMING CLOSURE
AS OPPORTUNITY

- Perception of community and industry
- Legacy environmental concerns
- Remote locations and the resulting workforce and logistics implications
- Maintenance of prime assets
- Timeline between plant closure and new industry recruitment



An aerial photograph of a winding asphalt road through a lush, green mountain valley. The sun is low on the horizon, creating a warm, golden glow and long shadows across the landscape. The road curves through the valley, leading the eye from the foreground towards the distant mountains.

REFRAMING CLOSURE AS OPPORTUNITY

Develop a Pathway Forward, a Unified Team, and Perseverance



Case Study

Case Study

WHAT YOU SHOULD HAVE KNOWN

Requirements	Cumulative
Capital Investment	\$737 MM
Direct Employment	1,050
Site Size Required	200 acres
Building Size	1.8 MM sf
Maximum Structure Height	Up to 125 ft.
Zoning	Industrial
Electrical Operating Load	32.5 MW
Electrical Load Factor	85%
Natural Gas	60 MCF/h
Water	600,000 GPD
Sewer	490,000 GPD

- Big project: Likely to have a lot of ED interest
- Labor-Intensive: 1.4 jobs created for every \$1 MM invested
 - Labor availability and labor pipeline critical factors
- Attainable acreage size: more competition, so expectations on readiness will be higher

Case Study

WHAT YOU SHOULD HAVE KNOWN

Requirements	Cumulative
Direct Employment	1,050
Electrical Operating Load	32.5 MW
Electrical Load Factor	Approximately 85%
Natural Gas	60 MCF/hr.
Water	600,000 GPD
Sewer	490,000 GPD

x \$20/hr. = \$44 MM Annually

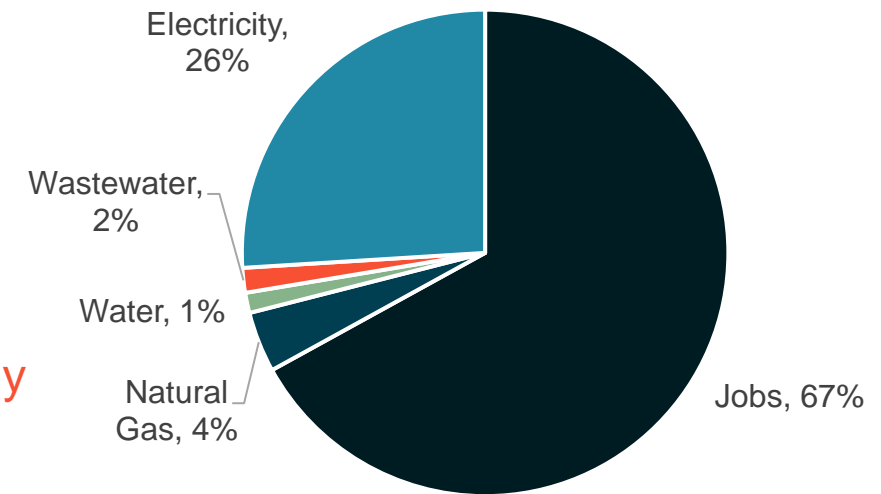
x \$0.07 / kWh = \$17 MM Annually

x \$5 / MCF = \$2.6 MM Annually

x \$4 / 1,000 gallons = \$0.8 MM Annually

x \$6 / 1,000 gallons = \$1 MM Annually

Average Distribution of Location-Dependent Costs



Case Study

WHAT YOU SHOULD HAVE KNOWN

Requirements	Cumulative
Direct Employment	1,050
Electrical Operating Load	32.5 MW
Electrical Load Factor	Approximately 85%
Natural Gas	60 MCF/hr.
Water	600,000 GPD
Sewer	490,000 GPD

Impact of an Additional:

\$1 / hr. = \$2.2 MM Annually

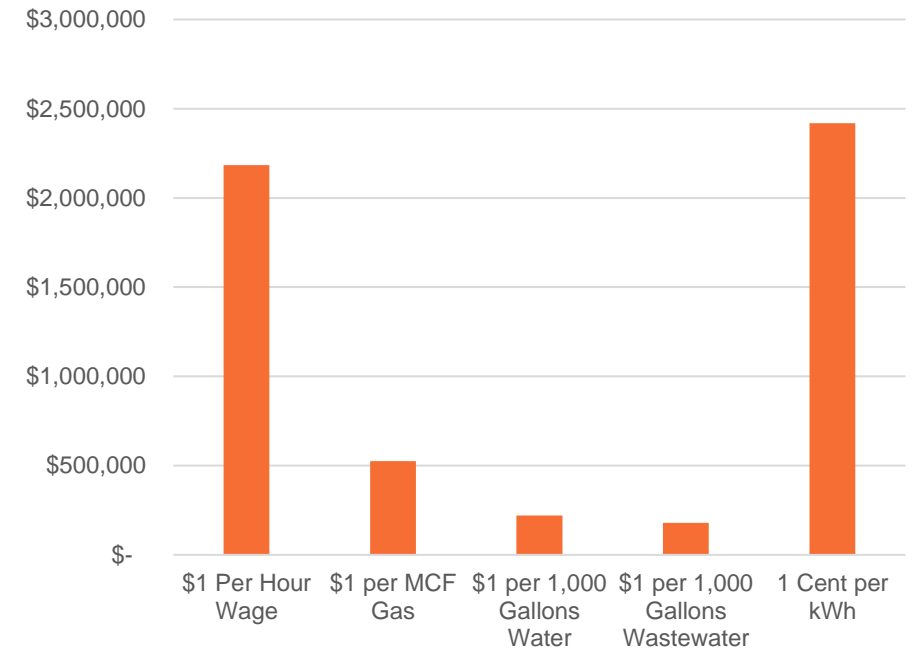
\$0.01 / kWh = \$2.4 MM Annually

\$1 / MCF = \$0.53 MM Annually

x \$1 /1,000 gallons = \$0.22 MM Annually

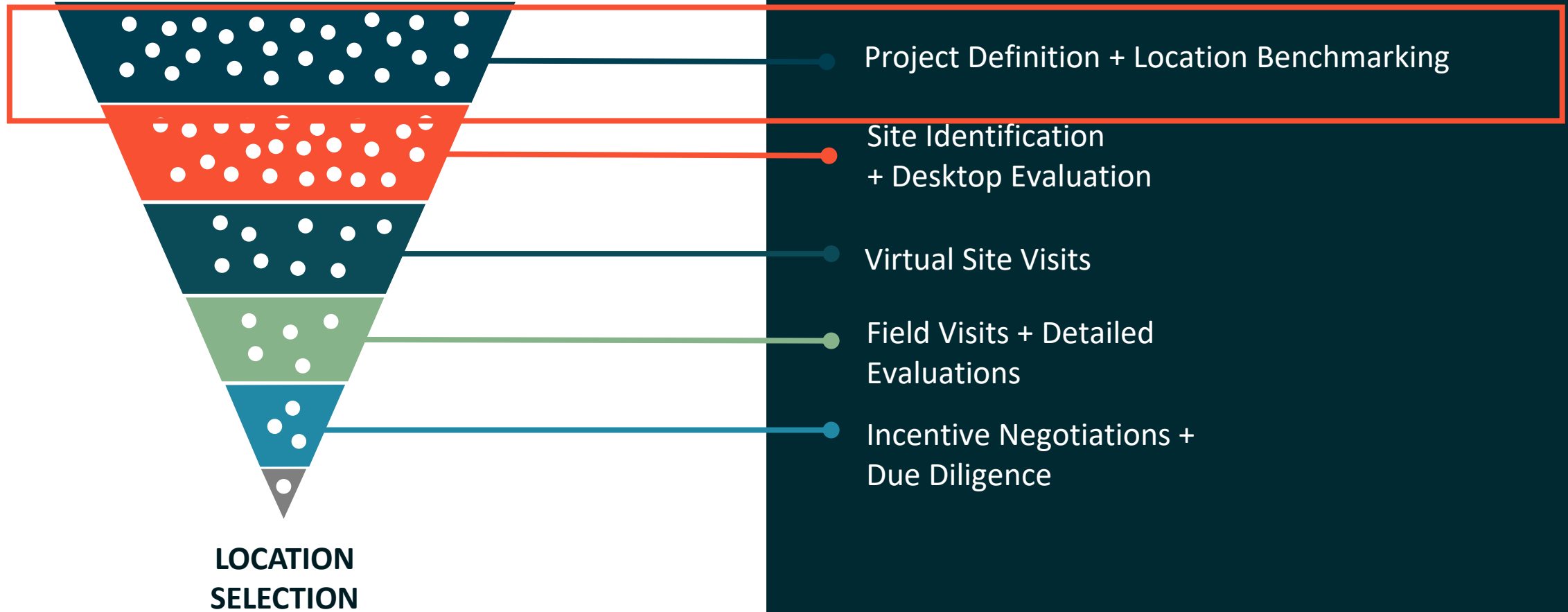
x \$1 /1,000 gallons = \$0.18 MM Annually

Cost Sensitivity



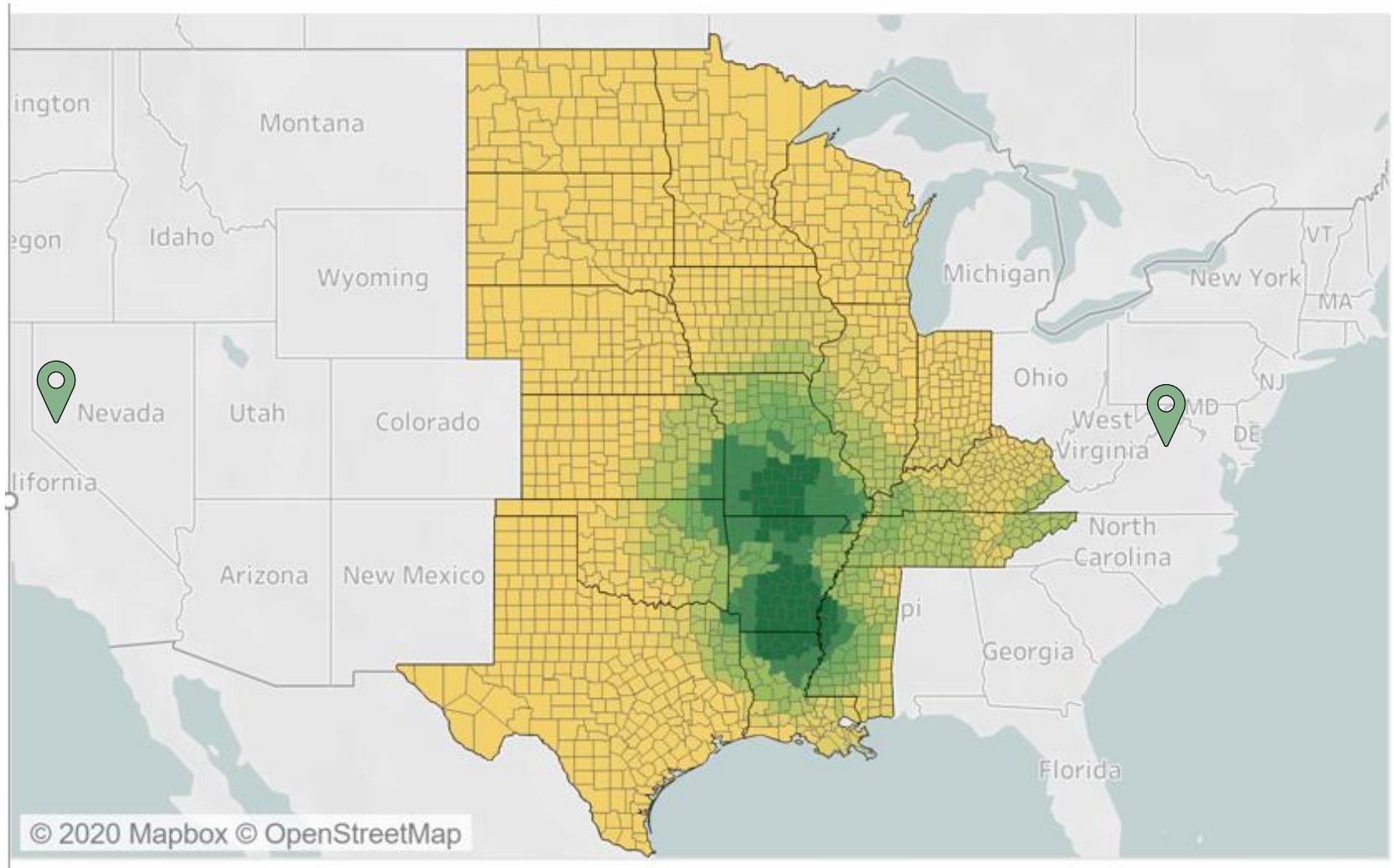
Site Selection Process

A TYPICAL GLS SITE
SELECTION APPROACH



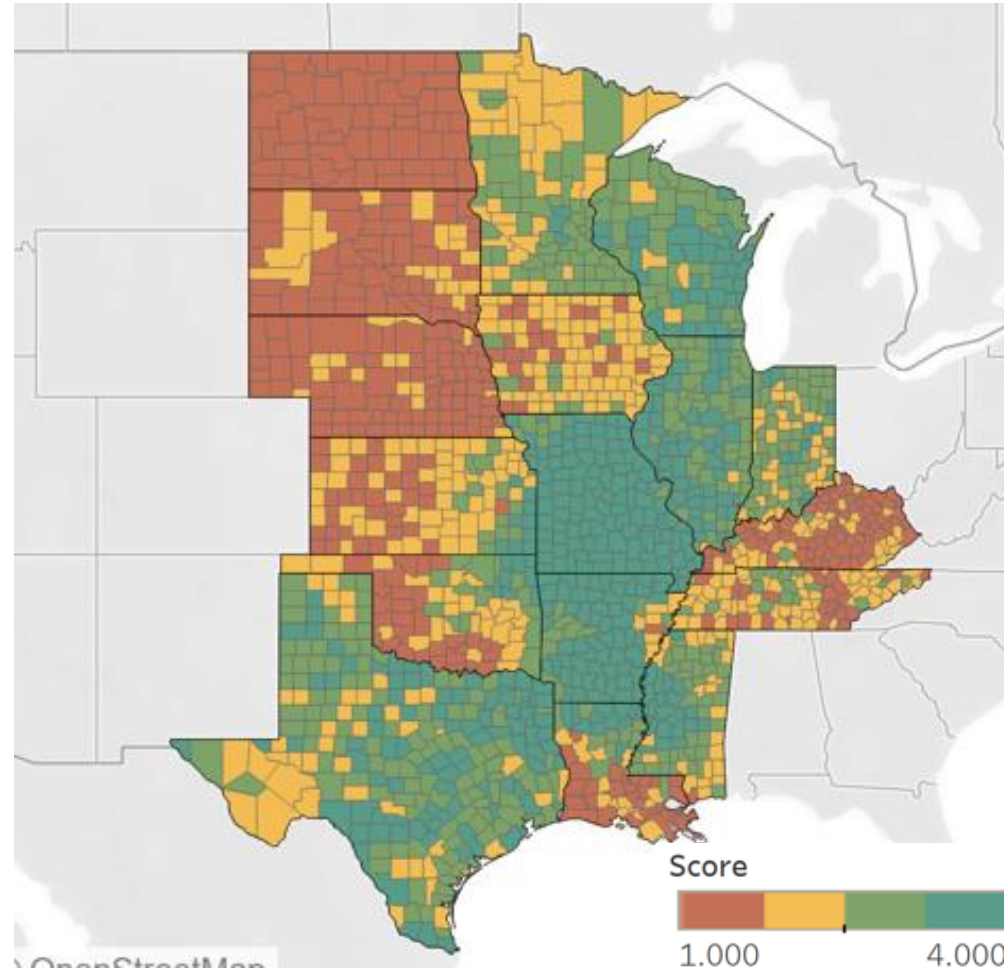
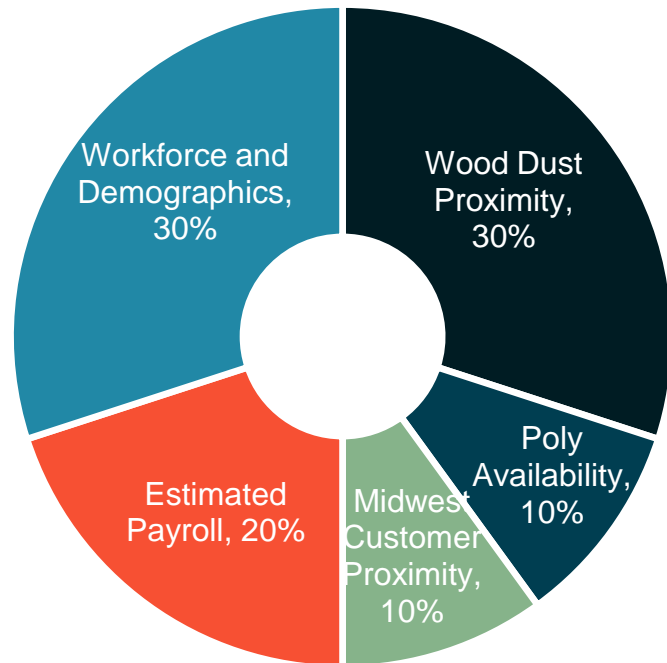
Case Study

WHAT YOU DIDN'T KNOW



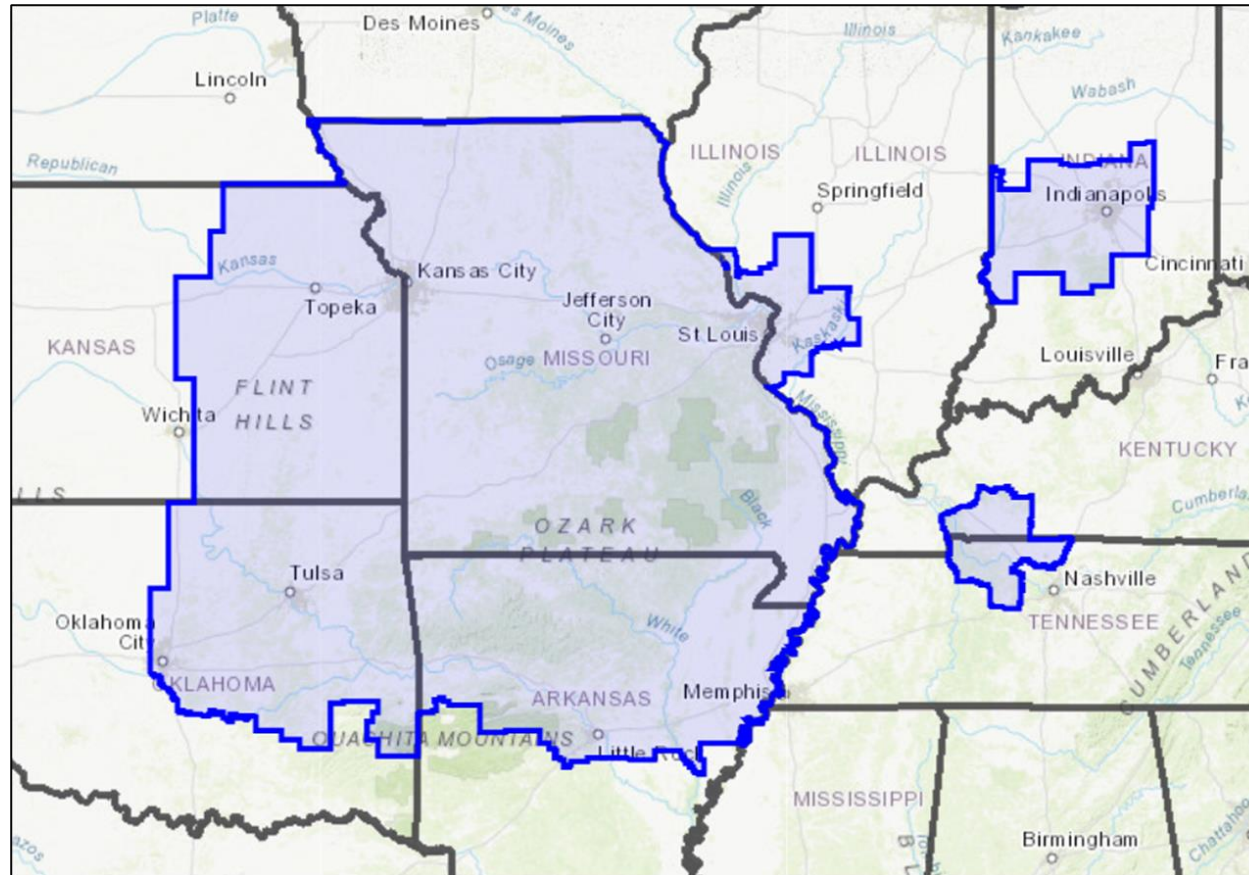
Case Study

PHASE 1 BENCHMARKING
SITE-INDEPENDENT

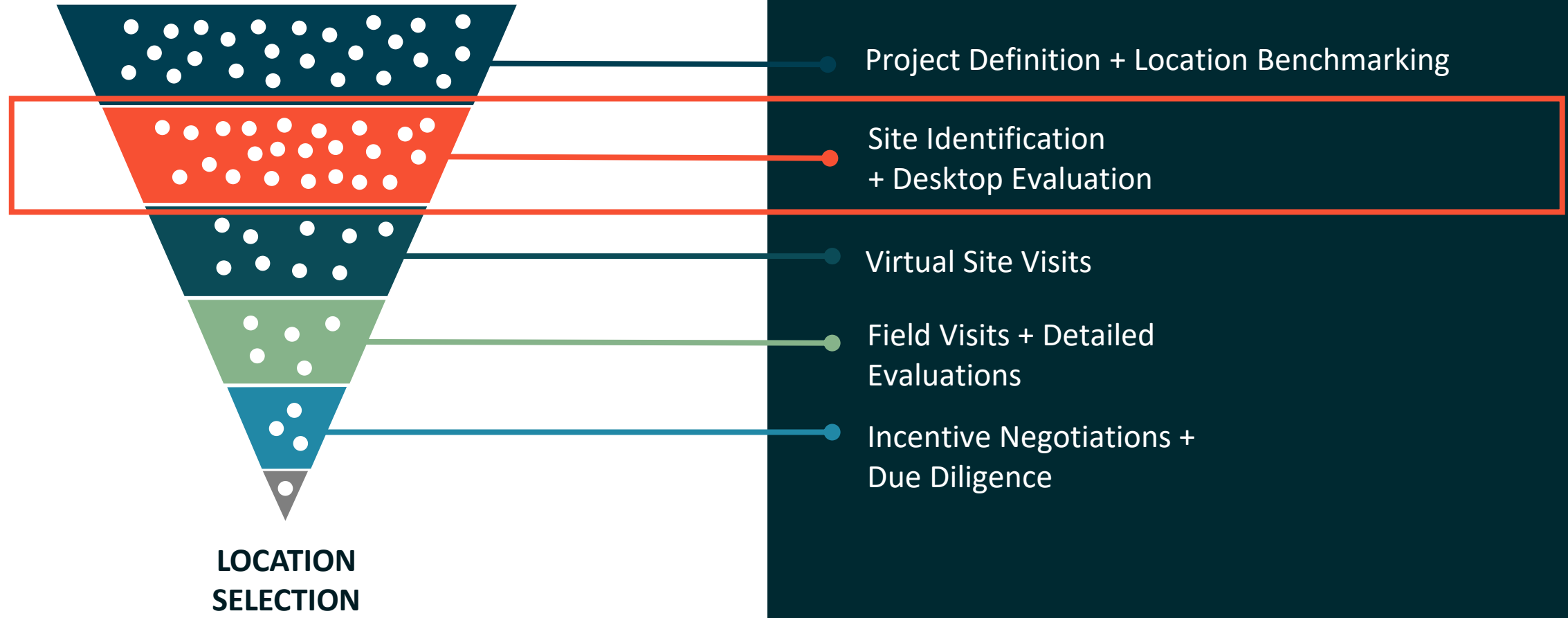


Case Study

SEARCH REGION

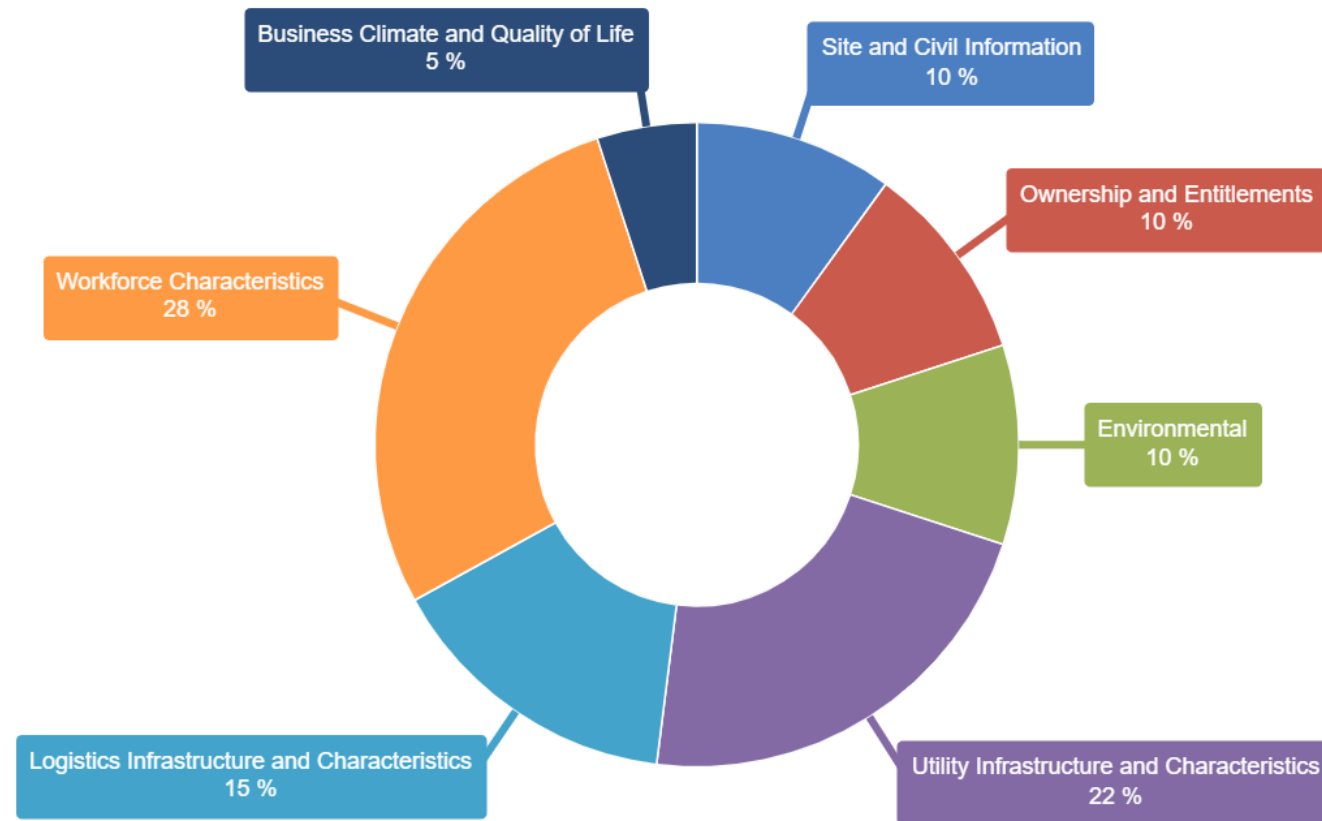


Site Selection Process



Case Study

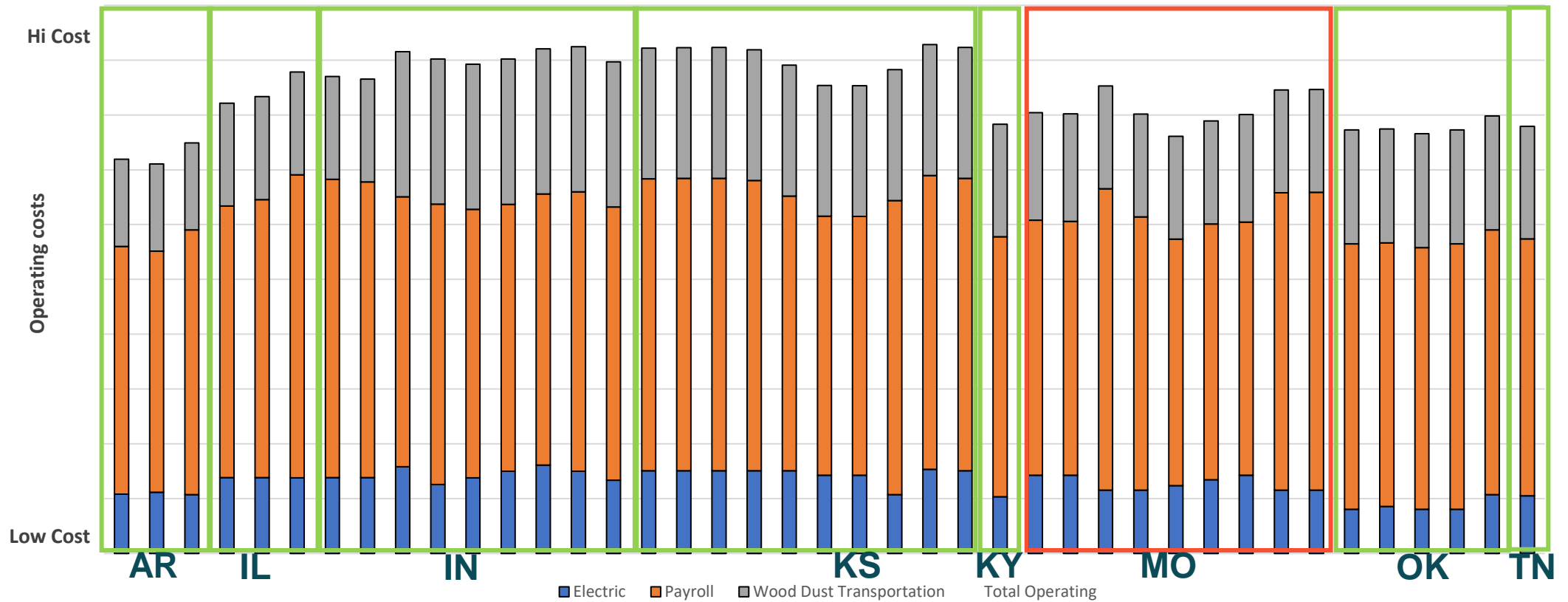
PHASE 02 SITE IDENTIFICATION
SITE-DEPENDENT



Case Study

PHASE 02 SITE IDENTIFICATION RESULTS

Annual Operating Costs, Phase 4: Electricity, Payroll, Wood Dust Transportation

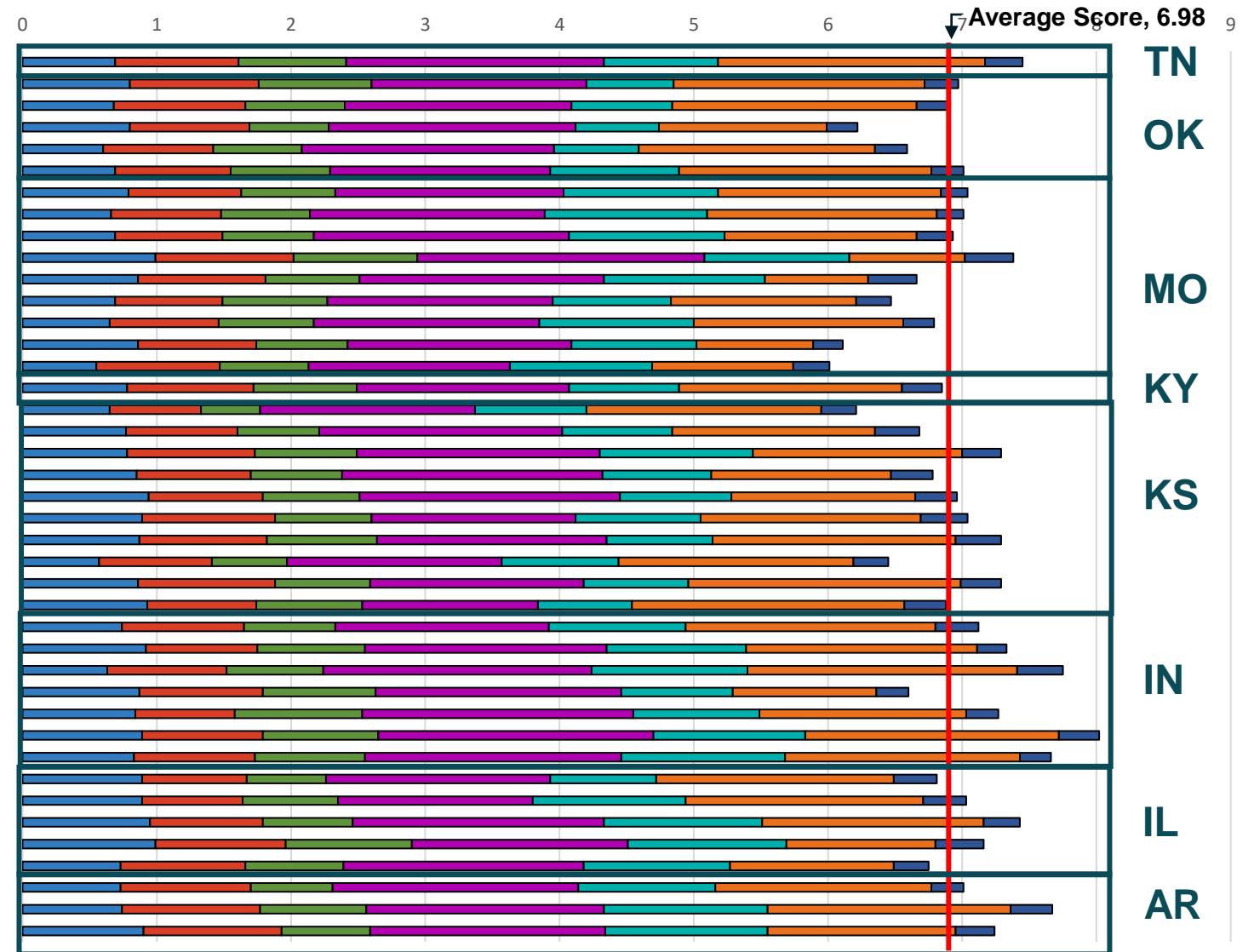


Phase 02

Site ID

CASE STUDY

Conditions Scoring Results



- Site and Civil
- Environmental
- Logistics Infrastructure and Characteristics

- Ownership and Entitlements
- Utility Infrastructure and Characteristics
- Workforce Characteristics

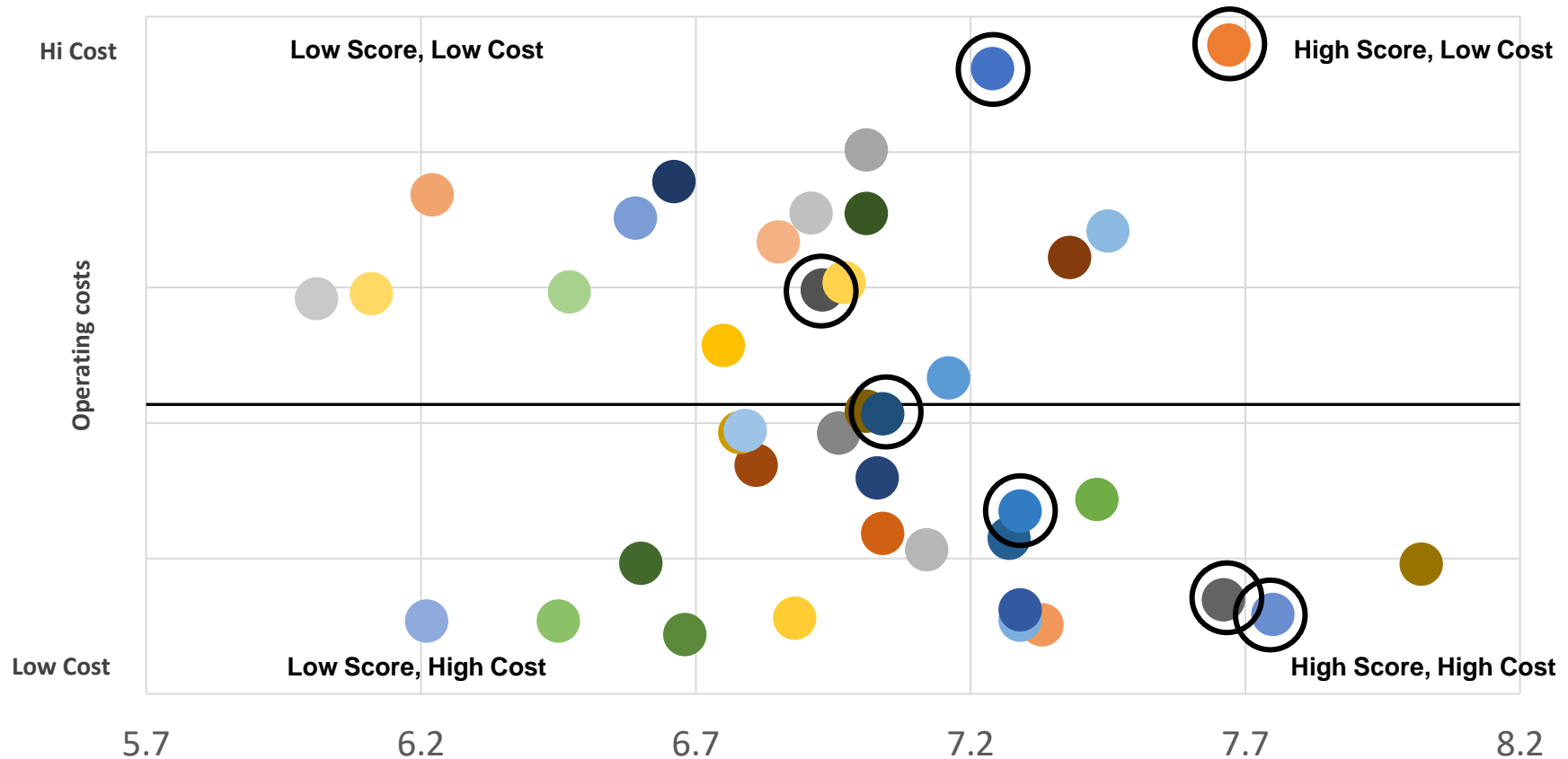
Case Study

PHASE 02 SITE IDENTIFICATION RESULTS

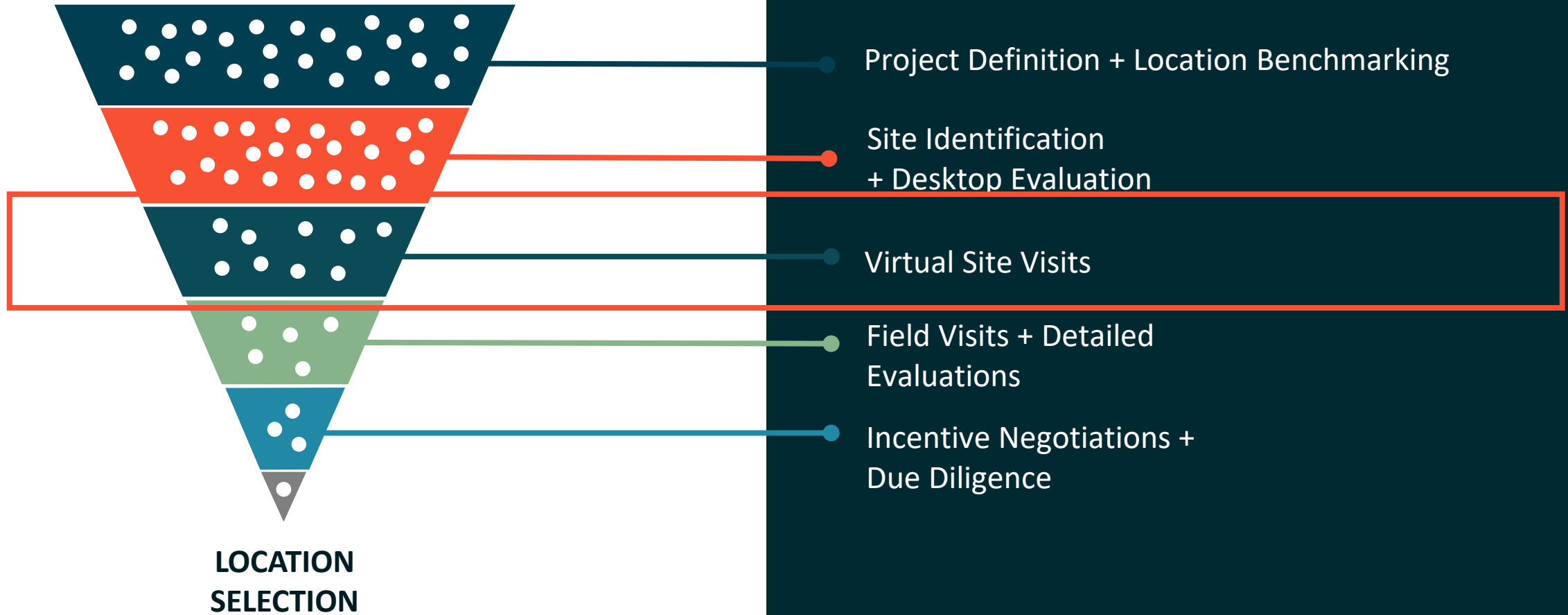
Phase 02 Composite Results

Submitted:
51 sites
8 states

Must Screen:
41 sites
8 states

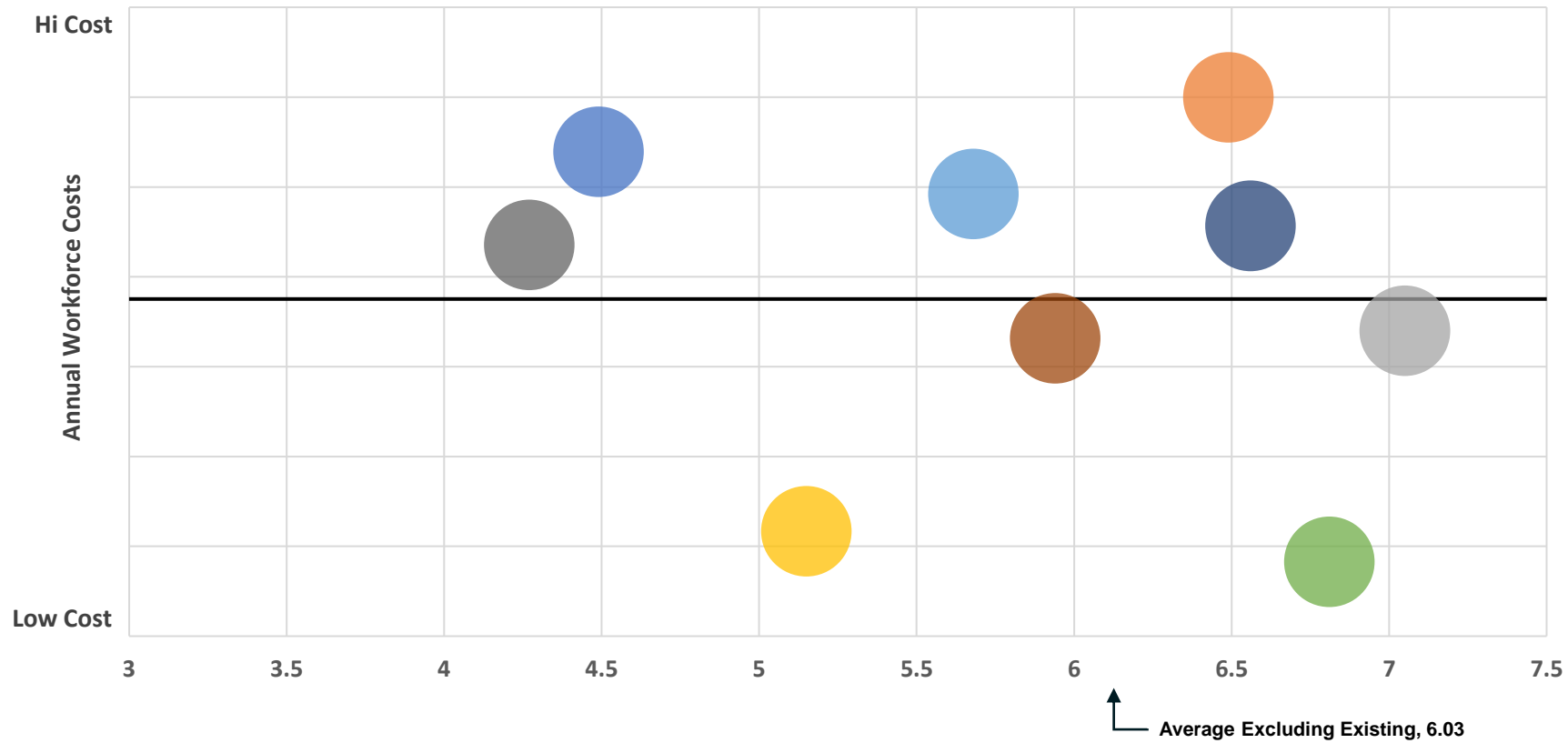


Site Selection Process



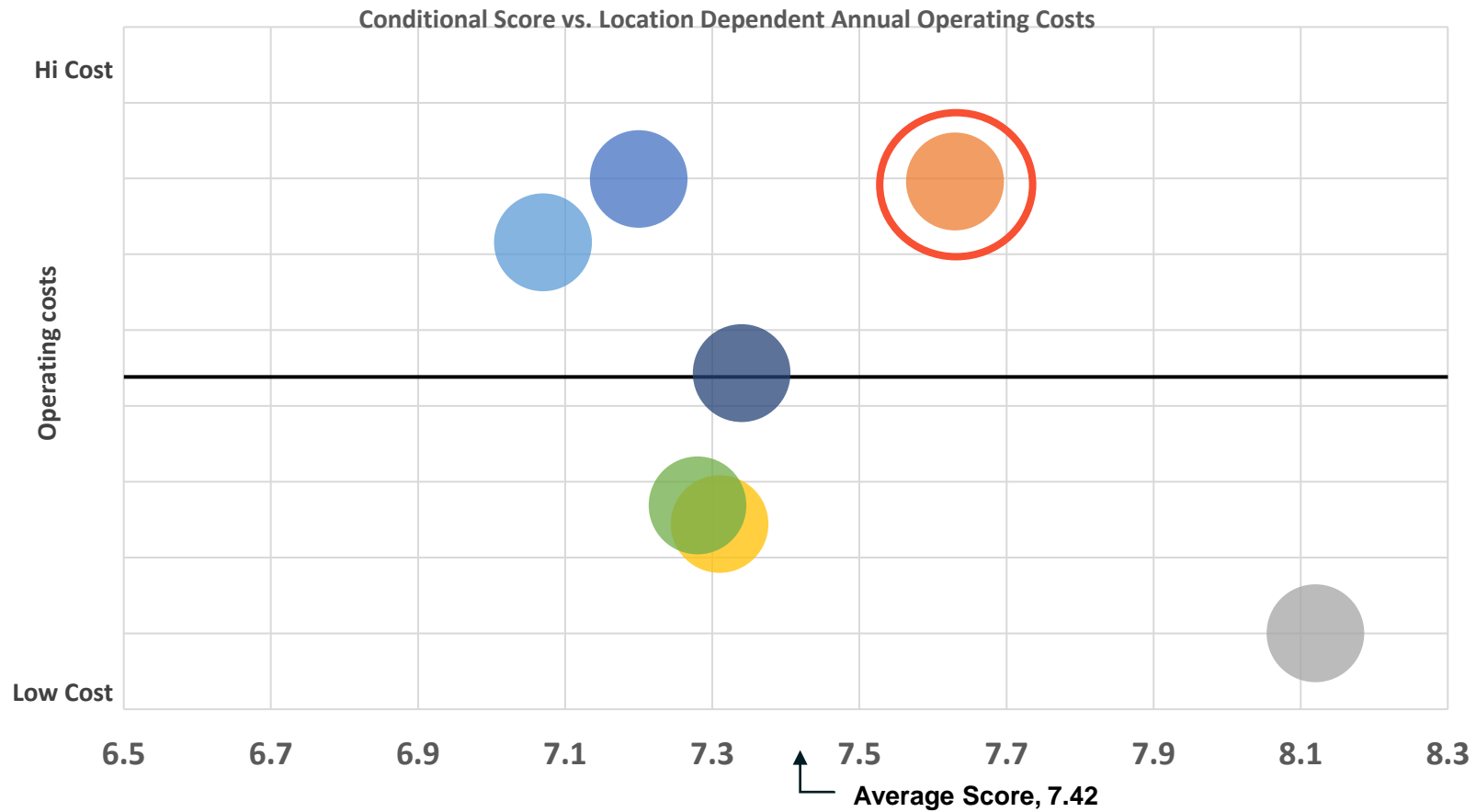
Case Study

Workforce Characteristics Isolated



Case Study

PHASE 03 ANALYSIS



BUSINESS

Trex to build factory at the Port of Little Rock, set to employ over 500

by: [Jay Bir](#)

Posted: Oct 26, 2021 / 10:44 PM CDT

Updated: Oct 27, 2021 / 06:05 AM CDT



+ Are you an Economic Developer?



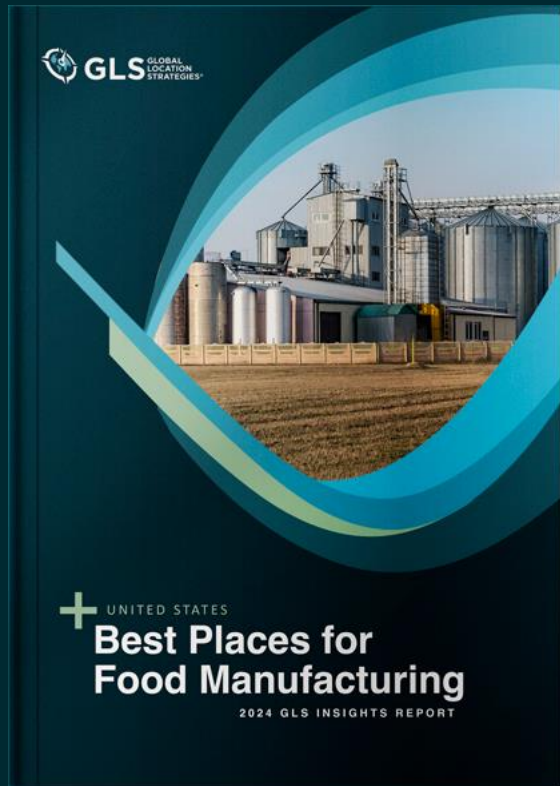




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Promo Code: **DIDI**



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NAVIGATING THE FORESTRY ECONOMIC LANDSCAPE



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