

RPS Collaborative Webinar

A Tale of Two Grids

Hosted by
Warren Leon, Executive Director, CESA

May 25, 2016

Housekeeping



All participants are in “Listen-Only” mode. Select “Use Mic & Speakers” to avoid toll charges and use your computer’s VOIP capabilities. Or select “Use Telephone” and enter your PIN onto your phone key pad.

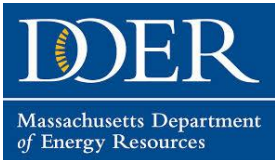
Submit your questions at any time by typing in the Question Box and hitting Send.

This webinar is being recorded.

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

www.cesa.org/webinars

Clean Energy States Alliance (CESA) is a national nonprofit coalition of public agencies and organizations working together to advance clean energy.



RPS Collaborative

- With funding from the Energy Foundation and the US Department of Energy, CESA facilitates the **Collaborative**.
- Includes **state RPS administrators, federal agency representatives**, and other stakeholders.
- Advances dialogue and learning about RPS programs by **examining the challenges and potential solutions** for successful implementation of state RPS programs, including **identification of best practices**.
- To sign up for the Collaborative listserv to get the **monthly newsletter** and announcements of **upcoming events**, see: www.cesa.org/projects/state-federal-rps-collaborative

Today's Guest Speaker

Cameron Brooks, President, E9 Insight



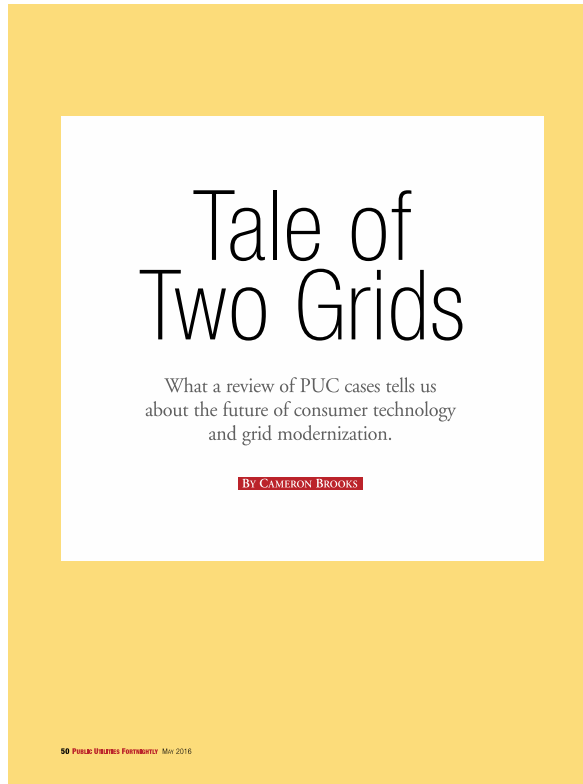


RPS Collaborative: A Tale of Two Grids

Cameron Brooks

May 25, 2016

The Best of Grids; The Worst of Grids...



1. **Introduction**
2. **Methodology**
3. **Analysis**
4. **Closing Thoughts**
5. **Discussion**



E9 Insight



- 1. Commission Activity**
monthly newsletter and online proceeding database
- 2. Tailored Research**
curated updates and market segmentation
- 3. Engagement Support Tools**
meeting monitoring and stakeholder comments



E9 Insight

Representative Clients and Partners since founding in 2013...

Aclara

Alarm.com

ChargePoint

CleaResult

Comverge

Department of Energy

E Source

Enernoc

EnergyHub

Energy Foundation

Environmental Defense

Gravity Renewables

Greentech Media

Gridwise Alliance

Honeywell

Itron

Landis+Gyr

LBNL

Mission:data

Navigant

NEMA

Nest

NRG

PNNL

Sierra Club

Simple Energy

SGCC

SGIP

Tendril

Varentec

and more...



Policy Domains

Monthly “radar screen” of new activity across these topic areas:

1. **Resource Planning** (including Integrated Resources Plans)
2. **Demand Side Management** (including energy efficiency and demand response)
3. **Distributed Energy Resources** (including residential solar, net metering and storage)
4. **Smart Grid** (including smart meters and home area networks)
5. **Distribution Infrastructure** (incl. distribution automation & voltage management)
6. **Community Energy** (and microgrids)
7. **Utility Business Model** (including rate reform and adjustments)
8. **Market Design** (and competition)
9. **Electric Vehicles** (and transportation)



DOE Proceeding Review

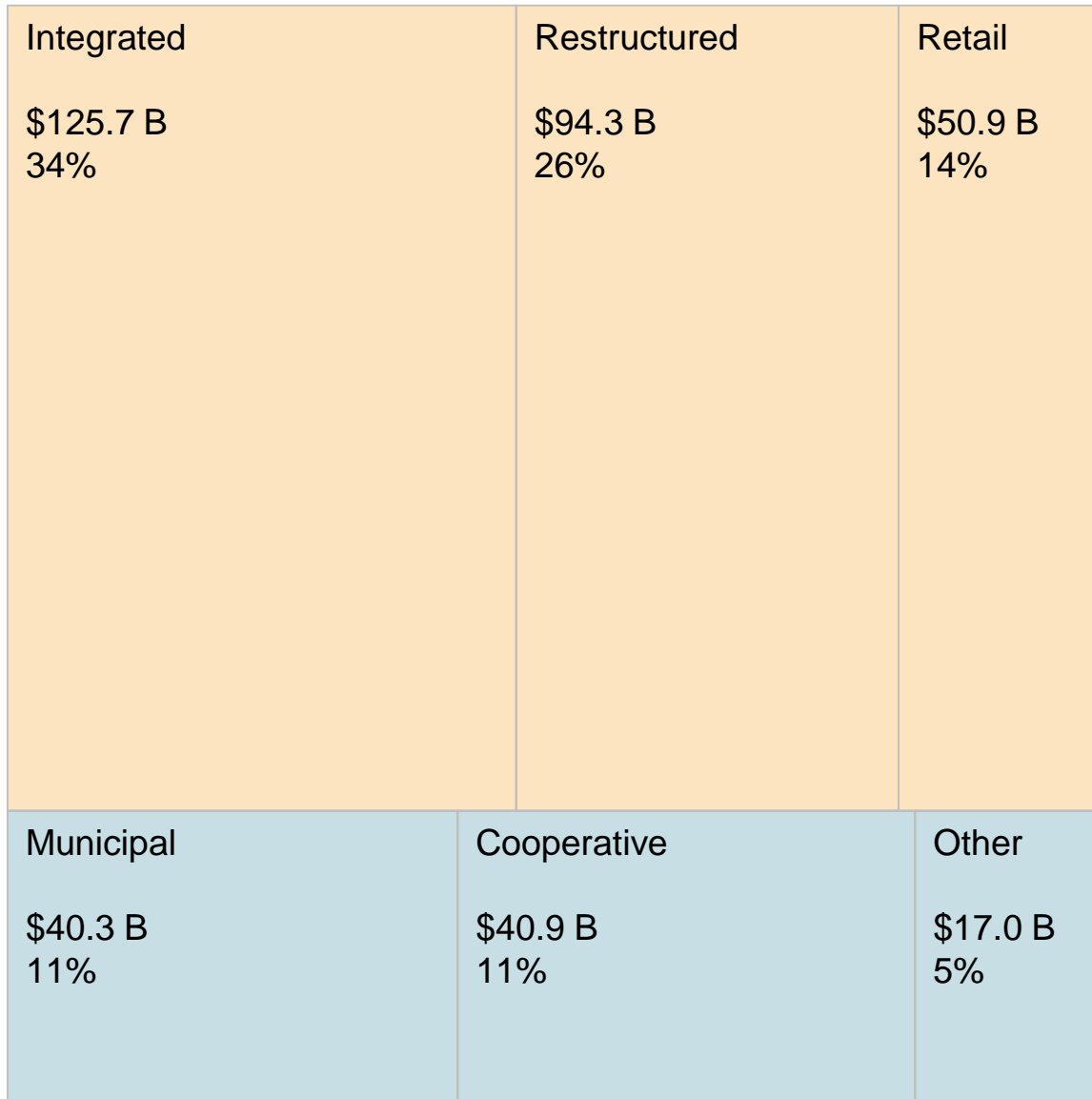
Following Quadrennial Energy Review, a survey of ~2,500 recent and active proceedings based on identified grid modernization components

Organized according to:

1. Market Size
2. Regulatory Structure
3. Policy Framework “Orientation”



US Electricity Market



US Electricity Sales:

- \$369.5B annual retail sales
- ~\$1.01B per day



Investor-owned: (73%)

- 34% integrated
- 26% restructured
- 14% retail

Publicly-owned: (27%)

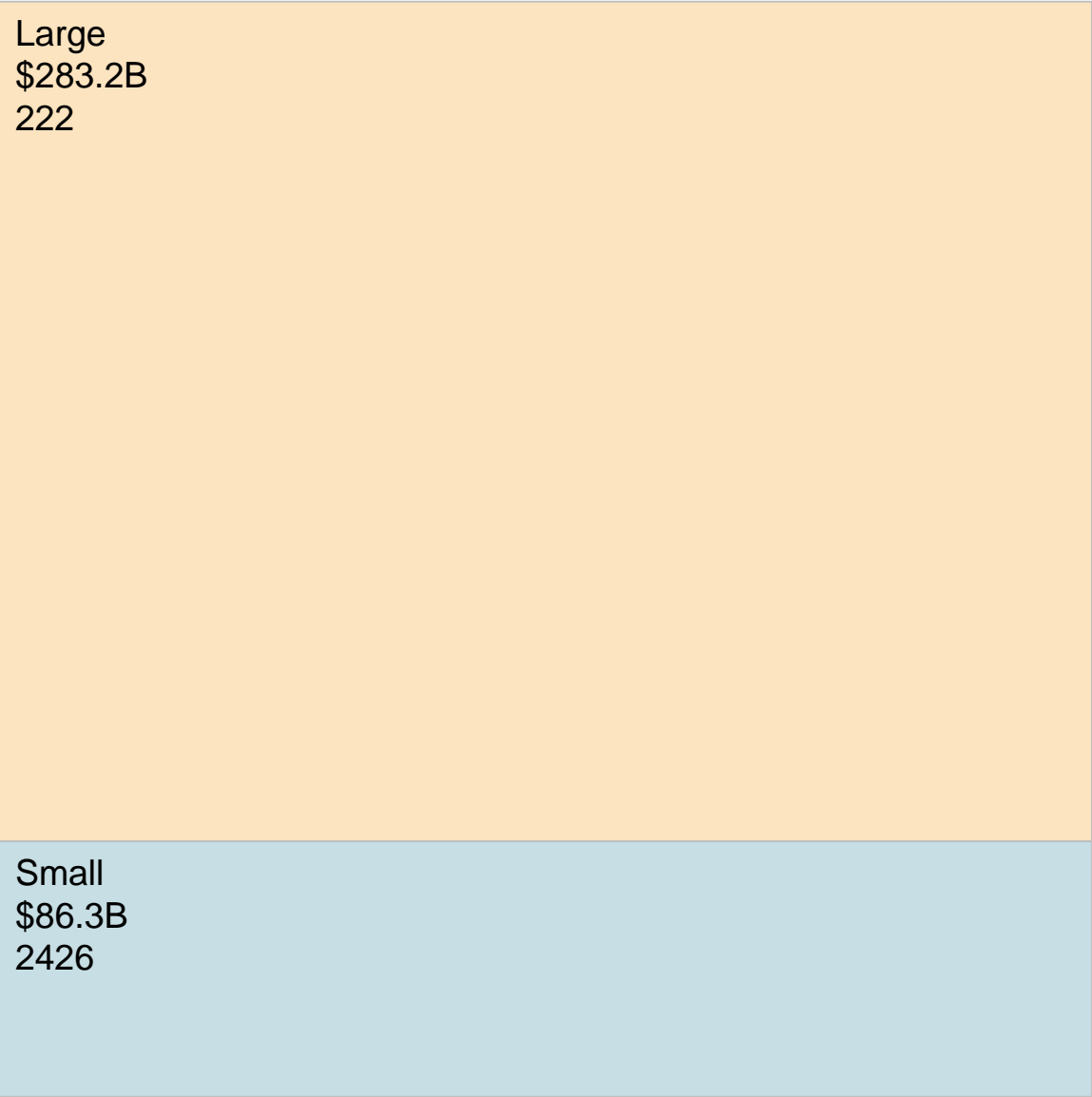
- 11% municipal
- 11% cooperative
- 5% other public power

 = \$1B annual revenue

 Private Ownership
 Public Ownership





US Electricity Market: *By Utility Size*



Classes:

- >\$250m 222
- <\$250m 2,426

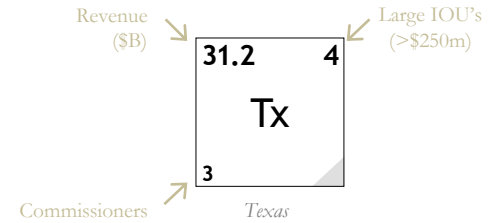
 = \$1B annual revenue

 Large >\$250m
 Small <\$250m





Periodic Table of State Policy



23 Fl 4 5										21.7 Ny 6 5	7.6 Ma 3 3
12.3 Ga 1 5	11.7 Nc 3 7	7 Mo 4 5				35 Ca 3 5	13.9 Oh 6 5	14.3 Pa 6 5	4.6 Ct 2 3		
8.9 Tn - 4	9.8 Va 2 3	4.5 Ok 2 3	6 Mn 2 5	7.4 Az 2 5	3.1 Nv 2 3	6.4 Wa 3 3	12.1 Il 3 5	10.3 Nj 3 5	1.5 Nh 1 3		
7.9 Al 1 3	7.1 Sc 3 7	3.8 Ks 3 3	3.5 Ia 2 3	5 Co 1 3	1.6 Id 2 3	3.8 Or 2 3	11.5 Mi 2 3	7 Md 4 5	1.4 Me 1 3		
5.8 La 5 5	6.5 Ky 4 3	2.6 Ne - 5	1.2 Nd - 3	2.3 Ut 1 3	1.2 Wy 1 3	3.3 Hi 3 3	8.7 In 5 5	1.3 Dc 1 3	1 Ri 1 3		
4.2 Ms 2 3	2.5 Wv 3 3	3.6 Ar 2 3	1 Sd - 3	2 Nm 2 5	1.1 Mt 1 5	1 Ak - 5	7.1 Wi 5 3	1.3 De 1 5	.8 Vt 1 3		

Deep South

Upper South

Lower Plains

Upper Plains

Intermountain West

Pacific Rim

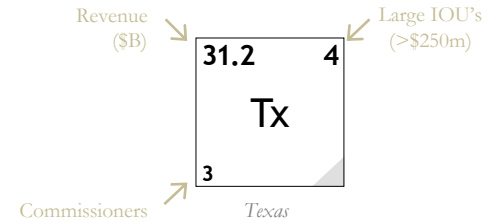
Midwest

Mid-Atlantic

New England



Periodic Table of State Policy



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Deep South

Upper South

Lower Plains

Upper Plains

Intermountain West

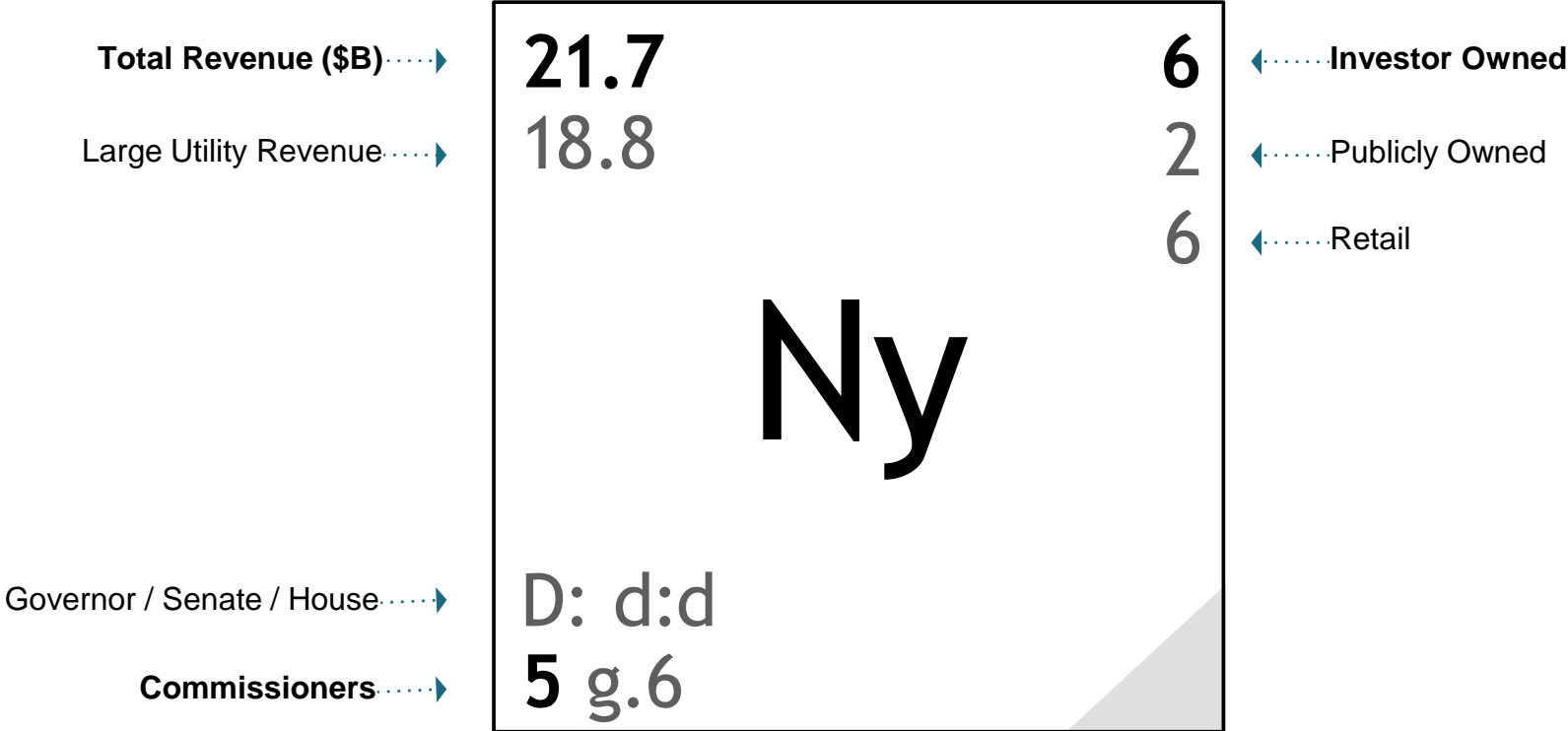
Pacific Rim

Midwest

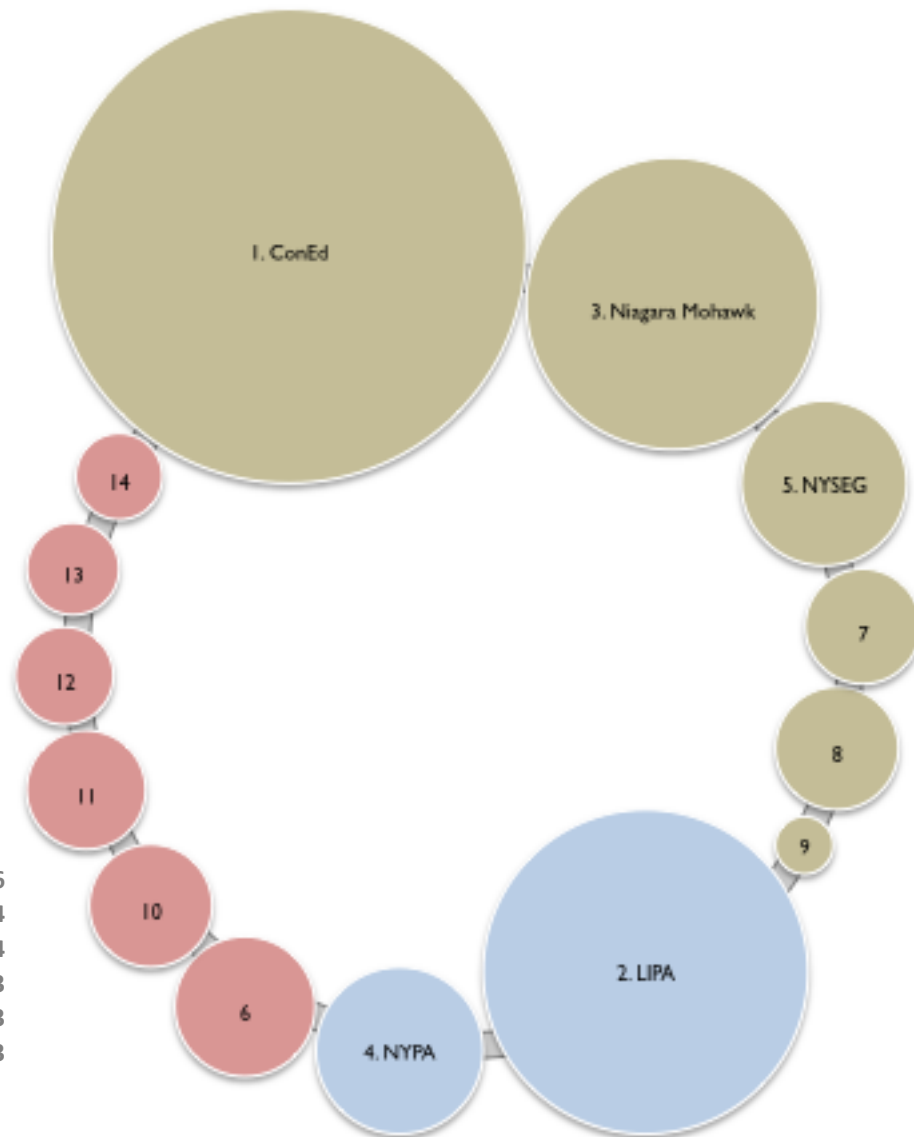
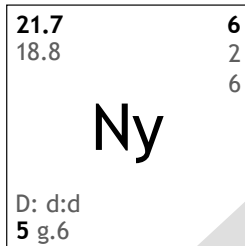
Mid-Atlantic

New England

New York



New York

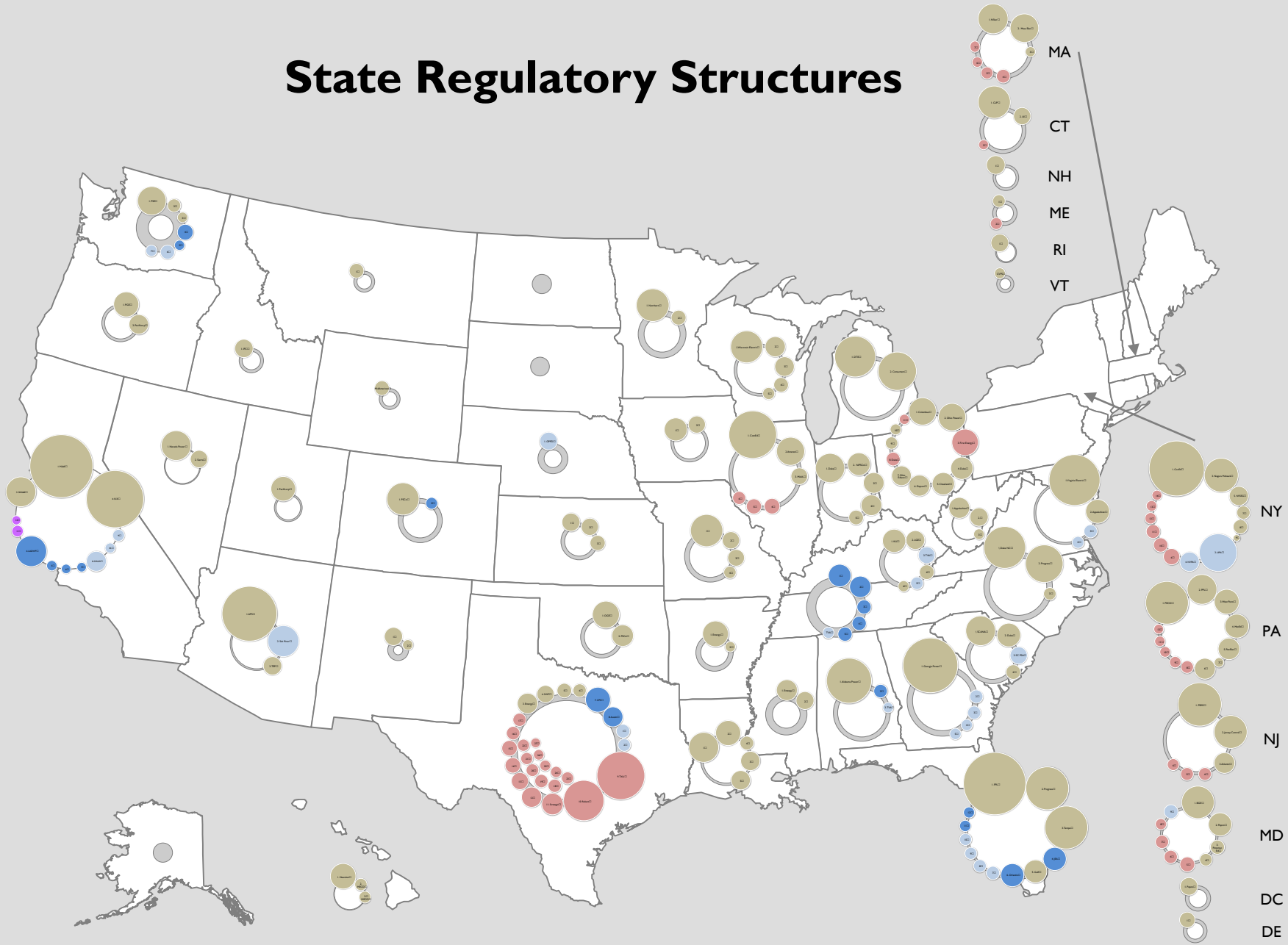


Hess Corporation	0.6
Constellation NewEnergy	0.4
Direct Energy	0.4
Consolidated Edison Solutions	0.3
Suez Energy	0.3
Hudson Energy Services	0.3

Consolidated Edison	8.1
Niagara Mohawk Power	2.4
NYSEG	1.0
Rochester Gas & Electric	0.6
Central Hudson	0.5
Orange & Rockland	0.4
Long Island Power Authority	3.5
New York Power Authority	1.1



State Regulatory Structures



DOE Proceeding Review

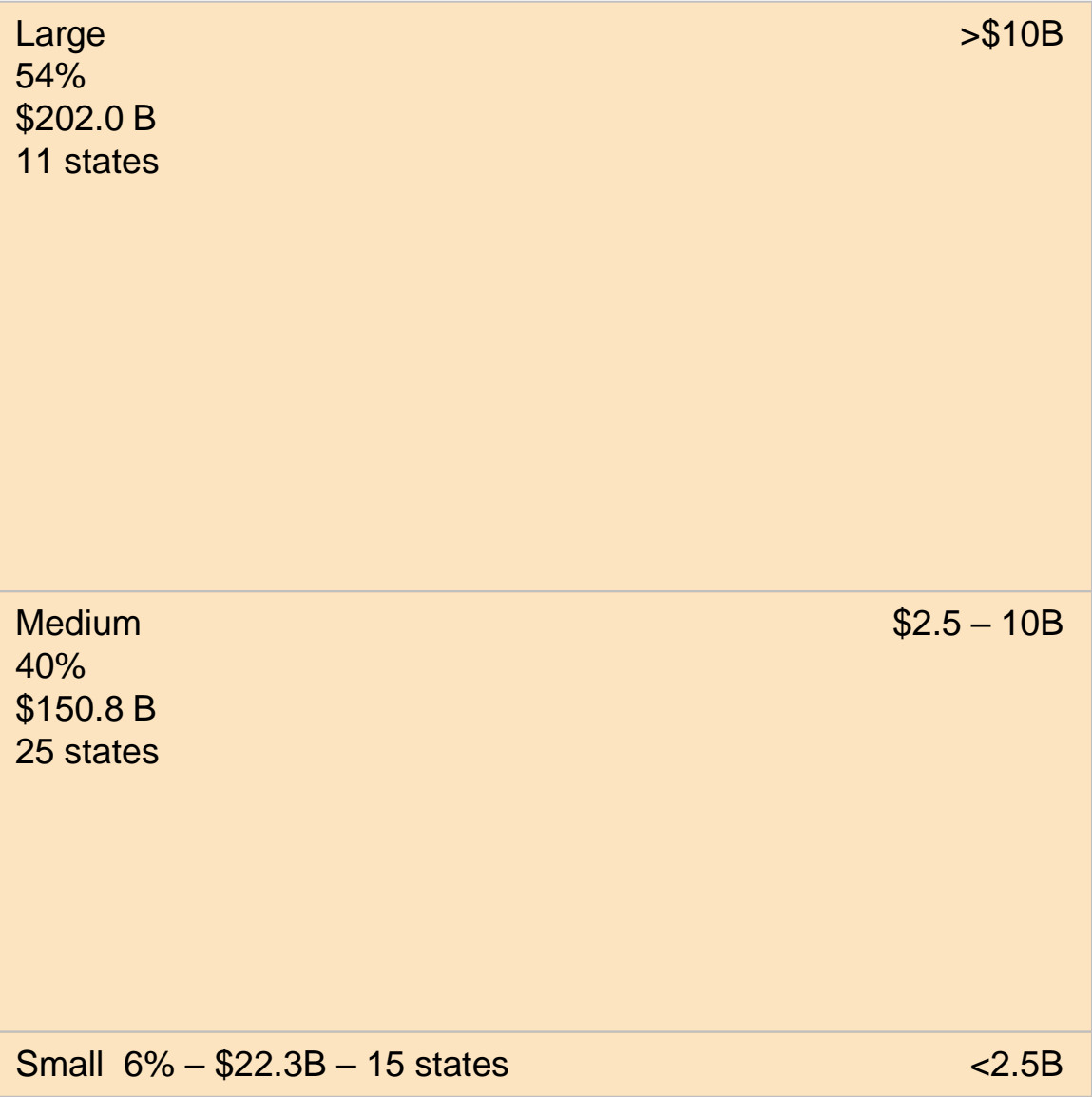
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Organized according to:

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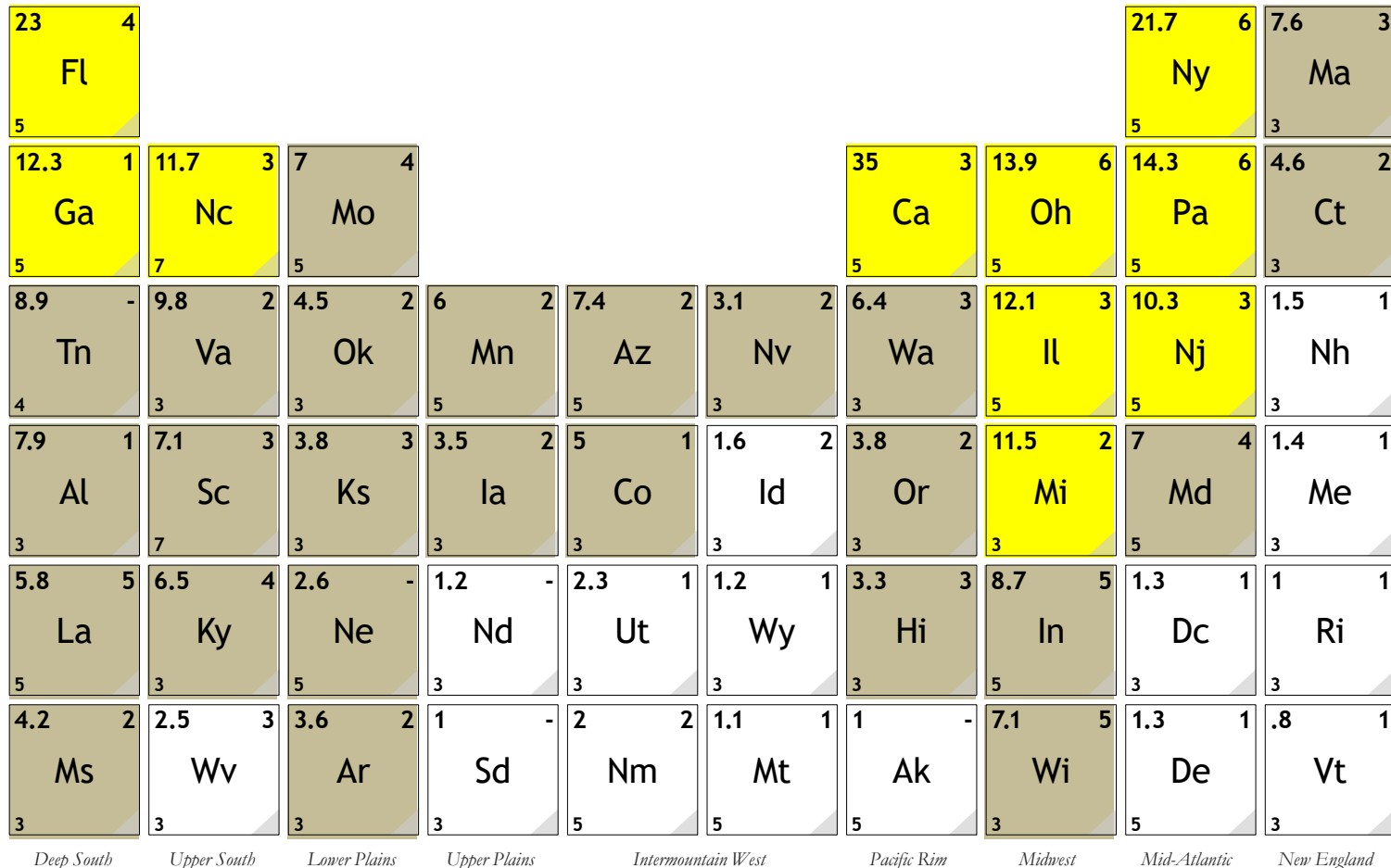
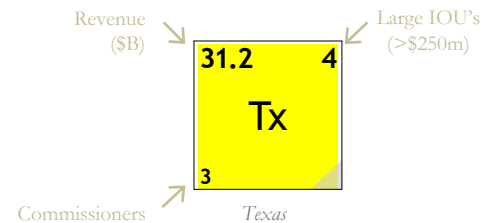
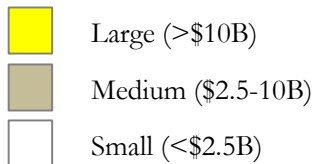
US Electricity Market: *By Utility Size*



 = \$1B annual revenue



Periodic Table of State Policy Market Size



DOE Proceeding Review

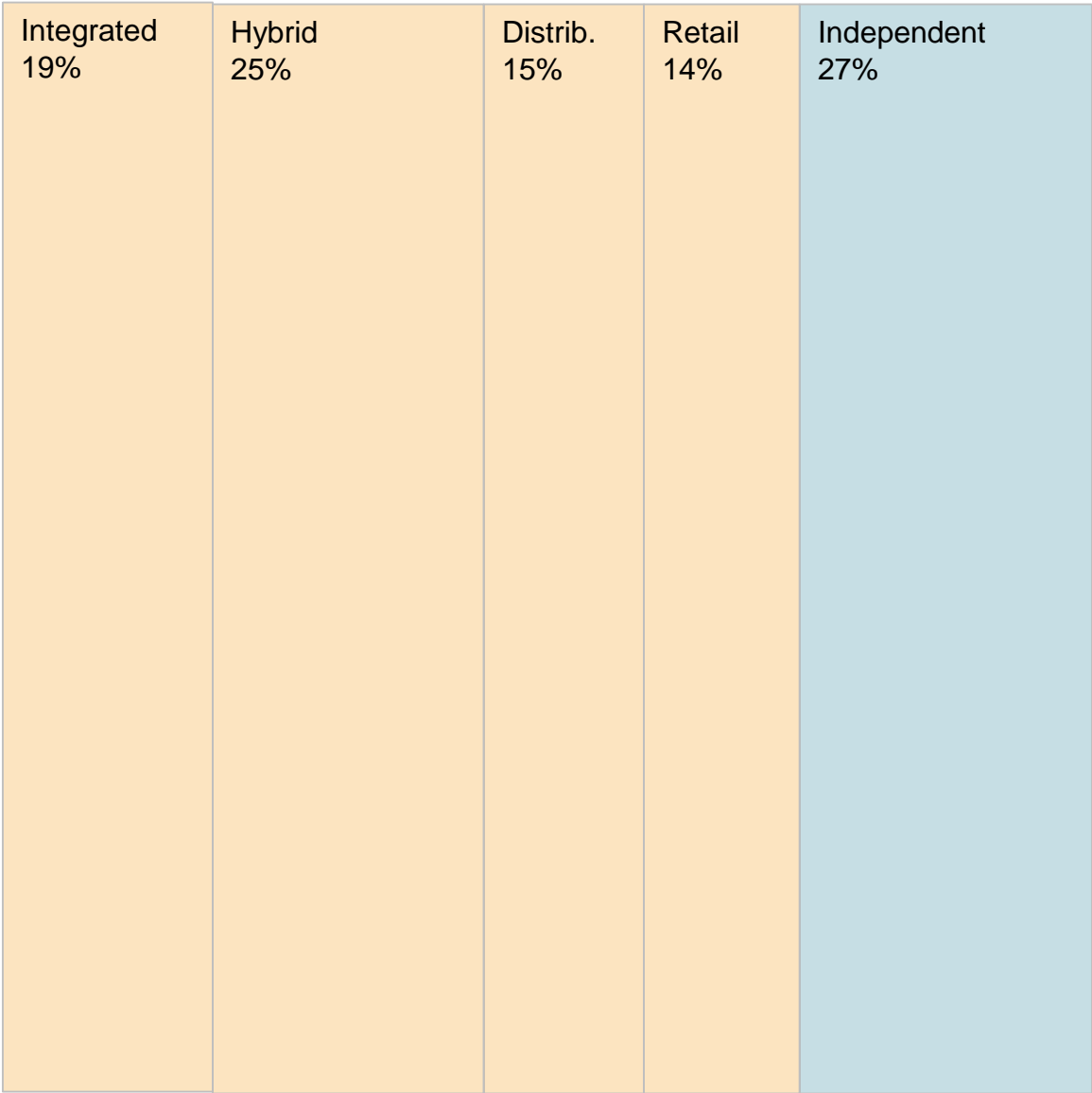
Following Quadrennial Energy Review, a survey of ~2,500 recent and active proceedings based on identified grid modernization components

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2. **Regulatory Structure**
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US Electricity Market: *by market structure*



Classes:

- Integrated \$71.3 (19%)
- Hybrid \$92.0 (25%)
- Distribution \$54.3 (15%)
- Retail \$52.8 (14%)
- Independent \$99.1 (27%)

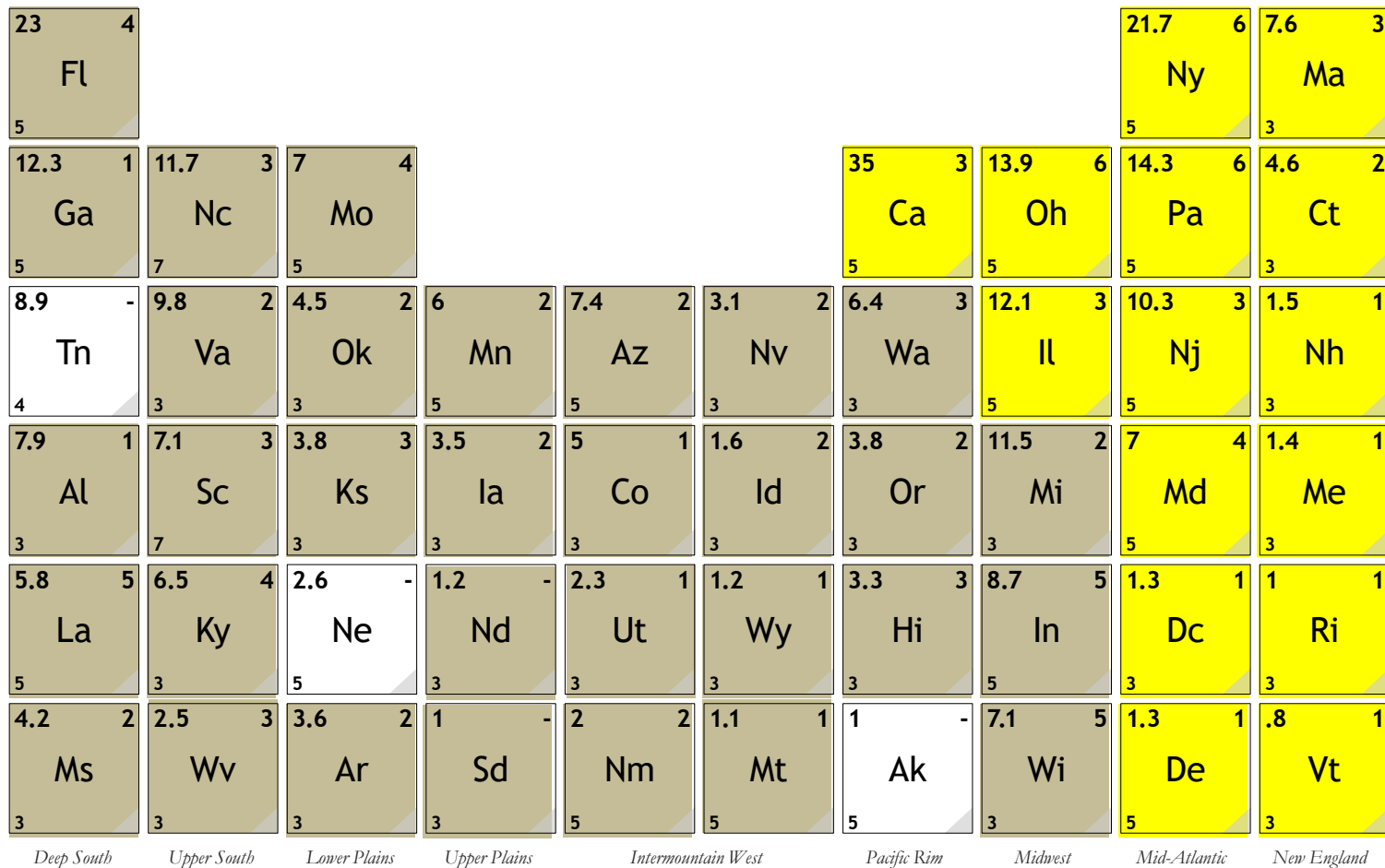
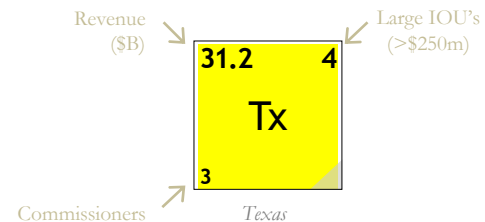
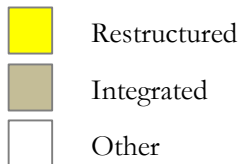
 = \$1B annual revenue

 Investor-Owned

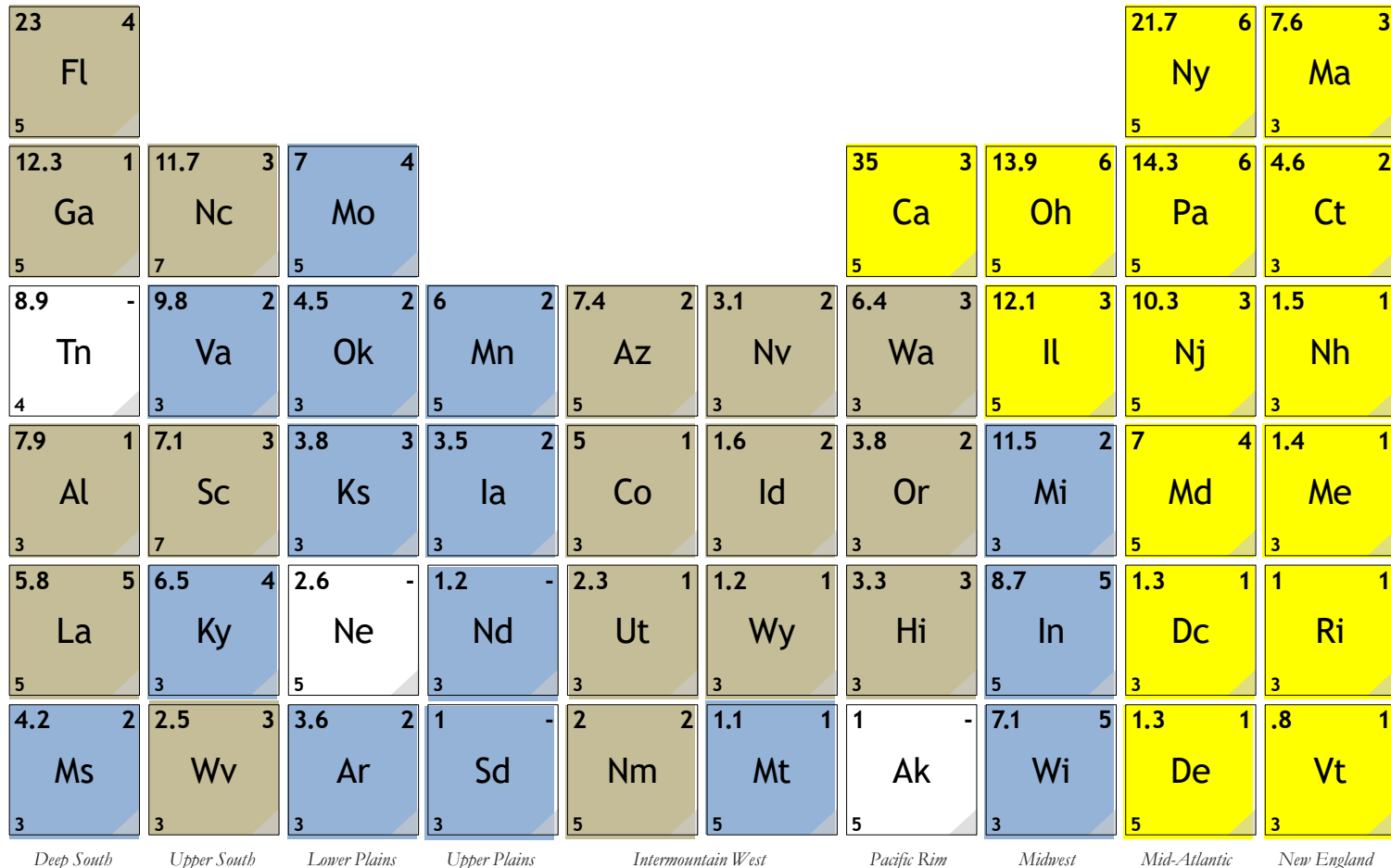
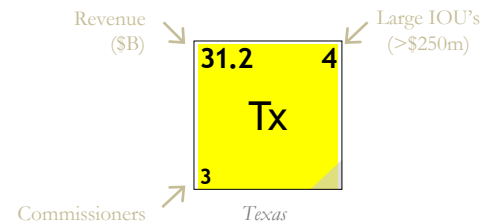
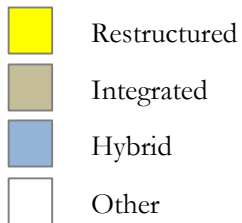
 Public Ownership



Periodic Table of State Policy Market Structure



Periodic Table of State Policy Market Structure



DOE Proceeding Review

Following Quadrennial Energy Review, a survey of ~2,500 recent and active proceedings based on identified grid modernization components

Organized according to:

1. Market Size
2. Regulatory Structure
3. **Policy Framework “Orientation”**



Orientation

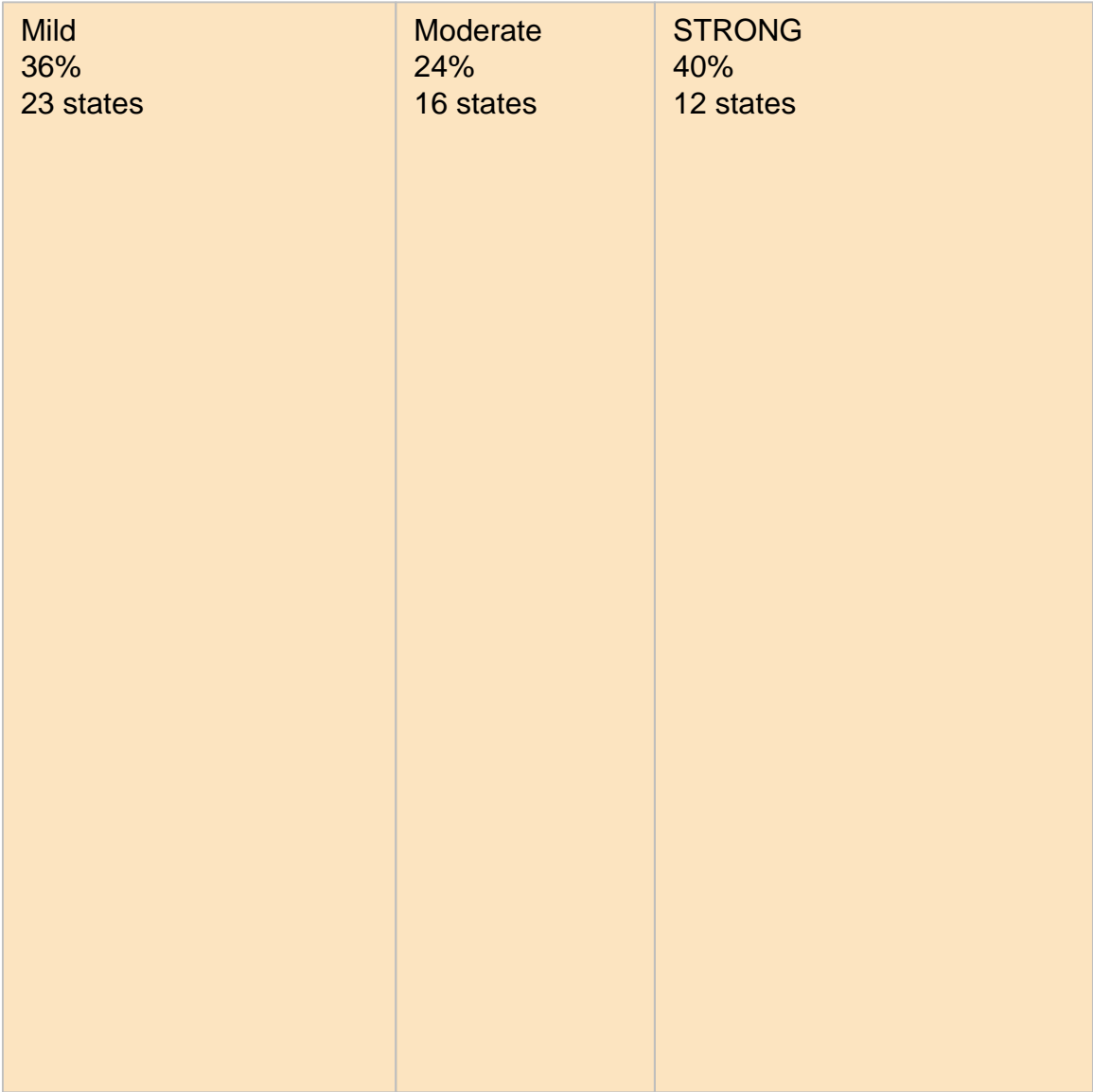
Are there consistent and complementary policies, incentives and requirements across 9 topic areas?

Within each topic area:

1. **Strong** – specific obligations and functional requirements
2. **Moderate** – voluntary goals and plans
3. **Mild** – preliminary discussions and pilots



US Electricity Market: *by market structure*



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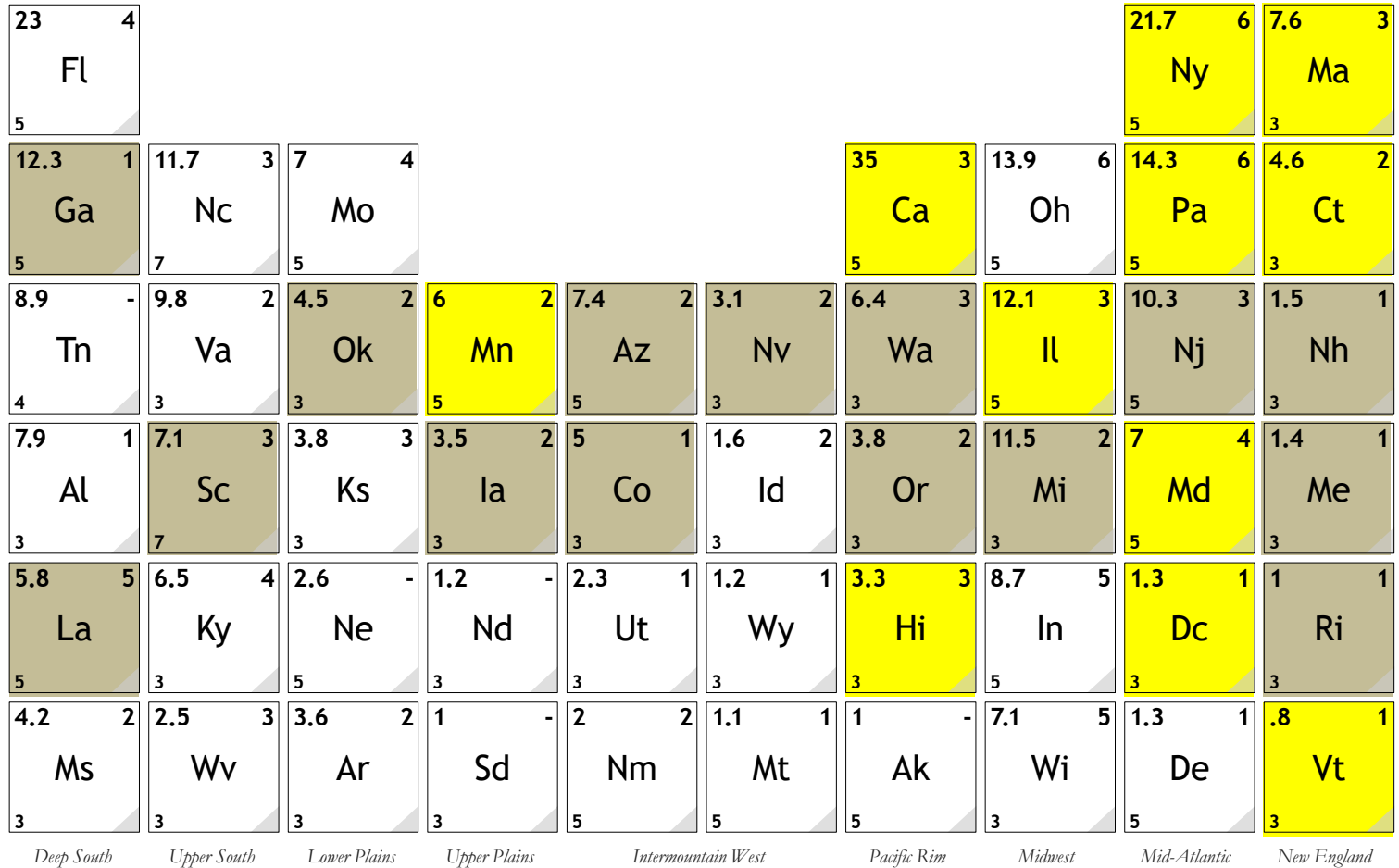
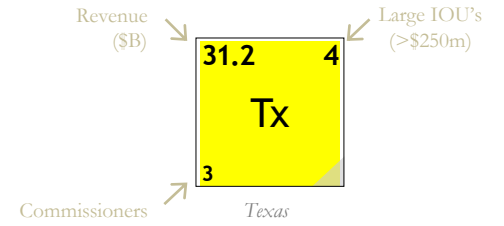
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 Investor-Owned

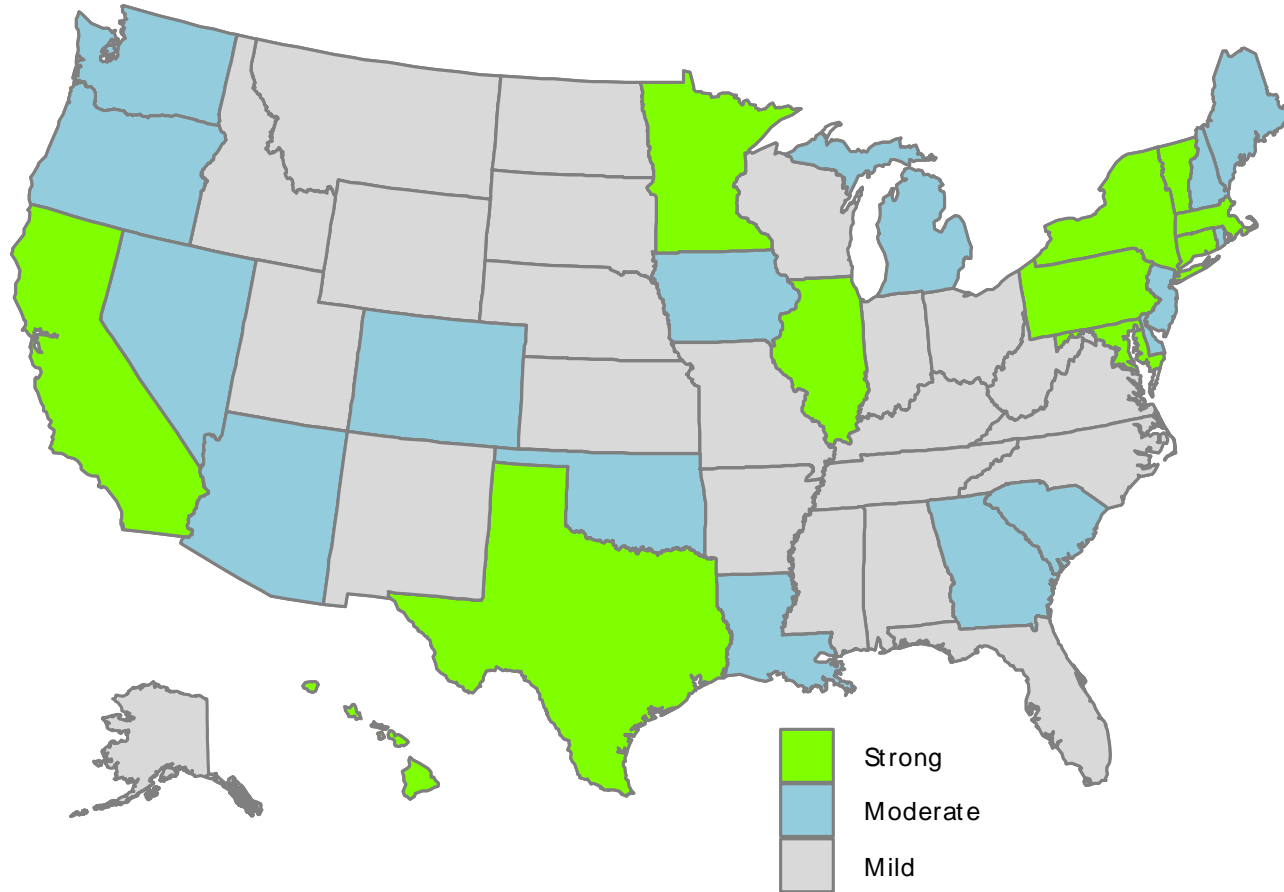
 Public Ownership



Periodic Table of State Policy Policy Orientation



State Orientation



State Orientation

	MILD		MODERATE		STRONG	
	Integrated	restructured	Integrated	restructured	Integrated	restructured
LARGE	FL NC	OH	GA MI	NJ		CA IL NY PA TX
	\$34.7B (7) 14.9 m (9%)	\$13.8B (6) 7.9 m (5%)	\$24.2B (4) 9.5 m (6%)	\$10.2B (3) 4.6 m (3%)		\$119.0B (22) 53.6 m (34%)
MEDIUM	AL MO WI AR MS IN NE KS TN KY VA		AZ OK CO OR IA SC LA WA NV		HI MN	CT MA MD
	\$71.9B (28) 26.4 m (17%)		\$49.4B (22) 20.3 m (13%)		\$9.6B (5) 3.1 m (2%)	\$19.9B (9) 9.0 m (6%)
SMALL	AK SD ID UT MT WV ND UT NM WY			DE ME NH RI		DC VT
	\$14.9B (10) 6.1 m (4%)			\$5.3B (7) 3.4 m (2%)		\$2.1B (2) 0.7 m (0.4%)

Figure 1 – States organized by policy “orientation”, size and structure



Two Grids...

One the one hand...

CA: Distribution Resource Planning; Demand Response Aggregation

NY: Distribution System Platform

IL: Open Data Framework

And on the other...

FL: Utility-owned residential solar

AZ: Utility-owned residential solar

GA: Integrated Resource Planning Solar

SC: Distributed Energy Resource Program Act



Core Assumptions

“Addressing these challenges and opportunities involves questioning two assumptions of the traditional paradigm:

- (1) that there is little or **no role for customers** to play in addressing system needs, except in times of emergency; and
- (2) that the centralized generation and bulk transmission model is invariably cost effective, due to **economies of scale.**”

New York DPS Staff Report (2014)



RPS Considerations

Are there implications relevant to:

1. **Compliance Costs**
2. **System Planning**
3. **Implementation Speed**
3. **Consumer Engagement**
4. **Technological Innovation**



Closing Thought on Innovation

NARUC President Travis Kavulla to his colleagues:

“Being an economic regulator is a bit of a paradox...We are a substitute for competition. The central premise of utility regulation is that competition would work better than we do. That is a humbling thing. To be needed by default. And it begs the question: Can competition work? And if it can, what does that mean for our duty? **How can we keep the door open to innovation? ... It means resisting parochialism and rent-seeking behavior.** Our unique role as economic regulators means we should play the skeptic of the political logrolling that is all too common in this industry.”

....Ongoing Staff Subcommittee on Rate Design



New York “Track 2” Order (May 19, 2016)

The Commission opines...

“The need to develop a demand-responsive, climate-friendly, information-centered electric system **does not afford us with the luxury of time.** With billions of dollars of infrastructure investment impending, as well as carbon reduction requirements and rapid improvements in customer-side technology, the historic pace of regulatory change is inadequate. Recent developments in this and other industries demonstrate that slow and deliberate progress is not always an option and may no longer be acceptable.”



Consensus for RPS?

New York concludes in their recent order that:

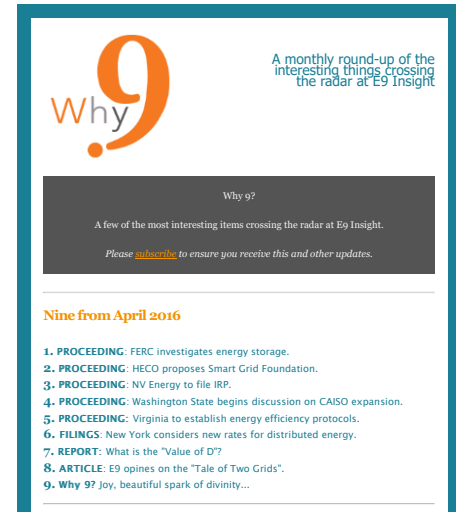
“Utilities should have earning opportunities tied to reducing the overall cost of achieving the CES goal.”

A sentiment common to “Both Grids”?



Thank you

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Thank you for attending our webinar

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