Developing and Financing California's Energy Transition

Rob James & Jorge Medina
Pillsbury Winthrop Shaw Pittman LLP

Pillsbury MCLE Marathon Series

January 13, 2021

Overview

- What is an **energy transition**?
  What are the California "goal lines"—
  the starting points and the transition goals?
- What public policy **incentives** are available
  or proposed to support private investment?
- What **financing structures** can complete
  inducing the flow of capital?
- What challenges and opportunities lie ahead
  for **project development**?
- What are some **policy wishes** of entrepreneurs
  and investors for California projects?

Energy Transition(s)

- Politicians speak of a transition, then start discussing wind turbines, solar panels and electric vehicles
- But transitions differ over place and time, and involve many more facets—including other assets, policies and principles
- "Disagreement rages … on the nature of the transition, how it unfolds, how long it takes, and who pays. 'Energy transition' certainly means something very different to [India] than to [the Netherlands]."
  (Daniel Yergin, THE NEW MAP (2020))

Elements of an energy transition

- Renewable generation, of course—onshore/offshore wind, PV/thermal solar, geothermal, hydroelectric, biofuels
- Storage of electricity and heat—mechanical (pumped water, air), chemical (Li-ion and new batteries), thermal, fuel cells
- Transmission and other grid enhancements
- Greening of and efficiency in transportation, industrial and built infrastructure—electric vehicles, smart buildings and more
- Carbon consciousness for fossil fuels in transition—emission reductions, carbon capture, and ongoing non-fuel uses
- Hydrogen of all "colors"—green and blue in particular
- Advanced energy technologies

and

- Equity in the transition—affordable, available, diverse, sustainable, safe, secure, and fairly distributed

(Robert A. James, *Candor, Climate, and the Energy Transition,* JOURNAL OF LEGAL METRICS (2021))

California's power goal lines

Starting point

- California peaked at 50GW, now about 44GW. (Summer 2020 brownouts, 47GW)
- 1500 power plants
- Capacity Gas 41GW, Solar 12GW, Wind 6GW, hydro 12GW and nuclear 2.4GW, maybe 80GW before taking intermittency into account. One coal plant
- 32% of our power is imported:
  - ✓ wind and hydro from northwest via Path 15,
  - ✓ nuclear (Palo Verde, AZ 27% owned by CA), coal (Intermountain and Four Corners owned or operated by CA), hydro (Hoover Dam), gas on Path 66.
- Large transmission bottlenecks and interconnection challenges
- 2.1 GW of storage in operation at beginning of 2020
- One of highest power costs in country, 15-18 cents/kWh

Target goal

- Renewable portfolio standard for investor-owned utilities per SB100:
  50% by 2026, 60% by 2030, and 100% by 2045—but
  some experts: 17-30GW of gas (or hydrogen?) still needed in 2045 to balance grid
- 30 GW utility scale storage, 10 GW distributed storage (SCE)
- From 18GW nameplate solar/wind today to covering an actual load of 87.5GW (after greater EV charging, and retiring nuclear, coal, and most gas)

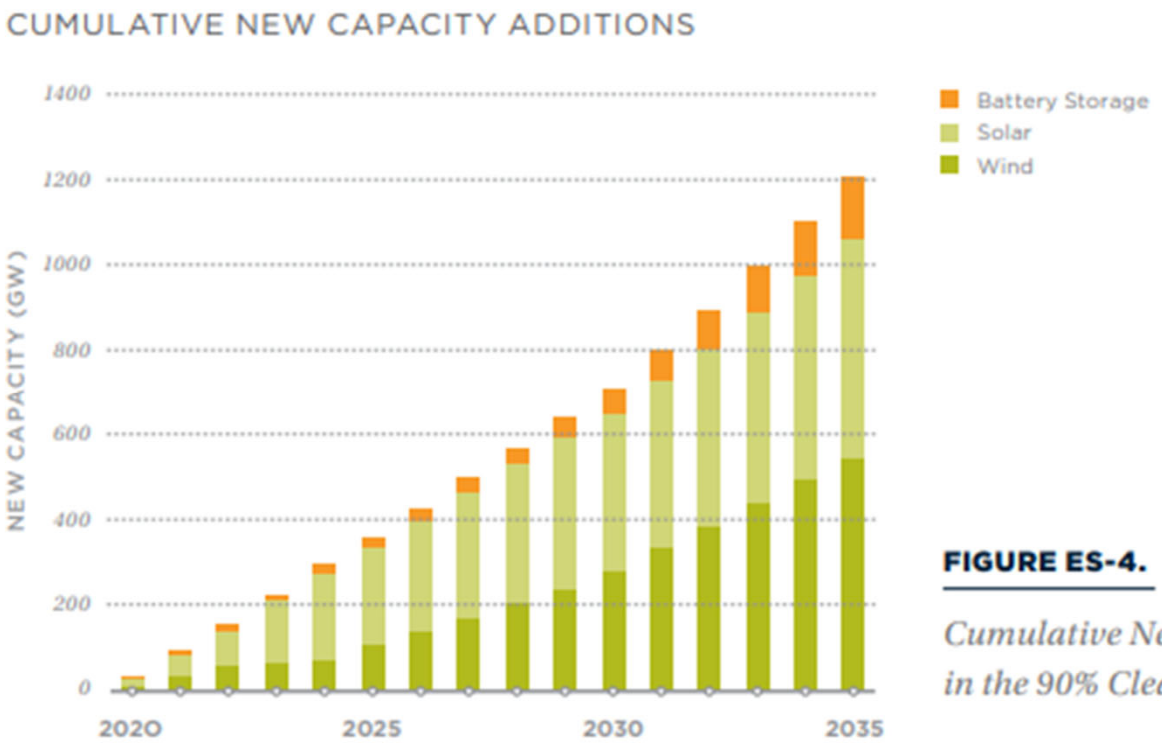


FIGURE ES-4.

Cumulative New Capacity Additions in the 90% Clean Case, 2020–2035

THE 2035 REPORT, Goldman School of Public Policy, UC Berkeley (2020).

California's transport goal lines

Starting point

- 40% of our energy usage
- Starting fuel efficiency: though CA has 6 million more cars than Texas, Texas uses more motor fuels
- CA is half the US EV market, second only to Norway globally
- The existing EV fleet is a storage facility of 4.67GW

Target goal

- Governor Newsom's goal of 100% new ZEV sales by 2035 could increase electricity demand 25%

What would all this take?

- Lots of renewable projects
- Lots of storage projects
- Emergence of "hydrogen cycle" (as storage, as fuel)
- Grid resilience, stability and enhancement
- Huge expansion in transmission infrastructure
- Greening of built infrastructure
- Overhaul of vehicle fueling/charging infrastructure
- Expansion of electric vehicle fleet and functions
- Price signals and subsidies
- Plenty of development and financing incentives

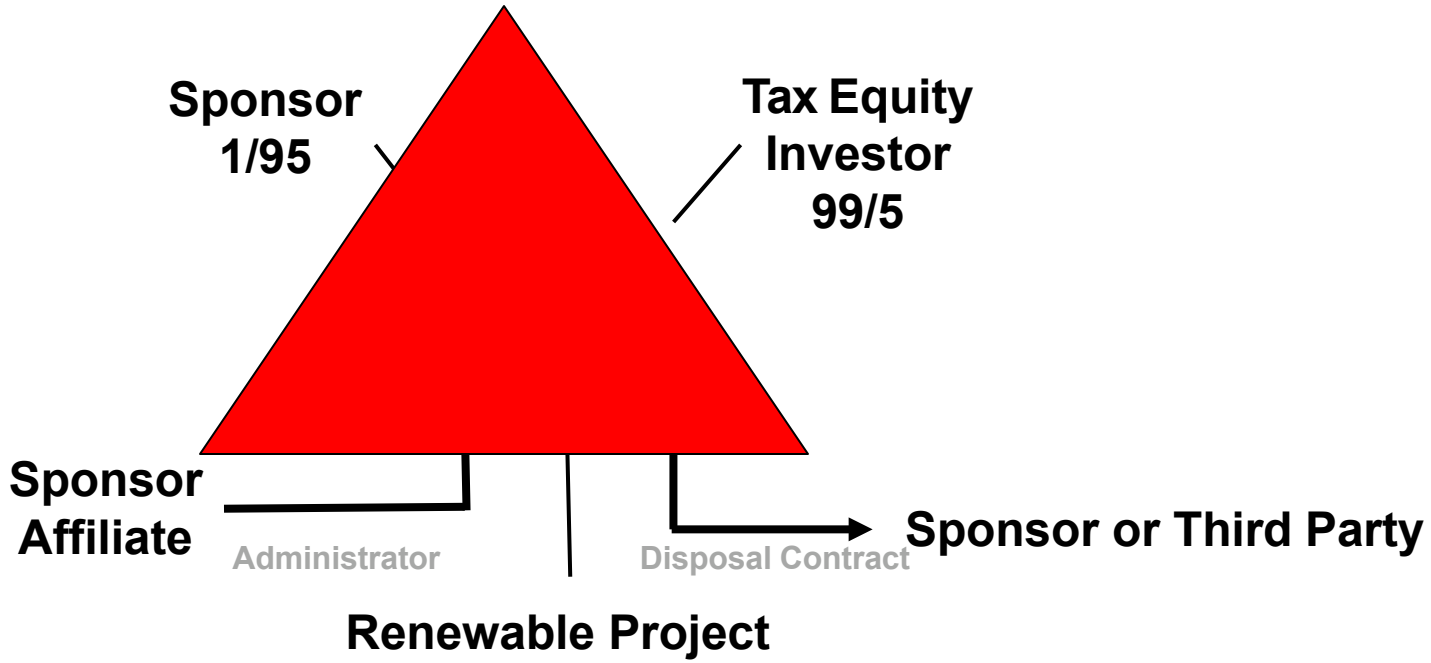
US Federal Renewable Incentives

- The primary federal policy to spur the development of renewable energy is **tax policy**
  - Tax credits
  - Accelerated depreciation benefits
- This policy has been successful but creates inefficiencies because most project developers do not have enough tax capacity to efficiently monetize available benefits. This requires bringing in third parties and causes economic leakage

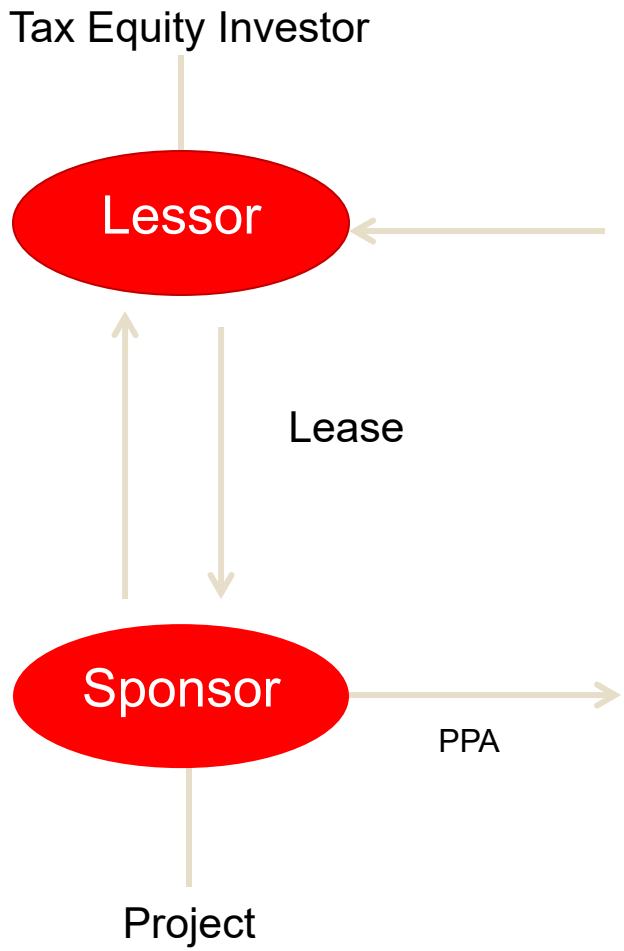
US Federal Renewable Incentives

- **Primary federal tax credits**
  - **Investment Tax Credit (ITC) -** for solar, combined heat and power projects, small wind, microturbine fuel cell projects, waste to energy and offshore wind projects. Based on initial cost basis in the asset. Applicable tax credit percentages vary and step down over time.
  - **The Production Tax Credit (PTC) -** applicable to onshore wind, biomass, geothermal, landfill gas to power, trash to power, hydropower, marine hydrokinetic. Provides a credit over10 years based on energy produced by the project. Currently, projects must start construction by the end of 2021.
  - **Carbon Sequestration Credit-** a production-based tax credit like the PTC. Credit amount dependent on tons of carbon oxide removed and sequestrated over a 12-year period.
- **Accelerated depreciation**
  - Projects generally qualify for accelerated deprecation. For example, wind and solar property can be fully depreciated over 5 years.
  - Projects can also take advantage of bonus depreciation while available.

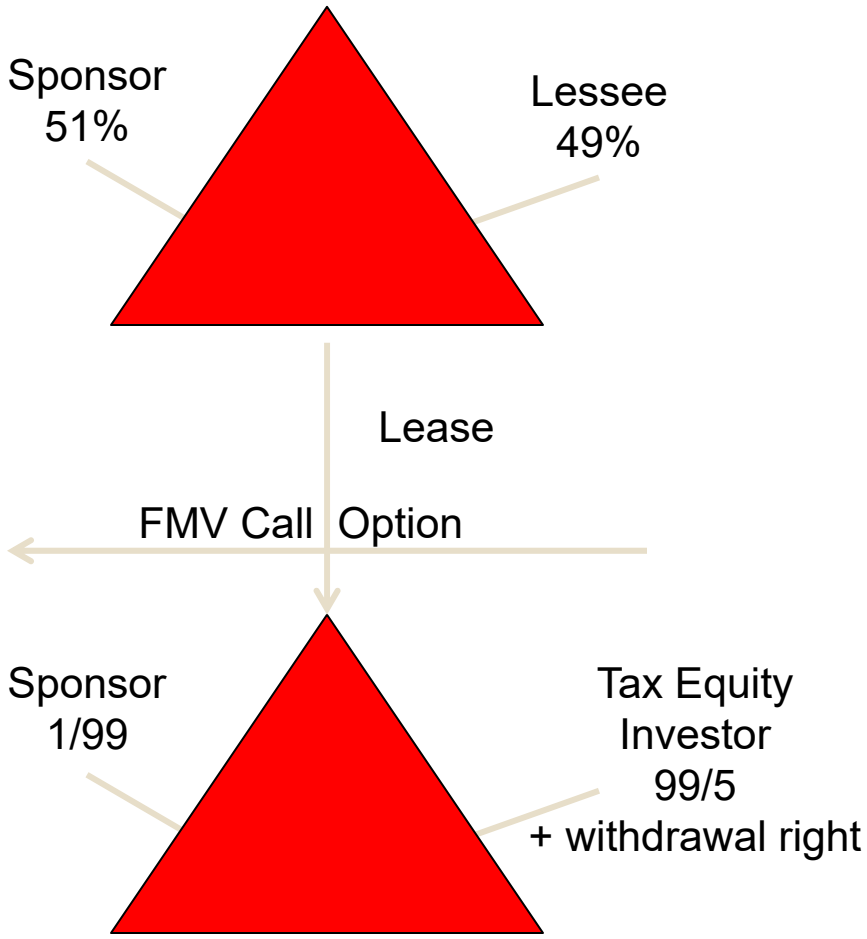
Basic partnership flip



Sale-Leaseback



Inverted Lease



US Federal Renewable Incentives

- **Examples of other federal incentives**:
  - **Qualified fuel cell motor vehicles** (through 2021). A tax credit for purchases of new qualified fuel cell motor vehicles.
  - **Alternative fuel refueling property credit.** (through 2021). A credit for the installation of alternative fuel vehicle refueling property, including ethanol, biodiesel, natural gas, hydrogen and electricity.
  - **Energy efficient commercial buildings deduction** (permanent). A deduction for energy efficiency improvements to building envelope, lighting, heating, cooling, ventilation and hot water systems of commercial buildings.
  - **Biofuel producer credit**. (through 2021). Provides a $1.01-per-gallon income tax credit for second generation biofuel sold at retail, or second-generation biofuel mixtures sold or used as a fuel.
  - **Nonbusiness energy property** (through 2021). A credit for purchases of qualified energy improvements to the building envelop of principal residence.
  - **Two-wheeled plug-in electric vehicle credit** (through 2021). A credit for certain highway-capable, two-wheeled plug-in electric vehicles.
  - **Energy-efficient homes credit**(through 2021). A credit of up to $2,000 for qualified new energy-efficient homes.
  - **Excise tax credits for alternative fuels** (through 2021). A $0.50-per-gallon excise-tax credit or payment for alternative fuel and $0.50-per-gallon credit for alternative fuel mixtures.
  - **Residential energy credit**. Extends the credit for residential energy efficiency property at the current 26 percent rate for property placed in service through 2022, reduced to 22 percent for property placed in service in 2023 before expiration.

California Incentives

- California Renewable Portfolio Standard
- California Lower Carbon Fuel Standard (LCFS) credits
- Self Generation Incentive Program
- Local utility rebates and incentives
- Property tax exclusion (solar)

Solar Incentives, Tax Credits, and Rebates in California

Incentive	Value
ITC	The 26% federal solar tax credit is available for purchased home solar systems installed by December 31, 2022, dropping to 22% in 2023, with a 10% credit in 2024 onward for commercial and third party owned.
Self-Generation Incentive Program (SGIP)	Rebate for buying and installing a battery along with solar. Varies by utility and storage capacity.
Solar Energy System Property Tax Exclusion	Property tax exclusion on the added solar system.
Affordable Solar Housing (SASH/MASH)	Qualified low-income households/multifamily housing can receive a cash incentive for every kilowatt (kW) of solar power installed.
Local Utility Company Rebates	Cash incentives for installing solar panels in California. Varies by utility, once widely available but now mostly phased out.

California LCFS incentives

- The LCFS program in California is a regulatory incentive program designed to encourage the use of cleaner, less carbon-intensive vehicle fuels.
- Each supplier of vehicle fuels in California is required to achieve a "benchmark" standard of "carbon intensity" of the fuels it supplies in the state.

How LCFS operates

- A supplier may do this either by producing or importing fuels that meet the benchmark, or by buying LCFS credits.
- Because conventional fuels have carbon intensity values well above the benchmark, the only options for fuel suppliers to meet the requirements are (1) supplying alternative fuels as a significant percentage of total fuel supplied, or (2) buying LCFS credits.

How credits are calculated

- Credits are generated by using fuels that has assigned a specific carbon intensity value, considering the lifecycle greenhouse gas emissions of the fuel.
- Fuels with a carbon intensity value below the benchmark generate LCFS credits, equal to the number of metric tons of CO_2e below the benchmark attributable to the fuel.

Credit values

- The LCFS credits have significant value
  - For example, in early 2019, the average prices were $190 (January), $186 (February), $188 (March) and $180 (April) per credit.
  - Monthly volumes ranged from 548,000 credits to approximately 1.7 million credits.

Self Generation Incentive Program

- CA's Self-Generation Incentive Program (SGIP) provides incentives to support existing, new, and emerging distributed energy resources.
- SGIP provides rebates (paid through the utilities) for qualifying distributed energy systems installed on the customer's side of the utility meter.
- Qualifying technologies include waste heat to power technologies, pressure reduction turbines, internal combustion engines, microturbines, gas turbines, fuel cells, and advanced energy storage systems.

Self Generation Incentive Program

- Developers must apply for SGIP rebates
- SGIP rebate amounts vary by technology but are very generous
- There are certain strings attached, including ongoing reporting requirements
- Over $1 billion dollars is allocated to SGIP through 2024 but portions are allocated to specific purposes, so availability can be uneven depending on technology and expected use.

Further incentives that would help

- Carbon tax
- Direct assistance (e.g., loan, grants)
- Utility recovery mechanism
- Federal tax incentives for battery storage and hydrogen
- Allowing federal tax credits to be cash refundable

Financing the energy transition

- What types of projects
  - Renewable generation and storage
  - EV infrastructure
  - Hydrogen production
  - Energy efficiency
  - Transmission

Financing the energy transition

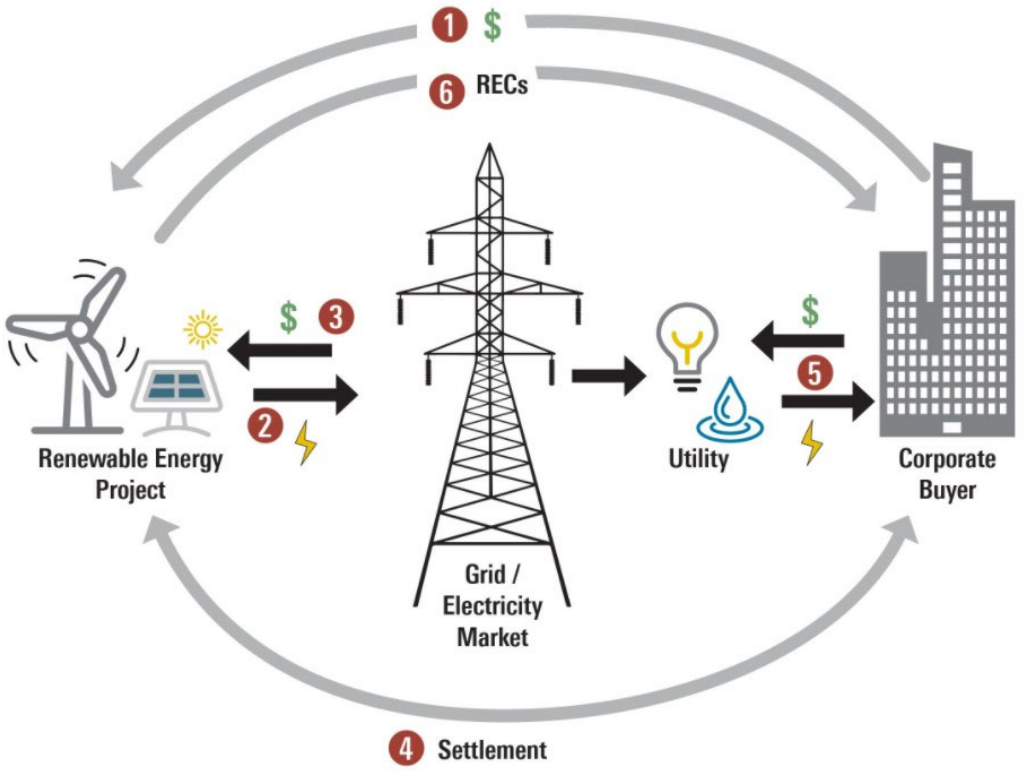
- What are the private sources of capital:
  - Tax equity (mostly banks)
  - Debt
    - Back-leverage
    - Securitizations
    - Green bonds
    - Pace Financing
  - Private Equity/Pension Funds
    - Cash equity
    - Investment in developers
  - Yieldco/Public offerings
  - REITs/MLPs
    - Potential is often discussed but can only play a limited rule because of federal rules that limit their participation
    - Can have certain involvement, such as owning/financing underlying land
    - Could play bigger role in transmission

Developing California energy

- Either here, or in nearby states with debottlenecked transmission?
- Land assemblage
- Land use, species
- Interconnection
- Transmission
- Panel/turbine procurement
- BOP EPC
- Coupling with storage for baseline needs—location?
- Generation of green hydrogen during curtailments?

Banking on California energy

- Physical delivery Power Purchase Agreements
- Virtual or synthetic Power Purchase Agreements



Entitlements

The permits and approvals: a CCS example

- *County or city:* conditional use permits, EIR/EIS process under NEPA/state law
- *State water quality agency:* waste discharge permit, NPDES
- *Energy commission:* power plant siting license
- *Public utilities commission:* rate recovery, pipeline approvals, CPCNs, safety
- *State air agency:* qualification for LCFS, AB32/SB32, other incentives
- *Local air agency:* authority to construct, permit to operate
- *State water rights board:* water rights, saline injection well permits
- *State oil and gas agency:* injection wells, EOR permits
- *State fire marshal:* potential jurisdiction over CO_2 pipelines
- *EPA:* Class VI sequestration CO_2 injection well permits (40 CFR 146)

California Carbon Capture and Storage Review Panel, December 2010 Recommendations

Budgeting California projects

INITIAL CAPITAL COST ACCOUNTS FOR SOLAR PROJECT DEVELOPMENT

PV panels and modules
Balance of System hardware (inverters, racking, electrical)
Soft costs
- Customer acquisition (Lead generation, bid prep, contract negotiation)
- System design
- Permitting, inspection and interconnection (PII)
- Finance costs
- Transaction costs (legal, warranty, insurance)

Installation costs
Operation & maintenance costs
Indirect corporate costs
Supply chain costs
Sales tax
Installer/developer profit (a residual category)

Policy wishes

- Living with CEQA
- Consolidation of permitting—California Energy Commission or other de-balkanization
- Streamlining transmission and interconnection
- LCFS expansions or clarifications
- Western Region-alization of power grid
- Incentives for private investment in infrastructure
- Looking at the entirety of ***California's*** energy transition

CLE Code

Thanks!

- Rob James
  - +1.415.983.7215
  - rob.james@pillsburylaw.com

- Jorge Medina
  - +1.213.488.7117
  - jorge.medina@pillsburylaw.com