

Web Seminar: Clean Technology
for Economic Success,
December 14, 2011

“The Role of Clean Technology in
Location Selection in an Economic
Development Context”

Don Schjeldahl
The Austin Company





Designers



Engineers



Constructors



Consultants

About THE AUSTIN COMPANY

- A leading consulting, architectural, engineering, design-build firm
- Founded in 1878 in Cleveland
- The Austin Method® - single source for facility planning, design, procurement and construction services.
- Technically or logistically complex projects
- Member of Kajima family of companies

Markets Served:

- Food and Beverage
- General Manufacturing
- Aerospace / Aviation
- Publishing / Broadcasting
- Pharmaceuticals
- Information Technology
- Renewable Energy / Advanced Energy



WHO WE ARE

WHAT WE DO

WHO WE SERVE

ALIGNING
LOCATION WITH
CORPORATE **STRATEGY**



GLOBAL ANALYSIS

SITE SELECTION

DUE DILIGENCE

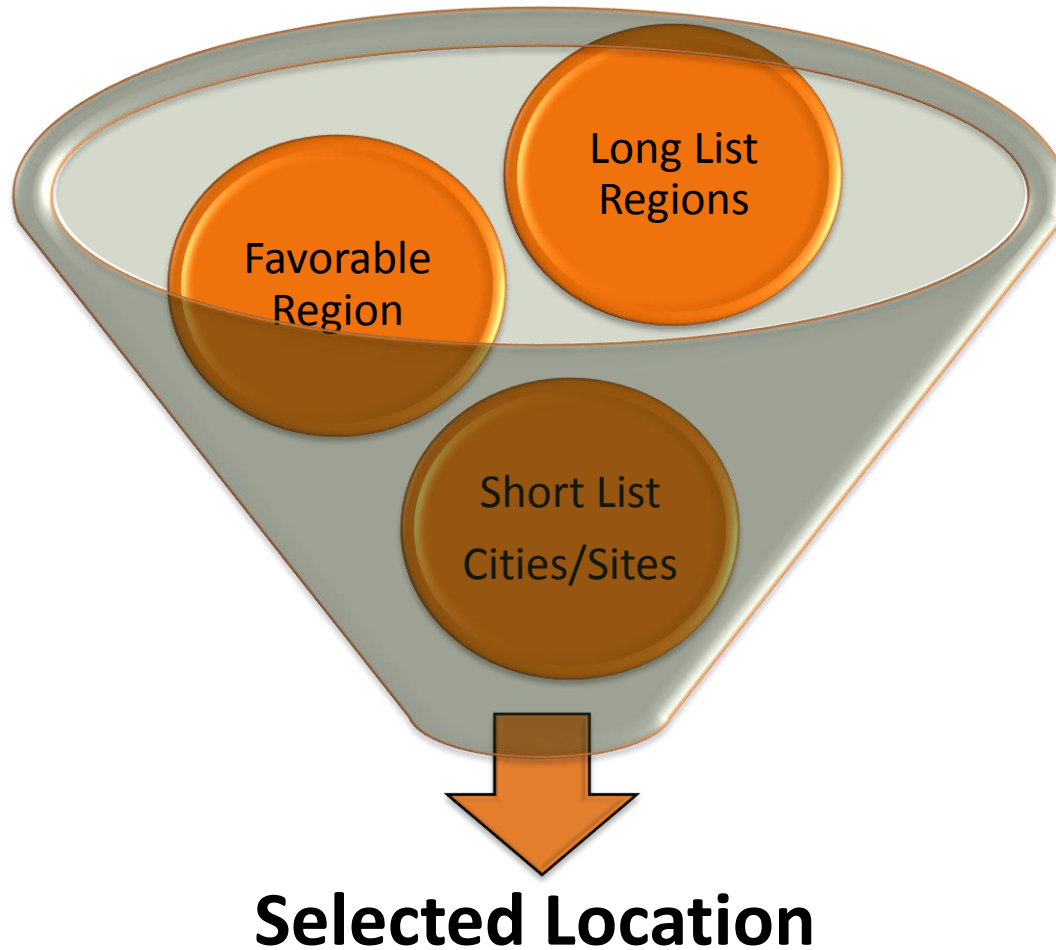
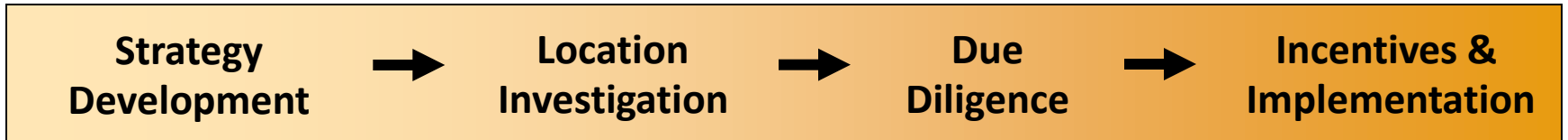
INCENTIVE NEGOTIATIONS



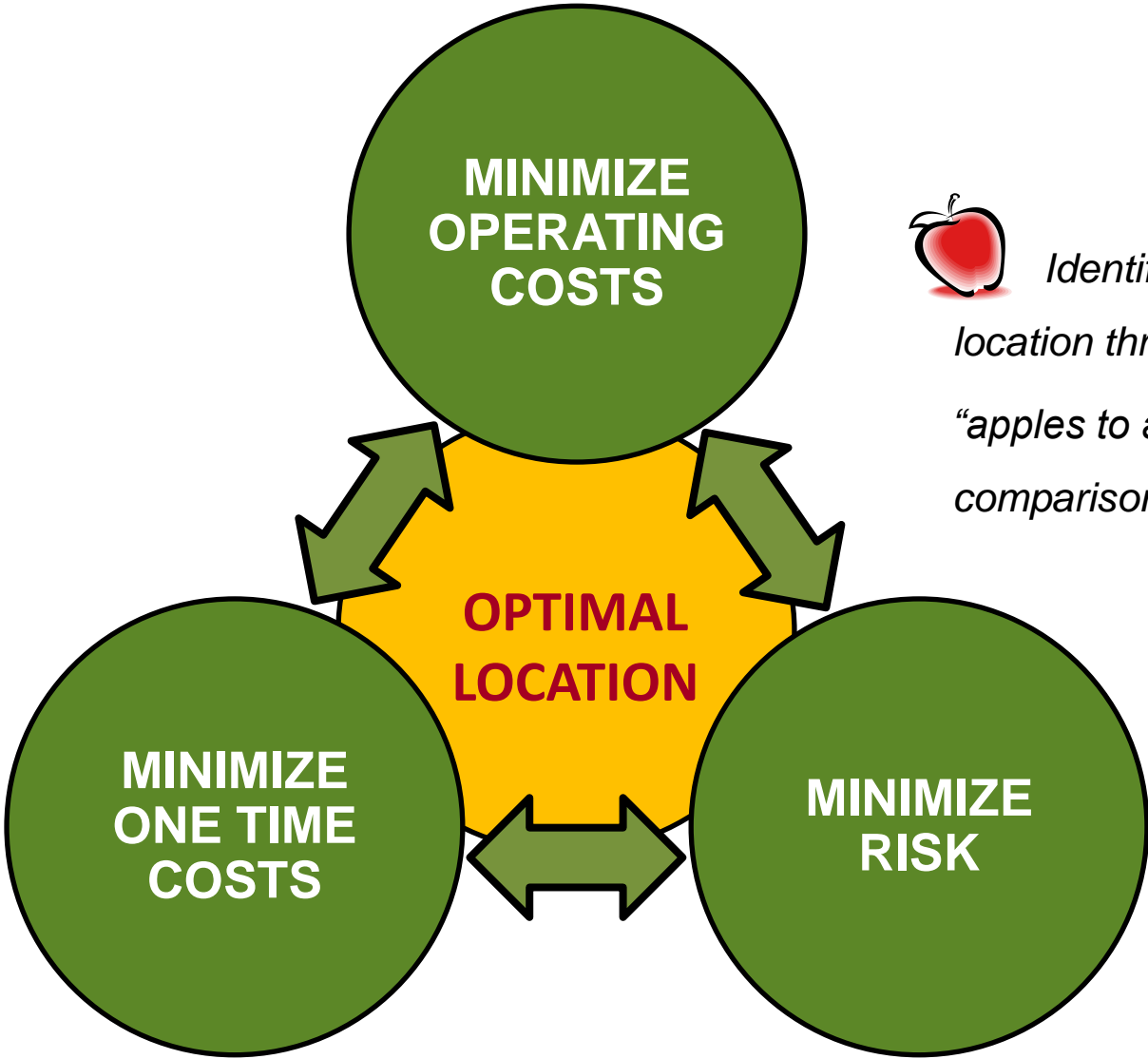
Webinar Objectives:

- ✓ Identify the infrastructure your community needs to be competitive in the clean technology sector,
- ✓ Locate sources of new investment while also utilizing existing industries to allow for cluster creation, and
- ✓ Understand your global competition and find a niche in the broad based clean-tech industry.

Site Selection Process



Optimal Location Balances Competing Interests



Identify the best location through an “apples to apples” comparison of alternatives



Leading Trends Guiding Investment Decisions

1. Complexity of Location Decisions
2. Accelerated Schedules
3. “Right-shoring” including “Re-shoring”
4. Enhanced Supply Chain Management
5. Shortage of Skilled Workers
6. Strategic and Tactical Alignment with Clean Technology / Sustainable Practices / Advanced Manufacturing

Defining “Clean Technology”

Clean Edge, Inc. definition (www.cleantech.com):
“A diverse range of products, services, and processes that harness renewable materials and energy sources, dramatically reduce the use of natural resources, and cut or eliminate emissions and wastes.”

Defining “Advanced Manufacturing”

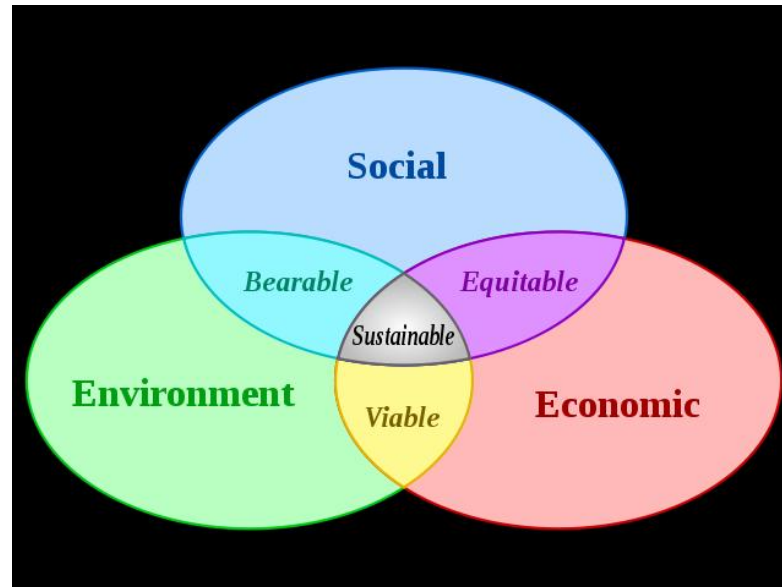
1. Use of Technology to Improve Products and Processes
2. Use of Business/Management Methodologies – technology and management processes that improves the overall manufacturing of products
3. Dynamic, Constantly Changing - Advanced Manufacturing will change with changing times - the definition will vary for different companies and different industries. What is classified as “frontier” is constantly changing.

Defining “Sustainability”

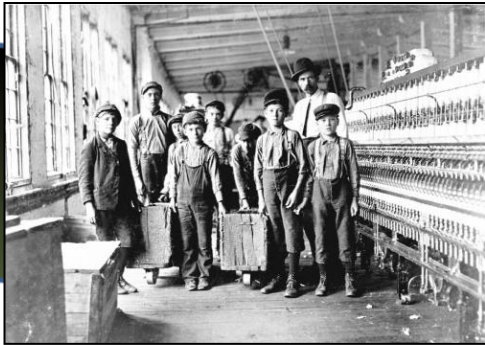
World Commission on Environment and Development (WCED) - known by the name of its Chair Gro Harlem Brundtland, was convened by the United Nations in 1983

The Brundtland Report concluded, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The 3 leg stool
of sustainable
communities



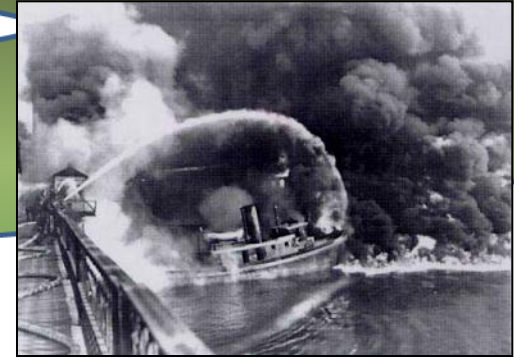
Once again we are at a tipping point
in what constitutes “good business
practices”



Labor / Workplace

1900 - 1950 Industrial Development

1950 - 2000 Economic Development



Environment



Energy/Resources

2000 – 2050? Sustainable Development

Expected Outcomes from Sustainability

Corporate Real Estate

- Lower facility maintenance cost
- Productivity gains
- Lower worker turnover
- Reduced waste
- Longer facility life

Economic Development Community

- Job creation
- Greater economic stability
- Improved quality of life

Business/Community Interface



- Life cycle costing
- Energy audits and benchmark facilities
- Tax/incentive analysis
- Adopt “sustainable strategies”

- Sustainable economic attraction strategies
- Sustainable design for development
- Regional partnerships
- Certified properties/communities

Community and Individual Responsibilities in a Energy Sustainable Partnership

COMMUNITY LEVEL

- Solar
- Wind
- Coal
- Nuclear
- Ocean
- Natural gas
- Methane (waste)
- Geo-thermal
- Hydro
- Bio-mass, bio-fuel
- Transmission storage
- Distribution storage
- Time-of-use pricing
- Modern grid infrastructure
- Automatic controls
- Organizational behavior
- Recycling programs
- Traffic management
- Policy mandates

Energy Production

- Solar
- Wind
- Geo-thermal
- Bio-mass

Smart Grid

- Local storage
- Electric vehicles
- Building systems
- IT systems
- Mobile devices

Energy Efficiency

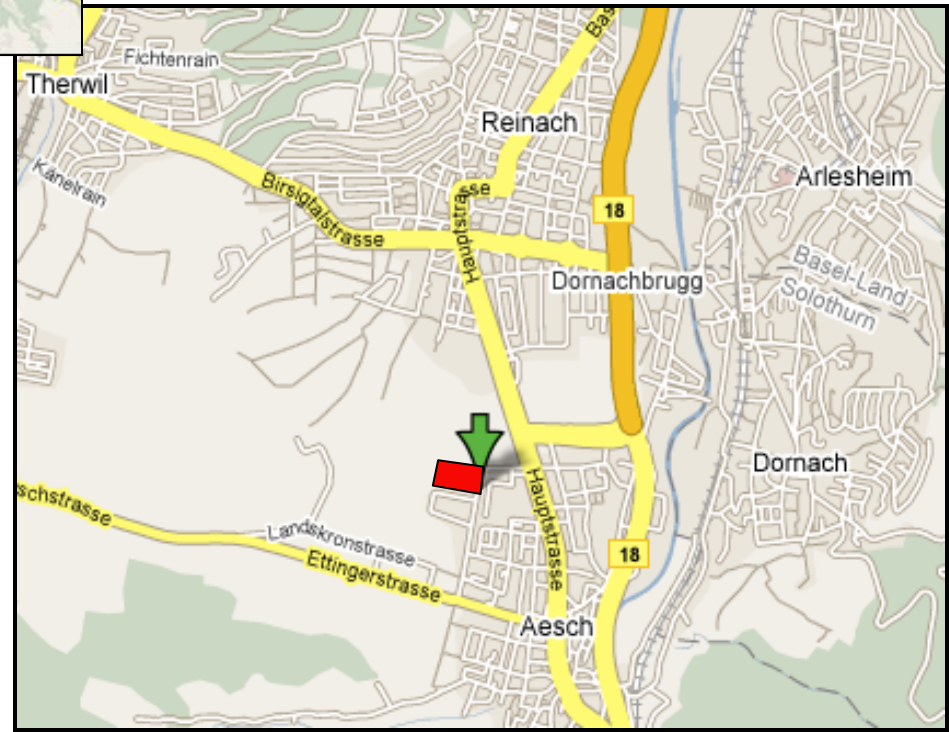
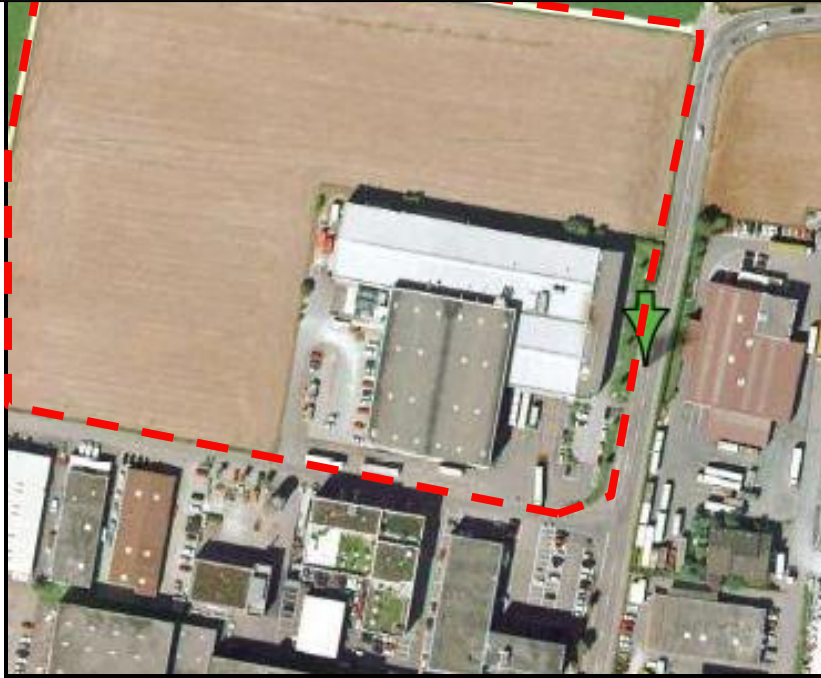
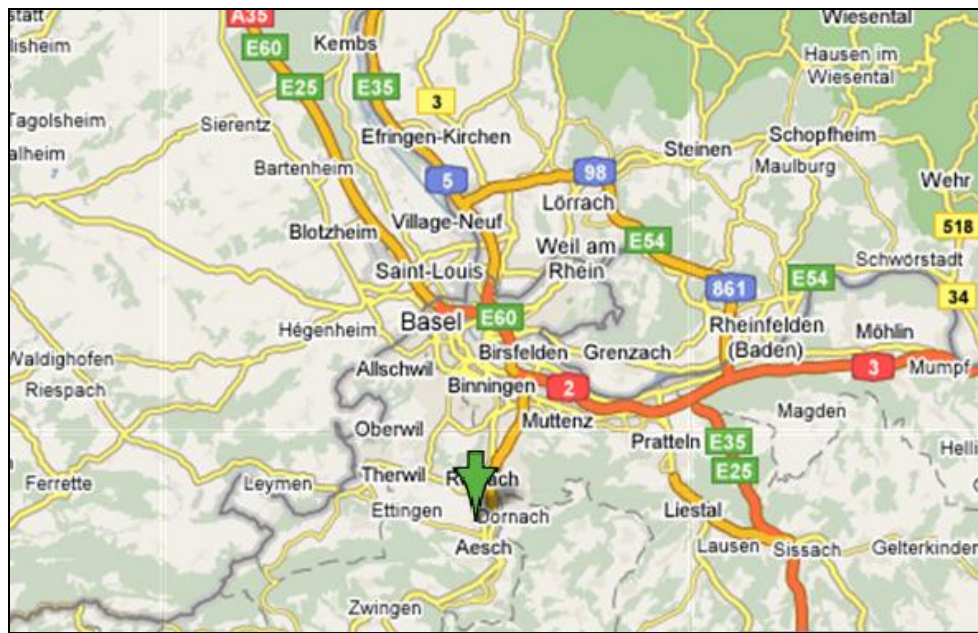
- Green buildings
- Weatherization
- Energy Star appliances
- Consumer behavior

INDIVIDUAL LEVEL

**How do we measure community
readiness / attractiveness for “clean
technology” investment?**

Sustainable Industrial Parks - example Basel, Switzerland:

- High density land use
- Near population centers
- Public transit, bikeways



Building Design – Basel, Switzerland



Side facing street

Worker productivity maximized and employee turnover minimized.

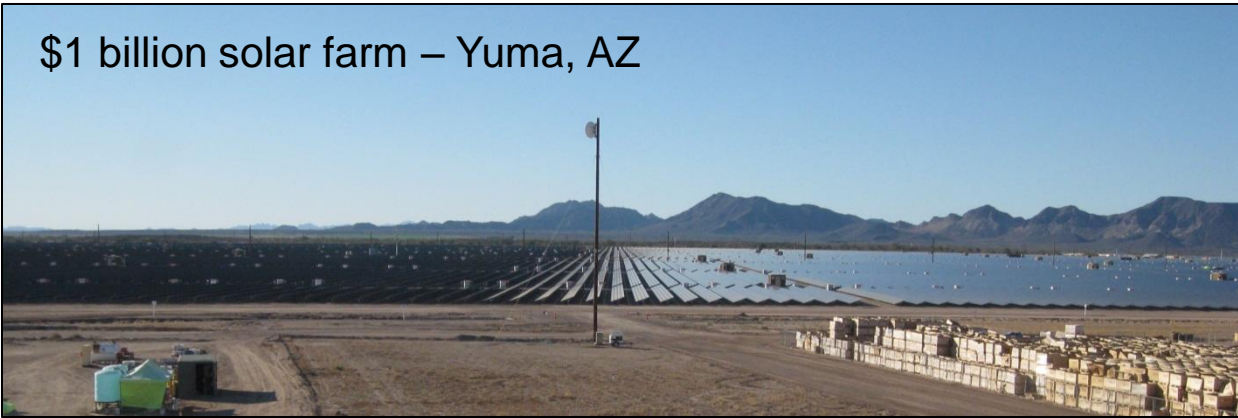
- Natural lighting
- Enhanced air quality



Production hall

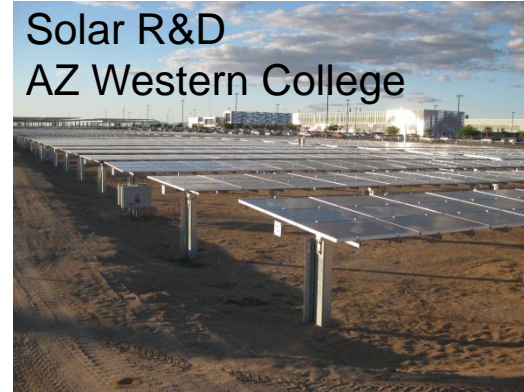


\$1 billion solar farm – Yuma, AZ

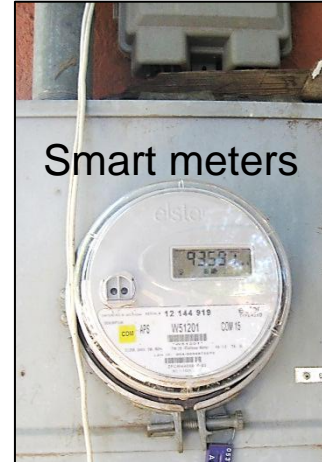


The \$ billions now being invested in renewable energy and energy efficiency dot the landscape. No region is without investment activity.

Solar R&D
AZ Western College



Smart meters



Wind farm jobs



Indiana manure to electricity



Southern yellow pine to pellets



Indiana municipal waste to algae



U.S. CLEAN ENERGY LEADERSHIP INDEX

TECHNOLOGY

Clean Electricity

Clean Transportation

Energy Intelligence & Green Building

POLICY

Regulations & Mandates

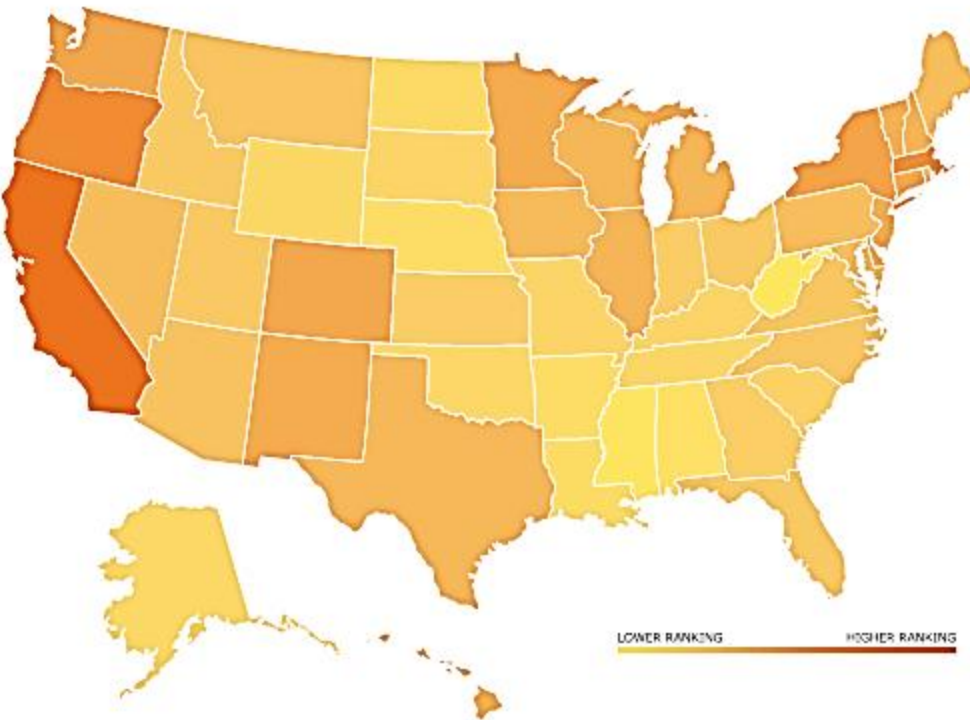
Incentives

CAPITAL

Financial Capital

Human & Intellectual Capital

2011 U.S. CLEAN ENERGY LEADERSHIP INDEX



RANK	STATE	SCORE	RANK	STATE	SCORE
1	California	95.3	26	Montana	40.3
2	Oregon	79.4	27	North Carolina	38.0
3	Massachusetts	71.8	28	Virginia	36.9
4	New York	63.1	29	Utah	35.9
5	Colorado	60.2	30	Ohio	35.2
6	Washington	60.0	31	Florida	35.0
7	New Mexico	57.0	32	Idaho	34.6
8	Minnesota	57.0	33	Indiana	32.2
9	Connecticut	56.9	34	Kansas	32.1
10	Vermont	53.2	35	Georgia	30.8
11	New Hampshire	51.3	36	South Carolina	26.8
12	Illinois	51.1	37	Missouri	25.3
13	New Jersey	50.8	38	South Dakota	24.7
14	Michigan	50.2	39	Kentucky	24.5
15	Wisconsin	49.9	40	Tennessee	23.8
16	Hawaii	49.7	41	Oklahoma	22.0
17	Delaware	48.7	42	Wyoming	21.2
18	Texas	47.6	43	Alaska	20.3
19	Iowa	46.8	44	North Dakota	19.3
20	Nevada	45.0	45	Louisiana	16.8
21	Rhode Island	43.8	46	Nebraska	16.4
22	Pennsylvania	43.4	47	Arkansas	15.8
23	Maine	42.7	48	Alabama	13.2
24	Arizona	40.7	49	Mississippi	6.9
25	Maryland	40.5	50	West Virginia	6.4

Source: Clean Edge, Inc., 2011

Case Study

Measuring Community Attractiveness on Sustainability

Screening Category	Measurement Factor	Scoring Basis		Max. Points
		Metric	Scoring	
Community Sustainability	Recycling	Residential AND industrial recycling programs	20	100
		Residential OR industrial recycling	10	
		None	0	
	Renewable Energy	Community offers local programs that promote renewable energy adoption	20	
		Community beginning to engage in renewable energy adoption	10	
		No programs	0	
	Green Building Code	Active sustainability programs, building codes	30	
		Community beginning to develop green friendly codes	15	
		No programs or codes	0	
	Public Transit	Well developed bus transit system that runs 7 days a week plus on demand options available	30	
		On demand transportation available, but little or no regular scheduled public transit	15	
		Public transportation not offered	0	

Candidate City		Community Sustainability				Total
		Recycling	Renewable Energy	Green Building Codes	Public Transit	
Total Possible Points:		20	20	30	30	100
Northern Search Area	OHIO					78
	1	20	20	15	15	70
	2	20	20	15	30	85
	PENNSYLVANIA					63
	1	20	20	15	15	70
	2	0	20	15	30	65
	3	10	20	0	30	60
	4	20	10	15	30	75
	5	10	20	0	15	45
Mid Atlantic Search Area	NORTH CAROLINA					52
	1	10	0	30	30	70
	2	20	20	15	15	70
	3	10	0	0	30	40
	4	10	0	15	15	40
	5	10	0	0	30	40
	VIRGINIA					51
	1	10	10	15	30	65
	2	0	0	15	15	30
	3	10	10	15	15	50
	4	10	10	15	30	65
5	10	20	15	0	45	
Southeast Search Area	GEORGIA					44
	1	20	20	30	30	100
	2	10	0	0	30	40
	3	10	10	0	0	20
	4	10	0	0	15	25
	6	20	0	0	15	35
	SOUTH CAROLINA					29
	1	10	0	0	30	40
	2	10		0	0	10
	3	10	0	0	0	10
	4	10	0	15	30	55
	TENNESSEE					53
	1	10	10	15	15	50
	2	10	10	30	30	80
	3	10	10	0	15	35
4	10	0	15	0	25	
5	10	20	15	30	75	
6	10	10	15	15	50	

Case Study – Measuring Community Attractiveness on Sustainability

Even with
weak metrics,
it is easy to
differentiate one
community from
another.

Ohio 78
SC 29

Resources

www.mdcleanenergy.org



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STATE CLEAN ENERGY LEADERSHIP INDEX

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**Thank
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