

1. Overview

With the tremendous growth of wind power in the U.S., there has been increasing attention to the ‘supply chain’ of components and services that come together to create wind turbines. *Shepherd Advisors is beginning to look at this flow of products and services from a different angle—what we call the ‘buy chain.’ We are seeking to understand what drives buying decisions at various links in the chain from raw materials to finished product.*

Our objective is to gain more robust knowledge of “who is buying what, why they are buying, how they are buying” etc., or in other words, what drives buyers to a “yes” purchase decision.

In collaboration with the University of Michigan Ross School of Business, this project surveys manufacturers and service providers in the wind turbine supply chain to gain perspectives on key drivers of purchase decisions.

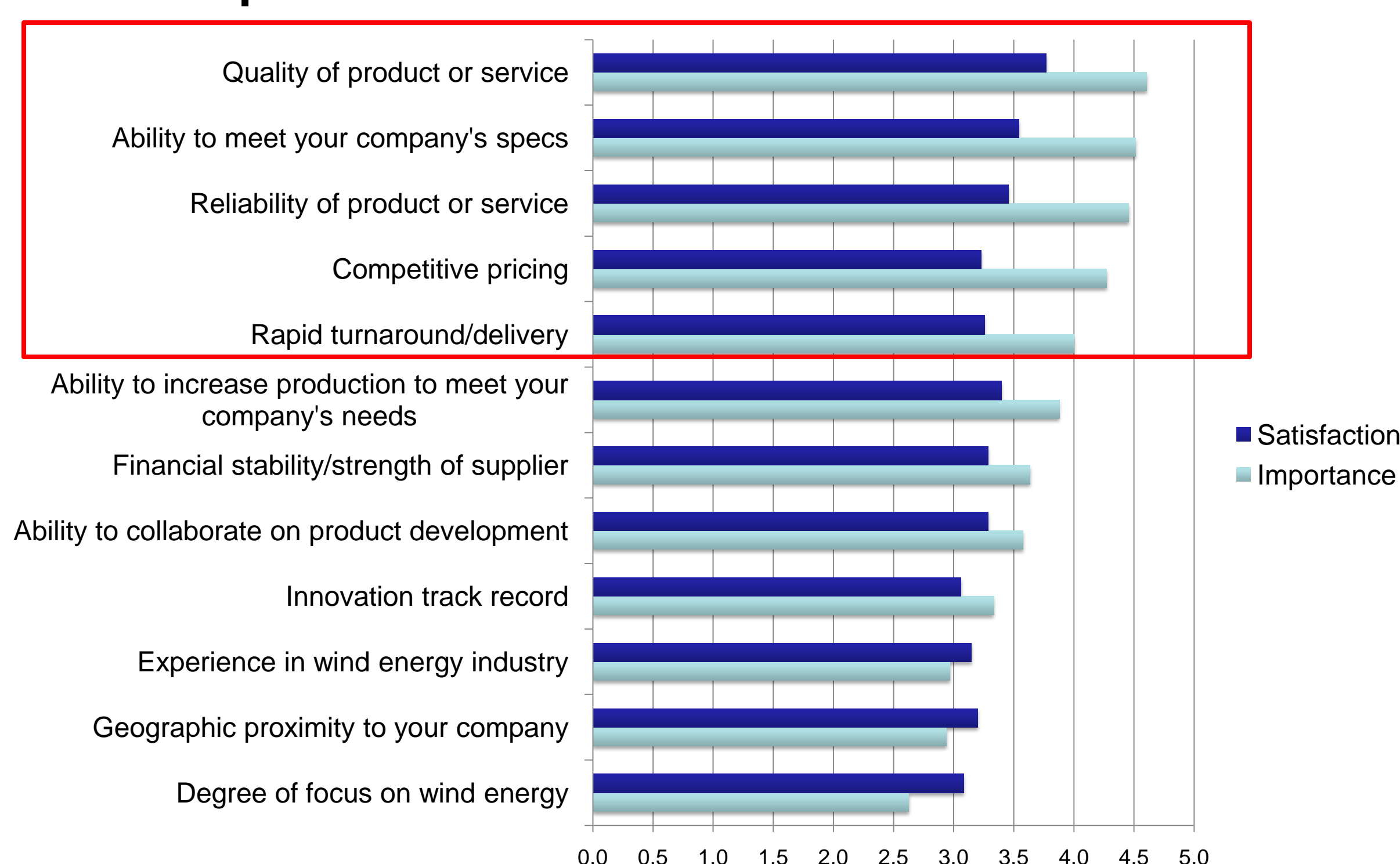
We are gathering feedback on respondents’ purchases from their suppliers, as well as their perspectives on their customers’ purchases from them. The focus of the study is on the buy chain for large, “utility-scale” wind turbines in the U.S.

3. Methodology

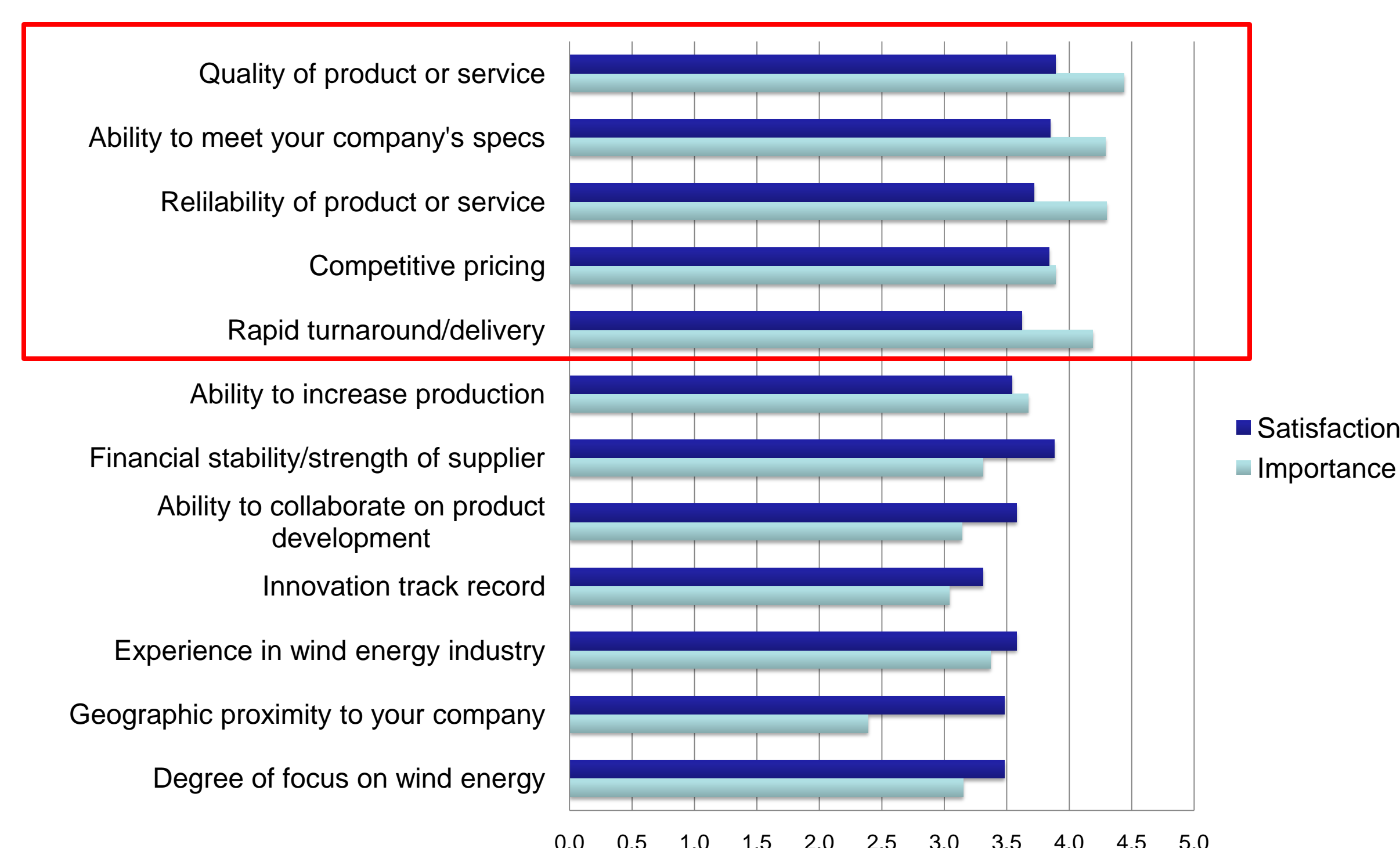
- Collaboration between Shepherd Advisors and University of Michigan Ross School of Business
 - Shepherd worked with a team of MBA marketing students to develop the survey
 - Fielded via e-mail by the student team
- Surveys were sent to more than 1,000 wind “supply chain” participants
 - Utilities/power producers and wind farm developers;
 - Wind turbine OEMs, manufacturers (Tier 1, Tier 2, components), manufacturing equipment suppliers;
 - Service providers (e.g., wind resource assessment, wind farm design, permitting, engineering, construction, logistics, O&M)
- Survey was conducted during November 2009

5. Results

Importance vs. Satisfaction: Manufacturers



Importance vs. Satisfaction: Service Providers



KEY FINDINGS: PURCHASE DECISIONS

- For manufacturers and service providers making purchase decisions, similar supplier attributes rise to the top in terms of importance
 - **Quality; ability to meet spec; reliability; competitive pricing; rapid turnaround**
- Gaps between importance and satisfaction are **larger for the most important attributes**
- Generally, gaps between importance and satisfaction are **larger for manufacturers than service providers**

KEY FINDINGS: INDUSTRY OUTLOOK

- **43% of manufacturers** expect their wind revenues to grow *at least 20%* annually over the next three years
- **33% of manufacturers** expect to add wind suppliers within the next year
- **52% of service providers** expect their wind revenues to grow *at least 20%* annually over the next three years
- **57% of service providers** expect to add wind suppliers within the next year

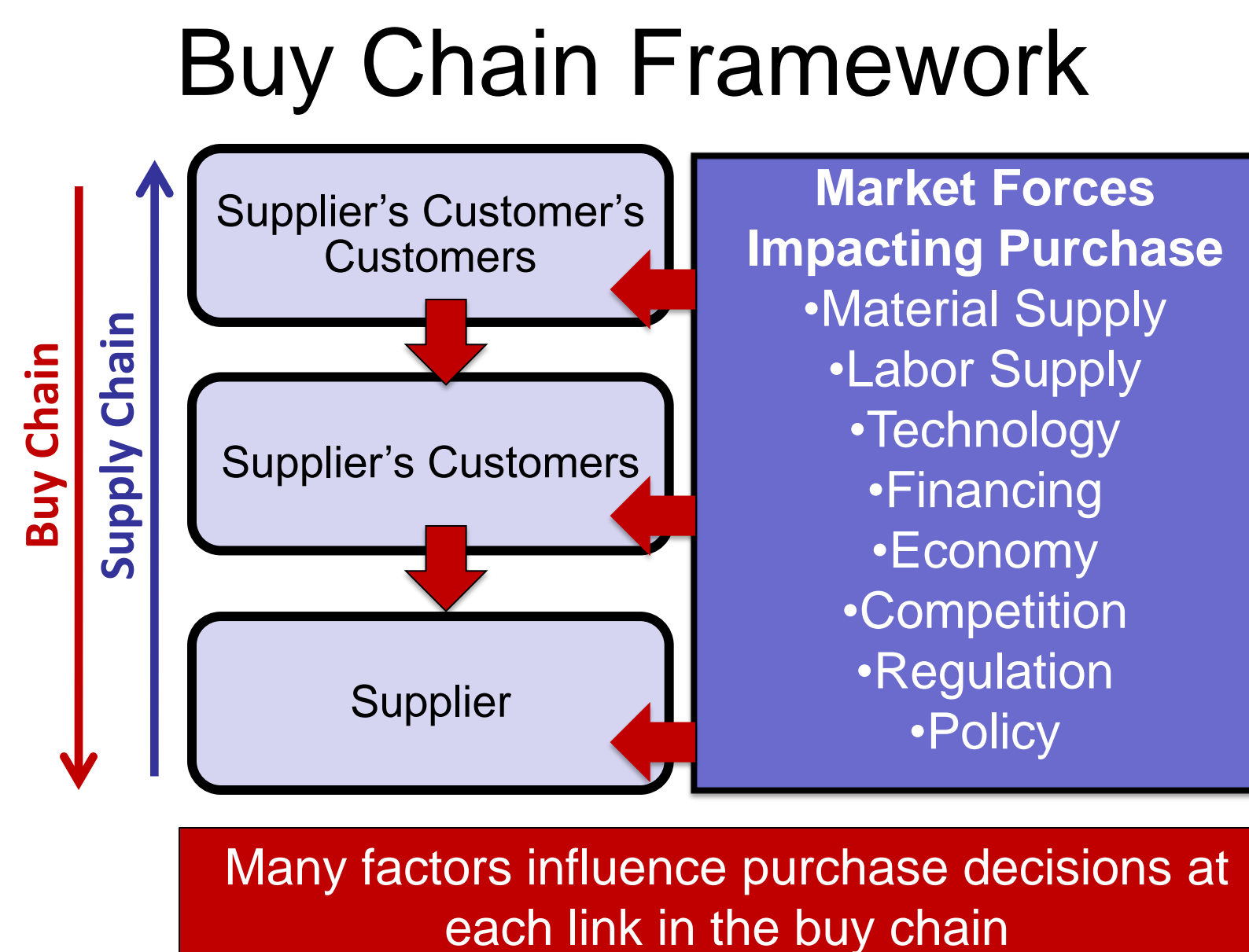
Questions or Comments?

Shepherd Advisors
734-975-0333

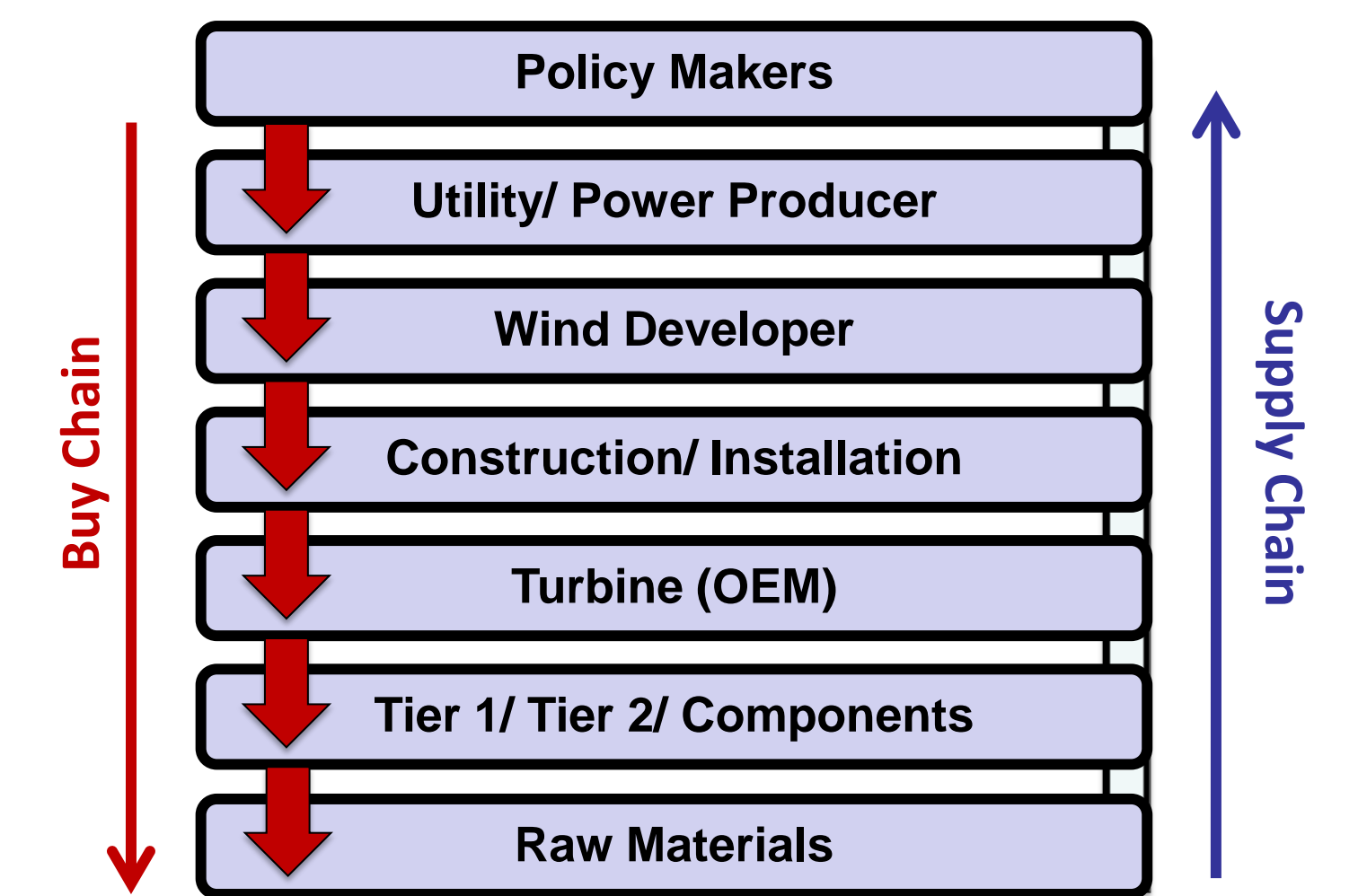
Loch McCabe, loch@shepherdadvisors.com
Tim Kumbier, tim@shepherdadvisors.com
www.shepherdadvisors.com

2. What is the Buy Chain?

- The Buy Chain is a series of purchasing decisions “following the money”—from end-user back to raw materials
- At each link in the chain we seek to understand *the circumstances around buyers’ purchase decisions and key factors driving them*



Wind Industry Buy Chain



- Policies such as renewable portfolio standards and tax incentives impact demand for wind power
- This drives the level and nature of purchases by utilities/power producers from developers
- Which in turn drives developer purchases
- And so on down the buy chain.....

4. Respondent Demographics

Survey Response:

	Overall	Manufacturers	Service Providers	Other
Respondents	94 (9%)	48	42	4
Completed Surveys	73 (7%)	41	31	1

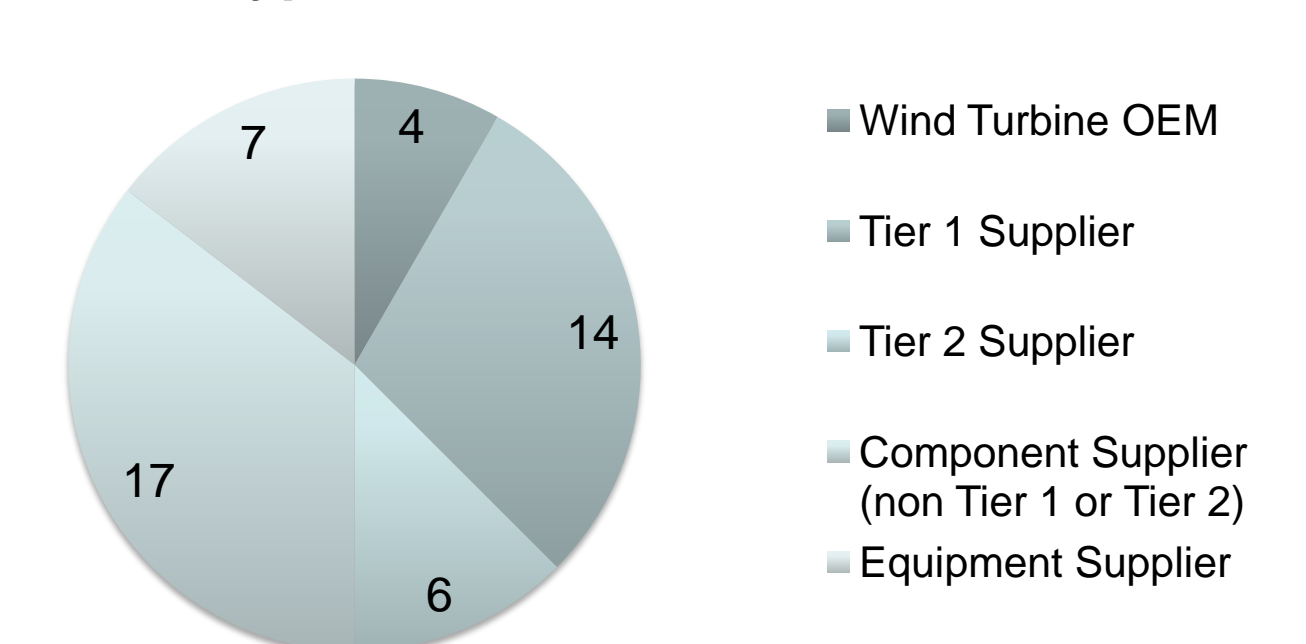
Respondent Characteristics:

- Broad spectrum of company size, from < 10 employees to > 500 employees
- Cross-section of wind industry experience (number of years)
- Predominance of company revenues outside of wind industry
- Wind suppliers fairly concentrated

Respondent Wind Industry Participation:

Characteristic	Manufacturers	Service Providers
Wind Industry Revenue		
Less than \$1 Million	39%	45%
\$1 to \$10 Million	29%	32%
More than \$10 Million	32%	23%
% of Company Revenue from Wind Industry		
Less than 20%	73%	61%
At least 20%	27%	39%
Number of Years in Wind Industry		
2 years or less	44%	22%
3 to 10 years	27%	68%
More than 10 years	29%	10%
Wind Industry Suppliers		
1 to 3 suppliers	55%	50%
4 to 6 suppliers	15%	29%
7 or more suppliers	30%	21%

Type of Wind Manufacturer



6. Conclusions

- Wind industry buyers want suppliers they can count on to deliver the “fundamentals”
 - *Quality; Reliability; Ability to Meet Spec; Competitive Pricing; Rapid Turnaround*
 - 55% of manufacturers and 50% of service providers have three or fewer wind suppliers
- Nevertheless, opportunities exist to establish new “trusted supplier” relationships
 - Gaps between importance and satisfaction on key attributes
 - 33% of manufacturers and 57% of service providers expect to add suppliers
- Respondents are cautiously optimistic about growth prospects in the wind industry

7. Acknowledgements

Shepherd Advisors wishes to extend its sincere thanks to Tamasin Ford, Samira Jabbar, Dora Lam, Rebecca Silver, and Paul Zahka, and to Dr. Anocha Aribarg, of the Ross School of Business at the University of Michigan