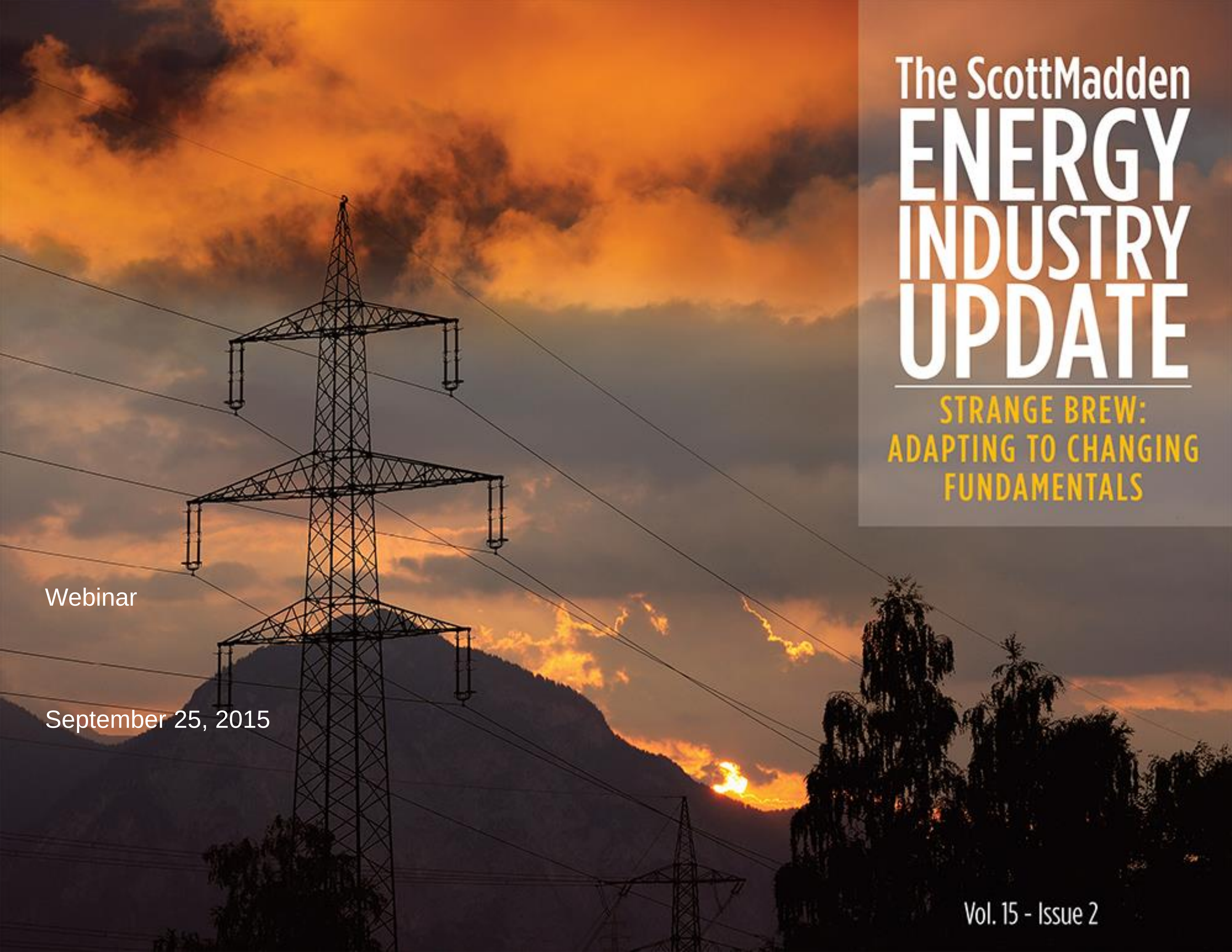


Webinar

September 25, 2015

Today's Agenda and Your Presenters

Stuart Pearman
Partner and
Energy Practice Leader

Welcome and Introduction

Todd Williams
Partner and
Fossil Generation
Practice Leader

The Clean Power Plan

- Background and Overview of the Rule
- What Changed?
- EPA Compliance Pathways to Achieve Goals
- Implementation Plans – State Decision Rights
- ScottMadden Perspectives and Takeaways

John Pang
Partner

Community Solar

- Introduction – Why Community Solar?
- Defining the Scope and Scale
- How It Works – Community Solar Models and Design Elements
- Where Is Community Solar Happening?
- Community Solar Case Studies
- Implementation Issues

Cristin Lyons
Partner and
Grid Transformation
Practice Leader

Case Studies: California and New York

- Background and Stated Objectives
- What Is California Asking For?
- CAISO Approves Market Bidding of Aggregated DER
- What Is New York Asking For?
- Track 2 Ratemaking and Business Model Reform
- California Section 769 Location Value vs. NY REV Locational Price

Greg Litra
Partner and Energy, Clean
Tech, and Sustainability
Research Leader

Questions and Answers

scottmadden
MANAGEMENT CONSULTANTS

Stuart Pearman
Partner and Energy Practice Leader

Stuart Pearman is a partner with ScottMadden and leads the firm's energy practice. As a management consultant for 20 years and a partner for 14, he has performed more than 180 projects for more than 55 clients. Stuart has expertise in energy utilities, related businesses, and several other industries. He is also a seasoned practitioner, with experience in both line and staff management roles. Stuart earned a B.A. in psychology from Williams College and an M.B.A. from the University of North Carolina Kenan-Flagler Business School, where he won the Best Industry Analysis Award and graduated at the top of his class. In addition to his full-time work at ScottMadden, Stuart is Professor of the Practice at Kenan-Flagler, teaching consulting and leadership.

Welcome and Introduction

John Pang
Partner

John Pang has more than 15 years of consulting experience working in the energy industry. John specializes in strategic planning and change management with a focus on business planning within electric utilities. Prior to joining ScottMadden, John was a consultant and country manager for AsiaWorks Corporate Division in Hong Kong, where he partnered with organizations to create personal growth and development strategies and implement high-impact change management solutions. John has facilitated leadership workshops and management development sessions around the world, in 15 countries for over 40 different multi-national companies and utilities. He has published academic research in international journals dealing with memory and cognition and human performance. John received a B.S. from the University of Guelph, an M.A. in experimental psychology from York University, and an M.B.A. from Duke University.

Community Solar

Introduction – Why Community Solar?

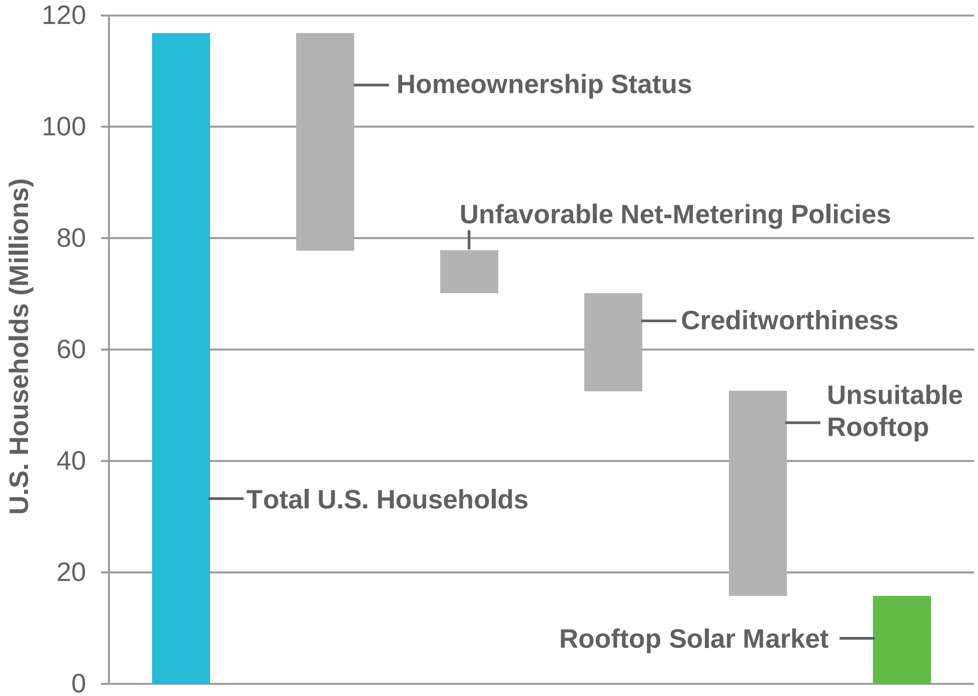
Rooftop Solar Offers Customers a Choice

- Rooftop solar provides residential customers an option to use locally sited renewable technology as an alternative to grid-supplied electricity
- Customers pursuing rooftop solar value the environmental benefits of the technology and the financial value of directly offsetting their electricity use
- However, residential solar can be an expensive proposition as the price per watt is roughly twice the cost of a utility system
- In addition, more than 80 million of the more than 100 million households in the United States are unable to install rooftop solar because of limitations ranging from home ownership (e.g., rental) to an unsuitable rooftop (e.g., orientation or shading)

Utility Solar Provides Economies of Scale

- In contrast to rooftop solar, utility solar can be sited and designed for optimal performance with connections to the transmission or distribution system
- Improved output, coupled with economies of scale, provide utility solar a significant cost advantage over residential rooftop solar
- However, utility solar is typically built to service all customers and lacks the personal connection found with rooftop system

Residential Solar Rooftop Limitations and Market



Community Solar: The Best of Both Worlds
Community solar is a rapidly emerging model that combines the value of direct customer “ownership” of rooftop solar with the flexibility and economic advantages of utility-scale solar.

Sources: GTM Research, ScottMadden

Defining the Scope and Scale

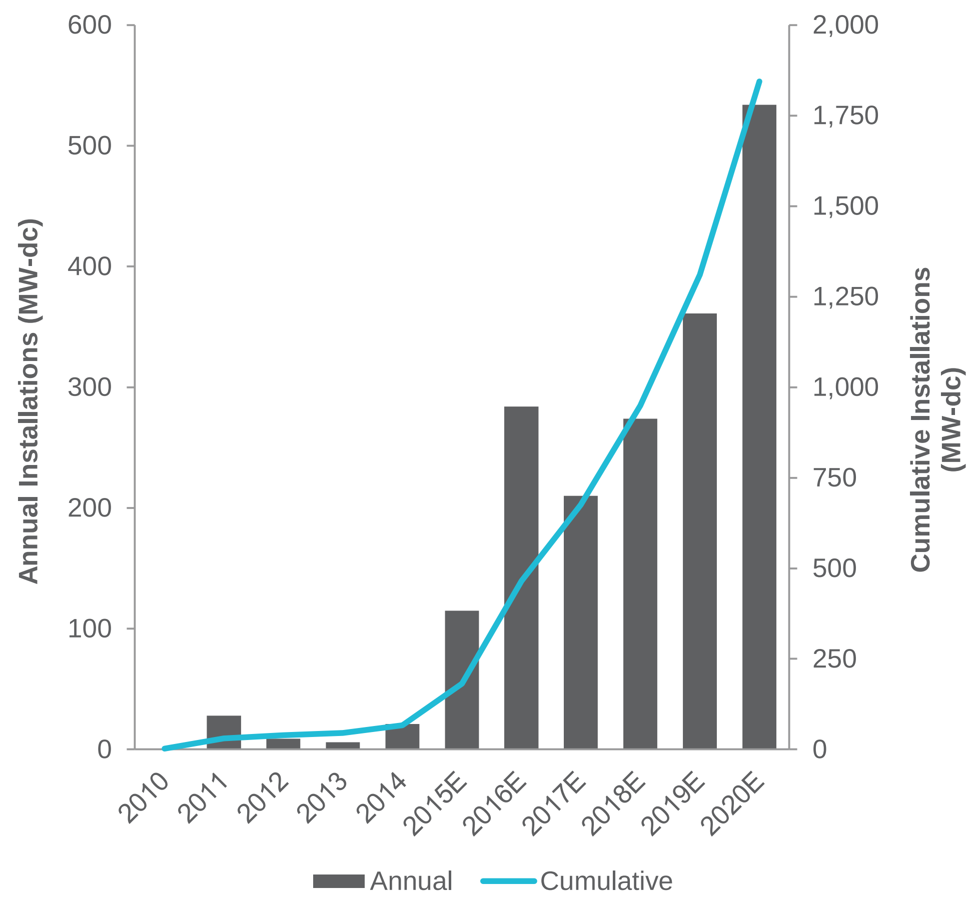
What exactly is "community solar"?

- While there is no standard industry definition, a community solar project is often characterized by:
  - Multiple end users or subscribers purchase a portion of the capacity (MW) or output (MWh) produced from a solar PV facility and receive the benefit on their electric bill
  - The solar project is typically located near the end customer or within the energy provider's jurisdiction
  - The term generally does not apply to group purchases or off-bill payments in return for an investment in the project

Community solar is a rapidly growing market segment.

- GTM Research forecasts cumulative community solar installations will increase from 67 MW-dc in 2014 to more than 1,800 MW-dc in 2020
- A key growth driver is community solar's ability to vastly increase the addressable market of solar customers
- Customers facing rooftop limitations can often participate in community solar projects
- In addition, community solar can offer a unique value proposition to a variety of stakeholders
  - Electric utilities provide distributed solar options while avoiding direct competition with rooftop solar providers
  - Customers receive simplified access to solar generation and benefit from the economies of scale of larger projects
  - Developers benefit from an increase in demand for commercial and small utility-scale projects

Community Solar Installations, 2010–2020



Sources: GTM Research, ScottMadden

How It Works – Community Solar Models and Design Elements

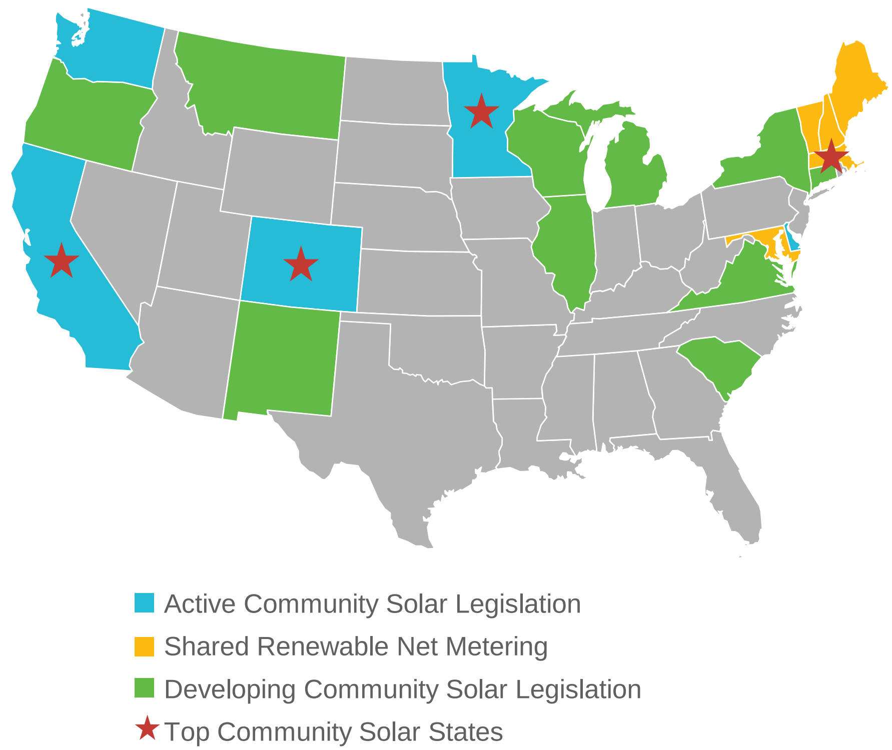
The community solar market currently lacks a "representative" program design. Instead, state policy and/or specific utility objectives drive key program design elements. Within this context, community solar programs are often based on an "upfront payment" or "ongoing payment" model. Key program design elements for each model are described below.

Design Elements	Model #1: Upfront Payment	Model #2: Ongoing Payment
Description	■ Customer provides upfront payment to purchase or lease panel(s)	■ Customer provides ongoing monthly payments to access solar capacity or output
Program Administrator	■ Utility or third party	
Customer Class	■ Programs can be designed for specific customers (e.g., residential) or open to all customer classes	
Restrictions	■ Programs often allow customers to offset 50% to 150% of average annual consumption	
REC Ownership	■ RECs may be retired for RPS compliance, transferred to customer, or sold in open market	
Program Duration	■ Community solar programs can range from five years (e.g., pilot) to the lifetime of the PV system (e.g., 20+ years)	
Payment Structure	■ Customer receives kWh bill credit from utility based on actual system output and proportional ownership share ■ Bill credit is at retail rate or partial retail rate	■ Customer subscribes to capacity or output blocks: • Capacity blocks (kW) = variable output each month at fixed price per kWh or fixed payment per block • Output blocks (kWh) = guaranteed output each month at fixed payment per block ■ Customer pays community solar program administrator for output and receives bill credit from utility at retail rate or partial retail rate ■ Customers often pay a premium for solar output but receive hedge against future rate increases as costs are often locked for the duration of the term
Additional Considerations	■ Upfront payments mimic the initial capital cost of installing and owning a rooftop solar system ■ Large upfront payments can look less attractive to customers compared to ongoing payments	■ Ongoing payments mimic the regular payments and credits of a rooftop lease model (e.g., SolarCity) ■ Programs administered by a utility can list monthly payments and credits as separate line items on a single bill

Where Is Community Solar Happening?

- Twenty-four states have at least one community solar project online. Meanwhile, 20 states have or are in the process of enacting community solar legislation (see map)
- Despite this widespread geographic activity, GTM Research anticipates 80% of installations over the next two years will come from four states: Colorado, California, Minnesota, and Massachusetts
- Public policy is a critical driver of community solar growth in each of these markets:
  - **Colorado** – Legislation passed in 2010 allows the creation of community solar gardens up to 2 MW in the service territory of investor-owned utilities (IOUs). In addition, IOUs are required to purchase power from community solar gardens as part of compliance with the state's renewable portfolio standard
  - **California** – Legislation passed in 2013 authorized The Green Tariff Shared Renewable Program, which allows customers to receive 50% to 100% of consumption from solar. Statewide enrollment is capped at 600 MW. Several utilities are expected to offer programs to their customers by 2016
  - **Minnesota** – Legislation passed in 2013 allows subscribers to purchase or lease interests of a solar garden system developed by a garden operator. One utility must credit subscribers for generation at retail rates. Potential projects and regulations are still being reviewed by this utility and regulators
  - **Massachusetts** – Shared renewable policy allows participating net-metered systems to allocate monthly excess generation to one or more customers within a distribution company's service territory. In addition, community solar projects also receive SREC credit under Massachusetts's SREC-II program

Status of Community Solar in the United States



Sources: Greentech Media, GTM Research, California PUC, Vox, Shared Renewables HQ, DSIRE

scottmadden MANAGEMENT CONSULTANTS

Community Solar Case Studies

The community solar case studies outlined below highlight the diversity and customization found within community solar programs design.

	Gardenia Community Solar Farm	Bright Tucson Community Solar	SunWatts Sun Farm
Electric Utility	OUC The Reliable One	TEP Tucson Electric Power	TRICO Electric Cooperative, Inc. A Touchstone Energy Cooperative
Program Administrator	▪ Utility	▪ Utility	▪ Utility
Program Design	▪ Customers subscribe to capacity blocks ranging from 1 kW to 5 kW ▪ Customers pay monthly for actual solar output	▪ Customers subscribe to energy blocks offered in 150 kWh increments ▪ Customers pay monthly for guaranteed solar output	▪ Customers pay up front to fully or partially lease capacity from a 270 W solar panel ▪ Customers receive fixed monthly bill credits
Program Financials	▪ Customers pay a one-time $50 fee during signup (refunded after two years in program) ▪ Customers pay $0.13/kWh for solar energy (approx. $0.025/kWh above retail rates) ▪ Solar rate is fixed for up to 25 years	▪ Customers pay $3/block resulting in $0.02/kWh premium over retail rates ▪ Blocks are credited against the following bill components: variable generation, renewable energy surcharge, fuel and power purchase surcharges	▪ Customers receive 36 kWh bill credit for every panel owned ▪ Bill credit is guaranteed and not fixed to output of system ▪ Payback period for first-year participants is estimated at 15 years
System Details	▪ 400 kW online in 2013 ▪ Third-party owned system; energy sold to OUC via PPA	▪ >22 MW beginning in 2011 ▪ Combination of utility-owned and PPA systems	▪ 227 kW system online in 2011 ▪ System directly owned by utility

scottmadden MANAGEMENT CONSULTANTS

Implementation Issues

Successfully implementing a community solar program is not simple and requires a coordinated approach to successfully enter the market. There are some critical issues that must be addressed:

- Program design
  - What policy drivers exist to support or hinder community solar?
  - Who should be the administrator of a community solar program?
  - What are the impact and implications of securities regulations?
  - Who owns the rights to renewable energy certificates?
  - Where must community solar facilities be located relative to participating customers?
- Customer motivations
  - What motivates customers to participate in a community solar project?
  - What are customers willing to pay in administrative fees and premiums over regular retail rates?
  - Are customers willing to make long-term commitments to a project?
  - How much consumption will customers be interested in offsetting?
- Financial implications
  - How cost competitive is solar PV in my region?
  - What are the long-term cost trends for solar PV?
  - How does community solar impact the rooftop solar market?
  - How does the rate structure support or hinder adoption?

scottmadden
MANAGEMENT CONSULTANTS

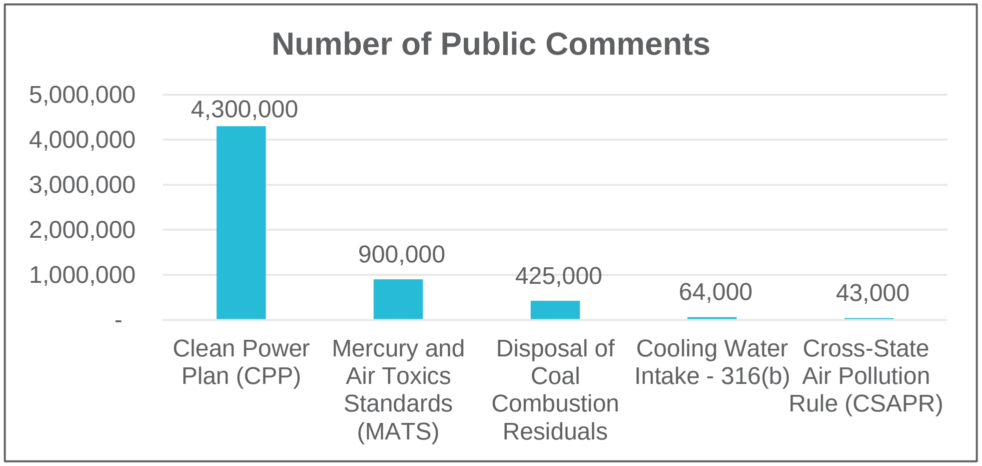
Todd Williams
Partner and Fossil Generation Practice Leader

Todd Williams is a partner with ScottMadden and co-leads the firm's fossil practice. He has extensive experience assisting large companies align their operations with their strategic vision. From operational performance improvement to organizational restructuring, Todd has designed and implemented large scale initiatives to help his clients succeed. He has experience working with companies that need to turn around, are planning a merger integration, or just want to drive performance improvement. Todd combines extensive project management skills with a large variety of previous engagements to bring creative solutions to his clients. Prior to joining ScottMadden, Todd founded and operated The Landmark Group, a real estate brokerage firm headquartered in Beijing, China. He earned an M.B.A. with honors from the Goizueta School of Business at Emory University, a B.A. in political science from the University of the South, and a certificate of honors in intensive Mandarin Chinese language study from Anhui Teachers University in Wuhu, Anhui Province, China.

Background and Overview of the Rule

On August 3, 2015 the EPA released its 1,500-page final rule governing performance standards for greenhouse gas emissions for existing and new power generation sources, termed the Clean Power Plan (CPP); the rule is expected to be one of the most heavily litigated environmental regulations ever

- The CPP was originally released for review in June 2014
  - The public comment period closed December 2015
  - EPA received more comments on this one proposed rule than any other proposed rule to-date
- Why is it important to the EPA & supporters?
  - These are the first-ever national standards that address CO_2 emissions from power plants, which are responsible for 30-40% of greenhouse gas emissions in the U.S.
  - EPA cites benefits including reducing health hazards from air pollutants, advancing clean energy innovation, and laying the foundation for a long-term strategy to address climate change
  - EPA analysis indicates the combined climate and health benefits of the CPP will far outweigh the costs of implementing it; the CPP will deliver billions of dollars in net benefits each year, estimated at $26B–$45B in 2030



- Why is it important for opponents?
  - “Coal-country” states such as Kentucky, Wyoming and West Virginia may be doubly impacted because they rely on coal for electricity and their economies depend on mining it; Senate Majority Leader Mitch McConnell (KY) is opposing the rule
  - Critics argue that the rule will lead to increased electricity costs (4%–15%), kill jobs and harm low-income/minority communities
  - Detractors estimate higher costs than EPA numbers; $41B–$50B/year, a total economic impact of $366B–$900B by 2030

Sources: BuzzFeed; EPA; EENews; Forbes; NERA consulting; NextGenAmerica; SierraClub; ScottMadden analysis; Vox; U.S. Chamber

What Changed?

The final rule has some significant modifications from the 2014 draft

- Compliance timeframe and reduction timing
  - Begins in 2022 (final rule) instead of 2020 (proposed rule)
  - No “cliff” in reduction targets (proposed rule), instead there are step-down “glide paths” in three two-year periods prior to final compliance (final rule)
- Building blocks – the final rule dropped increased implementation of end-use energy efficiency, leaving three “building blocks”
  1. Improve the heat rate of existing coal-fired power plants
  2. Substitute natural gas plants for coal-fired power plants
  3. Increase electricity generation from new zero-emitting renewable energy sources (like wind and solar)
- Other key changes are shown in the table below

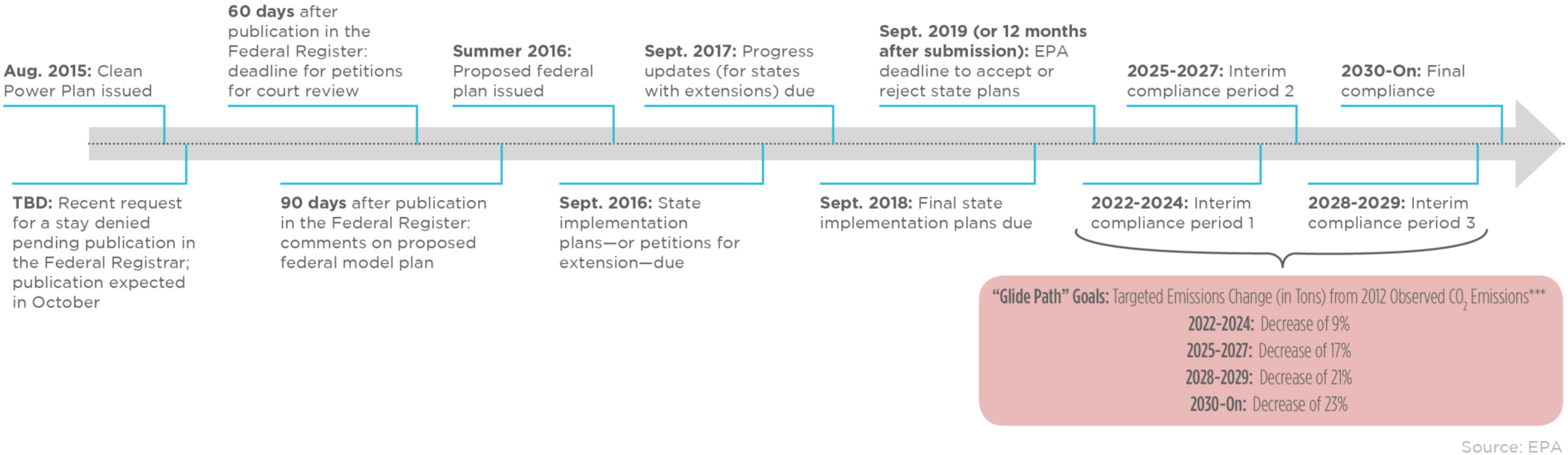
Area	Proposed Rule – 6/14	Final Rule – 8/15
Reliability Impacts	❑ Not addressed	❑ Safety valve added to final rule
CO_2 Targets	❑ Projected 30% cut from 2005 levels	❑ Projected 32% cut from 2005 levels
Fossil Steam Heat Rates	❑ Assumed 6% improvement	❑ Interconnection-specific improvement of 2.1%–4.3%
Nuclear Generation	❑ Used in goal-setting	❑ Not used in goal-setting; new build and uprates may be in state plans
Natural Gas	❑ Assumed 70% of nameplate	❑ Assumed 75% of net summer capacity
Renewables	❑ 22% of MWh generation	❑ 28% due to lower installed costs

Sources: Brookings; EPA

What Changed? – Compliance Timing

States have until September 2016 to complete implementation plans or petition for extension

Clean Power Plan Finalization and Compliance Timing



Notes: *2012 emissions are unadjusted and exclude under construction units; goals exclude New Source Complement, which increases emissions limits to accommodate load growth but pegs incremental emissions at compliance rates

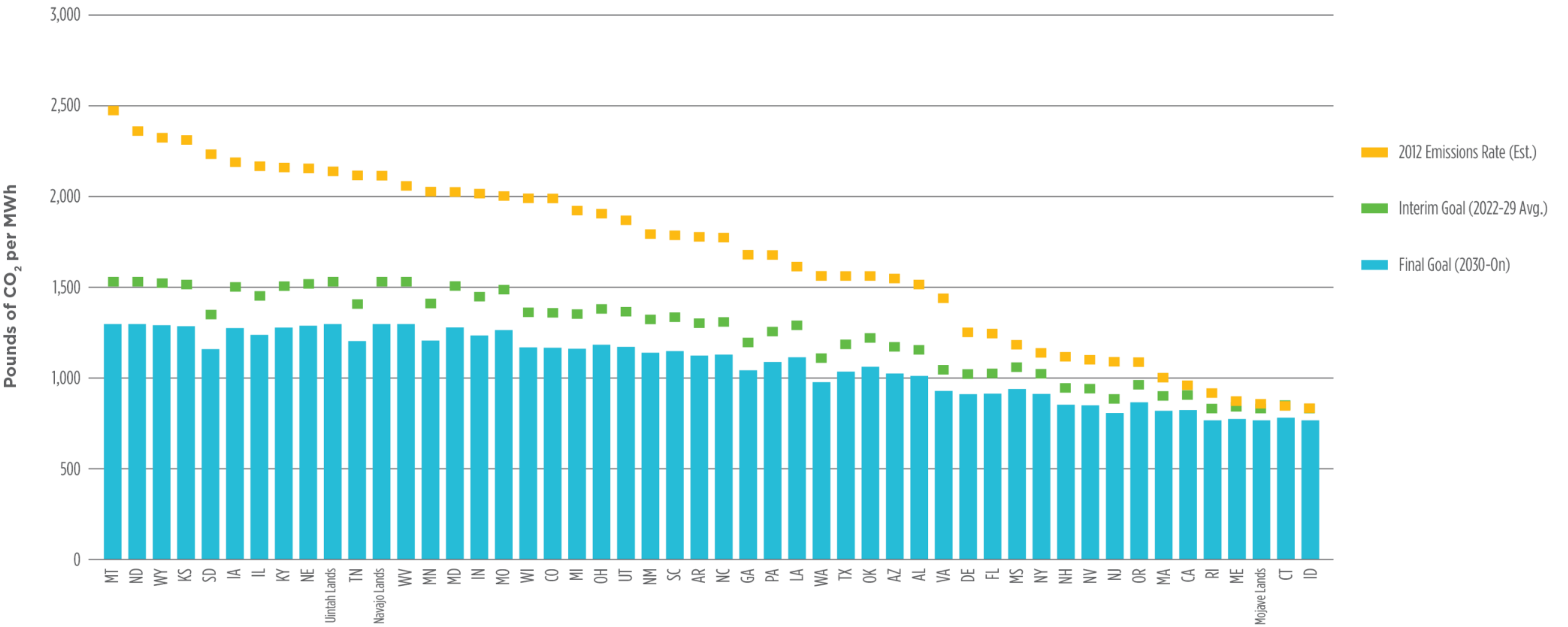
Sources: EPA; industry reports; ScottMadden analysis

scottmadden MANAGEMENT CONSULTANTS

What Changed? – Target Setting

The final rule is significantly more demanding for high emitting states than the proposed rule; it focuses on greenhouse gas emitters who have done little to control their emissions to this point

State and Tribal Lands CO_2 Emissions Rate Interim and Final Goals vs. 2012 Estimated Actual CO_2 Emissions Rates
(in Pounds of CO_2 per MWh)

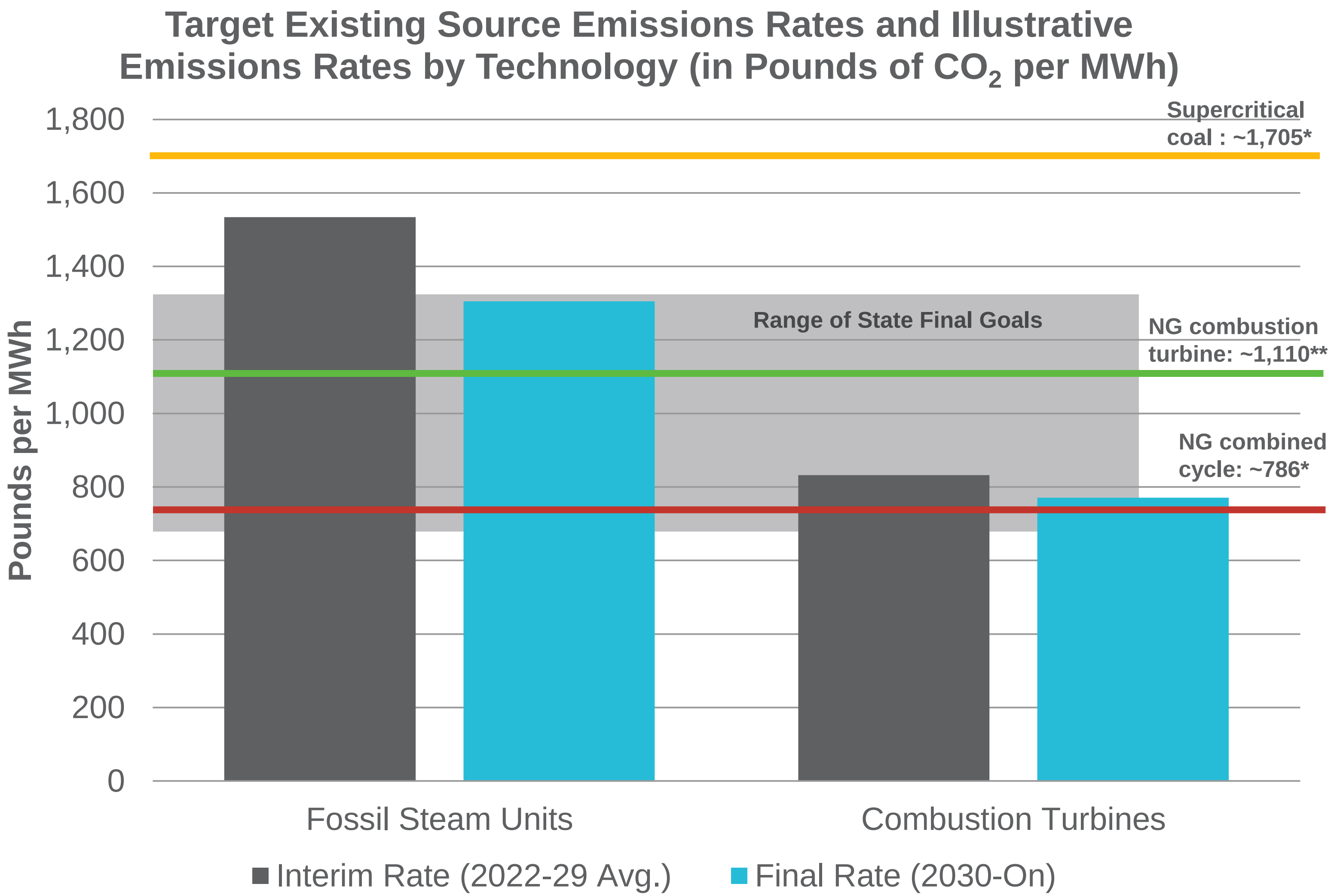


Source: EPA; ScottMadden analysis

Sources: EPA; ScottMadden analysis; Vox

What Changed? – Performance Rates by Technology

Based on the three "building blocks," the EPA established two national emission performance rates for steam generators and combustion turbines restricting how much carbon pollution a plant may release per unit of electricity generation



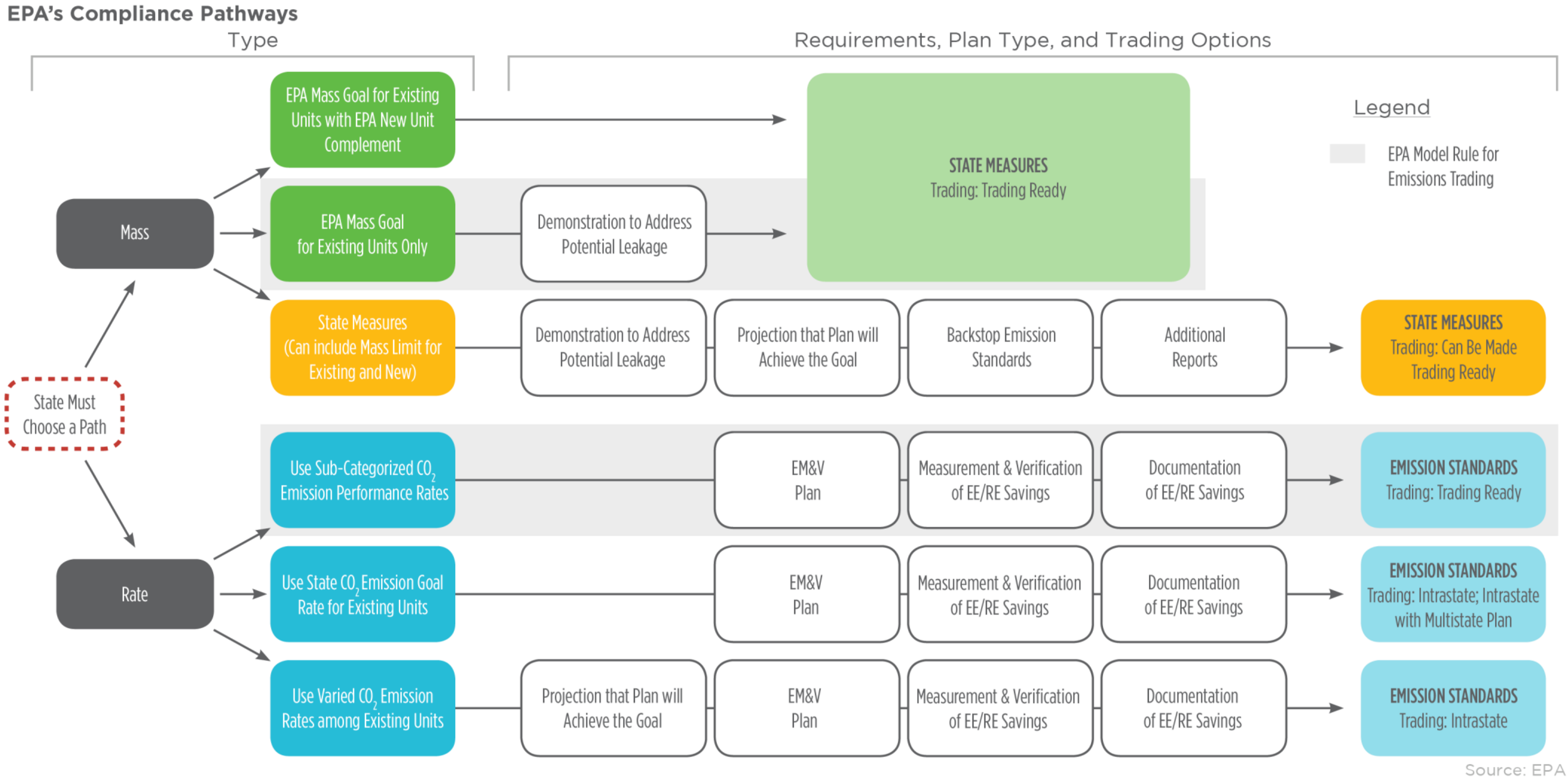
- Final individual state goals lie between the fossil steam and combustion turbine (CT) technology targets shown at left
- Existing technology (supercritical and natural gas CT) emissions well exceed targeted levels, so many states will likely have to employ other measures (renewables, early action, trading) to comply
- All but the coal unit "building block" fall "outside the fence line" of a power plant and, critics say, outside of EPA's Clean Air Act authority to enforce

Notes: Dotted lines show current technology emissions rates based upon illustrative configurations; *emissions based on net power; **CT without combined heat and power

Sources: EENews; EPA; DOE Nat'l Energy Technology Laboratory; ScottMadden analysis

EPA Compliance Pathways to Achieve Goals

States have to determine whether to choose rate- or mass-based goals and will have to balance the interests of different stakeholder constituencies in the process



Source: EPA

Implementation Plans – State Decision Rights

According to the EPA, states should develop their own plans that take into account their own unique circumstances

- States must develop and implement plans that ensure that the power plants in their state – either individually, together or in combination with other measures – achieve the interim CO_2 emissions performance rates over the period of 2022 to 2029 and the final CO_2 emission performance rates by 2030
- There are two ways to implement plans, “emissions standards” and “state measures”
  - “Emissions standards” plan focuses on plant-specific requirements for affected generation units
  - “State measures” takes a portfolio approach that mixes generator emissions limits with other measures (e.g. renewable energy standards) to meet the state’s mass-based goal; plans must include a federally enforceable backstop to meet the emissions guidelines that would be triggered if the state measures do not meet required emissions reductions on schedule
- States may choose to work with other states on multi-state approaches (e.g. emissions trading) or submit their own plan

If the EPA deems a state plan unsatisfactory, the state will be defaulted to the Federal Implementation Plan

The Federal Implementation Plan

- Notice signed on 8/3/15
- Proposed both rate- and mass-based trading programs and model trading rules
- Can stand alone as a Federal plan or act as a model for state plans
- Final rule expected summer 2016
- EPA intends to implement a single plan (rate or mass) for every state where it finalizes a Federal plan

Source: EPA

ScottMadden Perspectives and Takeaways

- Inevitable litigation
- Possible nuclear benefit
- Complex interactions with other environmental regulations
- Reliability implications
- New source rules, too
  - Less carbon removal required
  - CT rate linked to CCs

Sources: EENews; Environmental and Energy Study Institute; ScottMadden analysis

Cristin Lyons

Partner and Grid Transformation Practice Leader

Cristin Lyons is a partner with ScottMadden and leads the firm's Grid Transformation practice, which helps clients adapt to the operational, planning, customer, and regulatory changes driven by the increasing penetration of distributed energy resources. Since joining the firm in 1999, Cristin has consulted with myriad transmission and distribution clients on issues ranging from process and organizational redesign to merger integration to project and program management. She is also a frequent speaker and panelist at conferences across the country. Cristin earned a B.A. in political science and Spanish from Gettysburg College and an M.B.A. from the Cox School of Business at Southern Methodist University. She is also a member of Phi Beta Kappa.

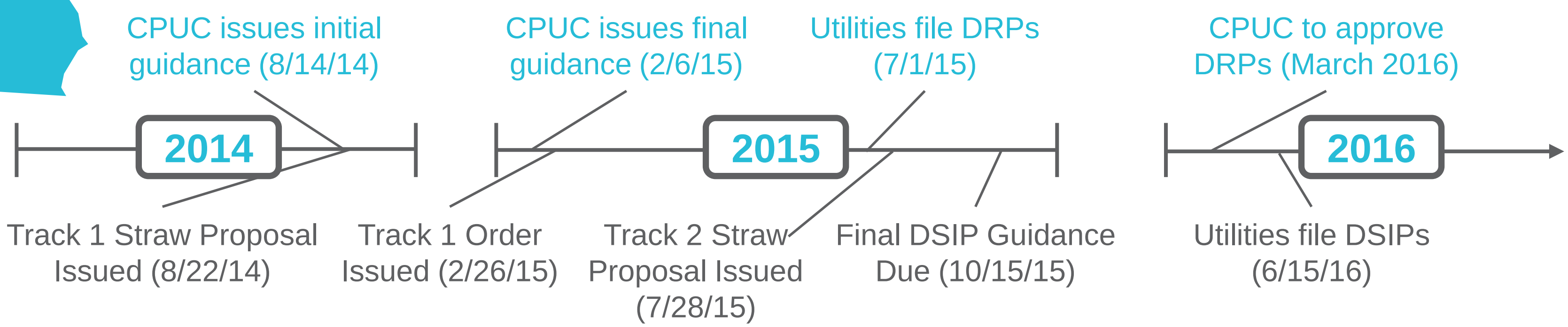
Case Studies: California and New York

Introduction

- California and New York are leading the country in integrating Distributed Energy Resources (DER); however, their approaches are different
- It's worth understanding some of the nuances of their respective proceedings and to clarify what they are (and are not) trying to accomplish
- Each will provide unique lessons to both utilities and regulators that are attempting to integrate ever increasing amounts of DER

California Section 769 vs NY REV – Background and Stated Objectives

- To promote the increased deployment of DER in support of achieving California's 2020 and 2050 GHG reduction targets
- To modernize the electric distribution system to accommodate two-way flows of energy and energy services
- To enable customer choice of new technologies
- To animate opportunities for DER to realize benefits through the provision of grid services



- To enhance customer knowledge and tools and support effective management of their total energy bill
- To animate markets and leverage ratepayer contributions
- To enhance system wide efficiency
- To promote fuel and resource diversity
- To enhance system reliability and resiliency
- To reduce carbon emissions

Though the stated goals are similar, the implementation differs; California is <u>not</u> establishing a distribution-level market in this proceeding.

* Impacted utilities are required to file Distribution Resources Plans (DRP) in CA and Distributed System Implementation Plans (DSIP) in NY.

What Specifically Is California Asking For? Distribution Resource Plans

The California Public Utilities Commission (CPUC) has asked the utilities to provide the following information as part of their Distribution Resource Plans (DRPs):

- Three different analyses:
  - Geospatial readout of Integrated Capacity Analysis (ICA)
  - Locational Net Benefits Methodology (LNBM)
  - Implications of DER growth scenarios
- Plans for **demonstration and deployment projects** to validate and refine the required analyses as defined by CPUC
- Utility third-**party bi-directional data-sharing policies**
- Relevant **tariffs and contracts** for modification
- Readout of **relevant safety considerations** for greater DER penetration
- **Barriers** to greater DER deployment and realization of benefits
- **Required utility investments** and links to general rate cases
- Coordination of the analyzed and forecasted distribution planning and the California Energy Commission's Integrated Energy Policy Report (IEPR), CPUC's Long-Term Procurement Plan (LTPP), and CAISO's Transmission Planning Process (TPP)
- Proposed **phased rollout** projects and DRP updating process

Of significance is what the Commission is not asking for, "Some Parties would like this proceeding, and the DRPs, to serve as platforms for reinventing the existing utility distribution services model… That is not the focus of this proceeding."[1]

Source: Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning, 2/6/15, pg. 5.

scottmadden
MANAGEMENT CONSULTANTS

What Else Is California Asking For? Other Related Proceedings

- California utilities have noted a number of tariffs potentially affected to their respective DRP proceedings, and DERs specifically, including:

Electric and Gas Rules	Non-Export	Net Energy Metering and Other Retail	Wholesale	Other
▪ Description of service ▪ Extensions ▪ Interconnections ▪ Direct access ▪ Customer data access	▪ Non-export	▪ Net energy metering ▪ Virtual net energy metering ▪ Feed-in tariff ▪ Time of use rates	▪ Renewable Energy Market Adjusting Tariff ▪ PURPA	▪ Solar ▪ Electric vehicles ▪ Standby, interruptible, and bypass charges ▪ Gas for CHP ▪ Over-the-fence arrangements

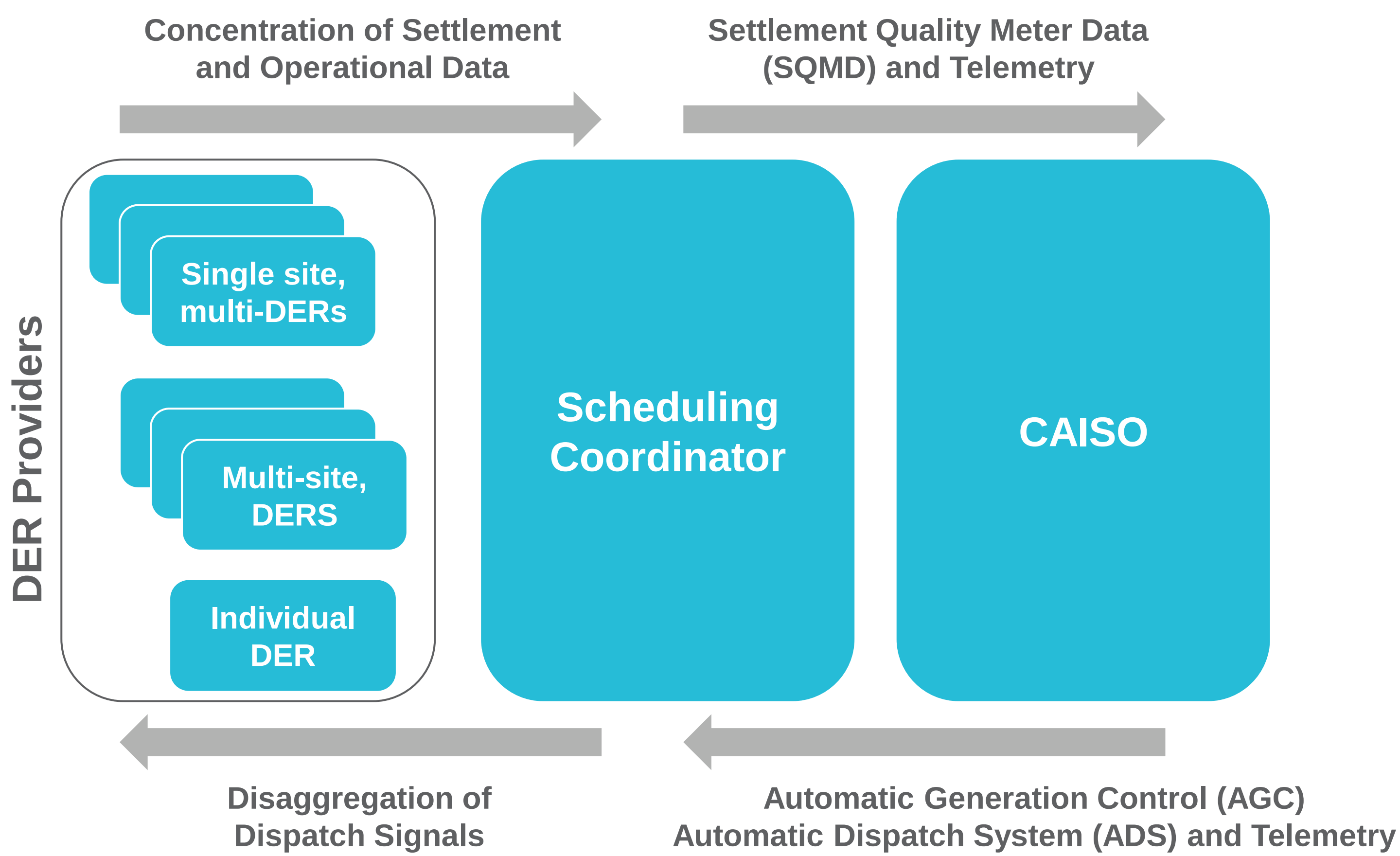
- In addition, California utilities have indicated that the following types of investments may be reflected in their next General Rate Case proceedings:
  - Distribution automation
  - Substation automation
  - Communication systems
  - Technology platforms and applications
  - Grid reinforcement
  - DER integration capacity
  - Volt/VAr optimization
- One further complication: residential rate redesign approved July 3 by CPUC
  - Customers default to TOU rates in 2019
  - Rate tiers move from four to two with 25% differential in 2019
  - Super User Electric surcharge beginning in 2017
  - Glide path to discounted rates for low income customers (CARE)
  - Proposed fixed charges rejected, but minimum bill approved

scottmadden
MANAGEMENT CONSULTANTS

CAISO Approves Market Bidding of Aggregated DER

The California Independent Systems Operator (CAISO) has approved a proposal to allow the aggregation of DER by a third party for bidding into the wholesale market.

Interaction Between Aggregated DER and CAISO



This proposal enables a third party to aggregate DER and bid them into the ISO; it does not require a distribution-level market.

Source: Expanded Metering and Telemetry Options Phase 2: Distributed Energy Resource Provider, 6/10/15, pg. 24.

What Specifically Is New York Asking For? Myriad Inter-Related Things

The New York Public Services Commission (PSC) has issued guidance and rulemaking for REV in three tracks across multiple filings.

Track 1 Order*

Demonstration Projects
Distributed System Implementation Plan (DSIP)
Benefit Cost Analysis (BCA) Framework
Energy Efficiency Transition Implementation Plan (ETIP)
Non-Wires Alternatives (NWA)
Interconnection Processes
Microgrid Configurations
Consumer Protections
Consolidated ESCO Billing

Track 2 White Paper

Ratemaking and Utility Business Model Redesign

Track 3

Large-Scale Renewable Options

Some items of note from Track 1:

- Established utilities as **Distribution System Platform** providers
- Requires utilities to file **demonstration projects** to test hypotheses regarding the changing utility business model or platform functionality with formalized pilot projects
  - Potential market-based earnings
  - Rate design alternatives
  - Value of DER and animation of markets
- Requires utilities to file **DSIP**s to plan for addressing changes to the utility, adapting to an environment of increasing DER penetration
  - Includes but is not limited to: forecasting, integrated planning, technology platforms, operating standards, market design
- Establishes a **BCA framework** to provide a common and transparent methodology for evaluating the locational value of DER (included in the DSIP)
- Provides for enhancement of **Interconnection** Processes

* Though not part of the REV proceeding, Community Net Metering is closely aligned with REV initiatives and is proceeding under a separate docket.

Track 2 Ratemaking and Business Model Reform

Track 2 proposes new earnings opportunities, new incentives, ratemaking reform, and proposals on changes to rate design while following foundational principles:

- Align earning opportunities with customer value
- Maintain flexibility
- Provide accurate and appropriate value signals
- Maintain a sound electric industry
- Shift balance of regulatory incentives to market incentives
- Achieve public policy objectives

Market-Based Earnings (MBE)

Opportunities for utilities to increase revenue by acting as the platform to supplement rate-based revenue

Examples:

- Eng for microgrids
- Data analysis
- Co-branding
- Platform access fees
- Optimization/scheduling
- Advertising

Earnings Impact Mechanisms (EIM)

New performance incentives that are tied to desired outcomes; initially positive only or symmetric only

- Peak reduction
- Energy efficiency
- Affordability
- Customer engagement and information access
- Interconnection

Scorecard Mechanisms

Metrics that are to be tracked but not monetized at this time; to be considered as future EIMs

Proposed:

- System utilization
- DG, EE, dynamic load management
- Opt in TOU efficacy
- Market development
- MBEs use
- Carbon reduction
- Customer satisfaction
- Customer enhancement
- Conversion of fossil fuel end uses

Rate Design and DER Compensation

Determining the value of D (LMP + D), continuing net energy metering, and modifying existing rate designs

Similarities and Differences

Regulatory Attribute	California Section 769	New York REV
Market Development and Design	■ Leverage the CAISO market ■ Allow aggregation of DER by third parties for bidding into the wholesale market	■ Use the market to defer or replace traditional utility infrastructure investments (e.g., BQDM) ■ Create a distribution-level market for DER and energy services ■ Create a location-based price signal for Locational Marginal Price plus the Value of Distribution (LMP + VoD)
Cost/Benefit Analyses	■ Use a LNBM based on E3 Cost Effectiveness Calculator • Covers costs (avoided or incurred) related to energy, capacity, ancillary services, interconnection, and externalities	■ Use a BCA to evaluate non-traditional solutions against traditional infrastructure • Consists of three tests covering similar attributes to CA LNBM
Rate Reform	■ Propose changes to rate design and tariffs be considered in separate proceedings	■ Propose to revamp incentives and rate design to transition utilities from rate-based revenue to market-based revenue
Data Sharing	■ Develop a procedure for sharing grid conditions	■ Develop a procedure for sharing grid conditions and serve as data intermediary between market participants
Demonstration Projects	■ Develop demonstration projects to test prescribed hypotheses	■ Develop demonstration projects to test utility-defined hypotheses ■ Focus on markets, rate design
Planning and Operation	■ Ensure coordination with transmission planning ■ Optimize grid planning and operation at the distribution level	■ Optimize grid planning and operation at the distribution level
DER Interconnection	■ Reduce barriers to DER interconnection	■ Reduce barriers to DER interconnection

scottmadden
MANAGEMENT CONSULTANTS

Greg Litra
Partner and Energy, Clean Tech, and Sustainability Research Lead

Greg Litra is a partner with ScottMadden, with principal expertise in financial, economic, and regulatory analysis, strategic planning, corporate governance, risk management, and transaction support. He specializes in the energy and utilities business sectors. He also leads the firm's energy and sustainability research activities and spearheads publication of ScottMadden's semi-annual ENERGY INDUSTRY UPDATE. He is a member of the New York, Connecticut, and District of Columbia bar associations, as well as the Energy Bar Association and the American Bar Association's Public Utilities and Environment, Energy & Resources sections. Greg earned a J.D. from the University of South Carolina School of Law, where he was editor-in-chief of the SOUTH CAROLINA LAW REVIEW. He also earned an M.S. in Industrial Administration (MBA-equivalent) from Carnegie Mellon University, where his academic concentrations were in the areas of finance, accounting, and entrepreneurship. Greg holds a B.A. in economics and philosophy from Wofford College, magna cum laude.

Q&A

Contact Us

John Pang

Partner

ScottMadden, Inc.
2626 Glenwood Avenue
Suite 480
Raleigh, NC 27608
johnpang@scottmadden.com
O: 919-781-4191

Smart. Focused. Done Right.

Todd Williams

Partner and Fossil
Generation Practice Leader

ScottMadden, Inc.
3495 Piedmont Road
Building 10, Suite 805
Atlanta, GA 30305
toddwilliams@scottmadden.com
O: 404-814-0020

Smart. Focused. Done Right.

Cristin Lyons

Partner and Grid
Transformation Practice Leader

ScottMadden, Inc.
2626 Glenwood Avenue
Suite 480
Raleigh, NC 27608
cmlyons@scottmadden.com
O: 919-781-4191

Smart. Focused. Done Right.

Greg Litra

Partner and Energy,
Clean Tech, and Sustainability
Research Leader
ScottMadden, Inc.
2626 Glenwood Avenue
Suite 480
Raleigh, NC 27608
glitra@scottmadden.com
O: 919-781-4191

Smart. Focused. Done Right.

Stuart Pearman

Partner and
Energy Practice Leader

ScottMadden, Inc.
2626 Glenwood Avenue
Suite 480
Raleigh, NC 27608
spearman@scottmadden.com
O: 919-781-4191

Smart. Focused. Done Right.

See the link below for the Fall 2015 Energy Industry Update

http://www.scottmadden.com/insight/949/the-scottmadden-energy-industry-update-fall-2015.html

scottmadden MANAGEMENT CONSULTANTS