



A Perspective on the Energy Market

Changing market dynamics



THE GOOD OLD DAYS

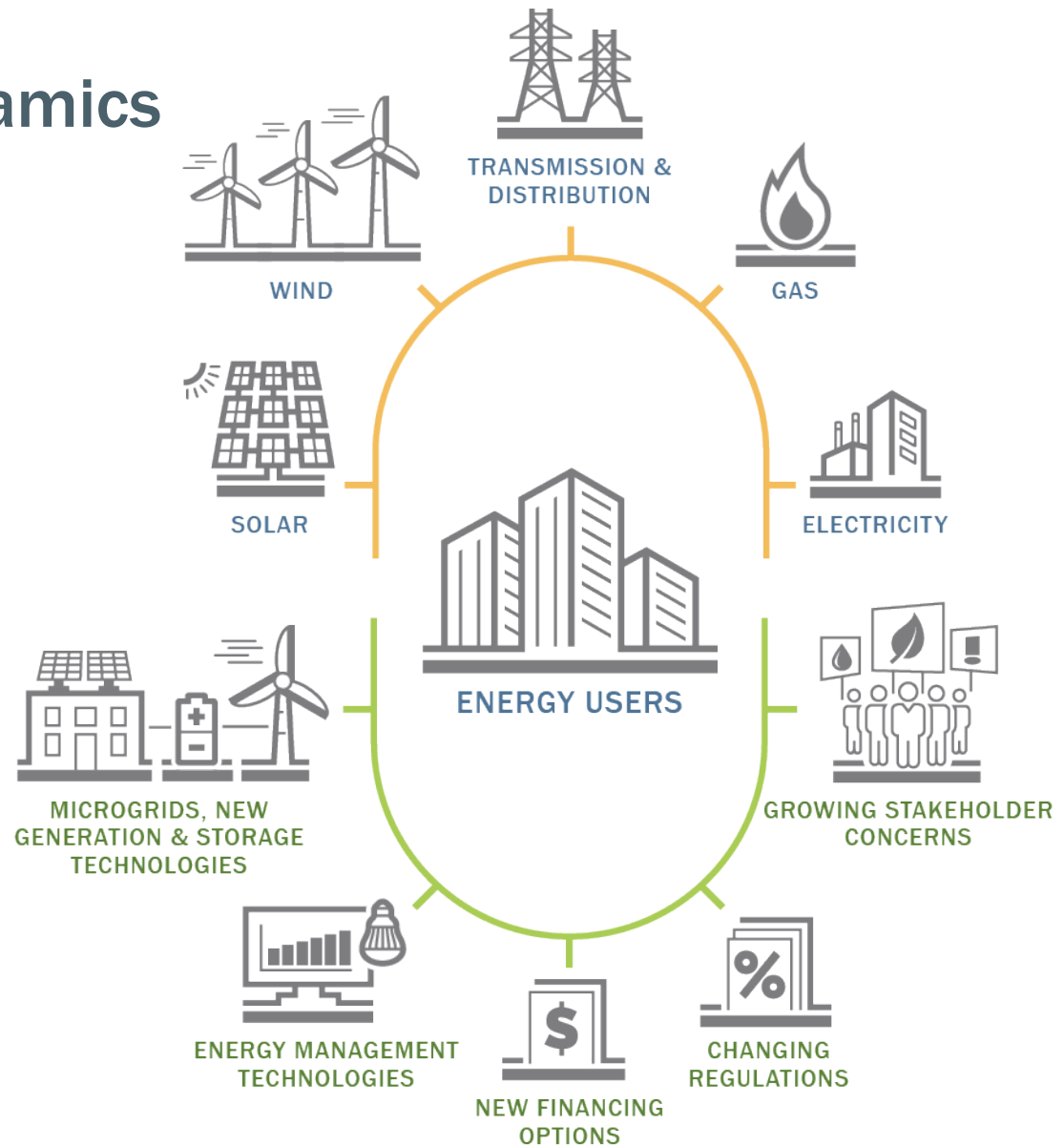
Changing market dynamics

Energy markets are:

- » More complex and costly
- » Increasingly volatile
- » Technologically diverse
- » Socially significant

Within the enterprise:

- » Focus on costs and compliance
- » Limited internal capacity and investment resources
- » Multiple stakeholders
- » Sustainability pressures



Energy market continues to change unpredictably

ENERGY MANAGER TODAY
Home News Columns Videos Webinars White Papers
Energy Manager Jobs

POLICY PROCUREMENT MONITORING CONSERVATION

 **REUTERS**
SUSTAINABILITY

U.S. Supreme Court Blocks Obama's Clean Power Plan

An unusual 5-4 decision halts the federal effort to curb carbon dioxide emissions from power plants while the court battle continues

[Home](#) / [Conservation](#) / Energy Managers Buoyed By Supreme Court's Demand Response Decision

Energy Managers Buoyed By Supreme Court's Demand Response Decision

February 4, 2016 By [Ken Silverstein](#)

theguardian

election 2016 US world opinion sports soccer tech arts lifestyle fashion business travel environment [browse all sections](#)

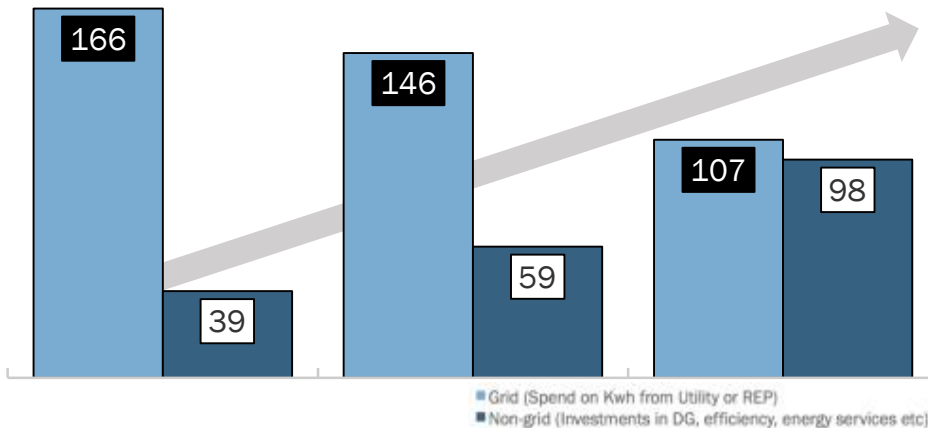
home > environment > energy pollution climate change wildlife

Solar power
Guardian Environment Network

San Francisco adopts law requiring solar panels on all new buildings

Energy markets continue to change unpredictably

Non-Grid energy spend forecasted to grow at large C&I users rapidly: but how much?



Analyst estimate (base case)

Analyst reports project non-grid spend rising to 39B, or **19%** of all C&I energy expenses – if we assume non-grid investments cannibalizes grid spend one to one

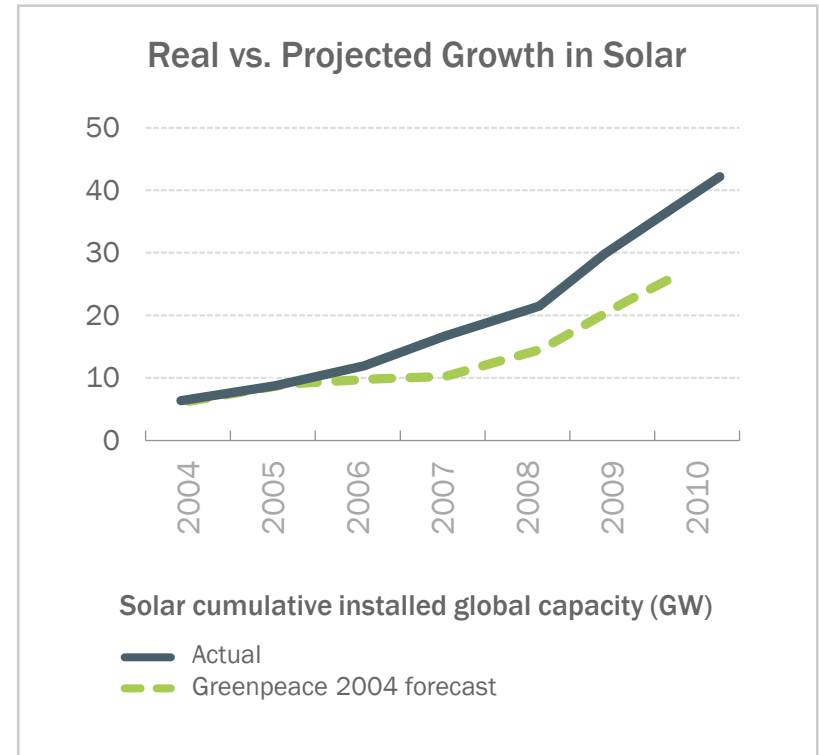
Customer expectation

This is close to customer expectations – C&I companies expect to spend an average of **29%** of their total energy expenditures on non-grid sources in 2023

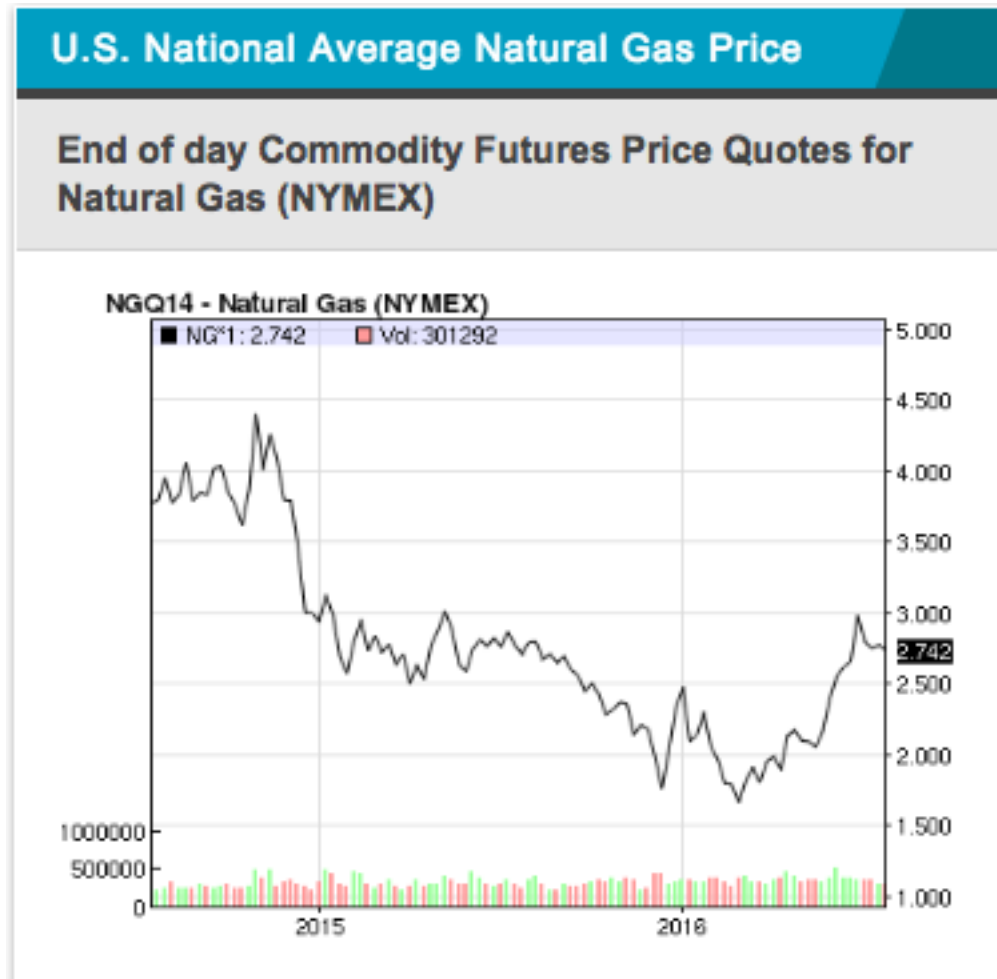
'German' situation

In Germany today, **48%** of generating capacity is distributed. If we assume that total C&I spend follows the same distribution, and this happened in the US, non-grid spend would be 98B

Even environmentalists underestimated the global growth of solar



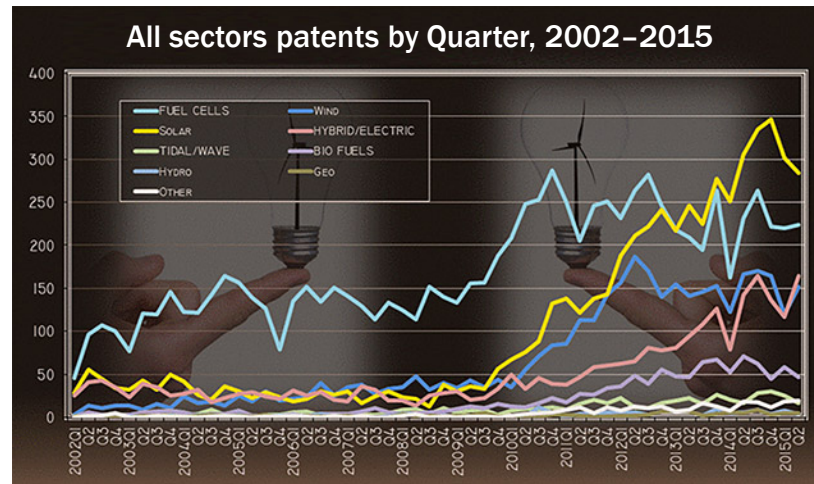
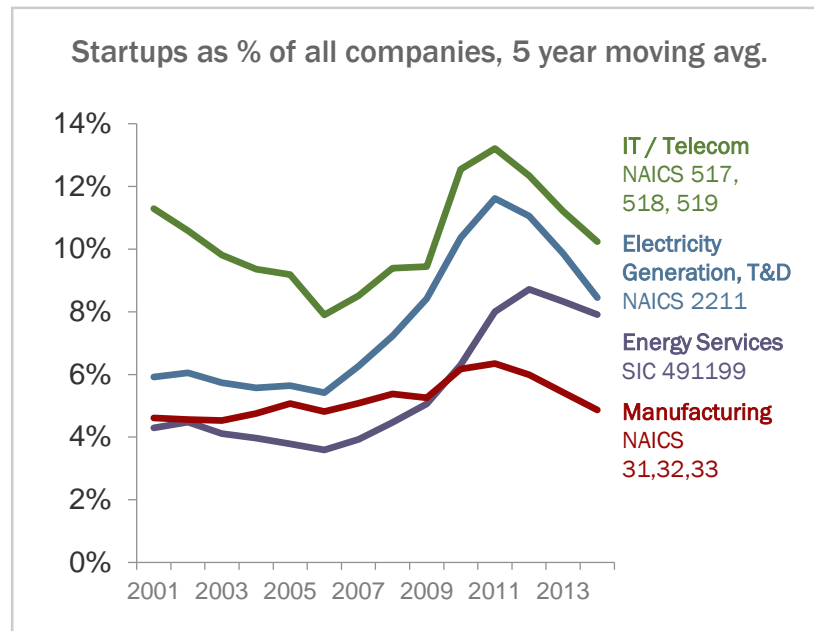
Energy markets continues to be volatile



Natural Gas prices continue to be volatile

And the future portends further change

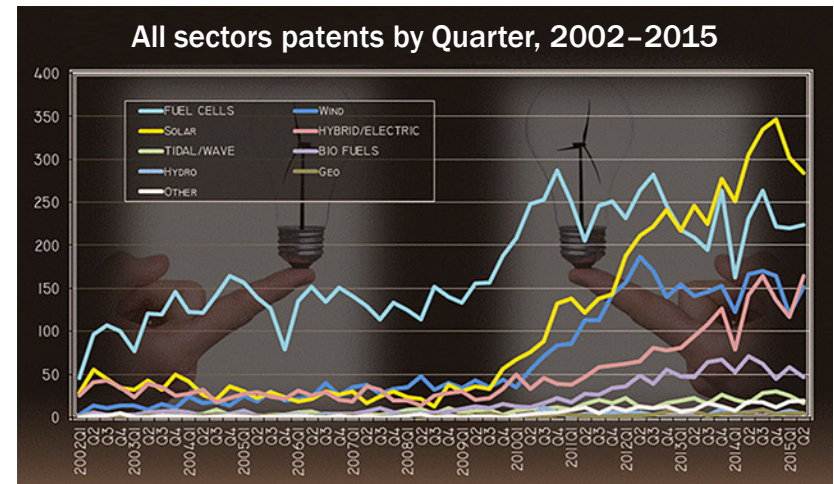
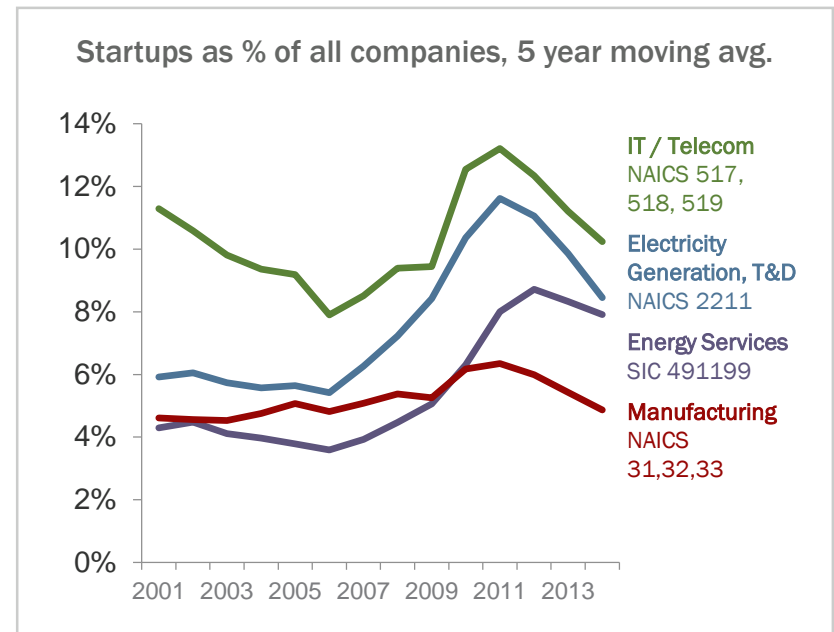
- » 147,000 energy tariff changes per year on average (from trivial to meaningful)
- » The number of new energy start-ups approaching the number in IT
- » Clean energy patents filed continues to grow rapidly; 899 in Q2 2015 alone




Source: Clean Energy Patent Growth Index (CEPGI), Q2 2015

And the future portends further change

- » 147,000 energy tariff changes per year on average (from trivial to meaningful)
- » The number of new energy start-ups approaching the number in IT
- » Clean energy patents filed continues to grow rapidly; 899 in Q2 2015 alone
- » Increasing global pressure on climate change;
 - Over 2/3 of the Fortune 500 have sustainability policies today
 - Paris Accords driving change
 - 1,000+ companies now pricing carbon
- » Shareholders filed a record number of climate change resolutions in 2015



Source: Clean Energy Patent Growth Index (CEPGI), Q2 2015



A dive below the surface of a changing energy world

EDISON
INTERNATIONAL



OUR DATA

We conducted a comprehensive study of how the world of energy management was changing

A black and white photograph of two men in white lab coats standing in a factory or industrial setting, engaged in conversation. The background shows industrial equipment and overhead lights.

Corporate Ethnographies

26 global companies

+100 executives and energy managers

A black and white close-up photograph of a person's face looking at a laptop screen. A hand is visible in the foreground, gesturing towards the screen.

Large Survey

542 medium and large U.S. companies

A black and white photograph of two people sitting at a desk with laptops, engaged in a discussion. One person is gesturing with their hand while speaking.

Experts and Analysts

+30 expert interviews

Synthesis of +50 reports

What we found

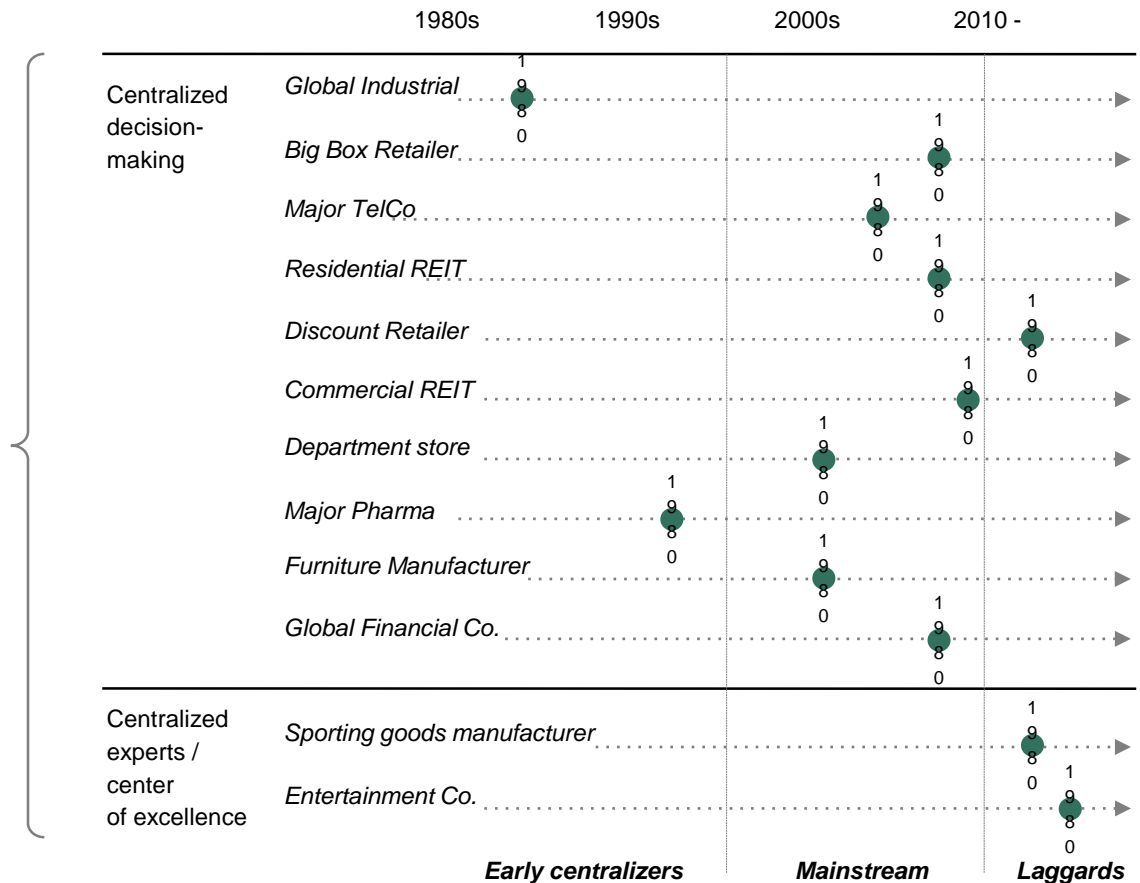
1. A quiet revolution is underway
2. Integration is the key challenge
3. The industry has not caught up

A QUIET REVOLUTION


Most large companies have already adapted to the changing demands of the energy world

Centralization is one major trend that has reshaped energy groups over the past 10-15 years

78%
of companies with
+\$1bn revenue now have a
centralized energy
management function



Energy has ‘suddenly’ become a strategic imperative

A black and white photograph showing a close-up of a hand holding a dark leather wallet. Two credit cards are visible, one partially overlapping the other. The background is dark and out of focus.

“Oh, and by the way, the sustainability thing is going to be your responsibility. I have no idea what it is, but all I know is that we’ve got activist investors up our [rear] about it ... You will have to just figure this whole thing out.”

Head of Property Management at Commercial REIT, describing what the COO told him when promoting him to his current position

But at most companies, energy concerns remain an unwelcome distraction

“People could argue that they should never have deregulated telecommunications ... It might be something similar for utilities...”

“We’re a retailer. We’re not in the energy management business.”

“Not our core competency.”

“I’m not an energy professional.”

“Not part of our core business.”

“We have to blow people’s minds in real estate, not energy.”



“We’re not an energy company.”

“We’ve been distracted ... because we've had to go looking for power.”

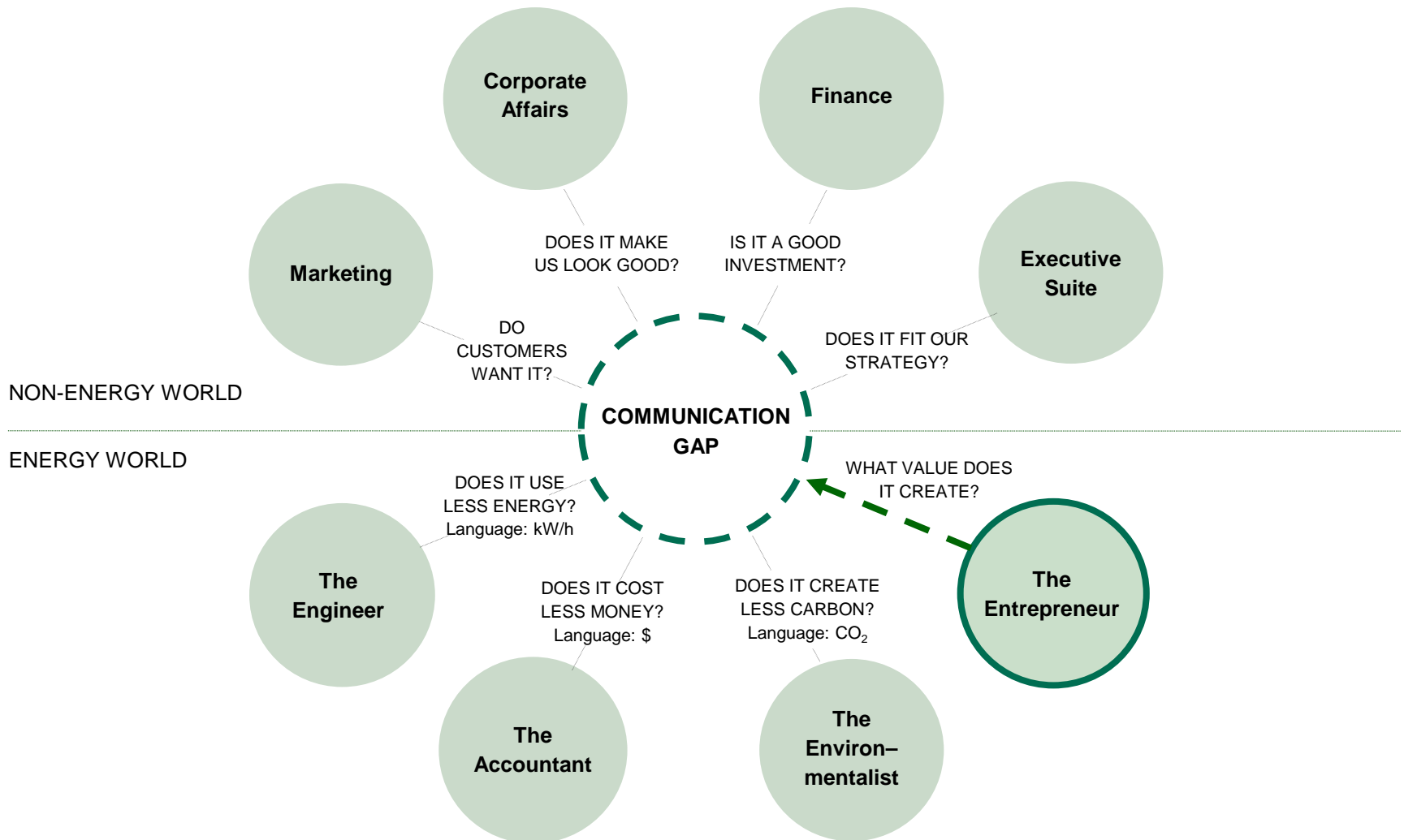
Only 6%

of companies surveyed believed
they had exhausted all opportunities
for energy savings

What is holding companies back?

INTEGRATION IS THE KEY CHALLENGE

In most companies, there is no clear language for how to talk about energy
- *and a new type of energy manager is using this disconnect to their advantage*



INTEGRATION IS THE KEY CHALLENGE

A lack of data and universally accepted standards leads to confusion and missed opportunities

Lack of clear data

24%

of respondents from companies with +\$1bn revenue did not believe their company had an ‘accurate overview of how much energy it consumes and why.’

For companies with a decentralized energy function, the figure goes up to 41%.

No agreement on the right metrics or benchmark to use

Examples of 3rd party credentials used by the companies we met to guide internal benchmarks



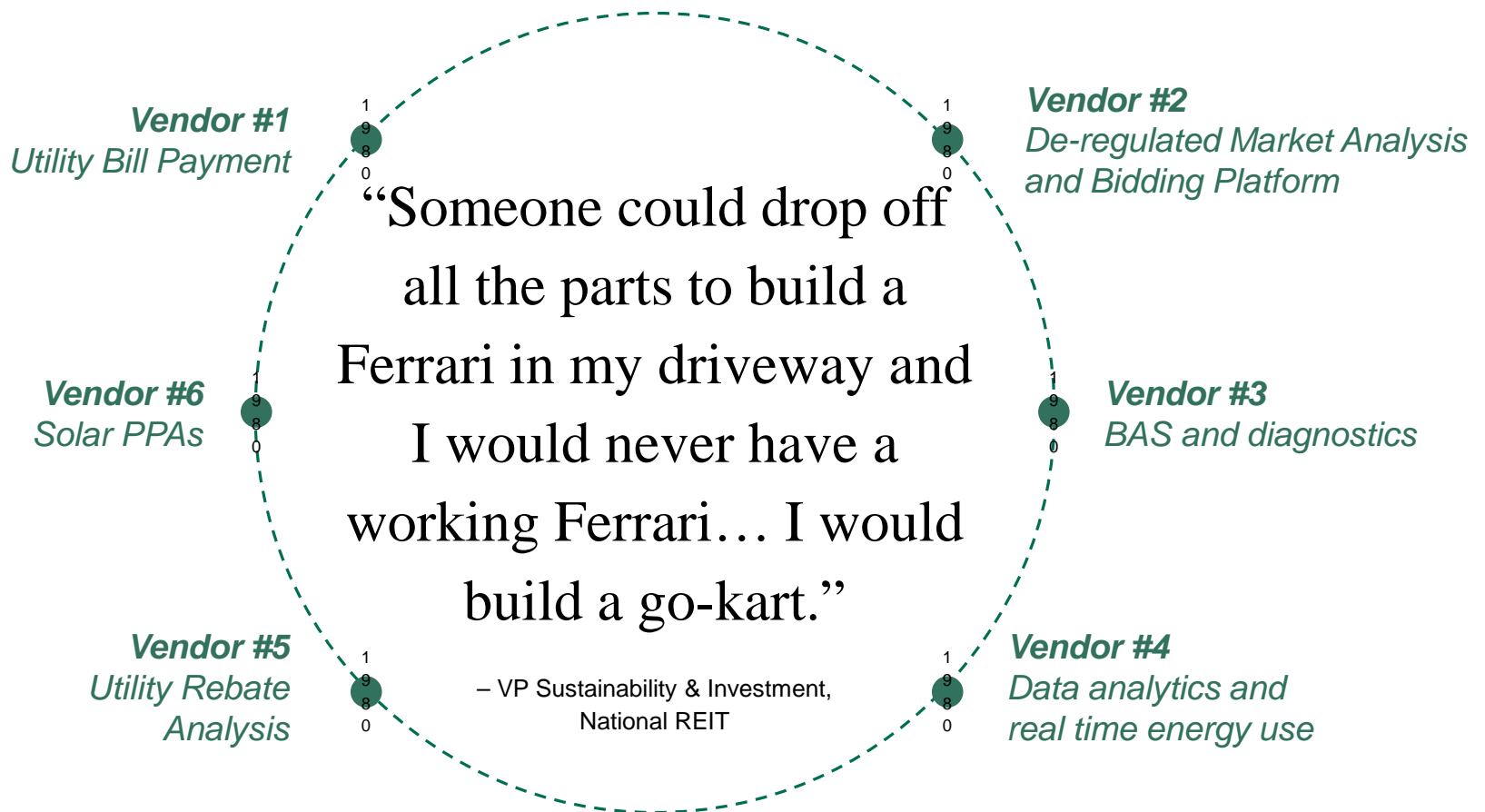
“Nobody’s written the book on energy [management].”

– Energy Manager, Big Box Retail

INDUSTRY HAS NOT CAUGHT UP

Industry service firms are only adding to the confusion

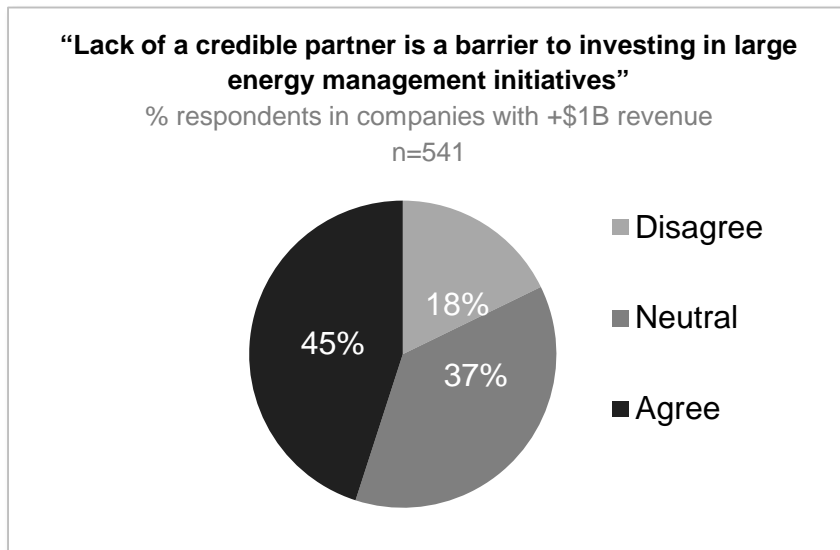
Because most providers lack the ability to credibly integrate companies end up managing a vast number of siloed vendor relationship



INDUSTRY HAS NOT CAUGHT UP

The lack of credible industry partners is a barrier to innovation

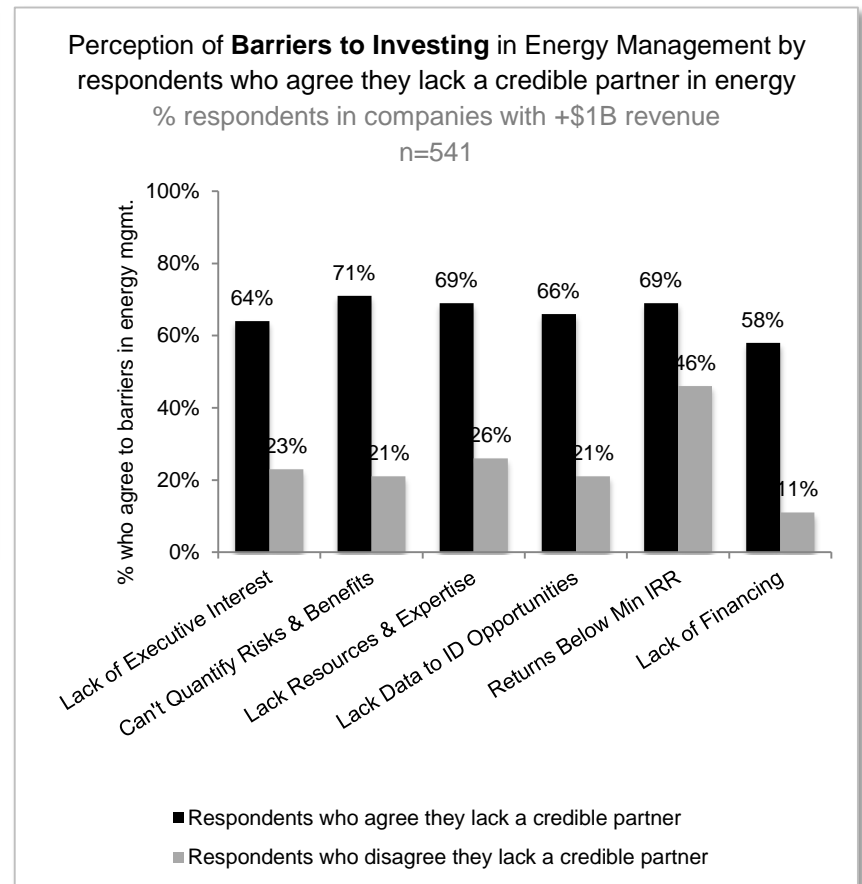
Many companies saw a lack of credible industry partners as a barrier



“I don’t trust who’s out there. I’d rather work with utilities than, you know, Joe Shmo solar.”

– Chief Investment Officer and EVP, National REIT

Without a credible partner, everything else seems more difficult



One big question:

New
normal?

OR

Temporary
adjustment?



Edison Energy[®]: Making Energy Simple Againsm

What are the largest energy users looking for?

A summary of the ReD Findings:

Solutions that consistently lower cost, simplify operations and help deliver compliance and sustainability goals across the enterprise



Lower costs



Sustainability



Dependable supply



Scale for the
entire enterprise



Delivered simply.

What is needed to meet those users needs?

Our perspective: Three critical elements

INSIGHT



- » Energy use and costs
- » Market trends
- » Technology trends
- » Compliance and incentives
- » Standards & best practices
- » Actionable roadmaps

INTEGRATION



- » Project delivery
- » Technical & program solutions
- » Engineering expertise
- » Unique partnerships
- » Optimizing supply *and* demand
- » Enterprise-wide

SIMPLIFICATION

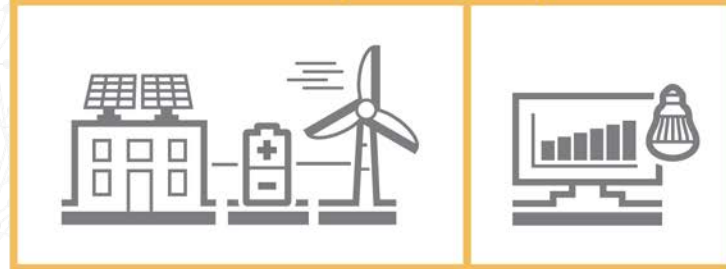
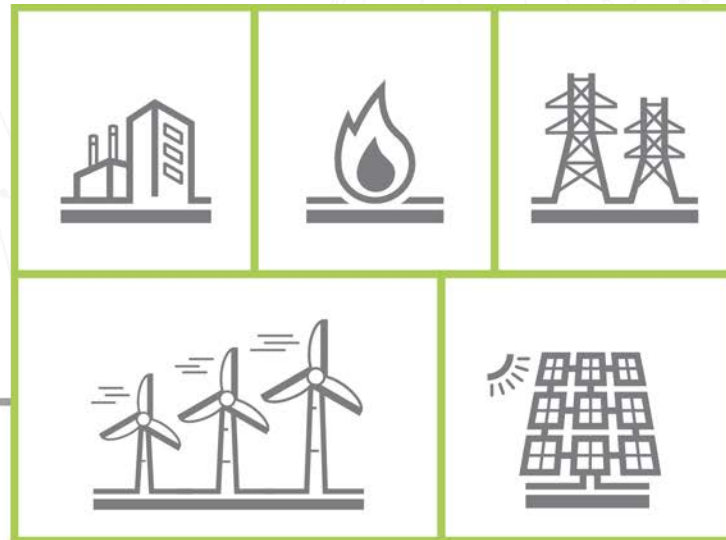


- » Committed outcomes
- » Predictable pricing
- » Achieving your sustainability goals
- » Energy-as-a-Service

Improve your relationship with energy



Energy-as-a-Service



Making energy simple again: Energy-as-a-Service

» Choice

- Energy-as-a-Service (EaaS) vs. Energy-as-a-Commodity
- Tailored solutions to your specific requirements

Making energy simple again: Energy-as-a-Service

» Choice

- Energy-as-a-Service (EaaS) vs. Energy-as-a-Commodity
- Tailored solutions to your specific requirements

» Guaranteed outcomes

- One overall energy bill at a lower price point
- Predictable and committed values

Making energy simple again: Energy-as-a-Service

» Choice

- Energy-as-a-Service (EaaS) vs. Energy-as-a-Commodity
- Tailored solutions to your specific requirements

» Guaranteed outcomes

- One overall energy bill at a lower price point
- Predictable and committed values

» Delegation of complexity

- A partner to handle all the complexities of technology, financing, engineering, deployment and maintenance
- Single point of accountability
- A partner in realizing your sustainability goals
- Allows you to focus your attention and your capital on other strategic projects

Making energy simple again: Energy-as-a-Service

» Choice

- Energy-as-a-Service (EaaS) vs. Energy-as-a-Commodity
- Tailored solutions to your specific requirements

» Guaranteed outcomes

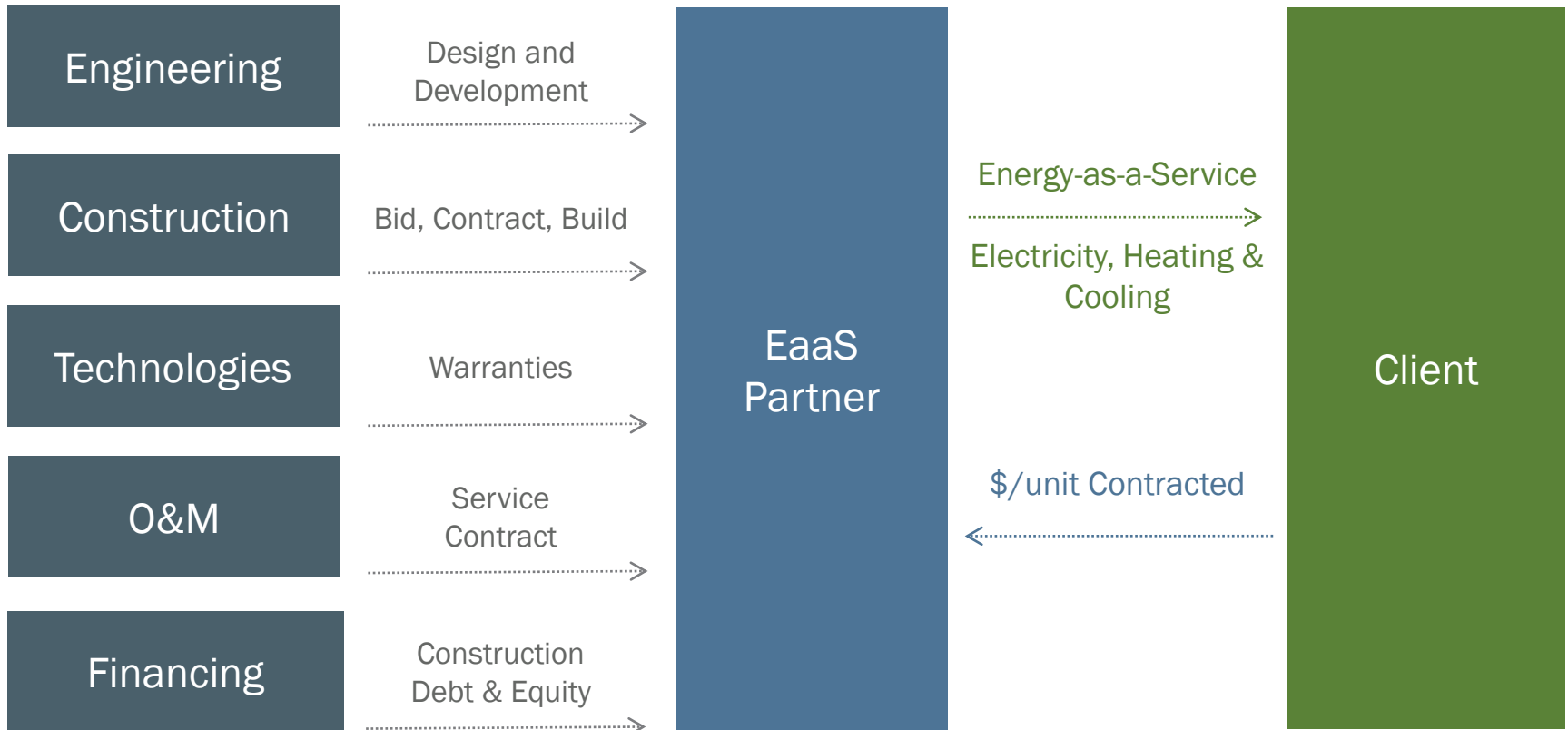
- One overall energy bill at a lower price point
- Predictable and committed values

» Delegation of complexity

- A partner to handle all the complexities of technology, financing, engineering, deployment and maintenance
- Single point of accountability
- A partner in realizing your sustainability goals
- Allows you to focus your attention and your capital on other strategic projects

Making Energy Simple Againsm

The “new” model: Delegation of Complexity



Tangible Benefits



Lower energy costs



Improved resiliency



Sustainability



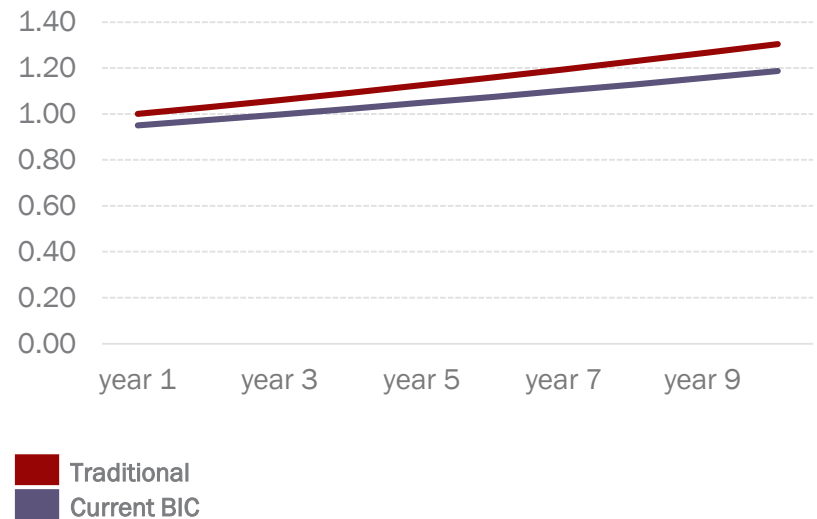
Predictability in pricing

The “rules” drive underinvestment in energy

- » Traditional energy pricing has shown a 3% CAGR
- » Leading companies have shown an ability to reduce energy expenses and slow the rate of growth
- » Leading companies are limited in their ability to “shape” the price curve further
 - Investment profile
 - Competition for capital
 - Capacity and capability of the team

Likely, you have already harvested the “low hanging fruit”

The Need to Change the Energy Investment Profile

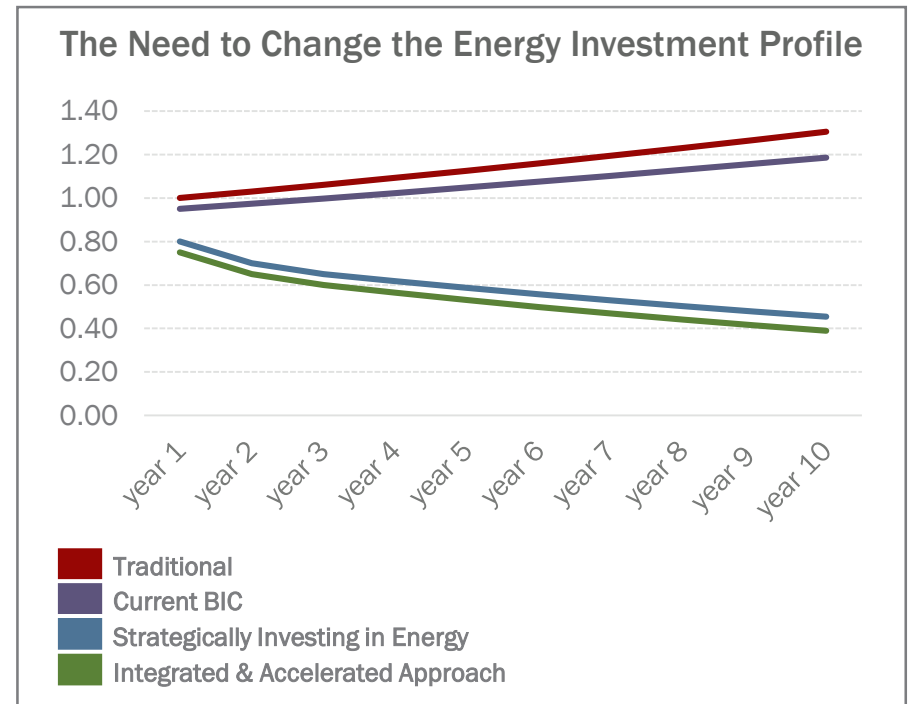


Source of energy price growth statistics:
Deutsche Bank Market Research 2-16 calculated both historical averages in the US and projected price growth into the future (despite oil price drops)

Changing the “rules” on energy with Energy-as-a-Service

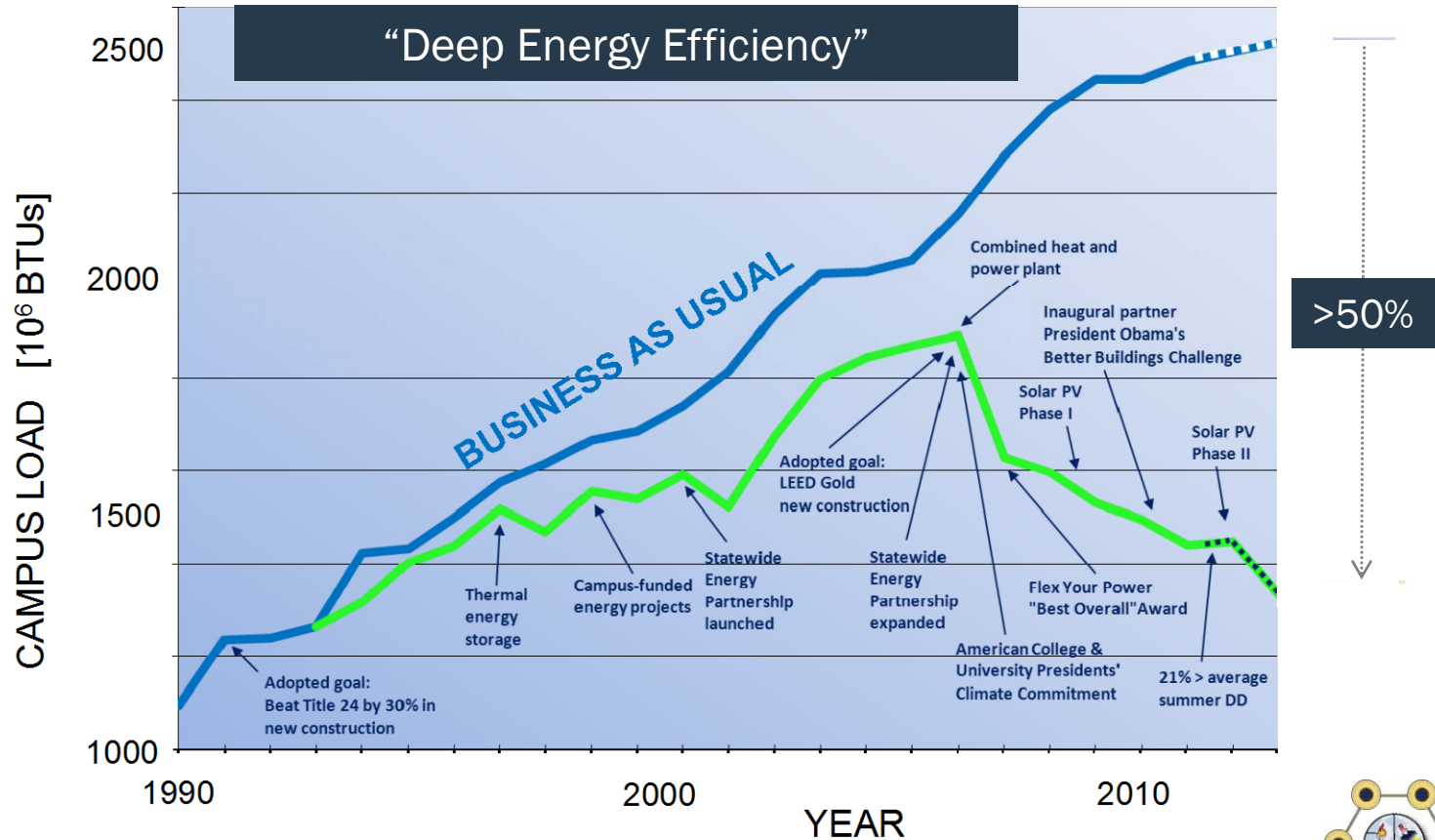
LARGE reduction in total energy spend
over 10 years by changing the “rules” for the average C&I customer*

- » Could be as much as 50% over 10 years
- » IF you:
 - Change the “rules” and consider energy investments to be *strategic*
 - Bring diverse skills, capacity and integration to the energy challenge
- » Work with an EaaS Partner



* Customer and location dependent

Example: The University of California, Irvine (UCI) Microgrid



© 2016 Advanced Power and Energy Program



Summary of the New Energy Future:

- » The energy market is complex and changing rapidly
- » A new business model, EaaS, offers large energy users a way for them to:
 - Lower their energy costs
 - Improve energy resiliency
 - Increase price predictability
 - Achieve their sustainability goals
- » Making energy simple again



Edison Energy[®]: Making Energy Simple AgainSM

tom.comstock@edisonenergy.com