

Kushal D. Patel

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.

San Francisco, CA

Partner

Mr. Patel has worked in the energy industry for over 20 years spanning from the deregulation and restructuring of the electric and gas sectors in the 1990s to today. He currently helps lead E3's asset valuation and strategy practice, working with infrastructure funds, large institutional investors like pensions, and both technology companies and project developers on valuing and assessing assets, projects, and technologies critical to the future of energy. His work has involved supporting clients making multi-billion-dollar investments into utilities, technology companies, and development platforms as well as making investments and decisions around individual assets and portfolios consisting of renewables, energy storage, and/or distributed energy resources along with decarbonized fuels and software. He also helps lead E3's strategy practice, working with clients on market, technology, and off-take strategy as well as general corporate strategy leveraging the best-in-class insights.

Before joining E3, Mr. Patel was the Director of Corporate Development and Project Finance at a rapidly growing solar and energy efficiency engineering, procurement, and construction company in Washington, DC. Mr. Patel has direct project financing experience for residential to utility scale solar PV projects along with other finance activities such as debt/equity structuring and revolving lines of credit. Prior to that position, Mr. Patel worked in the Energy Practice at NERA Economic Consulting as part of the Oliver Wyman Group in New York City and Washington, DC.

General Topic Areas

- Lead on providing strategy on business models, retail pricing, market design, and technology (e.g. DERs) strategy for many notable investor owned utilities such as Pacific Gas & Electric (PG&E), Arizona Public Service (APS), Portland General Electric (PGE), Sempra, and the Hawaiian Electric Companies (HECO) as well as public entities like the New York Power Authority (NYPA), the Kansas Electric Power Cooperative (KEPCo), and the New York Energy Research and Development Authority (NYSERDA).
- Assessing the potential value, strategy to market their technologies and projects for numerous technology firms and project developers. Some notable clients include National Grid Ventures as well as Macquarie Capital, AltaGas, E. ON Climate and Renewables, and a number of others many of whom are confidential.
- Lead for developing E3's East Coast client base, expanding to include policymakers, regulators, utilities, and project developers, most notably in New York through the Reforming the Energy Vision (REV) initiative.

Sample Engagements

- Led an E3 team conducting a storage strategy analysis for Orsted that consisted of both a broad overview of energy storage across the US and the overall concepts that drive its value, as well as a deep dive analysis into 6 priority regions (CAISO, MISO, non-CAISO WECC, PJM, ISO-NE, NYISO).

- Led an E3 team supporting NYSERDA in developing a new methodology for calculating greenhouse gas emission factors for New York's electricity grid.
- Led an E3 team providing Brookfield Renewable U.S. with consulting and analytical support services to assist in their development of an expanded set of commercial and industrial customer product offerings.
- Led the E3 team that worked with the New York Department of Public Service (DPS) and the New York State Energy Research and Development Authority (NYSERDA), supporting the development of a new roadmap for New York to achieve the installation of at least 10 Gigawatts (GW) of distributed solar by 2030. The roadmap lays out a path that will expand renewable energy in New York, generating enough clean energy to power 700,000 additional homes, while also prioritizing an equitable expansion of New York's distributed solar infrastructure.
- Led an E3 team supporting Matrix Renewables by providing a slide deck explaining the long-term value (post-2040) for energy storage resources in CAISO. This included a look at long-term storage revenue forecast, background on the CAISO market, the need for storage given California policy goals, a deep dive in storage revenue streams, and how long-term value can come from repowering battery sites in the 2040s.
- Led the team that supported NYSERDA and the Department of Public Service (DPS) in New York on developing an Energy Storage Roadmap to lay out recommended policy, regulatory, and programmatic actions to reach the state's 2025 storage deployment target of 1,500 MW as well as a larger 2030 target.
- Providing due diligence services to Macquarie Capital on their \$200M investment in the Advanced Microgrid Solutions, Inc. (AMS) 50 MW behind-the-meter distributed battery storage project in Los Angeles. This was the first battery storage project in the world to have been successfully project financed.
- Consulting with NYPA on Project EDGE (Energy Diversity from the Grid Edge) which involved an initial phase of proposing and evaluating DER business models from the perspective of both NYPA and their customers as well as a later phase involving detailed analytical work to support Project EDGE's initial pilot project and pipeline of follow-up projects.
- Providing asset valuation and market analysis support for National Grid Ventures to support their 2+GW of storage projects in development in the Western U.S.
- Providing market analysis services and strategic advice to several private equity firms, investors, and asset owners to support both asset acquisitions as well as asset sales.
- Supporting NYSERDA and the Department of Public Service (DPS) in New York on a variety of topics including the Value of DER proceeding, retail rate design, storage, and distribution value. Some of this support has led to several publications, like authoring a net energy metering report to evaluate the costs and benefits of distributed solar PV, a study analyzing retail rate design choices, and various DER tariff formulations.
- Providing support for the South Carolina Office of Regulatory Staff regarding the formulation of a distributed energy resource program per the state's Act 236 that resulted in a global settlement agreement and a successful launch of a solar PV market in South Carolina.
- Authored of a report to a Hawaiian client investigating micro grid and other potential energy options and cost consequences in relation to the client's local utility.
- Authored and performed substantial analysis for testimony to the National Energy Board in Canada on behalf of Chevron Canada Ltd. regarding allocations on the TransMountain Oil Pipeline.

STANDARD SOLAR, INC.*Director, Corporate Development and Project Finance*

Rockville, MD

March 2012 - July 2013

- Head of corporate development and project finance, investor/Board relations, financial reporting, and budget development/forecasting.
- Collaborated across departments and worked directly with lenders/underwriters and equity and JV partners to identify new sources of corporate/project finance and led financing due diligence, negotiations, and closings.
- Assisted with the launch of an expanded energy efficiency product line along with new smart home, LED, and backup battery/generator product lines by developing finance and sales tools to create a successful launch.

OLIVER WYMAN GROUP – NERA ECONOMIC CONSULTING*Senior Consultant, Energy Practice*

New York City/Washington D.C.

June 2002 – June 2011

- Managed energy procurements valued at over \$40 billion for renewable energy certificates/projects (e.g. solar, wind, biomass, hydro), block power, and full-requirements electric supply in Pennsylvania, New Jersey, Ohio, Illinois, Spain, and Portugal on behalf of utilities which included: extensive financial, and risk analysis of potential bidders and project developers; power purchase agreement design and pricing; project and bid valuation; extensive analysis of the wholesale and retail energy and fuel markets; creation of portfolio cost and bid benchmarks; procurement and bid evaluation design and analysis; software and website development; internal team management, extensive bidder, client, and regulatory interaction; procurement rules creation; and retail tariff design.
- Modeled, valued, and analyzed generation assets on an extensive project finance, economic, and dispatch level such as determining financing and hedging options and valuing solar, wind, nuclear, and fossil-fuel generation assets.
- Performed several audits of a major electric retailer's operations in PJM, MISO, and ERCOT and authored reports with findings, conclusions, and recommendations on business and strategy to senior management.
- Composed and edited a 15-year Integrated Resource Plan for the Baltimore Gas & Electric and Allegheny utilities in Maryland and performed extensive modeling, forecasting, and analysis of the underlying energy efficiency and demand response initiatives (EmPOWER) as well as the renewables, emission, electric, capacity, and fuel markets.
- Created testimony for various deferred energy cost proceedings, which included extensive review, analysis, and evaluation of several western U.S. utilities resource planning, hedging, and energy purchasing/selling strategies.
- Performed an extensive analysis and review of a major paper and pulping company's renewable and conventional energy strategy for its mills in 10 states and co-authored a report recommending actions to the Board of Directors.

Education

Dartmouth College

Bachelor of Arts (A.B.) Engineering Sciences, Economics

Concentrations in Corporate Finance and International Trade

Hanover, NH

June 2001

Dartmouth College, Thayer School of Engineering
Bachelor of Engineering (B.E.) Materials Science

Hanover, NH
June 2002

Dartmouth College, Thayer School of Engineering
Master of Engineering Management (M.E.M.)
Operations Management and Optimization Methods
Winner of Henderson Prize for Outstanding Thesis

Hanover, NH
June 2002

George Washington University, School of Business
Master of Accountancy (M.A.)

Washington, DC
June 2011

Citizenship

United States