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

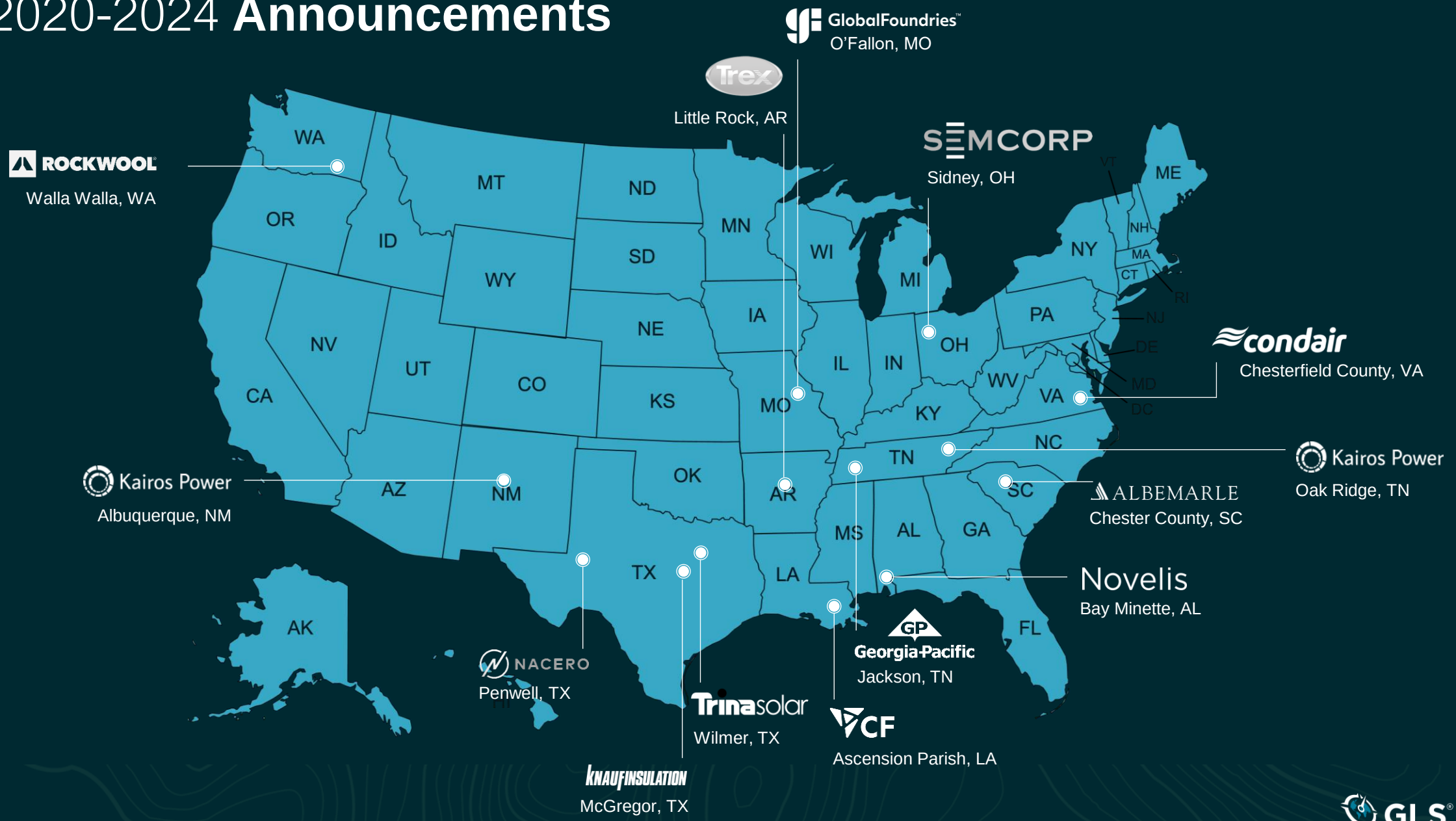
LIFE SCIENCES

METALS

MISSION CRITICAL FACILITIES

GLS®

2020-2024 **Announcements**



Decision Making Influences

OPTIMIZING ON THE TRADE-OFFS

Workforce Criteria

Quality

- Size of the Workforce
- Skills in the Workforce

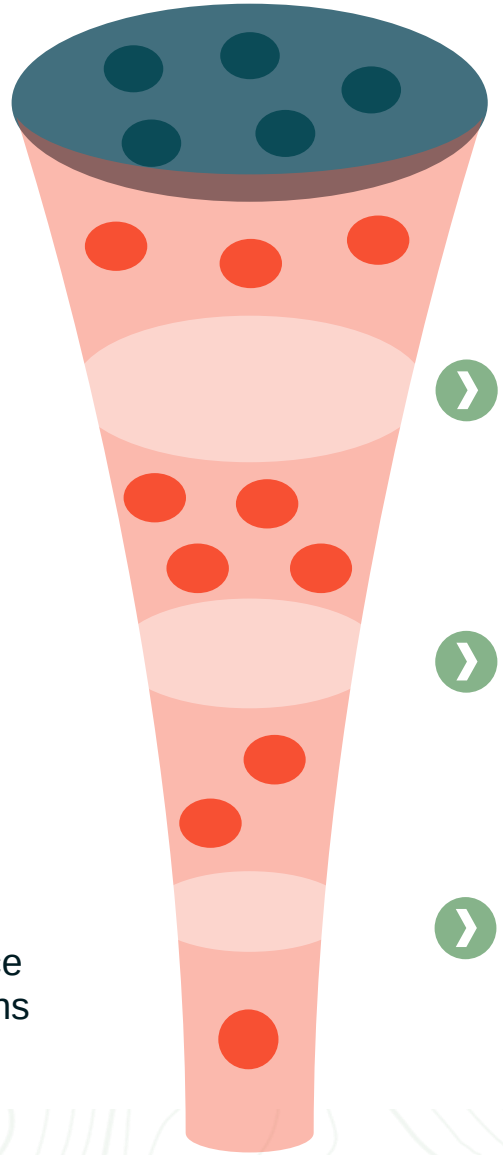
Cost

- Wage Rates
- Benefits
- Unemployment Insurance
- Workers Comp

Risk

- Demographics
- Union Activity

850 Data Points



PHASE I
- Project Alignment

PHASE II
- Site Identification

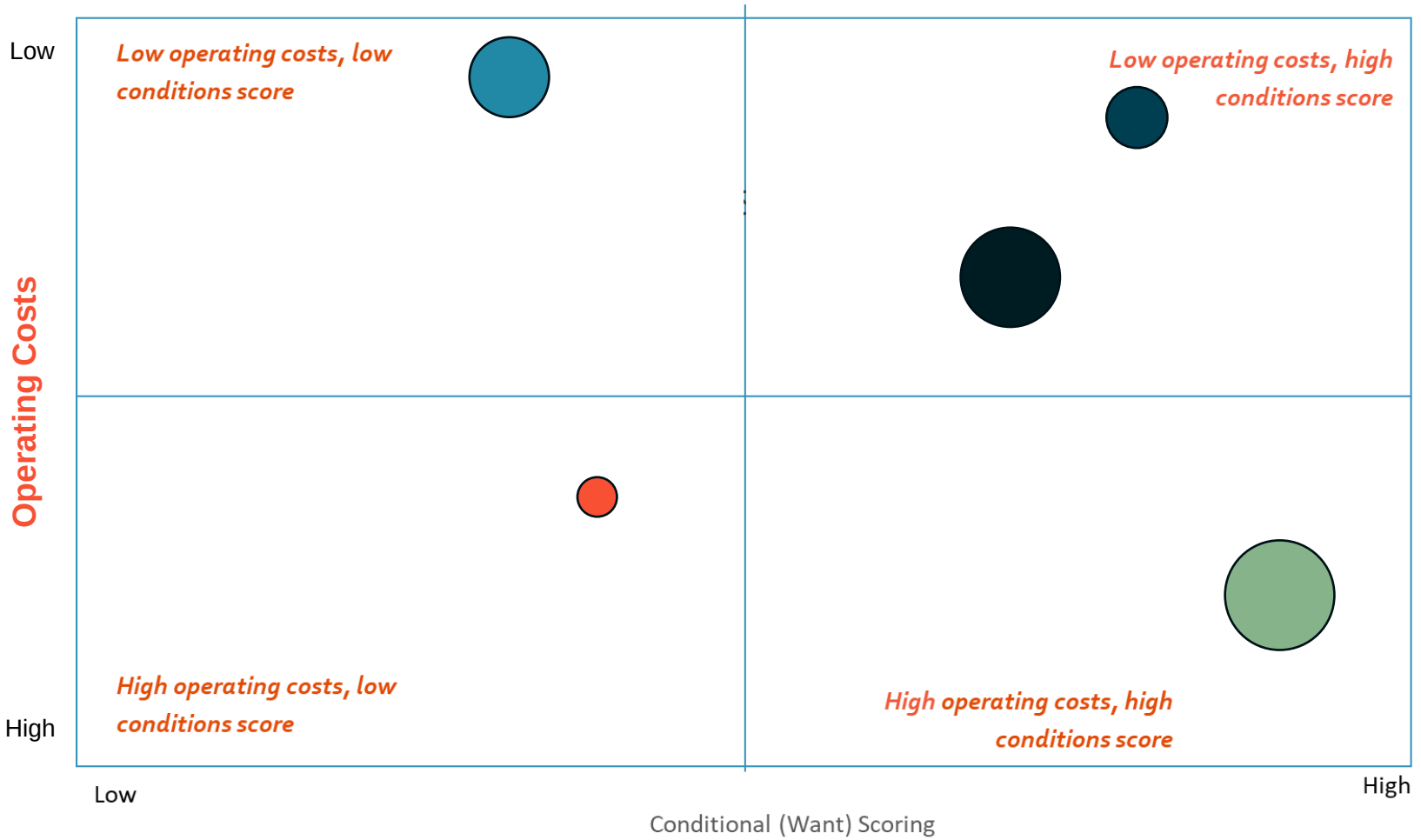
PHASE III
- Detailed Site Evaluation

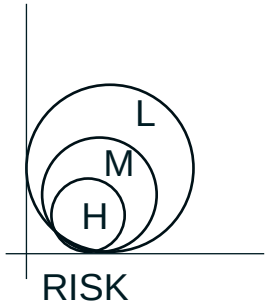
PHASE IV
- Due Diligence + Negotiations

Site Elimination

- Fatal Flaw Analysis
- Qualitative Score
- Prelim Financial
- 20-Year Financial Pro Forma
- Risk Model
- Due Diligence Checklist

Methodology

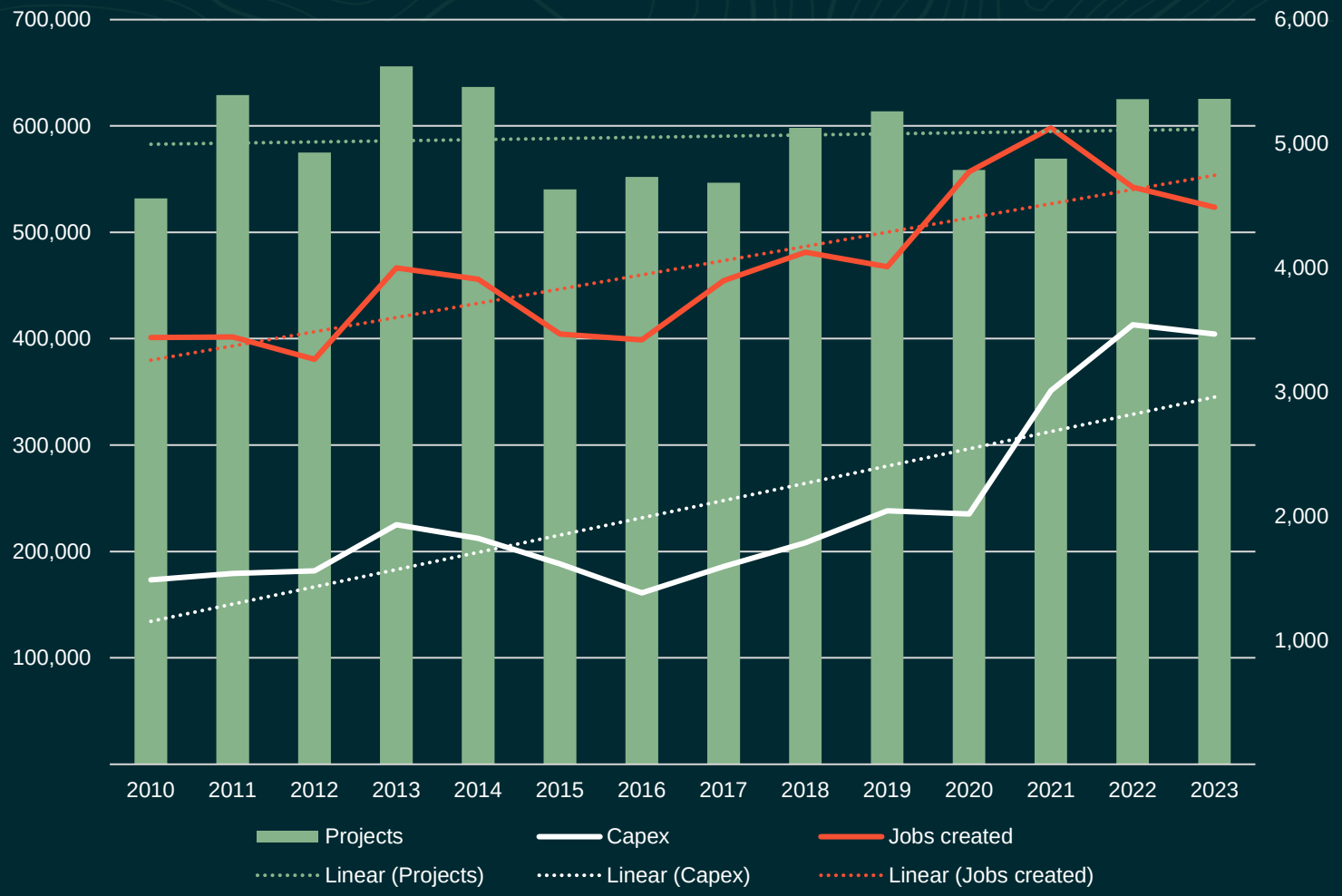




Announced Projects United States

2010-DEC 2023

Source: FDI Markets

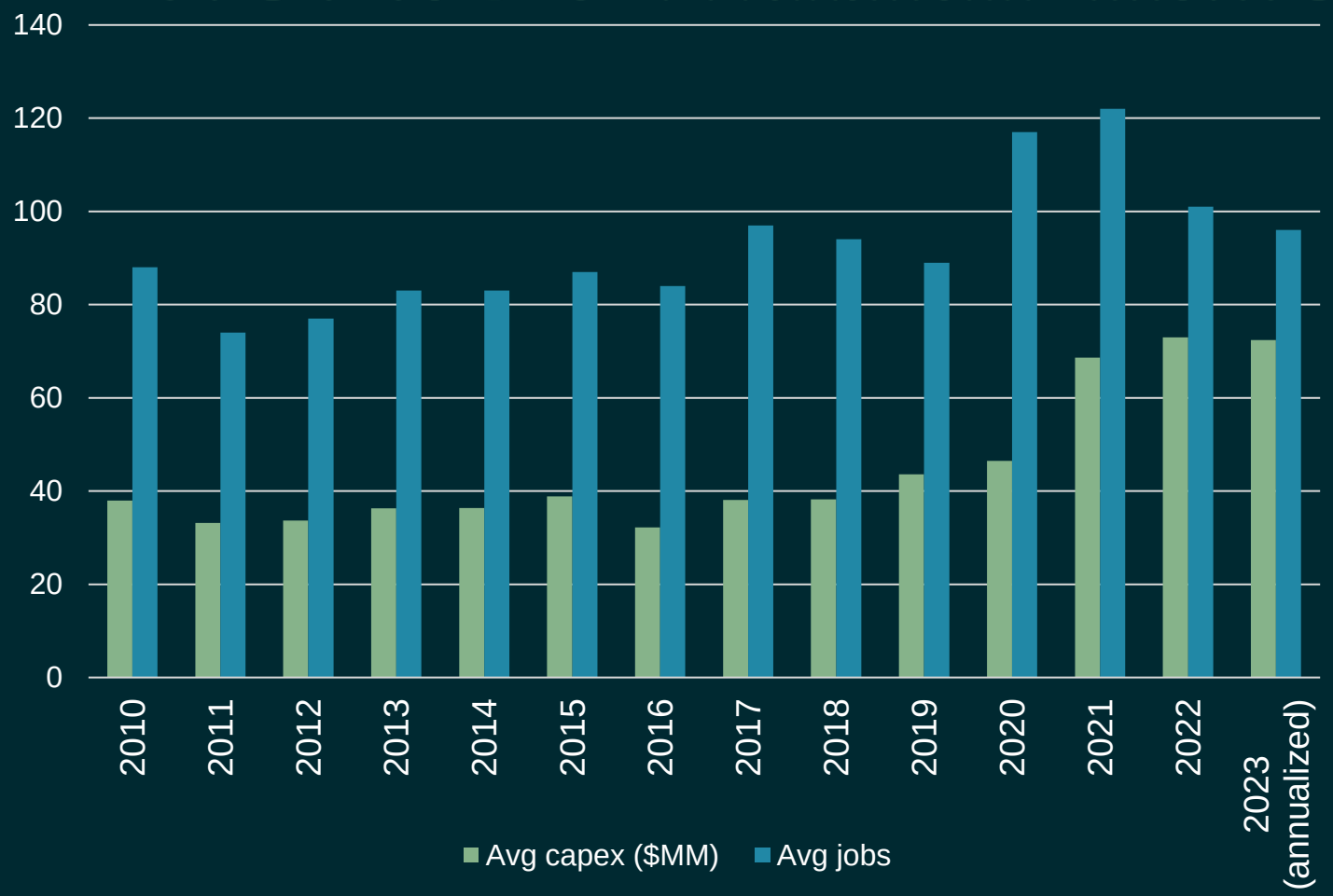


- The number of projects announced has stayed flat at around 5000 per year
- The number of jobs created has grown from around 400,000 in 2010 to a high of nearly 525,000 in 2023
- The total announced capex has gone from less than $200 billion annually from 2010-2018 to a high of nearly $400 billion in 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

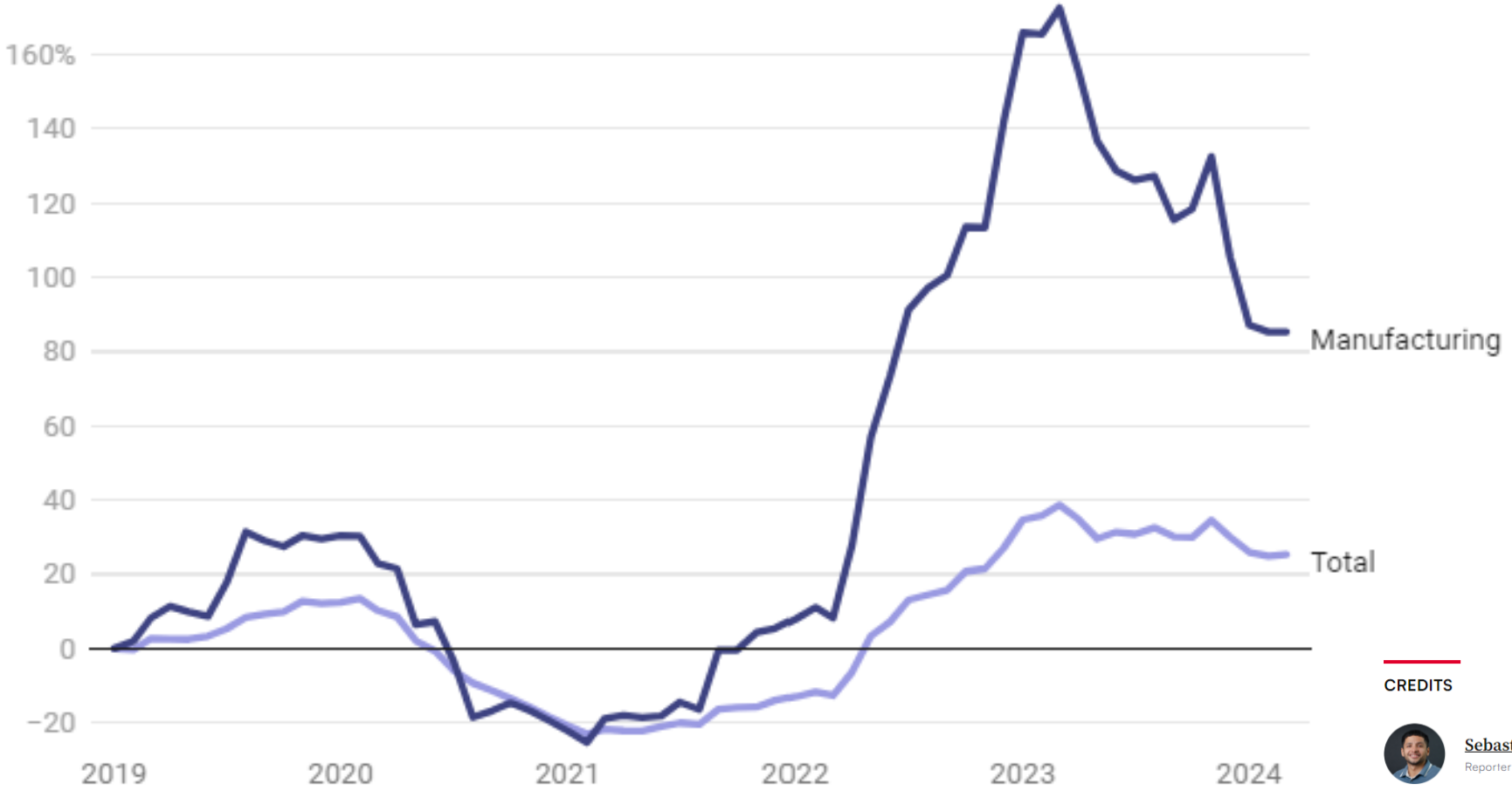
Source: FDI Markets



- 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

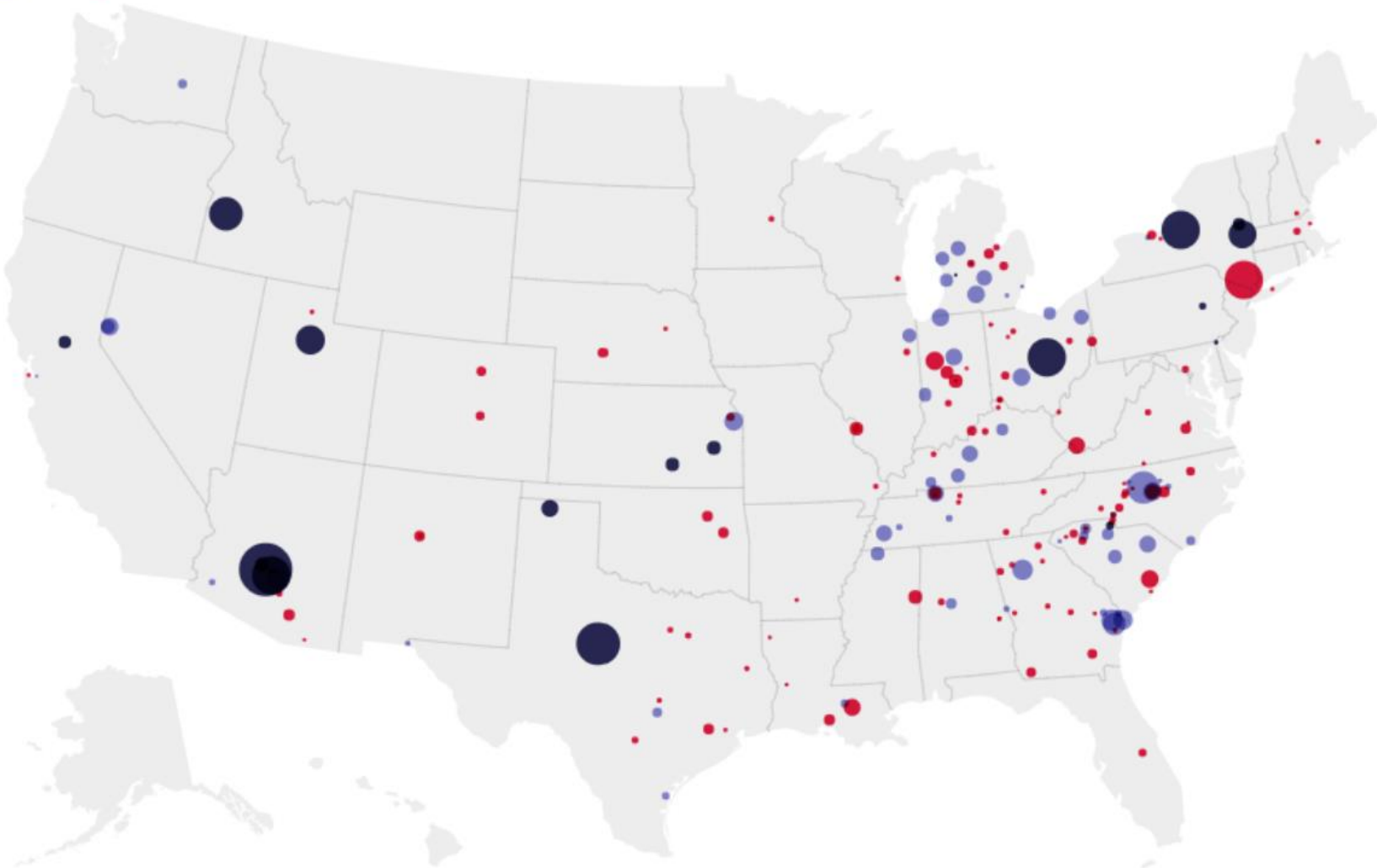
Julia Himmel
News Graphics Developer

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

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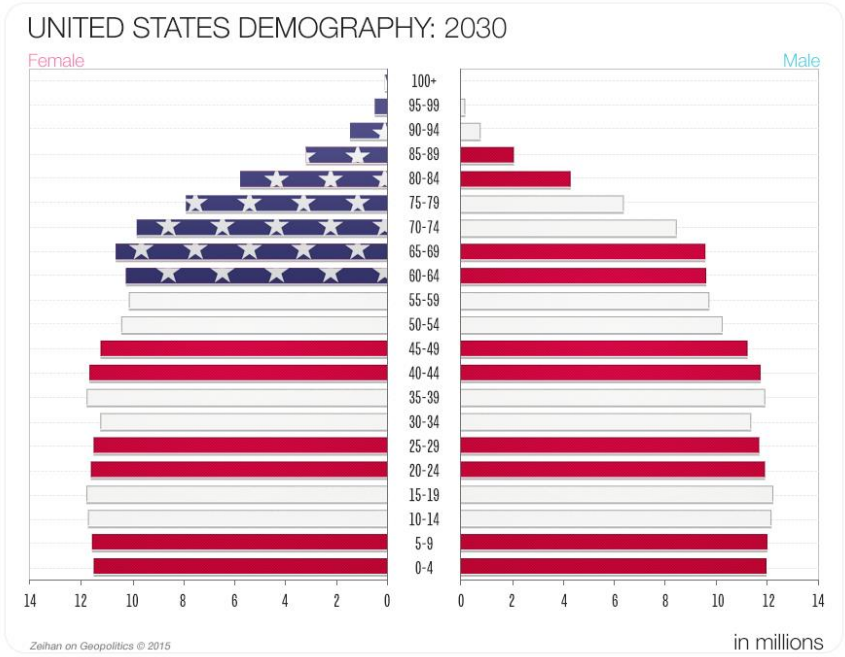
News Graphics Developer

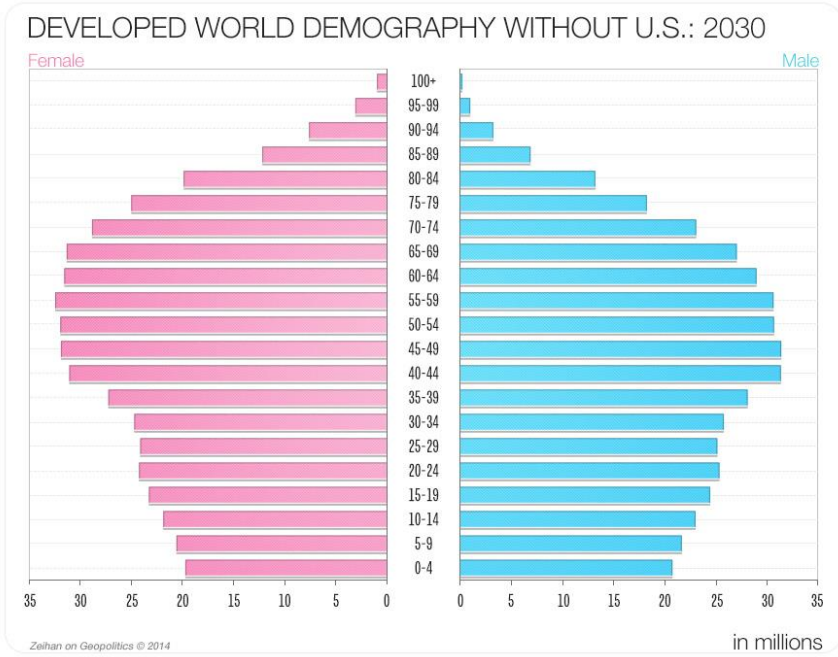

The Economist
The Pentagon leaks
Macron's blunder
The new era of petrodollar power
Oregon botches drug decriminalisation
APRIL 15TH–21ST 2023
RIDING HIGH
The lessons of America's astonishing economy

Why the United States?

- Location
- Location
- Location

- Demography
- Geography
- Geology
- Economy


UNITED STATES DEMOGRAPHY: 2030
Female
Male
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
14 12 10 8 6 4 2 0
0 2 4 6 8 10 12 14
Zeihan on Geopolitics © 2015
in millions


DEVELOPED WORLD DEMOGRAPHY WITHOUT U.S.: 2030
Female
Male
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
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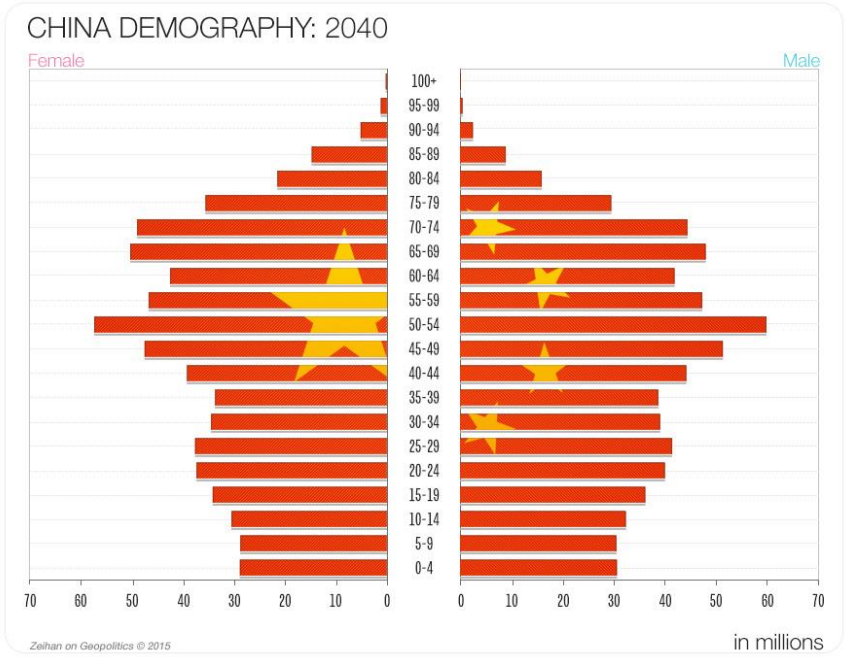
10-14
5-9
0-4
35 30 25 20 15 10 5 0
0 5 10 15 20 25 30 35
Zeihan on Geopolitics © 2014
in millions


CHINA DEMOGRAPHY: 2040
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80-84
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30-34
25-29
20-24
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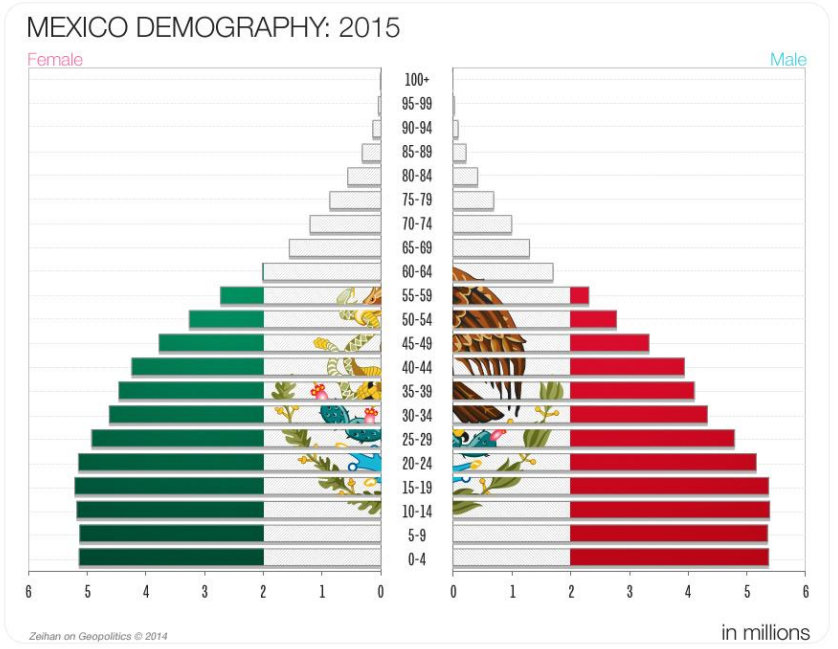
10-14
5-9
0-4
70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70
Zeihan on Geopolitics © 2015
in millions


MEXICO DEMOGRAPHY: 2015
Female
Male
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
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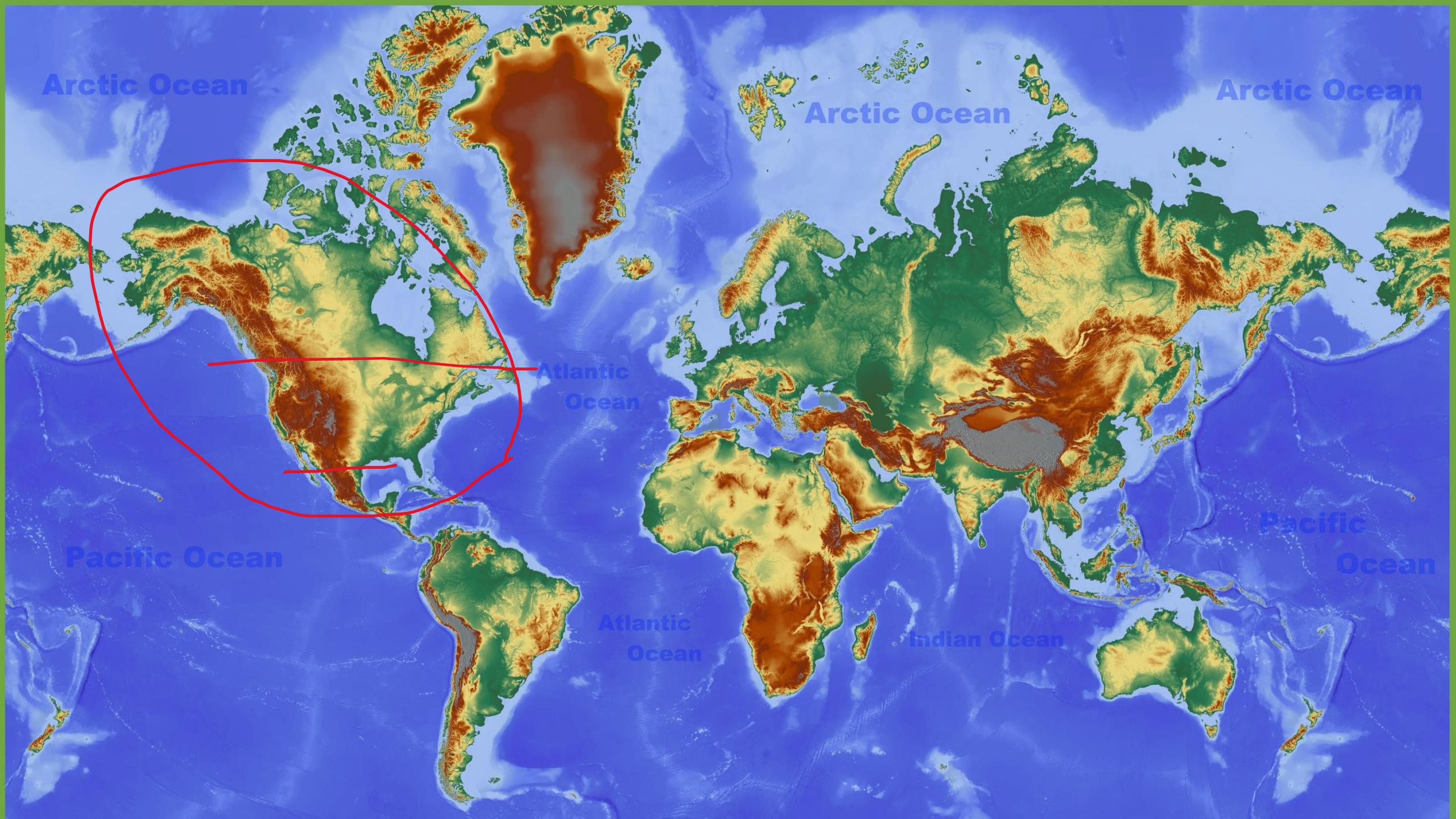
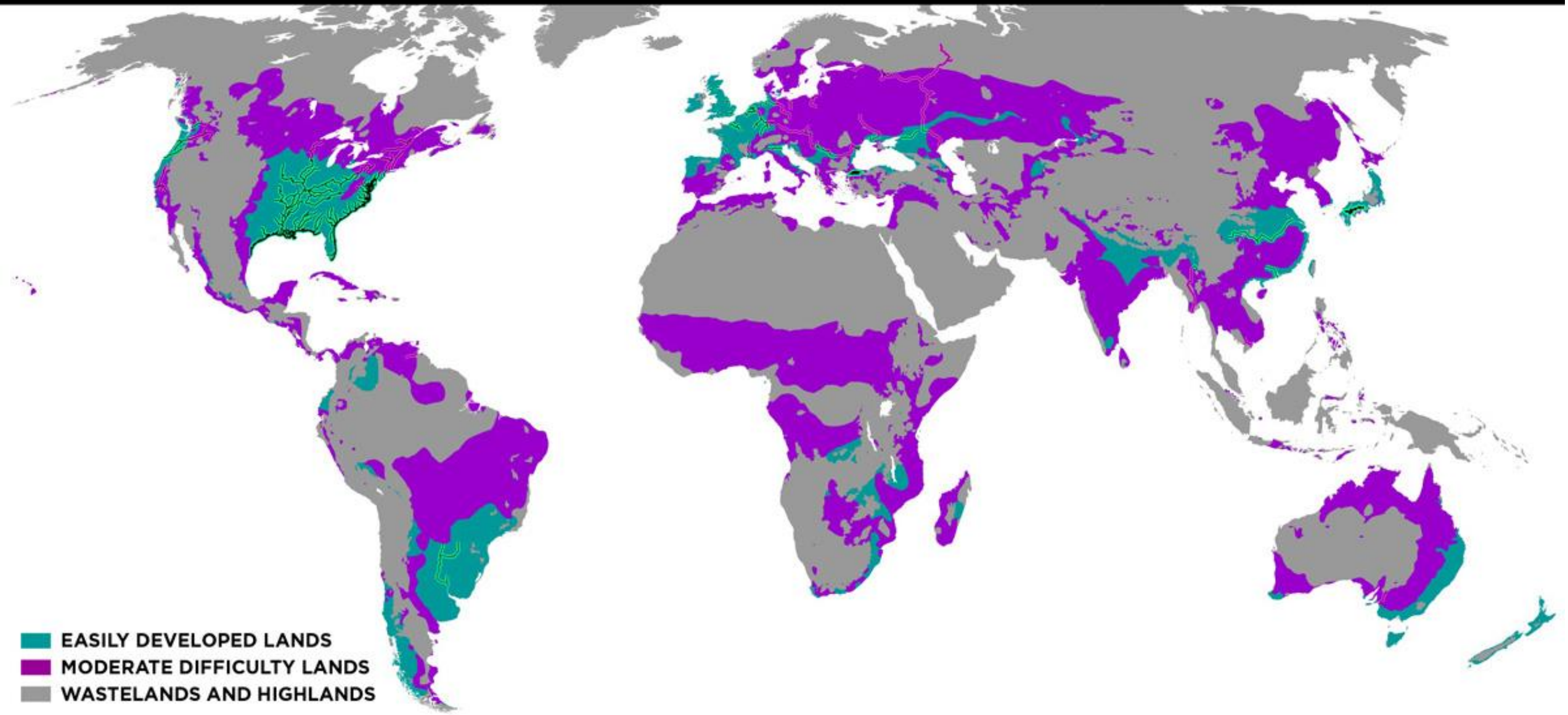
10-14
5-9
0-4
6 5 4 3 2 1 0
0 1 2 3 4 5 6
Zeihan on Geopolitics © 2014
in millions

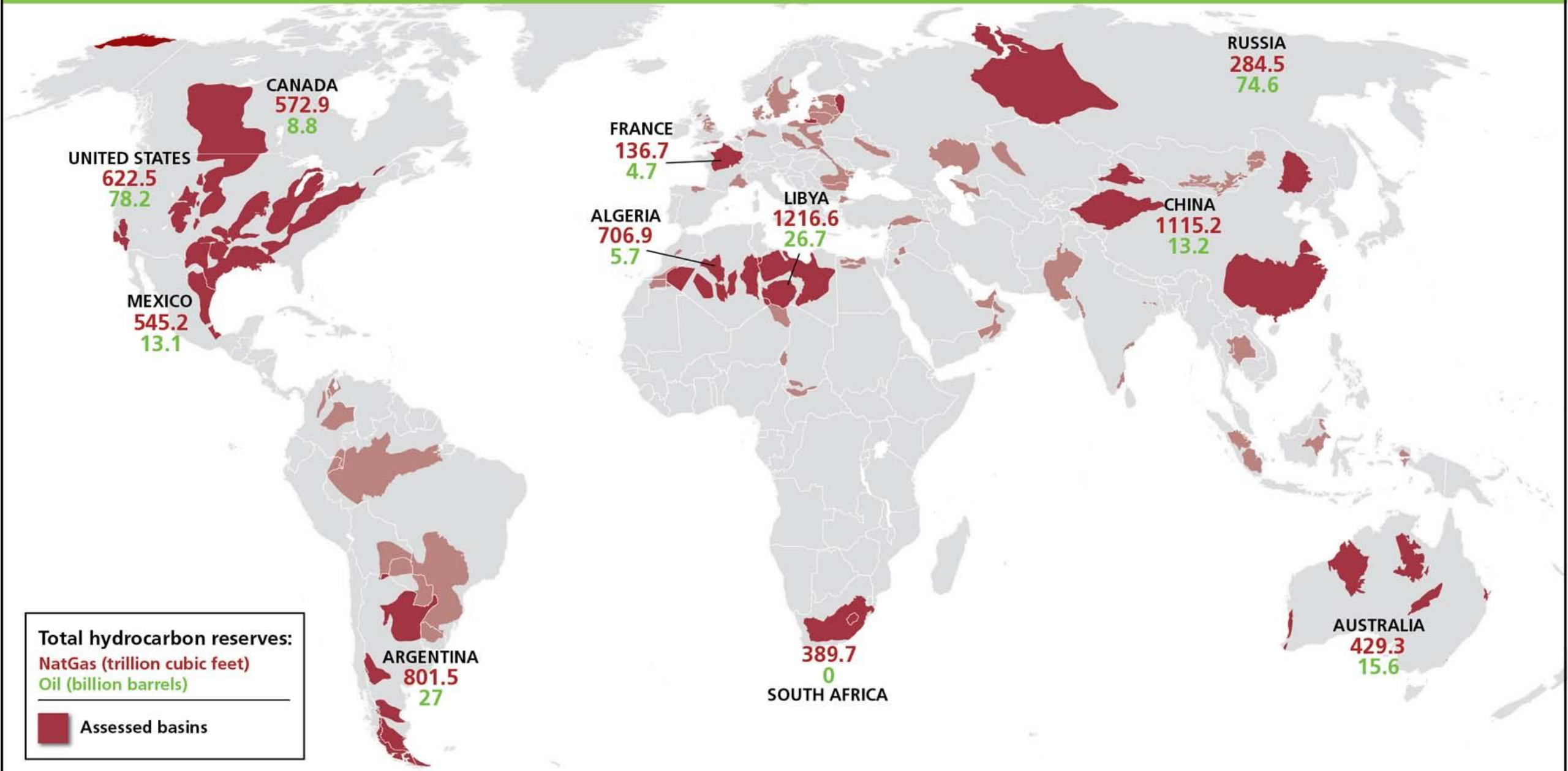

Arctic Ocean
Arctic Ocean
Arctic Ocean
Atlantic
Ocean
Pacific Ocean
Pacific
Ocean
Atlantic
Ocean
Indian Ocean

GLOBAL LAND QUALITY



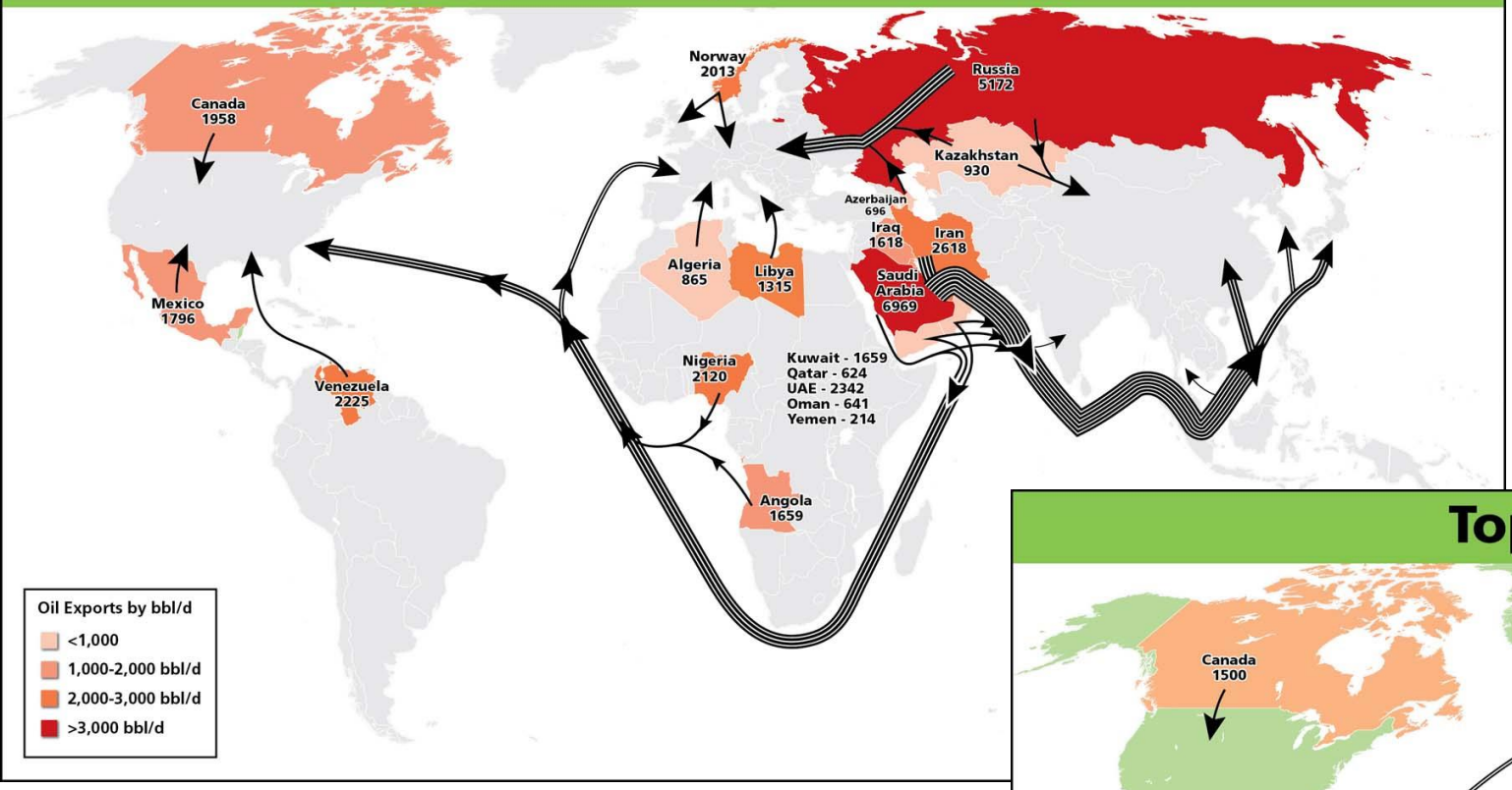

CANADA
Columbia River
Missouri River
Colorado River
Rio Grande
Mississippi River
Hudson River
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
ARCTIC OCEAN

Global Shale Reserves

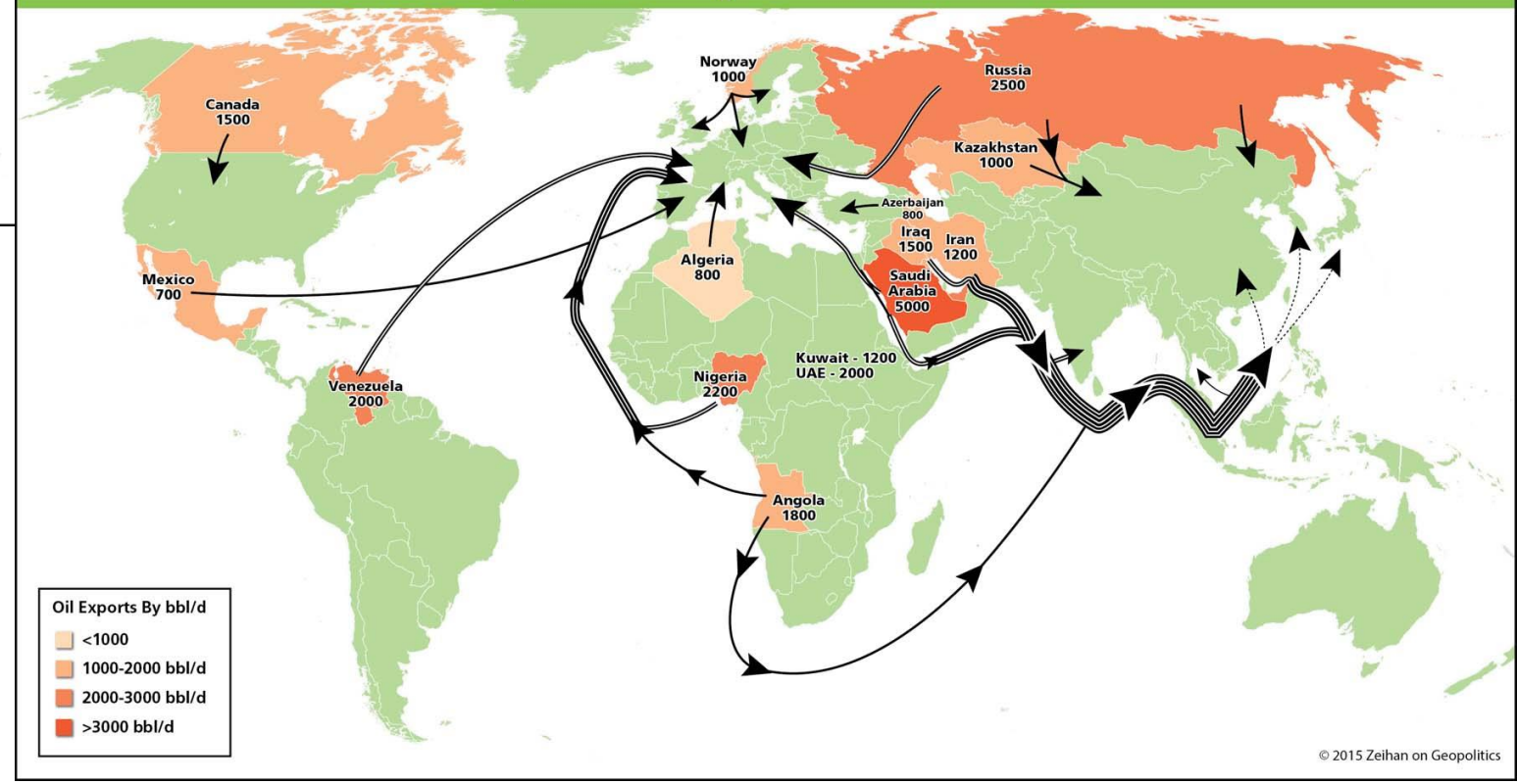


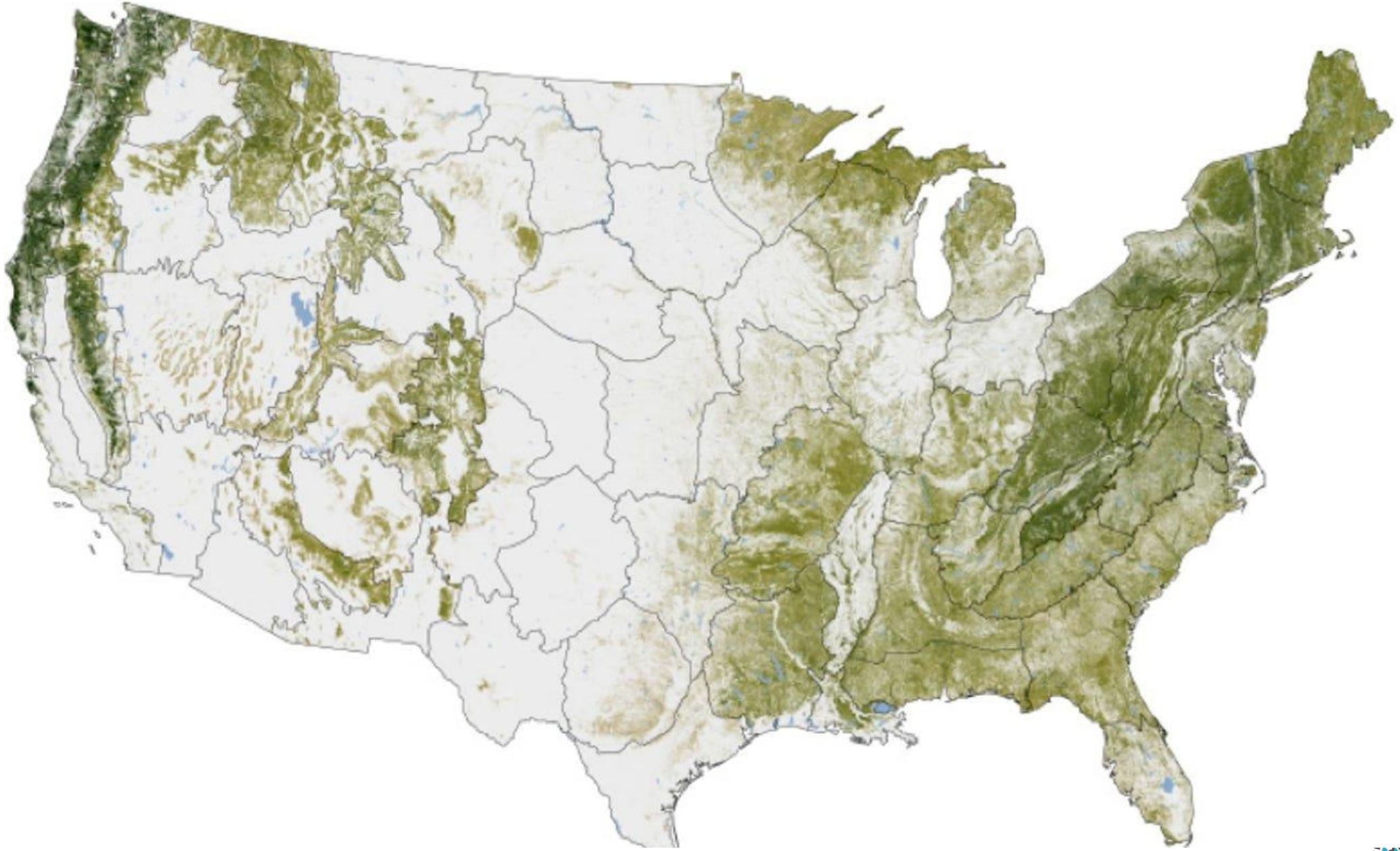
Source: U.S. Energy Information Agency (2014 data)

Top Oil Exporters 2007



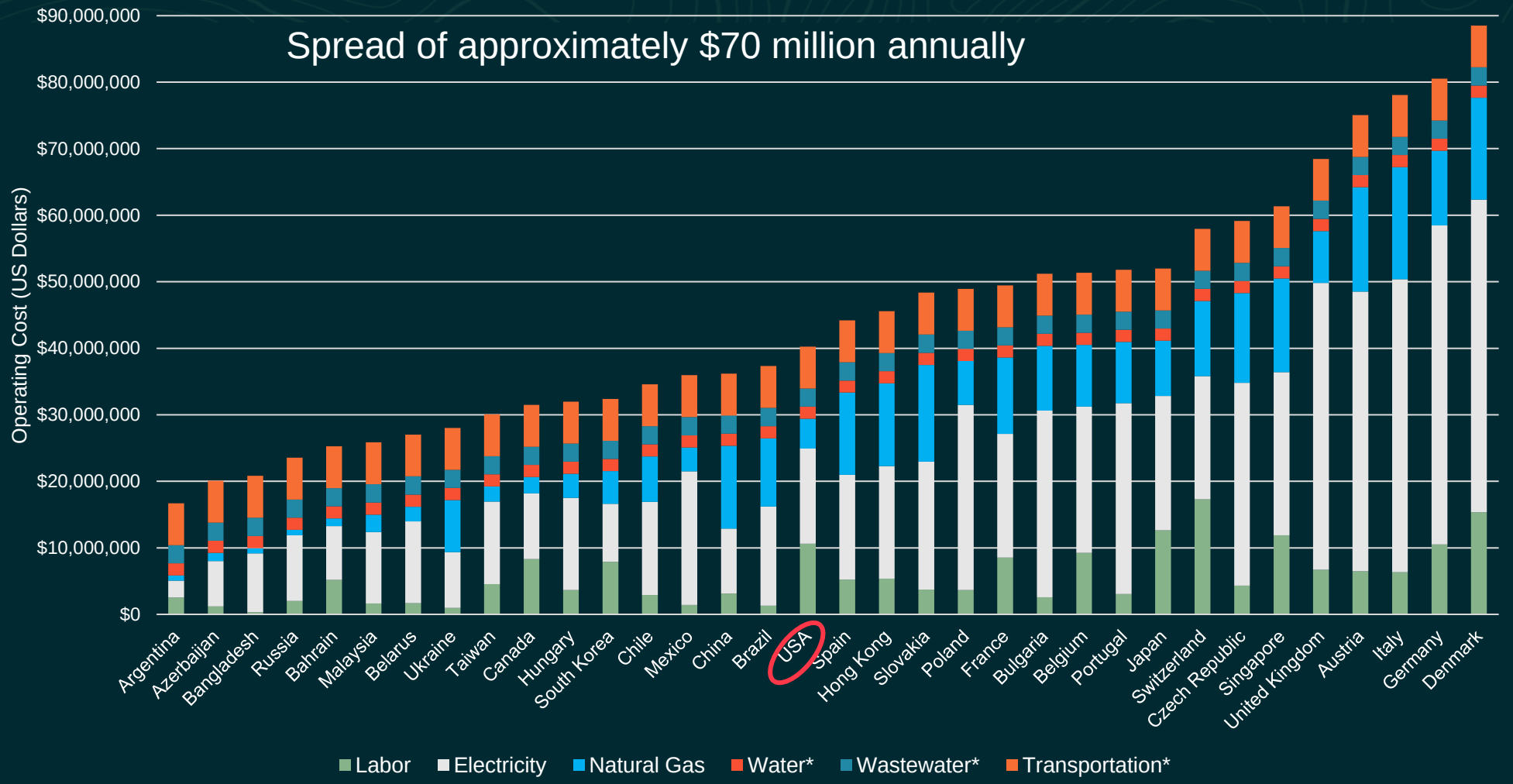
Top Oil Exporters 2020





Location Dependent Operating Costs

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



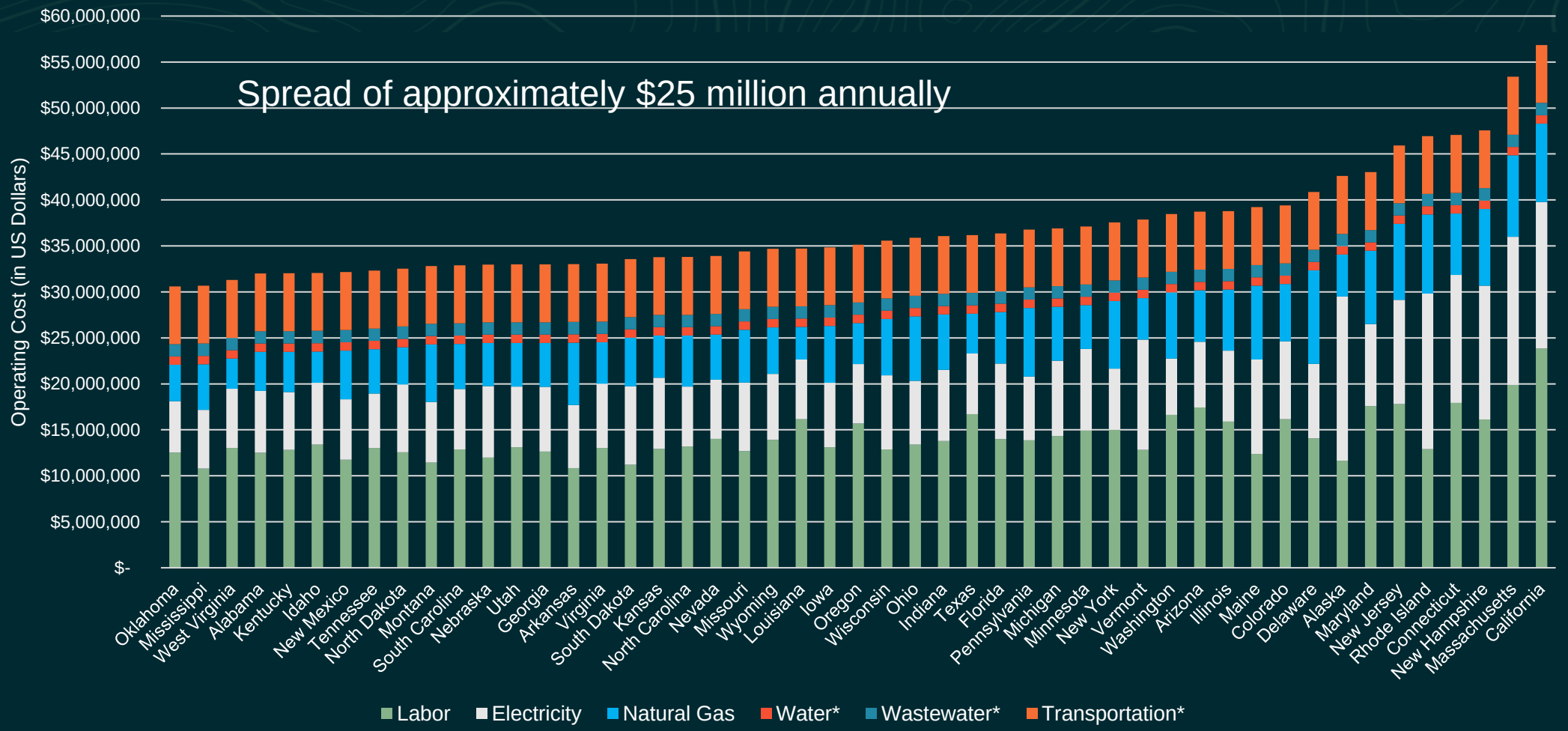
Manufacturing operation:

- 200 employees
- 15 MW electric demand
- 100 mcf/ hour natural gas
- 500,000 GPD water
- 500,000 GPD wastewater

*Plug numbers based on average costs.

Location Dependent Operating Costs

Source: US EIA, BLS, GLS



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- 500,000 GPD wastewater

*Plug numbers based on average costs

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


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


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

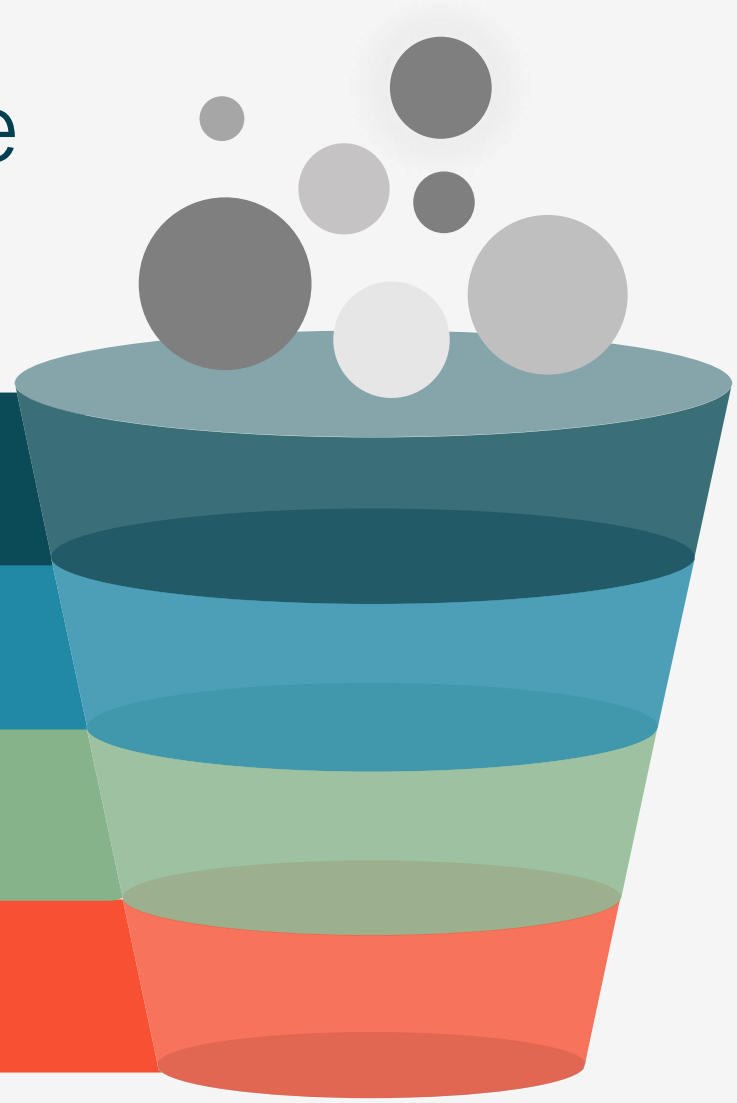
TAKE A TARGETED APPROACH TO RECRUITMENT

Target companies within identified industry subsectors that need your infrastructure.

Reframing Closure as Opportunity

UNIQUE AND DIFFERENTIATING ASSETS TYPICAL OF A PAPER MILL

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**

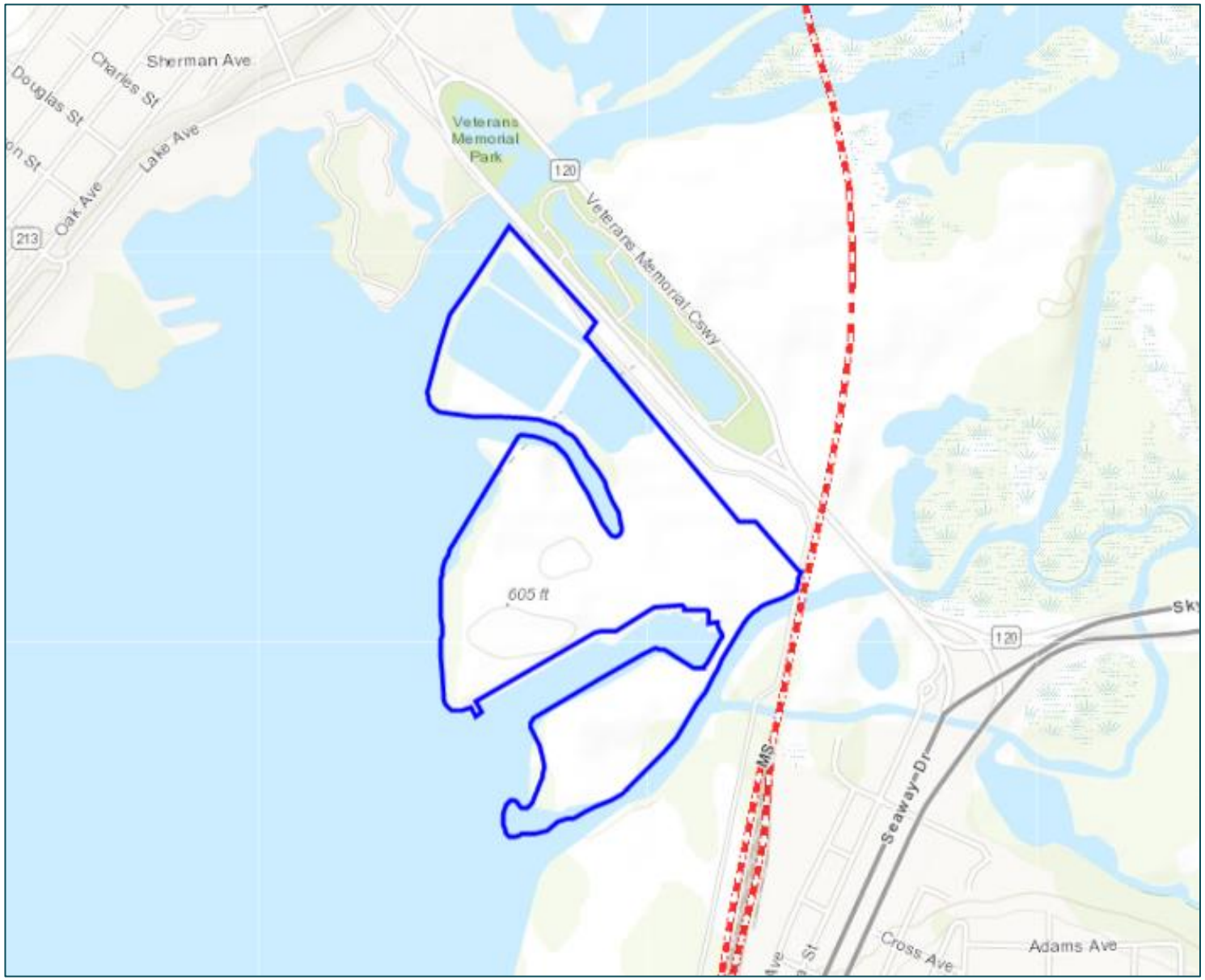
REFRAMING CLOSURE AS OPPORTUNITY

#1 Inventory the Assets

Consumers Energy BC Cobb
Muskegon, MI

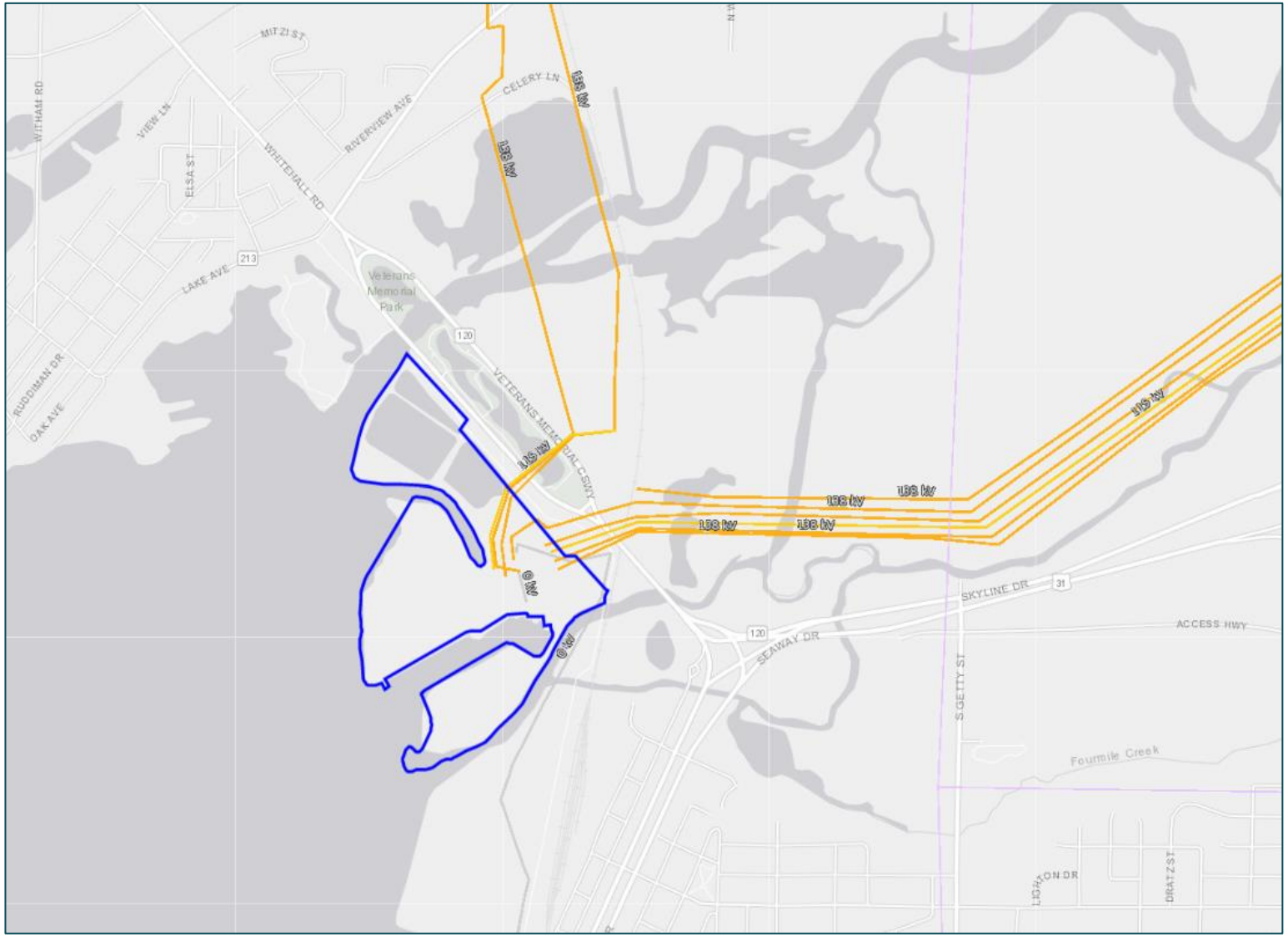
Transportation Assets

- 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

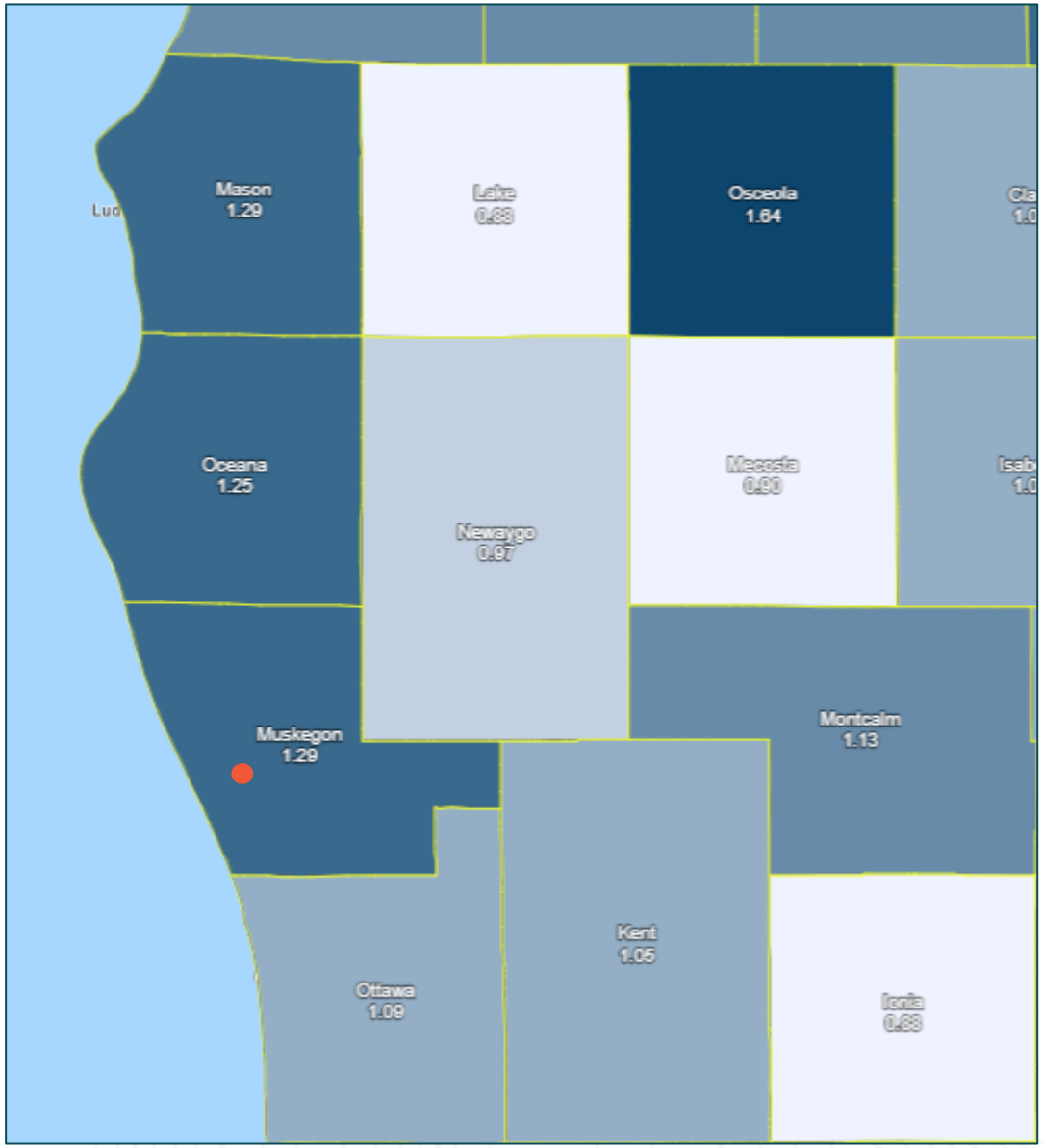
- Three 138-kV lines and one 46-kV line on site
- Switching station
- 6-inch and 10-inch natural gas line on site
- 24-inch water line
- Possibility for withdrawal and discharge



Labor Assets

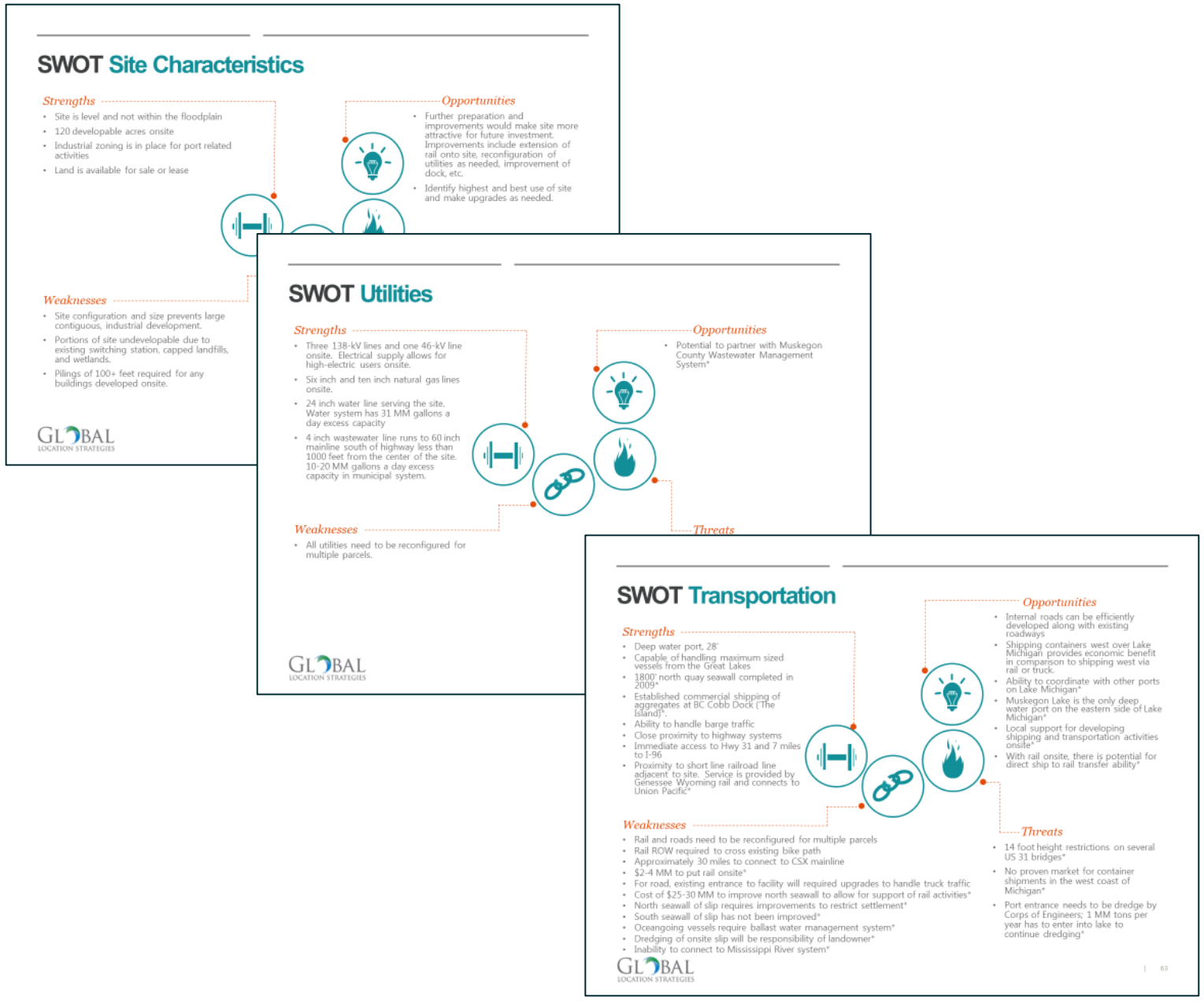
- Concentration of skilled labor
- Legacy and support of industrial

LQ of Skilled Trades



Asset Inventory

REFRAMING CLOSURE AS OPPORTUNITY

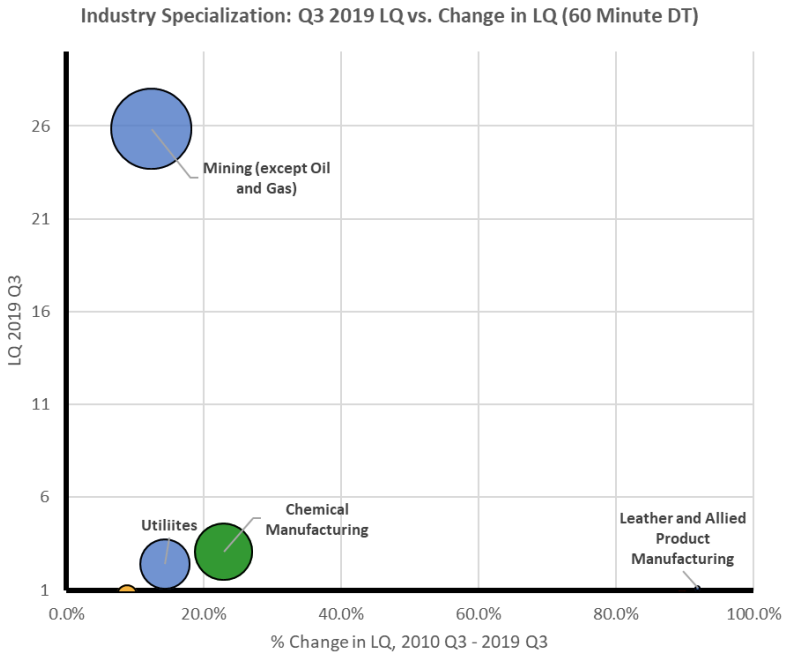


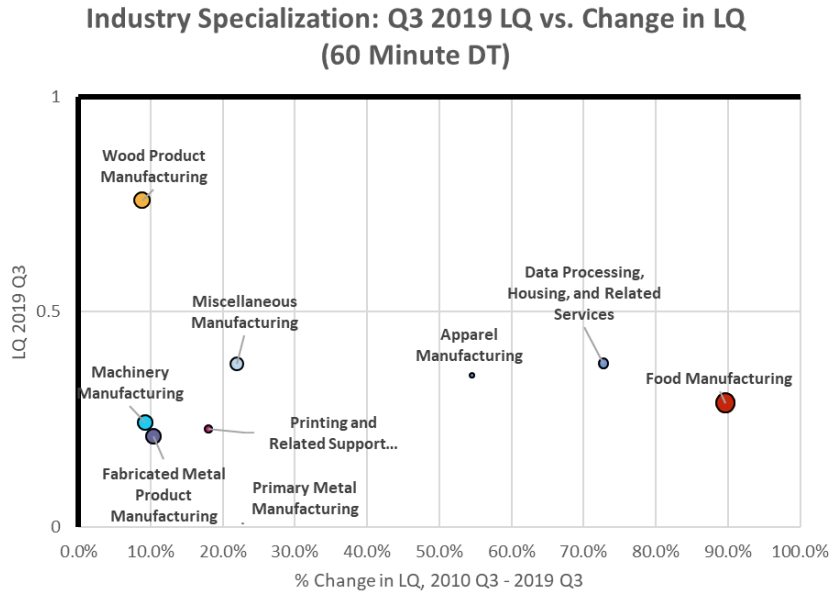
REFRAMING CLOSURE AS OPPORTUNITY

#2 Industry Matchmaking

Industry Matchmaking

DETERMINE IF ANY GROWING INDUSTRIES COULD BE ATTRACTED TO THE REGION

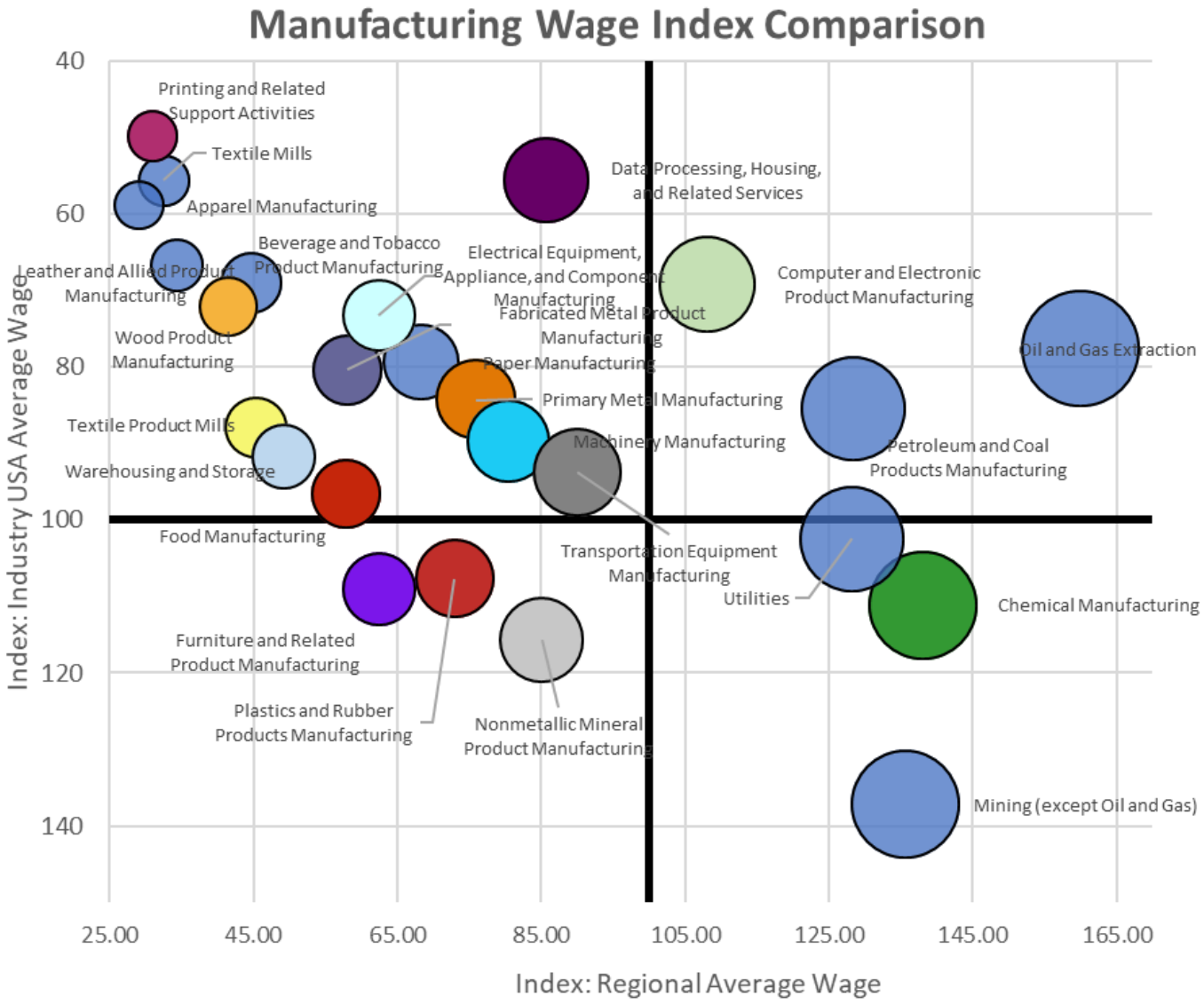




○ Bubble size represents industry employment within the custom region as of Q3 2019

Industry Matchmaking

DETERMINE IF THE REGION WOULD BE INTERESTED IN THE INDUSTRY



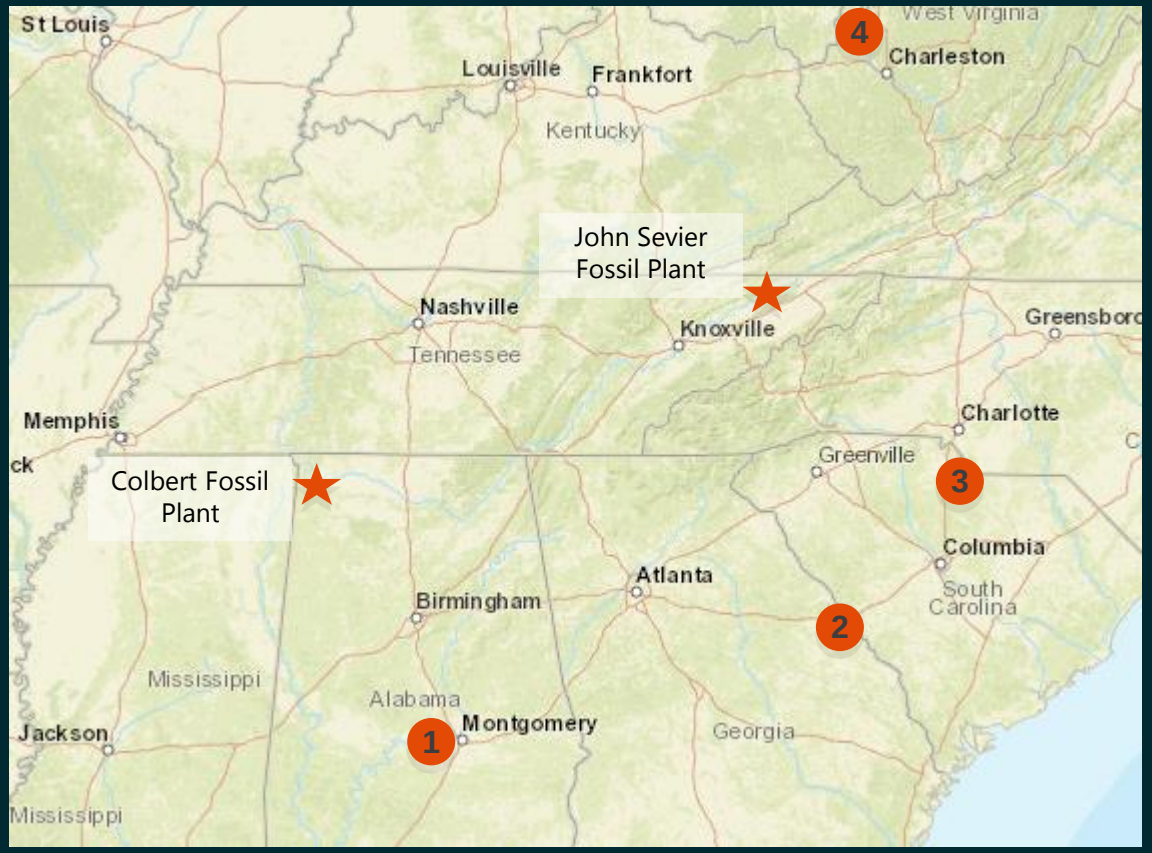
○ Bubble size represents the regional average annual wages per worker

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	
• Chemical industry infrastructure including suppliers, service providers, utilities and services (steam, demineralized water, nitrogen, etc.), and human capital • Location within an established chemical cluster	

#3 Competitiveness Benchmarking



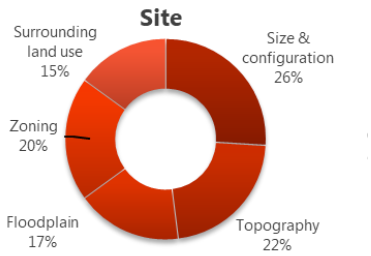
	City	State
1	Lowndesboro	AL
2	Augusta	GA
3	Lancaster	SC
4	Apple Grove	WV

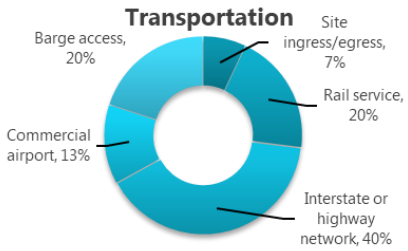
TVA Colbert Fossil Plant

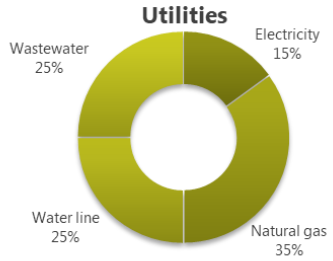
Colbert, AL

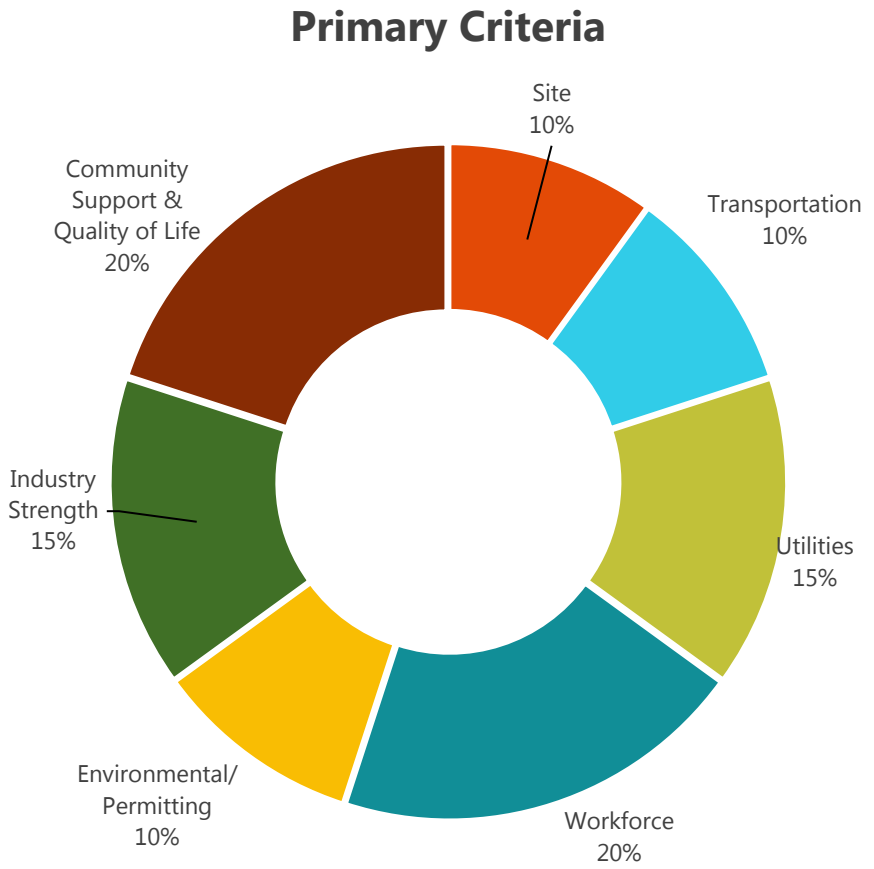
Competitiveness Benchmarking

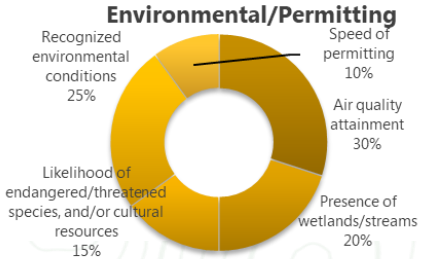
DETERMINE IF THE SITE IS STILL COMPETITIVE WHEN COMPARED TO OTHER LOCATIONS

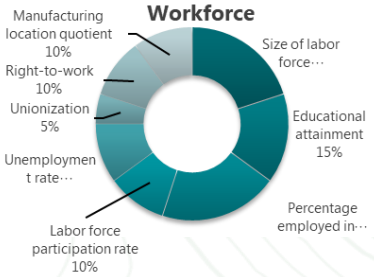


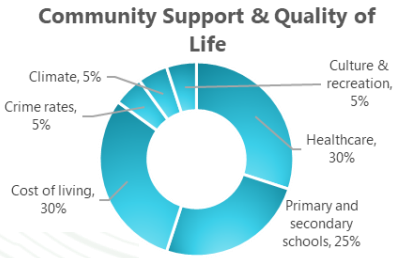






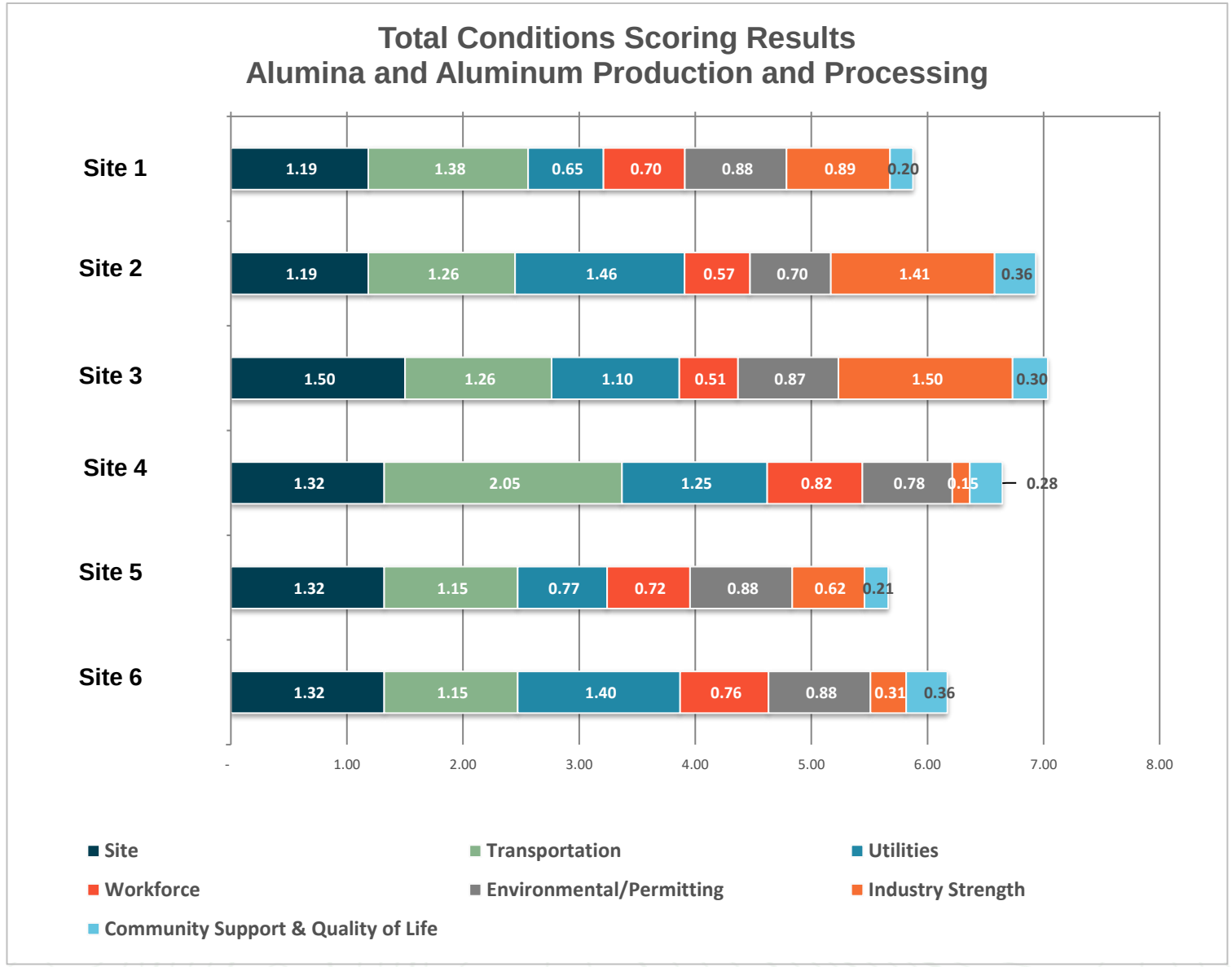






Competitiveness Benchmarking

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



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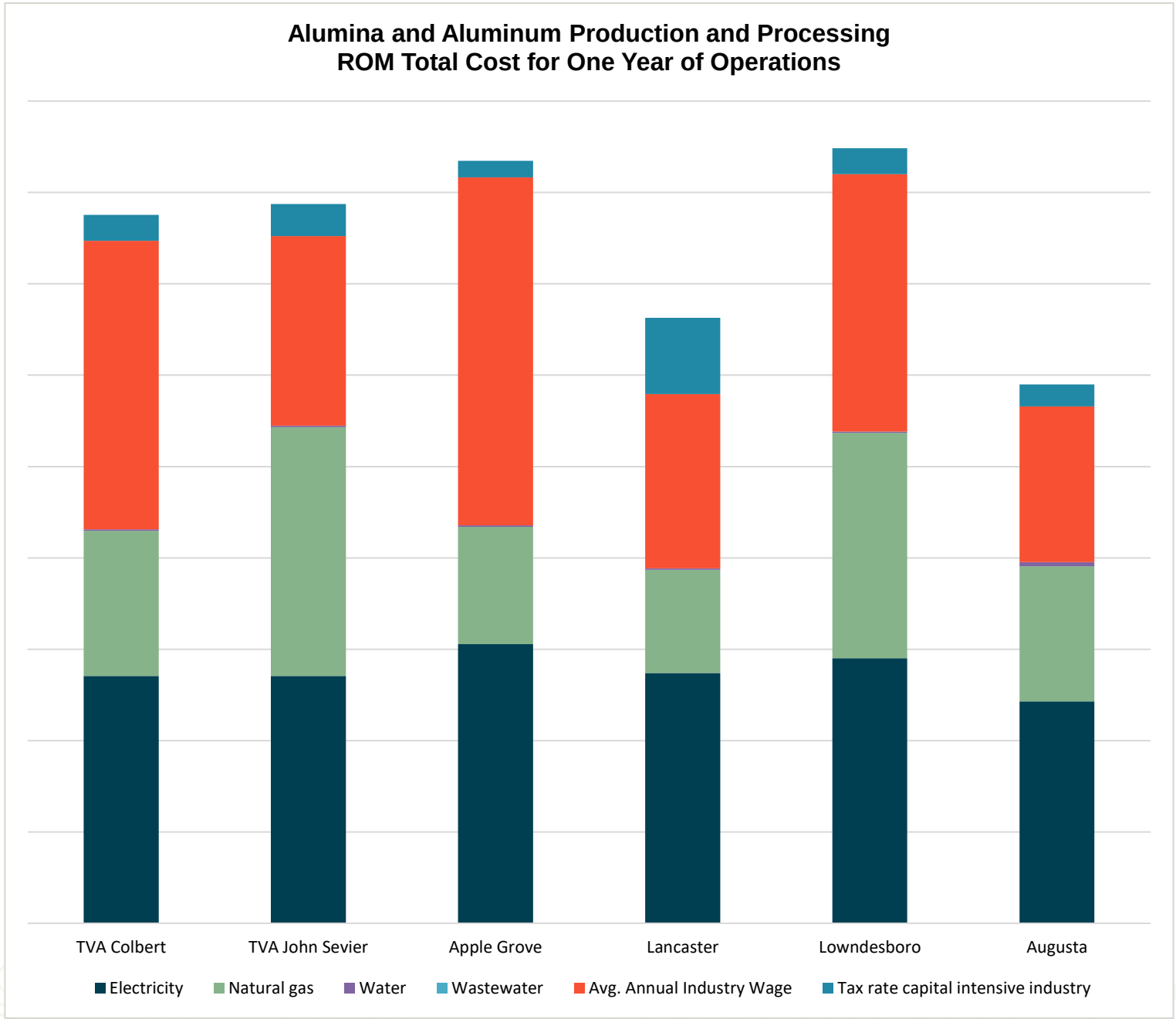

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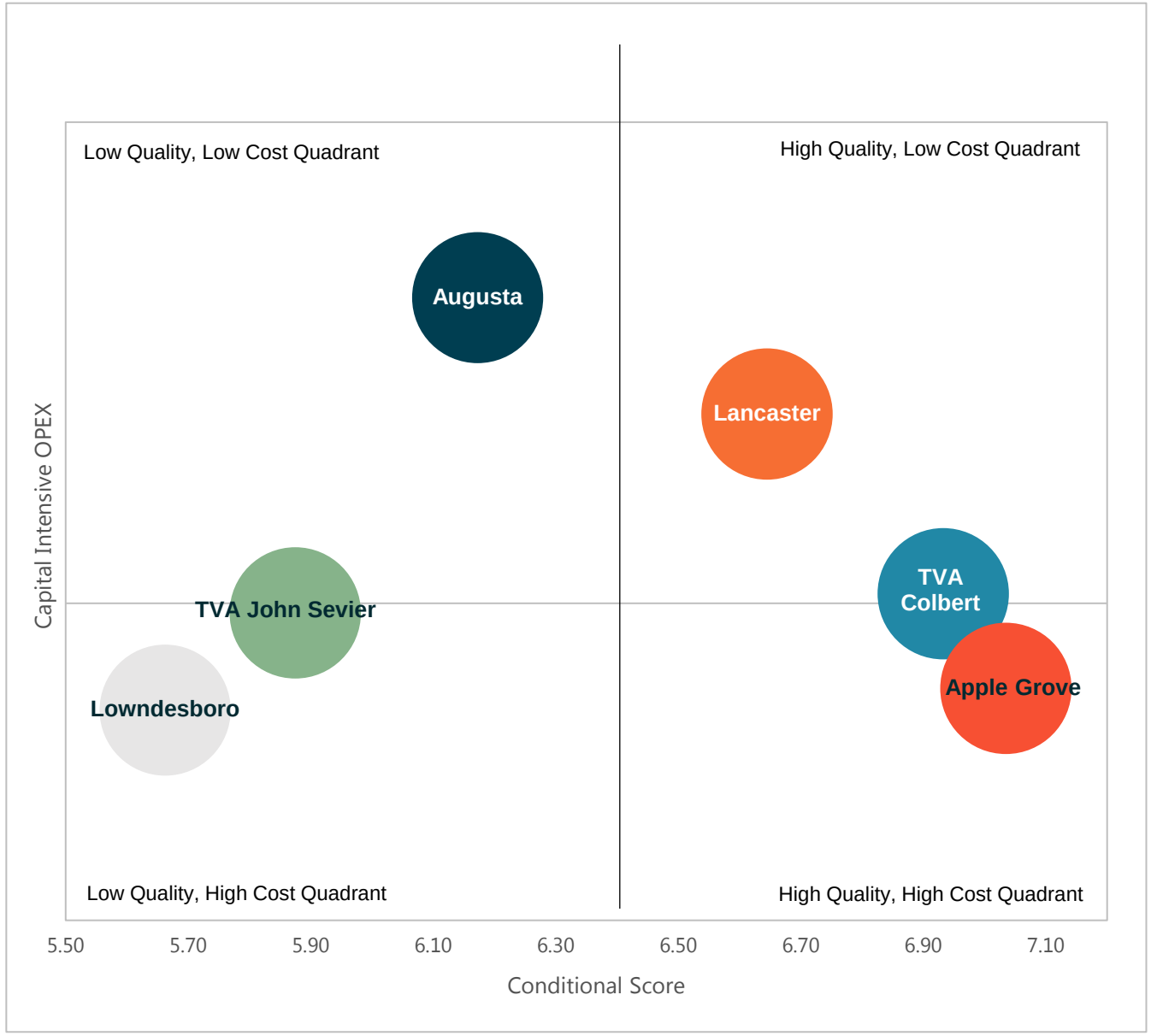


Competitiveness Benchmarking

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
	Culture & recreation	ü	
Costs	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

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.

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

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

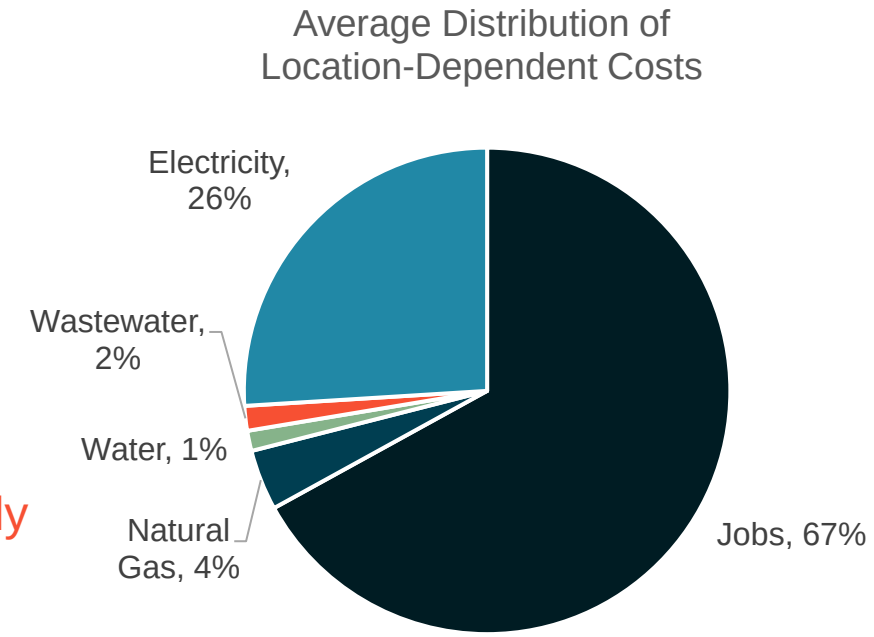
x $20/hr. = $44 MM Annually

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



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:

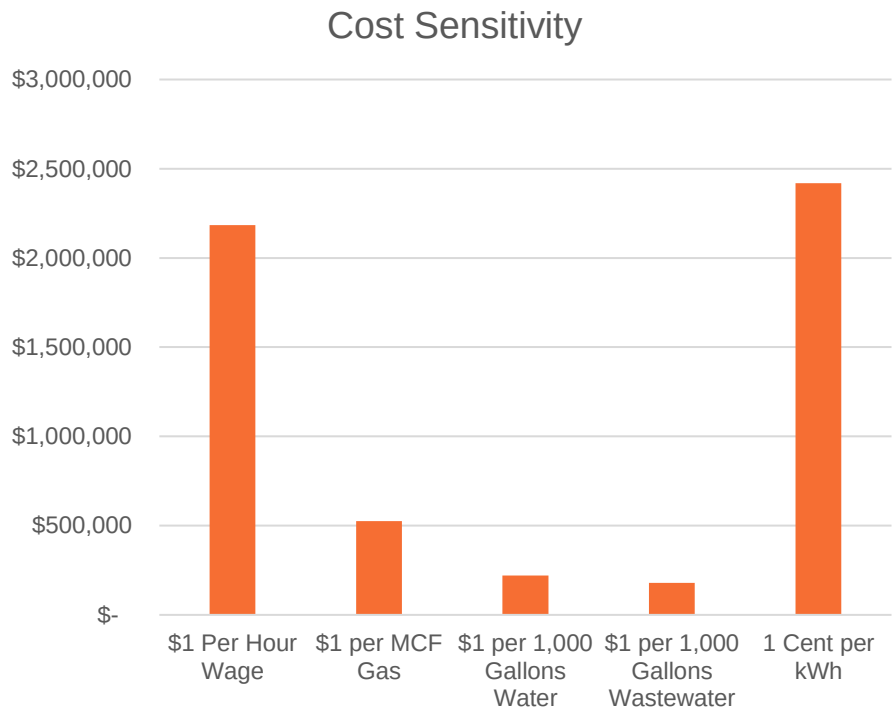
$1 / hr. = $2.2 MM Annually

$0.01 / kWh = $2.4 MM Annually

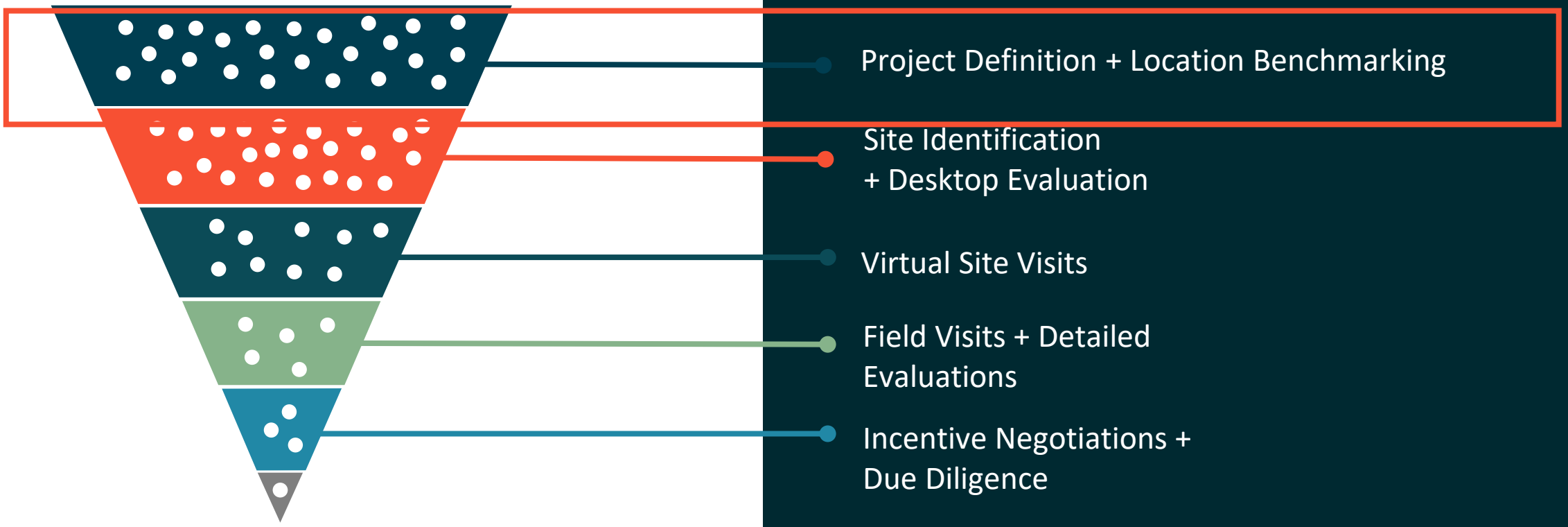
$1 / MCF = $0.53 MM Annually

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

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



Site Selection Process

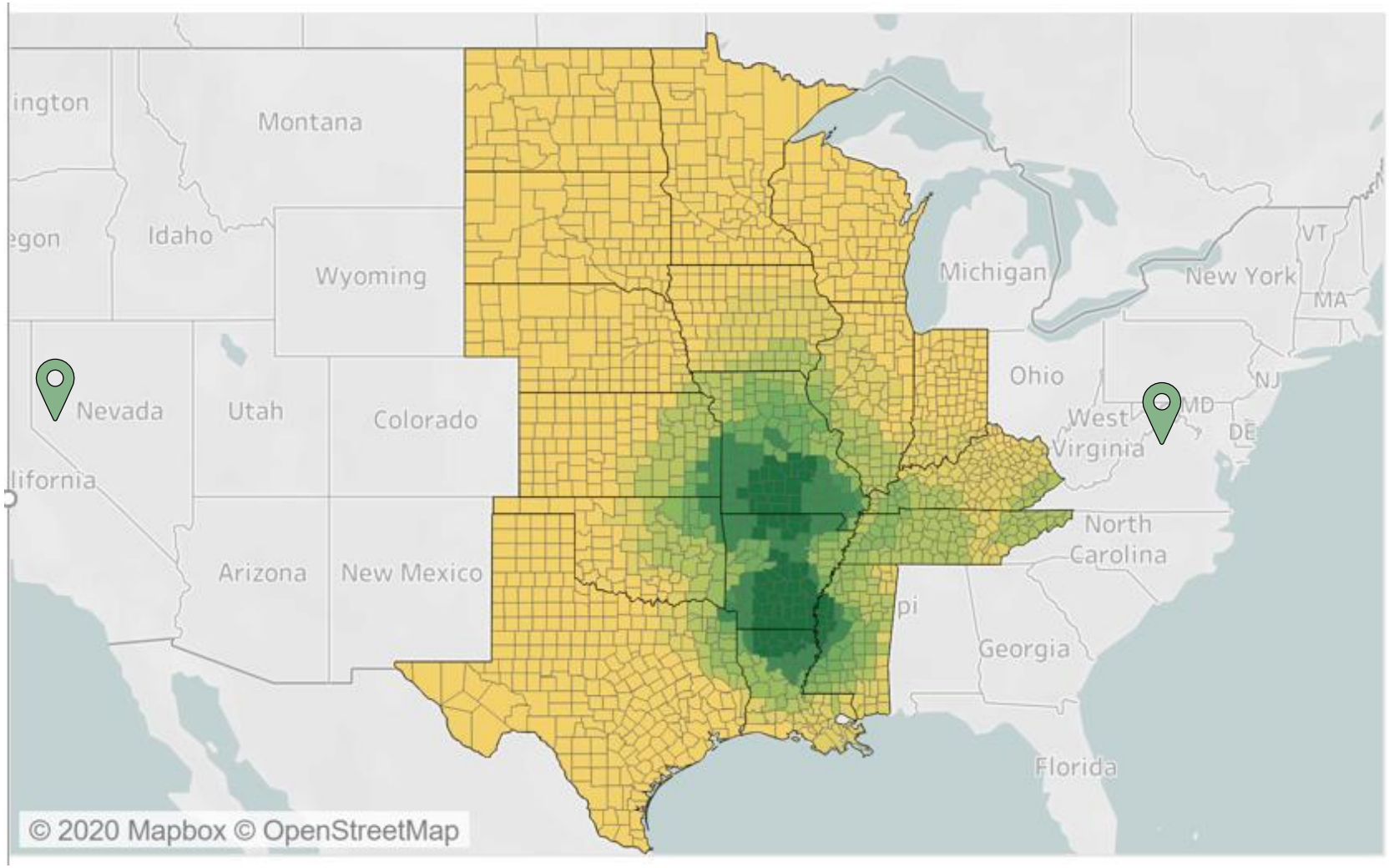


A TYPICAL GLS SITE SELECTION APPROACH

- Project Definition + Location Benchmarking
- Site Identification + Desktop Evaluation
- Virtual Site Visits
- Field Visits + Detailed Evaluations
- Incentive Negotiations + Due Diligence

Case Study

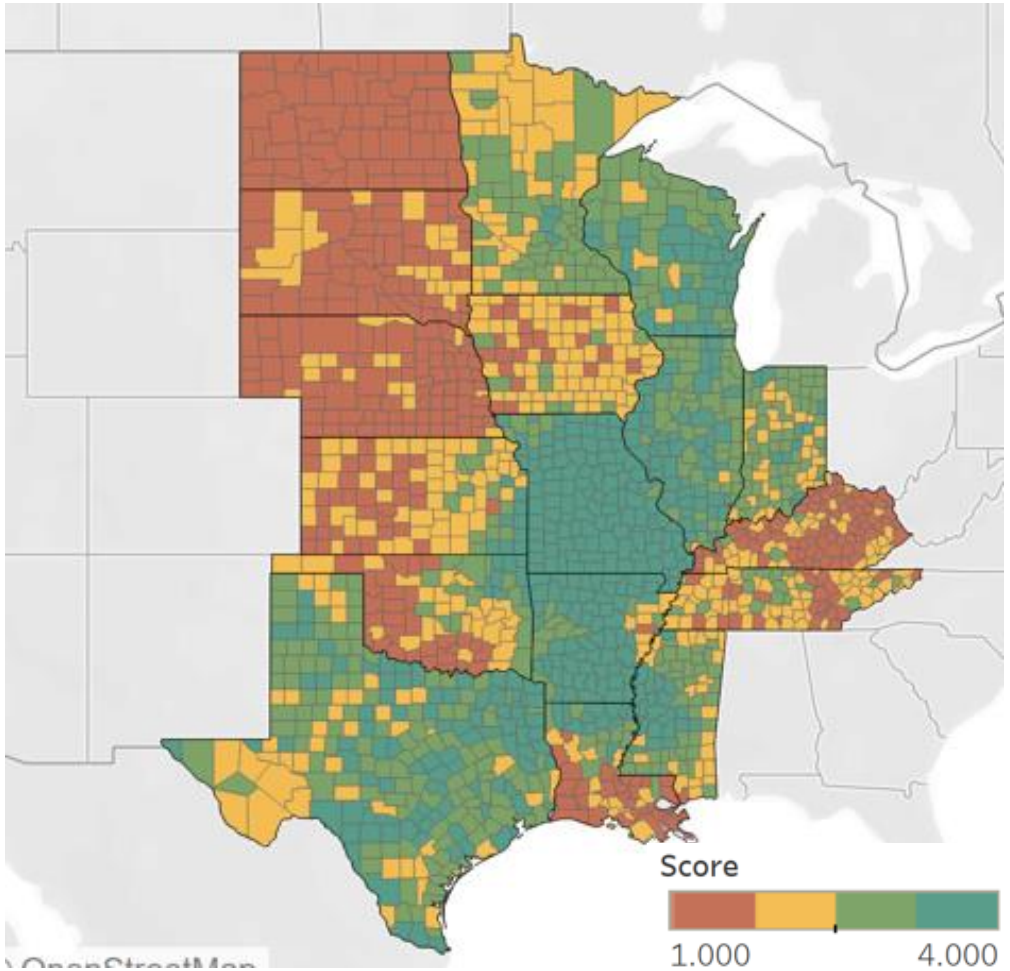
WHAT YOU DIDN'T KNOW



Case Study

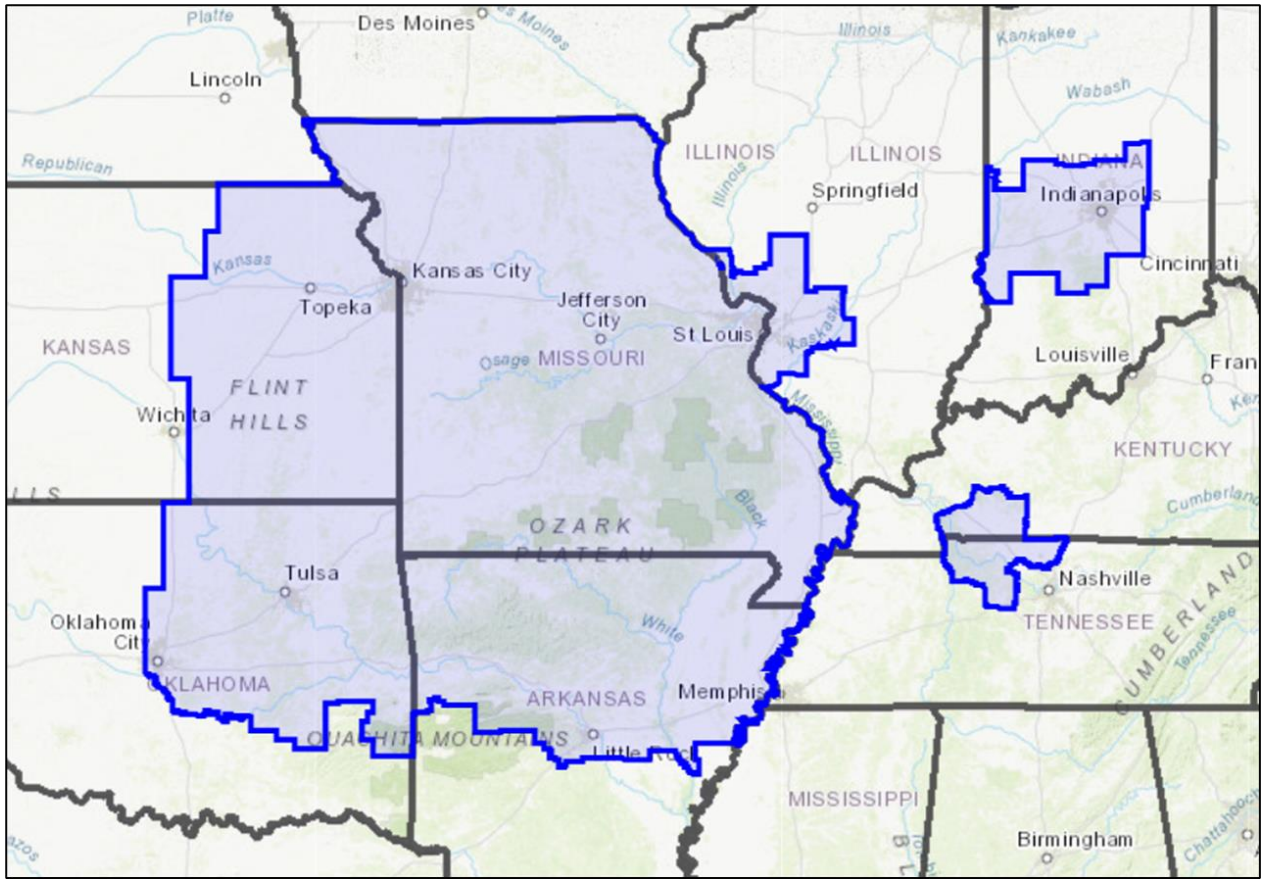
PHASE 1 BENCHMARKING

SITE-INDEPENDENT

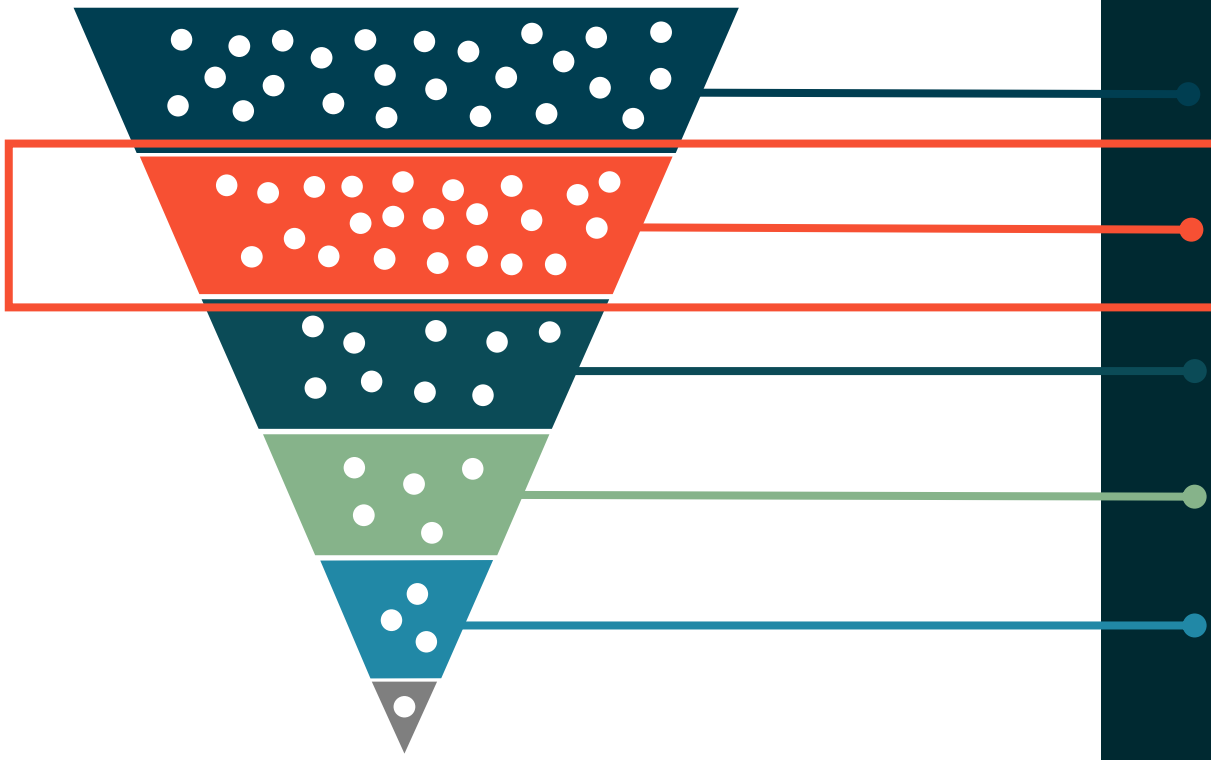


Case Study

SEARCH REGION



Site Selection Process



A TYPICAL GLS SITE SELECTION APPROACH

Project Definition + Location Benchmarking

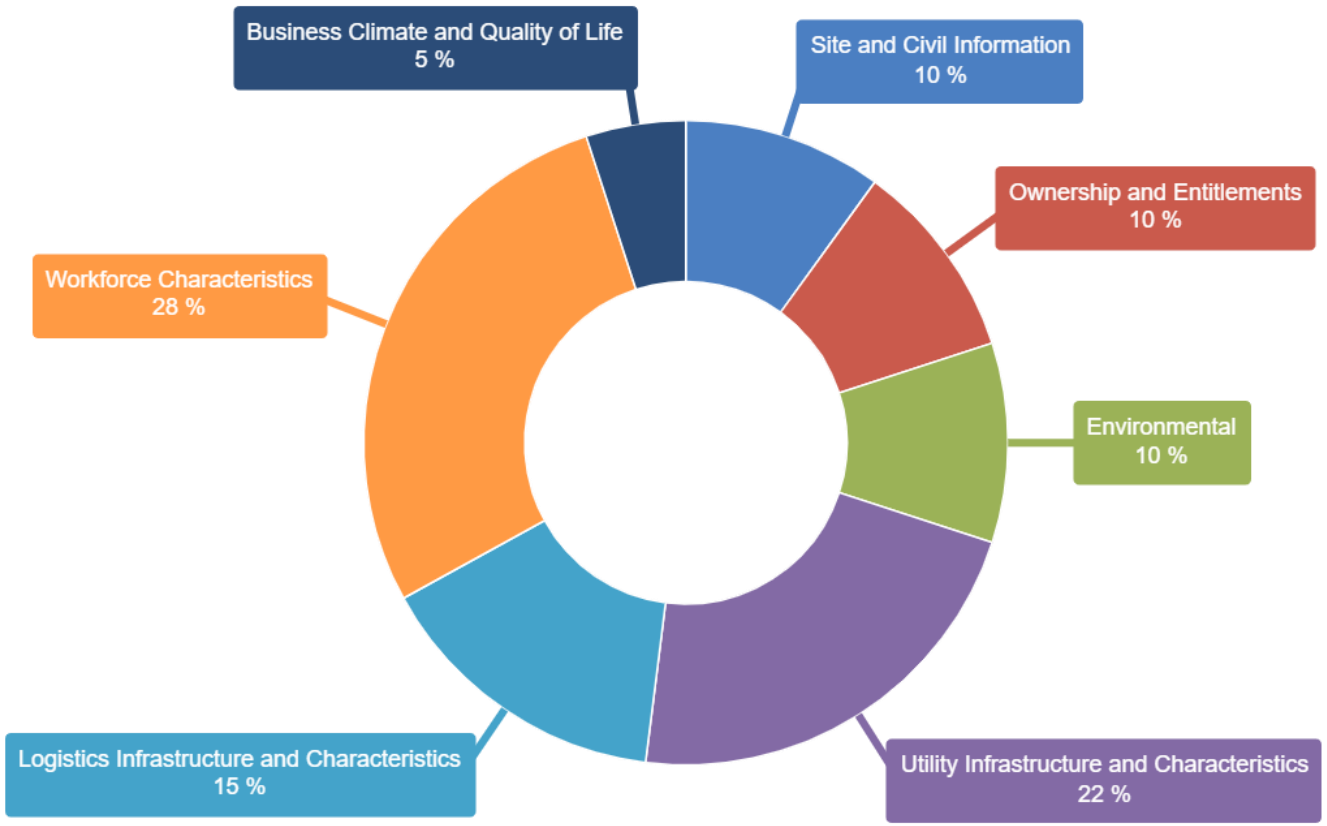
Site Identification
+ Desktop Evaluation

Virtual Site Visits

Field Visits + Detailed
Evaluations

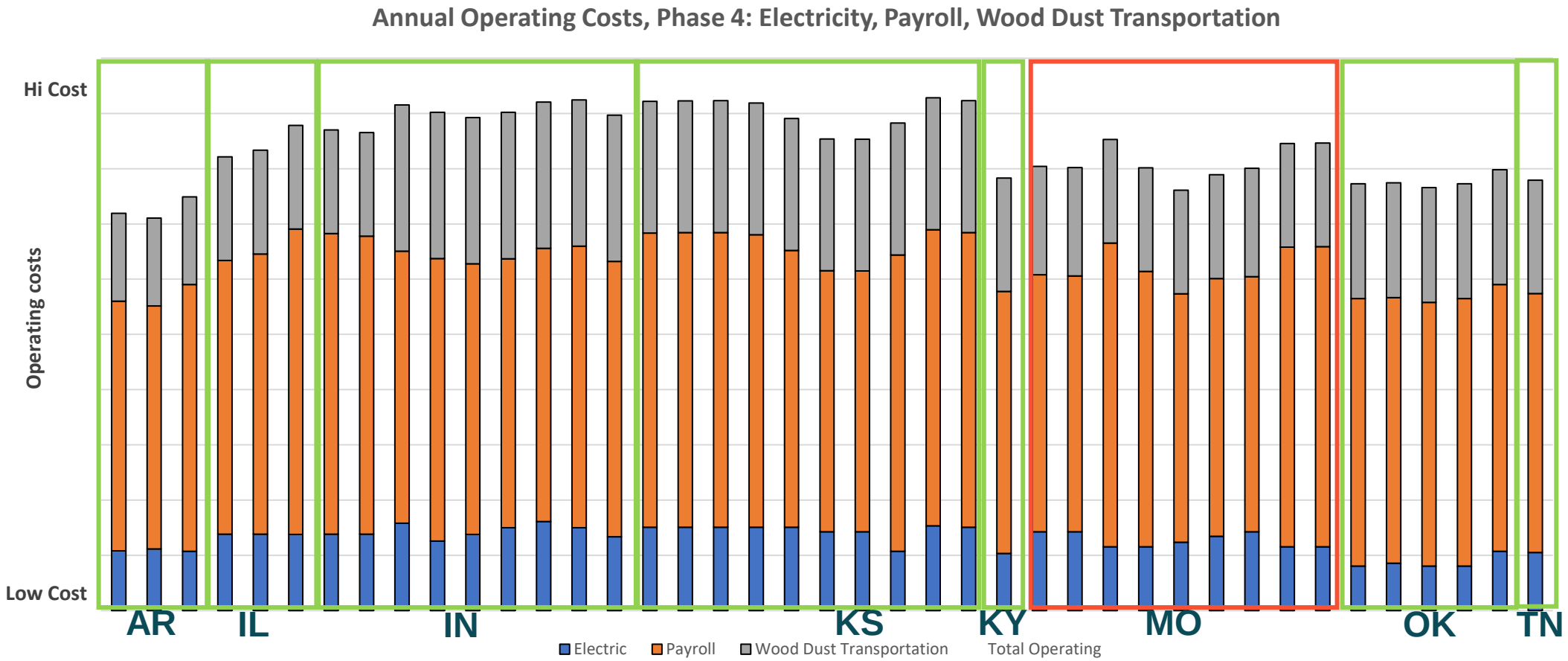
Incentive Negotiations +
Due Diligence

Case Study


Business Climate and Quality of Life
5 %
Site and Civil Information
10 %
Ownership and Entitlements
10 %
Workforce Characteristics
28 %
Environmental
10 %
Logistics Infrastructure and Characteristics
15 %
Utility Infrastructure and Characteristics
22 %

Case Study

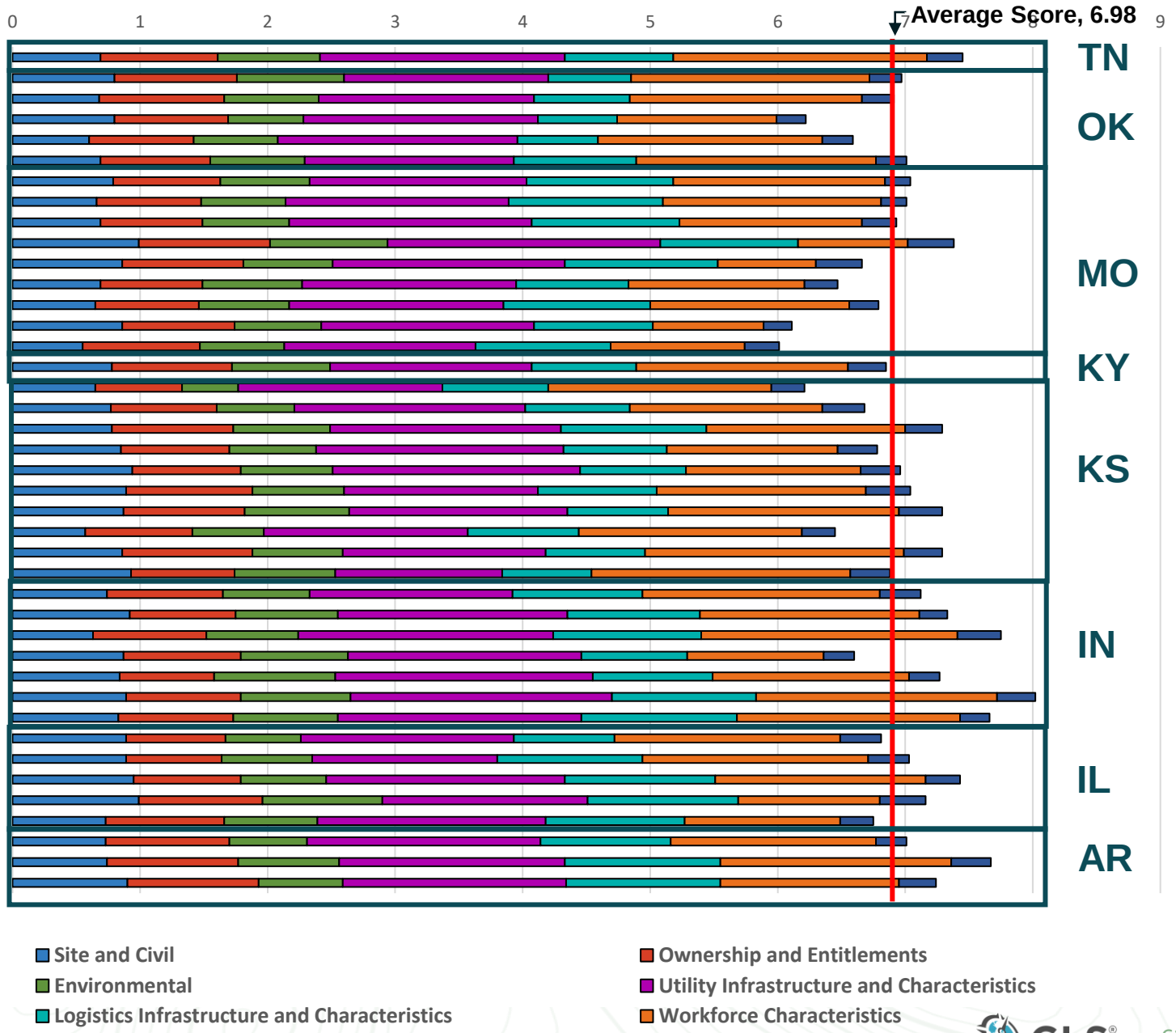
PHASE 02 SITE IDENTIFICATION RESULTS



Phase 02 Site ID

CASE STUDY

Conditions Scoring Results

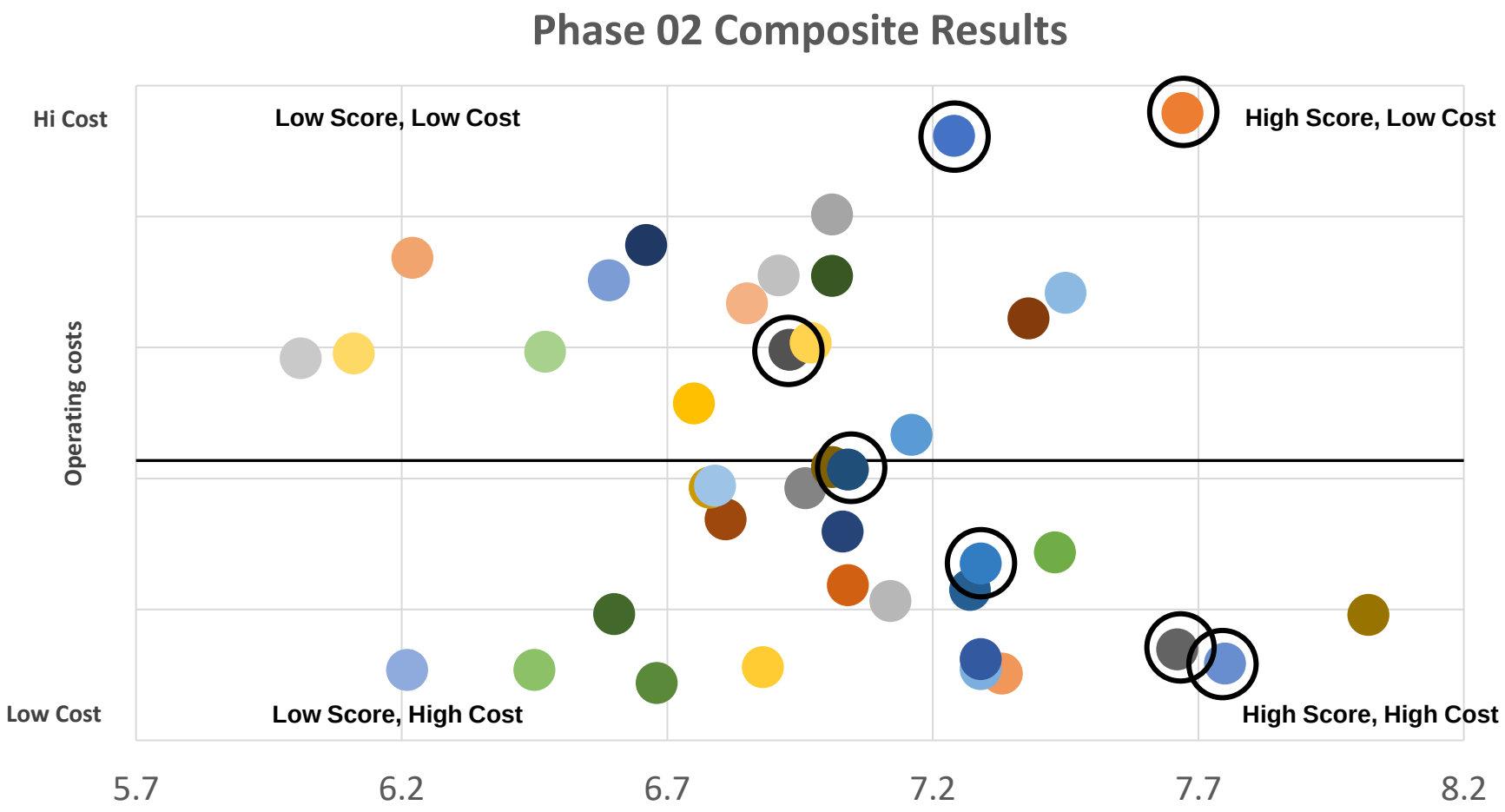


Case Study

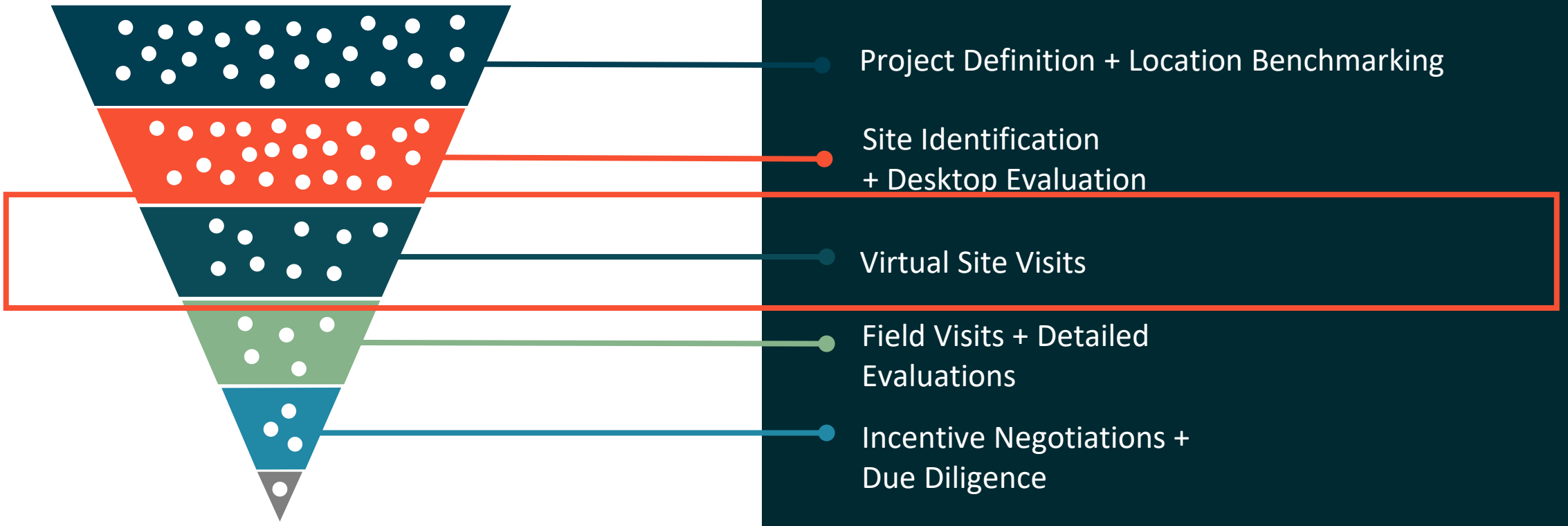
PHASE 02 SITE IDENTIFICATION RESULTS

Submitted:
51 sites
8 states

Must Screen:
41 sites
8 states



Site Selection Process



A TYPICAL GLS SITE SELECTION APPROACH

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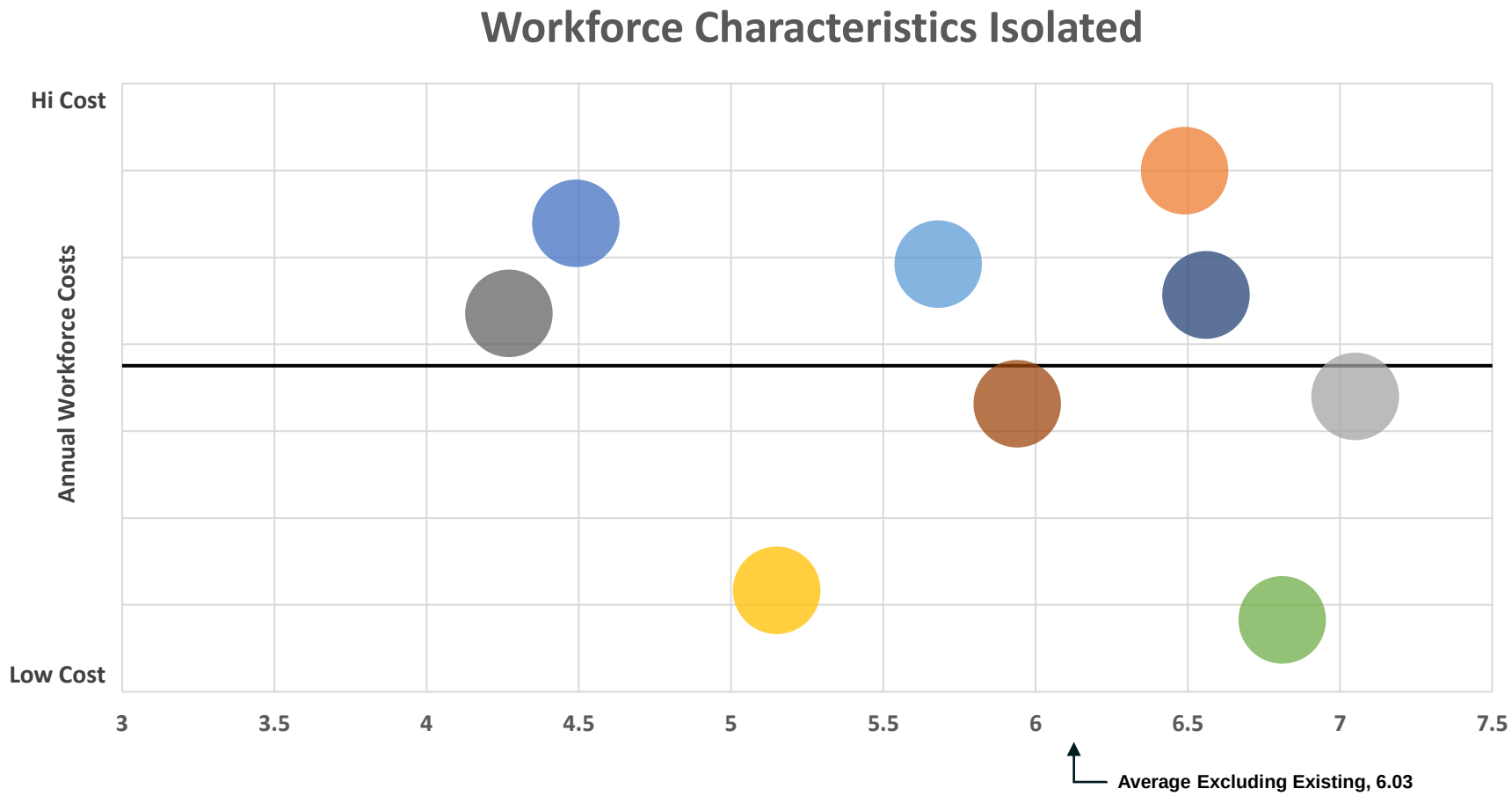
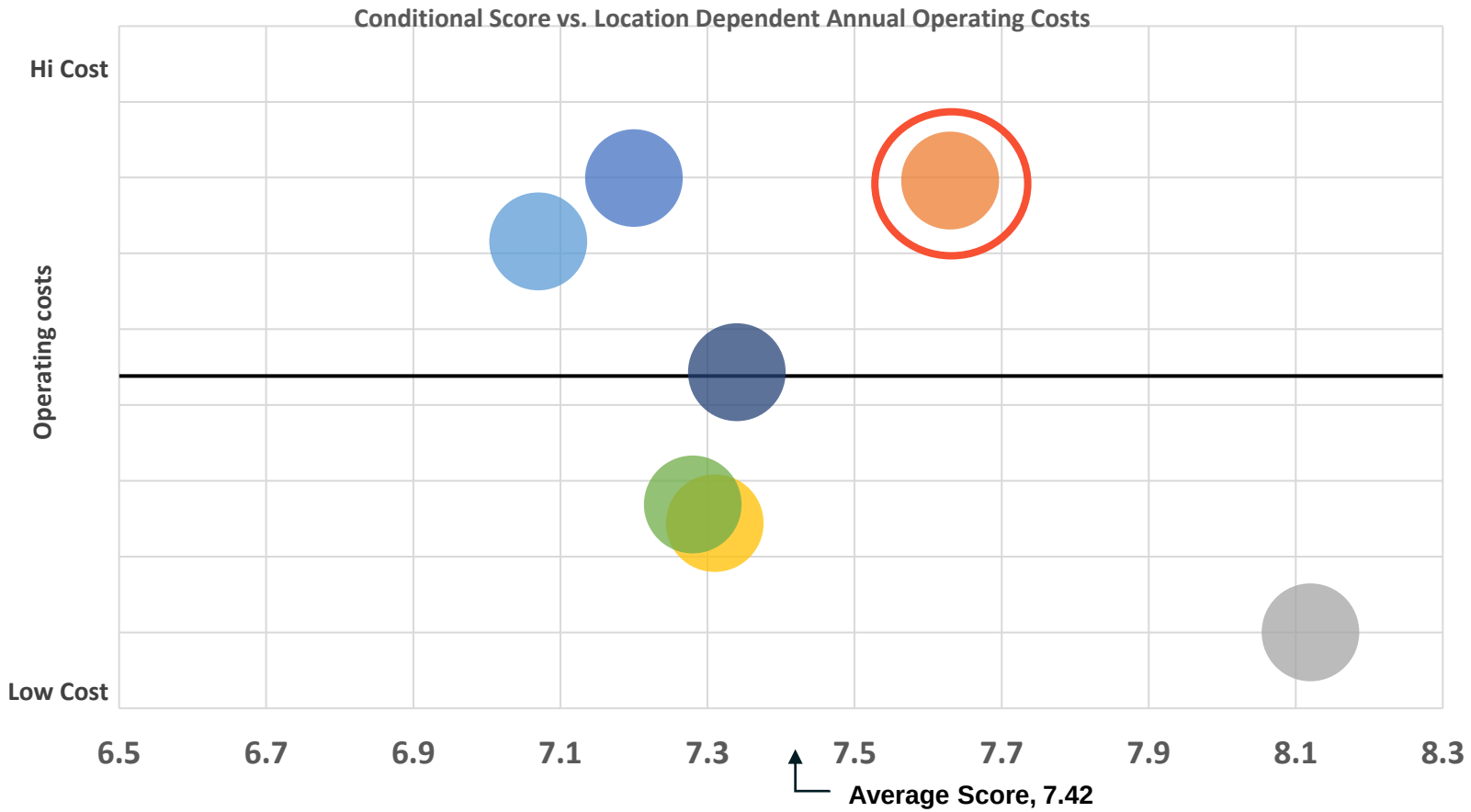
Case Study


Workforce Characteristics Isolated
Hi Cost
Annual Workforce Costs
Low Cost
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
Average Excluding Existing, 6.03

Case Study


Conditional Score vs. Location Dependent Annual Operating Costs
Hi Cost
Operating costs
Low Cost
6.5
6.7
6.9
7.1
7.3
7.5
7.7
7.9
8.1
8.3
Average Score, 7.42

BUSINESS

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

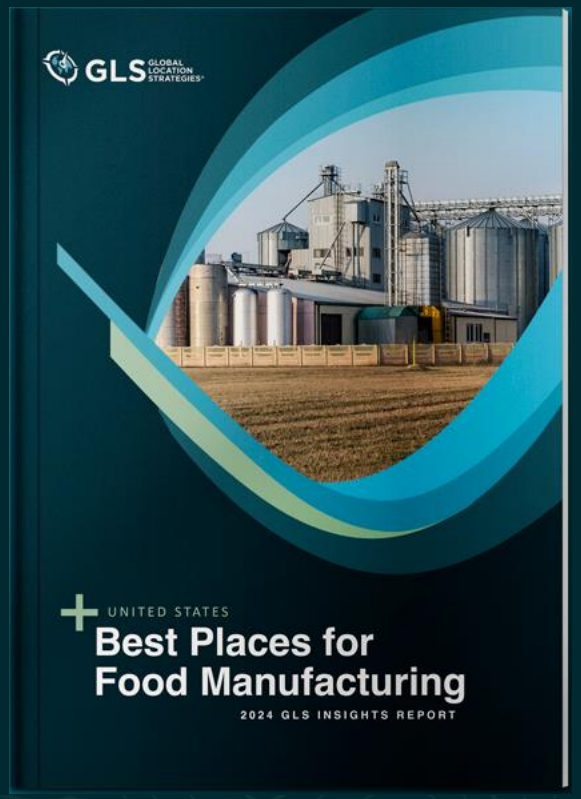
by: Jay Bir
Posted: Oct 26, 2021 / 10:44 PM CDT
Updated: Oct 27, 2021 / 06:05 AM CDT

Are you an Economic Developer?

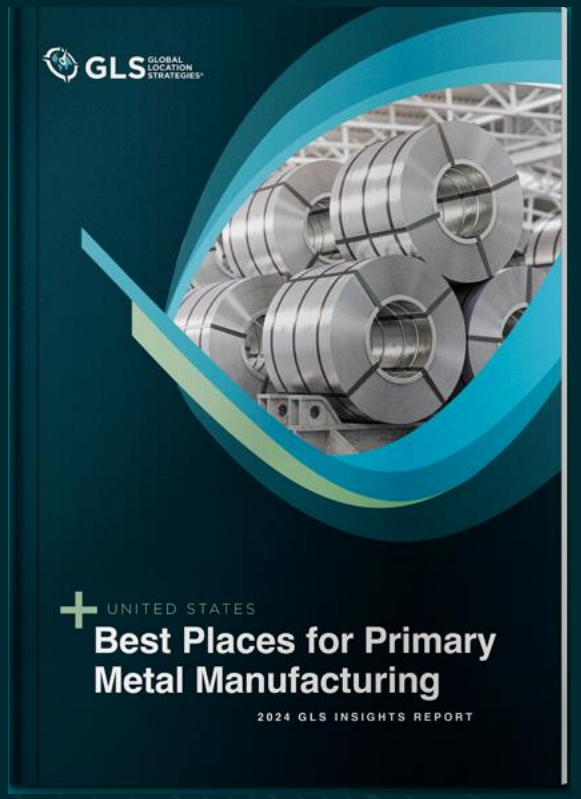
GLS Insights

LOCATION BENCHMARKING REPORTS

All locations are worthy of an investment. Our data-driven reports empower economic development leaders, corporate decision-makers, and real estate brokers to confidently execute an actionable path forward.



Promo Code: DIDI



Clients and Allies

NAVIGATING THE FORESTRY ECONOMIC LANDSCAPE

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