



INTERNATIONAL  
**TRADE**  
ADMINISTRATION

# Global Trends in Smart Grid Deployment for Smart Cities

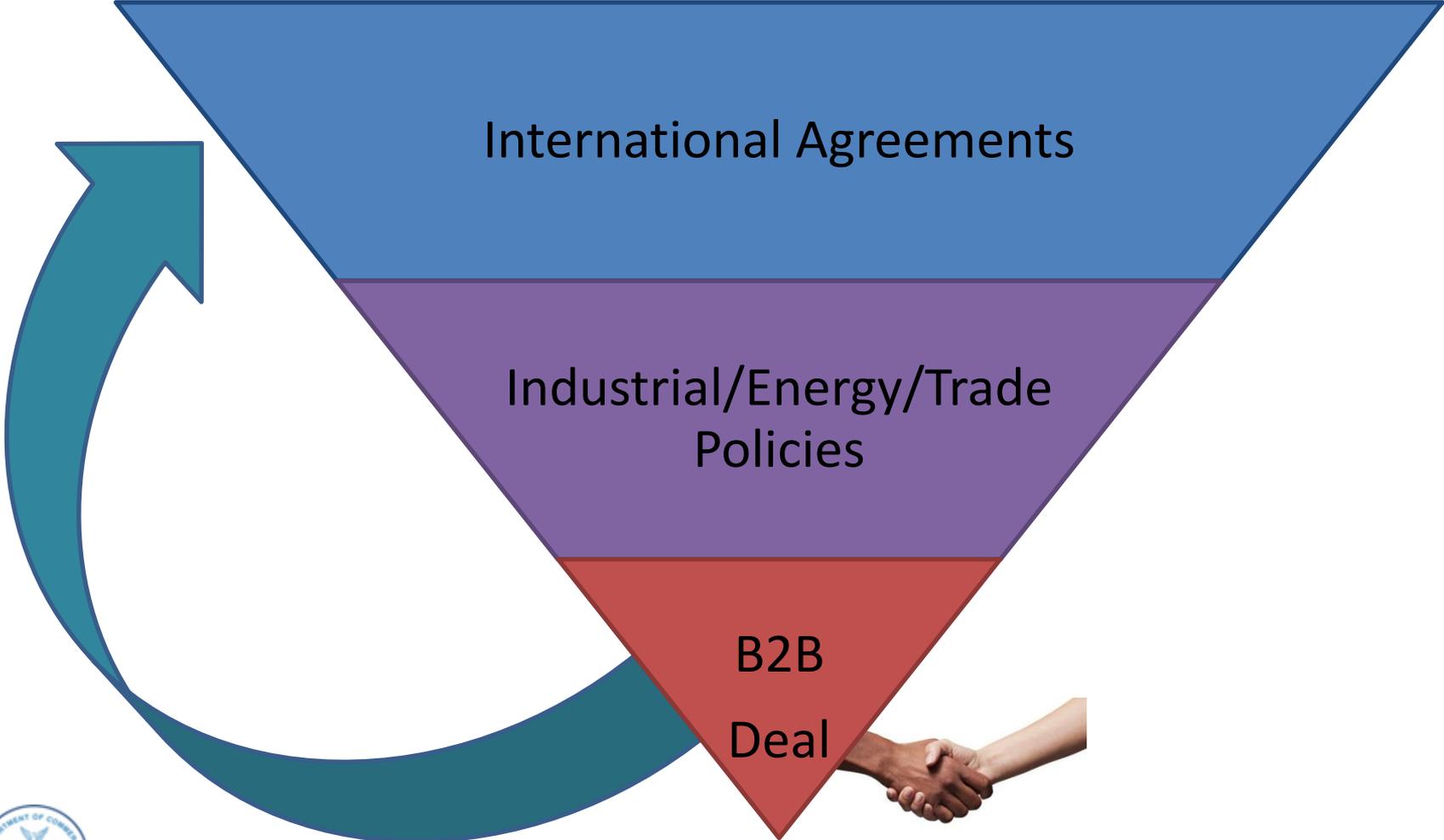
Open Geospatial Consortium's Energy & Utilities Summit  
*Harnessing the Power of Geospatial Information for Smart Energy Communities and Utilities*  
June 28, 2017

Vickie Gunderson, Ph.D.



# What We Do

*Shaping the Global Trade Policy Environment*



International Agreements

Industrial/Energy/Trade  
Policies

B2B  
Deal



# Four Energy Sector Megatrends



- 1. Shift to Emerging Economies:** More electricity capacity will be installed by 2040 than is installed today, **97%** of that will be in non-OECD countries
- 2. Focus on Clean Energy:** Through 2040, **60%** of new power plants spending and more than **50%** all new generation will be from renewables
- 3. Emphasis on Efficiency:** Global economy will grow **150%**, but energy demand will grow only by **33%**
- 4. Centered in Urban:** **2/3** of global energy is consumed in cities



Source: International Energy Agency (IEA), World Energy Outlook 2016; <https://www.export.gov/smartcities>

# Moving Beyond Nomenclature

What is a “smart grid”?

What is a “smart city”?



# Many Industries Play a Role

*Bringing New Technologies That Offer Solutions to Urban Challenges*

## Smart Cities

### Transportation

- Save time
- Comfort or productivity
- Universal access
- Reduced operating expenses
- Zero emissions, collisions, & fatalities
- Noise reduction

### Energy

- Energy efficiency
- Zero air pollution
- Synergistic resource management
- Increased resilience against climate change and natural disasters

### Building & Housing

- Affordable housing
- Healthy living and working environments
- Inexpensive innovation and entrepreneurial space
- Thermal comfort
- Increased resilience

### Water

- Active ecosystem integration
- Smart integration of water, sanitation, flood control, agriculture, and the environment as a system
- Increased resilience

### Urban Manufacturing

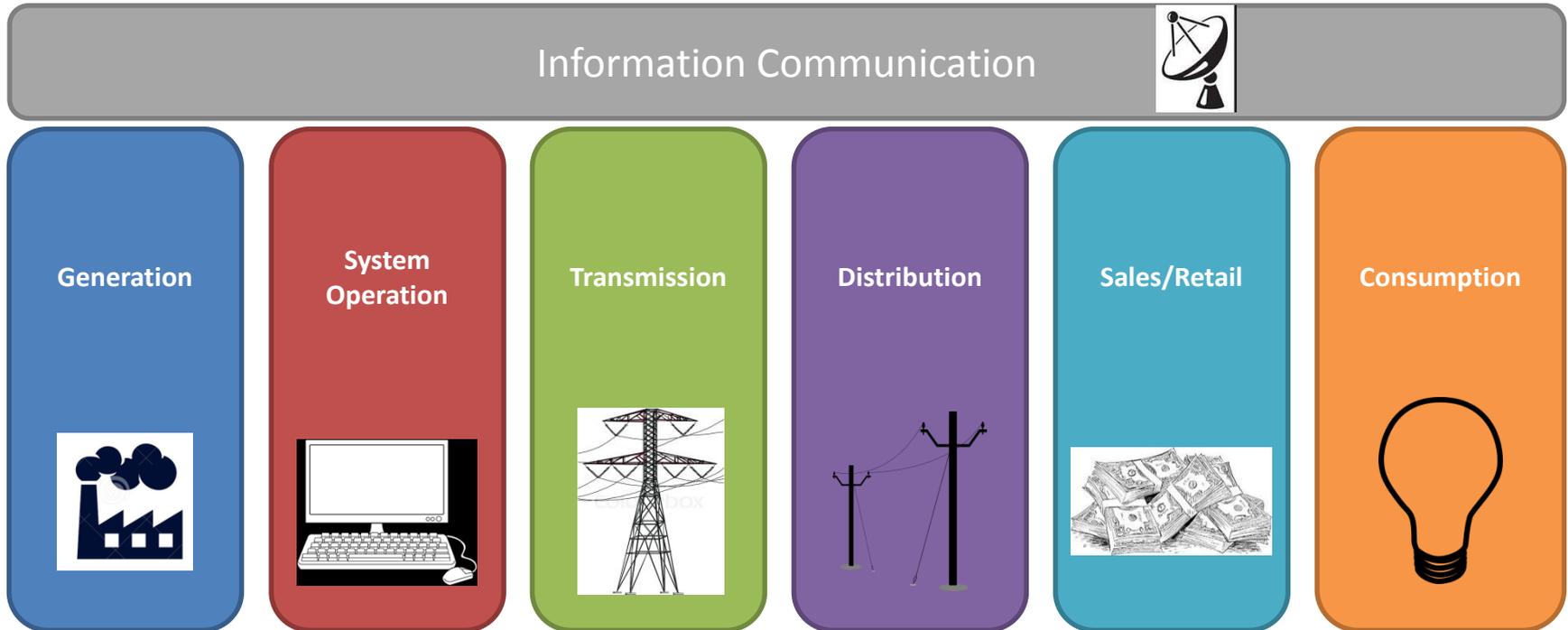
- New job creation
- Training and education
- Urban space conversion and re-use
- Close integration of living and work

### Urban Farming

- Lower water use
- Cleaner delivery
- Fresher produce



# Smart Grid & Smart Cities = Similar Challenges

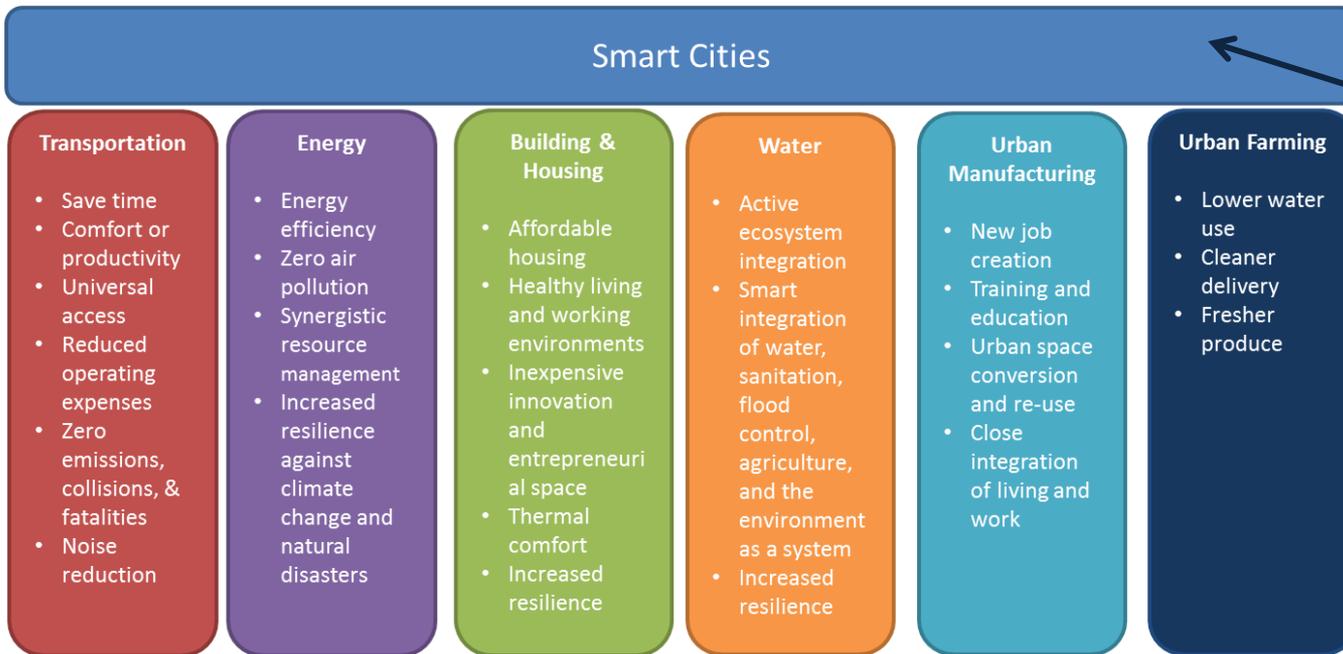


# Three Fundamental Smart Cities Business Questions Firms Should Ask

1. Did my buyer (or decision-maker) change as a function of a smart cities initiative?
2. Can I leverage multiple value streams to reduce individual costs for any one use case?
3. What am I fundamentally selling?



# #1: Did my buyer (or decision-maker) change as a function of a smart grid/cities initiative?



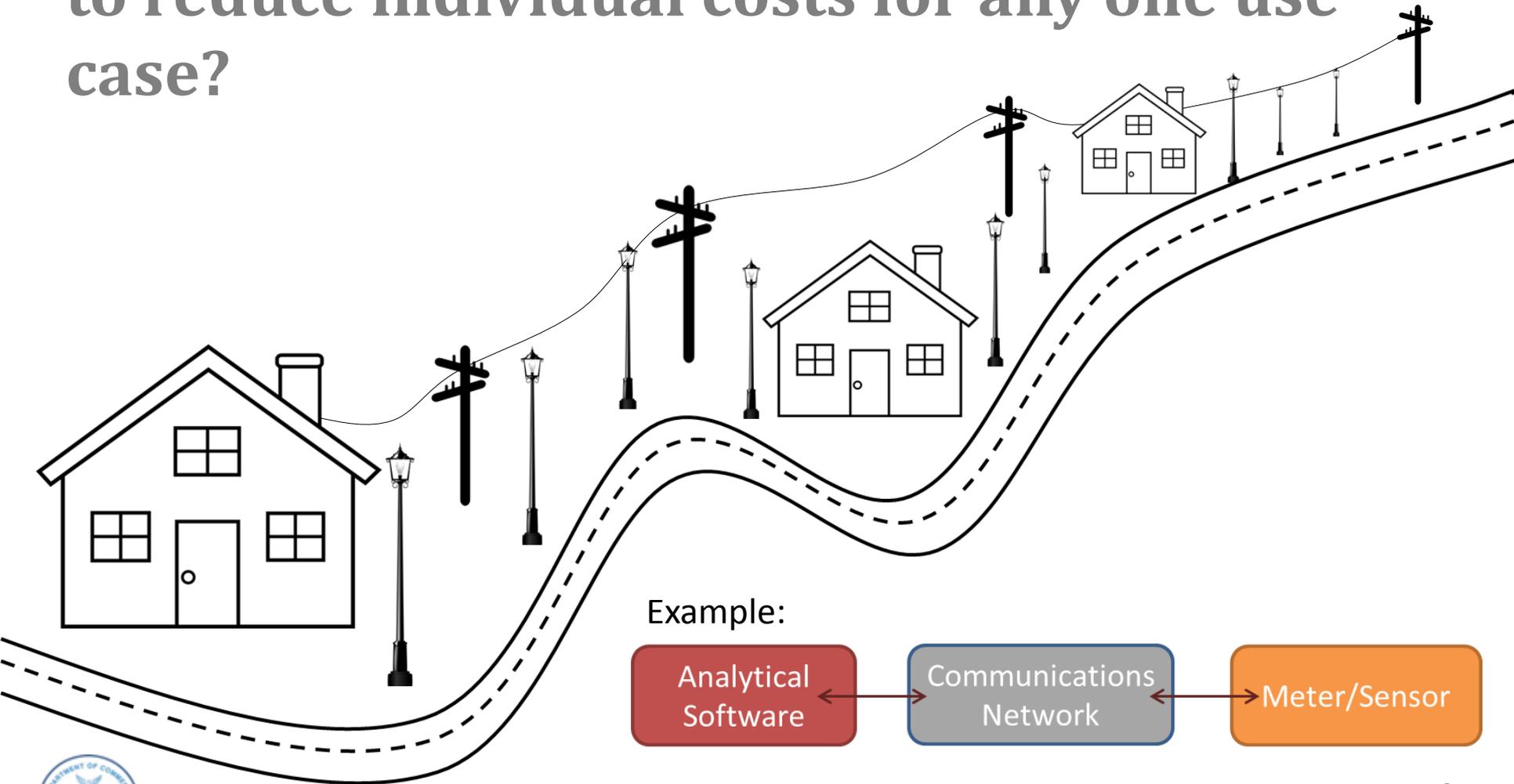
Does this entity have budgetary or regulatory control over the verticals?

Is there new money to access?

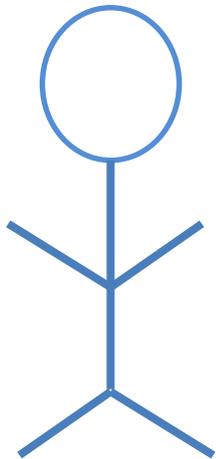
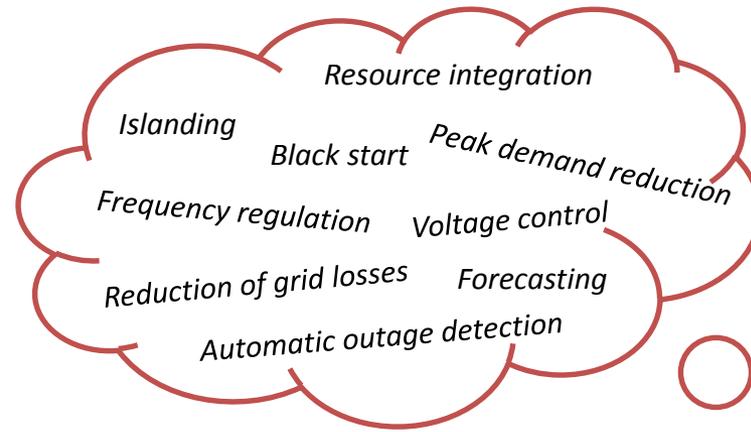
Are there regulatory controls or policies that force verticals to cooperate?



## #2: Can I leverage multiple value streams to reduce individual costs for any one use case?



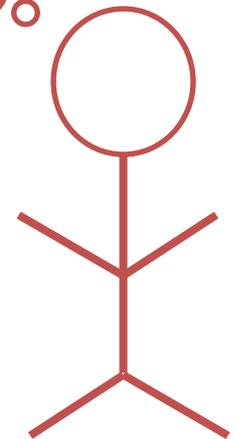
# #3: What am I fundamentally selling?



What are the biggest challenges facing electric utilities that they are seeking to procure solutions?



Can we improve utilities/policymakers/regulators understanding of the range of technologies that can be deployed to address a particular need?



# Common “SMART” Trends

*Informed By The Three “Fundamental Business Questions”*

1. Did my buyer (or decision-maker) change as a function of a smart cities initiative?

***Increase system efficiency by breaking down sector stove-piping (electric utilities are early movers, munis especially)***

1. Can I leverage multiple value streams to reduce individual costs for any one use case?

***Lease a physical asset to reduce capital costs and fund the project from operational costs (avoid rate-basing!)***

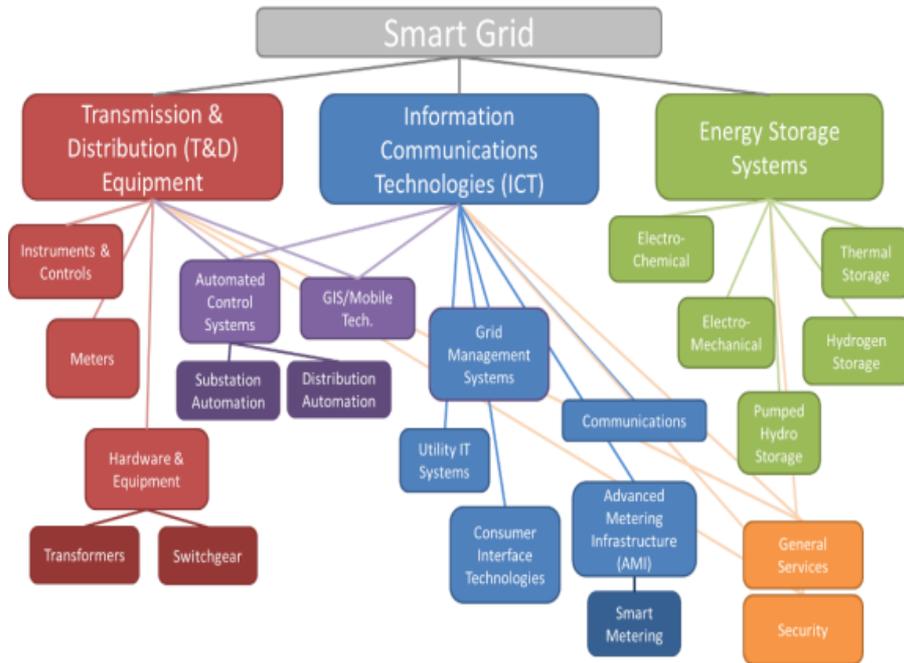
2. What am I fundamentally selling?

***Identifying ways to leverage insights gained from data securely and via interoperable devices***



# Global Opportunities Vary Significantly

## Smart Grid Top Market Report



Download report:

<http://trade.gov/topmarkets>

RANK	T&D Equipment	Smart Grid ICT	Energy Storage
1	Mexico	Canada	UK
2	Ethiopia	UK	Canada
3	Kenya	Mexico	Germany
4	Vietnam	Japan	Japan
5	Egypt	Finland	Australia
6	India	Australia	Denmark
7	Indonesia	Sweden	Korea
8	Canada	Germany	China
9	Malaysia	France	Mexico
10	Saudi Arabia	Ireland	India



**THANKS!**

**Vickie Gunderson**

*International Trade Specialist*

U.S. Department of Commerce

[Victoria.Gunderson@trade.gov](mailto:Victoria.Gunderson@trade.gov)

+1-202-482-7890