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Post Award Third Workshop: Comparing Other States' Mechanisms for REC Contracts

September 30, 2024

Agenda

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1. RPS Budget Update
2. Comparing Other States' Mechanisms for REC Contracts
    1. New York
    2. New Jersey
    3. Massachusetts
    4. Connecticut
    5. Rhode Island
3. Q&A

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Overview of the Structure of the Illinois RPS Budget

Quick History of the RPS Budget

- **Three Major Phases**
  - **2007-2016: Initial RPS**
  - **2017-2021: Future Energy Jobs Act**
  - **2021-present: Climate and Equitable Jobs Act**

- **Illinois RPS established in 2007**
  - **Initially only applied to default service customers**
    - Set at 2.015% of retail per kWh charge from May 2007
  - **Obligations for Alternative Retail Electric Suppliers added in 2009**
    - Requirements for ARES to procure RECs and make payments into the Renewable Energy Resources Fund
  - **Year to year budget uncertainty due to customer switching**
    - Rise of municipal aggregation resulted in significant decline in the number of default service customers (and thus available funds)
    - Other than 2010 Long-Term Power Purchase Agreement Procurement, RECs were purchased on an annual basis from spot markets

Future Energy Jobs Act (2016)

- Focus changed to spurring new development through REC procurements
  - Competitive procurements for utility-scale wind/solar/brownfield
  - Programs for Distributed Generation and Community Solar
- Consolidated funding (phased-out ARES RPS requirements)
  - ~$230 million/year collected from ratepayers
- Did not create specific funding buckets for various categories of RECs (e.g., utility-scale vs. distributed generation/community solar)
  - Utility-scale projects supported by fixed REC price contracts through competitive bidding
  - Distributed Generation and Community Solar supported through administratively-priced RECs
  - Details set out in IPA's Long-Term Renewable Resources Procurement Plan
- Four-year initial roll-over of collected funds, then annual reconciliations
  - COVID disrupted project development timelines leading to "funding cliff" in 2021

Climate and Equitable Jobs Act (2021)

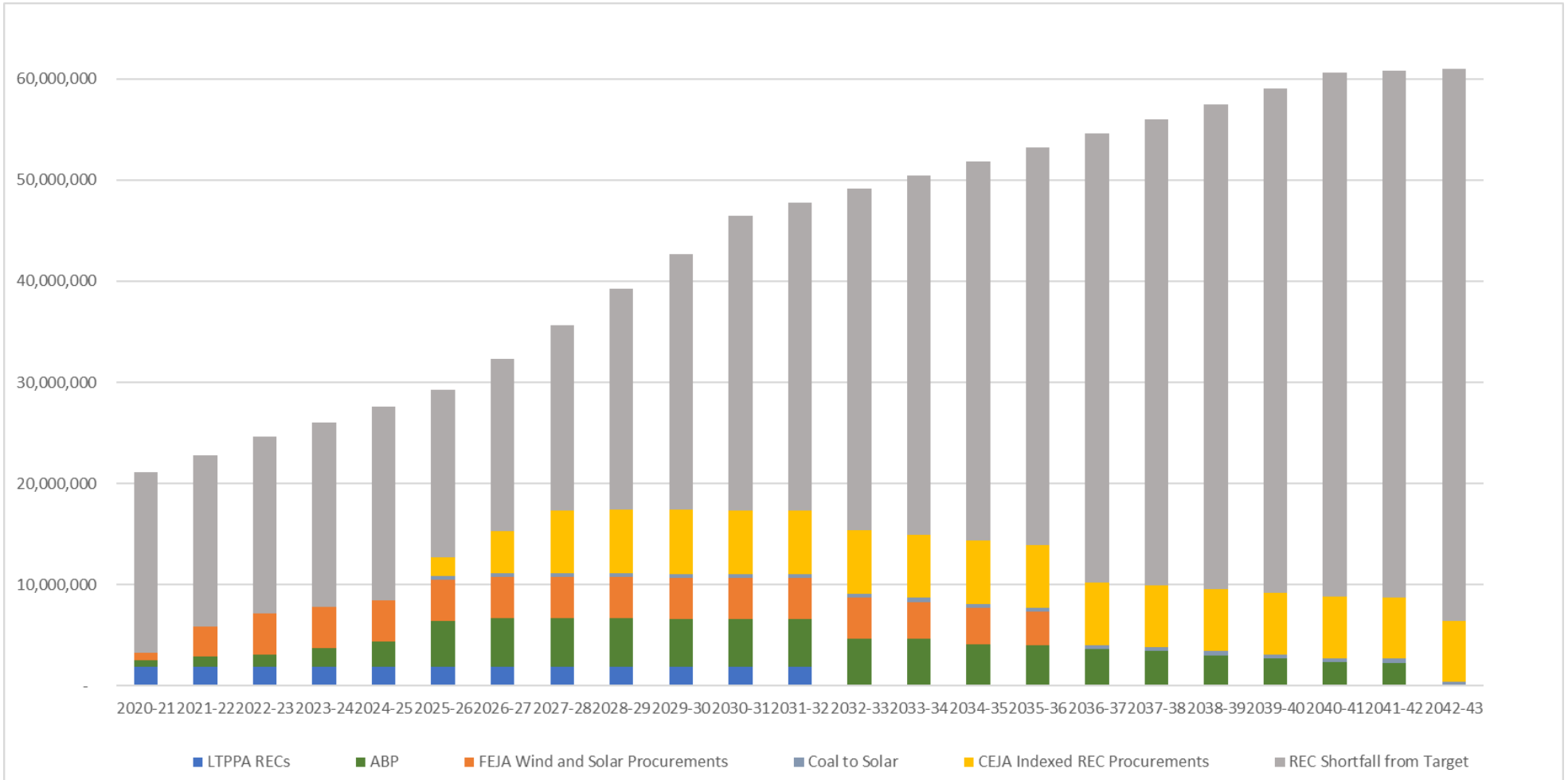
- Increased funding collection rate
  - Rate cap increased to 4.25% of retail per kWh charge from May 2009
  - ~$580 million/year collected from ratepayers
- Five-year first-in/first-out accounting paradigm
  - Any refunds to rate payers would be reduced the amount of existing contractual obligations
- Competitive procurements for utility-scale wind/solar/brownfield based on Indexed REC price model
  - REC price is the difference between the strike price bid and the wholesale price of electricity for the given delivery month
  - Introduced revenue certainty for projects, but created budgeting uncertainty

Unpacking the RPS Budget

- **Chapter 3 of the Long-Term Renewable Resources Plan contains detailed discussion of the RPS Budget**
  - **Details included in Appendix B spreadsheet**
  - **Current and prior plans available at: ipa.illinois.gov/renewable-resources.html**
  - **2024 Long-Term Plan published in April 2024**
- **IPA currently preparing an update to the RPS Budget**
  - **Expected to be released in mid-October; quarterly updates after that**
  - **Preliminary data on following slides**
  - **Key changes from the April release**
    - Updated volumes of RECs under contract
    - **Updated forward price curve**
    - Additional information on obligations from RECs under contract and expected from activities authorized by the 2024 Plan, and those that would be approved in future plans

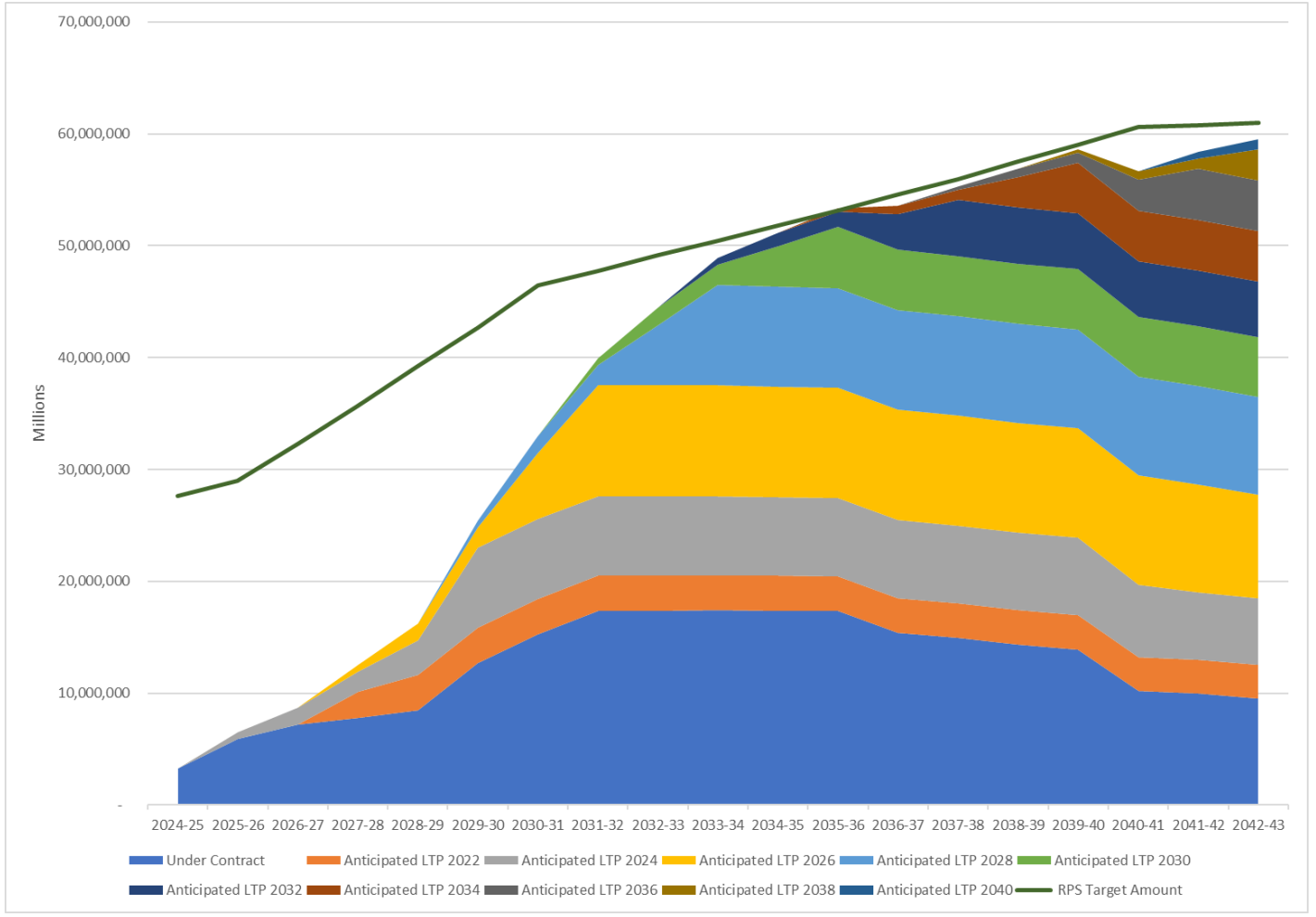
Where are the RECs Coming From?

- RECs currently under contract (and shortfall from RPS Target)
  - Does not include any projected activities



How Shortfall Could Be Filled

- **Activities approved in the 2024 Plan**
  - **Fall Indexed REC procurement**
  - **Two Indexed REC procurements in 2025**
  - **Annual blocks of capacity for the Illinois Shines Program**
- **2026 Plan will be approved in February 2026**
  - **Will include procurements and program activities for 2026 and 2027**
  - **Process repeats on a biennial cycle**

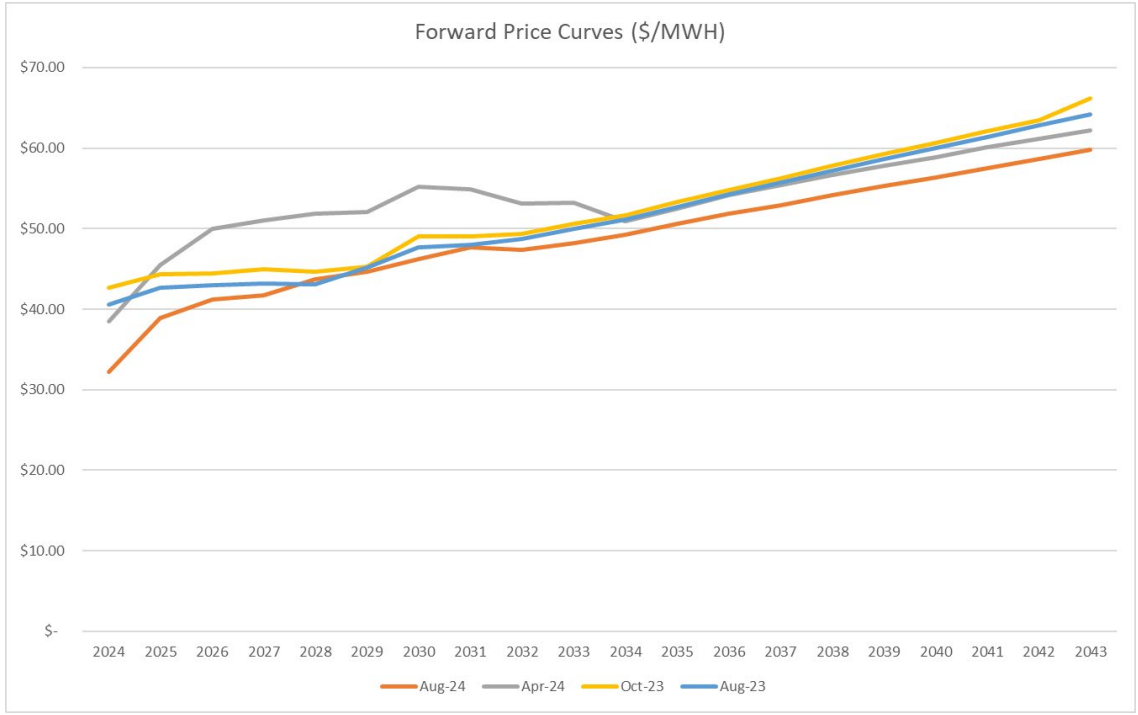


How the IPA Develops RPS Budget Estimate

- **RECs under contract**
  - **2010 LTPPAs, FEJA utility-scale procurements, Illinois Shines all include set REC prices**
    - Illinois Shines projects under development are assumed to be energized 18 months after receiving REC contract for DG; 2 years for community solar.
  - **Indexed REC Procurements**
    - Assumed to be energized 3 years after receiving REC contract
    - REC price modeled using forward price curve
      - Utilizes 20 year forward price data from EOX and Argus
  - **Other Expenses**
    - $50 million/year set aside for the Illinois Solar for All Program
    - Set aside for job training program funding ($10 million every three years through 2027-2028)
    - Administrative Expenses
- **2024 Plan Assumptions**
  - **Plan includes targets and schedule for Indexed REC procurements and annual program size (in MW) for Illinois Shines Program**
  - **Assumes that procurement and program targets will be filled and RECs under contract will increase**
  - **Illinois Shines REC prices assume annual 4% decrease in prices**
  - **Indexed REC prices based on recent procurement strike price and the forward price curve**
- **Future Plans**
  - **Assumes ongoing levels of activity similar to the 2024 Plan for each two-year plan starting with the 2026 Plan; some scaling back starting in 2030 Plan to align with meeting RPS targets**

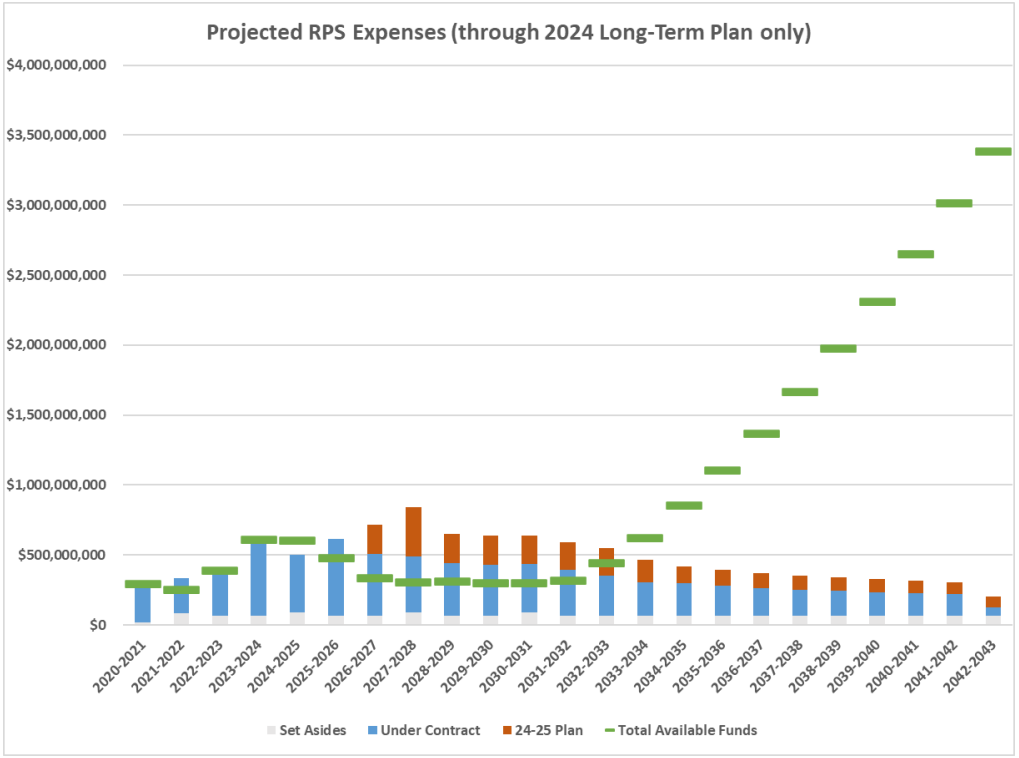
Key Unknowns for Budget Modeling

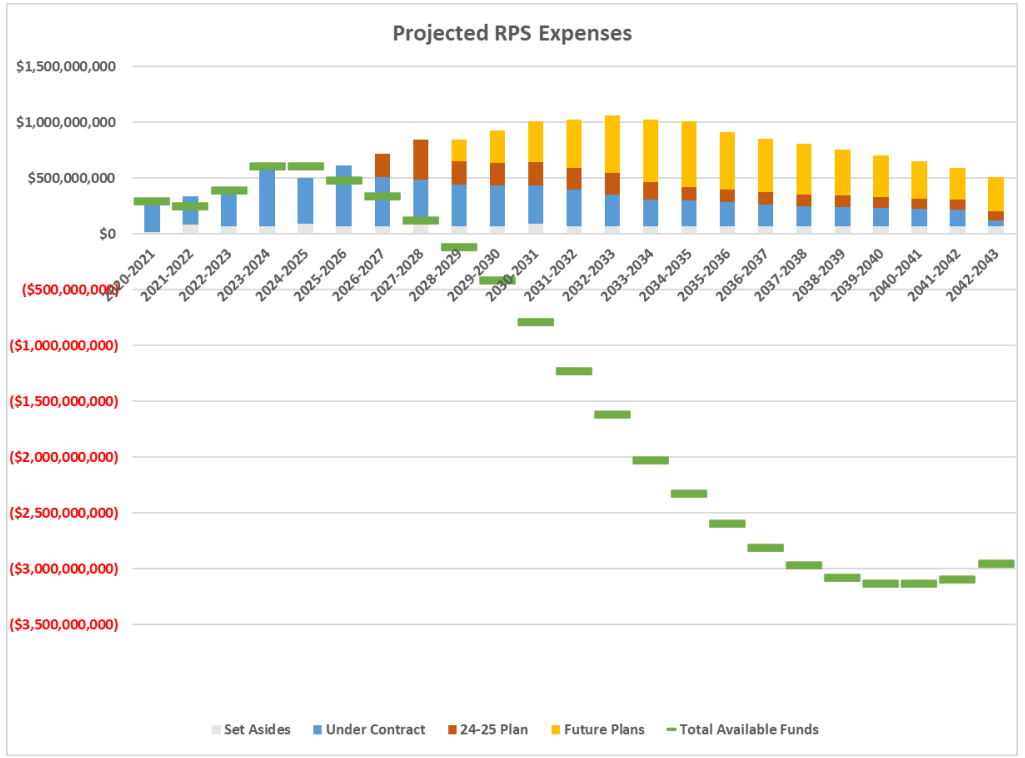
- **Forward Price Curve Changes**
  - **Forward prices have been falling**
  - **Roughly $4/MWH decline since April**
    - ~340 million Indexed RECs expected to be delivered through 2040 (assuming procurement targets met), a $1.2 billion impact on projected future expenditures
- **Development timelines**
  - **REC delivery start dates based on assumed energization timelines**
- **Future REC prices for Illinois Shines**
  - **Residential projects shifting to supply only net metering**
  - **How will future electricity prices impact net metering value?**
  - **How will smart inverter rebates impact the value proposition for solar projects?**
  - **What will be ongoing trends in equipment, labor, sales costs?**
  - **4% annual decline assumption may need to be revisited**
- **Large Customer Self-Direct Program**
  - **Large customers (over 10 MW aggregate demand) can self-procure RECs and receive a reduction on their RPS charges**
  - **How large will program grow?**
  - **Will there be changes in the methodology for calculating reduction rate that increases impact?**
- **Future Load Growth**
  - **Would increase RPS collections, but also RPS targets**



Two Views of Future Expenditures

- Including projected future plan activities based on extending current levels of activities would result in a peak of a negative $3.1 billion year-end balance in 2039-2040
  - ~$1 Billion higher than projection in 2024 Plan, mostly due to the decrease in the forward price curve
- Looking only at expenses through the 2024 Long-Term Plan, year-end RPS fund balances do not fall below $290 million





- Future RPS Budget Updates will include both projections limited to the 2024 Plan and including future Plans

Total Available Funds =
Year-end balance after collections and expenditures

Options and Issues for Managing the RPS Budget

- **2024 Long-Term Plan**
  - **Targets could be adjusted for competitive procurements in 2025**
  - **Illinois Shines REC pricing update for 2025-2026 will follow methodology established in 2024 Plan but with updated cost inputs**
- **2026 Long-Term Plan update**
  - **Stakeholder feedback in starting in spring/summer 2025**
  - **Adjustments to competitive procurements (including the output of this workshop process)**
  - **Adjustment to Illinois Shines Program size and REC pricing approach**
- **Through legislative changes**
  - **Possible items for consideration**
    - Adjusting RPS collections to ensure sufficient annual funding for contract obligations
    - Updating RPS collection rate to account for inflation
    - Separation of funding streams
    - Adjustments to incentive mechanisms for distributed generation and community solar
    - Changes to procurement design for utility-scale projects
    - Recalibration of the Large Customer Self-Direct Program
    - What else?

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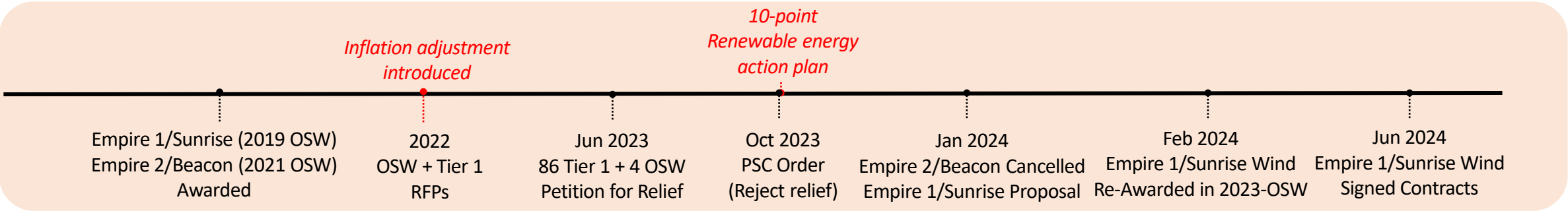
Comparing Other States' Mechanisms for REC contracts

Comparing Other States' Mechanisms for REC Contracts

I. New York
II. New Jersey
III. Massachusetts
IV. Connecticut
V. Rhode Island

New York

- Currently does not allow for post-award negotiation in their procurements
- **Procurement challenges**
  - Had multiple offshore wind awards and land-based projects terminate contracts since 2023
  - ACE NY represented 86 land-based projects, Empire/Beacon and Sunrise Wind represented 4 OSW Projects
- **Procurement Reforms (applicable to offshore wind and land-based renewables)**
  - NY PSC denied petition seeking financial relief
  - Governor enacted 10-point Action Plan to accelerate rebidding process
    - Action 3 focuses on the rebidding process where NYSERDA announced launch of an accelerated renewable energy procurement process for both offshore and onshore renewable energy projects, aiming to backfill any contracted projects which are terminated. The process guided by core principles, includes prioritizing competition, simplifying bid requirements, incorporating inflation indexing, applying critical labor protections and collaborating with industry to optimize the accelerated procurement timing, all while coordinating with ongoing transmission planning initiatives
  - In 2022 Solicitation, Inflation Adjustment Mechanism was introduced for both Large Scale Renewables and for Offshore Wind, with the key difference that large scale renewables it was optional but for OSW it was default



New York

Inflation Adjustment Mechanism for Land Based Renewables

$$REC_{adj} = REC_{bid} \times \left(0.25 + 0.75 \times \frac{Index_T}{Index_B}\right)$$

- REC_{adj} is the Index REC Strike Price or Fixed REC Price after adjustment
- REC_{bid} is the Index REC Strike Price or Fixed REC Price as submitted with the Bid Proposal
- $Index_B$ is the value of the PPI All Commodities index established prior to the Bid Proposal Submission Deadline
- $Index_T$ is the value of the PPI All Commodities index established at the commencement of Construction Activities
- 0.75 is the share of the Index REC Strike Price or Fixed REC Price to which the inflation adjustment will be applied. The remainder of the Index REC Strike Price or Fixed REC Price (25%) will not be adjusted.

New York

Inflation Adjustment Mechanism for Offshore Wind

- **2022 Solicitation**

$$OREC_{adj} = OREC_{bid} \times \left(0.2 + 0.3 \times \frac{Index_{T,Labor}}{Index_{B,Labor}} + 0.25 \times \frac{Index_{T,Fabrication}}{Index_{B,Fabrication}} + 0.10 \times \frac{Index_{T,Steel}}{Index_{B,Steel}} + 0.10 \times \frac{Index_{T,ULSD}}{Index_{B,ULSD}} + 0.05 \times \frac{Index_{T,Copper}}{Index_{B,Copper}}\right)$$

where:

$OREC_{adj}$ is the Index OREC Strike Price or Fixed OREC Price after adjustment

$OREC_{bid}$ is the Index OREC Strike Price or Fixed OREC Price as submitted with the Proposal

$Index_B$ (for each commodity or component) is the price or unitless index at the time of the Proposal Submission Deadline

$Index_T$ (for each commodity or component) is the price or unitless index at the time of the Project's COP approval

- **2024 Solicitation**

$$OREC_{adj} = OREC_{bid} \times \left(0.2 + 0.3 \times \frac{Index_{T,Labor}}{Index_{B,Labor}} + 0.08 \times \frac{Index_{T,Steel}}{Index_{B,Steel}} + 0.07 \times \frac{Index_{T,Fabrication}}{Index_{B,Fabrication}} + 0.03 \times \frac{Index_{T,Copper}}{Index_{B,Copper}} + 0.02 \times \frac{Index_{T,ULSD}}{Index_{B,ULSD}} + 0.15 \times \frac{Index_{T,CPI\ (EU)}}{Index_{B,CPI\ (EU)}} + 0.15 \times \frac{Index_{T,CPI\ (US)}}{Index_{B,CPI\ (US)}}\right)$$

where:

$OREC_{adj}$ is the Index OREC Strike Price or Fixed OREC Price after adjustment

$OREC_{bid}$ is the Index OREC Strike Price or Fixed OREC Price as submitted with the Proposal

$Index_B$ (for each commodity or component) is the price or unitless index published by NYSERDA prior to the Submission Deadline for Offer Pricing

$Index_T$ (for each commodity or component) is the price or unitless index at the time of the Project's Inflation Adjustment Date

New Jersey

- Currently does not allow for post-award negotiation in their procurements
- **Procurement challenges**
  - No demonstrated procurement challenges for land-based renewables and no inflation adjustment mechanism in place
  - Multiple offshore wind contracts terminated in 2023
    - Projects paid $125 million in termination payment
- **Procurement Reforms (only applicable to offshore wind)**
  - Termination of Agreement and opportunity to rebid
  - Inflation Adjustment Mechanism introduced in 2023
    - An Inflation Adjustment will be applied to increase or decrease the Fixed Price Bid price by up to fifteen percent (15%) based on the change in the set of macroeconomic and commodity indices and using the Inflation Adjustment Mechanism specified

New Jersey

Inflation Adjustment Mechanism for Offshore Wind

$$OREC_{inf} = OREC_{base} \times \sum \frac{Index_{M,i}}{Index_{I,i}} \times F_i$$

where:

$OREC_{inf}$ is the First Energy Year OREC price after inflation adjustment at BOEM approval of the COP;

$OREC_{base}$ is the First Energy Year OREC price before inflation adjustment as bid;

$Index_{M,i}$ is the average index value for price component *i* over the six months before and six months after BOEM approval of the COP;

$Index_{I,i}$ is the average index value for price component *i* over the twelve months prior to the Application Submission Deadline;[36] and

F_i is the fraction of the OREC price associated with price component *i*, such that $\sum F_i = 1$.

The change in $OREC_{base}$ due to the inflation adjustment will be limited to 15%, that is, it will be neither increased nor decreased more than 15%, even if a larger adjustment is indicated by the index values. The indices may be unitless values or commodity prices. The indices that will be included in the adjustment formula, and their *F* values, are shown in Table 2.

New Jersey

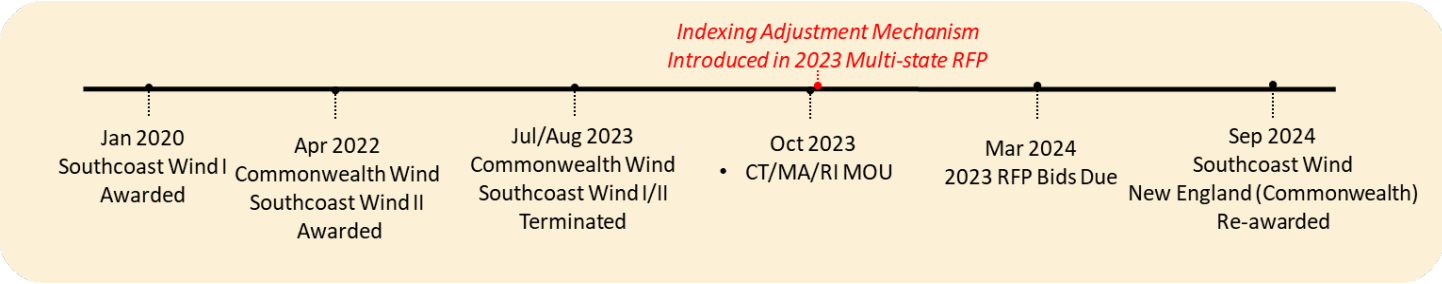
Inflation Adjustment Mechanism for Offshore Wind

Table 2. Components and Indices for Inflation Adjustment

Component	*F* Value[37]	Index
Fixed	0.2	N/A
Labor (unitless index)	0.3	BLS Employment Cost Trends Data Series CES2000000003 Average hourly earnings of all employees, construction, seasonally adjusted
Fabrication (unitless index)	0.3	BLS PPI Data Series PCU811310811310 PPI industry data for Commercial machinery repair and maintenance, not seasonally adjusted
Steel (unitless index)	0.1	BLS PPI Data Series PCU331110331110 PPI industry data for Iron and steel mills and ferroalloy manufacturing, not seasonally adjusted
Fuel (US$ per barrel)	0.1	U.S. Energy Information Administration WTI-Cushing Oklahoma, daily price for the last trading day of the month

Massachusetts

- Currently does not allow for post-award negotiation in their procurements
- **Procurement challenges**
  - Multiple offshore wind contracts terminated in 2023
    - Projects paid over $108 million in termination payments
- **Procurement Reforms (only applicable to offshore wind)**
  - Termination of Agreement and opportunity to rebid
  - Indexing Adjustment Mechanism introduced in 2024
    - The Indexed Price Bid is an optional alternative price; bidders are not required to offer an Indexed Price Bid on the Bid Due Date. Bidders must submit a fixed (non-indexed) price bid corresponding to each Indexed Price Bid
    - The Indexed Price Bid may only include changes to the project price and cannot alter other aspects of the proposal
    - Indexing Adjustment is a one-time adjustment to the bid price that occurs one year following the final DPU approval of the contract (Adjustment Date)
    - An Indexing Adjustment will be applied to increase or decrease the Indexed Price Bid price by up to fifteen percent (15%)



Massachusetts

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Inflation Adjustment Mechanism for Offshore Wind

$$PPA_{final} = PPA_{base} \times \left[0.25 + \left(0.30 \times \frac{CPI_f}{CPI_i}\right) + \left(0.12 \times \frac{Steel_f}{Steel_i}\right) + \left(0.06 \times \frac{Copper_f}{Copper_i}\right) + \left(0.07 \times \frac{Fuel_f}{Fuel_i}\right) + \left(0.11 \times \frac{Labor_f}{Labor_i}\right) + \left(0.09 \times \frac{Fab_f}{Fab_i}\right) + \left(0.67 \times \left(Interest_f - Interest_i\right)\right)\right]$$

Where:

PPA_{final} is the PPA price after applying the Indexing Adjustment on the Adjustment Date ($/MWh)

PPA_{base} is the PPA price as bid on the Bid Due Date ($/MWh)[5]

CPI_f is the final value of the Consumer Price Index (CPI) (unitless)

CPI_i is the initial value of the Consumer Price Index (CPI) (unitless)

$Steel_f$ is the final value of the index for Steel (unitless)

$Steel_i$ is the initial value of the index for Steel (unitless)

$Copper_f$ is the final value of the index for Copper (unitless)

$Copper_i$ is the initial value of the index for Copper (unitless)

$Fuel_f$ is the initial value of the index price for Fuel ($/gallon)

$Fuel_i$ is the initial value of the index price for Fuel ($/gallon)

$Labor_f$ is the final value of the index for Labor (unitless)

$Labor_i$ is the initial value of the index for Labor (unitless)

Fab_f is the final value of the index for Fabrication (unitless)

Fab_i is the initial value of the index for Fabrication (unitless)

$Interest_f$ is the final value of the index rate for Interest (percent)

$Interest_i$ is the initial value of the index rate for Interest (percent)

Table 1. Data Sources for Indices

Index	Data Source
CPI	U.S. BLS, Data Series CUUR0000SA0L1E, All items less food and energy in U.S. city average, all urban consumers, not seasonally adjusted
Steel	U.S. BLS, PPI, Data Series PCU331110331110, Iron and steel mills and ferroalloy manufacturing, not seasonally adjusted
Copper	U.S. BLS, PPI, Data Series WPU102403, Metals and metal products – Secondary copper, alloyed and unalloyed, not seasonally adjusted
Fuel	U.S. EIA, Petroleum & other liquids, New York Harbor Ultra-Low Sulfur No 2 Diesel, average of daily prices for each trading day of the month
Labor	U.S. BLS, Data Series CIU2020000000000I, Wages and salaries for Private Industry workers in All industries and occupations, not seasonally adjusted (Quarterly data)
Fabrication	U.S. BLS, Data Series PCU811310811310, Commercial machinery repair and maintenance, not seasonally adjusted
Interest	FRED St. Louis Federal Reserve, U.S. Treasury Securities at 10-Year Constant Maturity, Quoted on an Investment Basis (DGS10), average of daily quoted prices for the month

Connecticut

- Currently does not allow for post-award negotiation in their procurements
- **Procurement challenges**
  - Had one offshore wind award terminated in 2023
    - Project paid $16 million in termination payment
- **Procurement Reforms (only applicable to offshore wind)**
  - Termination of Agreement and opportunity to rebid
  - RI, CT and MA held joint procurement in March 2024
  - Indexing Adjustment Mechanism introduced in March 2024 RFP
    - Option to bid fixed price or an Indexed Bid Price which will be subject to a one-time Indexing Adjustment, to take place on a specified Adjustment Date
    - If a Bidder elects to propose an Indexed Price Bid, Bidder must also propose at least one price that is not an Indexed Price Bid but is the same in all other respects as the Indexed Price Bid
    - An Indexing Adjustment will be applied to increase or decrease the Indexed Price Bid price by up to fifteen percent (15%) based on the change in the set of macroeconomic and commodity indices and using the Indexing Adjustment Mechanism specified.

Connecticut

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Inflation Adjustment Mechanism for Offshore Wind

$$PPA_{final} = PPA_{base} \times \left[0.25 + \left(0.30 \times \frac{CPI_f}{CPI_i}\right) + \left(0.12 \times \frac{Steel_f}{Steel_i}\right) + \left(0.06 \times \frac{Copper_f}{Copper_i}\right) + \left(0.07 \times \frac{Fuel_f}{Fuel_i}\right) + \left(0.11 \times \frac{Labor_f}{Labor_i}\right) + \left(0.09 \times \frac{Fab_f}{Fab_i}\right) + \left(0.67 \times \left(Interest_f - Interest_i\right)\right)\right]$$

Where:

PPA_{final} is the PPA price after applying the Indexing Adjustment on the Adjustment Date ($/MWh)

PPA_{base} is the PPA price as bid on the Bid Due Date ($/MWh)[22]

CPI_f is the final value of the Consumer Price Index (CPI) (unitless)

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$Steel_f$ is the final value of the index for Steel (unitless)

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$Labor_i$ is the initial value of the index for Labor (unitless)

Fab_f is the final value of the index for Fabrication (unitless)

Fab_i is the initial value of the index for Fabrication (unitless)

$Interest_f$ is the final value of the index rate for Interest (percent)

Rhode Island

- Currently does not allow for post-award negotiation in their procurements
- **Procurement challenges**
  - Rhode Island Energy (EDC) decided not to proceed with the single offshore wind bid received in 2023

- **Procurement Reforms (only applicable to offshore wind)**
  - RI, CT and MA held joint procurement in March 2024
  - Indexing Adjustment Mechanism introduced in March 2024 RFP
    - Must submit fixed price bid with an option to submit a price tethered to CPI instrument, allowing prices to increase or decrease until Financial Closing Date (FCD)
    - The maximum adjustment is 16%, and the smaller of the two prices (CPI-adjusted price, or price adjusted by 16%) is selected to be the final price at COD
    - Option to submit non-conforming price in addition to the conforming price with the condition that any pricing formula must be symmetrical. In other words, if an index is used, prices must be allowed to increase or decrease in a symmetrical manner relative to a base price, and; there must be a price cap for each year under the proposed contract

Rhode Island

Inflation Adjustment Mechanism for Offshore Wind

- CPI instrument is BLS-sourced. All items in U.S. city average, all urban consumers, not seasonally adjusted

$$Price\ of\ Energy\ at\ COD = Price\ of\ Energy\ at\ PPA * MIN[\frac{CPI_{FCD}}{CPI_{PPA}}, 1.16]$$

$$Price\ of\ RECs\ at\ COD = Price\ of\ RECs\ at\ PPA * MIN[\frac{CPI_{FCD}}{CPI_{PPA}}, 1.16]$$

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Q&A