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Renewable Energy Projects: Negotiating Power Purchase Agreements

Structuring Terms to Meet State and Federal Renewable Power Standards and Address Related Risks

TUESDAY, NOVEMBER 2, 2021

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Renewable Energy Projects: Negotiating Power Purchase Agreements

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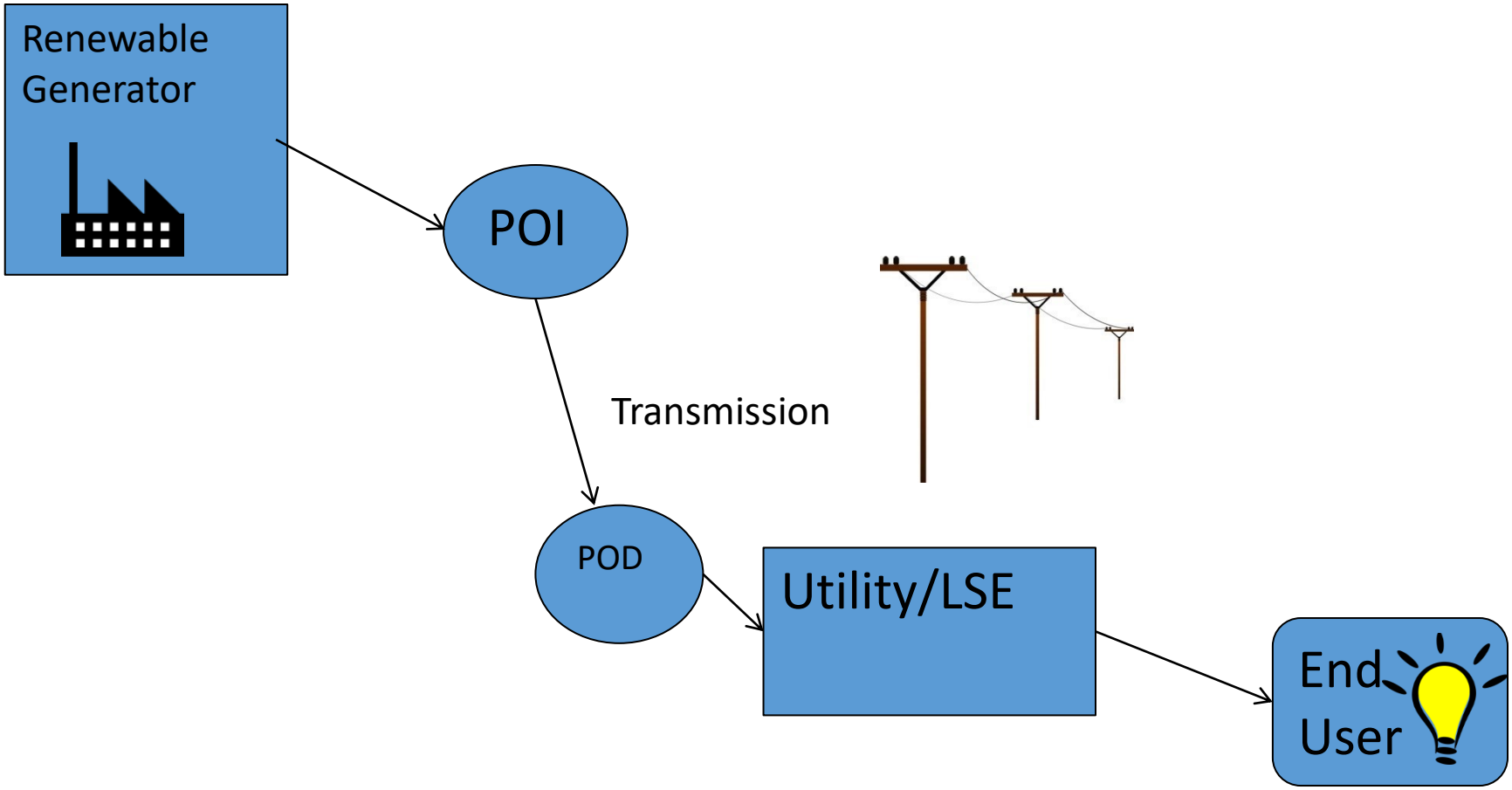
Introduction – What is a PPA?

A Power Purchase Agreement (PPA) is a bilateral legal contract between a power generator (Seller/Owner) and a power purchaser (Buyer/Offtaker) pursuant to which the Buyer purchases electric energy and related products from the Seller.

The Basic PPA



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Introduction – What is a Renewable PPA?

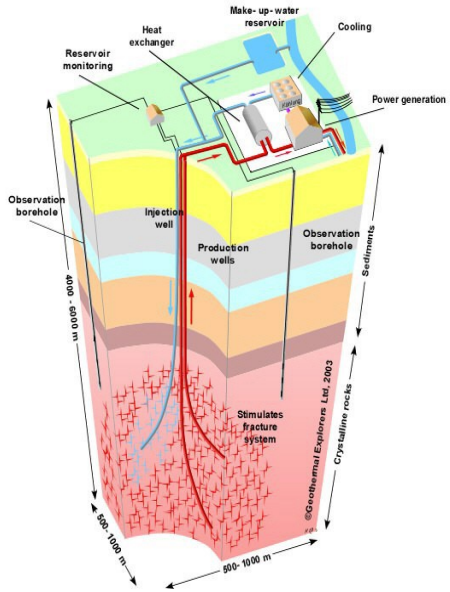
A power purchase agreement relating to a renewable electric generating facility:

- Wind, solar, biomass, geothermal, etc.
- Wholesale vs. Retail
- Physical delivery vs. Financial settlement
- Environmental attributes/renewable energy credits

Renewables: Not Created Equal

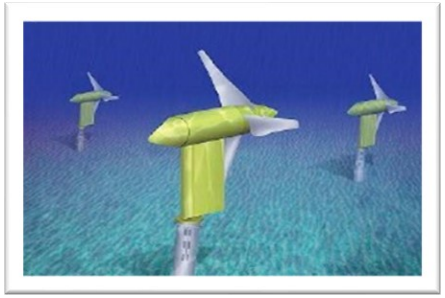
Wind

Biomass



Geothermal

Low-Impact Hydro



Tidal

Solar

Landfill

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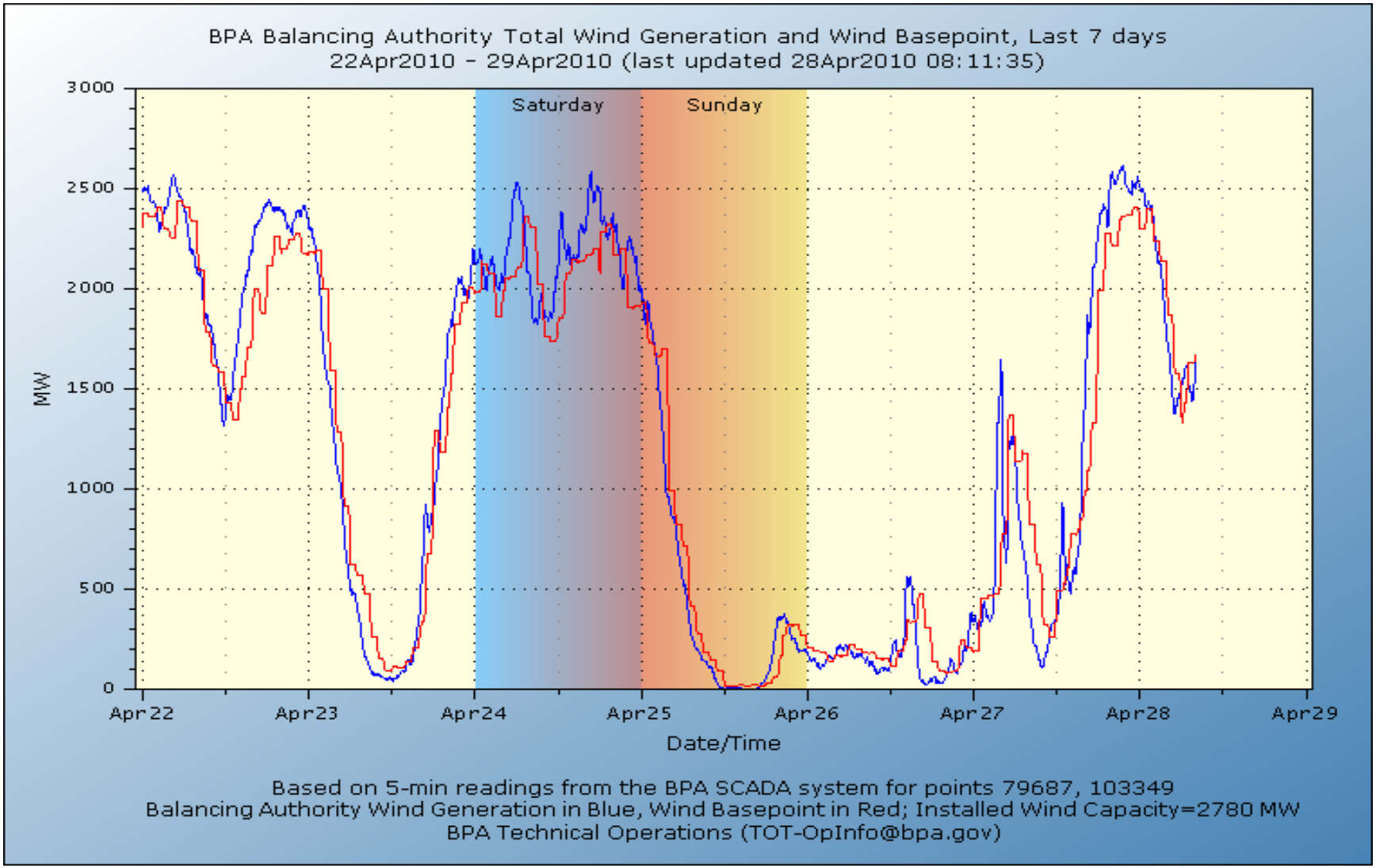
Multiple Outputs

- Electricity
  - ❖ Point of Delivery
  - ❖ Output Guarantees & Degradation
  - ❖ Price Index & Escalation
  - ❖ Ancillary Services
  - ❖ Electricity storage
- State and Federal Tax Incentives
- Renewable Energy Credits

Renewable PPAs vs. Thermal PPAs

- Increase in Variation
  - Size/scale
  - Types of offtaker
  - Types of technology
  - Physical/financial
- Change in Law/Market Rules/RPS
- Tax Issues
- Retail Sales



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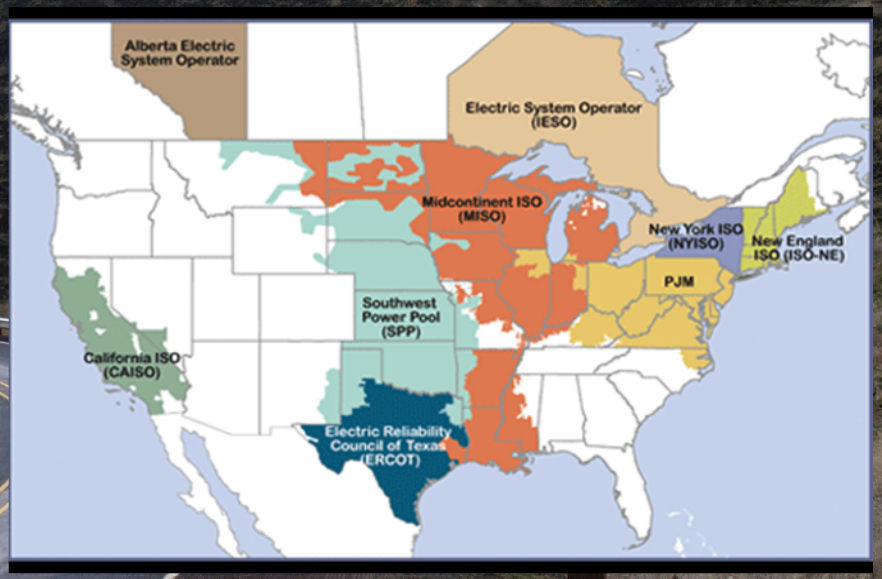
Transmission & Delivery

- Uniqueness of Electricity
- Interconnection
- Transmission Rights
- Net Metering/Behind the Meter
- Balancing Reserves & Ancillary Services

Regulatory Landscape

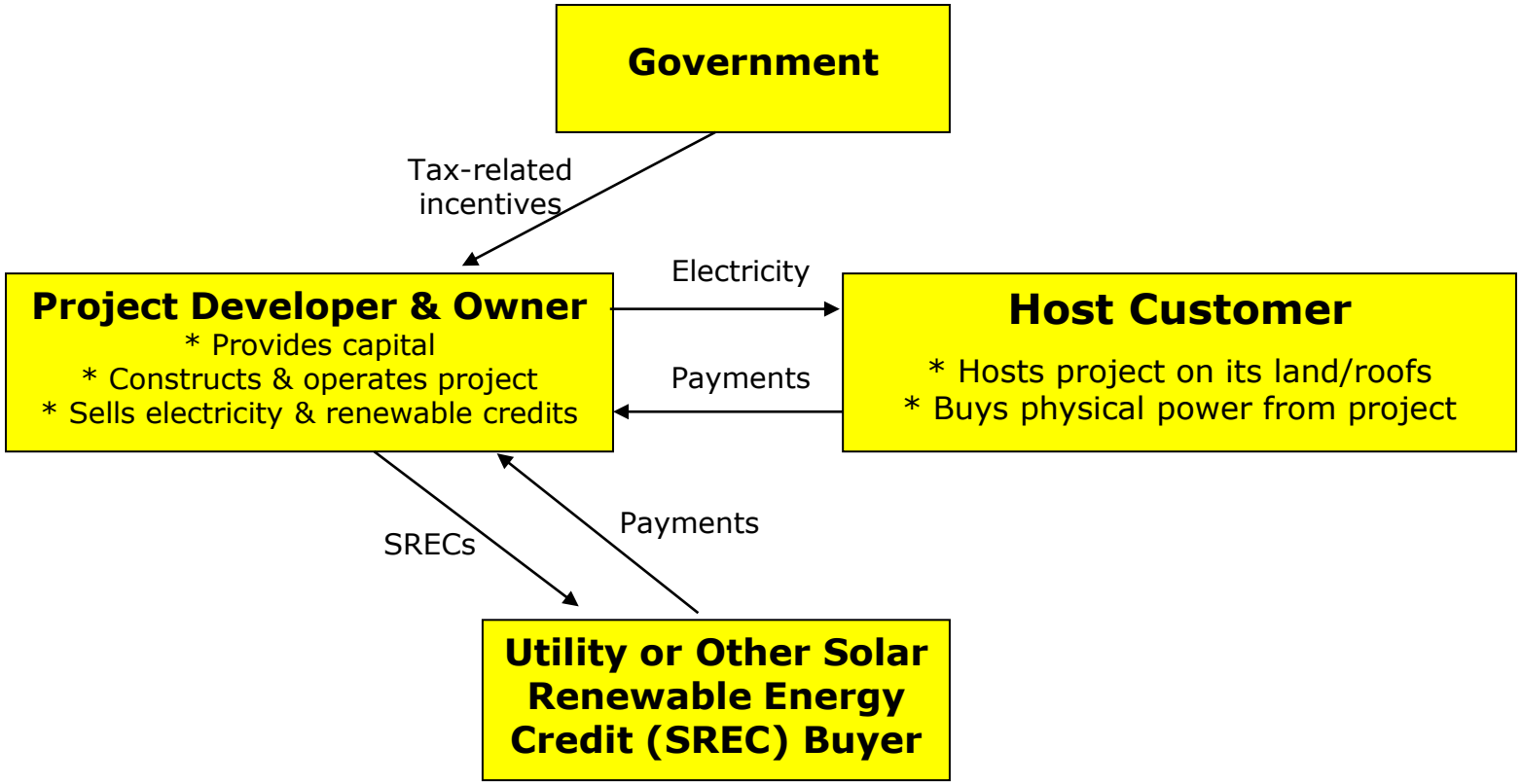
- FERC & Open Access
- State Regulation & Retail Access
- ISOs & RTOs
- Investor-Owned v. Publics
- Federal PMAs
- PURPA
- Renewables Mandates



Distributed or Behind-the-Meter Generation

- Under a power purchase agreement, a private entity (or group of developers, construction contractors, and finance companies) typically installs, owns, operates and maintains a renewable energy project "behind the meter" on a customer's site.
- Customer purchases electricity or thermal energy through a long-term contract with fixed energy pricing (either fixed for the term, or rising each year at a pre-determined rate). Payment is only made for thermal or electric energy actually delivered.
- Private ownership of the renewable energy equipment enables the project to qualify for federal and state tax incentives unavailable to non-taxpaying entities.

Fund Flow for Distributed Generation



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Key Elements of On-Site PPAs

- Usually (but not always) solar
- Site control will be provided by a lease or by a license (which is sometimes embedded in the PPA)
- PPA—includes customary provisions concerning performance standards, milestones, default, lender protection, ITC protection
- Site host will want approval rights over design of system (particularly if located on a rooftop)
- Site host may require system owner to interrupt operations to address safety issues (e.g., fires)

Key Elements of On-Site PPAs

- RECs—if Seller reserves SRECs in a state with high SREC prices, PPA must be clear that host cannot make claim to be using "renewable energy" (double counting) *unless* substitute RECs are supplied from another source (arbitrage)
- Solar + storage
  - Storage eligible for ITC if properly integrated with and charged by solar (significantly limits ability to charge from grid during 5 year recapture period)
  - Storage often used for demand charge management but can be used for backup supply, delivery of ancillary services, or other purposes

Primary Obligations under Renewable PPAs

- Provider typically has obligation to finance and construct project, operate, and deliver energy
- Minimum outputs may be specified (failure to deliver results in penalties or "make whole"— *cf.* availability guarantees used in corporate PPAs)
- Customer has obligation to take and pay for all power delivered
- Ownership of renewable energy attributes (RECs or SRECs) is negotiable – may be sold "bundled" through PPA or "unbundled" from energy output
  - NOTE: PURPA does not require offtaking utilities to purchase environmental attributes.

Role of PPA in Financing

- Project Finance 101
  - Limited recourse
  - Renewables require more intercreditor arrangements
  - PPA is the *key* project document – source of long-term cash flow
- Key PPA Issues in Financing
  - Term of PPA must support term of financing
  - Buyer/Offtaker must be creditworthy
  - Curtailment
  - Fuel/weather risk
  - Force Majeure risk

Why's & How's of PPAs

Why

- Moves construction, development, operations & financing burden to third-party
- Maximizes financial and tax incentives
- Public-private collaboration possible
- Facilitates renewable energy development that may not otherwise occur, providing environmental, educational, financial, economic development (e.g., green jobs) benefits to the community

How

- Competitive procurement (RFP or RFQ/RFP)
- Specific project or open invitation to bid
- Add-on through master energy performance contracts
- Alternatives: customer may propose key terms or seek form PPA from provider

Private/Public/Other PPAs

- Understanding Limitation of IOUs
- Renewable Auctions
- Energy Service Providers (ESPs)
- Community Choice Aggregators (CCAs)
- Municipal Electric Utilities
- Over the Fence Buyers
- Corporations
- Combinations of the Above

Risks to Consider

Risk-Sharing

- Risk to public property
- Project completion risk (interconnection delays)
- Schedule risk
- Losing financial incentives (grants, rebates)
- Change in law (e.g, Sec. 201 tariffs, anti-dumping & countervailing duty petitions, forced labor in China)
- Loss of use of project site by Customer (convention center)
- Decrease in solar resources (allowing a building to block sun)
- PPA must continue through financing term
- Risk of lower future power prices

Documentation Options

- Structured or bespoke agreements
- Industry-standard agreements:
  - ISDA
  - EEI
  - WSPP
  - NAESB (for biogas)

Key Renewable PPA Issues – Green Attributes

- Many names for similar concepts:
  - Green Attributes, Environmental Attributes, Renewable Energy Credits, Renewable Energy Certificates
- Depend on the location of the project and available tracking programs
- Promotional materials/publicity: *the ability to claim the use of "renewable energy" follows the RECs*
- REC Arbitrage
- Other issues

State Renewable Portfolio Standards

FIGURE 1.

STATES THAT HAVE PASSED 100% CLEAN ENERGY POLICIES OR OTHER RENEWABLE ENERGY TARGETS

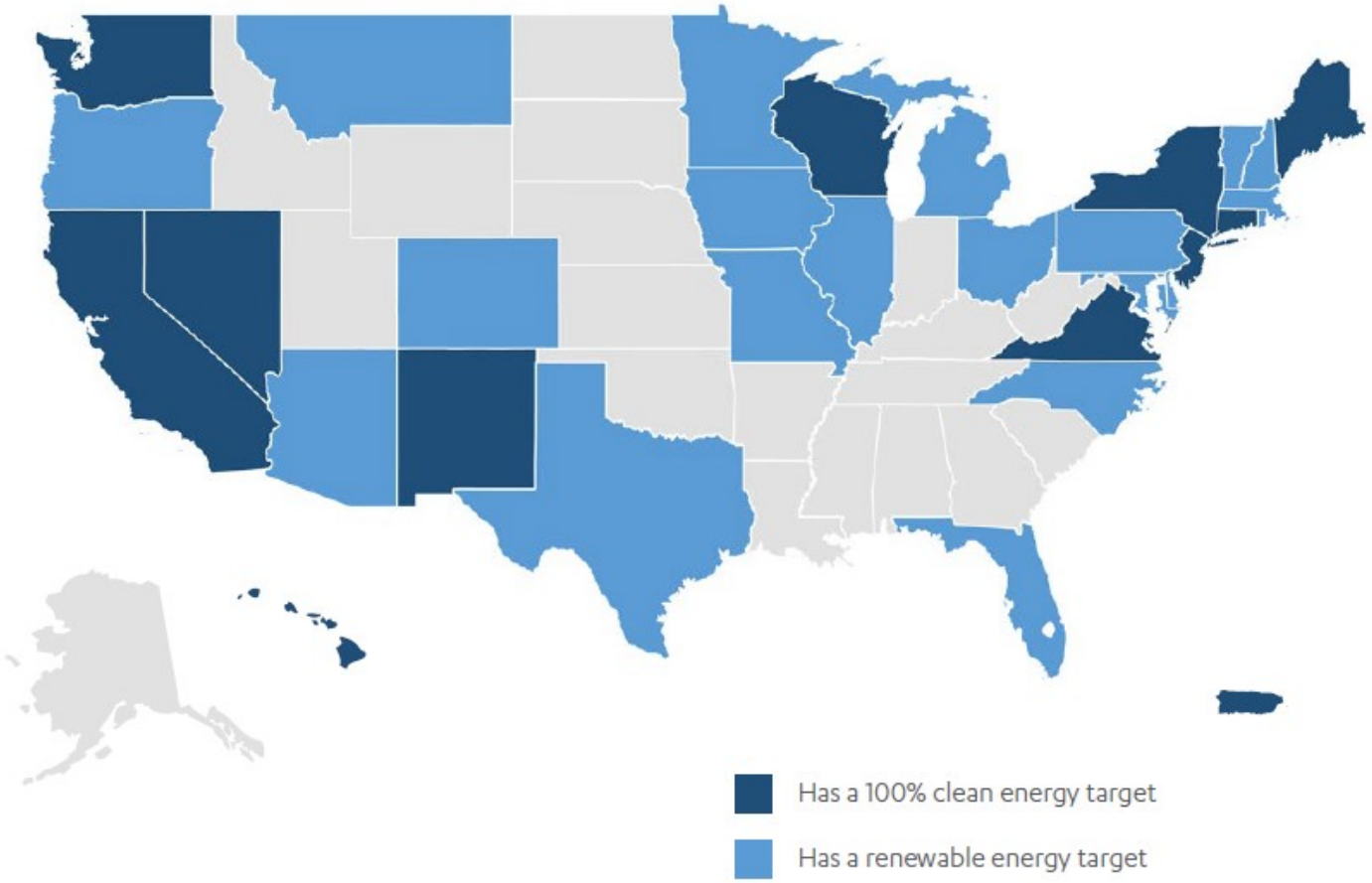


Figure 1. Adapted from “Progress Toward 100% Clean Energy in Cities & States Across the U.S.,” by UCLA Luskin Center for Innovation (2019)

Key Renewable PPA Issues – Term & Termination

- Term: length, renewals, extensions
- Completion schedule/Failure to achieve key milestone or COD
- Other termination rights and remedies
- Right to purchase the project? *Any purchase option must be at fair market value and designed to preserve tax credits & depreciation.*
- For distributed generation, if no purchase, removal/remediation.

Key Renewable PPA Issues – Pricing & Production Risk

- Output guarantees
- Availability guarantees
- Penalties/liquidated damages
- Curtailment—Seller risk or buyer risk?
- Scheduling

Key Renewable PPA Issues – Ownership

- Project Owner as compared Power/REC Offtaker
- Tax Issues
  - Control, risk of damage, benefits & burdens of ownership
  - Risk of re-capture
- Distributed generation

Regulatory Compliance

- Reliability Compliance (NERC/WECC)
- State Utility Regulation

North Carolina ex rel. Utilities Comm'n v. NC WARN, N.C. Court of Appeals, Sept. 19, 2017 (non-profit selling output of solar panels to church is a "public utility" subject to NCUC regulation).

- FERC & Wholesale Market Regulation
- FERC & Transmission Regulation

Renewable PPA Issues – Lenders

- Step-in rights for lenders to operate project
- Consent to assignment of PPA
- Results of customer default for distributed generation (requirement to remain in place or be removed – at whose cost?)
- Financing lien on system property (the project – not the underlying real property, land, or other improvements)
- Documents recorded in full or in memorandum form

Key Renewable PPA Issues – PURPA

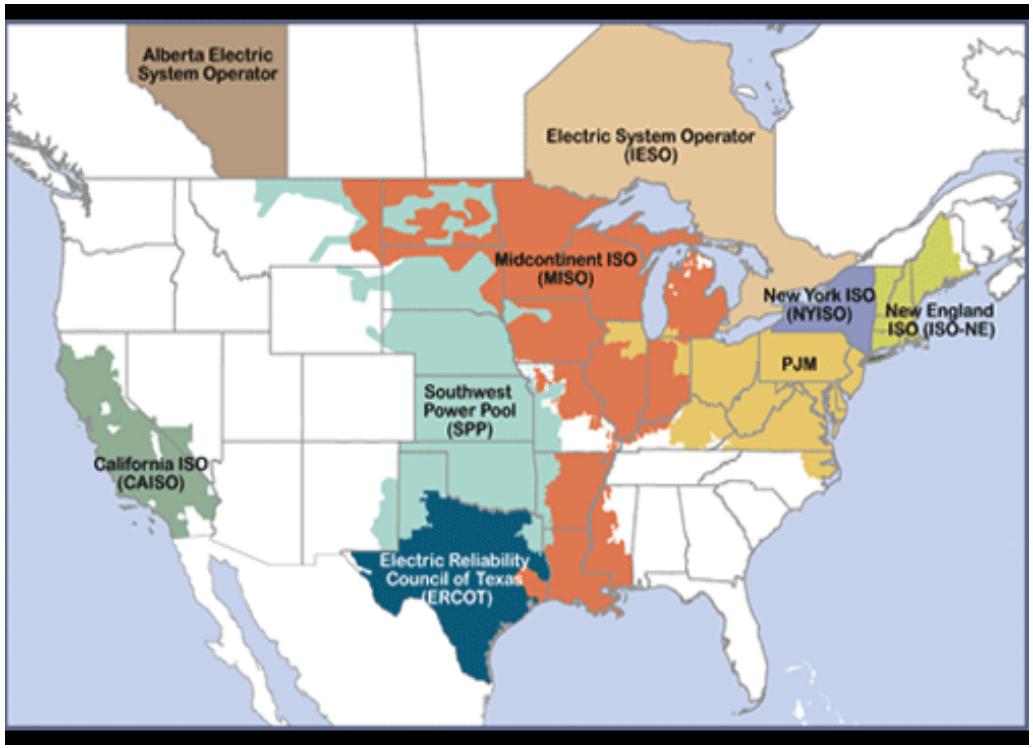
- Current status and issues
- Continuing efforts to change the law, regulations
- State efforts
- Federal efforts

Solar-Specific Issues

- New solar panel tariffs
  - Impact on market segments – utility-scale v. residential
- Rooftop solar issues
  - Net metering, rate structure, storage
- Community solar issues
  - State regulatory approaches, schedule (regulations keeping up with developers?)
- Hybrid solar + storage
  - Tolling agreement structure
  - ITC preservation issues

Corporate PPAs and Hedges

- Two-thirds of power consumed in the US is located within areas that are served by the seven major regional power markets.



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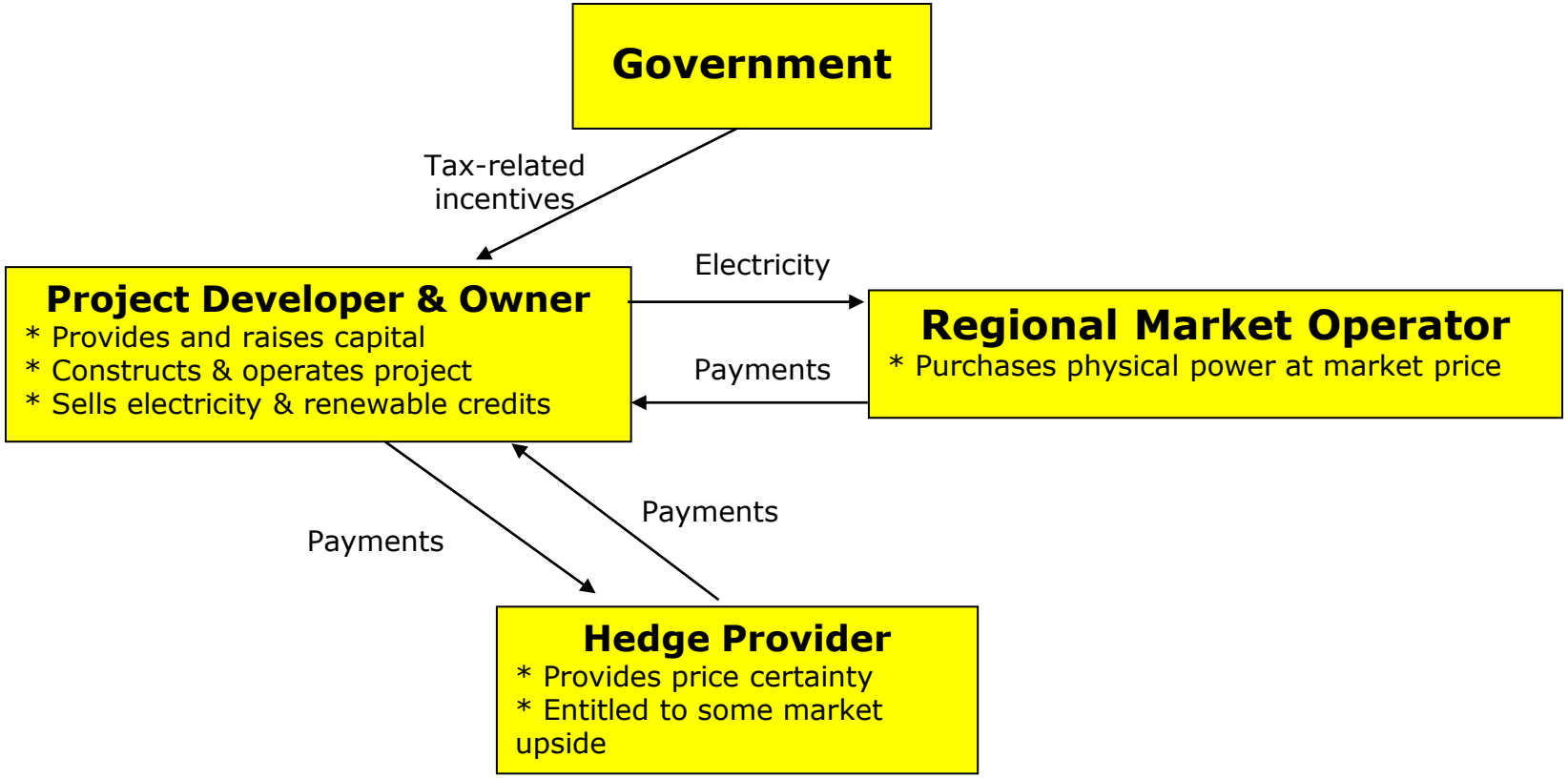
Corporate PPAs and Hedges

- Regional power markets provide opportunities for financial/virtual/synthetic PPAs, including with corporate offtakers or hedging counterparties (e.g., strategic marketing arms or banks).
- Commodity hedging is a risk management tool that allows the owner of a power generation facility to protect itself (and its lenders) from some portion of market risk.
  - Power prices can be volatile for a variety of reasons: time of year, time of day, availability of fuel, extreme weather, outages, events, etc
- Requires that the owner give up some amount of potential upside to the hedge counterparty.
- Typically financially-settled.
- Increasing variation.
- Common issues:
  - Basis risk between interconnection point and settlement point
  - Unit contingency or proxy generation
  - Credit support

Corporate PPAs and Hedges

- VPPA structure predominates, but
  - Some corporations are able to transact for physical delivery through a service provider (in states that permit direct access)
  - Some corporations are able to procure renewable energy through "green tariff" arrangements under which corporation buys electricity and RECs from a utility, which enters into a back-to-back PPA with a project developer
  - Smaller enterprises may purchase "bill credits" under community solar arrangements, but these usually do not include RECs
- "Reputational risks" are an important concern of corporate offtakers
- Developers are seeking broad "conditions precedent"(CPs) to account for tariff or supply chain risks, but corporate offtakers with publicly stated renewable energy procurement or net zero goals resist these
- Force majeure:
  - COVID-19, epidemic/pandemic
  - Cybersecurity risks and payment obligations
  - Interconnection delay risk better dealt with in an excused delay provision
  - Change of Law better dealt with in specific change of law clause

Fund Flow for Financial/Virtual/Synthetic PPA



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Fitch Ratings Financial Metrics Guidance

	Fully Contracted				Fully Merchant
Technology	**'A–'**	**'BBB–'**	**'BB–'**	**'B–'**	**'BBB–'**
PV	1.40x	1.20x	1.10x	1.00x	≥1.60x
Wind	1.50x	1.30x	1.15x	1.00x	≥1.70x
CSP	1.60x	1.40x	1.20x	1.00x	≥1.80x
Hydro	1.50x	1.30x	1.15x	1.00x	≥1.70x

Source: Fitch Ratings Webinar: Coronavirus and fully merchant projects, May 2020

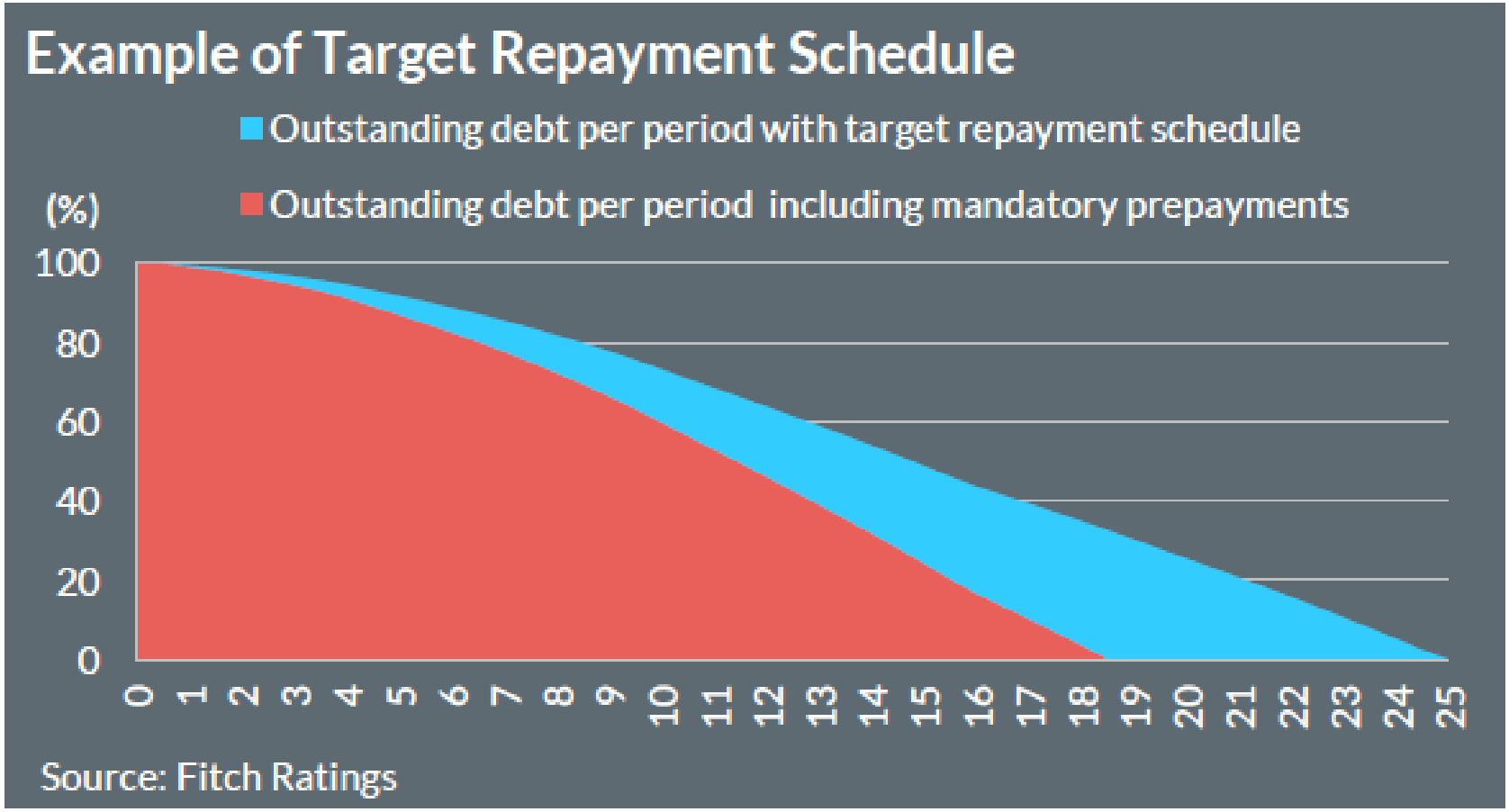
Merchant Tail Risk v. Merchant Projects

- Merchant tail - future power sales after contract term
  - Power is sold into the wholesale market
- Limited number of lenders / investors value the "merchant tail"
  - Term loans with maturity dates beyond the PPA termination date
- Higher DSCR than required with contracted revenue - future merchant cash flows more heavily discounted
- Intermittent resources (wind and solar) can impact wholesale power prices (e.g., ERCOT wind markets)
- Tax equity implications on fully merchant deals
  - Less leverage with no tax equity but no recapture or indemnity sweeps

Debt Structures Mitigate Power Price Volatility

- Improved **Reserve** Coverage
- Higher **Lock-up Ratios** (forward and backward looking DSCR's, loan life coverage ratios)
- **Cash Sweeps**
  - Power price levels used in cash sweep provisions
  - Forward and backward-looking tests using clear power price indexes (defined forward prices) and actual prices
  - Using actual captured prices rather than indexes only protect lenders (prices are not specific to individual technologies)
- Bullets **repaid with cash sweeps** in the event of lower prices than forecast
- Target repayment schedules
- Rolling forward contracts (fixed price forward contracts) – available for short- to medium-terms
  - Short-term forwards provide little protection to lenders, though requirements to enter longer-term forwards triggered by lower prices could improve risk profile

Debt Repayment with Cash Sweeps



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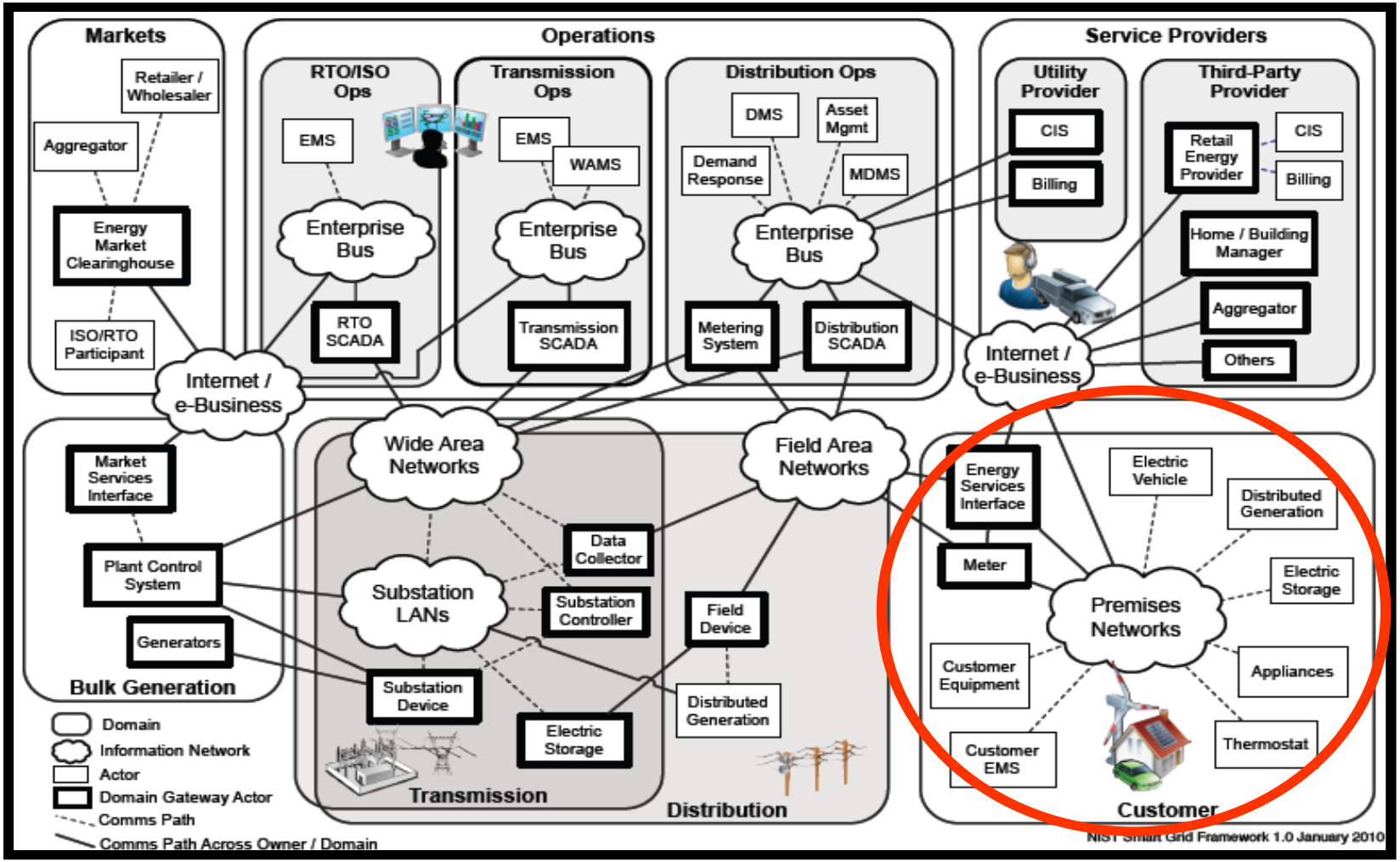
PPAs and the Future



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Suddenly, knowing a lot about the U.S. power grid became sexy at cocktail parties.

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