Update on Clean Imperative and Sectoral Responses in the US Power Industry

September 8, 2016

Presenters:

Bob Mudge, Principal, The Brattle Group (Moderator)

Metin Celebi, Principal, The Brattle Group

Susan Nickey, Managing Director, Hannon Armstrong

Allyson Umberger Browne, Esq., Director of Regulatory Affairs & General Counsel, SRECTrade, Inc.

Elias B. Hinckley, Partner, Sullivan & Worcester, LLP









Agenda

- Introduction
- Background: The Clean Power Imperative
 - US Carbon Overview in 2016
 - Focus on the Clean Power Plan (CPP)
- Sectoral Responses
 - Clean Power Expansion
 - Tax Law Developments
 - Technology Developments
 - New Business Models
 - Environmental Markets
 - Financial Innovation
- The Outlook for 2017







Introduction

- 2015 & 2016 saw a number of significant milestones and events affecting the US power industry:
 - Finalization of EPA's Clean Power Plan (CPP)
 - Partly owing to CPP, a successful conclusion to the Paris Climate Agreement
 - Extended renewable tax credits addressing multiple technologies and phase-outs
 - A Supreme Court ruling upholding FERC regulation of Demand Response
 - A Supreme Court stay of CPP implementation activity, pending resolution of legal challenges
- Meanwhile, the power market continued to be characterized by low fossil energy costs and stagnant electricity demand.
- Continued policy development and emerging market trends inform our outlook for the remainder of 2016 and beyond









US Carbon Overview

EPA's Clean Power Plan

- Finalized in August 2015
- Target: electric CO₂ emissions 32% below 2005 levels by 2030
- State targets:
 - Lower coal heat rates
 - Gas substitution for coal
 - More zero-emission generation
- Flexible approaches (i.e., trading) encouraged and enabled
- State plans due: 2016 2018
- Compliance: 2022 2030
- Mutually reinforcing with Paris Climate Agreement

Supreme Court Stay: 2/9/16

Oral Argument at Court of Appeals September 27, 2016



Regional CO₂ Programs

- AB32 Cap and Trade Program (CA)
 - In 4th year of operation
 - Auction prices at \$12-13/tonne
 - Small emissions reductions to date
 - Expected to become more stringent post 2020
 - Complementary policies: RPS, EE
- Regional Greenhouse Gas Initiative (RGGI)
 - In 7th year of operation
 - 6/16 auction clearing price of \$4.53/ton lower than 2015 high of \$7.50/ ton
 - Regional CO₂ markets form alternatives to CPP as well as potential implementation templates





Focus on CPP: National Rate Targets, by Year

- The Final (8/15) CPP goals have a larger effect on coal from the start
- Compliance assumes "beyond the plant fence" measures and credit trading



Category Specific Rate Standards based on BSER (lbs/MWh)

Focus on CPP: State Rate Standards from 2012 Baseline to 2030 Final

Rate reductions are phased-in from 2012 Baseline to 2030 goals. The largest reductions are in MT, ND and WY, while some others such as ME, CT, ID, CA and MS are already in compliance with 2022 goals.











Focus on CPP: Impact of SCOTUS Stay

- Coal stocks jumped briefly after Supreme Court stay on 2/9/16...
- But market hope for coal stocks did not last long:











Focus on CPP: Impact of SCOTUS Stay (continued)



- Low gas prices already eroded coal's position, gas gaining market share
 - Gas prices improved since March
- Coal and gas in rough economic parity in many regions, at least some of the time
- CPP stay will not have much impact on these market conditions



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Focus on CPP: Impact of SCOTUS Stay (continued)

EIA's AEO2016 projections (w/o CPP) already show considerable displacement of coal capacity and lots of renewables:



Focus on CPP: Coal Plant Retirements

- As of August 2016, 54 GW of coal fleet has either retired or announced to retire by 2020
 - 39 GW already retired since 2012
 - 8 GW announced to retire by the end of 2017
 - Another 7 GW announced to retire by 2020
- EPA's IPM analysis:
 - about 100 GW coal retirements by 2020 with no CPP (most of it by 2016)
 - With CPP, an additional 15 GW by 2020 and 24-33 GW by 2030.
- EIA's AEO2016 analysis:
 - 87 GW coal retirements by 2020 and another 5 GW by 2030 with no CPP
 - About 130 GW by 2030 with CPP



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U.S. Actual and Announced Coal Plant Retirements

| Year of | Number | Capacity |
|------------------|----------|----------|
| Retirement | of Units | (MW) |
| Actual | | |
| 2012 | 88 | 9,085 |
| 2013 | 46 | 5,696 |
| 2014 | 39 | 3,906 |
| 2015 | 101 | 13,899 |
| 2016 | 45 | 6,455 |
| 2012-2016 | 319 | 39,041 |
| Announced | | |
| 2016 | 10 | 1,729 |
| 2017 | 31 | 6,654 |
| 2016-2017 | 41 | 8,382 |
| 2018 | 18 | 3,477 |
| 2019 | 14 | 2,143 |
| 2020 | 10 | 1,200 |
| Total 2012-2020 | 402 | 54,243 |
| SRECTrade | SL | JLLIVAN |

Focus on CPP: Regions and States

- Regional groups continue working on preparation for CPP
 - MISO released an analysis of the CPP in July
 - PJM recently estimated CPP impacts on wholesale energy prices as less than 3%
 - RGGI states are evaluating 2.5% and 5.0% annual emissions cuts through 2030 (and changes to the CCR)
- States are considering legislation and rules affecting CPP compliance with mixed outcomes
 - CA legislation passed law to set 40% reduction by 2030, which will likely tighten capand-trade program beyond 2020, and has a goal to achieve 80% reduction by 2050
 - OR and RI enacted new higher RPS targets
 - MD governor vetoed increase in state RPS requirement and VA Senate rejected bill to create RPS requirement
 - PA is requiring the General Assembly to review any new CO₂ regulations
 - Other states have passed measures for coal plant decommissioning costs, restrictions on new nuclear power, and the use of environmental riders nuclear









Focus on CPP: Regions and States

- Under the CPP, states had to submit implementation plans to EPA, for final approval by September 2018. They clustered into three groups:
 - Support CPP and work on plans (e.g., West Coast, Northeast)
 - Oppose CPP and work on plans (about 20 states, including coal-based)
 - Oppose CPP and not work on plans "delay and pray" (handful, e.g. OK, KY)
- First and last group don't change with the Stay; middle group split and reassessing
- Expect about 20 states to continue efforts (maybe slow down) and maybe a dozen to finish prior to existing deadline
- Policy and market developments continue to move in the general direction of clean power with or without enforceable CPP deadlines – the Clean Power Imperative

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Sectoral Responses to the Clean Power Imperative

| Clean Power | Tax Law | Technology |
|---------------------------------------|-----------------------|----------------------|
| RPS Roundup | Longer Horizon | Renewables Cost |
| Renewables Growth | Multiple Technologies | Scale Evolution |
| Electricity Demand | Coord. Phase-outs | Storage |
| | | |
| New Business Models | Environ. Markets | Financial Innovation |
| Distributed Energy | Commodity Markets | Market Drivers |
| Corporate PPAs | US RPS and RECs | Public Markets |
| Demand Response | Compliance Trends | Private Markets |
| Policy Developments | RECs meet ERPs(?) | P3 Initiatives |









Sectoral Responses: Clean Power Expansion

RPS Roundup



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Sectoral Responses: Clean Power Expansion

- Renewables
 Penetration
- EIA forecasts
 conservative outlook
 for renewables,
 excluding distributed
 resources
- Still exceeding 10% of total US capacity by 2020 (excluding hydro)



Source: EIA AEO2016 projections







Sectoral Responses: Clean Power Expansion

• Forecasts Including Distributed Solar PV are More Aggressive











Sectoral Responses: Tax Law Developments

| | Description | Eligibility | First Implemented | Changes and Extensions | Expiration and Phase Outs | Criteria |
|---|---------------------------------|---|----------------------|--|---|---|
| <u>1. Production</u> <u>Tax Credit</u> | Per kWh/ <i>10 years</i> | <pre>\$0.023> wind, geothermal, biomass [a] \$0.011> hydro, other</pre> | 1992 | 1999, 2002, 2004, 2005, 2006, 2009, 2013, 2014, 2015 | 2016, 2017 (80%), 2018 (60%), 2019 (40%) | Construction start [b] |
| <u>2. Investment</u> <u>Tax Credit</u> | % of capital, <i>upfront</i> | 30%> solar and PTC- eligible [c] 10%> CHP, microturbines and other | 2005 [d] | 2008 [e], 2015 | 2019, 2020 (26%), 2021 (22%) | Construction start (per 2015 change). In- service by 2023. |
| <u>3. Accelerated</u> Depreciation | Tax deductions | 5 year> solar, wind, geothermal 7 year> biomass, other | 1986 | 2005, 2008, 2015 [f] | | In-service by tax year |

Notes:

[a] Geothermal, biomass, landfill gas, incremental hydroelectric and ocean energy projects expire in 2016 with no phase outs

[b] Changed from in-service in conjunction with extension in 2013 under the American Taxpayer Relief Act of 2012 .

[c] PTC-eligible facilities are able to use the 30% ITC (pro-rated with phase outs, as applicable).

[d] Start of 30% level; predecessor Energy Tax Act of 1978 provided a 15% solar tax credit adjusted down to 10% by 1988.

[e] Emergency Economic Stabilization Act of 2008; among other things, utilities became eligible for the ITC.

[f] Bonus depreciation extended









Sectoral Responses: Technology Developments

 Renewables Cost (example of PV): NREL OPEN PV data indicates dramatic reductions in installed costs at both utility and residential scale.



Source: NREL Open PV Project; Analysis by The Brattle Group

Installed cost in 2014: $2.88/W_{DC}$ Installed cost in 2019: $1.43/W_{DC}$



Residential-Scale Installed Costs with Decline



Source: NREL Open PV Project; Analysis by The Brattle Group

Installed cost in 2014: $4.25/W_{DC}$ Installed cost in 2019: $2.25/W_{DC}$





Sectoral Responses: Technology Developments

 Scale Evolution: If (conservatively) defined as 250kW – 1MW, recent DOE study shows Community Solar approaching cost of utility scale (1MW +):



Source: Photovoltaic System Pricing Trends, U.S. Department of Energy, September 2015









Sectoral Responses: Technology Developments

- Storage
- At \$350/ kwh, Brattle study found that storage could pay for itself in ERCOT.
- However, current market and regulatory mechanisms do not enable costeffective deployment





Source: Hannes Pfeifenberger et. al.,



- Distributed Energy Resources ("DER")
- Defined as local or "behind-the-meter" generation resources and demand-side options
- Relied upon to meet all or a portion of customer's electric load
- Includes a wide range of technologies:
 - solar photovoltaic (PV)
 - combined heat and power (CHP)
 - microgrids
 - wind turbines
 - back-up generators
 - energy storage
 - demand response
 - energy efficiency









- Distributed Energy Resources
- Rooftop Solar PV getting the most attention as states get close to net metering caps
 - Some utilities are entering the rooftop PV space
 - Community solar is expanding DER availability for those without roof potential

- But wind is also increasingly distributed
- Bloomberg New Energy Finance recently reported*:
 - ~ 20% (1.7 GW) of 2015
 projects had non-utility PPAs
 - Over 1.2GW of additional nonutility PPAs were signed in 2015 for 2016
- * Sustainable Energy in America Factbook, 2016









Corporate PPAs •



- Distributed Energy Resources
- Not just renewables
- Expected to grow
- Will create questions over the role and boundaries of utilities



Source: AEO 2008-2015; GTM Research; Brattle compilation









- Demand Response
 - Refers to the ability of high-load electricity customers—such as industrials— to curtail consumption in peak demand hours.
 - To date, principally a wholesale market phenomenon
 - This trend reinforced by Supreme Court decision in January to uphold FERC Order 745
 - Order 745 allows demand response resources to bid into wholesale markets as if they were generators









- Demand Response
- Demand response becomes a tool in avoiding conventional utility investments
- Requires new incentives for utilities
- How do we value DR?

10.0% Capacity or **Ancillary Services** Energy Emergency Regulation Non-Dispatchable Contingency Dispatchable Reserves 0.0% Ontario Alberta ISO-NE Ontario SO-NE Texas Ontario Alberta PJM Singapore PJM ISO-NE Texas Singapore Alberta Texas PJM Singapore

Penetration by Market

Source: Sam Newell et.al, "International Review of Demand Response Mechanisms", October, 2015









- Policy Development
- State and utility initiatives to address challenges and opportunities:
 - Net Metering/Net Generation Caps
 - Alternative business models
 - Detailed distribution system studies
 - Value of Solar Studies
 - Community Solar Growth
 - Utility Led DER Programs
- "Utility of the Future" efforts tackle:
 - Grid Modernization and new technology
 - Promoting and optimizing DER
 - Ratemaking reform
 - New revenue streams for utilities







- Policy Development: Net Energy Metering
 - Net metering at retail rates can be a key driver of DER economics
 - However, with more DER, someone else has to cover utility fixed costs
 - True "avoided cost" remains highly contested











California:

- <u>Requiring IOUs develop</u>
 <u>Distribution Resources</u>
 Plan Proposals (2014)
- Storage Requirement
 (2013)
- Workshop on new Business models (2013)
- Review of Rate Design (2012)

Maryland:

- PBR Report (2014)
- Resiliency through Microgrids (2013)
- EFC Scopes Potential Utility 2.0 pilot (2013)
- Grid Resiliency
 Review (2013)

Arizona:

 Docket opened allowing utilities to file new rate designs(2014)

2012 MA Grid

Modernization:

- Time varying rates, interoperability of devices, cybersecurity, etc.
- <u>Utilities file Grid Modernization</u>
 <u>Plans ("GMPs")</u>

2014 NY REV Docket:

- Track 1: Distribution System Platform and Distributed System Implementation Plans (DSIP)
- Track 2: Regulatory / Rates Market Based Earnings (MBE) and Earnings Impact Mechanisms (EIMs)
- Distributed System Platform Providers (DSPP) model

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Minnesota e21:

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- Three phased approach:
 - First: adoption of definitions and principles
 - Second: Prioritize issues (integrated distribution planning, interconnection standards, rate design, DER))
 - Third: Conceptualizing a new utility business model

pility

Broad Guidance on Business & Regulatory Model

Incremental

Dockets on

Immediate

Issues





- Policy Development: Emerging Comprehensive Models
 - REV's Distributed Service Provider (DSP)
 - John Wellinghoff's Distributed System Operator (DSO)
 - Peter Fox-Penner's "Energy Services Utility (ESU) & Smart Integrator (SI)" models
 - UK's RIIO Model









Sectoral Responses: Environmental Markets - Introduction

- Environmental markets nascent but developing markets for environmental commodities (products derived from environmental resources).
- Three categories of environmental commodities:
 - 1. Emissions emissions permits (GHG); carbon credits (cap & trade)
 - 2. Renewable Energy RECs & White Certificates (EE or E-savings)
 - 3. Water access entitlements & resource allocations (Australia)
- Environmental commodity exchanges around the world:
 - ASX (Australia), CCX (US), BOVESPA (Brazil), CLIMEX (Netherlands), EEX (Germany), EXAA (Austria), and MCX (India)









Sectoral Responses: Environmental Markets - Growth

- Global growth spurred by international climate agreements, including the 2015 Paris Climate Conference (COP21):
 - 197 countries bound, 17 ratified to date
- Nationally, environmental markets are built upon state and national law, RPS programs, cap and trade programs, etc.
- As these policies emerge and develop, so do the environmental markets.



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Sectoral Responses: Renewable Portfolio Standards: What and Where



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Sectoral Responses: Renewable Portfolio Standards: Final Target Years



Source: Berkeley Lab Current as of March 2016









Sectoral Responses: Renewable Portfolio Standards: Compliance

- RPS programs proven successful:
 - states collectively meeting ~95% of interim RPS targets in recent years
 - 87% success for carve-out targets
- RPS compliance costs total \$2.6 billion in 2014, averaging \$12/MWh-RE and equating to 1.3% of average retail electricity bills
 - Although costs rose from 2013, future growth in costs will be capped by RPS cost containment mechanisms (ACPs) in most states







Sectoral Responses: Renewable Portfolio Standards: Compliance Costs



Total RPS Compliance Costs (2014)

Solar/DG Carve-Out 5% 4% 3% 2% 1% 0% 임 및 코 등 섬 돛 토 눈 Mid-Atlantic/PJM Northeast

Carve-out Compliance Costs (2014) 0.9% of average retail bills









Sectoral Responses: Renewable Portfolio Standards: Solar/DG

Annual U.S. Solar Capacity Additions

Cumulative RPS Solar Capacity Additions





General RPS Obligations (12 GW_{AC})



Notes: A portion of the solar capacity shown for AZ and NV serves RPS obligations in CA

Source: Berkeley Lab Current as of March 2016

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Sectoral Responses: Renewable Portfolio Standards: Robust Demand

- Many states oversupplied
- Some have already met their final targets
- Still residual demand remains:
 - additional 2 GW needed by 2020
 - 5 GW by 2030

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 Greatest near-term demand in MA, MD, NJ, and MN (DG)







Sectoral Responses: Renewable Portfolio Standards: RECs Meet ERCs

State plan options

| | Rate-based | Mass-based |
|--------------------------------|--------------------------------|---|
| Emission Standards Approach | Obligation on affected EGUs | Obligation on affected EGUs |
| State Measures Approach | Not applicable | State-enforceable measures with federally enforceable emission |









Sectoral Responses: Renewable Portfolio Standards: RECs Meet ERCs

RPS and the CPP

| | Rate-based | Mass-based |
|--------------------------------|-------------------------------|-------------------------------|
| Emission Standards Approach | RPS indirectly supports goals | RPS indirectly supports goals |
| State Measures Approach | RPS indirectly supports goals | RPS DIRECTLY supports goals |









Sectoral Responses: Renewable Portfolio Standards: RECs Meet ERCs

- RECs and ERCs can co-exist, applying to different compliance obligations
- RPS + SIP can exist contemporaneously or interdependently
- States can leverage existing RPS to lighten administrative burden of implementing and enforcing SIP
- Concerns about double-counting will no doubt be raised
- Regional plans bring additional complexity to the equation









Sectoral Responses: Financial Innovation

WWW.AMERICANPROGRESS.ORG



Green Growth

A U.S. Program for Controlling Climate Change and Expanding Job Opportunities

Robert Pollin, Heidi Garrett-Peltier, James Heintz, and Bracken Hendricks September 2014

The Center for American Progress estimates that the <u>U.S. needs at least \$200 billion</u> in renewable and efficiency investment <u>annually for 20 years</u> to reduce carbon emissions and <u>avert climate disaster</u>.

What drives investment?

- Regulatory requirements
- Risk management benefits
- Consumer demand for sustainability
- Improvement in project economics
- Pairing divestment with Socially Responsible Investment









Which investment would you rather make?

| | Project Cost | NPV | CO ₂ Emissions Displaced | |
|---------|-----------------|-------|--|-------|
| Asset A | \$1mn | \$1mn | 1000 MTs | Green |
| Asset B | \$1mn | \$1mn | 200 MTs | Bonds |
| Asset C | \$1mn | \$1mn | 0 MTs | |

SRI Investors should favor investments with the largest benefit per dollar invested, but... The market needs a metric to make such a comparison.









CarbonCount[™] scores the "green-ness" of investments by quantifying the annual displaced CO2 emissions per \$1,000 investment

What is the Goal?

- Provide a single, concise and comparable to promote accountability and transparency
- Increase demand for the most impactful bonds, which will lower borrowing costs

Potential Participants?

- Issuers: Have the Alliance to Save Energy score their bond
- Portfolio managers: Ask Issuers to provide a CarbonCount rating
- All parties: Demand information on CO2 emissions impact per \$ unit of investment

CarbonCount[™] won Bloomberg New Energy Finance's 2015 Finance for Resilience award

Hannon Armstrong's \$101m, A-Rated Sept '15 bond received 1st CarbonCount Score of 0.39 MTs offset per \$1000









Private Market: C-PACE Estimated Investment: 2009 to mid-2016



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Public/ Private Partnerships

Green Bank Model

Public-Private Partnerships for Climate Protection

A green bank is a **public financing authority** that *leverages private capital* with *limited public-purpose dollars* to

accelerate the growth of clean energy markets





REFERENCE





Public/ Private Partnerships

Green Bank Products and Programs



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The Outlook for 2017

- Ratification of Global Climate Accord earlier than anticipated (maybe 2016) puts pressure on US policy developments.
- Possible decision by DC Circuit, followed by SCOTUS review in 2017/18 on the fate/timing of CPP.
- In the meantime, voluntary submissions of initial state plans for CPP compliance, and progressing RPS regimes.
- Further coal plant retirements (and possibly nuclear as well, depending state support mechanisms).
- Continued renewables penetration with low cost power, represented by states like lowa and Texas.
- US renewables growth will be augmented by C&I demand/ corporate PPAs/ community projects.
- Emergence of "Energy as a Service" model with new integrated offerings enabled by data analytics and intelligent infrastructure.









Bob Mudge

Tel: 202-419-3318 Email: Robert.Mudge@brattle.com

Mr. Mudge is an expert in corporate and project finance matters in the energy industry. He has advised energy clients on issues relating to corporate restructuring, contract terminations or amendments, special capital needs, and acquisitions and divestitures. He also has experience in analyzing contractual, regulatory, financing, and tax matters, and projecting effects on cash flows, earnings, and customer rates.

Mr. Mudge currently serves as Chief Operating Officer of The Brattle Group. Prior to joining the firm, he was a principal at CRA International, where he focused on financial restructuring initiatives for electric utility clients and consulted on matters involving rate design, asset valuation, and project finance structuring and credit requirements. He has provided expert testimony in proceedings before federal and state courts, utility regulators in the U.S. and Canada, and state environmental regulators, as well as in connection with mediation and arbitration proceedings.











Metin Celebi

Tel: 617-234-5610 Email: Metin.Celebi@brattle.com

Dr. Celebi provides expertise in electricity markets and the analysis of environmental and climate policy. He has testified and consulted primarily in the areas of electricity spot pricing and market design, and has experience in developing and analyzing climate policies, LMP modeling, generation plant valuation, and competitive implications of mergers.

Dr. Celebi wrote his Ph.D. thesis on the analysis of incentives and regulation to provide transmission capacity in deregulated electricity markets. His recent engagements include estimating economic damages in energy contracts, valuations of coal-fired and gas-fired power plants, impacts of environmental regulations on power markets, cost/benefit assessment of RTO membership to electric utilities, and nodal pricing simulations in the U.S. electric markets. He has provided testimony in regulatory cases involving the impact of coal plant retirements on wholesale energy prices, LMP simulations in PJM, and allocation of certain ancillary services costs among market participants in ERCOT.

Dr. Celebi is a frequent speaker at energy conferences on topics such as coal plant retirements and environmental policies.











Susan Nickey

Tel: 410-571-6188 Email: snickey@hannonarmstrong.com

Susan Nickey is a Managing Director at Hannon Armstrong (NYSE:HASI), a leading provider of debt and equity financing to the energy efficiency and renewable energy markets.

Ms. Nickey has over 25 years of executive leadership in the energy and finance sectors. She has focused her efforts on proving that creative solutions and innovation can make the production of clean energy more profitable, competitive, affordable and mainstream. Most recently, she founded and served as CEO of Threshold Power. Prior to working at Threshold, she served as CFO at ACCIONA Energy North America from 2007-2010 and before that as Managing Director of Investment Banking in the Project Finance Group of Mesirow Financial.

Ms. Nickey currently serves on the Board of Directors of the American Council of Renewable Energy and the Federal Tax & Energy and Policy Committees for the American Wind Energy Association (AWEA). She has previously served on the Governor of Nevada's Renewable Energy Development Program Task Force. She was named one of Women's eNews' 21 Leaders for the 21st Century for her leadership in sustainable development.











Allyson Umberger Browne

Tel: 415.763.7790 Email: allyson.umberger@srectrade.com

Allyson Browne currently serves as the Director of Regulatory Affairs and General Counsel for SRECTrade, an SREC transaction and management firm with more than 207 MW of solar assets under management. SRECTrade facilitates the brokerage of REC transactions and serves clients across the spectrum from competitive electricity suppliers to residential system owners. SRECTrade is one of the leading sources of information regarding SREC price trends and legislative updates, delivering insight and transparency to some of the fastest growing state markets in the solar industry.

At SRECTrade, Mrs. Browne monitors policy developments and legislative proceedings that impact the states' SREC markets. In addition to serving as General Counsel for the firm and assisting in contract negotiations for REC transactions, Mrs. Browne oversees a team of certification professionals who work closely with the state agencies, installer partners, and clients of SRECTrade.

Prior to joining SRECTrade, Mrs. Browne served as a law clerk at the San Francisco City Attorney's Office for the Public Utilities team and as a Legislative Intern to San Francisco Supervisor Mark Farrell.











Elias Hinckley

Tel: 202-775-1210 Email: ehinckley@sandw.com

Elias B. Hinckley leads the Energy Group in Sullivan & Worcester's Washington, D.C. office. Mr. Hinckley focuses on helping his clients navigate a changing energy, tax, and finance landscape by efficiently and creatively structuring deals. He incorporates tax, policy and market insight to solve complex financing challenges for public utility, banking, private equity, real estate, engineering, construction, manufacturing and alternative energy companies. He has experience representing clients across energy sectors, including solar, wind, geothermal, biomass, biofuels, hydroelectric, batteries, fuel cells, energy efficiency, demand response, electric transmission, natural gas and advanced coal. Over the past decade, Mr. Hinckley has had the opportunity to support many successful projects, helping his clients attract world class financing partners while efficiently designing renewable energy financings to realize more than \$1 billion in combined incentive-based assistance.

Previously, Mr. Hinckley was a partner and leader of the clean energy practice for two large national law firms, handling issues ranging from tax motivated energy financing to the global operation of natural gas markets to positioning new technologies for policy programs. Mr. Hinckley's prior experience also includes building the national alternative energy tax practice for one of the world's largest professional services firms. Mr. Hinckley co-authored that firm's global climate change strategy, and co-led the sustainability practice with specific responsibility for the global energy industry and the global tax practice.







